DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	1	417

(2) MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

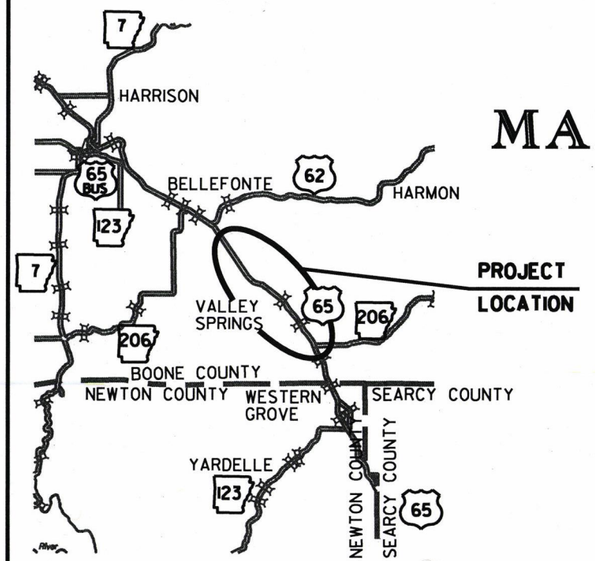
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)

BOONE COUNTY

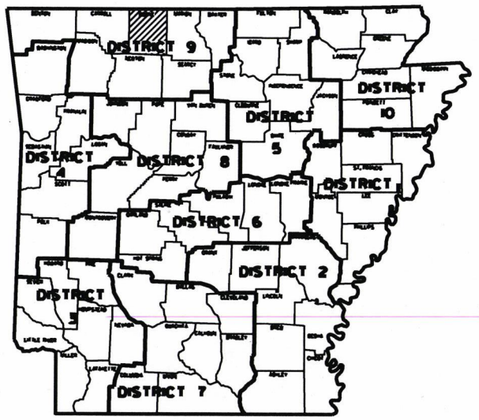
ROUTE 65 SECTION 2

FED. AID PROJ. 9991

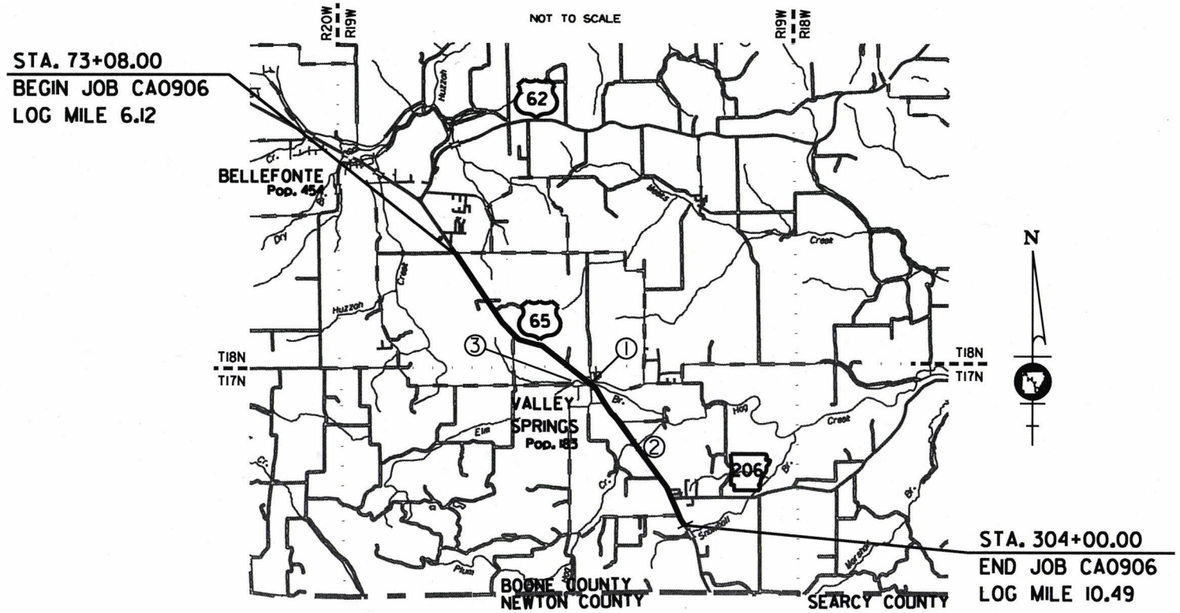
JOB CA0906



VICINITY MAP



ARK. HWY. DIST. NO. 9



BRIDGE CONSTRUCTION DATA

(1) STA. 201+51.50 BR. END
BRIDGE NO. 07341
•160'-0" CONT. COMP. W-BEAM UNIT (50'-60'-50')
58'-0" CLEAR ROADWAY
45° LT. FORWARD SKEW
•163'-0" TOTAL BRIDGE LENGTH
STA. 203+14.34 BR. END
•DIMENSIONS ALONG TANGENT.

(2) STA. 253+73.85 BR. END
BRIDGE NO. 07342
200'-0" CONT. COMP. W-BEAM UNIT (60'-80'-60')
75'-0" CLEAR ROADWAY
30° LT. FORWARD SKEW
202'-6" TOTAL BRIDGE LENGTH
STA. 255+76.35 BR. END

STRUCTURES OVER 20'-0" SPAN

(3) STA. 14+22 IN PLACE
30" X 30' TRIP. R.C. PIPE CULVERT
REMOVE
STA. 14+24 CONSTRUCT
8' X 4' X 56' QUINT. R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q10 = 1635 CFS D.A. = 3.91 SQ. MI.
SPAN = 45.23'

DESIGN TRAFFIC DATA

DESIGN YEAR----------2037
2017 ADT----------8,900
2037 ADT----------12,000
2037 DHV----------1,300
DIRECTIONAL DISTRIBUTION--------0.60
TRUCKS----------9%
DESIGN SPEED---------- 45 MPH (URBAN)
60 MPH (RURAL)

CERTIFICATE OF AUTHORIZATION
BURNS & McDONNELL ENGINEERING COMPANY, INC.
No. 17
ARKANSAS-ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

LOCATION	LATITUDE	LONGITUDE
BEGIN PROJECT	36°10' 49"	93°01' 23"
MID-POINT OF PROJECT	36°09' 30"	92°59' 46"
END PROJECT	36°07' 58"	92°58' 25"

LENGTH COMPUTED ALONG ℄ HWY. 65

GROSS LENGTH OF PROJECT	23,092.00 FEET	4.373	MILES
NET LENGTH OF ROADWAY	22,726.66 FEET	4.304	MILES
NET LENGTH OF BRIDGES	365.34 FEET	0.069	MILES
NET LENGTH OF PROJECT	23,092.00 FEET	4.373	MILES

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) INDEX OF SHEETS AND STANDARD DRAWINGS

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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. 12711
STEVEN R. BEAM, JR.
7-6-17

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	2-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	2-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	3-24-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	1-17-17
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	3-24-16
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	2-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
CPTJ-6A	TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)	5-25-06
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	2-27-14
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	8-22-02
FPC-9M	DETAILS OF DROP INLETS (TYPE MO)	8-22-02
GR-8	GUARD RAIL DETAILS	7-14-10
GR-9	GUARD RAIL DETAILS	4-17-08
GR-9A	GUARD RAIL DETAILS	4-17-08
GR-10	GUARD RAIL DETAILS	7-14-10
GR-10A	GUARD RAIL DETAILS	7-14-10
GRT-1	GUARD RAIL DETAILS	7-14-10
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	1-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	2-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	2-27-14
PM-1	PAVEMENT MARKING DETAILS	6-01-17
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	7-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
SI-1	DETAILS OF SPECIAL ITEMS	9-12-13
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	4-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	2-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
TEC-1	TEMPORARY EROSION CONTROL DEVICES	12-15-11
TEC-2	TEMPORARY EROSION CONTROL DEVICES	6-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-3	CHAIN LINK FENCE	11-17-10
WF-4	WIRE FENCE TYPE C AND D	8-22-02
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05

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INDEX OF SHEETS AND STANDARD DRAWINGS

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8/22/17				JOB NO.		CA0906	3	417

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

GENERAL NOTES

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

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
100-3_____	CONTRACTOR'S LICENSE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1_____	AGGREGATE BASE COURSE
400-1_____	TACK COATS
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB CA0906_	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0906_	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0906_	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0906_	CAVE DISCOVERY
JOB CA0906_	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB CA0906_	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB CA0906_	CULVERT CLEAN OUT
JOB CA0906_	DELAY IN RIGHT OF WAY OCCUPANCY
JOB CA0906_	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB CA0906_	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0906_	DRILLED SHAFT FOUNDATIONS
JOB CA0906_	ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM
JOB CA0906_	EMPLOYMENT REPORTING
JOB CA0906_	EXPLORATORY HOLES
JOB CA0906_	EXTENSION FOR PIPE CULVERTS
JOB CA0906_	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB CA0906_	FURNISH AND OPERATION OF MOBILE SPEED NOTIFICATION SYSTEM
JOB CA0906_	GOALS FOR ARKANSAS OWNED MINORITY BUSINESS ENTERPRISE
JOB CA0906_	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0906_	MAINTENANCE OF TRAFFIC
JOB CA0906_	MANDATORY ELECTRONIC CONTRACT
JOB CA0906_	MINERAL AGGREGATE BACKFILL
JOB CA0906_	NESTING SITES OF MIGRATORY BIRDS
JOB CA0906_	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB CA0906_	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB CA0906_	PARTNERING REQUIREMENTS
JOB CA0906_	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB CA0906_	PLASTIC PIPE
JOB CA0906_	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB CA0906_	PROTECTION OF WATER QUALITY AND WETLANDS
JOB CA0906_	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB CA0906_	RESTRAINING CONDITIONS
JOB CA0906_	SHORING
JOB CA0906_	SHORING FOR CULVERTS
JOB CA0906_	SHORING FOR REINFORCED CONCRETE BOX CULVERTS
JOB CA0906_	SITE USE (A + C METHOD) - CALENDAR DAY CONTRACT
JOB CA0906_	SOIL STABILIZATION
JOB CA0906_	STORM WATER POLLUTION PREVENTION PLAN
JOB CA0906_	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0906_	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB CA0906_	UTILITY ADJUSTMENTS
JOB CA0906_	VALUE ENGINEERING
JOB CA0906_	WARM MIX ASPHALT
JOB CA0906_	WATER POLLUTION CONTROL
JOB CA0906_	WELLHEAD PROTECTION

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				JOB NO.		CA0906	4	417

(2) TYPICAL SECTIONS OF IMPROVEMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

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.

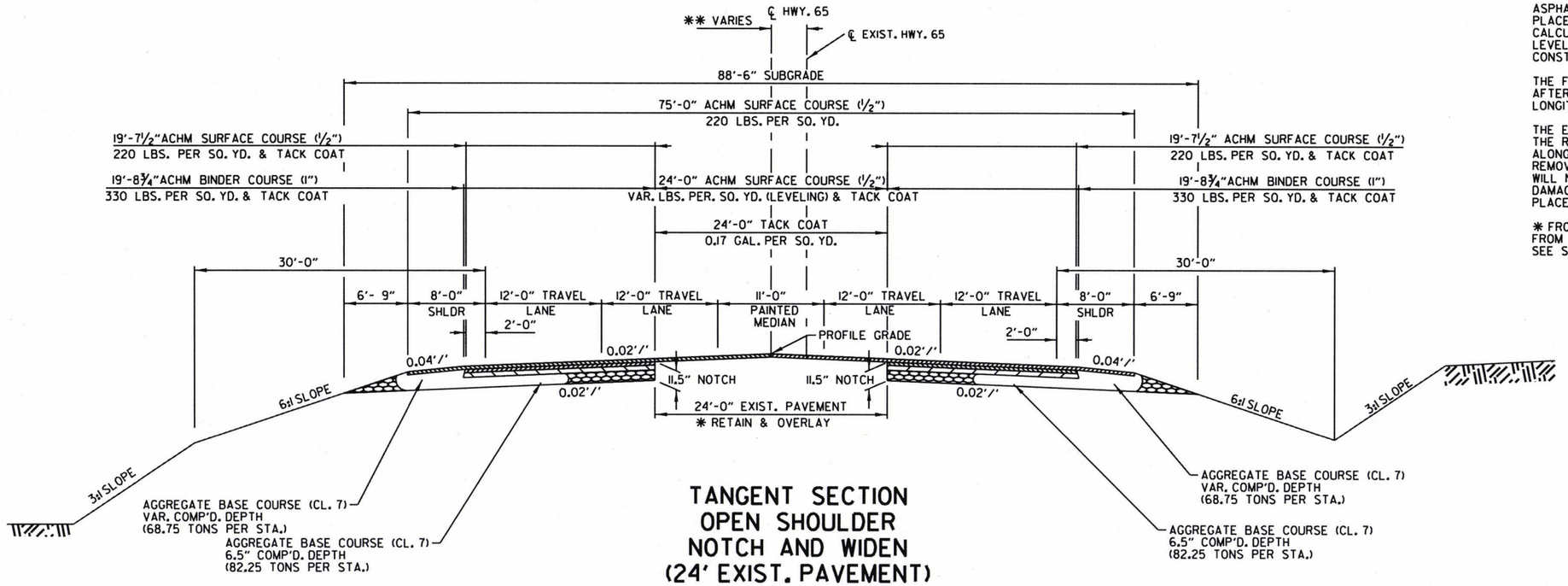
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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.

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

THE 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.

* FROM STA. 73+08 TO STA. 74+08, A PAVING TRANSITION FROM MILL & OVERLAY TO RETAIN & OVERLAY IS REQUIRED. SEE SPECIAL DETAIL FOR PAVING TRANSITION.



TANGENT SECTION
OPEN SHOULDER
NOTCH AND WIDEN
(24' EXIST. PAVEMENT)

STA. 73+08.00 TO STA. 111+25.00
STA. 219+96.50 TO STA. 250+00.00

** VARIES BETWEEN:
0.0' TO 1.0' FROM STA. 73+08.00 TO STA. 111+25.00
0.0' TO 2.0' FROM STA. 219+96.50 TO STA. 235+00.00

** TRANSITION:
1.50' TO 12.25' FROM STA. 235+00.00 TO STA. 250+00.00

NOTE: ACHM WIDTHS AND CLASS 7 RATES WILL VARY WHEN ℄ HWY. 65 VARIES FROM ℄ EXIST. HWY. 65.

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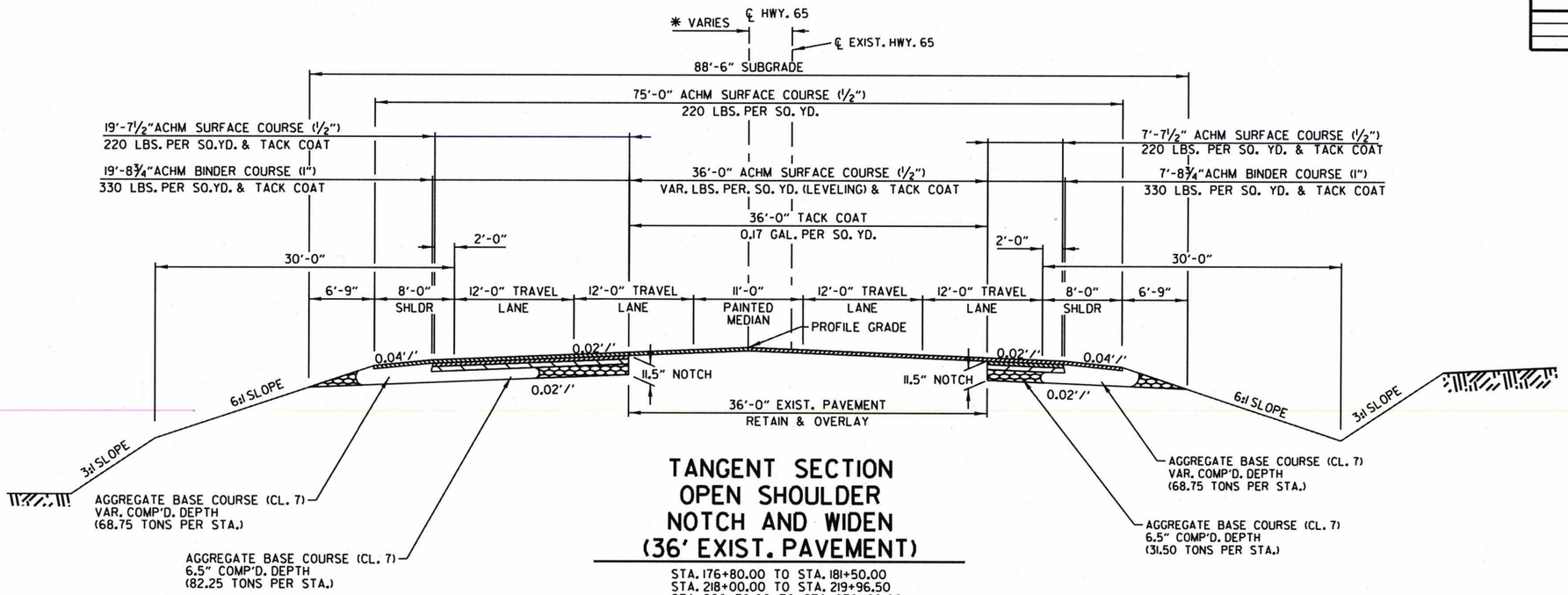
TYPICAL SECTIONS OF IMPROVEMENTS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	5	417

(2) TYPICAL SECTIONS OF IMPROVEMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17



TANGENT SECTION OPEN SHOULDER NOTCH AND WIDEN (36' EXIST. PAVEMENT)

STA. 176+80.00 TO STA. 181+50.00
STA. 218+00.00 TO STA. 219+96.50
STA. 260+30.00 TO STA. 270+60.00
STA. 281+00.00 TO STA. 285+90.56
STA. 302+00.00 TO STA. 304+00.00
TRANSITION STA. 304+00.00 TO STA. 306+00.00

NOTES:

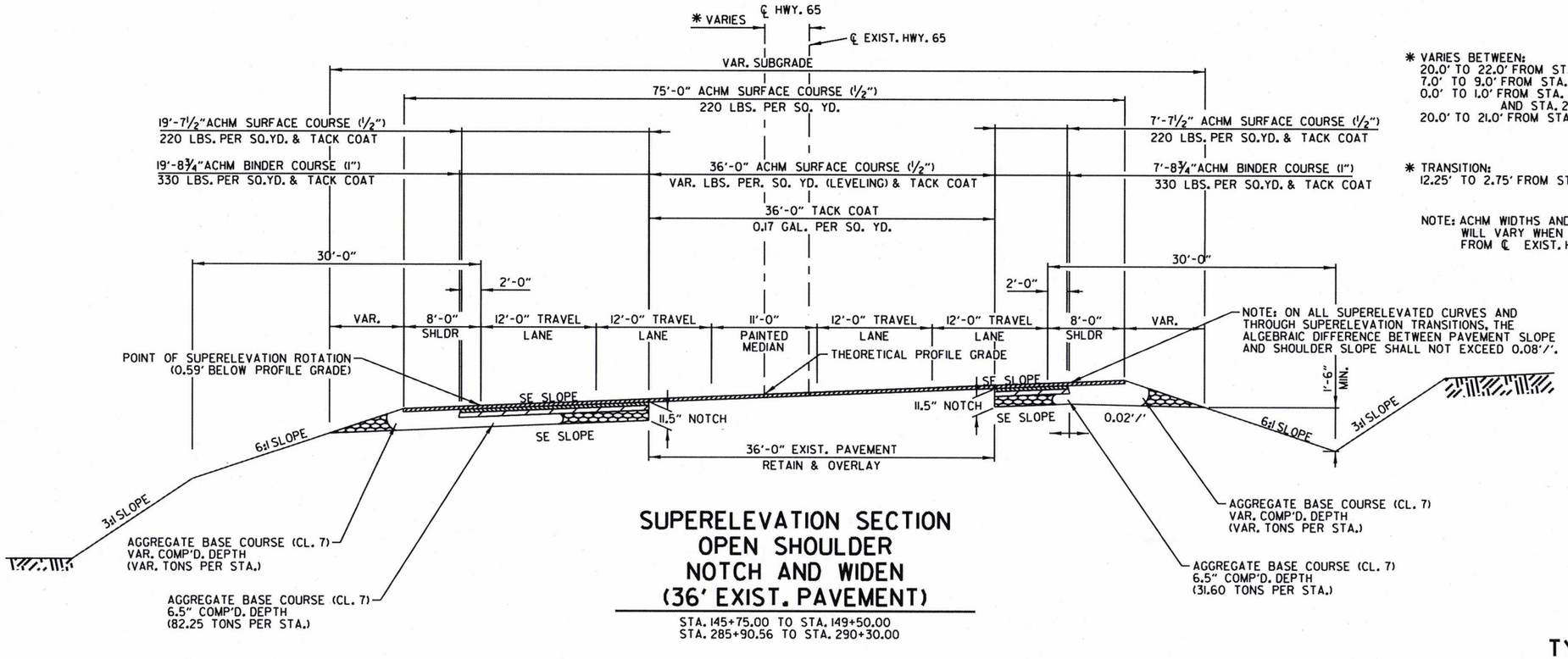
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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.

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.

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

THE 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.



SUPERELEVATION SECTION OPEN SHOULDER NOTCH AND WIDEN (36' EXIST. PAVEMENT)

STA. 145+75.00 TO STA. 149+50.00
STA. 285+90.56 TO STA. 290+30.00

* VARIES BETWEEN:
20.0' TO 22.0' FROM STA. 145+75.00 TO STA. 149+50.00
7.0' TO 9.0' FROM STA. 176+80.00 TO STA. 181+50.00
0.0' TO 1.0' FROM STA. 218+00.00 TO STA. 219+96.50
AND STA. 281+00.00 TO STA. 290+30.00
20.0' TO 21.0' FROM STA. 302+00.00 TO STA. 306+00.00

* TRANSITION:
12.25' TO 2.75' FROM STA. 260+30.00 TO STA. 270+60.00

NOTE: ACHM WIDTHS AND CLASS 7 RATES WILL VARY WHEN ℄ HWY. 65 VARIES FROM ℄ EXIST. HWY. 65.

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

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TYPICAL SECTIONS OF IMPROVEMENTS

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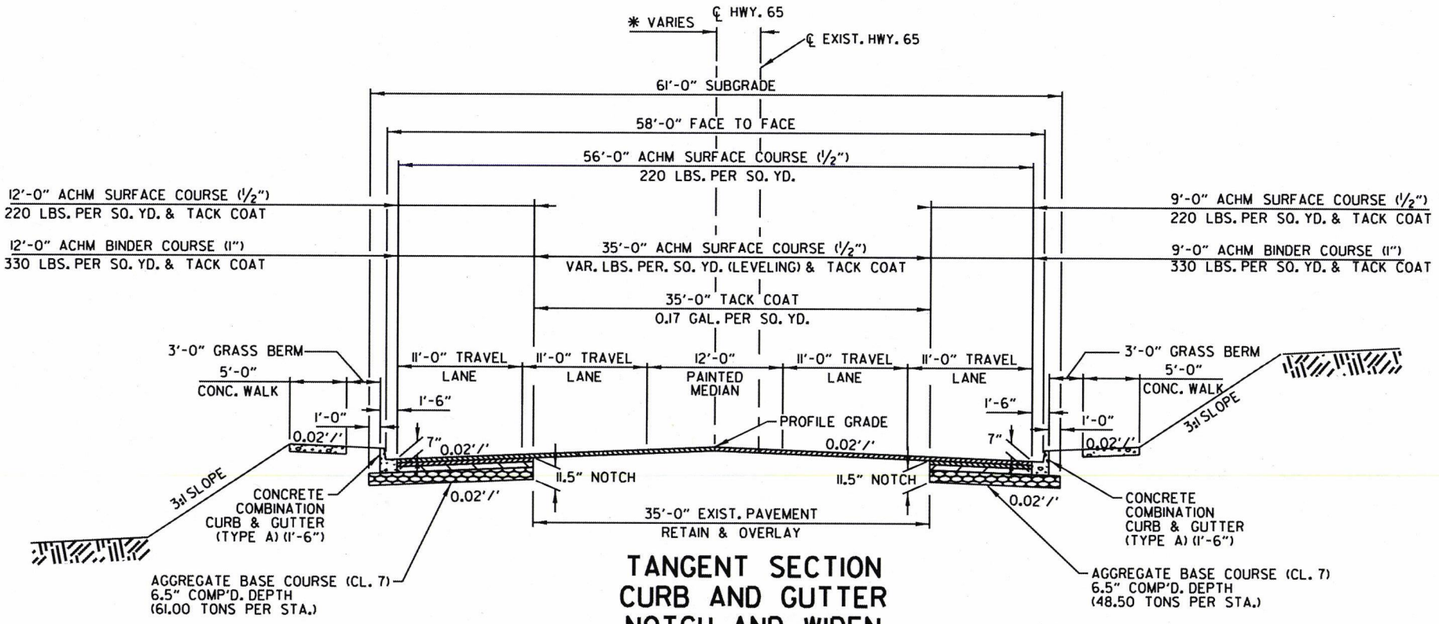
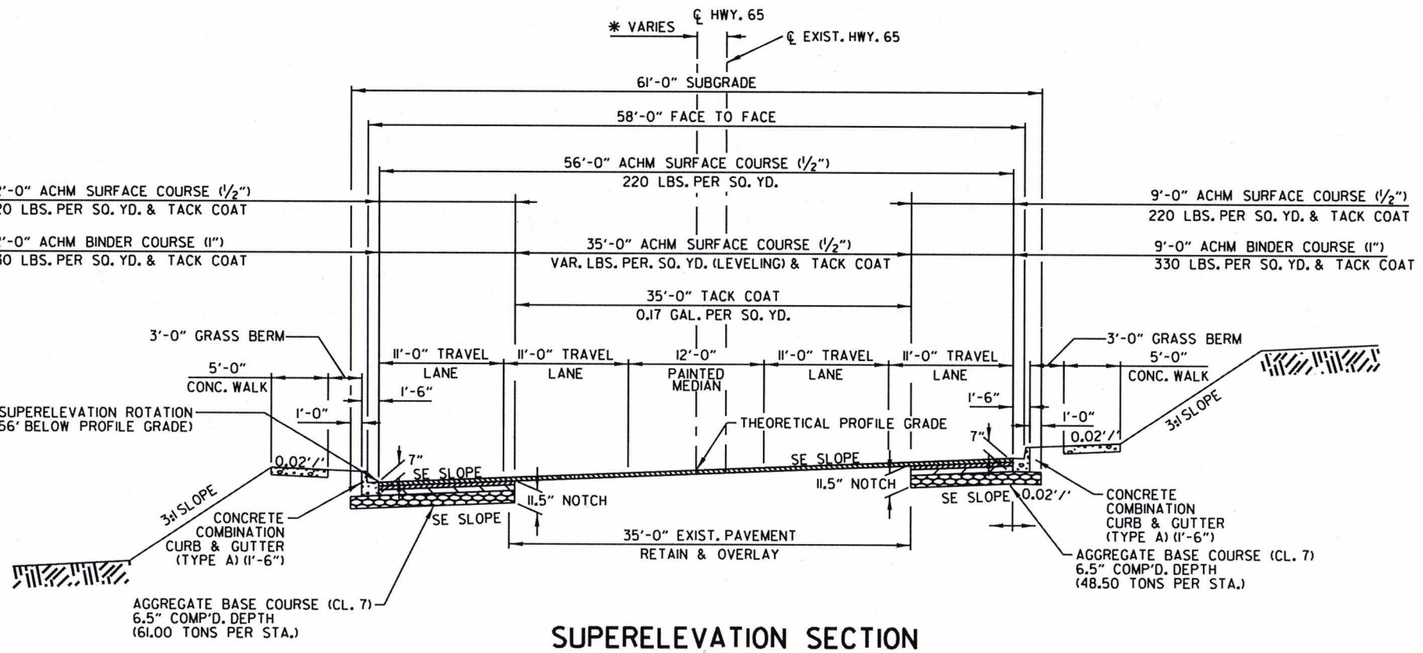
				6	ARK.			
				JOB NO.		CA0906	6	417
				(2)	TYPICAL SECTIONS OF IMPROVEMENTS			



TANGENT SECTION CURB AND GUTTER NOTCH AND WIDEN (35' EXIST. PAVEMENT)

STA. 181+50.00 TO STA. 196+10.00
STA. 211+46.08 TO STA. 218+00.00



SUPERELEVATION SECTION CURB AND GUTTER NOTCH AND WIDEN (35' EXIST. PAVEMENT)

STA. 208+70.00 TO STA. 211+46.08

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12717
STEVEN R. BEAM, JR.
7-6-17

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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PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND 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.

* VARIES BETWEEN:
0.0' TO 2.0' FROM STA. 189+90.00 TO 193+00.00
0.0' TO 1.0' FROM STA. 208+70.00 TO STA. 218+00.00

* TRANSITIONS:
7.50' TO 2.50' FROM STA. 181+50.00 TO STA. 189+90.00
2.00' TO 4.75' FROM STA. 193+00.00 TO STA. 196+10.00

NOTE: ACHM WIDTHS AND CLASS 7 RATES WILL VARY WHEN ℄ HWY. 65 VARIES FROM ℄ EXIST. HWY. 65.

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TYPICAL SECTIONS OF IMPROVEMENTS

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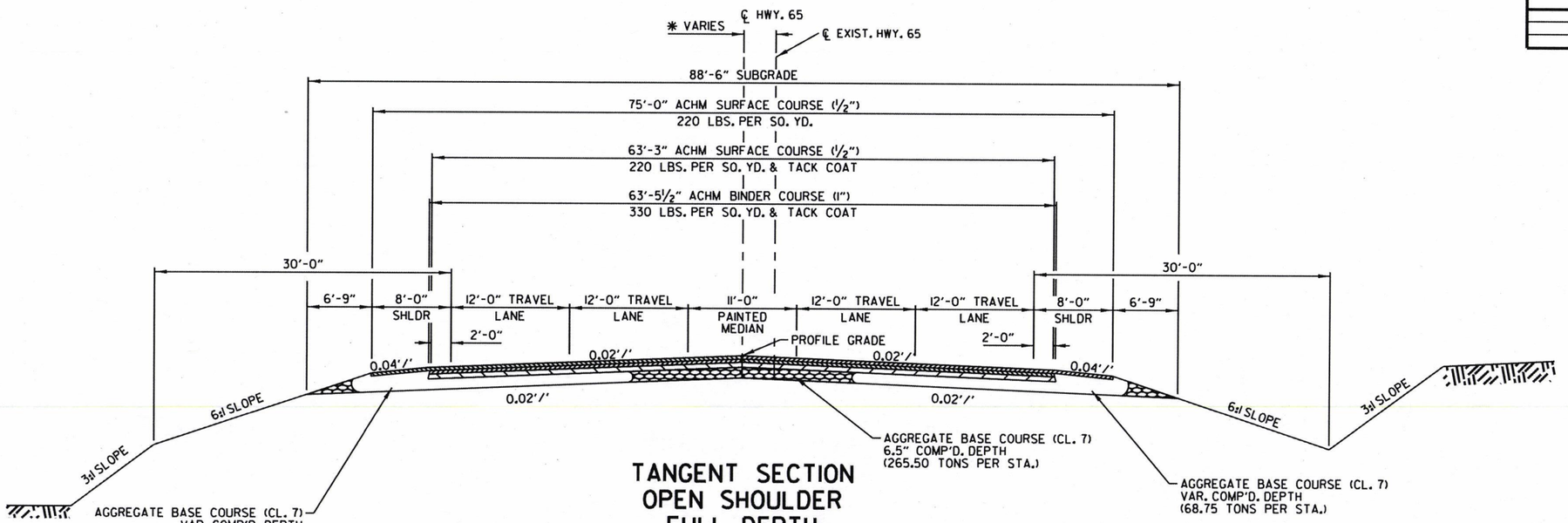
(2) TYPICAL SECTIONS OF IMPROVEMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17



TANGENT SECTION OPEN SHOULDER FULL DEPTH

STA. 111+25.00 TO STA. 118+33.88
STA. 132+86.14 TO STA. 133+21.84
STA. 149+82.46 TO STA. 150+70.13
STA. 166+03.14 TO STA. 176+80.00
STA. 250+00.00 TO STA. 260+30.00
STA. 270+60.00 TO STA. 281+00.00
STA. 298+44.81 TO STA. 302+00.00

NOTES:

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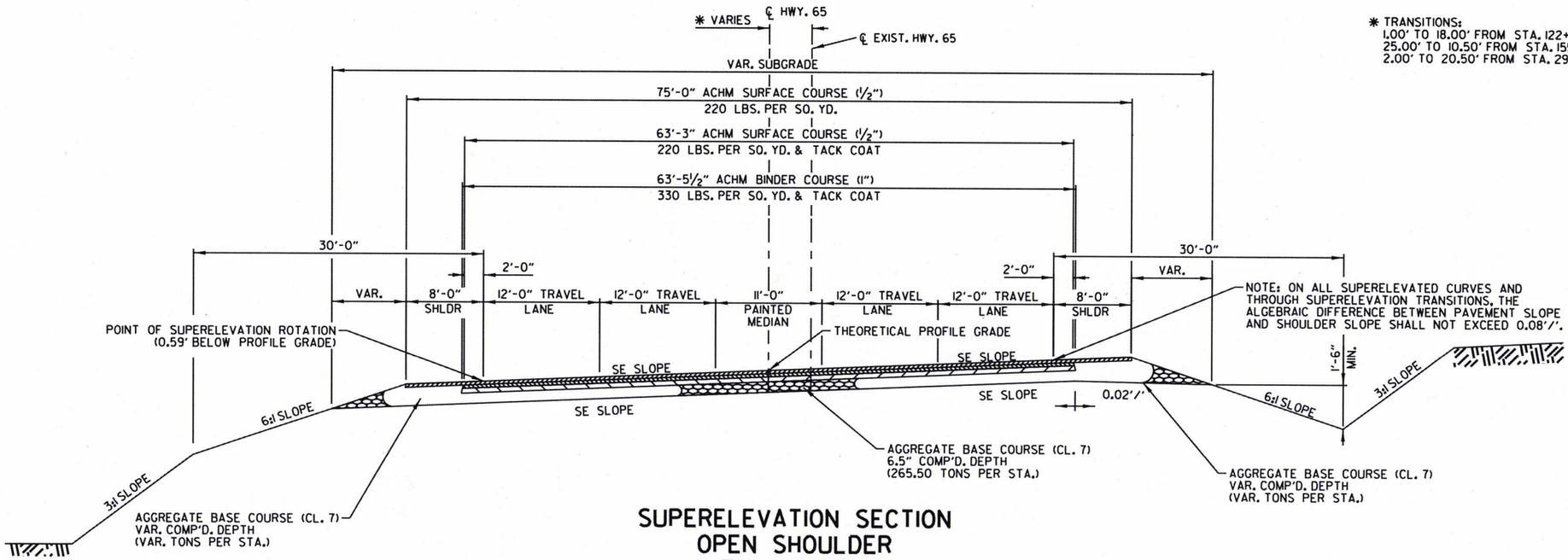
* VARIES BETWEEN:
0.0' TO 2.0' FROM STA. 111+25.00 TO STA. 122+75.00
18.0' TO 20.0' FROM STA. 130+00.00 TO STA. 145+75.50
22.0' TO 24.0' FROM STA. 149+50.00 TO STA. 153+50.00
24.0' TO 25.0' FROM STA. 153+50.00 TO STA. 155+50.00
9.0' TO 11.0' FROM STA. 162+00.00 TO STA. 176+80.00
12.0' TO 13.0' FROM STA. 250+00.00 TO STA. 260+30.00
1.0' TO 3.0' FROM STA. 270+60.00 TO STA. 272+50.00
0.0' TO 1.0' FROM STA. 272+50.00 TO STA. 281+00.00

* TRANSITIONS:
1.00' TO 18.00' FROM STA. 122+75.00 TO STA. 130+00.00
25.00' TO 10.50' FROM STA. 155+50.00 TO STA. 162+00.00
2.00' TO 20.50' FROM STA. 290+30.00 TO STA. 302+00.00



SUPERELEVATION SECTION OPEN SHOULDER FULL DEPTH

STA. 118+33.88 TO STA. 132+86.14
STA. 133+21.84 TO STA. 145+75.00
STA. 149+50.00 TO STA. 149+82.46
STA. 150+70.13 TO STA. 166+03.14
STA. 290+30.00 TO STA. 298+44.81

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TYPICAL SECTIONS OF IMPROVEMENTS

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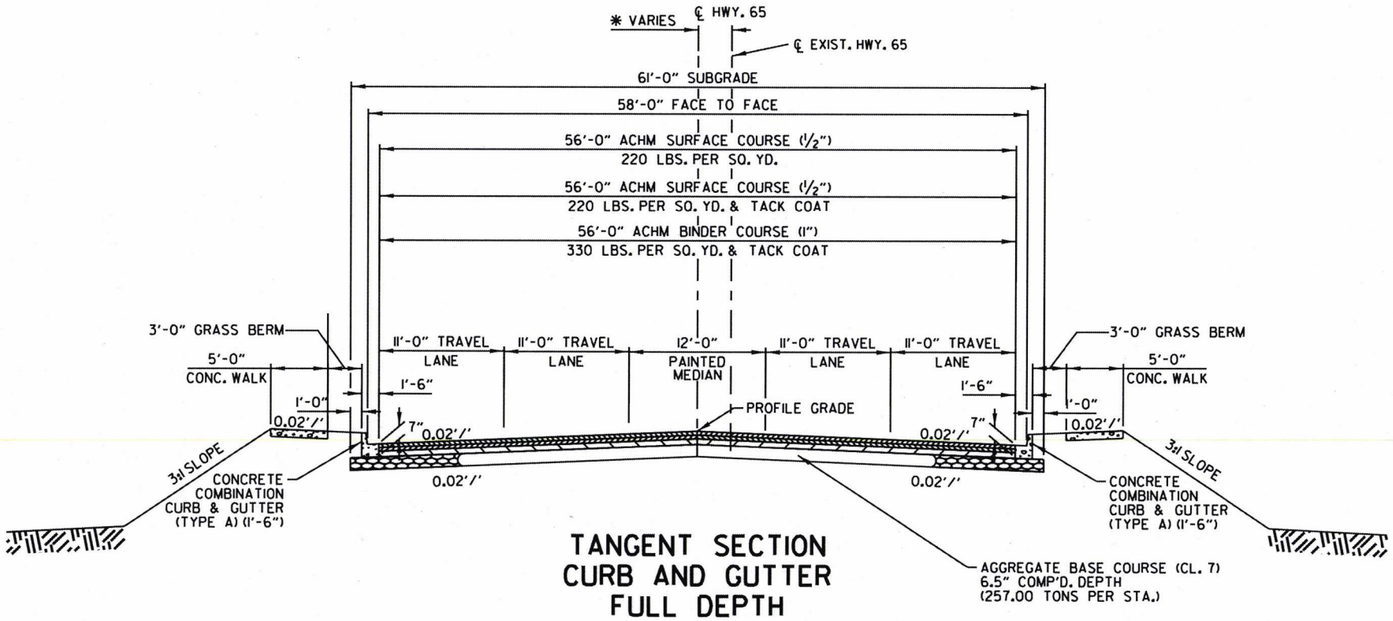
				6	ARK.			
				JOB NO.		CA0906	8	417

(2) TYPICAL SECTIONS OF IMPROVEMENTS

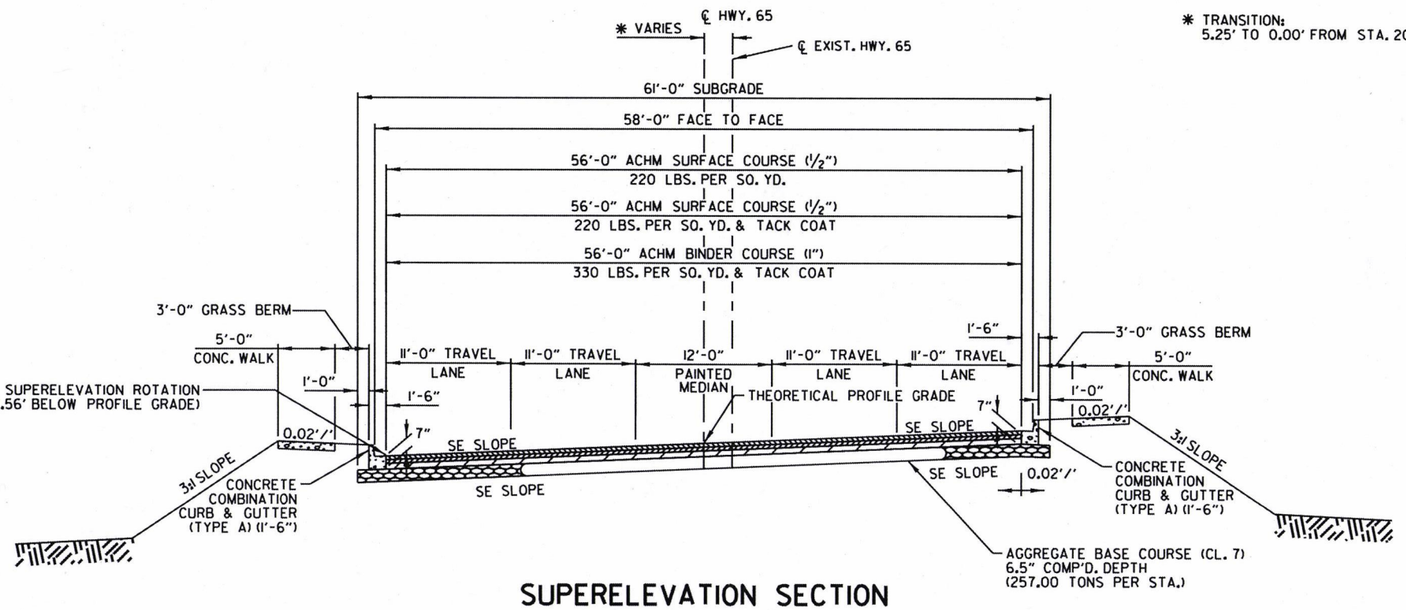


TANGENT SECTION CURB AND GUTTER FULL DEPTH

STA. 196+10.00 TO STA. 199+88.18

* VARIES BETWEEN:
5.0' TO 7.0' FROM STA. 196+10.00 TO STA. 205+00.00

* TRANSITION:
5.25' TO 0.00' FROM STA. 205+00.00 TO STA. 208+70.00



SUPERELEVATION SECTION CURB AND GUTTER FULL DEPTH

STA. 199+88.18 TO STA. 208+70.00

NOTES:

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TYPICAL SECTIONS OF IMPROVEMENTS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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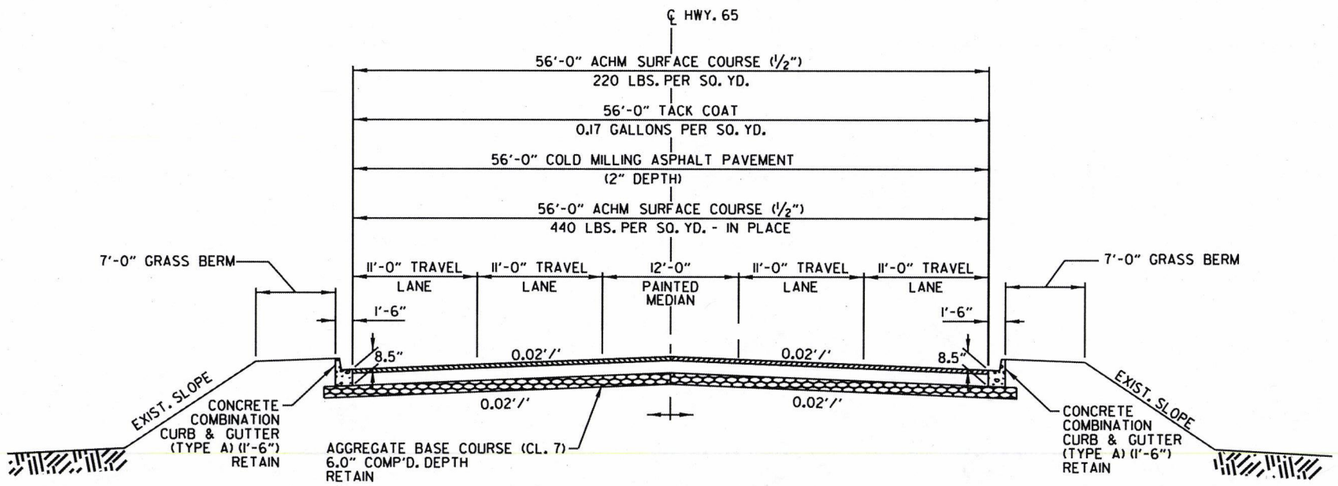
				JOB NO.		CA0906	9	417

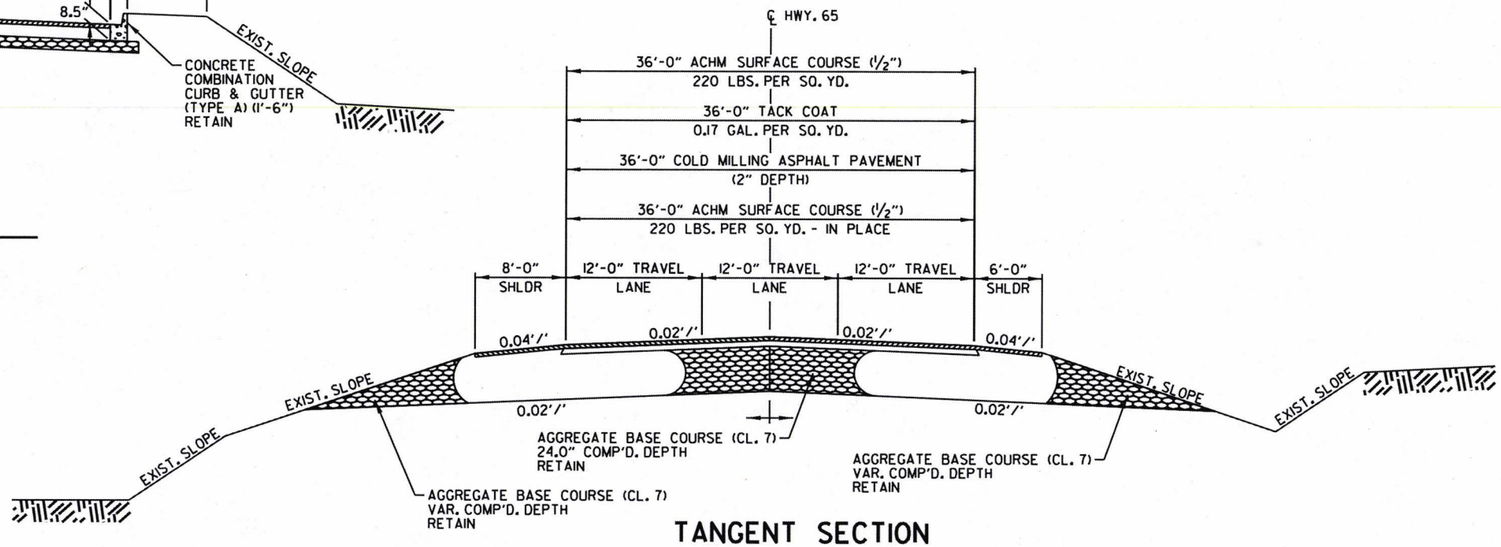
(2) TYPICAL SECTIONS OF IMPROVEMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17



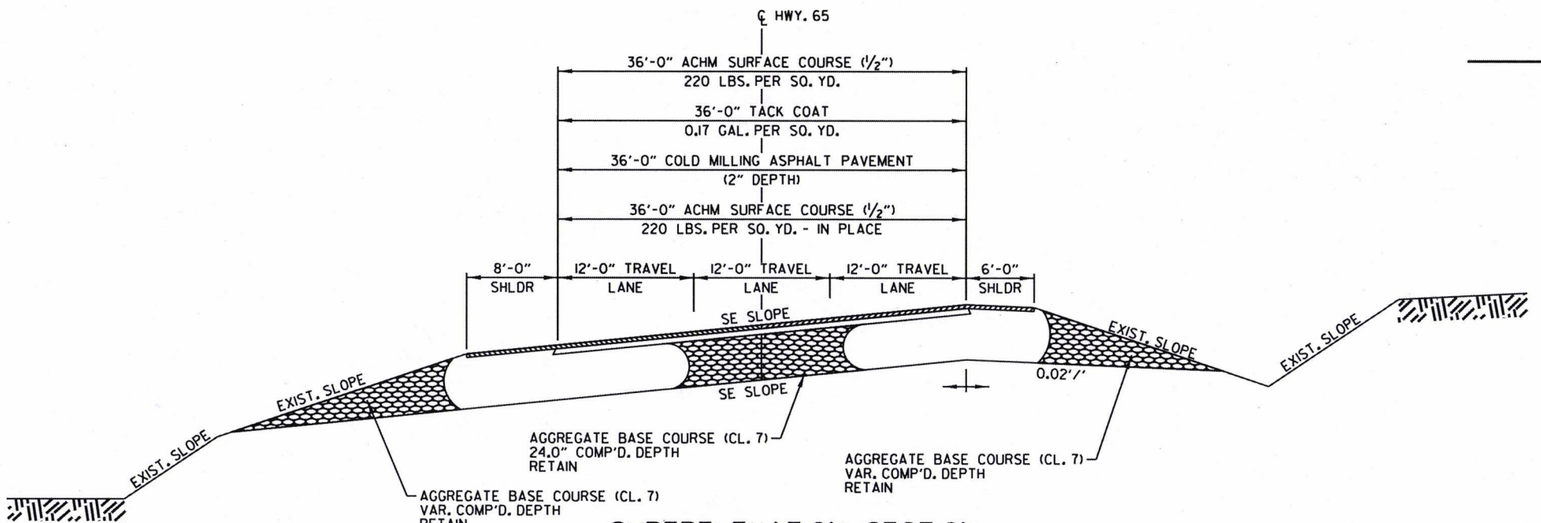
TANGENT SECTION CURB AND GUTTER MILL AND INLAY

STA. 65+25.00 TO STA. 73+08.00



TANGENT SECTION OPEN SHOULDER MILL AND INLAY

STA. 307+50.00 TO STA. 326+50.00
TRANS. FROM 3 LANES TO 2 LANES FROM STA. 319+50.00 TO 326+50.00



SUPERELEVATION SECTION OPEN SHOULDER MILL AND INLAY

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TYPICAL SECTIONS OF IMPROVEMENTS

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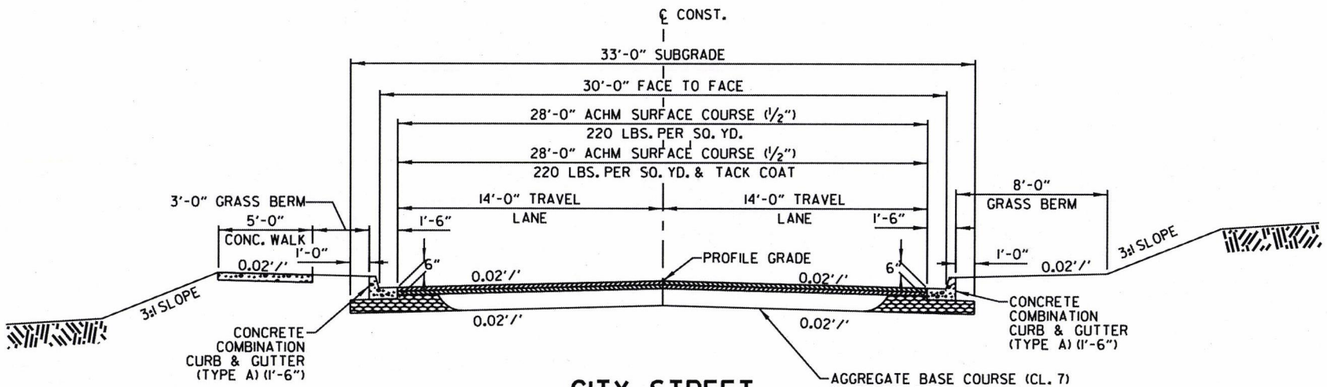
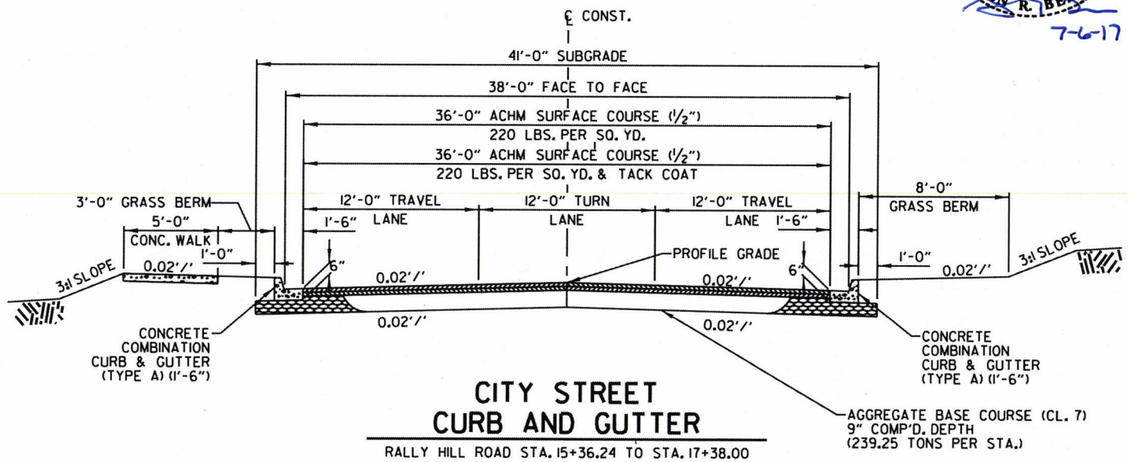
(2) TYPICAL SECTIONS OF IMPROVEMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17



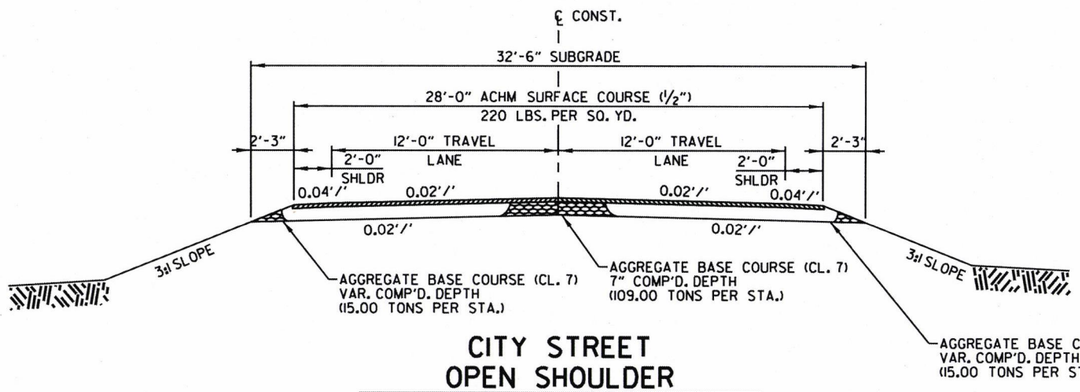
CITY STREET
CURB AND GUTTER

ELM STREET STA. 13+00.00 TO STA. 14+78.26



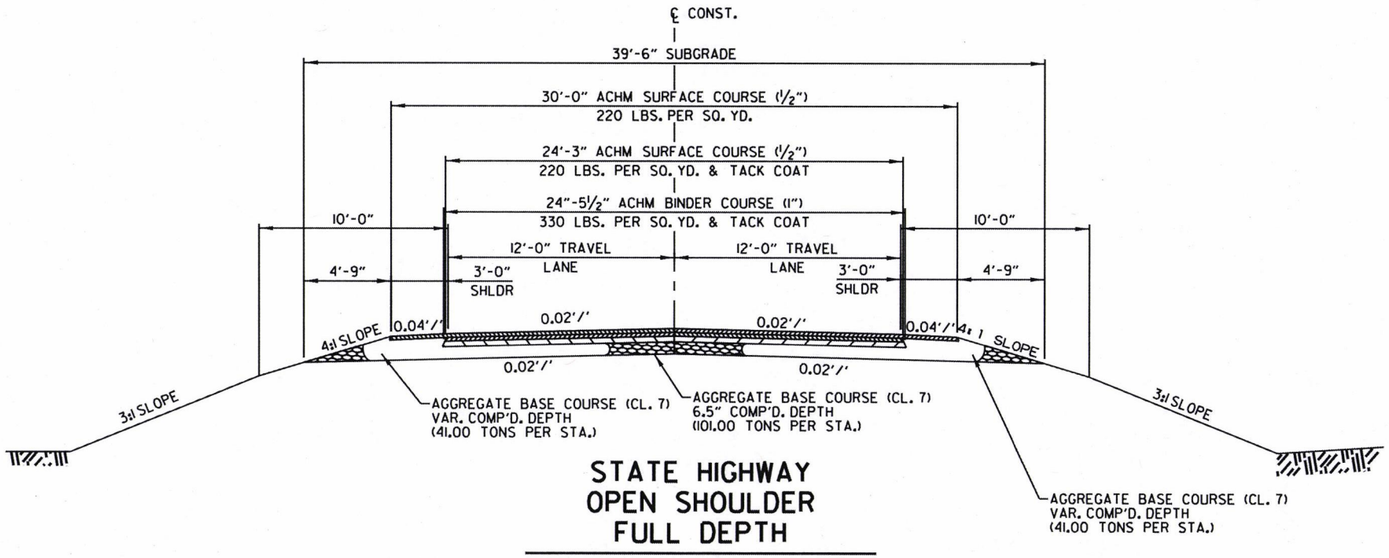
CITY STREET
CURB AND GUTTER

RALLY HILL ROAD STA. 15+36.24 TO STA. 17+38.00



CITY STREET
OPEN SHOULDER

ASPEN ROAD STA. 10+00.00 TO STA. 14+09.34
MURRAY ROAD STA. STA. 9+99.07 TO STA. 12+30.50



STATE HIGHWAY
OPEN SHOULDER
FULL DEPTH

HWY. 206 STA. 10+30.54 TO STA. 12+50.00

NOTES:

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(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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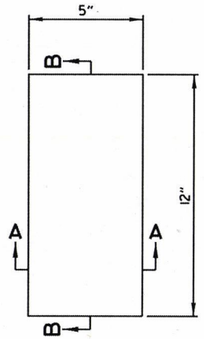
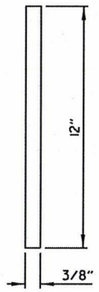
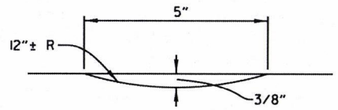
STEVEN R. BEAM, JR.
7-6-17



PLAN

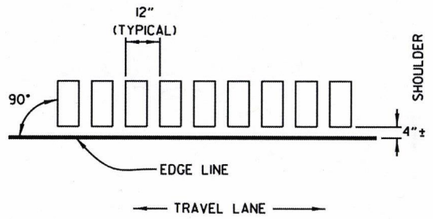


SECTION B-B

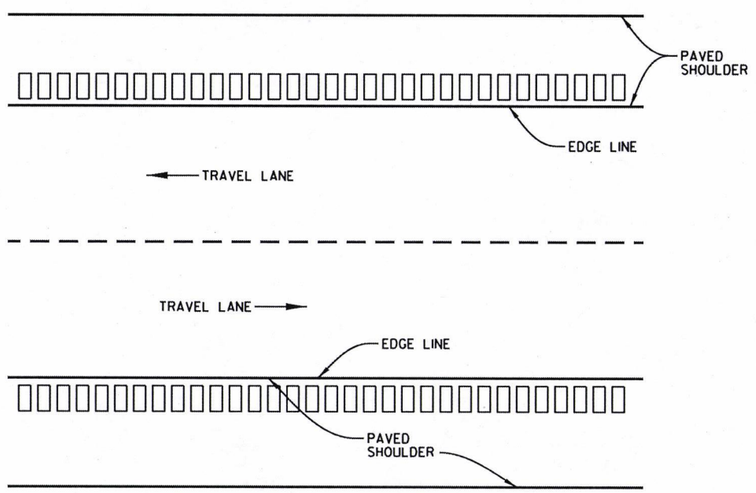


SECTION A-A

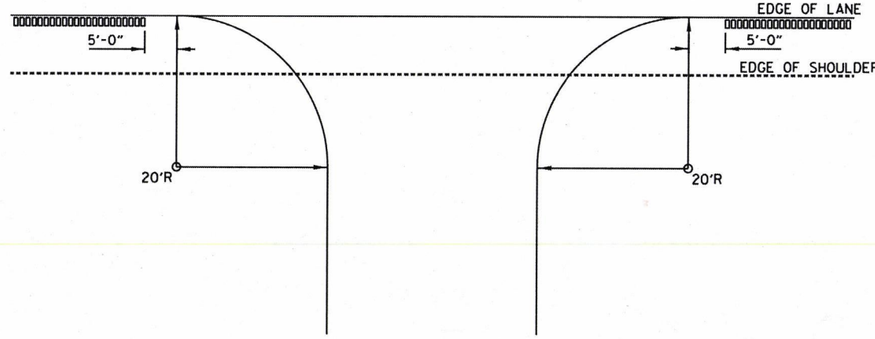
DETAILS OF RUMBLE STRIPS



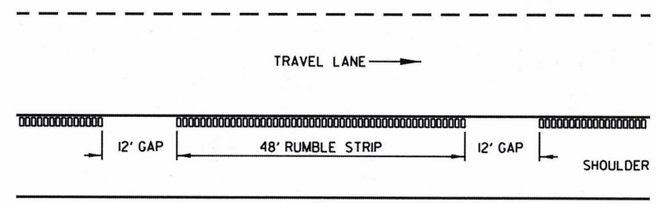
LOCATION PLAN OF RUMBLE STRIPS LEFT OR RIGHT SHOULDER



PLAN VIEW



DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

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 ⅜" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.

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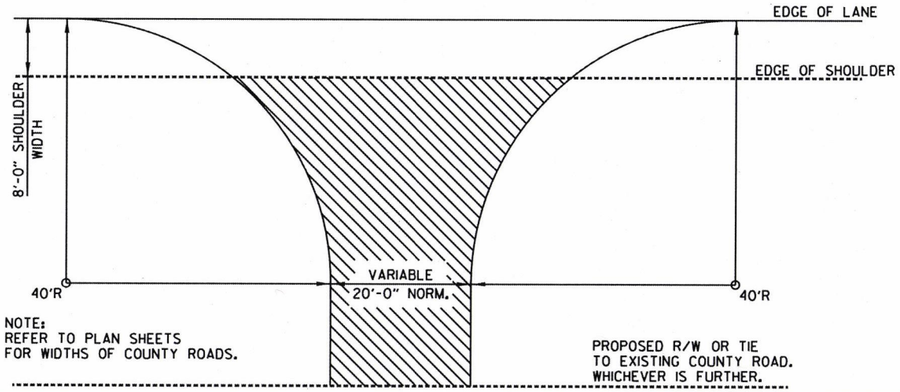
SPECIAL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	12	417

2 SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

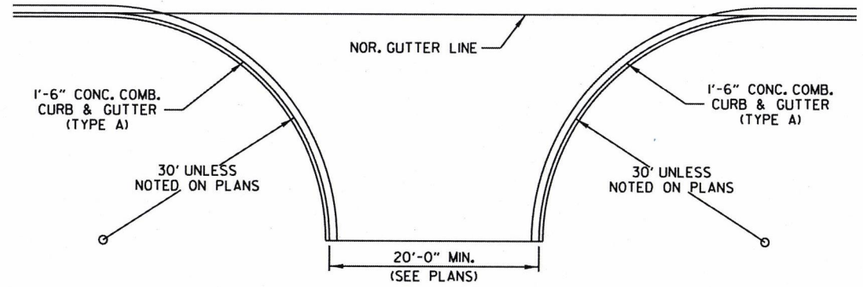


NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

PROPOSED R/W OR TIE TO EXISTING COUNTY ROAD. WHICHEVER IS FURTHER.

ACHM 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.

DETAIL FOR COUNTY ROAD TURNOUTS

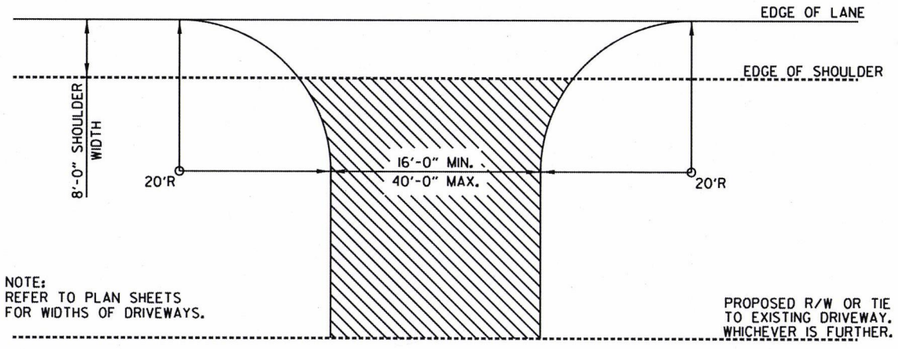


NOTE:
PAVEMENT STRUCTURE SHALL BE THE SAME AS MAIN LANES.

DETAIL OF TURNOUTS ASPHALT STREET

NOTES:

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

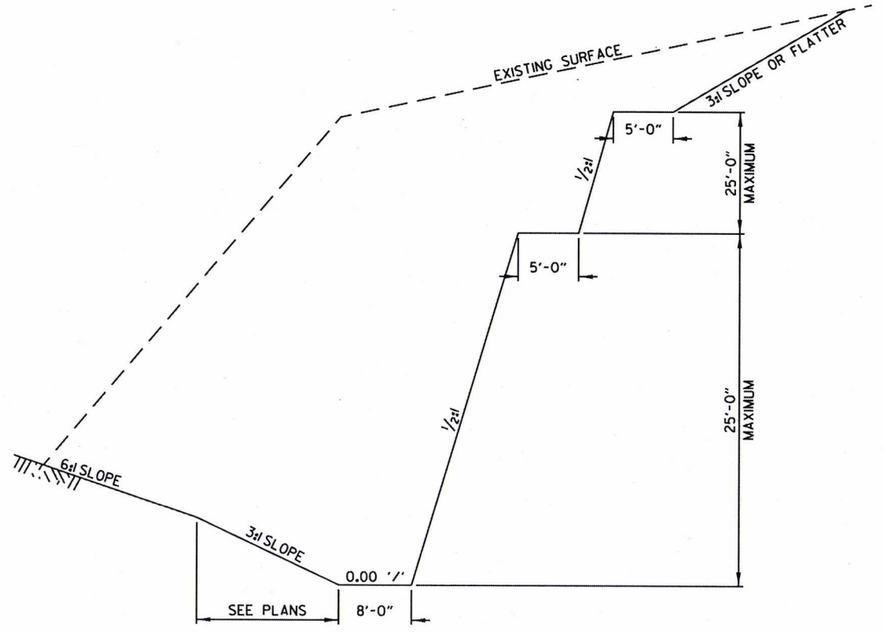


NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF DRIVEWAYS.

PROPOSED R/W OR TIE TO EXISTING DRIVEWAY. WHICHEVER IS FURTHER.

ACHM 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.

DETAIL FOR DRIVEWAY TURNOUTS



DETAIL FOR BENCHING IN SOLID ROCK

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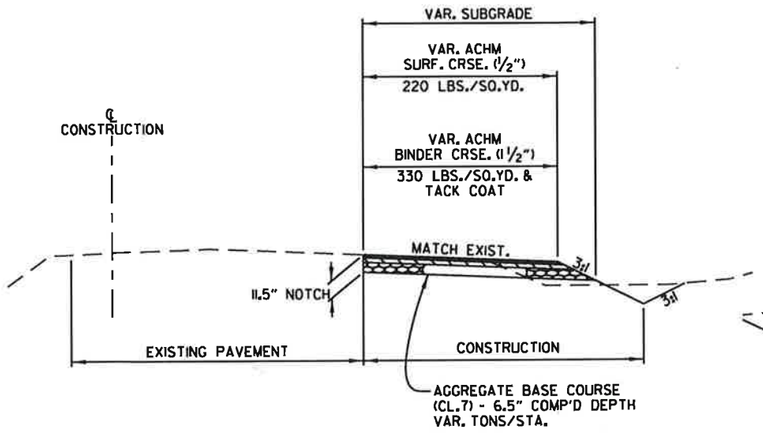
SPECIAL DETAILS

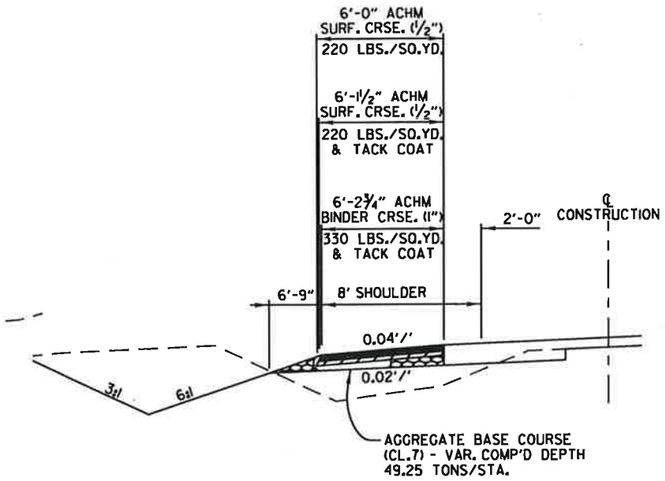
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	13	417

(2) SPECIAL DETAILS



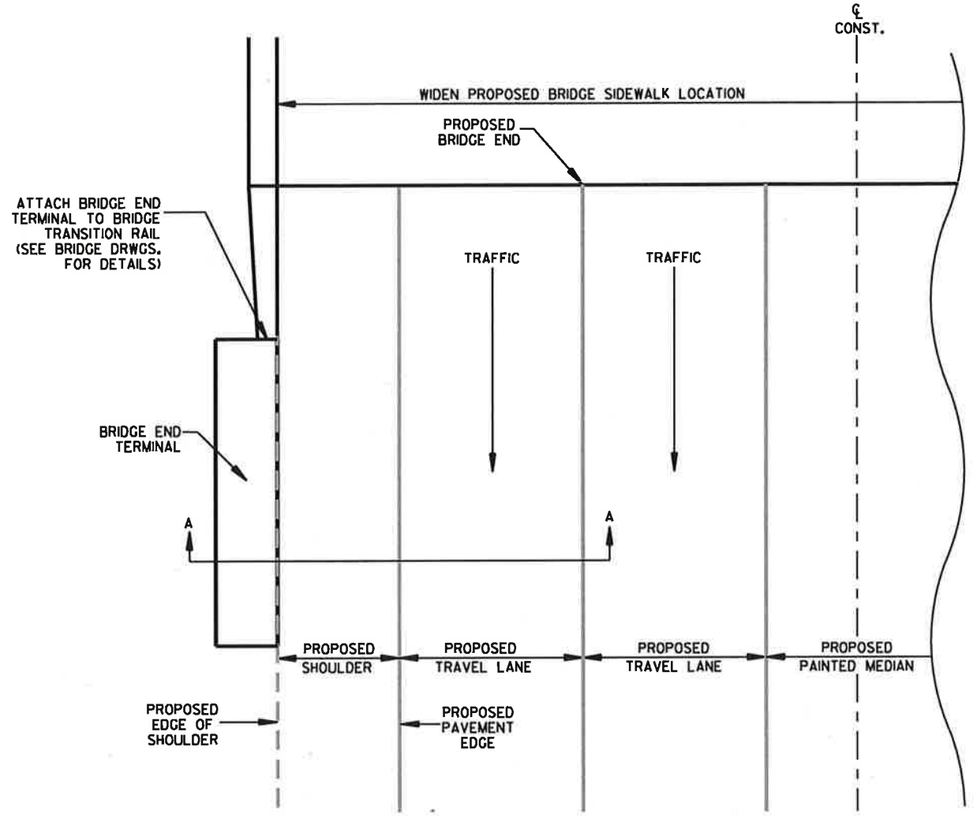
STAGE IA AND 1 WIDENING FOR MAINTENANCE OF TRAFFIC

STA. 73+08 TO STA. 144+29.60 RT.
STA. 163+31.71 TO STA. 201+00 RT.
STA. 203+50 TO STA. 241+00 RT.



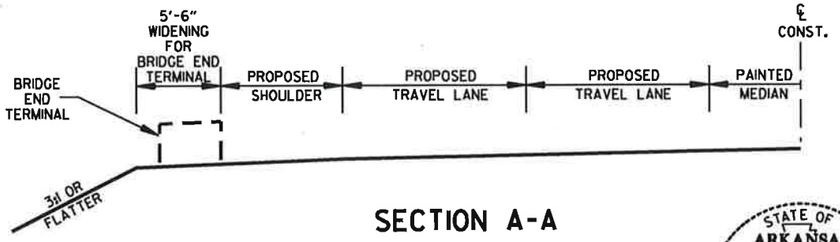
FULL DEPTH SHOULDER FOR STAGE 2 MAINTENANCE OF TRAFFIC

STA. 73+08 TO STA. 130+00 LT.
STA. 155+00 TO STA. 181+50 LT.
STA. 199+50 TO STA. 205+80 LT.
STA. 218+00 TO STA. 259+25 LT.
STA. 271+00 TO STA. 294+50 LT.
STA. 305+00 TO STA. 306+00 LT.



PLAN VIEW

BRIDGE END TERMINAL DETAILS



SECTION A-A

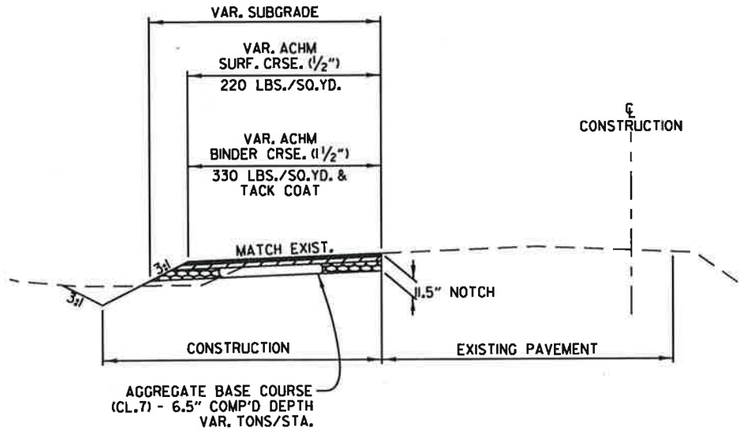
NOTE:
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB, BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

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



6.0" Radius, 1.3" Border, Black on Orange;
"Job XXXXXX" C 2K; "Start Date Mo Year" C 2K;
"Est Completion Mo Year" C 2K; "IDRIVE " Arial;
" ARKANSAS.COM " Arial;

CONSTRUCTION PROJECT INFORMATION SIGN



STAGE IA AND 2 WIDENING FOR MAINTENANCE OF TRAFFIC

STAGE IA
STA. 211+01.57 TO STA. 233+84.63 LT.
STA. 274+70.81 TO STA. 287+70 LT.

STAGE 2
STA. 306+00 TO STA. 307+50 LT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12411
STEVEN R. BEAM, JR.
8/22/17

SPECIAL DETAILS

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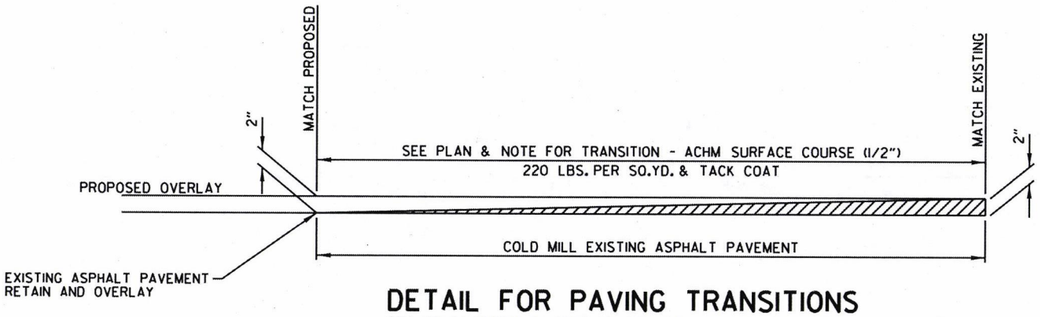
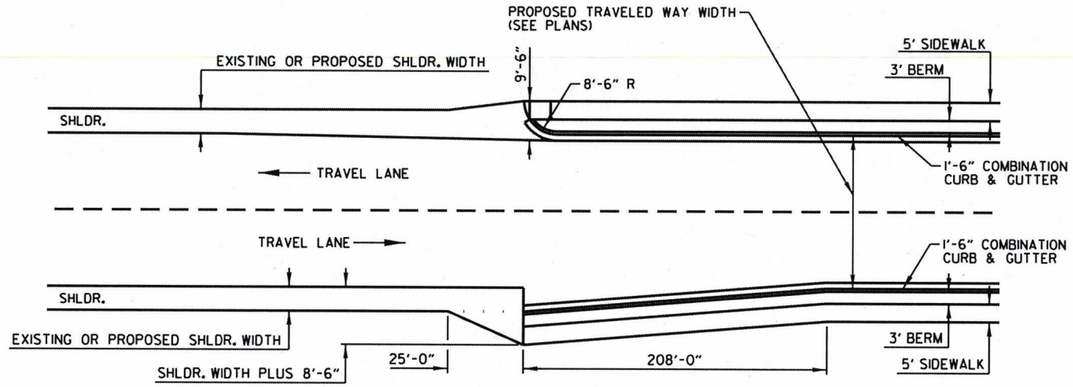
				6	ARK.			
				JOB NO.		CA0906	14	417
				(2)	SPECIAL DETAILS			

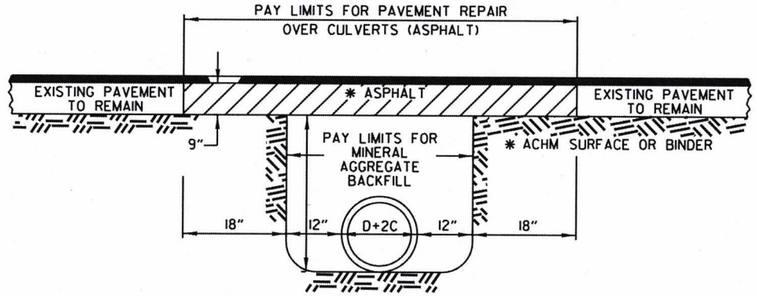


DETAIL FOR PAVING TRANSITIONS

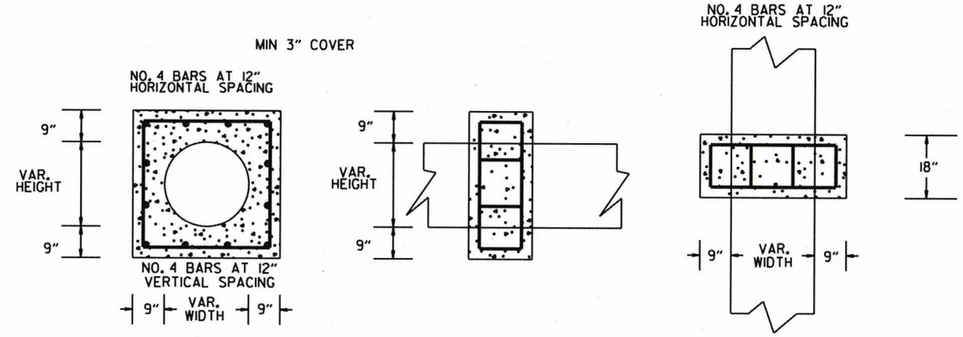
STA. 73+08 MATCH EXISTING TO STA. 74+08 MATCH PROPOSED
STA. 306+00 MATCH PROPOSED TO STA. 307+50 MATCH EXISTING



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

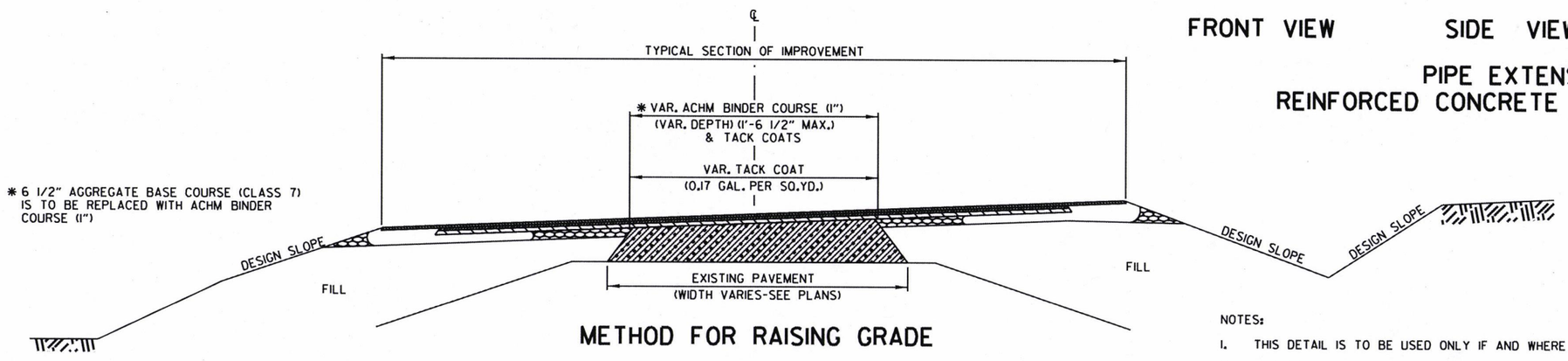


PAVEMENT REPAIR OVER CULVERTS (ASPHALT)



FRONT VIEW SIDE VIEW TOP VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



METHOD FOR RAISING GRADE

STA. 131+28 TO STA. 131+97
STA. 145+20 TO STA. 145+75
STA. 165+60 TO STA. 166+20
STA. 176+30 TO STA. 176+80
STA. 196+10 TO STA. 196+70
STA. 198+50 TO STA. 199+00
STA. 208+10 TO STA. 208+70
STA. 250+00 TO STA. 250+30
STA. 259+90 TO STA. 260+30
STA. 290+30 TO STA. 299+50

NOTES:

1. THIS DETAIL IS TO BE USED ONLY IF AND 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, EDITION OF 2014.

STATE OF ARKANSAS
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SPECIAL DETAILS

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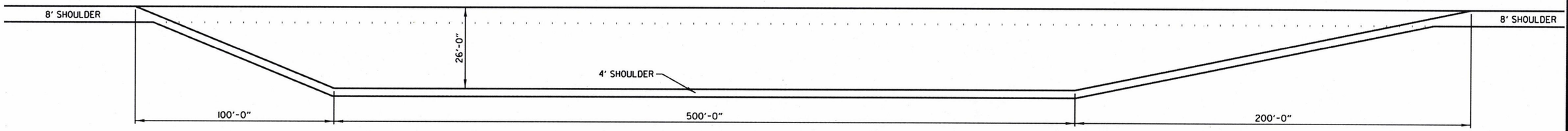
				6	ARK.			
				JOB NO.		CA0906	15	417

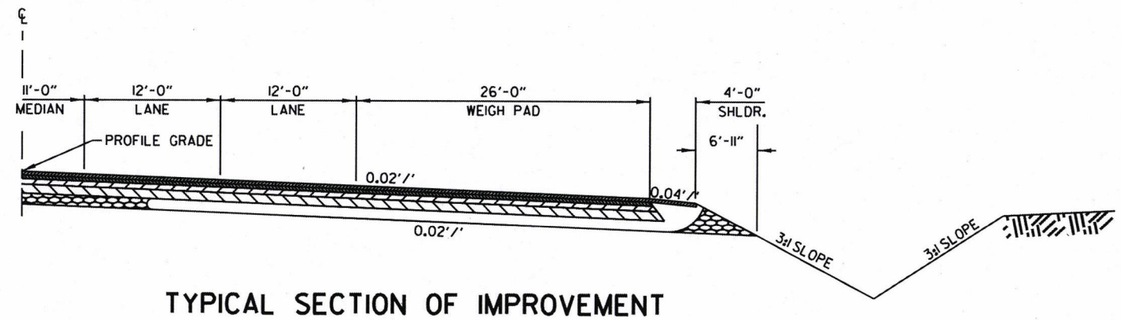
(2) SPECIAL DETAILS



DETAIL OF WEIGH PAD

LEFT:
STA. 235+30 TO STA. 237+30 (TRANS.)
STA. 237+30 TO STA. 242+30 (WEIGH PAD)
STA. 242+30 TO STA. 243+30 (TRANS.)

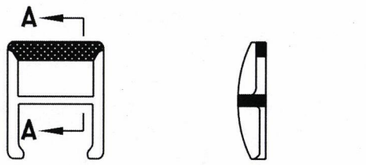
RIGHT:
STA. 234+75 TO STA. 235+75 (TRANS.)
STA. 235+75 TO STA. 240+75 (WEIGH PAD)
STA. 240+75 TO STA. 242+75 (TRANS.)



TYPICAL SECTION OF IMPROVEMENT WEIGH PAD

LEFT:
STA. 235+30 TO STA. 237+30 (TRANS.)
STA. 237+30 TO STA. 242+30 (WEIGH PAD)
STA. 242+30 TO STA. 243+30 (TRANS.)

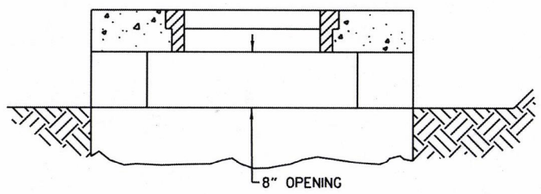
RIGHT:
STA. 234+75 TO STA. 235+75 (TRANS.)
STA. 235+75 TO STA. 240+75 (WEIGH PAD)
STA. 240+75 TO STA. 242+75 (TRANS.)



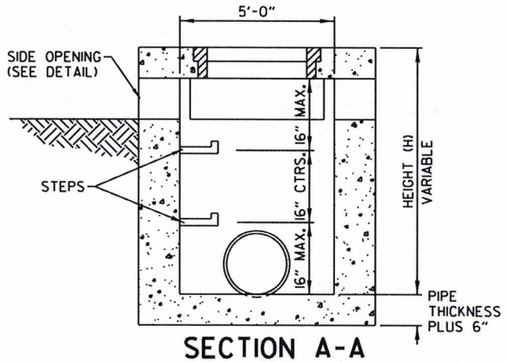
PLAN SECTION A-A

DETAIL OF STEP FOR DROP INLET

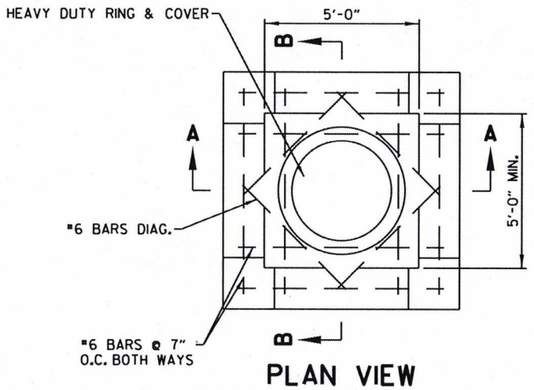
NOTE:
THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



SIDE OPENING DETAIL



SECTION A-A SECTION B-B



PLAN VIEW SPECIAL AREA INLET

STA. 192+30 LT.
STA. 194+00 LT.

NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" 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. 1 1/2" COVER.
4. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
5. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
6. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
7. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO AND AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. 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.



COVER FACE COVER SECTION

COVER FACE

APPROX. TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

NOTES:

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 BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.

STATE OF ARKANSAS
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SPECIAL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	16	417

2 SPECIAL DETAILS

STATE OF ARKANSAS
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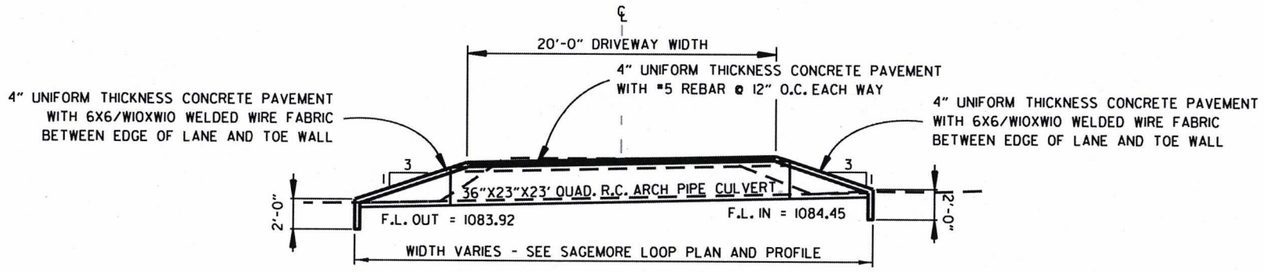
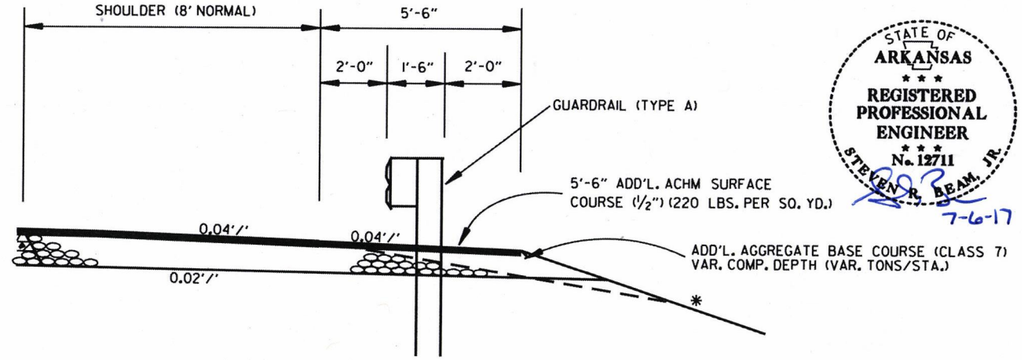
STEVEN R. BEAM, JR.
7-6-17

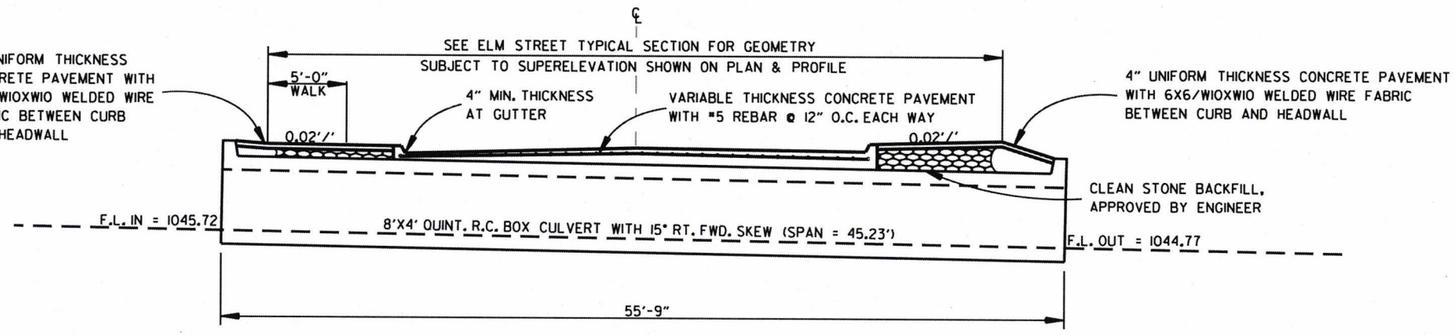


SPECIAL DETAIL FOR PAVING OVER SAGEMORE LOOP LOW WATER CROSSING

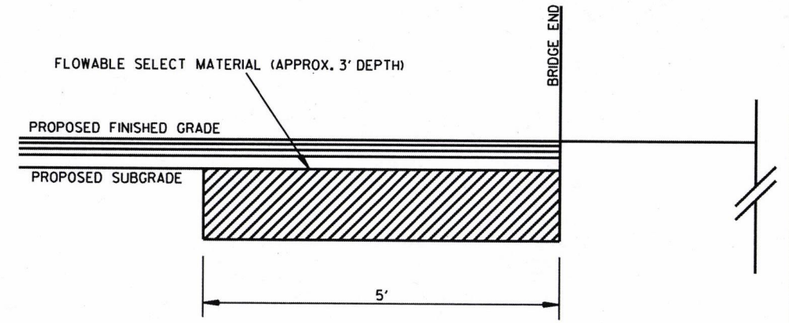


WIDENING FOR GUARDRAIL

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

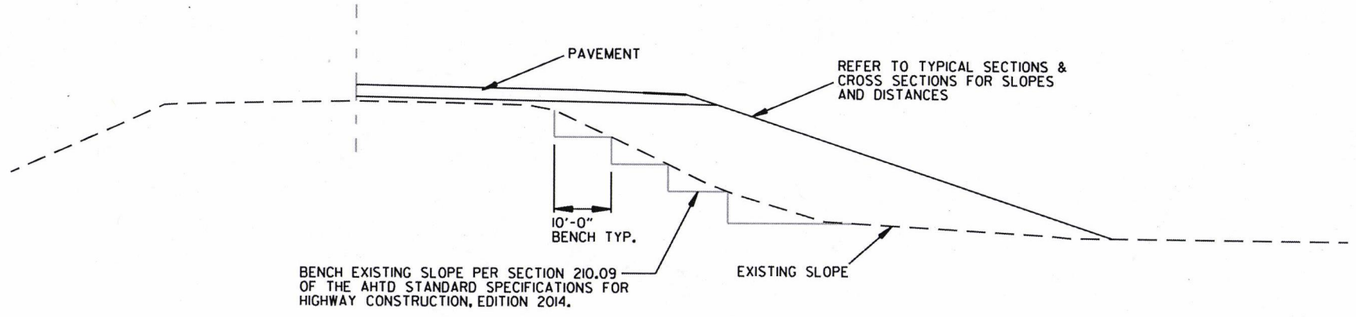


SPECIAL DETAIL FOR PAVING OVER ELM STREET R.C. BOX CULVERT



NOTE: EXCAVATION FOR PLACING FLOWABLE SELECT MATERIAL WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT SHALL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS BID ITEMS.

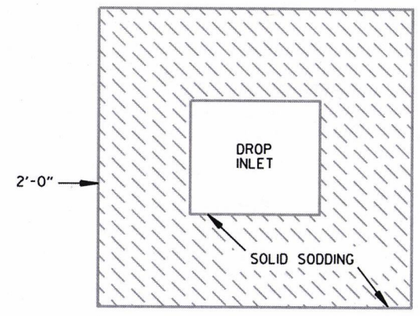
FLOWABLE SELECT MATERIAL AT BRIDGE ENDS



SPECIAL EMBANKMENT DETAIL

STA. 200+30 TO STA. 202+00
STA. 251+49 TO STA. 255+00
STA. 252+67 TO STA. 258+02

* AS DIRECTED BY ENGINEER



DETAIL FOR SOLID SODDING AROUND DROP INLETS

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
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				JOB NO.		CA0906	17	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEPHEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
7'-0"	6'-0"	0'-9"	0'-8"	30	3:1	6'-11 1/8"	2'-0"	6'-10"	2'-0"	0	60	3'-2"	3'-2"	3'-9"	0'-6"	0'-5 1/8"	14'-6"	29'-0"	18'-1 3/8"	32'-7 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
10.67	1003

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	
WING A	4	12	15	L	Min	3'-0"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min	4'-10"
					Max	7'-8"																Max	
				X	Min	0'-9"				X	-					X	-						
					Max	0'-9"																	
				Y	Min	2'-4"				Y	-					Y	-						
					Max	7'-0"																	
WING B	4	12	29	L	Min	3'-0"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min	9'-10"
					Max	8'-3"																Max	
				X	Min	0'-9"				X	-					X	-						
					Max	1'-4"																	
				Y	Min	2'-4"				Y	-					Y	-						
					Max	7'-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			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	18	4	14'-2"	4	18	10	X	Min	4'-9"	4	8	18'-11"	4	18	10	Min		-	-	-	Min		4	2	14'-10"	4	2	15'-4"	6	12	6	L	3'-4"	352
									Max	9'-3"													Max											
									Min	2'-4"													2'-8"										X	1'-8"	
								Y	Min	2'-6"																								
									Max	7'-0"													Max											
WING B	4	18	4	28'-8"	4	18	20	X	Min	4'-7"	4	8	33'-5"	4	18	20	Min		-	-	-	Min		4	2	28'-11"	4	2	31'-9"	6	12	6	L	3'-4"	651
									Max	9'-3"													Max											
									Min	2'-4"													3'-3"										X	1'-8"	
								Y	Min	2'-4"																								
									Max	7'-0"																								

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HEADWALL REINFORCING STEEL "k1", "k2" & "h" BAR	"k1", "k2" & "h" SIZE	"k1", "k2" & "h" NO. REQ'D	"k1", "k2" & "h" LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH	5	6	Max	5	5	8.5	Max	3	4	4	25	7'-1"	4	12	7	Max	4	12	7	Max	4	12	6	LONG	"k1"	4	6	7'-9"
30	3:1	5	6	6	4'-0"	8	9	6	3	7'-0"	7'-5"			6'-8"				6'-8"									5'-10"				5'-10"				"k2"	4	6	7'-9"
														Min				Min									Min				Min			6	SHORT				
														3'-0"				3'-0"									1'-10"				1'-10"			1'-10"	"h"	4	10	1'-7"
														6'-8"	4			6'-8"	3																		Y
																																					0'-7"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
2.53	347

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	

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

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"

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
A	5	6	6	8	9	6	7'-0"	7'-5"	133.00	5	6	266	6'-8"	5	8.5	187	6'-8"	4	4	798	7'-1"	4	12	7	4	12	7	4	12	12

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (Gr. 60) LBS.
78.40	9332

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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.

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 114+84

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	18	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
7'-0"	6'-0"	0'-9"	0'-8"	30	3:1	6'-11 1/8"	2'-0"	6'-10"	2'-0"	0	60	3'-2"	3'-2"	3'-9"	0'-6"	0'-5 1/8"	14'-6"	29'-0"	18'-1 3/8"	32'-7 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
11.35	1003

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 VARY	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	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	15	L	Min 3'-0"				L	-				L	-	4	18	4	Min	4	18	4	14'-2"	4	18	10	L	Min 4'-9"	4	8	18'-11"	4	18	10	Min	-	-	-	Min	4	2	14'-10"	4	2	15'-4"	6	12	6	L 3'-4"	352
					Max 7'-8"													4'-10"									Max 9'-3"								2'-8"												X 1'-8"	
				X	Min 0'-9"	-	-	-	X	-	-	-	-	X	-			Max					4	18	10	X	Min 2'-4"							Max				Max										
					Max 0'-9"													9'-4"									Max 2'-4"								2'-8"													
				Y	Min 2'-4"				Y	-				Y	-												Y	Min 2'-6"								-													
					Max 7'-0"																						Max 7'-0"																					
WING B	4	12	29	L	Min 3'-0"				L	-				L	-	4	18	4	Min	4	18	4	28'-8"	4	18	20	L	Min 4'-7"	4	8	33'-5"	4	18	20	Min	-	-	-	Min	4	2	28'-11"	4	2	31'-9"	6	12	6	L 3'-4"	651
					Max 8'-3"													9'-10"									Max 9'-3"								2'-8"												X 1'-8"	
				X	Min 0'-9"	-	-	-	X	-	-	-	-	X	-			Max					4	18	20	X	Min 2'-4"							Max				Max										
					Max 1'-4"													18'-10"									Max 2'-4"								3'-3"													
				Y	Min 2'-4"				Y	-				Y	-												Y	Min 2'-4"								-													
					Max 7'-0"																						Max 7'-0"																					

OUTLET 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 THICKNESS T	BOTTOM SLAB THK. B	SIDE WALL THICKNESS C	HEADWALL DEPTH HD	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" LENGTHS	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" LENGTHS	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
30	3:1	5	6	6	4'-0"	8	9	6	3	7'-0"	7'-5"	5	6	Max 6'-8"	5	4	5	8.5	Max 6'-8"	3	4	4	25	7'-1"	4	12	7	Max 5'-10"	4	12	7	Max 5'-10"	4	12	6	LONG 5'-10"	"k1"	4	6	7'-9"
														Min 3'-0"					Min 3'-0"									Min 1'-10"				Min 1'-10"			SHORT 1'-10"	"k2"	4	6	7'-9"
														6'-8"	4				6'-8"	3																"h"	4	10	1'-7"
																																							Y	
																																						0'-7"	

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
2.53	347

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION D	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THICKNESS T	BOTTOM SLAB THK. B	SIDE WALL THICKNESS C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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

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

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 50) LBS.
TOTAL	

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"

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

SINGLE BARREL BOX CULVERT
STA 114+84

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	19	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
7'-1"	6'-0"	0'-9"	0'-8"	30	3:1	6'-11 1/8"	2'-0"	6'-10"	2'-0"	0	60	3'-2"	3'-2"	3'-9"	0'-6"	0'-5 1/8"	14'-6"	29'-0"	18'-0 3/8"	32'-6 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
10.66	1001

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F2	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F3	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	F12	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	15	X	L	Min 3'-0"	-	-	-	X	-	-	-	-	X	-	4	18	4	Min	4	18	4	14'-2"	4	18	10	X	Min 4'-9"	4	8	18'-10"	4	18	10	Min	-	-	-	Min	4	2	14'-10"	4	2	15'-4"	6	12	6	L	3'-4"	351
						Max 7'-8"														4'-10"								Max 9'-3"								2'-8"														X	1'-8"	
						Min 0'-9"														Max								Min 2'-4"								Max															
					Y	Max 0'-9"														9'-4"								Max 2'-4"								2'-8"															
						Min 2'-4"																						Min 2'-6"								Min															
						Max 7'-0"																						Max 7'-0"								-															
WING B	4	12	29	X	L	Min 3'-0"	-	-	-	X	-	-	-	-	X	-	4	18	4	Min	4	18	4	28'-8"	4	18	20	X	Min 4'-7"	4	8	33'-4"	4	18	20	Min	-	-	-	Min	4	2	28'-11"	4	2	31'-9"	6	12	6	L	3'-4"	650
						Max 8'-3"														9'-10"								Max 9'-3"								2'-8"														X	1'-8"	
						Min 0'-9"														Max								Min 2'-4"								Max															
					Y	Max 1'-4"														18'-10"								Max 2'-4"								3'-3"															
						Min 2'-4"																						Min 2'-4"								Min															
						Max 7'-0"																						Max 7'-0"								-															

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HEADWALL REINFORCING STEEL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACEING	LENGTHS VARY	NO. REQ'D	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	BAR	SIZE	NO. REQ'D	LENGTH		
30	3:1	10	6	6	4'-1"	8	9	6.5	3	7'-1"	7'-5"	4	5.5	Max 6'-9" / Min 3'-1"	5	4	6	Max 6'-9" / Min 3'-1"	5	5	7	15	7'-1"	4	12	7	Max 5'-11" / Min 1'-10"	4	12	7	Max 5'-11" / Min 1'-10"	4	12	6	LONG 5'-11" / SHORT 1'-10"	"k1" / "k2" / "h"	4	6 / 6 / 10	7'-10" / 7'-10" / 1'-7"	2.64	325
																																							Y	0'-7"		

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THICKNESS T	BOTTOM SLAB THK. B	SIDE WALL THICKNESS C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 50) LBS.
A	10	6	6	8	9	6.5	7'-1"	7'-5"	20.12	4	5.5	43	6'-9"	4	6	40	6'-9"	5	7	68	7'-1"	4	12	7	4	12	7	4	12	12	12.32	1268
B	15	6	6	8	9	7	7'-2"	7'-5"	6.5	5	5.5	14	6'-10"	4	4	19	6'-10"	6	8	18	7'-1"	4	12	7	4	12	7	4	12	12	4.13	540
																															TOTAL	
																															16.45	1809

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

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"

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	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (Gr. 60) LBS.
C	20	6	6	8.5	9	7.5	7'-3"	7'-5 1/2"	136.50	6	6	273	6'-11"	6	6.5	252	6'-11"	7	9	364	7'-2"	4	12	7	4	12	7	4	12	12	91.37	13247

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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.

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

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.

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 136+67

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	20	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
7'-1"	6'-0"	0'-9"	0'-8"	30	3:1	6'-11 1/8"	2'-0"	6'-10"	2'-0"	0	60	3'-2"	3'-2"	3'-9"	0'-6"	0'-5 1/8"	14'-6"	29'-0"	18'-0 3/8"	32'-6 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
11.34	1001

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 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 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	15	L	Min	3'-0"				L	-					L	-		4	18	4	Min	4	18	4	14'-2"	4	18	10	L	Min	4'-9"	4	8	18'-10"	4	18	10	Min				Min														
					Max	7'-8"																4'-10"								Max	9'-3"								2'-8"	-	-	-	-														
				X	Min	0'-9"				X	-					X	-					Max								Min	2'-4"								Max				Max														
					Max	0'-9"																9'-4"								Max	2'-4"								2'-8"				-														
				Y	Min	2'-4"				Y	-					Y	-													Min	2'-6"																										
					Max	7'-0"																								Max	7'-0"																										
WING B	4	12	29	L	Min	3'-0"				L	-					L	-		4	18	4	Min	4	18	4	28'-8"	4	18	20	L	Min	4'-7"	4	8	33'-4"	4	18	20	Min				Min														650
					Max	8'-3"																9'-10"								Max	9'-3"								2'-8"	-	-	-	-														
				X	Min	0'-9"				X	-					X	-					Max								Min	2'-4"								Max				Max														
					Max	1'-4"																18'-10"								Max	2'-4"								3'-3"				-														
				Y	Min	2'-4"				Y	-					Y	-													Min	2'-4"																										
					Max	7'-0"																								Max	7'-0"																										

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HDWL "k1", "k2" & "h" BAR	HDWL "k1", "k2" & "h" SIZE	HDWL "k1", "k2" & "h" NO. REQ'D	HDWL "k1", "k2" & "h" LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																														
30	3:1	10	6	6	4'-1"	8	9	6.5	3	7'-1"	7'-5"	4	5.5	Max 6'-9"	5	4	6	Max 6'-9"	5	5	7	15	7'-1"	4	12	7	Max 5'-11"	4	12	7	Max 5'-11"	4	12	6	LONG 5'-11"	"k1"	4	6	7'-10"
														Min 3'-1"				Min 3'-1"									Min 1'-10"				Min 1'-10"			SHORT 1'-10"	"k2"	4	6	7'-10"
														6'-9"	5			6'-9"	4																	"h"	4	10	1'-7"
																																							Y	0'-7"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
2.64	325

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
A	10	6	6	8	9	6.5	7'-1"	7'-5"	20.12	4	5.5	43	6'-9"	4	6	40	6'-9"	5	7	68	7'-1"	4	12	7	4	12	7	4	12	12
B	15	6	6	8	9	7	7'-2"	7'-5"	18.60	5	5.5	40	6'-10"	4	4	55	6'-10"	6	8	54	7'-1"	4	12	7	4	12	7	4	12	12

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

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)
CU. YDS.	LBS.
12.32	1268
11.82	1491
TOTAL	
24.14	2759

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)."

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

SINGLE BARREL BOX CULVERT
STA 136+67

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	21	417
				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
7'-1"	6'-0"	0'-9"	0'-8"	20	3:1	6'-4 5/8"	2'-0"	6'-10"	2'-0"	10	50	3'-2"	3'-3 7/8"	3'-8 7/8"	0'-5 7/8"	0'-5 3/4"	14'-6"	22'-6"	18'-0 3/8"	26'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
9.13	869

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
WING A	4	12	15	L	Min	3'-0"				L	-				L	-	4	18	4	Min
					Max	7'-10"														4'-10"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max
					Max	0'-11"														9'-4"
				Y	Min	2'-4"				Y	-				Y	-				
					Max	7'-0"														
WING B	4	12	23	L	Min	3'-0"				L	-				L	-	4	18	4	Min
					Max	8'-3"														7'-7"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max
					Max	1'-4"														14'-7"
				Y	Min	2'-4"				Y	-				Y	-				
					Max	7'-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			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	18	4	14'-2"	4	18	10	L	Min	4'-9"	4	8	18'-10"	4	18	10	Min			-	-	-	Min										L	3'-4"	352
									Max	9'-3"													-											
								X	Min	2'-4"							2'-8"																		
									Max	2'-4"							Max																	X	1'-8"	
								Y	Min	2'-6"																									
									Max	7'-0"																									
WING B	4	18	4	22'-2"	4	18	15	L	Min	4'-9"	4	8	26'-10"	4	18	15	Min			-	-	-	Min										L	3'-4"	517
									Max	9'-3"							2'-8"						-											
								X	Min	2'-4"																									
									Max	2'-4"							Max																	X	1'-8"	
								Y	Min	2'-6"																									
									Max	7'-0"							3'-3"																		

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HEADWALL REINFORCING STEEL "k1", "k2" & "h" BAR	"k1", "k2" & "h" SIZE	"k1", "k2" & "h" NO. REQ'D	"k1", "k2" & "h" LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																										
20	3:1	10	6	6	3'-3"	8	9	6.5	3	7'-1"	7'-5"	4	5.5	Max	2	4	6	Max	2	5	7	12	7'-1"	4	12	7	Max	4	12	7	Max	4	12	6	LONG	"k1"	4	6	7'-2"
														6'-9"				6'-9"									4'-5"				4'-5"			4'-5"	"k2"	4	6	7'-2"
														Min				Min									Min				Min		6	SHORT				1'-7"
														4'-6"				4'-6"									1'-10"				1'-10"			1'-10"	"h"	4	9	Y
														6'-9"	5			6'-9"	4																		0'-7"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
2.17	266

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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
		D	S	H	T	B	C	OW	OH	SL																						
A	10	6	6	8	9	6.5	7'-1"	7'-5"	15.65	4	5.5	34	6'-9"	4	6	31	6'-9"	5	7	52	7'-1"	4	12	7	4	12	7	4	12	12
B	15	6	6	8	9	7	7'-2"	7'-5"	14.30	5	5.5	31	6'-10"	4	4	42	6'-10"	6	8	42	7'-1"	4	12	7	4	12	7	4	12	12

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

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
9.58	993
9.08	1153
TOTAL	
18.67	2146

MID-SECTION

	R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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
		D	S	H	T	B	C	OW	OH	SL																						
C	20	6	6	8.5	9	7.5	7'-3"	7'-5 1/2"	145.60	6	6	291	6'-11"	6	6.5	268	6'-11"	7	9	388	7'-2"	4	12	7	4	12	7	4	12	12

CLASS "S" CONCRETE	REINFORCING STEEL (Gr. 60)
CU. YDS.	LBS.
97.46	14124

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"

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

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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.

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 170+85

SPECIAL DETAILS

Ver. 1.1.4 FILENAME

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.		CA0906	22	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
7'-1"	6'-0"	0'-9"	0'-8"	20	3:1	6'-4 5/8"	2'-0"	6'-10"	2'-0"	10	50	3'-2"	3'-3 7/8"	3'-8 7/8"	0'-5 7/8"	0'-5 3/4"	14'-6"	22'-6"	18'-0 3/8"	26'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
9.70	869

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	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	15	L Min	3'-0"				L -				L -	4	18	4	Min 4'-10"	4	18	4	14'-2"	4	18	10	L Min	4'-9"	4	8	18'-10"	4	18	10	Min 2'-8"	-	-	-	Min -	4	2	14'-10"	4	2	15'-5"	6	12	6	L 3'-4"	352
				L Max	7'-10"				L -				L -				Max 9'-4"								L Max	9'-3"							Max 2'-10"				Max -								X 1'-8"	
				X Min	0'-9"	-	-	-	X -	-	-	-	X -												X Min	2'-4"																					
				X Max	0'-11"																				X Max	2'-4"																					
				Y Min	2'-4"				Y -				Y -												Y Min	2'-6"																					
				Y Max	7'-0"																				Y Max	7'-0"																					
WING B	4	12	23	L Min	3'-0"				L -				L -	4	18	4	Min 7'-7"	4	18	4	22'-2"	4	18	15	L Min	4'-9"	4	8	26'-10"	4	18	15	Min 2'-8"	-	-	-	Min -	4	2	22'-6"	4	2	24'-8"	6	12	6	L 3'-4"	517
				L Max	8'-3"				L -				L -				Max 14'-7"								L Max	9'-3"							Max 3'-3"				Max -								X 1'-8"	
				X Min	0'-9"	-	-	-	X -	-	-	-	X -												X Min	2'-4"																					
				X Max	1'-4"																				X Max	2'-4"																					
				Y Min	2'-4"				Y -				Y -												Y Min	2'-6"																					
				Y Max	7'-0"																				Y Max	7'-0"																					

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																														
20	3:1	10	6	6	3'-3"	8	9	6.5	3	7'-1"	7'-5"	4	5.5	Max 6'-9" / Min 4'-6"	2	4	6	Max 6'-9" / Min 4'-6"	2	5	7	12	7'-1"	4	12	7	Max 4'-5" / Min 1'-10"	4	12	7	Max 4'-5" / Min 1'-10"	4	12	6	LONG 4'-5" / SHORT 1'-10"	"k1" / "k2" / "h"	4	6 / 6 / 9	7'-2" / 7'-2" / 1'-7"
																																							Y 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
2.17	266

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
A	10	6	6	8	9	6.5	7'-1"	7'-5"	16.65	4	5.5	36	6'-9"	4	6	33	6'-9"	5	7	56	7'-1"	4	12	7	4	12	7	4	12	12
B	15	6	6	8	9	7	7'-2"	7'-5"	12.30	5	5.5	26	6'-10"	4	4	36	6'-10"	6	8	36	7'-1"	4	12	7	4	12	7	4	12	12

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

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
10.20	1055
7.81	996
TOTAL	
18.01	2051

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)."

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

SINGLE BARREL BOX CULVERT
STA 170+85

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	23	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-1"	6'-0"	0'-9"	0'-8"	15	3:1	4'-1 3/4"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-6 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
8.59	832

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	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	15	L	Min 3'-2"				L -				L -	4	18	4	Min	4	18	4	14'-8"	4	18	10	L Min 4'-11"		4	8	19'-4"	4	18	10	Min				Min	4	2	15'-3"	4	2	16'-0"	6	12	6	L 3'-4"	358
					Max 7'-10"												5'-0"								Max 9'-3"								2'-8"			-								X 1'-8"	
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max					4	18	10	L Min 2'-4"								Max	-	-	-									
					Max 0'-11"												9'-8"								Max 2'-4"								2'-10"												
				Y	Min 2'-6"				Y -				Y -									4	18	10	Y Min 2'-8"																				
					Max 7'-0"																				Max 7'-0"																				
WING B	4	12	21	L	Min 3'-0"				L -				L -	4	18	4	Min	4	18	4	20'-2"	4	18	14	L Min 4'-8"		4	8	24'-10"	4	18	14	Min				Min	4	2	20'-7"	4	2	22'-3"	6	12	6	L 3'-4"	474
					Max 8'-1"												6'-11"								Max 9'-3"								2'-8"			-								X 1'-8"	
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max					4	18	14	X Min 2'-4"								Max	-	-	-									
					Max 1'-2"												13'-3"								Max 2'-4"								3'-1"												
				Y	Min 2'-4"				Y -				Y -									4	18	14	Y Min 2'-5"																				
					Max 7'-0"																				Max 7'-0"																				

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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 THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HEADWALL REINFORCING STEEL "k1", "k2" & "h" BAR	"k" SIZE	"k" NO. REQ'D	"k" LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																												
15	3:1	10	4	6	2'-8"	8	9	6.5	3	5'-1"	7'-5"	4	10	Max 4'-9" / Min / 4'-9"	0 / 3	4	10	Max 4'-9" / Min / 4'-9"	0 / 3	5	7	10	7'-1"	4	12	5	Max 3'-2" / Min 1'-10"	4	12	5	Max 3'-2" / Min 1'-10"	4	12	6	LONG 3'-2" / SHORT 1'-10"	"k1" / "k2" / "h"	4	6 / 6 / 7	4'-11" / 4'-11" / 1'-7" / Y / 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
1.47	176

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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
	D	S	H	T	B	C	OW	OH	SL																						

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)
CU. YDS.	LBS.
TOTAL	

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

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"

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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
	D	S	H	T	B	C	OW	OH	SL																						
A	10	4	6	8	9	6.5	5'-1"	7'-5"	105.67	4	10	126	4'-9"	4	10	126	4'-9"	5	6	422	7'-1"	4	12	5	4	12	5	4	12	12

CLASS "S" CONCRETE	REINFORCING STEEL (Gr. 60)
CU. YDS.	LBS.
53.62	5532

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

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 186+62

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	24	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-1"	6'-0"	0'-9"	0'-8"	15	3:1	4'-1 3/4"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-6 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
9.10	832

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F2	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F3	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	15	L	Min	3'-2"					L					L				Min
					Max	7'-10"														5'-0"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-	4	18	4	Max
					Max	0'-11"														9'-8"
				Y	Min	2'-6"					Y					Y				
					Max	7'-0"														
WING B	4	12	21	L	Min	3'-0"					L					L				Min
					Max	8'-1"														6'-11"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-	4	18	4	Max
					Max	1'-2"														13'-3"
				Y	Min	2'-4"					Y					Y				
					Max	7'-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	4	14'-8"	4	18	10	L	Min 4'-11"	4	8	19'-4"	4	18	10	Min	-	-	-	Min
									Max 9'-3"							2'-8"				-
								X	Min 2'-4"							Max				Max
									Max 2'-4"							2'-10"				-
								Y	Min 2'-8"											
									Max 7'-0"											
WING B	4	18	4	20'-2"	4	18	14	L	Min 4'-8"	4	8	24'-10"	4	18	14	Min	-	-	-	Min
									Max 9'-3"							2'-8"				-
								X	Min 2'-4"							Max				Max
									Max 2'-4"							3'-1"				-
								Y	Min 2'-5"											
									Max 7'-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	15'-3"	4	2	16'-0"	6	12	6	L	3'-4"	358
										X	1'-8"	
WING B	4	2	20'-7"	4	2	22'-3"	6	12	6	L	3'-4"	474
										X	1'-8"	

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH												
15	3:1	10	4	6	2'-8"	8	9	6.5	3	5'-1"	7'-5"	4	10	Max 4'-9" Min 4'-9"	0 3	4	10	Max 4'-9" Min 4'-9"	0 3	5	7	10	7'-1"

SKEW (DEGREE)	SLOPE	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
SK	SL																		
15	3:1	4	12	5	Max 3'-2" Min 1'-10"	4	12	5	Max 3'-2" Min 1'-10"	4	12	6	LONG 3'-2" SHORT 1'-10"	"k1" "k2" "h"	4 4 4	6 6 7	4'-11" 4'-11" 1'-7" Y 0'-7"	1.47	176

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH
	D	S	H	T	B	C	OW	OH	SL												

TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF.STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D

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

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 50) LBS.
TOTAL	

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"

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

SINGLE BARREL BOX CULVERT
STA 186+62

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	25	417

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
20'-4"	4'-0"	0'-9"	0'-8"	15	3:1	20'-0 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
5.44	476

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	11	L Min 2'-4" / Max 5'-11"	-	-	-	L -	-	-	-	L -	4	18	4	Min 3'-4" / Max 7'-10"	4	18	2	10'-2"	4	18	7	L Min 3'-3" / Max 6'-3"	4	6	13'-3"	4	18	7	Min 1'-8" / Max 1'-11"	-	-	-	Min - / Max -	4	2	10'-7"	4	2	11'-6"	6	12	4	L 3'-4" / X 1'-8"	206
				X Min 0'-9" / Max 1'-0"				X -				X -												X Min 1'-4" / Max 1'-4"																						
				Y Min 1'-8" / Max 5'-0"				Y -				Y -												Y Min 2'-0" / Max 5'-0"																						
WING B	4	12	15	L Min 2'-4" / Max 6'-1"	-	-	-	L -	-	-	-	L -	4	18	4	Min 4'-8" / Max 10'-11"	4	18	2	14'-2"	4	18	10	L Min 3'-0" / Max 6'-3"	4	6	17'-3"	4	18	10	Min 1'-8" / Max 2'-1"	-	-	-	Min - / Max -	4	2	14'-5"	4	2	16'-3"	6	12	4	L 3'-4" / X 1'-8"	270
				X Min 0'-9" / Max 1'-2"				X -				X -												X Min 1'-4" / Max 1'-4"																						
				Y Min 1'-8" / Max 5'-0"				Y -				Y -												Y Min 1'-9" / Max 5'-0"																						

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. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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 DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3:1	5	6	4	4'-9"	8	3	9	6	8	20'-4"	5'-5"

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	7	Max 20'-0" / Min 5'-11"	7	5	6	Max 20'-0" / Min 5'-11"	8
		20'-0"	4			20'-0"	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
4	9	Max 20'-0" / Min 5'-11"	6	4	11	Max 20'-0" / Min 5'-11"	5
		20'-0"	3			20'-0"	3

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
4	8.5	14	5'-1"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	12	22	5'-1"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY
4	12	41	Max 7'-3" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
4	12	41	Max 7'-3" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH
4	12	4	LONG 7'-2"
		4	SHORT 1'-11"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
4	12	8	LONG 5'-5"
		8	SHORT 3'-8"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
7.10	1179

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D
4	20'-9"	6

"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D
4	20'-9"	6

"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	1'-7"	0'-7"	23

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.)	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.)
	D	S	H	T	B	C	W	OW	OH	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 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 DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	

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.)	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.)
	D	S	H	T	B	C	W	OW	OH	SL
A	5	6	4	8	9	6	8	20'-4"	5'-5"	117.5

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	20'-0"	7	20'-4"	5	20'-0"	17	82

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	20'-0"	4	20'-4"	4	20'-0"	18	78

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	8.5	330	5'-1"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	468	5'-1"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	41

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	41

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	8

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	16

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
165.97	20857

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
STA 218+25

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	26	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
20'-4"	4'-0"	0'-9"	0'-8"	15	3:1	20'-0 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
6.20	476

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
WING A	4	12	11	L	Min	2'-4"				L	-				L	-	4	18	4	Min
					Max	5'-11"														3'-4"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max
					Max	1'-0"														7'-10"
				Y	Min	1'-8"				Y	-				Y	-				
					Max	5'-0"														
WING B	4	12	15	L	Min	2'-4"				L	-				L	-	4	18	4	Min
					Max	6'-1"														4'-8"
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max
					Max	1'-2"														10'-11"
				Y	Min	1'-8"				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			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	18	2	10'-2"	4	18	7	X	Min	3'-3"	4	6	13'-3"	4	18	7	Min					Min											L	3'-4"	206
									Max	6'-3"							1'-8"					-												
								X	Min	1'-4"							Max					Max	4	2	10'-7"	4	2	11'-6"	6	12	4		
									Max	1'-4"												-									X	1'-8"	
								Y	Min	2'-0"							1'-11"																
									Max	5'-0"																							
WING B	4	18	2	14'-2"	4	18	10	X	Min	3'-0"	4	6	17'-3"	4	18	10	Min					Min											L	3'-4"	270
									Max	6'-3"							1'-8"					-												
								X	Min	1'-4"							Max					Max	4	2	14'-5"	4	2	16'-3"	6	12	4		
									Max	1'-4"												-									X	1'-8"	
								Y	Min	1'-9"							2'-1"																
									Max	5'-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 DEPTH | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINF. STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | TOP SLAB REINF. STEEL "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINF. STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | BOTTOM SLAB REINF. STEEL "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINF. STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINF. STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DIST. REINF. STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | BOTTOM SLAB DIST. REINF. STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | SIDE WALL DIST. REINF. STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DIST. REINF. STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH | CLASS "S" CONCRETE (Includes HDWL) CU. YDS. | ① REINFORCING STEEL (GR 60) (Includes HDWL) 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.		CA0906	27	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-0"	4'-0"	0'-9"	0'-8"	15	3:1	4'-1 3/4"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/9"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
4.50	454

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 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	11	L	Min	2'-4"								L -	4	18	4	Min	4	18	2	10'-2"	4	18	7	L Min	3'-3"		4	6	13'-3"	4	18	7	Min				4	2	10'-7"	4	2	11'-6"	6	12	4	L	3'-4"	195
					Max	5'-11"												3'-4"								Max	6'-3"							1'-8"												
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Max								L Min	1'-4"							Max										X	1'-8"	
					Max	1'-0"												7'-10"								Max	1'-4"							1'-11"												
				Y	Min	1'-8"								Y -												L Min	2'-0"							-												
					Max	5'-0"																				Max	5'-0"																			
WING B	4	12	15	L	Min	2'-4"								L -	4	18	4	Min	4	18	2	14'-2"	4	18	10	L Min	3'-0"		4	6	17'-3"	4	18	10	Min				4	2	14'-5"	4	2	16'-3"	6	12	4	L	3'-4"	259
					Max	6'-1"												4'-8"								Max	6'-3"							1'-8"												
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Max								L Min	1'-4"							Max										X	1'-8"	
					Max	1'-2"												10'-11"								Max	1'-4"							2'-1"												
				Y	Min	1'-8"								Y -												L Min	1'-9"							-												
					Max	5'-0"																				Max	5'-0"																			

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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 THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	BOTTOM SLAB REINF. STEEL "b" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIDE WALL REINF. STEEL "f" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DIST. REINF. STEEL "d" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DIST. REINF. STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DIST. REINF. STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	HEADWALL REINF. STEEL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																														
15	3:1	10	4	4	2'-8"	8	9	6	3	5'-0"	5'-5"	4	10	Max 4'-8" Min	0	4	11	Max 4'-8" Min	0	4	8.5	8	5'-1"	4	12	5	Max 3'-2" Min 1'-10"	4	12	5	Max 3'-2" Min 1'-10"	4	12	4	LONG 3'-2" SHORT 1'-10"	"k1"	4	6	4'-10"
														4'-8"	3			4'-8"	3																	"k2"	4	6	4'-10"
																																				"h"	4	7	1'-7" Y 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
1.20	122

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINF. STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINF. STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DIST. REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DIST. REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DIST. REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	OW	OH	SL																							

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	

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

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"

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINF. STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINF. STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DIST. REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DIST. REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DIST. REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																							
A	10	4	4	8	9	6	5'-0"	5'-5"	143.66	4	10	172	4'-8"	4	11	156	4'-8"	4	8	430	5'-1"	4	12	5	4	12	5	4	12	8

CLASS "S" CONCRETE	REINFORCING STEEL (Gr. 60)
CU. YDS.	LBS.
58.97	4280

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

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.

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 222+92

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	28	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN K. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-0"	4'-0"	0'-9"	0'-8"	15	3:1	4'-1 3/4"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
4.88	454

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	11	L	Min	2'-4"				L -				L -				Min								L	Min	3'-3"								Min																
					Max	5'-11"												3'-4"									Max	6'-3"								1'-8"																
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -	4	18	4		4	18	2	10'-2"	4	18	7				4	6	13'-3"	4	18	7										4	2	10'-7"	4	2	11'-6"	6	12	4	L 3'-4"	195
					Max	1'-0"												Max									Min	1'-4"								1'-8"															X 1'-8"	
				Y	Min	1'-8"				Y -				Y -													Max	2'-0"								Max																
					Max	5'-0"												7'-10"										5'-0"								1'-11"																
WING B	4	12	15	L	Min	2'-4"				L -				L -				Min								L	Min	3'-0"								Min																
					Max	6'-1"												4'-8"										6'-3"								1'-8"																
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -	4	18	4		4	18	2	14'-2"	4	18	10				4	6	17'-3"	4	18	10										4	2	14'-5"	4	2	16'-3"	6	12	4	L 3'-4"	259
					Max	1'-2"												Max										1'-4"								Max															X 1'-8"	
				Y	Min	1'-8"				Y -				Y -													Max	1'-4"																								
					Max	5'-0"												10'-11"										5'-0"								2'-1"																

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH	CLASS 'S' CONCRETE (Includes HDWL) CU. YDS.	REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH	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	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH									
15	3:1	10	4	4	2'-8"	8	9	6	3	5'-0"	5'-5"	4	10	Max 4'-8" Min 4'-8"	0 3	4	11	Max 4'-8" Min 4'-8"	0 3	4	8.5	8	5'-1"	4	12	5	Max 3'-2" Min 1'-10"	4	12	5	Max 3'-2" Min 1'-10"	4	12	4	LONG 3'-2" SHORT 1'-10"	"k1" "k2" "h"	4	6	4'-10" 4'-10" 1'-7" Y 0'-7"	1.20	122

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" 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
D	S	H	T	B	C	OW	OH	SL																								

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

CLASS 'S' CONCRETE CU. YDS.	REINFORCING STEEL (GR. 50) LBS.
TOTAL	

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)."

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

SINGLE BARREL BOX CULVERT
STA 222+92

SPECIAL DETAILS

Ver. LIM FILENAME

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.		CA0906	29	417

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-1"	6'-0"	0'-9"	0'-8"	10	3:1	4'-0 3/4"	2'-0"	6'-10"	2'-0"	20	40	3'-2"	3'-4 7/8"	3'-6 7/8"	0'-5"	0'-4 1/8"	15'-0"	18'-6"	18'-6 3/8"	22'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
8.14	793

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	15	L	Min	3'-2"				L	-				L	-	4	18	4	Min	4	18	10	14'-8"	4	18	10	L	Min	4'-11"	4	8	19'-4"	4	18	10	Min	-	-	-	Min	4	2	15'-3"	4	2	16'-1"	6	12	6	L	3'-4"	359
					Max	7'-11"														5'-0"								Max	9'-3"									2'-8"													
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max								Min	2'-4"									-										X	1'-8"	
					Max	1'-0"														9'-8"								Max	2'-4"																				
				Y	Min	2'-6"				Y	-				Y	-				Min								Min	2'-8"									2'-8"													
					Max	7'-0"														Max								Max	7'-0"									2'-11"													
WING B	4	12	19	L	Min	3'-0"				L	-				L	-	4	18	4	Min	4	18	13	18'-2"	4	18	12	L	Min	4'-7"	4	8	22'-10"	4	18	12	Min	-	-	-	Min	4	2	18'-8"	4	2	20'-1"	6	12	6	L	3'-4"	434
					Max	8'-1"														6'-3"								Max	9'-3"									2'-8"													
				X	Min	0'-9"	-	-	-	X	-	-	-	-	X	-				Max								Min	2'-4"									-										X	1'-8"	
					Max	1'-2"														11'-11"								Max	2'-4"									3'-1"													
				Y	Min	2'-4"				Y	-				Y	-				Min								Min	2'-4"																				
					Max	7'-0"																						Max	7'-0"																				

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" 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	HEADWALL REINFORCING STEEL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																														
10	3:1	10	4	6	2'-5"	8	9	6.5	3	5'-1"	7'-5"	4	10	Max 4'-9" / Min / 4'-9"	0 / 3	4	10	Max 4'-9" / Min / 4'-9"	0 / 3	5	7	9	7'-1"	4	12	5	Max 2'-9" / Min 1'-10"	4	12	5	Max 2'-9" / Min 1'-10"	4	12	6	LONG 2'-9" / SHORT 1'-10"	"k1" / "k2" / "h"	4	6	4'-10" / 4'-10" / 1'-7" / Y / 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
1.35	165

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

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 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-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 SLOPE SECTION(S)

	R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
		D	S	H	T	B	C	OW	OH	SL																					
A	10	4	6	8	9	6.5	5'-1"	7'-5"	17.38	4	10	20	4'-9"	4	10	20	4'-9"	5	7	58	7'-1"	4	12	5	4	12	5	4	12	12

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)
CU. YDS.	LBS.
8.82	854
TOTAL	
8.82	854

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

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"

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.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
		D	S	H	T	B	C	OW	OH	SL																					
B	15	4	6	8	9	7	5'-2"	7'-5"	129.50	4	8	194	4'-10"	4	8	194	4'-10"	6	8	388	7'-1"	4	12	5	4	12	5	4	12	12

CLASS "S" CONCRETE	REINFORCING STEEL (Gr. 60)
CU. YDS.	LBS.
68.68	7369

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

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 281+85

SPECIAL DETAILS

Ver. 1.14 FILENAME

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.		CA0906	30	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
5'-1"	6'-0"	0'-9"	0'-8"	10	3:1	4'-0 3/4"	2'-0"	6'-10"	2'-0"	20	40	3'-2"	3'-4 7/8"	3'-6 7/8"	0'-5"	0'-4 1/8"	15'-0"	18'-6"	18'-6 3/8"	22'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
8.62	793

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	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	15	L	Min 3'-2"												Min					4	18	10	Min 4'-11"		4	8	19'-4"	4	18	10	Min					4	2	15'-3"	4	2	16'-1"				L 3'-4"	359
					Max 7'-11"												5'-0"								Max 9'-3"								2'-8"													
				X	Min 0'-9"	-	-	-	-	-	-	-	-	4	18	4	Max	4	18	4	14'-8"				Min 2'-4"																						
					Max 1'-0"																				Max 2'-4"								Max													
				Y	Min 2'-6"												9'-8"								Min 2'-8"								2'-11"													
					Max 7'-0"																				Max 7'-0"																					
WING B	4	12	19	L	Min 3'-0"												Min					4	18	13	Min 4'-7"		4	8	22'-10"	4	18	12	Min					4	2	18'-8"	4	2	20'-1"				L 3'-4"	434
					Max 8'-1"												6'-3"								Max 9'-3"								2'-8"													
				X	Min 0'-9"	-	-	-	-	-	-	-	-	4	18	4	Max	4	18	4	18'-2"				Min 2'-4"																						
					Max 1'-2"																				Max 2'-4"								Max													
				Y	Min 2'-4"												11'-11"								Min 2'-4"								3'-1"													
					Max 7'-0"																				Max 7'-0"																					

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL DEPTH	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" LENGTH	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" LENGTH	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTH VARY	"d" LENGTH	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTH VARY	"e" LENGTH	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
SK	SL	D	S	H	LL	T	B	C	HD	OW	OH																																		
10	3:1	10	4	6	2'-5"	8	9	6.5	3	5'-1"	7'-5"	4	10	Max 4'-9" / Min / 4'-9"	0	3	4	10	Max 4'-9" / Min / 4'-9"	0	3	5	7	9	7'-1"	4	12	5	Max 2'-9" / Min 1'-10"		4	12	5	Max 2'-9" / Min 1'-10"		4	12	6	LONG 2'-9" / SHORT 1'-10"	"k1" / "k2" / "h"	4 / 4 / 4	6 / 6 / 7	4'-10" / 4'-10" / 1'-7" / Y / 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
1.35	165

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																						
A	10	4	6	8	9	6.5	5'-1"	7'-5"	18.28	4	10	21	4'-9"	4	10	21	4'-9"	5	7	62	7'-1"	4	12	5	4	12	5	4	12	12

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

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)
CU. YDS.	LBS.
9.28	897
TOTAL	
9.28	897

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"

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

SINGLE BARREL BOX CULVERT
STA 281+85

SPECIAL DETAILS

Ver. 1.1.4 FILENAME

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.		CA0906	31	417

SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-8"	4'-0"	0'-9"	0'-8"	15	3:1	44'-2 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
6.85	513

		F1					F2				F3				F4			F5			F6				F7		F8			F9		F10		F11		F12			
	WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	REINF. STEEL QTY. PER WING (LBS)
	WING A	4	12	11	L	Min	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	10'-2"	4	18	7	Min		4	6	13'-3"	4	18	7	Min	-	-	-	Min		4	2	10'-7"	4	2	11'-6"	6	12	4	L 3'-4"	225
						Max												3'-4"								1'-8"								Max										X 1'-8"	
					X	Min				X -				X -				Max								Max								-											
						Max												7'-10"								1'-11"																			
					Y	Min				Y -				Y -												Y	Min																			
						Max																				Max																			
	WING B	4	12	15	L	Min	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	14'-2"	4	18	10	Min		4	6	17'-3"	4	18	10	Min	-	-	-	Min		4	2	14'-5"	4	2	16'-3"	6	12	4	L 3'-4"	288
						Max												4'-8"								1'-8"								Max										X 1'-8"	
					X	Min				X -				X -				Max								Max								-											
						Max												10'-11"								2'-1"																			
					Y	Min				Y -				Y -												Y	Min																			
						Max																				Max																			

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. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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 DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVERALL WIDTH	OVERALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													"a"				"c"				"d"				"f"			
													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
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																
15	3:1	2	8	4	7'-10"	11	3	11	6	8	43'-8"	5'-10"	5	8	Max 43'-4" / Min 5'-11"	16	7	7	Max 43'-4" / Min 5'-11"	18	4	9	Max 43'-4" / Min 5'-11"	14	4	12	Max 43'-4" / Min 5'-11"	11
															43'-4"	3			43'-4"	4			43'-4"	3			43'-4"	2

SIDE WALL REINFORCING STEEL "f0"				INTERIOR WALL REINFORCING STEEL "f1"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g"				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"				SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"				INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"			
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
4	9	22	5'-6"	4	12	72	5'-6"	4	10	109	Max 13'-6" / Min 1'-10"	4	10	109	Max 13'-6" / Min 1'-10"	4	12	4	LONG 13'-5"	4	12	8	LONG 11'-2"
																		4	SHORT 1'-11"			16	MID 8'-10"
																						8	SHORT 4'-2"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
28.66	4474

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

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	23'-4"	12	4	23'-4"	12	4	1'-10"	0'-10"	47

INLET 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.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
											"a"		Bent "b"		"c"				"d"		Bent "b1"		"f"																							
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

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

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	

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.)	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.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
											"a"		Bent "b"		"c"				"d"		Bent "b1"		"f"																							
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
A	2	8	4	11	11	6	8	43'-8"	5'-10"	40.34	4	43'-4"	8	44'-6"	8	43'-4"	17	28	4	43'-4"	4	44'-5"	4	43'-4"	22	22	4	9	106	5'-6"	4	12	320	5'-6"	4	10	109	4	10	109	4	12	8	4	12	32

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
141.59	19060

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
STA. 14+24

SPECIAL DETAILS

Ver. 1.9 14 FILENAME

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.		CA0906	32	417

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

TABULAR DATA BY: J. MONCRIEF DATE: 02/06/2017
CHECKED BY: S. BEAM DATE: 02/06/2017

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
43'-8"	4'-0"	0'-9"	0'-8"	15	3:1	44'-2 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
8.22	513

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"

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	11	L Min	2'-4"	-	-	-	-	-	-	-	-	4	18	4	Min 3'-4"	4	18	2	10'-2"	4	18	7	L Min	3'-3"	4	6	13'-3"	4	18	7	Min 1'-8"	-	-	-	Min -	4	2	10'-7"	4	2	11'-6"	6	12	4	L 3'-4"	225
				X Min	0'-9"	-	-	-	-	-	-	-	-				Max 7'-10"								X Min	1'-3"							Max 1'-11"				Max -									X 1'-8"	
				Max	1'-0"																				Max	1'-4"																				
				Y Min	1'-8"																				Y Min	2'-0"																				
				Max	5'-0"																				Max	5'-0"																				
WING B	4	12	15	L Min	2'-4"	-	-	-	-	-	-	-	-	4	18	4	Min 4'-8"	4	18	2	14'-2"	4	18	10	L Min	3'-0"	4	6	17'-3"	4	18	10	Min 1'-8"	-	-	-	Min -	4	2	14'-5"	4	2	16'-3"	6	12	4	L 3'-4"	288
				X Min	0'-9"	-	-	-	-	-	-	-	-				Max 10'-11"								X Min	1'-3"							Max 2'-1"				Max -									X 1'-8"	
				Max	1'-2"																				Max	1'-4"																				
				Y Min	1'-8"																				Y Min	1'-9"																				
				Max	5'-0"																				Max	5'-0"																				

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 LL	TOP SLAB THK. T	HDWL DEPTH HD	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVERALL WIDTH OW	OVERALL HEIGHT OH
15	3:1	2	8	4	7'-10"	11	3	11	6	8	43'-8"	5'-10"

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	8	Max 43'-4" / Min 5'-11"	16	7	7	Max 43'-4" / Min 5'-11"	18
		43'-4"	3			43'-4"	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
4	9	Max 43'-4' / Min 5'-11'	14	4	12	Max 43'-4" / Min 5'-11"	11
		43'-4'	3			43'-4"	2

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH
4	9	22	5'-6"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	72	5'-6"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	10	109	Max 13'-6" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	10	109	Max 13'-6" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	4	LONG 13'-5"
		4	SHORT 1'-11"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	8	LONG 11'-2"
		16	MID 8'-10"
		8	SHORT 4'-2"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
28.66	4474

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	23'-4"	12

"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	23'-4"	12

"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	1'-10"	0'-10"	47

OUTLET SLOPE SECTIONS)

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	"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

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

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	

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

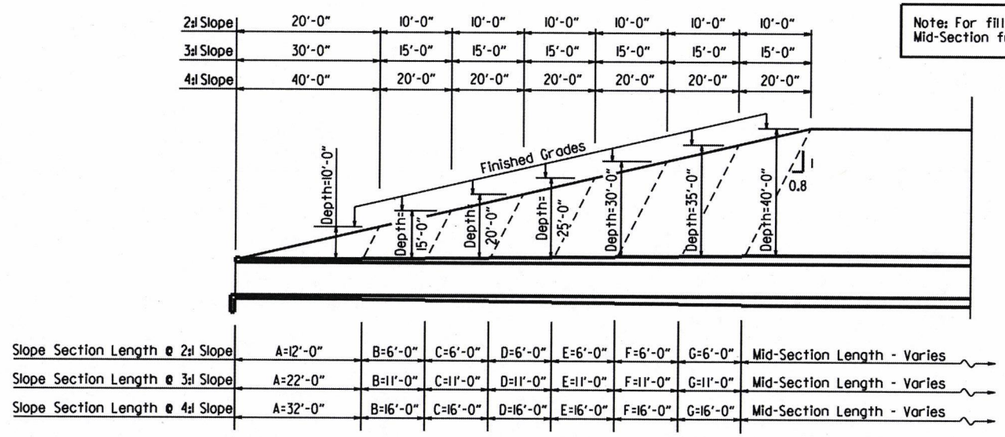
Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
STA 14+24

SPECIAL DETAILS

FILENAME

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.		CA0906	33	417
						SPECIAL DETAILS		

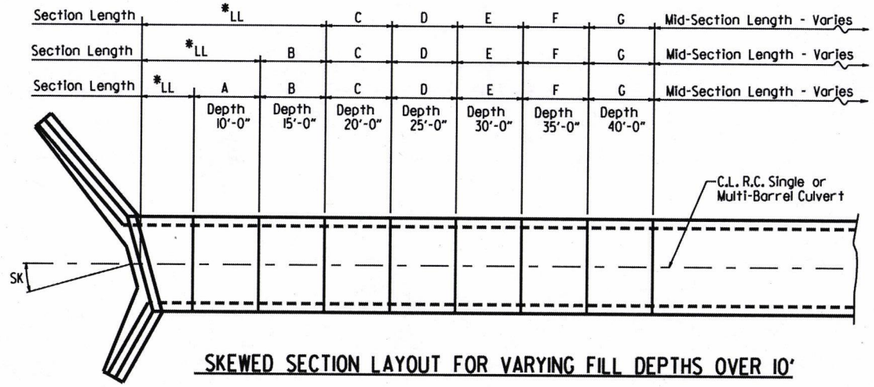


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

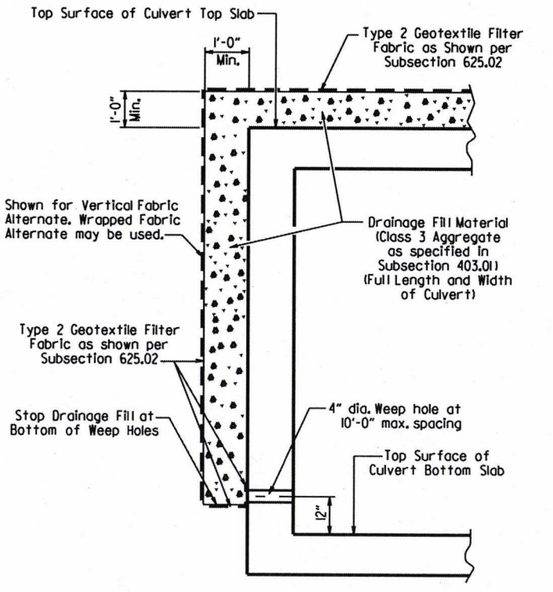
Lengths for Non-Skewed Boxes

*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.



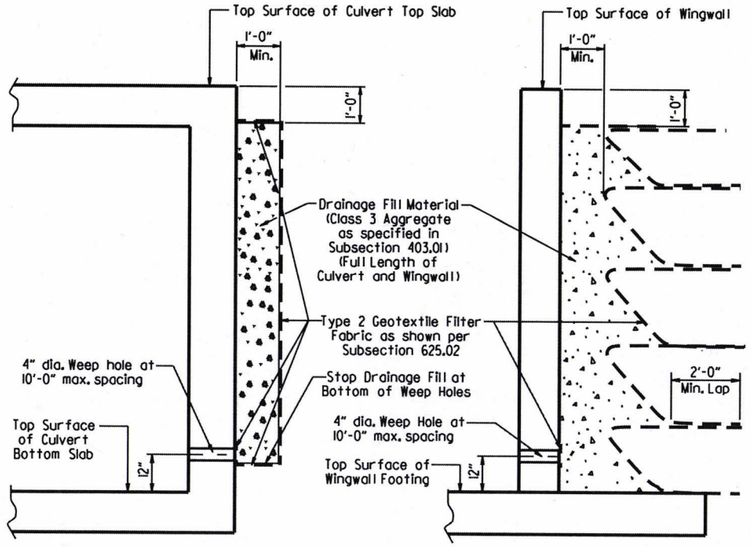
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17



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

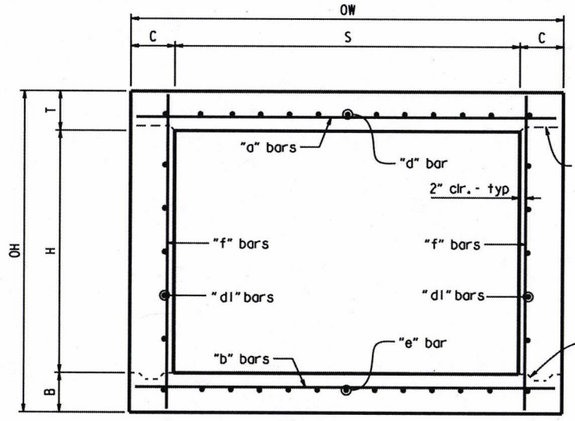
V LJ14 FILENAME

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.		CA0906	34	417

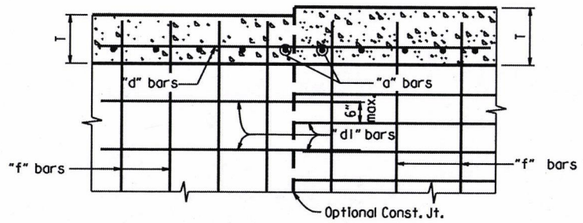
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

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



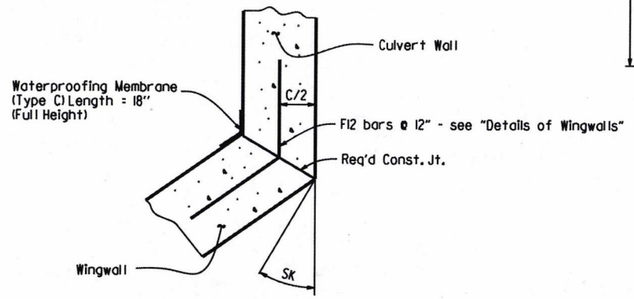
TYPICAL SECTION M-M



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

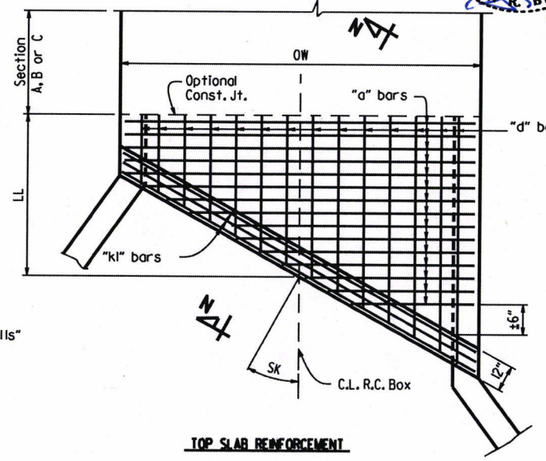
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

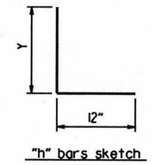


WINGWALL ATTACHMENT

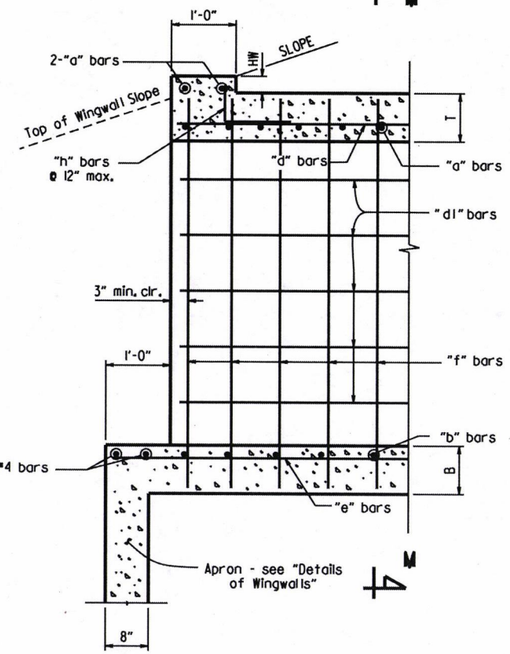
See "Details of Wingwalls" for additional information and wingwall details.



TOP SLAB REINFORCEMENT

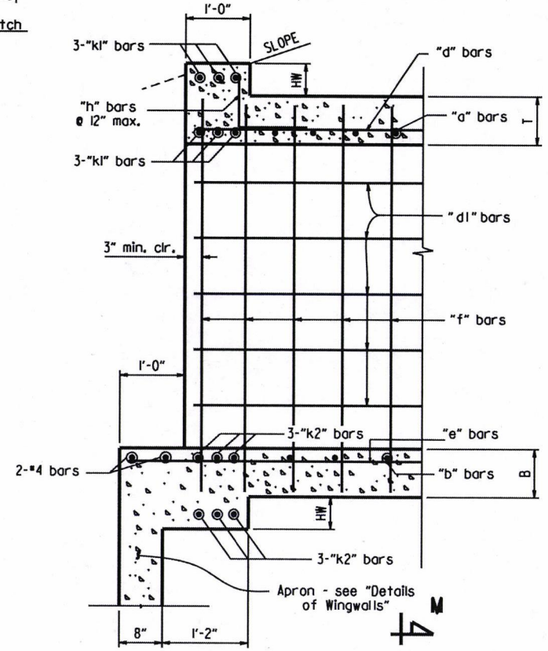


"h" bars sketch



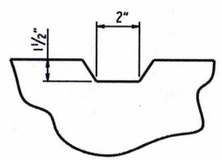
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



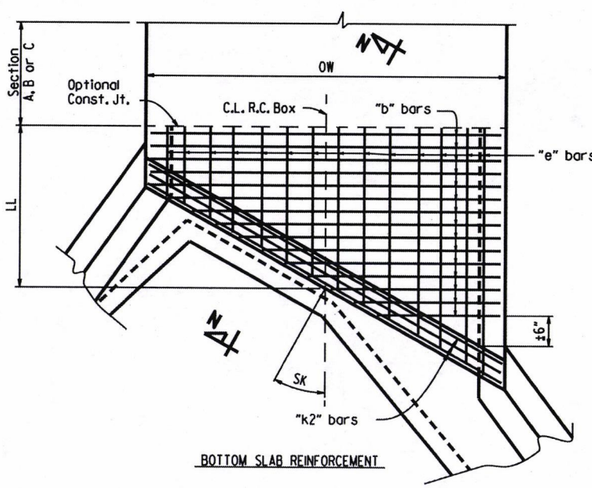
PART LONGITUDINAL SECTION N-N

(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

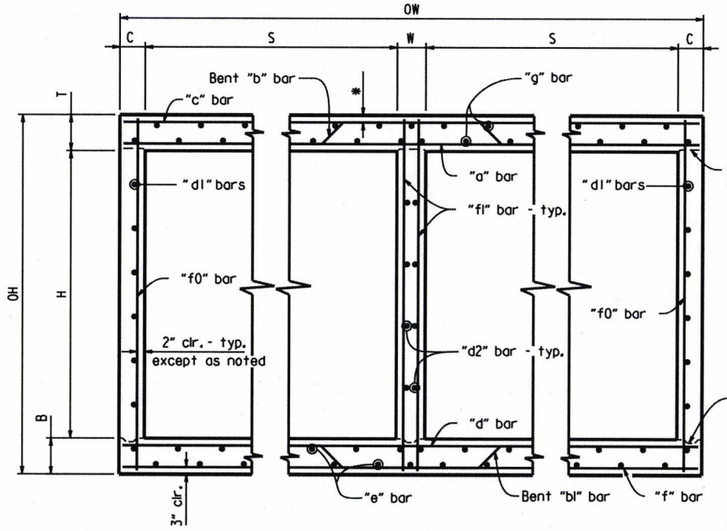
SPECIAL DETAILS

FILENAME

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.		CA0906	35	417
				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.

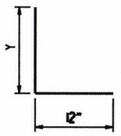
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



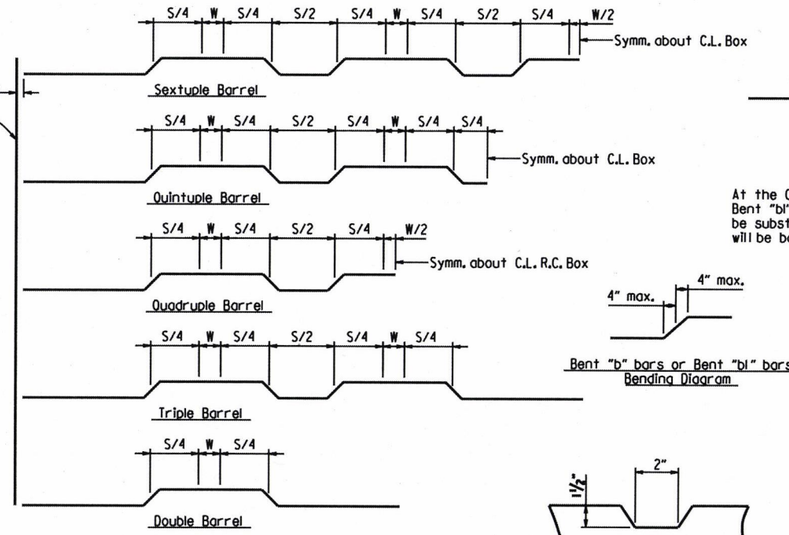
TYPICAL SECTION M-M

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

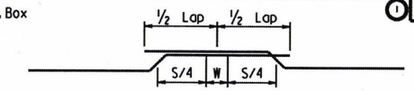
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



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



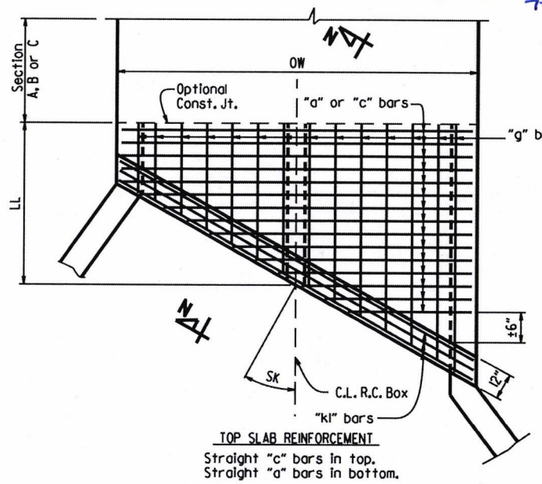
Lap Detail
For Bent "b" bars and Bent "b1" bars

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.

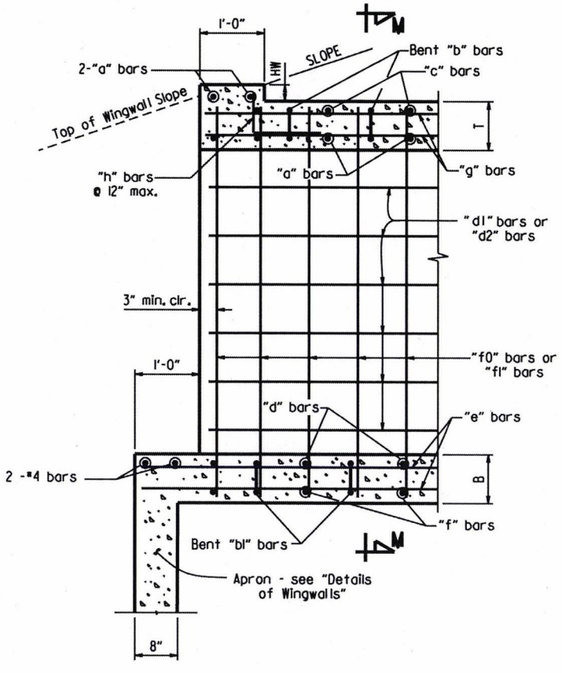
Bent "b" bars or Bent "b1" bars Bending Diagram

TYPICAL KEYWAY DETAIL

(All Construction Joints)

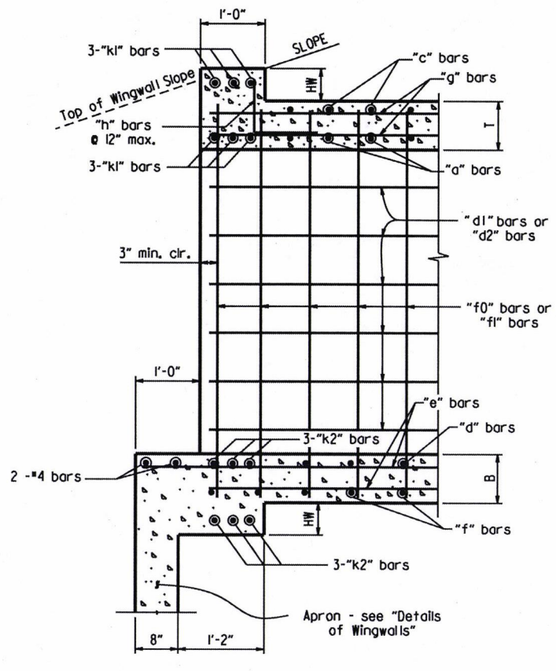


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



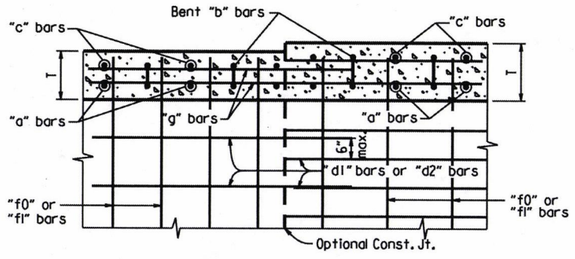
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

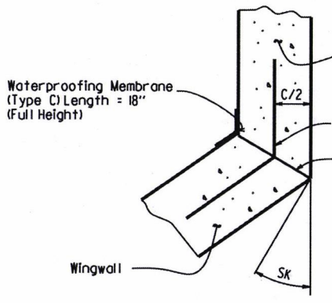
(Skewed Ends)



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

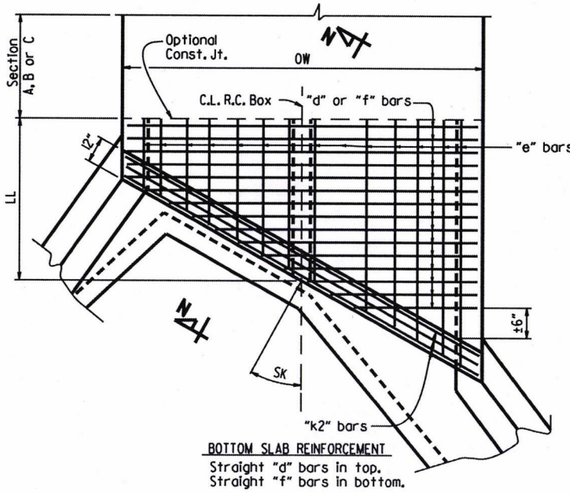
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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

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

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

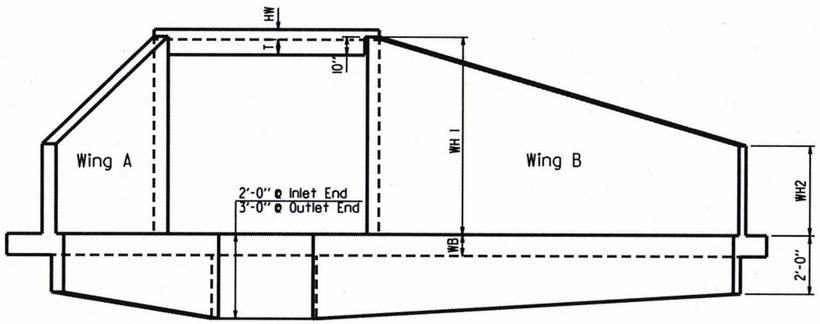
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

FILENAME

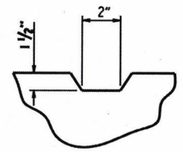
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	36	417

SPECIAL DETAILS



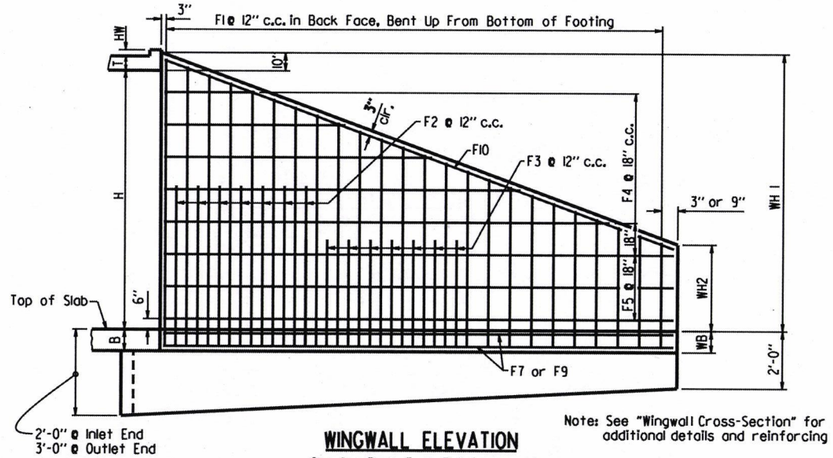
END ELEVATION

Flared Wingwalls Shown



TYPICAL KEYWAY DETAIL

All Construction Joints

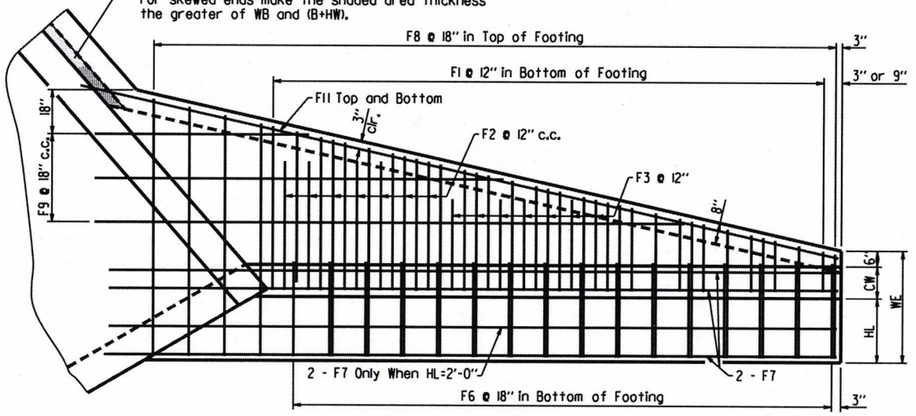


WINGWALL ELEVATION

Showing Back Face Reinforcement

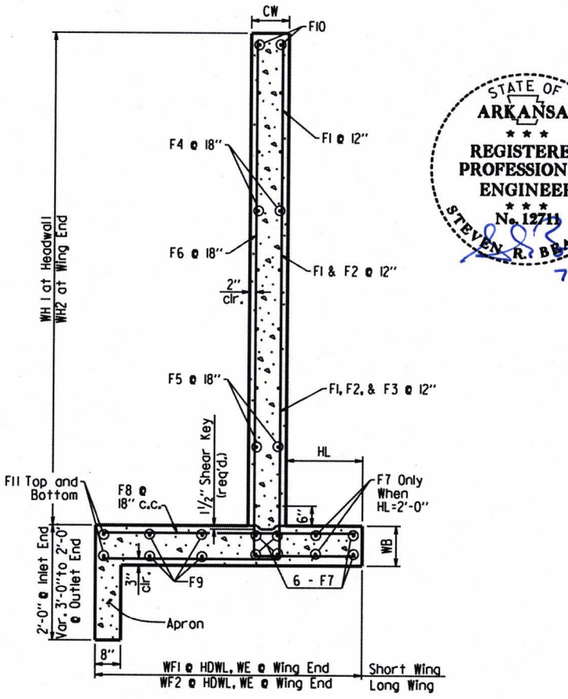
Note: See "Wingwall Cross-Section" for additional details and reinforcing

PART PLAN - FLARED WINGWALLS

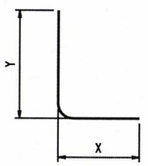


PLAN - FLARED WINGWALLS

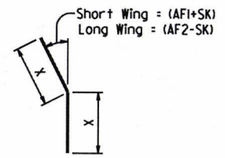
Showing Footing Reinforcement



WINGWALL SECTION P-P

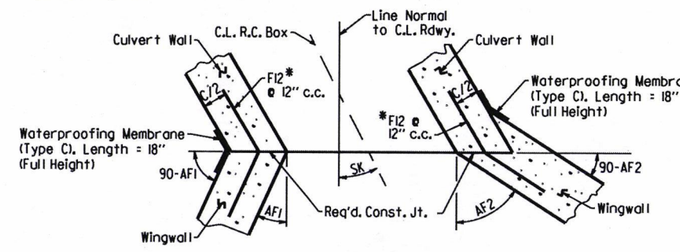


F1, F2, F3, & F6 BARS



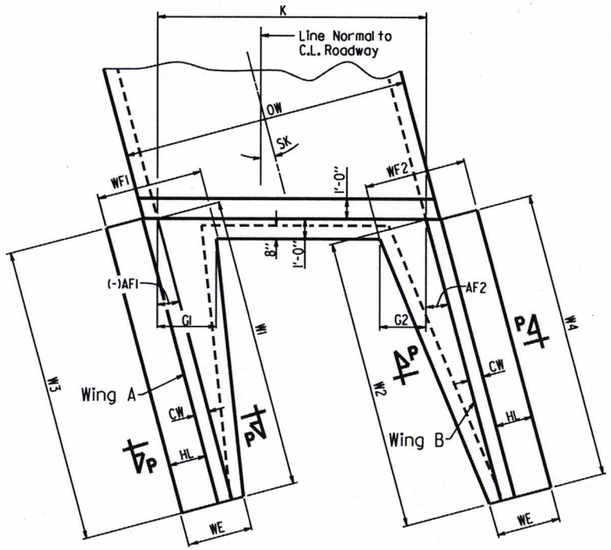
*F12 BAR

*F12 is a straight bar for parallel wingwalls

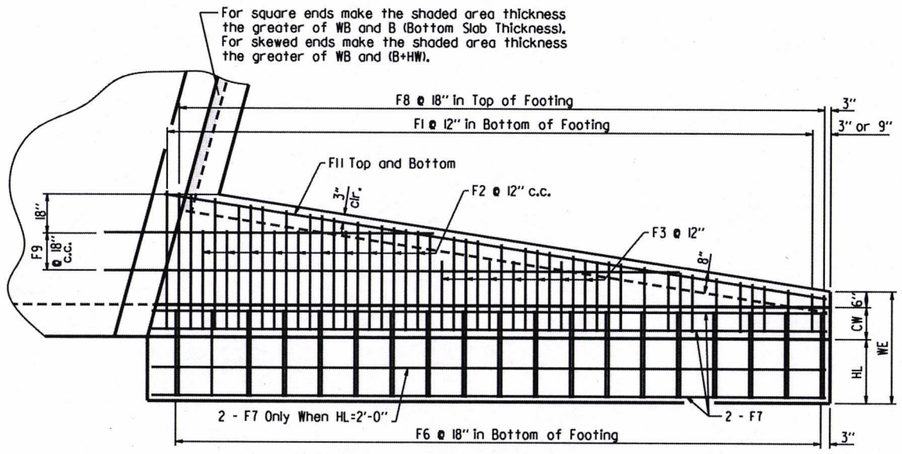


CONSTRUCTION JOINTS

Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

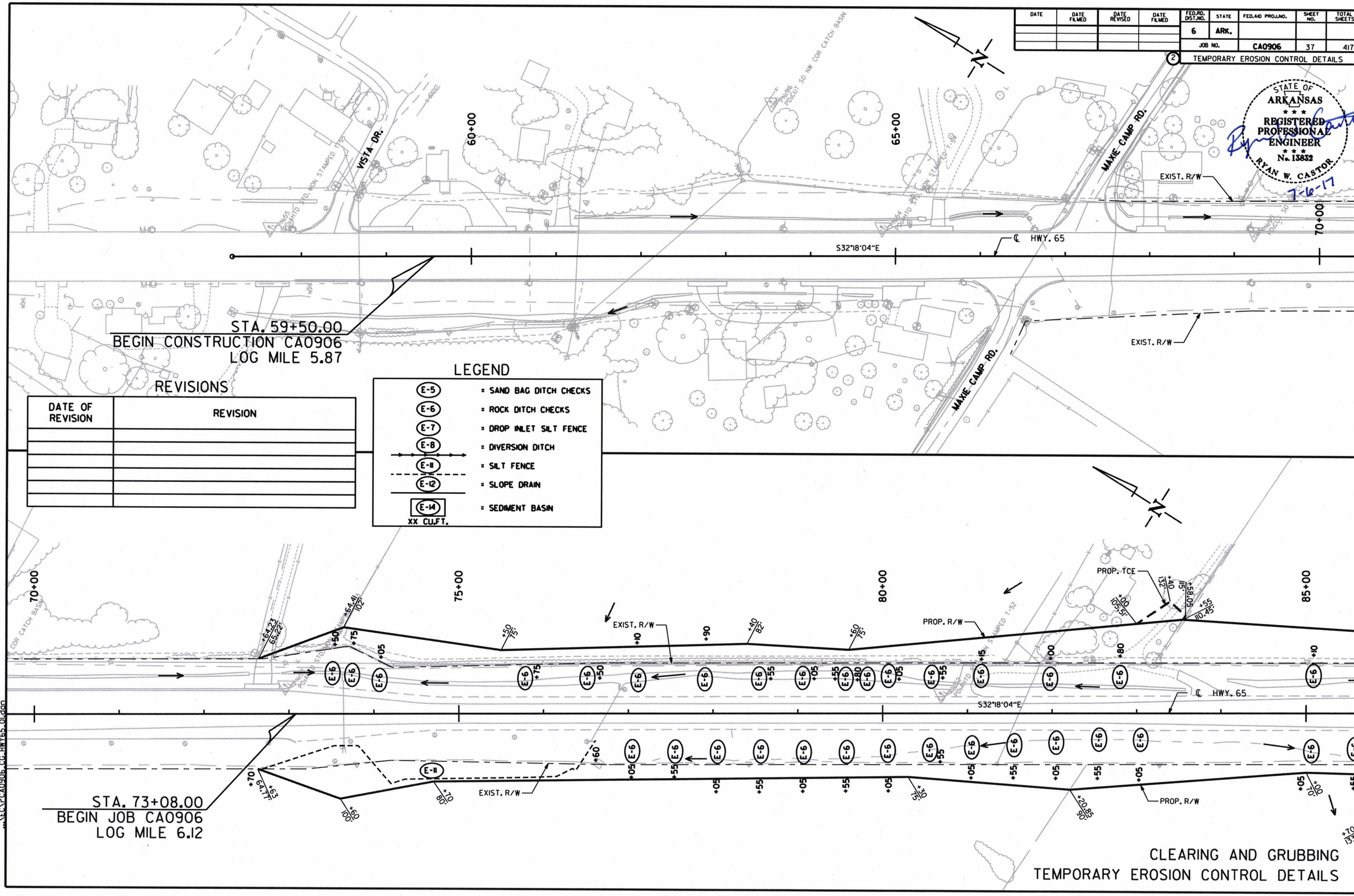
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

FILENAME

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	37	417

2 TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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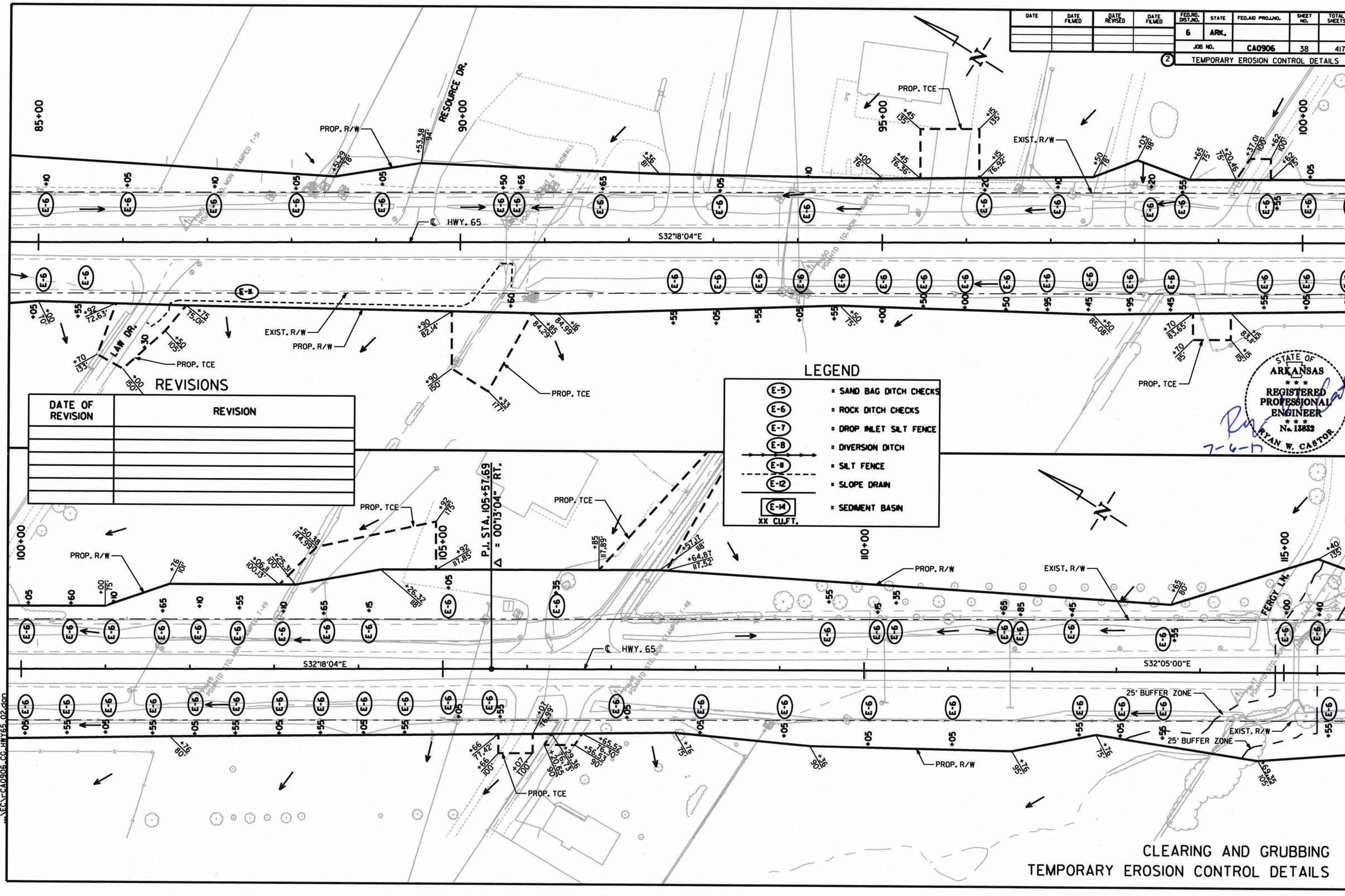
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	38	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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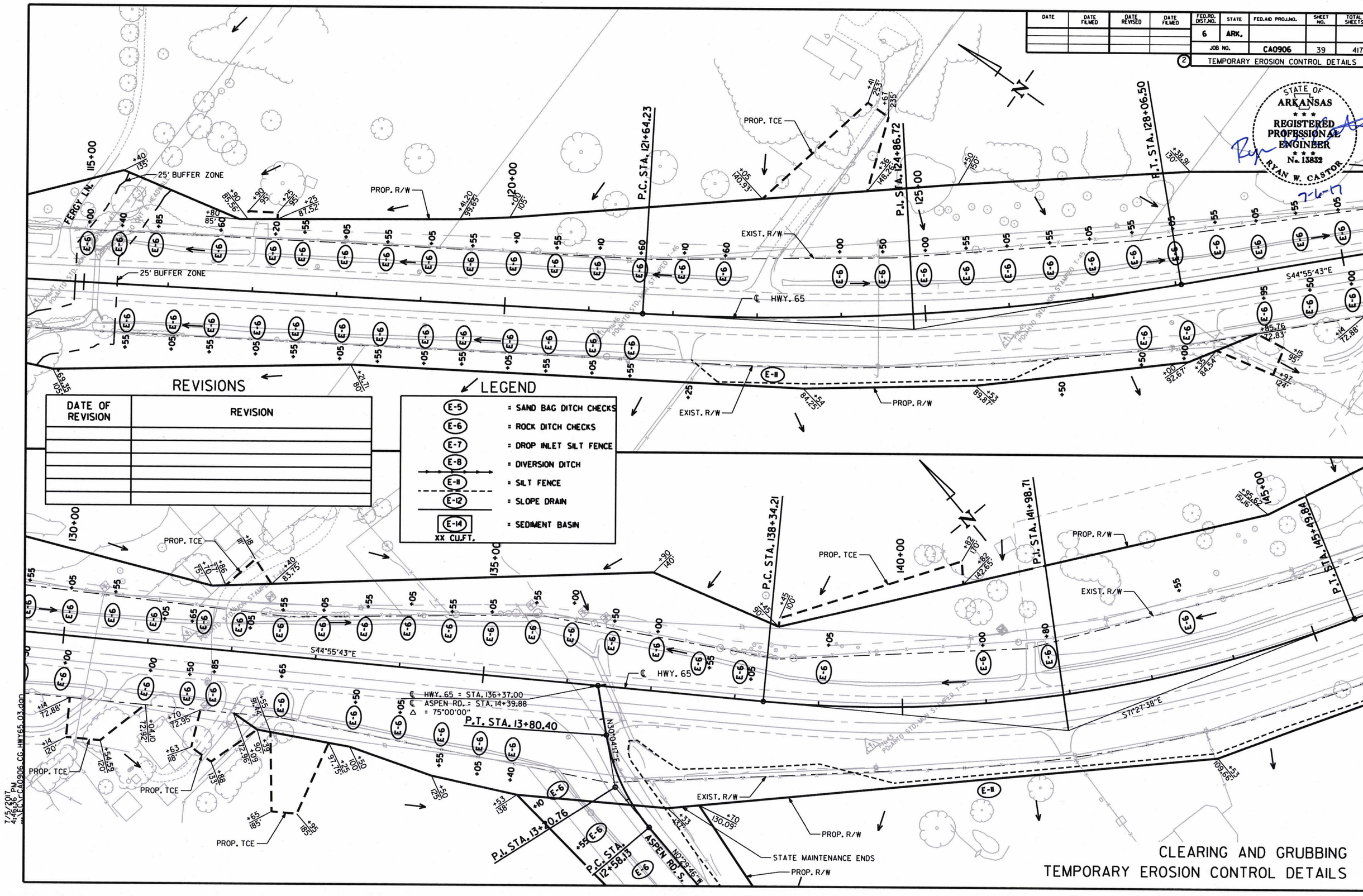

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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6	ARK.			
JOB NO.		CA0906	40	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

P.T. STA. 145+49.84
145+00
P.T. STA. 161+98.14
160+00
P.C. STA. 154+75.13
155+00
165+00
170+00
175+00
P.T. STA. 158+41.02
160+00
P.T. STA. 172+02.71
Δ = 00°18'20" RT.
PROP. R/W
EXIST. R/W
PROP. TCE
℄ HWY. 65
S71°45'53"E
S50°04'28"E
25' BUFFER ZONE

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/5/2017
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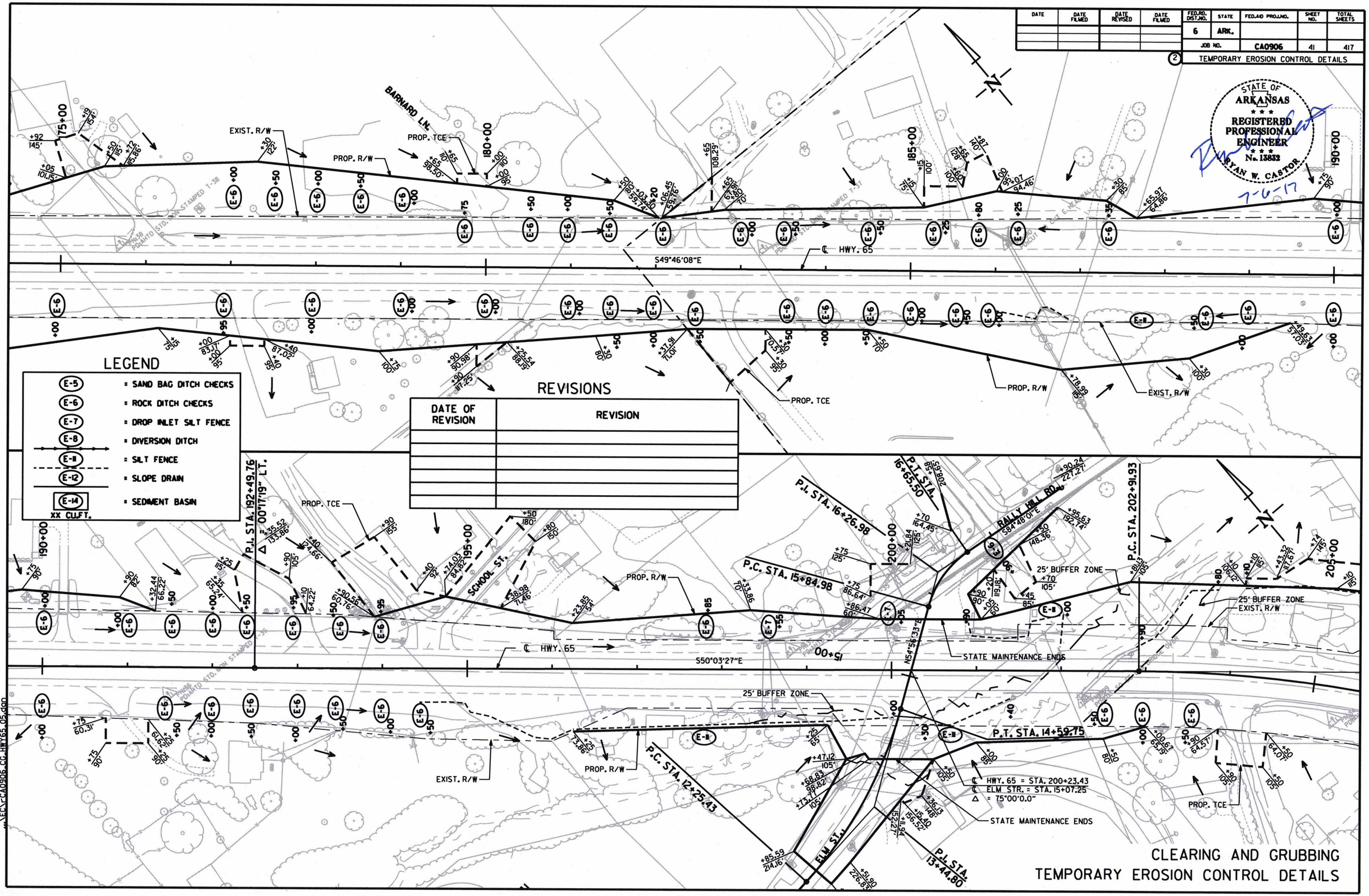
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	41	417

(2) TEMPORARY EROSION CONTROL DETAILS



CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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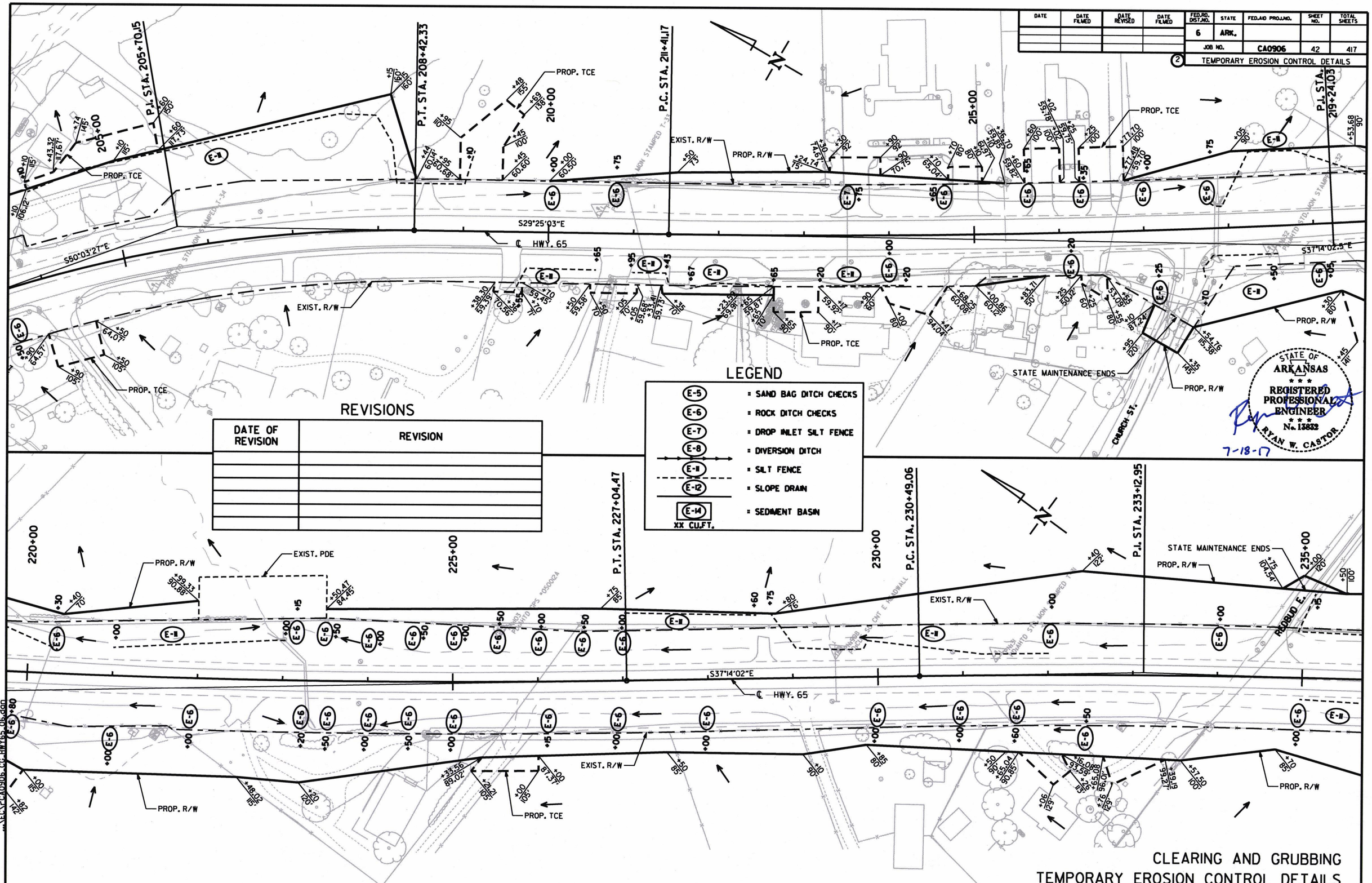
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	42	417

(2) TEMPORARY EROSION CONTROL DETAILS



LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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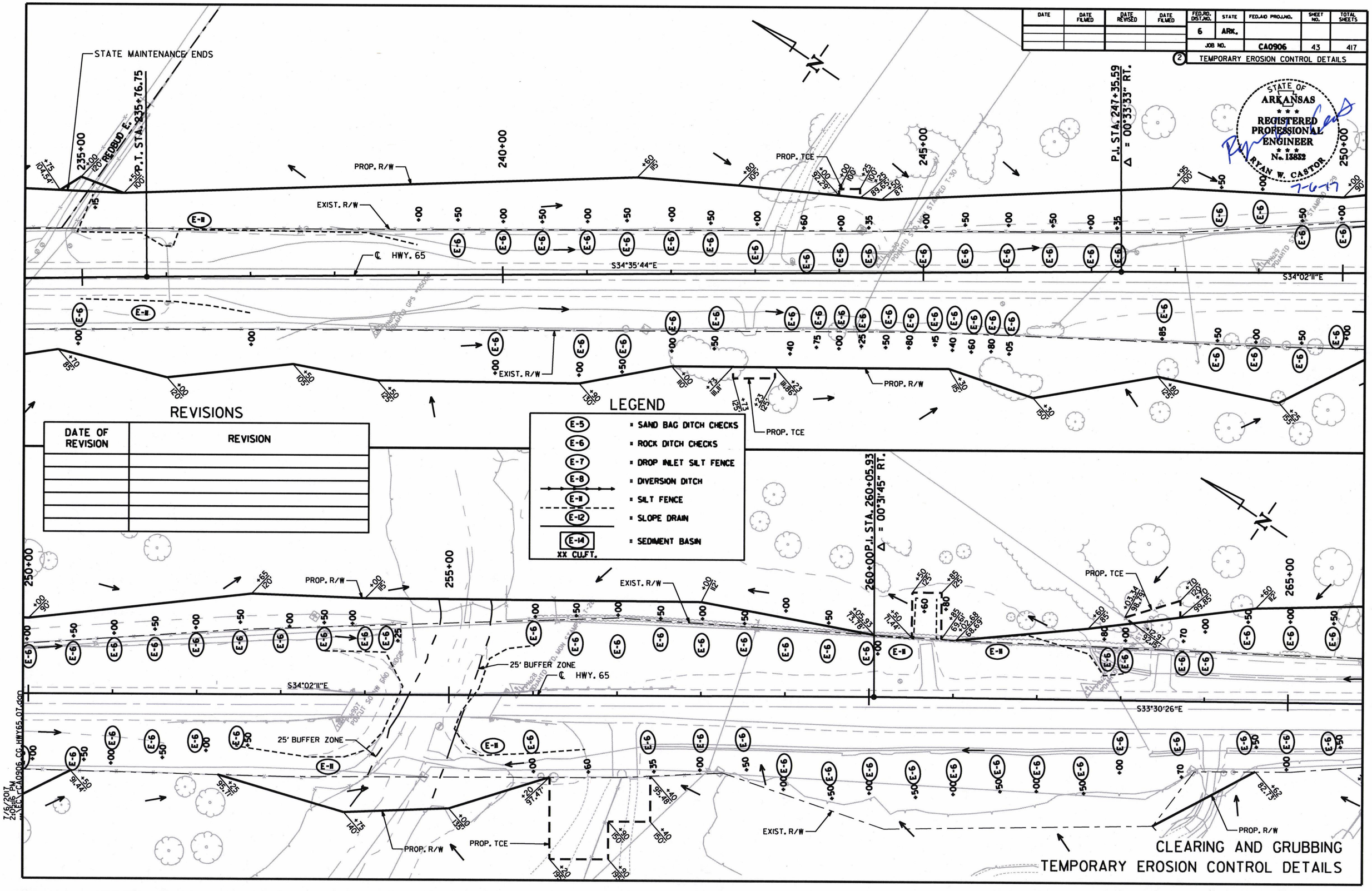
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	43	417

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/6/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	44	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) XX CU.FT. = SEDIMENT BASIN

P.I. STA. 273+04.96
Δ = 00°31'45" LT.

EXIST. R/W
PROP. R/W
℄ HWY. 65
S33°30'26"E
S34°02'11"E
PROP. TCE
P.C. STA. 289+95.56
P.I. STA. 292+18.70
P.T. STA. 294+39.81
SAGEMORE LOOP
STATE MAINTENANCE ENDS
℄ HWY. 65 = STA. 282+25.00
℄ MURRAY RD. = STA. 12+60.00
Δ = 90°00'00"
P.T. STA. 12+22.40
P.I. STA. 11+79.40
P.C. STA. 11+33.72
POB 9+63.78
MURRAY RD.
N89°53'02"E
N65°57'49"E
S20°42'32"E

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/5/2017
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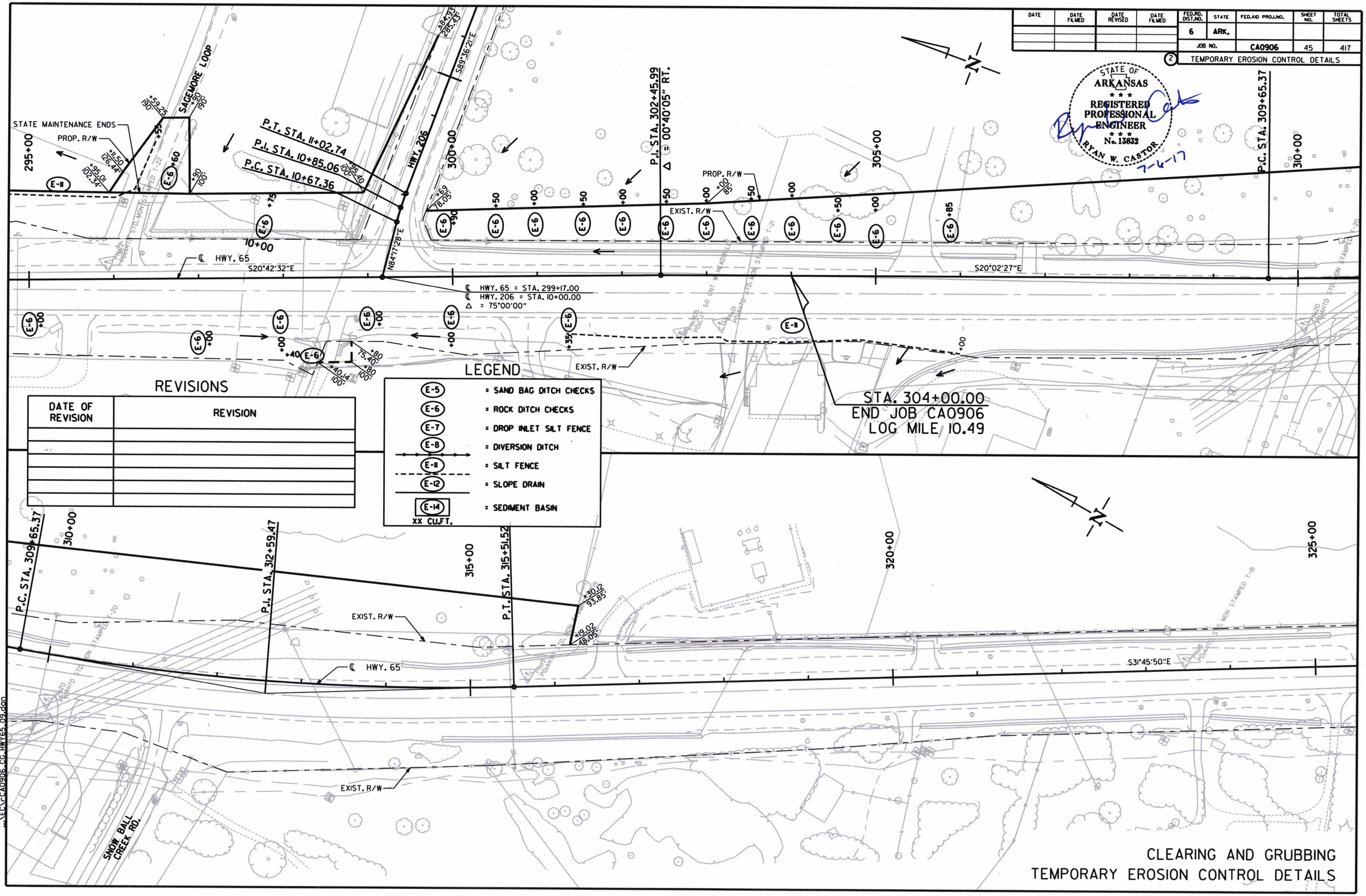
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	45	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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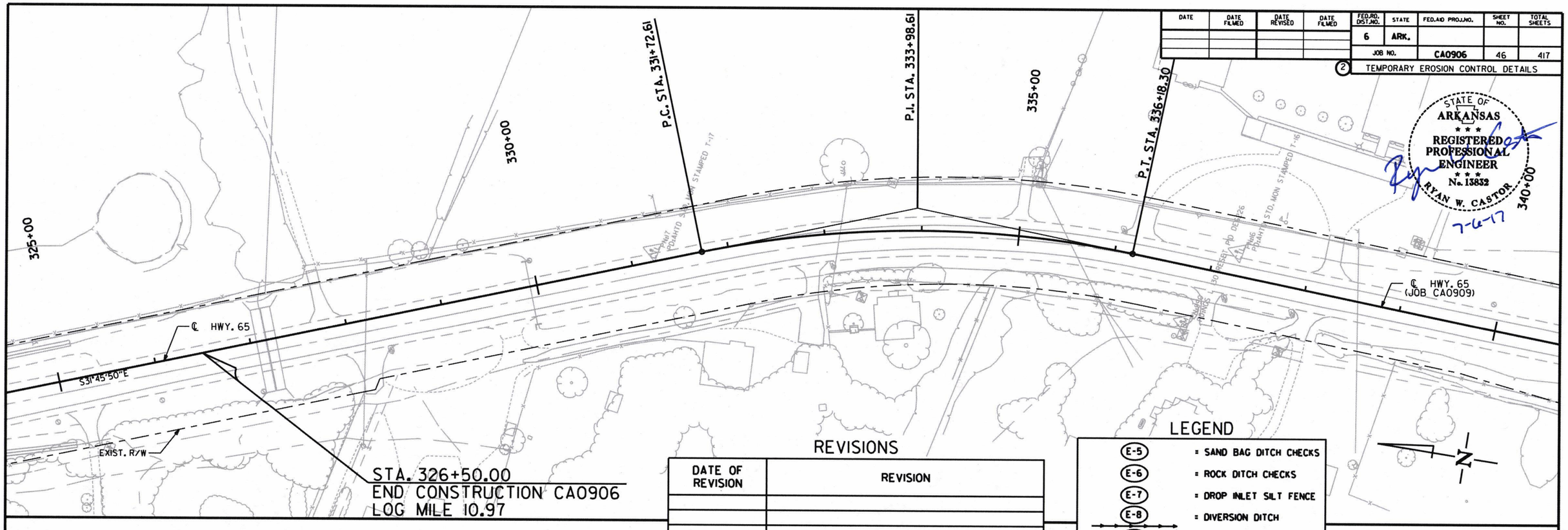
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	46	417

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

7/5/2017
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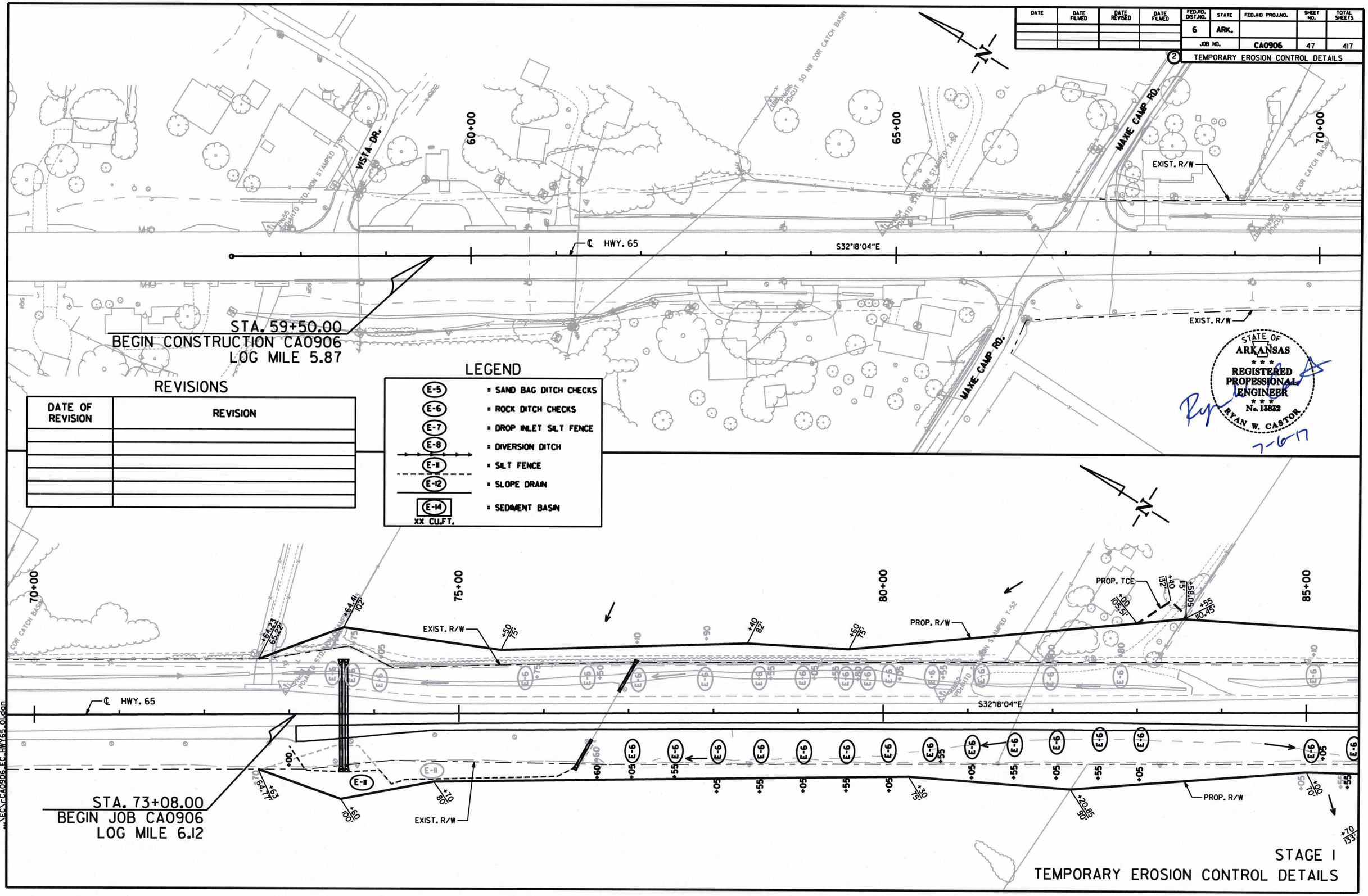
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	47	417

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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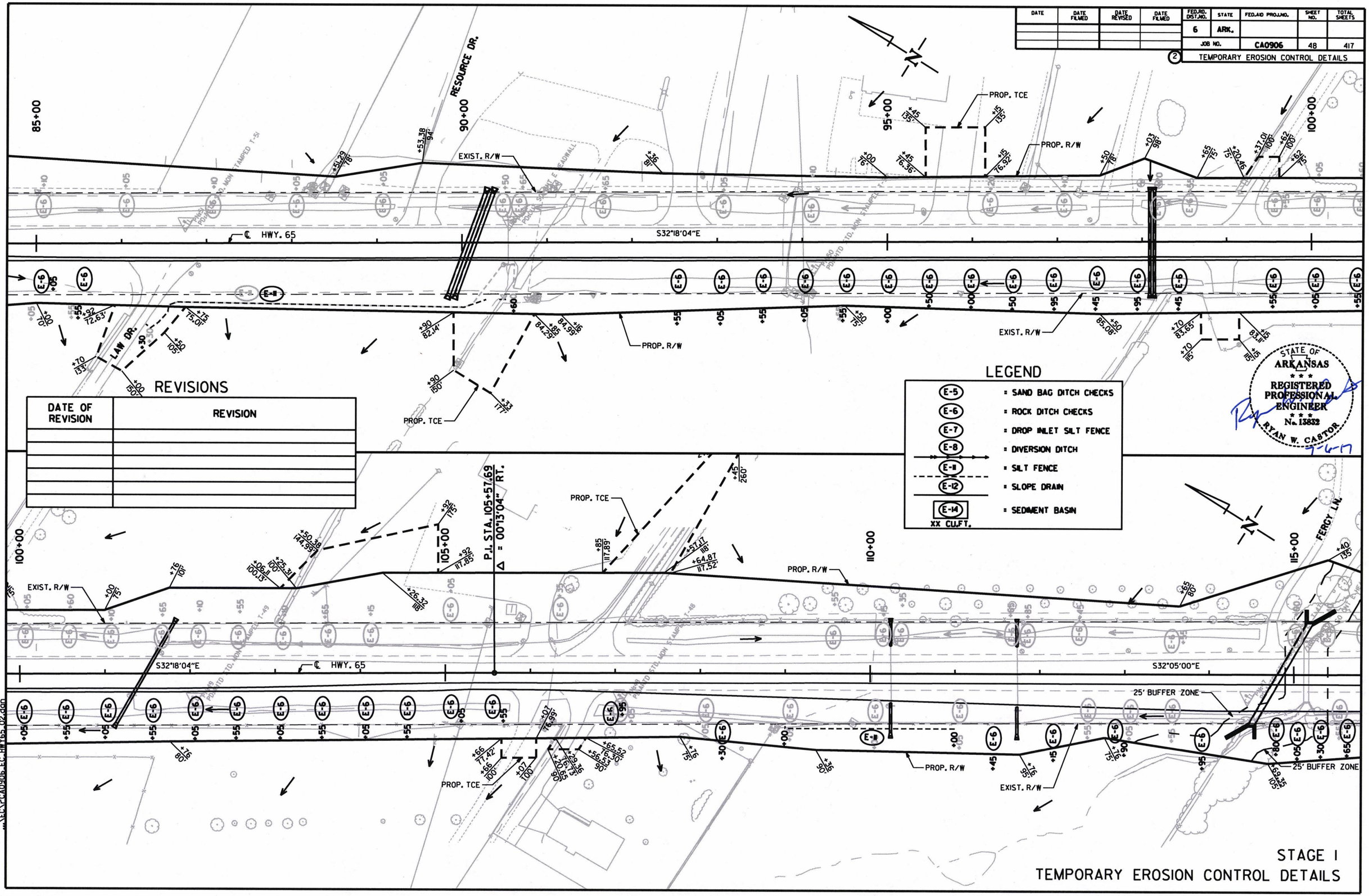
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	48	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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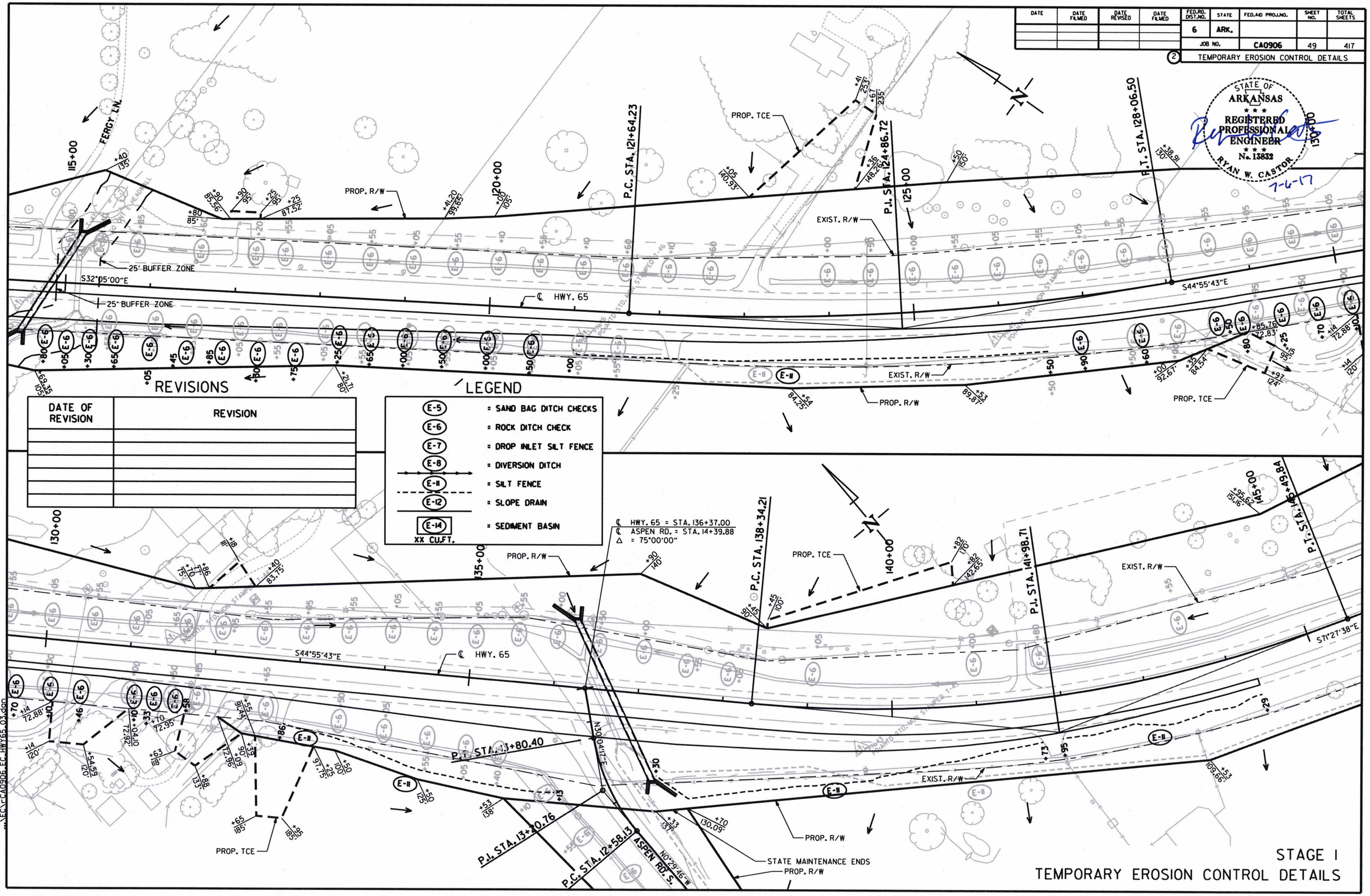
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	49	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECK
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	50	417

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
BRYAN W. CASTOR
7-6-17

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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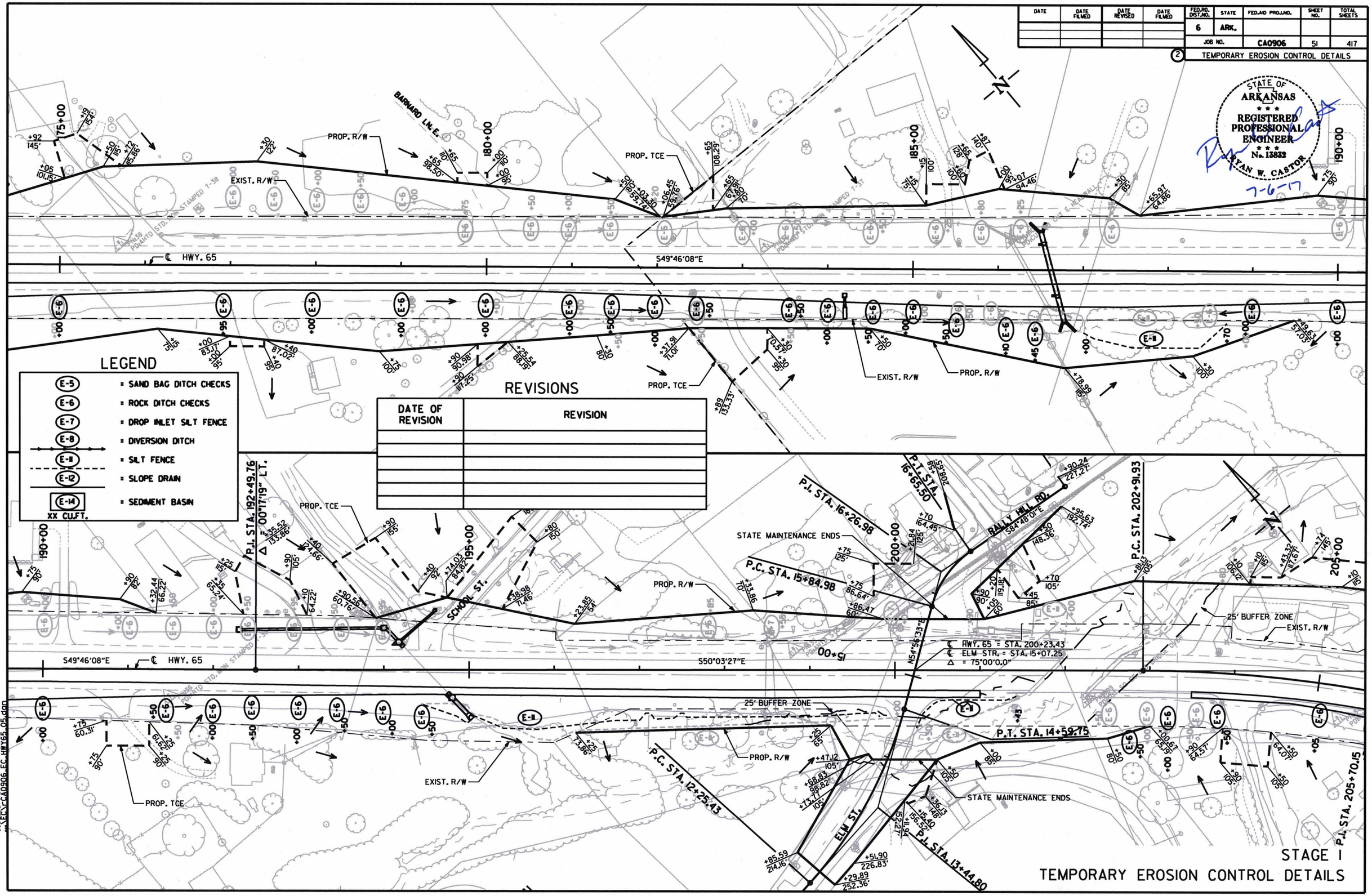
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	51	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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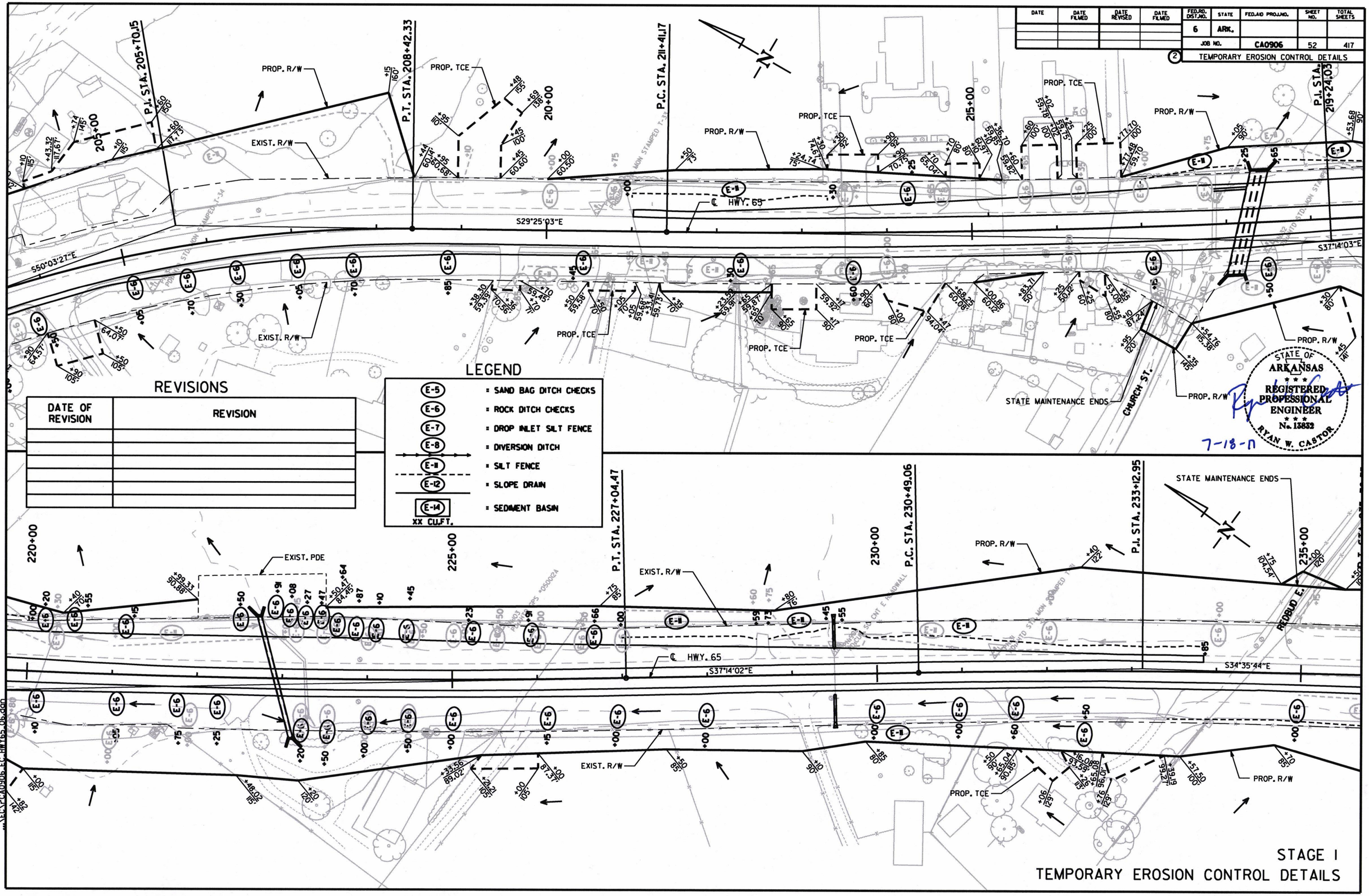
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	52	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	53	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STATE MAINTENANCE ENDS

P.T. STA. 235+76.75

REDBUD E.

P.I. STA. 247+35.59
Δ = 00°33'33" RT.

P.I. STA. 260+05.93
Δ = 00°31'45" RT.

PROP. R/W

EXIST. R/W

PROP. TCE

℄ HWY. 65

S34°35'44"E

S34°02'11"E

S33°30'26"E

25' BUFFER ZONE

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-8 = DIVERSION DITCH
- E-11 = SILT FENCE
- E-12 = SLOPE DRAIN
- E-14 = SEDIMENT BASIN
  XX CU.FT.

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STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	54	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) xx CU.FT. = SEDIMENT BASIN

P.I. STA. 273+04.96
Δ = 00°31'45" LT.

S33°30'26"E

EXIST. R/W

PROP. R/W

PROP. TCE

℄ HWY. 65

℄ HWY. 65 = STA. 282+25.00
℄ MURRAY RD. = STA. 12+60.00
Δ = 90°00'00"

S34°02'11"E

N55°57'49"E

P.T. STA. 12+22.40

P.I. STA. 11+79.40

P.C. STA. 11+33.72

POB 9+63.78

N89°53'02"E

MURRAY RD.

STATE MAINTENANCE ENDS

P.C. STA. 289+95.56

P.I. STA. 292+18.70

P.T. STA. 294+39.81

SAGEMORE LOOP

S19°58'41"E

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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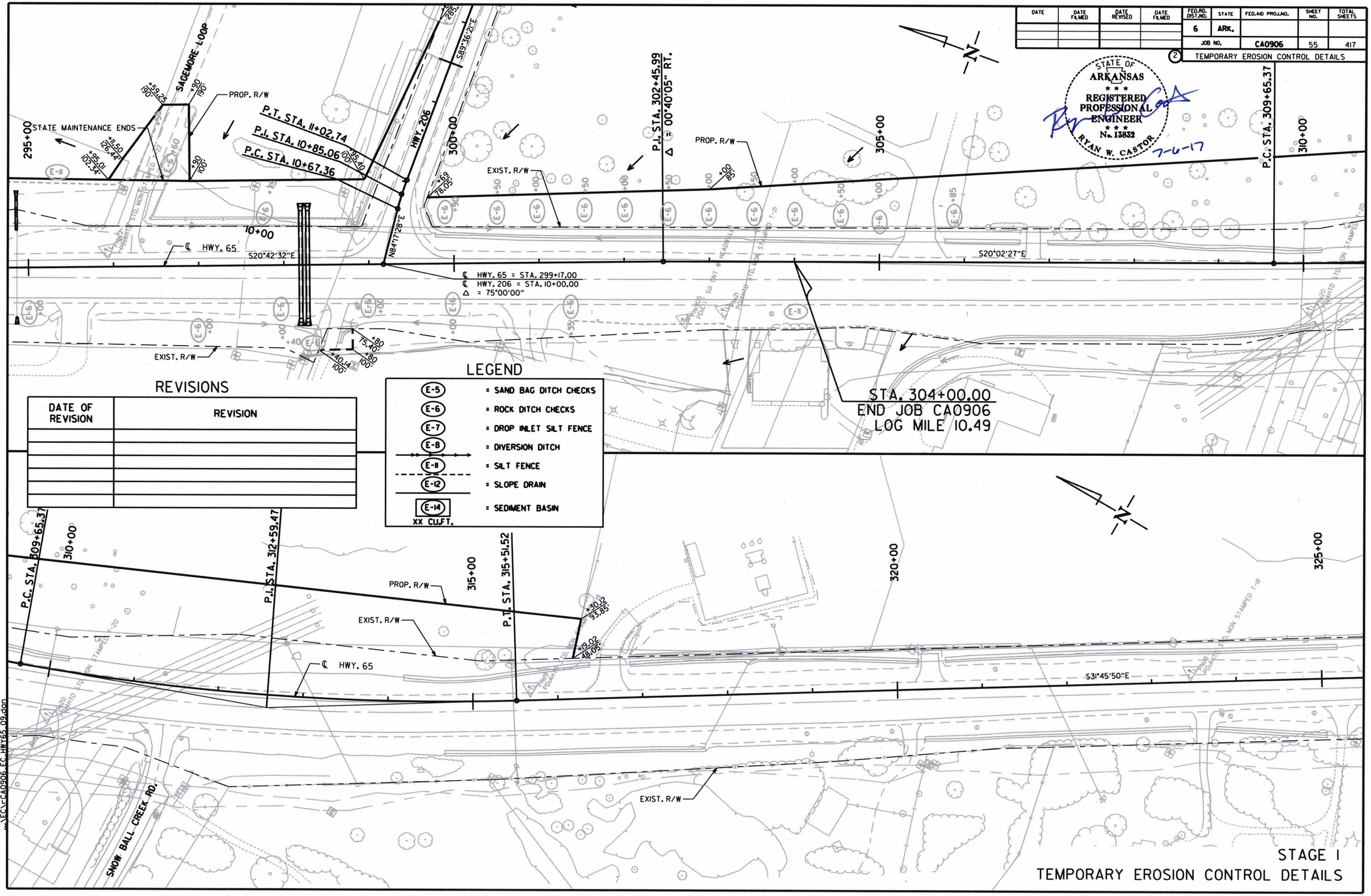
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	55	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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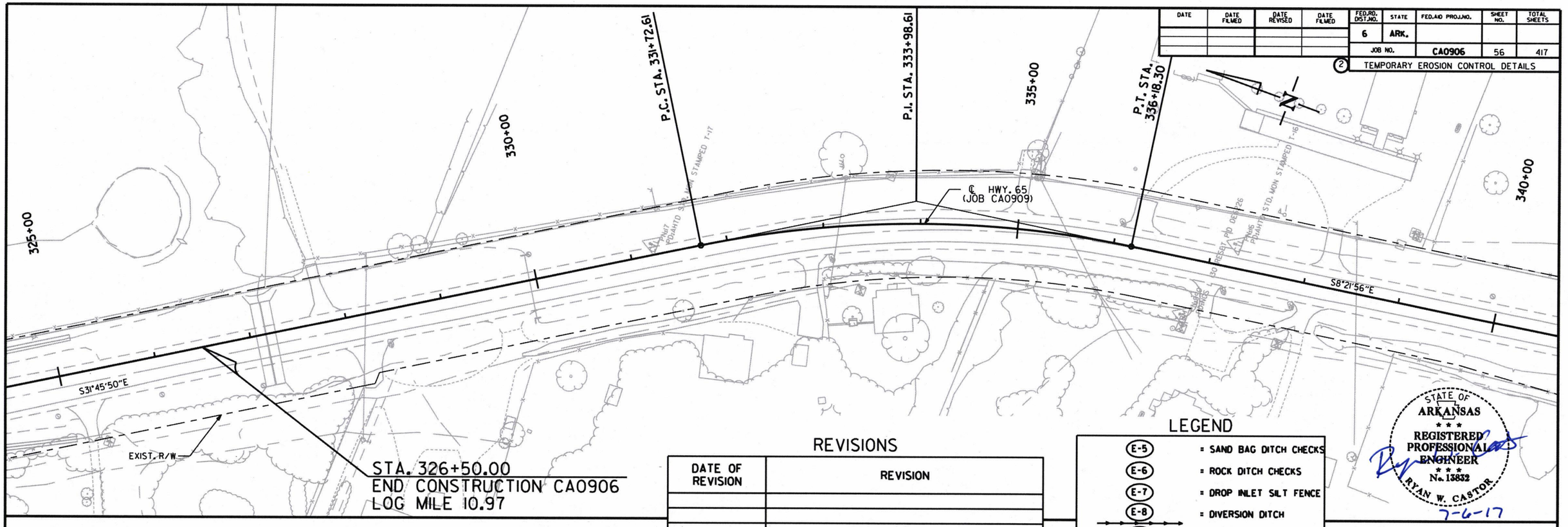
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	56	417

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) XX CU.FT. = SEDIMENT BASIN

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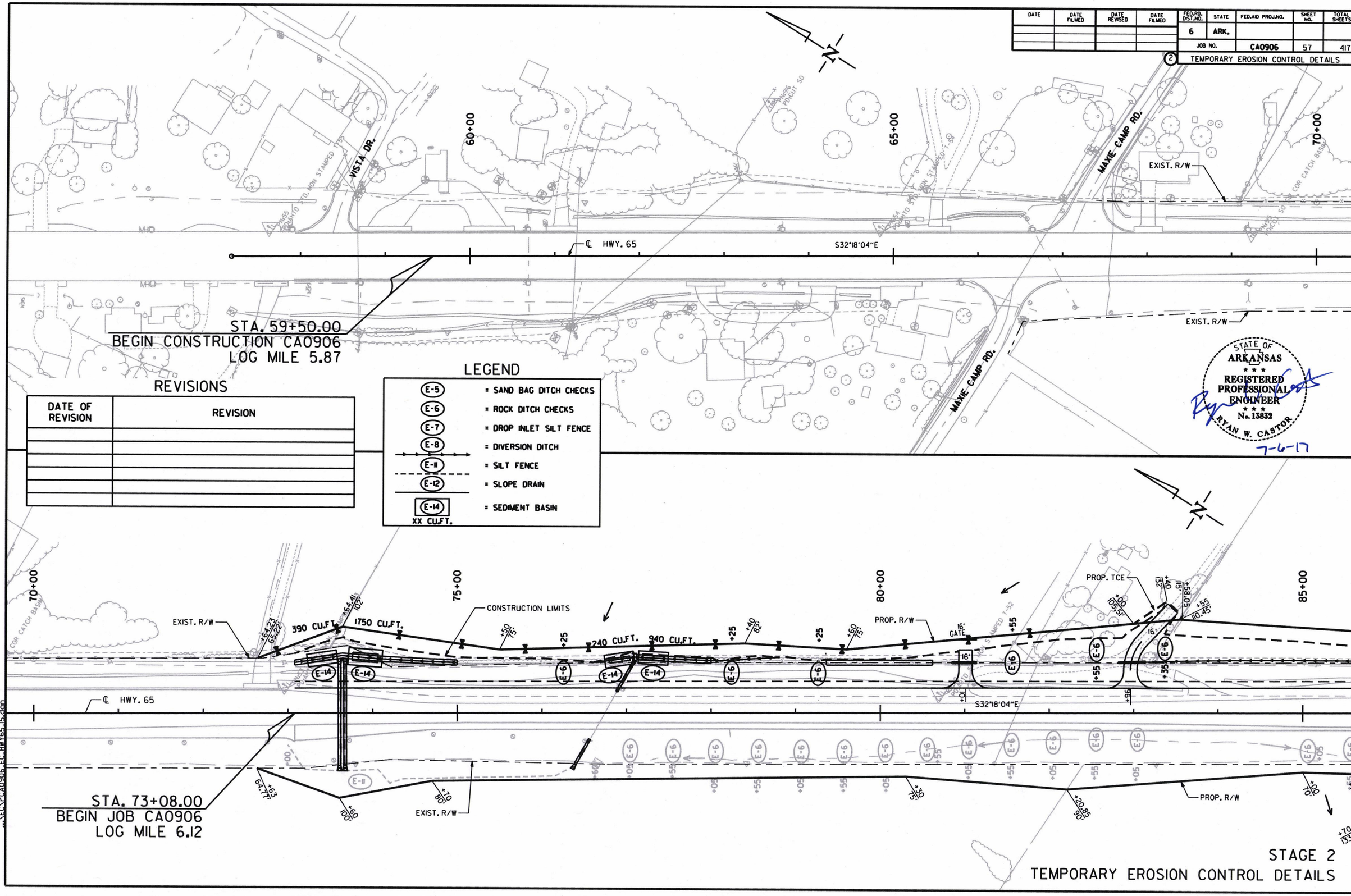
STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	57	417

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	58	417

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) XX CU.FT. = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

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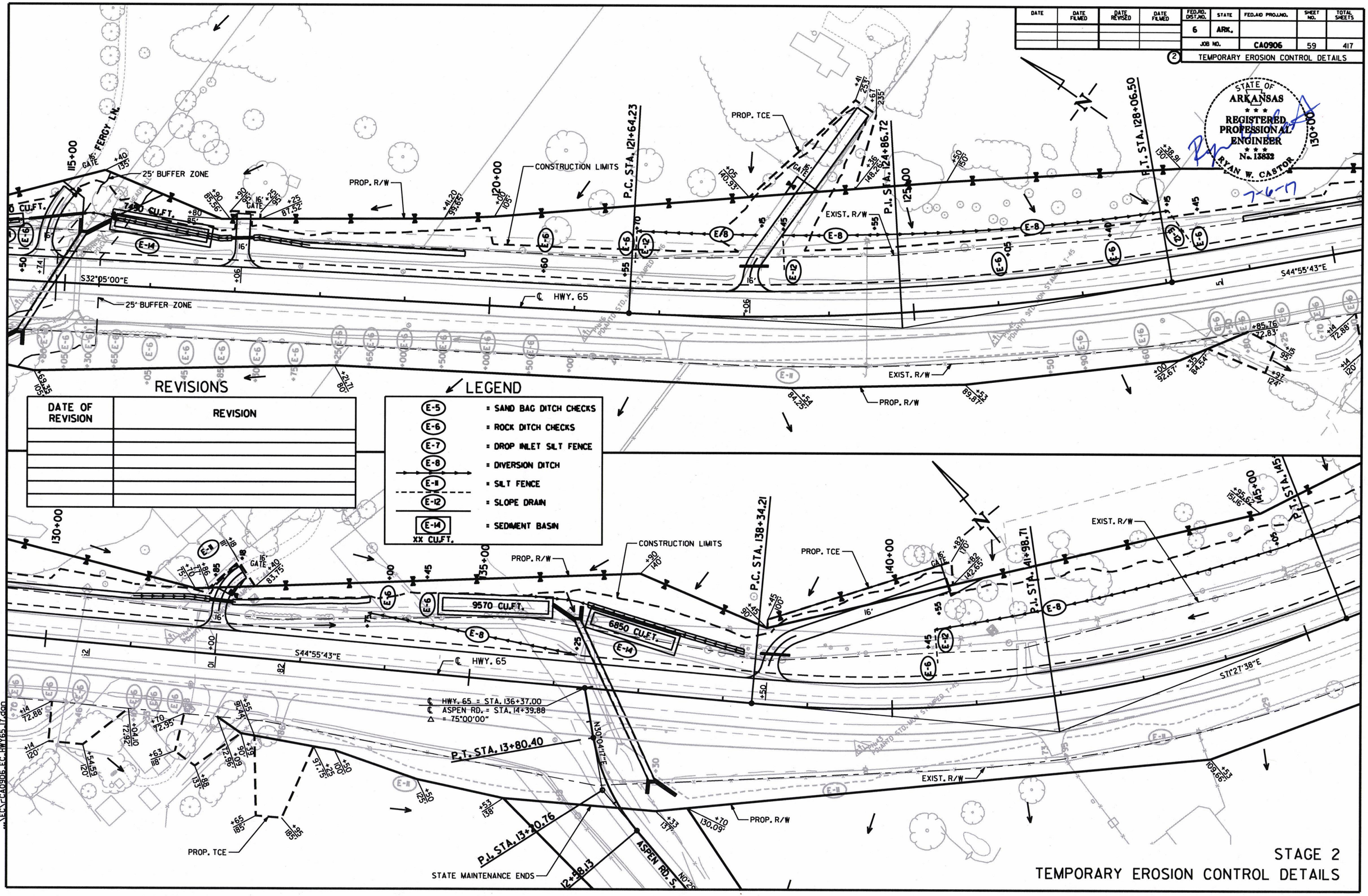
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	59	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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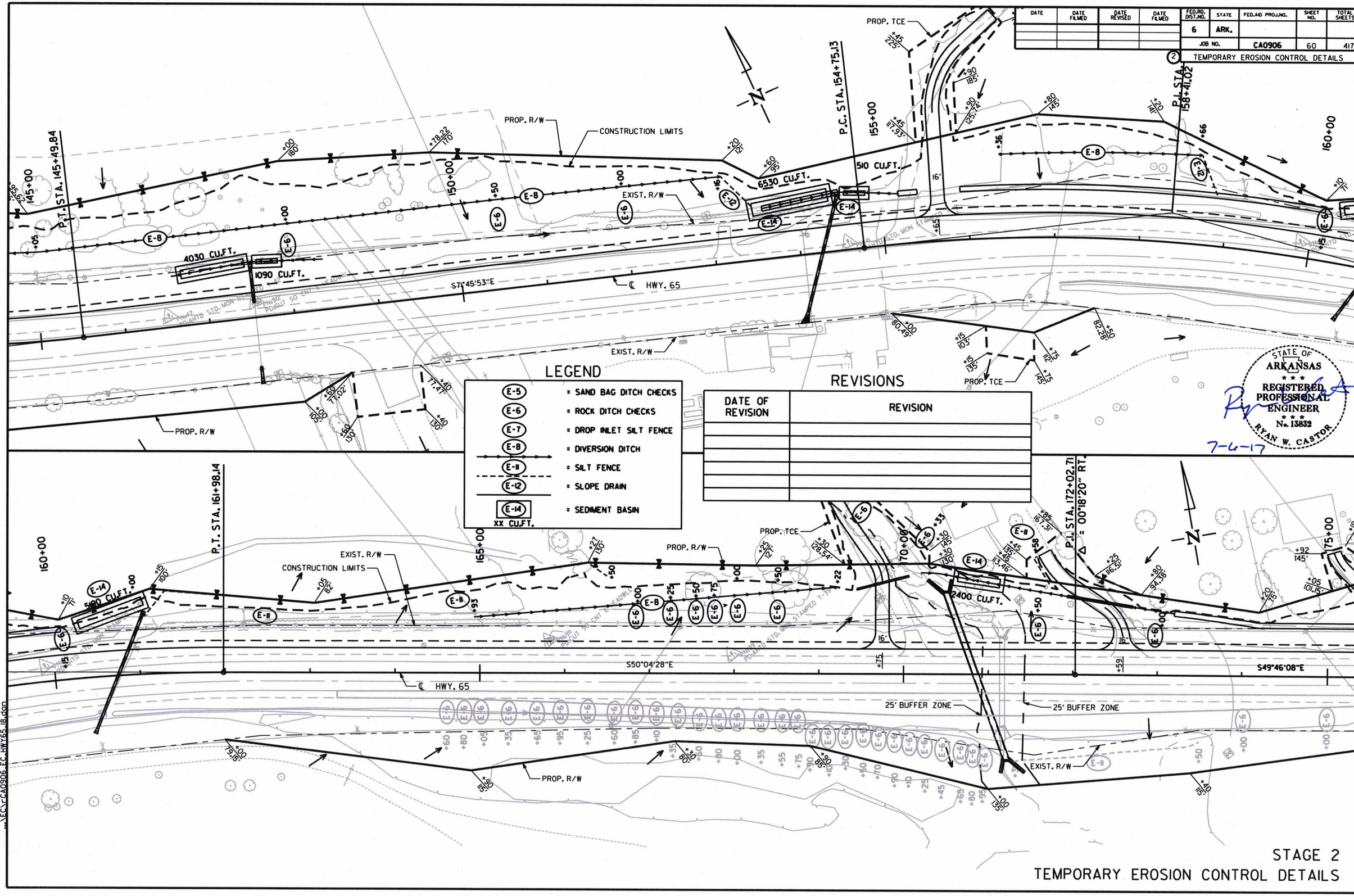
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	60	417

(2) TEMPORARY EROSION CONTROL DETAILS



LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/5/2017
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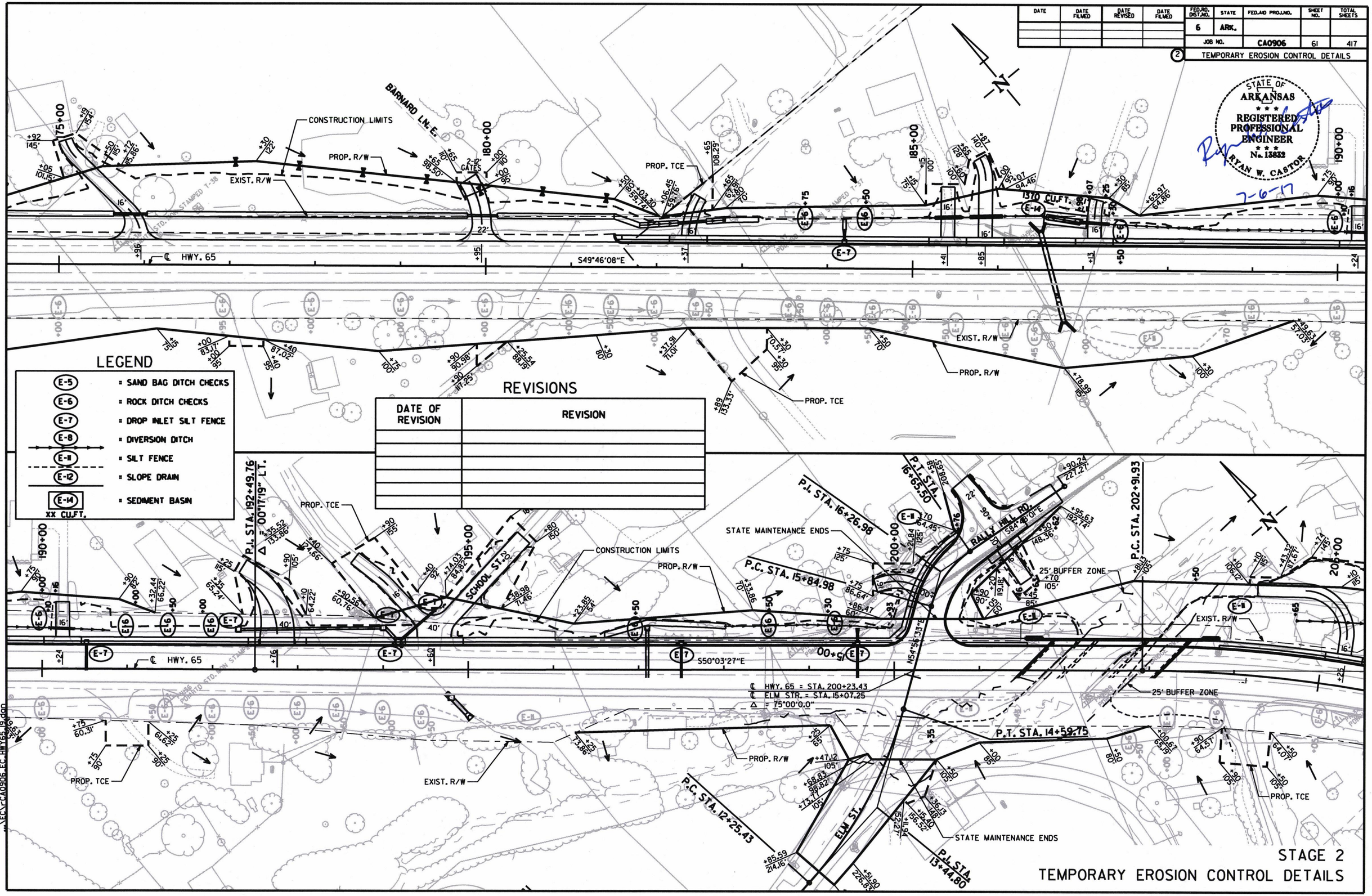
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	61	417

(2) TEMPORARY EROSION CONTROL DETAILS



STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	62	417

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) = SEDIMENT BASIN
  XX CU.FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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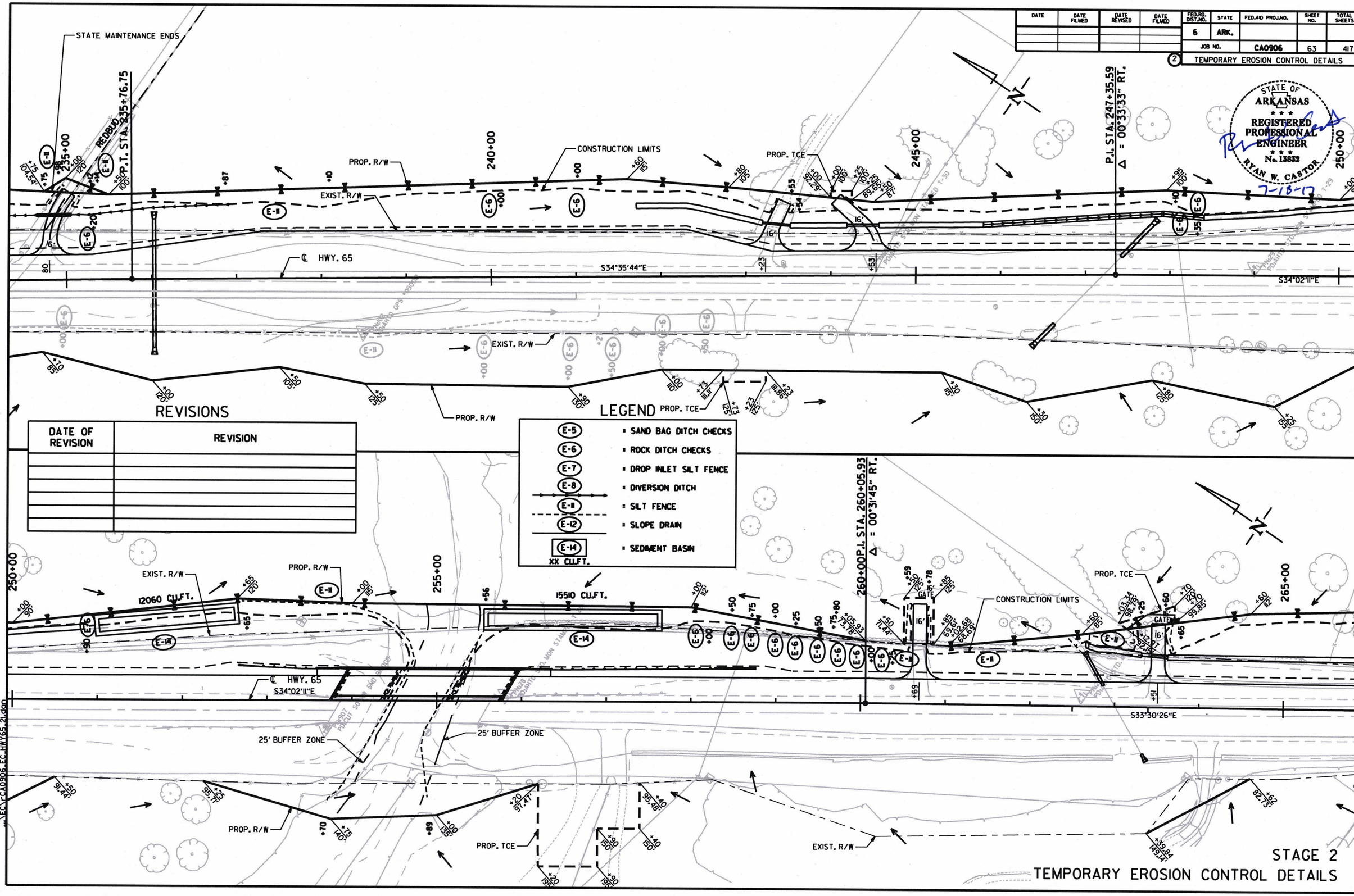
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	63	417

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/18/2017
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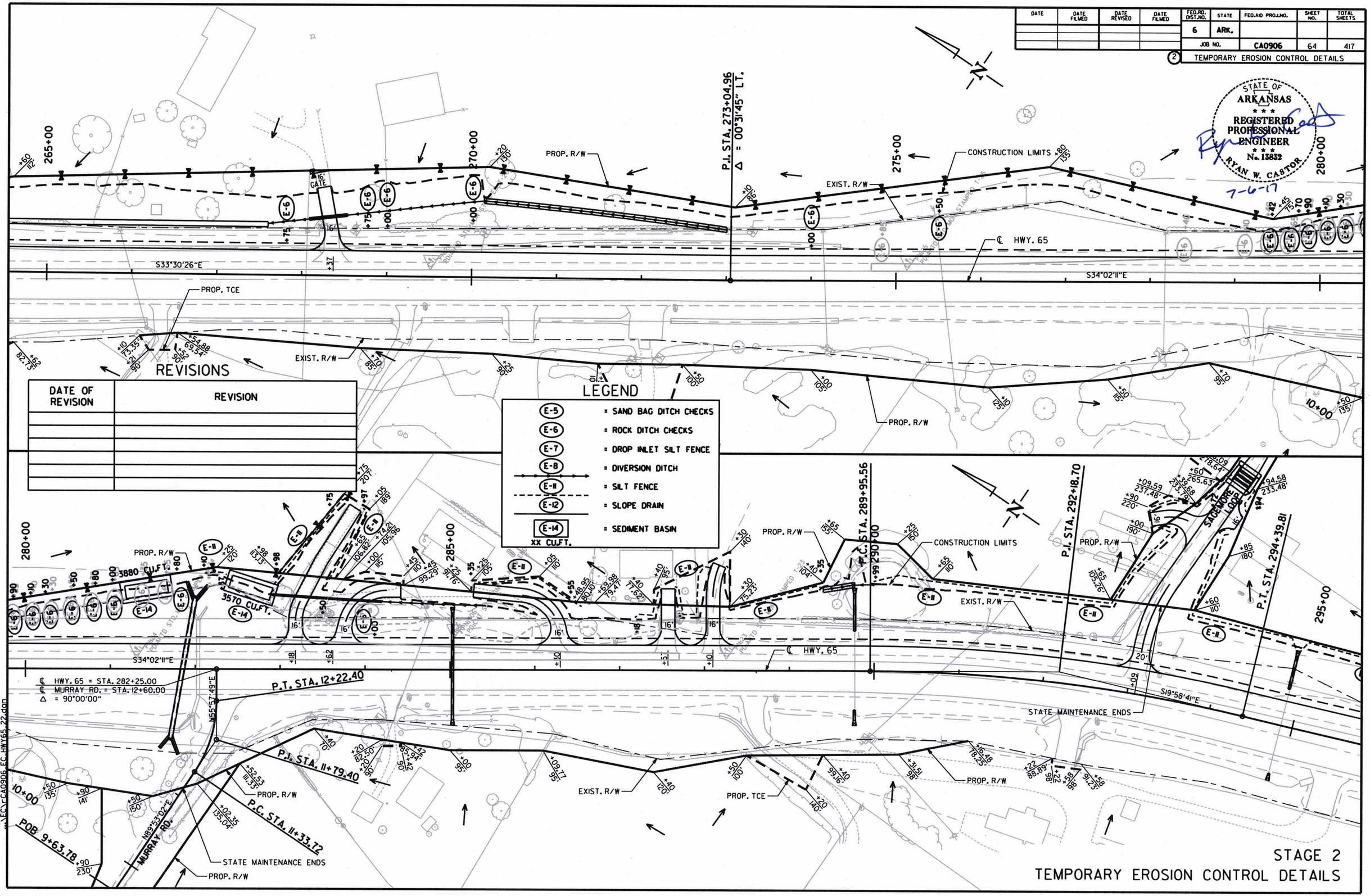
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	64	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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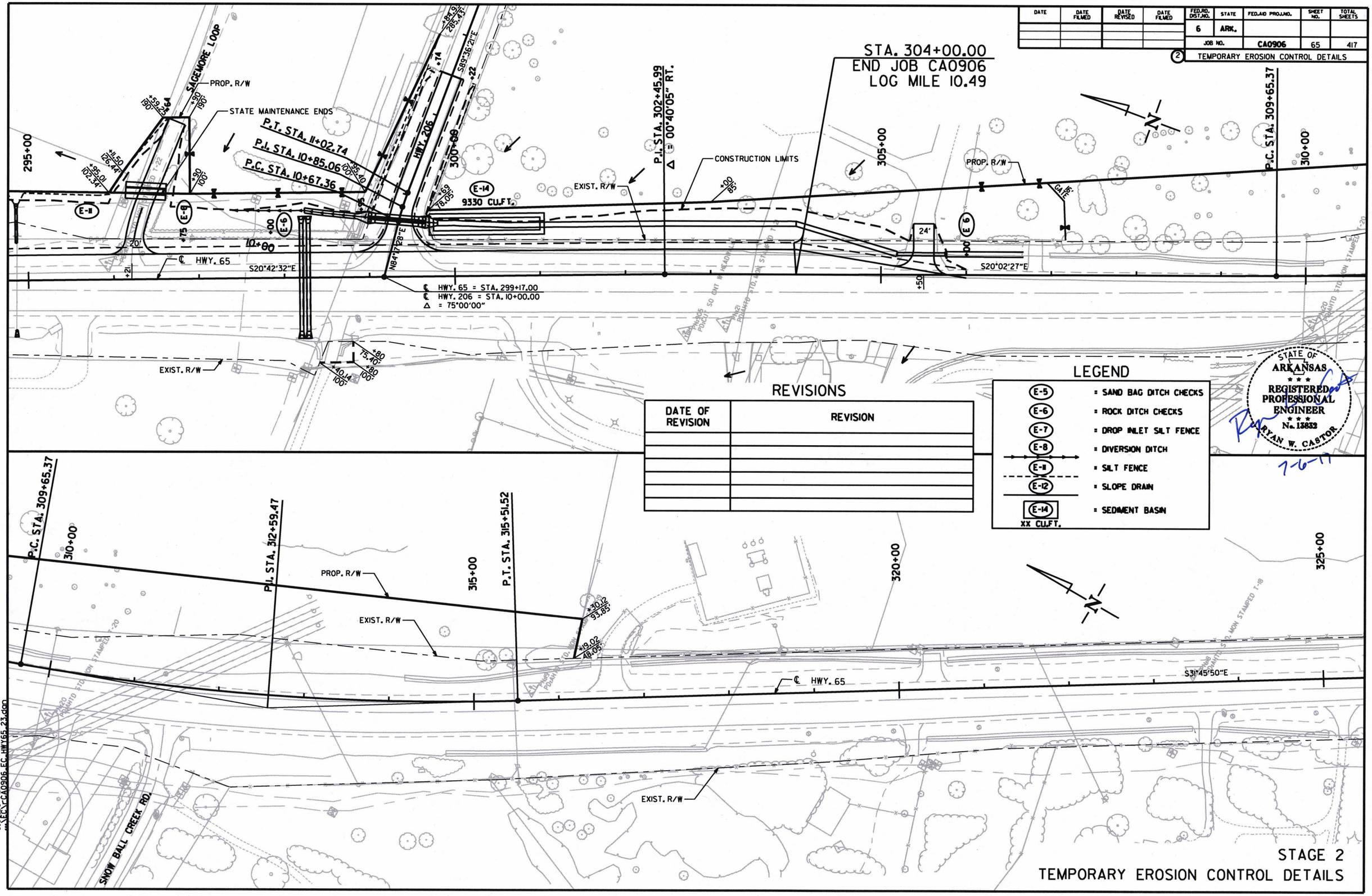
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	65	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/6/2017
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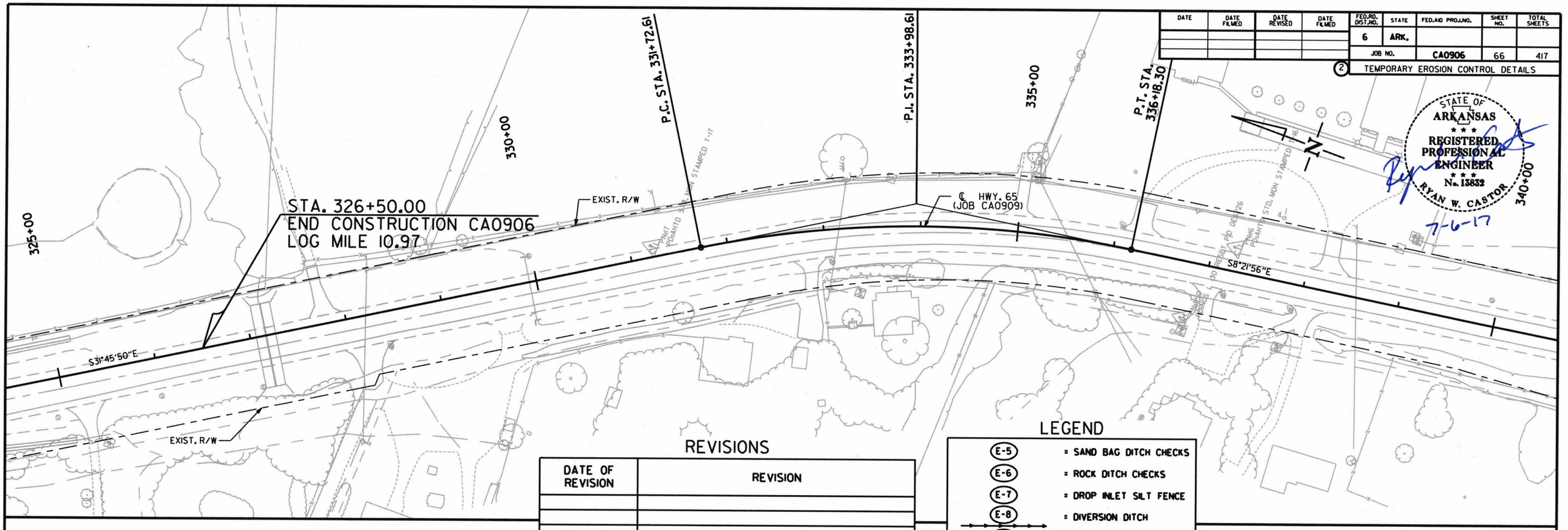
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	66	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

7/5/2017
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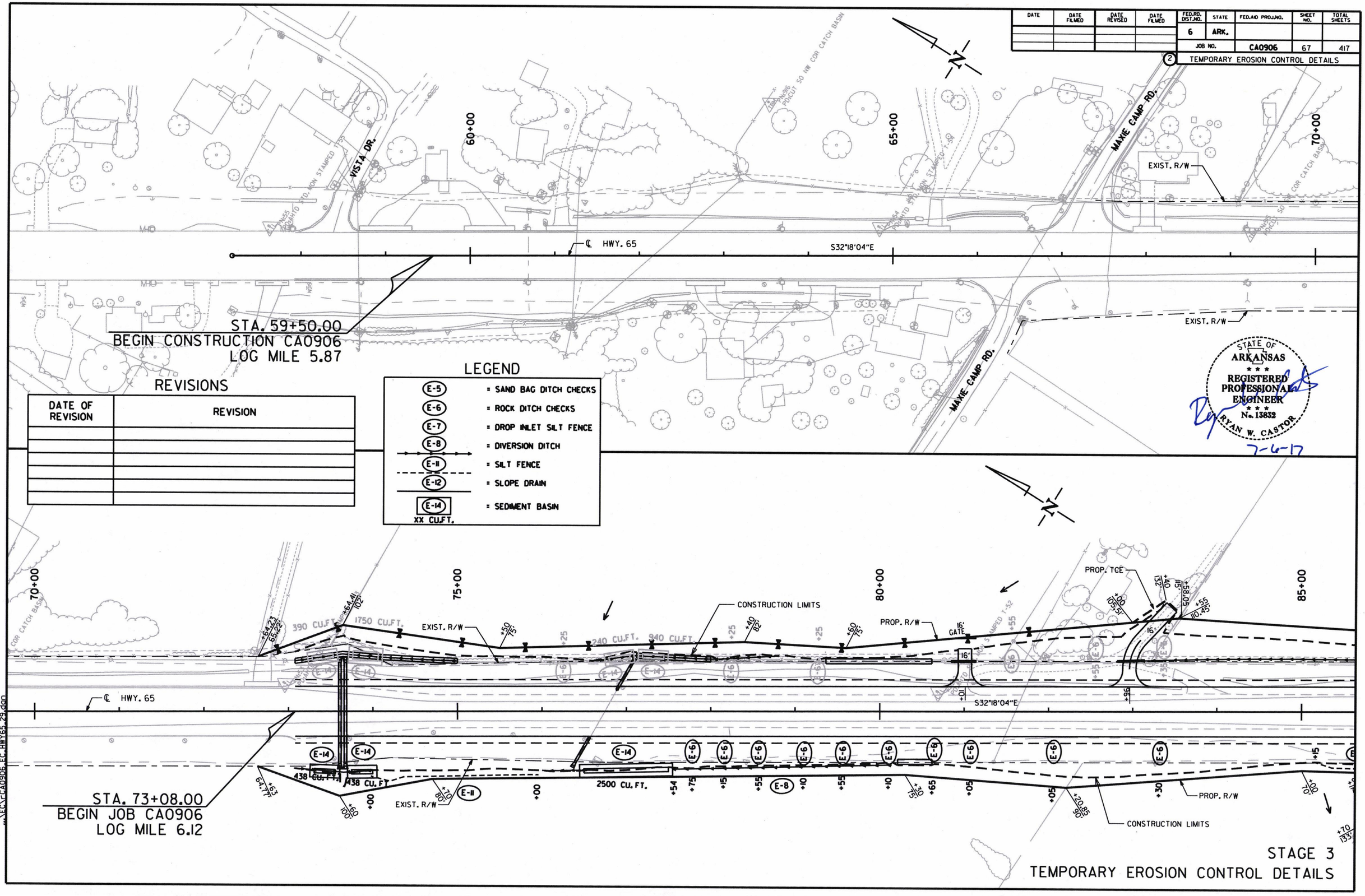
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	67	417

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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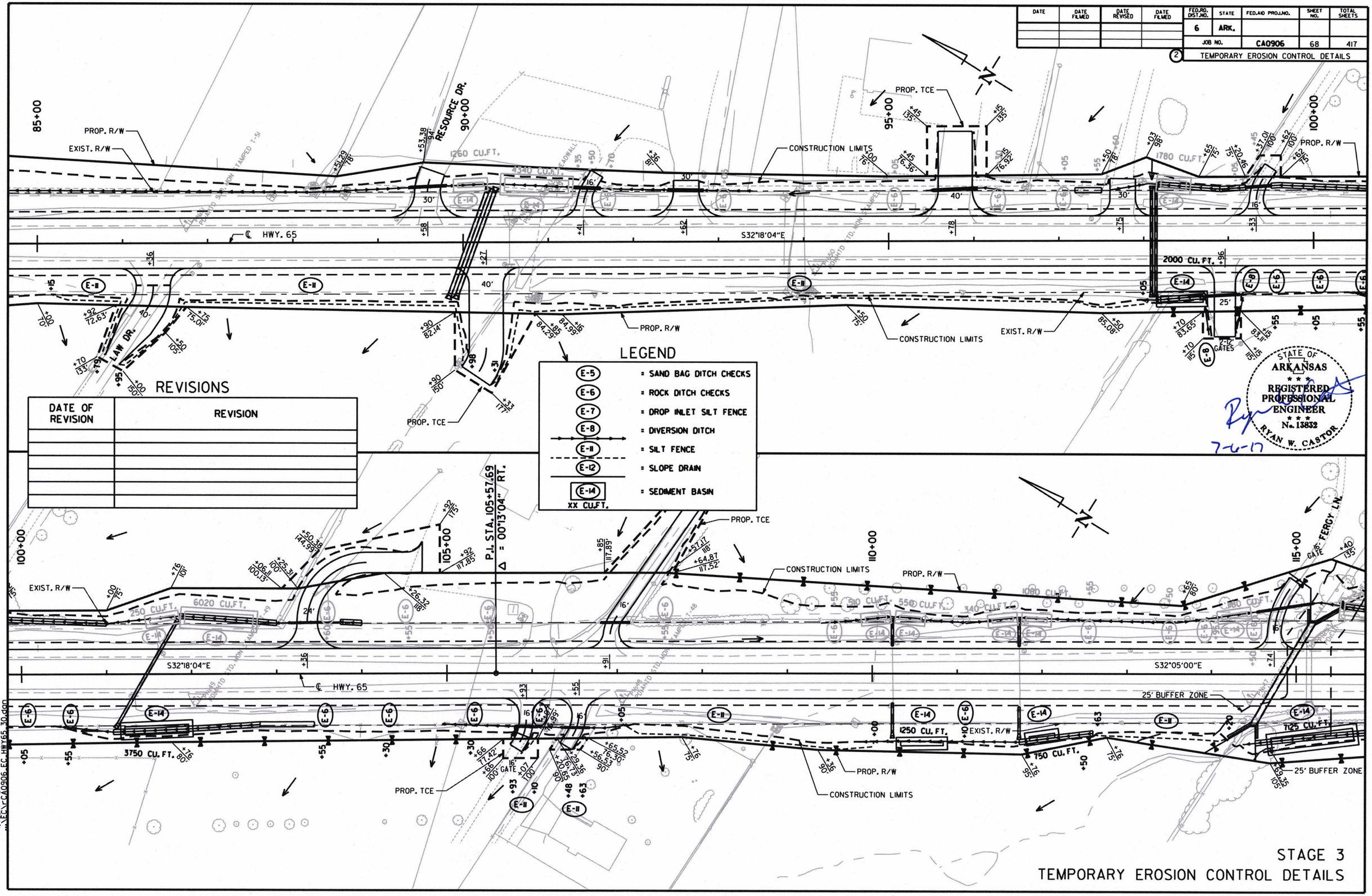
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	68	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

7/5/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	69	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) = SEDIMENT BASIN
  XX CU.FT.

115+00 · 16' GATE · FERGY LN. · 25' BUFFER ZONE · CONSTRUCTION LIMITS · PROP. R/W · 120+00 · P.C. STA. 121+64.23 · PROP. TCE · P.I. STA. 124+86.72 · 125+00 · EXIST. R/W · P.T. STA. 128+06.50 · 130+00 · S32°05'00"E · S44°55'43"E · ℄ HWY. 65 · 7125 CU.FT. · 9570 CU.FT. · 6850 CU.FT. · CONSTRUCTION LIMITS · EXIST. R/W · PROP. R/W · 135+00 · P.C. STA. 138+34.21 · 140+00 · P.I. STA. 141+98.71 · P.T. STA. 145+49.84 · 145+00 · S44°55'43"E · S74°27'38"E · P.T. STA. 13+80.40 · N30°04'17"E · ℄ HWY. 65 = STA. 136+37.00 · ℄ ASPEN RD. = STA. 14+39.88 · △ = 75°00'00" · P.I. STA. 13+20.76 · P.C. STA. 12+58.13 · ASPEN RD. S. · N02°28'E · PROP. TCE · EXIST. R/W · CONSTRUCTION LIMITS · PROP. R/W · STATE MAINTENANCE ENDS · PROP. R/W

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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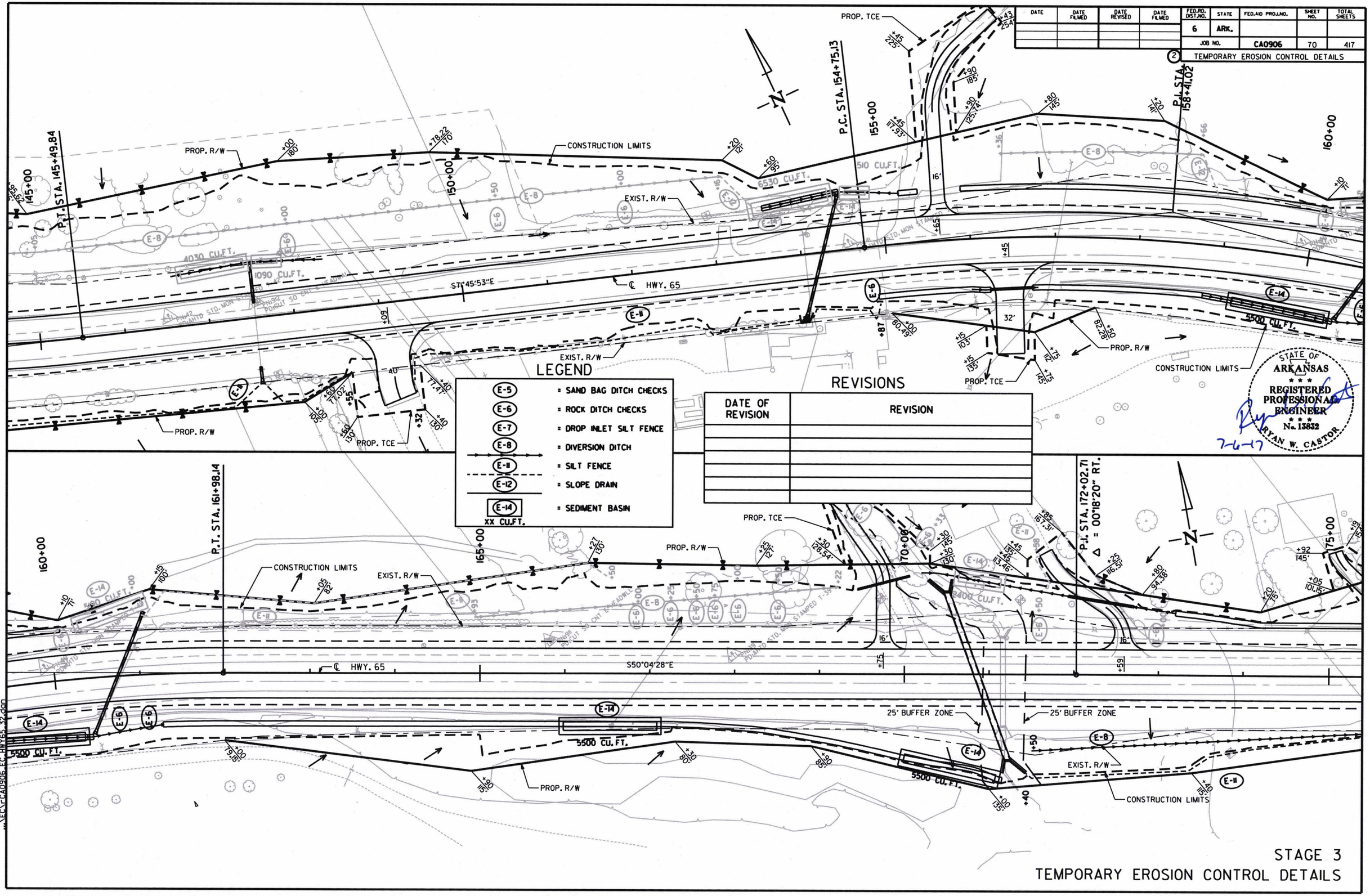
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	70	417

(2) TEMPORARY EROSION CONTROL DETAILS



LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

7/5/2017
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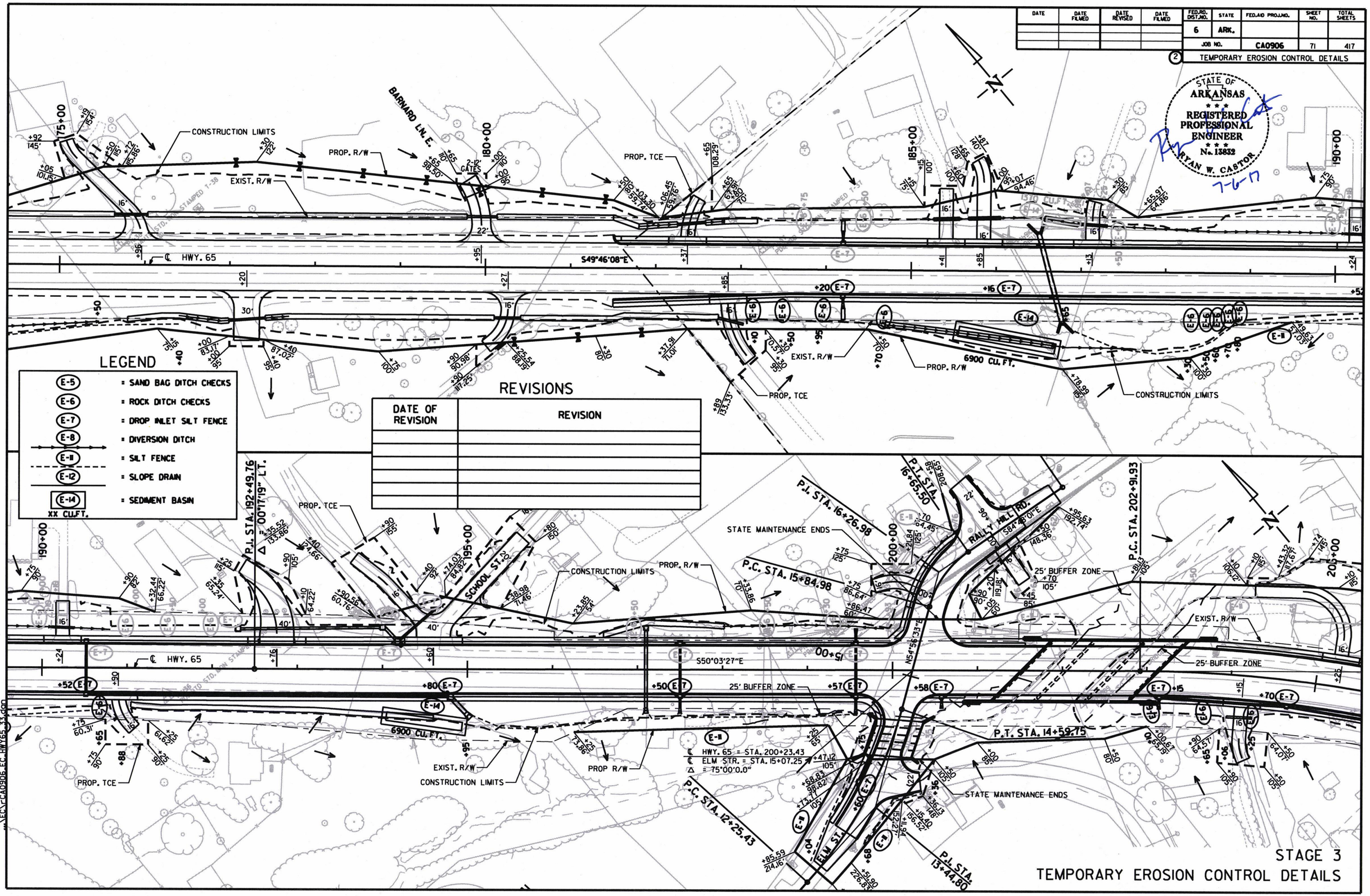
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	71	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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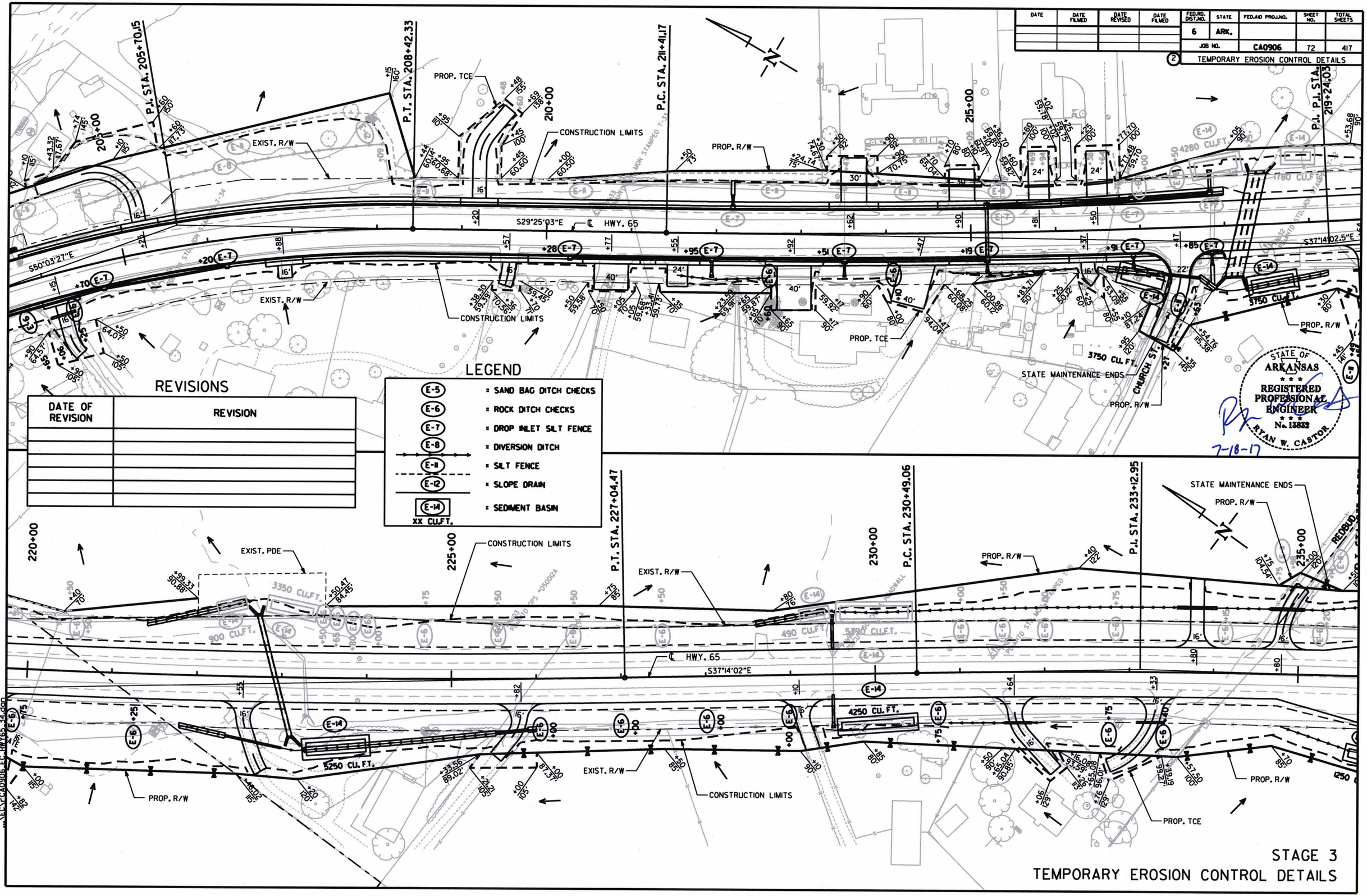
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	72	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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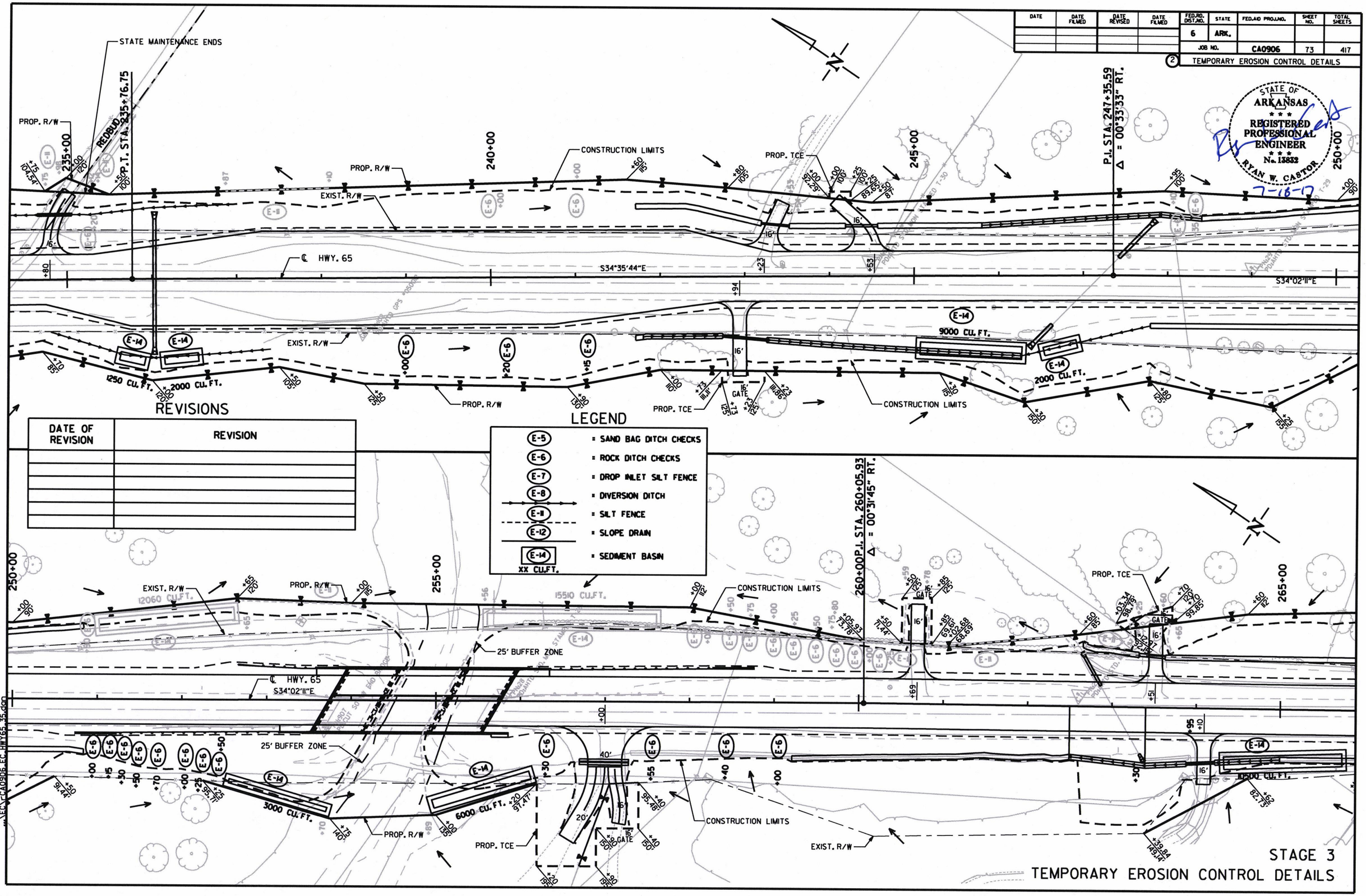
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	73	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-16-17

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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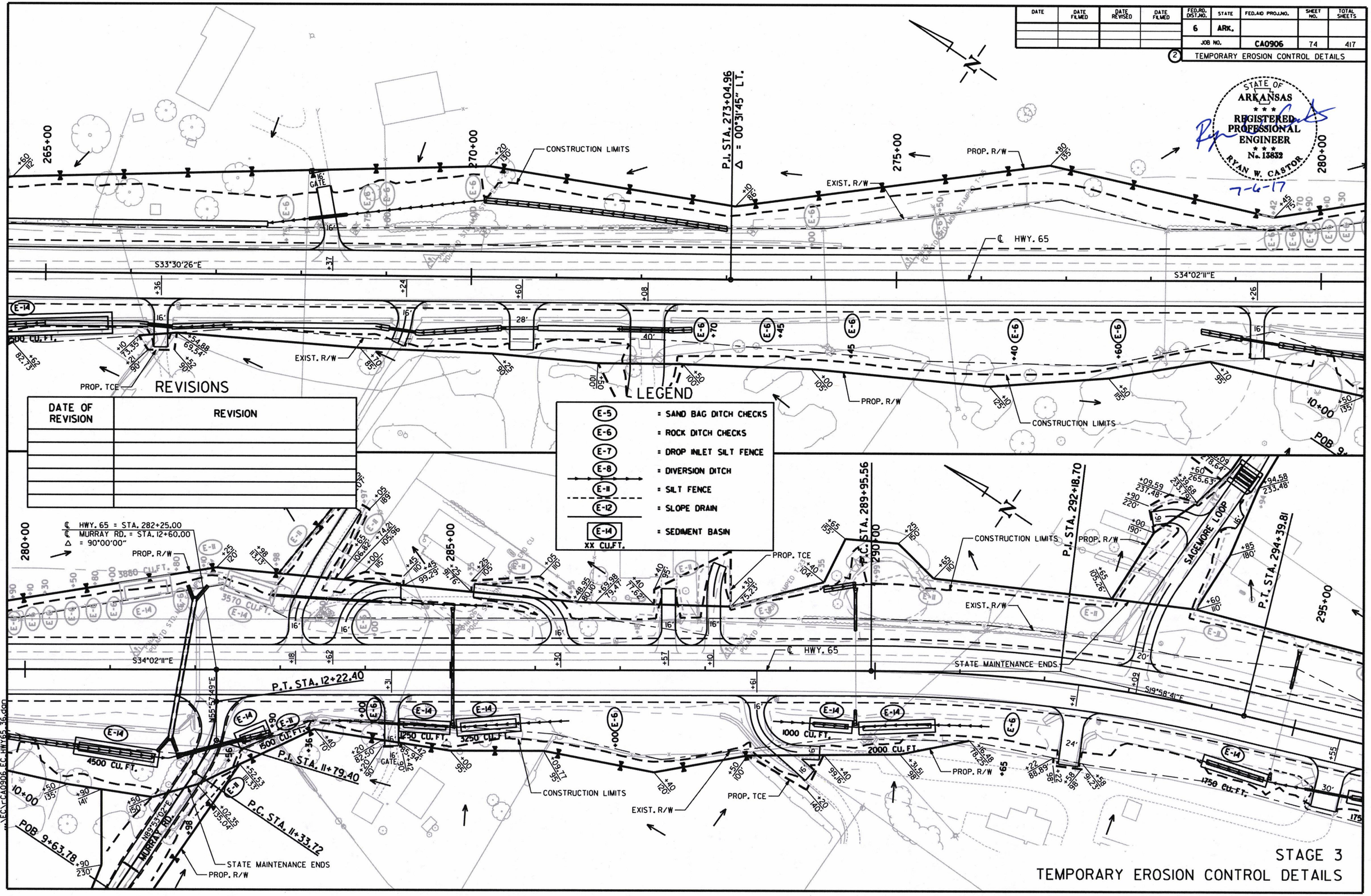
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	74	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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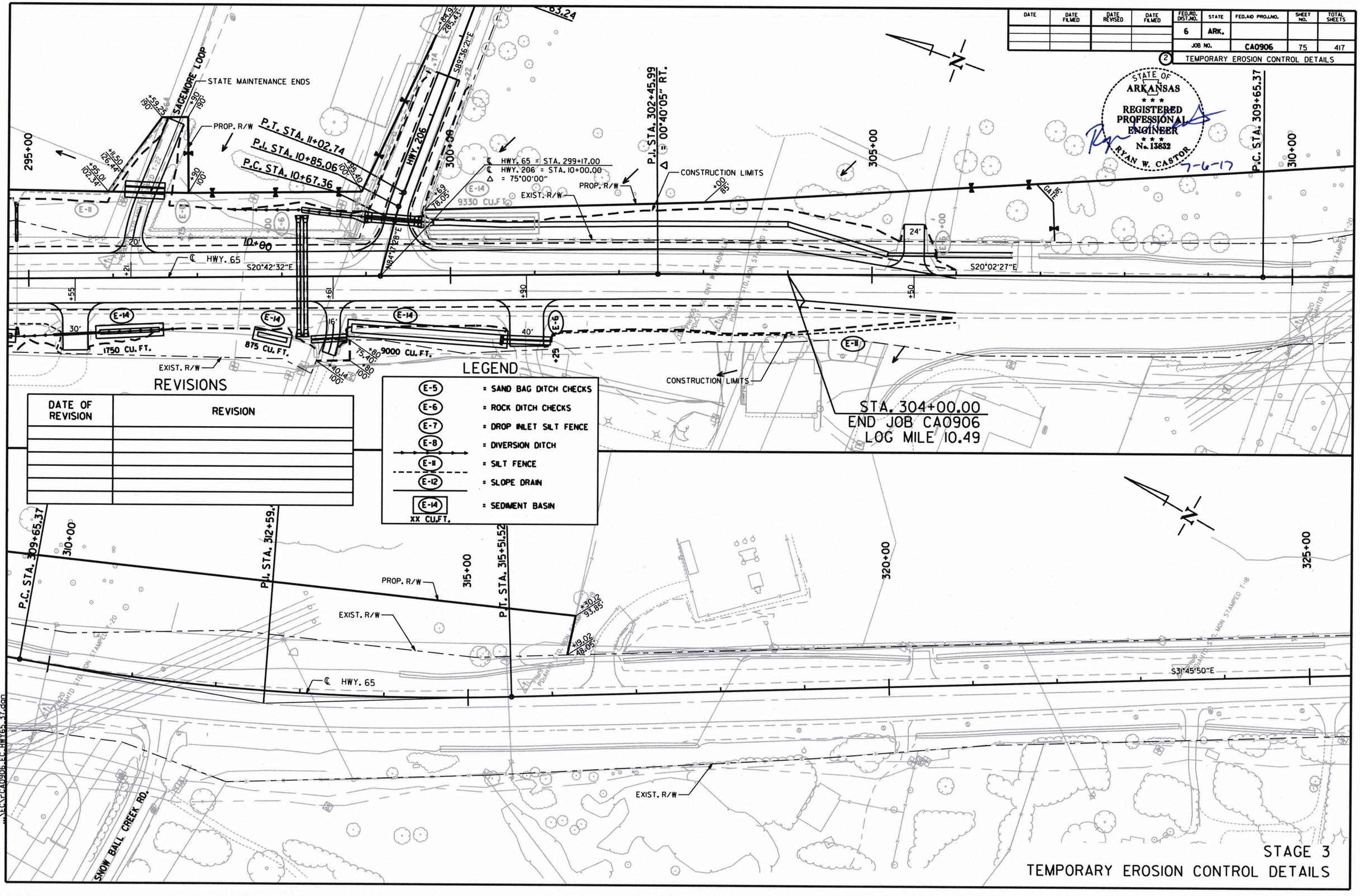
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	75	417

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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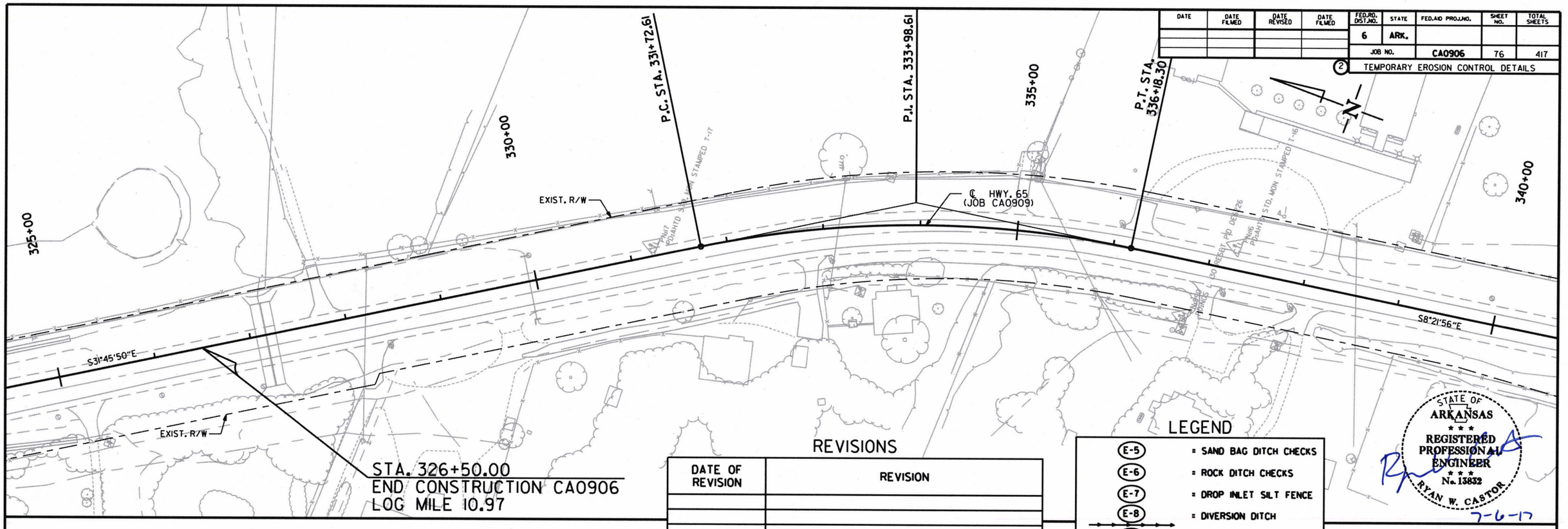
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	76	417

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN
E-14 XX CU.FT.	= SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

7/5/2017
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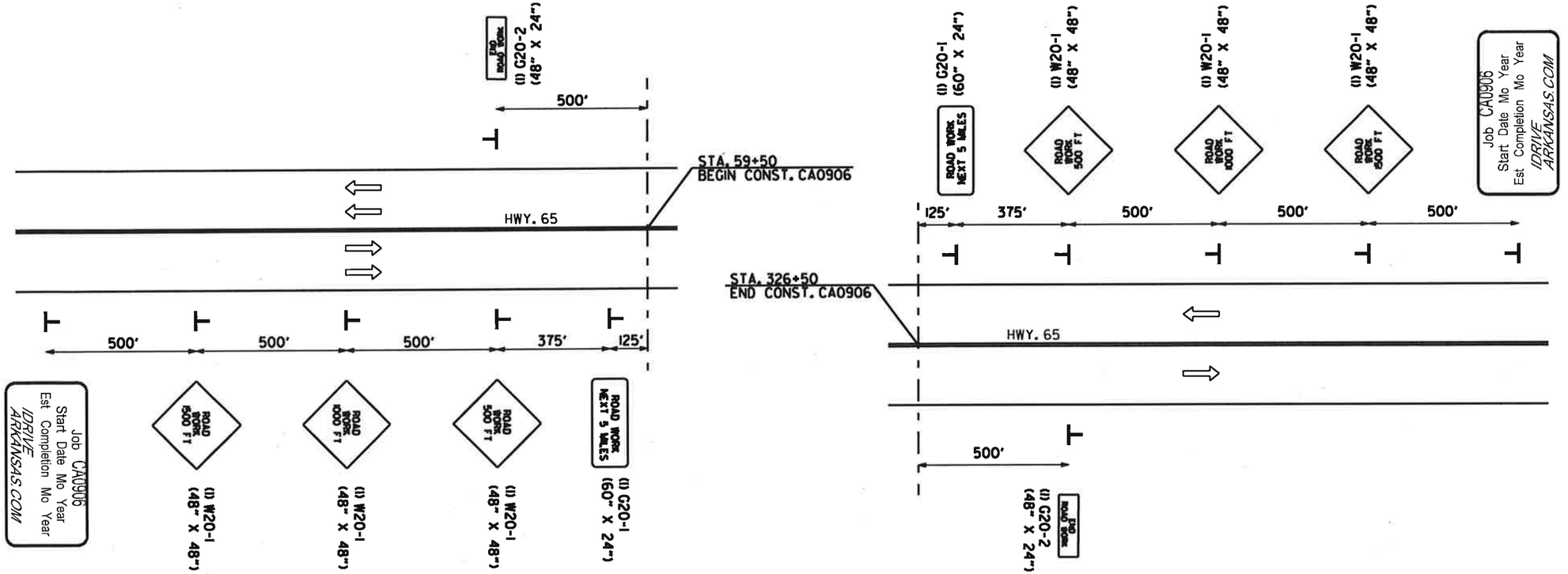
STAGE 3
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	77	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
8-22-17

SIGN(S) TO BE USED AT THE DISCRETION OF THE ENGINEER

DO NOT PASS ( ) R4-1 (24" X 30")

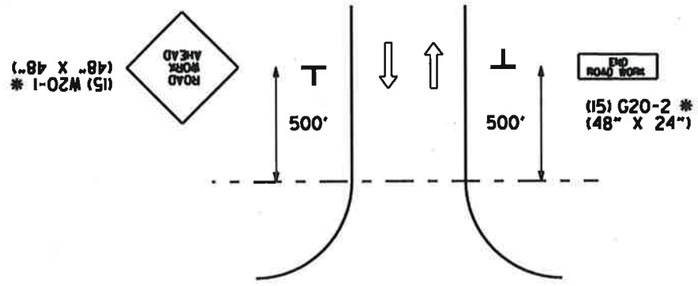
SEQUENCE OF CONSTRUCTION:

STAGE 1:
PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES).
CONSTRUCT THICKENED SHOULDERS WITH TEMPORARY PAVEMENT SECTION.
CONSTRUCT DRAINAGE STRUCTURES WHICH CROSS HWY. 65.

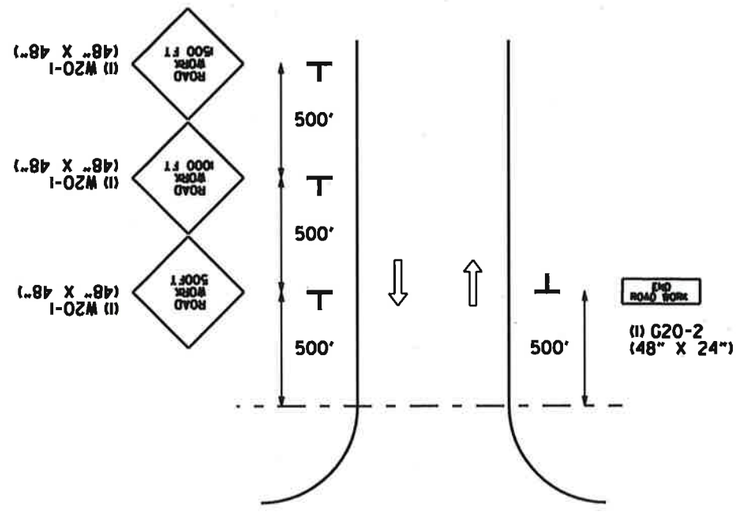
STAGE 2:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT EAST SIDE OF HWY. 65 AND INSTALL THICKENED SHOULDERS WHERE REQUIRED.
CONSTRUCT EAST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.

STAGE 3:
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT WEST SIDE OF HWY. 65.
CONSTRUCT WEST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.
CLOSE ELM STREET, PROVIDE DETOUR, AND INSTALL R.C. BOX CULVERTS AND STRUCTURES.

STAGE 4:
COMPLETE MILL AND OVERLAY.
CONSTRUCT SIDEWALK, CURB, AND GUTTER ON BRIDGES AND ADJOINING ROADWAYS.
REMOVE TEMPORARY TRAFFIC CONTROL DEVICES.
INSTALL FINAL 2" LIFT OF SURFACE COURSE.
INSTALL PERMANENT TRAFFIC CONTROL DEVICES.



* INSTALL AT ALL CITY, COUNTY, AND STATE ROADWAY INTERSECTIONS UNLESS OTHERWISE NOTED.



TO BE INSTALLED AT HWY. 206

ALL STAGES
MAINTENANCE OF TRAFFIC

8/24/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	78	417
				(2)	MAINTENANCE OF TRAFFIC			

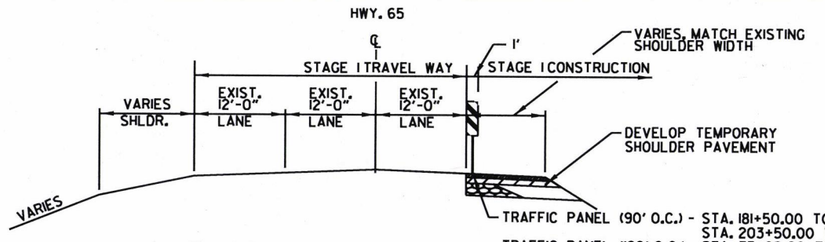
SEQUENCE OF CONSTRUCTION:

STAGE 1:
PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES).
CONSTRUCT THICKENED SHOULDERS WITH TEMPORARY PAVEMENT SECTION.
CONSTRUCT DRAINAGE STRUCTURES WHICH CROSS HWY. 65.

STAGE 2:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT EAST SIDE OF HWY. 65 AND INSTALL THICKENED SHOULDERS WHERE REQUIRED.
CONSTRUCT EAST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.

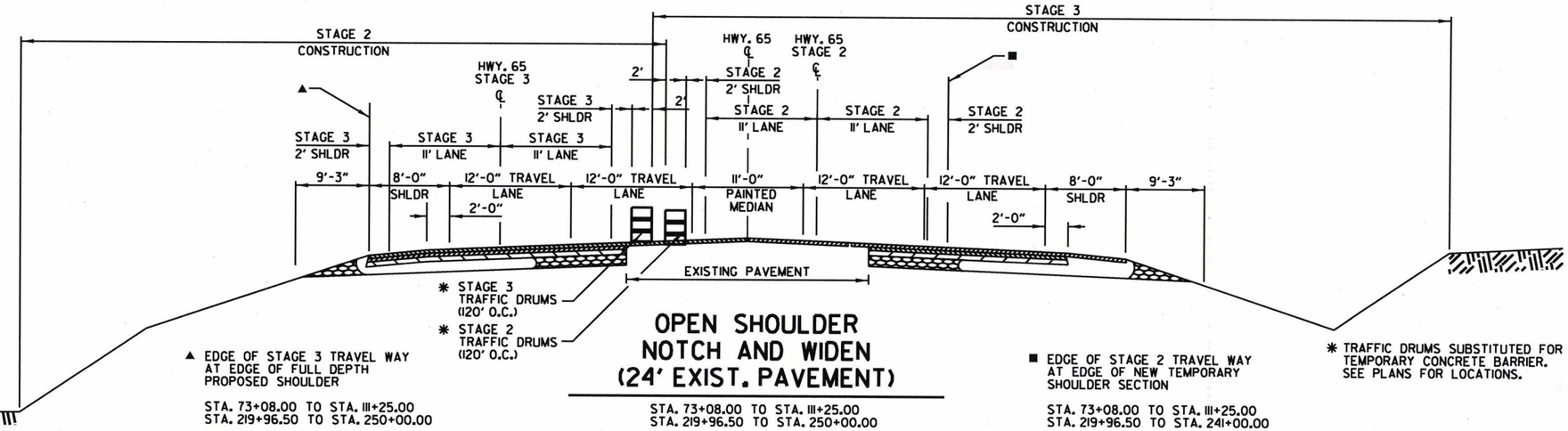
STAGE 3:
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT WEST SIDE OF HWY. 65.
CONSTRUCT WEST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.
CLOSE ELM STREET, PROVIDE DETOUR, AND INSTALL R.C. BOX CULVERTS AND STRUCTURES.

STAGE 4:
COMPLETE MILL AND OVERLAY.
CONSTRUCT SIDEWALK, CURB, AND GUTTER ON BRIDGES AND ADJOINING ROADWAYS.
REMOVE TEMPORARY TRAFFIC CONTROL DEVICES.
INSTALL FINAL 2" LIFT OF SURFACE COURSE.
INSTALL PERMANENT TRAFFIC CONTROL DEVICES.



EXISTING PAVEMENT STAGE 1 TYPICAL SECTION

STA. 73+08.00 TO STA. 104+89.25
STA. 124+25.53 TO STA. 129+38.09
STA. 178+07.64 TO STA. 178+90.20
STA. 194+25.38 TO STA. 201+00.00
STA. 203+50.00 TO STA. 241+00.00



OPEN SHOULDER NOTCH AND WIDEN (24' EXIST. PAVEMENT)

STA. 73+08.00 TO STA. 111+25.00
STA. 219+96.50 TO STA. 250+00.00

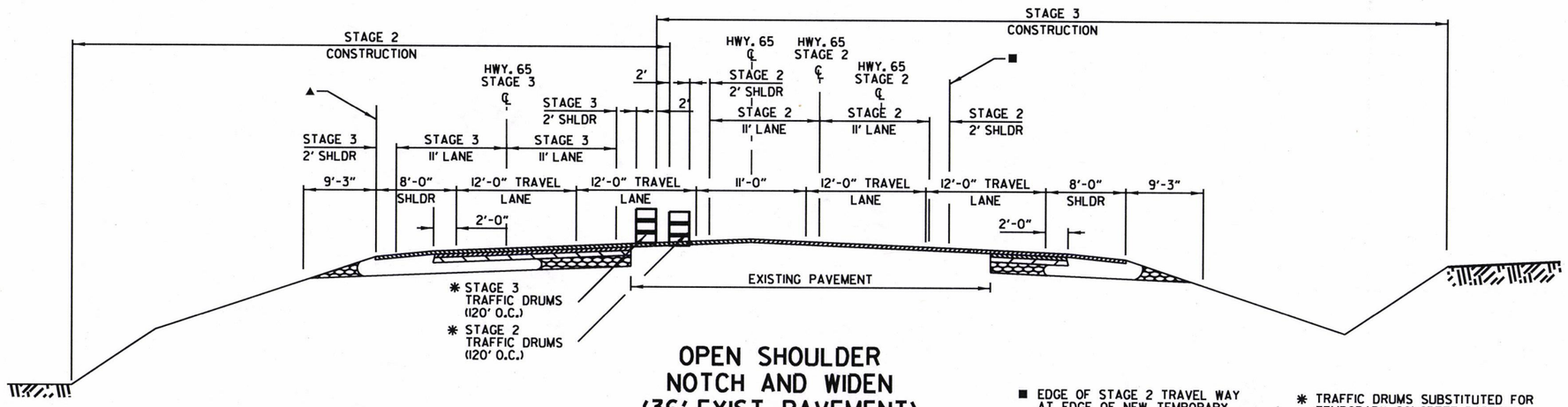
▲ EDGE OF STAGE 3 TRAVEL WAY AT EDGE OF FULL DEPTH PROPOSED SHOULDER

STA. 73+08.00 TO STA. 111+25.00
STA. 219+96.50 TO STA. 250+00.00

■ EDGE OF STAGE 2 TRAVEL WAY AT EDGE OF NEW TEMPORARY SHOULDER SECTION

STA. 73+08.00 TO STA. 111+25.00
STA. 219+96.50 TO STA. 241+00.00

* TRAFFIC DRUMS SUBSTITUTED FOR TEMPORARY CONCRETE BARRIER. SEE PLANS FOR LOCATIONS.



OPEN SHOULDER NOTCH AND WIDEN (36' EXIST. PAVEMENT)

STA. 145+75.00 TO STA. 149+50.00
STA. 176+80.00 TO STA. 181+50.00
STA. 218+00.00 TO STA. 219+96.50
STA. 260+30.00 TO STA. 270+60.00
STA. 281+00.00 TO STA. 290+30.00
STA. 302+00.00 TO STA. 304+00.00
TRANSITION STA. 304+00.00 TO 306+00.00

▲ EDGE OF STAGE 3 TRAVEL WAY AT EDGE OF FULL DEPTH PROPOSED SHOULDER

STA. 176+80.00 TO STA. 181+50.00
STA. 218+00.00 TO STA. 219+96.50
STA. 281+00.00 TO STA. 290+30.00
STA. 305+00.00 TO STA. 306+00.00

■ EDGE OF STAGE 2 TRAVEL WAY AT EDGE OF NEW TEMPORARY SHOULDER SECTION

STA. 176+80.00 TO STA. 181+50.00
STA. 218+00.00 TO STA. 219+96.50

* TRAFFIC DRUMS SUBSTITUTED FOR TEMPORARY CONCRETE BARRIER. SEE PLANS FOR LOCATIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	79	417

(2) MAINTENANCE OF TRAFFIC

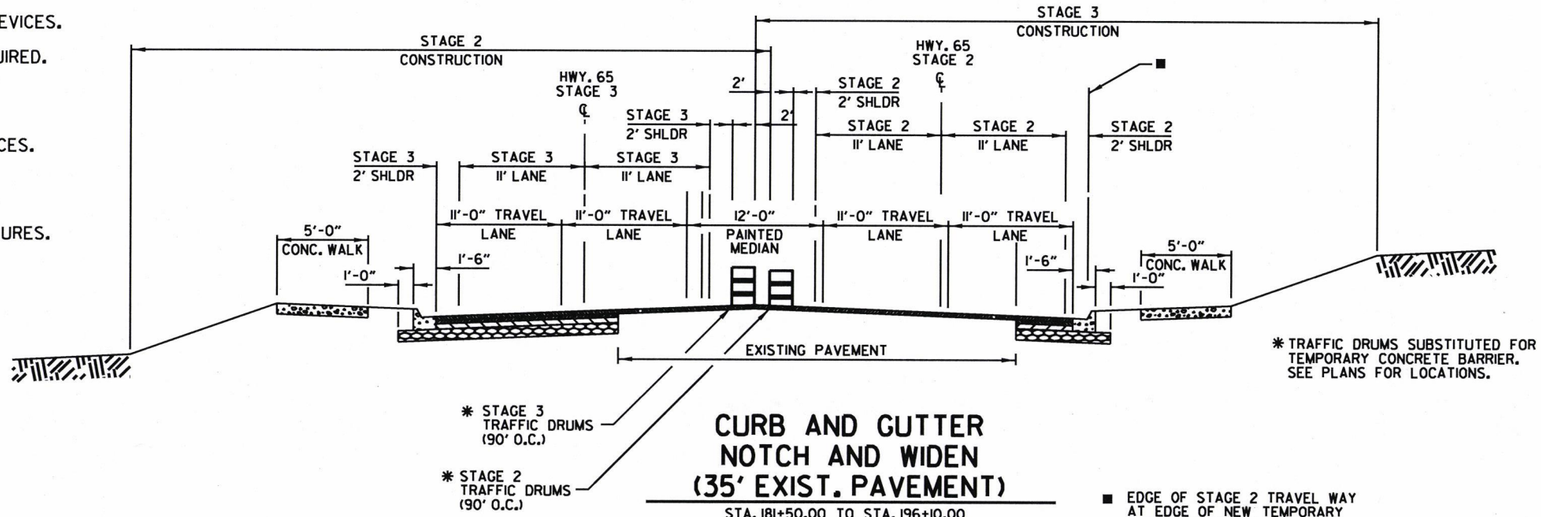
SEQUENCE OF CONSTRUCTION:

STAGE 1:
PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES).
CONSTRUCT THICKENED SHOULDERS WITH TEMPORARY PAVEMENT SECTION.
CONSTRUCT DRAINAGE STRUCTURES WHICH CROSS HWY. 65.

STAGE 2:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT EAST SIDE OF HWY. 65 AND INSTALL THICKENED SHOULDERS WHERE REQUIRED.
CONSTRUCT EAST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.

STAGE 3:
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT WEST SIDE OF HWY. 65.
CONSTRUCT WEST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.
CLOSE ELM STREET, PROVIDE DETOUR, AND INSTALL R.C. BOX CULVERTS AND STRUCTURES.

STAGE 4:
COMPLETE MILL AND OVERLAY.
CONSTRUCT SIDEWALK, CURB, AND GUTTER ON BRIDGES AND ADJOINING ROADWAYS.
REMOVE TEMPORARY TRAFFIC CONTROL DEVICES.
INSTALL FINAL 2" LIFT OF SURFACE COURSE.
INSTALL PERMANENT TRAFFIC CONTROL DEVICES.



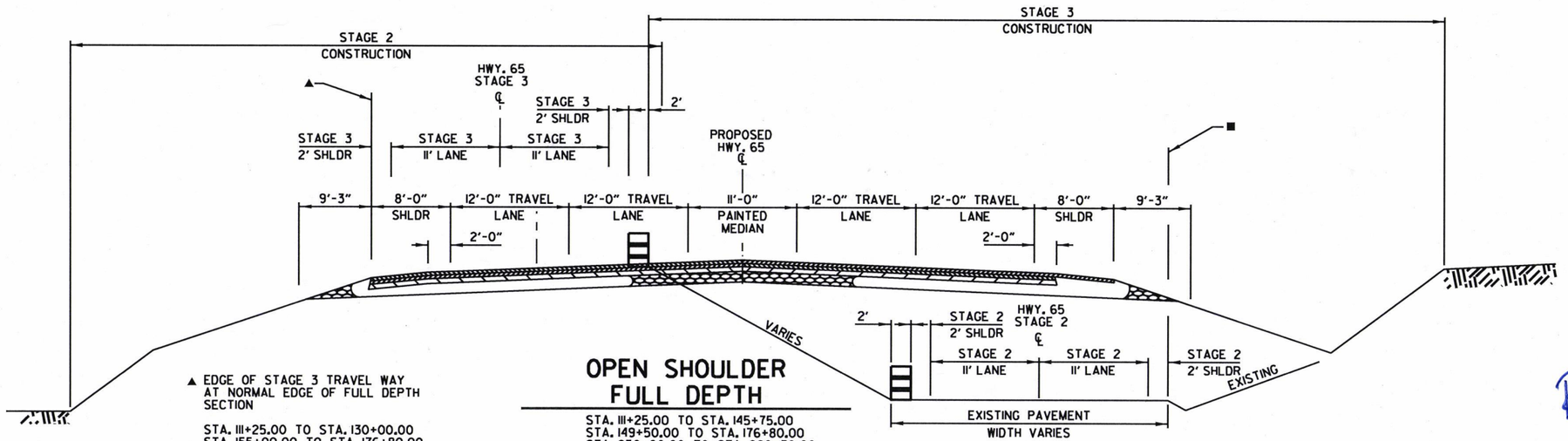
CURB AND GUTTER NOTCH AND WIDEN (35' EXIST. PAVEMENT)

STA. 181+50.00 TO STA. 196+10.00
STA. 208+70.00 TO STA. 218+00.00

* TRAFFIC DRUMS SUBSTITUTED FOR TEMPORARY CONCRETE BARRIER. SEE PLANS FOR LOCATIONS.

■ EDGE OF STAGE 2 TRAVEL WAY AT EDGE OF NEW TEMPORARY SHOULDER SECTION

STA. 181+50.00 TO STA. 196+10.00
STA. 208+70.00 TO STA. 218+00.00



OPEN SHOULDER FULL DEPTH

STA. 111+25.00 TO STA. 145+75.00
STA. 149+50.00 TO STA. 176+80.00
STA. 250+00.00 TO STA. 260+30.00
STA. 270+60.00 TO STA. 281+00.00
STA. 290+30.00 TO STA. 302+00.00

▲ EDGE OF STAGE 3 TRAVEL WAY AT NORMAL EDGE OF FULL DEPTH SECTION

STA. 111+25.00 TO STA. 130+00.00
STA. 155+00.00 TO STA. 176+80.00
STA. 250+00.00 TO STA. 259+25.00
STA. 271+00.00 TO STA. 281+00.00
STA. 290+30.00 TO STA. 294+50.00

■ EDGE OF STAGE 2 TRAVEL WAY AT EDGE OF NEW TEMPORARY SHOULDER SECTION

STA. 111+25.00 TO STA. 129+00.00
STA. 165+00.00 TO STA. 176+80.00

* TRAFFIC DRUMS SUBSTITUTED FOR TEMPORARY CONCRETE BARRIER. SEE PLANS FOR LOCATIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

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MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	80	417

(2) MAINTENANCE OF TRAFFIC

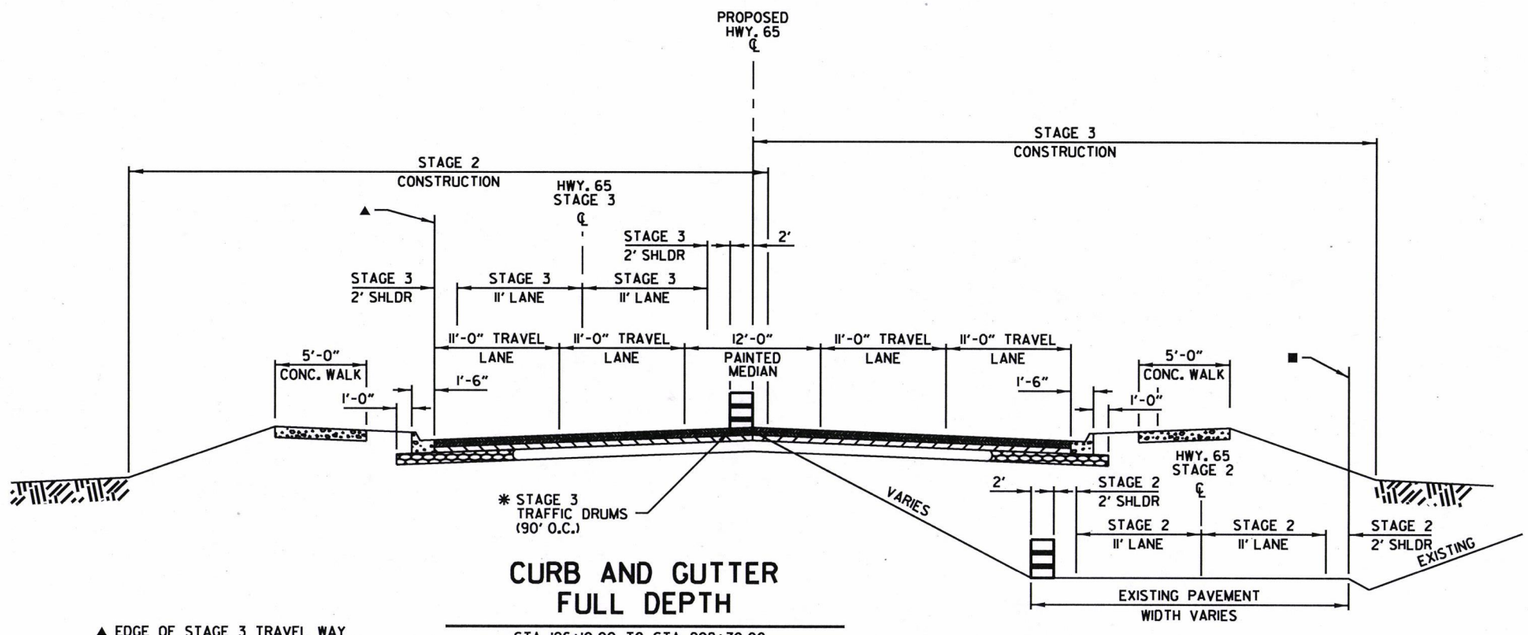
SEQUENCE OF CONSTRUCTION:

STAGE 1:
PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES).
CONSTRUCT THICKENED SHOULDERS WITH TEMPORARY PAVEMENT SECTION.
CONSTRUCT DRAINAGE STRUCTURES WHICH CROSS HWY. 65.

STAGE 2:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT EAST SIDE OF HWY. 65 AND INSTALL THICKENED SHOULDERS WHERE REQUIRED.
CONSTRUCT EAST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.

STAGE 3:
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT WEST SIDE OF HWY. 65.
CONSTRUCT WEST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.
CLOSE ELM STREET, PROVIDE DETOUR, AND INSTALL R.C. BOX CULVERTS AND STRUCTURES.

STAGE 4:
COMPLETE MILL AND OVERLAY.
CONSTRUCT SIDEWALK, CURB, AND GUTTER ON BRIDGES AND ADJOINING ROADWAYS.
REMOVE TEMPORARY TRAFFIC CONTROL DEVICES.
INSTALL FINAL 2" LIFT OF SURFACE COURSE.
INSTALL PERMANENT TRAFFIC CONTROL DEVICES.



CURB AND GUTTER FULL DEPTH

STA. 196+10.00 TO STA. 208+70.00

▲ EDGE OF STAGE 3 TRAVEL WAY AT NORMAL EDGE OF FULL DEPTH SECTION

STA. 199+50.00 TO STA. 205+80.00

■ EDGE OF STAGE 2 TRAVEL WAY AT EDGE OF NEW TEMPORARY SHOULDER SECTION

STA. 196+10.00 TO STA. 201+00.00
STA. 203+50.00 TO STA. 208+70.00

* TRAFFIC DRUMS SUBSTITUTED FOR TEMPORARY CONCRETE BARRIER. SEE PLANS FOR LOCATIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

MAINTENANCE OF TRAFFIC

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SIDE	PROP. BOX LOCATION	A BEGIN TAPER	B BEGIN SHLDR. RECONSTRUCTION	C BEGIN ADDITIONAL WIDENING	D BEGIN FULL WIDTH	FULL WIDTH FROM ℄	E END FULL WIDTH	F END ADDITIONAL WIDENING	G END SHLDR. RECONSTRUCTION	H END TAPER	TEMPORARY PIPE
RIGHT	114+84.00	103+50.00	104+89.25	106+20.42	114+00.00	43.00'	116+00.00	123+48.53	124+25.53	126+50.00	36" x 45'
RIGHT	136+67.00	125+50.00	129+38.09	131+11.55	136+00.00	56.00'	137+50.00	142+57.81	144+29.60	148+00.00	42" x 55'
RIGHT	170+85.00	159+50.00	163+31.71	165+16.58	170+00.00	48.75'	171+50.00	176+21.65	178+07.64	182+00.00	54" x 35'
RIGHT	186+62.00	175+00.00	178+90.20	180+13.65	185+50.00	43.00'	187+50.00	193+10.65	194+25.38	198+00.00	36" x 40'
LEFT	218+25.00	207+00.00	211+01.57	211+78.49	217+50.00	46.50'	219+00.00			222+00.00	48" x 55'
LEFT	222+92.00	219+00.00			222+00.00	48.75'	224+00.00	232+23.88	233+84.63	234+50.00	36" x 35'
LEFT	281+85.00	270+50.00	274+70.81	276+21.32	281+00.00	36.75'	282+50.00	286+65.66	287+70.00	293+00.00	30" x 30'

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	81	417
				(2)	MAINTENANCE OF TRAFFIC			

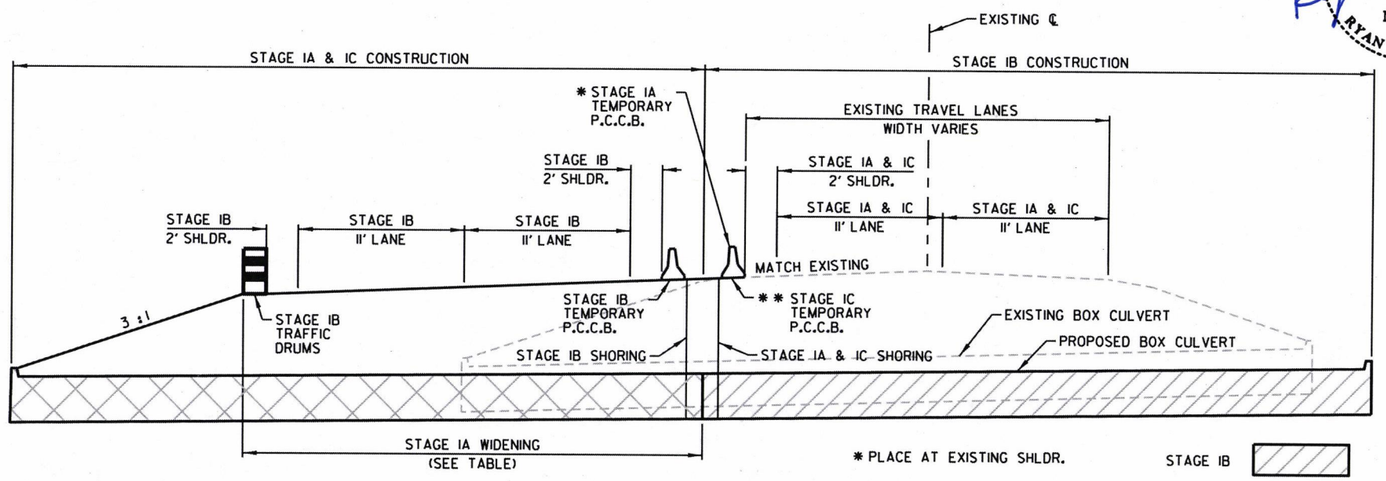
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

SEQUENCE OF CONSTRUCTION:

STAGE IA:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TRAFFIC CONTROL DEVICES.
CONSTRUCT PROPOSED BOX CULVERT AND INSTALL TEMPORARY CULVERT.
CONSTRUCT TEMPORARY WIDENING FOR BOX CULVERT CONSTRUCTION.

STAGE IB:
SET AND RELOCATE TRAFFIC CONTROL DEVICES TO WIDENED SECTION.
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER.
CONSTRUCT REMAINING PROPOSED BOX CULVERT AND DEMOLISH EXISTING BOX CULVERT.
CHANGE WATER COURSE TO THE PROPOSED BOX CULVERT.
REPAIR PAVEMENT REQUIRED FOR STAGE CONSTRUCTION.

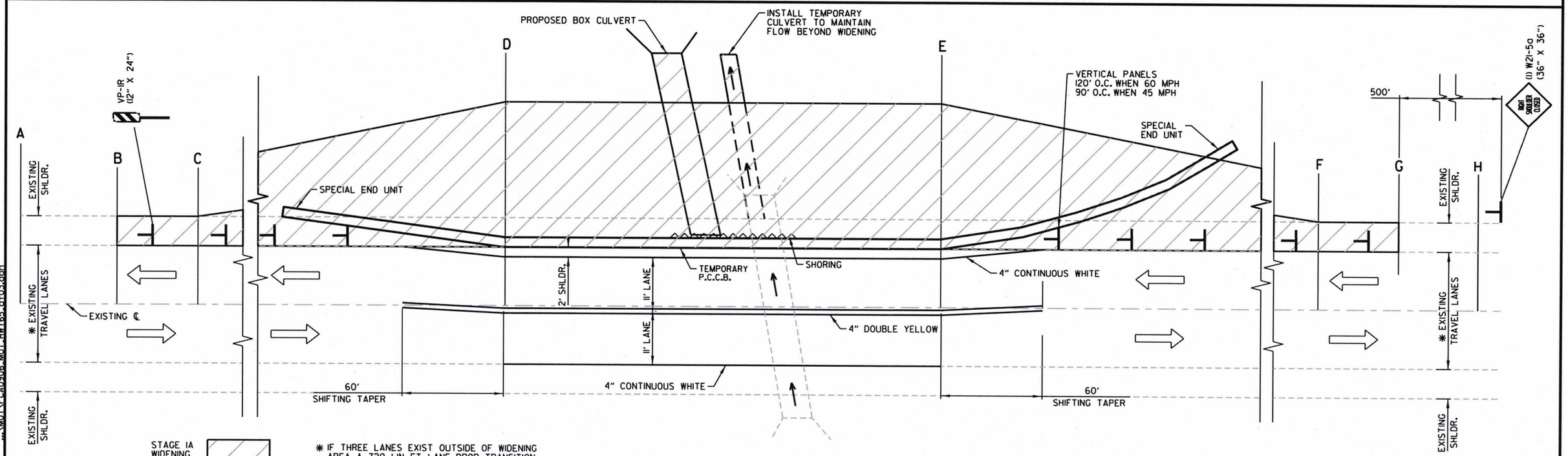
STAGE IC:
SET AND RELOCATE TRAFFIC CONTROL DEVICES TO THE REPAIRED EXISTING ROADWAY.
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER.
DEMOLISH REMAINING EXISTING BOX CULVERT AND REMOVE THE TEMPORARY CULVERT.
CHANGE WATER COURSE TO PROPOSED BOX CULVERT.
REPAIR PAVEMENT REQUIRED FOR STAGE CONSTRUCTION.



BOX CULVERT CONSTRUCTION DETAIL

* PLACE AT EXISTING SHLDR.
** PLACE TO MAINTAIN A MINIMUM OF 2-2' SHLDRS. AND 2-11' LANES

STAGE IB
STAGE IA



STAGE IA CONSTRUCTION DETAIL

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MAINTENANCE OF TRAFFIC

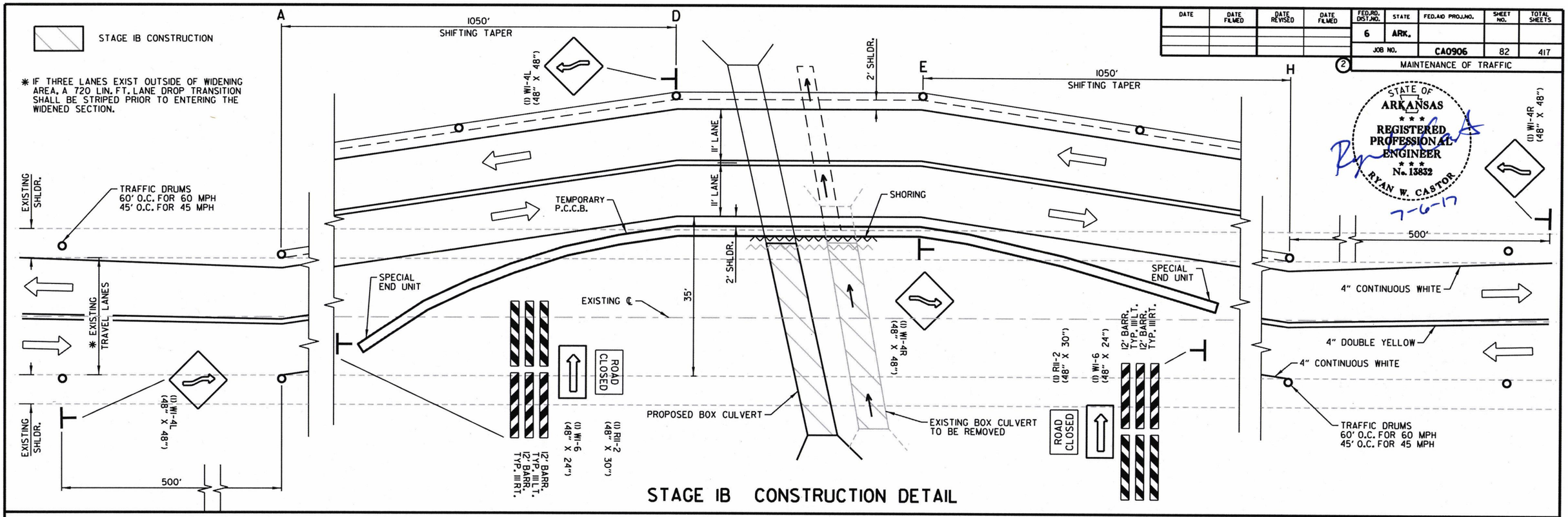
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	82	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

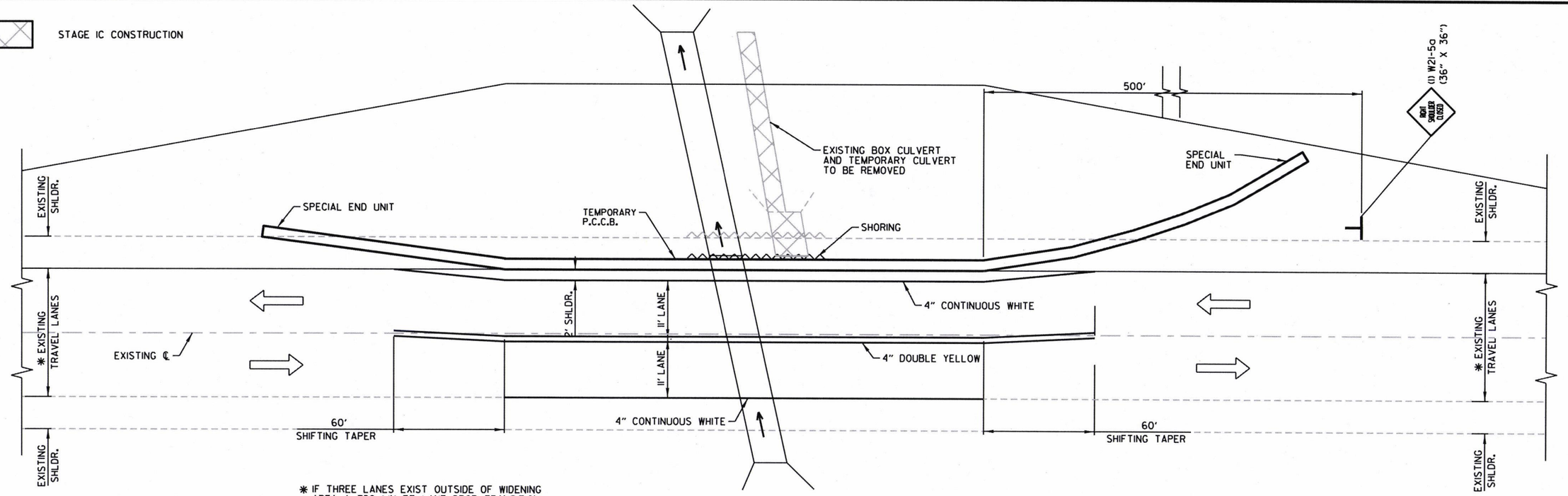
STAGE IB CONSTRUCTION

* IF THREE LANES EXIST OUTSIDE OF WIDENING AREA, A 720 LIN. FT. LANE DROP TRANSITION SHALL BE STRIPED PRIOR TO ENTERING THE WIDENED SECTION.



STAGE IB CONSTRUCTION DETAIL

STAGE IC CONSTRUCTION



* IF THREE LANES EXIST OUTSIDE OF WIDENING AREA, A 720 LIN. FT. LANE DROP TRANSITION SHALL BE STRIPED PRIOR TO ENTERING THE WIDENED SECTION.

STAGE IC CONSTRUCTION DETAIL

MAINTENANCE OF TRAFFIC

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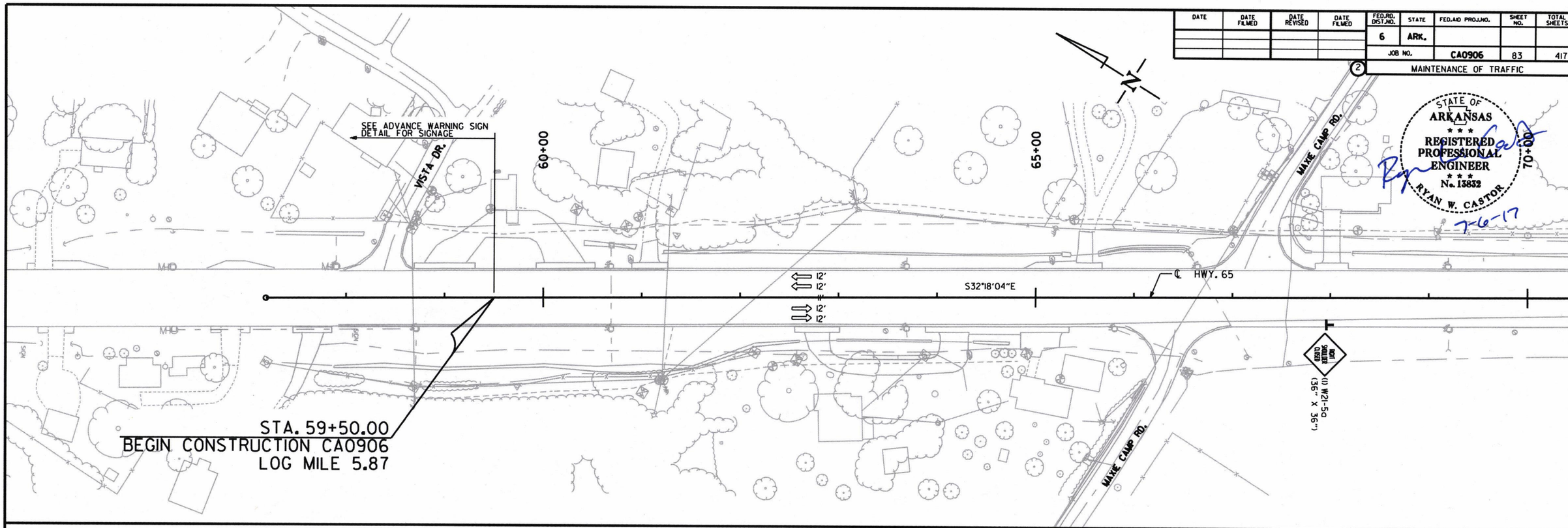
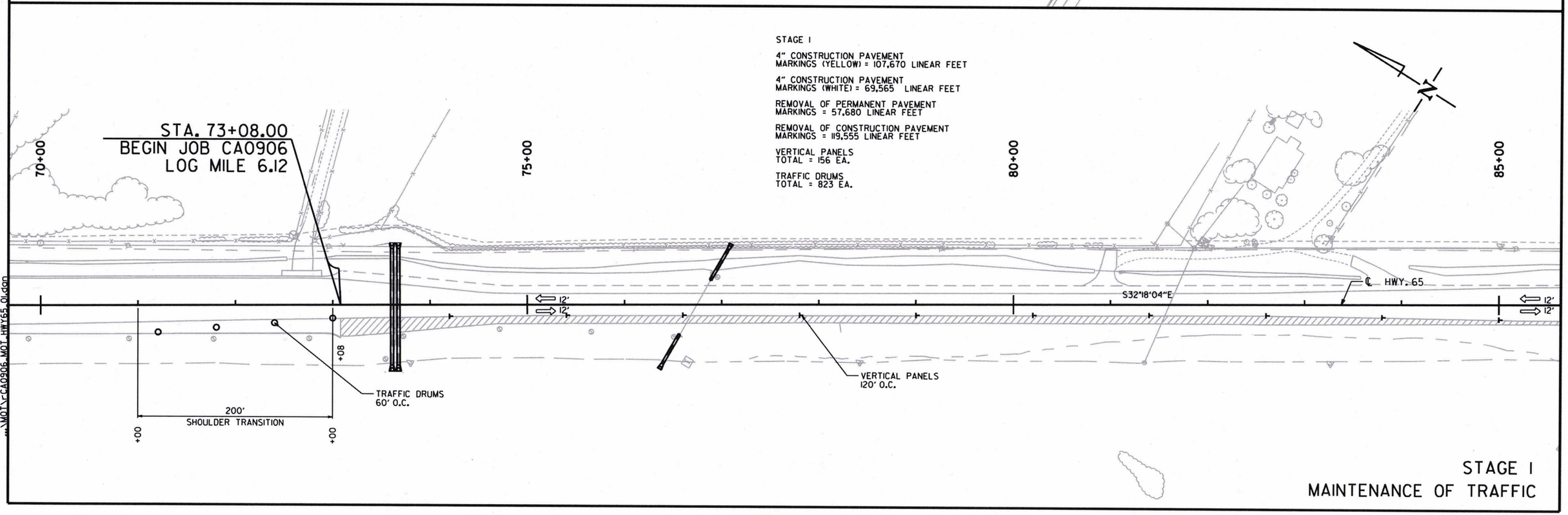
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	83	417

MAINTENANCE OF TRAFFIC





STAGE I
MAINTENANCE OF TRAFFIC

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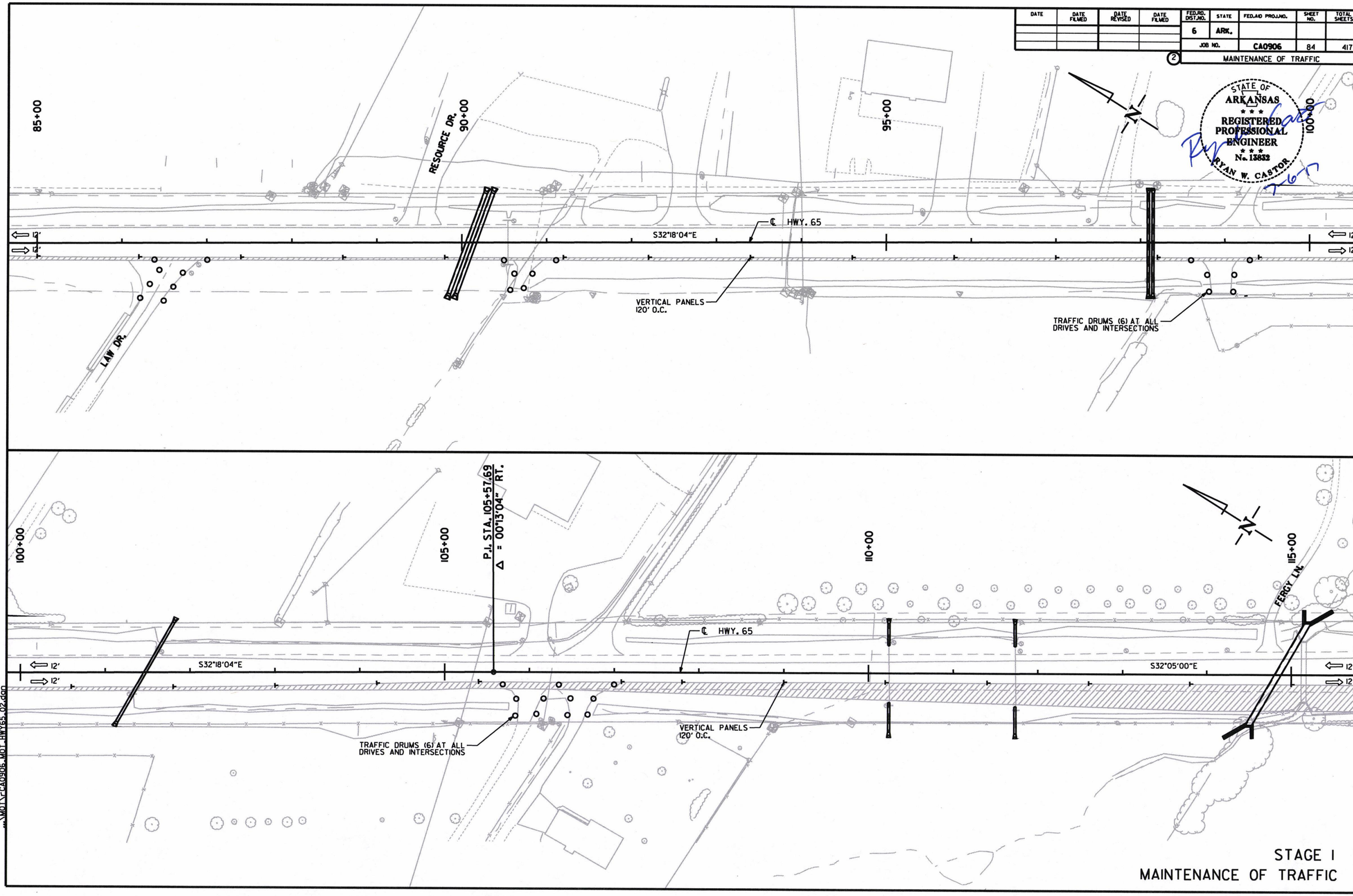
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	84	417

(2) MAINTENANCE OF TRAFFIC



STAGE I
MAINTENANCE OF TRAFFIC

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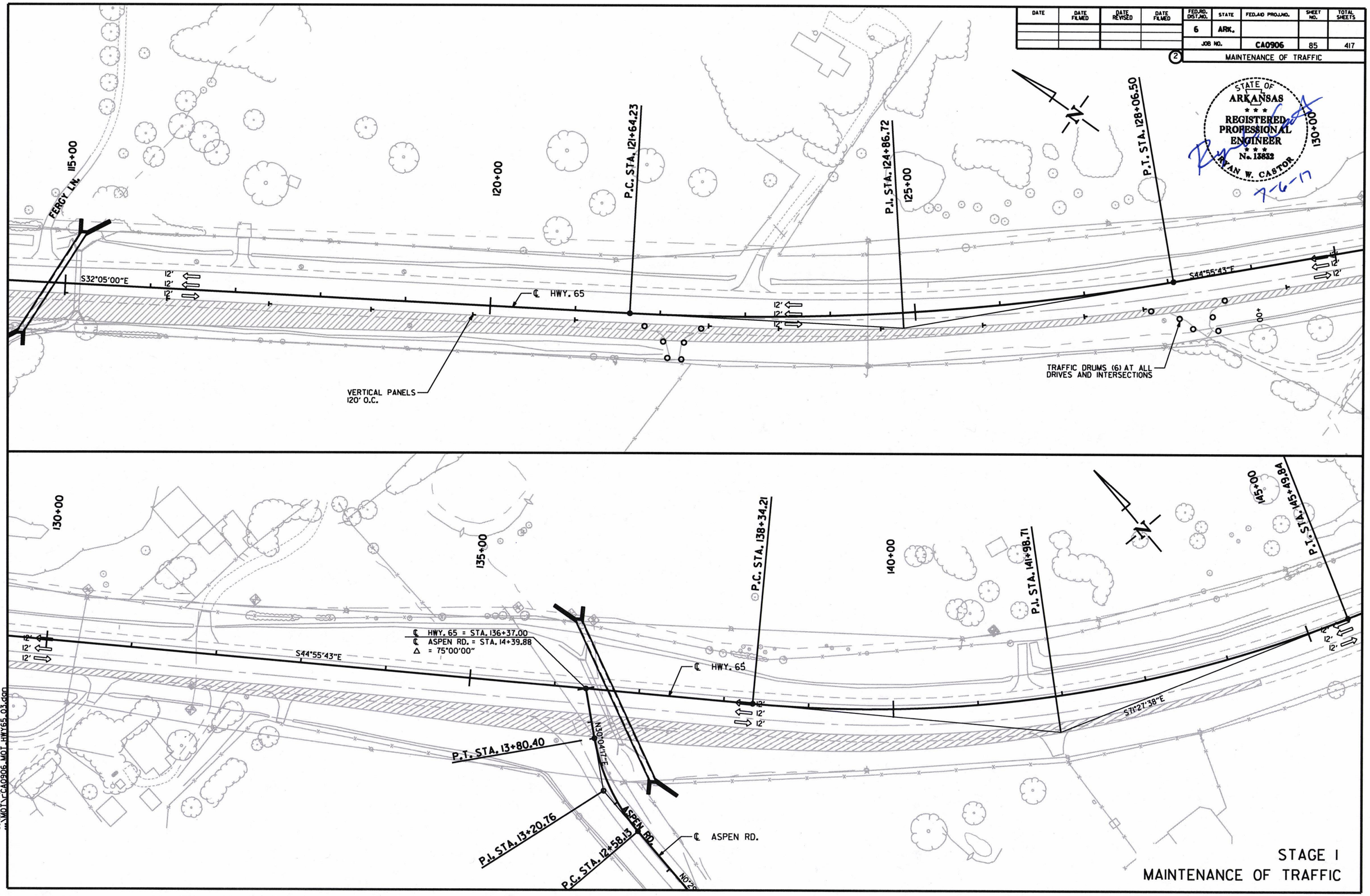
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	85	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STAGE I
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	86	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

145+00
P.T. STA. 145+49.84
150+00
P.C. STA. 154+75.13
155+00
P.I. STA. 158+41.02
160+00
S71°45'53"E
℄ HWY. 65
S50°04'28"E
12'
12'
12'
SHOULDER CLOSED
(1) W21-5a (36" X 36")

160+00
P.T. STA. 161+98.14
165+00
170+00
P.I. STA. 172+02.71
Δ = 00°18'20" RT.
175+00
S50°04'28"E
℄ HWY. 65
S49°46'08"E
TRAFFIC DRUMS 60' O.C.
200' SHOULDER TRANSITION
VERTICAL PANELS 120' O.C.

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STAGE I
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	87	417

2 MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

BARNARD LN. E.

175+00

180+00

185+00

190+00

℄ HWY. 65

S49°46'08"E

12'

VERTICAL PANELS 120' O.C.

TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS

VERTICAL PANELS 90' O.C.

P.I. STA. 192+49.76
Δ = 00°17'19" LT.

190+00

195+00

SCHOOL ST.

℄ HWY. 65

S50°03'27"E

TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS

VERTICAL PANELS 90' O.C.

P.C. STA. 12+25.43

P.I. STA. 16+26.98

P.C. STA. 15+84.98

P.I. STA. 16+65.50

200+00

RALLY HILL RD.
S84°48'0"E

℄ HWY. 65 = STA. 200+23.43
℄ ELM STR. = STA. 15+07.25
Δ = 75°00'0.0"

N54°56'33"E

15+00

CONTRACTOR NOT REQUIRED TO IMPROVE SHOULDER THROUGH INTERSECTION

P.C. STA. 202+91.93

205+00

P.T. STA. 14+59.75

℄ ELM ST.

ELM ST.

P.I. STA. 13+44.80

(1) W21-5a (36" X 36")

NO IMPROVEMENTS TO EXISTING SHOULDER REQUIRED ON BRIDGE

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STAGE I
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	88	417

(2) MAINTENANCE OF TRAFFIC

205+00
P.I. STA. 205+70.15
P.T. STA. 208+42.33
210+00
P.C. STA. 211+41.17
215+00
P.I. STA. 219+24.03
S50°03'27"E
S29°25'03"E
℄ HWY. 65
12'
VERTICAL PANELS 90' O.C.
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
VERTICAL PANELS 120' O.C.
CHURCH ST.
(1) W21-5a (36" X 36")

STATE OF ARKANSAS
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7-6-17

220+00
225+00
P.T. STA. 227+04.47
230+00
P.C. STA. 230+49.06
P.I. STA. 233+12.95
235+00
REDBUD E.
S37°14'02"E
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
VERTICAL PANELS 120' O.C.

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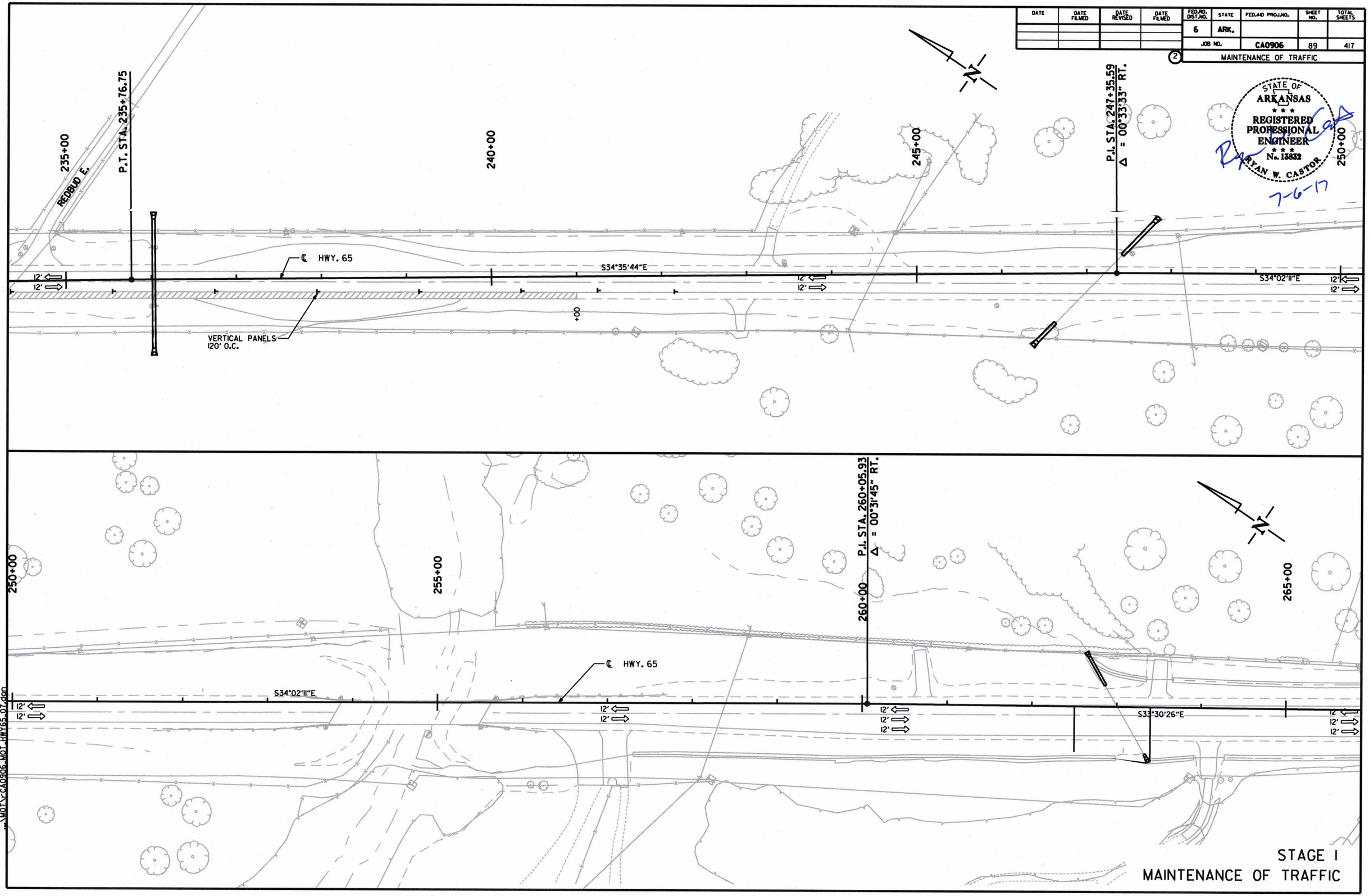
STAGE I
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	89	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STAGE I
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	90	417

2 MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

265+00
270+00
P.I. STA. 273+04.96
Δ = 00°31'45" LT.
275+00
℄ HWY. 65
S33°30'26"E
S34°02'11"E
12'
12'
12'

280+00
285+00
P.C. STA. 289+95.56
290+00
P.I. STA. 292+18.70
SAGEMORE LOOP
P.T. STA. 294+39.81
295+00
℄ HWY. 65 = STA. 282+25.00
℄ MURRAY RD. = STA. 12+60.00
Δ = 90°00'00"
S34°02'11"E
N65°57'49"E
P.T. STA. 12+22.40
P.I. STA. 11+79.40
P.C. STA. 11+33.72
MURRAY RD.
N89°53'02"E
S19°58'41"E
10+00
POB 9+63.78

STAGE I
MAINTENANCE OF TRAFFIC

7/5/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	91	417

(2) MAINTENANCE OF TRAFFIC

295+00 SAGEMORE LOOP P.T. STA. 11+02.74 P.I. STA. 10+85.06 P.C. STA. 10+67.36 HWY. 206 S89°36" 300+00 ℄ HWY. 206 P.I. STA. 302+45.99 Δ = 00°40'05" RT. 305+00 N 310+00 P.C. STA. 309+65.37

10+00 S20°42'32"E N84°17'28"E ℄ HWY. 65 S20°02'27"E

12' 12' 12' 12' 12' 12' 12' 12'

℄ HWY. 65 = STA. 299+17.00
℄ HWY. 206 = STA. 10+00.00
Δ = 75°00'00"

STA. 304+00.00
END JOB CA0906
LOG MILE 10.49

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P.C. STA. 309+65.37 310+00 P.I. STA. 312+59.47 315+00 P.T. STA. 315+51.52 320+00 N 325+00

12' 12' 12' S20°02'27"E ℄ HWY. 65 S31°45'50"E 12' 12'

SNOW BALL CREEK RD.

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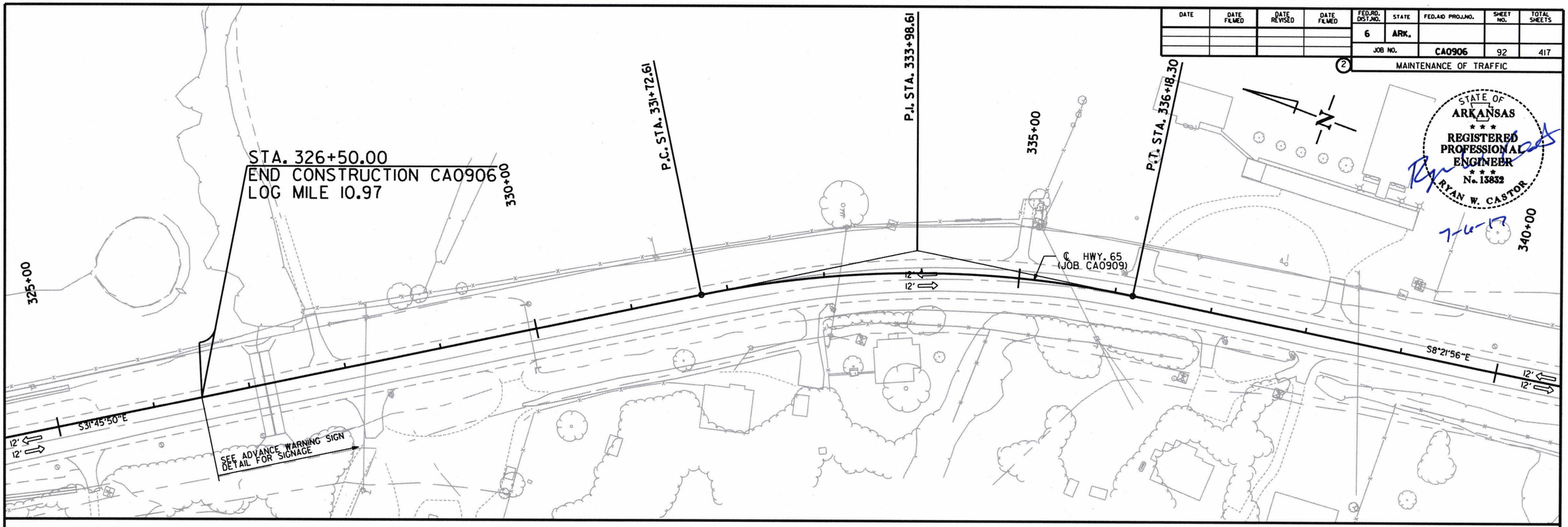
STAGE I
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	92	417

2 MAINTENANCE OF TRAFFIC



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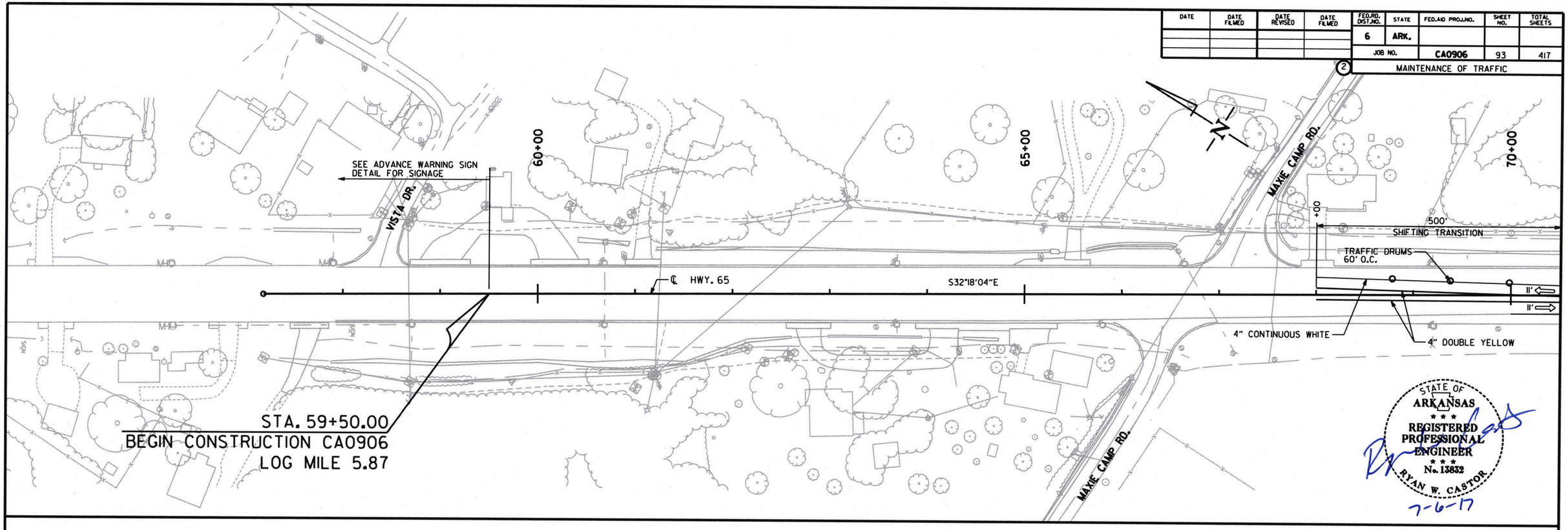
STAGE I
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	93	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
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No. 13832
RYAN W. CASTOR
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STAGE 2

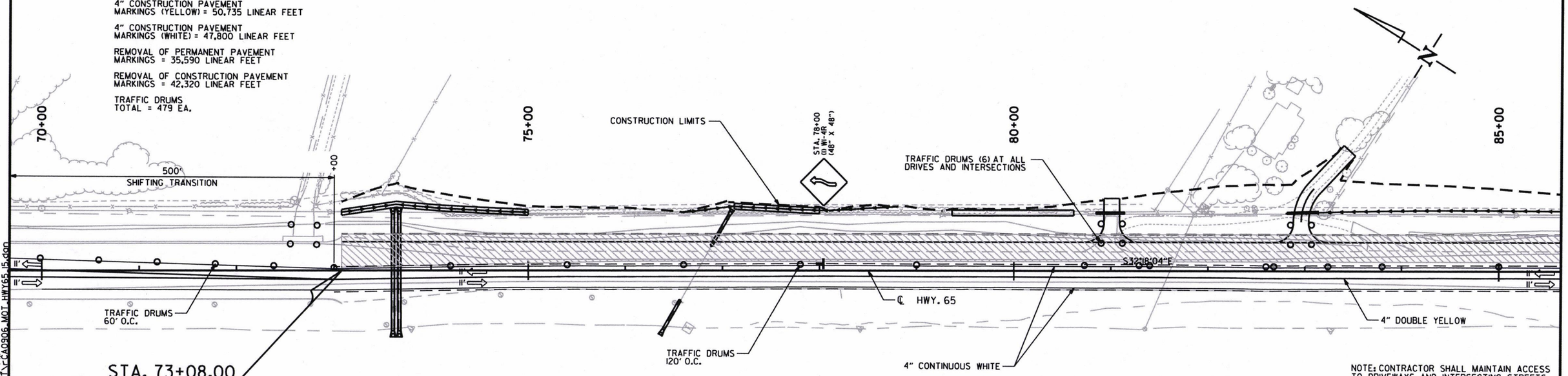
4" CONSTRUCTION PAVEMENT MARKINGS (YELLOW) = 50,735 LINEAR FEET

4" CONSTRUCTION PAVEMENT MARKINGS (WHITE) = 47,800 LINEAR FEET

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 35,590 LINEAR FEET

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 42,320 LINEAR FEET

TRAFFIC DRUMS TOTAL = 479 EA.



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

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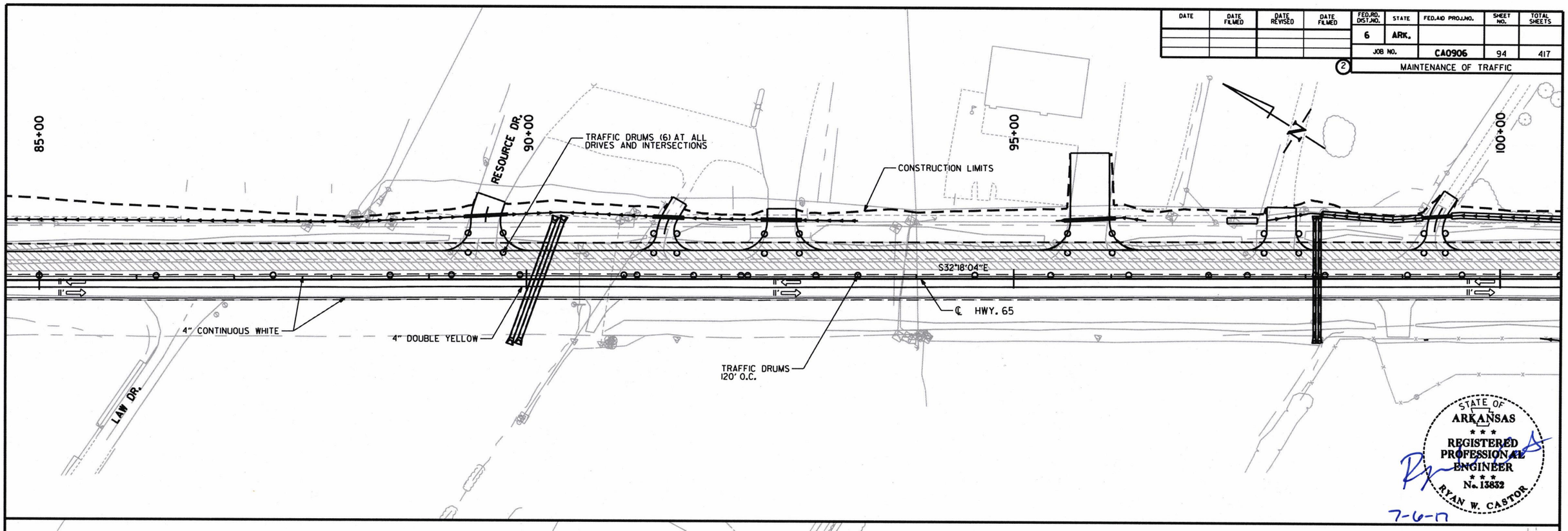
STAGE 2
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	94	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
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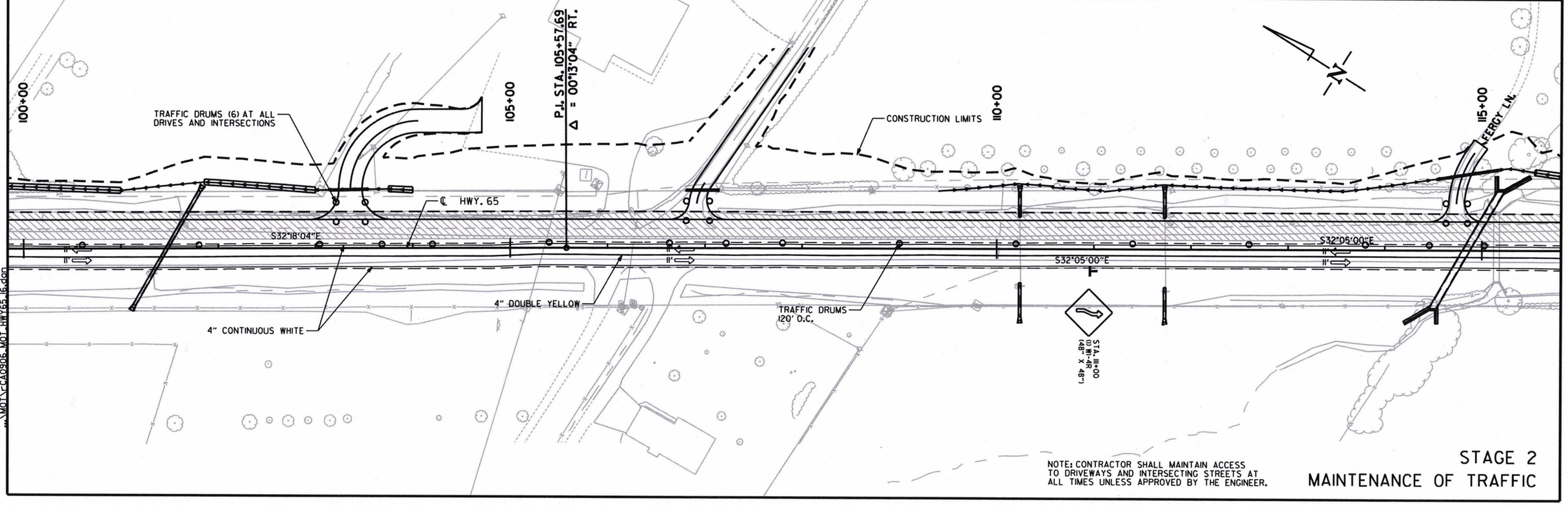
7-6-17



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	95	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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No. 13832
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7-6-17

115+00
FERGY LN.
TRAFFIC DRUMS 120' O.C.
4" CONTINUOUS WHITE
4" DOUBLE YELLOW
400' RIGHT SHIFTING TRANSITION
00+
120+00
STA. 120+00 (1) WI-4R (48" X 48")
SPECIAL END UNIT
℄ HWY. 65
S32°05'00"E
TEMPORARY PRECAST CONCRETE BARRIER (240')
00+
P.C. STA. 121+64.23
STA. 122+00 (1) WI-4L (48" X 48")
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
TEMPORARY IMPACT ATTENUATION BARRIER
400' LEFT SHIFTING TRANSITION
00+
P.I. STA. 124+86.72
125+00
SPECIAL END UNIT
CONSTRUCTION LIMITS
TEMPORARY PRECAST CONCRETE BARRIER (280')
TEMPORARY IMPACT ATTENUATION BARRIER
P.T. STA. 128+06.50
130+00
S44°55'43"E
250' SHIFTING TRANSITION
00+
50+

130+00
135+00
STA. 134+00 (1) WI-4L (48" X 48")
CONSTRUCTION LIMITS
℄ HWY. 65
S44°55'43"E
TRAFFIC DRUMS 120' O.C.
4" DOUBLE YELLOW
℄ HWY. 65 = STA. 136+37.00
℄ ASPEN RD. = STA. 14+39.88
△ = 75°00'00"
P.T. STA. 13+80.40
N30°04'17"E
℄ ASPEN RD.
P.I. STA. 13+20.76
P.C. STA. 12+58.13
ASPEN RD. S N0°28
P.C. STA. 138+34.21
140+00
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
P.I. STA. 141+98.71
145+00
P.T. STA. 145+49.84
S17°27'38"E
4" CONTINUOUS WHITE

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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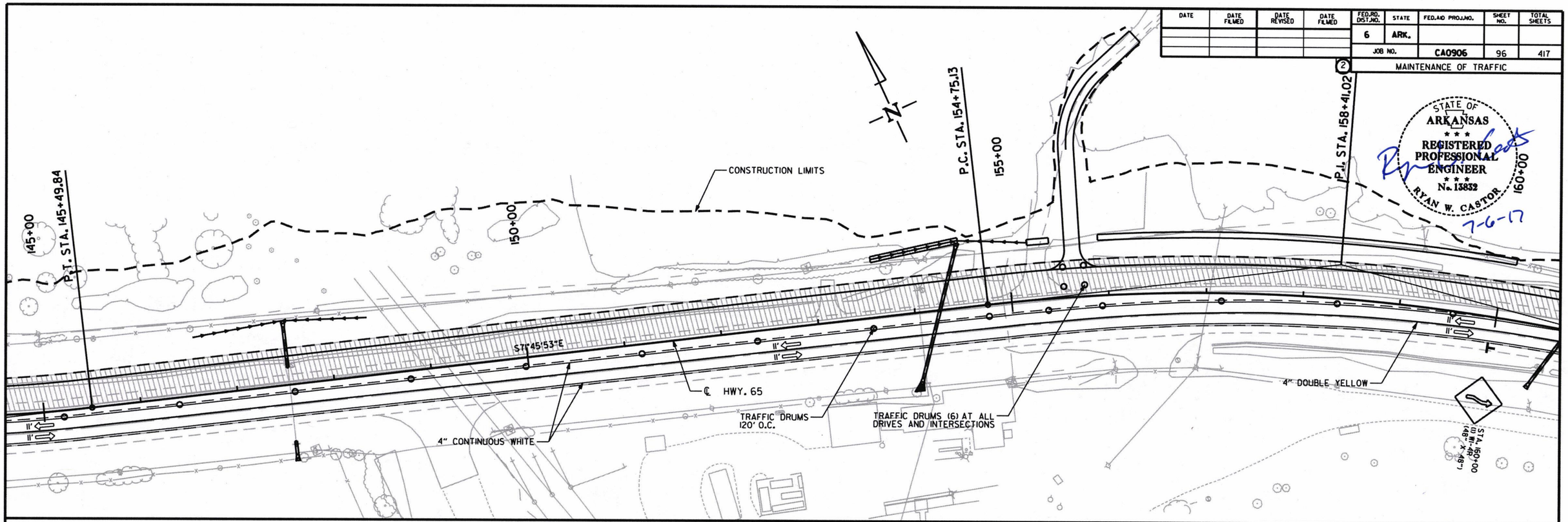
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	96	417

2 MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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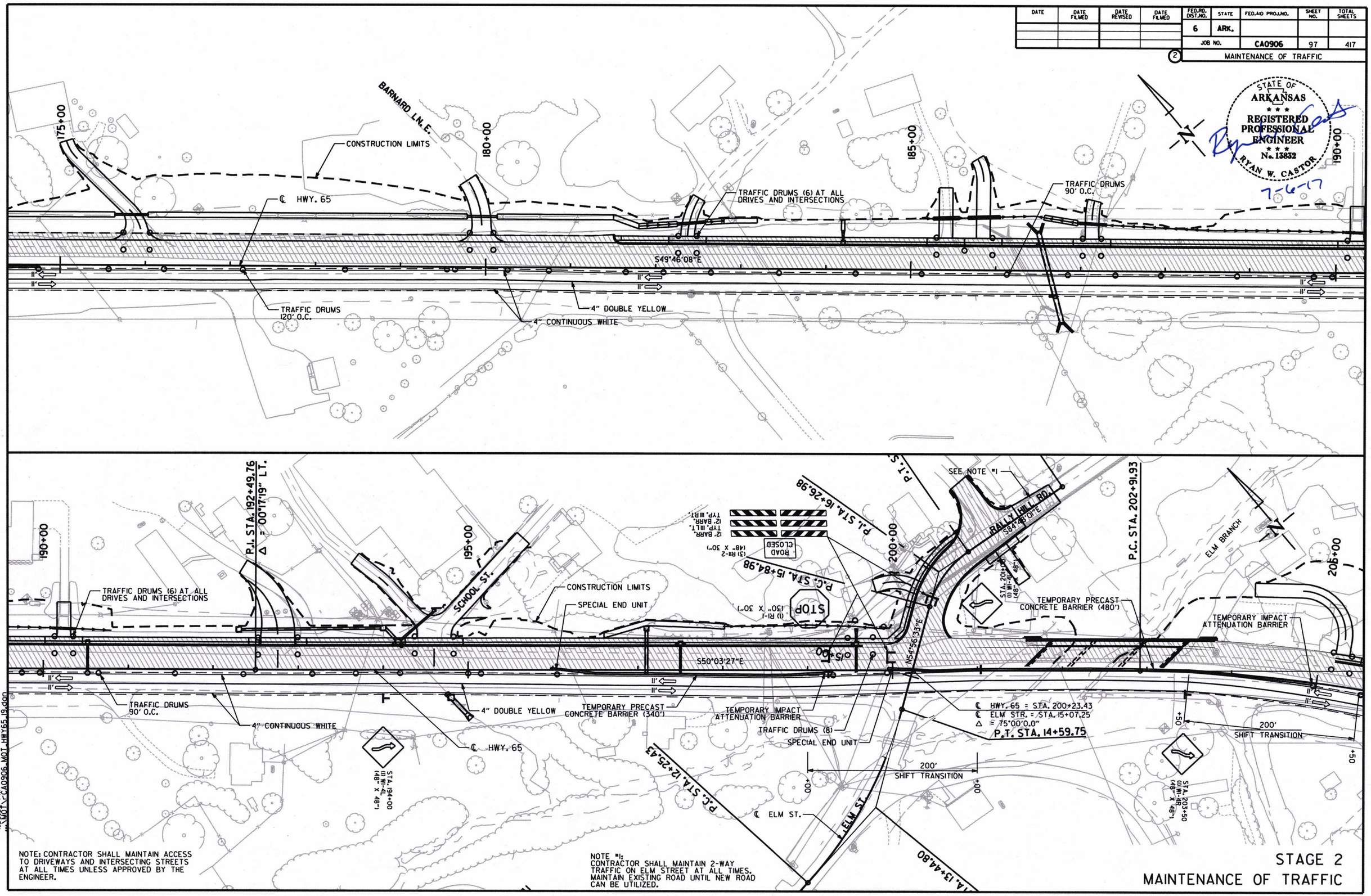
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	97	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
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No. 13832
RYAN W. CASTOR
7-6-17

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

NOTE #1:
CONTRACTOR SHALL MAINTAIN 2-WAY TRAFFIC ON ELM STREET AT ALL TIMES. MAINTAIN EXISTING ROAD UNTIL NEW ROAD CAN BE UTILIZED.

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	98	417

(2) MAINTENANCE OF TRAFFIC

205+00
P.I. STA. 205+70.15
CONSTRUCTION LIMITS
P.T. STA. 208+42.33
210+00
STA. 210+50 (1) W1-4R (48" X 48")
℄ HWY. 65
P.C. STA. 211+41.17
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
215+00
TRAFFIC DRUMS 90' O.C.
P.I. STA. 219+24.03
SPECIAL END UNIT
S29°25'03"E
S50°03'27"E
11'
11'
TEMPORARY PRECAST CONCRETE BARRIER (320')
TEMPORARY IMPACT ATTENUATION BARRIER
TEMPORARY IMPACT ATTENUATION BARRIER
4" CONTINUOUS WHITE
4" DOUBLE YELLOW
200' SHIFT TRANSITION
+50
TRAFFIC DRUMS 120' O.C.
CHURCH ST.
STA. 202+50 (1) W1-4R (48" X 48")

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220+00
225+00
P.T. STA. 227+04.47
230+00
P.C. STA. 230+49.06
P.I. STA. 233+12.95
235+00
REDBUD E.
CONSTRUCTION LIMITS
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
℄ HWY. 65
S37°14'02"E
11'
11'
4" CONTINUOUS WHITE
TRAFFIC DRUMS 120' O.C.
4" DOUBLE YELLOW
STA. 233+50 (1) W1-4R (48" X 48")

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	99	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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No. 13832
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7-6-17

235+00
REDBUD E.
P.T. STA. 235+76.75
240+00
245+00
P.I. STA. 247+35.59
Δ = 00°33'33" RT.
250+00
N
CONSTRUCTION LIMITS
℄ HWY. 65
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
STA. 246+00 (1) WI-4L (48" X 48")
S34°35'44"E
S34°02'11"E
4" CONTINUOUS WHITE
TRAFFIC DRUMS 120' O.C.
4" DOUBLE YELLOW
250' SHIFT TRANSITION
05+
00+

250+00
255+00
260+00
P.I. STA. 260+05.93
Δ = 00°31'45" RT.
265+00
N
SPECIAL END UNIT
CONSTRUCTION LIMITS
℄ HWY. 65
S34°02'11"E
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
TRAFFIC DRUMS 120' O.C.
STA. 265+75 (1) WI-4R
4" DOUBLE YELLOW
TEMPORARY PRECAST CONCRETE BARRIER (900')
TEMPORARY IMPACT ATTENUATION BARRIER
4" CONTINUOUS WHITE
STA. 265+75 (1) WI-4R (48" X 48")
350' SHIFT TRANSITION
+25
+75

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

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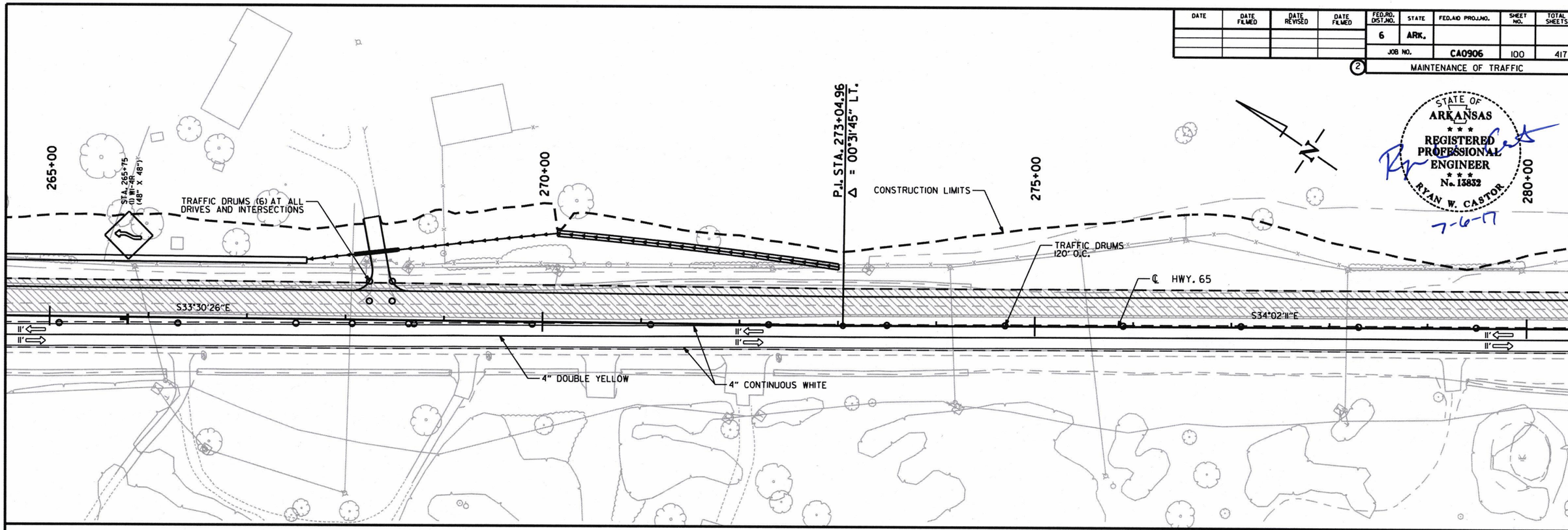
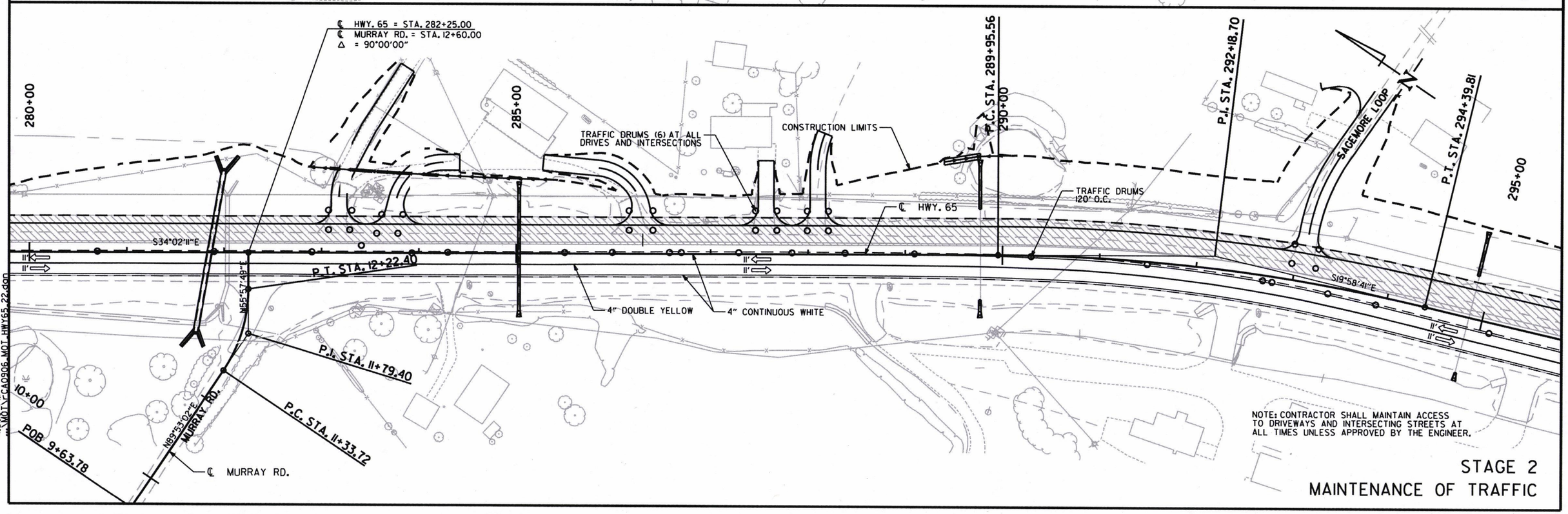
STAGE 2
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	100	417

(2) MAINTENANCE OF TRAFFIC





NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	101	417

2 MAINTENANCE OF TRAFFIC

295+00
SAGEMORE LOOP
P.T. STA. 11+02.74
P.I. STA. 10+85.06
P.C. STA. 10+67.36
HWY. 206
S89°36'21"E
℄ HWY. 206
300+00
P.I. STA. 302+45.99
Δ = 00°40'05" RT.
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
CONSTRUCTION LIMITS
305+00
P.C. STA. 309+65.37
310+00
TRAFFIC DRUMS 120' O.C.
10+00
S20°42'32"E
N84°17'28"E
S20°02'27"E
TRAFFIC DRUMS 60' O.C.
11'
11'
℄ HWY. 65 = STA. 299+17.00
℄ HWY. 206 = STA. 10+00.00
Δ = 75°00'00"
4" DOUBLE YELLOW
4" CONTINUOUS WHITE
℄ HWY. 65
400'
SHIFT TRANSITION
00+
00+
12'
12'
12'
STA. 304+00.00
END JOB CA0906
LOG MILE 10.49

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P.C. STA. 309+65.37
310+00
P.I. STA. 312+59.47
315+00
STA. 315+00
(1) WI-4L
(48" X 48")
P.T. STA. 315+51.52
320+00
325+00
+00
200'
SHOULDER TRANSITION
+00
2'
12'
12'
S20°02'27"E
TRAFFIC DRUMS 60' O.C.
℄ HWY. 65
S31°45'50"E
12'
12'
SNOW BALL CREEK RD.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	102	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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No. 13832
RYAN W. CASTOR
7-6-17

STA. 326+50.00
END CONSTRUCTION CA0906
LOG MILE 10.97

325+00
330+00
P.C. STA. 331+72.61
P.I. STA. 333+98.61
335+00
P.T. STA. 336+18.30
340+00

S8°21'56"E

℄ HWY. 65 (JOB CA0909)

12'
12'

SEE ADVANCE WARNING SIGN DETAIL FOR SIGNAGE

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

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STAGE 2
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	103	417

(2) MAINTENANCE OF TRAFFIC

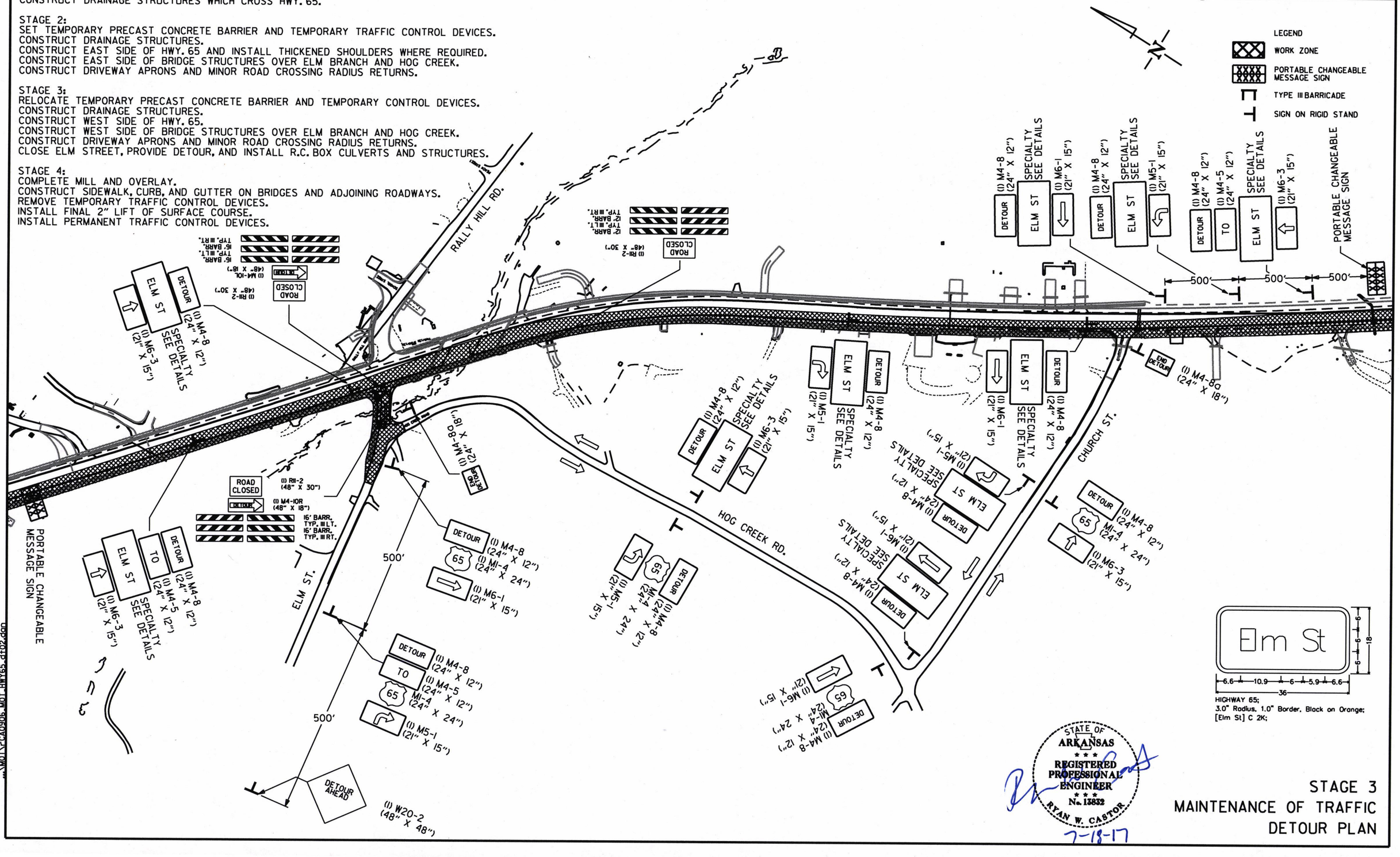
SEQUENCE OF CONSTRUCTION:

STAGE 1:
PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES).
CONSTRUCT THICKENED SHOULDERS WITH TEMPORARY PAVEMENT SECTION.
CONSTRUCT DRAINAGE STRUCTURES WHICH CROSS HWY. 65.

STAGE 2:
SET TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT EAST SIDE OF HWY. 65 AND INSTALL THICKENED SHOULDERS WHERE REQUIRED.
CONSTRUCT EAST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.

STAGE 3:
RELOCATE TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY CONTROL DEVICES.
CONSTRUCT DRAINAGE STRUCTURES.
CONSTRUCT WEST SIDE OF HWY. 65.
CONSTRUCT WEST SIDE OF BRIDGE STRUCTURES OVER ELM BRANCH AND HOG CREEK.
CONSTRUCT DRIVEWAY APRONS AND MINOR ROAD CROSSING RADIUS RETURNS.
CLOSE ELM STREET, PROVIDE DETOUR, AND INSTALL R.C. BOX CULVERTS AND STRUCTURES.

STAGE 4:
COMPLETE MILL AND OVERLAY.
CONSTRUCT SIDEWALK, CURB, AND GUTTER ON BRIDGES AND ADJOINING ROADWAYS.
REMOVE TEMPORARY TRAFFIC CONTROL DEVICES.
INSTALL FINAL 2" LIFT OF SURFACE COURSE.
INSTALL PERMANENT TRAFFIC CONTROL DEVICES.



STATE OF ARKANSAS
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No. 13832
RYAN W. CASTOR
7-18-17

STAGE 3
MAINTENANCE OF TRAFFIC
DETOUR PLAN

7/17/2017
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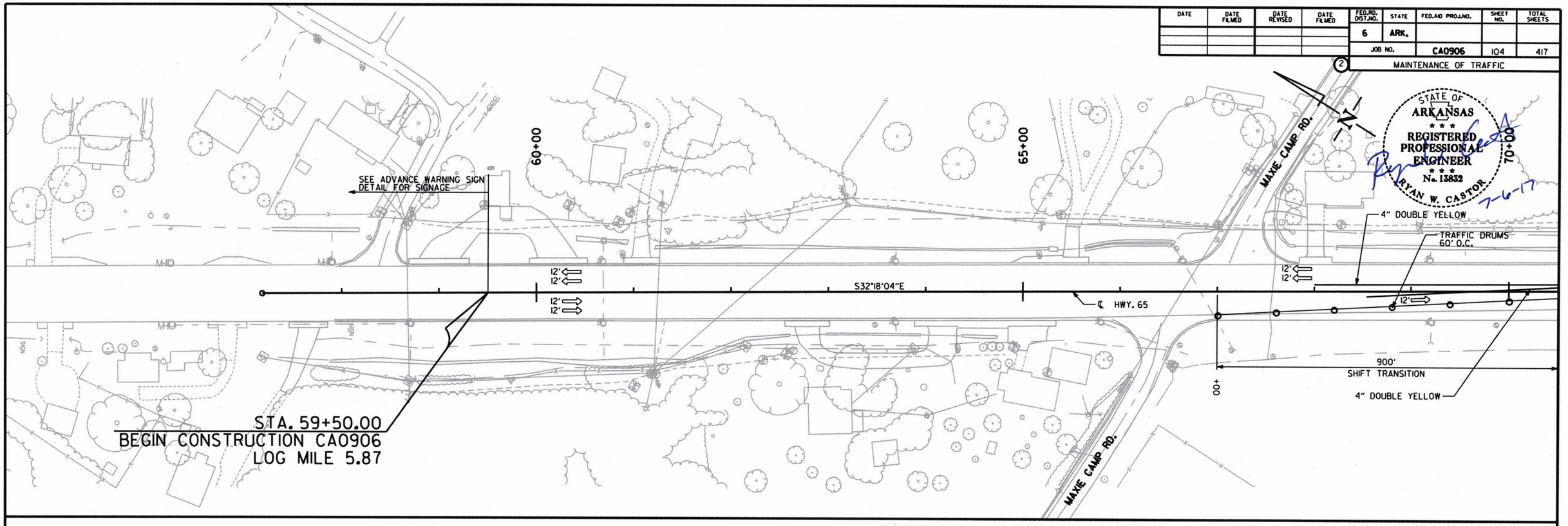
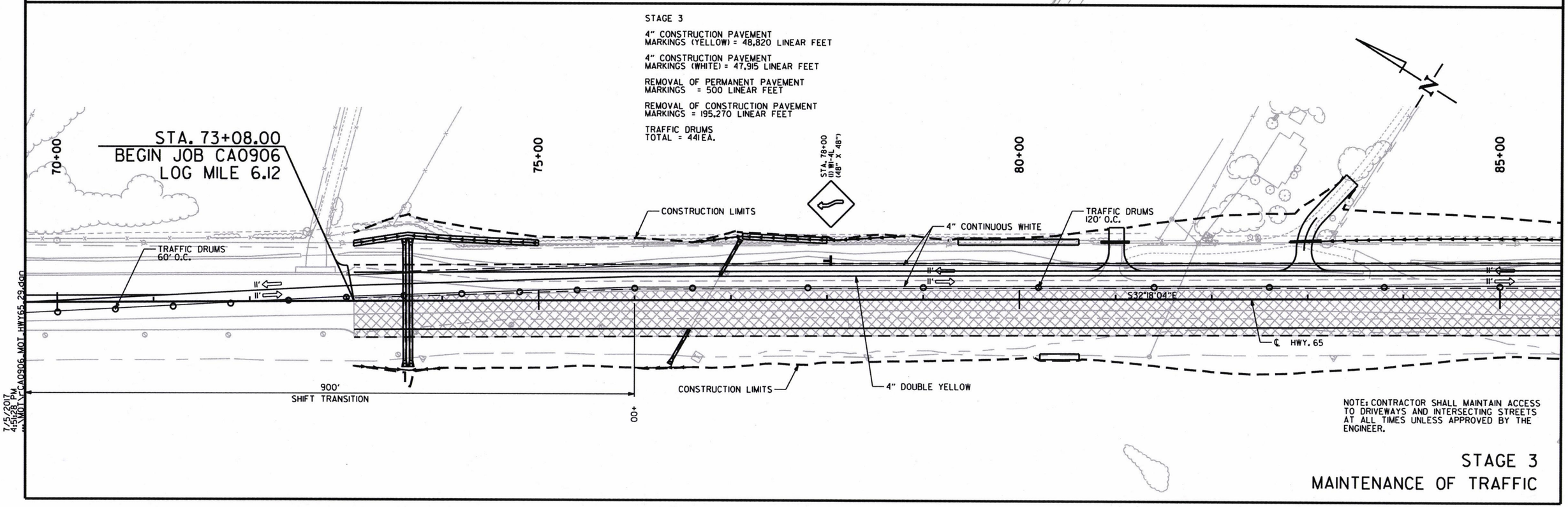
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	104	417

MAINTENANCE OF TRAFFIC





NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	105	417

(2) MAINTENANCE OF TRAFFIC

85+00
RESOURCE DR.
90+00
95+00
100+00
4" CONTINUOUS WHITE
CONSTRUCTION LIMITS
TRAFFIC DRUMS 120' O.C.
4" DOUBLE YELLOW
S32°18'04"E
℄ HWY. 65
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
CONSTRUCTION LIMITS
LAW DR.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

100+00
105+00
P.I. STA. 105+57.69
Δ = 00°13'04" RT.
110+00
115+00
FERGY LN.
CONSTRUCTION LIMITS
4" DOUBLE YELLOW
4" CONTINUOUS WHITE
TRAFFIC DRUMS 120' O.C.
S32°18'04"E
S32°05'00"E
℄ HWY. 65
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
CONSTRUCTION LIMITS

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NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	106	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

115+00
120+00
P.C. STA. 121+64.23
P.I. STA. 124+86.72
125+00
P.T. STA. 128+06.50
130+00
200' SHIFT TRANSITION
4" CONTINUOUS WHITE
CONSTRUCTION LIMITS
4" DOUBLE YELLOW
℄ HWY. 65
11'
S32°05'00"E
S44°55'43"E
TRAFFIC DRUMS 120' O.C.
TEMPORARY IMPACT ATTENUATION BARRIER
TEMPORARY PRECAST CONCRETE BARRIER (600')
STA. 125+00 (1) W1-4R (48" X 48")
SPECIAL END UNIT
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
CONSTRUCTION LIMITS

130+00
135+00
STA. 135+00 (1) W1-4R (48" X 48")
P.C. STA. 138+34.21
140+00
P.I. STA. 141+98.71
145+00
P.T. STA. 145+49.84
CONSTRUCTION LIMITS
4" DOUBLE YELLOW
4" CONTINUOUS WHITE
S44°55'43"E
S7°27'38"E
℄ HWY. 65 = STA. 136+37.00
℄ ASPEN RD. = STA. 14+39.88
△ = 75°00'00"
P.T. STA. 13+80.40
N30°04'17"E
℄ HWY. 65
TRAFFIC DRUMS 120' O.C.
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
CONSTRUCTION LIMITS
P.I. STA. 13+20.76
P.C. STA. 12+58.13
ASPEN RD.
℄ ASPEN RD.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	107	417

2 MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

145+00
P.T. STA. 145+49.84
150+00
CONSTRUCTION LIMITS
4" CONTINUOUS WHITE
4" DOUBLE YELLOW
S71°45'53"E
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
STA. 154+00 (1) WI-4L (48" X 48")
TRAFFIC DRUMS 120' O.C.
P.C. STA. 154+75.13
155+00
℄ HWY. 65
CONSTRUCTION LIMITS
200' SHIFT TRANSITION
+00
+00
P.I. STA. 158+41.02
160+00
S50°04'28"E

160+00
P.T. STA. 161+98.14
STA. 163+00 (1) WI-4L (48" X 48")
165+00
CONSTRUCTION LIMITS
4" CONTINUOUS WHITE
TEMPORARY IMPACT ATTENUATION BARRIER
4" DOUBLE YELLOW
S50°04'28"E
℄ HWY. 65
TRAFFIC DRUMS 120' O.C.
170+00
TEMPORARY PRECAST CONCRETE BARRIER (640')
P.I. STA. 172+02.71
Δ = 00°18'20" RT.
175+00
SPECIAL END UNIT
STA. 175+50 (1) WI-4R (48" X 48")
CONSTRUCTION LIMITS

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	108	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

175+00
180+00
185+00
190+00
BARNARD LN. E.
300' SHIFT TRANSITION
TRAFFIC DRUMS 120' O.C.
CONSTRUCTION LIMITS
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
S49°46'08"E
℄ HWY. 65
TRAFFIC DRUMS 90' O.C.
STA. 186+50 (1) WI-4R (48" X 48")
4" CONTINUOUS WHITE
4" DOUBLE YELLOW
11'

P.I. STA. 192+49.76
Δ = 00°17'19" LT.
190+00
195+00
SCHOOL ST.
CONSTRUCTION LIMITS
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
TRAFFIC DRUMS 90' O.C.
STA. 194+50 (1) WI-4L (48" X 48")
TEMPORARY IMPACT ATTENUATION BARRIER
℄ HWY. 65
4" CONTINUOUS WHITE
4" DOUBLE YELLOW
S50°03'27"E
15+00
P.C. STA. 15+84.98
P.I. STA. 16+26.98
P.I. STA. 16+65.50
200+00
N34°36'33"E
RALLY HILL RD.
S84°28'01"E
STA. 201+50 (1) WI-4R (48" X 48")
200' SHIFT TRANSITION
P.C. STA. 202+91.93
205+00
STA. 203+80 (1) WI-4R (48" X 48")
P.T. STA. 14+59.75
SEE NOTE "1"
TEMPORARY PRECAST CONCRETE BARRIER (1280')
℄ ELM ST.
ELM ST.
P.C. STA. 12+25.43
P.I. STA. 13+44.80
CONSTRUCTION LIMITS
℄ HWY. 65 = STA. 200+23.43
℄ ELM STR. = STA. 15+07.25
Δ = 75°00'0.0"

NOTE "1":
CONTRACTOR SHALL CLOSE ELM ST. DURING CONSTRUCTION OF BOX CULVERT. SEE DETOUR PLAN. MAINTAIN TRAVEL LANES AT ALL OTHER TIMES.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

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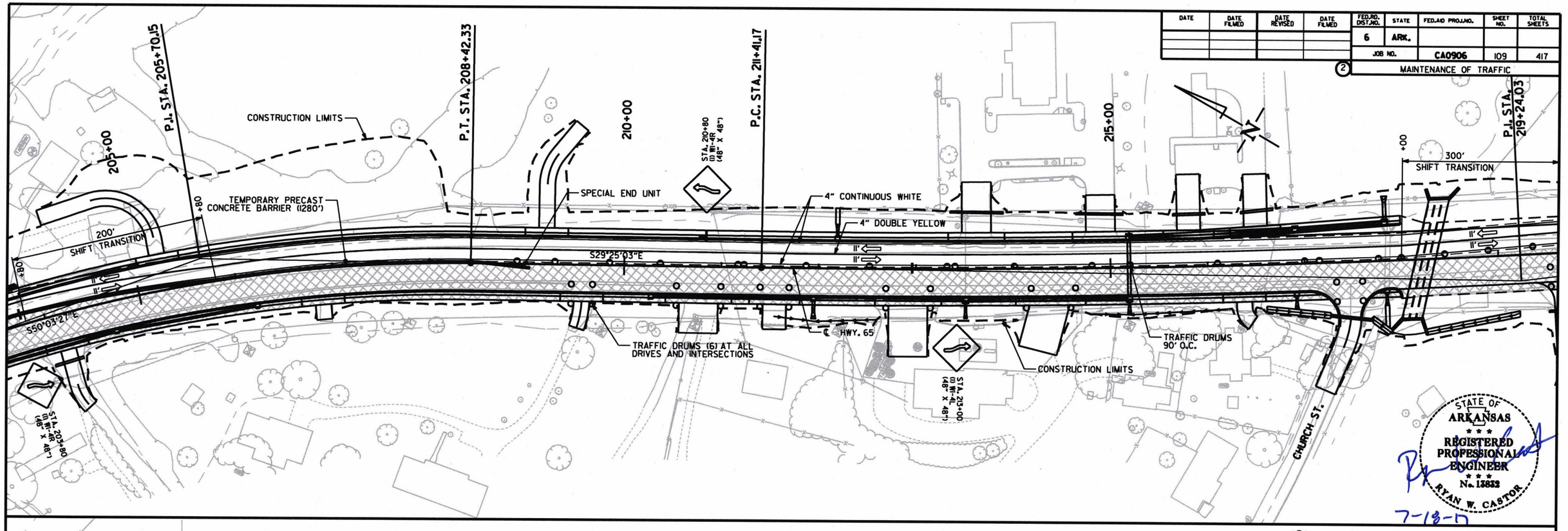
STAGE 3
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	109	417

(2) MAINTENANCE OF TRAFFIC



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	110	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

235+00
REDBUD E.
P.T. STA. 235+76.75
240+00
245+00
P.I. STA. 247+35.59
Δ = 00°33'33" RT.
250+00

TRAFFIC DRUMS 120' O.C.
CONSTRUCTION LIMITS
4" DOUBLE YELLOW
S34°35'44"E
S34°02'11"E
℄ HWY. 65
4" CONTINUOUS WHITE
CONSTRUCTION LIMITS
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS

250+00
255+00
260+00
265+00
P.I. STA. 260+05.93
Δ = 00°31'45" RT.
TEMPORARY PRECAST CONCRETE BARRIER (640')
TEMPORARY IMPACT ATTENUATION BARRIER
4" DOUBLE YELLOW
CONSTRUCTION LIMITS
+25
200'
SHIFT TRANSITION
+25
TEMPORARY PRECAST CONCRETE BARRIER (180')
SPECIAL END UNIT
SPECIAL END UNIT
S34°02'11"E
℄ HWY. 65
TEMPORARY IMPACT ATTENUATION BARRIER
CONSTRUCTION LIMITS
4" CONTINUOUS WHITE
TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS
TRAFFIC DRUMS 120' O.C.
STA. 252+25 (1) WI-4R (48" X 48")
STA. 264+25 (1) WI-4R (48" X 48")

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

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STAGE 3
MAINTENANCE OF TRAFFIC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	III	417

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

265+00 270+00 275+00 280+00

P.I. STA. 273+04.96
Δ = 00°31'45" LT.

200' SHIFT TRANSITION

CONSTRUCTION LIMITS

4" DOUBLE YELLOW

℄ HWY. 65

4" CONTINUOUS WHITE

S33°30'26"E

STA. 278+00 (1) W-4L (48" X 48")

STA. 266+00 (1) W-4L (48" X 48")

TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS

TRAFFIC DRUMS 120' O.C.

CONSTRUCTION LIMITS

℄ HWY. 65 = STA. 282+25.00
℄ MURRAY RD. = STA. 12+60.00
Δ = 90°00'00"

280+00 285+00 290+00 295+00

P.C. STA. 289+95.56

P.I. STA. 292+18.70

P.I. STA. 294+39.81

CONSTRUCTION LIMITS

TRAFFIC DRUMS 120' O.C.

℄ HWY. 65

4" CONTINUOUS WHITE

4" DOUBLE YELLOW

+50

200' SHIFT TRANSITION

+50

S34°02'11"E

S34°02'11"E

S19°58'41"E

P.T. STA. 12+22.40

N55°57'49"E

P.I. STA. 11+79.40

STA. 282+50 (1) W-4L (48" X 48")

TRAFFIC DRUMS (6) AT ALL DRIVES AND INTERSECTIONS

CONSTRUCTION LIMITS

STA. 295+00 (1) W-4R (48" X 48")

10+00

POB 9+63.78

MURRAY RD.

N89°53'02"E

P.C. STA. 11+33.72

℄ MURRAY RD.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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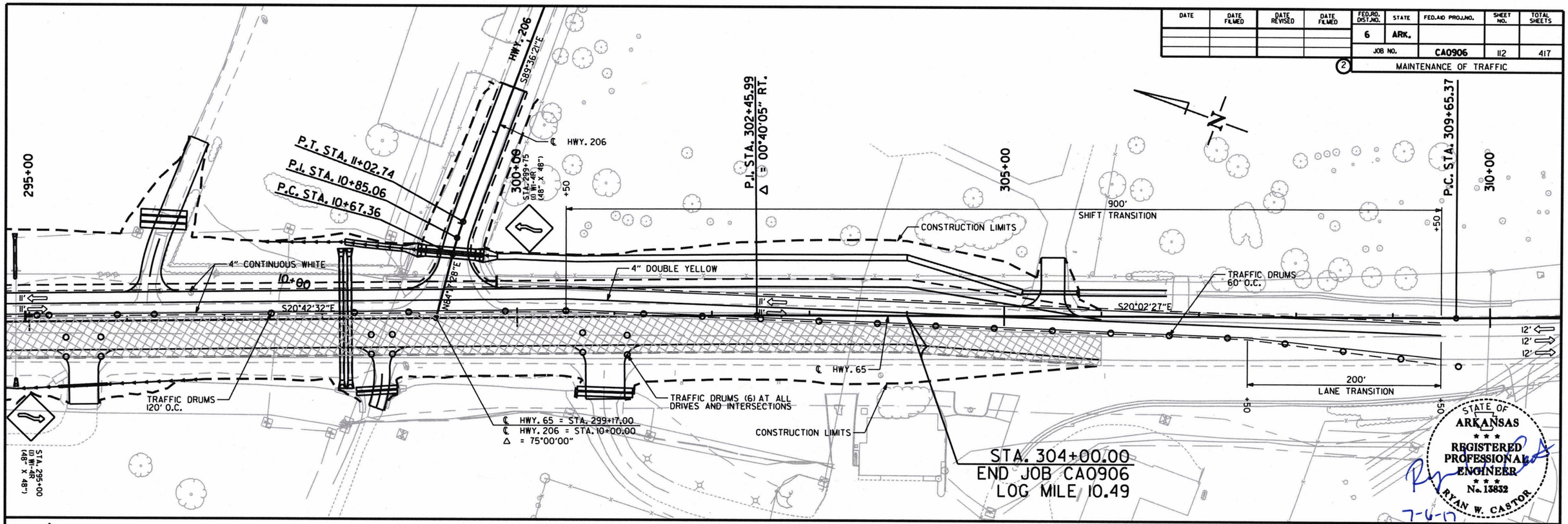
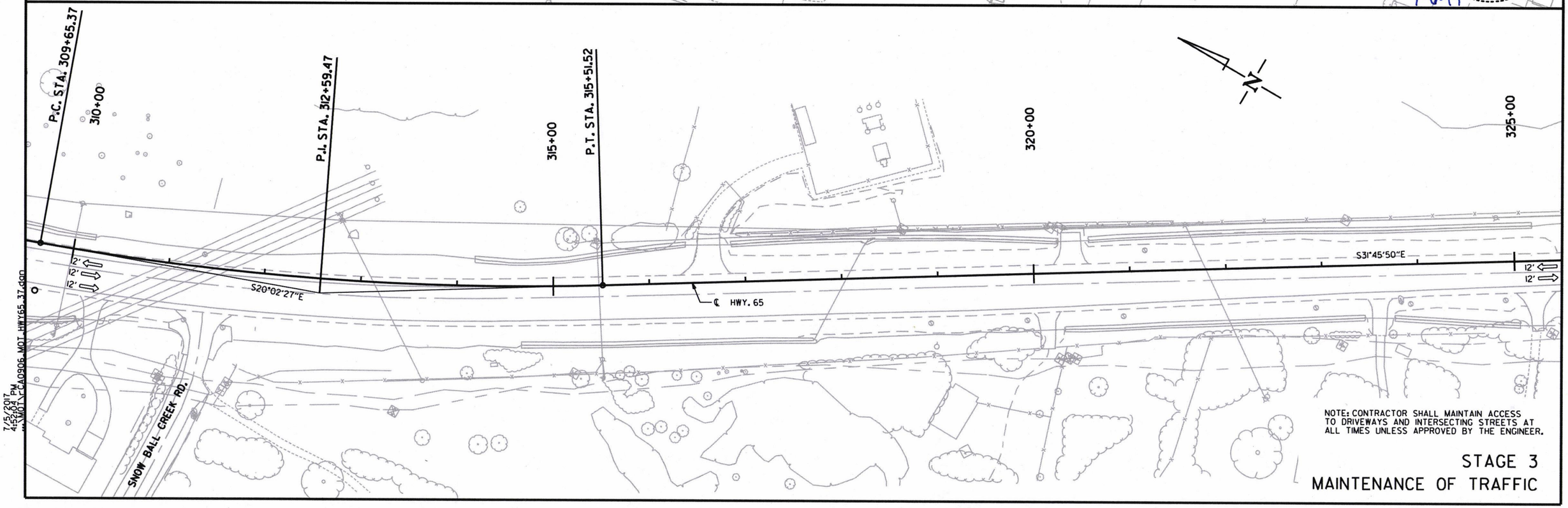
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	112	417

(2) MAINTENANCE OF TRAFFIC





NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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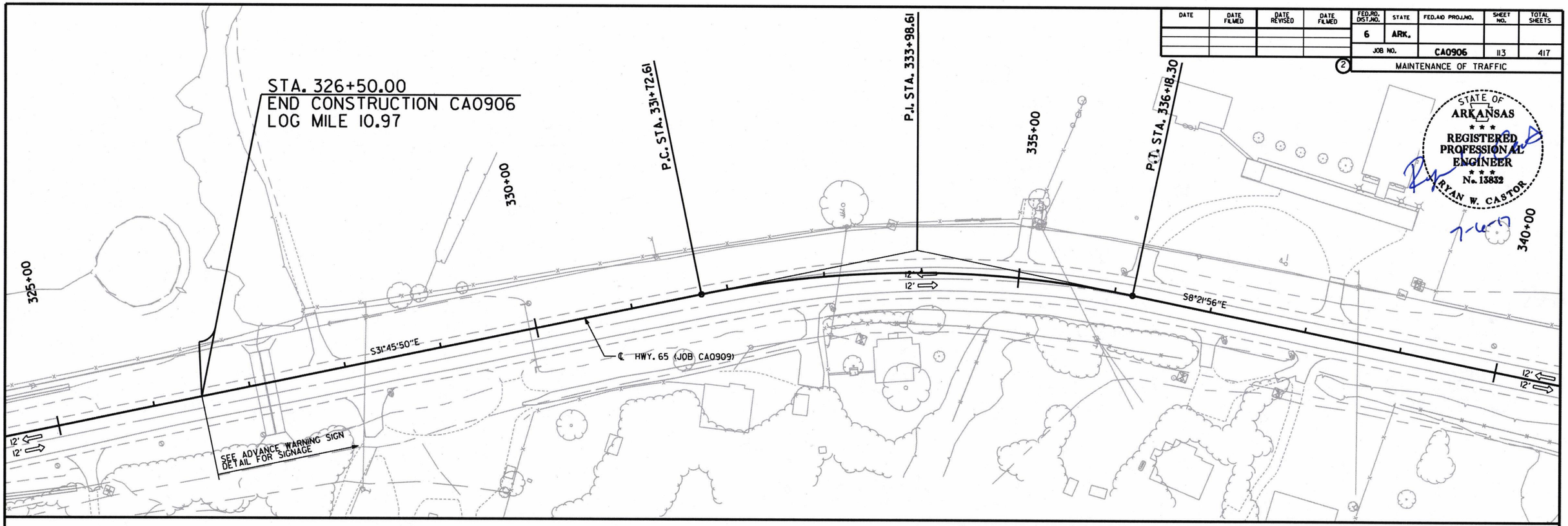
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	113	417

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTING STREETS AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

STAGE 3
MAINTENANCE OF TRAFFIC

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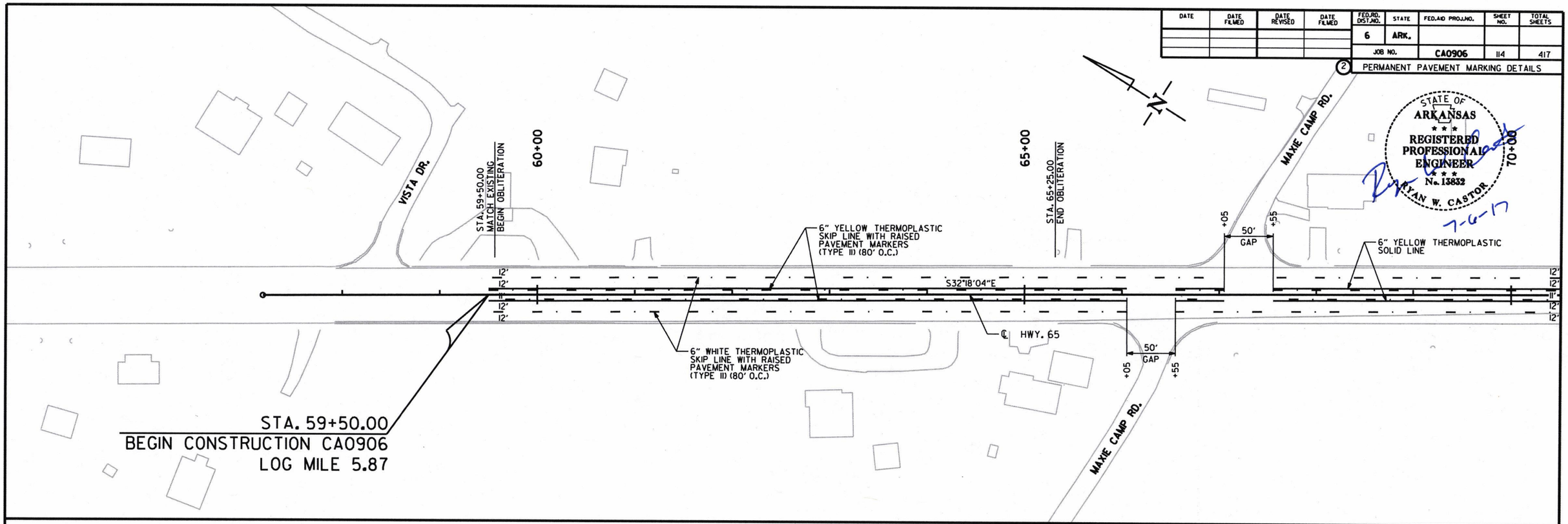
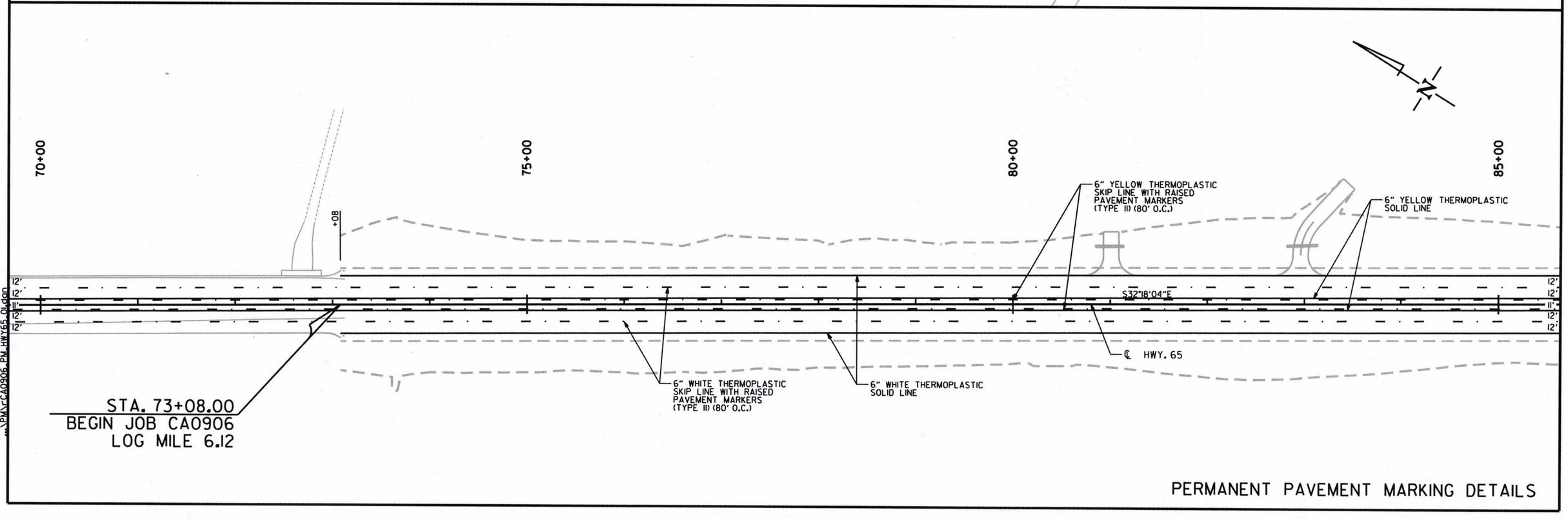
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	114	417

2 PERMANENT PAVEMENT MARKING DETAILS





PERMANENT PAVEMENT MARKING DETAILS

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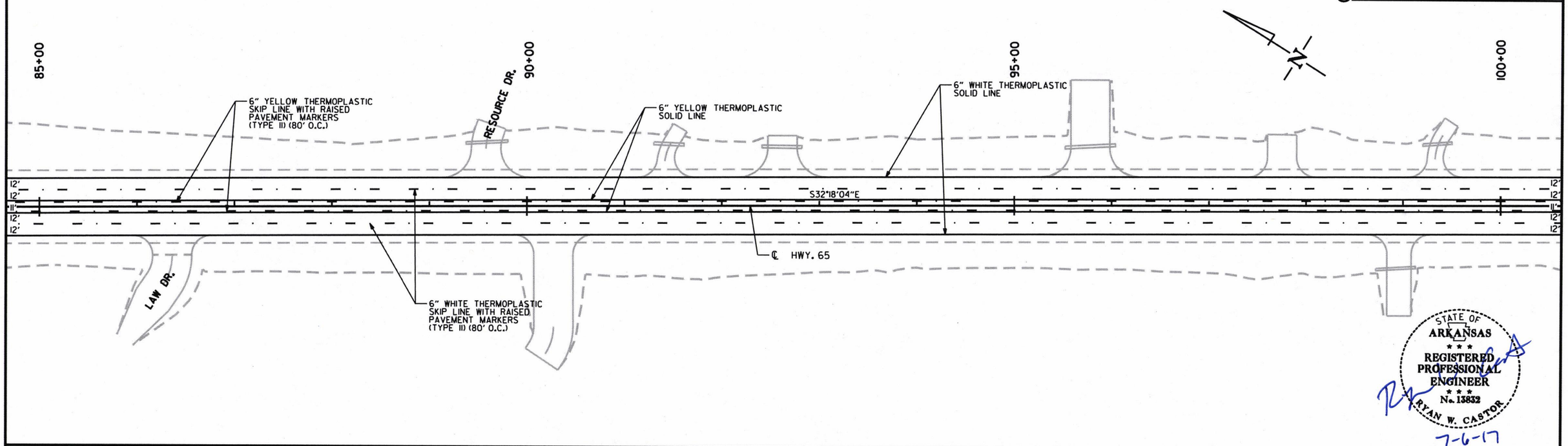
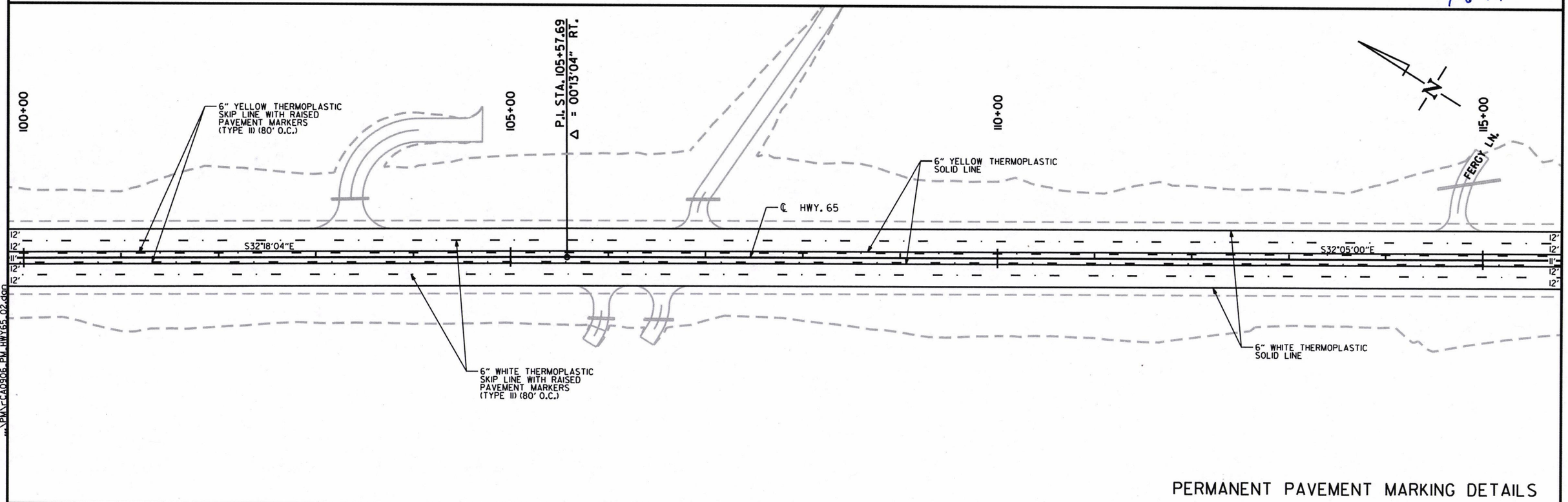
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	115	417

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17



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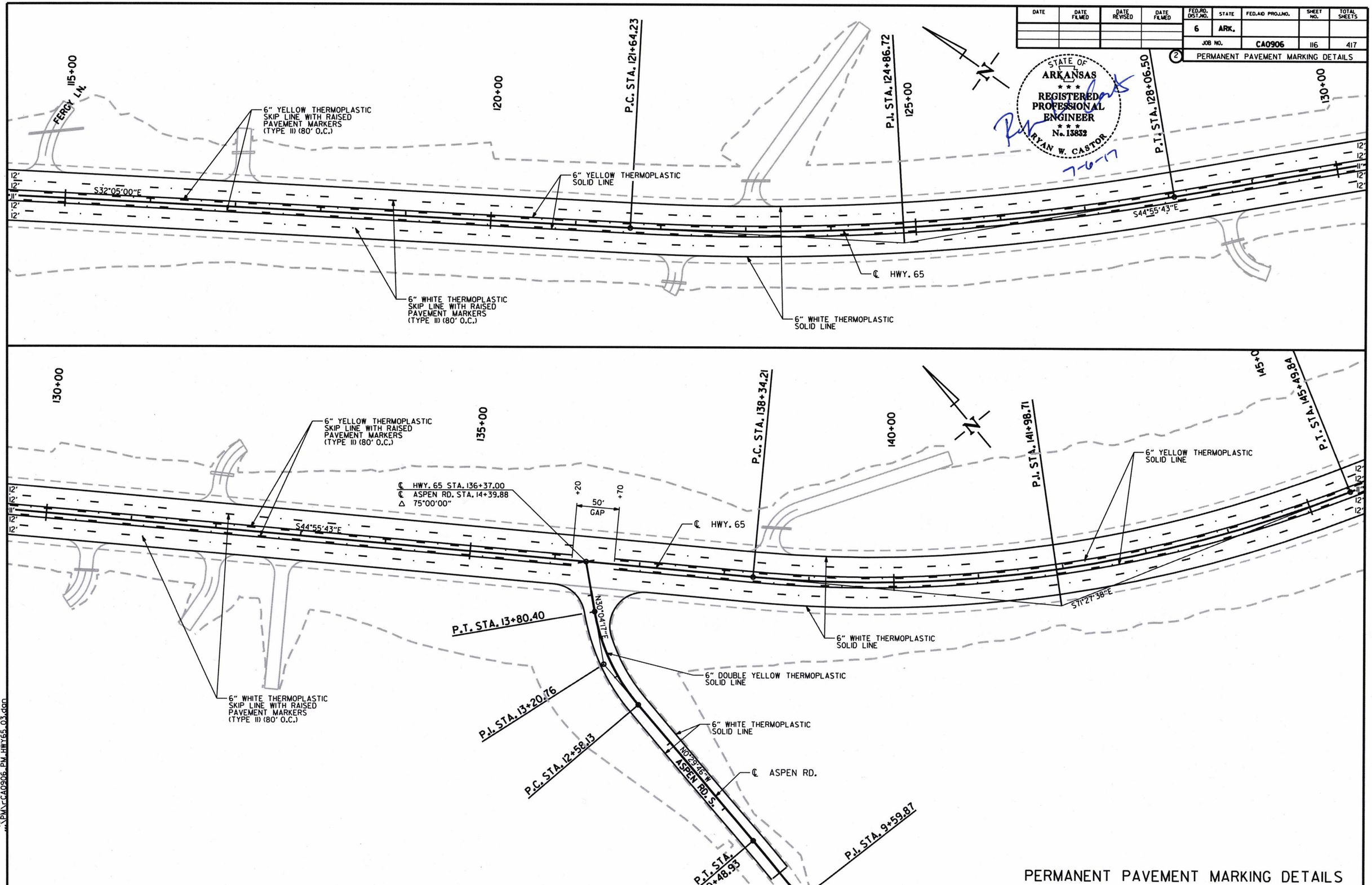
PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	116	417

(2) PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

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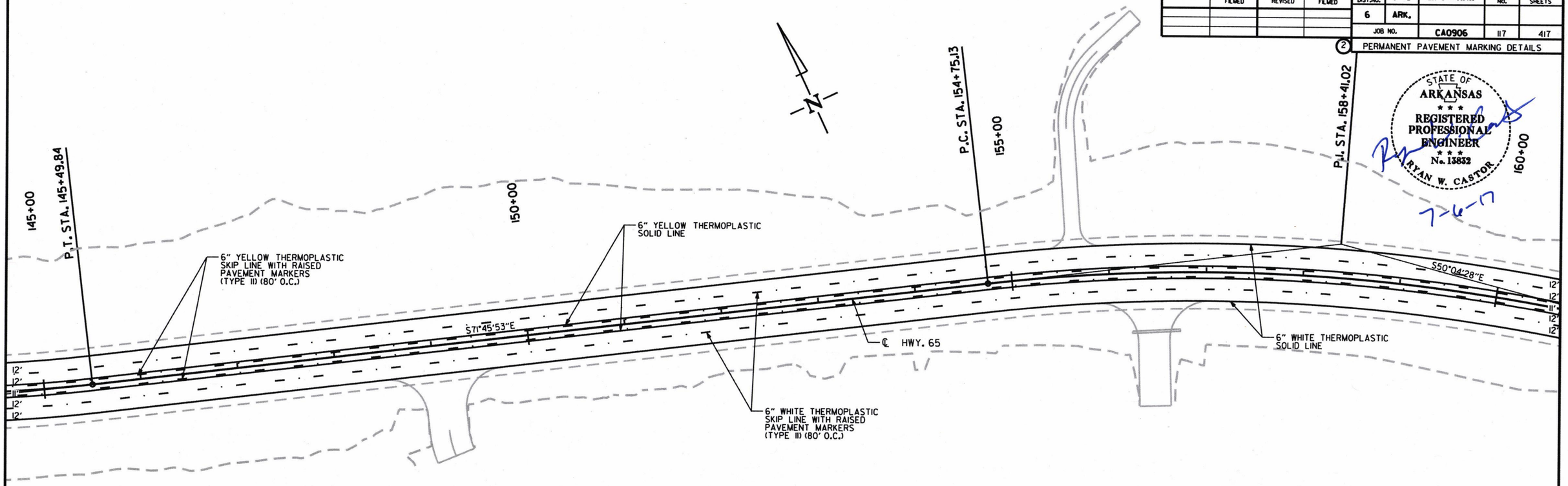
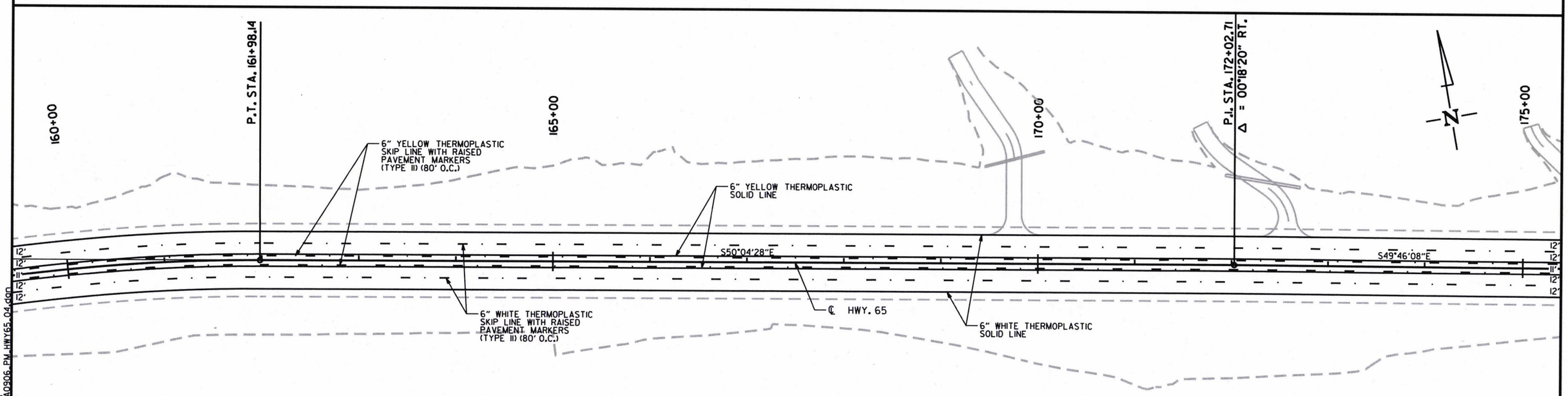
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	117	417

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17





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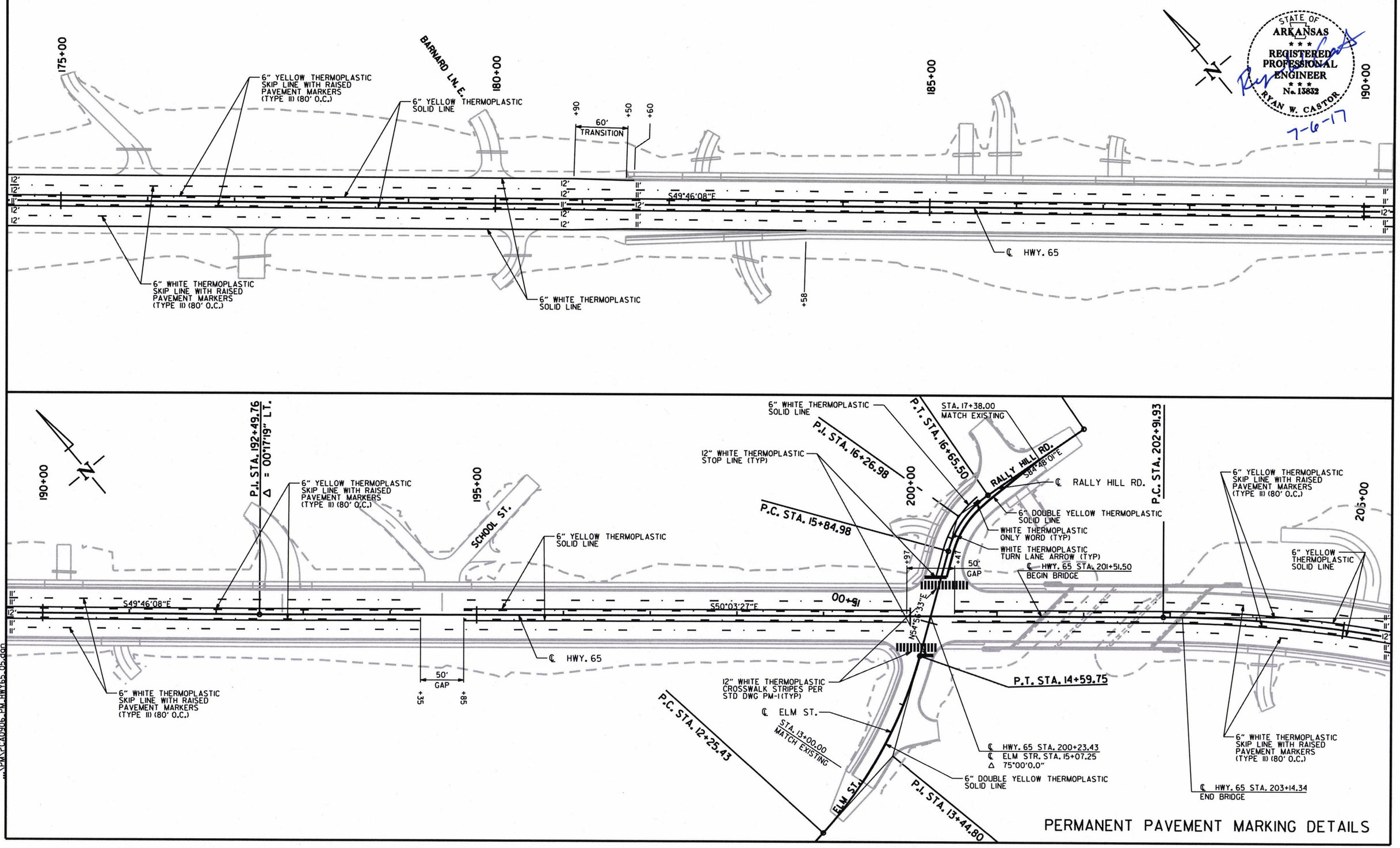
PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	118	417

(2) PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

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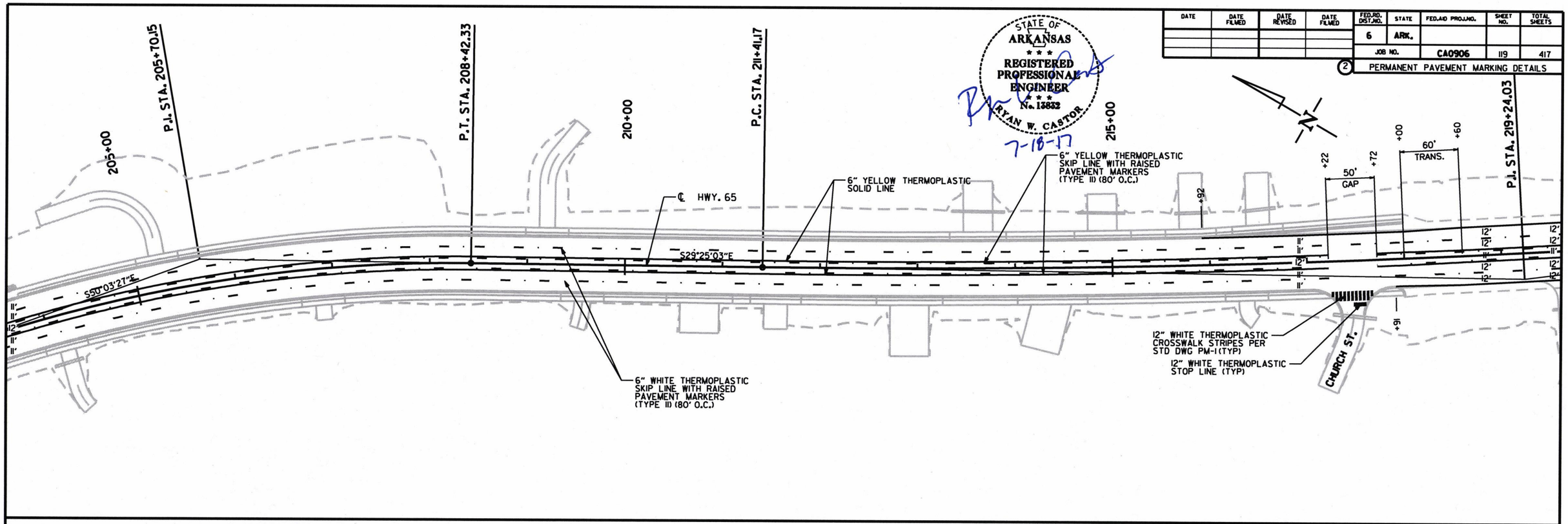
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	119	417

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17



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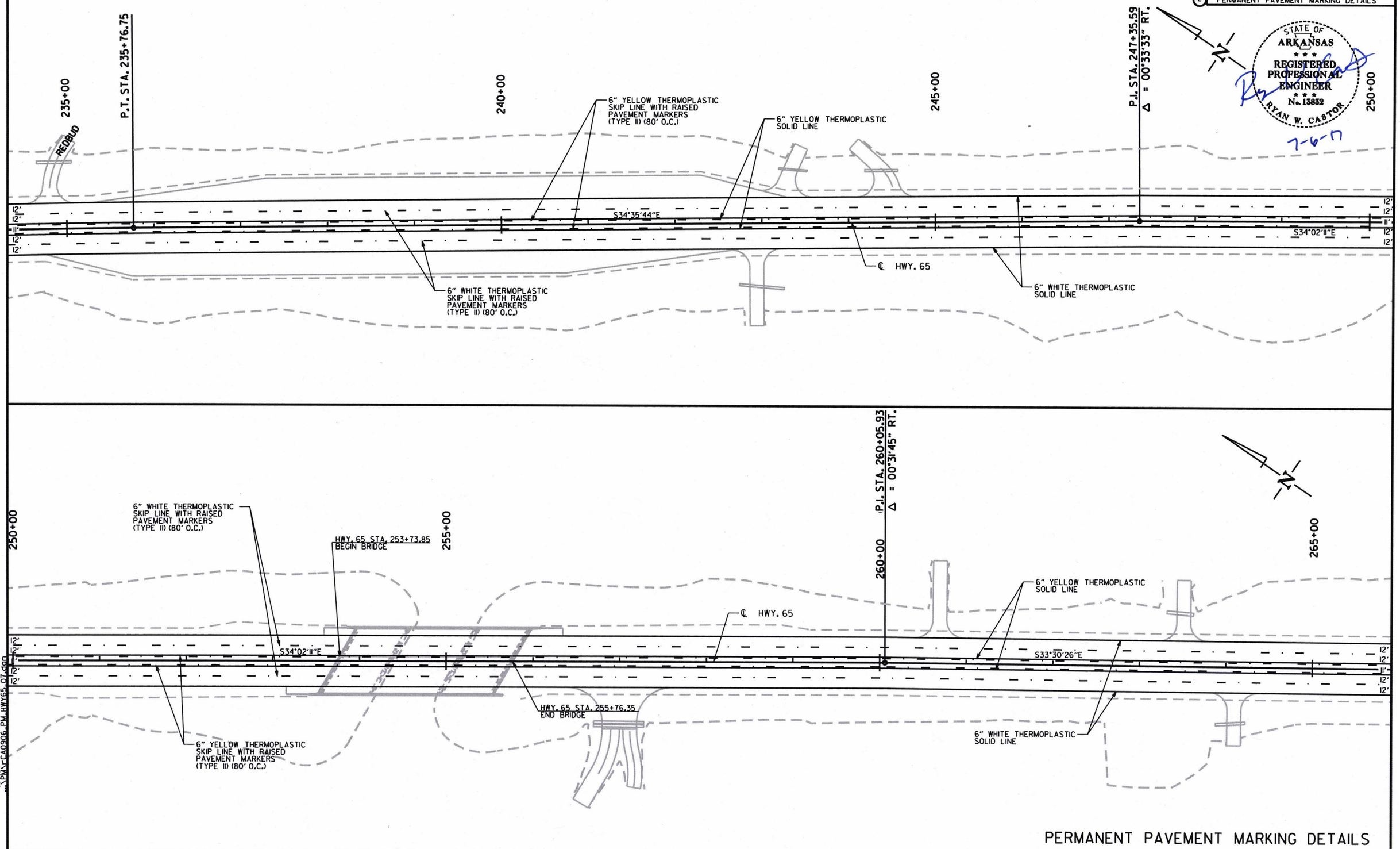
PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	120	417

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

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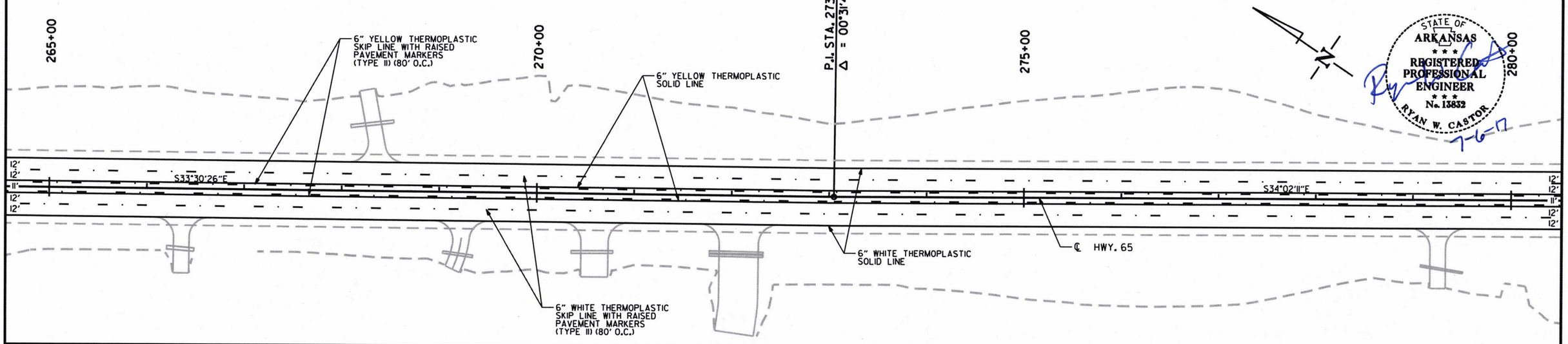
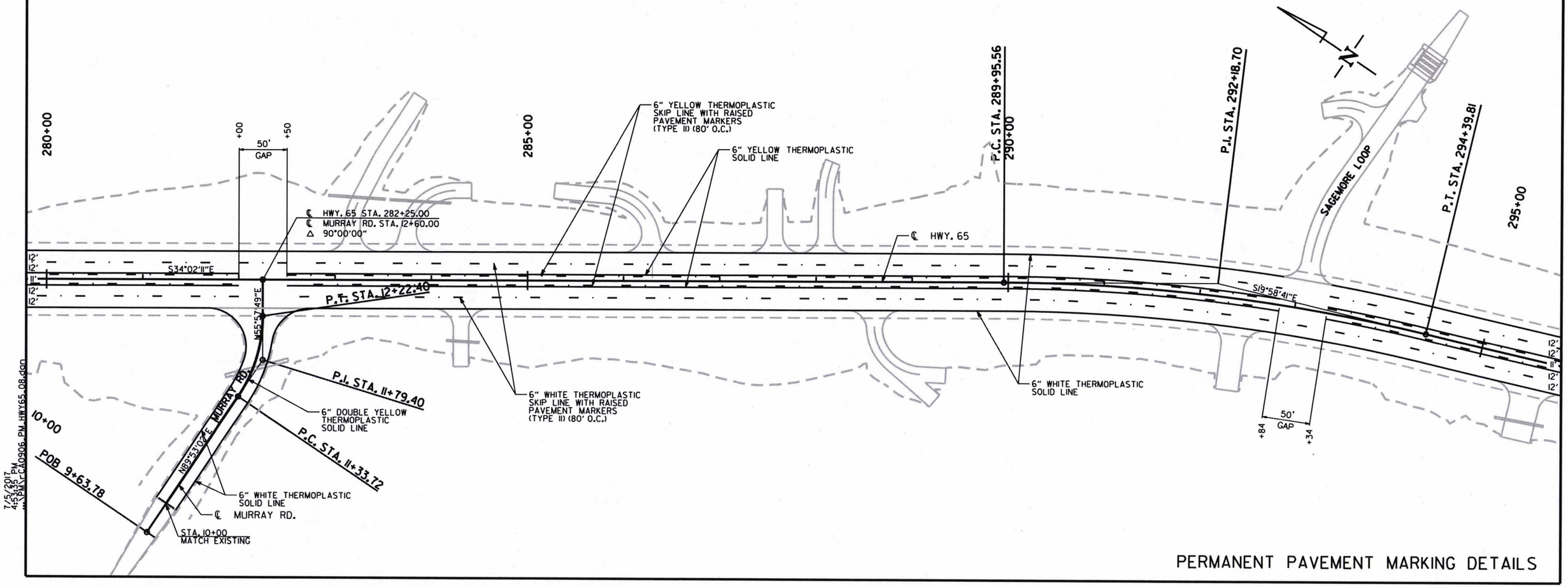
PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	121	417

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17





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PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	122	417

2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
1-6-17

POE 13+63.24
STA. 12+50 MATCH EXISTING
S89°36'21"E
6" DOUBLE YELLOW THERMOPLASTIC SOLID LINE
6" WHITE THERMOPLASTIC SOLID LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (40' O.C.)
P.T. STA. 11+02.74
P.I. STA. 10+85.06
P.C. STA. 10+67.36
HWY. 206
295+00
SAGEMORE LOOP
300+00
P.I. STA. 302+45.99
Δ = 00°40'05" RT.
STA. 304+00.00
END JOB CA0906
LOG MILE 10.49
305+00
℄ HWY. 65
P.C. STA. 309+65.37
310+00
6" WHITE THERMOPLASTIC SKIP LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
4" DOUBLE YELLOW THERMOPLASTIC SOLID LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
200'
LANE ADDITION
10+00
+80
6" DOUBLE YELLOW THERMOPLASTIC SOLID LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
N84°17'28"E
S20°42'32"E
S20°02'27"E
6" WHITE THERMOPLASTIC SOLID LINE
12'
R30'
50' GAP
100' OPENING
100' STORAGE
+96
+46
+57
+61
+24
℄ HWY. 65 STA. 299+17.00
℄ HWY. 206 STA. 10+00.00
Δ 75°00'00"
6" YELLOW THERMOPLASTIC SKIP LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
6" WHITE THERMOPLASTIC WITH RAISED PAVEMENT MARKERS (TYPE II) (40' O.C.)
WHITE THERMOPLASTIC ONLY WORD (TYP)
WHITE THERMOPLASTIC TURN LANE ARROW (TYP)
720' MERGE LANE
360' LANE SHIFT
+00
+60

P.C. STA. 309+65.37
310+00
P.I. STA. 312+59.47
315+00
P.T. STA. 315+51.52
320+00
325+00
WHITE THERMOPLASTIC TURN LANE ARROW (TYP)
6" WHITE THERMOPLASTIC WITH RAISED PAVEMENT MARKERS (TYPE II) (40' O.C.)
WHITE THERMOPLASTIC ONLY WORD (TYP)
S20°02'27.4"E
℄ HWY. 65
S31°45'50"E
R30'
+15
+40
100' STORAGE
100' OPENING
SNOW BALL CREEK RD.
6" DOUBLE YELLOW THERMOPLASTIC SOLID LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
6" WHITE THERMOPLASTIC SOLID LINE

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PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	123	417

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STA. 326+50.00
END CONSTRUCTION CA0906
LOG MILE 10.97

325+00
330+00
P.C. STA. 331+72.61
P.I. STA. 333+98.61
335+00
P.T. STA. 336+18.30
340+00

6" DOUBLE YELLOW THERMOPLASTIC SOLID LINE WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

S31°45'50"E

S8°21'56"E

12'
12'
12'

6" WHITE THERMOPLASTIC SOLID LINE

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PERMANENT PAVEMENT MARKING DETAILS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	124	417

(2) PERMANENT PAVEMENT MARKING DETAILS

THERMOPLASTIC PAVEMENT MARKINGS
HWY. 65

6" WHITE SOLID EDGE LINE (LT.)
STA. 73+08 - STA. 181+60 = 10852 LIN. FT.
STA. 215+92 - STA. 292+84 = 7692 LIN. FT.
STA. 293+34 - STA. 295+96 = 262 LIN. FT.
STA. 296+46 - STA. 299+00 = 254 LIN. FT.
STA. 299+50 - STA. 326+50 = 2700 LIN. FT.

6" WHITE SOLID EDGE LINE (RT.)
STA. 73+08 - STA. 136+20 = 6312 LIN. FT.
STA. 136+70 - STA. 183+58 = 4688 LIN. FT.
STA. 217+91 - STA. 282+00 = 6409 LIN. FT.
STA. 282+50 - STA. 311+15 = 2865 LIN. FT.
STA. 311+60 - STA. 326+50 = 1490 LIN. FT.

6" YELLOW SOLID CENTERLINE (LT.)
STA. 59+50 - STA. 66+05 = 655 LIN. FT.
STA. 66+55 - STA. 67+05 = 50 LIN. FT.
STA. 67+55 - STA. 136+20 = 6865 LIN. FT.
STA. 136+70 - STA. 194+35 = 5765 LIN. FT.
STA. 194+85 - STA. 199+99 = 514 LIN. FT.
STA. 200+51 - STA. 217+22 = 1671 LIN. FT.
STA. 217+72 - STA. 282+00 = 6428 LIN. FT.
STA. 282+50 - STA. 292+84 = 1034 LIN. FT.
STA. 293+34 - STA. 295+96 = 262 LIN. FT.
STA. 296+46 - STA. 296+80 = 34 LIN. FT.

6" YELLOW SOLID CENTERLINE (RT.)
STA. 59+50 - STA. 66+05 = 655 LIN. FT.
STA. 66+55 - STA. 67+05 = 50 LIN. FT.
STA. 67+55 - STA. 136+20 = 6865 LIN. FT.
STA. 136+70 - STA. 194+35 = 5765 LIN. FT.
STA. 194+85 - STA. 199+96 = 511 LIN. FT.
STA. 200+48 - STA. 217+22 = 1674 LIN. FT.
STA. 217+72 - STA. 282+00 = 6428 LIN. FT.
STA. 282+50 - STA. 292+84 = 1034 LIN. FT.
STA. 293+34 - STA. 295+96 = 262 LIN. FT.
STA. 296+46 - STA. 296+80 = 34 LIN. FT.

6" WHITE SKIP LINE (LT.)
STA. 59+50 - STA. 67+05 = 189 LIN. FT.
STA. 67+55 - STA. 194+35 = 3170 LIN. FT.
STA. 194+85 - STA. 200+02 = 129 LIN. FT.
STA. 200+54 - STA. 292+84 = 2308 LIN. FT.
STA. 293+34 - STA. 295+96 = 66 LIN. FT.
STA. 296+46 - STA. 296+80 = 9 LIN. FT.

6" WHITE SKIP LINE (RT.)
STA. 59+50 - STA. 66+05 = 164 LIN. FT.
STA. 66+55 - STA. 136+20 = 1741 LIN. FT.
STA. 136+70 - STA. 199+93 = 1581 LIN. FT.
STA. 200+45 - STA. 217+22 = 419 LIN. FT.
STA. 217+72 - STA. 282+00 = 1607 LIN. FT.
STA. 282+50 - STA. 298+80 = 408 LIN. FT.

6" YELLOW SKIP LINE (LT.)
STA. 59+50 - STA. 66+05 = 164 LIN. FT.
STA. 66+55 - STA. 67+05 = 13 LIN. FT.
STA. 67+55 - STA. 136+20 = 1716 LIN. FT.
STA. 136+70 - STA. 194+35 = 1441 LIN. FT.
STA. 194+85 - STA. 199+99 = 129 LIN. FT.
STA. 200+51 - STA. 217+22 = 418 LIN. FT.
STA. 217+72 - STA. 282+00 = 1607 LIN. FT.
STA. 282+50 - STA. 292+84 = 259 LIN. FT.
STA. 293+34 - STA. 295+96 = 66 LIN. FT.
STA. 296+46 - STA. 296+80 = 9 LIN. FT.

6" YELLOW SKIP LINE (RT.)
STA. 59+50 - STA. 66+05 = 164 LIN. FT.
STA. 66+55 - STA. 67+05 = 13 LIN. FT.
STA. 67+55 - STA. 136+20 = 1716 LIN. FT.
STA. 136+70 - STA. 194+35 = 1441 LIN. FT.
STA. 194+85 - STA. 199+96 = 128 LIN. FT.
STA. 200+48 - STA. 217+22 = 419 LIN. FT.
STA. 217+72 - STA. 282+00 = 1607 LIN. FT.
STA. 282+50 - STA. 292+84 = 259 LIN. FT.
STA. 293+34 - STA. 295+96 = 66 LIN. FT.
STA. 296+46 - STA. 296+80 = 9 LIN. FT.

6" WHITE SOLID LINE FOR LEFT TURN LANE
STA. 297+80 - STA. 298+80 = 100 LIN. FT.
STA. 311+60 - STA. 312+60 = 100 LIN. FT.

6" DOUBLE YELLOW SOLID LINE (LT.)
STA. 296+80 - STA. 298+80 = 200 LIN. FT.
STA. 299+58 - STA. 300+60 = 102 LIN. FT.
STA. 301+24 - STA. 305+35 = 411 LIN. FT.
STA. 306+42 - STA. 311+14 = 472 LIN. FT.
STA. 312+67 - STA. 325+63 = 1296 LIN. FT.

6" DOUBLE YELLOW SOLID LINE (RT.)
STA. 299+58 - STA. 300+60 = 102 LIN. FT.
STA. 301+24 - STA. 305+35 = 411 LIN. FT.
STA. 306+42 - STA. 311+14 = 472 LIN. FT.
STA. 311+60 - STA. 325+63 = 1403 LIN. FT.

6" DOUBLE YELLOW SOLID LINE
STA. 305+35 - STA. 306+42 = 107 LIN. FT.
STA. 325+63 - STA. 326+50 = 87 LIN. FT.

RAISED PAVEMENT MARKERS
HWY. 65 (NORTH/SOUTH)

TYPE II WHITE/RED (LT.)
STA. 59+50 - STA. 67+05 = 9 EA.
STA. 67+55 - STA. 194+35 = 159 EA.
STA. 194+85 - STA. 200+02 = 6 EA.
STA. 200+54 - STA. 292+84 = 115 EA.
STA. 293+34 - STA. 295+96 = 3 EA.
STA. 296+46 - STA. 296+80 = 1 EA.
STA. 311+60 - STA. 312+60 = 3 EA.

TYPE II WHITE/RED (RT.)
STA. 59+50 - STA. 66+05 = 8 EA.
STA. 66+55 - STA. 136+20 = 87 EA.
STA. 136+70 - STA. 199+93 = 79 EA.
STA. 200+45 - STA. 217+22 = 21 EA.
STA. 217+72 - STA. 282+00 = 80 EA.
STA. 282+50 - STA. 298+80 = 20 EA.
STA. 297+80 - STA. 298+80 = 3 EA.

TYPE II YELLOW/YELLOW (LT.)
STA. 59+50 - STA. 66+05 = 8 EA.
STA. 66+55 - STA. 67+05 = 1 EA.
STA. 67+55 - STA. 136+20 = 86 EA.
STA. 136+70 - STA. 194+35 = 72 EA.
STA. 194+85 - STA. 199+99 = 6 EA.
STA. 200+51 - STA. 217+22 = 21 EA.
STA. 217+72 - STA. 282+00 = 80 EA.
STA. 282+50 - STA. 292+84 = 13 EA.
STA. 293+34 - STA. 295+96 = 3 EA.
STA. 296+46 - STA. 296+80 = 1 EA.
STA. 296+80 - STA. 298+80 = 3 EA.
STA. 299+58 - STA. 300+60 = 2 EA.
STA. 301+24 - STA. 305+35 = 5 EA.
STA. 306+42 - STA. 311+14 = 6 EA.
STA. 312+67 - STA. 325+63 = 16 EA.

TYPE II YELLOW/YELLOW (RT.)
STA. 59+50 - STA. 66+05 = 8 EA.
STA. 66+55 - STA. 67+05 = 1 EA.
STA. 67+55 - STA. 136+20 = 86 EA.
STA. 136+70 - STA. 194+35 = 72 EA.
STA. 194+85 - STA. 199+96 = 6 EA.
STA. 200+48 - STA. 217+22 = 21 EA.
STA. 217+72 - STA. 282+00 = 80 EA.
STA. 282+50 - STA. 292+84 = 13 EA.
STA. 293+34 - STA. 295+96 = 3 EA.
STA. 296+46 - STA. 296+80 = 1 EA.
STA. 299+58 - STA. 300+60 = 1 EA.
STA. 301+24 - STA. 305+35 = 6 EA.
STA. 306+42 - STA. 311+14 = 6 EA.
STA. 311+60 - STA. 325+63 = 18 EA.

TYPE II YELLOW/YELLOW
STA. 305+35 - STA. 306+42 = 2 EA.
STA. 325+63 - STA. 326+50 = 2 EA.

THERMOPLASTIC PAVEMENT MARKINGS
ASPEN RD. S.

6" WHITE SOLID EDGE LINE (LT.)
STA. 10+00 - STA. 14+05 = 405 LIN. FT.

6" WHITE SOLID EDGE LINE (RT.)
STA. 10+00 - STA. 14+05 = 405 LIN. FT.

6" DOUBLE YELLOW SOLID LINE
STA. 10+00 - STA. 14+05 = 405 LIN. FT.

ELM ST./ RALLY HILL RD.

6" DOUBLE YELLOW SOLID LINE
STA. 13+00 - STA. 14+61 = 161 LIN. FT.
STA. 15+54 - STA. 17+38 = 180 LIN. FT.

6" WHITE SOLID EDGE LINE (LT.)
STA. 15+52 - STA. 16+55 = 103 LIN. FT.

MURRAY RD.

6" WHITE SOLID EDGE LINE (LT.)
STA. 10+00 - STA. 12+27 = 227 LIN. FT.

6" WHITE SOLID EDGE LINE (RT.)
STA. 10+00 - STA. 12+27 = 227 LIN. FT.

6" DOUBLE YELLOW SOLID LINE
STA. 10+00 - STA. 12+27 = 227 LIN. FT.

HWY. 206

6" WHITE SOLID EDGE LINE (LT.)
STA. 10+21 - STA. 12+50 = 229 LIN. FT.

6" WHITE SOLID EDGE LINE (RT.)
STA. 10+21 - STA. 12+50 = 229 LIN. FT.

6" DOUBLE YELLOW SOLID LINE
STA. 10+21 - STA. 12+50 = 229 LIN. FT.

12" WHITE SOLID CROSS WALK
ENTIRE PROJECT = 358 LIN. FT.

12" WHITE SOLID STOP BAR LINE
ENTIRE PROJECT = 54 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
ARROWS
ENTIRE PROJECT = 3 EA.

THERMOPLASTIC PAVEMENT MARKING
WORDS
ENTIRE PROJECT = 3 EA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

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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
8/22/17				6	ARK.			
				JOB NO.		CA0906	125	417

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL REQUIRED	VERTICAL PANELS	TRAFFIC DRUMS	PORTABLE CHANGEABLE MESSAGE SIGN	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
												RIGHT	LEFT				
			LIN. FT. - EACH					SQ. FT.	EACH		WEEK			LIN. FT.		EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3		3	48									
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3		3	48									
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3		3	48									
W20-1	ROAD WORK AHEAD	48"x48"	15	15	15		15	240									
W20-2	DETOUR AHEAD	48"x48"			1		1	16									
G20-2	END ROAD WORK	48"x24"	18	18	18		18	144									
G20-1	ROAD WORK NEXT 5 MILES	60"x24"	2	2	2		2	20									
W1-4R	REVERSE CURVE RT.	48"x48"	12	9	11		12	192									
W1-4L	REVERSE CURVE LT.	48"x48"	12	7	9		12	192									
W1-6R	ONE DIRECTION LARGE ARROW	48"x24"	6				6	48									
W1-6L	ONE DIRECTION LARGE ARROW	48"x24"	6				6	48									
R11-2	ROAD CLOSED	48"x30"	12	3	3		12	120									
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	6				6	54									
M1-4	U.S. HWY. 65	24"X24"			5		5	20									
M4-5	TO	24"X12"			3		3	6									
M4-8	DETOUR	24"X12"			15		15	30									
M4-8A	END DETOUR	24"X18"			2		2	6									
M4-10	DETOUR ARROW	48"X18"			2		2	12									
M5-1	TURN AHEAD ARROW	21"X15"			5		5	11									
M6-1	TURN ARROW	21"X15"			5		5	11									
M6-3	AHEAD ARROW	21"X15"			5		5	11									
SPECIAL	ELM STREET	36"x18"			10		10	45									
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"	2	2	2		2	64									
	VERTICAL PANELS		176				176		176								
	TRAFFIC DRUMS		823	479	441		823			823							
	PORTABLE CHANGEABLE MESSAGE SIGN		2	2	2		2				8						
	TYPE III BARRICADE-RT. (12')		12				12					144					
	TYPE III BARRICADE-LT. (12')		12				12						144				
	TYPE III BARRICADE-RT. (16')			3	3		3					48					
	TYPE III BARRICADE-LT. (16')			3	3		3						48				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2996	240	260		3496							3496			
	RELOCATING PRECAST CONCRETE BARRIER		5992	2957	3145		12094								12094		
	TEMPORARY IMPACT ATTENUATION BARRIER			9	5		9									9	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			4	2		6										6
TOTALS:								1434	176	823	8	192	192	3496	12094	9	6

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING				
								TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	6" WHITE	6" YELLOW	12" WHITE	WORDS	ARROWS
	LIN. FT. - EACH				LIN. FT.		LIN. FT.	EACH		LIN. FT.			EACH	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	57680	35590	500		93770									
CONSTRUCTION PAVEMENT MARKINGS	177235	98535	96735			372505								
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	119555	42320	98535	96735			357145							
RAISED PAVEMENT MARKERS TYPE II (WHITE)				594				594						
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)				649					649					
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				57340						57340				
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				70730							70730			
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				412								412		
THERMOPLASTIC PAVEMENT MARKING WORDS				3									3	
THERMOPLASTIC PAVEMENT MARKING ARROWS				3										3
TOTALS:					93770	372505	357145	594	649	57340	70730	412	3	3

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - IF & WHERE DIRECTED BY THE ENGINEER	120	240
TOTALS:	120	240

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

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QUANTITIES

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	126	417

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 12711
STEVEN R. BEAM, JR.
7-18-17

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	CONCRETE DITCH PAVING	CONCRETE DRIVEWAYS	WALKS	GUARDRAIL
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	LIN. FT.
95+72		HWY. 65 LT.			312		
97+69		HWY. 65 LT.			134		
190+24		HWY. 65 LT.			18		
201+32	210+52	HWY. 65 RT.	839			559	
204+87		HWY. 65 LT.					
213+62		HWY. 65 LT.			244		
214+90		HWY. 65 LT.			200		
215+81		HWY. 65 LT.			154		
216+50		HWY. 65 LT.			150		
257+30	262+99	HWY. 65 RT.		379			
262+61	263+35	HWY. 65 LT.		49			
263+35	263+92	HWY. 65 RT.		38			
263+65	268+21	HWY. 65 LT.		304			
264+28	266+19	HWY. 65 RT.		127			
266+50	269+07	HWY. 65 RT.		171			
268+50	274+35	HWY. 65 LT.		390			
269+42	270+37	HWY. 65 RT.		63			
270+80	271+87	HWY. 65 RT.		71			
272+35	274+32	HWY. 65 RT.		131			
279+40	281+82	HWY. 65 RT.		161			
288+18	288+66	HWY. 65 RT.		39			
292+03	292+70	HWY. 65 RT.		45			
295+22	295+39	HWY. 65 RT.		11			
298+12	298+86	HWY. 65 RT.		65			
298+63	299+05	HWY. 65 LT.		41			
299+60	305+29	HWY. 65 LT.		379			
305+47		HWY. 65 LT.			180		
136+76	137+45	HWY. 65 RT.					69
251+66	253+69	HWY. 65 RT.					203
253+08	253+86	HWY. 65 LT.					78
255+50	256+28	HWY. 65 LT.					78
255+67	257+71	HWY. 65 RT.					204
TOTALS:			839	2464	1392	559	632

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
73+08	304+00	HWY. 65 LT. & RT.	231	231
TOTALS:			231	231

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
114+84	HWY. 65 LT.	1
136+67	HWY. 65 RT.	1
170+85	HWY. 65 LT.	1
186+62	HWY. 65 RT.	1
218+25	HWY. 65 LT.	1
222+92	HWY. 65 RT.	1
281+85	HWY. 65 LT.	1
14+24	ELM ST. RT.	1
TOTAL:		8

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS	DROP INLETS
		EACH	EACH	EACH
73+64	36" X 76' R.C. PIPE CULVERT	1		
81+01	24" X 24' C.M. SIDE DRAIN	1		
89+58	24" X 59' C.M. SIDE DRAIN	1		
90+54	36" X 53' R.C. PIPE CULVERT	1		
91+41	24" X 24' C.M. SIDE DRAIN	1		
92+62	24" X 60' C.M. SIDE DRAIN	1		
95+78	24" X 77' C.M. SIDE DRAIN	1		
97+75	24" X 58' C.M. SIDE DRAIN	1		
98+12	24" X 77' R.C. PIPE CULVERT	1		
98+96	18" X 38.5' C.M. SIDE DRAIN	1		
99+33	18" X 32.5' C.M. SIDE DRAIN	1		
101+47	24" X 60' R.C. PIPE CULVERT	1		
106+03	18" X 40' C.M. SIDE DRAIN	1		
115+15	6' X 6' X 72.5' R.C. BOX CULVERT		1	
117+06	18" X 19.5' C.M. SIDE DRAIN	1		
128+25	24" X 24' C.M. SIDE DRAIN	1		
130+67	24" X 24.5' C.M. SIDE DRAIN	1		
131+83	24" X 22.5' C.M. SIDE DRAIN	1		
132+01	24" X 31.5' C.M. SIDE DRAIN	1		
132+82	24" X 24' C.M. SIDE DRAIN	1		
136+49	6' X 6' X 110.5' R.C. BOX CULVERT		1	
141+60	18" X 23.5' C.M. SIDE DRAIN	1		
153+15	18" X 24' C.M. SIDE DRAIN	1		
154+05	24" X 47' R.C. PIPE CULVERT	1		
160+78	24" X 83.5' R.C. PIPE CULVERT	1		
170+09	36" X 49.5' C.M. SIDE DRAIN	1		
171+16	6' X 6' X 105' R.C. BOX CULVERT		1	
172+59	18" X 50' C.M. SIDE DRAIN	1		
179+95	18" X 37' C.M. SIDE DRAIN	1		
180+27	18" X 30' C.M. SIDE DRAIN	1		
182+37	36" X 30' C.M. SIDE DRAIN	1		
182+85	18" X 20' C.M. SIDE DRAIN	1		
185+41	30" X 21' C.M. SIDE DRAIN	1		
186+34	4' X 6' X 93' R.C. BOX CULVERT		1	
187+13	18" X 30' C.M. SIDE DRAIN	1		
193+11	24" X 30' C.M. SIDE DRAIN	1		
194+60	18" X 46' C.M. SIDE DRAIN	1		
212+92	18" X 58' C.M. SIDE DRAIN	1		
213+51	24" X 91' C.M. PIPE CULVERT	1		1
213+62	24" X 29' C.M. SIDE DRAIN	1		
214+41	24" X 60' C.M. SIDE DRAIN	1		
214+90	24" X 42' C.M. SIDE DRAIN	1		
215+81	18" X 28' C.M. SIDE DRAIN	1		
216+50	18" X 30' C.M. SIDE DRAIN	1		
217+47	18" X 38' C.M. SIDE DRAIN	1		
217+86	5' X 4' X 60' R.C. BOX CULVERT		1	
218+73	18" X 40' C.M. SIDE DRAIN	1		
219+44	18" X 40' C.M. SIDE DRAIN	1		
223+27	4' X 4' X 105.5' R.C. BOX CULVERT		1	
225+82	18" X 29' C.M. SIDE DRAIN	1		
231+40	18" X 24' C.M. SIDE DRAIN	1		
233+45	18" X 24' C.M. SIDE DRAIN	1		
236+03	24" X 71' R.C. PIPE CULVERT	1		
242+94	24" X 24' C.M. SIDE DRAIN	1		
243+23	18" X 34' C.M. SIDE DRAIN	1		
244+53	18" X 40' C.M. SIDE DRAIN	1		
257+00	18" X 88' C.M. SIDE DRAIN	1		
263+51	24" X 32' C.M. SIDE DRAIN	1		
264+10	30" X 36' C.M. SIDE DRAIN	1		
266+36	24" X 32' C.M. SIDE DRAIN	1		
268+37	24" X 32' C.M. SIDE DRAIN	1		
269+24	24" X 35' C.M. SIDE DRAIN	1		
270+60	24" X 45' C.M. SIDE DRAIN	1		
272+08	24" X 60' C.M. SIDE DRAIN	1		
279+26	18" X 33' C.M. SIDE DRAIN	1		
282+03	4' X 6' X 116' R.C. BOX CULVERT		1	
282+25	24" X 55' C.M. SIDE DRAIN	1		
285+03	24" X 93' R.C. PIPE CULVERT	1		
298+24	48" X 99' R.C. PIPE CULVERT	1		
298+61	36" X 40.5' C.M. SIDE DRAIN	1		
299+17	24" X 81' R.C. SIDE DRAIN	1		
300+90	36" X 66' C.M. SIDE DRAIN	1		
305+50	24" X 60' C.M. SIDE DRAIN	1		
14+22	(ELM STREET) 30" X 30' R.C. PIPE CLVRT.	1		
11+80	(MURRAY ROAD) 24" X 55' R.C. PIPE CLVRT.	1		
10+40	(HWY. 206) 24" X 81' R.C. PIPE CLVRT.	1		
TOTALS:		69	7	1

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
72+82	81+91	HWY. 65 LT.	969	
83+22	83+55	HWY. 65 LT.	59	
98+21	106+38	HWY. 65 RT.	889	
107+15	115+02	HWY. 65 LT.	787	
108+74	128+45	HWY. 65 RT.	2049	
115+23	150+99	HWY. 65 LT.	3955	
132+39	139+16	HWY. 65 RT.	845	
137+13	148+01	HWY. 65 RT.	1600	
155+12	156+69	HWY. 65 RT.	150	
159+60	169+89	HWY. 65 LT.	1113	
171+85	174+34	HWY. 65 LT.	325	
177+27	182+15	HWY. 65 LT.	490	
182+29	186+81	HWY. 65 RT.	574	
200+97	201+59	HWY. 65 LT.	59	
209+00	209+40	HWY. 65 LT.	40	
210+15	213+25	HWY. 65 LT.	321	
212+27		HWY. 65 RT.	12	
212+64		HWY. 65 RT.	15	
215+05	215+83	HWY. 65 RT.	84	
216+88	243+31	HWY. 65 LT.	2809	
217+31	222+50	HWY. 65 RT.	604	
224+57	225+55	HWY. 65 RT.	99	
225+57	229+16	HWY. 65 RT.	425	
229+29	231+28	HWY. 65 RT.	256	
233+59	250+50	HWY. 65 RT.	1717	
244+78	254+43	HWY. 65 LT.	1061	
252+25	254+49	HWY. 65 RT.	385	
254+54	254+61	HWY. 65 LT.	61	
255+68	259+97	HWY. 65 LT.	454	
255+81	256+42	HWY. 65 RT.	62	
256+70	257+40	HWY. 65 RT.	138	
260+50	260+85	HWY. 65 LT.	35	
261+06	283+84	HWY. 65 LT.	2530	
281+23	288+49	HWY. 65 RT.	766	
287+90	293+18	HWY. 65 RT.	669	
296+43	299+48	HWY. 65 LT.	527	
299+68	307+16	HWY. 65 LT.	839	
ENTIRE PROJECT		HWY. 65 LT. & RT.		30
TOTALS:			27773	30

SOIL STABILIZATION

STATION	LOCATION	SOIL STABILIZATION
		TON
* ENTIRE PROJECT	IF & WHERE DIRECTED BY ENGINEER	500
TOTAL:		500

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

MOBILE SPEED NOTIFICATION SYSTEM

STATION	LOCATION	MOBILE SPEED NOTIFICATION SYSTEM
		EACH
ENTIRE PROJECT	IF & WHERE DIRECTED BY ENGINEER	2
TOTAL:		2

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QUANTITIES

DATE REVISED	DATE PLANED	DATE REVISED	DATE PLANED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	127	417
				QUANTITIES				

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.
73+08	75+00	HWY. 65 LT.	192.00	6	128	85	1.1
77+12	78+00	HWY. 65 LT.	88.00	6	59	39	0.5
79+36	80+62	HWY. 65 LT.	126.00	6	84	56	0.7
80+21	80+62	HWY. 65 RT.	41.00	6	27	18	0.2
97+19	97+50	HWY. 65 LT.	31.00	6	21	14	0.2
98+17	99+21	HWY. 65 LT.	104.00	6	69	46	0.6
98+17	98+73	HWY. 65 RT.	56.00	6	37	25	0.3
99+51	101+00	HWY. 65 LT.	149.00	6	99	66	0.8
101+08	103+44	HWY. 65 RT.	236.00	6	157	105	1.3
101+86	103+00	HWY. 65 LT.	114.00	6	76	51	0.6
103+75	104+00	HWY. 65 LT.	25.00	6	17	11	0.1
111+73	112+60	HWY. 65 RT.	87.00	6	58	39	0.5
114+52	119+68	HWY. 65 RT.	516.00	6	344	229	2.9
115+53	116+93	HWY. 65 LT.	140.00	6	93	62	0.8
117+19	119+68	HWY. 65 LT.	249.00	6	166	111	1.4
129+02	130+39	HWY. 65 RT.	137.00	6	91	61	0.8
129+02	131+88	HWY. 65 LT.	286.00	6	191	127	1.6
132+15	133+76	HWY. 65 LT.	161.00	6	107	72	0.9
136+32	138+20	HWY. 65 LT.	188.00	6	125	84	1.1
153+60	154+51	HWY. 65 LT.	91.00	6	61	40	0.5
155+20	155+42	HWY. 65 LT.	22.00	6	15	10	0.1
154+86	156+22	HWY. 65 RT.	136.00	6	91	60	0.8
155+91	160+11	HWY. 65 LT.	420.00	6	280	187	2.4
156+73	160+40	HWY. 65 RT.	367.00	6	245	163	2.1
161+25	171+15	HWY. 65 RT.	990.00	6	660	440	5.5
173+20	175+64	HWY. 65 LT.	244.00	6	163	108	1.4
176+03	179+78	HWY. 65 LT.	375.00	6	250	167	2.1
175+80	176+99	HWY. 65 RT.	119.00	6	79	53	0.7
177+42	180+11	HWY. 65 RT.	269.00	6	179	120	1.5
180+13	182+25	HWY. 65 LT.	212.00	6	141	94	1.2
180+42	182+74	HWY. 65 RT.	232.00	6	155	103	1.3
182+58	183+19	HWY. 65 LT.	61.00	6	41	27	0.3
184+20	184+20	HWY. 65 LT.	13.00	4	6	6	0.1
184+20	184+20	HWY. 65 RT.	14.00	4	6	6	0.1
184+70	186+69	HWY. 65 RT.	199.00	6	133	88	1.1
186+57	186+96	HWY. 65 LT.	39.00	6	26	17	0.2
191+05	194+60	HWY. 65 RT.	355.00	6	237	158	2.0
196+60	198+02	HWY. 65 LT.	142.00	6	95	63	0.8
212+19	212+19	HWY. 65 LT.	17.00	4	8	8	0.1
216+60	217+26	HWY. 65 RT.	66.00	6	44	29	0.4
216+91	216+91	HWY. 65 RT.	1.00	4			
217+69	217+87	HWY. 65 RT.	18.00	6	12	8	0.1
217+84	217+84	HWY. 65 RT.	22.00	4	10	10	0.1
218+22	219+20	HWY. 65 RT.	98.00	6	65	44	0.6
221+40	222+56	HWY. 65 LT.	116.00	6	77	52	0.7
221+80	222+35	HWY. 65 RT.	55.00	6	37	24	0.3
223+27	225+52	HWY. 65 RT.	225.00	6	150	100	1.3
225+90	226+00	HWY. 65 RT.	10.00	6	7	4	0.1
228+60	229+40	HWY. 65 LT.	80.00	6	53	36	0.5
241+71	243+20	HWY. 65 LT.	149.00	6	99	66	0.8
241+71	242+74	HWY. 65 RT.	103.00	6	69	46	0.6
243+26	246+26	HWY. 65 RT.	300.00	6	200	133	1.7
243+53	244+19	HWY. 65 LT.	66.00	6	44	29	0.4
244+57	247+92	HWY. 65 LT.	335.00	6	223	149	1.9
247+80	250+84	HWY. 65 RT.	304.00	6	203	135	1.7
248+40	250+84	HWY. 65 LT.	244.00	6	163	108	1.4
259+21	262+50	HWY. 65 RT.	329.00	6	219	146	1.8
262+65	263+32	HWY. 65 RT.	67.00	6	45	30	0.4
263+40	263+89	HWY. 65 RT.	49.00	6	33	22	0.3
263+62	267+60	HWY. 65 LT.	398.00	6	265	177	2.2
264+23	266+21	HWY. 65 RT.	198.00	6	132	88	1.1
266+49	269+04	HWY. 65 RT.	255.00	6	170	113	1.4
269+35	270+36	HWY. 65 RT.	101.00	6	67	45	0.6
270+14	273+00	HWY. 65 LT.	286.00	6	191	127	1.6
270+79	271+78	HWY. 65 RT.	99.00	6	66	44	0.6
272+33	272+60	HWY. 65 RT.	27.00	6	18	12	0.2
278+60	279+08	HWY. 65 RT.	48.00	6	32	21	0.3
279+52	281+52	HWY. 65 RT.	200.00	6	133	89	1.1
282+58	282+87	HWY. 65 RT.	29.00	6	19	13	0.2
289+40	289+77	HWY. 65 LT.	37.00	6	25	16	0.2
298+24	298+99	HWY. 65 LT.	75.00	6	50	33	0.4
299+66	305+19	HWY. 65 LT.	553.00	6	369	246	3.1
304+00	305+30	HWY. 65 LT.	130.00	6	87	58	0.7
305+68	306+67	HWY. 65 LT.	99.00	6	66	44	0.6
TOTALS:					8263	5616	70.1

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

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS	SOLID SODDING	WATER
			LIN. FT.	SQ.YD.	SQ.YD.	M. GAL.
181+50	200+05	HWY. 65 LT.	1499	833	500	6.3
181+50	199+76	HWY. 65 RT.	1738	966	579	7.3
200+73	201+85	HWY. 65 LT.	112	62	37	0.5
200+38	201+21	HWY. 65 RT.	83	46	28	0.4
203+43	218+00	HWY. 65 LT.	1149	638	383	4.8
202+79	217+21	HWY. 65 RT.	1010	561	337	4.3
217+71	218+00	HWY. 65 RT.	29	16	10	0.1
13+00	14+62	ELM STREET LT.	162	90	54	0.7
15+27	16+65	RALLY HILL ROAD LT.	94	52	31	0.4
TOTALS:				3264	1959	24.8

NOTE: LENGTHS FOR DRIVEWAYS HAVE BEEN TAKEN OUT FOR THE LENGTH OF CONCRETE WALKS.
BASIS OF ESTIMATE:
WATER ..... 12.6 GAL./SQ. YD. OF SOLID SODDING

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	PRESPLITTING
			CU. YD.		SQ. YD.
ENTIRE	PROJECT	STAGE 1 - HWY. 65	7470	18593	
ENTIRE	PROJECT	STAGE 2 - HWY. 65	132857	126377	2107
ENTIRE	PROJECT	STAGE 3 - HWY. 65	81047	73019	1704
ENTIRE	PROJECT	APPROACHES	5855	16531	
ENTIRE	PROJECT	TEMPORARY APPROACHES		2000	
ENTIRE	PROJECT	BOX CULVERTS	13243		
		ASPEN ROAD	230	7359	
		ELM STREET / RALLY HILL ROAD	170	1055	
		MURRAY ROAD	272	1187	
		HWY. 206	84	507	
ENTIRE	PROJECT	TO BE USED IF AND WHERE	50000	50000	1000
		DIRECTED BY THE ENGINEER			
TOTALS:			291228	296628	4811

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YDS.	SQ. YDS.
154+26	OUTLET OF PIPE CULVERT	3	6
ENTIRE PROJECT	IF & WHERE DIRECTED BY ENGINEER	10	20
TOTALS:		13	26

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

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
181+50	199+88	HWY. 65 LT.	1838
181+50	199+60	HWY. 65 RT.	1810
200+90	201+85	HWY. 65 LT.	95
200+54	201+21	HWY. 65 RT.	67
203+43	218+00	HWY. 65 LT.	1457
202+79	218+00	HWY. 65 RT.	1521
13+00	14+62	ELM STREET LT.	184
13+00	14+86	ELM STREET RT.	223
15+25	17+38	RALLY HILL ROAD LT.	285
15+52	17+38	RALLY HILL ROAD RT.	197
TOTAL:			7677

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POSTS (TYPE 1)	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
			LIN. FT.	EACH			
250+73	253+42	HWY. 65 RT.	200	1		1	
252+66	253+85	HWY. 65 LT.	50	1	1		
256+08	258+77	HWY. 65 LT.	200	1		1	
255+65	255+85	HWY. 65 RT.					1
TOTALS:			450	3	1	2	1

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	30	24	3
TOTALS:	30	24	3

CULVERT CLEAN OUT

STATION	LOCATION	EACH
76+74	HWY. 65	1
110+24	HWY. 65	1
111+73	HWY. 65	1
147+54	HWY. 65	1
194+49	HWY. 65	1
229+50	HWY. 65	1
247+21	HWY. 65	1
263+01	HWY. 65	1
289+77	HWY. 65	1
294+86	HWY. 65	1
TOTAL:		10

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - IF & WHERE DIRECTED BY THE ENGINEER	120
TOTAL:	120

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

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3
		SQ.YD.
181+56	HWY. 65 LT.	4
181+53	HWY. 65 RT.	3
199+70	HWY. 65 RT.	5
200+02	HWY. 65 LT.	5
200+44	HWY. 65 RT.	5
200+76	HWY. 65 LT.	5
217+15	HWY. 65 RT.	5
217+77	HWY. 65 RT.	5
217+97	HWY. 65 LT.	3
217+94	HWY. 65 RT.	4
13+03	ELM STREET LT.	3
16+62	RALLY HILL ROAD LT.	5
TOTAL:		52

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

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QUANTITIES

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	128	417

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-18-17

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D)	WIRE FENCE (TYPE D-1)	WIRE FENCE (TYPE D-2)	* 4' CHAIN LINK FENCE	* 12'-0" GATES	* 16'-0" GATES
			LIN. FT.					EACH	EACH
72+82	81+91	HWY. 65 LT.	920						1
98+21	106+28	HWY. 65 RT.				814		2	1
107+57	115+17	HWY. 65 LT.	798						1
108+74	114+22	HWY. 65 RT.	556						
114+52	128+46	HWY. 65 RT.	1452						1
115+48	131+19	HWY. 65 LT.	1576						2
131+80	150+79	HWY. 65 LT.	1906						2
132+39	135+53	HWY. 65 RT.			320				1
137+70	142+03	HWY. 65 RT.	459						
143+50	148+01	HWY. 65 RT.	465						
159+00	169+52	HWY. 65 LT.				1080			
172+25	174+29	HWY. 65 LT.		210					
176+82	182+03	HWY. 65 LT.			540			2	
180+26	182+38	HWY. 65 RT.	213						
217+31	222+48	HWY. 65 RT.				559			1
225+71	229+16	HWY. 65 RT.	346						
229+36	231+13	HWY. 65 RT.	177						
233+58	250+50	HWY. 65 RT.				1726			1
235+23	243+30	HWY. 65 LT.				811			
245+06	254+54	HWY. 65 LT.				951			
255+68	260+06	HWY. 65 LT.			441				
256+70	257+40	HWY. 65 RT.			139				1
260+50	260+85	HWY. 65 LT.			35				1
261+03	262+89	HWY. 65 LT.			212				
262+89	283+84	HWY. 65 LT.	2154						2
281+10	288+49	HWY. 65 RT.			835				1
296+90	299+48	HWY. 65 LT.					389		
306+02	307+16	HWY. 65 LT.			168				1
TOTALS:			11022	210	2690	5941	389	4	17

NOTE: 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 LINEAR FOOT OF CHAIN LINK FENCE.

* DENOTES ALTERNATE BID ITEM.

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	ASPHALT	MINERAL AGGREGATE BACKFILL
		FEET		TON	TON
73+64	HWY. 65	16.50	35	32	251
90+36	HWY. 65	19.50	36	39	306
90+54	HWY. 65	6.67	36	13	71
98+12	HWY. 65	15.00	35	29	223
101+47	HWY. 65	8.00	40	18	103
114+84	HWY. 65	12.00	45	30	211
115+15	HWY. 65	10.33	45	26	277
136+49	HWY. 65	10.33	40	23	632
136+67	HWY. 65	12.25	40	27	557
154+05	HWY. 65	5.50	37	11	89
154+26	HWY. 65	7.50	37	15	162
160+74	HWY. 65	10.50	39	23	346
170+85	HWY. 65	12.00	37	24	482
171+16	HWY. 65	10.33	37	21	524
186+62	HWY. 65	20.00	40	44	271
217+86	HWY. 65	9.33	35	18	124
218+25	HWY. 65	25.00	35	48	367
222+92	HWY. 65	10.00	25	14	217
223+27	HWY. 65	8.33	25	11	233
236+03	HWY. 65	8.70	24	11	117
281+85	HWY. 65	10.00	36	20	417
282+03	HWY. 65	8.33	36	16	308
285+03	HWY. 65	7.50	36	15	122
298+24	HWY. 65	19.50	48	51	427
TOTALS:				579	6837

AVG. DEPTH = 9"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
65+25	73+08	HWY. 65	59	5133
73+08	74+08	HWY. 65	59	656
306+00	326+50	HWY. 65	61	13894
TOTAL:				19683

NOTE: AVERAGE MILLING DEPTH WILL BE 2", AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL HAUL MATERIAL GENERATED FROM COLD MILLING OPERATIONS TO AHTD DISTRICT 9 HEADQUARTERS SOUTH OF BELLEFONTE, 0.5 MILE SOUTH OF JUNCTION HWY. 62 AND HWY. 65, 4590 HWY. 65 WHERE IT SHALL BECOME THE PROPERTY OF THE DEPARTMENT. THE CONTRACTOR SHALL STOCKPILE THE MATERIAL IN A WAY THAT IT CAN BE EASILY MEASURED BY THE AVERAGE END AREA METHOD. WHEN THE STORAGE AT THIS LOCATION IS DETERMINED TO BE AT CAPACITY (APPROXIMATELY 1500 CUBIC YARDS), THE REMAINING MATERIAL FROM COLD MILLING OPERATIONS WILL BECOME THE PROPERTY OF THE CONTRACTOR.

SHORING FOR REINFORCED CONCRETE BOX CULVERTS

STATION	SITE NO.	DESCRIPTION	QUANTITY
			LUMP SUM
MAIN LANES			
114+84	4	CONST. R.C. BOX CULVERT W/ 30° LT. FWD. SKEW W/ WINGS LT. & RT.	1.00
136+67	5	CONST. R.C. BOX CULVERT W/ 30° RT. FWD. SKEW W/ WINGS LT. & RT.	1.00
170+85	6	CONST. R.C. BOX CULVERT W/ 20° RT. FWD. SKEW W/ WINGS LT. & RT.	1.00
186+62	7	CONST. R.C. BOX CULVERT W/ 15° RT. FWD. SKEW W/ WINGS LT. & RT.	1.00
218+25	8	CONST. TRIP. R.C. BOX CULVERT W/ 15° LT. FWD. SKEW W/ WINGS LT. & RT.	1.00
222+92	9	CONST. R.C. BOX CULVERT W/ 15° RT. FWD. SKEW W/ WINGS LT. & RT.	1.00
281+85	10	CONST. R.C. BOX CULVERT W/ 10° LT. FWD. SKEW W/ WINGS LT. & RT.	1.00

CONCRETE PAVING FOR LOW WATER CROSSINGS

STATION	SIDE	LOCATION	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)
			CU.YD.	POUND
200+23	RT.	HWY. 65 (ELM STREET)	60.26	4294.52
293+09	LT.	HWY. 65 (SAGEMORE LOOP)	13.27	1694.74
TOTALS:			73.53	5989.26

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL: SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY EROSION CONTROL: TEMPORARY SEEDING	MULCH COVER	WATER	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	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING									1560		12931					999
ENTIRE	PROJECT	STAGE 1									591		6291					430
ENTIRE	PROJECT	STAGE 2						34.00	34.00	693.6	297	248	7585	3447	298	4689	4689	5083
ENTIRE	PROJECT	STAGE 3						30.00	30.00	612.0	274	344	7171	2129	129	4673	4673	5044
ENTIRE	PROJECT		64.00	128.00	64.00	6528.0	64.00											
*ENTIRE PROJECT - IF & WHERE DIRECTED BY ENGINEER								10.00	10.00	204.0	270	100	3000	500	100	900	900	1105
TOTALS:			64.00	128.00	64.00	6528.0	64.00	74.00	74.00	1509.6	2992	692	36978	6076	527	10262	10262	12661

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.
ROCK DITCH CHECKS.....3 CU.YD. / LOCATION

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

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

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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
8/22/17				6	ARK.			
				JOB NO.		CA0906	129	417
				②		QUANTITIES		

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT - IF & WHERE DIRECTED BY ENGINEER	600
TOTAL:	600

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

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE C)	REINFORCING STEEL-RDWY. (GR 60)
			CU.YD.	POUND
253+15.66	253+52.16	HWY. 65 RT.	13.95	810
253+59.04	253+95.54	HWY. 65 LT.	15.60	810
255+54.66	255+91.16	HWY. 65 RT.	13.95	810
255+98.04	256+34.54	HWY. 65 LT.	15.60	810
TOTALS:			59.10	3240

TEMPORARY CULVERTS FOR BOX CULVERT CONSTRUCTION

STATION	DESCRIPTION	TEMPORARY CULVERT				
		30"	36"	42"	48"	54"
		LIN. FT.				
115+15	TEMP. CULVERT LT. FOR R.C. BOX CULVERT CONST. @ STA. 114+84		45			
136+49	TEMP. CULVERT RT. FOR R.C. BOX CULVERT CONST. @ STA. 136+67			55		
171+16	TEMP. CULVERT RT. FOR R.C. BOX CULVERT CONST. @ STA. 170+85					35
186+34	TEMP. CULVERT LT. FOR R.C. BOX CULVERT CONST. @ STA. 186+62		40			
217+86	TEMP. CULVERT RT. FOR R.C. BOX CULVERT CONST. @ STA. 218+25				55	
223+27	TEMP. CULVERT LT. FOR R.C. BOX CULVERT CONST. @ STA. 222+92		35			
282+03	TEMP. CULVERT RT. FOR R.C. BOX CULVERT CONST. @ STA. 281+85	30				
TOTALS:		30	120	55	55	35

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13711
STEVEN R. BEAM, JR.
8/22/17

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	42"	48"	44"X27"	(CLASS IV) 30"	36"X23"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	42"	48"	44"X27"	DROP INLETS TYPE C	E	MO	SPECIAL	EXT. 4'	8'	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.									LIN. FT.			EACH							EACH						LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
MAIN LANES																																			
73+64	CONSTRUCT DBL. R.C. PIPE CULVERT W/ FES LT. & RT.			240												4																		52	0.7	FES-1, FES-2, PCC-1
76+74	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		72											2																			16	0.2	FES-1, FES-2, PCC-1
90+11	CONST. DBL. R.C. ARCH PIPE CULVERT W/ FES LT. & RT.							252												4													68	0.9	FES-1, FES-2, PCC-1
98+12	CONST. DBL. R.C. PIPE CULVERT W/ FES LT. & RT.		236											4																			32	0.4	FES-1, FES-2, PCC-1
101+47	CONST. R.C. PIPE CULVERT W/ 30° LT. FWD. SKEW W/ FES LT. & RT.			135												2																	26	0.3	FES-1, FES-2, PCC-1
110+24	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		61											2																			16	0.2	FES-1, FES-2, PCC-1
111+73	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		58											2																			16	0.2	FES-1, FES-2, PCC-1
114+84	CONST. R.C. BOX CULVERT W/ 30° LT. FWD. SKEW W/ WINGS LT. & RT.																									6	6	141	105.48	12032	57	24	0.3	PBC-1, RCB-1, RCB-2
136+67	CONST. R.C. BOX CULVERT W/ 30° RT. FWD. SKEW W/ WINGS LT. & RT.																									6	6	210	159.24	20466	77	24	0.3	PBC-1, RCB-1, RCB-2
147+54	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		56											2																			16	0.2	FES-1, FES-2, PCC-1
154+26	CONST. R.C. PIPE W/ 20° LT. FWD. SKEW W/ FES LT. & RT.		136											2																			16	0.2	FES-1, FES-2, PCC-1
160+74	CONST. R.C. PIPE W/ 30° LT. FWD. SKEW W/ FES LT. & RT.		142											2																			16	0.2	FES-1, FES-2, PCC-1
170+85	CONST. R.C. BOX CULVERT W/ 20° RT. FWD. SKEW W/ WINGS LT. & RT.																									6	6	211	157.30	20591	74	21	0.3	PBC-1, RCB-1, RCB-2
184+20	CONST. D.I. ON LT. W/ PIPE CULVERT W/ FES	6												1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
184+20	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES	6												1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
186+54	CONST. D.I. ON LT. W/ EXT.OVER R.C. BOX CULVERT STA. 186+62																				1				1									39	0.5	FPC-9E
186+62	CONST. R.C. BOX CULVERT W/ 15° RT. FWD. SKEW W/ WINGS LT. & RT.																									4	6	111	74.25	7548	33	19	0.2	PBC-1, RCB-1, RCB-2
186+70	CONST. D.I. ON RT. W/ EXT.OVER R.C. BOX CULVERT STA. 186+62																				1				1										FPC-9E
190+52	CONST. D.I. ON LT. W/ PIPE CULVERT	59																					1												FPC-9E, FPC-9M, PCC-1, PCM-1
190+52	CONST. D.I. ON RT. W/ PIPE CULVERT										424												1												FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
192+30	CONST. D.I. ON LT. W/ PIPE CULVERT										165													1										PCC-1, PCM-1, PCP-1, PCP-2
194+00	CONST. D.I. ON LT. W/ PIPE CULVERT										20													1										PCC-1, PCM-1, PCP-1, PCP-2
194+18	CONST. D.I. ON LT. W/ EXT. OVER R.C. PIPE CULVERT STA. 194+49																						1		1										FPC-9E, FPC-9M
194+49	RETAIN AND EXTEND R.C. PIPE CULVERT W/ 45° RT. FWD. SKEW					8																	1												FES-1, FES-2, PCC-1
194+60	CONST. TYPE E DROP INLET 3' X 2' X 3'6" LT.										54										1												4	0.1	FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
194+80	CONST. D.I. ON RT. W/ EXT. OVER R.C. PIPE CULVERT STA. 194+49					23											1						1		1								29	0.4	FPC-9E, FPC-9M, PCC-1
197+10	CONST. SPRING BOX ON LT. & PIPE CULVERT W/ FES								91							1																	3.31	168	20	13	0.2	FES-1, FES-2, PCC-1, SI-1
197+50	CONST. D.I. ON LT. W/ EXT. & PIPE CULVERT	59																					1			1									FPC-9E, FPC-9M, PCC-1, PCM-1
197+50	CONST. D.I. ON RT. W/ EXT. & PIPE CULVERT W/ FES	12												1									1			1							5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
199+57	CONST. D.I. ON LT. W/ EXT. & PIPE CULVERT W/ FES	68												1									1			1							5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
199+57	CONST. D.I. ON RT. W/ EXT. & PIPE CULVERT W/ FES	12												1									1			1							5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
200+58	CONST. D.I. ON RT. W/ EXT. & PIPE CULVERT W/ FES	5												1									1			1							5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
203+15	CONST. D.I. ON RT. W/ EXT. & PIPE CULVERT W/ FES	5												1									1			1									FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
204+69	CONST. D.I. ON RT. W/ PIPE CULVERT										147												1												FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
206+19	CONST. D.I. ON RT. W/ PIPE CULVERT										143												1												FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
210+28	CONST. D.I. ON RT. W/ PIPE CULVERT										163												1												FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
211+95	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES		12									152			1								1										8	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
212+19	CONST. D.I. ON LT. W/ PIPE CULVERT W/ FES	6												1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
213+51	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES	10											164	1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
215+19	CONST. D.I. ON LT. W/ PIPE CULVERT												167										1												FPC-9E, FPC-9M, PCC-1, PCM-1
215+19	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES	6		59										1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
216+91	CONST. D.I. ON LT. W/ PIPE CULVERT												88										1												FPC-9E, FPC-9M, PCC-1, PCM-1
216+91	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES	6												1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
217+84	CONST. D.I. ON LT. W/ EXT. & PIPE CULVERT			18																			1			1									FPC-9E, FPC-9M, PCC-1, PCM-1
217+84	CONST. D.I. ON RT. W/ PIPE CULVERT W/ FES	6												1									1										5	0.1	FPC-9E, FPC-9M, PCC-1, PCM-1
218+25	CONST. TRIP. R.C. BOX CULVERT W/ 15° LT. FWD. SKEW W/ WINGS LT. & RT.																									6	4	127	191.81	24167	93	22	0.3	PBC-1, RCB-1, RCB-2
222+92	CONST. R.C. BOX CULVERT W/ 15° RT. FWD. SKEW W/ WINGS LT. & RT.																									4	4	149	70.75	5432	42	15	0.2	PBC-1, RCB-1, RCB-2
229+50	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		67											2																			16	0.2	FES-1, FES-2, PCC-1
236+03	CONST. R.C. PIPE CULVERT W/ FES LT. & RT.				152												2																34	0.4	FES-1, FES-2, PCC-1
247+21	RETAIN AND EXTEND R.C. PIPE CULVERT 45° LT. FWD. SKEW W/ FES LT. & RT.					84												2															46	0.6	FES-1, FES-2, PCC-1
263+01	RETAIN AND EXTEND R.C. PIPE CULVERT 30° RT. FWD. SKEW W/ FES LT. & RT.			43												2																	26	0.3	FES-1, FES-2, PCC-1
281+85	CONST. R.C. BOX CULVERT W/ 10° LT. FWD. SKEW W/ WINGS LT. & RT.																									4	6	170	106.24	11036	51	18	0.2	PBC-1, RCB-1, RCB-2
285+03	CONST. R.C. PIPE CULVERT W/ FES LT. & RT.		126											2																			16	0.2	FES-1, FES-2, PCC-1
289+77	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		56											2																			16	0.2	FES-1, FES-2, PCC-1
293+09	CONST. QUAD. R.C. ARCH PIPE CULVERT LOW WATER CROSSING									92																									PCC-1
294+86	RETAIN AND EXTEND R.C. PIPE CULVERT W/ FES LT. & RT.		42											2																			16	0.2	FES-1, FES-2, PCC-1
298+24	CONST. DBL. R.C. PIPE CULVERT W/ FES LT. & RT.					256													4															92	1.2	FES-1, FES-2, PCC-1
SIDE ROADS																																			FPC-9E, FPC-9M, PCC-1, PCM-1, PCP-1, PCP-2
13+60	(ELM ST.) CONST. D.I. ON LT. W/ EXT. & PIPE CULVERT										33												1										34	0.4	FES-1, FES-2, PCC-1
11+66	(MURRAY RD.) CONST. R.C. PIPE CULVERT W/ FES LT. & RT.				67												2																68	0.9	FES-1, FES-2, PCC-1
10+69	(HWY. 206) CONST. DBL. R.C. PIPE CULVERT W/ FES LT. & RT.				102												4																		
SUBTOTALS:		266	1064	495	321	340	31	252	91	92	1149	152	419	12	25	9	8	6	1	4	2	1	25	2	8	4				868.38	101440	447	934	12.4	
STRUCTURES OVER 20' - 0" SPAN																																			
SIDE ROADS																																			
14+24	(ELM ST.) CONST. QUINT. R.C. BOX CULVERT W/ 15° LT. FWD. SKEW W/ WINGS LT. & RT.																									8	4	56	213.98	29034	105	32	0.4	PBC-1, RCB-1, RCB-2
SUBTOTALS:																													213.98	29034	105	32	0.4	
TOTALS:		266	1064	495	321	340	31	252	91	92	1149	152	419	12	25	9	8	6	1	4	2	1	25	2	8	4				1082.36	130474	552	966	12.8	

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.

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	130	417

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN E. BEAM, JR.
7-18-17

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																						
73+08.00	111+25.00	NOTCH & WIDEN O.S. (24' EXST. PAVEMENT) (FULL DEPTH SHLDR. LT.)	3817.00	282.50	10783.03	91.08	38628.04	0.05	1931.40	45.69	19377.64	330.00	3197.31	45.39	19250.40	220.00	2117.54	81.00	34353.00	220.00	3778.83	5896.37
111+25.00	130+00.00	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	1875.00	383.50	7190.63	139.07	28972.92	0.05	1448.65	69.69	14518.75	330.00	2395.59	69.38	14454.17	220.00	1589.96	81.00	16875.00	220.00	1856.25	3446.21
130+00.00	131+28.00	FULL DEPTH O.S.	128.00	403.00	515.84	126.71	1802.10	0.05	90.11	63.46	902.54	330.00	148.92	63.25	899.56	220.00	98.95	75.00	1066.67	220.00	117.33	216.28
131+28.00	131+97.00	FULL DEPTH O.S. (GRADE RAISE)	69.00	251.25	173.36	126.71	971.44	0.05	48.57	63.46	486.53	330.00	80.28	63.25	484.92	220.00	53.34	75.00	575.00	220.00	63.25	116.59
131+97.00	145+20.00	FULL DEPTH O.S.	1323.00	403.00	5331.69	126.71	18626.37	0.05	931.32	63.46	9328.62	330.00	1539.22	63.25	9297.75	220.00	1022.75	75.00	11025.00	220.00	1212.75	2235.50
145+20.00	145+75.00	FULL DEPTH O.S. (GRADE RAISE)	55.00	251.25	138.19	126.71	774.34	0.05	38.72	63.46	387.81	330.00	63.99	63.25	386.53	220.00	42.52	75.00	458.33	220.00	50.42	92.94
145+75.00	149+50.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	375.00	251.25	942.19	54.72	2280.00	0.05	114.00	27.46	1144.17	330.00	188.79	27.26	1135.83	220.00	124.94	75.00	3125.00	220.00	343.75	468.69
149+50.00	155+00.00	FULL DEPTH O.S.	550.00	403.00	2216.50	126.71	7743.39	0.05	387.17	63.46	3878.11	330.00	639.89	63.25	3865.28	220.00	425.18	75.00	4583.33	220.00	504.17	929.35
155+00.00	165+60.00	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	1060.00	383.50	4065.10	139.07	16379.36	0.05	818.97	69.69	8207.93	330.00	1354.31	69.38	8171.42	220.00	898.86	81.00	9540.00	220.00	1049.40	1948.26
165+60.00	166+20.00	FULL DEPTH O.S. (GRADE RAISE) (FULL DEPTH SHLDR. LT.)	60.00	231.75	139.05	139.07	927.13	0.05	46.36	69.69	464.60	330.00	76.66	69.38	462.53	220.00	50.88	81.00	540.00	220.00	59.40	110.28
166+20.00	176+30.00	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	1010.00	383.50	3873.35	139.07	15606.74	0.05	780.34	69.69	7820.77	330.00	1290.43	69.38	7785.98	220.00	856.46	81.00	9090.00	220.00	999.90	1856.36
176+30.00	176+80.00	FULL DEPTH O.S. (GRADE RAISE) (FULL DEPTH SHLDR. LT.)	50.00	231.75	115.88	139.07	772.61	0.05	38.63	69.69	387.17	330.00	63.88	69.38	385.44	220.00	42.40	81.00	450.00	220.00	49.50	91.90
176+80.00	181+50.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT) (FULL DEPTH SHLDR. LT.)	470.00	231.75	1089.23	60.85	3177.72	0.05	158.89	27.46	1434.02	330.00	236.61	33.39	1743.70	220.00	191.81	81.00	4230.00	220.00	465.30	657.11
181+50.00	196+10.00	NOTCH & WIDEN C&G	1460.00	109.50	1598.70	42.00	6813.33	0.05	340.67	21.00	3406.67	330.00	562.10	21.00	3406.67	220.00	374.73	56.00	9084.44	220.00	999.29	1374.02
196+10.00	196+70.00	FULL DEPTH C&G (GRADE RAISE)	60.00	109.50	65.70	112.00	746.67	0.05	37.33	56.00	373.33	330.00	61.60	56.00	373.33	220.00	41.07	56.00	373.33	220.00	41.07	82.14
196+70.00	198+50.00	FULL DEPTH C&G	180.00	257.00	462.60	112.00	2240.00	0.05	112.00	56.00	1120.00	330.00	184.80	56.00	1120.00	220.00	123.20	56.00	1120.00	220.00	123.20	246.40
198+50.00	199+00.00	FULL DEPTH C&G (GRADE RAISE)	50.00	109.50	54.75	112.00	622.22	0.05	31.11	56.00	311.11	330.00	51.33	56.00	311.11	220.00	34.22	56.00	311.11	220.00	34.22	68.44
199+00.00	201+51.50	FULL DEPTH C&G	251.50	257.00	646.36	112.00	3129.78	0.05	156.49	56.00	1564.89	330.00	258.21	56.00	1564.89	220.00	172.14	56.00	1564.89	220.00	172.14	344.28
203+14.34	208+10.00	FULL DEPTH C&G	495.66	257.00	1273.85	112.00	6168.21	0.05	308.41	56.00	3084.11	330.00	508.88	56.00	3084.11	220.00	339.25	56.00	3084.11	220.00	339.25	678.50
208+10.00	208+70.00	FULL DEPTH C&G (GRADE RAISE)	60.00	109.50	65.70	112.00	746.67	0.05	37.33	56.00	373.33	330.00	61.60	56.00	373.33	220.00	41.07	56.00	373.33	220.00	41.07	82.14
208+70.00	218+00.00	NOTCH & WIDEN C&G	930.00	109.50	1018.35	42.00	4340.00	0.05	217.00	21.00	2170.00	330.00	358.05	21.00	2170.00	220.00	238.70	56.00	5786.67	220.00	636.53	875.23
218+00.00	219+96.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT) (FULL DEPTH SHLDR. LT.)	196.00	231.75	454.23	67.08	1460.85	0.05	73.04	33.69	733.69	330.00	121.06	33.39	727.16	220.00	79.99	81.00	1764.00	220.00	194.04	274.03
219+96.50	250+00.00	NOTCH & WIDEN O.S. (24' EXST. PAVEMENT) (FULL DEPTH SHLDR. LT.)	3003.50	282.50	8484.89	91.08	30395.42	0.05	1519.77	45.69	15247.77	330.00	2515.88	45.39	15147.65	220.00	1666.24	81.00	27031.50	220.00	2973.47	4639.71
250+00.00	250+30.00	FULL DEPTH O.S. (GRADE RAISE) (FULL DEPTH SHLDR. LT.)	30.00	282.50	84.75	139.07	463.57	0.05	23.18	69.69	232.30	330.00	38.33	69.38	231.27	220.00	25.44	81.00	270.00	220.00	29.70	55.14
250+30.00	253+73.85	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	343.85	383.75	1319.52	139.07	5313.25	0.05	265.66	69.69	2662.55	330.00	439.32	69.38	2650.70	220.00	291.58	81.00	3094.65	220.00	340.41	631.99
255+76.35	259+25.00	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	348.65	383.75	1337.94	139.07	5387.42	0.05	269.37	69.69	2699.71	330.00	445.45	69.38	2687.70	220.00	295.65	81.00	3137.85	220.00	345.16	640.81
259+25.00	259+90.00	FULL DEPTH O.S.	65.00	403.00	261.95	126.71	915.13	0.05	45.76	63.46	458.32	330.00	75.62	63.25	456.81	220.00	50.25	75.00	541.67	220.00	59.58	109.83
259+90.00	260+30.00	FULL DEPTH O.S. (TRANSITION) (GRADE RAISE)	40.00	276.50	110.60	126.71	563.16	0.05	28.16	63.46	282.04	330.00	46.54	63.25	281.11	220.00	30.92	75.00	333.33	220.00	36.67	67.59
260+30.00	270+60.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	1030.00	251.25	2587.88	54.72	6262.40	0.05	313.12	27.46	3142.64	330.00	518.54	27.26	3119.76	220.00	343.17	75.00	8583.33	220.00	944.17	1287.34
270+60.00	271+00.00	FULL DEPTH O.S.	40.00	403.00	161.20	126.71	563.16	0.05	28.16	63.46	282.04	330.00	46.54	63.25	281.11	220.00	30.92	75.00	333.33	220.00	36.67	67.59
271+00.00	281+00.00	FULL DEPTH O.S. (FULL DEPTH SHLDR. LT.)	1000.00	383.75	3837.50	139.07	15452.22	0.05	772.61	69.69	7743.33	330.00	1277.65	69.38	7708.89	220.00	847.98	81.00	9000.00	220.00	990.00	1837.98
281+00.00	290+30.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT) (FULL DEPTH SHLDR. LT.)	930.00	232.00	2157.60	67.08	6931.60	0.05	346.58	33.69	3481.30	330.00	574.41	33.39	3450.30	220.00	379.53	81.00	8370.00	220.00	920.70	1300.23
290+30.00	294+50.00	FULL DEPTH O.S. (GRADE RAISE) (FULL DEPTH SHLDR. LT.)	420.00	231.75	973.35	139.07	6489.93	0.05	324.50	69.69	3252.20	330.00	536.61	69.38	3237.73	220.00	356.15	81.00	3780.00	220.00	415.80	771.95
294+50.00	299+50.00	FULL DEPTH O.S. (GRADE RAISE)	500.00	251.25	1256.25	126.71	7039.44	0.05	351.97	63.46	3525.56	330.00	581.72	63.25	3513.89	220.00	386.53	75.00	4166.67	220.00	458.33	844.86
299+50.00	302+00.00	FULL DEPTH O.S.	250.00	403.00	1007.50	126.71	3519.72	0.05	175.99	63.46	1762.78	330.00	290.86	63.25	1756.94	220.00	193.26	75.00	2083.33	220.00	229.17	422.43
302+00.00	304+00.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	200.00	251.25	502.50	54.72	1216.00	0.05	60.80	27.46	610.22	330.00	100.69	27.26	605.78	220.00	66.64	75.00	1666.67	220.00	183.33	249.97
304+00.00	305+00.00	TRANSITION	100.00	VAR	195.50	VAR	838.30	0.05	41.92	VAR	305.00	330.00	50.33	VAR	533.30	220.00	58.66	70.00	777.78	220.00	85.56	144.22
305+00.00	306+00.00	TRANSITION (FULL DEPTH SHLDR. LT.)	100.00	VAR	185.50	VAR	975.63	0.05	48.78	VAR	374.22	330.00	61.75	VAR	601.41	220.00	66.16	60.00	666.67	220.00	73.33	139.49
306+00.00	325+50.00	MILL & INLAY	1950.00															50.80	11006.67	220.00	1210.73	1210.73
ADDITIONAL FOR LEVELING																						
73+08.00	111+25.00	NOTCH & WIDEN O.S. (24' EXST. PAVEMENT)	3817.00			24.00	10178.67	0.17	1730.37									24.00	10178.67	VAR	1589.94	1589.94
145+75.00	149+50.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	375.00			36.00	1500.00	0.17	255.00									36.00	1500.00	VAR	673.20	673.20
176+80.00	181+50.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	470.00			36.00	1880.00	0.17	319.60									36.00	1880.00	VAR	512.82	512.82
181+50.00	196+10.00	NOTCH & WIDEN C&G	1460.00			35.00	5677.78	0.17	965.22									35.00	5677.78	VAR	1100.88	1100.88
208+70.00	218+00.00	NOTCH & WIDEN C&G	930.00			35.00	3616.67	0.17	614.83									35.00	3616.67	VAR	1738.44	1738.44
218+00.00	219+96.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	196.00			36.00	784.00	0.17	133.28									36.00	784.00	VAR	394.02	394.02
219+96.50	250+00.00	NOTCH & WIDEN O.S. (24' EXST. PAVEMENT)	3003.50			24.00	8009.33	0.17	1361.59									24.00	8009.33	VAR	1958.22	1958.22
260+30.00	270+60.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	1030.00			36.00	4120.00	0.17	700.40									36.00	4120.00	VAR	1259.28	1259.28
281+00.00	290+30.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	930.00			36.00	3720.00	0.17	632.40									36.00	3720.00	VAR	756.36	756.36
302+00.00	304+00.00	NOTCH & WIDEN O.S. (36' EXST. PAVEMENT)	200.00			36.00	800.00	0.17	136.00									36.00	800.00	VAR	251.46	251.46
ADDITIONAL FOR GRADE RAISE																						
131+28.00	131+97.00	GRADE RAISE UNDER FULL DEPTH O.S.	69.00			36.00	276.00	0.17	46.92	36.00	276.00	1375.00	189.75									
145+20.00	145+75.00	GRADE RAISE UNDER FULL DEPTH O.S.	55.00			36.00	220.00	0.17	37.40	36.00	220.00	1375.00	151.25									
165+60.00	166+20.00	GRADE RAISE UNDER FULL DEPTH O.S.	60.00			36.00	240.00	0.17	40.80	36.00	240.00	1375.00	165.00									
176+30.00	176+80.00	GRADE RAISE UNDER FULL DEPTH O.S.	50.00			36.00	200.00	0.17	34.00	36.00	200.00	1375.00	137.50									
196+10.00	196+70.00	GRADE RAISE UNDER FULL DEPTH C&G	60.00			35.00	233.33	0.17	39.67	35.00	233.33	1375.00	160.41									
198+50.00	199+00.00	GRADE RAISE UNDER FULL DEPTH C&G	50.00			35.00	194.44	0.17	33.05	35.00	194.44	1375.00	133.68									
208+10.00	208+70.00	GRADE RAISE UNDER FULL DEPTH C&G	60.00			35.00	233.33	0.17	39.67	35.00	233.33	1375.00	160.41									
250+00.00	250+30.00	GRADE RAISE UNDER FULL DEPTH O.S.	30.00			24.00	80.00	0.17	13.60	24.00	80.00	1375.00	55.00									
259+90.00	260+30.00	GRADE RAISE UNDER FULL DEPTH O.S.	40.00			36.00	160.00	0.17	27.20	36.00	160.00	1375.00	110.00									
290+30.00	299+50.00	GRADE RAISE UNDER FULL DEPTH O.S.	920.00			36.00	3680.00	0.17	625.60	36.00	3680.00	1375.00	2530.00									
ADDITIONAL FOR SUPERELEVATION																						
117+59.23	122+99.23	SUPER TRANSITION (N.C.-5.5%)	540.00	13.50	72.90																	
122+99.23	126+71.50	MAX. SUPER (5.5%)	372.27	27.00	100.51																	
126+71.50	132+11.50	SUPER TRANSITION (5.5%-N.C.)	540.00	13.50	72.90																	
133+61.71	139+91.71	SUPER TRANSITION (N.C.-9.0%)	630.00	32.75	206.33																	
139+91.71	143+92.34	MAX. SUPER (9.0%)	400.63	65.50	262.41																	
143+92.34	150+22.34	SUPER TRANSITION (9.0%-N.C.)	630.00	32.75	206.33																	
150+70.13	156+10.13	SUPER TRANSITION (N.C.-7.7%)	540.00	24.75	133.65																	
156+10.13	160+63.14	MAX. SUPER (7.7%)	453.01	49.25	223.11																	
160+63.14	166+03.14	SUPER TRANSITION (7.7%-N.C.)	540.00	24.75	133.65																	
285+90.56	291+30.56	SUPER TRANSITION (N.C.-7.7%)	540.00	24.75	133.65																	
291+30.56	293+04.81	MAX. SUPER (7.7%)	174.25	49.25	85.82																	
293+04.81	298+44.81	SUPER TRANSITION (7.7%-N.C.)	540.00	24.75	133.65																	
SUBTOTALS (BOX 1 OF 2):					**68443.62**		**301059.79**		**20549.44**		**133054.87**		**24836.75**		**127718.46**		**14049.04**		**244503.11**		**32698.46**	**46747.50**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

7/18/2017 9:43:58 AM
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QUANTITIES

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0906	131	417	

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-18-17

BASE AND SURFACING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																						
ADDITIONAL FOR GUARDRAIL WIDENING																						
250+30.25	250+63.25	TAPER FOR GUARDRAIL WIDENING ON RT.	33.00	14.00	4.62													2.75	10.08	220.00	1.11	1.11
250+63.25	251+23.25	GUARDRAIL WIDENING ON RT. (5.5 FT.)	60.00	28.00	16.80													5.50	36.67	220.00	4.03	4.03
251+23.25	252+98.25	GUARDRAIL WIDENING ON RT. (3.5-5.5 FT.)	175.00	23.13	40.48													4.50	87.50	220.00	9.63	9.63
252+98.25	253+42.00	GUARDRAIL WIDENING ON RT. (3.5 FT.)	43.75	18.25	7.98													3.50	17.01	220.00	1.87	1.87
252+14.55	252+56.55	TAPER FOR GUARDRAIL WIDENING ON LT.	42.00	17.38	7.30													3.50	16.33	220.00	1.80	1.80
252+56.55	252+66.55	GUARDRAIL WIDENING ON LT. (7.0 FT.)	10.00	34.75	3.48													7.00	7.78	220.00	0.86	0.86
252+66.55	253+41.55	GUARDRAIL WIDENING ON LT. (3.5-7.0 FT.)	75.00	26.50	19.88													5.25	43.75	220.00	4.81	4.81
253+41.55	253+85.30	GUARDRAIL WIDENING ON LT. (3.5 FT.)	43.75	18.25	7.98													3.50	17.01	220.00	1.87	1.87
255+65.50	255+85.50	BRIDGE END TERMINAL WIDENING ON RT. (5.5 FT.)	20.00	28.00	5.60													5.50	12.22	220.00	1.34	1.34
255+85.50	256+18.50	TAPER FOR BRIDGE END TERMINAL WIDENING ON RT.	33.00	14.00	4.62													2.75	10.08	220.00	1.11	1.11
256+08.25	256+52.00	GUARDRAIL WIDENING ON LT. (3.5 FT.)	43.75	18.25	7.98													3.50	17.01	220.00	1.87	1.87
256+52.00	258+27.00	GUARDRAIL WIDENING ON LT. (3.5-5.5 FT.)	175.00	23.13	40.48													4.50	87.50	220.00	9.63	9.63
258+27.00	258+87.00	GUARDRAIL WIDENING ON LT. (5.5 FT.)	60.00	28.00	16.80													5.50	36.67	220.00	4.03	4.03
258+87.00	259+20.00	TAPER FOR GUARDRAIL WIDENING ON LT.	33.00	14.00	4.62													2.75	10.08	220.00	1.11	1.11
ADDITIONAL FOR WEIGH PAD																						
234+75.00	235+75.00	RT. SIDE TRANSITION	100.00	VAR	24.00	45.58	506.44	0.05	25.32	13.23	147.00	330.00	24.26	13.13	145.89	220.00	16.05	15.00	166.67	220.00	18.33	34.38
235+75.00	240+75.00	RT. SIDE WEIGH PAD	500.00	74.50	372.50	90.58	5032.22	0.05	251.61	26.23	1457.22	330.00	240.44	26.13	1451.67	220.00	159.68	30.00	1666.67	220.00	183.33	343.01
240+75.00	242+75.00	RT. SIDE TRANSITION	200.00	VAR	48.00	45.58	1012.89	0.05	50.64	13.23	294.00	330.00	48.51	13.13	291.78	220.00	32.10	15.00	333.33	220.00	36.67	68.77
235+30.00	237+30.00	LT. SIDE TRANSITION	200.00	VAR	48.00	45.58	1012.89	0.05	50.64	13.23	294.00	330.00	48.51	13.13	291.78	220.00	32.10	15.00	333.33	220.00	36.67	68.77
237+30.00	242+30.00	LT. SIDE WEIGH PAD	500.00	74.50	372.50	90.58	5032.22	0.05	251.61	26.23	1457.22	330.00	240.44	26.13	1451.67	220.00	159.68	30.00	1666.67	220.00	183.33	343.01
242+30.00	243+30.00	LT. SIDE TRANSITION	100.00	VAR	24.00	45.58	506.44	0.05	25.32	13.23	147.00	330.00	24.26	13.13	145.89	220.00	16.05	15.00	166.67	220.00	18.33	34.38
ADDITIONAL FOR STAGE CONSTRUCTION																						
73+08.00	104+89.25	ADDITIONAL WIDENING IN STAGE 1 RT. (AVG. WIDTH = 5.8 FT.)	3181.25	35.50	1129.34	5.95	2103.16	0.05	105.16	5.95	2103.16	330.00	347.02					5.80	2050.14	220.00	225.52	225.52
104+89.25	124+25.53	ADDITIONAL WIDENING IN STAGE 1 RT.	1936.28	VAR	1924.23	VAR	4534.84	0.05	226.74	VAR	4534.84	330.00	748.25					VAR	4502.95	220.00	495.32	495.32
124+25.53	129+38.09	ADDITIONAL WIDENING IN STAGE 1 RT. (AVG. WIDTH = 8.5 FT.)	512.56	47.00	240.90	8.65	492.63	0.05	24.63	8.65	492.63	330.00	81.28					8.50	484.08	220.00	53.25	53.25
129+38.09	144+29.60	ADDITIONAL WIDENING IN STAGE 1 RT.	1491.51	VAR	1215.51	VAR	2789.45	0.05	139.47	VAR	2789.45	330.00	460.26					VAR	2765.18	220.00	304.17	304.17
163+31.71	178+07.64	ADDITIONAL WIDENING IN STAGE 1 RT.	1475.93	VAR	1198.23	VAR	2747.91	0.05	137.40	VAR	2747.91	330.00	453.41					VAR	2724.19	220.00	299.66	299.66
178+07.64	178+90.20	ADDITIONAL WIDENING IN STAGE 1 RT. (AVG. WIDTH = 8.6 FT.)	82.56	47.50	39.22	8.75	80.27	0.05	4.01	8.75	80.27	330.00	13.24					8.60	78.89	220.00	8.68	8.68
178+90.20	194+25.38	ADDITIONAL WIDENING IN STAGE 1 RT.	1535.18	VAR	1331.81	VAR	3083.94	0.05	154.20	VAR	3083.94	330.00	508.85					VAR	3059.01	220.00	336.49	336.49
194+25.38	201+00.00	ADDITIONAL WIDENING IN STAGE 1 RT. (AVG. WIDTH = 8.6 FT.)	674.62	47.50	320.44	8.75	655.88	0.05	32.79	8.75	655.88	330.00	108.22					8.60	644.64	220.00	70.91	70.91
203+50.00	241+00.00	ADDITIONAL WIDENING IN STAGE 1 RT. (AVG. WIDTH = 9.4 FT.)	3750.00	50.75	1903.13	9.55	3979.17	0.05	198.96	9.55	3979.17	330.00	656.56					9.40	3916.67	220.00	430.83	430.83
211+01.57	233+84.63	ADDITIONAL WIDENING IN STAGE 1 LT.	2283.06	VAR	2517.92	VAR	6003.09	0.05	300.15	VAR	6003.09	330.00	990.51					VAR	5966.28	220.00	656.29	656.29
274+70.81	287+70.00	ADDITIONAL WIDENING IN STAGE 1 LT.	1299.19	VAR	1041.11	VAR	2382.68	0.05	119.13	VAR	2382.68	330.00	393.14					VAR	2362.03	220.00	259.82	259.82
199+50.00	205+80.00	ADDITIONAL WIDENING IN STAGE 2 (AVG. WIDTH = 6.0 FT.)	630.00	36.75	231.53	6.23	436.10	0.05	21.81	6.23	436.10	330.00	71.96					6.00	420.00	220.00	46.20	46.20
306+00.00	307+50.00	ADDITIONAL WIDENING IN STAGE 2 (AVG. WIDTH = 9.5 FT.)	150.00	51.50	77.25	9.79	163.17	0.05	8.16	9.79	163.17	330.00	26.92					9.50	158.33	220.00	17.42	17.42
HWY. 206																						
10+30.54	12+50.00	FULL DEPTH O.S.	219.46	183.00	401.61	90.58	2208.74	0.05	110.44	24.46	596.44	330.00	98.41	24.25	591.32	220.00	65.05	30.00	731.53	220.00	80.47	145.52
CITY STREETS																						
13+00.00	14+01.25	ELM ST. FULL DEPTH C&G	101.25	192.50	194.91													28.00	315.00	220.00	34.65	34.65
14+46.46	14+78.26	ELM ST. FULL DEPTH C&G	31.80	192.50	61.22													28.00	98.93	220.00	10.88	10.88
15+36.24	17+38.00	RALLY HILL RD. FULL DEPTH C&G	201.76	239.25	482.71													36.00	807.04	220.00	88.77	88.77
10+00.00	14+09.34	ASPEN RD. FULL DEPTH O.S.	409.34	139.00	568.98													28.00	1273.50	220.00	140.09	140.09
9+99.07	12+30.50	MURRAY RD. FULL DEPTH O.S.	231.43	139.00	321.69													28.00	720.00	220.00	79.20	79.20
SUBTOTALS (BOX 1 OF 2):					**68443.62**		**301059.79**		**20549.44**		**133054.87**		**24836.75**		**127718.46**		**14049.04**		**244503.11**		**32698.46**	**46747.50**
SUBTOTALS (BOX 2 OF 2):					**16279.36**		**44764.13**		**2238.19**		**33845.17**		**5584.45**		**4370.00**		**480.71**		**37821.42**		**4160.35**	**4641.06**
TOTALS:					**84722.98**		**345823.92**		**22787.63**		**166900.04**		**30421.20**		**132088.46**		**14529.75**		**282324.53**		**36858.81**	**51388.56**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
73+00	181+50	HWY. 65 LT.	7937
73+00	181+50	HWY. 65 RT.	9116
218+00	304+00	HWY. 65 LT.	6239
218+00	304+00	HWY. 65 RT.	7052
TOTAL:			**30344**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

** FOR INFORMATION ONLY

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

DRIVEWAYS & TURNOUTS (BOX 1 OF 2)

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"	30"	36"	21"X15"	28"X20"	35"X24"	42"X29"	57"X38"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.									
81+01	LT.	HWY. 65	16				69.10	7.60	28.22	29									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
82+96	LT.	HWY. 65	16				190.00	20.90	77.58	32									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
86+36	RT.	HWY. 65	40				287.80	31.66	117.52										DR-1
89+58	LT.	HWY. 65	30				130.10	14.31	53.12		42								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
90+27	RT.	HWY. 65	40				550.00	60.50	224.58										DR-1
91+41	LT.	HWY. 65	16				92.30	10.15	37.69						31				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
92+62	LT.	HWY. 65	30				86.70	9.54	35.40						41				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
95+78	LT.	HWY. 65	40				367.80	40.46	150.19						52				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
97+75	LT.	HWY. 65	30				120.10	13.21	49.04										DR-1
98+96	RT.	HWY. 65	25				214.50	23.60	87.59					41					PCC-1, PCM-1, PCP-1, PCP-2, DR-1
99+33	LT.	HWY. 65	16				94.00	10.34	38.38		30								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
103+36	LT.	HWY. 65	24				504.70	55.52	206.09	38									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
105+93	RT.	HWY. 65	16				99.40	10.93	40.59	27									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
106+55	RT.	HWY. 65	16				95.80	10.54	39.12	30									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
106+91	LT.	HWY. 65	16				474.50	52.20	193.75	34									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
114+74	LT.	HWY. 65	16				145.60	16.02	59.45	64									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
117+06	LT.	HWY. 65	16				101.10	11.12	41.28		26								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
122+19	RT.	HWY. 65	16				69.10	7.60	28.22					28					PCC-1, PCM-1, PCP-1, PCP-2, DR-1
123+06	LT.	HWY. 65	16				446.00	49.06	182.12	33									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
128+65	RT.	HWY. 65	16				158.00	17.38	64.52	27									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
130+52	RT.	HWY. 65	16				129.60	14.26	52.92	28									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
132+00	LT.	HWY. 65	16				127.80	14.06	52.19						27				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
132+01	RT.	HWY. 65	16				161.60	17.78	65.99										DR-1
132+82	RT.	HWY. 65	16				261.10	28.72	106.62										DR-1
138+50	LT.	HWY. 65	16				438.90	48.28	179.22	47									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
149+09	RT.	HWY. 65	40				380.70	41.88	155.45										DR-1
155+65	LT.	HWY. 65	16				458.50	50.44	187.22										DR-1
156+45	RT.	HWY. 65	32				386.10	42.47	157.66	49									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
169+75	LT.	HWY. 65	16				350.00	38.50	142.92	63									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
172+59	LT.	HWY. 65	16				271.80	29.90	110.99		78								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
SUBTOTALS (BOX 1 OF 2):								**798.93**	**2965.63**	**501**	**176**			**69**	**151**				

7/18/2017
9:48:20 AM
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QUANTITIES

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	132	417
				(2)		QUANTITIES		

DRIVEWAYS & TURNOUTS (BOX 2 OF 2)

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"	30"	36"	21"X15"	28"X20"	35"X24"	42"X29"	57"X38"		
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.										
175+96	LT.	HWY. 65	16				252.30	27.75	103.02	39										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
177+20	RT.	HWY. 65	30				173.40	19.07	70.81	43										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
179+95	LT.	HWY. 65	22				169.60	18.66	69.25	35										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
180+27	RT.	HWY. 65	16				118.90	13.08	48.55	31										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
182+37	LT.	HWY. 65	16	182+15	182+59	39.10	83.60	9.20	34.14		33									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
182+85	RT.	HWY. 65	16	182+63	183+07	39.10	126.20	13.88	51.53					30						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
185+41	LT.	HWY. 65	16	185+19	185+63	39.10	106.70	11.74	43.57				31							PCC-1, PCM-1, PCP-1, PCP-2, DR-1
185+85	LT.	HWY. 66	16	185+63	186+07	39.10	168.90	18.58	68.97				38							PCC-1, PCM-1, PCP-1, PCP-2, DR-1
187+13	LT.	HWY. 65	16	186+91	187+35	39.10	99.60	10.96	40.67		34									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
190+24	LT.	HWY. 65	16	190+02	190+46	39.10	72.90	8.02	29.77	27										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
190+90	RT.	HWY. 65	16	190+68	191+12	39.10	71.10	7.82	29.03											DR-1
192+76	LT.	HWY. 65	40	192+42	193+10	60.40	299.70	32.97	122.38											DR-1
194+60	LT.	HWY. 65	40	194+26	194+94	60.40	565.30	62.18	230.83											DR-1
204+15	RT.	HWY. 65	16	203+93	204+37	39.10	113.80	12.52	46.47					30						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
205+25	LT.	HWY. 65	16	205+03	205+47	39.10	282.70	31.10	115.44											DR-1
206+88	RT.	HWY. 65	16	206+66	207+10	39.10	26.70	2.94	10.90											DR-1
209+20	LT.	HWY. 65	16	208+98	209+42	39.10	208.00	22.88	84.93											DR-1
209+57	RT.	HWY. 65	16	209+35	209+79	39.10	51.60	5.68	21.07											DR-1
210+77	RT.	HWY. 65	40	210+43	211+11	60.40	137.80	15.16	56.27											DR-1
211+55	RT.	HWY. 65	24	211+29	211+81	46.20	69.30	7.62	28.30											DR-1
212+92	RT.	HWY. 65	40	212+58	213+26	60.40	235.60	25.92	96.20											DR-1
213+62	LT.	HWY. 65	30	213+33	213+91	228.30				54										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
214+47	RT.	HWY. 65	40	214+13	214+81	278.20														DR-1
214+90	LT.	HWY. 65	30	214+61	215+19	171.60				48										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
215+81	LT.	HWY. 65	24	215+55	216+07	190.20								33						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
216+37	RT.	HWY. 65	16	216+15	216+59	39.10	44.40	4.88	18.13											DR-1
216+50	LT.	HWY. 65	24	216+24	216+76	182.20								33						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
217+47	RT.	HWY. 65	22				235.60	25.92	96.20		44									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
219+64	RT.	HWY. 65	16				179.40	19.73	73.26	28										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
222+55	RT.	HWY. 65	16				145.60	16.02	59.45	67										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
225+82	RT.	HWY. 65	16				126.00	13.86	51.45						38					PCC-1, PCM-1, PCP-1, PCP-2, DR-1
229+10	RT.	HWY. 65	16				88.70	9.76	36.22											DR-1
231+64	RT.	HWY. 65	16				168.70	18.56	68.89					31						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
233+33	RT.	HWY. 65	16				174.00	19.14	71.05	33										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
233+80	LT.	HWY. 65	16				133.10	14.64	54.35			47								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
234+80	LT.	HWY. 65	16				134.90	14.84	55.08			40								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
242+94	RT.	HWY. 65	16				145.60	16.02	59.45		52									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
243+23	LT.	HWY. 65	16				101.10	11.12	41.28	33										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
244+53	LT.	HWY. 65	16				143.80	15.82	58.72		38									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
257+00	RT.	HWY. 65	40				617.30	67.90	252.06						116					PCC-1, PCM-1, PCP-1, PCP-2, DR-1
260+69	LT.	HWY. 65	16				147.40	16.21	60.19											DR-1
263+51	LT.	HWY. 65	16				113.60	12.50	46.39							31				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
264+10	RT.	HWY. 65	16				95.80	10.54	39.12			34								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
266+36	RT.	HWY. 65	16				90.50	9.96	36.95							28				PCC-1, PCM-1, PCP-1, PCP-2, DR-1
268+37	LT.	HWY. 65	16				129.60	14.26	52.92			44								PCC-1, PCM-1, PCP-1, PCP-2, DR-1
269+24	RT.	HWY. 65	16				78.00	8.58	31.85		31									PCC-1, PCM-1, PCP-1, PCP-2, DR-1
270+60	RT.	HWY. 65	28				152.70	16.80	62.35						43					PCC-1, PCM-1, PCP-1, PCP-2, DR-1
272+08	RT.	HWY. 65	40				465.60	51.22	190.12					110						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
279+26	RT.	HWY. 65	16				97.60	10.74	39.85	44										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
283+18	LT.	HWY. 65	16				309.10	34.00	126.22	58										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
283+62	LT.	HWY. 65	16				168.70	18.56	68.89					63						PCC-1, PCM-1, PCP-1, PCP-2, DR-1
284+31	RT.	HWY. 65	16				95.80	10.54	39.12	34										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
286+30	LT.	HWY. 65	16				245.10	26.96	100.08											DR-1
287+57	LT.	HWY. 65	16				108.30	11.91	44.22											DR-1
288+10	LT.	HWY. 65	16				159.80	17.58	65.25											DR-1
288+61	RT.	HWY. 65	16				218.10	23.99	89.06											DR-1
288+61	RT.	STA. 288+61 APPROACH	16				71.20	7.83	29.07											DR-1
292+41	RT.	HWY. 65	24				158.10	17.39	64.56											DR-1
293+09	LT.	HWY. 65	20				599.00	65.89	244.59											DR-1
293+09	LT.	STA. 293+09 APPROACH	16				102.80	11.31	41.98											DR-1
293+09	RT.	STA. 293+09 APPROACH	16				37.00	4.07	15.11											DR-1
295+55	RT.	HWY. 65	30				163.40	17.97	66.72	50										PCC-1, PCM-1, PCP-1, PCP-2, DR-1
296+21	LT.	HWY. 65	20				352.30	38.75	143.86										141	PCC-1, PCM-1, PCP-1, PCP-2, DR-1
298+61	RT.	HWY. 65	16				101.10	11.12	41.28				84							PCC-1, PCM-1, PCP-1, PCP-2, DR-1
300+90	RT.	HWY. 65	40				212.30	23.35	86.69								114			PCC-1, PCM-1, PCP-1, PCP-2, DR-1
305+50	LT.	HWY. 65	24				128.70	14.16	52.55							36				DR-1
13+80	RT.	ELM STREET/ RALLY HILL ROAD	20				84.10	9.25	34.34											DR-1
16+00	LT.	ELM STREET/ RALLY HILL ROAD	16	15+78	16+22	39.10	83.60	9.20	34.14											DR-1
17+00	RT.	ELM STREET/ RALLY HILL ROAD	16	16+78	17+22	39.10	72.90	8.02	29.77											DR-1
17+06	LT.	ELM STREET/ RALLY HILL ROAD	22				220.32	24.24	89.96											DR-1
* ENTIRE PROJECT TEMPORARY DRIVES									1200.00											
SUBTOTALS (BOX 1 OF 2):								**798.93**	**2965.63**	**501**	**176**			**69**	**151**					
SUBTOTALS (BOX 2 OF 2):						**1924.80**		**1202.84**	**5664.89**	**624**	**232**	**165**	**153**	**330**	**197**	**95**	**114**	**141**		
TOTALS:						**1924.80**		**2001.77**	**8630.52**	**1125**	**408**	**165**	**153**	**399**	**348**	**95**	**114**	**141**		

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

** FOR INFORMATION ONLY

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-21-17

7/21/2017
8:45:07 AM
...\QUTY_CA0906_QTY_HWY65

7/5/2017
4:53:57 PM
...\MS\r_CA0906_MS_HWY65_01.dgn

SOIL BORING LOG

BORING NO.	STATION	OFFSET	ELEVATION	NORTHING	EASTING	DEPTH TO SG (FT.)	LL	PI	AASHTO	COLOR
P-1	68+62	18' RT. OF EXST. CL. HWY. 65	1,175.01'	674257.6119	1010259.3592	0 - 9	77	51	A-7	RD/BR
P-2	85+57	16' LT. OF EXST. CL. HWY. 65	1,195.22'	672844.2420	1011194.1409	0 - 6	33	16	A-6	RD/BR
P-3	94+64	17' RT. OF EXST. CL. HWY. 65	1,196.69'	672059.9768	1011650.7181	2 - 7	31	14	A-2-6	RD/BR
P-4	102+12	15' LT. OF EXST. CL. HWY. 65	1,222.71'	671444.6044	1012077.3062	0 - 4	77	45	A-7	RD/BR
A10	10+81	3' RT. OF EXST. CL. HWY. 65	1,234.54'	670936.3721	1012376.1981	0 - 3.5	77	45	A-7	RD/BR
A11	108+61	3' RT. OF EXST. CL. HWY. 65	1,234.85'	670885.5783	1012408.0848	0 - 3.5	77	45	A-7	RD/BR
A12	109+21	3' RT. OF EXST. CL. HWY. 65	1,235.19'	670834.7479	1012439.8475	0 - 4	77	45	A-7	RD/BR
A13	108+21	6' RT. OF EXST. CL. HWY. 65	1,234.55'	670918.0619	1012384.3703	0 - 3	44	26	A-7	RD/BR
A14	108+81	6' RT. OF EXST. CL. HWY. 65	1,234.88'	670867.0600	1012416.1735	0 - 1	39	17	A-6	RD/BR
A15	109+41	6' RT. OF EXST. CL. HWY. 65	1,235.20'	670816.2281	1012448.0613	0 - 1.5	39	17	A-6	RD/BR
A16	108+41	9' RT. OF EXST. CL. HWY. 65	1,234.53'	670899.3165	1012392.4945	0 - 4	39	17	A-6	RD/BR
A17	10+91	9' RT. OF EXST. CL. HWY. 65	1,234.88'	670848.4366	1012424.3303	0 - 4	39	17	A-6	RD/BR
A18	109+61	9' RT. OF EXST. CL. HWY. 65	1,235.19'	670797.5139	1012456.1417	0 - 4	39	17	A-6	RD/BR
P-5	114+71	9' RT. OF EXST. CL. HWY. 65	1,242.16'	670365.1743	1012726.6529	0 - 7	37	22	A-6	RD/BR
P-6	123+84	24' LT. OF EXST. CL. HWY. 65	1,271.68'	669612.1853	1013242.0413	0 - 7.5	88	47	A-7	RD/BR
P-7	133+75	9' RT. OF EXST. CL. HWY. 65	1,239.01'	668861.8784	1013883.5665	0 - 2	77	45	A-7	RD/BR
P-8	146+12	1' LT. OF EXST. CL. HWY. 65	1,238.04'	668168.5145	1014887.0342	0 - 3.5	77	45	A-7	RD/BR
P-9	154+75	35' RT. OF EXST. CL. HWY. 65	1,229.08'	667864.0861	1015696.1162	0 - 4	30	14	A-6	RD/BR
P-10	167+52	12' LT. OF EXST. CL. HWY. 65	1,154.81'	667201.6434	1016766.7377	0 - 6	34	20	A-6	RD/BR
P-11	175+84	19' RT. OF EXST. CL. HWY. 65	1,123.03'	666642.3450	1017384.4092	0 - 9	52	30	A-7	RD/BR
P-12	183+96	16' LT. OF EXST. CL. HWY. 65	1,101.21'	666144.9489	1018026.9895	0 - 4	36	21	A-6	RD/BR
P-13	195+49	19' RT. OF EXST. CL. HWY. 65	1,067.00'	665373.9696	1018885.2960	0 - 8	39	24	A-2-6	RD/BR
P-14	199+35	214' RT. OF EXST. CL. HWY. 65	1,051.84'	664977.0006	1019055.6850	0 - 7	33	16	A-2-6	RD/BR
P-15	201+43	22' RT. OF EXST. CL. HWY. 65	1052.63'	664991.0296	1019338.4286	0 - 9.5	41	23	A-6	RD/BR
P-16	214+23	16' LT. OF EXST. CL. HWY. 65	1,064.40'	663995.3014	1020118.6509	0 - 7.5	30	16	A-6	RD/BR
P-17	234+89	12' RT. OF EXST. CL. HWY. 65	1,092.12'	662289.2102	1021280.4418	0 - 2	36	21	A-6	RD/BR
P-18	244+76	0' RT. OF EXST. CL. HWY. 65	1,074.01'	661483.9414	1021850.1709	0 - 8	39	20	A-6	RD/BR
P-19	252+44	22' RT. OF EXST. CL. HWY. 65	1,038.42'	660836.5508	1022263.7070	0 - 6	60	40	A-7	RD/BR
P-20	265+87	5' LT. OF EXST. CL. HWY. 65	1,076.77'	659735.4732	1023033.4023	0 - 3.5	39	21	A-2-6	RD/BR
P-21	274+89	22' RT. OF EXST. CL. HWY. 65	1,115.17'	658969.5702	1023510.5709	0 - 9	50	31	A-7	RD/BR
P-22	284+14	11' LT. OF EXST. CL. HWY. 65	1,102.43'	658220.8235	1024055.6833	0 - 5.5	70	40	A-7	RD/BR
P-23	294+43	33' RT. OF EXST. CL. HWY. 65	1,101.84'	657325.2534	1024546.1479	0 - 4	28	10	A-2-4	RD/BR
A1	300+77	22' RT. OF EXST. CL. HWY. 65	1,110.53'	656735.3947	1024780.8297	0 - 5	42	22	A-6	RD/BR
A2	301+37	23' RT. OF EXST. CL. HWY. 65	1,112.90'	656678.9783	1024801.2014	0 - 5	40	25	A-2-6	RD/BR
A3	301+97	24' RT. OF EXST. CL. HWY. 65	1,115.64'	656622.6717	1024821.9374	0 - 5	40	25	A-6	RD/BR
A4	300+97	25' RT. OF EXST. CL. HWY. 65	1,111.21'	656715.7051	1024784.8049	0 - 5	38	23	A-6	RD/BR
A5	301+57	26' RT. OF EXST. CL. HWY. 65	1,113.71'	656659.2736	1024805.2650	0 - 5	38	23	A-6	RD/BR
A6	302+17	27' RT. OF EXST. CL. HWY. 65	1,116.53'	656602.9814	1024825.9171	0 - 5	38	23	A-6	RD/BR
A7	301+17	29' RT. OF EXST. CL. HWY. 65	1,111.92'	656695.9160	1024788.7765	0 - 5	38	23	A-6	RD/BR
A8	301+77	29' RT. OF EXST. CL. HWY. 65	1,114.53'	656639.5690	1024809.3604	0 - 5	38	23	A-6	RD/BR
A9	302+37	30' RT. OF EXST. CL. HWY. 65	1,117.41'	656583.1847	1024829.8921	0 - 5	38	23	A-6	RD/BR
P-24	304+54	2' RT. OF EXST. CL. HWY. 65	1,128.44'	656389.2314	1024930.3500	0 - 3	40	22	A-6	RD/BR
P-25	315+12	31' RT. OF EXST. CL. HWY. 65	1,155.28'	655401.5958	1025316.2152	0 - 7	45	28	A-7	RD/BR
P-26	324+96	1' RT. OF EXST. CL. HWY. 65	1,110.06'	654579.1048	1025859.5705	0 - 5.5	42	24	A-7	RD/BR
P-27	334+98	12' RT. OF EXST. CL. HWY. 65	1,130.45'	653703.7001	1026332.6808	0 - 5.5	42	24	A-7	RD/BR
P-28	345+17	11' LT. OF EXST. CL. HWY. 65	1,135.46'	652702.1166	1026509.6933	0 - 7	79	46	A-7	RD/BR
P-29	352+45	11' RT. OF EXST. CL. HWY. 65	1,136.02'	651977.9625	1026594.4212	0 - 9	37	20	A-6	RD/BR
P-30	36+83	11' LT. OF EXST. CL. HWY. 65	1,099.53'	650526.3672	1027130.4850	0 - 9	51	31	A-7	RD/BR
P-31	375+38	11' RT. OF EXST. CL. HWY. 65	1,098.31'	649852.2027	1027423.1757	0 - 9	77	49	A-7	RD/BR
P-32	386+49	11' LT. OF EXST. CL. HWY. 65	1,094.33'	648855.2684	1027914.8553	0 - 9	93	59	A-7	RD/BR
P-33	394+92	10' RT. OF EXST. CL. HWY. 65	1,093.74'	648082.3460	1028250.8470	0 - 9	101	65	A-7	RD/BR
A19	396+33	3' RT. OF EXST. CL. HWY. 65	1,098.55'	647957.1648	1028317.4076	0 - 4	93	59	A-7	RD/BR
A20	396+53	6' RT. OF EXST. CL. HWY. 65	1,099.28'	647937.6123	1028322.7670	0 - 4	93	59	A-7	RD/BR
A21	396+73	9' RT. OF EXST. CL. HWY. 65	1,099.93'	647918.2379	1028328.2366	0 - 4	93	59	A-7	RD/BR
A22	396+93	3' RT. OF EXST. CL. HWY. 65	1,100.81'	647902.3634	1028341.9281	0 - 4	93	59	A-7	RD/BR
A23	397+13	7' RT. OF EXST. CL. HWY. 65	1,101.48'	647882.9419	1028347.5334	0 - 4	93	59	A-7	RD/BR
A24	397+33	10' RT. OF EXST. CL. HWY. 65	1,102.10'	647863.5661	1028352.8795	0 - 4	93	59	A-7	RD/BR
A25	397+53	4' RT. OF EXST. CL. HWY. 65	1,102.94'	647847.6550	1028366.5200	0 - 4	93	59	A-7	RD/BR
A26	397+73	7' RT. OF EXST. CL. HWY. 65	1,103.57'	647828.1602	1028372.0276	0 - 4	93	59	A-7	RD/BR
A27	397+93	11' RT. OF EXST. CL. HWY. 65	1,104.19'	647808.7687	1028377.6046	0 - 4	93	59	A-7	RD/BR
P-34	405+25	14' LT. OF EXST. CL. HWY. 65	1,120.75'	647124.1815	1028632.0478	0 - 4	90	60	A-7	RD/BR
P-35	416+24	11' RT. OF EXST. CL. HWY. 65	1,100.09'	646026.9167	1028569.2418	0 - 8	101	66	A-7	RD/BR
P-36	424+83	6' LT. OF EXST. CL. HWY. 65	1,105.79'	645171.4558	1028587.1397	0 - 8	49	27	A-7	RD/BR
P-37	432+95	20' RT. OF EXST. CL. HWY. 65	1,107.45'	644414.6935	1028873.0768	0 - 3	26	11	A-2-6	RD/BR
P-38	445+27	16' LT. OF EXST. CL. HWY. 65	1,112.44'	643366.7246	1029521.3785	0 - 9	26	11	A-2-6	RD/BR
P-39	452+34	16' RT. OF EXST. CL. HWY. 65	1,123.18'	642742.4498	1029853.9309	0 - 9	49	22	A-7	RD/BR
P-40	458+16	20' RT. OF EXST. CL. HWY. 65	1,142.69'	642240.0682	1030147.2216	0 - 9	29	14	A-6	RD/BR

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
STEVEN R. BEAM, JR.
No. 12711
7-7-17

QUANTITIES

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		133	417

JOB NO. CA0906

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.		CA0906	134	417
				① 07341, 07342		QUANTITIES		56612

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. CA0906

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	SP & 802	803	804	804	805	805	806	806	SP & 807
				ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	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 (HP12X53)	PREBORING	METAL BRIDGE RAILING (TYPE H)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (M270, GRADE 50W)
				UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LB.
07341	X071	ELM BRANCH	BENT 1			125	91.00		0.5	9,550		238	200		2	1,840
			BENT 2				49.10			10,970						
			BENT 3				51.50			11,330						
			BENT 4			65	90.40		0.5	9,660		333			2	1,840
			160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT					386.40	56.0		98,660			308		197,380
			EXIST. BR. NO. A0872 (SITE NO. 1)		1											
			TOTALS FOR BRIDGE NO. 07341		1	190	282.00	386.40	57.0	41,510	98,660	571	200	308	4	201,060
07342	X071	HOG CREEK	BENT 1			45	76.50		0.4	8,330		544				1,490
			BENT 2				78.75			17,150						
			BENT 3				77.55			17,140						
			BENT 4			16	76.50		0.4	8,280		272				1,490
			200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT					437.30	73.0		117,280					346,760
			EXIST. BR. NO. 03736 (SITE NO. 2)		1											
			TOTALS FOR BRIDGE NO. 07342		1	61	309.30	437.30	73.8	50,900	117,280	816				349,740
			TOTALS FOR JOB NO. CA0906			251	591.30	823.70	130.8	92,410	215,940	1,387	200	308	4	550,800

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	808	809	812	816	816	SP JOB CA0906	SP JOB CA0906	SP JOB CA0906	SP JOB CA0906	SP JOB CA0906	SP JOB CA0906	SP JOB CA0906
				ITEM	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	DRILLED SHAFT (42" DIA.)	DRILLED SHAFT (48" DIA.)	PERMANENT STEEL CASING (54" DIA.)	CROSSHOLE SONIC LOGGING (42" DIA.)	CROSSHOLE SONIC LOGGING (48" DIA.)	CORING DRILLED SHAFT	EXPLORATORY HOLES
				UNIT	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	LIN. FT.
07341	X071	ELM BRANCH	BENT 1		3,780			569	285							60
			BENT 2		3,780					70			2		10	
			BENT 3		3,780					77			2		11	
			BENT 4		3,780			523	261							
			160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT			235	1									
			EXIST. BR. NO. A0872 (SITE NO. 1)													
			TOTALS FOR BRIDGE NO. 07341		15,120	235	1	1,092	546	147			4		21	60
07342	X071	HOG CREEK	BENT 1		3,780			597	299							
			BENT 2		4,320						60	24		2	15	
			BENT 3		4,320						80	44		2	20	
			BENT 4		3,780			399	199							
			200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT			181	1									
			EXIST. BR. NO. 03736 (SITE NO. 2)													
			TOTALS FOR BRIDGE NO. 07342		16,200	181	1	996	498		140	68		4	35	
			TOTALS FOR JOB NO. CA0906		31,320	416	2	2,088	1,044	147	140	68	4	4	56	60

① These piles are required to have special tips which will not be paid for directly but shall be considered subsidiary to item "Steel Piling (HP12x53)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
6.5.2017
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: RWC DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906_ql.dgn
SCALE: NONE

BRIDGE NO. 07341, 07342 DRAWING NO. 56612

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		231	STATION
201	GRUBBING		231	STATION
202	REMOVAL AND DISPOSAL OF CURB		839	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		27773	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		30	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		1392	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS		559	SQ. YD.
202	REMOVAL AND DISPOSAL OF DROP INLETS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		69	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS		7	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING		2464	SQ. YD.
SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL		632	LIN. FT.
210	UNCLASSIFIED EXCAVATION		291228	CU. YD.
210	PRESPLITTING		4811	SQ. YD.
210	COMPACTED EMBANKMENT		296628	CU. YD.
SP & 210	SOIL STABILIZATION		500	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		93354	TON
SS & 401	TACK COAT		23028	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		29143	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		1278	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		50580	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		2830	TON
412	COLD MILLING ASPHALT PAVEMENT		19683	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		120	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		120	TON
504	APPROACH GUTTERS		59.10	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY		1924.80	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SP & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	30" TEMPORARY CULVERT		30	LIN. FT.
603	36" TEMPORARY CULVERT		120	LIN. FT.
603	42" TEMPORARY CULVERT		55	LIN. FT.
603	48" TEMPORARY CULVERT		55	LIN. FT.
603	54" TEMPORARY CULVERT		35	LIN. FT.
SS & 604	SIGNS		1434	SQ. FT.
SS & 604	BARRICADES		384	LIN. FT.
SS & 604	TRAFFIC DRUMS		823	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		3498	LIN. FT.
SP	MOBILE SPEED NOTIFICATION SYSTEM		2	EACH
604	RELOCATING PRECAST CONCRETE BARRIER		12094	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		372505	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		357145	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		93770	LIN. FT.
SP & 604	PORTABLE CHANGEABLE MESSAGE SIGN		8	WEEK
SS & 604	VERTICAL PANELS		176	EACH
605	CONCRETE DITCH PAVING (TYPE B)		8263	SQ. YD.
SP	CULVERT CLEAN OUT		10	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		266	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	1149	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	1149	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		1084	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	152	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	152	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		495	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	419	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	419	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		91	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		321	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		340	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		31	LIN. FT.
606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		252	LIN. FT.
606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)		92	LIN. FT.
SP, SS, & 608	18" SIDE DRAIN		1125	LIN. FT.
SP, SS, & 608	24" SIDE DRAIN		408	LIN. FT.
SP, SS, & 608	30" SIDE DRAIN		165	LIN. FT.
SP, SS, & 608	36" SIDE DRAIN		153	LIN. FT.
SS & 608	21" X 15" SIDE DRAIN		399	LIN. FT.
SS & 608	28" X 20" SIDE DRAIN		348	LIN. FT.
SS & 608	35" X 24" SIDE DRAIN		95	LIN. FT.
SS & 608	42" X 29" SIDE DRAIN		114	LIN. FT.
SS & 608	57" X 38" SIDE DRAIN		141	LIN. FT.
608	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		12	EACH
608	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		25	EACH
608	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		9	EACH
608	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		8	EACH
608	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		6	EACH
608	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		4	EACH
608	SELECTED PIPE BEDDING		600	CU. YD.
609	DROP INLETS (TYPE C)		2	EACH
609	DROP INLETS (TYPE E)		1	EACH
609	DROP INLETS (TYPE MO)		25	EACH
609	DROP INLETS (TYPE SPECIAL)		2	EACH
609	DROP INLET EXTENSIONS (4')		8	EACH
609	DROP INLET EXTENSIONS (6')		4	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)		579	TON
617	GUARDRAIL (TYPE A)		450	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		1	EACH
617	GUARDRAIL TERMINAL (TYPE 2)		2	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		3	EACH
619	WIRE FENCE (TYPE C)		11022	LIN. FT.
619	WIRE FENCE (TYPE D)		210	LIN. FT.
619	WIRE FENCE (TYPE D-1)		2690	LIN. FT.
619	WIRE FENCE (TYPE D-2)		5941	LIN. FT.
* 619	4' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	389	LIN. FT.
* 619	4' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	389	LIN. FT.
* 619	12' STEEL GATES	(ALTERNATE NO. 1)	4	EACH
* 619	12' ALUMINUM GATES	(ALTERNATE NO. 2)	4	EACH
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	17	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	17	EACH

* DENOTES ALTERNATE BID ITEMS.

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SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
620	LIME	128	TON
620	SEEDING	64.00	ACRE
SS & 620	MULCH COVER	138.00	ACRE
620	WATER	8145.3	M.GAL.
621	TEMPORARY SEEDING	74.00	ACRE
621	SILT FENCE	36978	LIN. FT.
621	DIVERSION DITCH	6076	LIN. FT.
621	DROP INLET SILT FENCE	692	LIN. FT.
621	SEDIMENT BASIN	10262	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	10262	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	12661	CU. YD.
621	PIPE FOR SLOPE DRAINS	527	LIN. FT.
621	ROCK DITCH CHECKS	2992	CU. YD.
623	SECOND SEEDING APPLICATION	64.00	ACRE
624	SOLID SODDING	6441	SQ. YD.
633	CONCRETE WALKS	3264	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	7677	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	30	EACH
637	MAILBOX SUPPORTS (SINGLE)	24	EACH
637	MAILBOX SUPPORTS (DOUBLE)	3	EACH
641	WHEELCHAIR RAMPS (TYPE 3)	52	SQ. YD.
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	30344	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	57340	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	412	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	70730	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	3	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	1243	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	9	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	6	EACH
734	BRIDGE END TERMINAL	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	447	CU. YD.
802	CLASS S CONCRETE-ROADWAY	941.91	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	110669	POUND
816	FILTER BLANKET	26	SQ. YD.
816	DUMPED RIPRAP	13	CU. YD.
SP	SHORING (SITE NO. 4)	1.00	LUMP SUM
SP	SHORING (SITE NO. 5)	1.00	LUMP SUM
SP	SHORING (SITE NO. 6)	1.00	LUMP SUM
SP	SHORING (SITE NO. 7)	1.00	LUMP SUM
SP	SHORING (SITE NO. 8)	1.00	LUMP SUM
SP	SHORING (SITE NO. 9)	1.00	LUMP SUM
SP	SHORING (SITE NO. 10)	1.00	LUMP SUM
SP	MINERAL AGGREGATE BACKFILL	6837	TON
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	251	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	105	CU. YD.
802	CLASS S CONCRETE-ROADWAY	213.98	CU. YD.
802	CLASS S CONCRETE-BRIDGE	591.30	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE	823.70	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	130.8	GAL.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	29034	POUND
804	REINFORCING STEEL-BRIDGE (GRADE 60)	92410	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	215940	POUND
805	STEEL PILING (HP 12X53)	1387	LIN. FT.
SP	CORING DRILLED SHAFT	56	LIN. FT.
SP	DRILLED SHAFT (42" DIAMETER)	147	LIN. FT.
SP	DRILLED SHAFT (48" DIAMETER)	140	LIN. FT.
SP	PERMANENT STEEL CASING (54" DIAMETER)	68	LIN. FT.
805	PREBORING	200	LIN. FT.
SP	EXPLORATORY HOLES	60	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (42" DIAMETER)	4	EACH
SP	CROSSHOLE SONIC LOGGING (48" DIAMETER)	4	EACH
806	METAL BRIDGE RAILING (TYPE H)	308	LIN. FT.
806	TRANSITIONAL APPROACH RAILING	4	EACH
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	550800	POUND
808	ELASTOMERIC BEARINGS	31320	CU. IN.
809	SILICONE JOINT SEALANT	416	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
816	FILTER BLANKET	2088	SQ. YD.
816	DUMPED RIPRAP	1044	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
8/7/2017	REVISED "PROSECUTION AND PROGRESS WITH BID SCHEDULE" SP, REMOVED ALL "FHWA-1273" ITEMS, AND ADDED	3, 135
8/22/2017	REMOVED "BLASTING FOR ENHANCEMENT OF ROCK FEATURES AND FACES" SP AND "CARGO PREFERENCE ACT REQUIREMENTS" SP, CHANGED UNCLASSIFIED EXCAVATION QUANTITY, CHANGED UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY QUANTITY, ADDED CONSTRUCTION PROJECT INFORMATION SIGN, REVISED "PROSECUTION AND PROGRESS WITH BID SCHEDULE" SP	3, 13, 77, 125, 127, 129, 135, 183-185

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
8/7/17			
8/22/17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0906		135	417

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

SUMMARY OF QUANTITIES AND REVISIONS

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	136	417

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: CA0906
Date: 11/18/2013
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS *510008, 510008A, 050012, & 050012A*
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	641399.8294	0.0223	1030694.3231	0.0185	1160.62	0.004	CTL	PD:AHTD STD. MON STAMPED T-1	FOR INFORMATION ONLY
2	641958.1459	0.0221	1030365.9904	0.0187	1153.72	0.003	CTL	PD:AHTD STD. MON STAMPED T-2	FOR INFORMATION ONLY
3	642645.2306	0.0204	1029959.0374	0.0177	1126.40	0.004	CTL	PD:AHTD STD. MON STAMPED T-3	FOR INFORMATION ONLY
4	643301.6876	0.0195	1029573.3654	0.0172	1111.66	0.005	CTL	PD:AHTD STD. MON STAMPED T-4	FOR INFORMATION ONLY
5	644050.6579	0.0196	1029070.3540	0.0175	1105.01	0.006	CTL	PD:AHTD STD. MON STAMPED T-5	FOR INFORMATION ONLY
6	645543.4399	0.0191	1028523.7194	0.0170	1103.09	0.006	CTL	PD:AHTD STD. MON STAMPED T-6	FOR INFORMATION ONLY
7	647010.6484	0.0189	1028655.7214	0.0170	1119.20	0.007	CTL	PD:AHTD STD. MON STAMPED T-7	FOR INFORMATION ONLY
8	647639.6604	0.0155	1028507.2147	0.0164	1111.06	0.007	CTL	PD:AHTD STD. MON STAMPED T-8	FOR INFORMATION ONLY
9	648522.2274	0.0197	1028083.2940	0.0203	1088.62	0.008	CTL	PD:AHTD STD. MON STAMPED T-9	FOR INFORMATION ONLY
10	649216.7576	0.0196	1027761.1120	0.0203	1097.58	0.008	CTL	PD:AHTD STD. MON STAMPED T-10	FOR INFORMATION ONLY
11	649934.1691	0.0214	1027423.1107	0.0224	1096.46	0.008	CTL	PD:AHTD STD. MON STAMPED T-11	FOR INFORMATION ONLY
12	650620.5363	0.0219	1027045.6544	0.0218	1101.18	0.008	CTL	PD:AHTD STD. MON STAMPED T-12	FOR INFORMATION ONLY
13	651307.3397	0.0217	1026723.3553	0.0196	1128.18	0.009	CTL	PD:AHTD STD. MON STAMPED T-13	FOR INFORMATION ONLY
14	652054.2324	0.0208	1026569.0414	0.0195	1134.83	0.009	CTL	PD:AHTD STD. MON STAMPED T-14	
15	652858.1733	0.0235	1026450.8726	0.0224	1134.30	0.009	CTL	PD:AHTD STD. MON STAMPED T-15	
16	653490.6384	0.0203	1026408.1442	0.0212	1133.30	0.009	CTL	PD:AHTD STD. MON STAMPED T-16	
17	654054.6754	0.0199	1026200.2590	0.0207	1116.27	0.009	CTL	PD:AHTD STD. MON STAMPED T-17	
18	654716.2810	0.0172	1025792.6294	0.0176	1114.97	0.010	CTL	PD:AHTD STD. MON STAMPED T-18	
19	655379.1159	0.0201	1025384.7307	0.0204	1151.13	0.010	CTL	PD:AHTD STD. MON STAMPED T-19	
20	655854.8210	0.0218	1025071.5987	0.0196	1155.11	0.010	CTL	PD:AHTD STD. MON STAMPED T-20	
21	656501.3465	0.0221	1024832.1806	0.0198	1119.72	0.010	CTL	PD:AHTD STD. MON STAMPED T-21	
22	657205.9453	0.0183	1024648.6035	0.0187	1102.78	0.010	CTL	PD:AHTD STD. MON STAMPED T-22	
23	657889.1739	0.0172	1024298.0917	0.0173	1100.98	0.011	CTL	PD:AHTD STD. MON STAMPED T-23	
24	658464.8145	0.0199	1023908.2015	0.0195	1107.06	0.010	CTL	PD:AHTD STD. MON STAMPED T-24	
25	658976.6801	0.0156	1023562.8884	0.0151	1114.62	0.010	CTL	PD:AHTD STD. MON STAMPED T-25	
26	659441.3702	0.0175	1023247.4716	0.0169	1093.87	0.011	CTL	PD:AHTD STD. MON STAMPED T-26	
27	660014.5276	0.0189	1022861.0826	0.0180	1059.10	0.011	CTL	PD:AHTD STD. MON STAMPED T-27	
28	660575.6854	0.0193	1022477.5807	0.0181	1034.74	0.011	CTL	PD:AHTD STD. MON STAMPED T-28	
29	661140.6252	0.0180	1022098.3264	0.0168	1051.41	0.011	CTL	PD:AHTD STD. MON STAMPED T-29	
30	661519.4195	0.0193	1021848.5693	0.0178	1074.49	0.011	CTL	PD:AHTD STD. MON STAMPED T-30	
31	662596.6310	0.0206	1021106.2591	0.0170	1088.33	0.011	CTL	PD:AHTD STD. MON STAMPED T-31	
32	663614.2647	0.0189	1020307.9931	0.0185	1062.00	0.011	CTL	PD:AHTD STD. MON STAMPED T-32	
33	664318.8049	0.0218	1019948.1818	0.0177	1066.24	0.011	CTL	PD:AHTD STD. MON STAMPED T-33	
34	664723.9382	0.0222	1019607.2202	0.0220	1060.74	0.011	CTL	PD:AHTD STD. MON STAMPED T-34	
35	665196.7391	0.0236	1019167.8585	0.0191	1052.19	0.010	CTL	PD:AHTD STD. MON STAMPED T-35	
36	665624.7754	0.0208	1018570.2119	0.0195	1087.82	0.011	CTL	PD:AHTD STD. MON STAMPED T-36	
37	666200.1856	0.0232	1017980.3106	0.0188	1102.40	0.011	CTL	PD:AHTD STD. MON STAMPED T-37	
38	666687.9259	0.0225	1017401.4529	0.0195	1122.39	0.010	CTL	PD:AHTD STD. MON STAMPED T-38	
39	667182.9968	0.0200	1016809.4415	0.0189	1150.29	0.010	CTL	PD:AHTD STD. MON STAMPED T-39	
40	667690.6603	0.0223	1016178.0778	0.0203	1208.72	0.010	CTL	PD:AHTD STD. MON STAMPED T-40	
41	667913.5918	0.0209	1015692.3199	0.0198	1228.76	0.010	CTL	PD:AHTD STD. MON STAMPED T-41	
42	668169.4701	0.0195	1014929.7067	0.0197	1236.62	0.009	CTL	PD:AHTD STD. MON STAMPED T-42	
43	668439.6457	0.0211	1014289.3155	0.0210	1236.37	0.009	CTL	PD:AHTD STD. MON STAMPED T-43	
44	669059.7110	0.0215	1013749.7924	0.0231	1247.12	0.009	CTL	PD:AHTD STD. MON STAMPED T-44	
45	669421.4236	0.0202	1013324.8902	0.0197	1270.25	0.009	CTL	PD:AHTD STD. MON STAMPED T-45	
46	669819.0839	0.0191	1013051.5270	0.0185	1266.98	0.009	CTL	PD:AHTD STD. MON STAMPED T-46	
47	670385.8757	0.0212	1012695.8078	0.0207	1239.75	0.008	CTL	PD:AHTD STD. MON STAMPED T-47	
48	671011.4625	0.0192	1012302.1564	0.0186	1232.17	0.008	CTL	PD:AHTD STD. MON STAMPED T-48	
49	671434.3716	0.0209	1012033.0706	0.0201	1220.44	0.008	CTL	PD:AHTD STD. MON STAMPED T-49	
50	672103.0729	0.0212	1011610.3003	0.0202	1194.18	0.007	CTL	PD:AHTD STD. MON STAMPED T-50	
51	672755.6728	0.0195	1011260.9489	0.0207	1194.02	0.006	CTL	PD:AHTD STD. MON STAMPED T-51	
52	673266.9666	0.0199	1010935.8048	0.0214	1187.78	0.006	CTL	PD:AHTD STD. MON STAMPED T-52	
53	673926.1266	0.0189	1010531.3571	0.0202	1170.15	0.005	CTL	PD:AHTD STD. MON STAMPED T-53	
54	674612.4916	0.0187	1010097.9262	0.0200	1182.42	0.005	CTL	PD:AHTD STD. MON STAMPED T-54	
55	675222.3219	0.0190	1009713.0487	0.0207	1184.47	0.005	CTL	PD:AHTD STD. MON STAMPED T-55	
56	675839.0170	0.0187	1009324.5055	0.0202	1181.42	0.004	CTL	PD:AHTD STD. MON STAMPED T-56	
57	676500.6154	0.0185	1008906.2891	0.0194	1157.18	0.003	CTL	PD:AHTD STD. MON STAMPED T-57	
58	677120.7107	0.0186	1008515.1591	0.0196	1153.89	0.004	CTL	PD:AHTD STD. MON STAMPED T-58	
59	677712.8237	0.0207	1008058.5967	0.0184	1154.83	0.005	CTL	PD:AHTD STD. MON STAMPED T-59	
60	678079.0774	0.0199	1007896.5235	0.0208	1157.83	0.005	CTL	PD:AHTD STD. MON STAMPED T-60	
100	644758.7199	0.0001	1028579.5204	0.0001	1117.00	0.006	GPS	PD:AHTD GPS #510008	
101	646405.6113	0.0001	1028550.9010	0.0001	1102.25	0.007	GPS	PD:AHTD GPS #510008A	
102	661965.7265	0.0001	1021442.7651	0.0001	1094.53	0.011	GPS	PD:AHTD GPS #050012	
103	663083.7506	0.0001	1020781.3079	0.0001	1079.26	0.010	GPS	PD:AHTD GPS #050012A	
104	675354.2267	0.0001	1008374.1461	0.0001	1170.84	0.000	GPS	PD:AHTD GPS #AHTD HAR 1	
105	676222.9443	0.0001	1008665.1831	0.0001	1152.33	0.000	GPS	PD:AHTD GPS #AHTD HAR 2	
900	642143.3850	0.3000	1030303.4921	0.3000	1146.02	0.002	TBM	PD:CUT SQ CNT S HEADWALL ON HWY 65B	FOR INFORMATION ONLY
901	644154.5563	0.3000	1029059.1011	0.3000	1107.49	0.006	TBM	PD:CUT SQ SE COR OVER	FOR INFORMATION ONLY
902	646067.3733	0.3000	1028537.9459	0.3000	1092.53	0.007	TBM	PD:CUT SQ N COR W HEADWALL	FOR INFORMATION ONLY
903	650179.8504	0.3000	1027241.1226	0.3000	1090.10	0.008	TBM	PD:CUT SQ N END E DOUBLE BOX	FOR INFORMATION ONLY
904	652418.3424	0.3000	1026500.1339	0.3000	1129.07	0.009	TBM	PD:CUT SQ N END W HEADWALL	
905	656540.9871	0.3000	1024805.7215	0.3000	1114.86	0.010	TBM	PD:CUT SQ CNT W HEADWALL	
906	658168.2928	0.3000	1024136.8853	0.3000	1094.08	0.010	TBM	PD:CUT SQ E CNT FLARED END CU	
907	660729.1474	0.3000	1022325.0588	0.3000	1036.72	0.010	TBM	PD:CUT SQ NW END BRIDGE	
908	662750.4616	0.3000	1020997.0478	0.3000	1083.16	0.011	TBM	PD:CUT SQ CNT E HEADWALL	
909	664930.8546	0.3000	1019394.8931	0.3000	1053.48	0.010	TBM	PD:CUT SQ SE END BRIDGE OVER	
910	666021.2023	0.3000	1018205.9243	0.3000	1095.39	0.011	TBM	PD:CUT SQ CNT E HEADWALL	
911	667333.6378	0.3000	1016654.0799	0.3000	1160.69	0.010	TBM	PD:CUT SQ CNT E HEADWLL	
912	668142.6710	0.3000	1015028.9398	0.3000	1234.66	0.009	TBM	PD:CUT SQ CNT E HEADWALL	
913	670359.1399	0.3000	1012787.6502	0.3000	1241.15	0.008	TBM	PD:CUT SQ CNT E HEADWALL	
914	672434.4058	0.3000	1011465.1265	0.3000	1194.42	0.006	TBM	PD:CUT SQ CNT E HEADWALL	
915	674237.7590	0.3000	1010328.2840	0.3000	1175.37	0.005	TBM	PD:CUT SQ SW COR CATCH BASIN	
916	674801.3480	30.0000	1010152.6926	30.0000	1182.18	0.004	TBM	PD:CUT SQ NW COR CATCH BASIN	
917	677247.1764	30.0000	1008374.5173	30.0000	1153.89	0.005	TBM	PD:CUT SQ NW COR CATCH BASIN	
990	653518.2695	30.0000	1026320.8040	30.0000	1138.11	0.009	BM	PD:NGS L 130 RESET PID DE6226	
999	642178.7706	0.0219	1030514.2128	0.0182	1151.09	0.000	BM	PD:NGS J 130 PID GF0149	

*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: 100-105*
Horizontal - Primary (2.0cm± 20PPM): *PN:1-60*
Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
Vertical - NGS 1st Order (±4mm x Vdist in km) *PN:990*
Vertical - NGS 2nd Order (±6mm x Vdist in km) *PN:999*
Vertical - NGS 3rd Order (±8mm x Vdist in km) *PN:900-917*

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: 0.999929526 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: 0.9999456123 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 1137.09 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-60, 100-105 From NGS BM J 130 & L 130

Basis of Bearing: Grid Bearings based on AHTD GPS points: *(List AHTD GPS points used)*
Convergence Angle is: 00 34 21.51 LEFT at PN: 30
LT: 36-08-47.85 N LG: 092-59-02.73 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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

SURVEY CONTROL DETAILS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	137	417

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

Alignment Name: (rCA0906 - Hwy. 65)

POINT NUMBER	POINT TYPE	STATION	NORTHING	EASTING
8000	P.O.B.	57+18.52	675239.6863	1009660.2463
8071	BEGIN OF CONSTRUCTION (CA0906)	59+50.00	675044.0248	1009783.9431
8110	BEGIN OF PROJECT (CA0906)	73+08.00	673896.1719	1010509.6136
8001	P.I. STA.	105+57.69	671149.3665	1012246.1386
8002	P.C. STA.	121+64.23	669788.1771	1013099.4598
	P.I. STA.	124+86.72	669514.9443	1013270.7477
8003	C.C.		671309.8163	1015526.7278
8004	P.T. STA.	128+06.50	669286.6300	1013498.4938
8005	P.C. STA.	138+34.21	668559.0227	1014224.2904
	P.I. STA.	141+98.71	668300.9602	1014481.7106
8006	C.C.		669638.0554	1015306.0151
8007	P.T. STA.	145+49.84	668186.8999	1014827.9065
8008	P.C. STA.	154+75.13	667897.3542	1015706.7357
	P.I. STA.	158+41.02	667782.8612	1016054.2448
8009	C.C.		666083.4098	1015109.0999
8010	P.T. STA.	161+98.14	667548.0395	1016334.8334
8011	P.I. STA.	172+02.71	666903.3128	1017105.2178
8012	P.I. STA.	192+49.76	665581.1824	1018668.0202
8013	P.C. STA.	202+91.93	664912.0846	1019467.0452
	P.I. STA.	205+70.15	664733.4657	1019680.3487
8014	C.C.		663740.6710	1018486.1119
8015	P.T. STA.	208+42.33	664491.1235	1019816.9992
8016	P.C. STA.	211+41.17	664230.8171	1019963.7792
	P.I. STA.	219+24.03	663548.8924	1020348.2987
8017	C.C.		669859.2114	1029945.4339
8018	P.T. STA.	227+04.47	662925.5987	1020821.9878
8019	P.C. STA.	230+49.06	662651.2443	1021030.4910
	P.I. STA.	233+12.95	662441.1411	1021190.1646
8020	C.C.		655717.6316	1011907.0449
8021	P.T. STA.	235+76.75	662223.9103	1021339.9973
8022	P.I. STA.	247+35.59	661269.9781	1021997.9619
8023	P.I. STA.	260+05.93	660217.2662	1022709.0004
8024	P.I. STA.	273+04.96	659134.1160	1023426.1171
8025	P.C. STA.	289+95.56	657733.1455	1024372.3815
	P.I. STA.	292+18.70	657548.2398	1024497.2734
8026	C.C.		656664.1582	1022789.7165
8027	P.T. STA.	294+39.81	657339.5241	1024576.1776
8028	P.I. STA.	302+45.99	656585.4399	1024861.2568
8111	END OF PROJECT (CA0906)	304+00.00	656440.7519	1024914.0361
8029	P.C. STA.	309+65.37	655909.6192	1025107.7826
	P.I. STA.	312+59.47	655633.3262	1025208.5687
8030	C.C.		656891.3585	1027799.1027
8031	P.T. STA.	315+51.52	655383.2741	1025363.3898
8108	END OF CONSTRUCTION (CA0906)	326+50.00	654449.3166	1025941.6544
8032	FOR INFORMATION ONLY - P.C. STA.	331+72.61	654004.9768	1026216.7698
	FOR INFORMATION ONLY - P.I. STA.	333+98.61	653812.8332	1026335.7365
8033	FOR INFORMATION ONLY - C.C.		653430.4684	1025288.8792
8034	FOR INFORMATION ONLY - P.T. STA.	336+18.30	653589.2462	1026368.6155
8035	FOR INFORMATION ONLY - P.C. STA.	355+33.26	651694.6580	1026647.2191
	FOR INFORMATION ONLY - P.I. STA.	357+74.78	651455.7113	1026682.3568
8036	FOR INFORMATION ONLY - C.C.		651932.8246	1028266.8236
8037	FOR INFORMATION ONLY - P.T. STA.	360+12.84	651237.0921	1026785.0010
8038	FOR INFORMATION ONLY - P.I. STA.	384+26.81	649051.9782	1027810.9367
8039	FOR INFORMATION ONLY - P.C. STA.	399+64.40	647657.8579	1028459.4821
	FOR INFORMATION ONLY - P.I. STA.	404+63.12	647205.6692	1028669.8404
8040	FOR INFORMATION ONLY - C.C.		646852.2917	1026727.8280
8041	FOR INFORMATION ONLY - P.T. STA.	409+40.06	646708.3638	1028632.2564
8042	FOR INFORMATION ONLY - P.C. STA.	419+81.54	645669.8423	1028553.7698
	FOR INFORMATION ONLY - P.I. STA.	425+82.77	645070.3216	1028508.4608
8043	FOR INFORMATION ONLY - C.C.		645525.9145	1030458.1981
8044	FOR INFORMATION ONLY - P.T. STA.	431+46.49	644552.9586	1028814.7507
8045	FOR INFORMATION ONLY - P.C. STA.	436+64.10	644107.5483	1029078.4431
	FOR INFORMATION ONLY - P.I. STA.	438+01.59	643989.2371	1029148.4859
8046	FOR INFORMATION ONLY - C.C.		638269.8127	1019217.7587
8047	FOR INFORMATION ONLY - P.T. STA.	439+39.07	643869.2795	1029215.6698
8048	FOR INFORMATION ONLY - P.C. STA.	441+64.23	643672.8280	1029325.6951
	FOR INFORMATION ONLY - P.I. STA.	443+01.72	643552.8704	1029392.8790
8049	FOR INFORMATION ONLY - C.C.		649272.2948	1039323.6062
8050	FOR INFORMATION ONLY - P.T. STA.	444+39.20	643434.5592	1029462.9218
8051	FOR INFORMATION ONLY - P.I. STA.	459+72.41	642115.2235	1030243.9966
8072	END OF PROJECT (CA0909)	464+85.00	641833.1412	1030410.5715
8052	FOR INFORMATION ONLY - P.O.E.	465+85.00	641587.7351	1030555.4883

Alignment Name: (rCA0906 - Aspen Rd.)

POINT NUMBER	POINT TYPE	STATION	NORTHING	EASTING
8053	P.O.B.	8+57.25	668129.6723	1014019.0721
8054	P.C. STA.	8+70.71	668143.0923	1014020.1059
	P.I. STA.	9+59.87	668231.9918	1014026.9540
8055	C.C.		668303.1128	1011942.7772
8056	P.T. STA.	10+48.93	668321.1513	1014026.1820
8057	P.C. STA.	12+58.13	668530.3499	1014024.3708
	P.I. STA.	13+20.76	668592.9750	1014023.8285
8058	C.C.		668532.3341	1014253.5453
8059	P.T. STA.	13+80.40	668647.1729	1014055.2098
8060	P.O.E.	14+39.88	668698.6467	1014085.0138

Alignment Name: (rCA0906 - Elm Street)

POINT NUMBER	POINT TYPE	STATION	NORTHING	EASTING
8061	P.O.B.	10+00.00	664939.9670	1018783.2428
8062	P.C. STA.	12+25.43	664971.7762	1019006.4210
	P.I. STA.	13+44.80	664988.6187	1019124.5907
8063	C.C.		665465.0157	1018936.1205
8064	P.T. STA.	14+59.75	665057.1810	1019222.2992
8065	P.C. STA.	15+84.98	665129.1161	1019324.8143
	P.I. STA.	16+26.98	665153.2405	1019359.1942
8066	C.C.		665035.3141	1019390.6354
8067	P.T. STA.	16+65.50	665149.4341	1019401.0209
8068	P.O.E.	18+00.02	665137.2422	1019534.9921

Alignment Name: (rCA0906 - Murray Rd.)

POINT NUMBER	POINT TYPE	STATION	NORTHING	EASTING
8069	P.O.B.	9+63.78	658324.6414	1023656.4445
8070	P.C. STA.	11+33.72	658324.9860	1023826.3795
	P.I. STA.	11+79.40	658325.0787	1023872.0618
8073	C.C.		658474.7786	1023826.0757
8074	P.T. STA.	12+22.40	658350.6480	1023909.9179
8075	P.O.E.	12+60.00	658371.6970	1023941.0815

Alignment Name: (rCA0906 - Hwy. 206)

POINT NUMBER	POINT TYPE	STATION	NORTHING	EASTING
8076	P.O.B.	10+00.00	656893.1699	1024744.9205
8077	P.C. STA.	10+67.36	656899.8701	1024811.9417
	P.I. STA.	10+85.06	656901.6314	1024829.5606
8078	C.C.		656569.3681	1024844.9823
8079	P.T. STA.	11+02.74	656901.5096	1024847.2669
8080	P.O.E.	13+63.24	656899.7178	1025107.7605

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SURVEY CONTROL DETAILS

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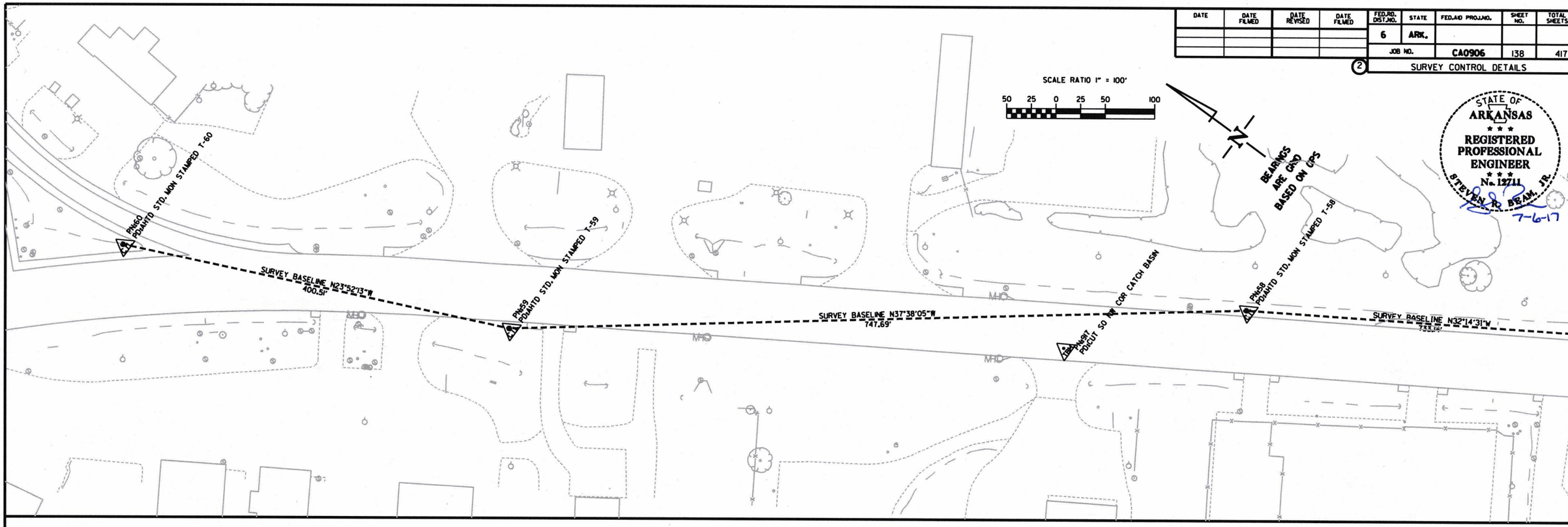
2 SURVEY CONTROL DETAILS



STATE OF ARKANSAS
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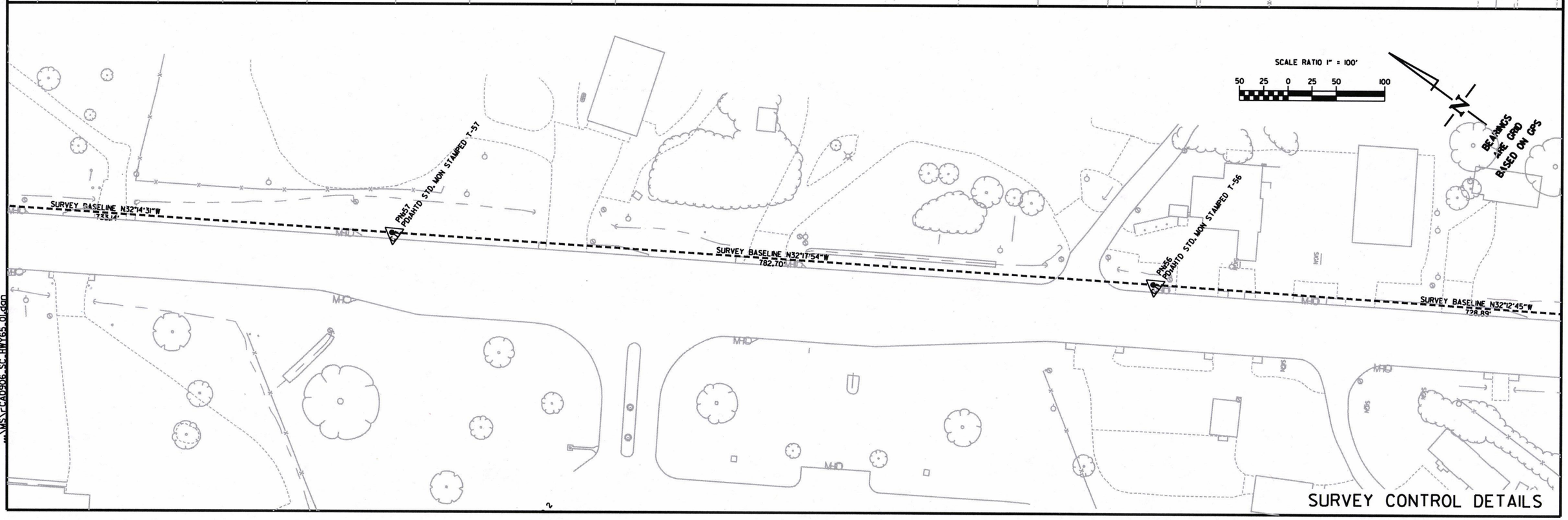

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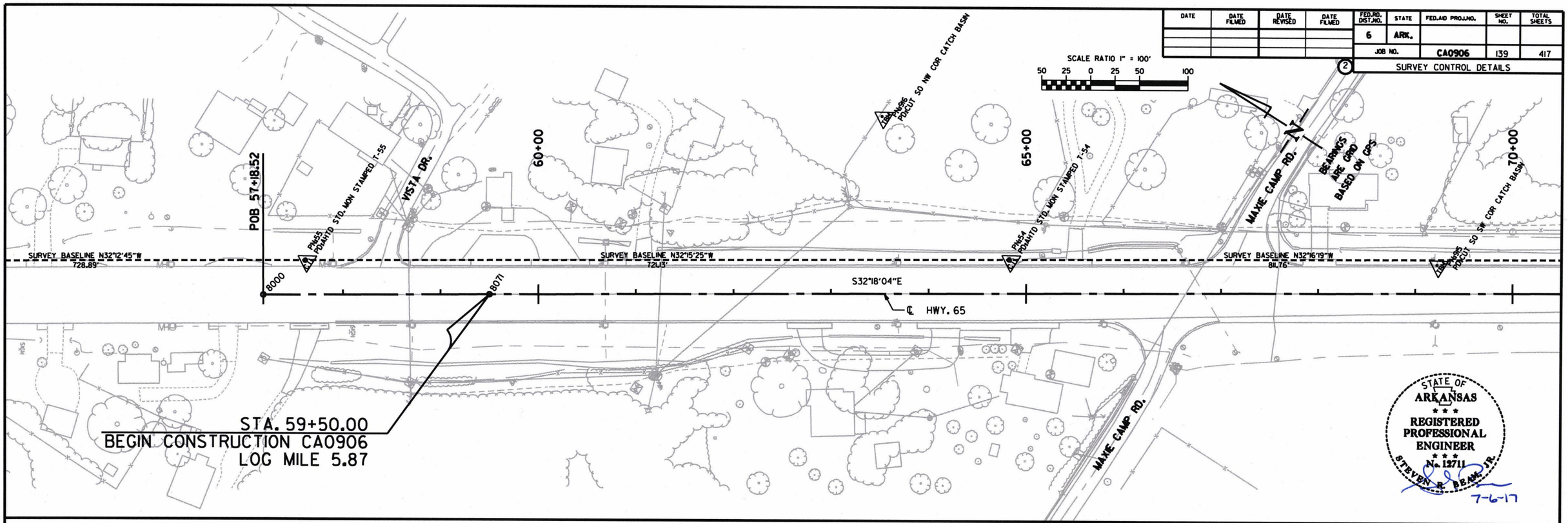

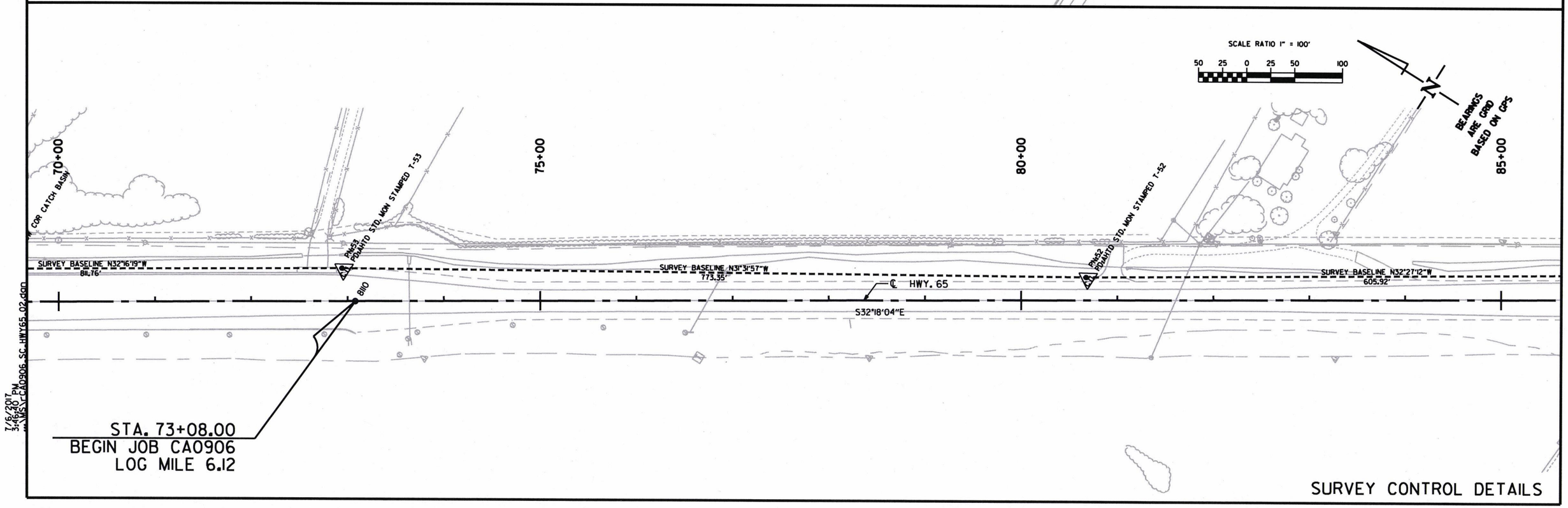

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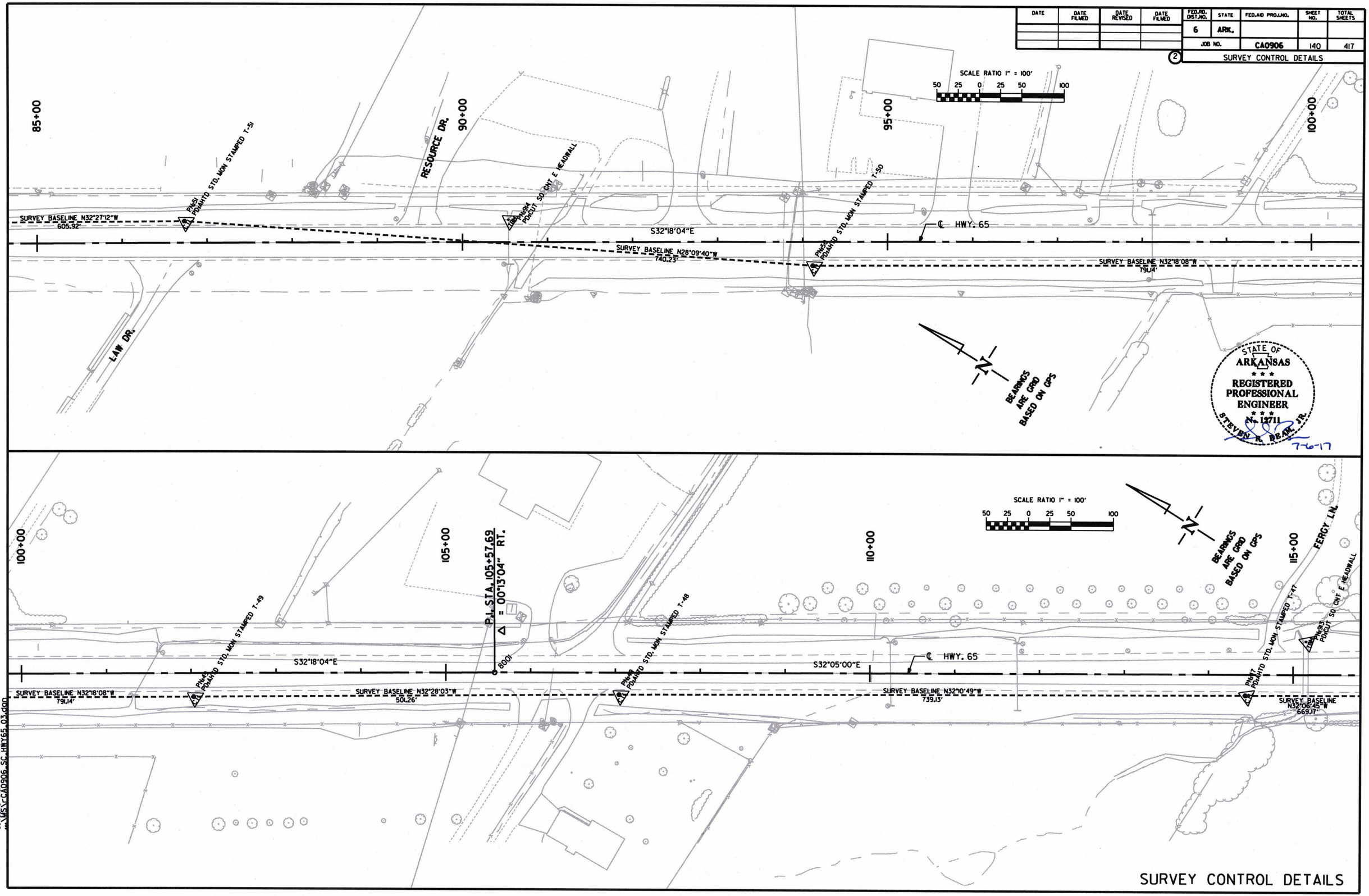
				JOB NO.		CA0906	140	417

2 SURVEY CONTROL DETAILS



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				JOB NO.		CA0906	141	417

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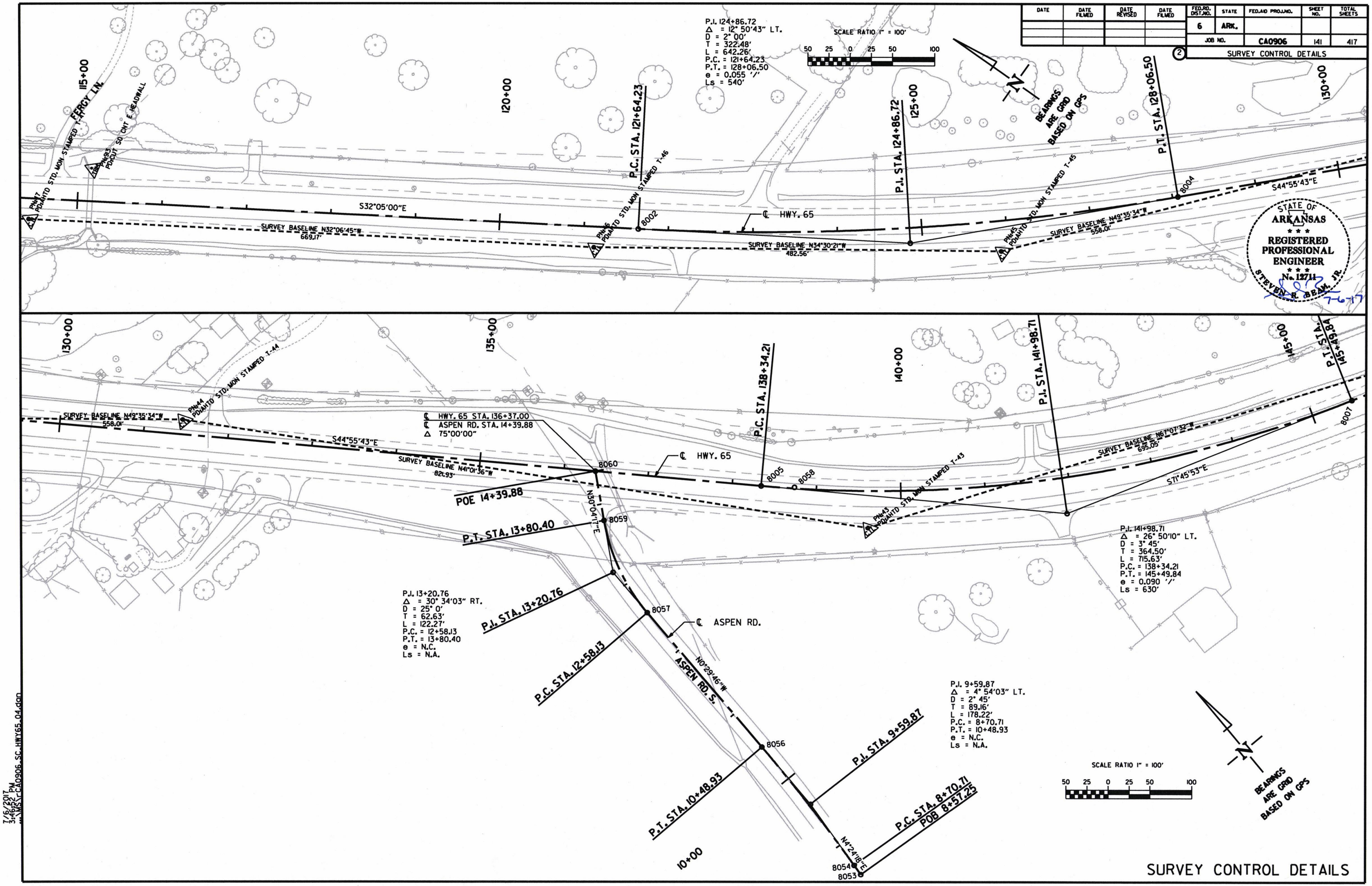

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				JOB NO.		CA0906	142	417

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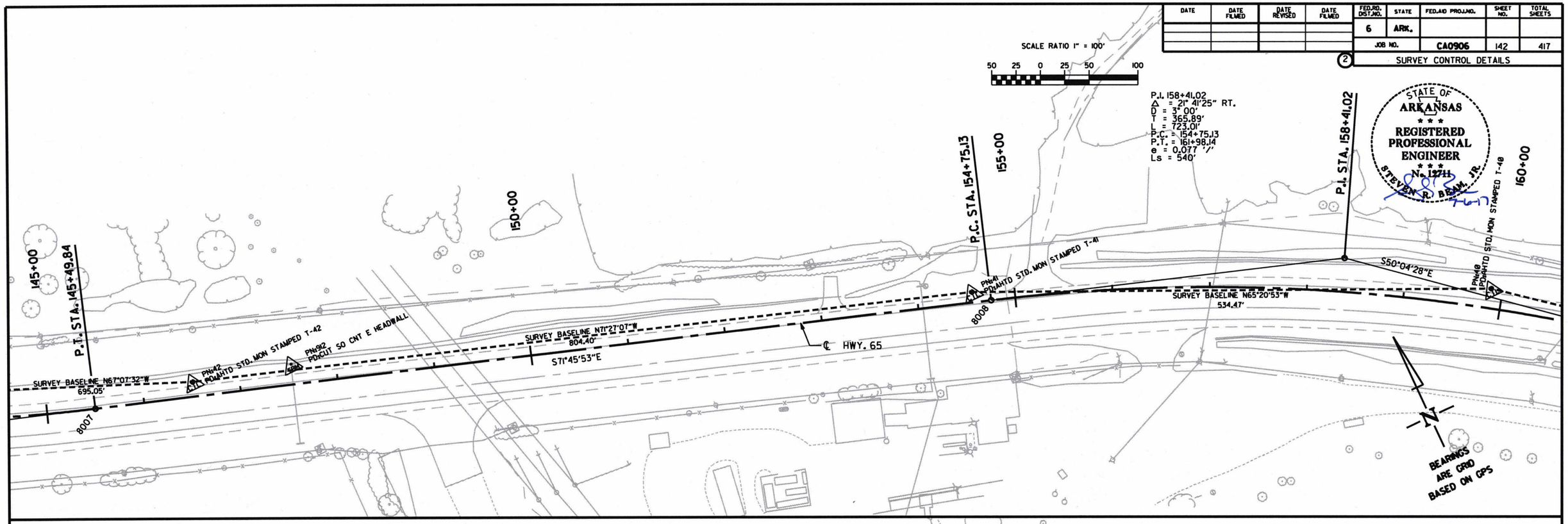

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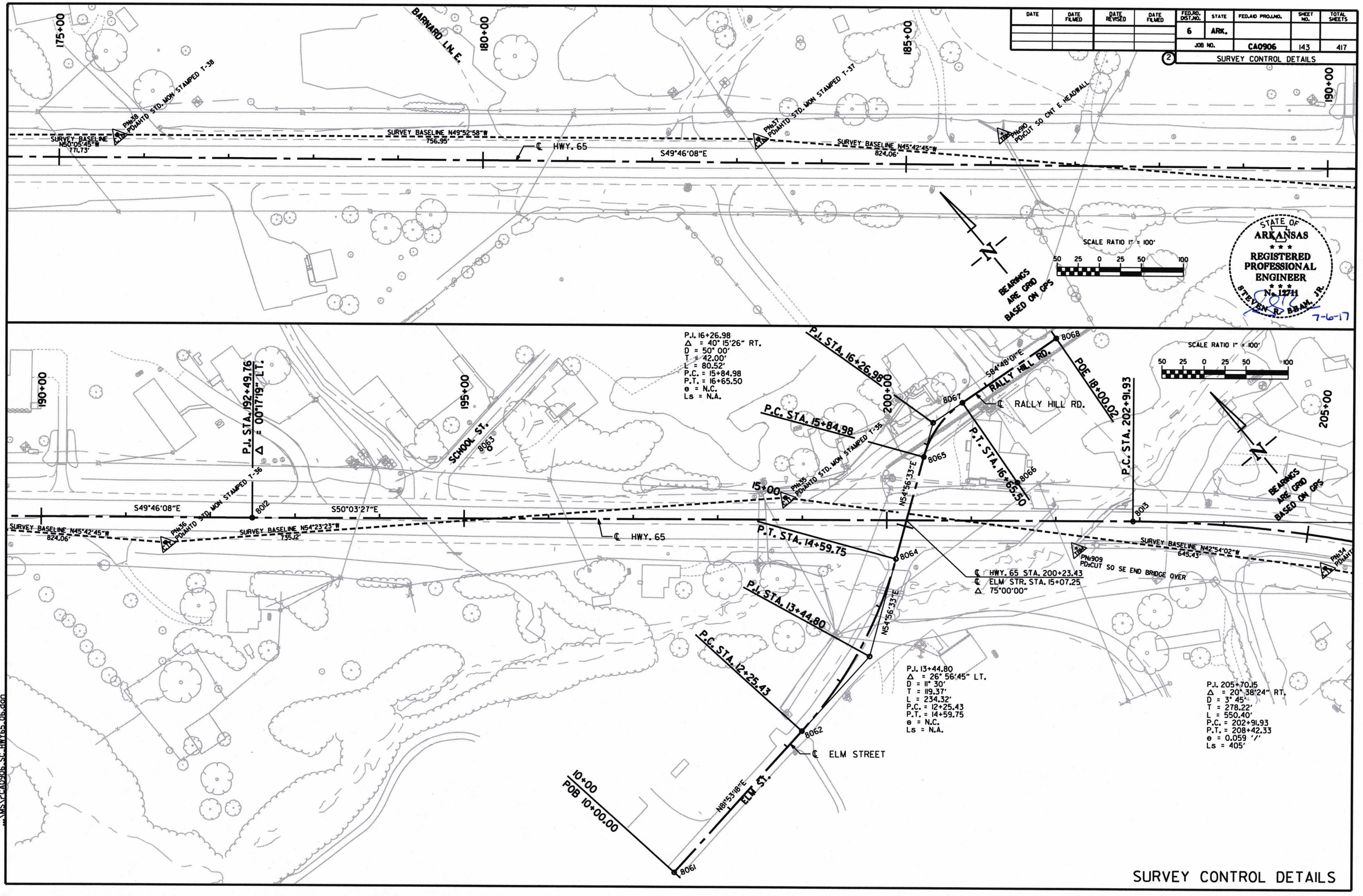
				JOB NO.		CA0906	143	417

2 SURVEY CONTROL DETAILS



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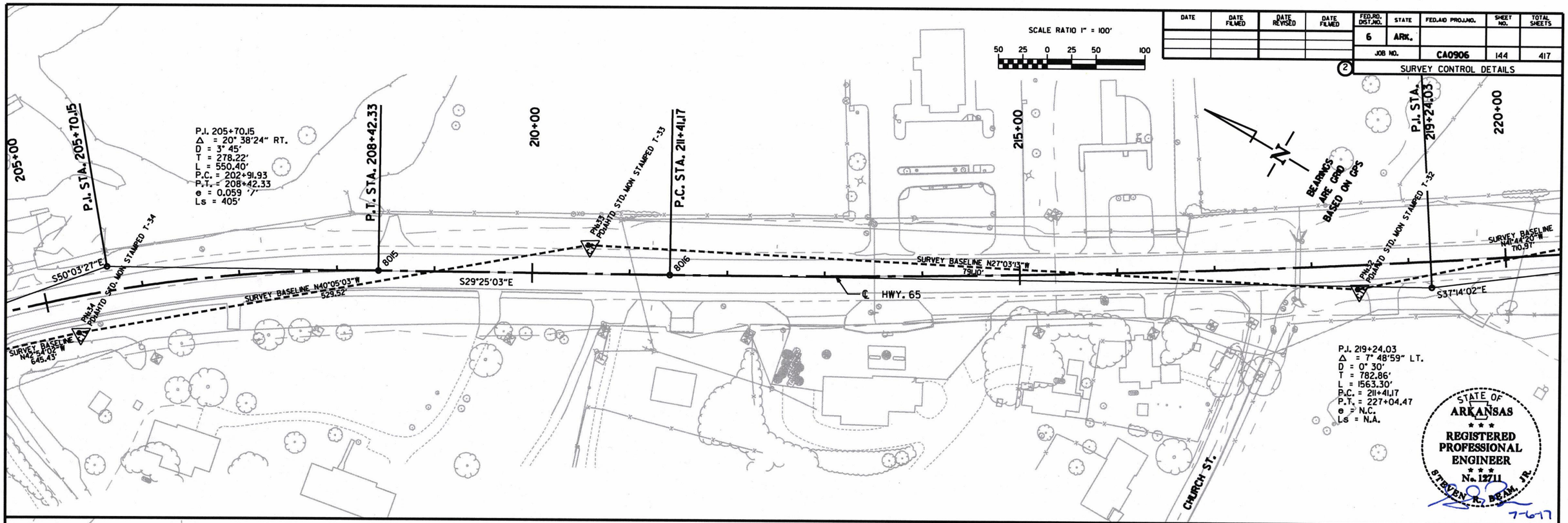
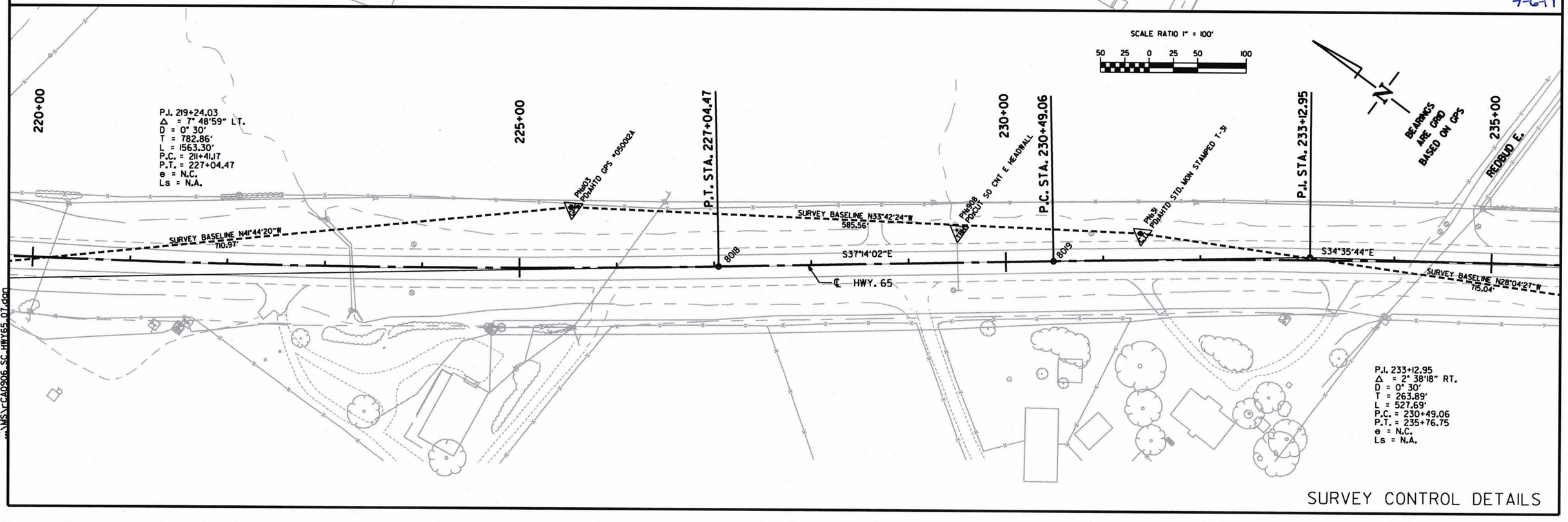
				JOB NO.		CA0906	144	417

2 SURVEY CONTROL DETAILS





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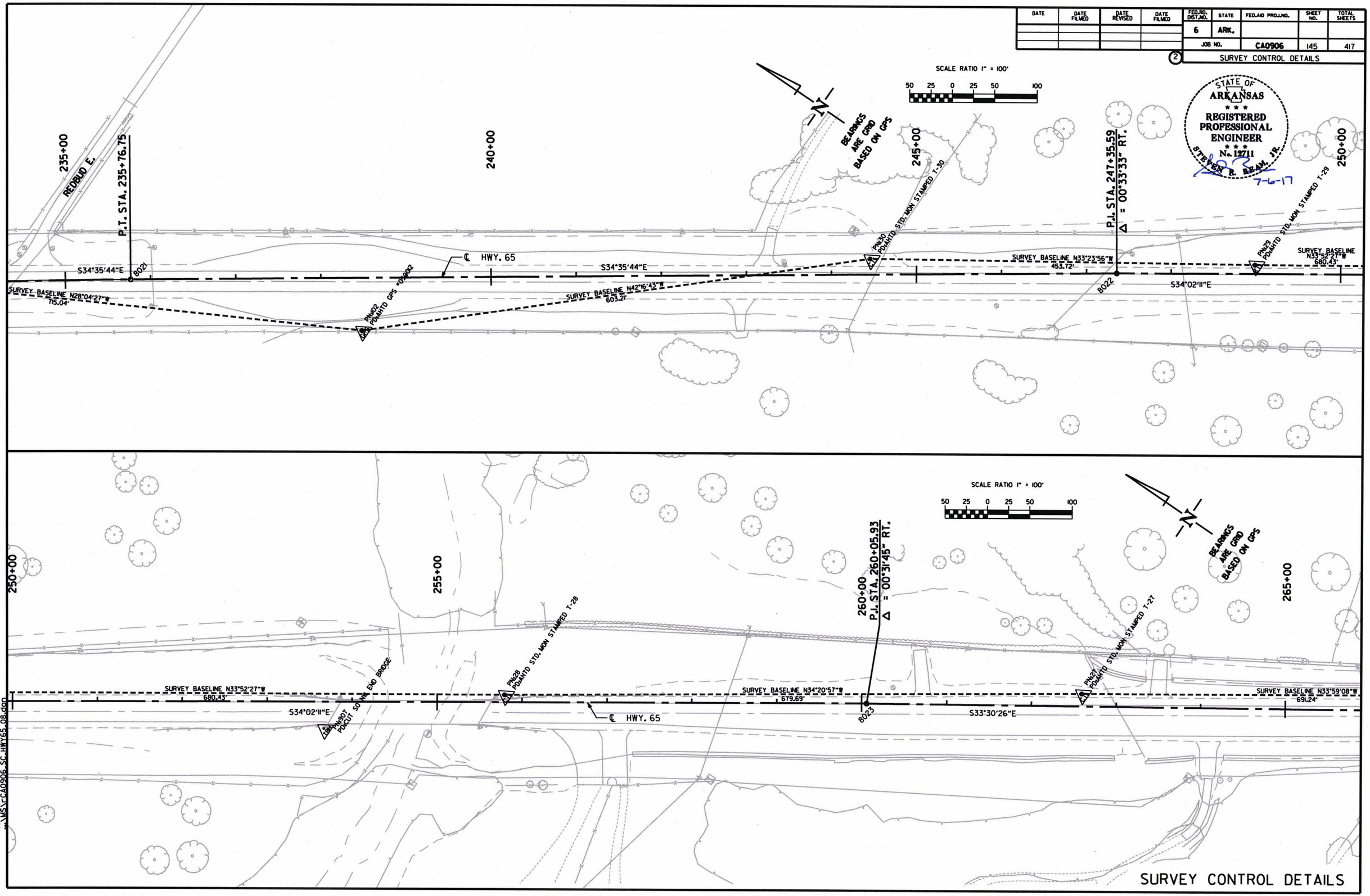
2 SURVEY CONTROL DETAILS



STATE OF ARKANSAS
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STEVEN R. BEAM, JR.
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SURVEY CONTROL DETAILS

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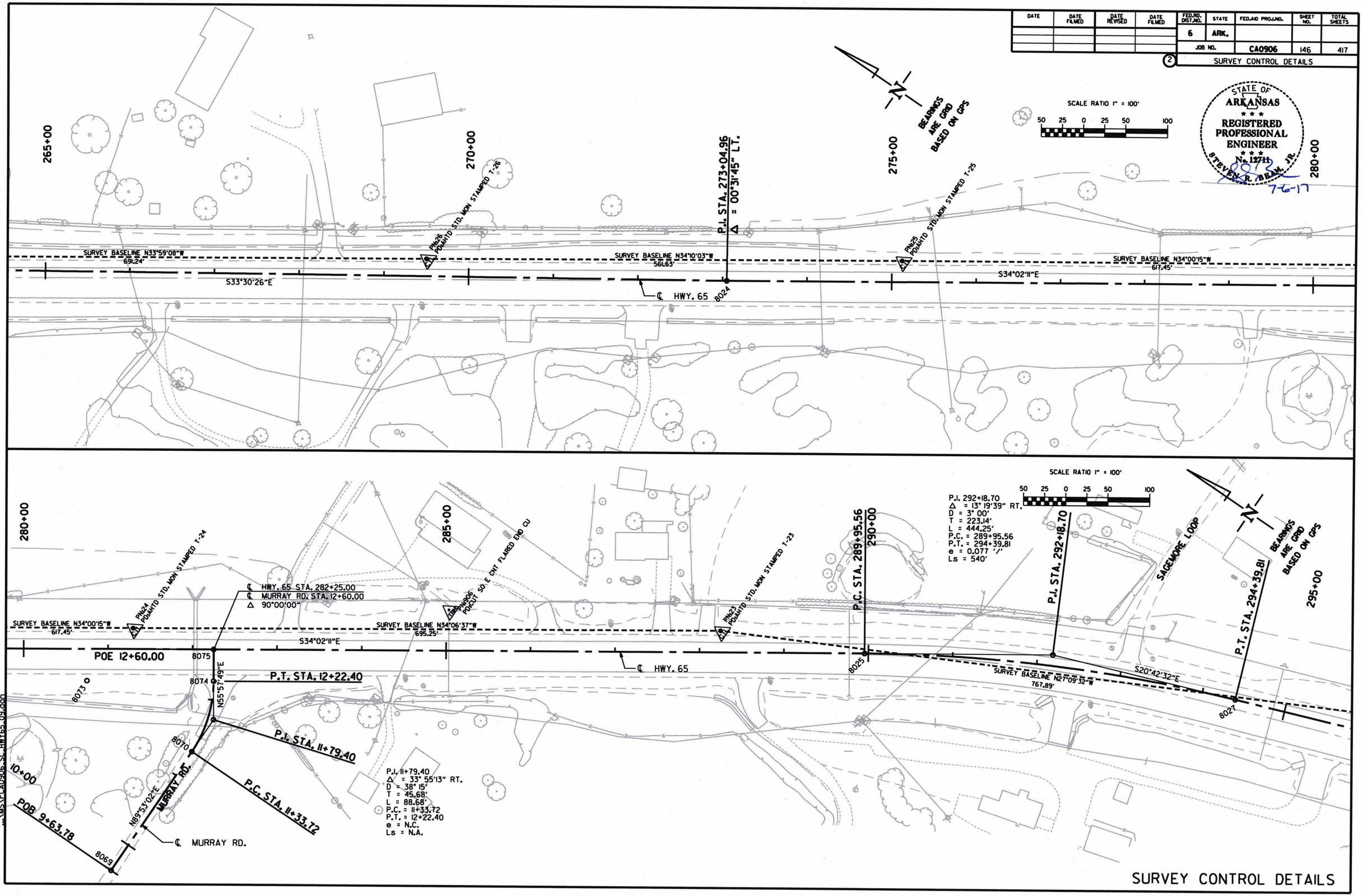
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	146	417

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS
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SURVEY CONTROL DETAILS

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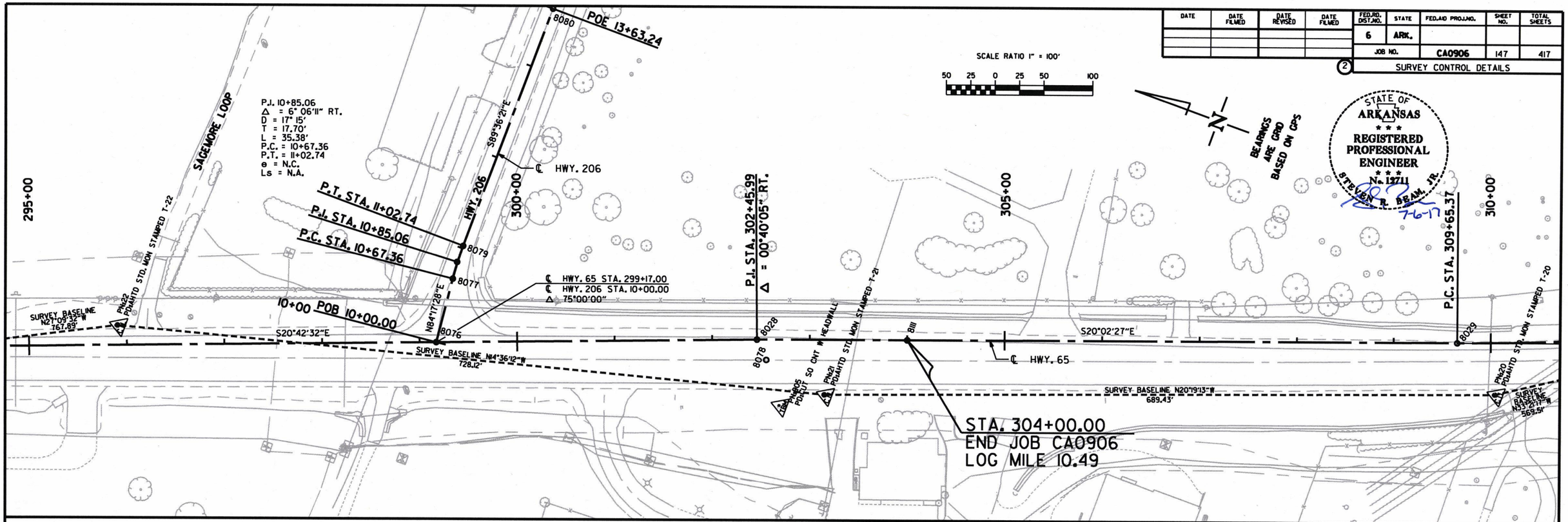
(2) SURVEY CONTROL DETAILS



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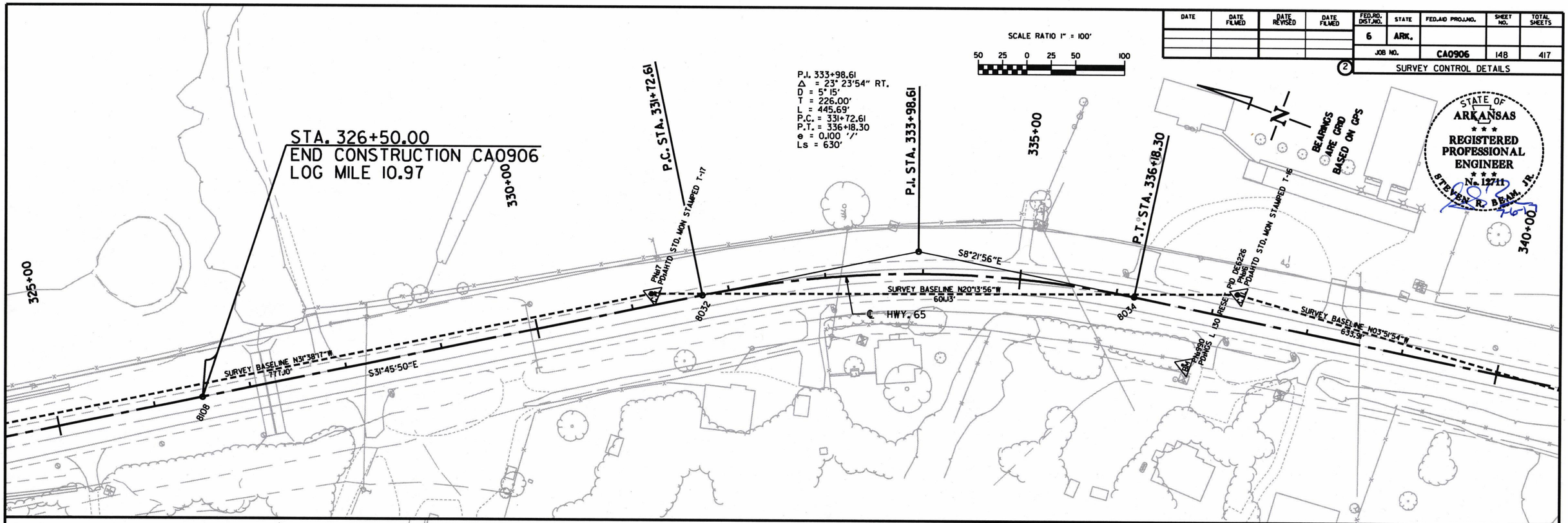
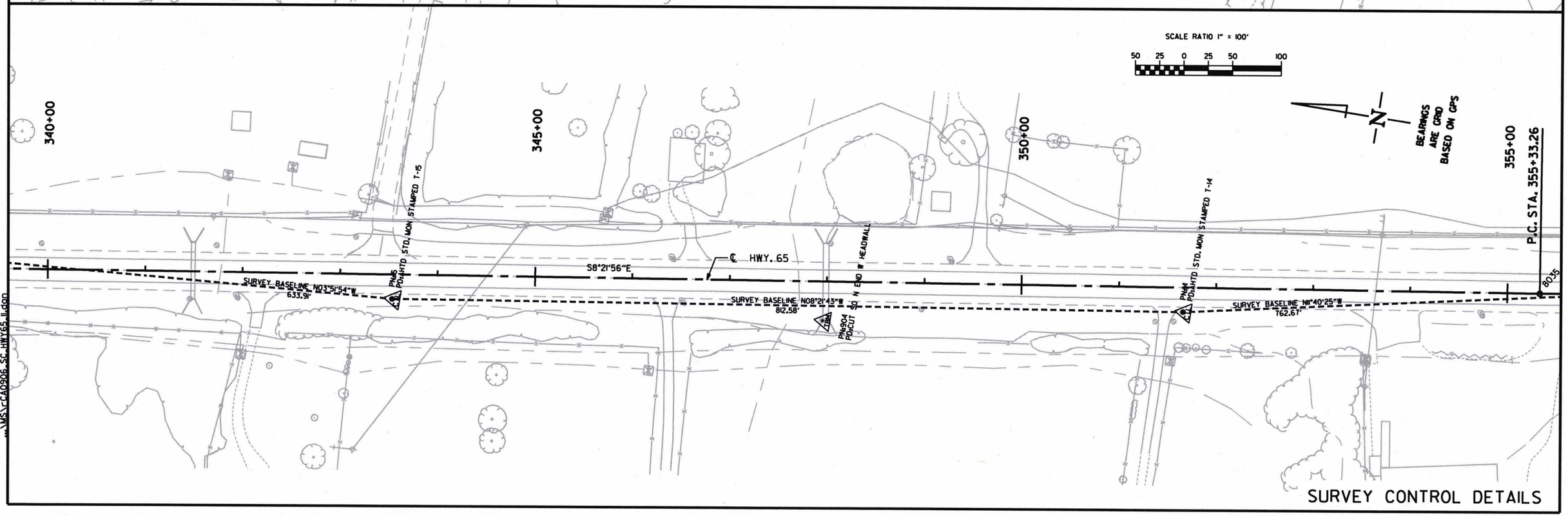
2 SURVEY CONTROL DETAILS





SURVEY CONTROL DETAILS

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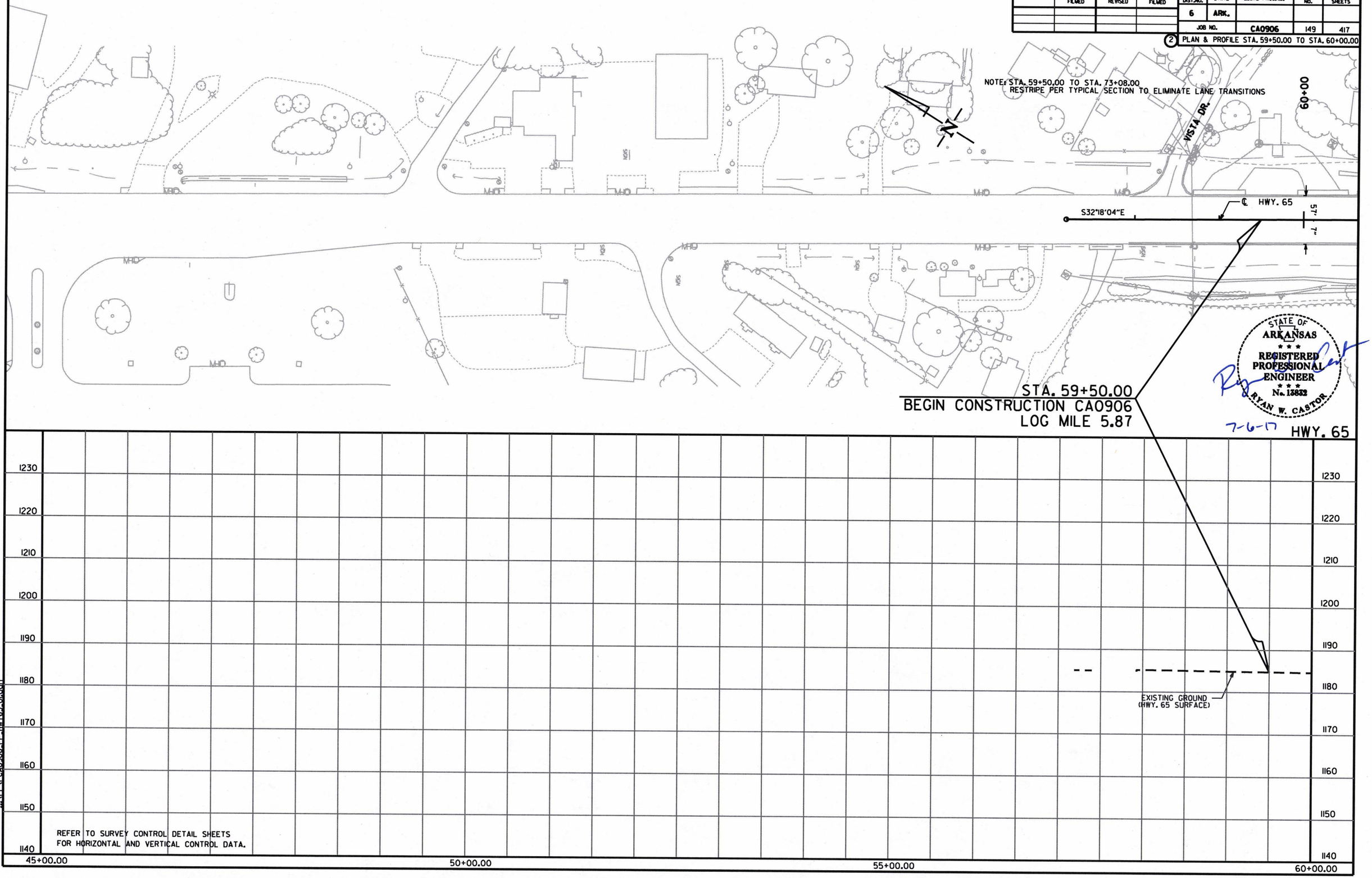
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	149	417

(2) PLAN & PROFILE STA. 59+50.00 TO STA. 60+00.00



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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	150	417

(2) PLAN & PROFILE STA. 60+00.00 TO STA. 75+00.00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
73+08	75+00	LT.	6'-0"	128.0

NOTE: STA. 59+50.00 TO STA. 73+08.00
RESTRIPE PER TYPICAL SECTION TO ELIMINATE LANE TRANSITIONS

60+00 65+00 70+00 75+00

MAXIE CAMP RD.

EXIST. R/W

℄ HWY. 65

S32°18'04"E

57' 7"

PROP. R/W +64.23 65.22

+64.41 102

CONSTRUCTION LIMITS +50

8' 29.5' 29.5' 8'

EXIST. R/W

PROP. R/W +63 64.77

+80 100

100' TRANS. MILL & OVERLAY

+08 +08

CONSTRUCTION LIMITS +70 80

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
72+82	81+91	LT.	969

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
72+82	81+91	LT.	C	920	1

STA. 66+76 IN PLACE
24" X 100' R.C. PIPE CULVERT
WITH FES RT.
RETAIN

STA. 73+64 IN PLACE
36" X 76' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
DBL. 30" X 120' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 49 CFS D.A. = 13.4 ACRES
30" R.C. PIPE = 240 LIN. FT.
30" FES = 4 EA.

STA. 73+08.00
BEGIN JOB CA0906
LOG MILE 6.12

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

HWY. 65

1220 1210 1200 1190 1180 1170 1160 1150 1140 1130

+25 783' MILL & INLAY

EXISTING GROUND (HWY. 65 SURFACE)

STA. 66+76
F.L. INLET = 1180.29
F.L. OUTLET = 1169.45

+08 100' TRANS. MILL & OVERLAY +08

P.V.I. 73+08.00 ELEV. 1170.19
P.V.C. 73+35.00 ELEV. 1170.85
VC = 490'
K = 136
0.21%

RT. DITCH GRADE -2.58%
LT. DITCH GRADE -4.75%
LT. DITCH GRADE 3.4%
RT. DITCH GRADE 2.29%

73+08.00	73+08.00	73+64.00	73+64.00	74+10.00	
1166.25	1163.63	1163.59	1162.19	1163.24	

STA. 73+64
F.L. INLET = 1163.49
F.L. OUTLET = 1162.29 RT.

PROPOSED GRADE

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

60+00.00 65+00.00 70+00.00 75+00.00

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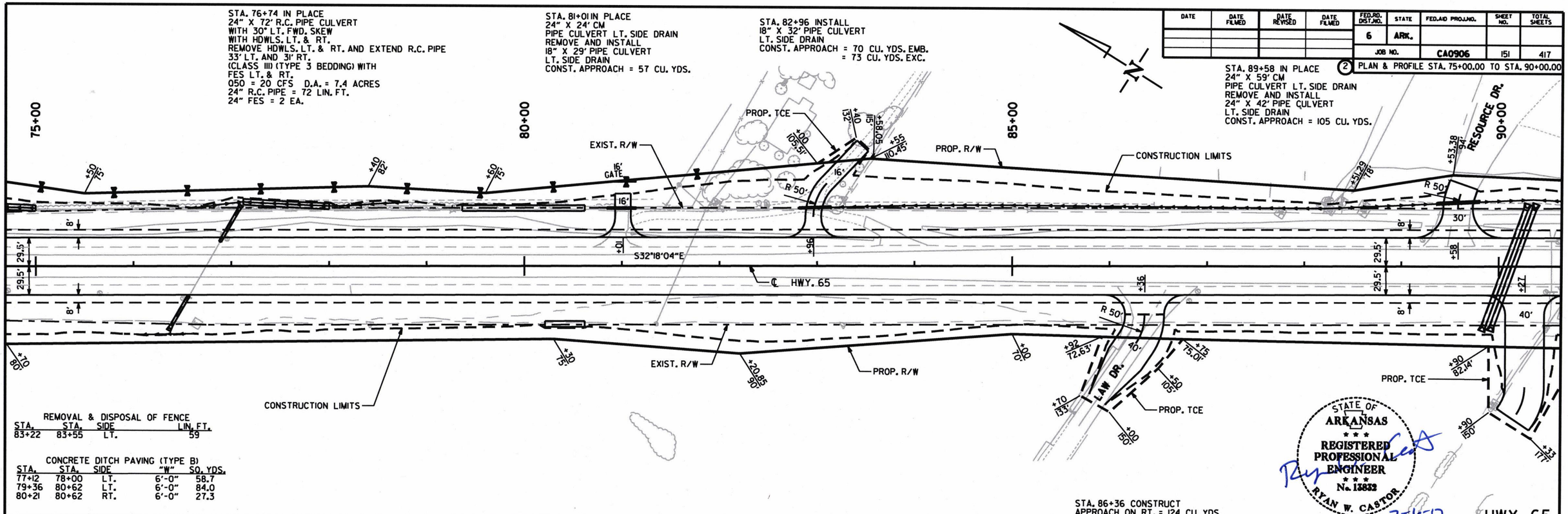
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	151	417

(2) PLAN & PROFILE STA. 75+00.00 TO STA. 90+00.00



REMOVAL & DISPOSAL OF FENCE

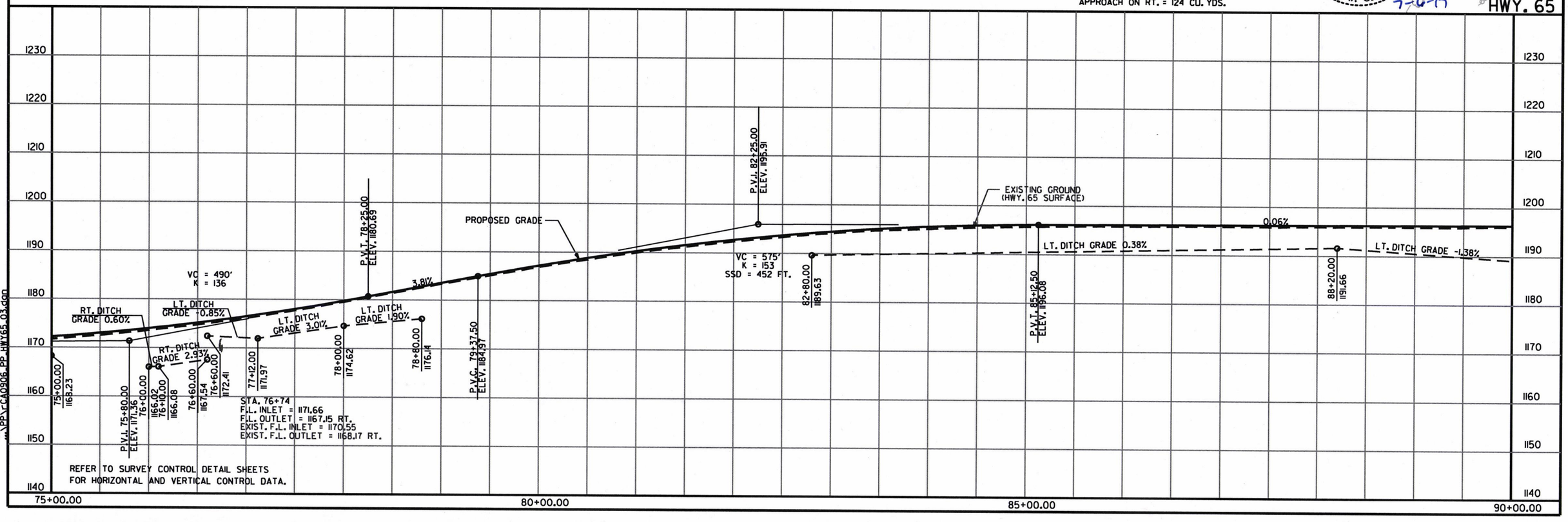
STA.	STA.	SIDE	LIN. FT.
83+22	83+55	LT.	59

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
77+12	78+00	LT.	6'-0"	58.7
79+36	80+62	LT.	6'-0"	84.0
80+21	80+62	RT.	6'-0"	27.3

STA. 86+36 CONSTRUCT
APPROACH ON RT. = 124 CU. YDS.

HWY. 65



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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	152	417

(2) PLAN & PROFILE STA. 90+00.00 TO STA. 105+00.00

RESOURCE DR.

STA. 91+41 IN PLACE
24" X 24' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 31' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 58 CU. YDS.

STA. 92+62 IN PLACE
24" X 60' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 41' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 79 CU. YDS.

STA. 95+78 IN PLACE
24" X 77' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 52' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 119 CU. YDS. EMB.
= 66 CU. YDS. EXC.

STA. 97+75 IN PLACE
24" X 58' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE
CONST. APPROACH = 77 CU. YDS.

STA. 99+33 IN PLACE
18" X 32.5' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 71 CU. YDS.

STA. 106+03 IN PLACE
18" X 40' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL @ 103+36
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 96 CU. YDS. EMB.
= 270 CU. YDS. EXC.

CONSTRUCTION LIMITS
EXIST. R/W
PROP. TCE
PROP. R/W
℄ HWY. 65
S32°18'04"E
P.I. STA. 105+57.69
= 001°34'04" RT.
GATES
2-12' GATES

STA. 90+11 CONSTRUCT
DBL. 44" X 27" X 126' R.C. ARCH PIPE CULVERT
WITH 20° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
050 = 98 CFS D.A. = 19.2 ACRES
44" X 27" R.C. PIPE = 252 LIN. FT.
44" X 27" FES = 4 EA.

STA. 90+27 CONSTRUCT
APPROACH ON RT. = 403 CU. YDS. EMB.
= 5 CU. YDS. EXC.

STA. 90+54 IN PLACE
36" X 53' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
98+21	106+38	RT.	889

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	12' GATE	16' GATE
98+21	106+28	RT.	D-2	814	2	1

STA. 98+12 IN PLACE
24" X 77' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
DBL. 24" X 118' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
050 = 43 CFS D.A. = 15.9 ACRES
24" R.C. PIPE = 236 LIN. FT.
24" FES = 4 EA.

STA. 98+96 IN PLACE
18" X 38.5' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
21" X 15" X 41' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 147 CU. YDS.

STA. 101+47 IN PLACE
24" X 60' R.C. PIPE CULVERT
WITH 30° LT. FWD. SKEW
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
30" X 135' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
050 = 21 CFS D.A. = 6.3 ACRES
30" R.C. PIPE = 135 LIN. FT.
30" FES = 2 EA.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
97+19	97+50	LT.	6'-0"	20.1
98+17	99+21	LT.	6'-0"	69.3
98+17	98+73	RT.	6'-0"	37.3
99+51	101+00	LT.	6'-0"	99.3
101+08	103+44	RT.	6'-0"	157.3
101+86	103+00	LT.	6'-0"	76.0
103+75	104+00	LT.	6'-0"	16.1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

HWY. 65

PROPOSED GRADE
EXISTING GROUND (HWY. 65 SURFACE)
VC = 640'
K = 141
VC = 615'
K = 151
SSD = 448 FT.

P.V.C. 93+05.00 ELEV. 1196.56
P.V.I. 96+25.00 ELEV. 1196.75
P.V.I. 99+45.00 ELEV. 1211.47
P.V.C. 101+92.50 ELEV. 1218.72
P.V.I. 104+10.00 ELEV. 1232.86

90+30.00 1188.76
91+80.00 1191.12
93+40.00 1192.09
95+43.00 1194.17
96+13.00 1194.52
96+36.00 1196.11
97+60.00 1199.64
97+95.00 1197.67
98+06.00 1198.67
98+12.00 1197.98
98+66.00 1201.44
98+90.00 1204.11
99+27.00 1205.07
99+60.00 1205.75
100+40.00 1210.81
101+00.00 1214.07
101+07.68 1211.55
101+86.00 1214.94
102+80.00 1221.30
103+00.00 1221.98
103+75.00 1223.87
104+00.00 1224.94
104+94.00 1227.12

0.06% LT. DITCH GRADE -1.38%
LT. DITCH GRADE 1.58%
LT. DITCH GRADE 0.61%
LT. DITCH GRADE 0.50%
LT. DITCH GRADE 6.90%
RT. DITCH GRADE 1.81%
LT. DITCH GRADE -2.11%
LT. DITCH GRADE 6.48%
LT. DITCH GRADE 2.34%
RT. DITCH GRADE 5.96%
RT. DITCH GRADE 6.40%
4.60%
LT. DITCH GRADE 5.94%
RT. DITCH GRADE 1.10%
LT. DITCH GRADE 1.02%
RT. DITCH GRADE 5.66%
LT. DITCH GRADE 6.18%
LT. DITCH GRADE 2.52%
LT. DITCH GRADE 4.28%
RT. DITCH GRADE 0.53%

STA. 90+11
F.L. INLET = 1188.82
F.L. OUTLET = 1188.40 RT.

STA. 98+12
F.L. INLET = 1198.99
F.L. OUTLET = 1198.05 RT.

STA. 101+47
F.L. INLET = 1214.71
F.L. OUTLET = 1211.8 RT.
EXIST. F.L. INLET = 1216.05
EXIST. F.L. OUTLET = 1214.80 RT.

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

1260 1250 1240 1230 1220 1210 1200 1190 1180 1170

90+00.00 95+00.00 100+00.00 105+00.00

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DATE	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	153	417

(2) PLAN & PROFILE STA. 105+00.00 TO STA. 120+00.00

STA. 106+91 INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 70 CU. YDS. EMB.
= 940 CU. YDS. EXC.

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
107+15	115+02	LT.	787
108+74	128+45	RT.	2049
115+23	150+99	LT.	3955

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
107+57	115+17	LT.	C	798	1
108+74	114+22	RT.	C	556	
114+53	128+46	RT.	C	1452	1
115+48	131+19	LT.	C	1576	2

STA. 114+74 INSTALL
18" X 64' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 302 CU. YDS.

STA. 117+06 IN PLACE
18" X 19.5' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 26' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 55 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

105+00 | 110+00 | 115+00 | 120+00

P.I. STA. 105+57.69
Δ = 00°13'04" RT.

PROP. TCE | CONSTRUCTION LIMITS | PROP. R/W | EXIST. R/W | ℄ HWY. 65 S32°05'00"E

STA. 105+93 INSTALL
18" X 27' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 54 CU. YDS.

STA. 106+55 INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 60 CU. YDS.

STA. 110+24 IN PLACE
24" X 75' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
22' LT. AND 31' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 20 CFS D.A. = 7.4 ACRES
24" R.C. PIPE = 61 LIN. FT.
24" FES = 2 EA.

STA. 111+73 IN PLACE
24" X 80' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
22' LT. AND 28' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 26 CFS D.A. = 9.4 ACRES
24" R.C. PIPE = 58 LIN. FT.
24" FES = 2 EA.

STA. 114+84 CONSTRUCT
6' X 6' X 141' R.C. BOX CULVERT
WITH 30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 87 CFS D.A. = 49.2 ACRES

STA. 115+15 IN PLACE
6' X 6' X 72.5' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
111+73	112+60	RT.	6'-0"	58.0
114+52	119+68	RT.	6'-0"	344.0
115+53	116+93	LT.	6'-0"	93.3
117+19	119+68	LT.	6'-0"	166.0

HWY. 65

PROPOSED GRADE | EXISTING GROUND (HWY. 65 SURFACE)

RT. DITCH GRADE 0.53% | RT. DITCH GRADE 4.99% | VC = 615' K = 151 SSD = 448 FT. | LT. DITCH GRADE -1.68% | LT. DITCH GRADE 2.70% | LT. DITCH GRADE -2.16% | LT. DITCH GRADE 2.89% | LT. DITCH GRADE -2.02% | LT. DITCH GRADE 0.93% | LT. DITCH GRADE 6.95% | VC = 1300' K = 156 SSD = 455 FT.

RT. DITCH GRADE 1.39% | RT. DITCH GRADE 0.68% | RT. DITCH GRADE 5.69% | VC = 600' K = 168 | RT. DITCH GRADE 5.65% | RT. DITCH GRADE 7.64% | 4.11%

P.V.T. 107+17.50 ELEV. 1234.50
P.V.C. 111+30.00 ELEV. 1236.69
P.V.T. 114+30.00 ELEV. 1238.28
P.V.T. 117+30.00 ELEV. 1250.61

106+85.00 1228.14
107+20.00 1229.89
109+40.00 1231.14
109+90.00 1224.53
110+24.00 1229.75
110+24.00 1225.00
111+10.00 1232.05
111+73.00 1226.02
111+75.00 1230.69
112+60.00 1230.97
113+60.00 1236.09
114+34.00 1231.00
114+40.00 1231.00
115+23.00 1232.79
115+29.00 1232.79
116+80.00 1244.32
117+00.00 1245.69
117+26.00 1244.75
117+85.00 1248.85
117+95.00 1253.28
P.V.C. 117+95.00 ELEV. 1253.28

STA. 110+24
F.L. INLET = 1229.45
F.L. OUTLET = 1225.33 RT.
EXIST. F.L. INLET = 1228.76
EXIST. F.L. OUTLET = 1226.33 RT.

STA. 111+73
F.L. INLET = 1230.42
F.L. OUTLET = 1226.34 RT.
EXIST. F.L. INLET = 1229.74
EXIST. F.L. OUTLET = 1227.74 RT.

STA. 114+84
F.L. INLET = 1232.73
F.L. OUTLET = 1231.05 RT.

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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	154	417

(2) PLAN & PROFILE STA. 120+00.00 TO STA. 135+00.00

STA. 123+06 INSTALL
18" X 33' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 88 CU. YDS. EMB.
= 2206 CU. YDS. EXC.

P.I. 124+86.72
Δ = 12° 50'43" LT.
D = 2° 00'
T = 322.48'
L = 642.26'
P.C. = 121+64.23
P.T. = 128+06.50
e = 0.055 '/'
Ls = 540'

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
129+02	130+39	RT.	6'-0"	91.3
129+02	131+88	LT.	6'-0"	190.7
132+15	133+76	LT.	6'-0"	107.3

STA. 132+00 IN PLACE
24" X 22.5' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 27' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 78 CU. YDS.

P.C. STA. 121+64.23
P.I. STA. 124+86.72
P.T. STA. 128+06.50
120+00
125+00
130+00
135+00
PROP. TCE
EXIST. R/W
PROP. R/W
CONSTRUCTION LIMITS
℄ HWY. 65
S32°05'00"E
S44°55'43"E
R 50'
R 60'
16' GATE

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
132+39	139+16	RT.	845

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
131+80	150+79	LT.	C	1906	2
132+39	135+53	RT.	D-1	320	1

STA. 122+19 INSTALL
21" X 15" X 28' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 43 CU. YDS.

STA. 128+25 IN PLACE
24" X 24' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL @ +65
18" X 27' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 63 CU. YDS.

STA. 130+67 IN PLACE
24" X 24.5' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL @ +52
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 90 CU. YDS.

STA. 132+01 IN PLACE
24" X 31.5' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 225 CU. YDS.

STA. 132+82 IN PLACE
24" X 24' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 466 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

HWY. 65

STA. 117+59.23 BEGIN SUPERELEVATION
STA. 122+99.23 MAX. SUPERELEVATION (0.055 '/')
STA. 126+71.50 MAX. SUPERELEVATION (0.055 '/')
STA. 132+11.50 END SUPERELEVATION

P.V.I. 124+45.00
ELEV. 1280.00

EXISTING GROUND
(HWY. 65 SURFACE)

PROPOSED GRADE

VC = 1300'
K = 156
SSD = 455 FT.

121+84.00 1262.62 RT. DITCH GRADE 0.51%
122+39.00 1262.90
122+57.00 1264.14 RT. DITCH GRADE 6.89%
127+88.00 1260.63 RT. DITCH GRADE -6.99%
128+40.00 1257.00 RT. DITCH GRADE -0.54%
129+09.00 1256.62
129+90.00 1252.91 RT. DITCH GRADE -6.97%
130+30.00 1250.12 RT. DITCH GRADE -3.00%
130+80.00 1248.62
130+98.00 1247.78
131+63.00 1243.25
132+19.00 1241.47

P.V.I. 130+95.00
ELEV. 1252.48
-4.24%
P.V.C. 132+02.50
ELEV. 1247.89
LT. DITCH GRADE -6.97%
LT. DITCH GRADE -3.18%
VC = 675'
K = 140

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

1300 1290 1280 1270 1260 1250 1240 1230 1220 1210

120+00.00 125+00.00 130+00.00 135+00.00

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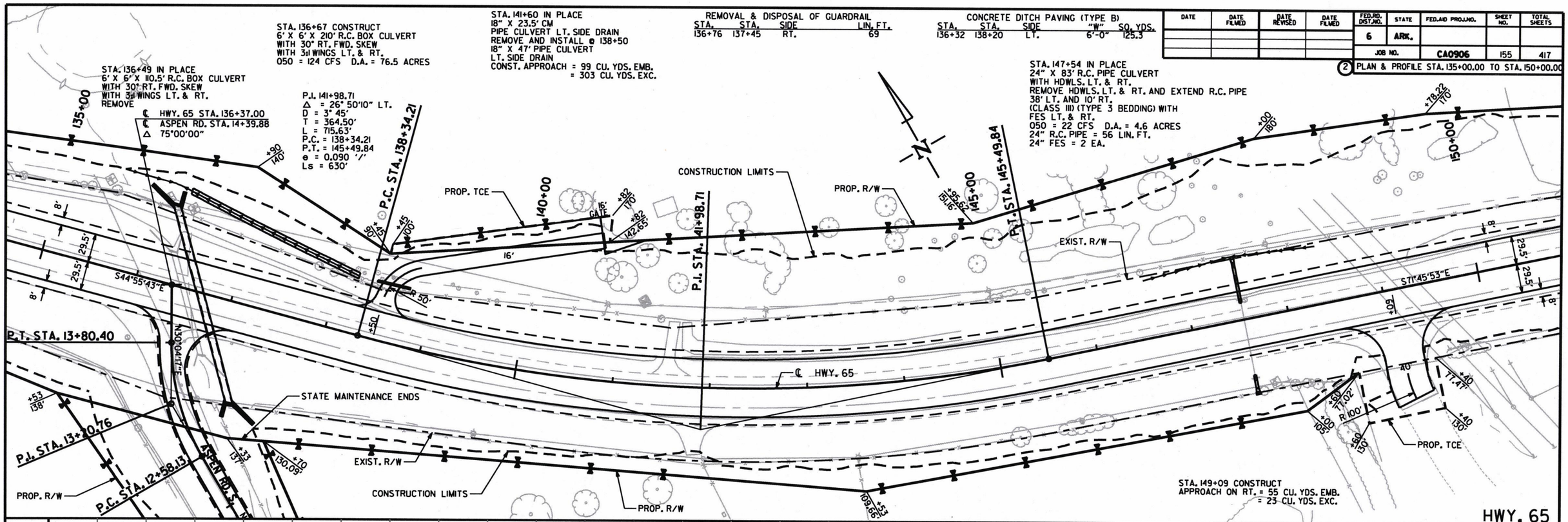
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	155	417

(2) PLAN & PROFILE STA. 135+00.00 TO STA. 150+00.00



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

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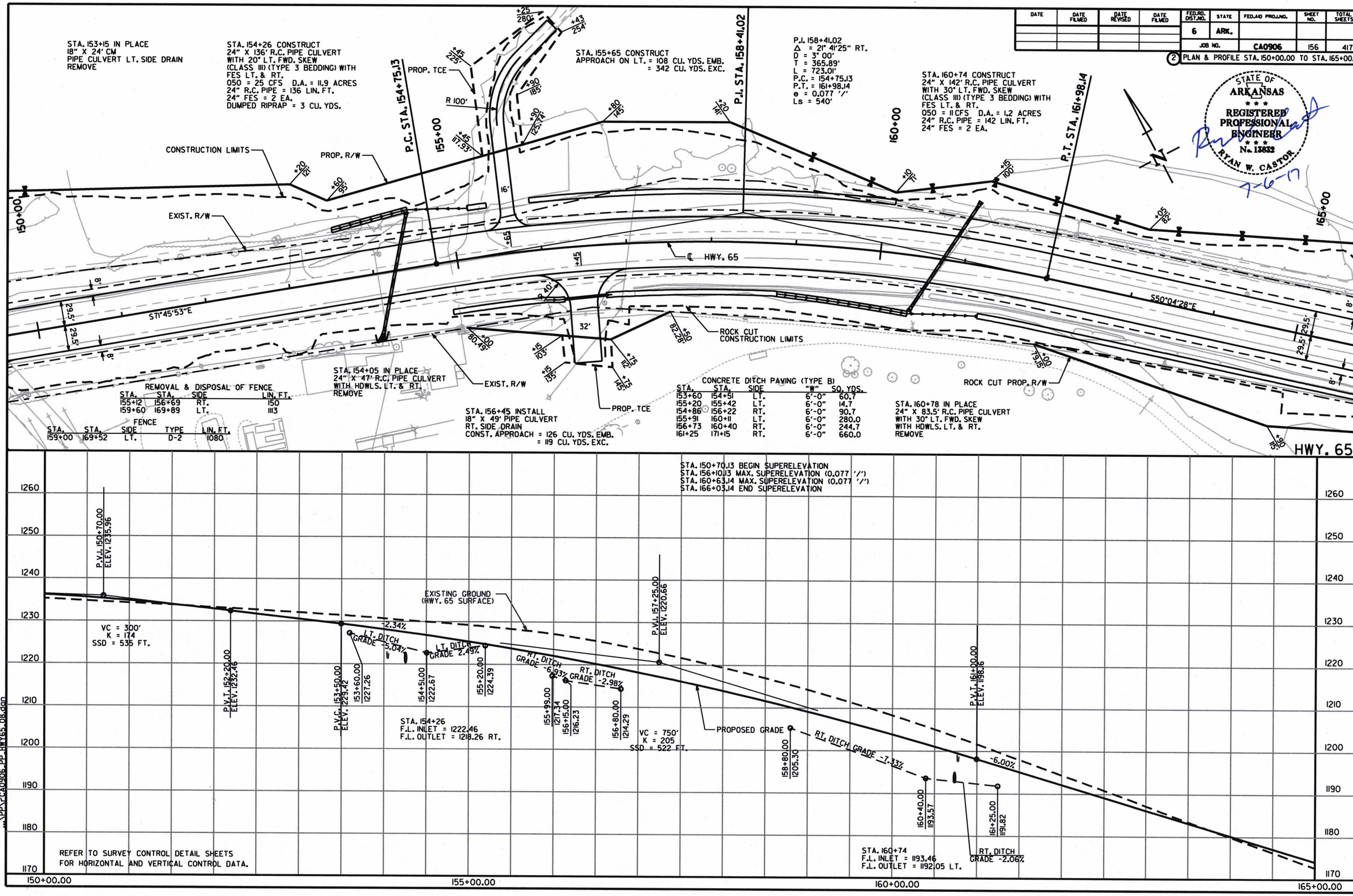
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	156	417

(2) PLAN & PROFILE STA. 150+00.00 TO STA. 165+00.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
Ryan Castor
7-6-17



REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
155+12	156+69	RT.	150
159+60	169+89	LT.	1113

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
159+00	169+52	LT.	D-2	1080

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
153+60	154+51	LT.	6'-0"	60.7
155+20	155+42	LT.	6'-0"	14.7
154+86	156+22	RT.	6'-0"	90.7
155+91	160+11	LT.	6'-0"	280.0
156+73	160+40	RT.	6'-0"	244.7
161+25	171+15	RT.	6'-0"	660.0

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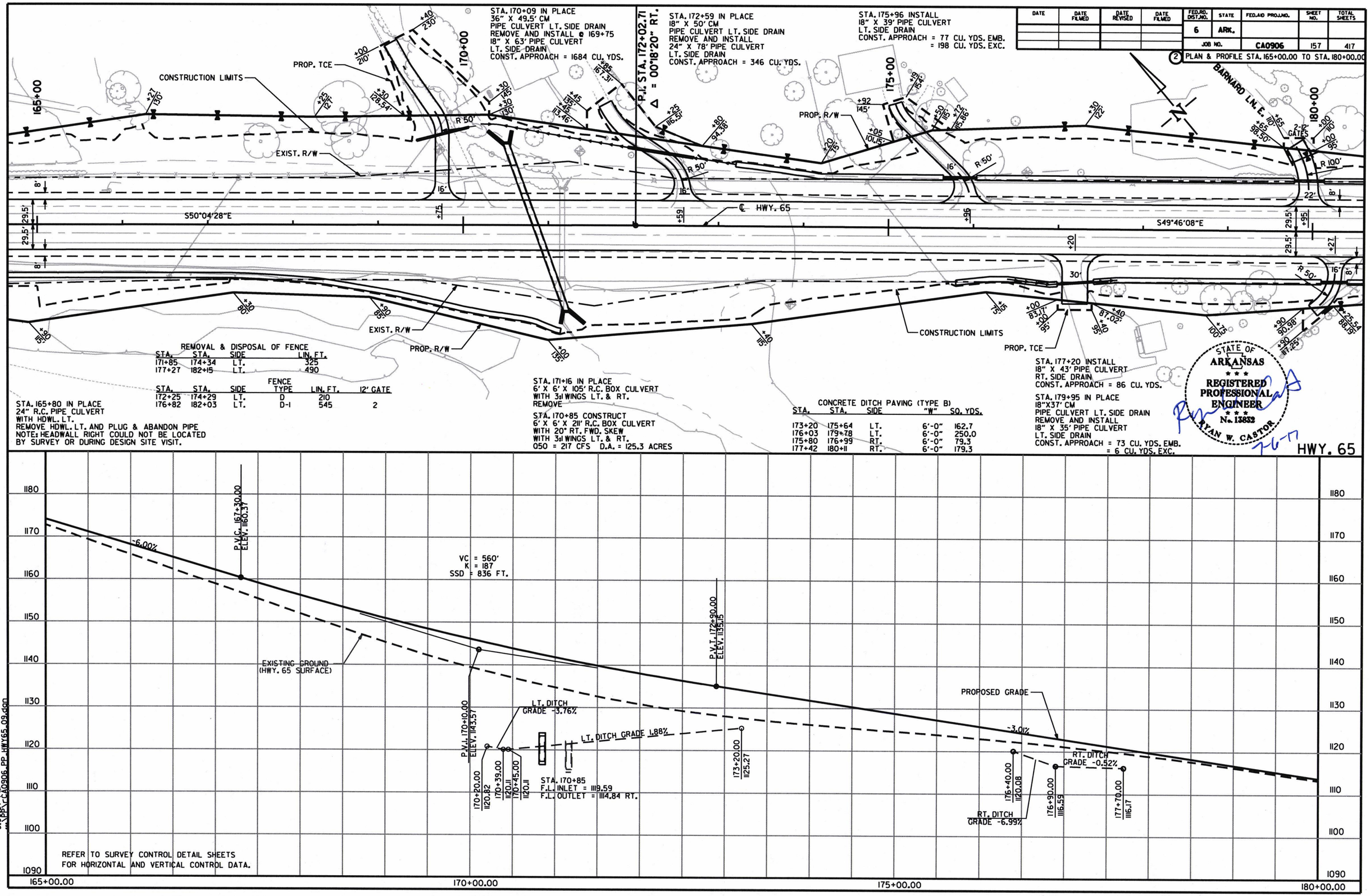
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	157	417

(2) PLAN & PROFILE STA. 165+00.00 TO STA. 180+00.00



REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
171+85	174+34	LT.	325
177+27	182+15	LT.	490

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	12' GATE
172+25	174+29	LT.	D	210	
176+82	182+03	LT.	D-1	545	2

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
173+20	175+64	LT.	6'-0"	162.7
176+03	179+78	LT.	6'-0"	250.0
175+80	176+99	RT.	6'-0"	79.3
177+42	180+11	RT.	6'-0"	179.3

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	158	417

(2) PLAN & PROFILE STA. 180+00.00 TO STA. 195+00.00

STA. 181+56 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 4 SQ. YDS.

STA. 182+37 IN PLACE
36"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 33' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 77 CU. YDS.

STA. 184+20 CONSTRUCT
DROP INLET ON LT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 186+54 CONSTRUCT
DROP INLET ON LT. H = 4'-6"
WITH 4' EXTENSION
ON R.C. BOX CULVERT STA. 186+62
TYPE C DROP INLET = 2'-6" x4'

STA. 187+13 IN PLACE
18"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 83 CU. YDS.

STA. 190+52 CONSTRUCT
DROP INLET ON LT. H = 5'-1"
WITH 18" x 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 194+60 IN PLACE
18"X46' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE
CONST. APPROACH = 19 CU. YDS. EMB.
= 73 CU. YDS. EXC.

STA. 194+60 CONSTRUCT
DROP INLET ON LT. H = 3'-6"
WITH 18" X 54'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE E DROP INLET = 3' x 2'

BARNARD LN. E.

2-16' GATES

CITY LIMITS VALLEY SPRINGS

STA. 185+41 IN PLACE
30"X21' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
36" X 31' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 129 CU. YDS.

STA. 185+85 INSTALL
36" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 243 CU. YDS.

STA. 190+24 INSTALL
18" X 27' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 43 CU. YDS. EMB.
= 8 CU. YDS. EXC.

STA. 192+30 CONSTRUCT
DROP INLET ON LT. H = 5'-2"
WITH OPENINGS ON 4 SIDES AND 24" x 165'
PIPE CULVERT TO DROP INLET ON LT.
TYPE SPECIAL AREA INLET = 5' x 5'
24" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 165 LIN. FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 165 LIN. FT.

STA. 194+18 CONSTRUCT
DROP INLET ON LT. H = 8'-11"
WITH 4' EXTENSION
ON R.C. PIPE CULVERT STA. 194+49
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 6'-6" x 2'-6"

P.I. STA. 192+49.76
Δ = 00°17'19"

PROP. R/W
PROP. TCE
EXIST. R/W
CONSTRUCTION LIMITS
S49°46'08"E
S50°03'27"E
℄ HWY. 65
R 100'
R 50'
R 75'
SCHOOL ST.

STA. 181+53 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 3 SQ. YDS.

STA. 180+27 IN PLACE
18"X30' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 31' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 65 CU. YDS. EMB.
= 9 CU. YDS. EXC.

STA. 181+50 BEGIN
COMBINATION C&G

TRANS.
208' TRANS.

CITY LIMITS VALLEY SPRINGS

STA. 182+85 IN PLACE
18"X20' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
21" X 15" X 30' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 81 CU. YDS.

STA. 184+20 CONSTRUCT
DROP INLET ON RT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 186+34 IN PLACE
4' X 6' X 93' R.C. BOX CULVERT
WITH 30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE AND CONSTRUCT @ STA. 186+62
4' X 6' X 111' R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 91 CFS D.A. = 39.5 ACRES

STA. 186+70 CONSTRUCT
DROP INLET ON RT. H = 7'-10"
WITH 4' EXTENSION
ON R.C. BOX CULVERT STA. 186+62
TO DROP INLET ON LT.
TYPE C DROP INLET = 2'-6" x4'

STA. 190+90 CONSTRUCT
APPROACH ON RT. = 14 CU. YDS. EMB.
= 10 CU. YDS. EXC.

STA. 194+00 CONSTRUCT
DROP INLET ON LT. H = 5'-6"
WITH OPENINGS ON 4 SIDES AND 30" x 20'
PIPE CULVERT TO DROP INLET ON LT.
TYPE SPECIAL AREA INLET = 5' x 5'
30" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 20 LIN. FT.
30" SLPPMCCS PIPE (TYPE 2 BEDDING) = 20 LIN. FT.

APPROXIMATE SPECIAL FLOOD HAZARD AREA

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
180+13	182+25	LT.	6'-0"	141.3
180+42	182+74	RT.	6'-0"	154.7
182+58	183+19	LT.	6'-0"	40.7
184+20	184+20	LT.	4'-0"	5.8
184+20	184+20	RT.	4'-0"	5.8
184+70	186+69	RT.	6'-0"	132.7
186+57	186+96	LT.	6'-0"	26.0
191+05	194+60	RT.	6'-0"	236.7

STA. 190+52 CONSTRUCT
DROP INLET ON RT. H = 5'-10"
WITH 18" x 424'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 424 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 424 LIN. FT.

STA. 194+49 IN PLACE
48" X 102' R.C. PIPE CULVERT
WITH 45° RT. FWD. SKEW
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. WITH 7' PIPE &
RT. WITH 20' PIPE AND EXTEND R.C. PIPE
4' LT. TO DROP INLET AND 4' RT. TO DROP INLET
(CLASS III) (TYPE 3 BEDDING) WITH
FES RT.
Q50 = 35 CFS D.A. = 8.2 ACRES
48" R.C. PIPE = 8 LIN. FT.

HWY. 65

STA.	STA.	FENCE SIDE	TYPE	LIN. FT.
180+26	182+38	RT.	C	213

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
182+29	186+81	RT.	574

STA. 193+11 IN PLACE
24"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND CONSTRUCT @ 192+76
APPROACH ON LT. = 45 CU. YDS. EMB.
= 215 CU. YDS. EXC.

STA. 194+80 CONSTRUCT
DROP INLET ON RT. H = 9'-5"
WITH 4' EXTENSION AND 48" x 23'
WITH FES
ON R.C. PIPE CULVERT STA. 194+49
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 6'-6" x 2'-6"

+20 TOP D.I. = 1101.46
18" X 6' @ 1%
F.L. D.I. = 1097.96
F.L. OUTLET = 1097.90

+54 TOP D.I. = 1098.06

+52 TOP D.I. = 1092.8
18" X 59' @ 1%
F.L. D.I. = 1087.69

+30 TOP D.I. = 1084.77
+00 TOP D.I. = 1075.00
30" X 20' @ 1.53%
24" X 165' @ 5.83%
F.L. D.I. = 1079.60
+18 TOP D.I. = 1076.63
18" X 54' @ 3.33%
F.L. INVERT = 1070.00
F.L. D.I. = 1069.50
F.L. INLET = 1068.90
18" F.L. INVERT = 1070.20
30" F.L. INVERT = 1069.20
F.L. D.I. = 1067.70
F.L. D.I. = 1072.00
48" X 4' @ 4.68%

P.V.C. 183+17.50 ELEV. 1104.24
P.V.C. 185+32.50 ELEV. 1098.74
P.V.T. 184+55.00 ELEV. 1100.10
P.V.I. 191+40.00 ELEV. 1093.33
P.V.C. 188+90.00 ELEV. 1095.80
P.V.T. 193+90.00 ELEV. 1078.38

-3.01%
LT. DITCH GRADE -5.24%
LT. DITCH GRADE -2.13%
RT. DITCH GRADE -5.26%
LT. DITCH GRADE 4.35%
LT. DITCH GRADE 0.46%
-0.99%
LT. DITCH GRADE -1.29%
LT. DITCH GRADE -1.47%
PROPOSED GRADE
EXISTING GROUND (HWY. 65 SURFACE)

VC = 275'
K = 136
VC = 500'
K = 100
SSD = 365 FT.

181+80.00 1104.61
182+80.00 1099.37
184+70.00 1091.87
185+00.00 1092.57
186+44.00 1089.50
186+48.00 1089.50
186+83.00 1080.68
186+89.00 1080.68
187+00.00 1091.76
187+60.00 1079.63
188+60.00 1092.50
190+80.00 1089.66

STA. 186+62
F.L. INLET = 1088.57
F.L. OUTLET = 1082.05 RT.

18" X 59' @ 1%
F.L. INVERT = 1087.10
F.L. D.I. = 1087.00

18" X 424' @ 4.92%
48" X 4' @ 4.68%
48" X 23' @ 4.85%
18" F.L. INVERT = 1066.17
48" F.L. INVERT = 1063.77
F.L. D.I. = 1063.49
F.L. OUTLET = 1062.37
EXIST. F.L. INLET = 1067.80
EXIST. F.L. OUTLET = 1063.05

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

1130 1120 1110 1100 1090 1080 1070 1060 1050 1040

180+00.00 185+00.00 190+00.00 195+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	159	417

(2) PLAN & PROFILE STA. 195+00.00 TO STA. 210+00.00

STA. 197+50 CONSTRUCT
DROP INLET ON LT. H = 4'-9"
WITH 8' EXTENSION AND 18" x 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 2 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 200+02 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 197+10 CONSTRUCT
SPRING BOX ON LT.
WITH 30" X 91'
R.C. PIPE CULVERT (CLASS IV) (TYPE 3 BEDDING)
WITH FES

STA. 205+25 CONSTRUCT
APPROACH ON LT. = 1709 CU. YDS.

STA. 200+76 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

APPROXIMATE SPECIAL FLOOD HAZARD AREA

STA. 209+20 CONSTRUCT
APPROACH ON LT. = 310 CU. YDS.

STA. 199+57 CONSTRUCT
DROP INLET ON LT. H = 4'-9"
WITH 4' EXTENSION AND 18" x 9'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
WITH 18" X 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 2 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STATE MAINTINENCE ENDS

P.I. STA. 16+26.98

P.T. STA. 16+65.50

P.C. STA. 15+84.98

P.C. STA. 202+91.93

POE 18+00.02

P.I. 205+70.15
Δ = 20° 38'24" RT.
D = 3° 45'
T = 278.22'
L = 550.40'
P.C. = 202+91.93
P.T. = 208+42.33
e = 0.059 '/'
Ls = 405'

P.T. STA. 208+42.33

P.C. STA. 205+70.15

CONSTRUCTION LIMITS

EXIST. R/W

PROP. R/W

PROP. TCE

STA. 203+14.34
END BRIDGE

STA. 201+51.50
BEGIN BRIDGE

℄ HWY. 65

S50°03'27"E

S29°25'03"E

N54°56'33"E

SCHOOL ST.

RALLY HILL RD.

ELM ST.

℄ HWY. 65 STA. 200+23.43
℄ ELM STR. STA. 15+07.25
Δ 75°00'00"

P.C. STA. 12+25.43

P.I. STA. 13+44.80

P.T. STA. 14+59.75

STATE MAINTENANCE ENDS

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
200+97	201+59	LT.	59
209+00	209+40	LT.	40

STA. 197+50 CONSTRUCT
DROP INLET ON RT. H = 5'-3"
WITH 8' EXTENSION AND 18" x 12'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 200+58 CONSTRUCT
DROP INLET ON RT. H = 3'-6"
WITH 4' EXTENSION AND 18" x 5'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 204+15 INSTALL
21" X 15" X 30' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 94 CU. YDS.

STA. 206+88 CONSTRUCT
APPROACH ON RT. = 0 CU. YDS. EMB.
= 2 CU. YDS. EXC.

STA. 206+19 CONSTRUCT
DROP INLET ON RT. H = 3'-7"
WITH 18" x 143'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 143 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 143 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
196+60	198+02	LT.	6'-0"	94.7

STA. 203+15 CONSTRUCT
DROP INLET ON RT. H = 3'-2"
WITH 8' EXTENSION AND 18" x 5'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 204+69 CONSTRUCT
DROP INLET ON RT. H = 3'-9"
WITH 18" x 147'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 147 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 147 LIN. FT.

STA. 209+57 CONSTRUCT
APPROACH ON RT. = 1 CU. YDS. EMB.
= 2 CU. YDS. EXC.

HWY. 65

STA. 199+57 CONSTRUCT
DROP INLET ON RT. H = 5'-6"
WITH 4' EXTENSION AND 18" x 12'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 199+70 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 200+44 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

BRIDGE NO. 07341
•160'-0" CONT. COMP. W-BEAM UNIT (50'-60'-50')
58'-0" CLEAR ROADWAY
45° LT. FORWARD SKEW
•163'-0" TOTAL BRIDGE LENGTH
•DIMENSIONS ALONG TANGENT.

STA. 201+82 - STA. 202+55 IN PLACE
73' X 40'
BRIDGE CONSISTING OF TWO 35'
REINFORCED CONCRETE DECK GIRDER SPANS
REMOVE AS EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM.

STA. 199+88.18 BEGIN SUPERELEVATION
STA. 203+93.18 MAX. SUPERELEVATION (0.059 '/')
STA. 207+41.08 MAX. SUPERELEVATION (0.059 '/')
STA. 211+46.08 END SUPERELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17

P.V.C. 195+62.50
ELEV. 1068.06

+50
T.O.D.I. = 1058.97

18" X 59' @ 0.76%
30" X 91' @ 0.61%

F.L. D.I. = 1054.25

STA. 197+10
F.L. D.I. = 1054.87
F.L. OUTLET = 1054.31

+50
T.O.D.I. = 1058.97

18" X 12'
@ 1%

F.L. INVERT = 1053.80
F.L. D.I. = 1053.70
F.L. OUTLET = 1053.58

198+00.00
1052.93

L.T. DITCH GRADE -5.98%

L.T. DITCH GRADE -3.00%

EXISTING GROUND
(HWY. 65 SURFACE)

199+00.00
1049.93

P.V.I. 199+00.00
ELEV. 1047.88

+57
T.O.D.I. = 1054.12

VC = 675'
K = 80

18" X 9'
@ 1%
18" X 59'
@ 1%

F.L. INLET = 1049.54
F.L. INVERT = 1049.45
F.L. D.I. = 1049.35

199+57.00
1049.63

L.T. DITCH GRADE -0.53%

18" X 12'
@ 1%

F.L. INVERT = 1048.76
F.L. D.I. = 1048.66
F.L. OUTLET = 1048.54

200+00.00
1050.43

L.T. DITCH GRADE 1.86%

+58
T.O.D.I. = 1053.69

18" X 5'
@ 1%

F.L. D.I. = 1050.19
F.L. OUTLET = 1050.14

STA. 201+51.50
BEGIN BRIDGE

P.V.I. 202+37.50
ELEV. 1056.16

STA. 203+14.34
END BRIDGE

+15
T.O.D.I. = 1057.98

18" X 147'
@ 2.16%

18" X 5'
@ 1%

F.L. INVERT = 1054.90
F.L. D.I. = 1054.80
F.L. OUTLET = 1054.75

PROPOSED GRADE

+69
T.O.D.I. = 1061.76

2.45%

18" X 143'
@ 2.64%

F.L. INVERT = 1058.09
F.L. D.I. = 1057.99

F.L. D.I. = 1061.87

P.V.C. 208+27.50
ELEV. 1065.72

+19
T.O.D.I. = 1065.44

VC = 375'
K = 119
SSD = 398 FT.

P.V.I. 208+15.00
ELEV. 1070.32

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

1100 1090 1080 1070 1060 1050 1040 1030 1020 1010

195+00.00 200+00.00 205+00.00 210+00.00

7/18/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	160	417

(2) PLAN & PROFILE STA. 210+00.00 TO STA. 225+00.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-18-17

STA. 212+19 CONSTRUCT
DROP INLET ON LT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 213+62 IN PLACE
24"X29' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 95 CU. YDS.

STA. 215+19 CONSTRUCT
DROP INLET ON LT. H = 7'-0"
WITH 30" x 167'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"
30" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 167 LIN. FT.
30" SLPPMCCS PIPE (TYPE 2 BEDDING) = 167 LIN. FT.

STA. 216+91 CONSTRUCT
DROP INLET ON LT. H = 7'-7"
WITH 30" x 88'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"
30" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 88 LIN. FT.
30" SLPPMCCS PIPE (TYPE 2 BEDDING) = 88 LIN. FT.

STA. 217+84 CONSTRUCT
DROP INLET ON LT. H = 8'-0"
WITH 4' EXTENSION AND 30" x 18'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"

STA. 214+90 IN PLACE
24"X42' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 48' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 30 CU. YDS.

STA. 215+81 IN PLACE
18"X28' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
21" X 15" X 33' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 63 CU. YDS.

STA. 216+50 IN PLACE
18"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
21" X 15" X 33' R.C. ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 59 CU. YDS.

STA. 217+86 IN PLACE
5' X 4' X 60' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE

STA. 218+25 CONSTRUCT
6' X 4' X 127' TRIP. R.C. BOX CULVERT
WITH 15° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050 = 429 CFS D.A. = 133.4 ACRES

STA. 217+97 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 3 SQ. YDS.

P.I. 219+24.03
Δ = 7° 48'59" LT.
D = 0° 30'
T = 782.86'
L = 1563.30'
P.C. = 211+41.17
P.T. = 227+04.47
e = N.C.
Ls = N.A.

STA. 210+28 CONSTRUCT
DROP INLET ON RT. H = 3'-8"
WITH 18" x 163'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 163 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 163 LIN. FT.

STA. 210+77 CONSTRUCT
APPROACH ON RT. = 14 CU. YDS. EMB.
= 6 CU. YDS. EXC.

STA. 211+55 CONSTRUCT
APPROACH ON RT. = 25 CU. YDS.

STA. 212+92 IN PLACE
18"X58' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 40 CU. YDS.

STA. 213+51 CONSTRUCT
DROP INLET ON RT. H = 6'-4"
WITH 30" x 164'
PIPE CULVERT TO DROP INLET ON RT.
WITH 18" x 10'
R.C. PIPE CULVERT (CLASS III) (TYPE3 BEDDING)
WITH FES
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"
30" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 164 LIN. FT.
30" SLPPMCCS PIPE (TYPE 2 BEDDING) = 164 LIN. FT.

STA. 216+37 CONSTRUCT
APPROACH ON RT. = 12 CU. YDS.

STA. 216+73 IN PLACE
18"X40' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE

STA. 216+91 CONSTRUCT
DROP INLET ON RT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 219+44 IN PLACE
18"X40' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL @ +64
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 58 CU. YDS. EMB.
= 86 CU. YDS. EXC.

STA. 222+55 INSTALL
18" X 67' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 331 CU. YDS.

STA. 222+92 CONSTRUCT
4' X 4' X 149' R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050 = 81 CFS D.A. = 27.2 ACRES

STA. 223+27 IN PLACE
4' X 4' X 105.5' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE

HWY. 65

STA. 211+95 CONSTRUCT
DROP INLET ON RT. H = 5'-10"
WITH 24" x 152'
PIPE CULVERT TO DROP INLET ON RT.
WITH 24" x 12'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
24" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 152 LIN. FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 152 LIN. FT.

STA. 213+51 IN PLACE
24" X 91' C.M. PIPE CULVERT
WITH DROP INLET LT. & HDWL. RT.
REMOVE

STA. 214+47 IN PLACE
24"X60' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 41 CU. YDS. EMB.
= 5 CU. YDS. EXC.

STA. 215+19 CONSTRUCT
DROP INLET ON RT. H = 6'-3"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE3 BEDDING)
WITH FES
WITH 30" x 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"

STA. 217+47 IN PLACE
18"X38' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 136 CU. YDS. EMB.
= 16 CU. YDS. EXC.

STA. 217+84 CONSTRUCT
DROP INLET ON RT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 217+15 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 217+77 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 217+94 CONSTRUCT RT.
TYPE 3 WHEELCHAIR RAMP = 4 SQ. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.	STA.	STA.	SIDE	LIN. FT.
212+19	212+19	LT.	4'-0"	7.4	210+15	213+25	LT.	321
216+60	217+26	RT.	6'-0"	44.0	212+27		RT.	12
216+91	216+91	RT.	4'-0"	0.4	212+64		RT.	15
217+69	217+87	RT.	6'-0"	12.0	215+05	215+83	RT.	84
217+84	217+84	RT.	4'-0"	9.8	216+88	243+31	LT.	2809
218+22	219+20	RT.	6'-0"	65.3	217+31	222+50	RT.	604
221+40	222+56	LT.	6'-0"	77.3	224+57	225+55	RT.	99
221+40	222+35	RT.	6'-0"	36.7				
223+27	225+52	RT.	6'-0"	150.0				

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
217+31	222+48	RT.	D-2	559	1

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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	161	417

(2) PLAN & PROFILE STA. 225+00.00 TO STA. 240+00.00

STA. 229+50 IN PLACE
24" X 63' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
30' LT. AND 29' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 16 CFS D.A. = 4 ACRES
24" R.C. PIPE = 67 LIN. FT.
24" FES = 2 EA.

P.I. 233+12.95
Δ = 2° 38'18" RT.
D = 0° 30'
T = 263.89'
L = 527.69'
P.C. = 230+49.06
P.T. = 235+76.75
e = N.C.
Ls = N.A.

STA. 233+80 INSTALL
30" X 47' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 222 CU. YDS.

STA. 234+80 INSTALL
30" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 160 CU. YDS.

P.T. STA. 227+04.47 | P.C. STA. 230+49.06 | P.I. STA. 233+12.95 | P.T. STA. 235+76.75

225+00 | 230+00 | 235+00 | 240+00

STATE MAINTENANCE ENDS | REDBUD | VALLEY SPRINGS CITY LIMITS | CONSTRUCTION LIMITS | EXIST. R/W | PROP. R/W | PROP. TCE | ℄ HWY. 65

S37°14'02"E | S34°35'44"E

200' TRANS. | 100' TRANS.

R 100' | R 50' | R 90'

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
225+90	226+00	RT.	6'-0"	6.7
228+60	229+40	LT.	6'-0"	53.3

STA. 225+82 IN PLACE
18"X29' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 38' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 70 CU. YDS. EMB.
= 5 CU. YDS. EXC.

STA. 229+10 CONSTRUCT
APPROACH ON RT. = 18 CU. YDS.

STA. 231+40 IN PLACE
18"X24' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL @ +64
21" X 15" X 31' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 50 CU. YDS. EMB.
= 53 CU. YDS. EXC.

STA. 233+45 IN PLACE
18"X24' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL @ +33
18" X 33' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 70 CU. YDS. EMB.
= 73 CU. YDS. EXC.

STA. 236+03 IN PLACE
24" X 71' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36" X 152' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 47 CFS D.A. = 13.8 ACRES
36" R.C. PIPE = 152 LIN. FT.
36" FES = 2 EA.

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
225+57	229+16	RT.	425
229+29	231+28	RT.	256
233+59	250+50	RT.	1717

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
225+71	229+16	RT.	C	346	
229+36	231+13	RT.	C	177	
233+59	250+50	RT.	D-2	1725	1
235+23	243+30	LT.	D-2	811	

HWY. 65

1130 | 1120 | 1110 | 1100 | 1090 | 1080 | 1070 | 1060 | 1050 | 1040

P.V.I. 228+95.00 ELEV. 1089.85

PROPOSED GRADE

RT. DITCH GRADE -0.31%

RT. DITCH GRADE 2.18%

RT. DITCH GRADE 0.30%

RT. DITCH GRADE 2.34%

0.53%

P.V.C. 236+32.50 ELEV. 1093.68

RT. DITCH GRADE -2.65%

RT. DITCH GRADE 2.53%

LT. DITCH GRADE 0.50%

LT. DITCH GRADE 2.79%

LT. DITCH GRADE 0.54%

LT. DITCH GRADE 2.71%

RT. DITCH GRADE 5.94%

LT. DITCH GRADE -3.87%

226+00.00	1076.51
228+60.00	1081.82
229+40.00	1083.41
229+40.00	1078.12
229+80.00	1078.77
229+50.00	1083.37
229+80.00	1084.02
230+00.00	1080.16
230+86.00	1086.69
231+89.00	1087.00
232+00.00	1087.26
P.V.T. 233+45.00	ELEV. 1092.25
234+80.00	1088.36
236+03.00	1085.10
236+03.00	1083.39
237+00.00	1086.0
239+40.00	1088.57

VC = 900'
K = 382
SSD = 713 FT.

STA. 229+50
F.L. INLET = 1083.09
F.L. OUTLET = 1079.11 LT.
EXIST. F.L. INLET = 1082.15
EXIST. F.L. OUTLET = 1080.08 LT.

STA. 236+03
F.L. INLET = 1084.99
F.L. OUTLET = 1083.65 LT.

VC = 875'
K = 158
SSD = 459 FT.

EXISTING GROUND (HWY. 65 SURFACE)

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-10-17

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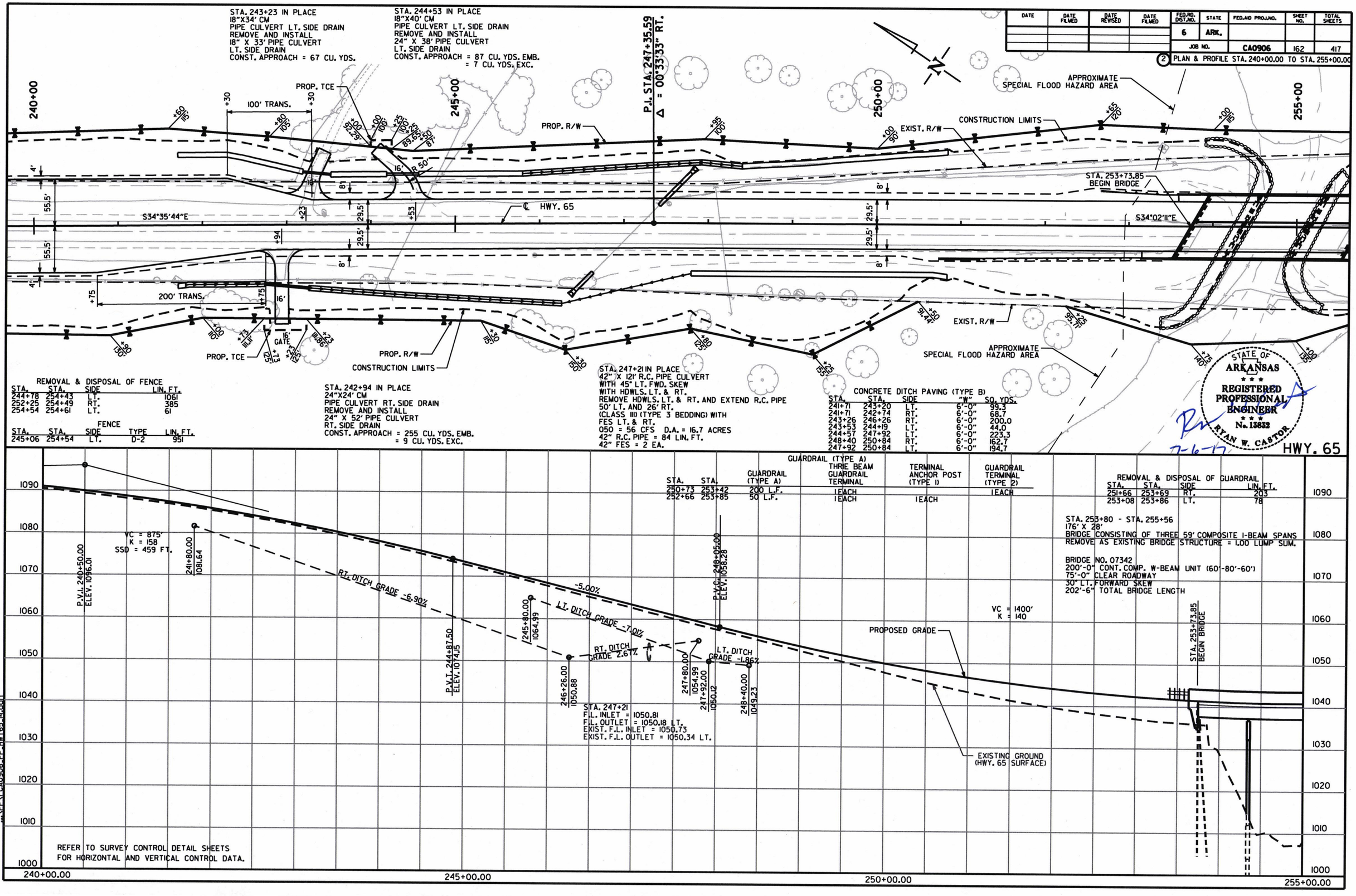
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	162	417

(2) PLAN & PROFILE STA. 240+00.00 TO STA. 255+00.00



REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
244+78	254+43	LT.	1061
252+25	254+49	RT.	385
254+54	254+61	LT.	61

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
245+06	254+54	LT.	D-2	951

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
241+71	243+20	LT.	6'-0"	99.3
241+71	242+74	RT.	6'-0"	68.7
243+26	246+26	RT.	6'-0"	200.0
243+53	244+19	LT.	6'-0"	44.0
244+57	247+92	LT.	6'-0"	223.3
248+40	250+84	RT.	6'-0"	162.7
247+92	250+84	LT.	6'-0"	194.7

GUARDRAIL (TYPE A)

STA.	STA.	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)	GUARDRAIL TERMINAL (TYPE 2)
250+73	253+42	200 L.F.	1 EACH		1 EACH
252+66	253+85	50 L.F.	1 EACH	1 EACH	

REMOVAL & DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
251+66	253+69	RT.	203
253+08	253+86	LT.	78

STA. 253+80 - STA. 255+56
176' X 28'
BRIDGE CONSISTING OF THREE 59' COMPOSITE I-BEAM SPANS
REMOVE AS EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM.

BRIDGE NO. 07342
200'-0" CONT. COMP. W-BEAM UNIT (60'-80'-60')
75'-0" CLEAR ROADWAY
30° LT. FORWARD SKEW
202'-6" TOTAL BRIDGE LENGTH

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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	163	417

2 PLAN & PROFILE STA. 255+00.00 TO STA. 270+00.00

255+00

260+00

265+00

270+00

APPROXIMATE SPECIAL FLOOD HAZARD AREA

CONSTRUCTION LIMITS

STA. 255+76.35 END BRIDGE

S34°02'11"E

P.I. STA. 260+05.93
Δ = 00°31'45" RT.

PROP. TCE

STA. 260+69 CONSTRUCT APPROACH ON LT. = 43 CU. YDS.

STA. 263+51 IN PLACE
24"X32' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
35" X 24" X 31' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 164 CU. YDS.

PROP. R/W

EXIST. R/W

STA. 268+37 IN PLACE
24"X32' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
30" X 44' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 206 CU. YDS.

℄ HWY. 65

S33°30'26"E

R 100'

40'

20'

PROP. TCE

APPROXIMATE SPECIAL FLOOD HAZARD AREA

EXIST. R/W

PROP. R/W

CONSTRUCTION LIMITS

STA. 257+00 IN PLACE
18"X88' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 28" X 20" X 58' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 456 CU. YDS. EMB.
= 12 CU. YDS. EXC.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
259+21	262+50	RT.	6'-0"	219.3
262+65	263+32	LT.	6'-0"	44.7
262+50	263+89	RT.	6'-0"	32.7
263+62	267+60	LT.	6'-0"	265.3
264+23	266+21	RT.	6'-0"	132.0
266+49	269+04	RT.	6'-0"	170.0
269+35	270+36	RT.	6'-0"	67.3

STA. 263+01 IN PLACE
30" X 98' R.C. PIPE CULVERT
WITH 30° RT. FWD. SKEW
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
35' LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
050 = 42 CFS D.A. = 16 ACRES
30" R.C. PIPE = 43 LIN. FT.
30" FES = 2 EA.

STA. 264+10 IN PLACE
30"X36' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
30" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 113 CU. YDS.

STA. 266+36 IN PLACE
24"X32' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
35" X 24" X 28' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 69 CU. YDS.

STA. 269+24 IN PLACE
24"X35' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 31' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 80 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

HWY. 65

REMOVAL & DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
255+50	256+28	LT.	78
255+67	257+71	RT.	204

GUARDRAIL (TYPE A)

STA.	STA.	GUARDRAIL (TYPE A)	GUARDRAIL (TYPE A) THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
256+08	258+77	200 L.F.	1 EACH	
255+65	255+85	INSTALL BRIDGE END TERMINAL		1 EACH

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
255+68	259+97	LT.	454
255+81	256+42	RT.	62
256+70	257+40	RT.	138
260+50	260+85	LT.	35
261+06	283+84	LT.	2530

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
260+06		LT.	D-1	441	
260+85	262+89	LT.	D-1	185	1
262+89	283+84	LT.	C	2175	2

BRIDGE NO. 07342
200'-0" CONT. COMP. W-BEAM UNIT (60'-80'-60')
75'-0" CLEAR ROADWAY
30° LT. FORWARD SKEW
202'-6" TOTAL BRIDGE LENGTH

P.V.I. 255+05.00
ELEV. 1023.30
P.O. ELEV. 1040.85

STA. 255+76.35
END BRIDGE

VC = 1400'
K = 140

P.V.I. 262+05.00
ELEV. 1058.53

P.V.I. 263+40.00
ELEV. 1057.62

P.V.I. 265+00.00
ELEV. 1068.79

VC = 1150'
K = 151
SSD = 448 FT.

P.V.C. 269+40.00
ELEV. 1095.51

PROPOSED GRADE

EXISTING GROUND (HWY. 65 SURFACE)

RT. DITCH GRADE 1.57%

RT. DITCH GRADE 6.98%

5.03%

RT. DITCH GRADE 2.40%

RT. DITCH GRADE 6.88%

LT. DITCH GRADE 0.96%

RT. DITCH GRADE 0.53%

RT. DITCH GRADE 6.99%

262+50.00 1056.20

263+40.00 1057.62

265+00.00 1068.79

266+11.00 1074.42

266+56.00 1075.50

267+20.00 1079.91

267+60.00 1081.92

268+88.00 1088.36

269+40.00 1088.63

STA. 263+01
F.L. INLET = 1057.44
F.L. OUTLET = 1054.59 LT.
EXIST. F.L. INLET = 1057.44
EXIST. F.L. OUTLET = 1055.32 LT.

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

1100 1090 1080 1070 1060 1050 1040 1030 1020 1010

255+00.00 260+00.00 265+00.00 270+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	164	417

(2) PLAN & PROFILE STA. 270+00.00 TO STA. 285+00.00

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
281+23	288+49	RT.	766

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
281+10	288+49	RT.	D-1	835	1

STA. 282+03 IN PLACE
4' X 6' X 116' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE

STA. 281+85 CONSTRUCT
4' X 6' X 170' R.C. BOX CULVERT
WITH 10° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050 = 42 CFS D.A. = 17.2 ACRES

STA. 283+18 INSTALL
18" X 58' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 618 CU. YDS.

STA. 283+62 INSTALL
21" X 15" X 63' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 250 CU. YDS.

℄ HWY. 65 STA. 282+25.00
℄ MURRAY RD. STA. 12+60.00
Δ 90°00'00"

P.I. STA. 273+04.96
Δ = 00°31'45" LT.

CONSTRUCTION LIMITS

PROP. R/W

EXIST. R/W

℄ HWY. 65

S33°30'26"E

S34°02'11"E

N55°57'49"E

P.T. STA. 12+22.40

P.I. STA. 11+79.40

P.C. STA. 11+33.72

PROP. TCE

R 50'

STA. 270+60 IN PLACE
24"X45' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 43' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 101 CU. YDS. EMB.
= 5 CU. YDS. EXC.

STA. 272+08 IN PLACE
24"X60' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 21" X 15" X 55' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 123 CU. YDS. EMB.
= 218 CU. YDS. EXC.

STA. 279+26 IN PLACE
18"X33' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 135 CU. YDS.

STA. 284+31 INSTALL
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 78 CU. YDS.

HWY. 65

STATE MAINTENANCE ENDS

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
270+14	273+00	LT.	6'-0"	190.7
270+79	271+78	RT.	6'-0"	66.0
272+33	272+60	RT.	6'-0"	18.0
278+60	279+08	RT.	6'-0"	32.0
279+52	281+52	RT.	6'-0"	133.3
282+59	282+87	RT.	6'-0"	19.3

P.V.I. 275+15.00
ELEV. 1124.45

EXISTING GROUND
(HWY. 65 SURFACE)

PROPOSED GRADE

RT. DITCH GRADE 6.99%
LT. DITCH GRADE 0.96%
LT. DITCH GRADE 7.16%
RT. DITCH GRADE 2.84%
RT. DITCH GRADE 4.29%
RT. DITCH GRADE -6.93%
RT. DITCH GRADE 6.31%
LT. DITCH GRADE 0.50%
RT. DITCH GRADE -2.99%
LT. DITCH GRADE 0.80%

VC = 1150'
K = 151
SSD = 448 FT.

VC = 525'
K = 183

2.57%

P.V.C. 281+57.50
ELEV. 1107.91

P.V.T. 280+90.00
ELEV. 1109.65

P.V.I. 284+20.00
ELEV. 1101.15

270+04.00	1084.35
270+42.00	1095.77
271+73.00	1100.91
272+38.00	1102.75
272+60.00	1103.69
273+00.00	1104.81
278+60.00	1109.28
281+65.00	1088.14
281+83.00	1088.14
282+87.00	1095.59
282+87.00	1090.74
283+60.00	1099.28
284+20.00	1101.15
284+20.00	1091.40

STA. 281+85
F.L. INLET = 1088.03
F.L. OUTLET = 1086.57 LT.

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

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1150 1140 1130 1120 1110 1100 1090 1080 1070 1060

270+00.00 275+00.00 280+00.00 285+00.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	165	417

(2) PLAN & PROFILE STA. 285+00.00 TO STA. 300+00.00

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
287+90	293+18	RT.	669
296+43	299+48	LT.	527
299+68	307+16	LT.	839

STA. 286+30 CONSTRUCT APPROACH ON LT. = 184 CU. YDS.

STA. 287+57 CONSTRUCT APPROACH ON LT. = 44 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
289+40	289+77	LT.	6'-0"	24.7
298+24	298+99	LT.	6'-0"	50.0
299+66	305+19	LT.	6'-0"	368.7

STA. 288+10 CONSTRUCT APPROACH ON LT. = 109 CU. YDS.

STA. 293+09 INSTALL
QUAD. 36" X 23" X 23' R.C. ARCH PIPE CULVERT
LT. LOW WATER CROSSING
CONST. APPROACH = 1830 CU. YDS. EMB.
= 197 CU. YDS. EXC.

DRV. 293+09 CONSTRUCT APPROACH ON LT. = 105 CU. YDS.

DRV. 293+09 CONSTRUCT APPROACH ON RT. = 3 CU. YDS.

STA. 296+21 INSTALL
TRIP. 57" X 38" X 47' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 729 CU. YDS.

STA. 299+17 IN PLACE
24"X81' RC
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 36" X 51' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 620 CU. YDS. EMB.
= 18 CU. YDS. EXC.

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
296+90	299+48	LT.	CHAIN LINK	389

STA. 288+61 CONSTRUCT APPROACH ON RT. = 55 CU. YDS. EMB.
= 122 CU. YDS. EXC.

DRV. 288+61 CONSTRUCT APPROACH ON RT. = 108 CU. YDS. EXC.

STA. 292+41 CONSTRUCT APPROACH ON RT. = 64 CU. YDS. EMB.
= 10 CU. YDS. EXC.

P.I. 292+18.70
Δ = 13° 19'39" RT.
D = 3° 00'
T = 223.14'
L = 444.25'
P.C. = 289+95.56
P.T. = 294+39.81
e = 0.077 '/'
Ls = 540'

STA. 285+90.56 BEGIN SUPERELEVATION
STA. 291+30.56 MAX. SUPERELEVATION (0.077 '/')
STA. 293+04.81 MAX. SUPERELEVATION (0.077 '/')
STA. 298+44.81 END SUPERELEVATION

℄ HWY. 65 STA. 299+17.00
℄ HWY. 206 STA. 10+00.00
Δ 75°00'00"

STA. 295+55 INSTALL
18" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 144 CU. YDS.

STA. 298+61 IN PLACE
36"X40.5' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 36" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 82 CU. YDS.

HWY. 65

STA. 285+03 IN PLACE
24" X 93' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
24" X 126' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 16 CFS D.A. = 5.6 ACRES
24" R.C. PIPE = 26 LIN. FT.
24" FES = 2 EA.

STA. 289+77 IN PLACE
24" X 98' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
40' LT. AND 8' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 15 CFS D.A. = 5.1 ACRES
24" R.C. PIPE = 56 LIN. FT.
24" FES = 2 EA.

STA. 294+86 IN PLACE
24" X 107' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
36' LT. AND REMOVE 2' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 14 CFS D.A. = 5 ACRES
24" R.C. PIPE = 42 LIN. FT.
24" FES = 2 EA.

STA. 298+24 IN PLACE
48" X 99' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
DBL. 42" X 128' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 193 CFS D.A. = 55 ACRES
42" R.C. PIPE = 256 LIN. FT.
42" FES = 4 EA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

VC = 525'
K = 183

P.V.T. 286+82.50
ELEV. 1101.94

PROPOSED GRADE

0.30%

RT. DITCH GRADE 1.69%
LT. DITCH GRADE 0.30%

285+03.00 1095.00
285+03.00 1092.06
285+40.00 1092.17

286+40.00 1097.32

STA. 285+03
F.L. INLET = 1094.82
F.L. OUTLET = 1092.26 LT.

RT. DITCH GRADE -1.56%
RT. DITCH GRADE 1.23%

288+80.00 1097.94

289+77.00 1096.43

LT. DITCH GRADE 4.12%
LT. DITCH GRADE 0.31%

289+40.00 1089.45
289+77.00 1087.93
290+08.00 1088.03

291+40.00 1098.43

STA. 289+77
F.L. INLET = 1095.99
F.L. OUTLET = 1088.38 LT.
EXIST. F.L. INLET = 1095.66
EXIST. F.L. OUTLET = 1090.40 LT.

EXISTING GROUND (HWY. 65 SURFACE)

RT. DITCH GRADE -1.89%
RT. DITCH GRADE 1.76%

294+00.00 1098.30

294+86.00 1096.67

STA. 294+86
F.L. INLET = 1096.4
F.L. OUTLET = 1091.9
EXIST. F.L. INLET = 1096.48
EXIST. F.L. OUTLET = 1093.00 LT.

296+80.00 1100.08

P.V.C. 296+50.00
ELEV. 1104.84

VC = 700'
K = 143

LT. DITCH GRADE 0.70%
LT. DITCH GRADE 5.45%

297+40.00 1094.96

298+24.00 1095.55

STA. 298+24
F.L. INLET = 1096.26
F.L. OUTLET = 1095.62 LT.

299+80.00 1104.06

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

285+00.00 290+00.00 295+00.00 300+00.00

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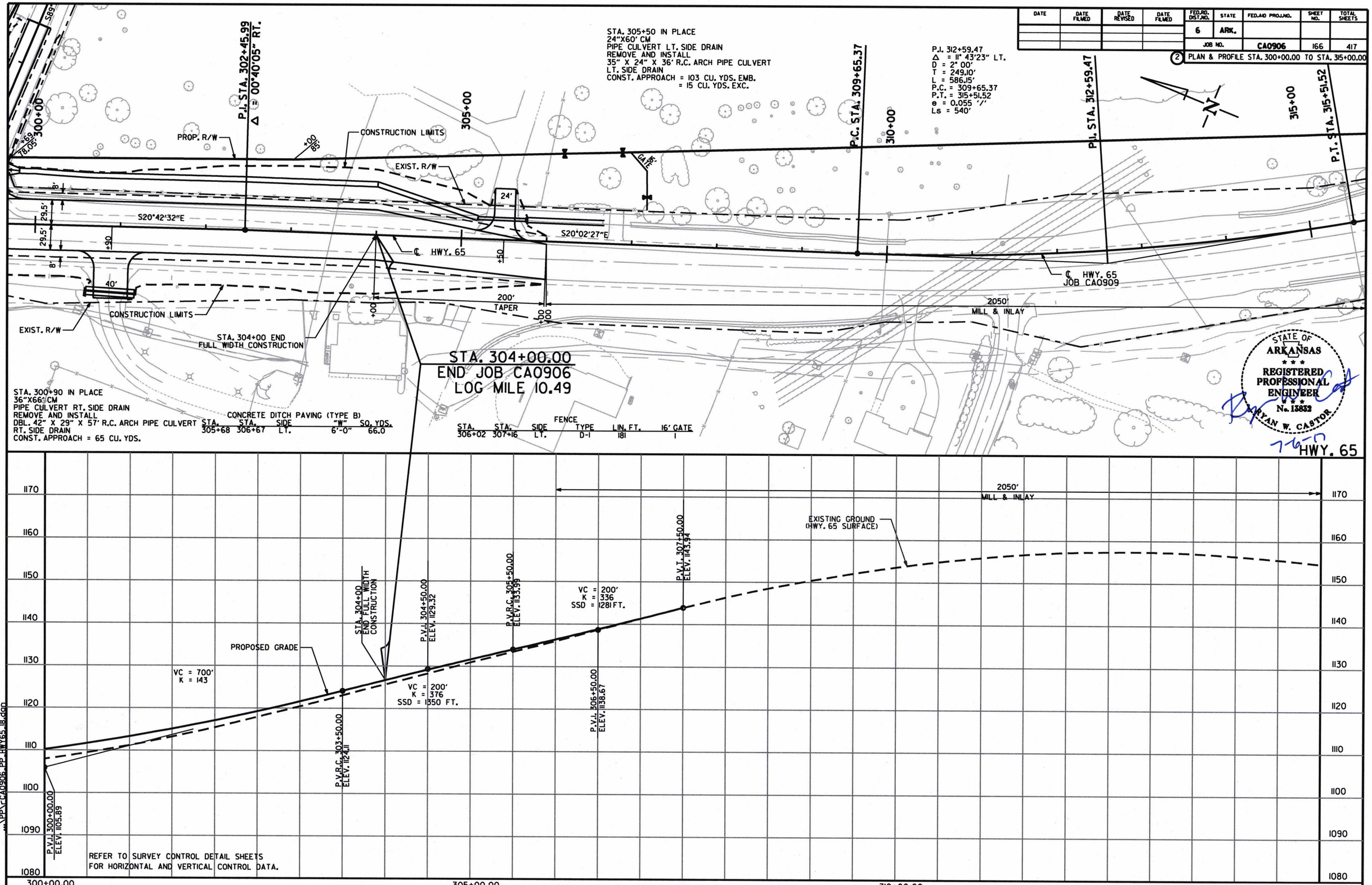
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	166	417

(2) PLAN & PROFILE STA. 300+00.00 TO STA. 315+00.00



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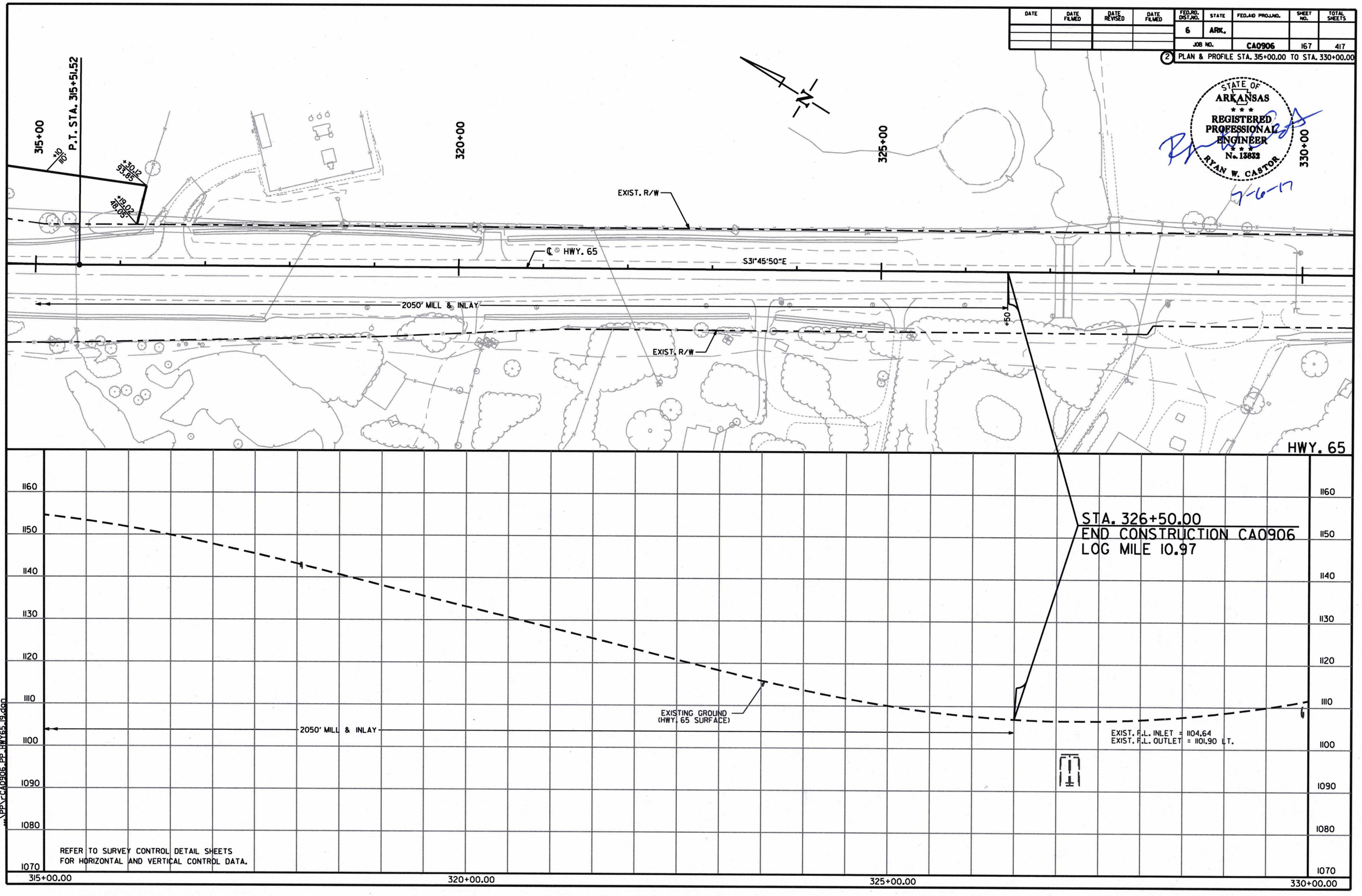
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	167	417

(2) PLAN & PROFILE STA. 315+00.00 TO STA. 330+00.00



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR

7-6-17

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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	168	417

PLAN & PROFILE STA. 10+00.00 TO STA. 14+39.88

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

P.I. 13+20.76
Δ = 30° 34'03" RT.
D = 25° 0'
T = 62.63'
L = 122.27'
P.C. = 12+58.13
P.T. = 13+80.40
e = N.C.
Ls = N.A.

P.I. 9+59.87
Δ = 4° 54'03" LT.
D = 2° 45'
T = 89.16'
L = 178.22'
P.C. = 8+70.71
P.T. = 10+48.93
e = N.C.
Ls = N.A.

10+00
P.T. STA. 10+48.93
P.C. STA. 12+58.13
P.I. STA. 13+20.76
P.T. STA. 13+80.40
P.C. STA. 8+70.71
POB 8+57.25
P.I. STA. 9+59.87
CONSTRUCTION LIMITS
50' SHLDR. TAPER
℄ ASPEN RD.
ASPEN RD. S.
N0°29'46"W
N4°24'18"E
R 40'
N30°04'11"E
STATE MAINTENANCE ENDS
PROP. R/W
EXIST. R/W
S44°55'43"E
EXIST. R/W
CONSTRUCTION LIMITS
135+00
℄ HWY. 65
HWY. 65
℄ HWY. 65 STA. 136+37.00
℄ ASPEN RD. STA. 14+39.88
Δ 75°00'00"
R 50'
P.C. STA. 138+34.21

ASPEN ROAD

P.V.I. 10+00.00
ELEV. 1207.72
P.V.C. 10+94.50
ELEV. 1207.94
VC = 135'
K = 26
4.15%
P.V.T. 11+39.50
ELEV. 1217.89
P.V.I. 10+72.00
ELEV. 1211.14
PROPOSED GRADE
10%
EXISTING GROUND
P.V.C. 12+80.06
ELEV. 1231.94
VC = 120'
K = 72
SSD = 168 FT.
P.V.I. 13+40.00
ELEV. 1237.94
P.V.T. 14+00.00
ELEV. 1237.94
℄ ASPEN ROAD
STA. 14+09.34 =
℄ HWY. 65
STA. 136+44.90, 29.50 RT.
ELEV. 1237.94

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

1260 1250 1240 1230 1220 1210 1200 1190 1180 1170

9+00.00 10+00.00 11+00.00 12+00.00 13+00.00 14+00.00 15+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	169	417
				2	PLAN & PROFILE STA. 13+00 TO STA. 17+38			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STA. 13+03 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 3 SQ. YDS.

APPROXIMATE SPECIAL FLOOD HAZARD AREA

POB 10+00.00

CONSTRUCTION LIMITS

P.I. 13+44.80
Δ = 26° 56'45" LT.
D = 11° 30'
T = 119.37'
L = 234.32'
P.C. = 12+25.43
P.T. = 14+59.75
e = N.C.
Ls = N.A.

P.C. STA. 12+25.43

EXIST. R/W

℄ HWY. 65

HWY. 65

STATE MAINTENANCE ENDS

CONSTRUCTION LIMITS

N81°53'18"E

℄ ELM ST.

STA. 14+22 IN PLACE
30" X 30' TRIP. R.C. PIPE CULVERT
REMOVE
STA. 14+24 CONSTRUCT
8' X 4' X 56' QUINT. R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q10 = 1635 CFS D.A. = 3.91 SQ. MI.
SPAN = 45.23'

ELM ST.

50' TRANS.

P.I. STA. 13+44.80

STA. 13+80 CONSTRUCT
APPROACH ON RT. = 61 CU. YDS. EMB
= 1 CU. YDS. EXC.

℄ HWY. 65 STA. 200+23.43
℄ ELM STR. STA. 15+07.25
Δ 75°00'0.0"

P.C. STA. 14+84.98

P.I. STA. 16+26.98

P.T. STA. 16+65.50

P.I. 16+26.98
Δ = 40° 15'26" RT.
D = 50° 00'
T = 42.00'
L = 80.52'
P.C. = 15+84.98
P.T. = 16+65.50
e = N.C.
Ls = N.A.

SCHOOL ST.

POE 18+00.02

STA. 16+62 CONSTRUCT LT.
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 16+00 CONSTRUCT
APPROACH ON RT. = 41 CU. YDS.
= 14 CU. YDS. EXC.

STA. 17+06 CONSTRUCT
APPROACH ON LT. = 7 CU. YDS. EMB.
= 15 CU. YDS. EXC.

℄ RALLY HILL RD.

RALLY HILL RD.

PROP. R/W

S84°48'01"E

APPROXIMATE SPECIAL FLOOD HAZARD AREA

EXIST. R/W

P.C. STA. 202+91.93

PROP. R/W

CONSTRUCTION LIMITS

HOG CREEK RD.

P.T. STA. 14+59.75

PROP. R/W

N54°56'33"E

N

ELM STREET & RALLY HILL RD.

STA. 13+60 CONSTRUCT
DROP INLET ON LT. H = 3'-6"
WITH 8' EXTENSION AND 18" X 33"
R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING)
TO R.C. BOX CULVERT ON LT.
TYPE MO DROP INLET = 4' DIA
TYPE C DROP INLET = 4' X 2'-6"

P.V.I. 13+00.00
ELEV. 1051.01
P.V.C. 13+05.00
ELEV. 1050.91

PROPOSED GRADE

VC = 150'
K = 24

+60
TOP D.I. = 1050.55

4%

-2.34%

EXISTING GROUND

50' TRANS.
MILL & OVERLAY

F.L. D.I. = 1047.05

18" X 33"
@ 1%

P.V.I. 13+80.00
ELEV. 1049.30
P.C. ELEV. 1050.45

STA. 14+22
F.L. INLET = 1045.12
F.L. OUTLET = 1044.72

STA. 14+24
F.L. INLET = 1045.77
F.L. OUTLET = 1044.73
F.L. 18" INVERT = 1046.72

P.V.T. 14+55.00
ELEV. 1052.30

℄ ELM STREET STA. 14+78.26 =
28.00' RT. OF ℄ HWY. 65 STA. 200+15.93
ELEV. 1053.23

℄ RALLY HILL RD. STA. 15+36.24 =
28.00' LT. OF ℄ HWY. 65 STA. 200+30.93
ELEV. 1053.55

HWY. 65

-4%

P.V.C. 16+07.50
ELEV. 1050.70

VC = 85'
K = 37

-1.68%

P.V.T. 16+92.50
ELEV. 1048.29

P.V.I. 17+38.00
ELEV. 1047.52

50' TRANS.
MILL & OVERLAY

P.V.I. 16+50.00
ELEV. 1049.00
P.C. ELEV. 1049.25

1090 1080 1070 1060 1050 1040 1030 1020 1010 1000

10+00.00 11+00.00 12+00.00 13+00.00 14+00.00 15+00.00 16+00.00 17+00.00 18+00.00

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

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	170	417

(2) PLAN & PROFILE STA. 9+99.07 TO STA. 12+60.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

STA. 11+80 IN PLACE
24" X 55' R.C. PIPE CULVERT
REMOVE
STA. 11+66 CONSTRUCT
36" X 67' R.C. PIPE CULVERT
WITH 36° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
QIO = 67 CFS D.A. = 13 ACRES
36" R.C. PIPE = 67 LIN. FT.
36" FES = 2 EA.

P.I. 11+79.40
Δ = 33° 55'13" RT.
D = 38° 15'
T = 45.68'
L = 88.68'
P.C. = 11+33.72
P.T. = 12+22.40
e = N.C.
Ls = N.A.

PROP. R/W
CONSTRUCTION LIMITS
EXIST. R/W
℄ HWY. 65
℄ MURRAY RD. = STA. 12+60.00
Δ = 90°00'00"
PROP. TCE
POB 9+93.78
10+00
S34°02'11"E
N89°53'02"E
MURRAY RD.
N55°57'49"E
100' TRANS.
STATE MAINTENANCE ENDS
℄ MURRAY RD.
P.C. STA. 11+33.72
P.I. STA. 11+79.40
P.I. STA. 12+22.40
285+00
CONSTRUCTION LIMITS
EXIST. R/W
PROP. R/W
PROP. TCE

PROPOSED GRADE
EXISTING GROUND
VC = 200'
K = 16
-8%
4.58%
4%
2%
100' TRANS.
P.V.I. 9+99.07
ELEV. 1107.93
P.V.C. 10+00.00
ELEV. 1107.86
P.V.I. 11+00.00
ELEV. 1099.86
P.V.T. 12+00.00
ELEV. 1104.44
P.V.I. 12+15.50
ELEV. 1105.15
P.V.I. 12+28.50
ELEV. 1105.67
℄ MURRAY ROAD
STA. 12+30.50 =
℄ HWY. 65
STA. 282+25, 29.50 RT.
ELEV. 1105.71

STA. 11+66
F.L. INLET = 1093.33
F.L. OUTLET = 1089.28 LT.

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

1140 1130 1120 1110 1100 1090 1080 1070 1060 1050

9+00.00 10+00.00 11+00.00 12+00.00 13+00.00

MURRAY RD.

7/6/2017
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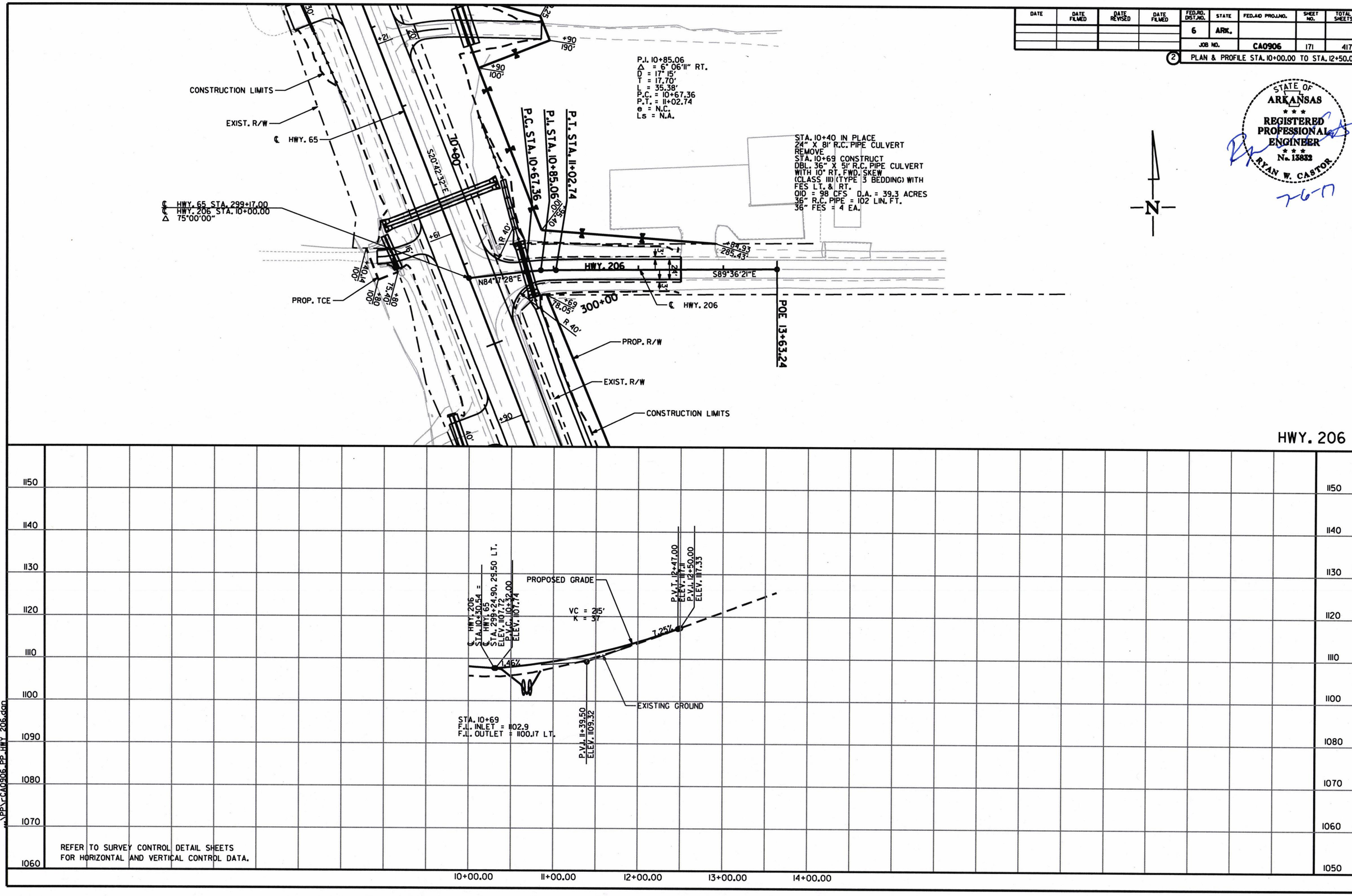
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	171	417

(2) PLAN & PROFILE STA. 10+00.00 TO STA. 12+50.00



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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

7/6/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	172	417

(2) PLAN & PROFILE STA. 10+00.00 TO STA. 13+55.16

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
7-6-17

DRV. 293+09 CONSTRUCT APPROACH ON LT. = 105 CU. YDS.

STA. 293+09 INSTALL
QUAD. 36" X 23" X 23' R.C. ARCH PIPE CULVERT
LT. LOW WATER CROSSING
CONST. APPROACH = 1830 CU. YDS. EMB.
= 197 CU. YDS. EXC.

PROP. R/W
P.I. STA. 292+18.70
CONSTRUCTION LIMITS
PROP. TCE
PROP. PDE
PROP. R/W
EXIST. R/W
P.T. STA. 294+39.81
CONSTRUCTION LIMITS
℄ HWY. 65
295+00
EXIST. R/W
STATE MAINTENANCE ENDS
CONSTRUCTION LIMITS

DRV. 293+09 CONSTRUCT APPROACH ON RT. = 3 CU. YDS.

SAGEMORE LOOP APPROACH

℄ DRIVEWAY STA. 10+29.50 = ℄ HWY. 65 STA. 293+09, 29.50 LT.
ELEV. 1101.74
P.V.I. 10+31.50 ELEV. 1107.89
P.V.I. 10+44.50 ELEV. 1107.84
P.V.I. 10+59.50 ELEV. 1107.09
P.V.I. 10+74.50 ELEV. 1105.65

7.64%
0.36%
-5%
-9.6%
PROPOSED GRADE
-12%
-7.4%
-2.8%
EXISTING GROUND (HWY. 65 SURFACE)

P.V.I. 12+20.50 ELEV. 1088.13
P.V.I. 12+35.50 ELEV. 1087.02
P.V.I. 12+50.50 ELEV. 1086.60

STA. 12+90
F.L. INLET = 1284.45
F.L. OUTLET = 1283.92 LT.

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

1120 1115 1110 1105 1100 1095 1090 1085 1080 1075

10+00.00 11+00.00 12+00.00 13+00.00

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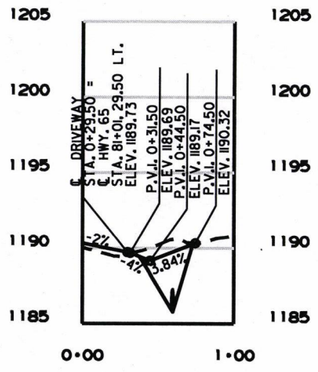
DATE	DATE FILMED	DATE REVISED	DATE FILMED

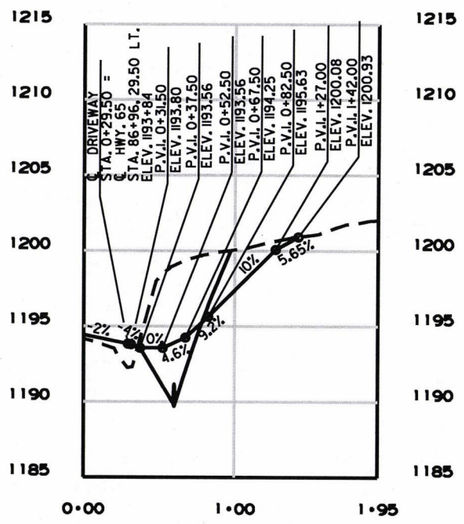
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	173	417

(2) APPROACH PROFILES

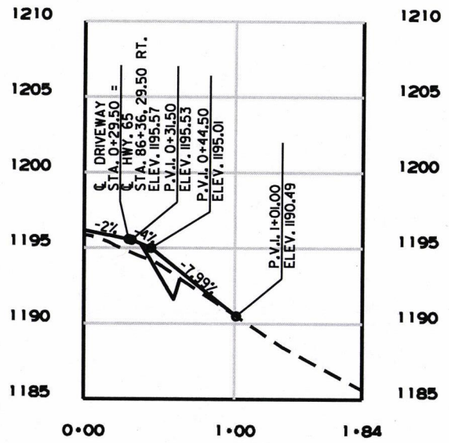
STA. 081+01 CONST. APPROACH LT.



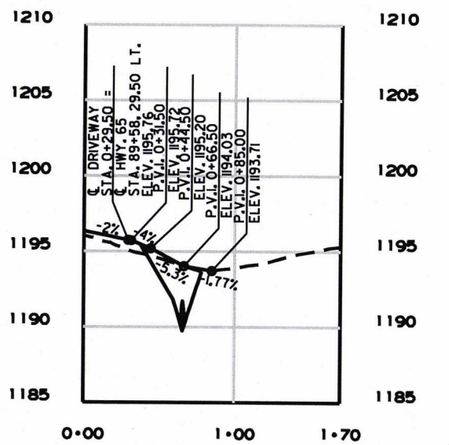
STA. 082+96 CONST. APPROACH LT.



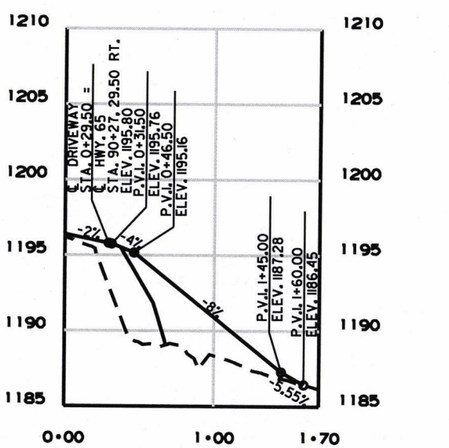
STA. 086+36 CONST. APPROACH RT.



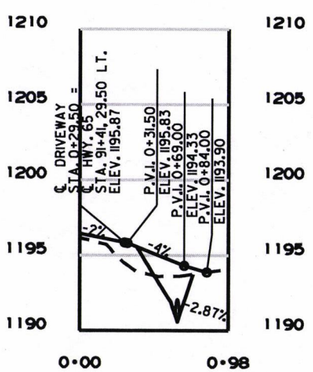
STA. 089+58 CONST. APPROACH LT.



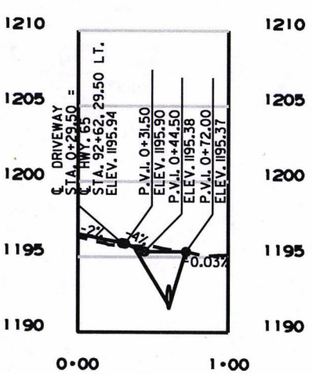
STA. 090+27 CONST. APPROACH RT.



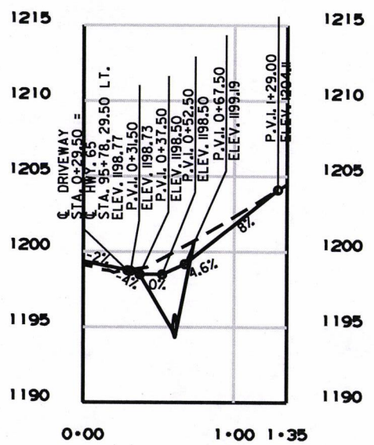
STA. 091+41 CONST. APPROACH LT.



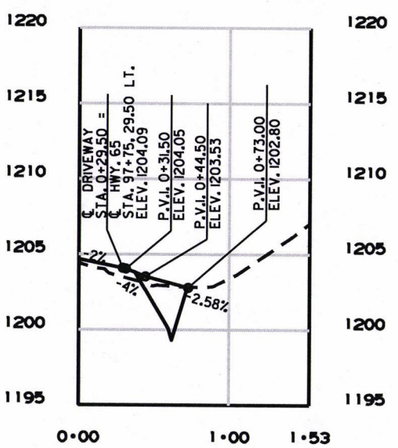
STA. 092+62 CONST. APPROACH LT.



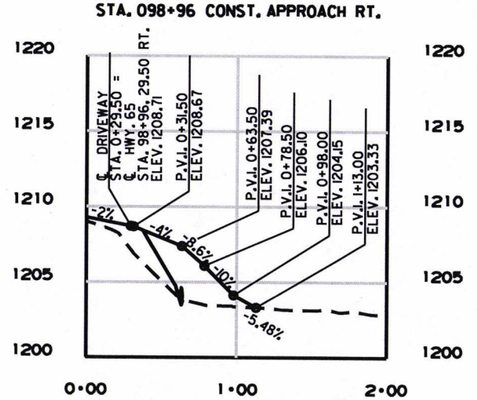
STA. 095+78 CONST. APPROACH LT.



STA. 097+75 CONST. APPROACH LT.



STA. 098+96 CONST. APPROACH RT.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

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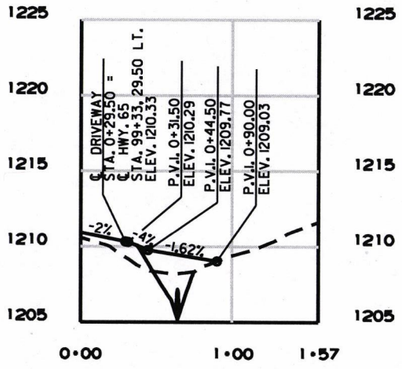
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	174	417

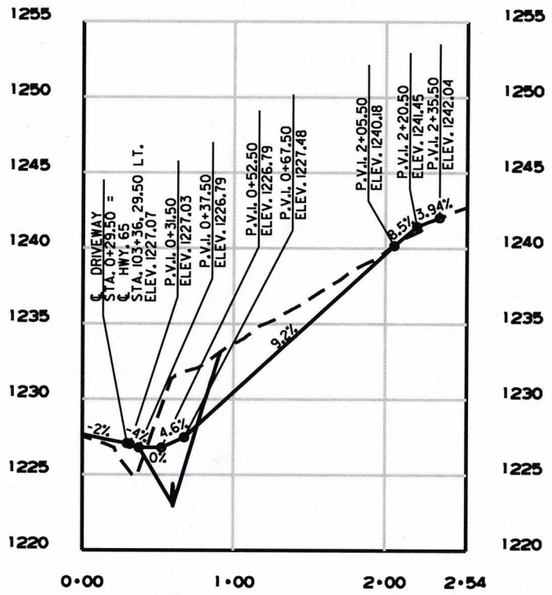
(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

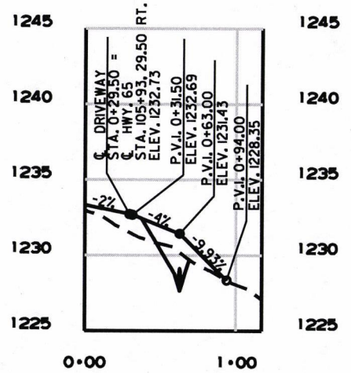
STA. 099+33 CONST. APPROACH LT.



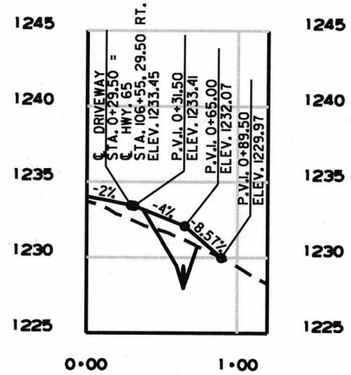
STA. 103+36 CONST. APPROACH LT.



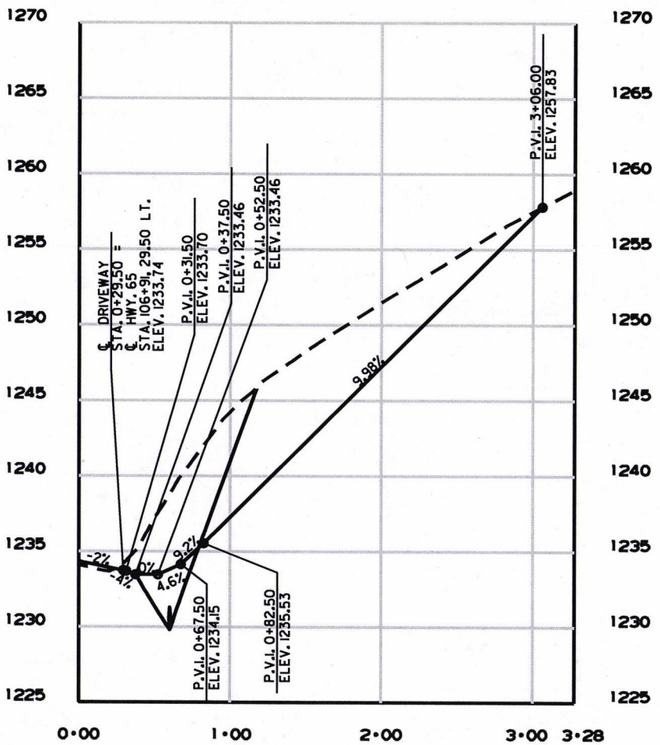
STA. 105+93 CONST. APPROACH RT.



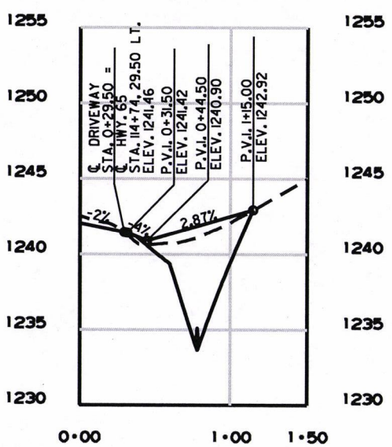
STA. 106+55 CONST. APPROACH RT.



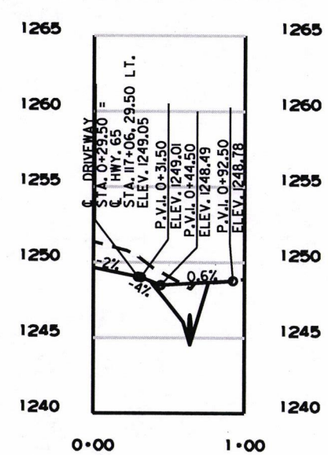
STA. 106+91 CONST. APPROACH LT.



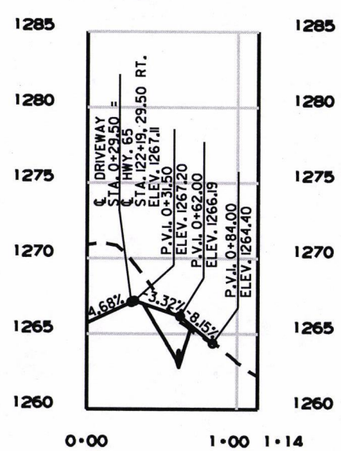
STA. 114+74 CONST. APPROACH LT.



STA. 117+06 CONST. APPROACH LT.



STA. 122+19 CONST. APPROACH RT.



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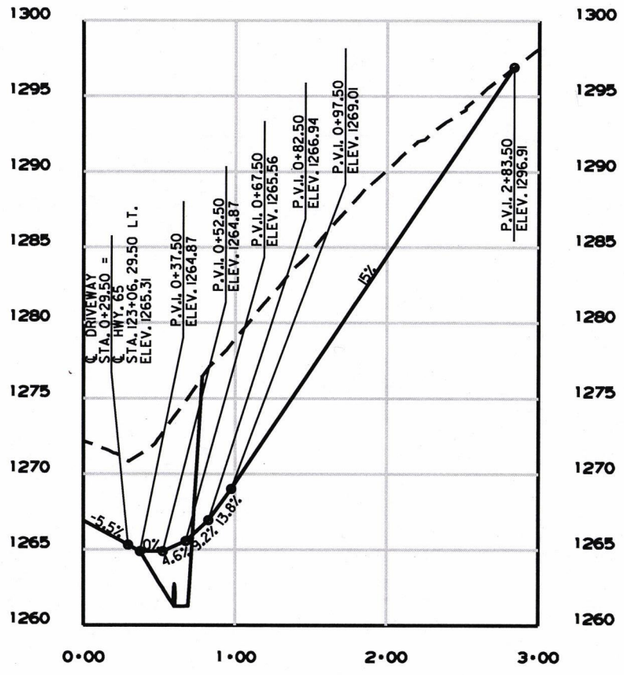
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	175	417

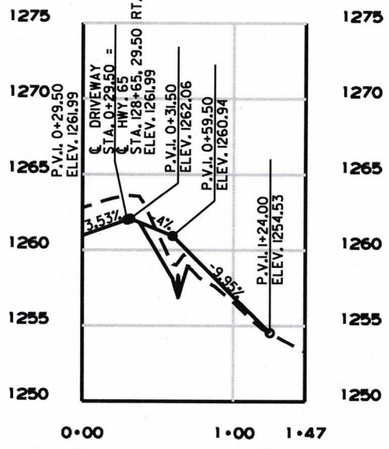
(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

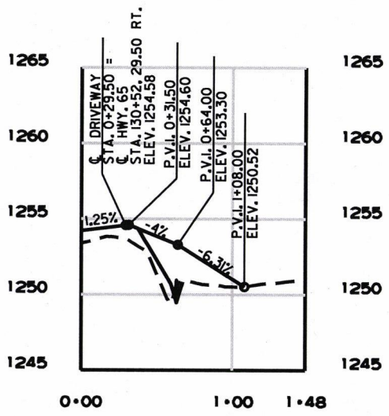
STA. 123+06 CONST. APPROACH LT.



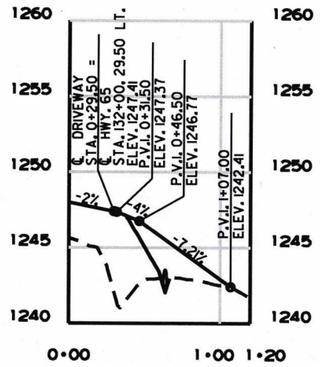
STA. 128+65 CONST. APPROACH RT.



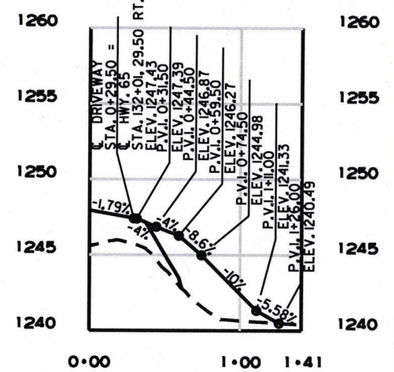
STA. 130+52 CONST. APPROACH RT.



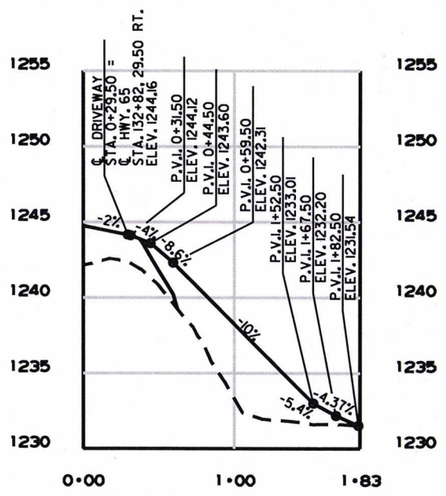
STA. 132+00 CONST. APPROACH LT.



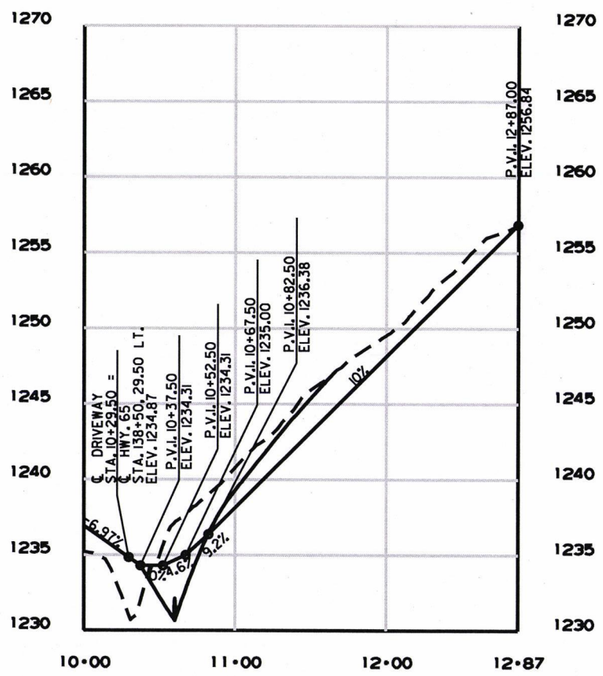
STA. 132+01 CONST. APPROACH RT.



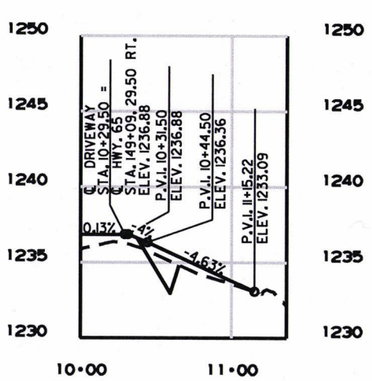
STA. 132+82 CONST. APPROACH RT.



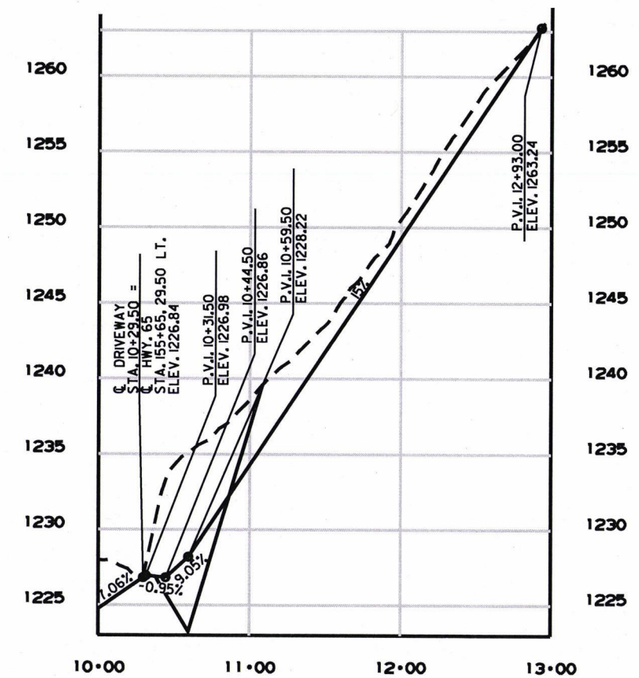
STA. 138+50 CONST. APPROACH LT.



STA. 149+09 CONST. APPROACH RT.



STA. 155+65 CONST. APPROACH LT.



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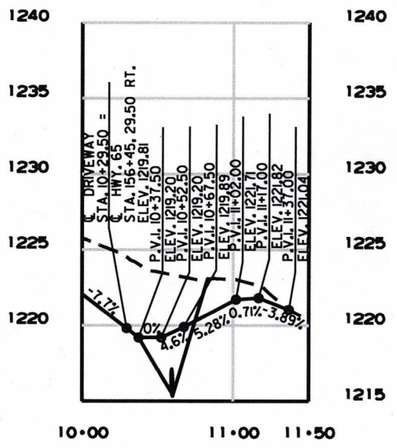
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	176	417

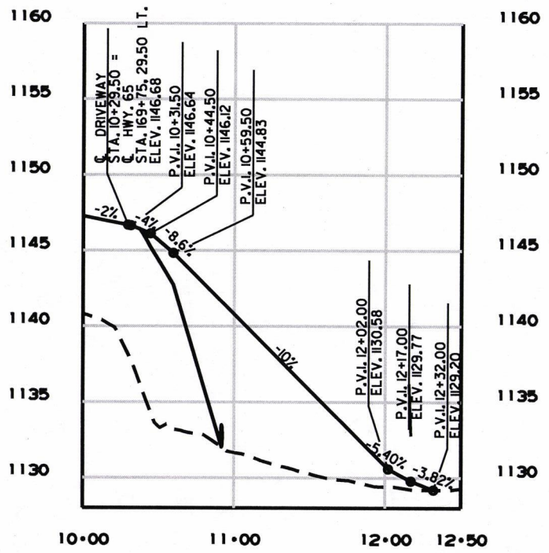
(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

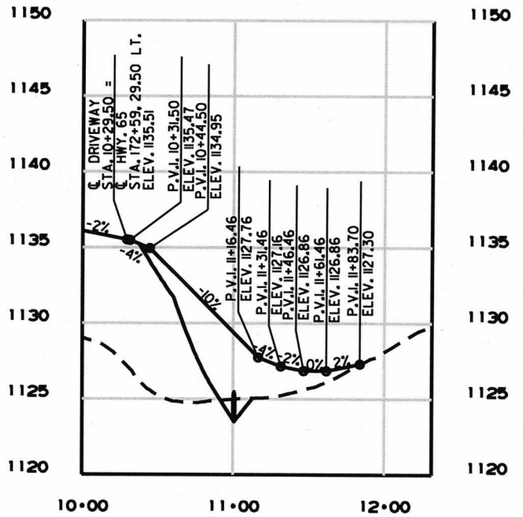
STA. 156+45 CONST. APPROACH RT.



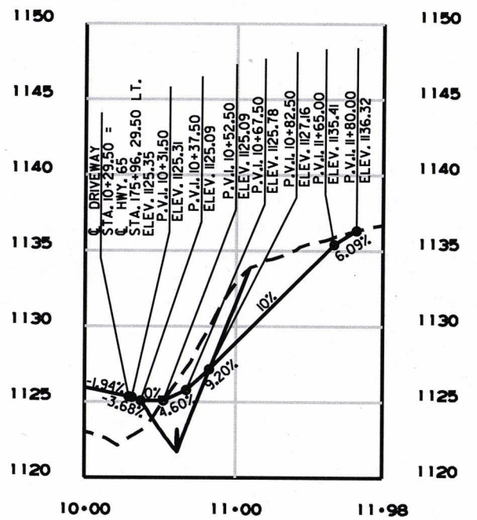
STA. 169+75 CONST. APPROACH LT.



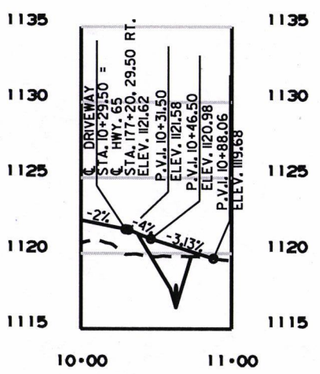
STA. 172+59 CONST. APPROACH LT.



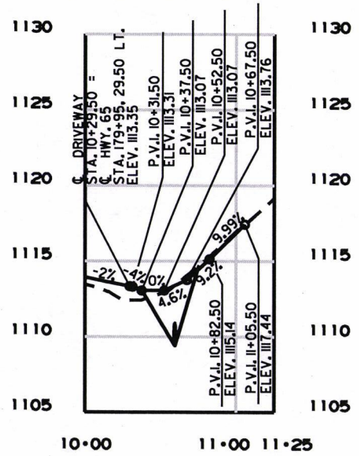
STA. 175+96 CONST. APPROACH LT.



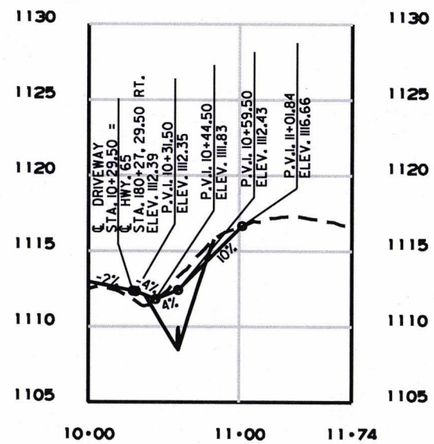
STA. 177+20 CONST. APPROACH RT.



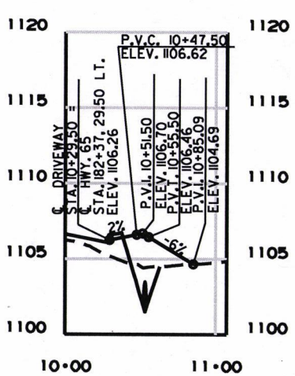
STA. 179+95 CONST. APPROACH LT.



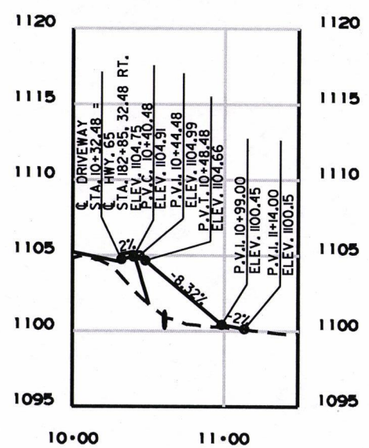
STA. 180+27 CONST. APPROACH RT.



STA. 182+37 CONST. APPROACH LT.



STA. 182+85 CONST. APPROACH RT.



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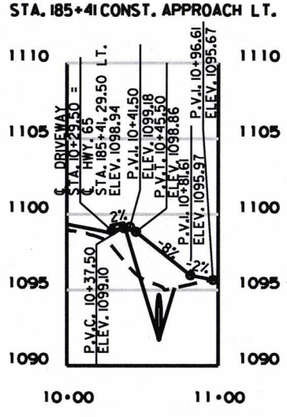
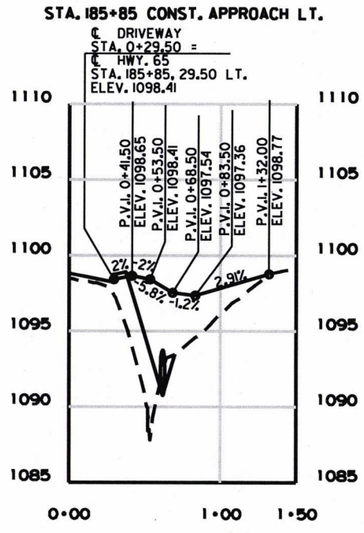
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	177	417

(2) APPROACH PROFILES

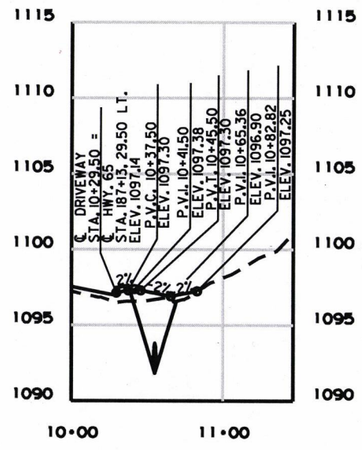
STA. 185+41 CONST. APPROACH LT.



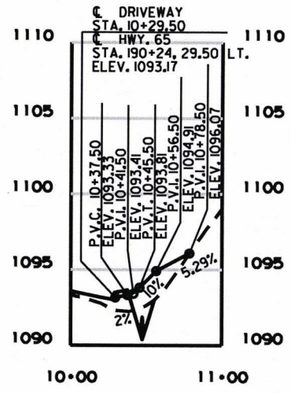
STA. 185+85 CONST. APPROACH LT.



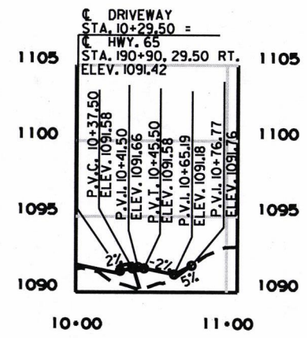
STA. 187+13 CONST. APPROACH LT.



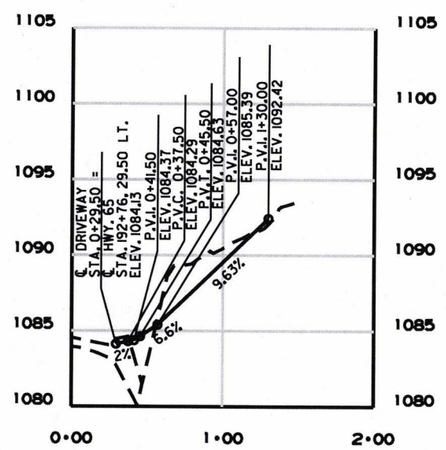
STA. 190+24 CONST. APPROACH LT.



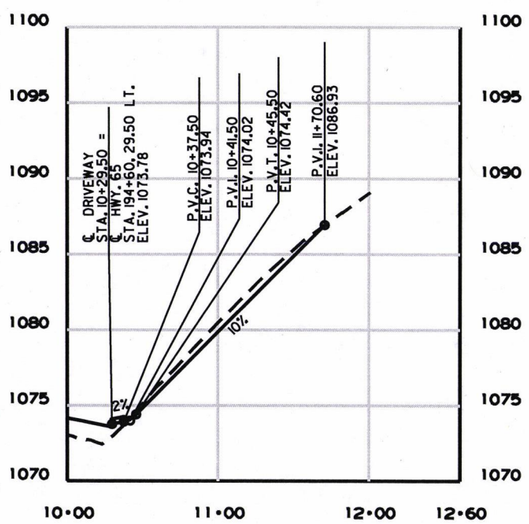
STA. 190+90 CONST. APPROACH RT.



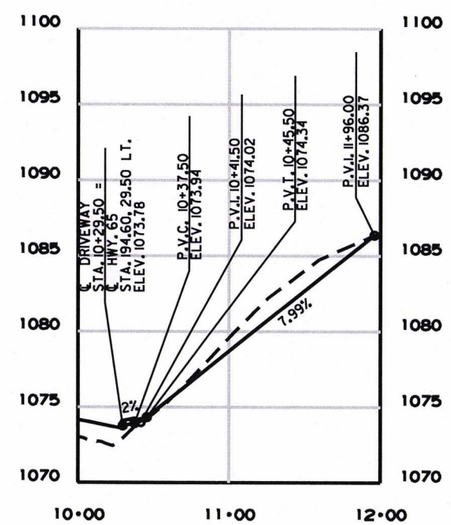
STA. 192+76 CONST. APPROACH LT.



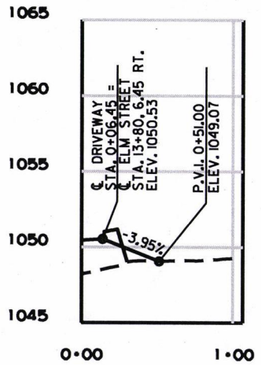
STA. 194+60 CONST. APPROACH LT.



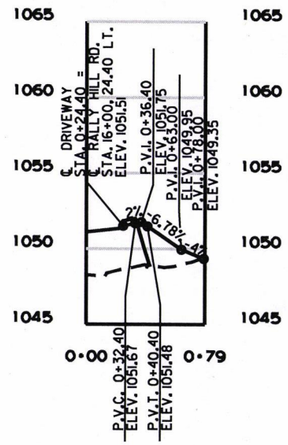
STA. 194+60 (SCHOOL ST.) CONST. APPROACH LT.



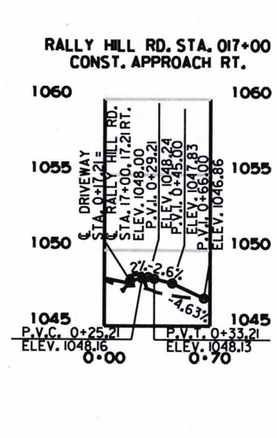
ELM ST. STA. 013+80 CONST. APPROACH RT.



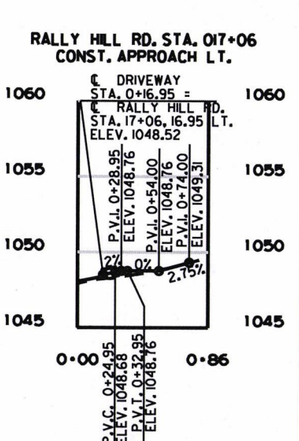
RALLY HILL RD. STA. 016+00 CONST. APPROACH LT.



RALLY HILL RD. STA. 017+00 CONST. APPROACH RT.



RALLY HILL RD. STA. 017+06 CONST. APPROACH LT.



STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 12711
STEVEN R. BEAM, JR.
7-6-17

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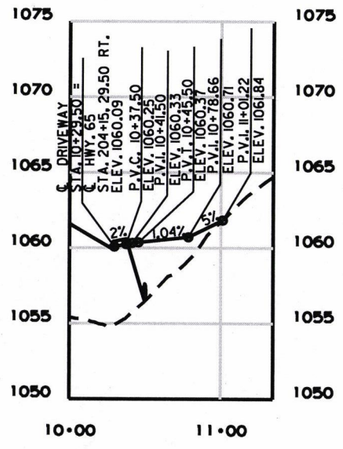
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	178	417

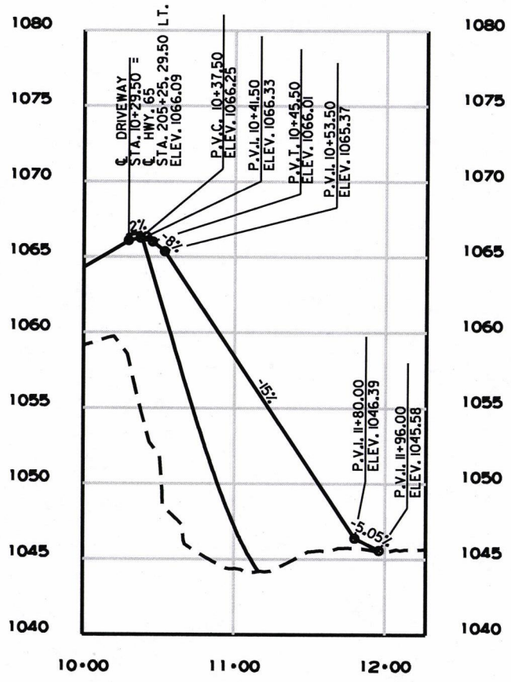
(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13711
STEVEN R. BEAM, JR.
7-6-17

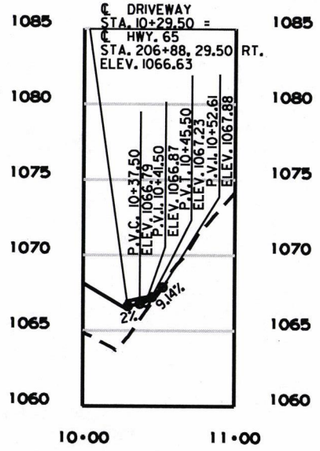
STA. 204+15 CONST. APPROACH RT.



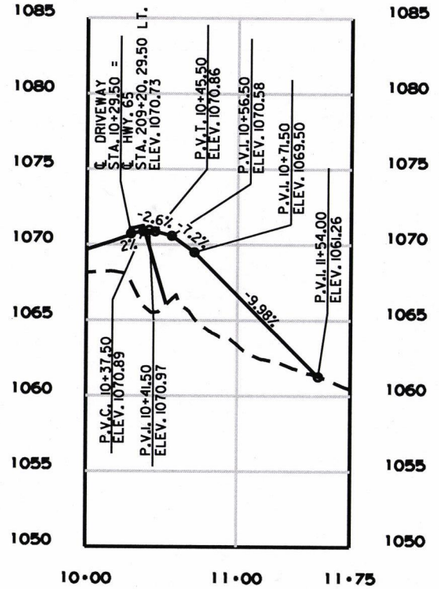
STA. 205+25 CONST. APPROACH LT.



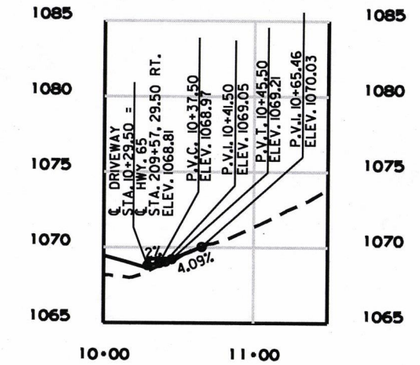
STA. 206+88 CONST. APPROACH RT.



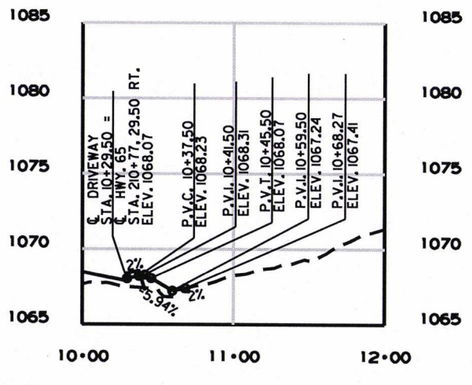
STA. 209+20 CONST. APPROACH LT.



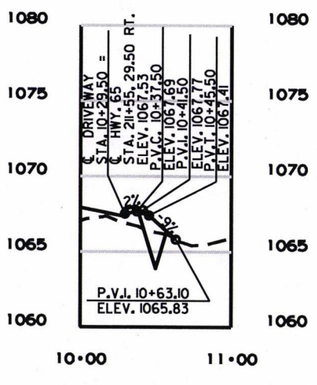
STA. 209+57 CONST. APPROACH RT.



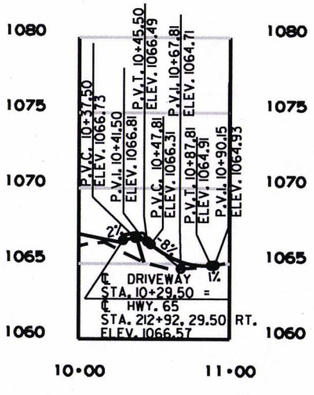
STA. 210+77 CONST. APPROACH RT.



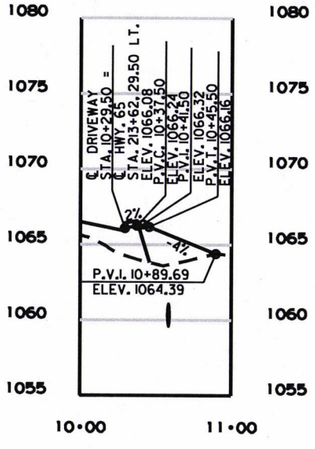
STA. 211+55 CONST. APPROACH RT.



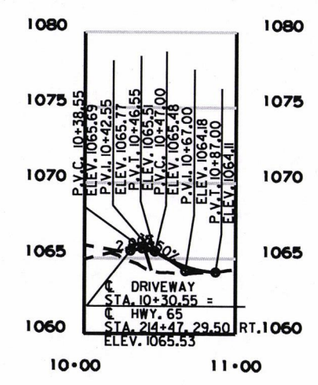
STA. 212+92 CONST. APPROACH RT.



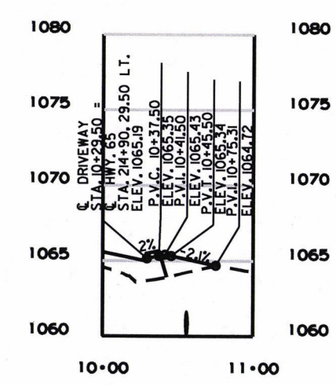
STA. 213+62 CONST. APPROACH LT.



STA. 214+47 CONST. APPROACH RT.



STA. 214+90 CONST. APPROACH LT.



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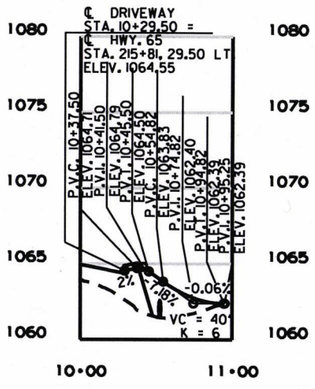
				6	ARK.			
				JOB NO.		CA0906	179	417

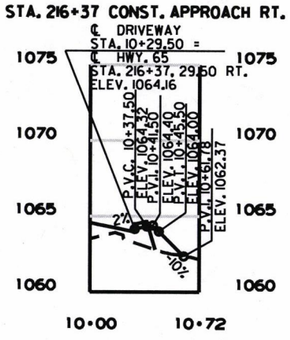
(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-18-17

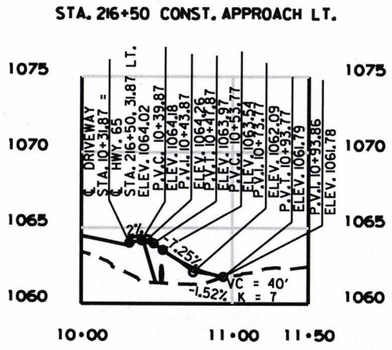
STA. 215+81 CONST. APPROACH LT.



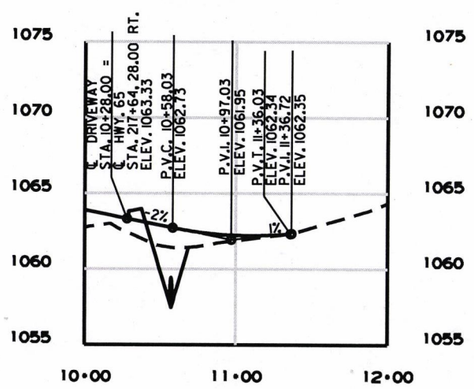
STA. 216+37 CONST. APPROACH RT.



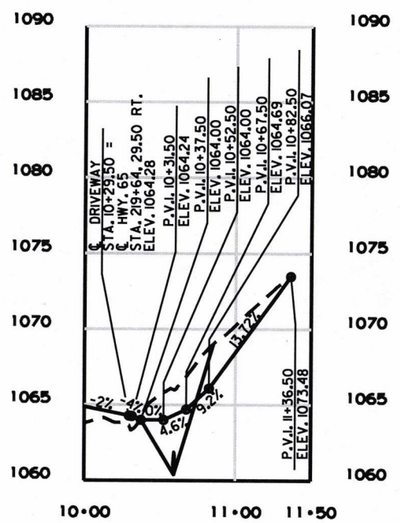
STA. 216+50 CONST. APPROACH LT.



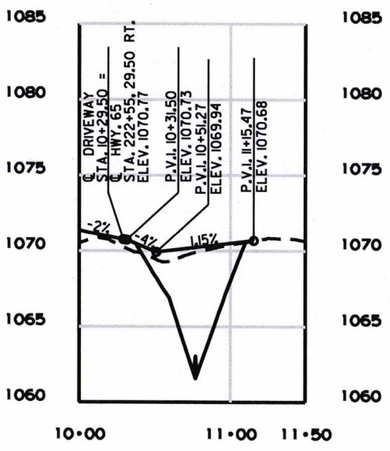
STA. 217+47 (CHURCH ST.) CONST. APPROACH RT.



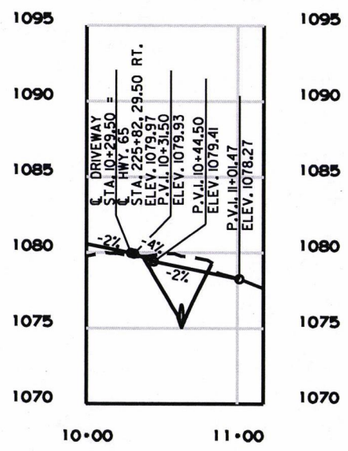
STA. 219+64 CONST. APPROACH RT.



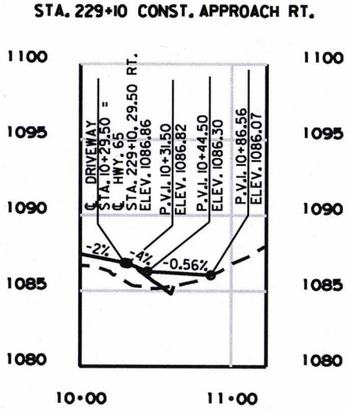
STA. 222+55 CONST. APPROACH RT.



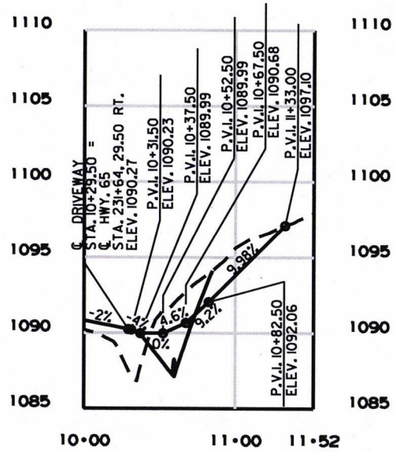
STA. 225+82 CONST. APPROACH RT.



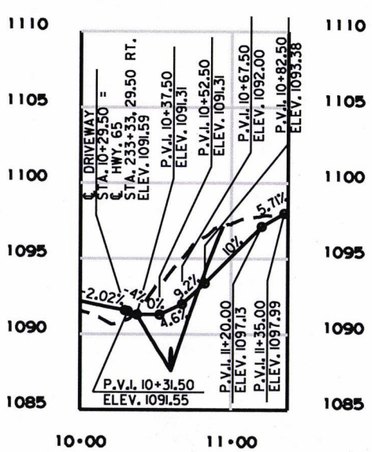
STA. 229+10 CONST. APPROACH RT.



STA. 231+64 CONST. APPROACH RT.



STA. 233+33 CONST. APPROACH RT.



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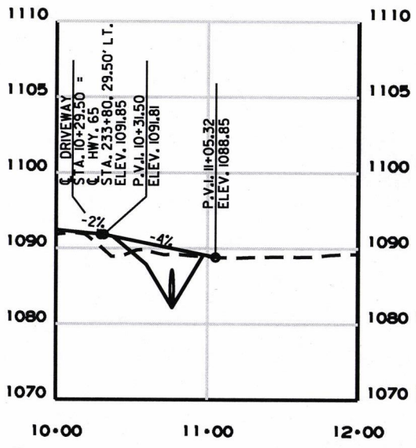
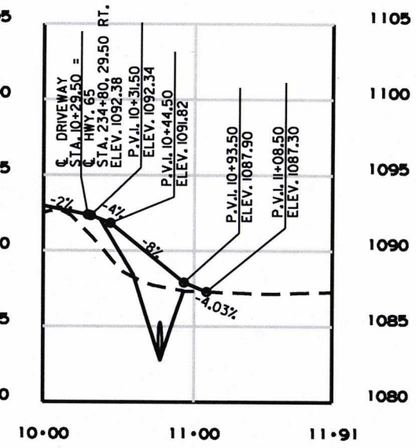
				6	ARK.			
				JOB NO.		CA0906	180	417

(2) APPROACH PROFILES

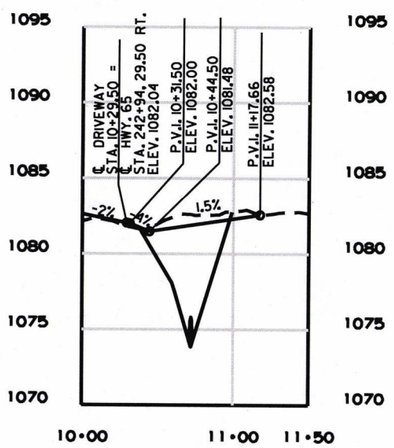
STA. 233+80 CONST. APPROACH LT.



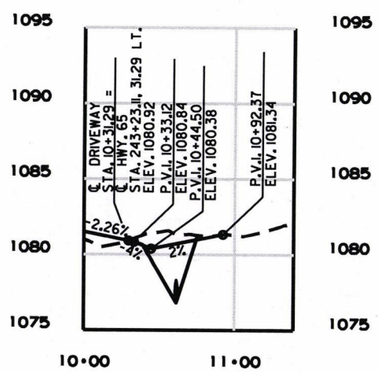
STA. 234+80 (REDBUD E.) CONST. APPROACH RT.



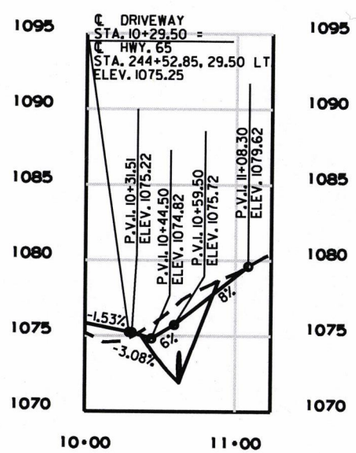
STA. 242+94 CONST. APPROACH RT.



STA. 243+23 CONST. APPROACH LT.

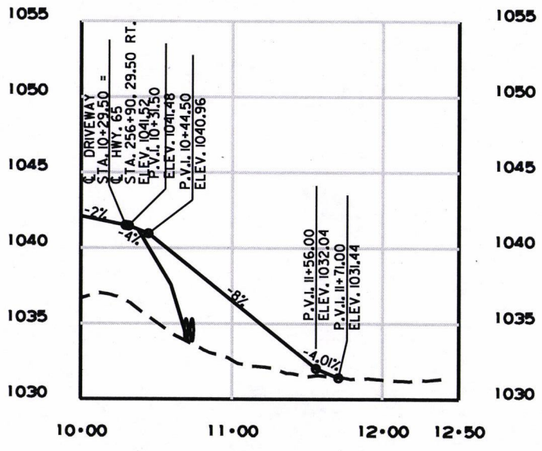


STA. 244+53 CONST. APPROACH LT.

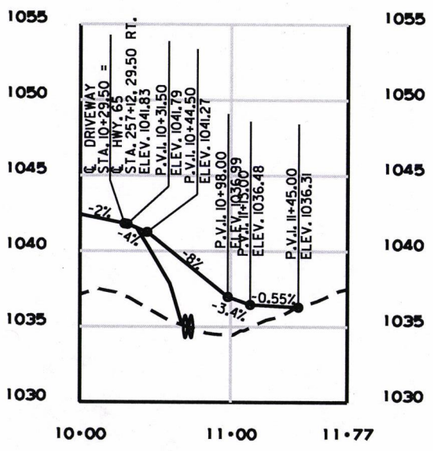


STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-18-17

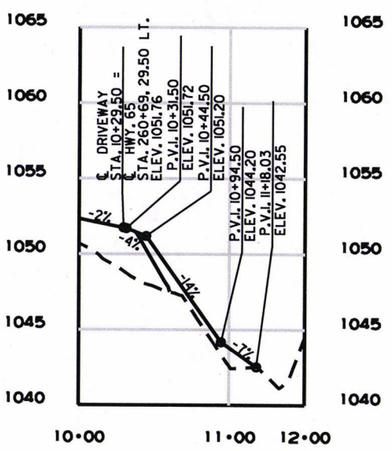
STA. 257+00 CONST. NORTH APPROACH RT.



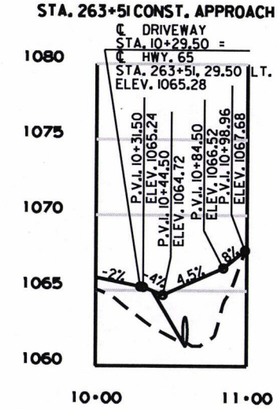
STA. 257+00 CONST. SOUTH APPROACH RT.



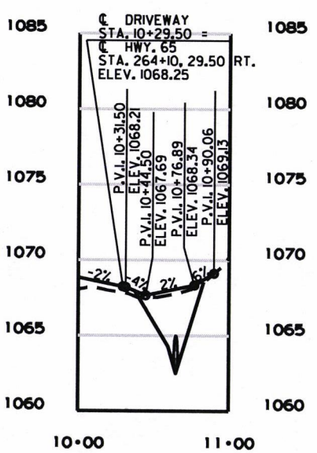
STA. 260+69 CONST. APPROACH LT.



STA. 263+51 CONST. APPROACH LT.



STA. 264+10 CONST. APPROACH RT.



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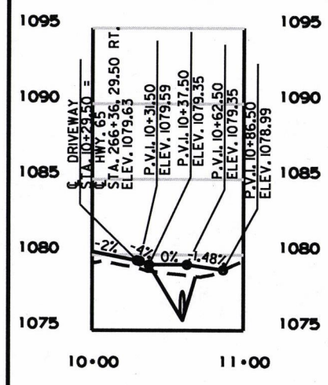
DATE	DATE FILMED	DATE REVISED	DATE FILMED

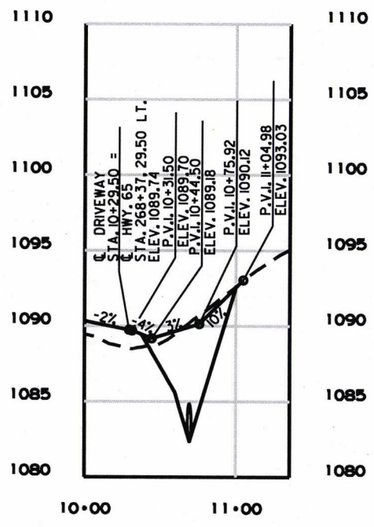
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	181	417

(2) APPROACH PROFILES

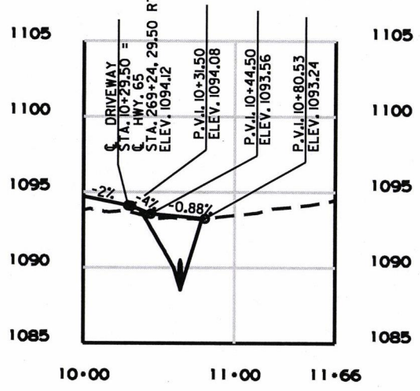
STA. 266+36 CONST. APPROACH RT.



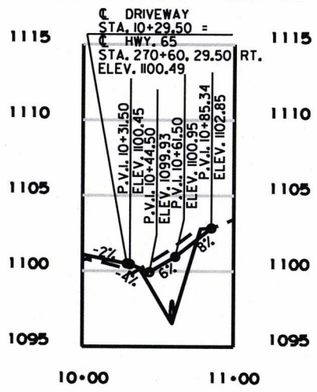
STA. 268+37 CONST. APPROACH LT.



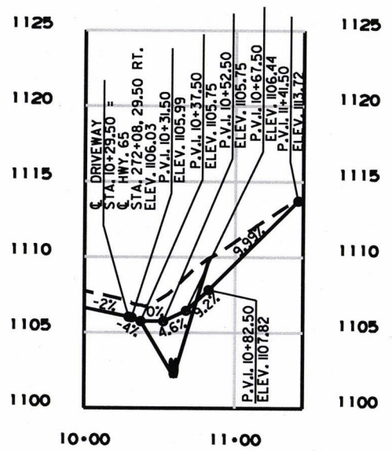
STA. 269+24 CONST. APPROACH RT.



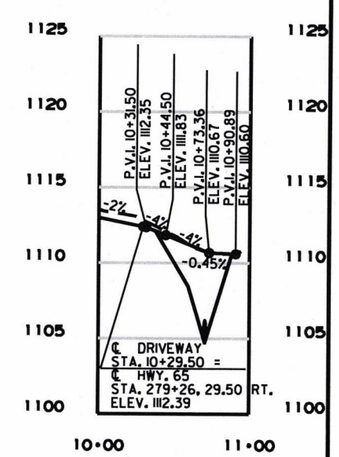
STA. 270+60 CONST. APPROACH RT.



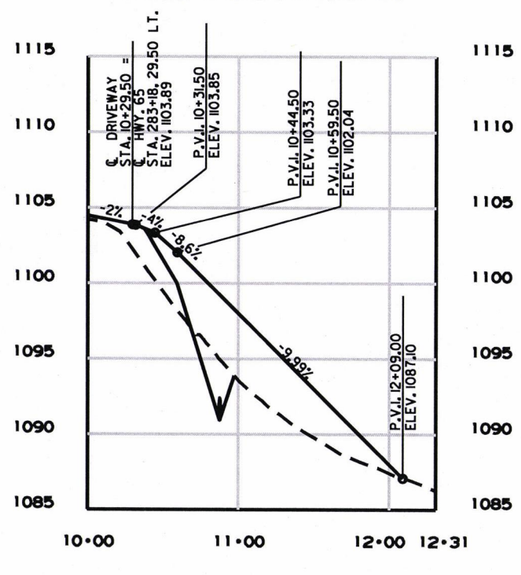
STA. 272+08 CONST. APPROACH RT.



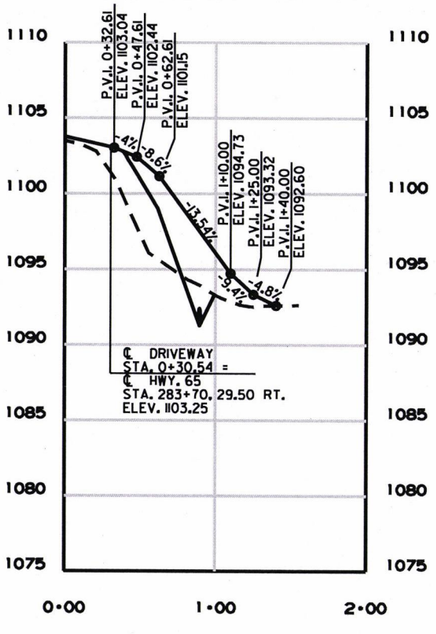
STA. 279+26 CONST. APPROACH RT.



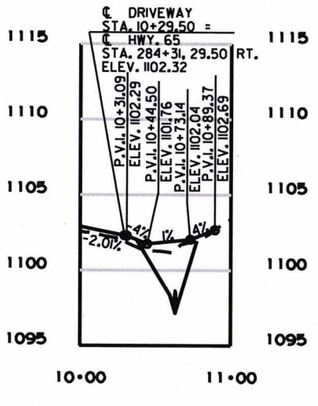
STA. 283+18 CONST. APPROACH LT.



STA. 283+62 CONST. APPROACH RT.



STA. 284+31 CONST. APPROACH RT.



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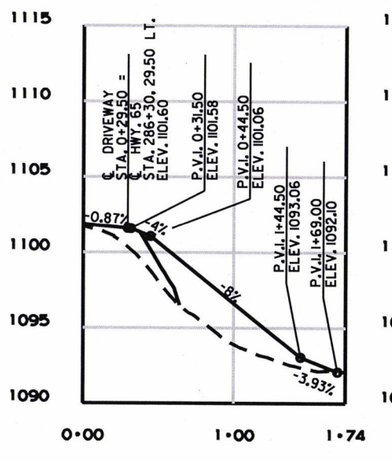

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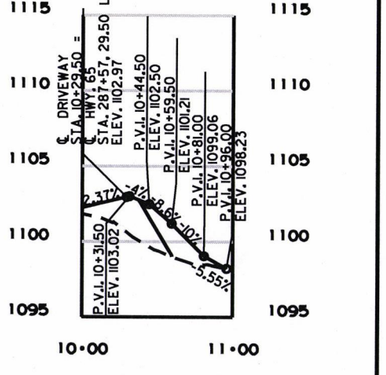

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

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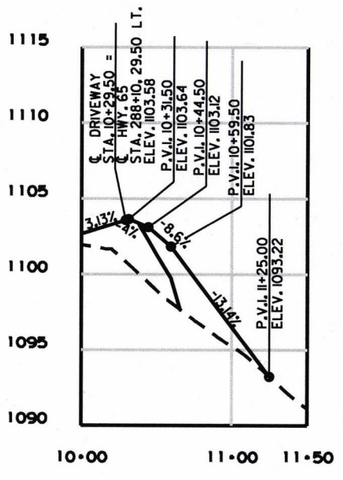
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	182	417

(2) APPROACH PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
7-6-17

STA. 288+10 CONST. APPROACH LT.



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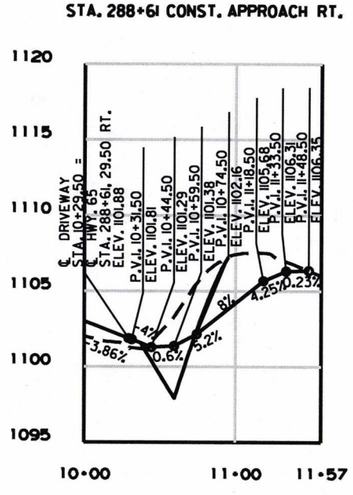

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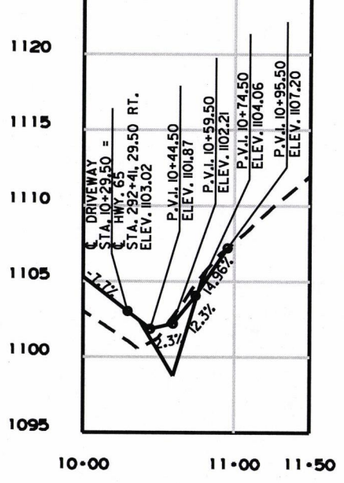

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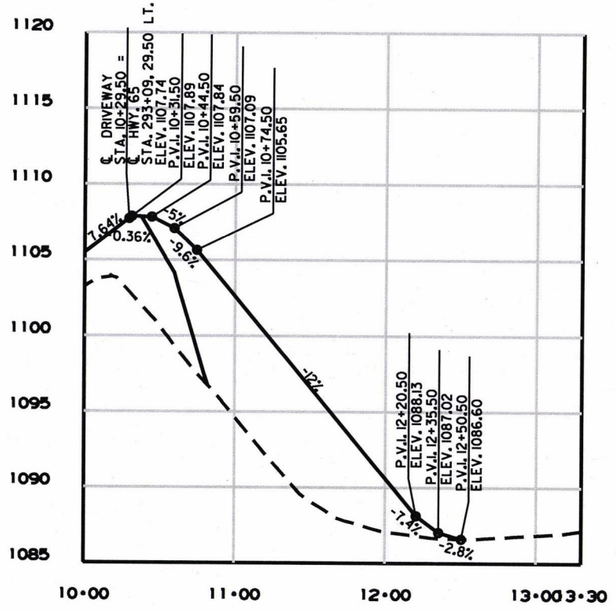

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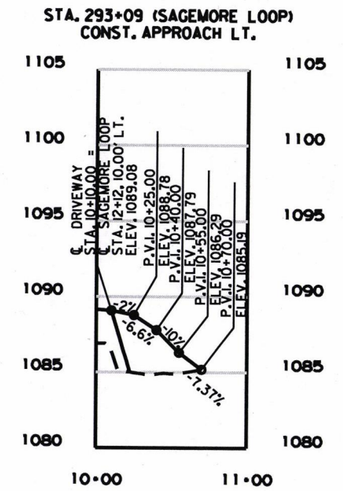

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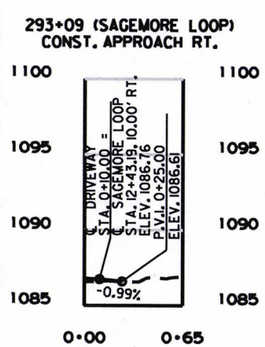

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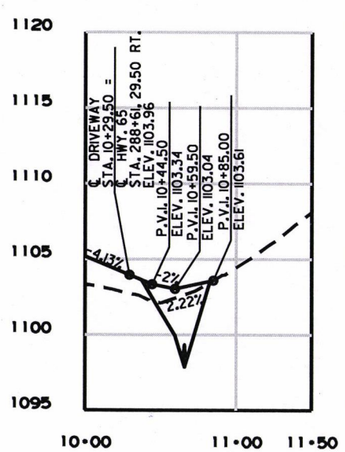

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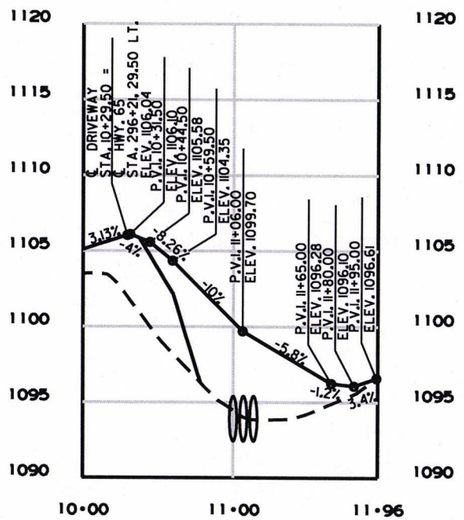

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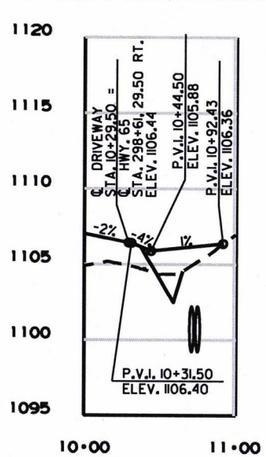

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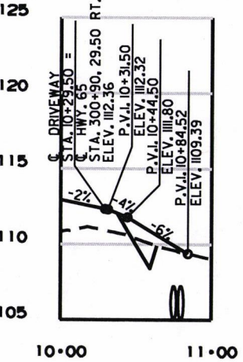

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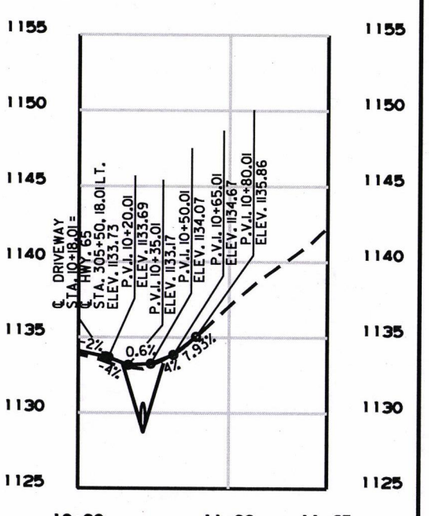

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	183	417

(2) CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

BOX CULVERT DIAGRAM 136+67

CONCRETE:

A SECTION	TOTAL FOR 3'-1" SKEWED LENGTH OF BARREL & HEADWALL			=	5.28
A SECTION	40.24	X	0.61	=	24.64
B SECTION	25.10	X	0.64	=	15.95
C SECTION	136.50	X	0.67	=	91.37
APRON & WINGS (BOTH SIDES)				=	22.00
TOTAL C.Y.					159.24

REINFORCING STEEL:

A SECTION	TOTAL FOR 3'-1" SKEWED LENGTH OF BARREL & HEADWALL			=	650.00
A SECTION	40.24	X	62	=	2476.00
B SECTION	25.10	X	79	=	1971.00
C SECTION	136.50	X	96	=	13157.00
7.00 LAPS @ LBS. EACH			30	=	210.00
4 WINGS				=	2002.00
TOTAL LBS.					20466.00
*INCLUDES HDWL., APRONS, & 1 LAP					

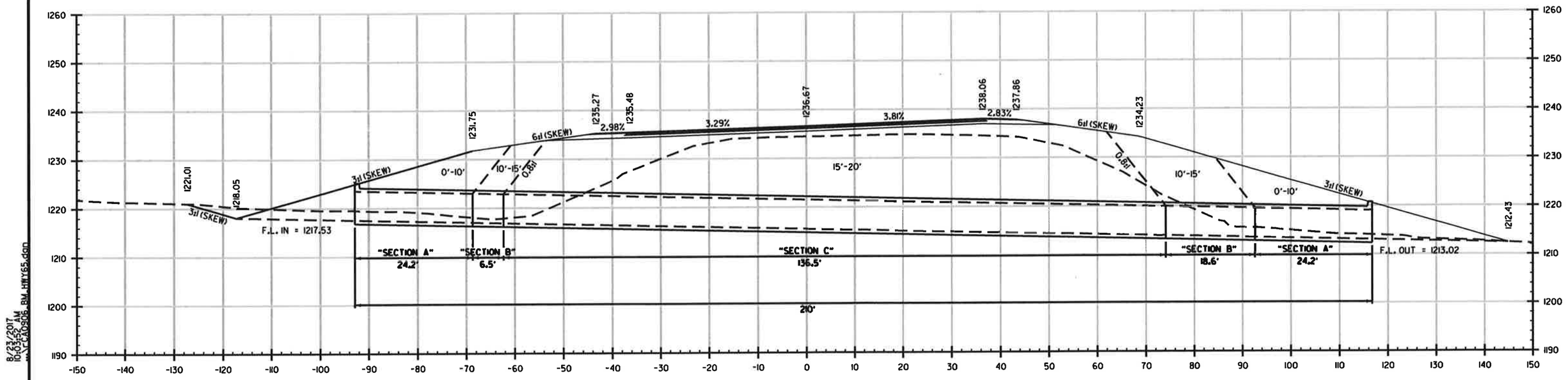
UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

A SECTION	40.24	X	0.284	=	11.43
B SECTION	25.10	X	0.284	=	7.13
C SECTION	136.50	X	0.284	=	38.77
V.I.				=	9.64
V.O.				=	9.64
TOTAL C.Y.					76.61

SOLID SODDING & WATER:

(K + W-1 + W-2 +3.46)(1 SIDE)(2' WIDE) / 9 S.F./S.Y.				=	23.95
12.60 (GAL./S.Y. SOLID SODDING)/1000 = M. GAL.				=	0.30

STA. 136+67 CONSTRUCT
6' X 6' X 210' R.C. BOX CULVERT
WITH 30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050 = 124 CFS D.A. = 76.5 ACRES



STA. 136+67.00
30° RIGHT FORWARD SKEW

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CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	184	417
				(2)		CULVERT DIAGRAMS		

BOX CULVERT DIAGRAM 170+85

CONCRETE:

A SECTION	TOTAL FOR 2'-3" SKEWED LENGTH OF BARREL & HEADWALL			=	4.34
A SECTION	32.30	X	0.61	=	19.78
B SECTION	26.60	X	0.64	=	16.89
C SECTION	145.60	X	0.67	=	97.46
APRON & WINGS (BOTH SIDES)				=	18.83
TOTAL C.Y.					157.30

REINFORCING STEEL:

A SECTION	TOTAL FOR 2'-3" SKEWED LENGTH OF BARREL & HEADWALL			=	532.00
A SECTION	32.30	X	62	=	1988.00
B SECTION	26.60	X	79	=	2089.00
C SECTION	145.60	X	96	=	14034.00
7.00	LAPS @ LBS. EACH		30	=	210.00
4 WINGS				=	1738.00
TOTAL LBS.					20591.00
*INCLUDES HDWL., APRONS, & 1 LAP					

UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

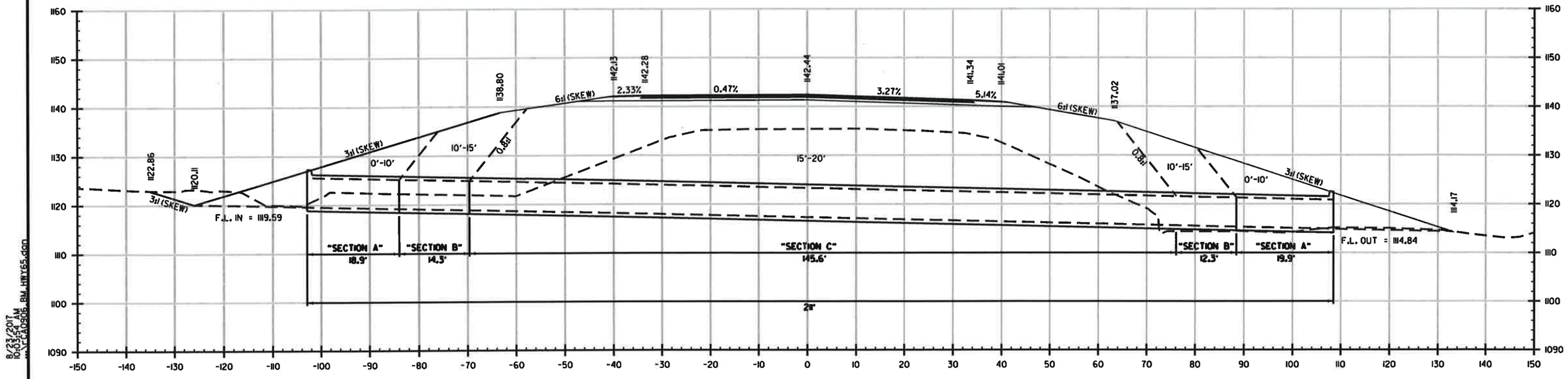
A SECTION	32.30	X	0.279	=	9.01
B SECTION	26.60	X	0.279	=	7.42
C SECTION	145.60	X	0.279	=	40.62
V.I.				=	8.39
V.O.				=	8.39
TOTAL C.Y.					73.83

SOLID SODDING & WATER:

(K + W-1 + W-2 +3.46)(1 SIDE)(2' WIDE) / 9 S.F./S.Y.				=	20.82
12.60 (GAL./S.Y. SOLID SODDING)/1000 = M. GAL.				=	0.26

STA. 170+85 CONSTRUCT
6' X 6' X 211' R.C. BOX CULVERT
WITH 20° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050 = 217 CFS D.A. = 125.3 ACRES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17



STA. 170+85.00
20° RIGHT FORWARD SKEW

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CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/17				6	ARK.			
				JOB NO.		CA0906	185	417
				(2)		CULVERT DIAGRAMS		

BOX CULVERT DIAGRAM 281+85

CONCRETE:

A SECTION	TOTAL FOR 1'-5" SKEWED LENGTH OF BARREL & HEADWALL			=	2.70
A SECTION	35.66	X	0.51	=	18.10
B SECTION	129.50	X	0.53	=	68.68
C SECTION	0.00	X	0.00	=	0.00
APRON & WINGS (BOTH SIDES)				=	16.76
TOTAL C.Y.					106.24

REINFORCING STEEL:

A SECTION	TOTAL FOR 1'-5" SKEWED LENGTH OF BARREL & HEADWALL			=	330.00
A SECTION	35.66	X	48	=	1699.00
B SECTION	129.50	X	56	=	7291.00
C SECTION	0.00	X	0	=	0.00
5.00 LAPS @ LBS. EACH			26	=	130.00
4 WINGS				=	1586.00
TOTAL LBS.					11036.00
*INCLUDES HDWL., APRONS, & 1 LAP					

UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

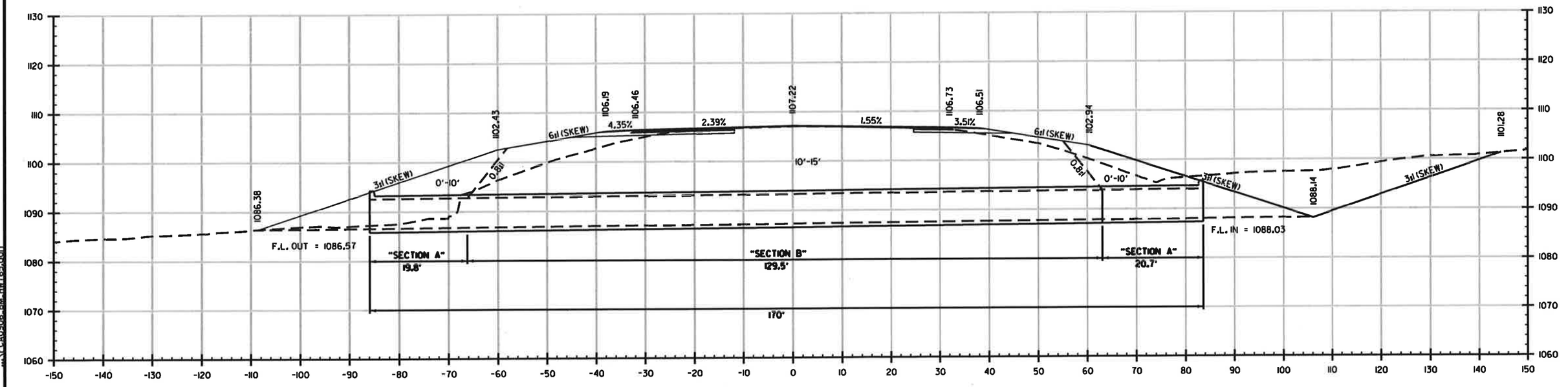
A SECTION	35.66	X	0.225	=	8.02
B SECTION	129.50	X	0.225	=	29.14
C SECTION	0.00	X	0.000	=	0.00
V.I.				=	7.14
V.O.				=	7.14
TOTAL C.Y.					51.44

SOLID SODDING & WATER:

(K + W-1 + W-2 +3.46)(1 SIDE)(2' WIDE) / 9 S.F./S.Y.				=	18.23
12.60 (GAL./S.Y. SOLID SODDING)/1000 = M. GAL.				=	0.23

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12711
STEVEN R. BEAM, JR.
8/22/17

STA. 281+85 CONSTRUCT
4' X 6' X 170' R.C. BOX CULVERT
WITH 10° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 42 CFS D.A. = 17.2 ACRES



STA. 281+85.00
10° LEFT FORWARD SKEW

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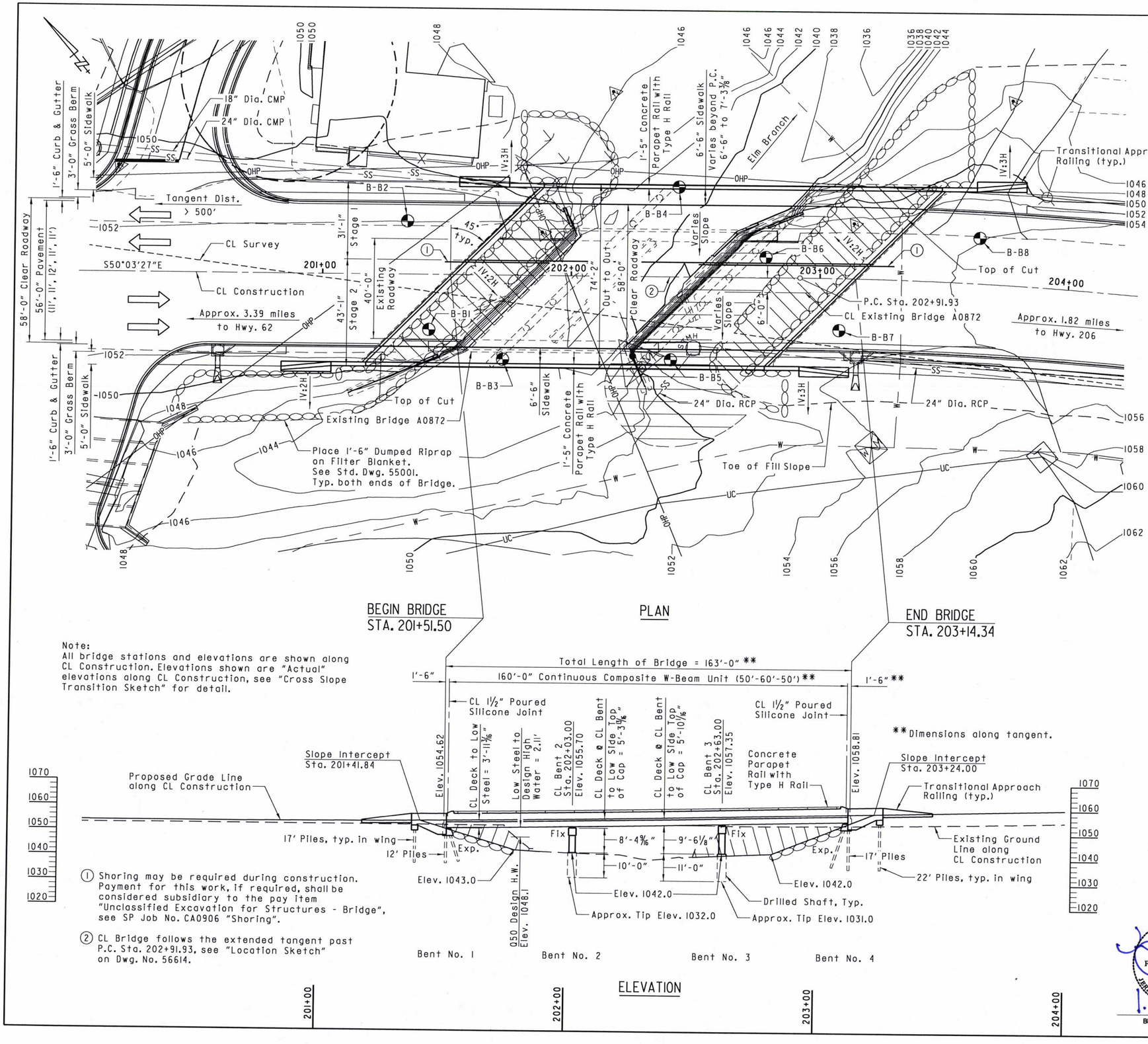
CULVERT DIAGRAMS

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.		CA0906	186	417
				(1) 07341		LAYOUT		56613



Note:
All bridge stations and elevations are shown along CL Construction. Elevations shown are "Actual" elevations along CL Construction, see "Cross Slope Transition Sketch" for detail.

(1) Shoring may be required during construction. Payment for this work, if required, shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge", see SP Job No. CA0906 "Shoring".

(2) CL Bridge follows the extended tangent past P.C. Sta. 202+91.93, see "Location Sketch" on Dwg. No. 56614.

NOTES:

For R/W data, see Roadway Plans.

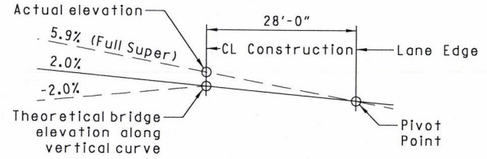
Slab drains required along right gutter line. See Dwg. 56638.

The Contractor shall remove the embankment at the existing bridge ends as shown using 1V:2H slopes. Cut to Elev. 1043.0 at beginning of bridge and to Elev. 1042.0 at end of bridge. Approx. 925 cu. yds. of excavation.

HORIZONTAL CURVE DATA

P.I. Sta. 205+70.15
Δ = 20°38'24" Rt.
D = 3°45'
T = 278.22'
L = 550.40'

STATION	CROSS SLOPE LEFT	CROSS SLOPE RIGHT
199+88.18	-0.02	-0.02
200+56.82	0.00	-0.02
201+25.47	0.02	-0.02
203+93.18	0.059	-0.059



CROSS SLOPE TRANSITION SKETCH
Looking Ahead

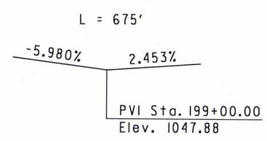
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	* NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	50	2570	1047.4	1048.1
BASE	100	2960	1047.7	1048.5
EXTREME	500	3950	1048.6	1049.5
OVERTOPPING	>500	-	-	-

* Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = Elev. 1050.6
Proposed low bridge chord = Elev. 1050.21

Drainage area - 4.0 square miles.
Historical H.W. = Elev. 1051.5



Theoretical Elevation along CL Construction.
See "Cross Slope Transition Sketch"

VERTICAL CURVE DATA

SHEET 1 OF 3
LAYOUT OF
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

STATE OF ARKANSAS
JERRY D. STEVENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.23.2017
BRIDGE ENGINEER

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl_LI.dgn
SCALE: 1" = 20'

BRIDGE NO. 07341 DRAWING NO. 56613

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.		CA0906	187	417
				(1) 07341		LAYOUT		56614

GENERAL NOTES:

BENCH MARK: TBM 909 - Cut square SE end of bridge, 31.93 ft. right of CL Construction, Sta. 202+24.56, Elev. 1053.48.

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 in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012) with current interim specifications.

LIVE LOADING: HL-93 SEISMIC ZONE: 1 S_{D1}: 0.072 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 M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 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 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as Dolomitic Limestone 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 the Standard Specifications. Actual lengths to be determined in the field. Piles in end bents shall be driven after embankment to bottom of cap is in place and after any required preboring. On all piles the Contractor shall use approved steel H-Pile driving points.

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bents 1 and 4 in accordance with SP Job CA0906 "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 at bents 1 and 4 if exploratory holes indicate that the depth of rock is less than 8' measured from the bottom of the cap. Preboring at Bents 1 and 4, if required, shall be to a 3' depth into material designated as Dolomitic Limestone on the boring legend. Quantities of preboring shown are for bidding purposes only. The actual size and depths 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".

DRILLED SHAFTS: Foundations for intermediate bents shall consist of Drilled Shafts. All drilled shafts shall be founded into Dolomitic Limestone and to the minimum rock penetrations and tip elevations shown in the plans. No adjustments in Plan Tip Elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job No. CA0906 "Drilled Shaft Foundations". Any casing used as a means for construction of the drilled shafts, such as to prevent caving, to exclude groundwater, or to provide shoring shall not extend below top of rock. The Contractor must obtain approval from the Engineer for any deviation from this requirement.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on specific drilled shafts in accordance with SP Job No. CA0906 "Nondestructive Testing of Drilled Shafts".

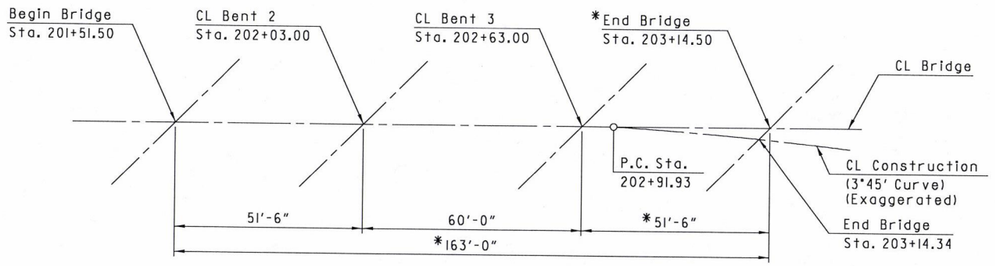
BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6, Broomed Finish.

DETAIL DRAWINGS:	DRAWING NOS.
Stage Construction	56616 - 56619
End Bents	56620 - 56627
Intermediate Bents	56628 - 56631
160' Continuous Composite W-Beam Unit	56632 - 56642
Elastomeric Bearings	56643
Transitional Approach Railing	56644
Type H Metal Bridge Rail	56645
Steel Piling	55020

EXISTING BRIDGE: The Existing Bridge No. A0872 is 50'-0" wide and 71'-7" long and consists of two 35' Reinforced Concrete Deck Girder Spans supported by a six column intermediate bent with spread footings and wall type end bents on continuous footings. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After Stage I Construction is open to traffic, existing Bridge No. A0872 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



*Measured along tangent.

LOCATION SKETCH

No Scale

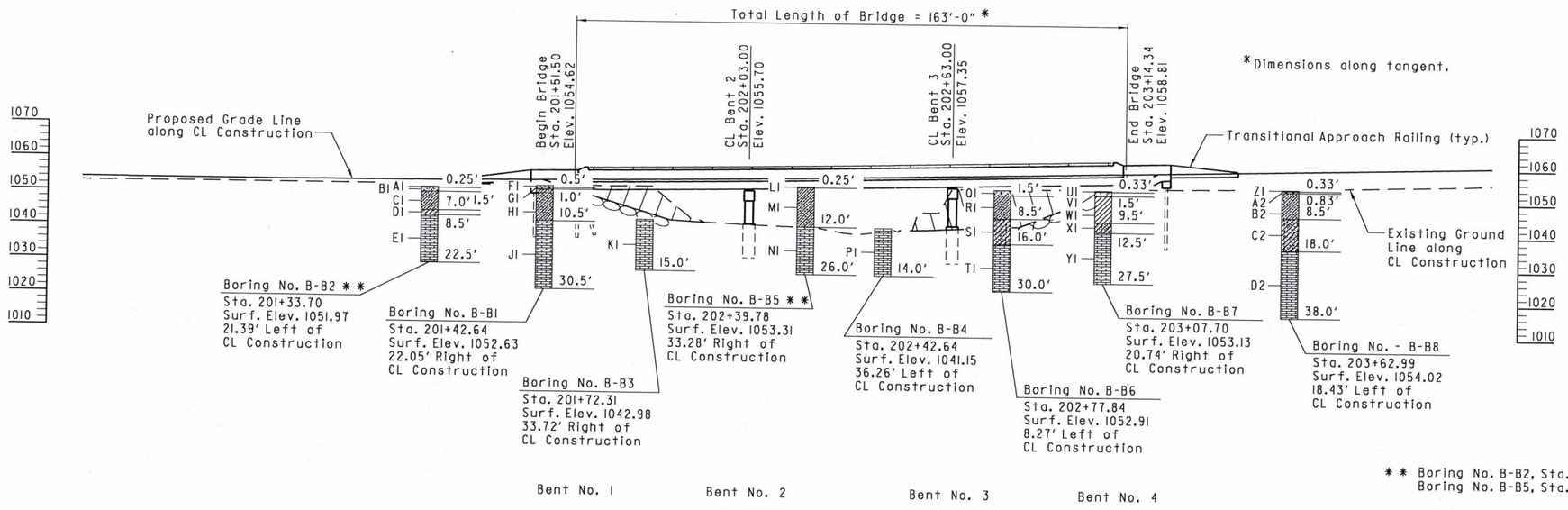
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906xl.L2.dgn
CHECKED BY: JDS DATE: 12/23/14 SCALE: None
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56614

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.		CA0906	188	417
				(1) 07341		LAYOUT		56615



ELEVATION

** Boring No. B-B2, Sta. 201+33.70, is detailed 25 feet back station for clarity.
Boring No. B-B5, Sta. 202+39.78, is detailed 20 feet back station for clarity.

BORING LEGEND

AI - Asphalt
BI - Base Course Material
CI - Reddish-Brown Sandy Clay with Fine Gravel, Firm
DI - Reddish-Brown Clayey Sand with Gravel, Medium-Dense
EI - Dolomitic Limestone
FI - Asphalt
GI - Base Course Material
HI - Reddish-Brown Sandy Clay with Fine Gravel, Firm
JI - Dolomitic Limestone
KI - Dolomitic Limestone
LI - Silty Brown Topsoil with Gravel
MI - Reddish-Brown Sandy Clay with Fine Gravel, Soft, High Plasticity
NI - Dolomitic Limestone
PI - Dolomitic Limestone
QI - Base Course Material
RI - Reddish-Brown Sandy Clay with Fine Gravel, Firm
SI - Reddish-Brown Clayey Chert Gravel, Dense
TI - Dolomitic Limestone
UI - Asphalt
VI - Base Course Material
WI - Reddish-Brown Sandy Clay, Soft, High Plasticity
XI - Reddish-Brown Clayey Chert Gravel, Medium-Dense
YI - Dolomitic Limestone
ZI - Asphalt
A2 - Base Course Material
B2 - Reddish-Brown Sandy Clay with Fine Gravel, Soft
C2 - Reddish-Brown Clayey Chert Gravel, Dense
D2 - Dolomitic Limestone

"N" VALUES

Boring No. B-B2
Sta. 201+33.70 - 21.39' Left of CL Construction
1.5 - 2.5, N = 12
3.0 - 4.0, N = 7
5.0 - 6.0, N = 3
7.0 - 8.0, N = 18

Boring No. B-B1
Sta. 201+42.64 - 22.05' Right of CL Construction
1.0 - 2.0, N = 15
3.0 - 4.0, N = 10
5.0 - 6.0, N = 7
7.0 - 8.0, N = 7
9.0 - 10.0, N = 7

Boring No. B-B5
Sta. 202+39.78 - 33.28' Right of CL Construction
1.0 - 2.0, N = 8
2.5 - 3.5, N = 4
4.5 - 5.5, N = 5
6.5 - 7.5, N = 5
8.5 - 9.5, N = 11
10.5 - 11.5, N = 10

Boring No. B-B6
Sta. 202+77.84 - 8.27' Left of CL Construction
1.0 - 2.0, N = 43
2.5 - 3.5, N = 9
4.5 - 5.5, N = 6
6.5 - 7.5, N = 3
8.5 - 9.5, N = 27
10.5 - 11.5, N = 31
15.0 - 16.0, N = 11

Boring No. B-B7
Sta. 203+07.70 - 20.74' Right of CL Construction
1.5 - 2.5, N = 6
3.5 - 4.5, N = 6
5.5 - 6.5, N = 3
7.5 - 8.5, N = 2
9.5 - 10.5, N = 15
11.5 - 12.5, N = 6

Boring No. B-B8
Sta. 203+62.99 - 18.43' Left of CL Construction
1.0 - 2.0, N = 9
2.5 - 3.5, N = 5
4.5 - 5.5, N = 5
6.5 - 7.5, N = 4
8.5 - 9.5, N = 28
10.5 - 11.5, N = 25
15.0 - 16.0, N = 25

201+00 202+00 203+00 204+00

STATE OF ARKANSAS
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SHEET 3 OF 3
LAYOUT OF
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl.L3.dgn
SCALE: 1" = 20'

BRIDGE NO. 07341 DRAWING NO. 56615

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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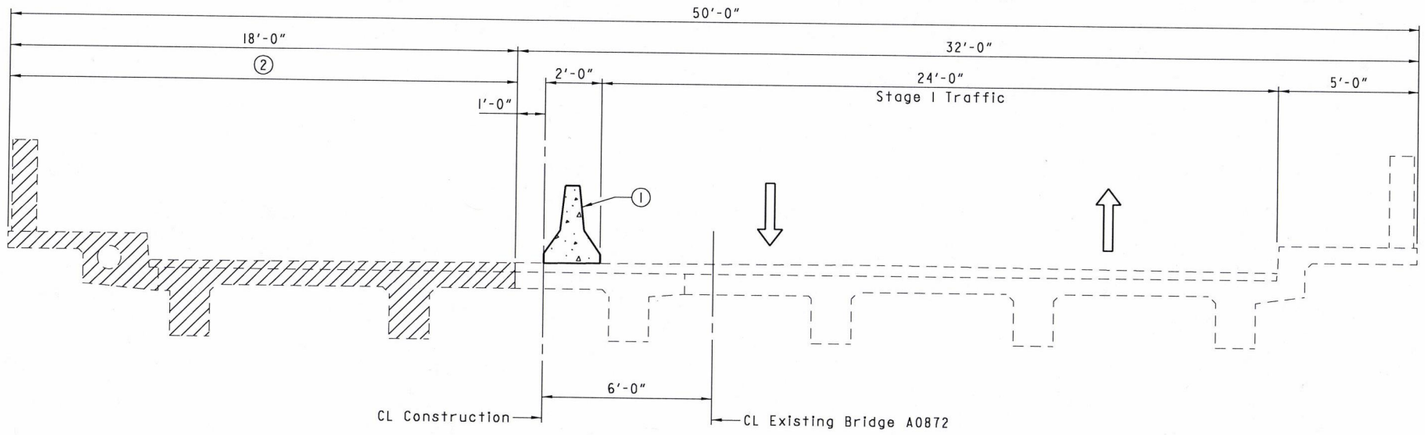
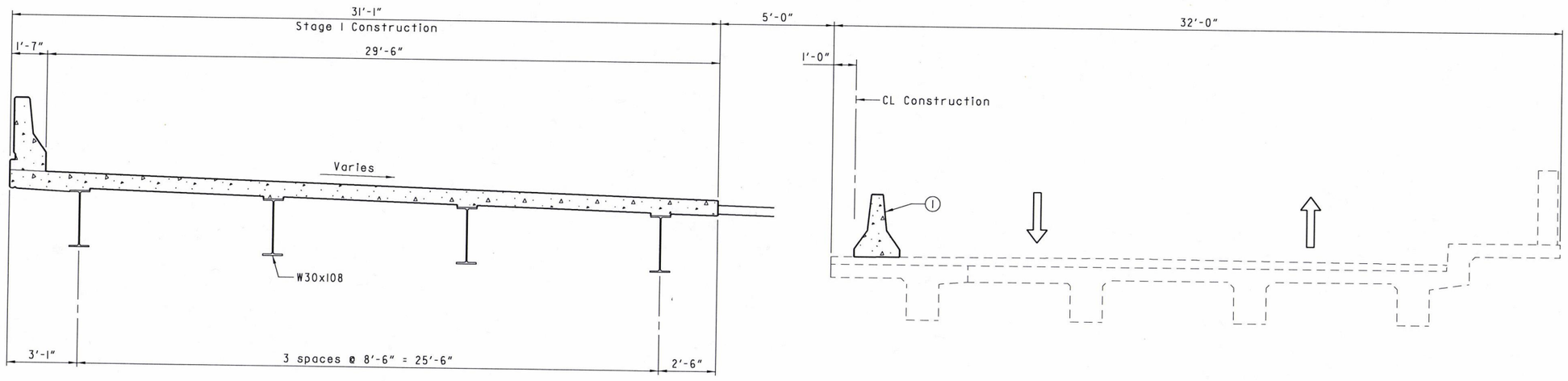
				JOB NO.		CA0906	189	417
				① 07341		STAGE CONSTRUCTION		56616



STAGE Ia



STAGE Ib

① Temporary Precast Barrier (Connect to Deck), see Std. Dwg. No. TC-4.

② Remove this section of the existing bridge to facilitate Stage I Construction.

Dimensions shown are perpendicular to tangent section.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1-24-2017
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_scl.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07341
DRAWING NO. 56616

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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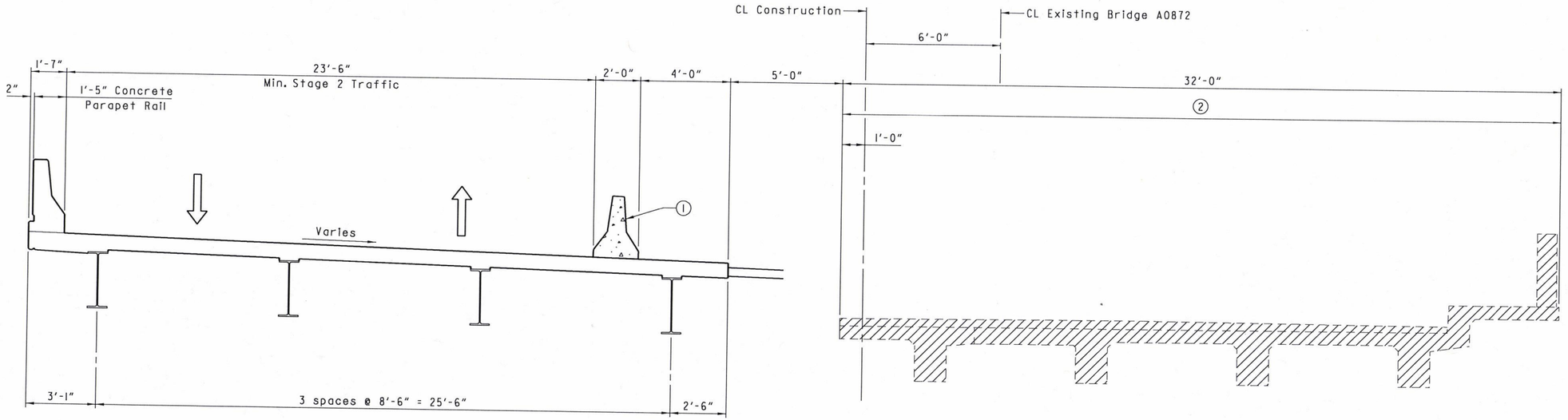
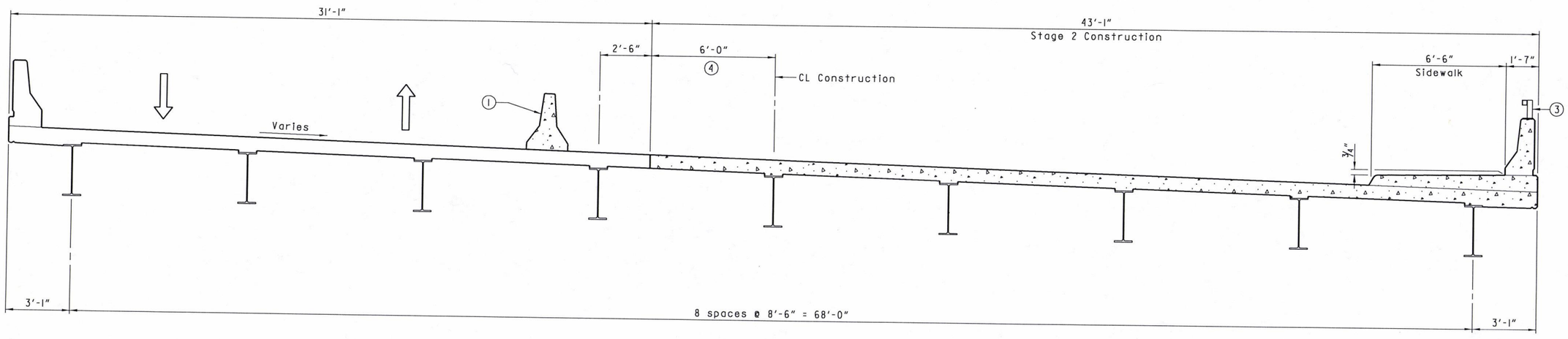
				JOB NO.		CA0906	190	417
				(1) 07341		STAGE CONSTRUCTION		56617



STAGE 2a



STAGE 2b

(1) Temporary Precast Barrier (Do Not Connect to Deck), see Std. Dwg. No. TC-4.
(2) Remove the remaining section of the bridge to facilitate Stage 2 Construction.
(3) Type H Metal Bridge Rail.
(4) Nominal dimension shown. Actual dimension varies beyond P.C. Sta. 202+91.93.

Dimensions shown are perpendicular to tangent section.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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JEFFREY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl_sc2.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07341
DRAWING NO. 56617

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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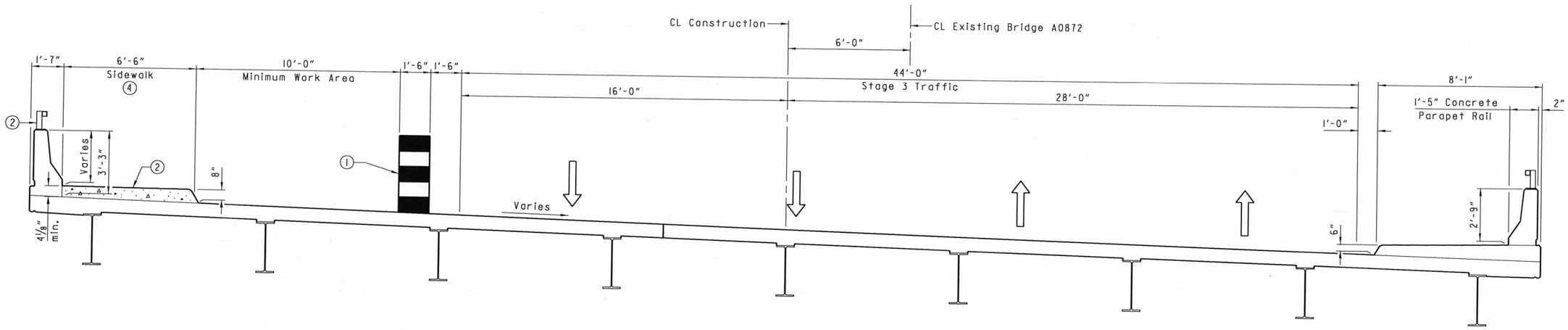
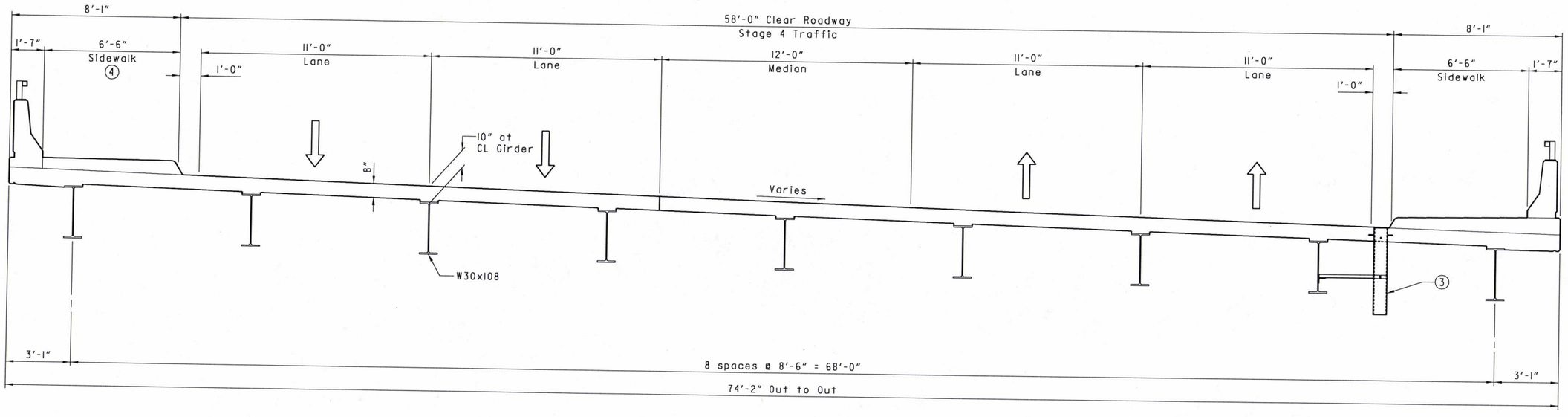
				JOB NO.		CA0906	191	417
				(1) 07341		STAGE CONSTRUCTION		56618



STAGE 3



STAGE 4

(1) Plastic Traffic Drum.
(2) Construct Sidewalk and install Type H Metal Bridge Rail during Stage 3.
(3) Slab drains shall be provided along right gutter line, see Dwg. 56638.
(4) Nominal dimension shown. Actual dimension varies beyond P.C. Sta. 202+91.93.

Dimensions shown are perpendicular to tangent section.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.22.2017
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_sc3.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07341
DRAWING NO. 56618

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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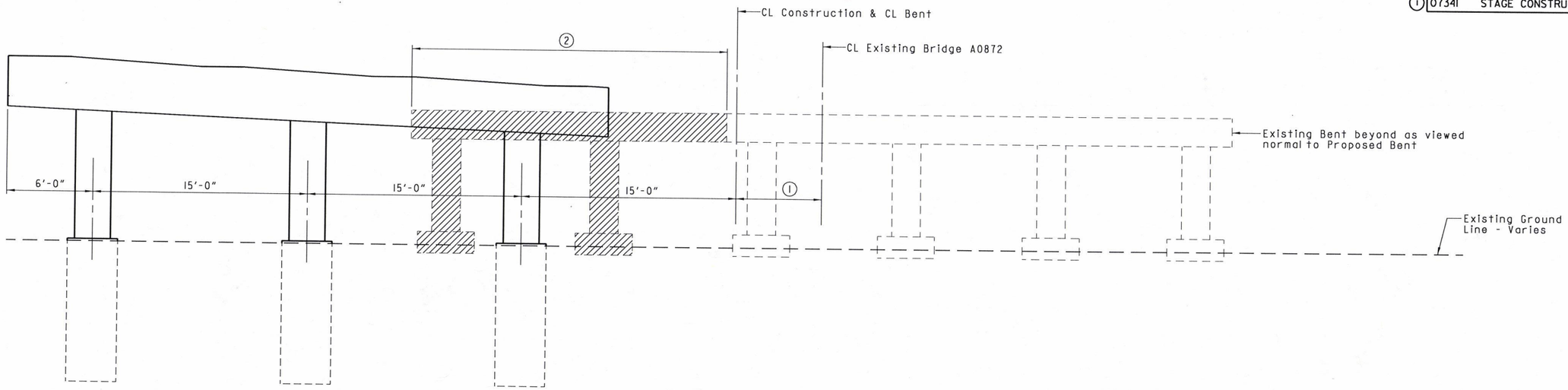
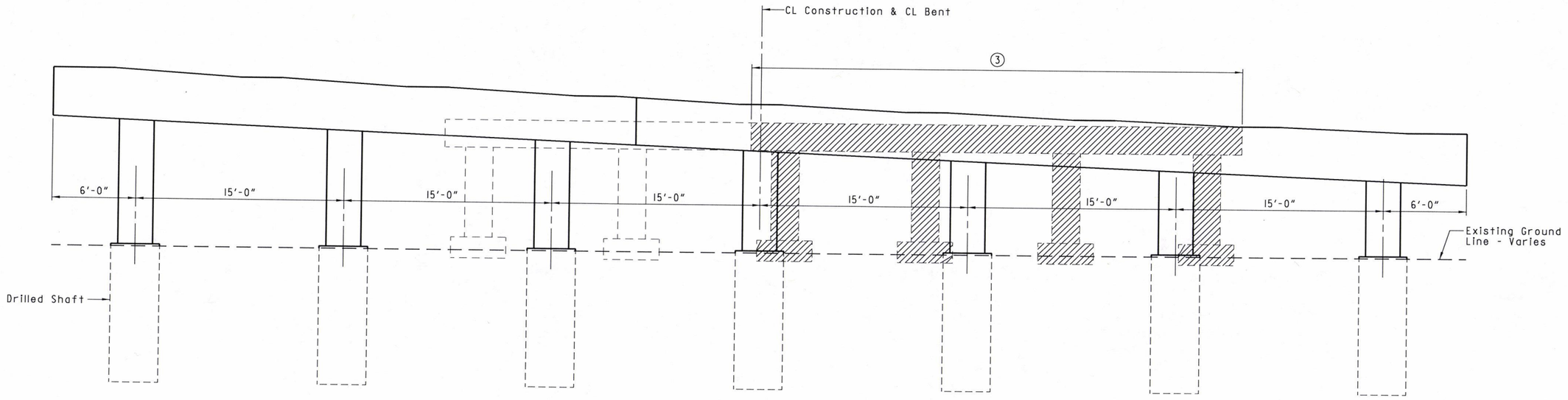
				JOB NO.		CA0906	192	417
				(1) 07341		STAGE CONSTRUCTION		56619



STAGE 1



STAGE 2

① 6'-0" Measured normal to CL Construction.
② Remove this section of the existing bent to facilitate Stage 1 Construction.
③ Remove the remaining section of the bent to facilitate Stage 2 Construction.

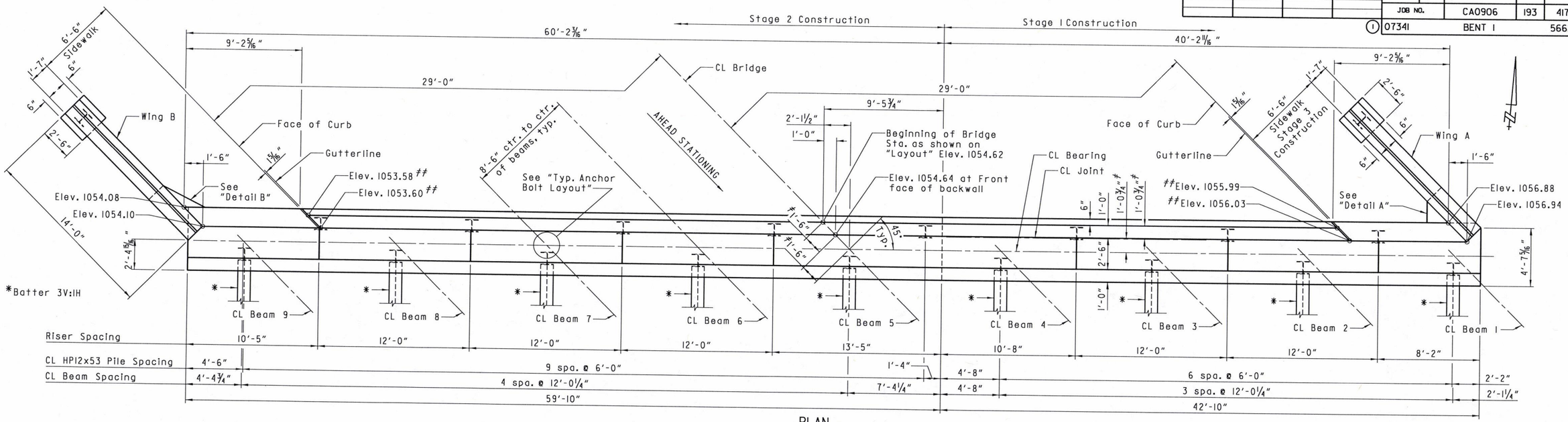
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY D. STEVENSON
1.29.2017
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER ELM BRANCH
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl_sc4.dgn
SCALE: 1/4" = 1'-0"

BRIDGE NO. 07341
DRAWING NO. 56619

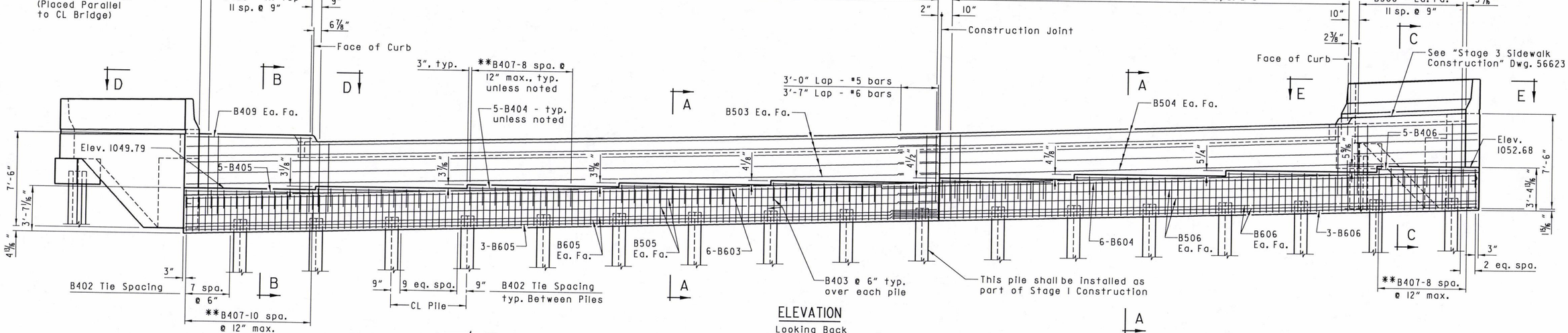
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	193	417
				(1) 07341		BENT 1		56620



PLAN

Scale: 1/4" = 1'-0"

Measured from CL Joint
At Gutterline

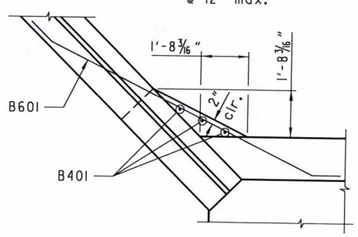


ELEVATION

Looking Back

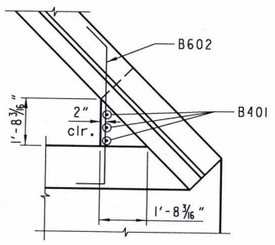
Scale: 1/4" = 1'-0"

**Adjust B407 spacing to avoid interference with B402 ties.



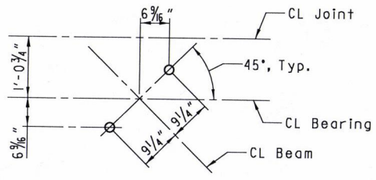
DETAIL B

Scale: 3/8" = 1'-0"



DETAIL A

Scale: 3/8" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

Scale: 3/4" = 1'-0"

For details of Elastomeric Bearings, see Dwg. No. 56643

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1-24-2017
BRIDGE ENGINEER

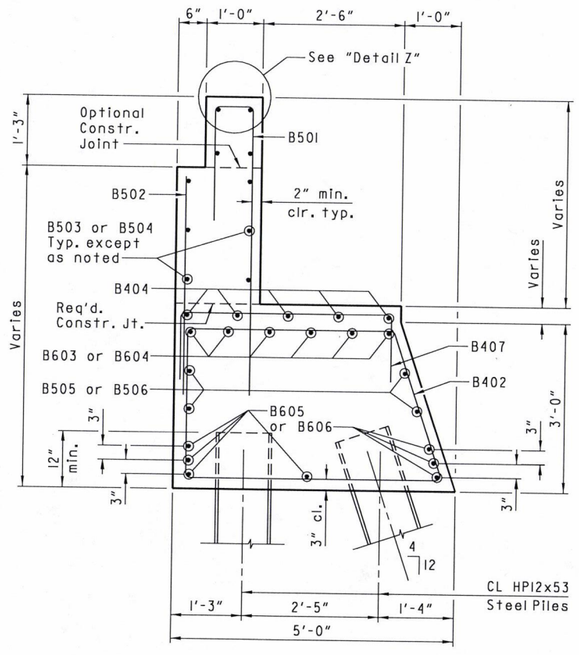
SHEET 1 OF 4
DETAILS OF BENT 1
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TLW	DATE:	12/23/14	FILENAME:	bCA0906x1_bll.dgn
CHECKED BY:	RMH	DATE:	12/23/14	SCALE:	AS NOTED
DESIGNED BY:	TG	DATE:	12/23/14		

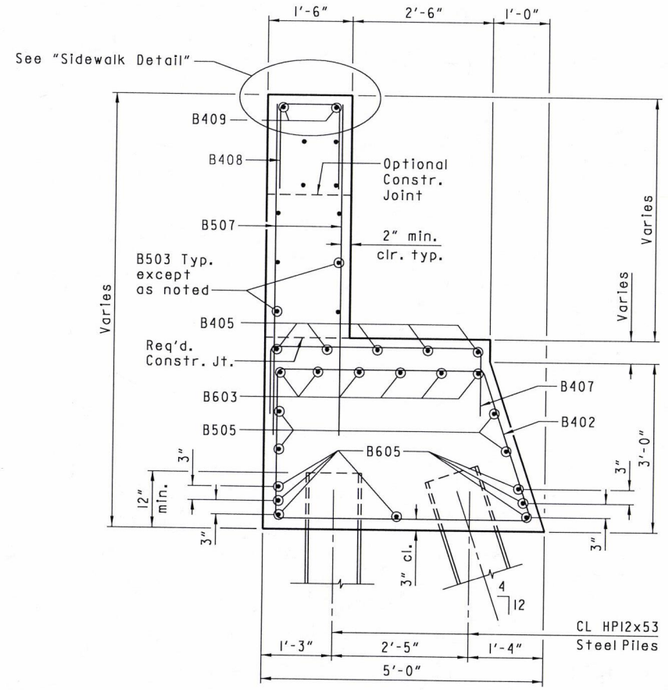
BRIDGE NO. 07341

DRAWING NO. 56620

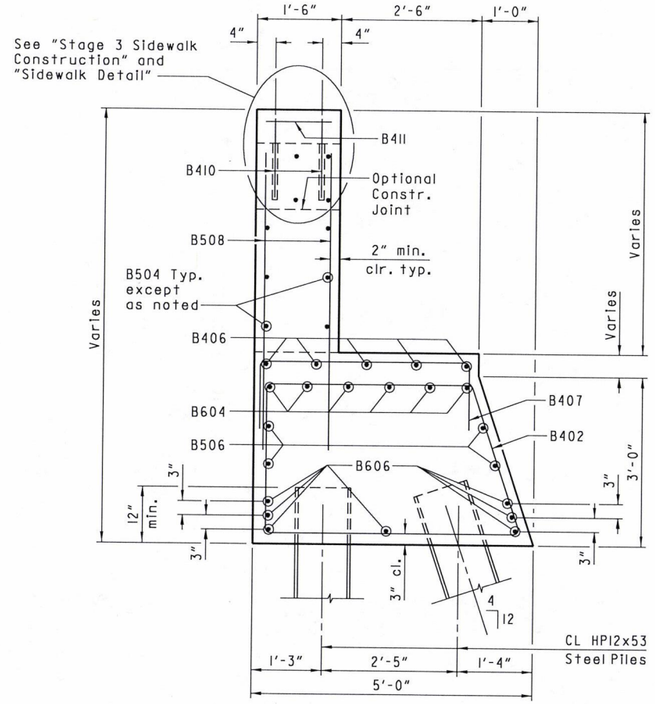
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	194	417
				(1) 07341		BENT 1		56621



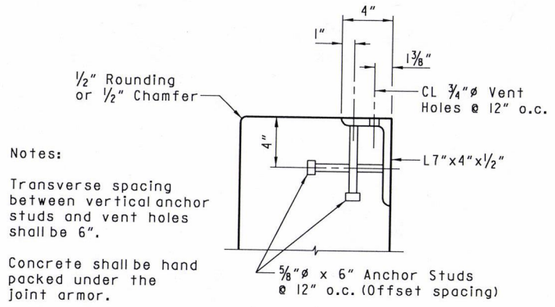
SECTION A-A
Scale: 3/4" = 1'-0"



SECTION B-B
Scale: 3/4" = 1'-0"



SECTION C-C
Scale: 3/4" = 1'-0"



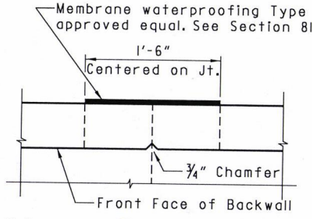
Notes:

Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. Nos. 56641 and 56642.

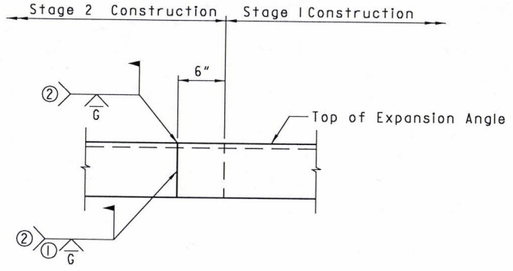
DETAIL Z
No Scale



Note:

Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL
No Scale



① Grind flush 5" from top of deck.
② Weld after Stage I Pour & prior to Stage 2 Pour

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
No Scale

STATE OF ARKANSAS
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1.24.2017
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SHEET 2 OF 4
DETAILS OF BENT 1
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_bl2.dgn
SCALE: AS NOTED

BRIDGE NO. 07341
DRAWING NO. 56621

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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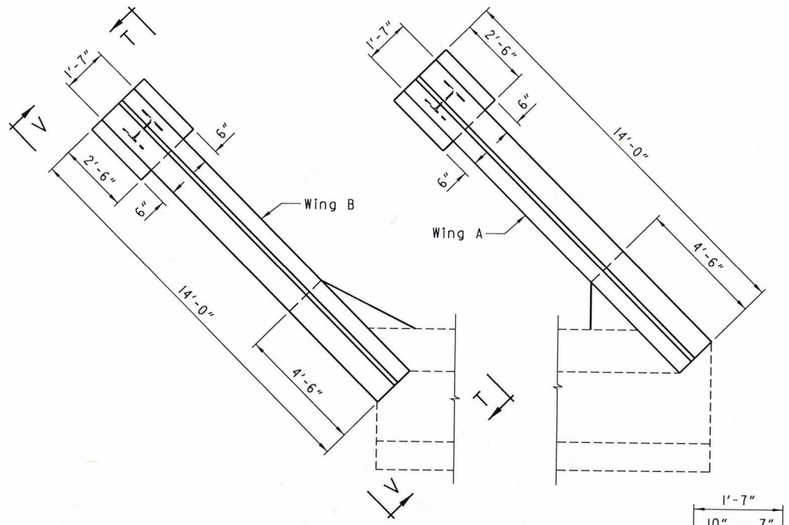
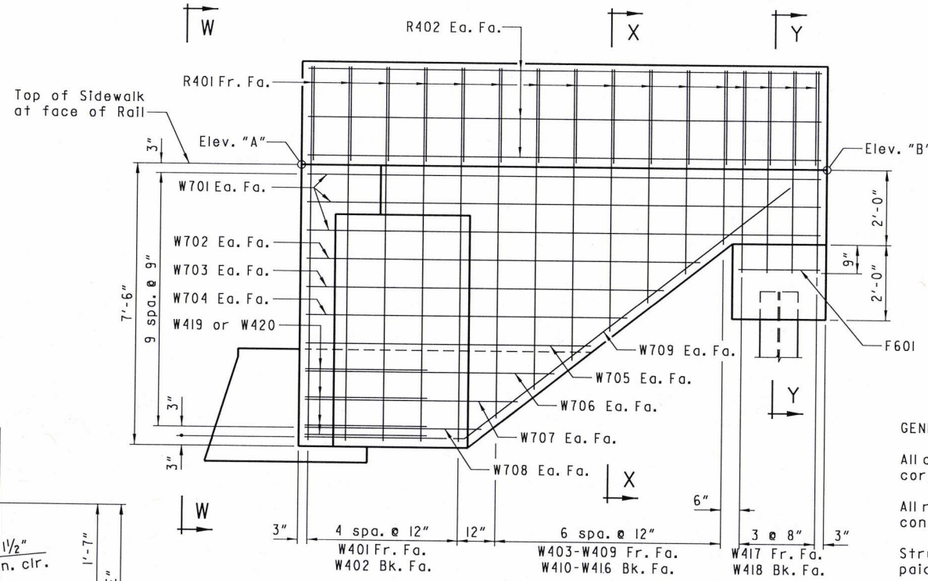
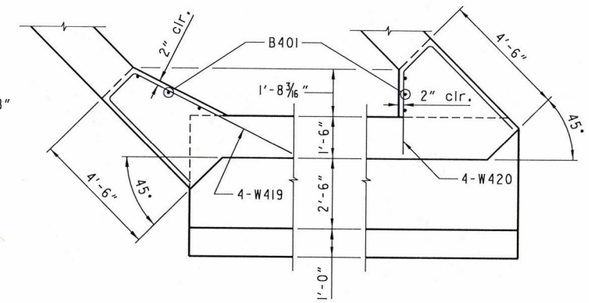
				JOB NO.		CA0906	195	417
				(1) 07341		BENT 1		56622



PLAN OF WING
Scale: 3/8" = 1'-0"



VIEW T-T
Scale: 1/2" = 1'-0"



SECTION Z-Z
Scale: 3/8" = 1'-0"

GENERAL NOTES

All concrete shall be class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

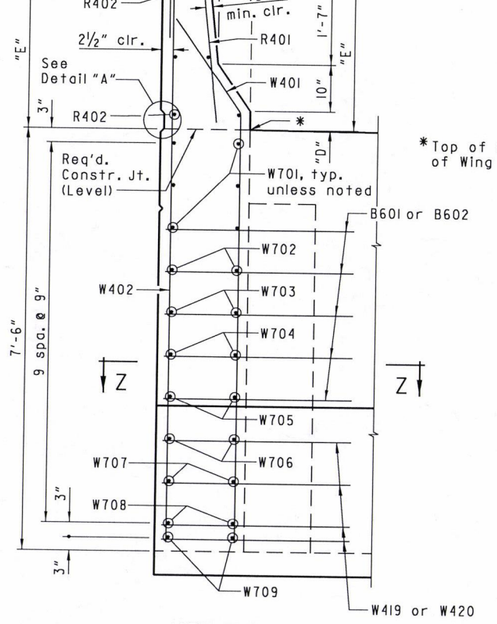
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)"

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

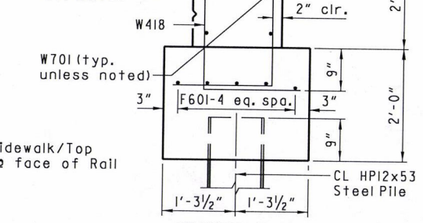
No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56641.

For additional information, see "Layout".

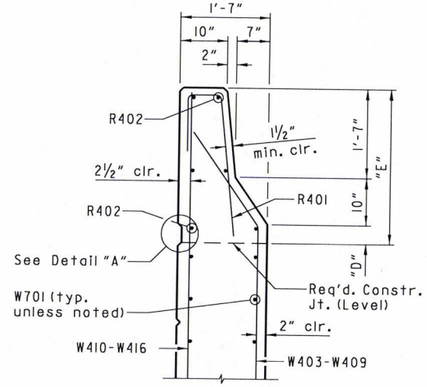


*Top of Sidewalk/Top of Wing @ face of Rail

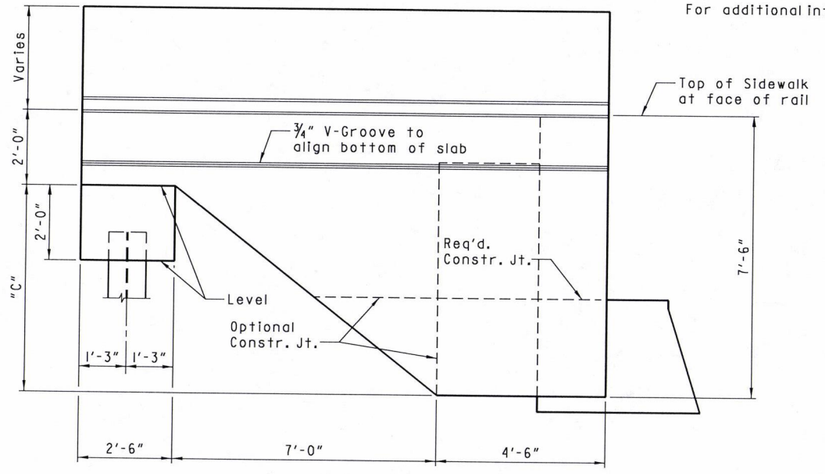
VIEW W-W
Scale: 3/4" = 1'-0"



SECTION Y-Y
Scale: 3/4" = 1'-0"



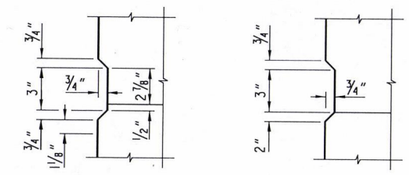
SECTION X-X
Scale: 3/4" = 1'-0"



VIEW V-V
Scale: 1/2" = 1'-0"

TABLE OF VARIABLES

	WING A	WING B
ELEV. "A"	1056.94	1054.10
ELEV. "B"	1056.58	1053.98
"C"	5'-11 11/16"	5'-4 3/16"
"D"	3 1/2"	4"
"E"	2'-8 1/2"	2'-9"



WING A WING B

DETAIL A
No Scale

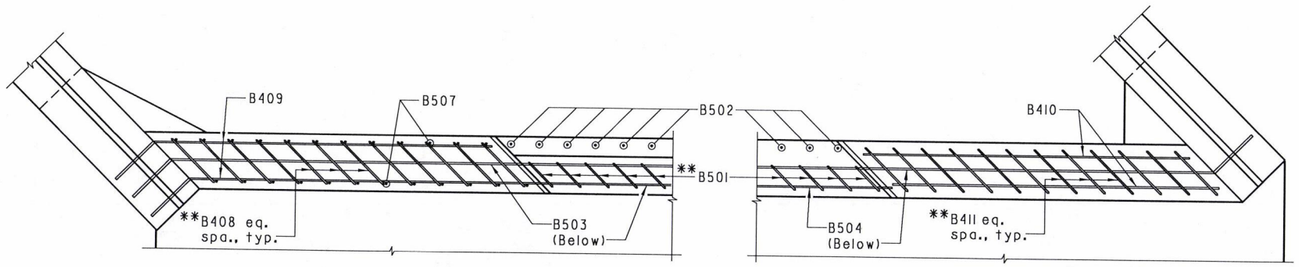
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY D. STEVENSON
1.25.2017
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 1
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_bl3.dgn
SCALE: AS NOTED

BRIDGE NO. 07341
DRAWING NO. 56622

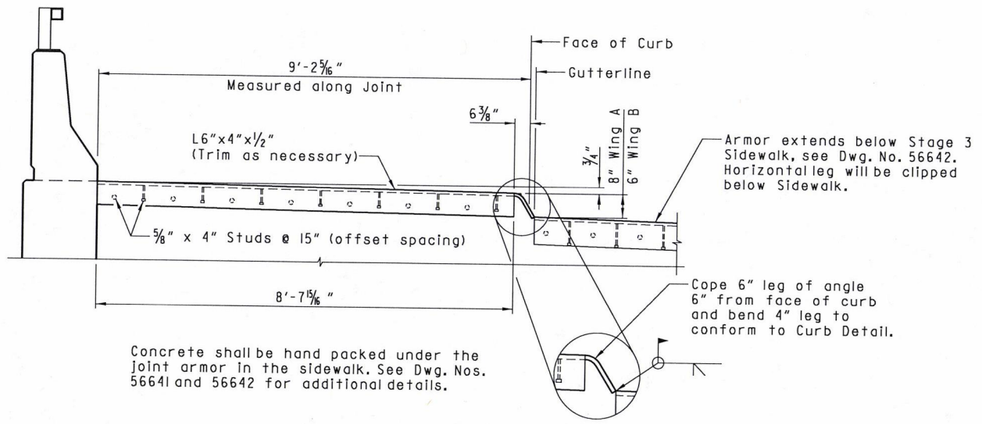
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	196	417
				(1) 07341		BENT 1		56623



VIEW D-D
Scale: 1/2" = 1'-0"

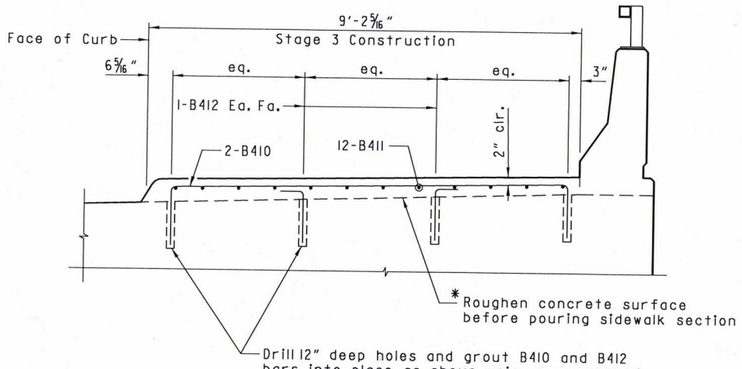
**Place parallel to CL Bridge

VIEW E-E
Scale: 1/2" = 1'-0"



Concrete shall be hand packed under the joint armor in the sidewalk. See Dwg. Nos. 56641 and 56642 for additional details.

SIDEWALK DETAIL
No Scale



STAGE 3 SIDEWALK CONSTRUCTION
No Scale

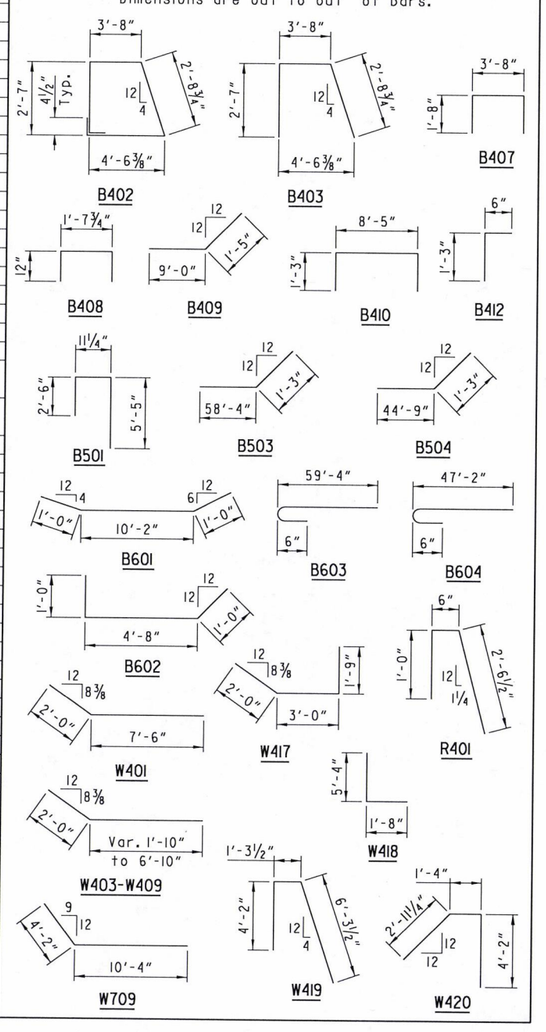
*This work to be completed as part of Stage 3 Construction. Payment for this work will not be paid for directly, but shall be considered subsidiary to the item "Class S Concrete".

BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
B401	6	5'-3"	Str.
B402	171	13'-11"	2"
B403	34	8'-10"	2"
B404	35	8'-8"	Str.
B405	5	10'-1"	Str.
B406	5	7'-10"	Str.
B407	83	6'-10"	2"
B408	12	3'-6"	2"
B409	2	10'-4"	3"
B410	2	10'-9"	2"
B411	12	1'-9"	Str.
B412	4	1'-8"	2"
R401	32	3'-11"	2"
R402	12	13'-8"	Str.
F601	10	2'-2"	Str.
W401	10	9'-6"	2"
W402	10	9'-10"	Str.
W403-W409	2 Ea.	Var. 3'-10" to 8'-10"	2"
W410-W416	2 Ea.	Var. 4'-7" to 9'-2"	Str.
W417	8	6'-7"	2"
W418	8	6'-11"	2"
W419	4	11'-7"	2"
W420	4	8'-1"	2"
B501	109	8'-10"	2 1/2"
B502	109	4'-2"	Str.
B503	10	59'-6"	Str.
B504	10	45'-11"	Str.
B505	4	59'-7"	Str.
B506	4	45'-10"	Str.
B507	24	5'-11"	Str.
B508	24	5'-7"	Str.
B601	5	12'-2"	4 1/2"
B602	5	6'-8"	4 1/2"
B603	6	60'-0"	4 1/2"
B604	6	47'-10"	4 1/2"
B605	7	59'-7"	Str.
B606	7	46'-6"	Str.
W701	12	13'-8"	Str.
W702	4	10'-6"	Str.
W703	4	9'-6 1/2"	Str.
W704	4	8'-7"	Str.
W705	4	7'-7 1/2"	Str.
W706	4	6'-8"	Str.
W707	4	5'-8 1/2"	Str.
W708	4	4'-9"	Str.
W709	4	14'-6"	5 1/4"

BENDING DIAGRAM

Dimensions are out to out of bars.



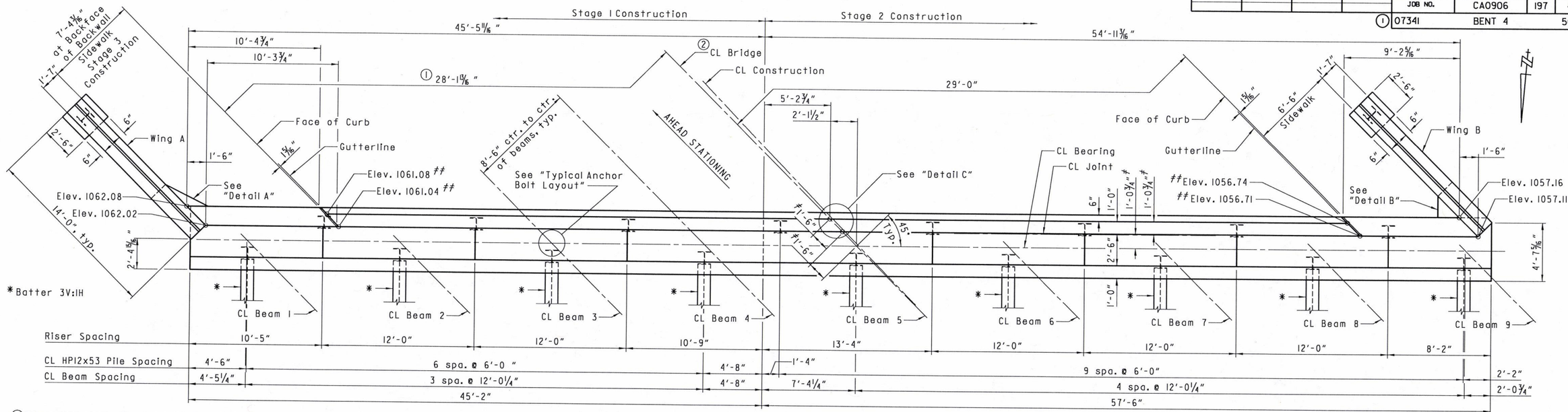
SHEET 4 OF 4
DETAILS OF BENT 1
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_bl4.dgn
SCALE: AS NOTED

BRIDGE NO. 07341
DRAWING NO. 56623

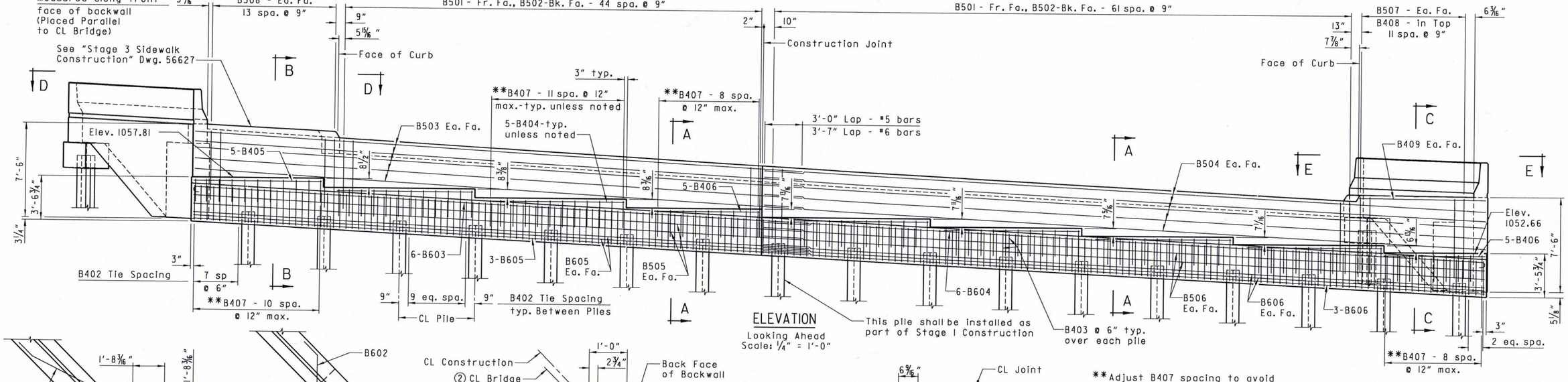
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	197	417
				① 07341		BENT 4		56624



PLAN
Scale: 1/4" = 1'-0"

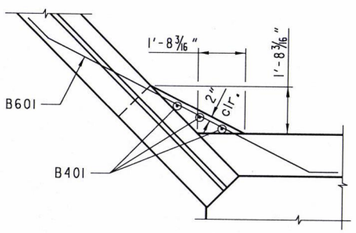
① Dimension shown is along Bk. Fa. of bent.
② CL Bridge is extension of tangent beyond P.C. Sta. 202+91.93.

≠ Measured from CL Joint
≠≠ At Gutterline

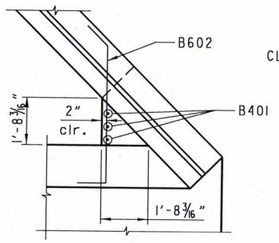


ELEVATION
Looking Ahead
Scale: 1/4" = 1'-0"

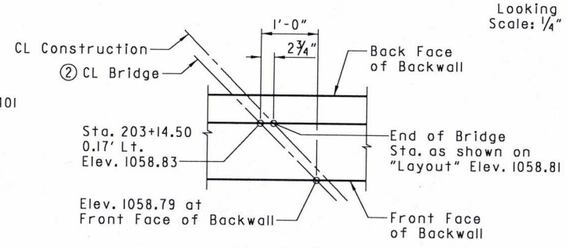
**Adjust B407 spacing to avoid interference with B402 ties.



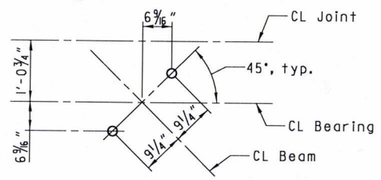
DETAIL A
Scale: 3/8" = 1'-0"



DETAIL B
Scale: 3/8" = 1'-0"



DETAIL C
Scale: 3/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"
For details of Elastomeric Bearings, see Dwg. No. 56643

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
BRENT D. STEVENSON
1.27.2017
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF BENT 4
BRIDGE OVER ELM BRANCH

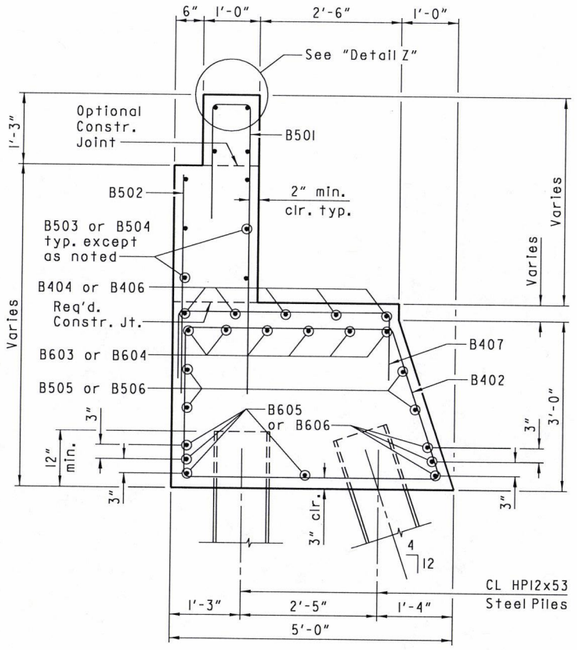
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

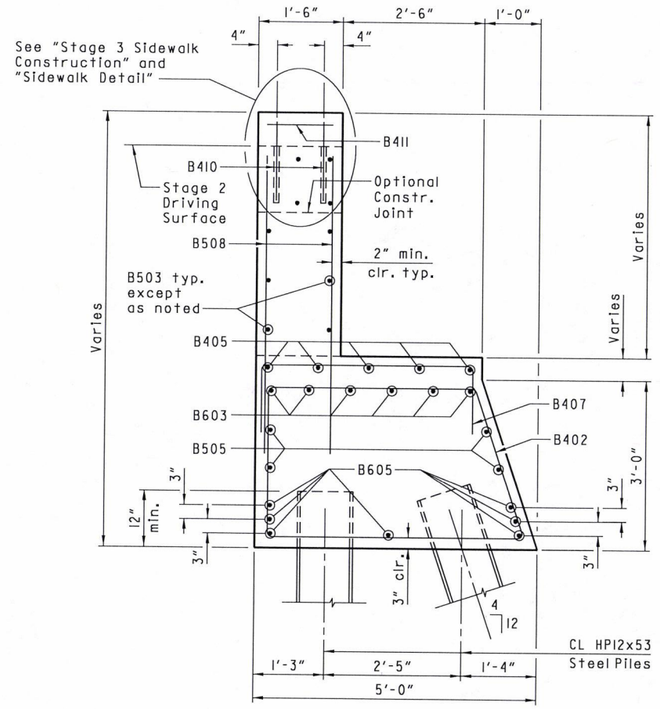
DRAWN BY:	TLW	DATE:	12/23/14	FILENAME:	bCA0906xl_b41.dgn
CHECKED BY:	RMH	DATE:	12/23/14	SCALE:	AS NOTED
DESIGNED BY:	TG	DATE:	12/23/14		

BRIDGE NO. 07341 DRAWING NO. 56624

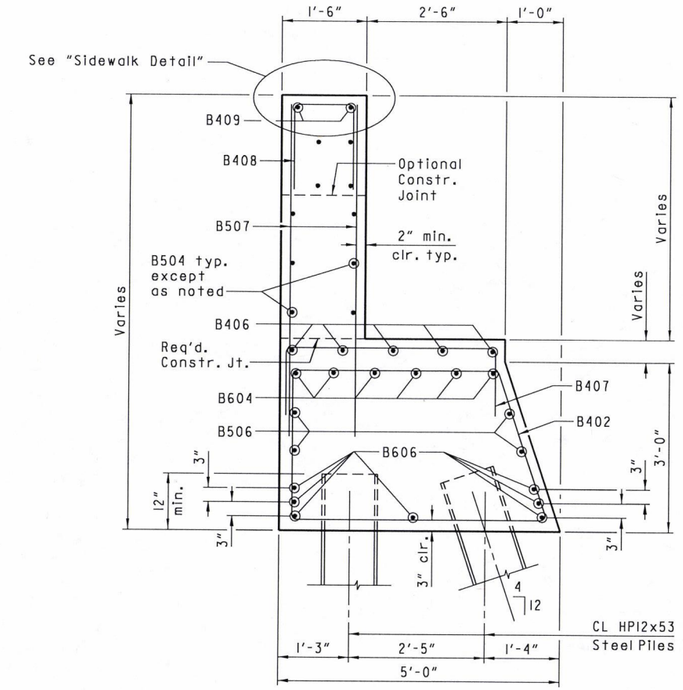
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	198	417
				(1) 07341		BENT 4		56625



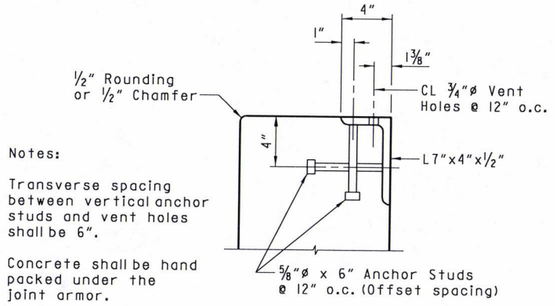
SECTION A-A
Scale: 3/4" = 1'-0"



SECTION B-B
Scale: 3/4" = 1'-0"



SECTION C-C
Scale: 3/4" = 1'-0"



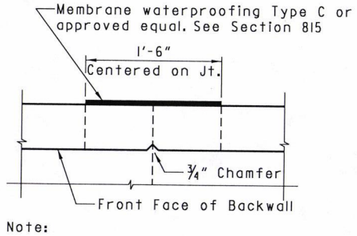
Notes:

Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. Nos. 56641 & 56642.

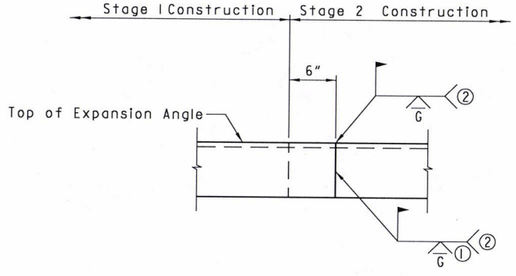
DETAIL Z
No Scale



Note:

Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL
No Scale



① Grind flush 5" from top of deck.
② Weld after Stage 1 Pour & prior to Stage 2 Pour

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
No Scale

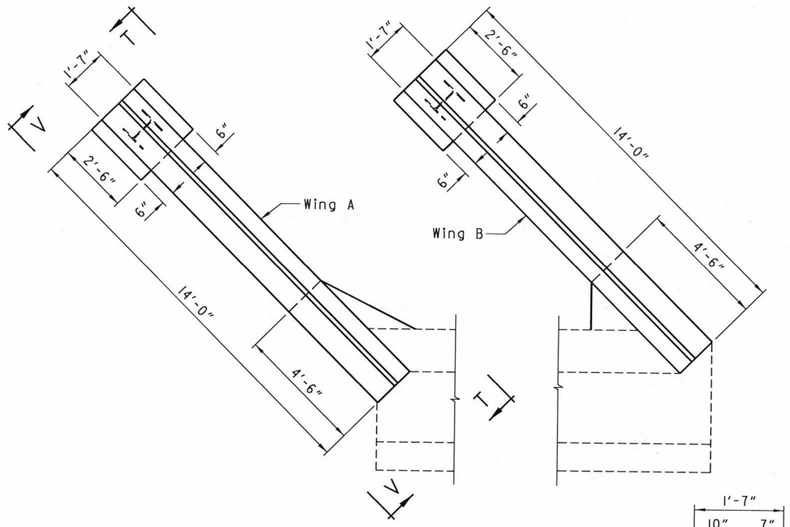
STATE OF ARKANSAS
JEREMY W. STEVENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF BENT 4
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

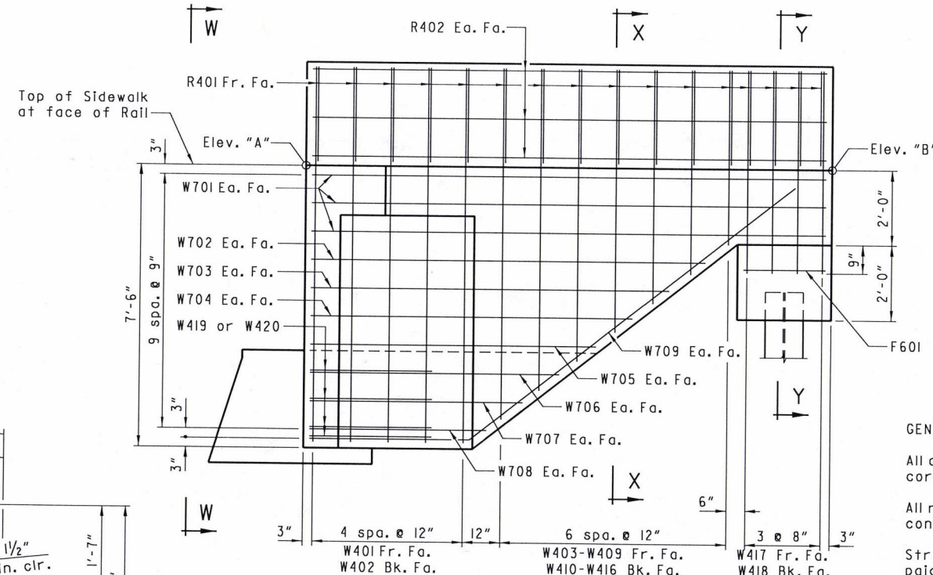
DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl_b42.dgn
SCALE: AS NOTED

BRIDGE NO. 07341
DRAWING NO. 56625

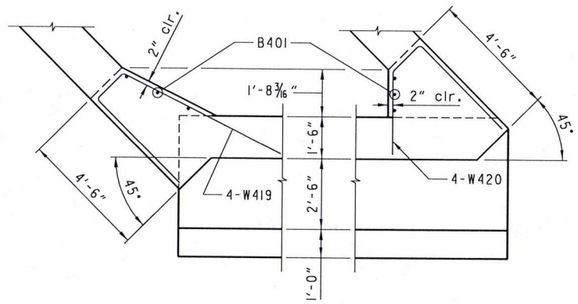
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	199	417
				(1) 07341		BENT 4		56626



PLAN OF WING
Scale: 3/8" = 1'-0"



VIEW T-T
Scale: 1/2" = 1'-0"



SECTION Z-Z
Scale: 3/8" = 1'-0"

GENERAL NOTES

All concrete shall be class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

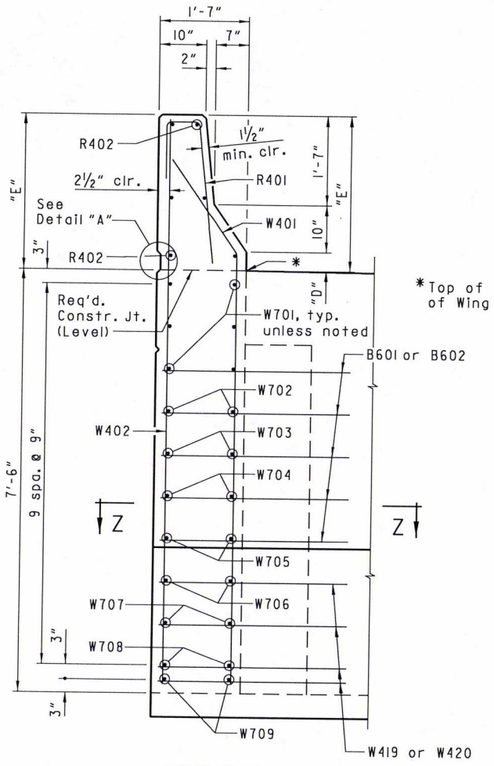
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)"

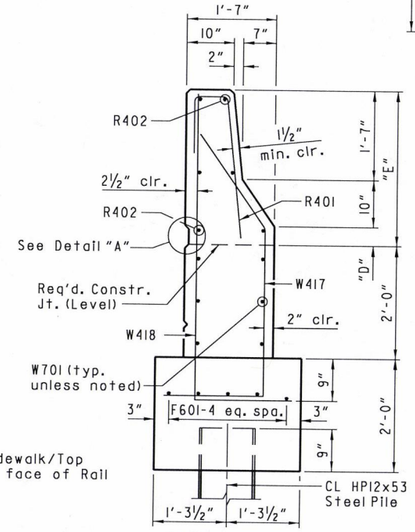
If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56641.

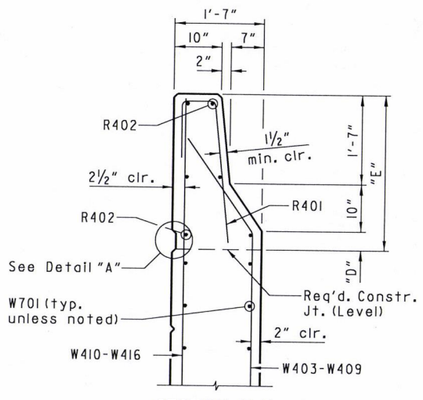
For additional information, see "Layout".



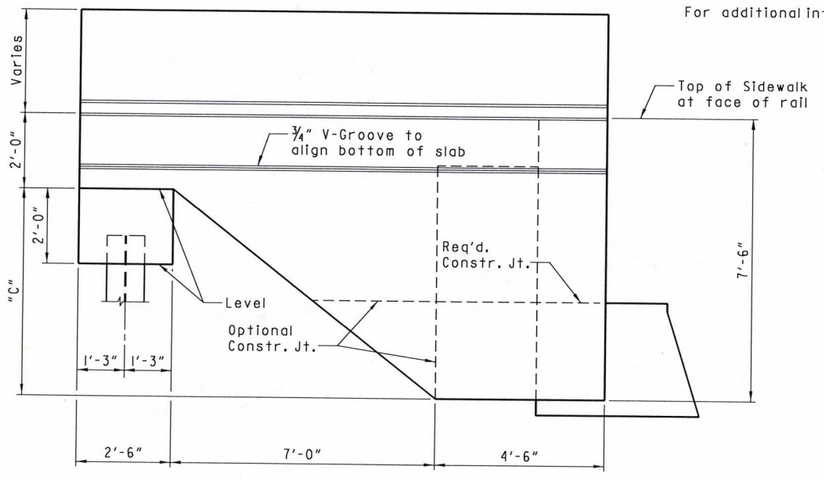
VIEW W-W
Scale: 3/4" = 1'-0"



SECTION Y-Y
Scale: 3/4" = 1'-0"



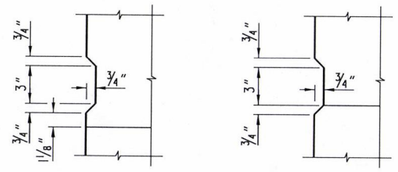
SECTION X-X
Scale: 3/4" = 1'-0"



VIEW V-V
Scale: 1/2" = 1'-0"

TABLE OF VARIABLES

	WING A	WING B
ELEV. "A"	1062.02	1057.11
ELEV. "B"	1062.47	1057.45
"C"	5'-11 3/8"	5'-10 1/16"
"D"	5 7/8"	4"
"E"	2'-10 7/8"	2'-9"



WING A WING B

DETAIL A
No Scale

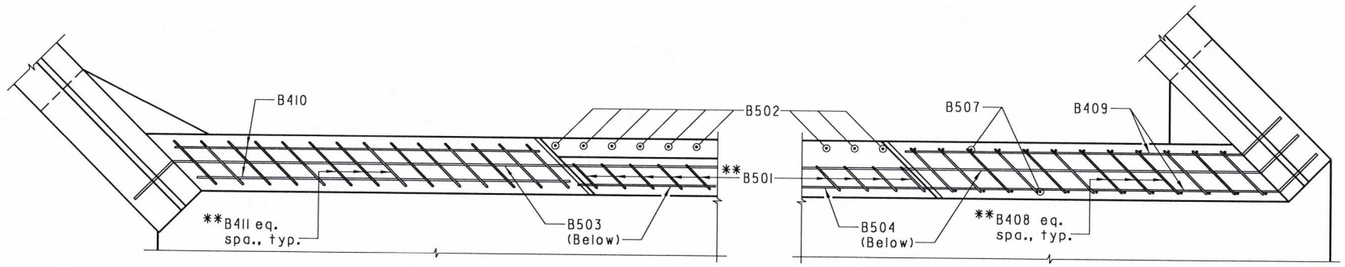
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEPHENSON
1-24-2017
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 4
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_b43.dgn
SCALE: AS NOTED

BRIDGE NO. 07341 DRAWING NO. 56626

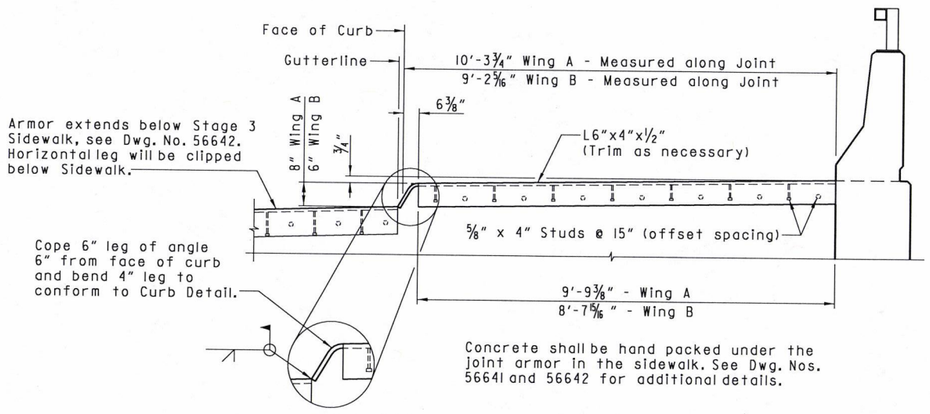
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	200	417
				(1) 07341		BENT 4		56627



VIEW D-D
Scale: ½" = 1'-0"

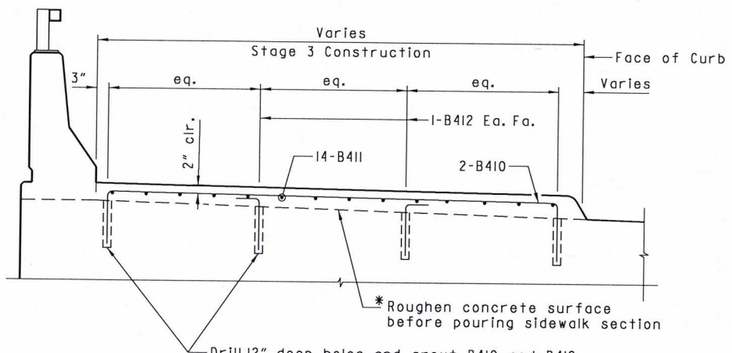
**Place parallel to CL Bridge

VIEW E-E
Scale: ½" = 1'-0"



Concrete shall be hand packed under the joint armor in the sidewalk. See Dwg. Nos. 56641 and 56642 for additional details.

SIDEWALK DETAIL
No Scale



Drill 12" deep holes and grout B410 and B412 bars into place as shown using an approved epoxy grout listed on the QPL. Hole diameter, and installation procedure shall be as recommended by the grout manufacturer.

STAGE 3 SIDEWALK CONSTRUCTION
No Scale

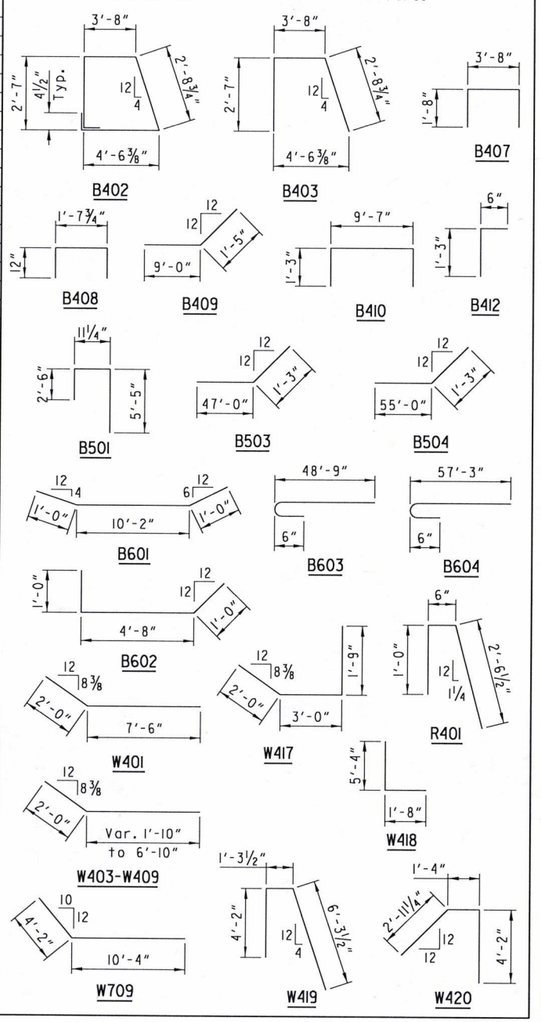
*This work to be completed as part of Stage 3 Construction. Payment for this work will not be paid for directly, but shall be considered subsidiary to the item "Class S Concrete".

BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
B401	6	5'-3"	Str.
B402	171	13'-11"	2"
B403	34	8'-10"	2"
B404	30	11'-0"	Str.
B405	5	10'-1"	Str.
B406	10	8'-0"	2"
B407	101	6'-10"	2"
B408	12	3'-6"	2"
B409	2	10'-4"	3"
B410	2	11'-11"	2"
B411	14	1'-9"	Str.
B412	4	1'-8"	2"
R401	32	3'-11"	2"
R402	12	13'-8"	Str.
F601	10	2'-2"	Str.
W401	10	9'-6"	2"
W402	10	9'-10"	Str.
W403-W409	2 Ea.	Var. 3'-10" to 8'-10"	2"
W410-W416	2 Ea.	Var. 4'-7" to 9'-2"	Str.
W417	8	6'-7"	2"
W418	8	6'-11"	2"
W419	4	11'-7"	2"
W420	4	8'-1"	2"
B501	107	8'-10"	2½"
B502	107	4'-2"	Str.
B503	10	48'-3"	2½"
B504	10	56'-3"	2½"
B505	4	48'-2"	Str.
B506	4	57'-3"	Str.
B507	24	5'-11"	Str.
B508	28	5'-5"	Str.
B601	5	12'-2"	4½"
B602	5	6'-8"	4½"
B603	6	49'-5"	4½"
B604	6	57'-11"	4½"
B605	7	48'-9"	Str.
B606	7	57'-3"	Str.
W701	12	13'-8"	Str.
W702	4	10-6"	Str.
W703	4	9'-6½"	Str.
W704	4	8'-7"	Str.
W705	4	7'-7½"	Str.
W706	4	6'-8"	Str.
W707	4	5'-8½"	Str.
W708	4	4'-9"	Str.
W709	4	14'-6"	5¼"

BENDING DIAGRAM

Dimensions are out to out of bars.



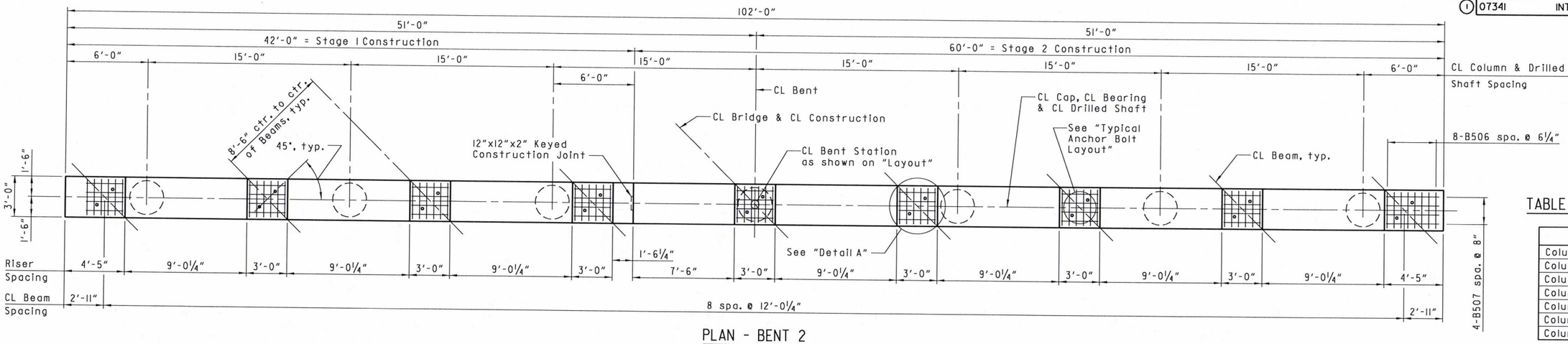
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
BRIDGE ENGINEER
1.24.2017

SHEET 4 OF 4
DETAILS OF BENT 4
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906xl_b44.dgn
SCALE: AS NOTED

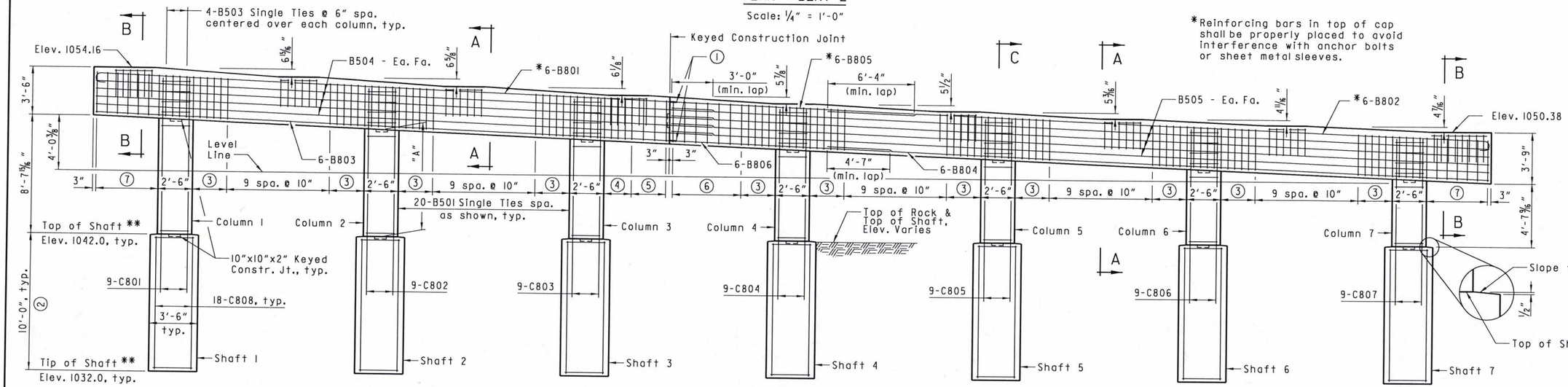
BRIDGE NO. 07341 DRAWING NO. 56627

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.		CA0906	201	417
				(1) 07341		INT. BENTS		56628



PLAN - BENT 2

Scale: ¼" = 1'-0"



ELEVATION - BENT 2

Looking Ahead

Scale: ¼" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

TABLE OF VARIABLES

	"A"**
Column 1	8'-5 1/16"
Column 2	7'-9 15/16"
Column 3	7'-2 7/8"
Column 4	6'-7 3/4"
Column 5	6'-0 5/8"
Column 6	5'-5 1/2"
Column 7	4'-10 3/8"

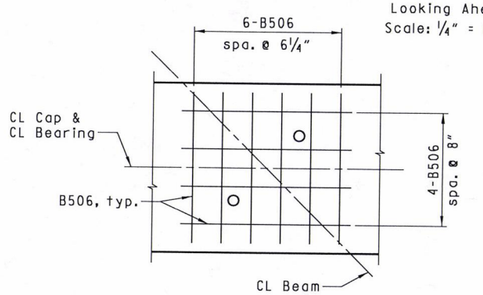
**The top of rock and top of shaft elevations are to be determined in the field. The elevations shown are for estimating purposes only. Actual column lengths will be determined in the field based on final top of rock and corresponding top of shaft elevations.

(1) Mechanical rebar splices (threaded type) are required. They shall develop at least 125% of the specified yield strength of the bar.

The mechanical rebar splices shall be an approved type on the AHTD Qualified Products List (QPL) and maintain the minimum clearance shown.

The cost for the mechanical rebar splices shall not be measured for seperate payment but shall be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

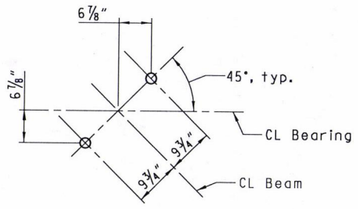
(2) Length of Drilled Shaft shown is for estimating quantities only and for minimum penetration required into competent rock. Actual lengths are to be determined in the field. See SP Job No. CA0906 "Drilled Shaft Foundations".



DETAIL A

Scale: ¾" = 1'-0"

Bar group centered over CL of Beam, typ. unless noted otherwise.



TYPICAL ANCHOR BOLT LAYOUT

Scale: ¾" = 1'-0"

For details of Elastomeric Bearings, see Dwg. No. 56643.

③ 5 spa. @ 6"
④ 4 spa. @ 6"
⑤ 3 spa. @ 10"
⑥ 6 spa. @ 10"
⑦ 7-B502 Double Ties spa. @ 9"

NOTES:

For Details of Sections A-A, B-B & C-C, see Dwg. No. 56629.

Column and Drilled Shaft Tie Reinforcement not shown for clarity. For additional details of reinforcing in columns and drilled shafts, see Dwg. No. 56629.

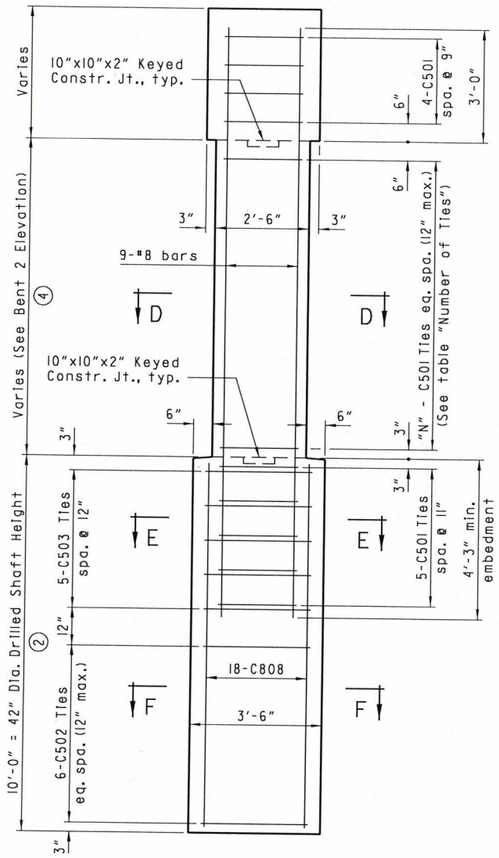
STATE OF ARKANSAS
JERRY B. STEVENSON
No. 16183
REGISTERED PROFESSIONAL ENGINEER
BRIDGE ENGINEER
1-24-2017

SHEET 1 OF 4
DETAILS OF INTERMEDIATE BENTS
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_b21.dgn
SCALE: AS NOTED

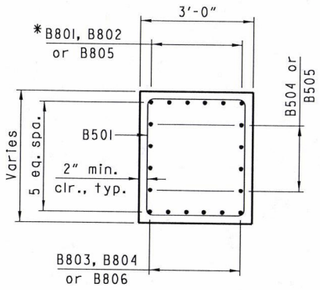
BRIDGE NO. 07341 DRAWING NO. 56628

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.		CA0906	202	417
				(1) 07341		INT. BENTS		56629



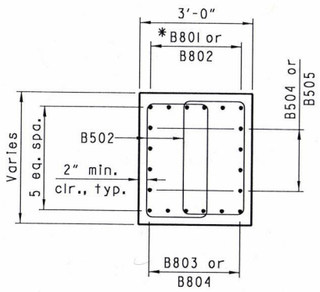
SECTION C-C

Scale: ½" = 1'-0"



SECTION A-A

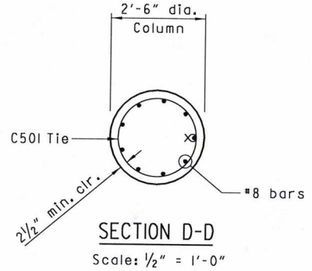
Scale: ½" = 1'-0"



SECTION B-B

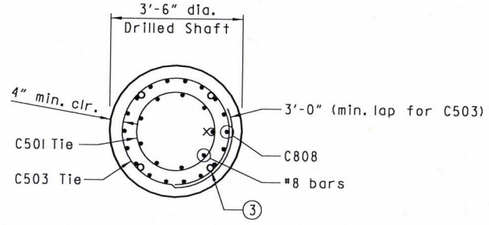
Scale: ½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.



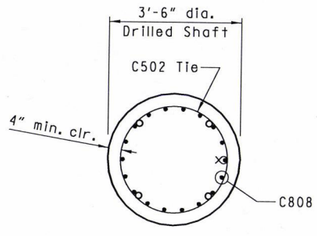
SECTION D-D

Scale: ½" = 1'-0"



SECTION E-E

Scale: ½" = 1'-0"



SECTION F-F

Scale: ½" = 1'-0"

NUMBER OF TIES

	"N"
Column 1	9
Column 2	9
Column 3	8
Column 4	7
Column 5	7
Column 6	6
Column 7	6

(1) These bars shall have threaded ends for mechanical rebar splices at Bent 2. Lengths of rebar shown are for estimation of quantities. Actual lengths to be modified as required to accommodate mechanical splices.

(2) Length of Drilled Shaft shown is for estimating quantities only and for minimum penetration required into competent rock. Actual lengths are to be determined in the field. See SP Job No. CA0906 "Drilled Shaft Foundations".

(3) 4-2" Min. Dia. Schedule 40 Steel Pipes equally spaced. See SP Job No. CA0906 "Non-Destructive Testing of Drilled Shafts".

(4) Actual column lengths will be determined in the field based on final top of rock and corresponding top of shaft elevations.

GENERAL NOTES:

Concrete in the Cap and Column shall be Class S with a minimum 28 day compressive strength, f'c = 3,500 psi, and shall be poured in the dry. Concrete in the Drilled Shaft shall be Class S as modified by SP Job No. CA0906 "Drilled Shaft Foundations". 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 M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts.

For additional information, see "Layout".

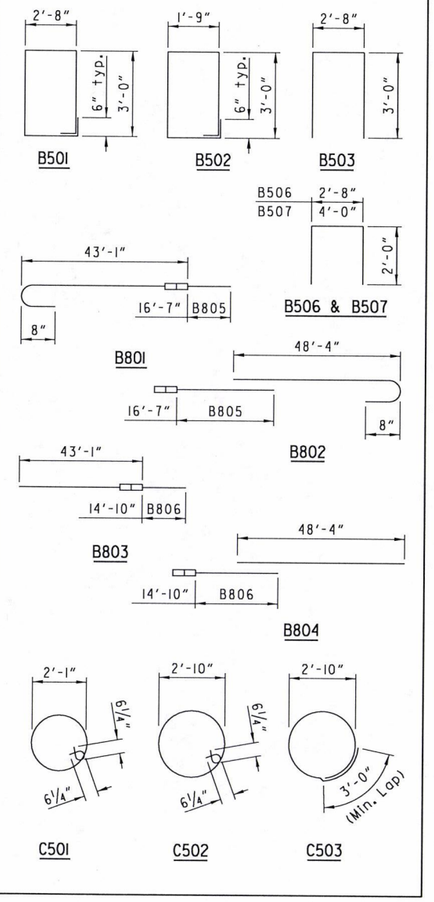
Drilled Shafts shall conform to SP Job No. CA0906 "Drilled Shaft Foundations".

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	PIN. DIA.
	B501	120	11'-10"	2½"
	B502	28	10'-0"	2½"
	B503	28	8'-6"	2½"
	B504	8	45'-0"	Str.
	B505	8	59'-9"	Str.
	B506	88	6'-6"	2½"
	B507	4	7'-10"	2½"
(1)	B801	6	44'-0"	6"
	B802	6	49'-3"	6"
(1)	B803	6	43'-1"	Str.
	B804	6	48'-4"	Str.
(1)	B805	6	16'-7"	Str.
(1)	B806	6	14'-10"	Str.
(6)	C501	136	7'-11"	3¾"
(5)	C502	42	10'-3"	3¾"
(5)	C503	35	11'-9"	-
(7)	C801	9	18'-9"	Str.
(7)	C802	9	18'-2"	Str.
(7)	C803	9	17'-7"	Str.
(7)	C804	9	17'-0"	Str.
(7)	C805	9	16'-5"	Str.
(7)	C806	9	15'-9"	Str.
(7)	C807	9	15'-2"	Str.
(5)	C808	126	9'-6"	Str.

BENDING DIAGRAM

Dimensions are out to out of bars.



(5) Non-pay item - Subsidiary to SP Job No. CA0906 "Drilled Shaft Foundations".

(6) Three additional ties included for each column.

(7) Bar length includes an additional 3 ft.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEREMY B. STEVENSON
1.24.2017
BRIDGE ENGINEER

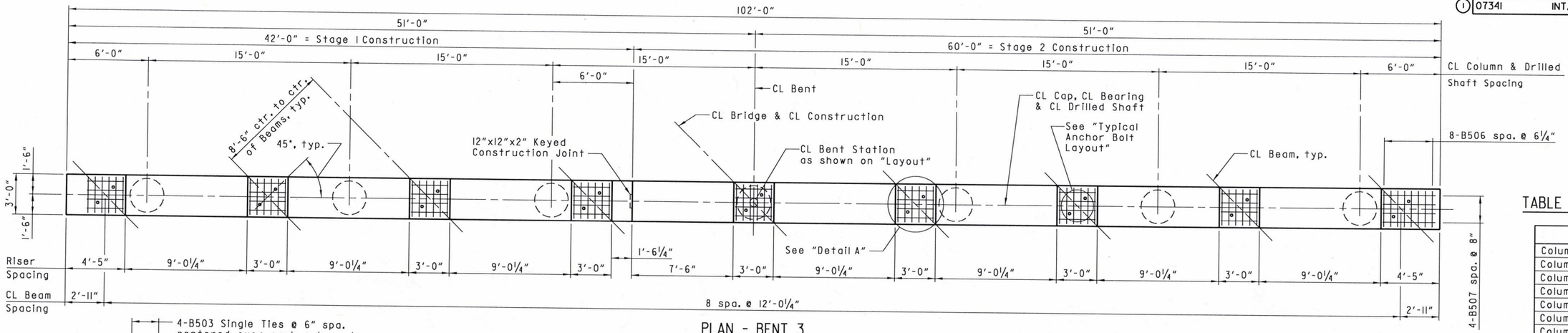
SHEET 2 OF 4
DETAILS OF INTERMEDIATE BENTS
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_b22.dgn
SCALE: AS NOTED

BRIDGE NO. 07341 DRAWING NO. 56629

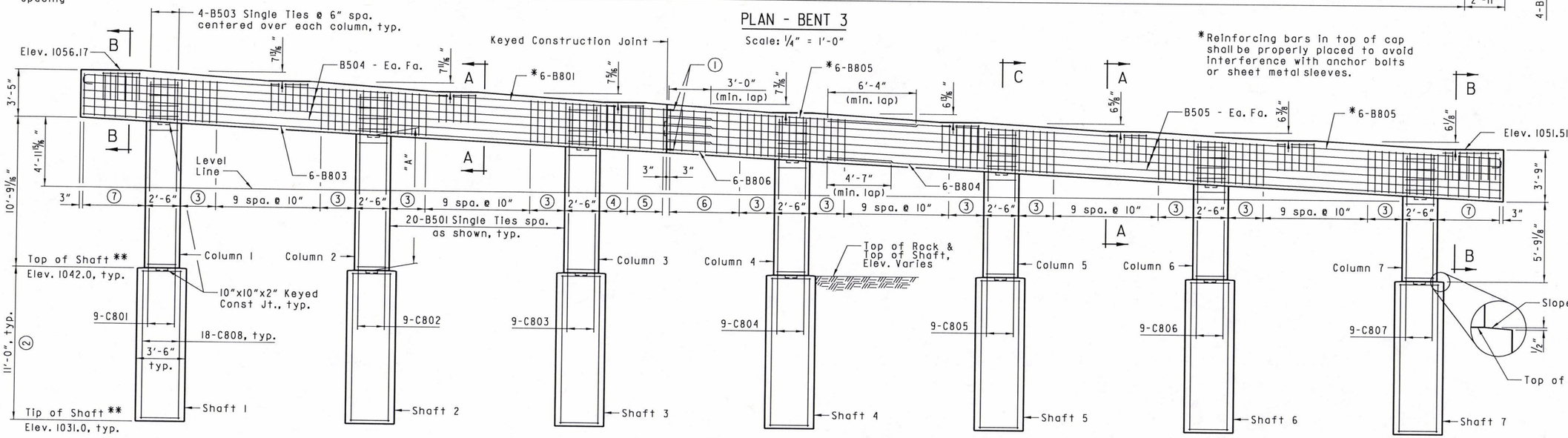
DETAILS - BENT 2

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.		CA0906	203	417
				(1) 07341		INT. BENTS		56630



PLAN - BENT 3

Scale: ¼" = 1'-0"



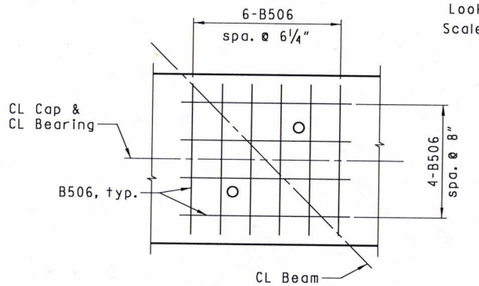
*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

TABLE OF VARIABLES

	"A" **
Column 1	10'-5½"
Column 2	9'-8¹¹⁄₁₆"
Column 3	8'-11⅞"
Column 4	8'-3¹⁄₁₆"
Column 5	7'-6¼"
Column 6	6'-9³⁄₁₆"
Column 7	6'-0⅝"

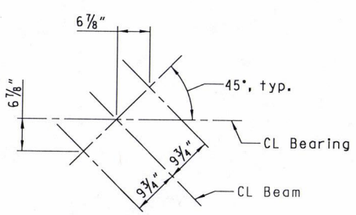
ELEVATION - BENT 3

Looking Ahead
Scale: ¼" = 1'-0"



DETAIL A

Scale: ¾" = 1'-0"
Bar group centered over CL of Beam, typ. unless noted otherwise.



TYPICAL ANCHOR BOLT LAYOUT

Scale: ¾" = 1'-0"
For details of Elastomeric Bearings, see Dwg. No. 56643.

** The top of rock and top of shaft elevations are to be determined in the field. The elevations shown are for estimating purposes only. Actual column lengths will be determined in the field based on final top of rock and corresponding top of shaft elevations.

(1) Mechanical rebar splices (threaded type) are required. They shall develop at least 125% of the specified yield strength of the bar.

The mechanical rebar splices shall be an approved type on the AHTD Qualified Products List (QPL) and maintain the minimum clearance shown.

The cost for the mechanical rebar splices shall not be measured for separate payment but shall be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

(2) Length of Drilled Shaft shown is for estimating quantities only and for minimum penetration required into competent rock. Actual lengths are to be determined in the field. See SP Job No. CA0906 "Drilled Shaft Foundations".

(3) 5 spa. @ 6"
(4) 4 spa. @ 6"
(5) 3 spa. @ 10"
(6) 6 spa. @ 10"
(7) 7-B502 Double Ties spa. @ 9"

NOTES:

For Details of Sections A-A, B-B & C-C, see Dwg. No. 56631.

Column and Drilled Shaft Tie Reinforcement not shown for clarity. For additional details of reinforcing in columns and drilled shafts, see Dwg. No. 56631.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF INTERMEDIATE BENTS BRIDGE OVER ELM BRANCH

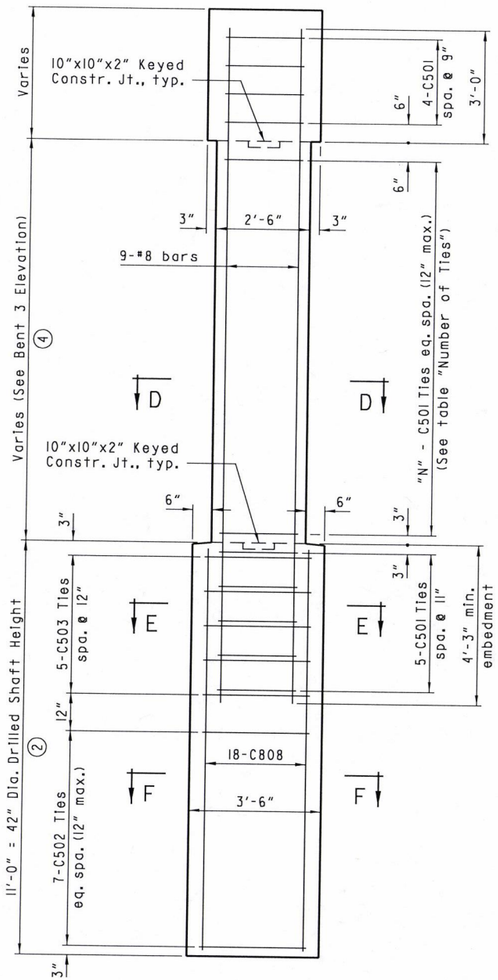
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x1_b3l.dgn
SCALE: AS NOTED

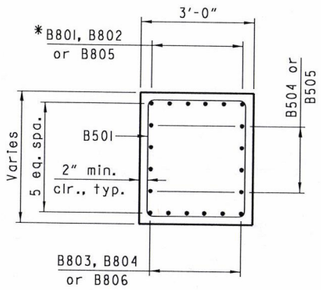
BRIDGE NO. 07341 DRAWING NO. 56630

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.		CA0906	204	417
				(1) 07341		INT. BENTS		56631



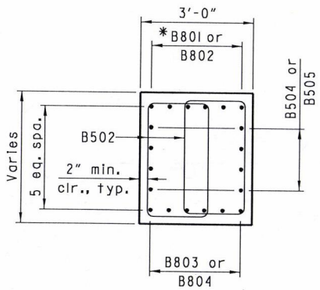
SECTION C-C

Scale: ½" = 1'-0"



SECTION A-A

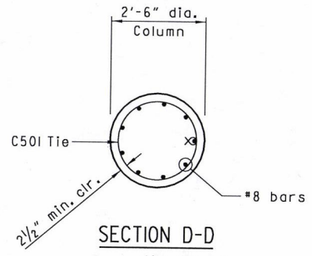
Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

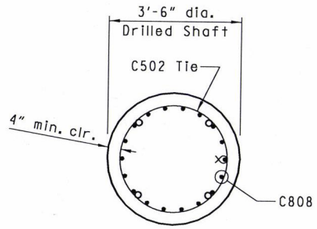


SECTION D-D

Scale: ½" = 1'-0"

SECTION E-E

Scale: ½" = 1'-0"



SECTION F-F

Scale: ½" = 1'-0"

NUMBER OF TIES

	"N"
Column 1	11
Column 2	10
Column 3	10
Column 4	9
Column 5	8
Column 6	8
Column 7	7

(1) These bars shall have threaded ends for mechanical rebar splices at Bent 3. Lengths of rebar shown are for estimation of quantities. Actual lengths to be modified as required to accommodate mechanical splices.

(2) Length of Drilled Shaft shown is for estimating quantities only and for minimum penetration required into competent rock. Actual lengths are to be determined in the field. See SP Job No. CA0906 "Drilled Shaft Foundations".

(3) 4-2" Min. Dia. Schedule 40 Steel Pipes equally spaced. See SP Job No. CA0906 "Non-Destructive Testing of Drilled Shafts".

(4) Actual column lengths will be determined in the field based on final top of rock and corresponding top of shaft elevations.

GENERAL NOTES:

Concrete in the Cap and Column shall be Class S with a minimum 28 day compressive strength, f'c = 3,500 psi, and shall be poured in the dry. Concrete in the Drilled Shaft shall be Class S as modified by SP Job No. CA0906 "Drilled Shaft Foundations". 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 M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts.

For additional information, see "Layout".

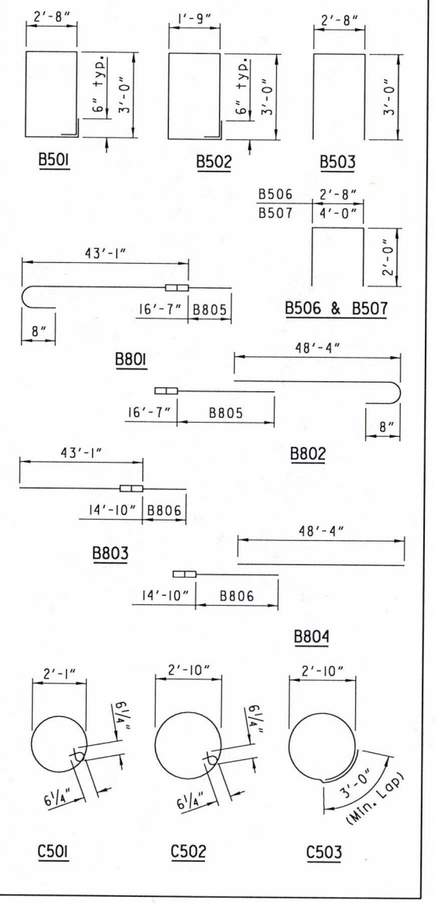
Drilled Shafts shall conform to SP Job No. CA0906 "Drilled Shaft Foundations".

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	PIN. DIA.
	B501	120	11'-10"	2½"
	B502	28	10'-0"	2½"
	B503	28	8'-6"	2½"
	B504	8	45'-0"	Str.
	B505	8	59'-9"	Str.
	B506	88	6'-6"	2½"
	B507	4	7'-10"	2½"
(1)	B801	6	44'-0"	6"
	B802	6	49'-3"	6"
(1)	B803	6	43'-1"	Str.
	B804	6	48'-4"	Str.
(1)	B805	6	16'-7"	Str.
(1)	B806	6	14'-10"	Str.
(6)	C501	147	7'-11"	3¾"
(5)	C502	49	10'-3"	3¾"
(5)	C503	35	11'-9"	-
(7)	C801	9	20'-10"	Str.
(7)	C802	9	20'-1"	Str.
(7)	C803	9	19'-4"	Str.
(7)	C804	9	18'-7"	Str.
(7)	C805	9	17'-10"	Str.
(7)	C806	9	17'-2"	Str.
(7)	C807	9	16'-5"	Str.
(5)	C808	126	10'-6"	Str.

BENDING DIAGRAM

Dimensions are out to out of bars.



(5) Non-pay item - Subsidiary to SP Job No. CA0906 "Drilled Shaft Foundations".

(6) Three additional ties included for each column.

(7) Bar length includes an additional 3 ft.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRELD STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF INTMEDIATE BENTS
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/23/14 FILENAME: bCA0906x1_b32.dgn
CHECKED BY: RMH DATE: 12/23/14 SCALE: AS NOTED
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56631

DETAILS - BENT 3

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.		CA0906	205	417
				(1) 07341		160 FT. UNIT		56632

(1) Tolerance: Minus = 1/4", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance, see "Adjustment for Slab Thickness Tolerance", Dwg. No. 56633.

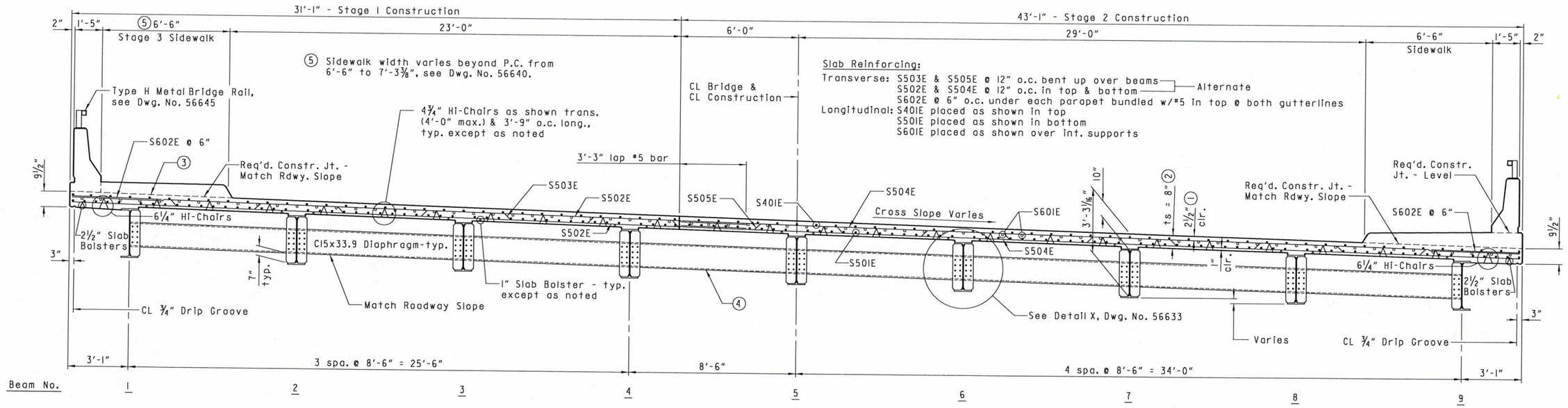
(2) See "Adjustment for Slab Thickness Tolerance", Dwg. No. 56633.

(3) Roughen concrete surface before constructing Stage 3 Sidewalk.

NOTES:

At Contractor's option, in lieu of providing bars S503E or S505E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S503E and S505E. Bars in top and bottom shall be Epoxy Coated.

Class I Protective Surface Treatment shall be applied to the Roadway Surface, Top of Sidewalk, and the Face and Top of Concrete Parapet Rail.

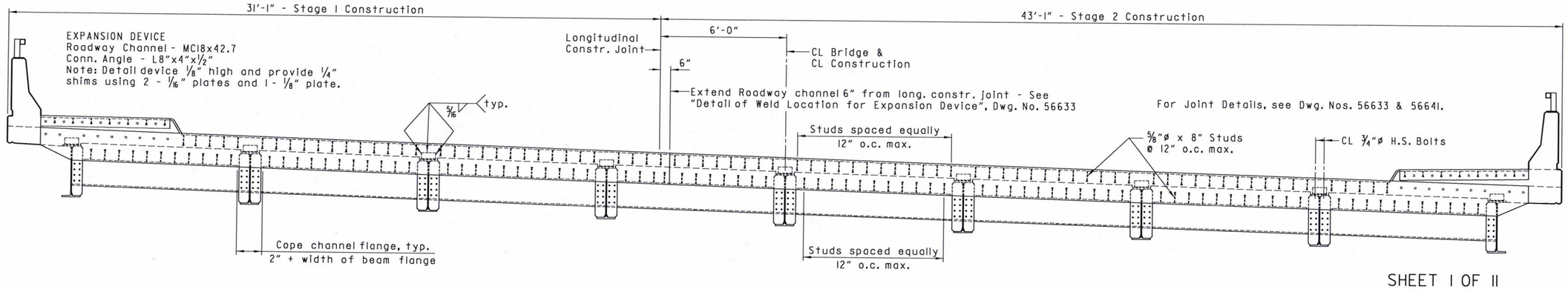


TYPICAL ROADWAY SECTION

Looking Ahead
Scale: 3/8" = 1'-0"

(4) In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 1 1/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

(4) Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage I overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. See "Deck Support at Longitudinal Construction Joint" detail Dwg. No. 56633. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.



TYPICAL SECTION THROUGH JOINT

Looking Ahead - Bent 1
Bent 4 Similar
Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEPHENSON
1.24.2017
BRIDGE ENGINEER

SHEET 1 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH

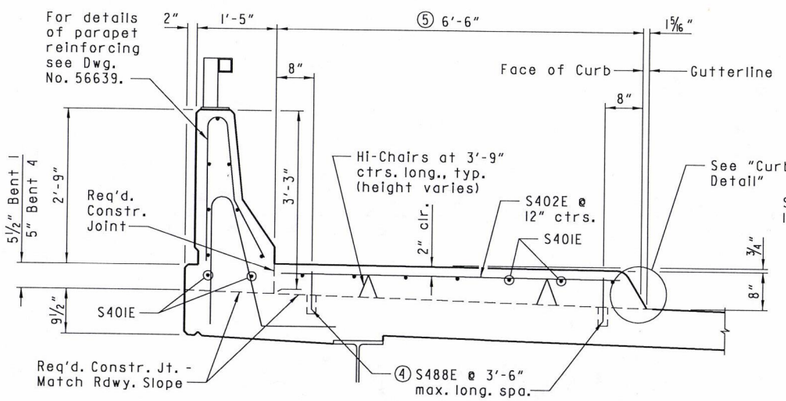
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x1_sl.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07341
DRAWING NO. 56632

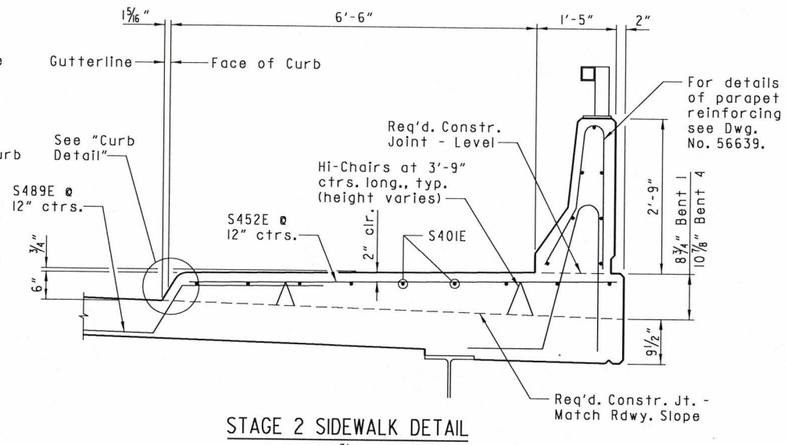
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	206	417
				(1) 07341		160 FT. UNIT		56633



STAGE 3 SIDEWALK DETAIL

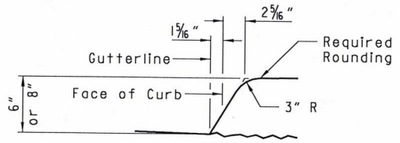
Scale: 3/4" = 1'-0"

Note: Roughen concrete surfaces before constructing Stage 3 sidewalk.



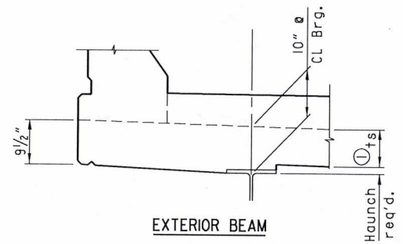
STAGE 2 SIDEWALK DETAIL

Scale: 3/4" = 1'-0"



CURB DETAIL

No Scale



(1) Tolerance when removable deck forming is used is +1/2", -1/4", Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note: ts = slab thickness as shown on superstructure detail drawings.

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 1 3/4". 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.

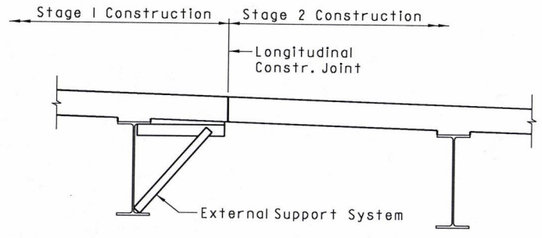
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

Scale: 3/4" = 1'-0"

TABLE FOR WELD

MATERIAL THICKNESS OF THICKER PART JOINED (INCHES)	MINIMUM SIZE OF FILLET WELD (INCHES)	SINGLE PASS WELD MUST BE USED
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

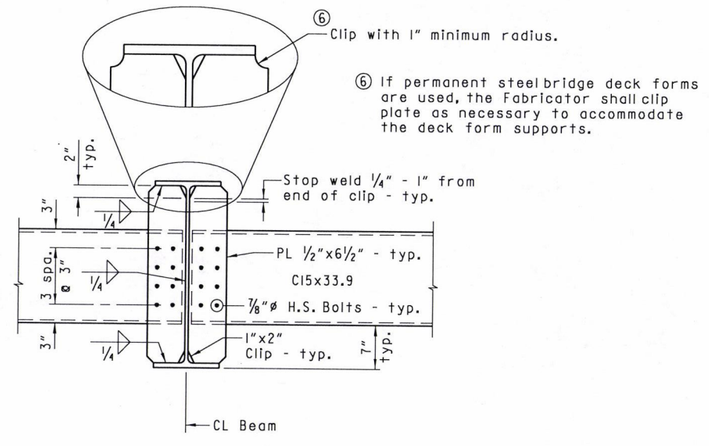
NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

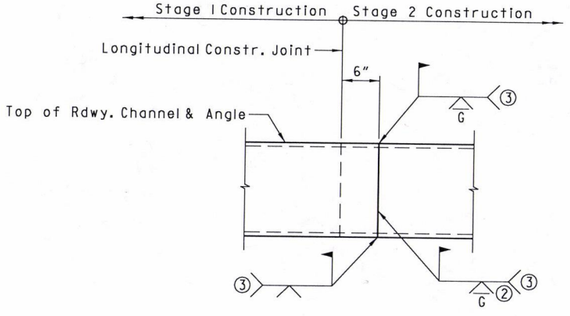
Looking Ahead
Scale: 1/2" = 1'-0"



⑥ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accommodate the deck form supports.

DETAIL X

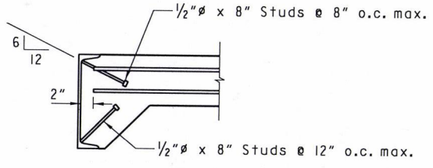
Scale: 1" = 1'-0"



② Grind flush 5" from top of deck.
③ Weld after Stage 1 Pour & prior to Stage 2 Pour.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

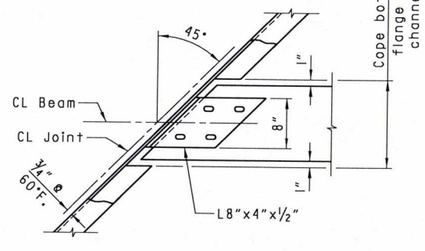
No Scale



Note: As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

Scale: 1" = 1'-0"



CHANNEL CONNECTION DETAIL

Scale: 1" = 1'-0"

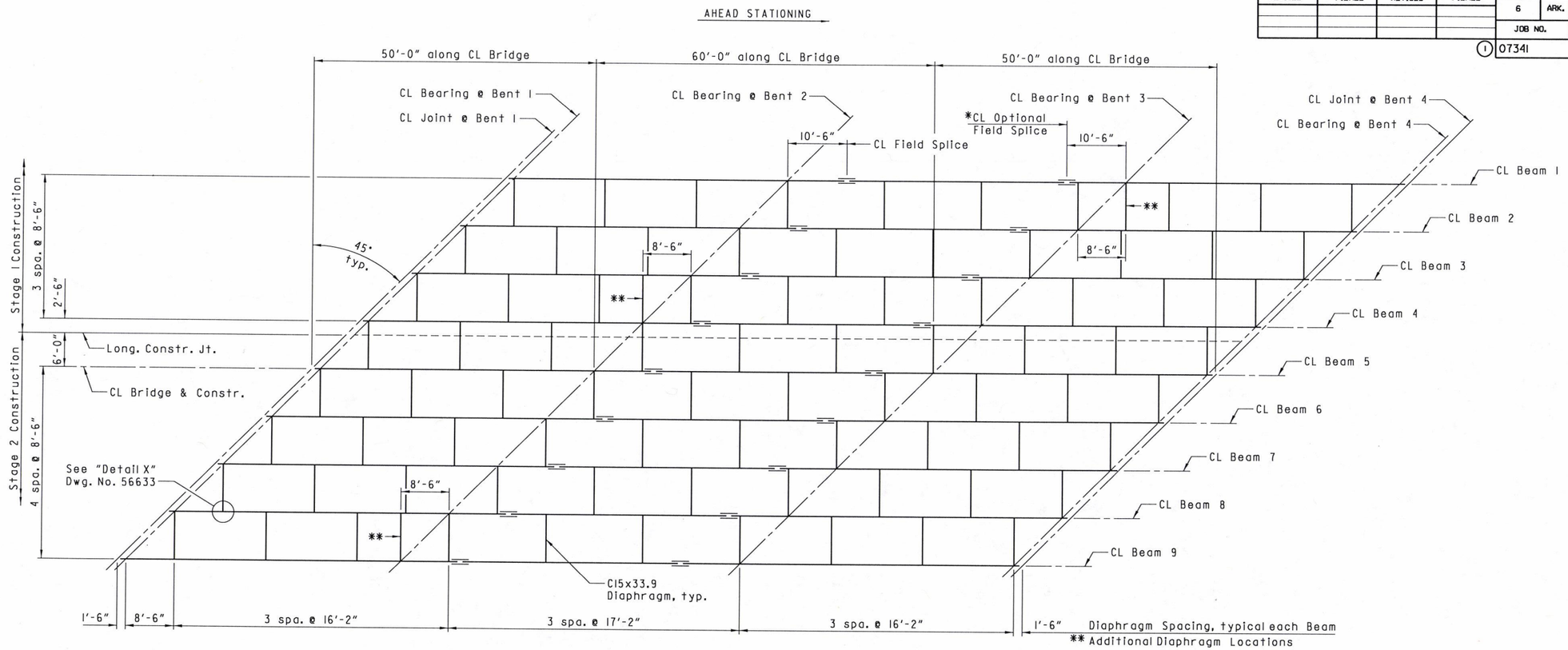
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.14.2017
BRIDGE ENGINEER

SHEET 2 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TLW	DATE:	12/23/14	FILENAME:	bCA0906xl_s2.dgn
CHECKED BY:	TG	DATE:	12/23/14	SCALE:	AS NOTED
DESIGNED BY:	PMT	DATE:	12/23/14		

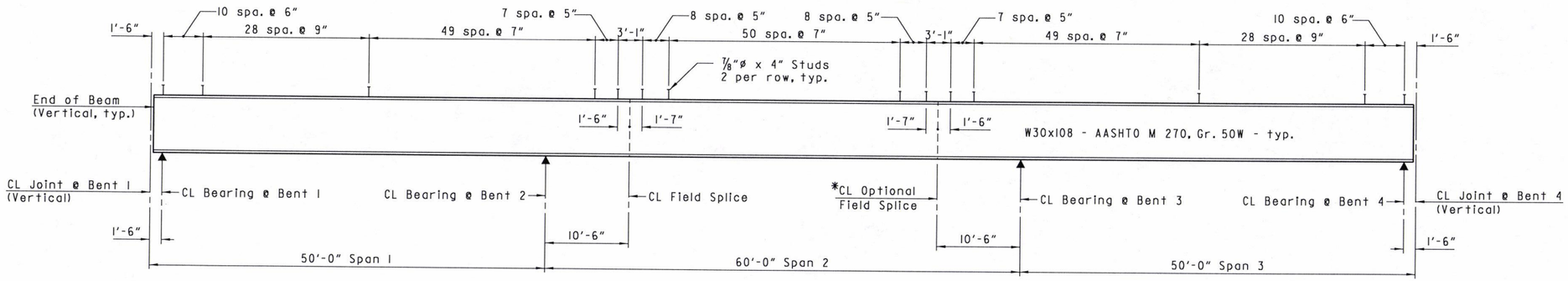
BRIDGE NO. 07341
DRAWING NO. 56633

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.		CA0906	207	417
				(1) 07341		160 FT. UNIT		56634



FRAMING PLAN

Scale: 1/32 " = 1'-0"



BEAM ELEVATION

No Scale

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless noted otherwise.

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.

*At the Contractor's option, a field splice may be provided at this location. No additional payment will be made for the optional field splice. If the optional field splice is used, provide the shear connectors at this location as detailed. If not used, space stacked studs equally in splice area.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 16183 JERRY D. STEVENSON

1-24-2017

BRIDGE ENGINEER

SHEET 3 OF 11

DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906xl_s3.dgn

CHECKED BY: TG DATE: 12/23/14 SCALE: AS NOTED

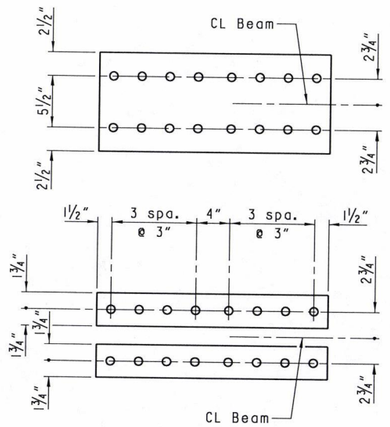
DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56634

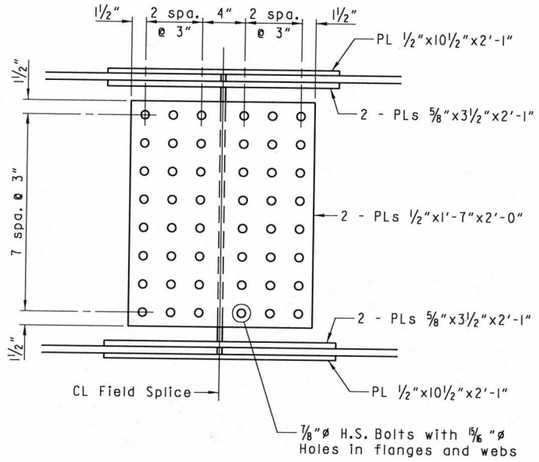
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	208	417
				(1) 07341		160 FT. UNIT		56635

NOTE:

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.



FLANGE SPLICE



WEB SPLICE

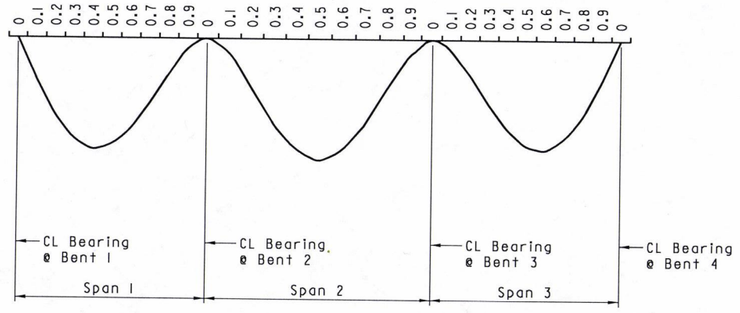
NOTE: All field splice plates shall be AASHTO M 270, Gr. 50W.

FIELD SPLICE DETAILS

1½" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	POINT OF DEFLECTION	STRUCTURAL STEEL		STRUCTURAL STEEL + SLAB		STRUCTURAL STEEL + SLAB + PARAPET + SIDEWALK	
		BMS. 1 & 9	BMS. 2 - 8	BMS. 1 & 9	BMS. 2 - 8	BMS. 1 & 9	BMS. 2 - 8
SPAN 1	0	0	0	0	0	0	0
	0.1	0.017	0.019	0.140	0.148	0.185	0.158
	0.2	0.032	0.035	0.258	0.272	0.342	0.290
	0.3	0.042	0.046	0.338	0.356	0.449	0.379
	0.4	0.046	0.050	0.372	0.392	0.495	0.417
	0.5	0.044	0.048	0.358	0.377	0.478	0.400
	0.6	0.037	0.041	0.301	0.317	0.404	0.335
	0.7	0.027	0.029	0.214	0.225	0.289	0.236
	0.8	0.014	0.016	0.116	0.122	0.160	0.127
	0.9	0.004	0.005	0.034	0.035	0.049	0.035
SPAN 2	0	0	0	0	0	0	0
	0.1	0.007	0.008	0.059	0.063	0.069	0.073
	0.2	0.023	0.025	0.182	0.192	0.221	0.217
	0.3	0.039	0.042	0.311	0.328	0.382	0.368
	0.4	0.050	0.054	0.405	0.426	0.499	0.477
	0.5	0.054	0.059	0.438	0.462	0.541	0.516
	0.6	0.050	0.054	0.404	0.426	0.499	0.477
	0.7	0.039	0.042	0.311	0.327	0.383	0.367
	0.8	0.023	0.025	0.182	0.192	0.222	0.217
	0.9	0.007	0.008	0.059	0.063	0.070	0.073
SPAN 3	0	0	0	0	0	0	0
	0.1	0.004	0.005	0.034	0.035	0.048	0.035
	0.2	0.014	0.016	0.116	0.122	0.157	0.127
	0.3	0.027	0.029	0.214	0.226	0.286	0.238
	0.4	0.037	0.041	0.301	0.317	0.399	0.335
	0.5	0.044	0.048	0.358	0.377	0.473	0.400
	0.6	0.046	0.050	0.372	0.392	0.490	0.417
	0.7	0.042	0.046	0.338	0.356	0.445	0.379
	0.8	0.032	0.035	0.258	0.272	0.339	0.290
	0.9	0.017	0.019	0.140	0.148	0.184	0.158
	0	0	0	0	0	0	0

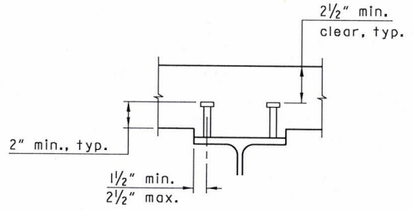


TYPICAL DEAD LOAD DEFLECTIONS DIAGRAM

No Scale

NOTE:

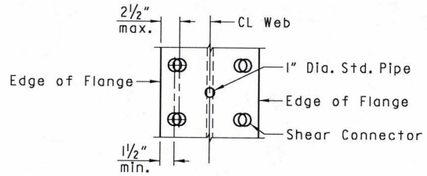
Camber for Dead Load Deflection plus Vertical Curve ±¼" tolerance. Deflections shown are from a chord from CL Bearing to CL Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



Stud Shear Connectors shown shall be ⅞"øx4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

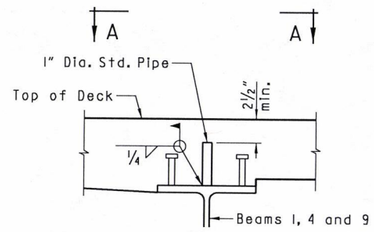
SHEAR CONNECTOR DETAIL

No Scale



VIEW A-A

No Scale



TRANSVERSE SCREED RAIL SUPPORT DETAIL

No Scale

NOTES:

The transverse screed rail supports shall be centered over the beam web and centered longitudinally between adjacent rows of shear connectors.

The pipe shall not interfere with the proper vertical position of the deck reinforcing steel.

The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.

Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.

All welding shall be performed by a certified welder and in accordance with Subsections 802.13 and 807.26.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
BRIDGE ENGINEER

1.24.2017

SHEET 4 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
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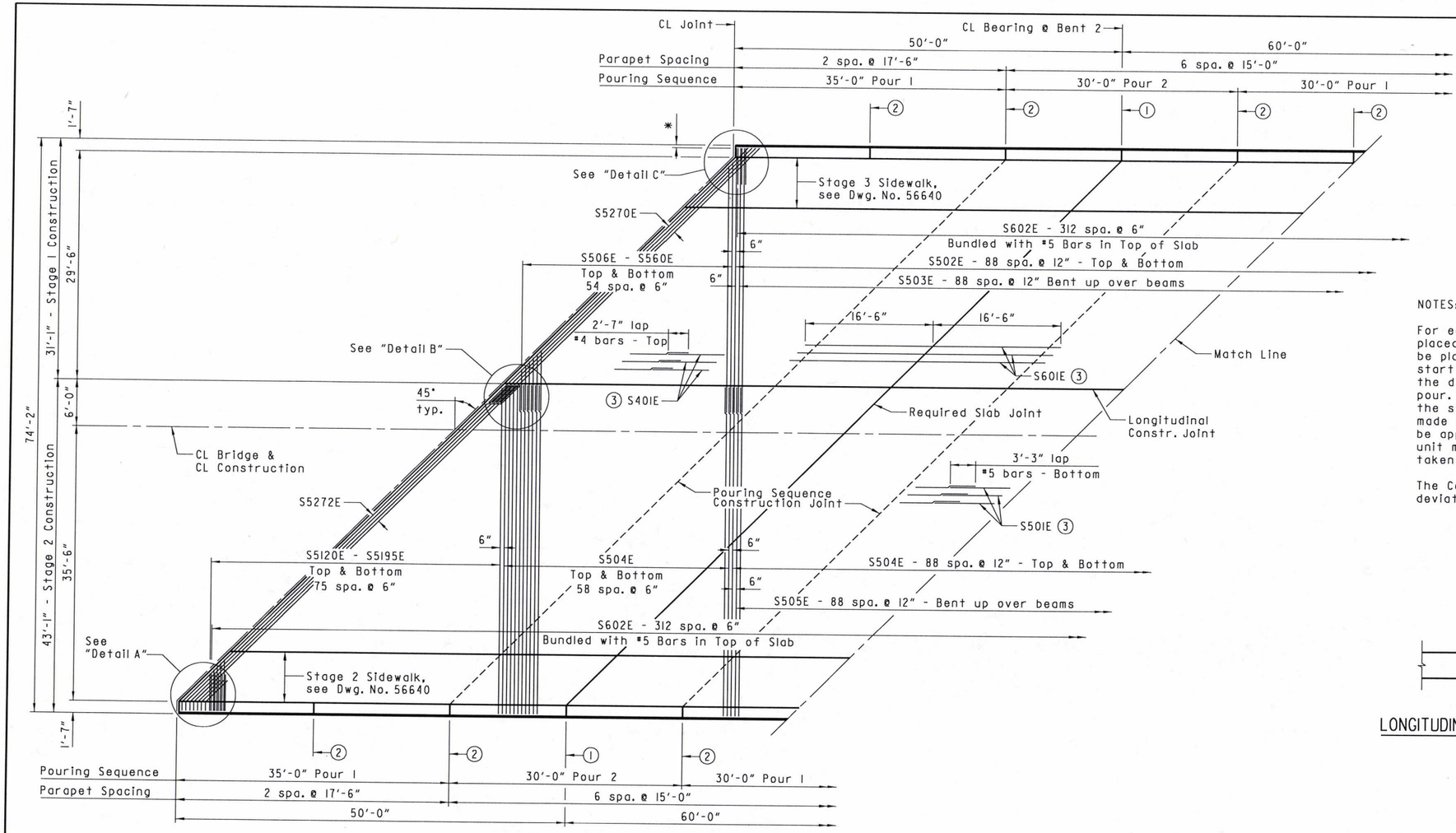
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_s4.dgn
SCALE: AS NOTED

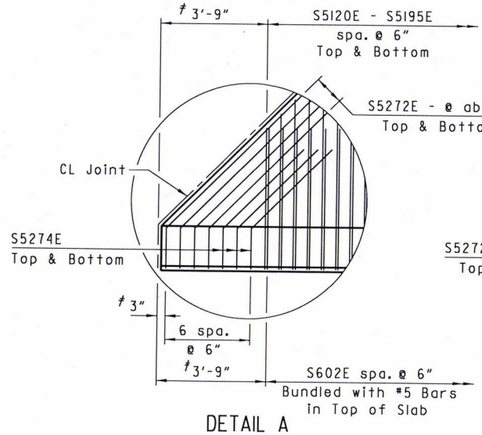
BRIDGE NO. 07341 DRAWING NO. 56635

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.		CA0906	209	417
				(1) 07341		160 FT. UNIT		56636



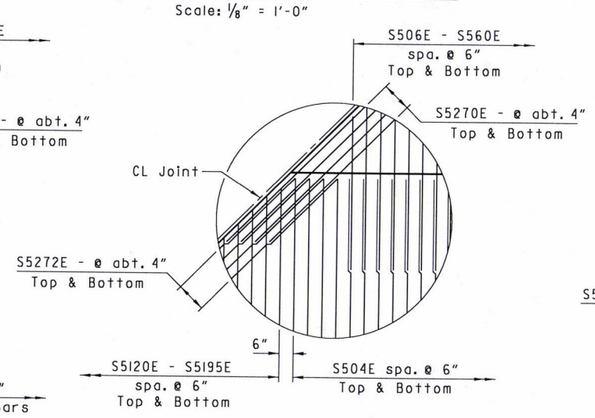
REINFORCING PLAN & DECK POURING SEQUENCE

Scale: 1/8" = 1'-0"



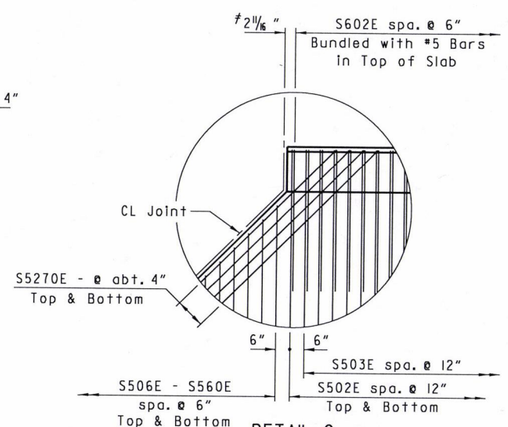
DETAIL A

Scale: 3/8" = 1'-0"



DETAIL B

Scale: 3/8" = 1'-0"



DETAIL C

Scale: 3/8" = 1'-0"

(1) CL Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of sidewalk, see Dwg. No. 56639.

(2) CL Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of sidewalk, see Dwg. No. 56639.

(3) Place as shown in "Typical Roadway Section", see Dwg. No. 56632.

* Typical 2" Clear Cover unless otherwise noted.

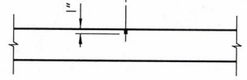
Measured from CL Joint.

NOTES:

For each stage of construction, pours with the same number shall be placed simultaneously. All Pours (1) must be placed before Pours (2) can be placed. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of the deck pour and the start of a parapet railing and/or sidewalk pour. 72 hours shall elapse between the end of a sidewalk pour and the start of a parapet railing pour. Any railing or sidewalk pours made before the entire slab unit has been placed for each stage must be approved by the Engineer. The concrete in a bridge superstructure unit must be consolidated for the entire pour before concrete has taken its initial set. This may require the use of a retarding agent.

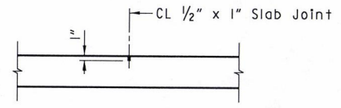
The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

1/2"x1" 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". This joint shall be formed. Seal must be gray or other color similar to concrete.



LONGITUDINAL CONSTRUCTION JOINT

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.

SLAB JOINT DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.27.2017
BRIDGE ENGINEER

SHEET 5 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
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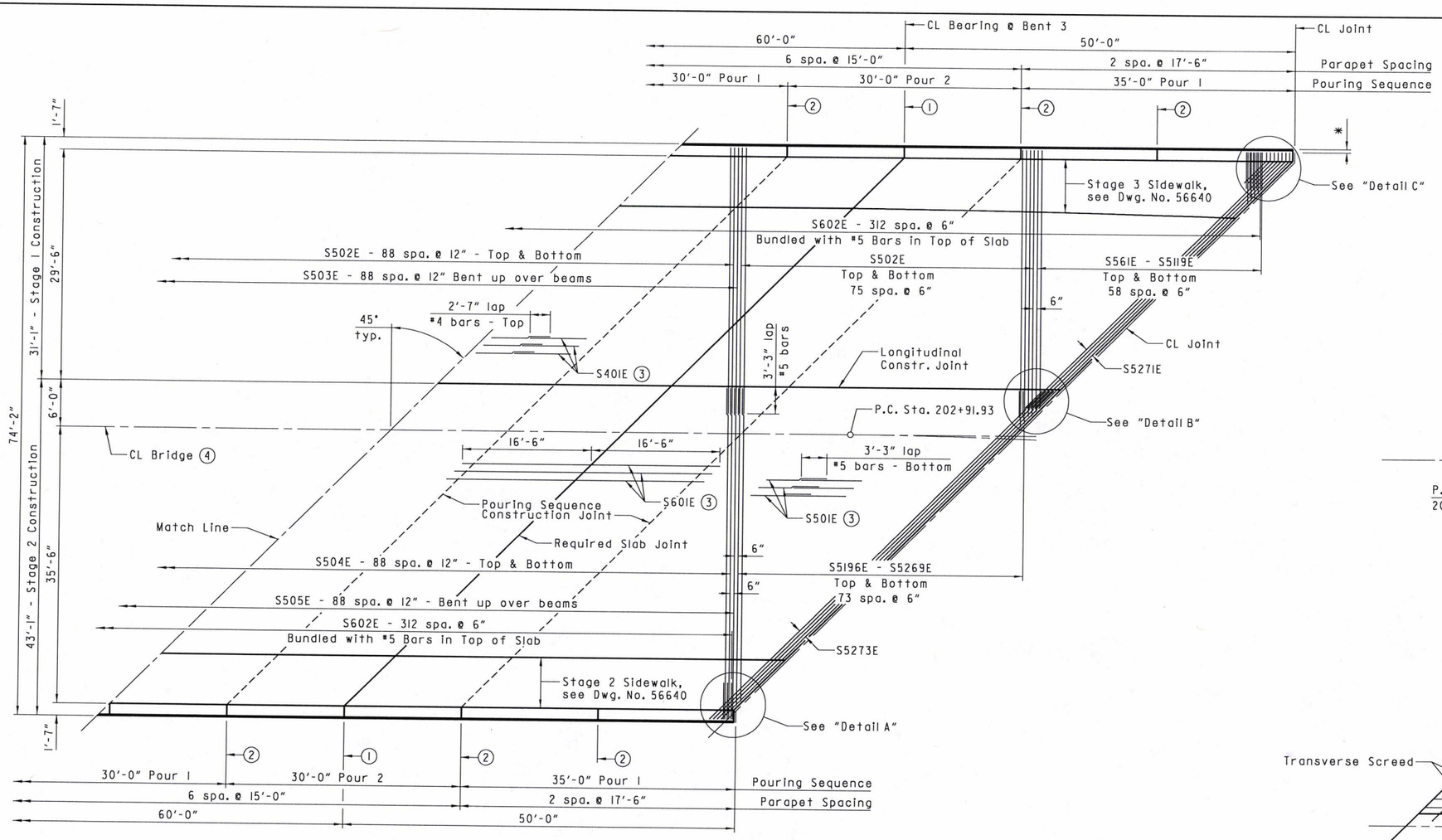
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_s5.dgn
SCALE: AS NOTED

BRIDGE NO. 07341 DRAWING NO. 56636

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.		CA0906	210	417
				(1) 07341		160 FT. UNIT		56637



REINFORCING PLAN & DECK POURING SEQUENCE

Scale: 1/8" = 1'-0"

(1) CL Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of sidewalk, see Dwg. No. 56639.

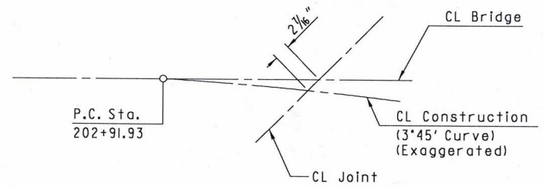
(2) CL Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of sidewalk, see Dwg. No. 56639.

(3) Place as shown in "Typical Roadway Section", see Dwg. No. 56632.

(4) CL Bridge follows the extended tangent past the P.C. Sta. 202+91.93, see Detail D.

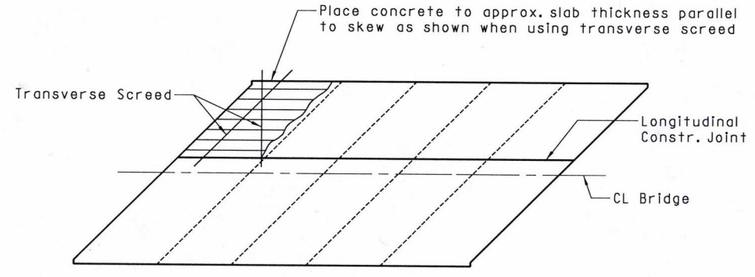
* Typical 2" Clear Cover unless otherwise noted.

Measured from CL Joint.



DETAIL D

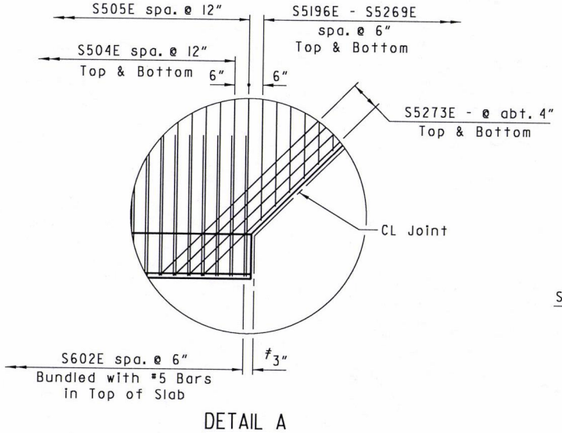
No Scale



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to CL Bridge.

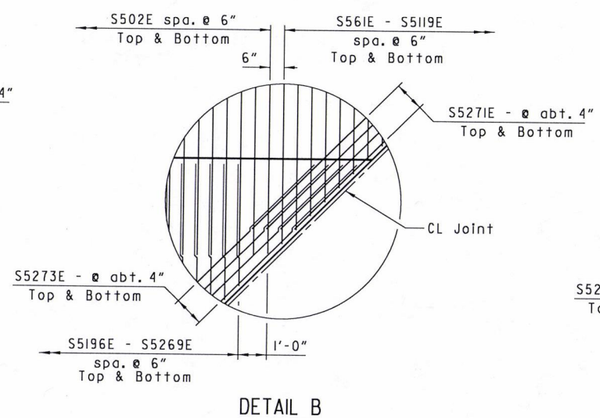
CONCRETE PLACEMENT PROCEDURE

No Scale



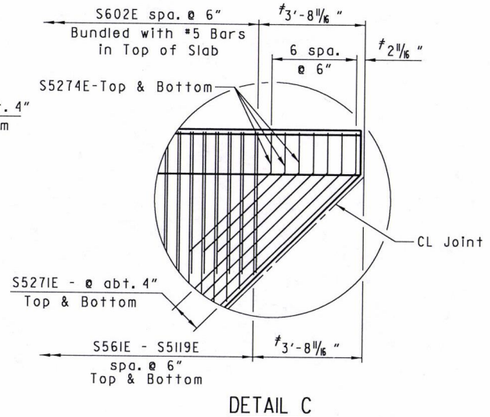
DETAIL A

Scale: 3/8" = 1'-0"



DETAIL B

Scale: 3/8" = 1'-0"



DETAIL C

Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEPHENSON
1.22.2015
BRIDGE ENGINEER

SHEET 6 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH

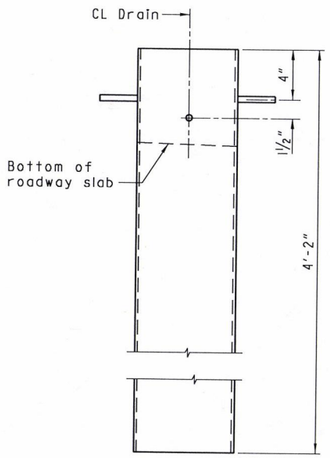
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_s6.dgn
SCALE: AS NOTED

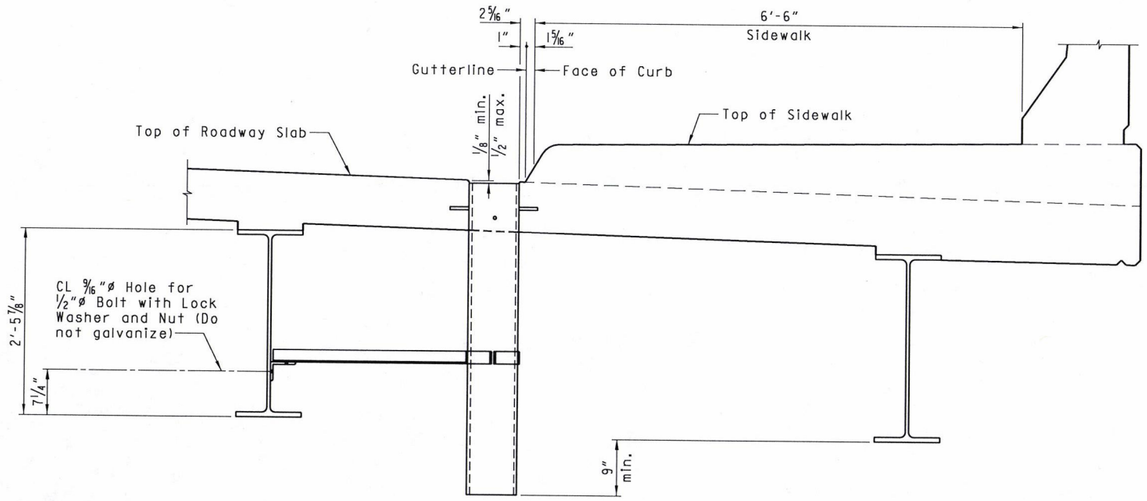
BRIDGE NO. 07341 DRAWING NO. 56637

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.		CA0906	211	417
				(1) 07341		160 FT. UNIT		56638



ELEVATION OF DRAIN

No Scale



PART SECTION NEAR DRAIN

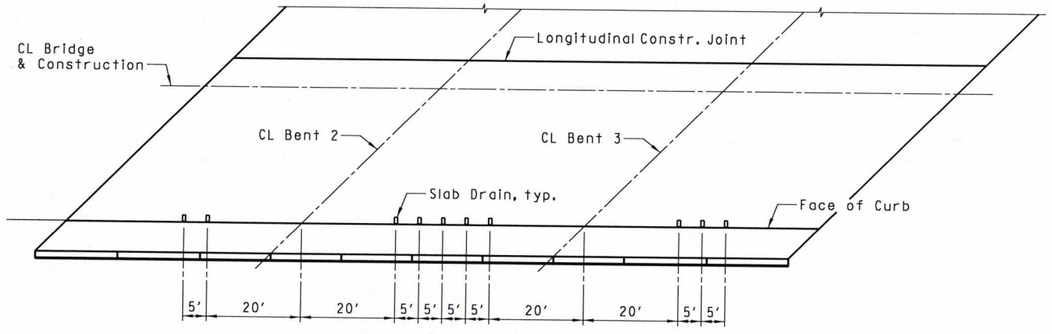
Scale: 1" = 1'-0"

PLAN OF DRAIN

No Scale

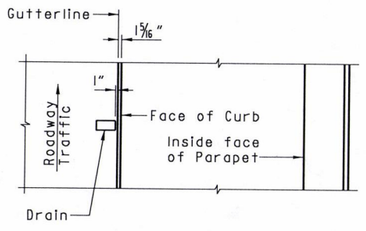
PART SECTION SHOWING BRACKET ASSEMBLY

No Scale



SLAB LOCATION PLAN

No Scale



PART PLAN OF SLAB AT DRAIN

No Scale

NOTES:

Slab drains may be fabricated of either ¼" welded sheets of ASTM A709 Grade 36 steel or from ¼" structural steel tubing ASTM A500 or A501.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Outside dimensions of drains are 8"x4".

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

The drains and bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153, except as shown.

Shop drawings will not be required for the slab drains and the bracket assembly.

The bolt hole for the bracket assembly attachment shall be located on the beam shop drawings.

Drains and bracket assemblies will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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1-24-2017
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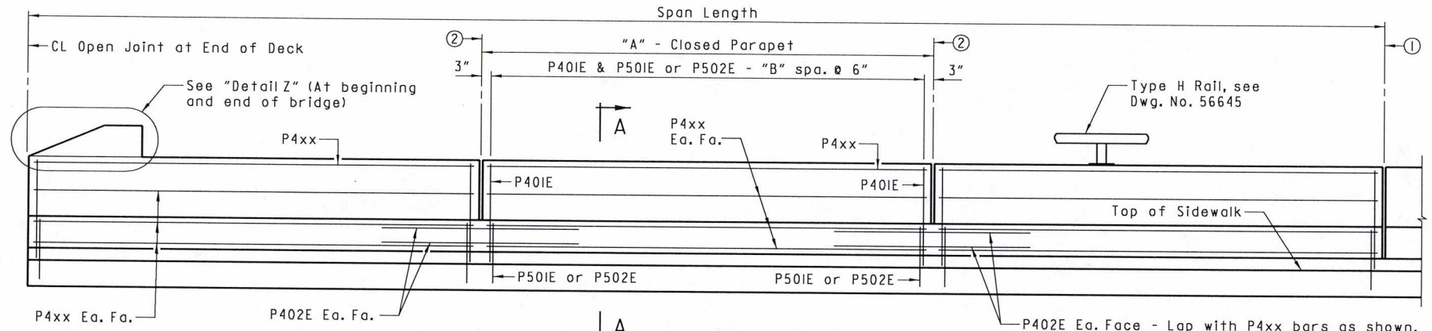
SHEET 7 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: DMW DATE: 12/23/14
FILENAME: bCA0906xl_s7.dgn
SCALE: AS NOTED

BRIDGE NO. 07341
DRAWING NO. 56638

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.		CA0906	212	417
				(1) 07341		160 FT. UNIT		56639



NOTE:

For location of full and partial depth joints, see "Reinforcing Plan and Deck Pouring Sequence", Dwg. Nos. 56636 & 56637.

ELEVATION - CONCRETE PARAPET RAIL

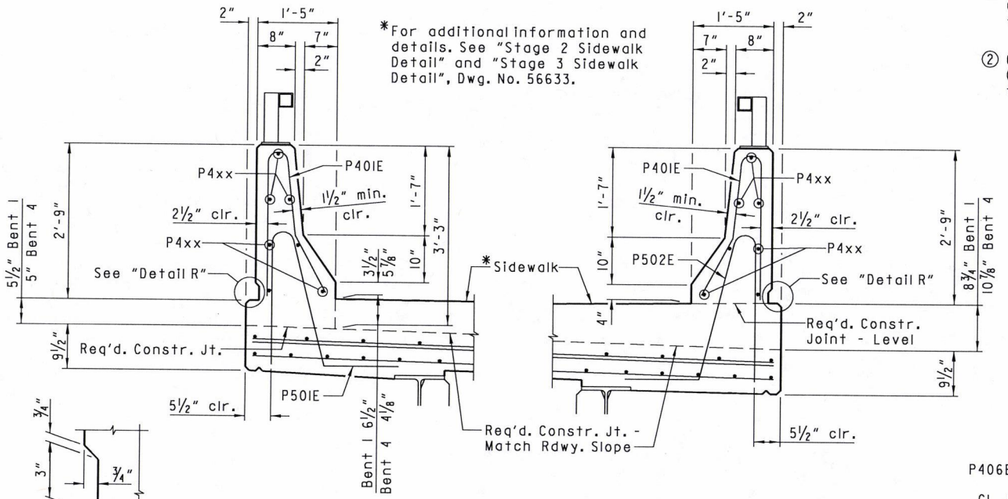
Scale: ½" = 1'-0"

① CL Full-Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of Sidewalks.

② CL Partial-Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of Sidewalks.

TABLE OF VARIABLES

"A" Closed Parapet	"B"	P4xx BAR
17'-6"	34	P403E
15'-0"	29	P404E



SECTION A-A

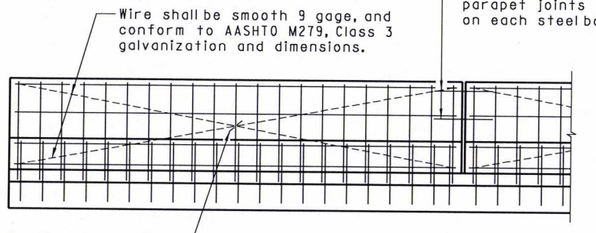
Stage 3 Shown
Scale: ¾" = 1'-0"

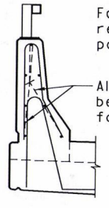
SECTION A-A

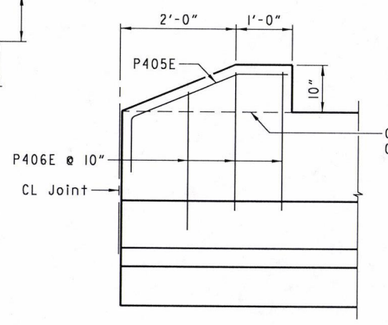
Stage 2 Shown
Scale: ¾" = 1'-0"

DETAIL R

No Scale





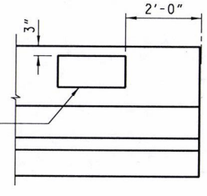


DETAIL Z

Scale: ¾" = 1'-0"

SECTION C-C

Scale: 1" = 1'-0"



Place Type D Bridge Name Plate on right parapet rail at beginning of bridge approximately 2'-0" from CL Joint

VIEW SHOWING LOCATION OF NAME PLATE

Scale: ½" = 1'-0"

All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". 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 surfaces 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 SLIP FORMING OF CONCRETE PARAPET RAIL

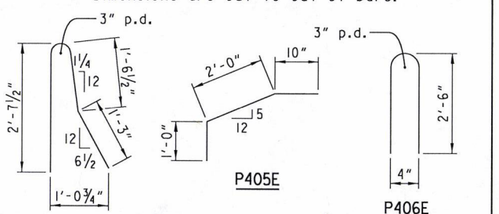
Scale: ½" = 1'-0"

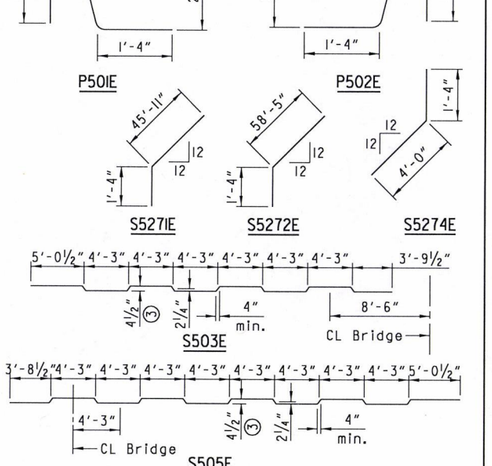
BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
P401E	640	5'-6"	3"
P402E	72	5'-6"	Str.
P403E	56	17'-2"	Str.
P404E	84	14'-8"	Str.
P405E	4	3'-10"	2"
P406E	12	5'-2"	3"
P501E	320	6'-0"	3¾"
P502E	320	6'-5"	3¾"
S401E	465	34'-1"	Str.
S402E	104	6'-0"	Str.
S403E-S451E	1 EACH	6'-8"-5'-11"	Str.
S452E	154	7'-7"	Str.
S453E-S462E	1 EACH	1'-1"-5'-7"	Str.
S463E-S474E	1 EACH	1'-2"-6'-8"	Str.
S475E-S487E	1 EACH	1'-4"-7'-4"	Str.
S488E	94	8"	Str.
S489E	152	5'-1"	3"
S490E-S499E	1 EACH	3'-7"-8'-1"	3"
S501E	342	55'-6"	Str.
S502E	330	34'-4"	Str.
S503E	89	35'-2"	3"
S504E	296	42'-9"	Str.
S505E	89	43'-10"	3"
S506E-S560E	2 EACH	5'-4"-32'-4"	Str.
S561E-S5119E	2 EACH	4'-10"-33'-10"	Str.
S5120E-S5195E	2 EACH	4'-10"-42'-4"	Str.
S5196E-S5269E	2 EACH	4'-3"-40'-9"	Str.
S5270E	8	47'-3"	Str.
S5271E	8	47'-3"	3¾"
S5272E	8	59'-9"	3¾"
S5273E	8	60'-0"	Str.
S5274E	12	5'-4"	3¾"
S601E	148	33'-0"	Str.
S602E	626	4'-11"	Str.

BENDING DIAGRAM

Dimensions are out to out of bars.





STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.27.2017
BRIDGE ENGINEER

SHEET 8 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_s8.dgn
SCALE: AS NOTED

BRIDGE NO. 07341 DRAWING NO. 56639

GENERAL NOTES - SUPERSTRUCTURE:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 edition with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATION: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012) with current interim specifications.

MATERIAL AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, 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

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. 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 Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Deck Forms are used.

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 concrete deck, except sidewalks, shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed 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. A minimum of 72 hours shall elapse between completion of the slab pour and the start of the parapet railing pour for Stage 1. A minimum of 72 hours shall elapse between completion of the slab and the start of the sidewalk pour for Stage 2. A minimum of 72 hours shall elapse between completion of a sidewalk pour and the beginning of a parapet pour for Stage 2. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size 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)".

STRUCTURAL STEEL:
All Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 unless otherwise noted.

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.

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 and field 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 Beams Spans (M 270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼"+/- is allowed for camber.

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.

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.

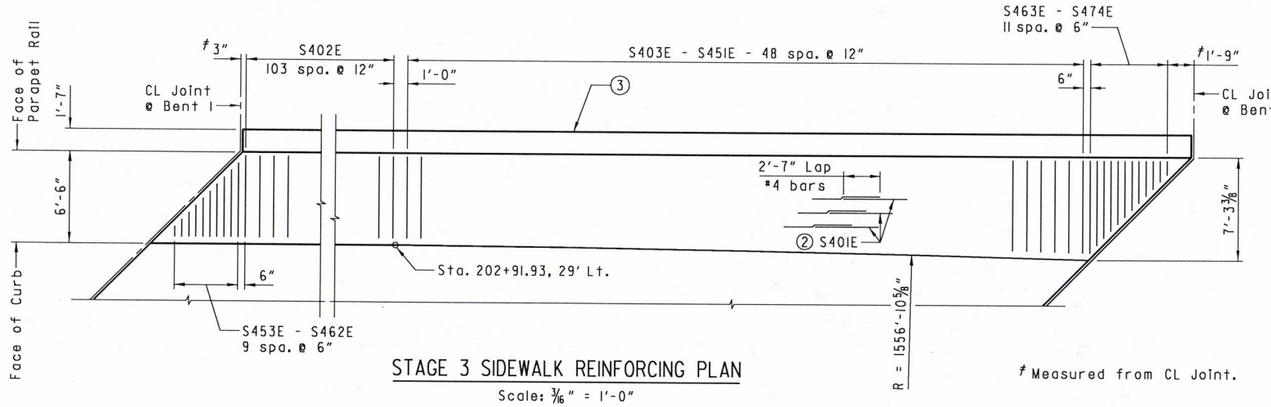
Field connections shall be bolted with high-strength bolts and shall be ⅞"ø bolts unless otherwise noted. Holes for ⅞"ø bolts shall be 15/16"ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

Unless otherwise noted, steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

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.

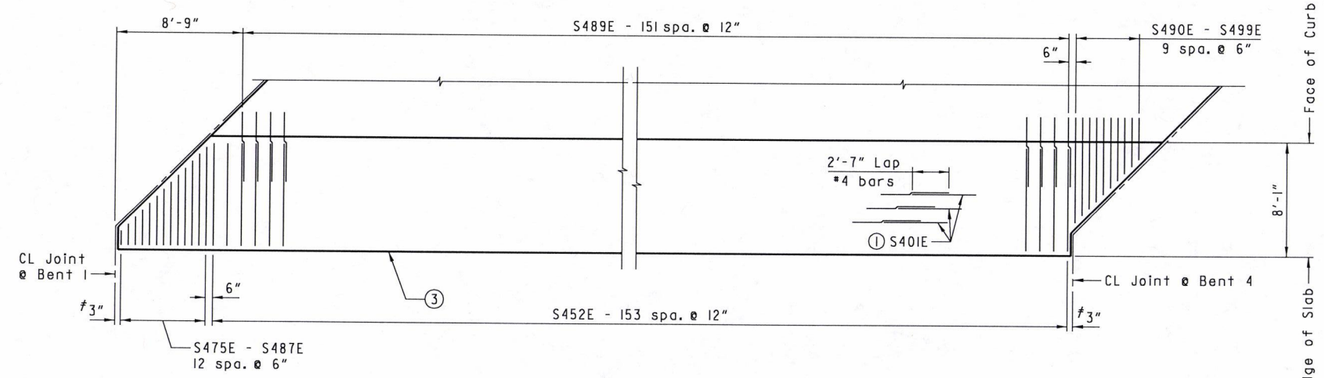
TEMPORARY BLOCKING NOTE:
The Contractor shall provide temporary blocking near the bottom flange as required to support the overhang support system. 4"x4" Timber Blocking, minimum, shall be provided in all bays and wedged tight. Details of each unit of falsework shall be submitted to the Engineer prior to construction in accordance with Subsection 802.13.

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.		CA0906	213	417
				(1) 07341		160 FT. UNIT		56640



STAGE 3 SIDEWALK REINFORCING PLAN
Scale: 3/16" = 1'-0"

Measured from CL Joint.



STAGE 2 SIDEWALK REINFORCING PLAN
Scale: 3/16" = 1'-0"

① Place as shown in "Stage 2 Sidewalk Detail", Dwg. No. 56633.

② Place as shown in "Stage 3 Sidewalk Detail", Dwg. No. 56633.

③ Edge of deck and parapet parallel to CL Bridge.

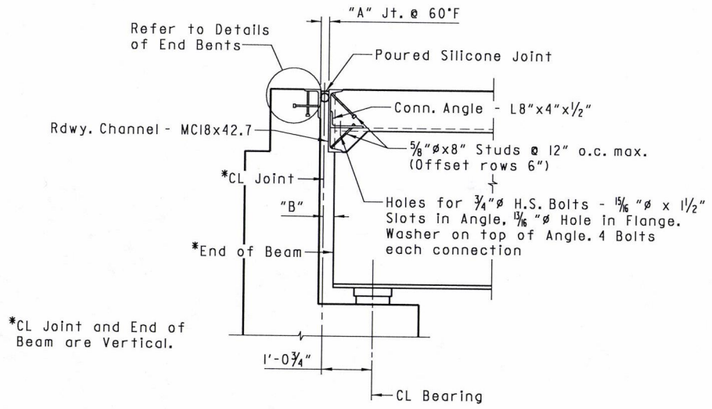
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 9 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TLW	DATE:	12/23/14	FILENAME:	bCA0906x1_s9.dgn
CHECKED BY:	JDS	DATE:	12/23/14	SCALE:	3/16" = 1'-0"
DESIGNED BY:	PMT	DATE:	12/23/14		

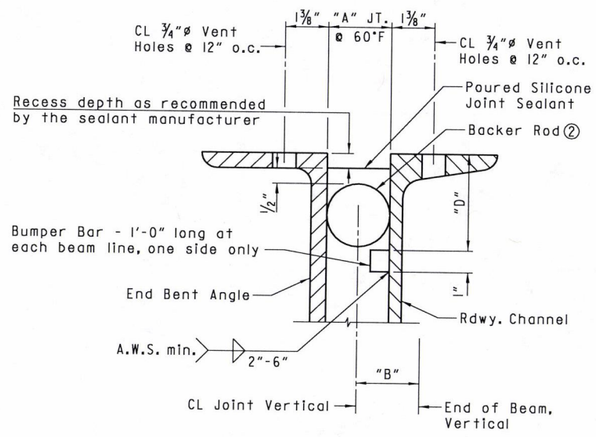
BRIDGE NO. 07341 DRAWING NO. 56640

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.		CA0906	214	417
				① 07341		160 FT. UNIT		56641

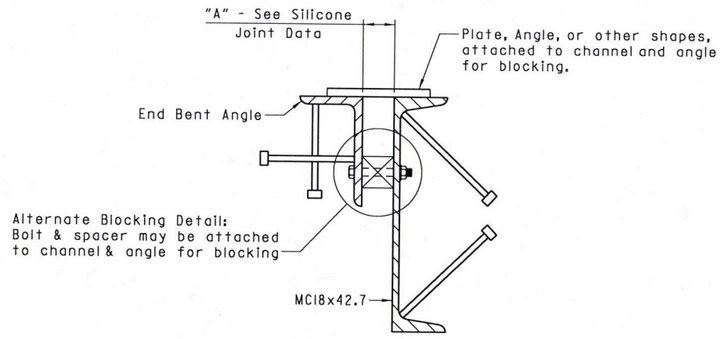


JOINT AT END BENTS

Perpendicular to CL Joint



DETAIL OF POURED SILICONE JOINT SEAL



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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

SILICONE JOINT DATA

BENT NUMBER	"A" WIDTH PERPENDICULAR TO JOINT AT 24 HOUR AVERAGE TEMPERATURE ① OF:			"B" PERPENDICULAR TO JOINT AT 60°F	BUMPER BAR SIZE	"D"
	40°F	60°F	80°F			
1 & 4	1 5/8"	1 1/2"	1 3/8"	±2"	1"x3/4"	5"

① 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.

② BACKER ROD NOTE:

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 than that which 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.

EXPANSION DEVICE INSTALLATION AT END BENTS

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. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.27.2017
BRIDGE ENGINEER

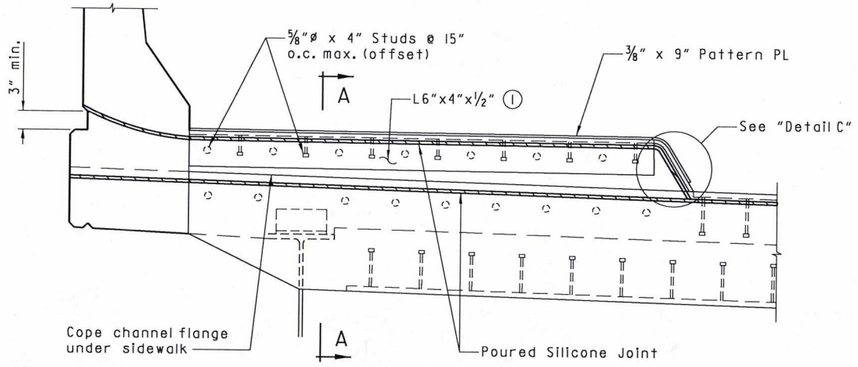
SHEET 10 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_sl0.dgn
SCALE: NO SCALE

BRIDGE NO. 07341 DRAWING NO. 56641

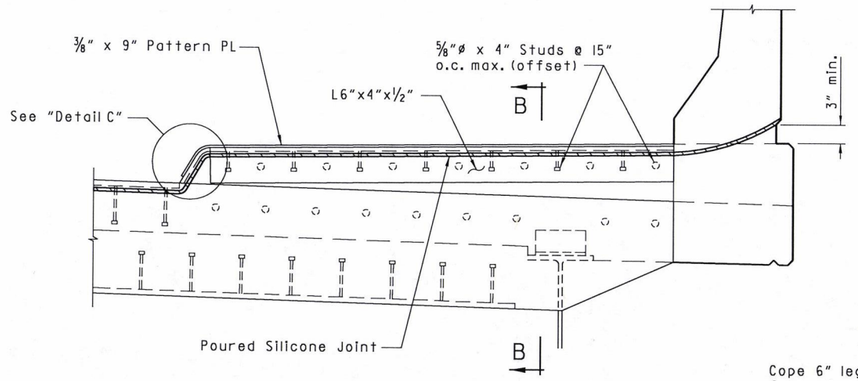
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	215	417
				(1) 07341		160 FT. UNIT		56642

(1) Trim vertical leg of angle as required to fit sidewalk depth.



SECTION THROUGH SIDEWALK - STAGE 3

No Scale

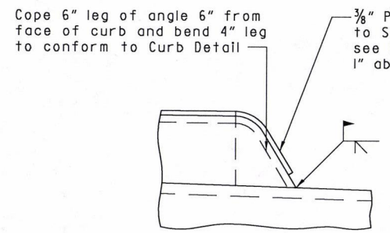


SECTION THROUGH SIDEWALK - STAGE 2

No Scale

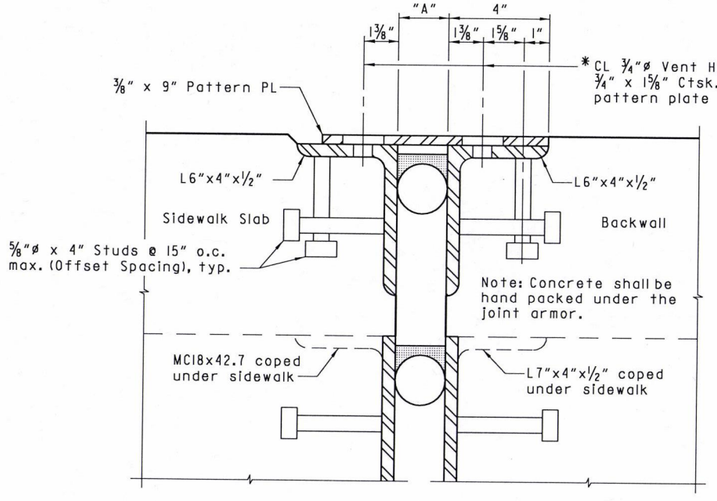
The surfaces of the 3/8" plates shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Span (M 270, Gr. 50W)".

Note: Install seal in slab joint and parapet joint with damming procedure as recommended by the manufacturer. The sealant shall be recessed to prevent damage and be allowed to cure prior to removal of the outer damming material.



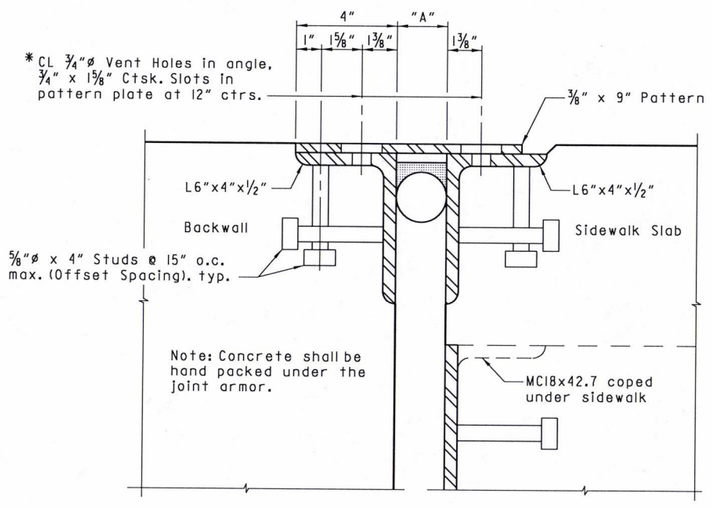
DETAIL C

No Scale



SECTION A-A

No Scale



SECTION B-B

No Scale

* 3/4" x 1 5/8" Ctsk. Slots in 3/8" Pattern Plates. Tap 4" leg of angle for 5/8"ø Flat Head Cap Screws @ 12" o.c. Install screws in the shop and ship as a unit. Remove screws on one side after erection is complete.

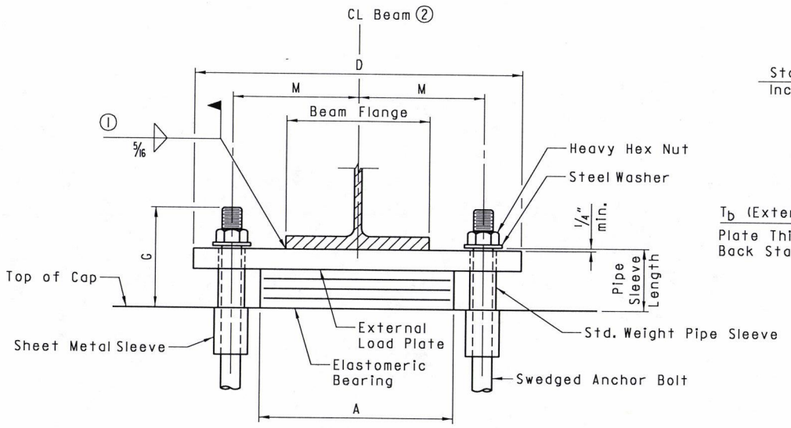
STATE OF ARKANSAS
JERRY D. STEVENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.24.2017
BRIDGE ENGINEER

SHEET 11 OF 11
DETAILS OF 160'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER ELM BRANCH
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906xl_sll.dgn
SCALE: NO SCALE

BRIDGE NO. 07341 DRAWING NO. 56642

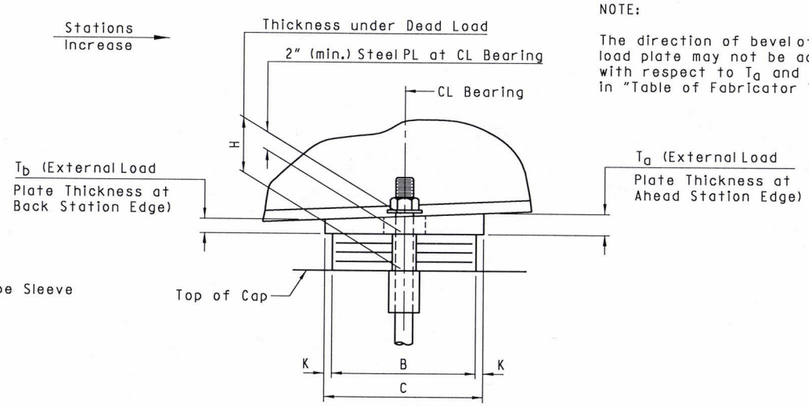
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	216	417
				① 07341		ELASTO. BRGS.		56643



FRONT VIEW

① Care shall be taken to ensure that the external load plate is in full complete contact with the beam flange before welding begins.

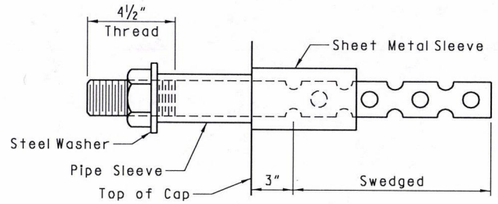
② Centerline of the elastomeric pad shall be aligned with centerline of the beam.



SIDE VIEW

NOTE:

The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in "Table of Fabricator Variables".

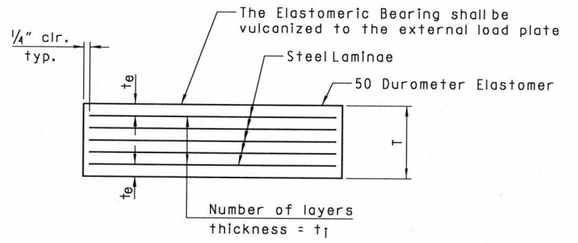


ANCHOR BOLT DETAIL

NOTES:

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 masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeve will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans, (M 270, Gr. 50W)".

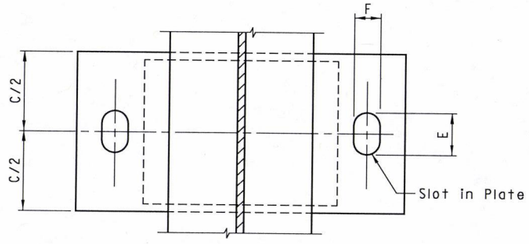


ELASTOMERIC BEARING

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



PLAN VIEW

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40 Deg. F and 80 Deg. 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.

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load 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 M232, Class C or ASTM B695, Class 50.

External load 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 of the Standard Specifications. 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 (M 270, Gr. 50W)". External Load Plates will not be measured or paid for separately, but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered as subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM 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 (Dia. x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07341	1	1-9	Exp.	9	88	7.75"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	24"	3⅝"	2¼"	½"	9¼"	2.08"	1.92"	1½"x26"	55	1½"x5¼"	3"x12"	3"
	2	1-9	Fix	9	189	8.5"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	26"	3⅛"	3⅛"	½"	9¾"	2.11"	1.89"	2¼"x35"	55	2½"x5¼"	4"x12"	4"
	3	1-9	Fix	9	189	8.5"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	26"	3⅛"	3⅛"	½"	9¾"	2.13"	1.87"	2¼"x35"	55	2½"x5¼"	4"x12"	4"
	4	1-9	Exp.	9	88	7.75"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	24"	3⅝"	2¼"	½"	9¼"	2.13"	1.87"	1½"x26"	55	1½"x5¼"	3"x12"	3"

*Maximum Design Load = Service I Limit State

STATE OF ARKANSAS
JEREMY D. STEVENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.24.2017
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS BRIDGE OVER ELM BRANCH

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

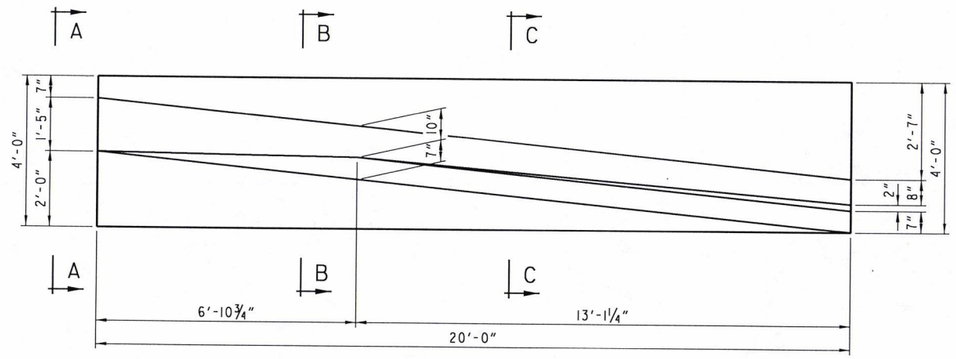
DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906xl_el.dgn

CHECKED BY: TG DATE: 12/23/14 SCALE: NO SCALE

DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56643

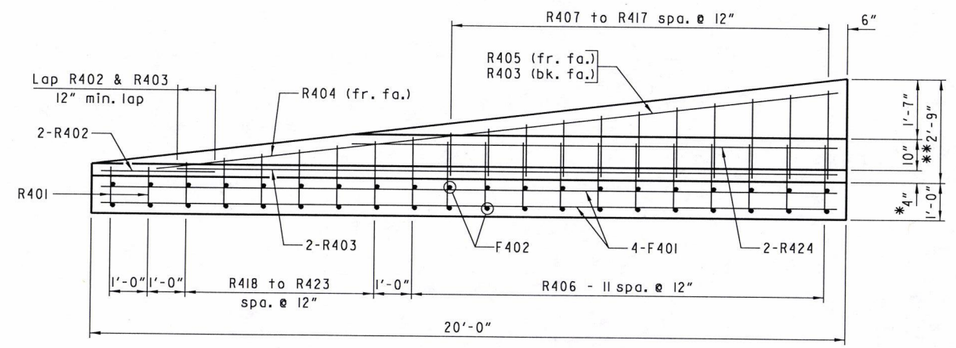
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	217	417
				(1) 07341		RAIL		56644



PLAN OF TRANSITIONAL APPROACH RAILING

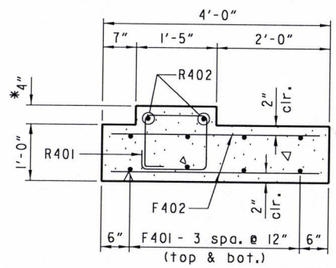
Scale: ½" = 1'-0"

NOTE:
Railings on each side of Roadway are opposite hand to each other.



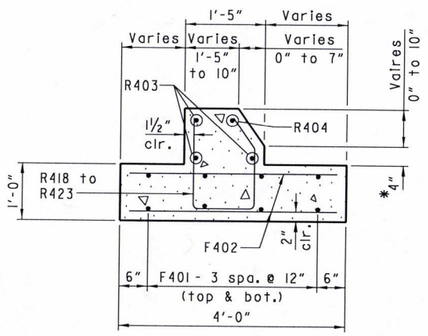
ELEVATION OF TRANSITIONAL APPROACH RAILING

Scale: ½" = 1'-0"



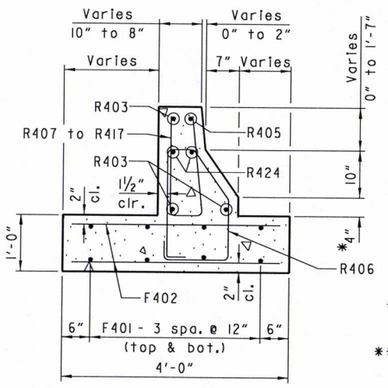
VIEW A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"



SECTION C-C

Scale: ¾" = 1'-0"

* 3½" at Bent 1 Wing A
5⅞" at Bent 4 Wing A

** 2'-8½" at Bent 1 Wing A
2'-10⅛" at Bent 4 Wing A

* BAR LIST - EXCEPTION AT BENT 4, WING A

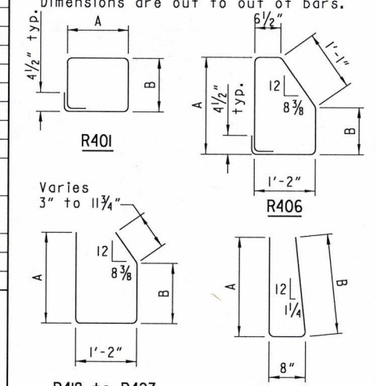
MARK	NO. REQ'D.	LENGTH	A	B	PIN. DIA.
R401	2	5'-2"	1'-2"	1'-3"	2"
R406	12	6'-7"	2'-2"	1'-3½"	2"
R407-R417	1 ea.	3'-4"-5'-9"	1'-5"-2'-7½"	1'-5"-2'-7½"	2"
R418-R423	1 ea.	4'-1"-5'-5"	1'-6"-2'-1½"	1'-3½"	2"

BAR LIST - ONE TRANSITIONAL RAIL (UNLESS NOTED)

	MARK	NO. REQ'D.	LENGTH	A	B	PIN. DIA.
	F401	8	19'-8"			Str.
	F402	40	3'-8"			Str.
*	R401	2	4'-10"	1'-2"	1'-1"	2"
	R402	2	3'-0"			Str.
	R403	3	17'-9"			Str.
	R404	1	5'-0"			Str.
	R405	1	12'-9"			Str.
*	R406	12	6'-3"	2'-0"	1'-1½"	2"
*	R407-R417	1 ea.	3'-0"-5'-5"	1'-3"-2'-5½"	1'-3"-2'-5½"	2"
*	R418-R423	1 ea.	3'-9"-5'-1"	1'-4"-1'-11½"	1'-1½"	2"
	R424	2	10'-9"			Str.

BENDING DIAGRAM

Dimensions are out to out of bars.



GENERAL NOTES

Transitional Approach Railing shall be placed at ends of turnback wings at locations shown on the "Layout" and at end of Concrete Barrier Wall.

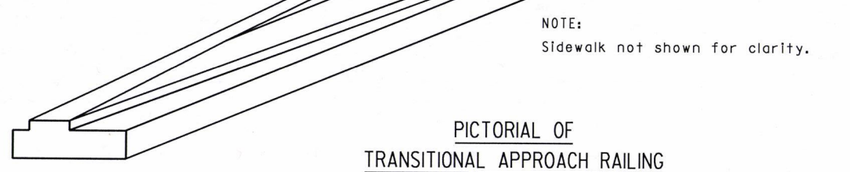
All Concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing", as specified in Subsection 806.07(b).

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS I PROTECTIVE SURFACE TREATMENT
4.20 Cu. Yds.	374.00 Lbs.	0.2 Gal.



NOTE:
Sidewalk not shown for clarity.

PICTORIAL OF TRANSITIONAL APPROACH RAILING

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16185
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

DETAILS OF TRANSITIONAL APPROACH RAILING BRIDGE OVER ELM BRANCH

HWY. SEC.

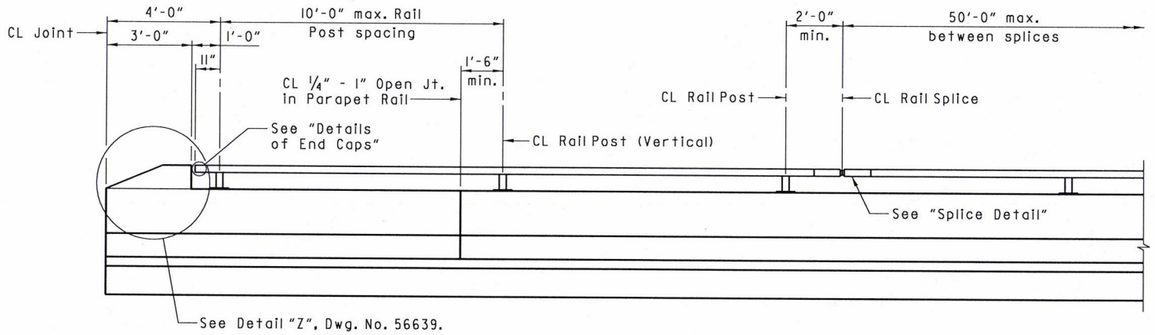
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

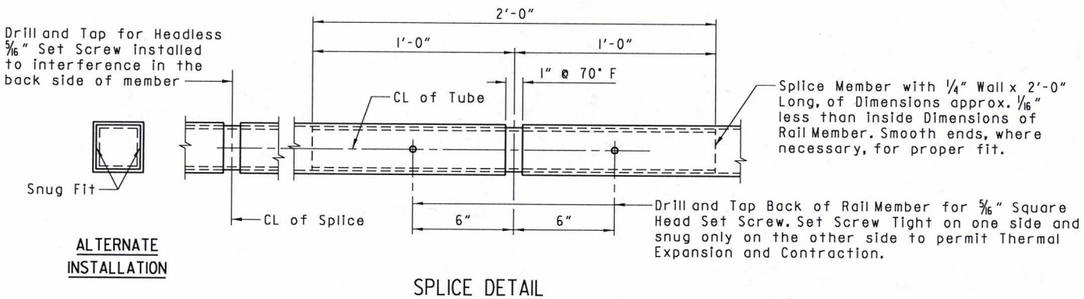
DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906xl_tr.dgn
CHECKED BY: TG DATE: 12/23/14 SCALE: AS NOTED
DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56644

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.		CA0906	218	417
				1	07341	TYPE H RAIL		56645

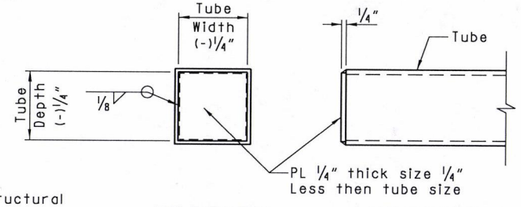


RAIL POST SPACING DETAIL



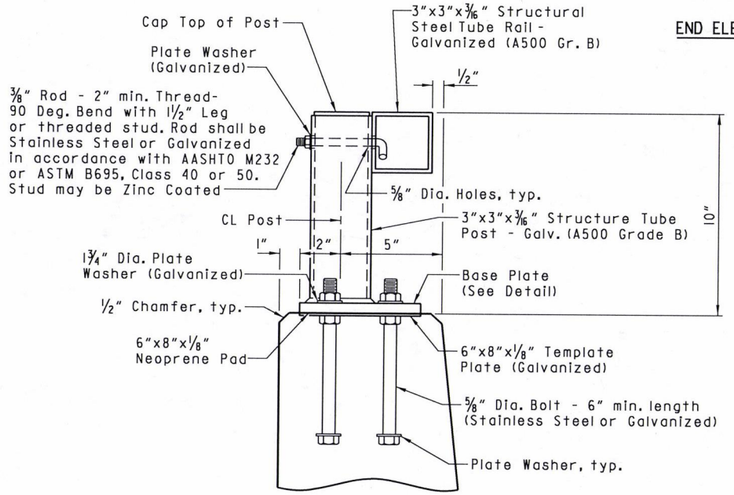
ALTERNATE INSTALLATION

SPLICE DETAIL



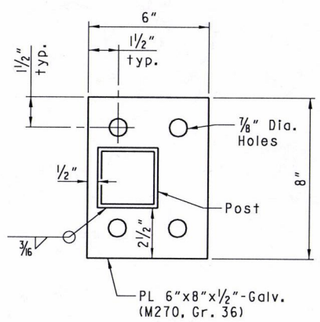
END ELEVATION SIDE ELEVATION

DETAILS OF END CAPS



DETAILS OF POST ANCHOR SYSTEM

(CAST IN PLACE BOLTS)



BASE PLATE

NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge.

Maximum post spacing = 10'-0"

Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6".

Rail splices shall be at 50' maximum spacing. Centerline splices shall be located at a minimum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including post, fasteners, templates, and neoprene pad shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.

MATERIALS:

Tubing, Post, and Accessories: AASHTO M270, Gr. 36 or ASTM A500-Grade B.

Railing End Caps: AASHTO M270, Grade 36, galvanized.

Steel Rail Members shall be galvanized in accordance with AASHTO M 111 after fabrication.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M164 or A354-Grade BC galvanized in accordance with AASHTO M232 or ASTM B695, Class 40 or 50.

Splice Set Screws: Stainless steel, ASTM Specifications A193 or A320-Grade B8, or AASHTO M270, Grade 36, galvanized.

Nuts: Nuts shall conform to AASHTO M292, Gr. 8 (Stainless steel) or galvanized in accordance with AASHTO M232 or ASTM B695, Class 40 or 50.

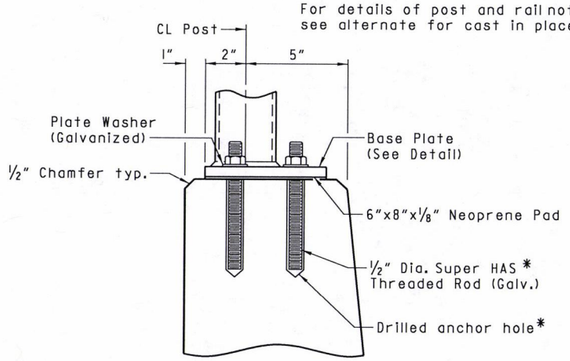
Threads: Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 Fit, ASA Specification B1.1.

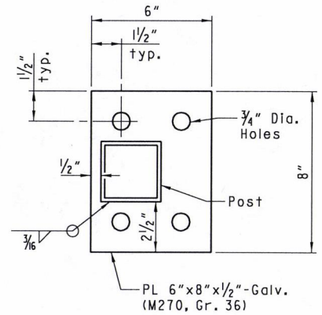
Washers shall conform to AASHTO M293, galvanized in accordance with AASHTO M232 or ASTM B695, Class 40 or 50, or of stainless steel conforming to ASTM A276 or A167-Type 302 with dimensions meeting ASTM F436.

Plate washers shall be stainless steel and conform to the requirements of ASTM 167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or ASTM B695, Class 40 or 50. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

NOTE:

For details of post and rail not shown, see alternate for cast in place bolts.





BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(EPOXY ADHESIVE ANCHORS)

*HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.

The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

STATE OF ARKANSAS JERRY D. STEVENSON REGISTERED PROFESSIONAL ENGINEER No. 16185

1.24.2017

BRIDGE ENGINEER

DETAILS OF TYPE H METAL BRIDGE RAILING BRIDGE OVER ELM BRANCH

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

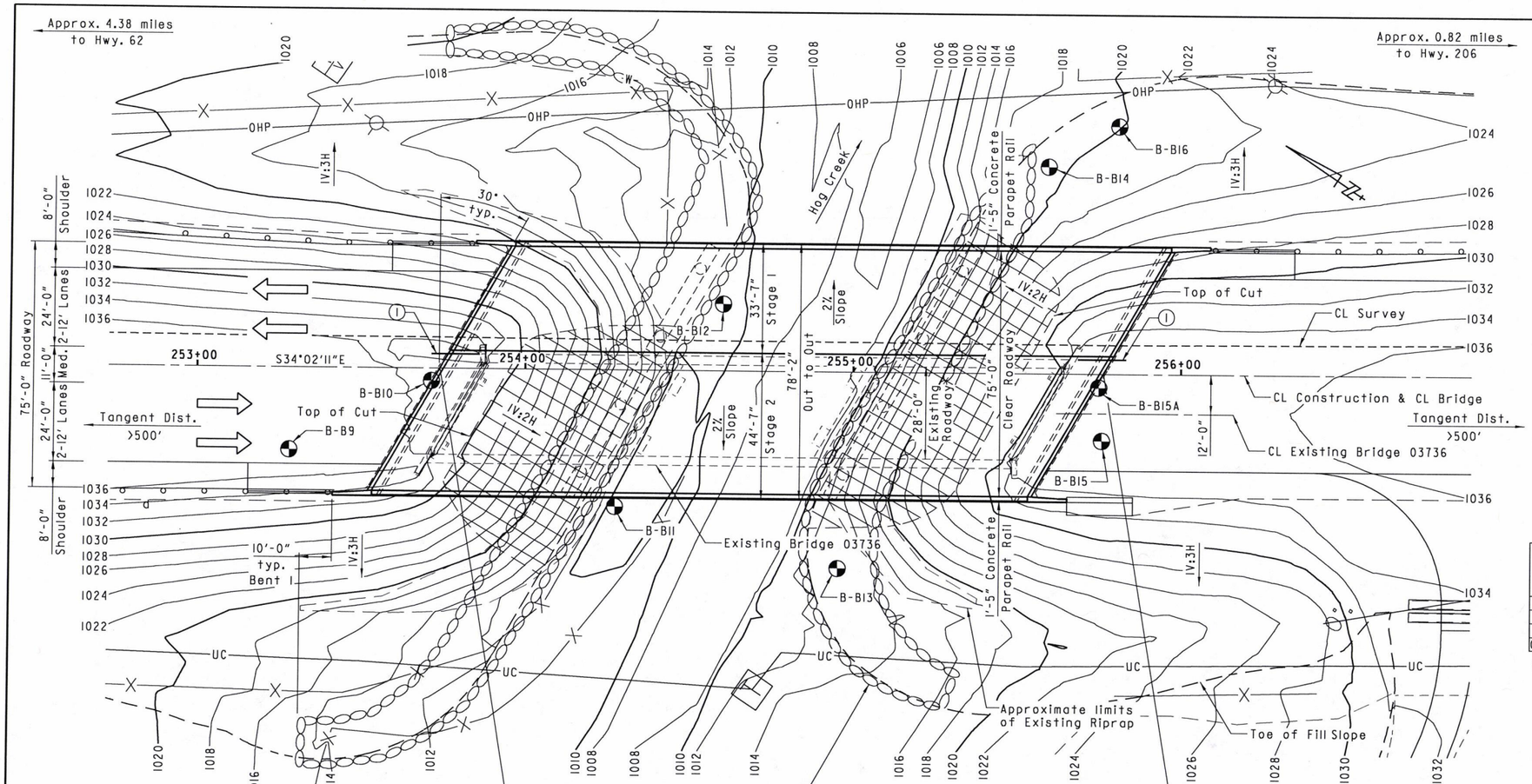
DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906xl_hr.dgn

CHECKED BY: JDS DATE: 12/23/14 SCALE: NO SCALE

DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07341 DRAWING NO. 56645

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.		CA0906	219	417
				① 07342		LAYOUT		56646



NOTES:

For R/W data, see Roadway Plans.

Type C Approach Gutters ("W" = 8'-0") shall be placed at Bent 1 and the east wing of Bent 4, see Std. Dwg. 55030C.

Open parapet rail with 4'-0" open drains shall be provided each side of bridge, see Dwg. 56666.

The Contractor shall remove the embankment at the existing bridge ends as shown using 1V:2H slopes. Cut to Elev. 1010.0 at beginning of bridge and to Elev. 1008.0 at end of bridge. Approx. 485 cu. yds. of excavation.

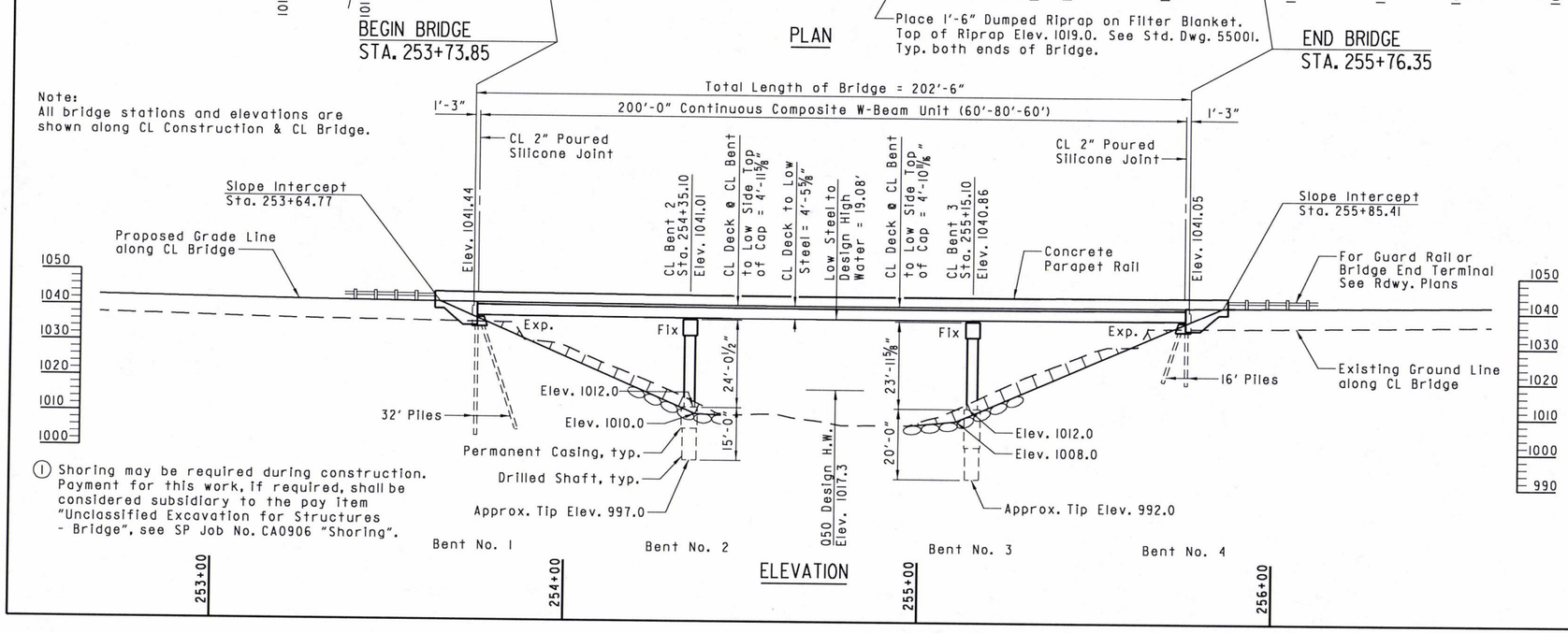
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	50	3770	1016.3	1017.3
BASE	100	4360	1016.9	1018.0
EXTREME	500	5830	1018.2	1019.5
OVERTOPPING	>500	-	-	-

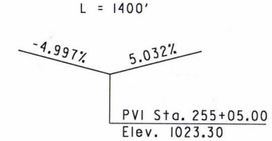
*Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = Elev. 1018.4
Proposed low bridge chord = Elev. 1036.38

Drainage area - 7.0 square miles.
Historical H.W. = Elev. 1011.3



① Shoring may be required during construction. Payment for this work, if required, shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge", see SP Job No. CA0906 "Shoring".



VERTICAL CURVE DATA
(Profile Grade along CL Construction)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16185
JEREMY D. STEPHENSON
1.24.2017
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_Ll.dgn
CHECKED BY: JDS DATE: 12/23/14 SCALE: 1" = 20'
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56646

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.		CA0906	220	417
				(1) 07342		LAYOUT		56647

GENERAL NOTES:

BENCH MARK: TBM 907 - Cut square NW end of bridge, 31.65 ft. right of CL Construction, Sta. 253+66.85, Elev. 1036.72.

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 in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012) with current interim specifications.

LIVE LOADING: HL-93 SEISMIC ZONE: 1 S_{D1}: 0.072 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 M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 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 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as Dolomitic Limestone 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 the Standard Specifications. Actual lengths to be determined in the field. Piles in end bents shall be driven after embankment to bottom of cap is in place. On all piles the Contractor shall use approved steel H-Pile driving points.

DRILLED SHAFTS: Foundations for intermediate bents shall consist of Drilled Shafts. All drilled shafts shall be founded into Dolomitic Limestone and to the minimum rock penetrations and tip elevations shown in the plans. No adjustments in Plan Tip Elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job No. CA0906 "Drilled Shaft Foundations". Any casing used as a means for construction of the drilled shafts, such as to prevent caving, to exclude groundwater, or to provide shoring shall not extend below top of rock. The Contractor must obtain approval from the Engineer for any deviation from this requirement.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on specific drilled shafts in accordance with SP Job No. CA0906 "Nondestructive Testing of Drilled Shafts".

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 NOS.
Stage Construction	56649-56651
End Bents	56652-56657
Intermediate Bents	56658-56659
200' Continuous Composite W-Beam Unit	56660-56668
Elastomeric Bearings	56669
Steel Piling	55020

EXISTING BRIDGE: The Existing Bridge No. 03736 is 33'-6" wide and 179'-5⅝" long and consists of three 59' Composite I-Beam Spans supported by two column concrete intermediate bents with spread footings and steel H-Pile end bents. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After Stage I Construction is open to traffic, existing Bridge No. 03736 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16185
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_L2.dgn
CHECKED BY: JDS DATE: 12/23/14 SCALE: None
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56647

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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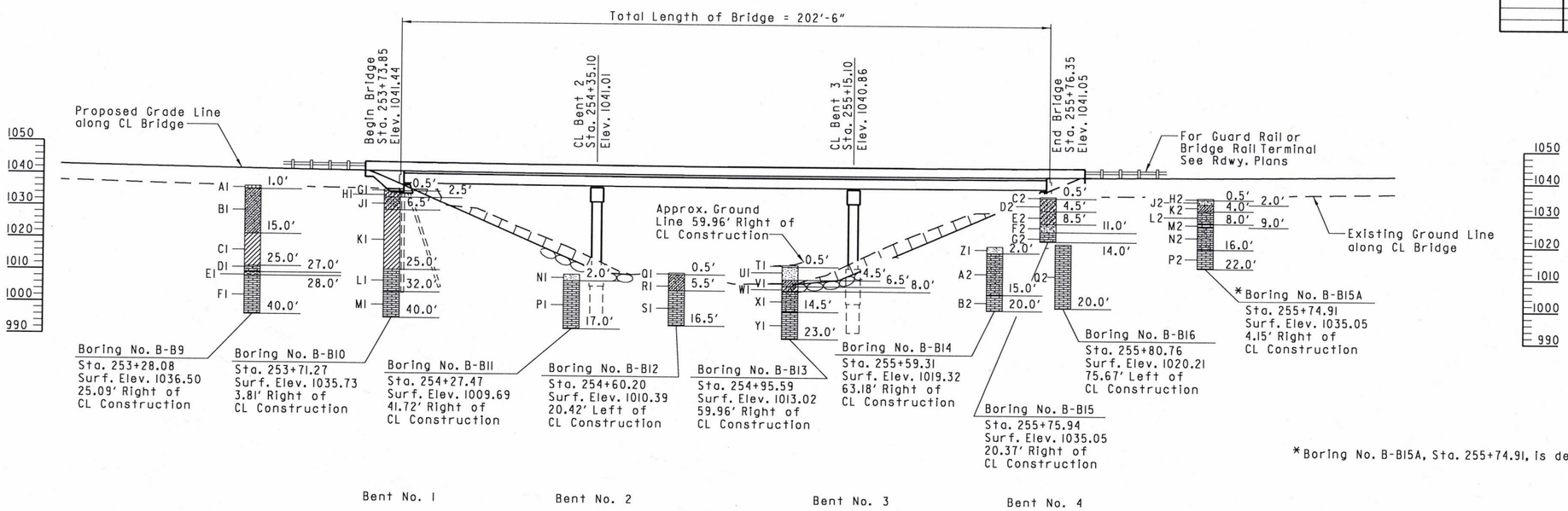
				JOB NO.		CA0906	221	417
				(1) 07342		LAYOUT		56648



ELEVATION

*Boring No. B-B15A, Sta. 255+74.91, is detailed 50 feet Ahead Station for Clarity.

BORING LEGEND

AI - Base Course Material
BI - Reddish-Brown Sandy Clay with Fine Gravel, Firm
CI - Reddish-Brown Sandy Clay, Soft, High Plasticity
DI - Tan to Gray Weathered Sandstone
EI - Voids and Fissures
FI - Dolomitic Limestone
GI - Asphalt
HI - Base Course Material
JI - Reddish-Brown Sandy Clay with Fine Chert Gravel; Soft
KI - Reddish-Brown Sandy Clay with Fine Chert Gravel; Loose
LI - Tan to Gray Weathered Sandstone
MI - Dolomitic Limestone
NI - Brown Silty Topsoil with Gravel
PI - Dolomitic Limestone
QI - Silty Brown Topsoil with Gravel
RI - Reddish-Brown Clayey Sand with Chert Gravel; Dense
SI - Dolomitic Limestone
TI - Silty Brown Topsoil with Gravel
UI - Silty Brown Topsoil; Soft
VI - Brown Sandy Clay with Gravel; Soft
WI - Tan to Brown Clayey Sand with Gravel; Medium-Dense
XI - Tan to Gray Weathered Sandstone
YI - Dolomitic Limestone
ZI - Brown Silty Topsoil with Chert Gravel
A2 - Tan to Gray Weathered Sandstone with Chert Interbedding
B2 - Dolomitic Limestone
C2 - Base Course Material
D2 - Reddish-Brown Sandy Clay with Fine Gravel, Firm
E2 - Reddish-Brown Clayey Chert Gravel, Medium-Dense
F2 - Chert Cobbles and Boulders
G2 - Tan to Gray Weathered Sandstone
H2 - Asphalt
J2 - Base Course Material
K2 - Reddish-Brown Sandy Clay with Fine Gravel; Soft
L2 - Reddish-Brown Clayey Chert Gravel; Medium-Dense
M2 - Dolomitic Limestone
N2 - Dolomitic Limestone with Sandstone Interbedding; Weathered and Fractured
P2 - Dolomitic Limestone
Q2 - Dolomitic Limestone

"N" VALUES

Boring No. B-B9
Sta. 253+28.08 - 25.09' Right of CL Construction
1.0 - 2.0, N = 15
2.5 - 3.5, N = 10
4.5 - 5.5, N = 12
6.5 - 7.5, N = 9
8.5 - 9.5, N = 7
10.0 - 11.0, N = 6
15.0 - 16.0, N = 6
20.0 - 21.0, N = 7

Boring No. B-B10
Sta. 253+71.27 - 3.81' Right of CL Construction
2.5 - 3.5, N = 4
4.5 - 5.5, N = 13
6.5 - 7.5, N = 8
8.5 - 9.5, N = 6
10.5 - 11.5, N = 6
15.5 - 16.5, N = 7
20.5 - 21.5, N = 16

Boring No. B-B12
Sta. 254+60.20 - 20.42' Left of CL Construction
0.5 - 1.3, N = 50 (9")
2.5 - 2.8, N = 50 (4")
4.5 - 4.5, N = 50 (0")

Boring No. B-B13
Sta. 254+95.59 - 59.96' Right of CL Construction
0.5 - 1.5, N = 6
2.5 - 3.5, N = 8
4.5 - 5.5, N = 9
6.5 - 7.5, N = 15

Boring No. B-B14
Sta. 255+59.31 - 63.18' Right of CL Construction
0.5 - 1.0, N = 50 (6")

Boring No. B-B15
Sta. 255+75.94 - 20.37' Right of CL Construction
0.5 - 1.5, N = 12
2.5 - 3.5, N = 10
4.5 - 5.5, N = 15
6.5 - 7.5, N = 22
8.5 - 8.5, N = 50 (0")
10.0 - 10.3, N = 50 (4")

Boring No. B-B15A
Sta. 255+74.91 - 4.15' Right of CL Construction
2.0 - 3.0, N = 9
4.0 - 5.0, N = 10
6.0 - 7.0, N = 12

253+00 254+00 255+00 256+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY D. STEPHENSON
1.24.2017
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_L3.dgn
SCALE: 1" = 20'

BRIDGE NO. 07342
DRAWING NO. 56648

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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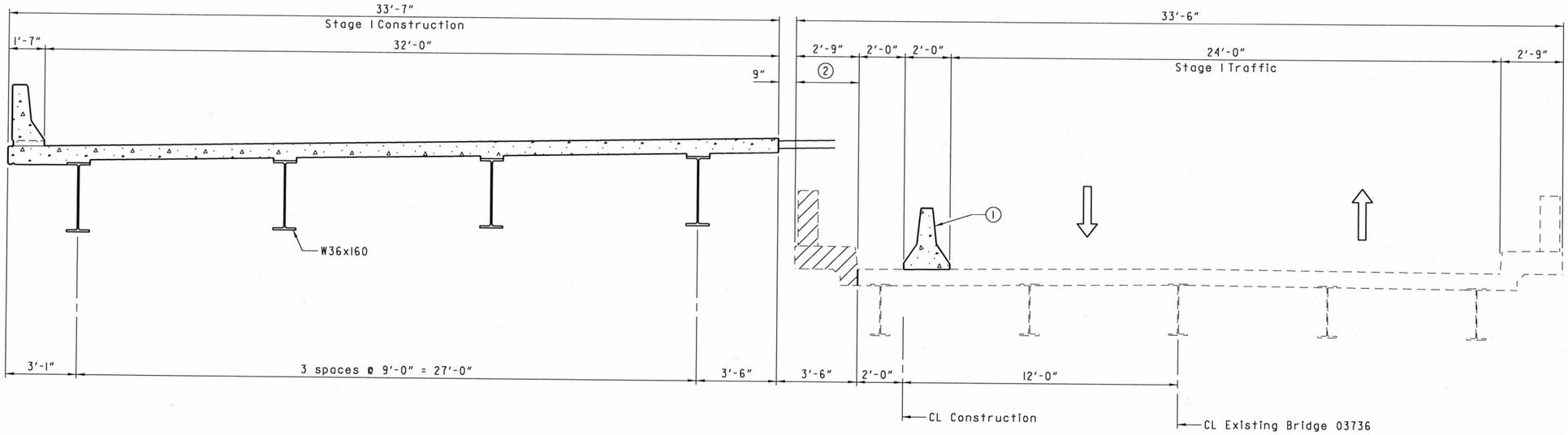
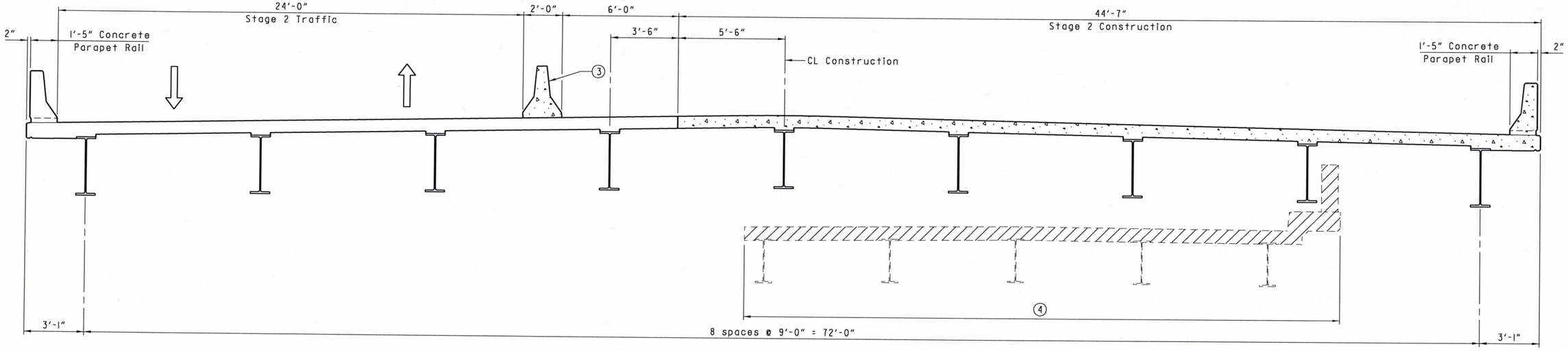


STAGE 1



STAGE 2

(1) Temporary Precast Barrier (Connect to Deck), see Std. Dwg. No. TC-4.
(2) Remove this section of the existing bridge to facilitate Stage 1 Construction.
(3) Temporary Precast Barrier (Do Not Connect to Deck), see Std. Dwg. No. TC-4.
(4) Remove the remaining section of the bridge to facilitate Stage 2 Construction.

NOTES:

Details which relate to maintenance of traffic are shown on the bridge plans for information only. See Roadway Plans for Maintenance of Traffic.

Details which relate to Existing Bridge 03736 are shown for information only. Actual field conditions may vary and shall be verified by the Contractor.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY D. STEVENSON
1.27.2017
BRIDGE ENGINEER

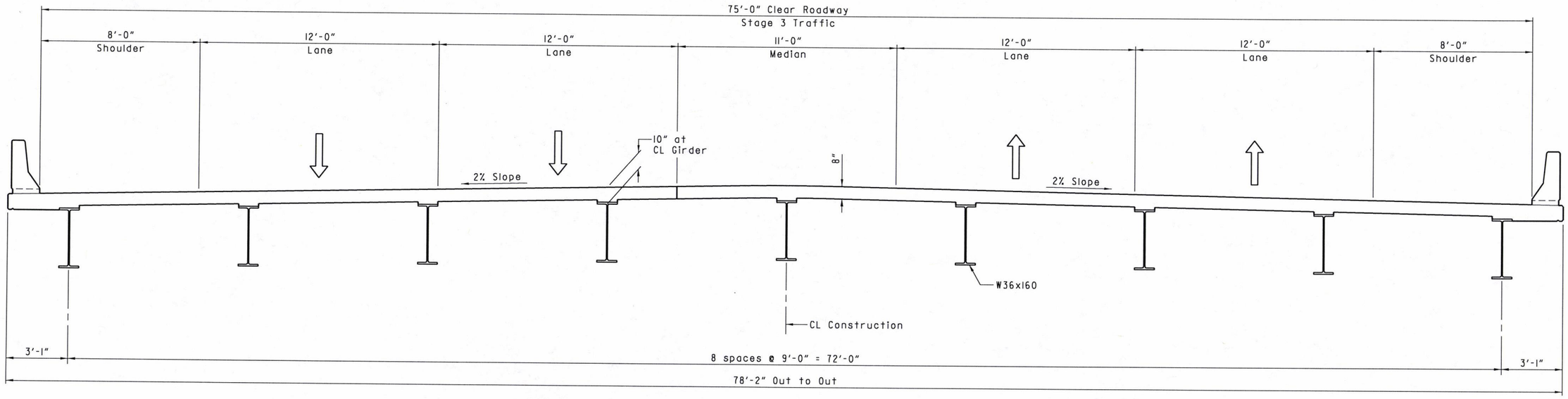
SHEET 1 OF 3
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_scl.dgn
CHECKED BY: JDS DATE: 12/23/14 SCALE: 3/8" = 1'-0"
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56649

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.		CA0906	223	417
(1) 07342	STAGE CONSTRUCTION			56650



STAGE 3

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_sc2.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07342 DRAWING NO. 56650

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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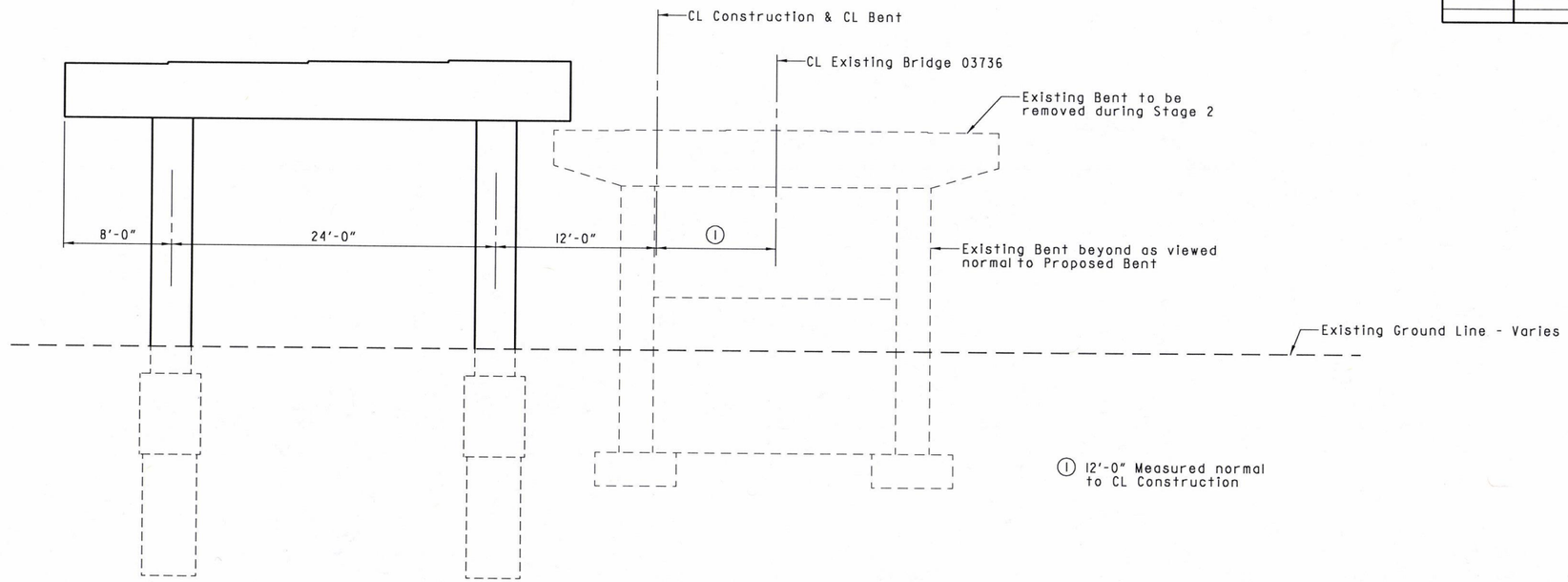
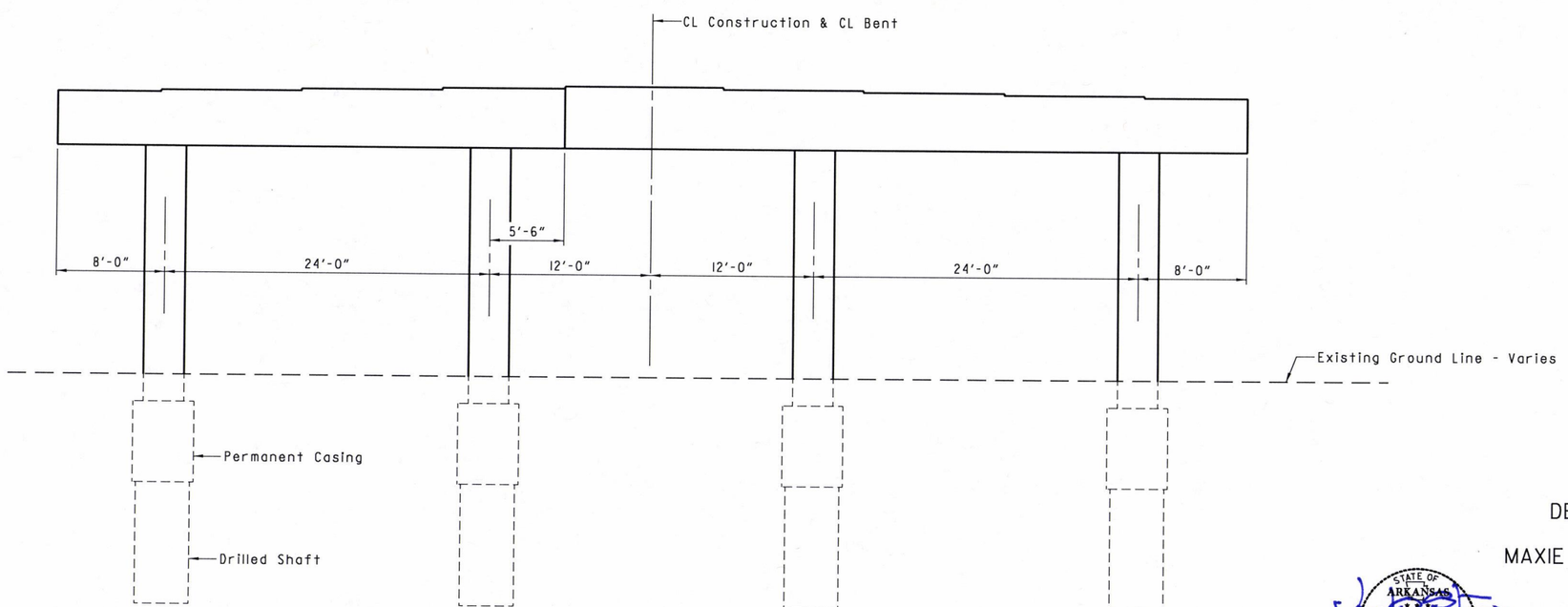
				JOB NO.		CA0906	224	417
				① 07342		STAGE CONSTRUCTION		56651



STAGE 1



STAGE 2

SHEET 3 OF 3
DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER HOG CREEK
MAXIE CAMP RD. - HWY. 206 (WIDENING) (S)
BOONE COUNTY
HWY. 65 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: JDS DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
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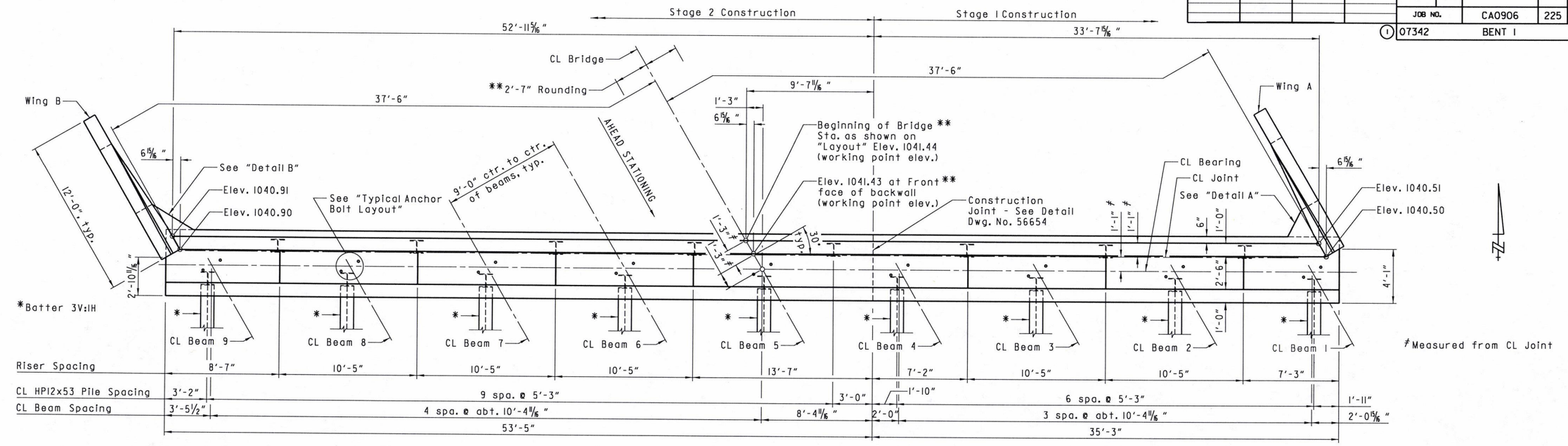
SCALE: 3/16" = 1'-0"

BRIDGE NO. 07342 DRAWING NO. 56651

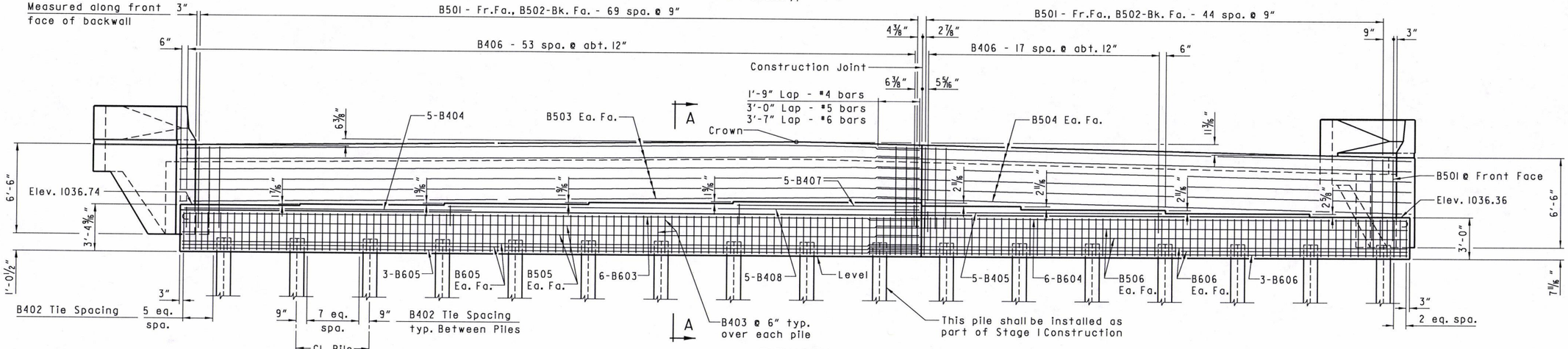
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	225	417
				(1) 07342		BENT 1		56652



PLAN

Scale: 1/4" = 1'-0"

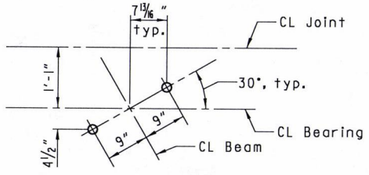
**See "Rounding Detail", Dwg. No. 56660



ELEVATION

Looking Back

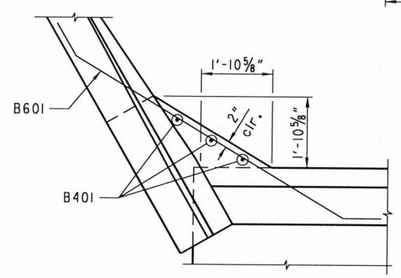
Scale: 1/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

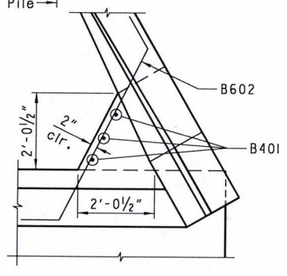
Scale: 3/4" = 1'-0"

For details of Elastomeric Bearings, see Dwg. No. 56669



DETAIL B

Scale: 1/2" = 1'-0"



DETAIL A

Scale: 1/2" = 1'-0"

STATE OF ARKANSAS
JEFFREY D. STEPHENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16185
1.24.2017
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT 1
BRIDGE OVER HOG CREEK
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TLW	DATE:	12/23/14	FILENAME: bCA0906x2_bll.dgn
CHECKED BY:	RMH	DATE:	12/23/14	SCALE: AS NOTED
DESIGNED BY:	TG	DATE:	12/23/14	

BRIDGE NO. 07342 DRAWING NO. 56652

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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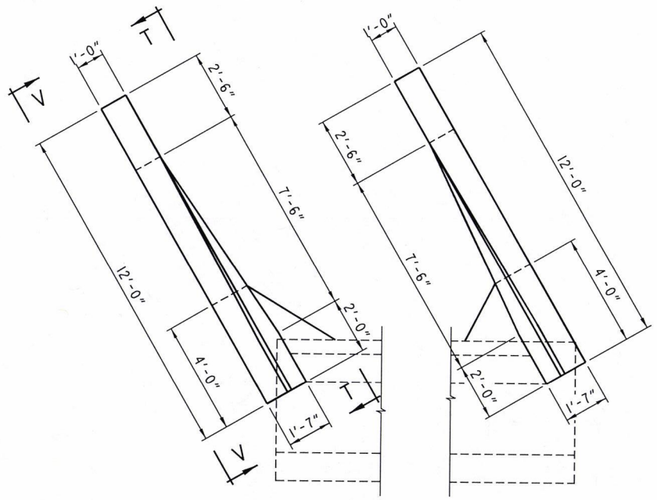
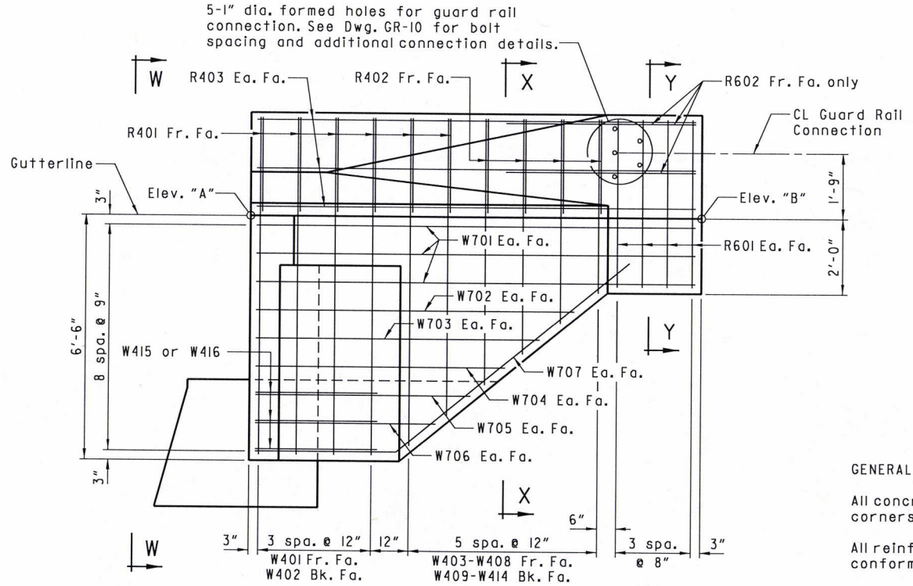
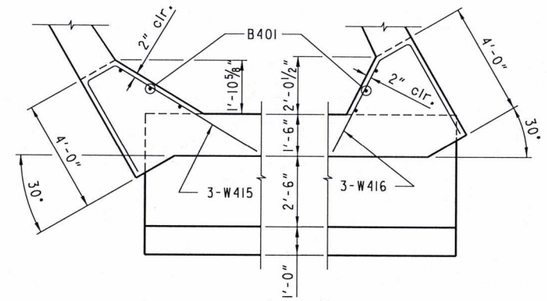
				JOB NO.		CA0906	226	417
				(1) 07342		BENT 1		56653



PLAN OF WING
Scale: 3/8" = 1'-0"



VIEW T-T
Scale: 1/2" = 1'-0"



SECTION Z-Z
Scale: 3/8" = 1'-0"

GENERAL NOTES

All concrete shall be class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

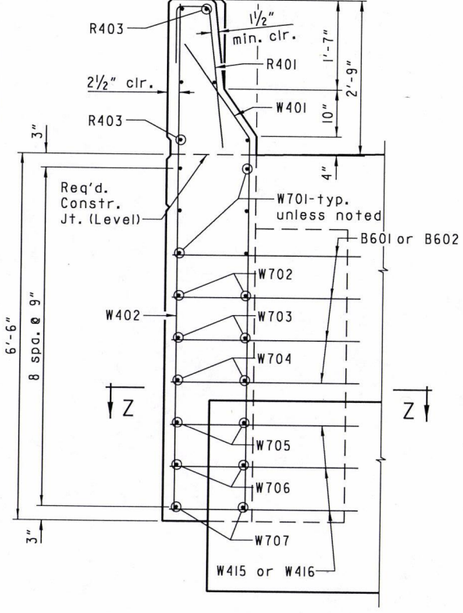
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)"

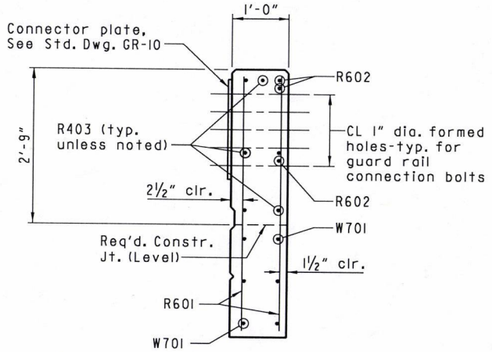
If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56668.

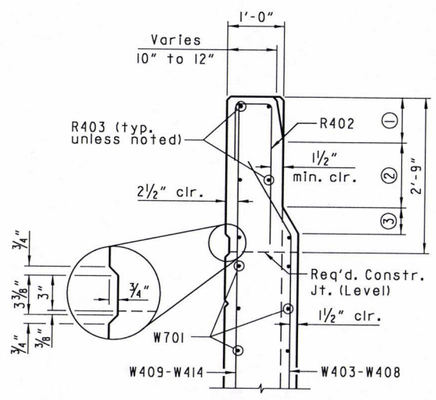
For additional information, see "Layout".



VIEW W-W
Scale: 3/4" = 1'-0"

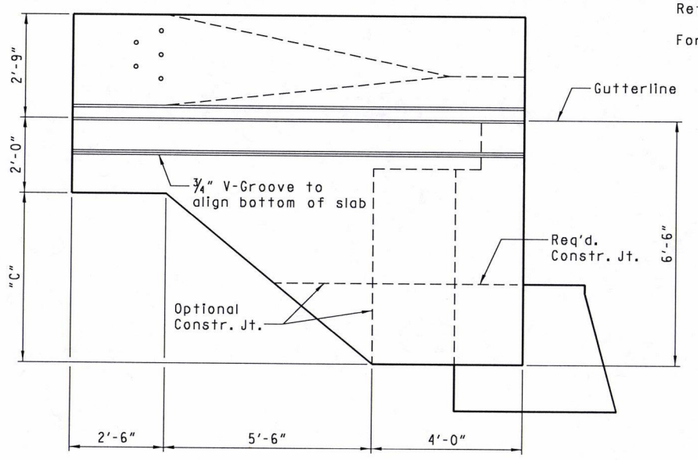


SECTION Y-Y
Scale: 3/4" = 1'-0"



SECTION X-X
Scale: 3/4" = 1'-0"

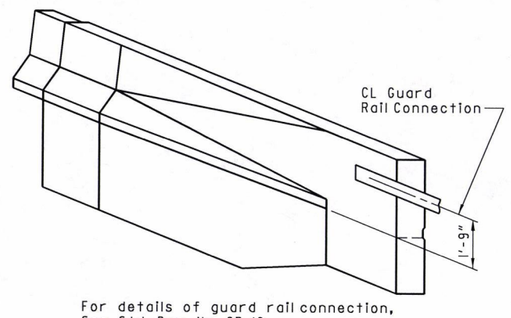
① Varies 1'-7" to 0"
② Varies 0" to 2'-5"
③ Varies 10" to 0"



VIEW V-V
Scale: 1/2" = 1'-0"

TABLE OF VARIABLES

	WING A	WING B
ELEV. "A"	1040.50	1040.90
ELEV. "B"	1040.60	1041.03
"C"	4'-7 3/16"	4'-7 9/16"



For details of guard rail connection, See Std. Dwg. No. GR-10

THREE DIMENSIONAL VIEW OF RAIL
Scale: 3/8" = 1'-0"

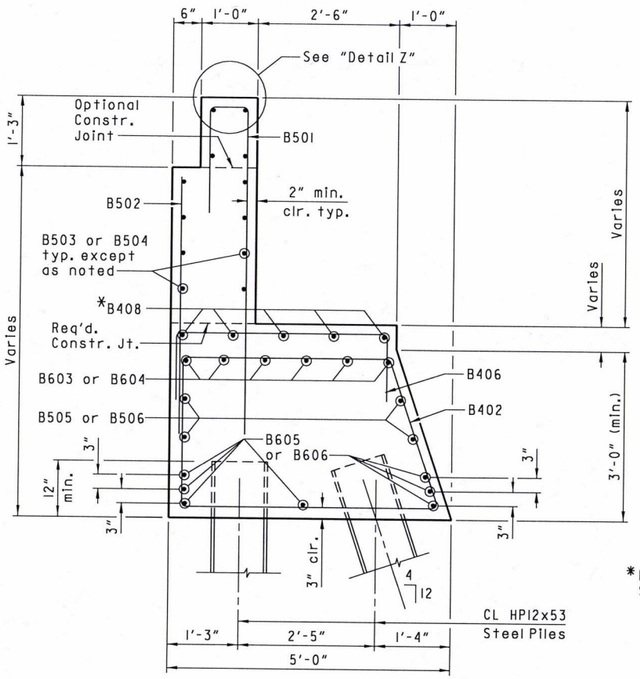
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT 1
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_bl2.dgn
CHECKED BY: RMH DATE: 12/23/14 SCALE: AS NOTED
DESIGNED BY: TG DATE: 12/23/14

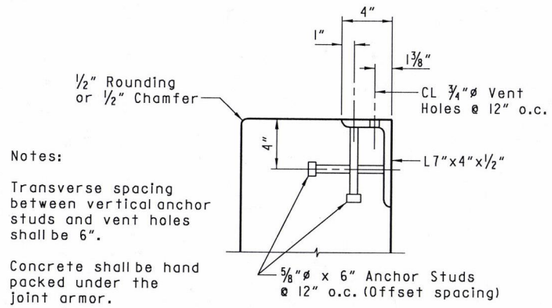
BRIDGE NO. 07342 DRAWING NO. 56653

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.		CA0906	227	417
				(1) 07342		BENT 1		56654



*B404, B405 & B407 bars not shown on this section. See Bent Elevation for Details

SECTION A-A
Scale: 3/4" = 1'-0"



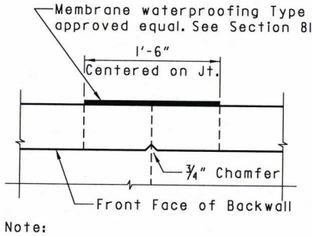
Notes:

Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. No. 56668.

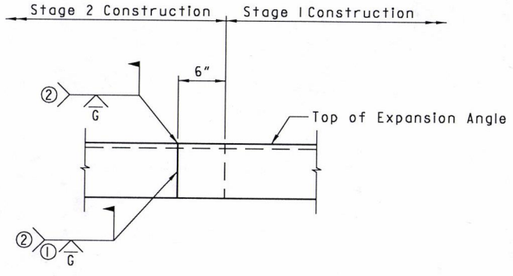
DETAIL Z
No Scale



Note:

Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL
No Scale



① Grind flush 5" from top of deck.
② Weld after Stage 1 Pour & prior to Stage 2 Pour

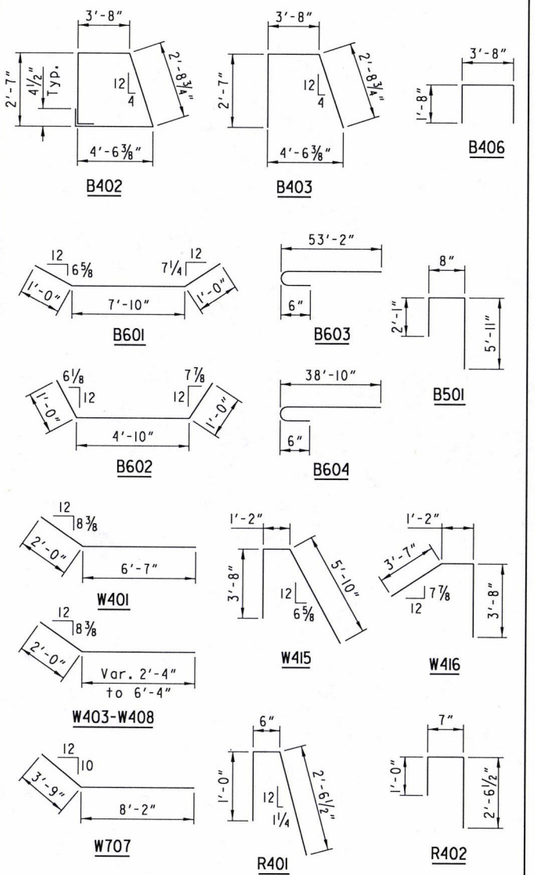
DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
B401	6	4'-7"	Str.
B402	137	13'-11"	2"
B403	34	8'-10"	2"
B404	5	20'-9"	Str.
B405	5	19'-4"	Str.
B406	72	6'-10"	2"
B407	5	13'-4"	Str.
B408	5	34'-1"	Str.
R401	12	3'-11"	2"
R402	8	4'-0"	2"
R403	12	11'-8"	Str.
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	8'-6"	2"
W402	8	8'-11"	Str.
W403-W408	2 Ea.	Var. 4'-4" to 8'-4"	2"
W409-W414	2 Ea.	Var. 4'-6" to 8'-8"	Str.
W415	3	10'-7"	2"
W416	3	8'-4"	2"
B501	116	8'-6"	2 1/2"
B502	115	4'-11"	Str.
B503	12	52'-7"	Str.
B504	12	37'-2"	Str.
B505	4	53'-2"	Str.
B506	4	38'-3"	Str.
B601	4	9'-10"	4 1/2"
B602	4	6'-10"	4 1/2"
B603	6	53'-10"	4 1/2"
B604	6	39'-6"	4 1/2"
B605	7	53'-2"	Str.
B606	7	38'-10"	Str.
W701	12	11'-8"	Str.
W702	4	8'-6"	Str.
W703	4	7'-7"	Str.
W704	4	6'-8"	Str.
W705	4	5'-9"	Str.
W706	4	4'-10"	Str.
W707	4	11'-6"	5 1/4

BENDING DIAGRAM

Dimensions are out to out of bars.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEREMY D. STEPHENSON
1.24.2017
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT 1
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

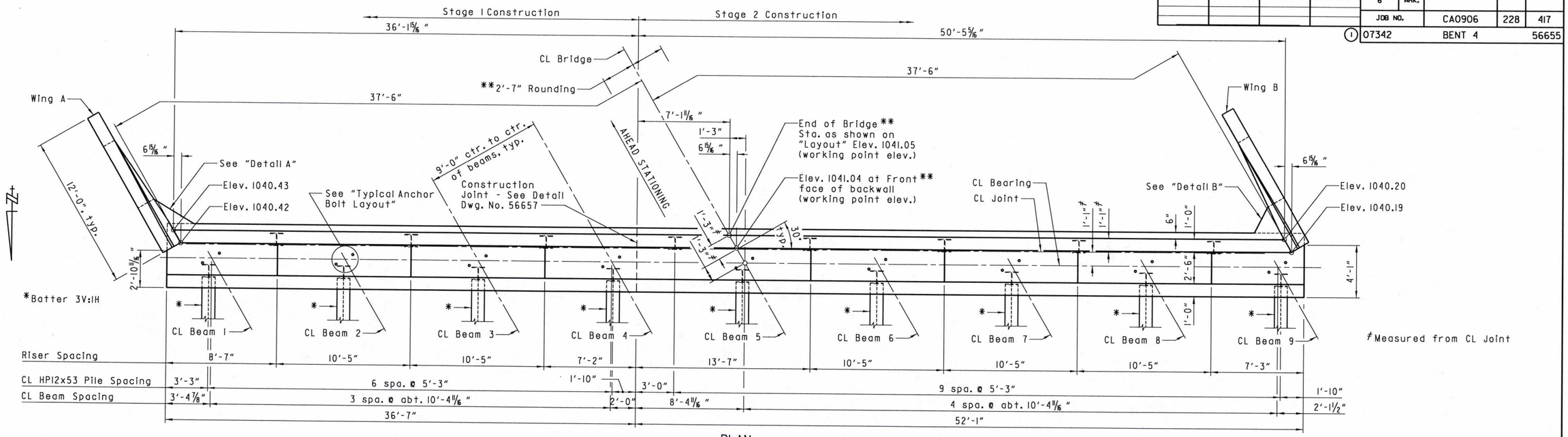
DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_bl3.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56654

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

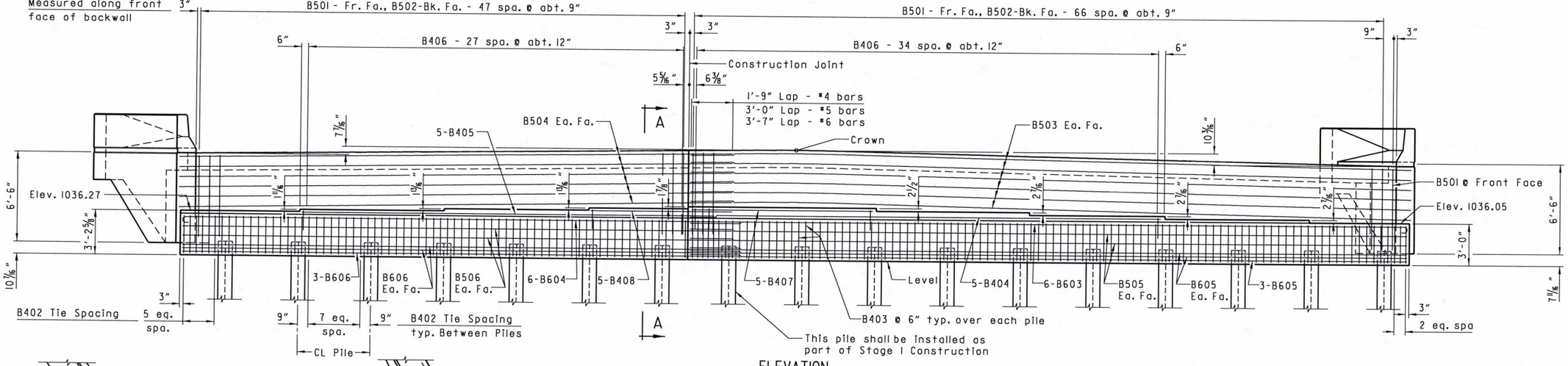
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	228	417

(1) 07342 BENT 4 56655

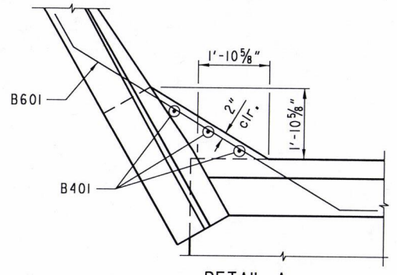


PLAN
Scale: 1/4" = 1'-0"

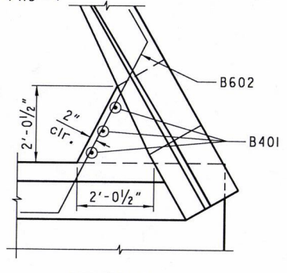
**See "Rounding Detail", Dwg. No. 56660



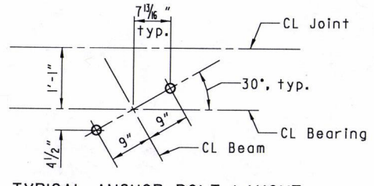
ELEVATION
Looking Ahead
Scale: 1/4" = 1'-0"



DETAIL A
Scale: 1/2" = 1'-0"



DETAIL B
Scale: 1/2" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"
For details of Elastomeric Bearings, see Dwg. No. 56669

STATE OF ARKANSAS
JEFFREY D. STEPHENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.24.2017
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT 4
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TLW	DATE:	12/23/14	FILENAME:	bCA0906x2_b41.dgn
CHECKED BY:	RMH	DATE:	12/23/14	SCALE:	AS NOTED
DESIGNED BY:	TG	DATE:	12/23/14		

BRIDGE NO. 07342 DRAWING NO. 56655

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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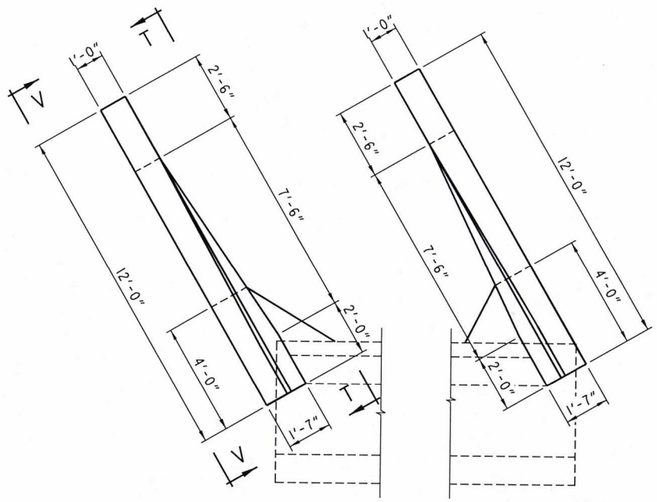
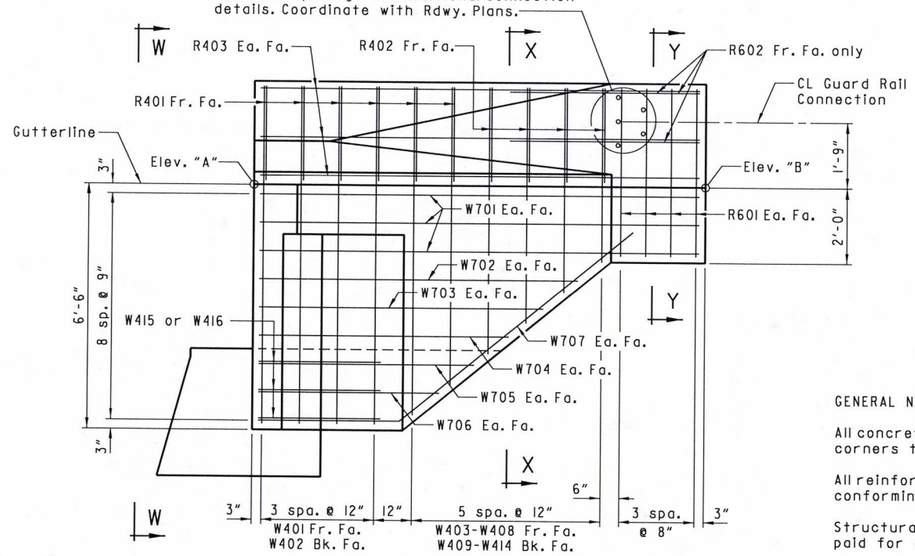
				JOB NO.		CA0906	229	417
				① 07342		BENT 4		56656

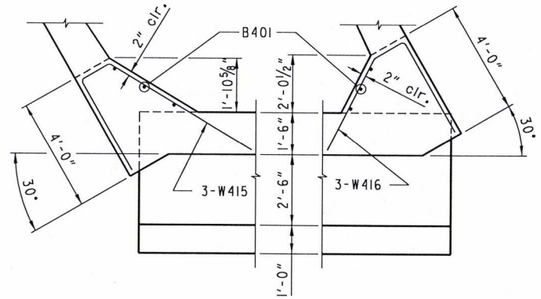


PLAN OF WING
Scale: 3/8" = 1'-0"

‡5-1" dia. formed holes for guard rail connection at East Wing, bridge end terminal at West Wing. See Dwg. GR-10 for bolt spacing and additional connection details. Coordinate with Rdwy. Plans.



VIEW T-T
Scale: 1/2" = 1'-0"



SECTION Z-Z
Scale: 3/8" = 1'-0"

GENERAL NOTES

All concrete shall be class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

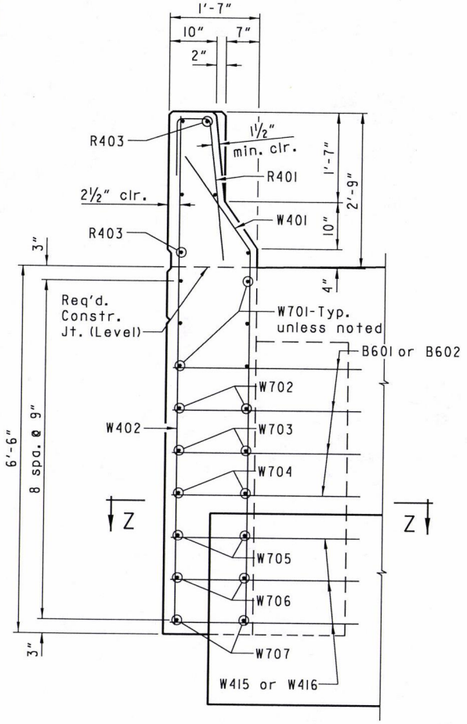
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)"

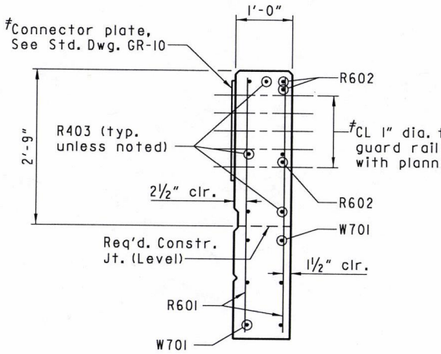
If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56668.

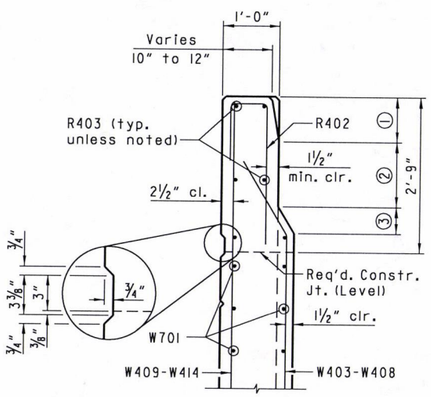
For additional information, see "Layout".



VIEW W-W
Scale: 3/4" = 1'-0"



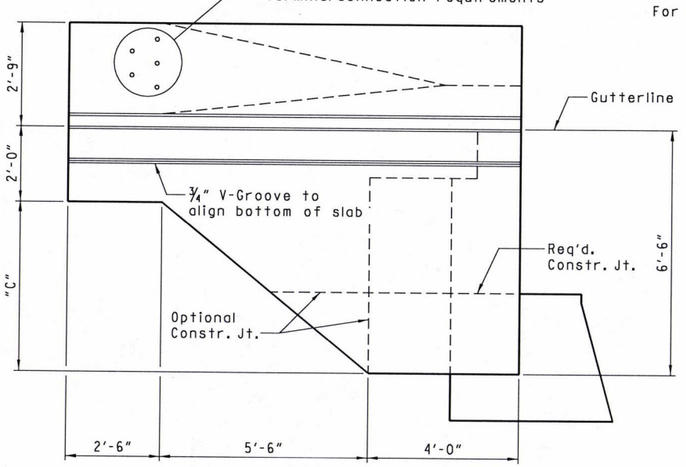
SECTION Y-Y
Scale: 3/4" = 1'-0"



① Varies 1'-7" to 0"
② Varies 0" to 2'-5"
③ Varies 10" to 0"

SECTION X-X
Scale: 3/4" = 1'-0"

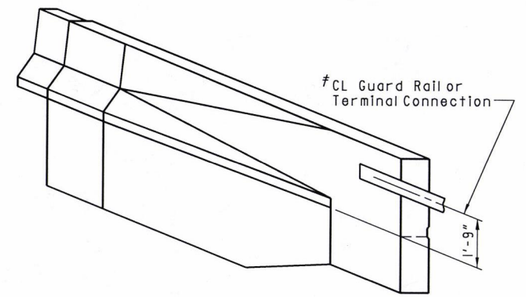
Coordinate with guardrail and end terminal connection requirements



VIEW V-V
Scale: 1/2" = 1'-0"

TABLE OF VARIABLES

	WING A	WING B
ELEV. "A"	1040.42	1040.19
ELEV. "B"	1040.51	1040.24
"C"	4'-7 1/16"	4'-6 5/8"



‡All Connection Details shown on this sheet are for East Wing only. For details of guard rail connection for East Wing, See Std. Dwg. No. GR-10. For West Wing Rails and Connection Details Coordinate with Roadway Plans.

THREE DIMENSIONAL VIEW OF RAIL
Scale: 3/8" = 1'-0"

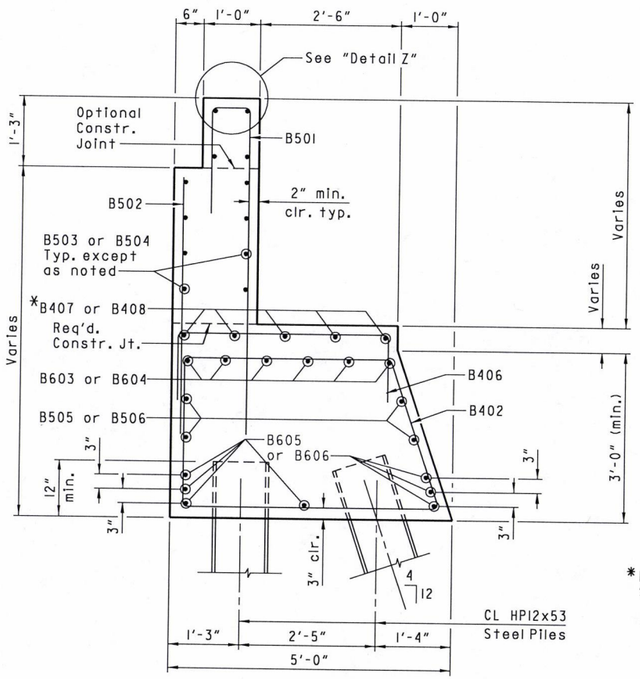
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT 4
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

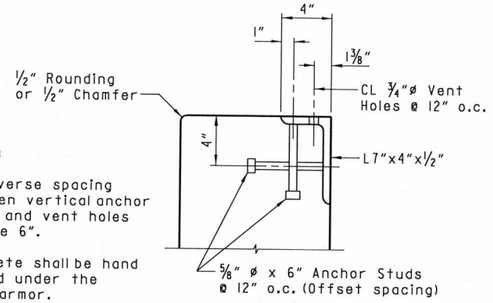
DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_b42.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56656

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.		CA0906	230	417
				(1) 07342		BENT 4		56657



*B404 & B405 bars not shown on this section. See Bent Elevation for Details



Notes:

Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. No. 56668.

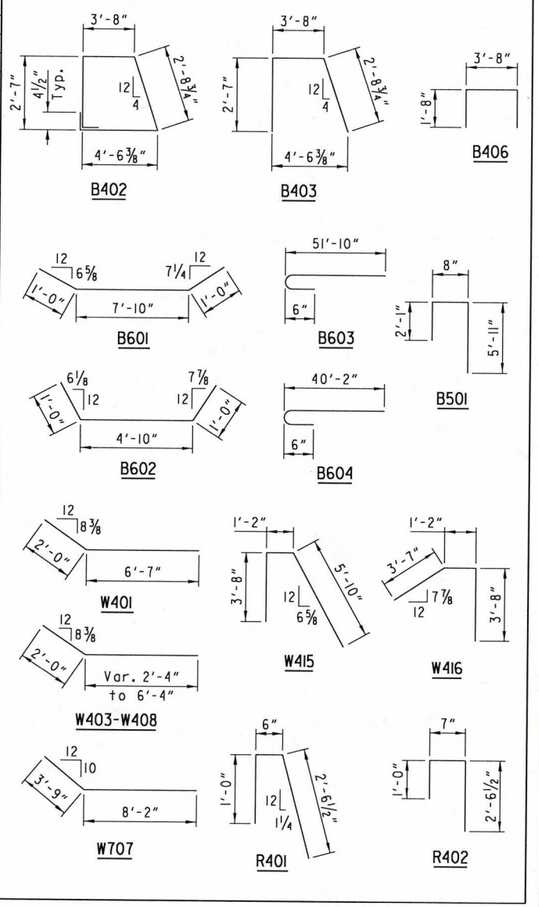
DETAIL Z
No Scale

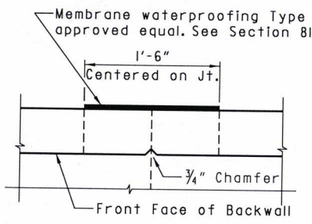
BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
B401	6	4'-7"	Str.
B402	137	13'-11"	2"
B403	34	8'-10"	2"
B404	5	34'-0"	Str.
B405	5	29'-9"	Str.
B406	63	6'-10"	2"
B407	5	13'-4"	Str.
B408	5	9'-0"	Str.
R401	12	3'-11"	2"
R402	8	4'-0"	2"
R403	12	11'-8"	Str.
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	8'-6"	2"
W402	8	8'-11"	Str.
W403-W408	2 Ea.	Var. 4'-4" to 8'-4"	2"
W409-W414	2 Ea.	Var. 4'-6" to 8'-8"	Str.
W415	3	10'-7"	2"
W416	3	8'-4"	2"
B501	116	8'-6"	2 1/2"
B502	115	4'-11"	Str.
B503	12	50'-8"	Str.
B504	12	39'-1"	Str.
B505	4	51'-10"	Str.
B506	4	39'-7"	Str.
B601	4	9'-10"	4 1/2"
B602	4	6'-10"	4 1/2"
B603	6	52'-6"	4 1/2"
B604	6	40'-10"	4 1/2"
B605	7	51'-10"	Str.
B606	7	40'-2"	Str.
W701	12	11'-8"	Str.
W702	4	8'-6"	Str.
W703	4	7'-7"	Str.
W704	4	6'-8"	Str.
W705	4	5'-9"	Str.
W706	4	4'-10"	Str.
W707	4	11'-6"	5 1/4

BENDING DIAGRAM

Dimensions are out to out of bars.

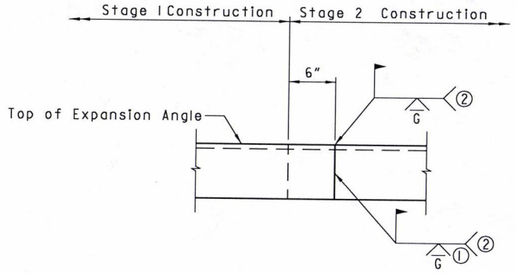




Note:

Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL
No Scale



① Grind flush 5" from top of deck.
② Weld after Stage I Pour & prior to Stage 2 Pour

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
No Scale

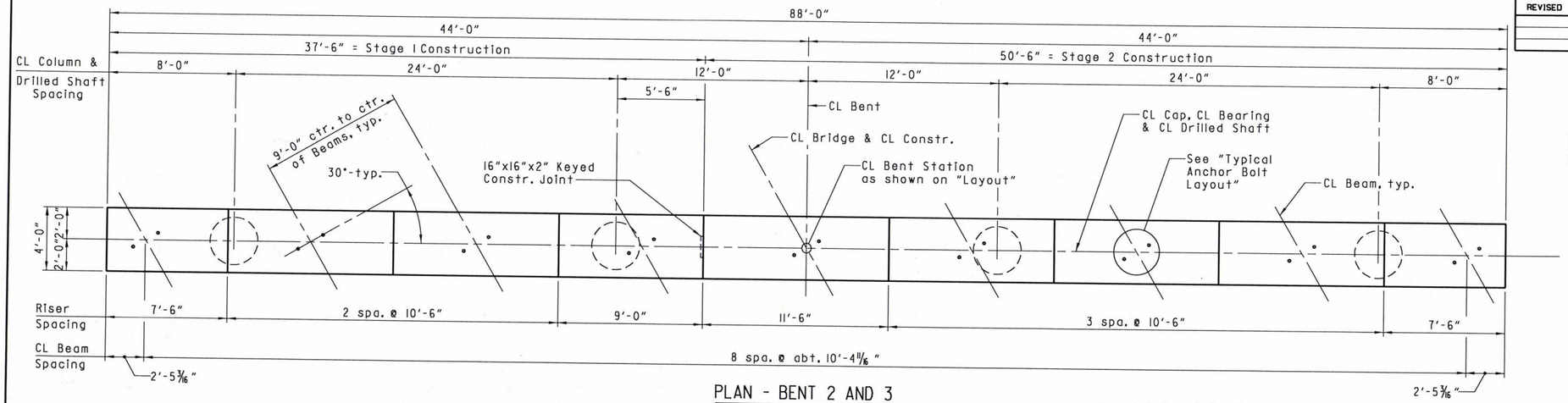
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEREMY T. STEVENSON
1.27.2017
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT 4
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_b43.dgn
SCALE: AS NOTED

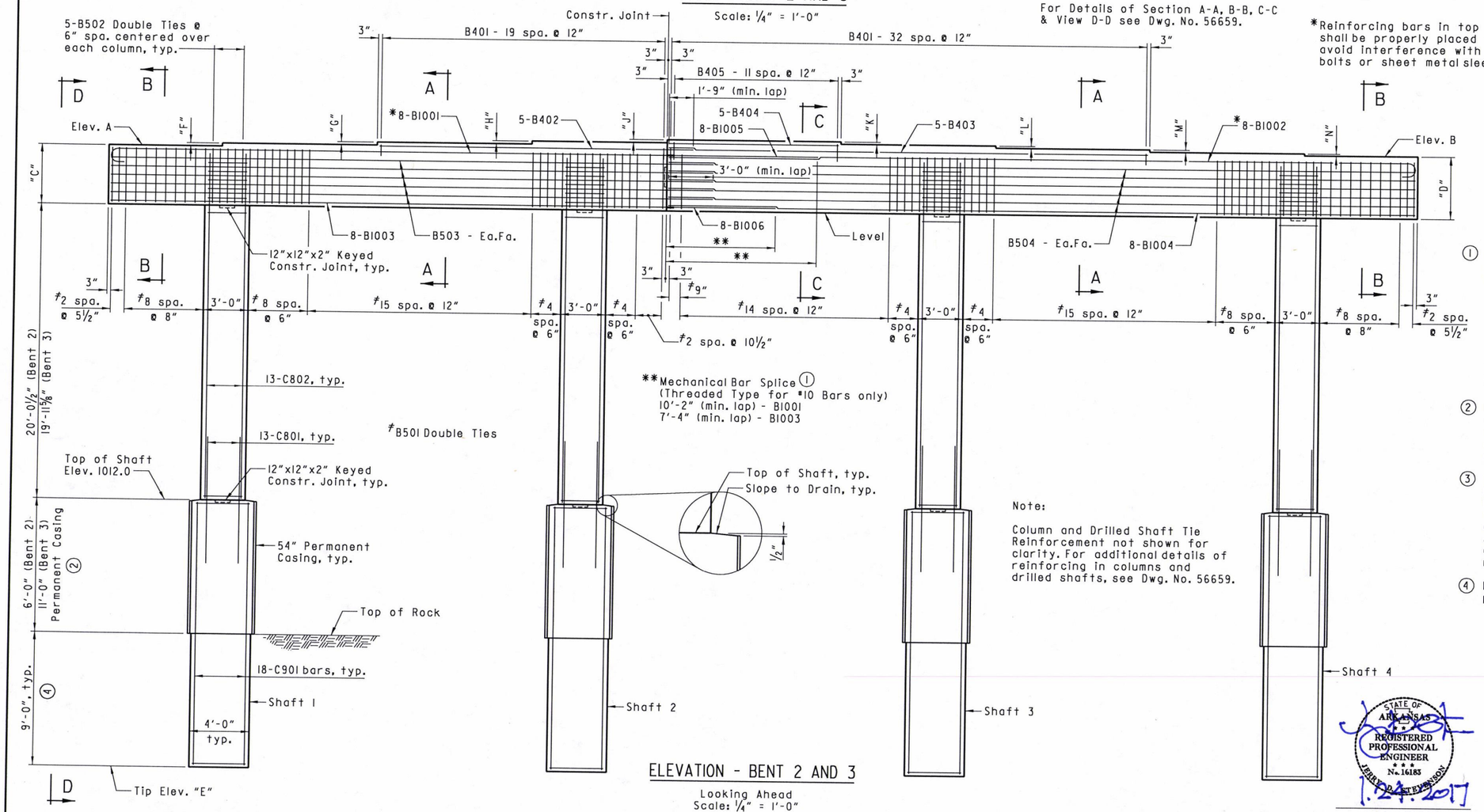
BRIDGE NO. 07342 DRAWING NO. 56657

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.		CA0906	231	417
				① 07342		INT. BENTS		56658



PLAN - BENT 2 AND 3

Scale: 1/4" = 1'-0"



ELEVATION - BENT 2 AND 3

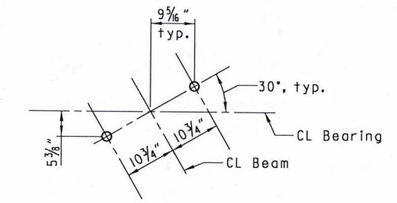
Looking Ahead
Scale: 1/4" = 1'-0"

For Details of Section A-A, B-B, C-C & View D-D see Dwg. No. 56659.

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Note:

Column and Drilled Shaft Tie Reinforcement not shown for clarity. For additional details of reinforcing in columns and drilled shafts, see Dwg. No. 56659.



TYPICAL ANCHOR BOLT LAYOUT

Scale: 3/4" = 1'-0"
For details of Elastomeric Bearings, see Dwg. No. 56669.

TABLE OF VARIABLES

	BENT 2	BENT 3
ELEV. "A"	1036.04	1036.00
ELEV. "B"	1036.24	1035.97
"C"	4'-0"	4'-0 3/8"
"D"	4'-2 7/8"	4'-0"
ELEV. "E"	997.0	992.0
"F"	2 3/8"	2 1/16"
"G"	2 3/8"	2 1/16"
"H"	2 7/16"	2 1/8"
"J"	2 7/16"	2 1/16"
"K"	-(1 1/8")	-(2 3/16")
"L"	-(1 11/16")	-(2 1/4")
"M"	-(1 11/16")	-(2 3/16")
"N"	-(1 3/4")	-(2 1/16")

① Mechanical rebar splices (threaded type) are required. They shall develop at least 125% of the specified yield strength of the bar.

The mechanical rebar splices shall be an approved type on the AHTD Qualified Products List (QPL) and maintain the minimum clearance shown.

The cost for the mechanical rebar splices shall not be measured for separate payment but shall be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

② Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0906 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

③ The column reinforcing cage, consisting of bars C501 and C801, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

④ Minimum penetration into competent rock below permanent casing.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY T. STEVENSON
1-24-2017
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
BRIDGE OVER HOG CREEK

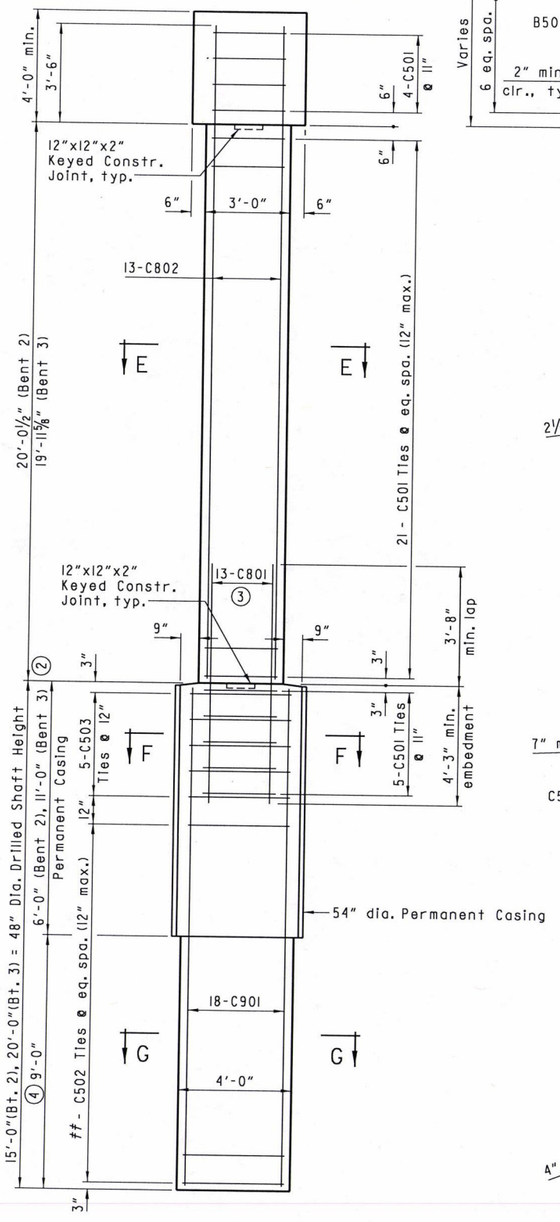
HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: TG DATE: 12/23/14
FILENAME: bCA0906x2_b21.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56658

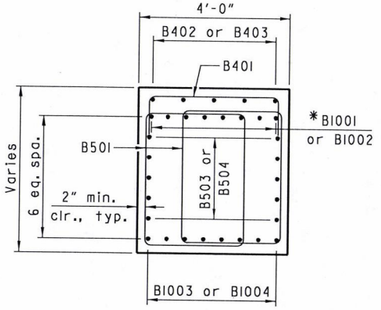
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	232	417
				(1) 07342		INT. BENTS		56659



VIEW D-D

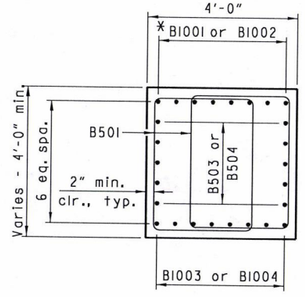
Scale: ⅜" = 1'-0"

11 at Bent 2, 16 at Bent 3



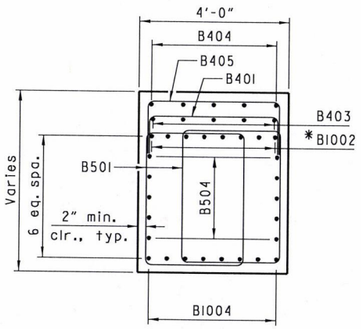
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

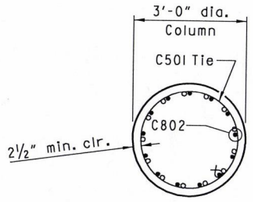
Scale: ½" = 1'-0"



SECTION C-C

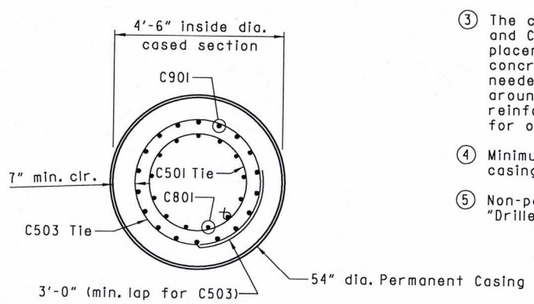
Scale: ½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.



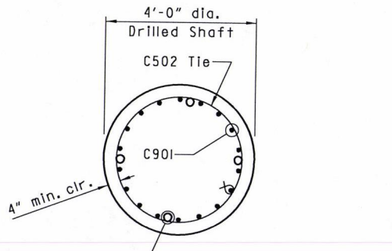
SECTION E-E

Scale: ½" = 1'-0"



SECTION F-F

Scale: ½" = 1'-0"



SECTION G-G

Scale: ½" = 1'-0"

(1) These bars shall have threaded ends for mechanical rebar splices at Bents 2 and 3. Lengths of bars shown are for estimation of quantities. Actual lengths to be modified as required to accommodate mechanical splices.

(2) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0906 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

(3) The column reinforcing cage, consisting of bars C501 and C801, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

(4) Minimum penetration into competent rock below permanent casing.

(5) Non-pay item - Subsidiary to SP Job No. CA0906 "Drilled Shaft Foundations".

GENERAL NOTES:

Concrete in the Cap and Column shall be Class S with a minimum 28 day compressive strength, f'c = 3,500 psi, and shall be poured in the dry. Concrete in the Drilled Shaft shall be Class S as modified by SP Job No. CA0906 "Drilled Shaft Foundations". 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 M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts.

For additional information, see "Layout".

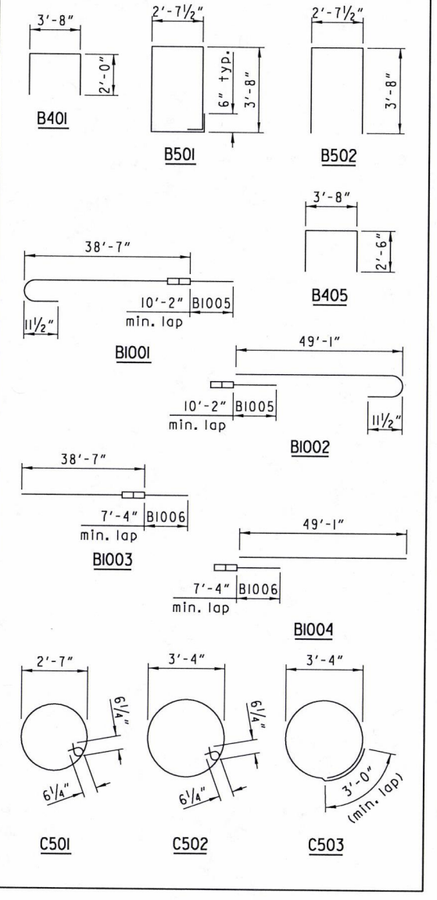
Drilled Shafts shall conform to SP Job No. CA0906 "Drilled Shaft Foundations".

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH BENT 2	LENGTH BENT 3	PIN. DIA.
	B401	53	7'-6"	7'-6"	2"
	B402	5	21'-3"	21'-3"	Str.
	B403	5	32'-3"	32'-3"	Str.
	B404	5	11'-3"	11'-3"	Str.
	B405	12	8'-6"	8'-6"	2"
	B501	210	13'-1"	13'-1"	2½"
	B502	40	9'-9"	9'-9"	2½"
	B503	10	40'-6"	40'-6"	Str.
	B504	10	50'-3"	50'-3"	Str.
(1)	B1001	8	40'-0"	40'-0"	10"
(1)	B1002	8	50'-7"	50'-7"	10"
(1)	B1003	8	38'-7"	38'-7"	Str.
(1)	B1004	8	49'-1"	49'-1"	Str.
(1)	B1005	8	10'-2"	10'-2"	Str.
(1)	B1006	8	7'-4"	7'-4"	Str.
	C501	120	9'-6"	9'-6"	3¾"
(5)	C502	#	11'-10"	11'-10"	3¾"
(5)	C503	20	13'-4"	13'-4"	3¾"
	C801	52	8'-6"	8'-6"	Str.
	C802	52	23'-7"	23'-6"	Str.
(5)	C901	72	14'-6"	19'-6"	Str.

BENDING DIAGRAM

Dimensions are out to out of bars.



44 at Bent 2, 64 at Bent 3

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEPHENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_b22.dgn
CHECKED BY: RMH DATE: 12/23/14 SCALE: AS NOTED
DESIGNED BY: TG DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56659

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.		CA0906	233	417
				(1) 07342		200 FT. UNIT		56660

(1) Tolerance: Minus = 1/4", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance, see "Adjustment for Slab Thickness Tolerance", Dwg. No. 56661.

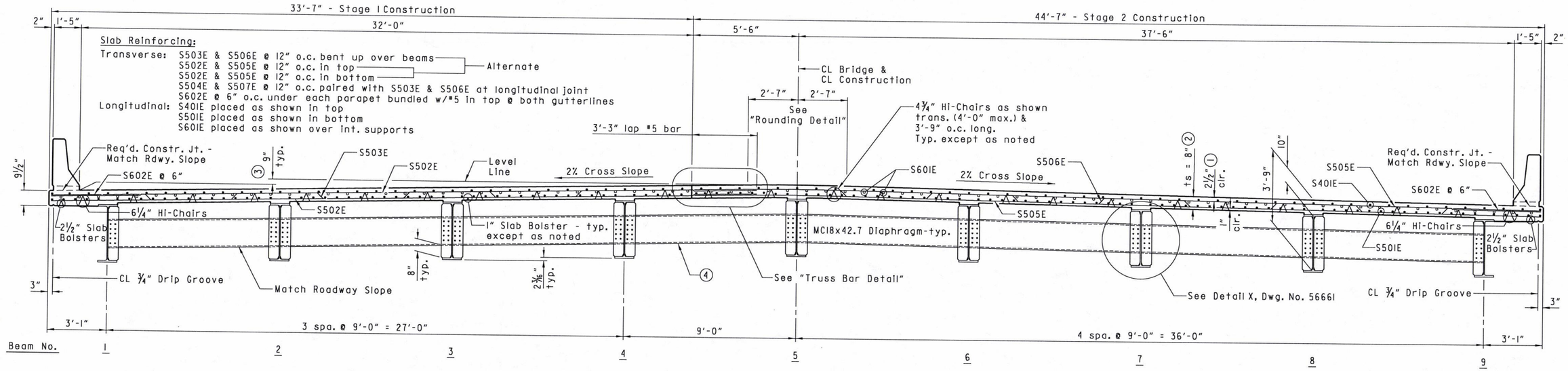
(2) See "Adjustment for Slab Thickness Tolerance", Dwg. No. 56661.

(3) Working point to gutterline, see "Rounding Detail".

NOTES:

At Contractor's option, in lieu of providing bars S503E or S506E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S503E and S506E. Bars in top and bottom shall be Epoxy Coated.

Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

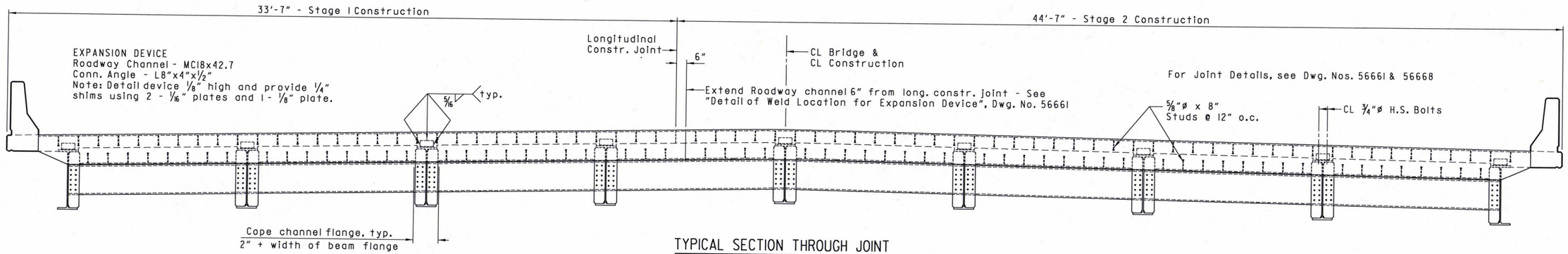


(4) In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 1 1/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

TYPICAL ROADWAY SECTION

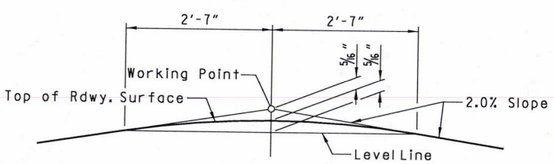
Looking Ahead
Scale: 3/8" = 1'-0"

(4) Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage I overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. See "Deck Support at Longitudinal Construction Joint" detail Dwg. No. 56661. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.



TYPICAL SECTION THROUGH JOINT

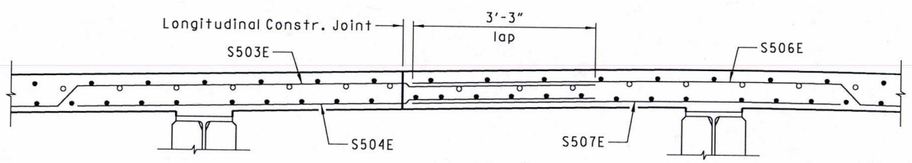
Looking Ahead - Bent 1
Bent 4 Similar
Scale: 3/8" = 1'-0"



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale



TRUSS BAR DETAIL

Scale: 3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16185
JEFFERY M. STEVENSON
1.22.2017
BRIDGE ENGINEER

SHEET 1 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
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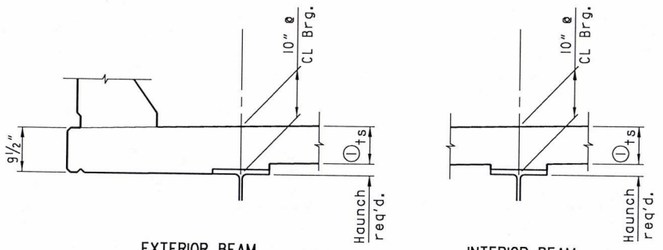
FILENAME: bCA0906x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07342

DRAWING NO. 56660

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.		CA0906	234	417
				① 07342		200 FT. UNIT		56661



EXTERIOR BEAM

INTERIOR BEAM

① Tolerance when removable deck forming is used is +½", -¼", Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

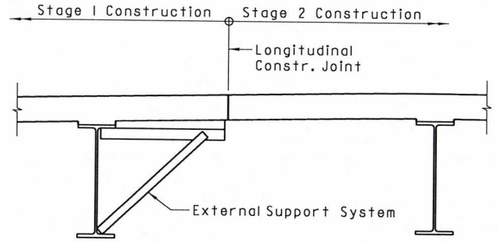
Note: ts = slab thickness as shown on superstructure detail drawings.

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.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

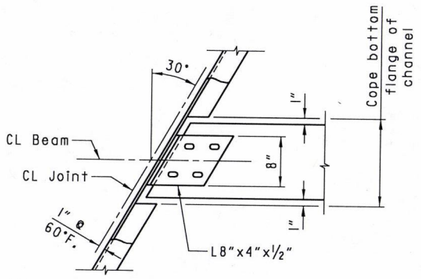
Scale: ¾" = 1'-0"



Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

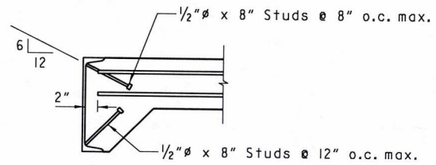
DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

Looking Ahead
Scale: ½" = 1'-0"



CHANNEL CONNECTION DETAIL

Scale: 1" = 1'-0"

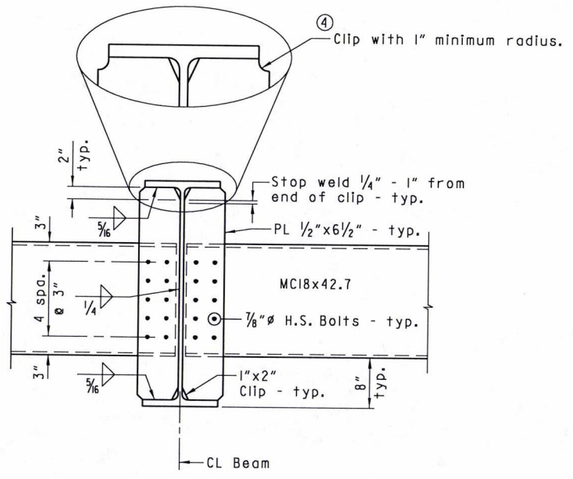


Note: As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

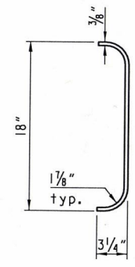
Scale: 1" = 1'-0"

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accommodate the deck form supports.



DETAIL X

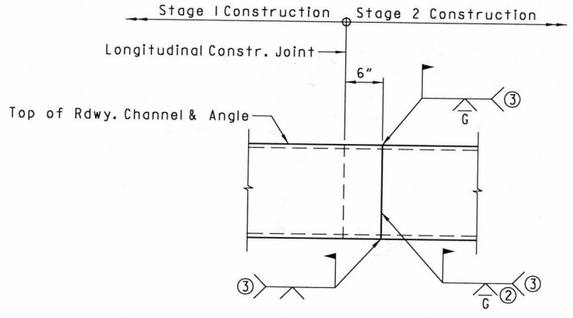
Scale: 1" = 1'-0"



ALTERNATE BENT PLATE DETAIL

Scale: 1½" = 1'-0"

Note:
Contractor may elect to fabricate a bent plate diaphragm as shown in lieu of the MC18x42.7 diaphragm. Cost to construct bent plate diaphragm shall be at the Contractor's expense.



② Grind flush 5" from top of deck.
③ Weld after Stage 1 Pour & prior to Stage 2 Pour.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

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"	5/16"	

NOTE: 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.

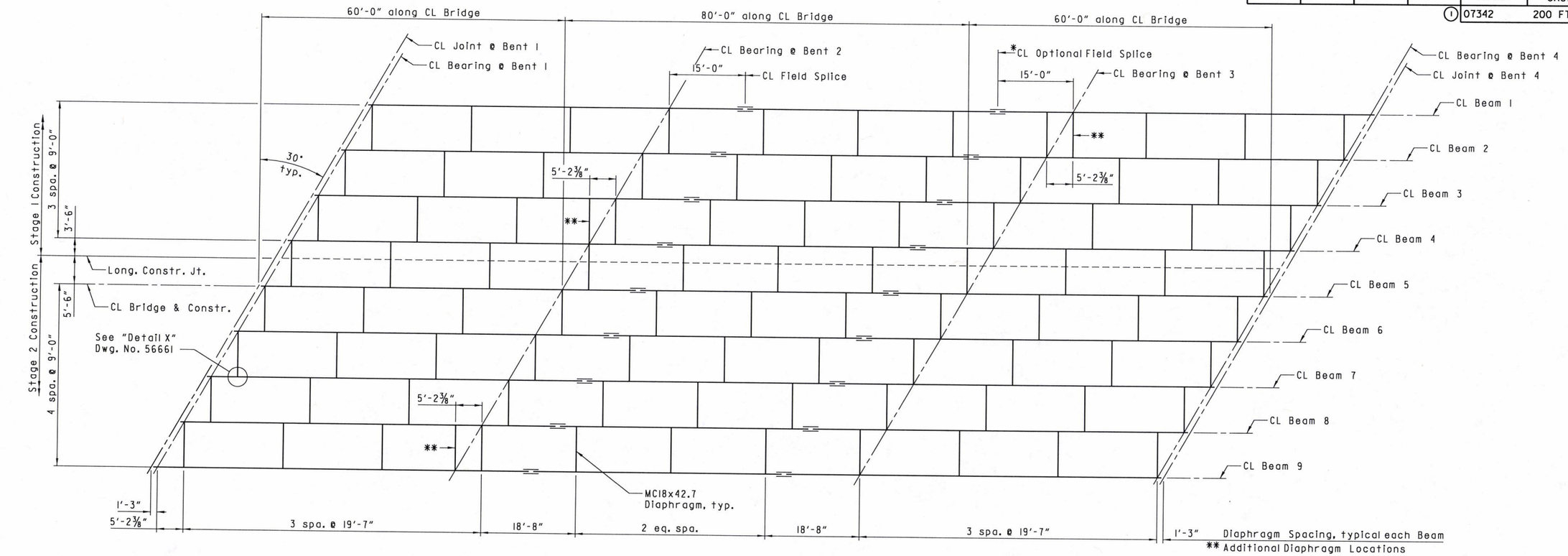
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 2 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_s2.dgn
CHECKED BY: TG DATE: 12/23/14 SCALE: AS NOTED
DESIGNED BY: PMT DATE: 12/23/14
BRIDGE NO. 07342 DRAWING NO. 56661

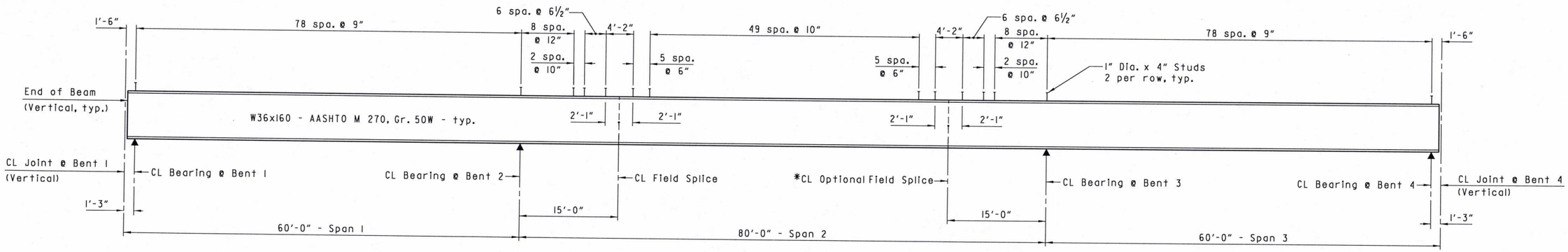
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	235	417
				(1) 07342		200 FT. UNIT		56662

AHEAD STATIONING



FRAMING PLAN

Scale: ½" = 1'-0"



BEAM ELEVATION

No Scale

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless noted otherwise.

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.

*At the Contractor's option, a field splice may be provided at this location. No additional payment will be made for the optional field splice. If the optional field splice is used, provide the shear connectors at this location as detailed. If not used, space stacked studs equally in splice area.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY D. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 3 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

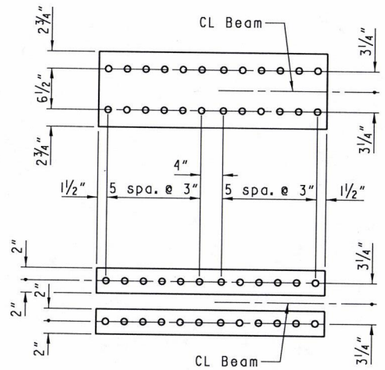
DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x2_s3.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56662

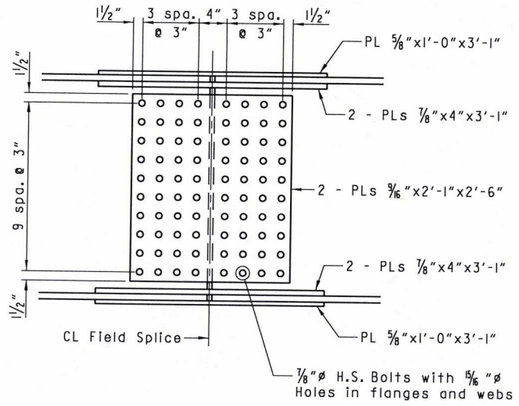
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	236	417
				(1) 07342		200 FT. UNIT		56663

NOTE:

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.



FLANGE SPLICE



WEB SPLICE

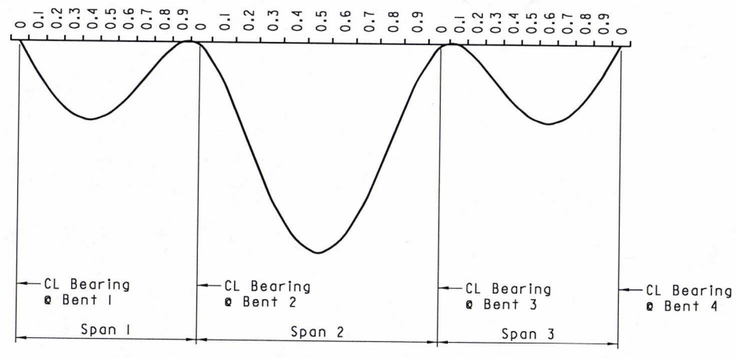
NOTE: All field splice plates shall be AASHTO M 270, Gr. 50W.

FIELD SPLICE DETAILS

1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	POINT OF DEFLECTION	STRUCTURAL STEEL		STRUCTURAL STEEL + SLAB		STRUCTURAL STEEL + SLAB + PARAPET	
		BMS. 1 & 9	BMS. 2 - 8	BMS. 1 & 9	BMS. 2 - 8	BMS. 1 & 9	BMS. 2 - 8
SPAN 1	0	0	0	0	0	0	0
	0.1	0.022	0.024	0.127	0.138	0.144	0.140
	0.2	0.040	0.043	0.231	0.252	0.262	0.256
	0.3	0.051	0.055	0.298	0.325	0.339	0.330
	0.4	0.055	0.059	0.320	0.349	0.365	0.354
	0.5	0.051	0.055	0.296	0.323	0.338	0.327
	0.6	0.040	0.043	0.234	0.255	0.269	0.257
	0.7	0.025	0.027	0.147	0.160	0.171	0.160
	0.8	0.010	0.011	0.059	0.064	0.071	0.063
	0.9	0	0	-0.003	-0.003	0	-0.005
SPAN 2	0	0	0	0	0	0	0
	0.1	0.025	0.027	0.146	0.160	0.158	0.167
	0.2	0.065	0.070	0.380	0.414	0.415	0.430
	0.3	0.104	0.113	0.610	0.665	0.668	0.690
	0.4	0.132	0.144	0.774	0.844	0.849	0.876
	0.5	0.142	0.155	0.833	0.908	0.914	0.942
	0.6	0.132	0.144	0.774	0.844	0.849	0.876
	0.7	0.104	0.113	0.610	0.665	0.668	0.690
	0.8	0.065	0.070	0.380	0.414	0.415	0.430
	0.9	0.025	0.027	0.146	0.159	0.158	0.166
SPAN 3	0	0	0	0	0	0	0
	0.1	0	0	-0.003	-0.003	0	-0.005
	0.2	0.010	0.011	0.059	0.064	0.071	0.063
	0.3	0.025	0.027	0.147	0.160	0.171	0.160
	0.4	0.040	0.043	0.234	0.255	0.269	0.257
	0.5	0.051	0.055	0.296	0.323	0.338	0.327
	0.6	0.055	0.059	0.320	0.349	0.365	0.354
	0.7	0.051	0.055	0.298	0.325	0.339	0.330
	0.8	0.040	0.043	0.231	0.252	0.262	0.256
	0.9	0.022	0.024	0.127	0.138	0.144	0.140
	0	0	0	0	0	0	0

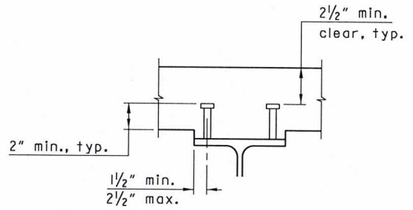


TYPICAL DEAD LOAD DEFLECTIONS DIAGRAM

No Scale

NOTE:

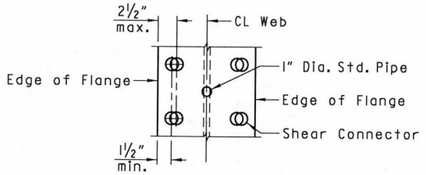
Camber for Dead Load Deflection plus Vertical Curve ±¼" tolerance. Deflections shown are from a chord from CL Bearing to CL Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



Stud Shear Connectors shown shall be ⅞"øx4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

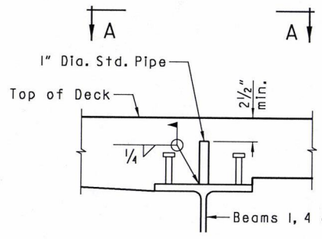
SHEAR CONNECTOR DETAIL

No Scale



VIEW A-A

No Scale



TRANSVERSE SCREED RAIL SUPPORT DETAIL

No Scale

NOTES:

The transverse screed rail supports shall be centered over the beam web and centered longitudinally between adjacent rows of shear connectors.

The pipe shall not interfere with the proper vertical position of the deck reinforcing steel.

The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.

Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.

All welding shall be performed by a certified welder and in accordance with Subsections 802.13 and 807.26.

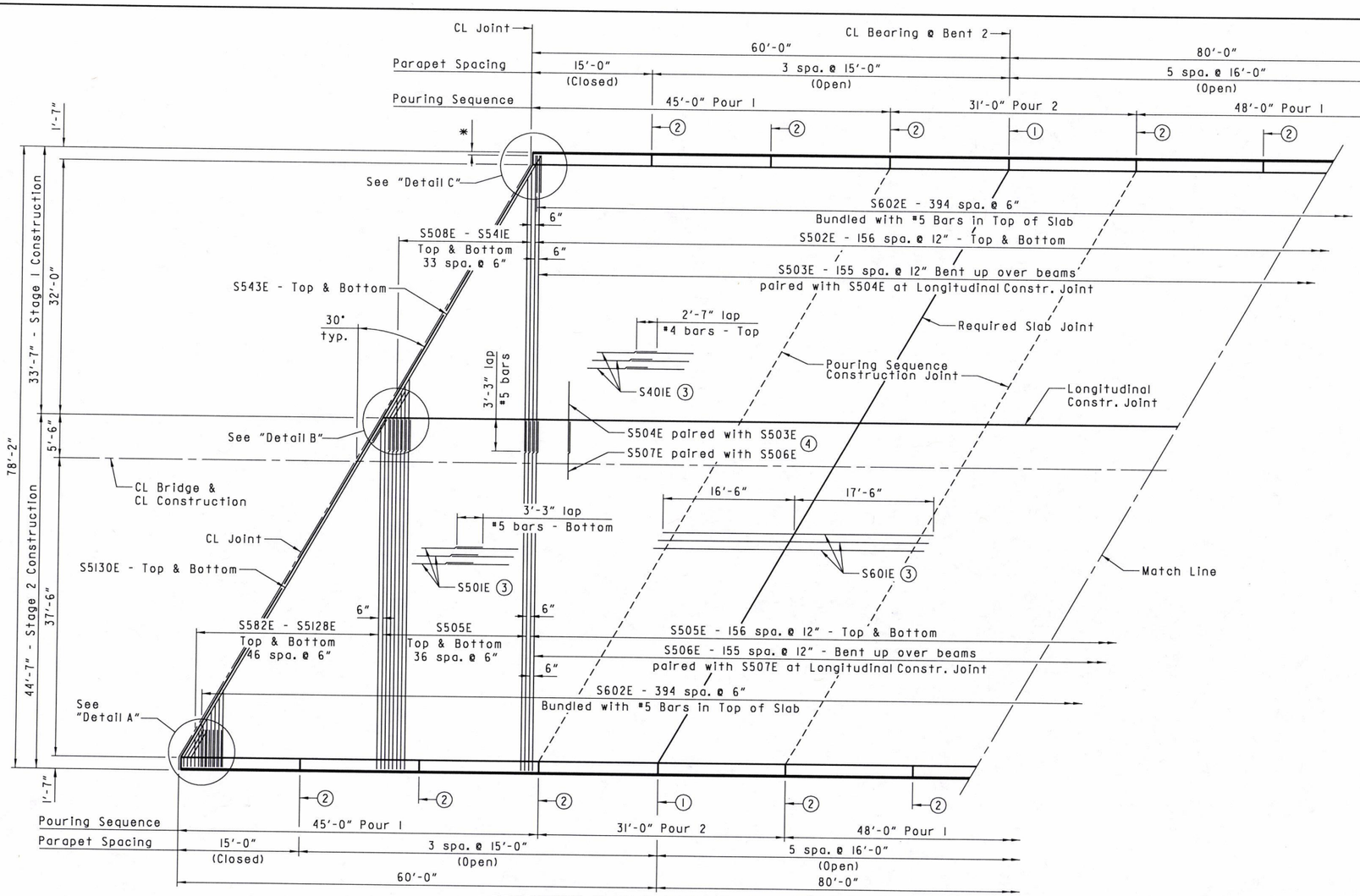
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY T. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 4 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x2_s4.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56663

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.		CA0906	237	417
				(1) 07342		200 FT. UNIT		56664



REINFORCING PLAN & DECK POURING SEQUENCE

Scale: 1/8" = 1'-0"

(1) CL Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab, see Dwg. No. 56666.

(2) CL Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab, see Dwg. No. 56666.

(3) Place as shown in "Typical Roadway Section", see Dwg. No. 56660.

(4) See "Truss Bar Detail", Dwg. No. 56660.

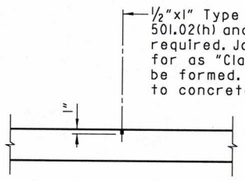
* Typical 2" Clear Cover unless otherwise noted.

Measured from CL Joint.

NOTES:

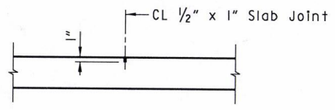
For each stage of construction, pours with the same number shall be placed simultaneously. All Pours (1) must be placed before Pours (2) can be placed. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of the deck pour and the start of the parapet railing pour. Any railing pours made before the entire slab unit has been placed for each stage must be approved by the Engineer. The concrete in a bridge superstructure unit must be consolidated for the entire pour before concrete has taken its initial set. This may require the use of a retarding agent.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.



LONGITUDINAL CONSTRUCTION JOINT

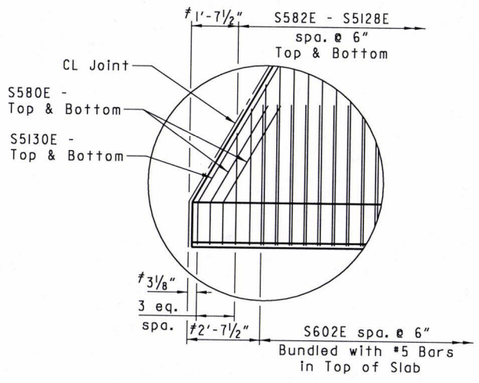
No Scale



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.

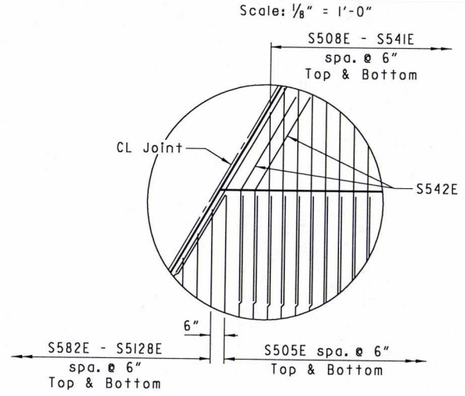
SLAB JOINT DETAIL

No Scale



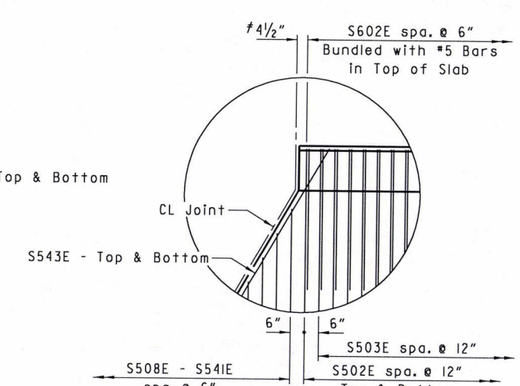
DETAIL A

Scale: 3/8" = 1'-0"



DETAIL B

Scale: 3/8" = 1'-0"



DETAIL C

Scale: 3/8" = 1'-0"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 16185 JERRY D. STEVENSON

1.24.2017

BRIDGE ENGINEER

SHEET 5 OF 9

DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

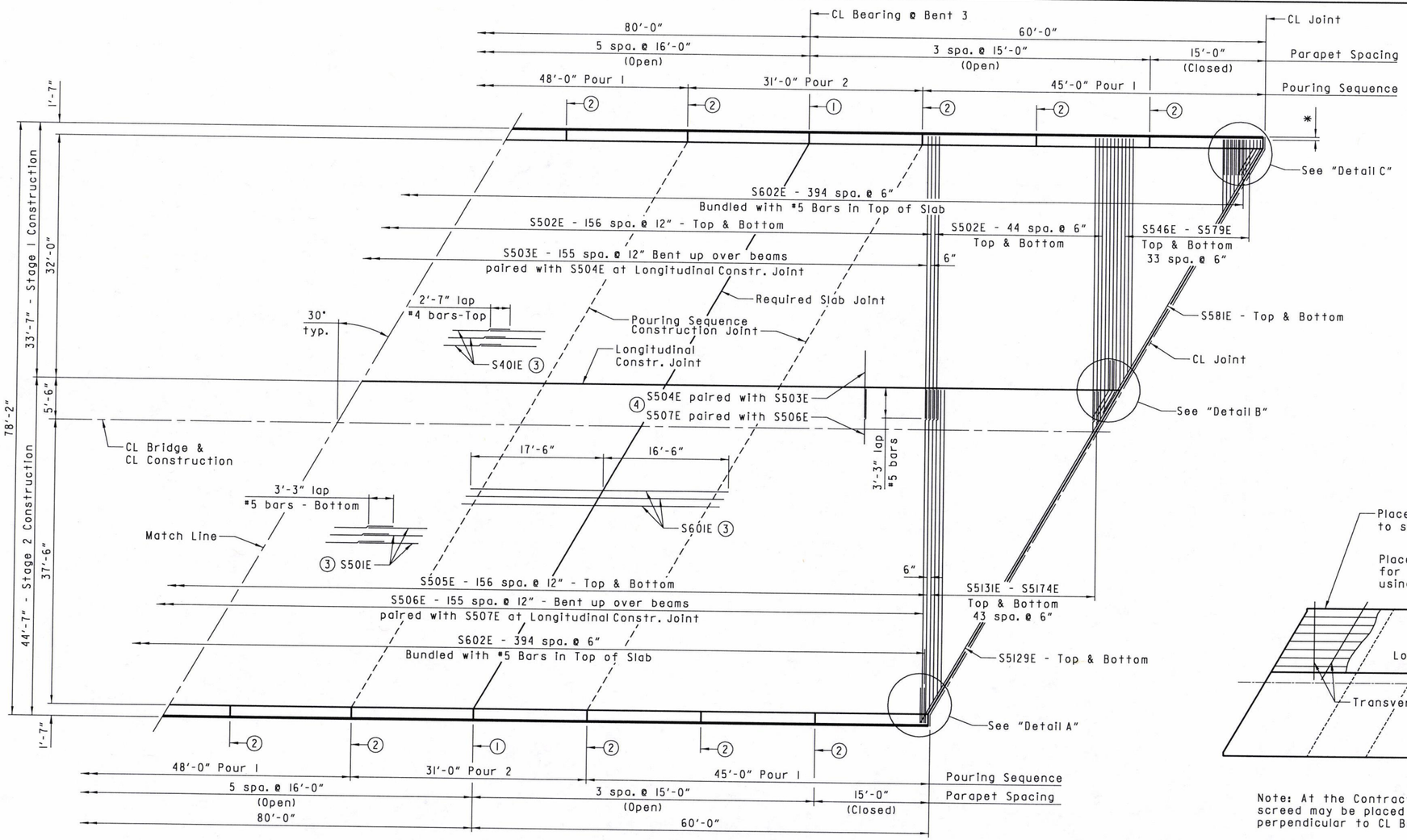
DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_s5.dgn

CHECKED BY: TG DATE: 12/23/14 SCALE: AS NOTED

DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56664

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.		CA0906	238	417
				(1) 07342		200 FT. UNIT		56665



REINFORCING PLAN & DECK POURING SEQUENCE

Scale: 1/8" = 1'-0"

(1) CL Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab, see Dwg. No. 56666.

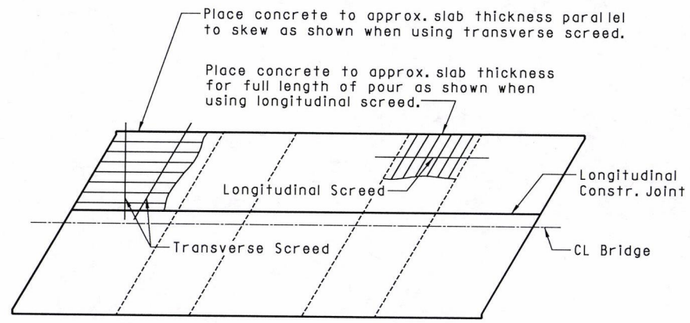
(2) CL Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab, see Dwg. No. 56666.

(3) Place as shown in "Typical Roadway Section", see Dwg. No. 56660.

(4) See "Truss Bar Detail", Dwg. No. 56660.

* Typical 2" Clear Cover unless otherwise noted.

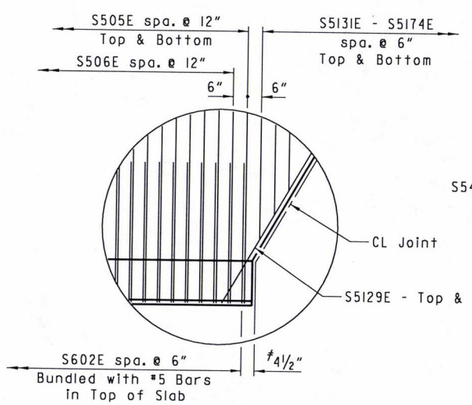
Measured from CL Joint.



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to CL Bridge.

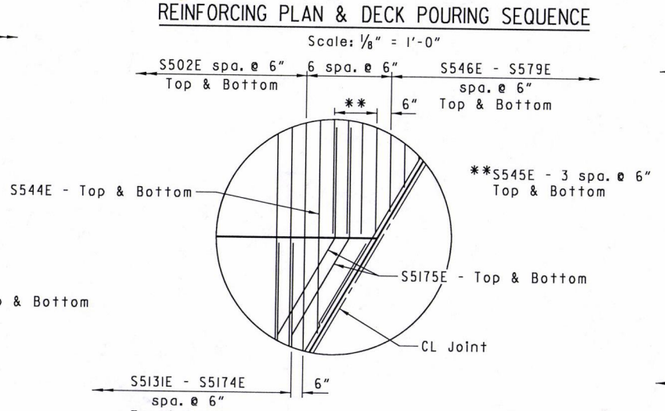
CONCRETE PLACEMENT PROCEDURE

No Scale



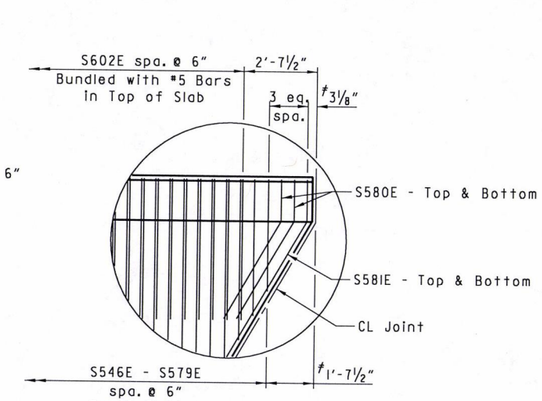
DETAIL A

Scale: 3/8" = 1'-0"



DETAIL B

Scale: 3/8" = 1'-0"



DETAIL C

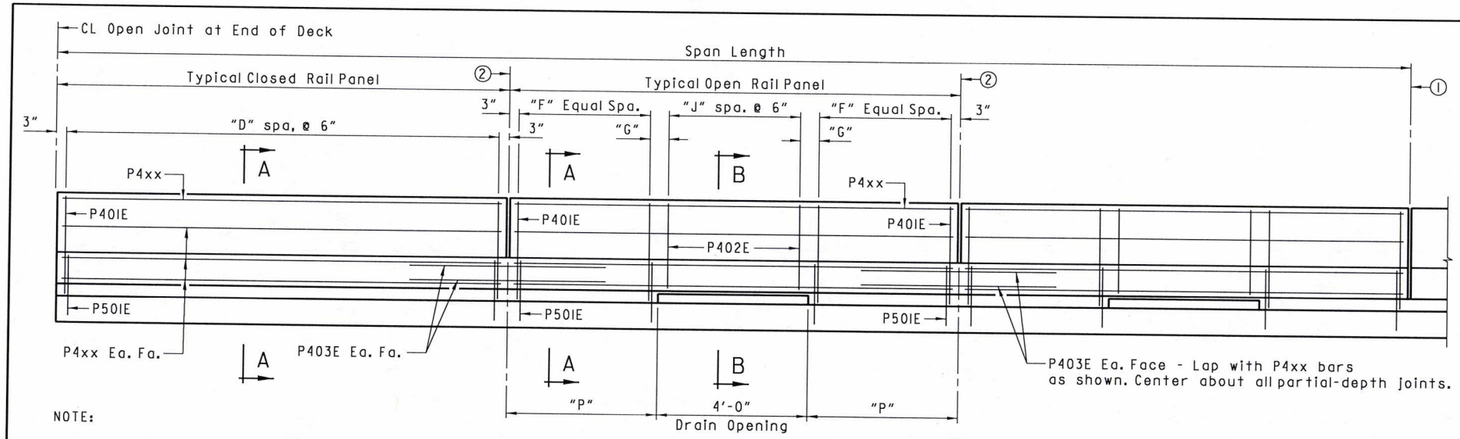
Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEFFREY P. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 6 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x2_s6.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56665



NOTE:

For location of full and partial depth joints, see "Reinforcing Plan and Deck Pouring Sequence", Dwg. Nos. 56664 & 56665.

ELEVATION - CONCRETE PARAPET RAIL

Scale: ½" = 1'-0"

① CL Full-Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of Slab.

② CL Partial-Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of Slab.

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.		CA0906	239	417
				① 07342		200 FT. UNIT		56666

TABLE OF VARIABLES

CLOSED RAIL PANELS		
PANEL LENGTH	"D"	P4xx BAR
15'-0"	29	P404E

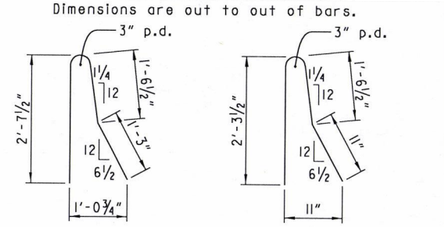
OPEN RAIL PANELS					
PANEL LENGTH	"F"	"G"	"J"	"P"	P4xx BAR
15'-0"	10	6"	7	5'-6"	P404E
16'-0"	11	6"	7	6'-0"	P405E

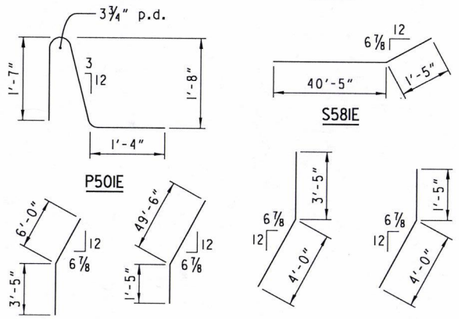
BAR LIST

MARK	NO. REQ'D.	LENGTH	PIN. DIA.
P401E	624	5'-6"	3"
P402E	176	4'-10"	3"
P403E	80	5'-6"	Str.
P404E	112	14'-8"	Str.
P405E	70	15'-8"	Str.
P501E	624	4'-8"	3¾"
S401E	474	35'-5"	Str.
S501E	488	52'-4"	Str.
S502E	404	36'-10"	Str.
S503E	156	37'-8"	3"
S504E	156	8'-10"	Str.
S505E	388	44'-3"	Str.
S506E	156	45'-4"	3"
S507E	156	7'-3"	Str.
S508E-S541E	2 EACH	6'-1" - 34'-8"	Str.
S542E	4	9'-5"	3¾"
S543E	2	42'-0"	Str.
S544E	2	36'-8"	Str.
S545E	8	33'-3"	Str.
S546E-S579E	2 EACH	3'-9" - 32'-4"	Str.
S580E	8	5'-5"	3¾"
S581E	2	41'-10"	3¾"
S582E-S5128E	2 EACH	3'-9" - 43'-7"	Str.
S5129E	2	51'-0"	Str.
S5130E	2	50'-11"	3¾"
S5131E-S5174E	2 EACH	4'-10" - 42'-1"	Str.
S5175E	4	7'-5"	3¾"
S601E	156	34'-0"	Str.
S602E	790	4'-11"	Str.

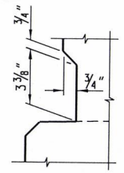
BENDING DIAGRAM

Dimensions are out to out of bars.



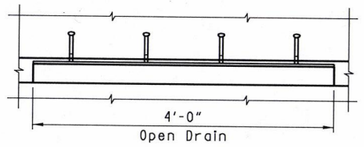


③ ½" over tolerance, no under tolerance



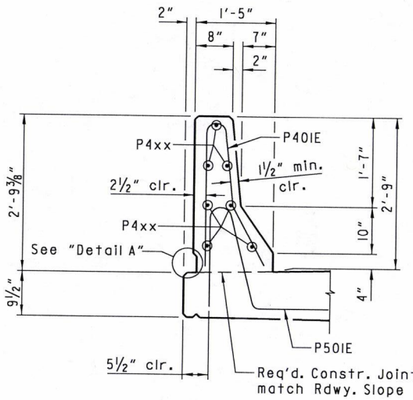
DETAIL A

No Scale



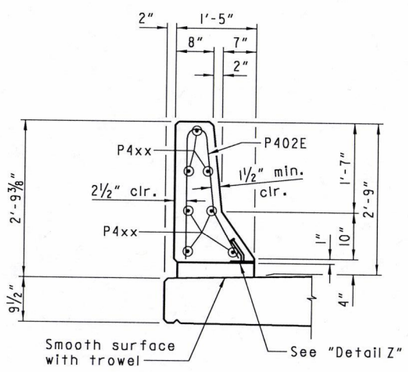
DRAIN DETAIL

Scale: 1" = 1'-0"



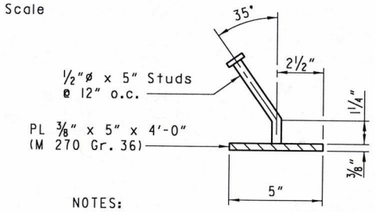
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

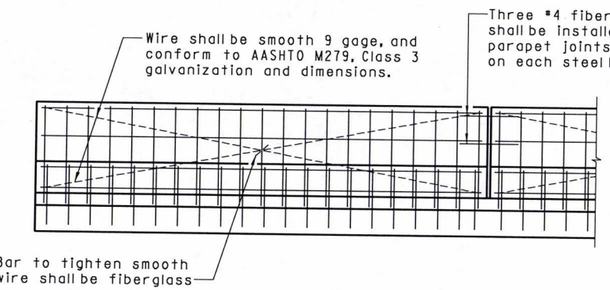
Scale: ¾" = 1'-0"

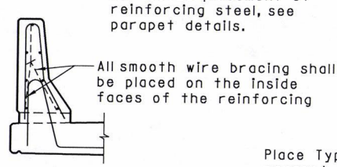


NOTES:

Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

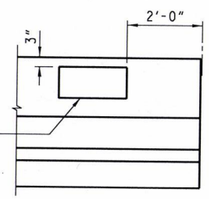
The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M 270, Gr. 50W)".





DETAIL Z

Scale: 3" = 1'-0"



VIEW SHOWING LOCATION OF NAME PLATE

Scale: ½" = 1'-0"

All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". 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 surfaces 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 SLIP FORMING OF CONCRETE PARAPET RAIL

Scale: ½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JEREMY D. STEPHENSON
1.14.2015
BRIDGE ENGINEER

SHEET 7 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: RMH DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x2_s7.dgn
SCALE: AS NOTED

BRIDGE NO. 07342 DRAWING NO. 56666

GENERAL NOTES - SUPERSTRUCTURE:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 edition with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATION: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012) with current interim specifications.

MATERIAL AND STRENGTHS:

Class S(AE) Concrete	f'c= 4,000 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, 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

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. 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 Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Deck Forms are used.

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 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 railing. A minimum of 72 hours shall elapse between completion of the slab pour and the start of the parapet railing pour for each stage.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size 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)".

STRUCTURAL STEEL:
All Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 unless otherwise noted.

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.

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 and field 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 Beams Spans (M 270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼"+/- is allowed for camber.

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.

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.

Field connections shall be bolted with high-strength bolts and shall be ⅞"ø bolts unless otherwise noted. Holes for ⅞"ø bolts shall be 15/16"ø 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.

Unless otherwise noted, steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

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.

TEMPORARY BLOCKING NOTE:
The Contractor shall provide temporary blocking near the bottom flange as required to support the overhang support system. 4"x4" Timber Blocking, minimum, shall be provided in all bays and wedged tight. Details of each unit of falsework shall be submitted to the Engineer prior to construction in accordance with Subsection 802.13.

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.		CA0906	240	417
				(1) 07342		200 FT. UNIT		56667

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY M. STEVENSON
1.24.2017
BRIDGE ENGINEER

SHEET 8 OF 9
DETAILS OF 200'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
BRIDGE OVER HOG CREEK
HWY. SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14
FILENAME: bCA0906x2_s8.dgn
SCALE: None

BRIDGE NO. 07342 DRAWING NO. 56667

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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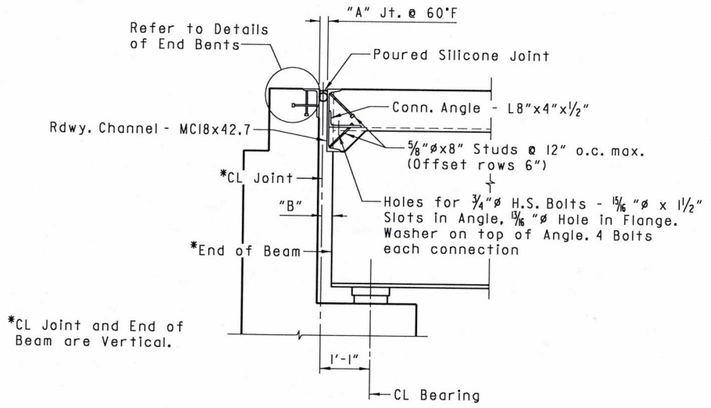
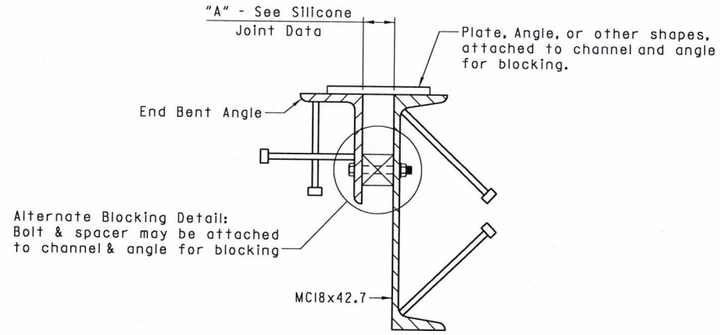
				JOB NO.		CA0906	241	417
				① 07342		200 FT. UNIT		56668



JOINT AT END BENTS

Perpendicular to CL Joint



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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

SILICONE JOINT DATA

BENT NUMBER	"A" WIDTH PERPENDICULAR TO JOINT AT 24 HOUR AVERAGE TEMPERATURE ① OF:			"B" PERPENDICULAR TO JOINT AT 60°F	BUMPER BAR SIZE	"D"
	40°F	60°F	80°F			
1 & 4	2⅛"	2"	1⅞"	± 2⅜"	1"x1"	5"

① 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.

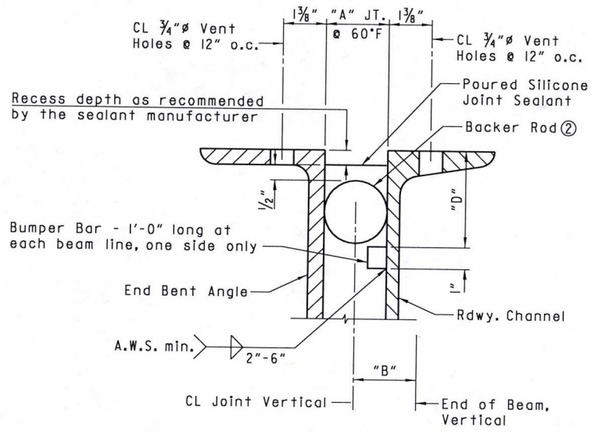
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

② BACKER ROD NOTE:

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 than that which 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.



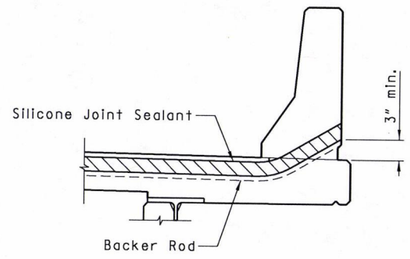
DETAIL OF POURED SILICONE JOINT SEAL

EXPANSION DEVICE INSTALLATION AT END BENTS

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. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.



JOINT SEAL PLACEMENT AT CURB

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16183
JERRY T. STEVENSON

1.24.2017

BRIDGE ENGINEER

SHEET 9 OF 9
DETAILS OF 200'-0" CONTINUOUS COMPOSITE W-BEAM UNIT BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14 FILENAME: bCA0906x2_s9.dgn

CHECKED BY: TG DATE: 12/23/14 SCALE: NO SCALE

DESIGNED BY: PMT DATE: 12/23/14

BRIDGE NO. 07342 DRAWING NO. 56668

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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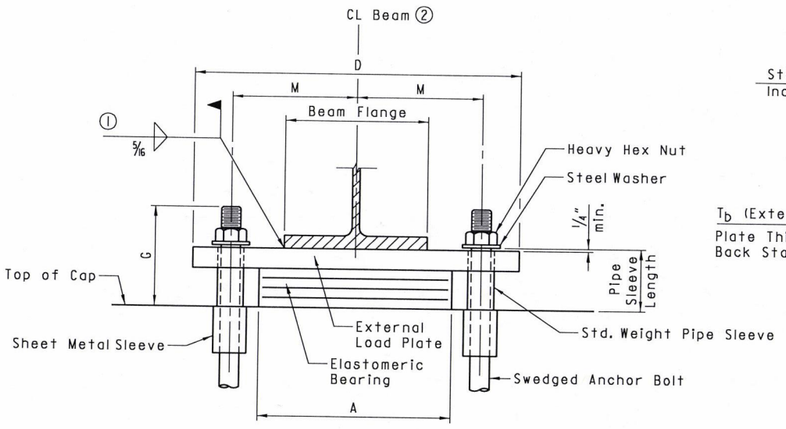
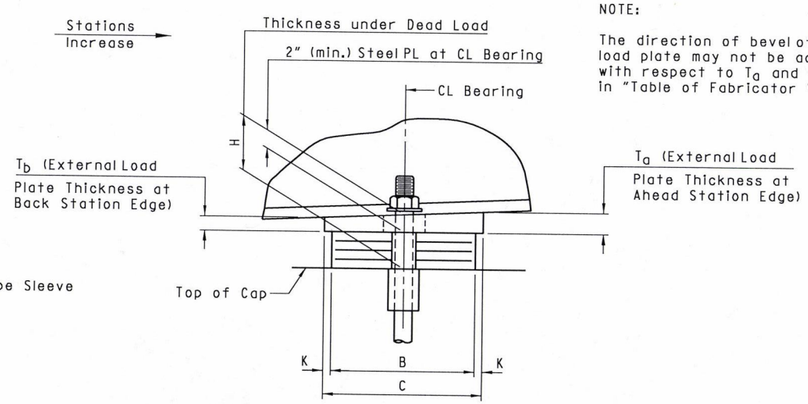
				JOB NO.		CA0906	242	417
				① 07342		ELASTO. BRGS.		56669



FRONT VIEW

① Care shall be taken to ensure that the external load plate is in full complete contact with the beam flange before welding begins.

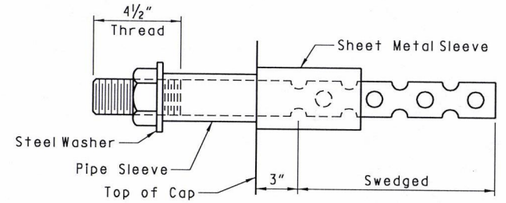
② Centerline of the elastomeric pad shall be aligned with centerline of the beam.



SIDE VIEW

NOTE:

The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in "Table of Fabricator Variables".

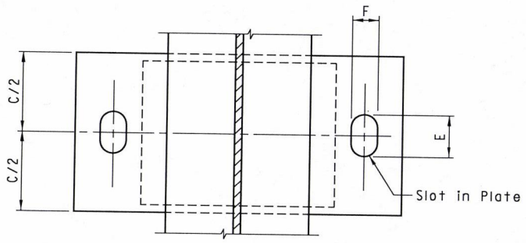


ANCHOR BOLT DETAIL

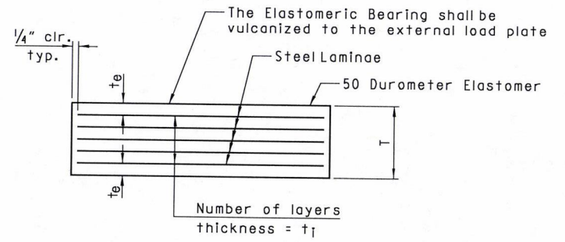
NOTES:

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 masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeve will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans, (M 270, Gr. 50W)".



PLAN VIEW



ELASTOMERIC BEARING

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

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40 Deg. F and 80 Deg. 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.

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load 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 M232, Class C or ASTM B695, Class 50.

External load 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 of the Standard Specifications. 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 (M 270, Gr. 50W)". External Load Plates will not be measured or paid for separately, but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered as subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD						EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	BEAM NO.						A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07342	1	1-9	Exp.	9	100	7.5"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	23"	3⅝"	2"	½"	9"	2.05"	1.95"	1¼"x23"	55	1¼"x5¼"	3"x12"	2½"
	2	1-9	Fix	9	228	8.5"	5"	16"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	28"	3⅛"	3⅛"	½"	10¾"	2.03"	1.97"	2¼"x35"	55	2½"x5¼"	4"x12"	4"
	3	1-9	Fix	9	228	8.5"	5"	16"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	28"	3⅛"	3⅛"	½"	10¾"	2.00"	2.00"	2¼"x35"	55	2½"x5¼"	4"x12"	4"
	4	1-9	Exp.	9	108	7.5"	5"	14"	10"	4	½"	¼"	5 @ 12 Gauge	3"	11"	23"	3⅝"	2"	½"	9"	1.97"	2.03"	1¼"x23"	55	1¼"x5¼"	3"x12"	2½"

*Maximum Design Load = Service I Limit State

STATE OF ARKANSAS
JERRY D. STEPHENSON
REGISTERED PROFESSIONAL ENGINEER
No. 16183
1.24.2017
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS
BRIDGE OVER HOG CREEK

HWY. SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 12/23/14
CHECKED BY: TG DATE: 12/23/14
DESIGNED BY: PMT DATE: 12/23/14

FILENAME: bCA0906x2_el.dgn
SCALE: NO SCALE

BRIDGE NO. 07342 DRAWING NO. 56669

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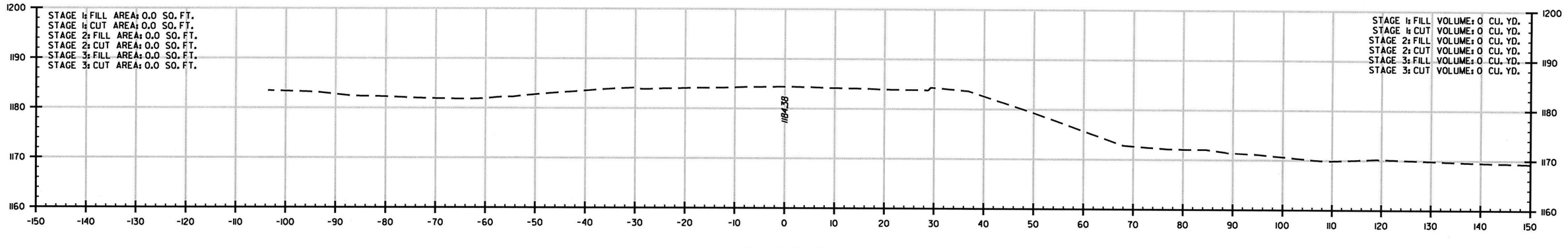

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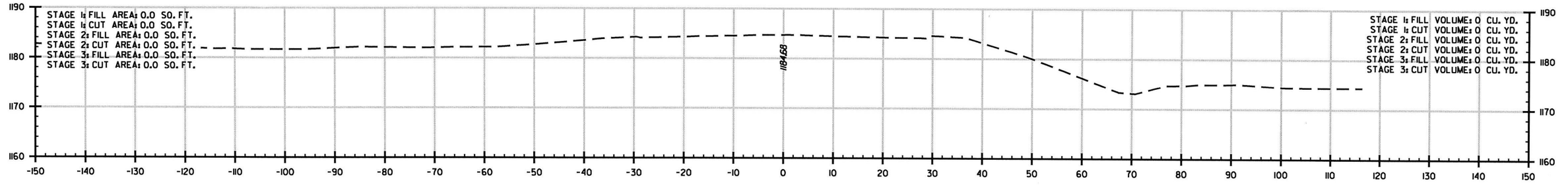

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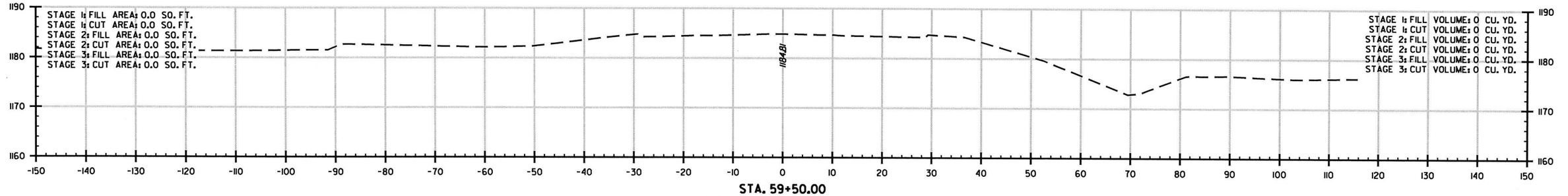

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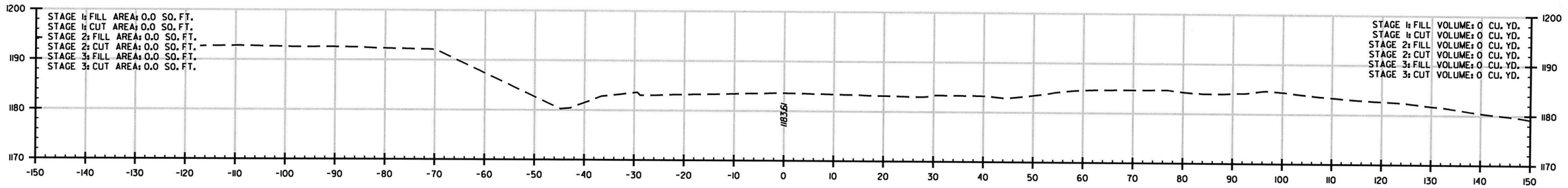

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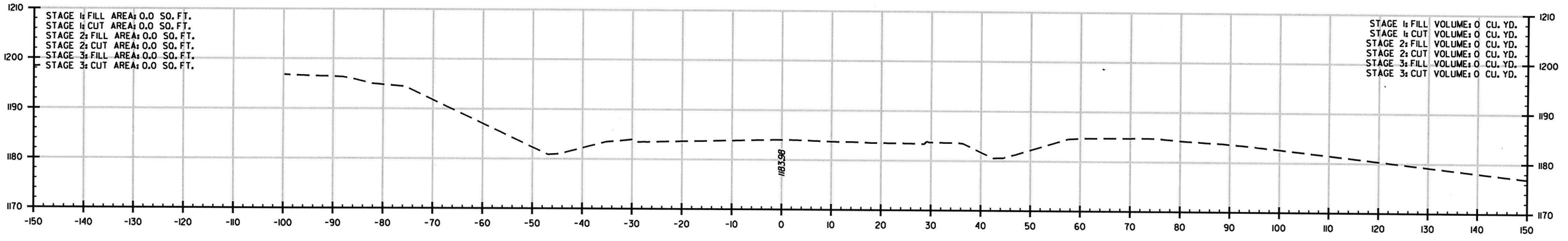

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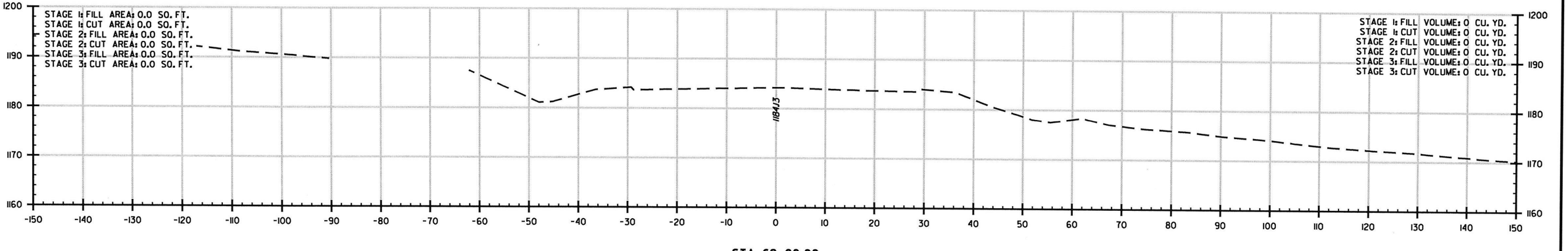

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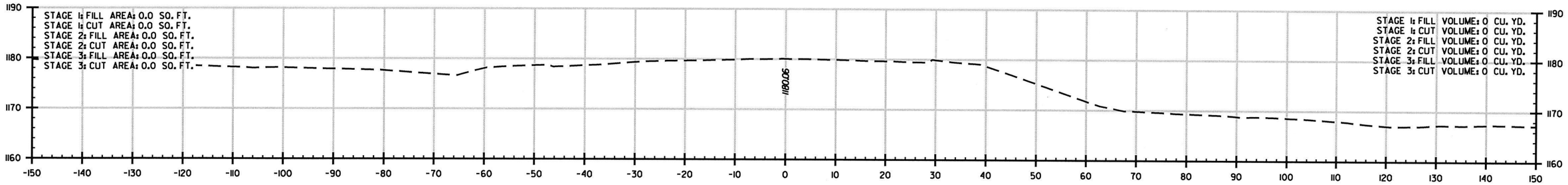

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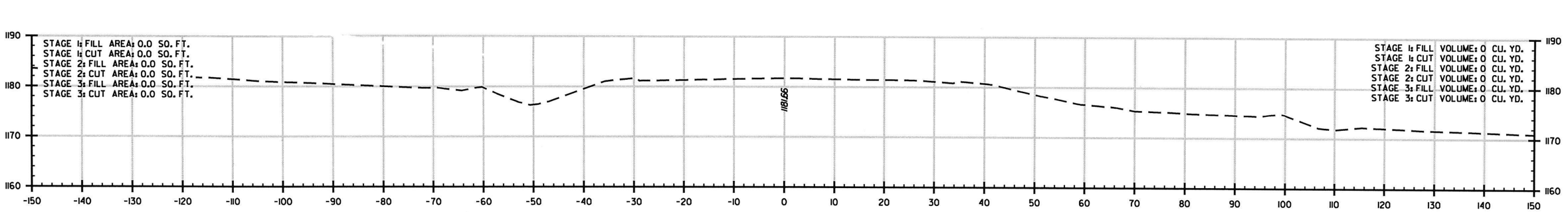

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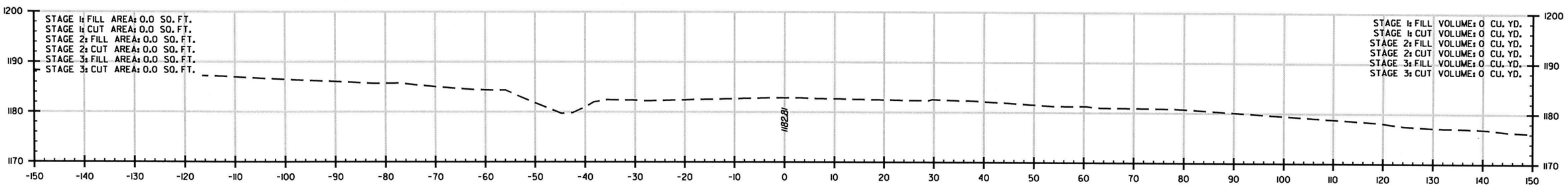

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				6	ARK.			
				JOB NO.		CA0906	246	417

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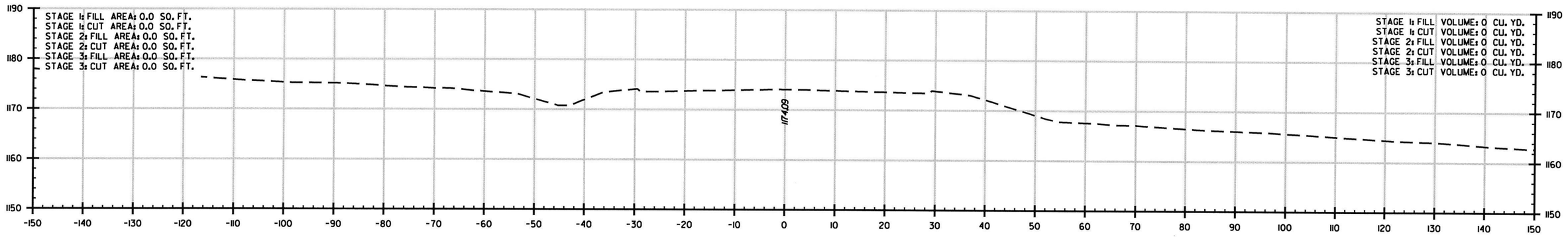
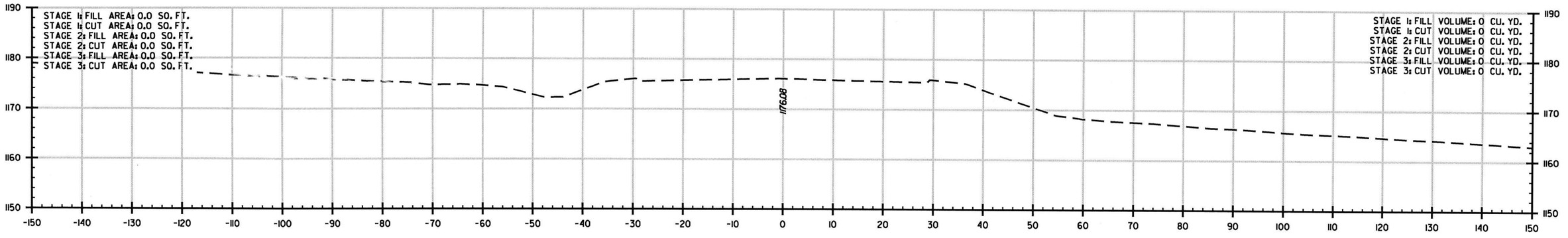
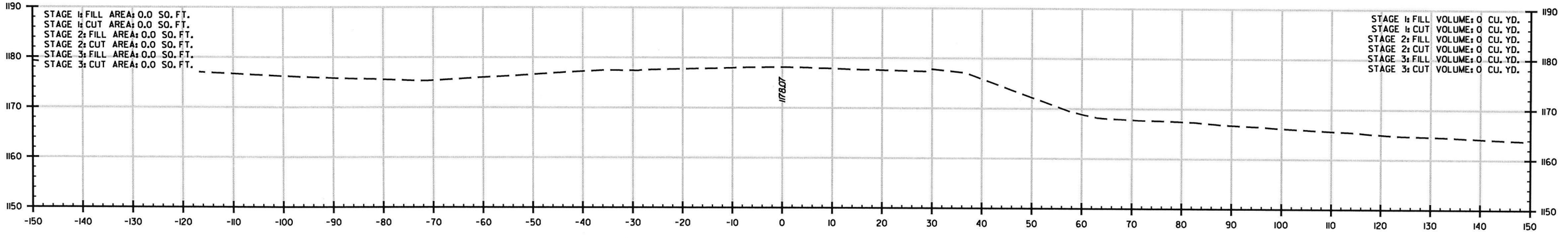


STA. 70+00.00



STA. 69+00.00



STA. 68+00.00

STA. 68+00.00 TO STA. 70+00.00

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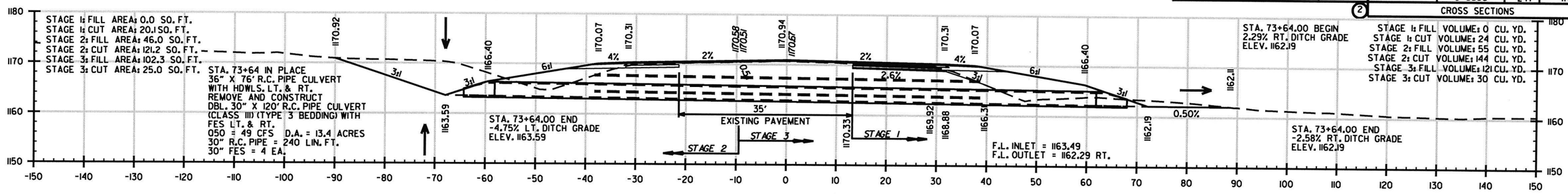
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	247	417

2 CROSS SECTIONS



STA. 73+64.00

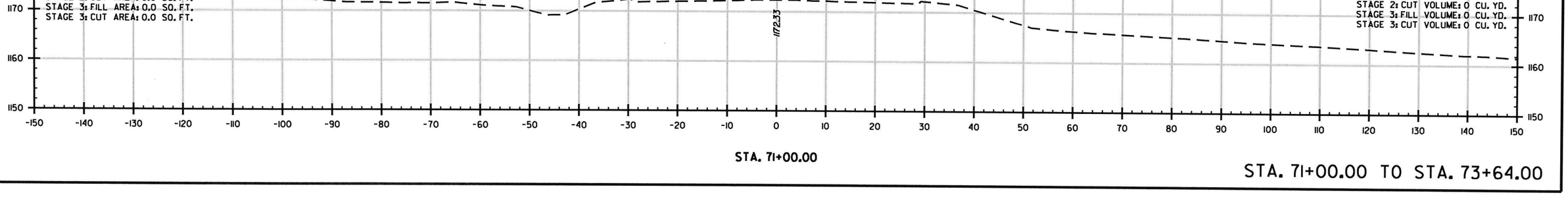
STA. 73+08.00 BEGIN
-4.75% LT. DITCH GRADE
ELEV. 1166.25

STA. 73+08.00

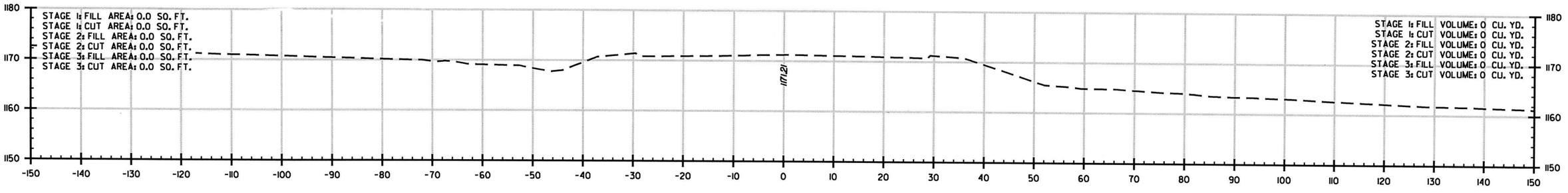
BEGIN JOB CA0906

LOG MILE 6.12

STA. 73+08.00 BEGIN
-2.58% RT. DITCH GRADE
ELEV. 1163.63



STA. 73+00.00



STA. 72+00.00

STA. 71+00.00

STA. 71+00.00 TO STA. 73+64.00

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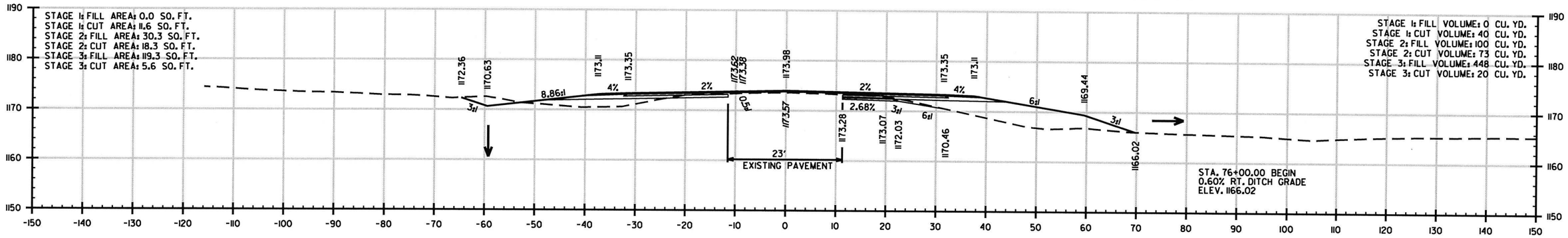
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	248	417

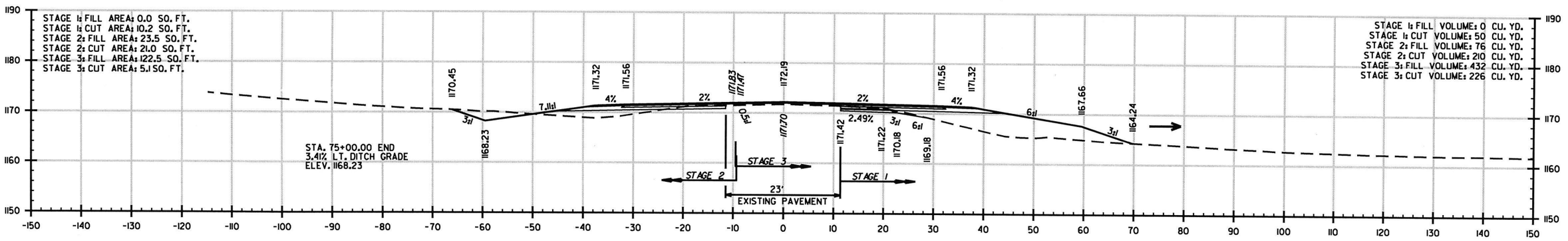
2 CROSS SECTIONS

STA. 76+10.00 END
0.60% RT. DITCH GRADE
ELEV. 1166.08

STA. 76+10.00 BEGIN
2.93% RT. DITCH GRADE
ELEV. 1166.08

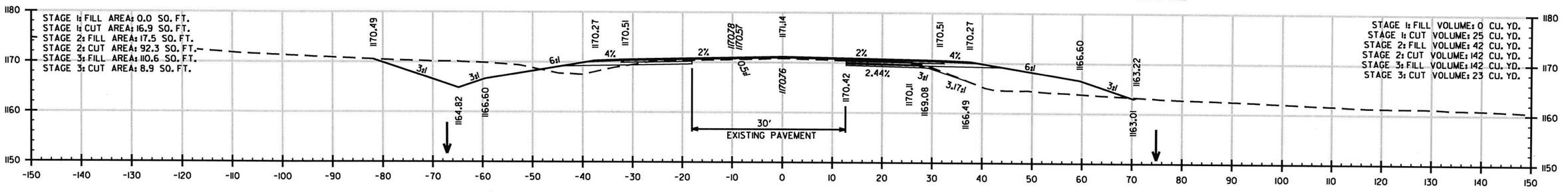


STA. 76+00.00



STA. 75+00.00

STA. 74+10.00 END
2.29% RT. DITCH GRADE
ELEV. 1163.24



STA. 74+00.00

STA. 74+00.00 TO STA. 76+00.00

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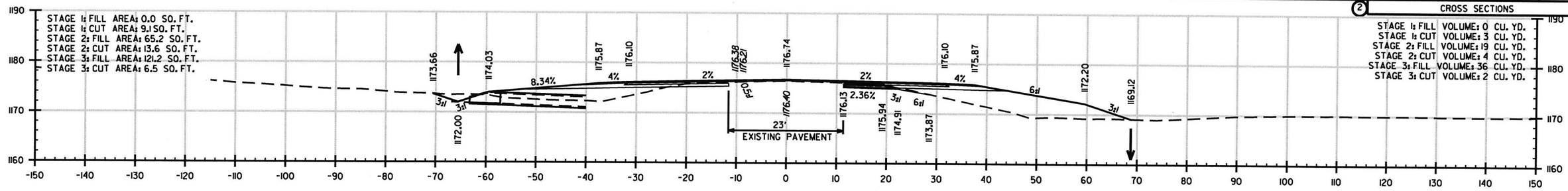
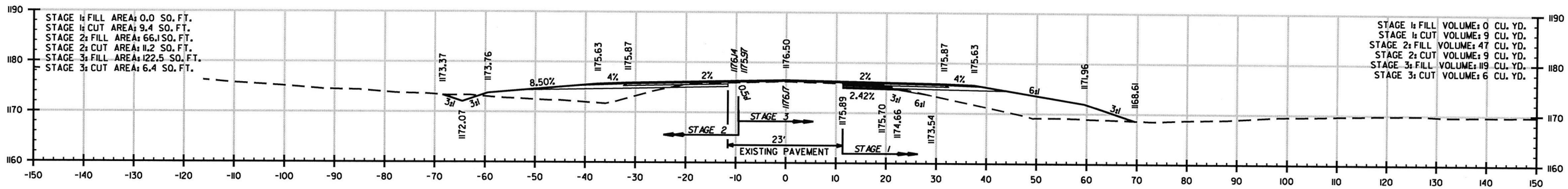
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	249	417

(2) CROSS SECTIONS

STA. 77+12.00 END
-0.85% LT. DITCH GRADE
ELEV. 1171.97

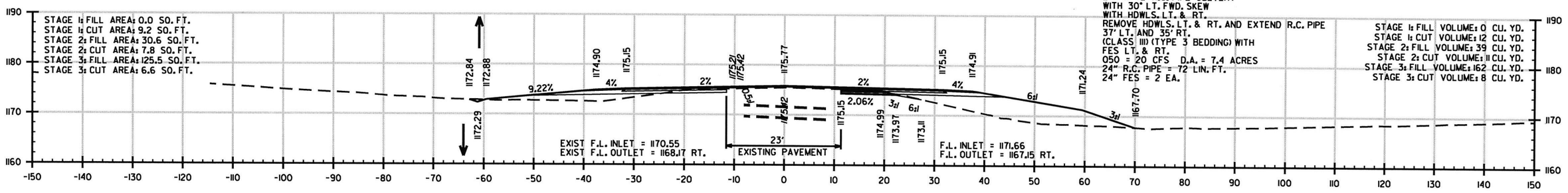


STA. 77+08.00



STA. 77+00.00

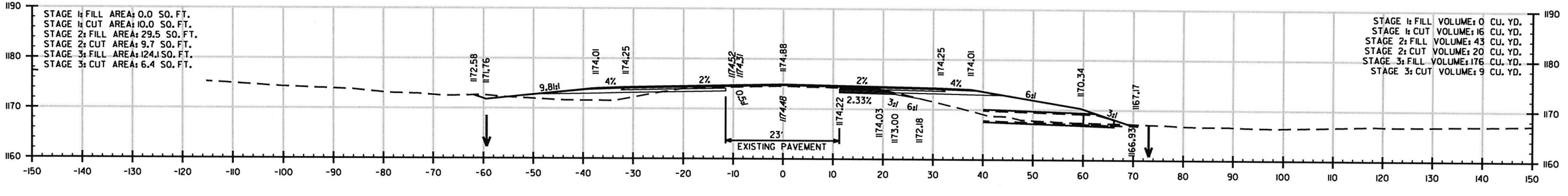
STA. 76+74 IN PLACE
24" X 72' R.C. PIPE CULVERT
WITH 30° LT. FWD. SKEW
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
37' LT. AND 35' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 20 CFS D.A. = 7.4 ACRES
24" R.C. PIPE = 72 LIN. FT.
24" FES = 2 EA.



STA. 76+74.00

STA. 76+60.00 BEGIN
-0.85% LT. DITCH GRADE
ELEV. 1172.41

STA. 76+60.00 END
2.93% RT. DITCH GRADE
ELEV. 1167.54



STA. 76+39.00

STA. 76+39.00 TO STA. 77+08.00

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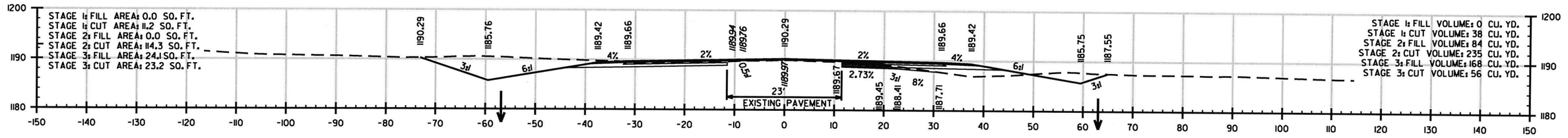
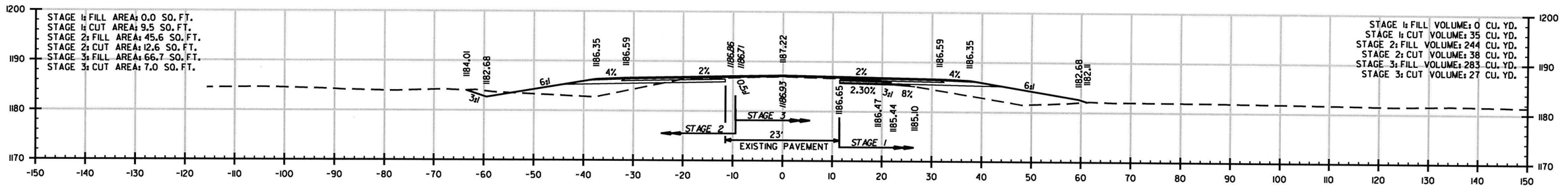
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	250	417

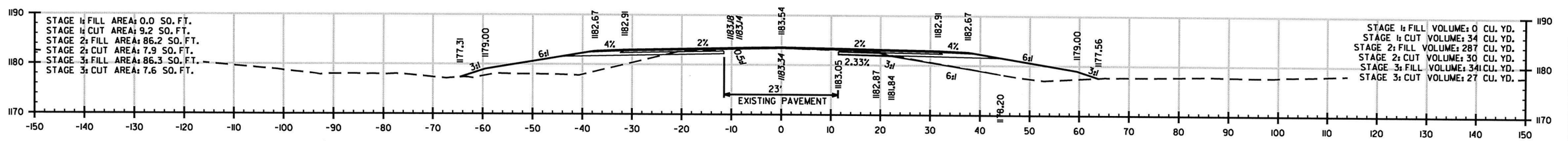
(2) CROSS SECTIONS



STA. 81+00.00

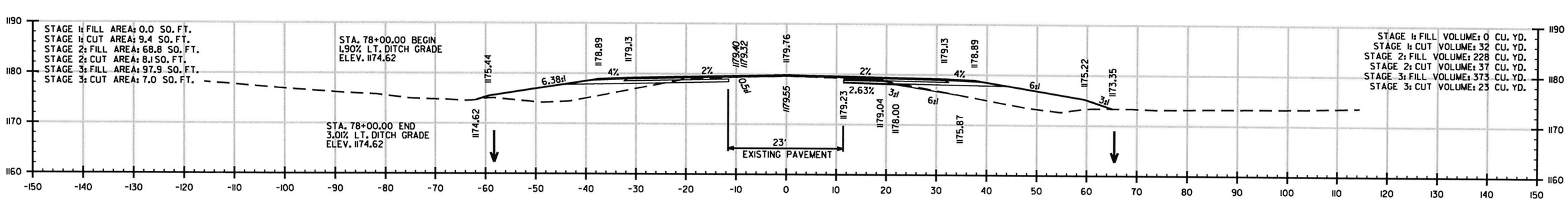


STA. 80+00.00



STA. 78+80.00 END
1.90% LT. DITCH GRADE
ELEV. 1176.14

STA. 79+00.00



STA. 77+12.00 BEGIN
3.01% LT. DITCH GRADE
ELEV. 1171.97

STA. 78+00.00

STA. 78+00.00 TO STA. 81+00.00

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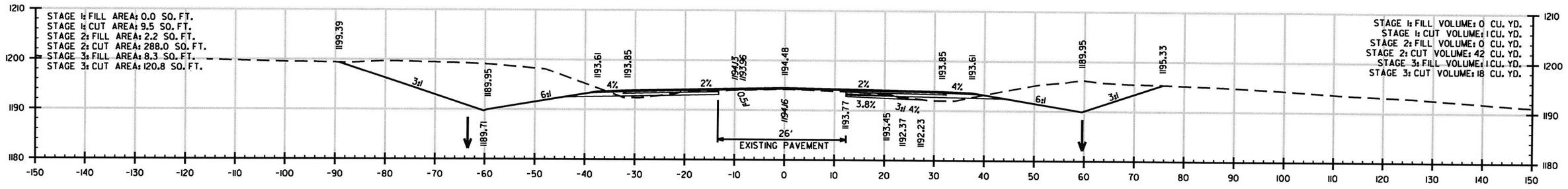
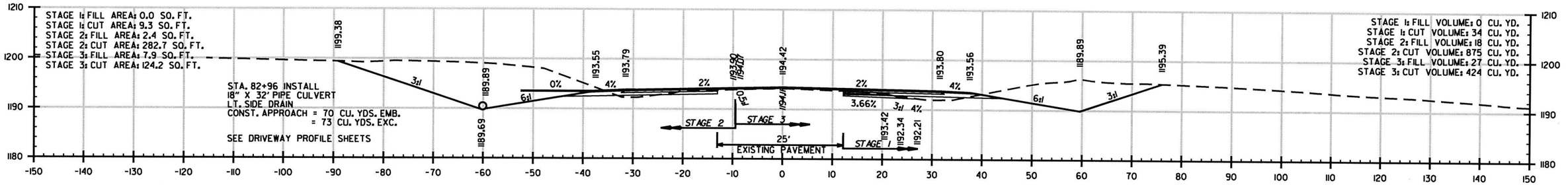
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	251	417

(2) CROSS SECTIONS

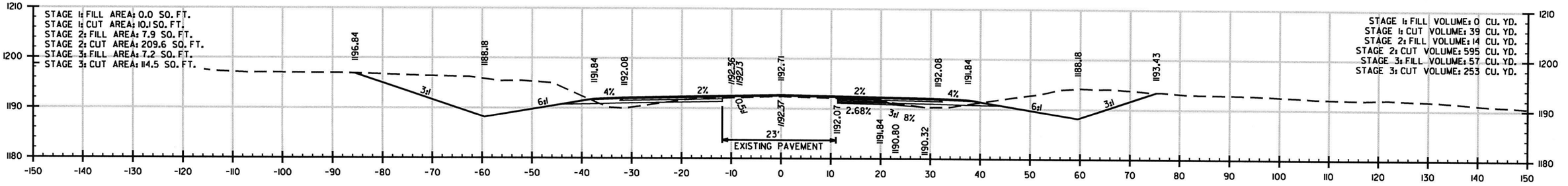


STA. 83+00.00



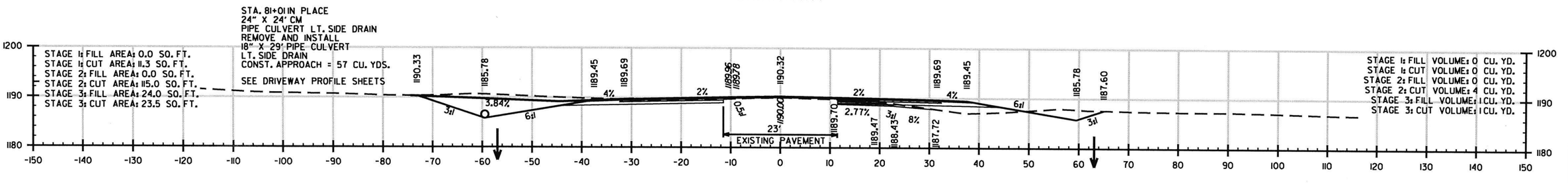
STA. 82+96.00

STA. 82+80.00 BEGIN
0.38% LT. DITCH GRADE
ELEV. 1189.63



STA. 82+00.00

STA. 81+01 IN PLACE
24" X 24' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 29' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 57 CU. YDS.
SEE DRIVEWAY PROFILE SHEETS



STA. 81+01.00

STA. 81+01.00 TO STA. 83+00.00

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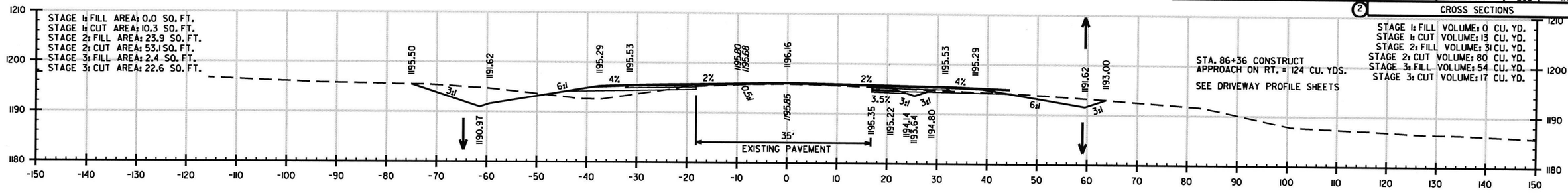
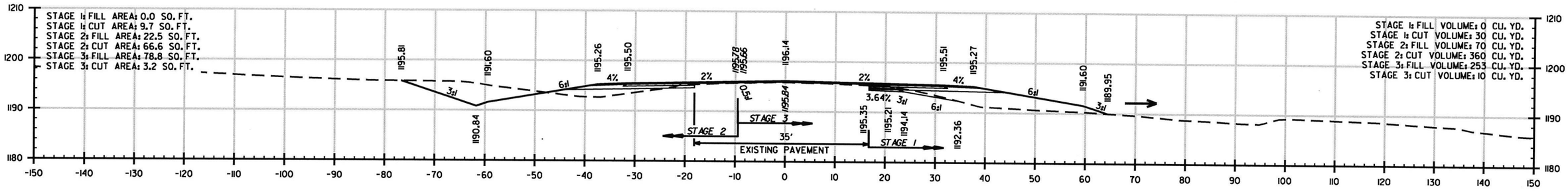
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	252	417

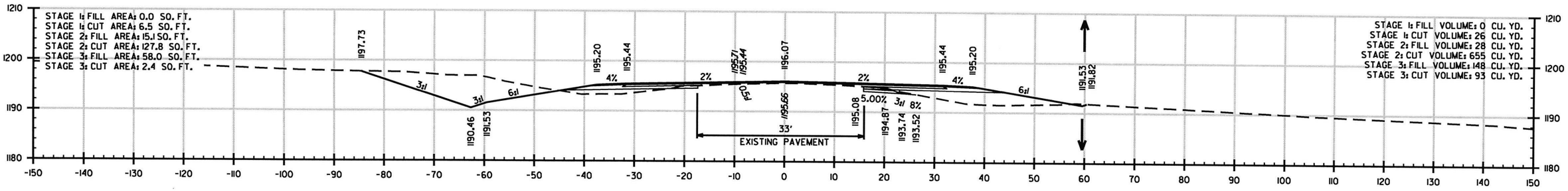
2 CROSS SECTIONS



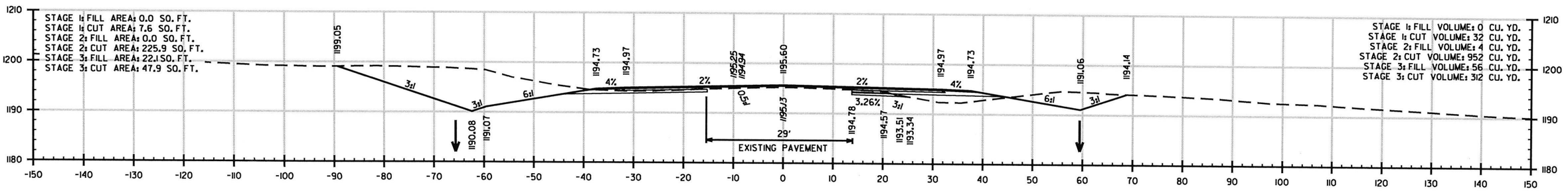
STA. 86+36.00



STA. 86+00.00



STA. 85+00.00



STA. 84+00.00

STA. 84+00.00 TO STA. 86+36.00

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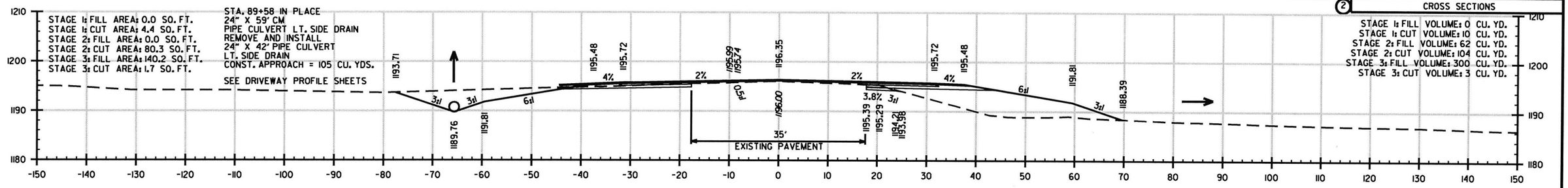
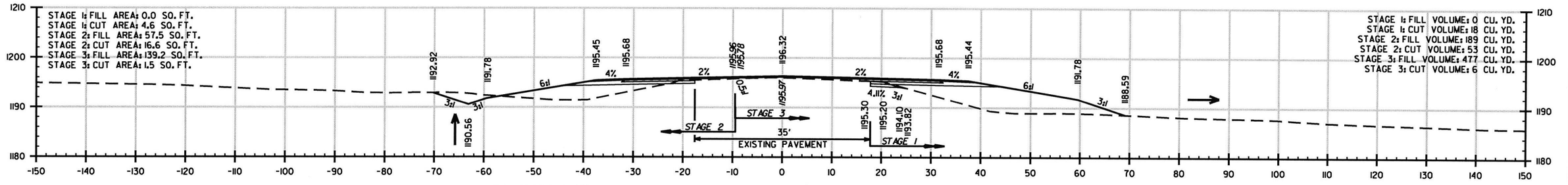
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	253	417

(2) CROSS SECTIONS



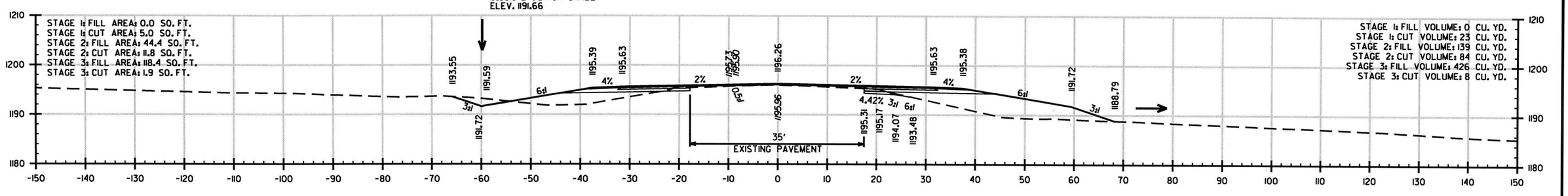
STA. 89+58.00



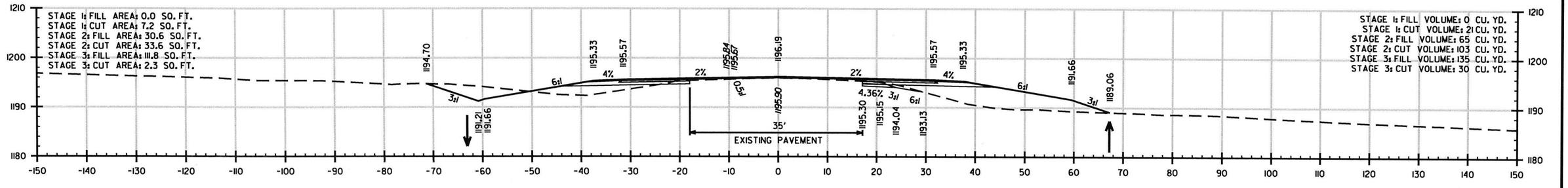
STA. 89+00.00

STA. 88+20.00 BEGIN
-1.38% LT. DITCH GRADE
ELEV. 1191.66

STA. 88+20.00 END
0.38% LT. DITCH GRADE
ELEV. 1191.66



STA. 88+00.00



STA. 87+00.00

STA. 87+00.00 TO STA. 89+58.00

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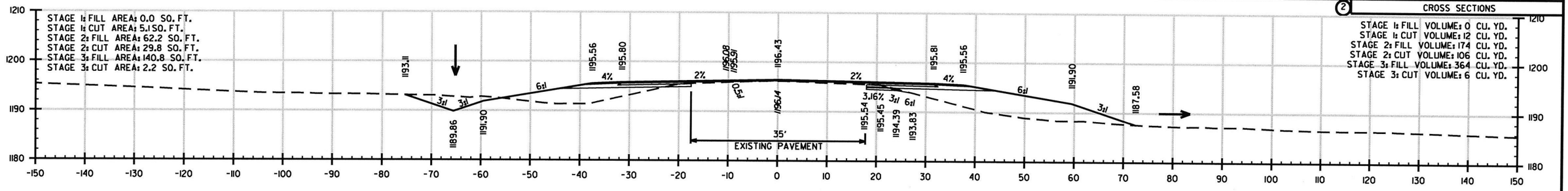
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	254	417

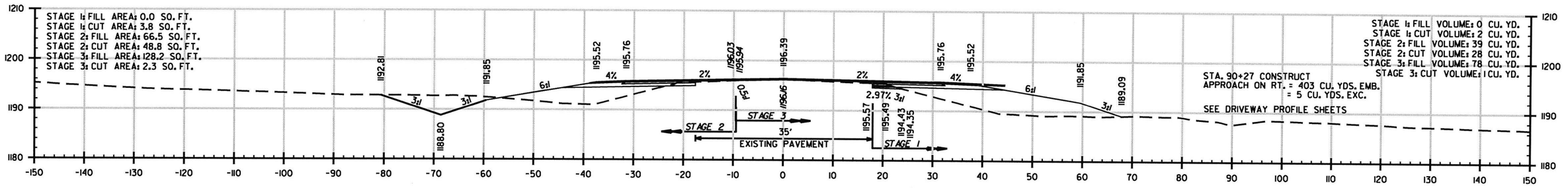
(2) CROSS SECTIONS



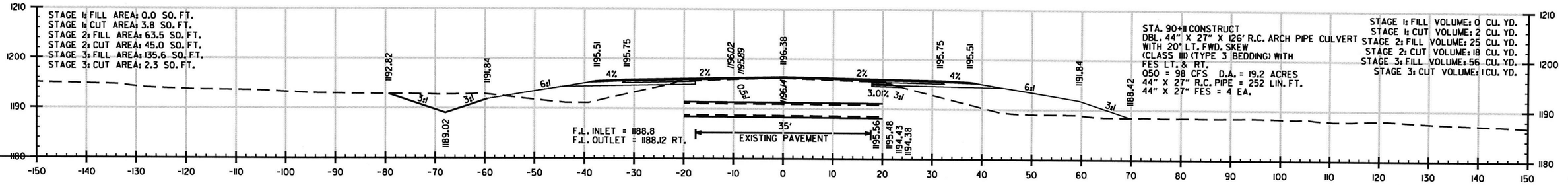
STA. 90+30.00 END
-1.38% LT. DITCH GRADE
ELEV. 1188.76

STA. 90+30.00 BEGIN
1.58% LT. DITCH GRADE
ELEV. 1188.76

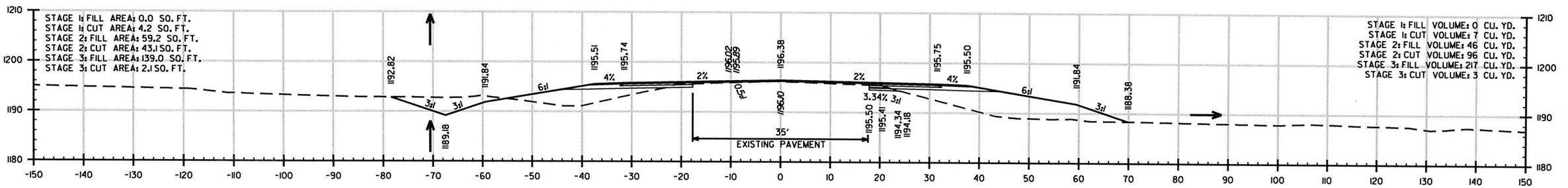
STA. 91+00.00



STA. 90+27.00



STA. 90+11.00



STA. 90+00.00

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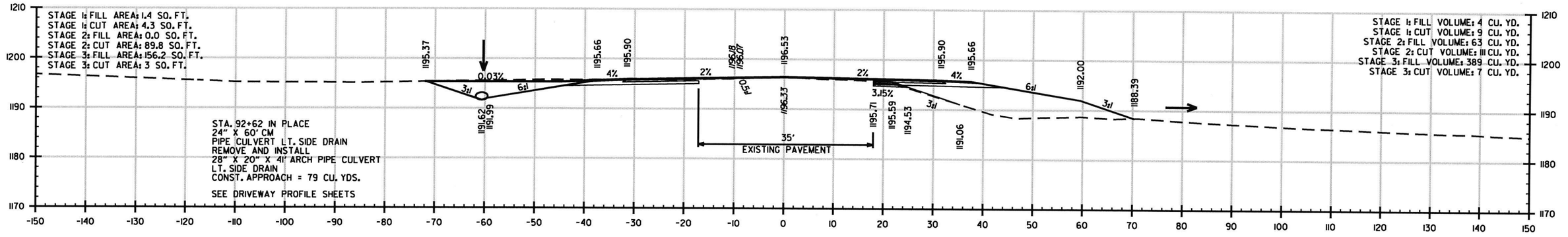
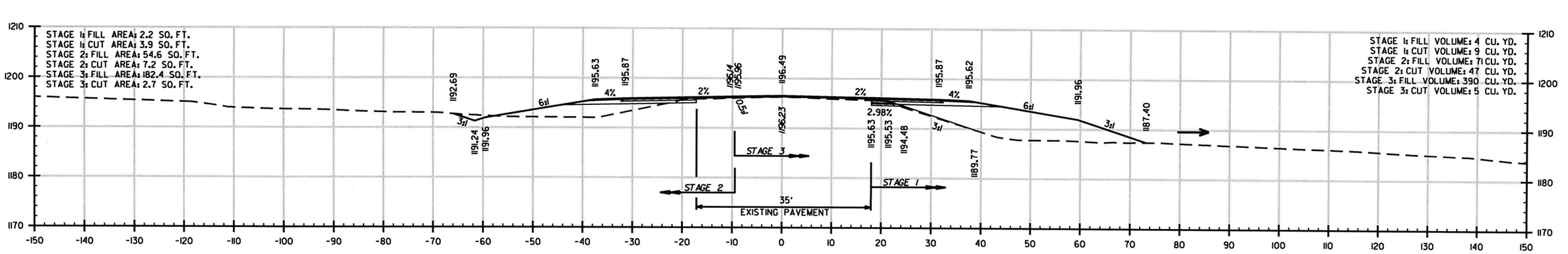
STA. 90+00.00 TO STA. 91+00.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	255	417
				(2)	CROSS SECTIONS			



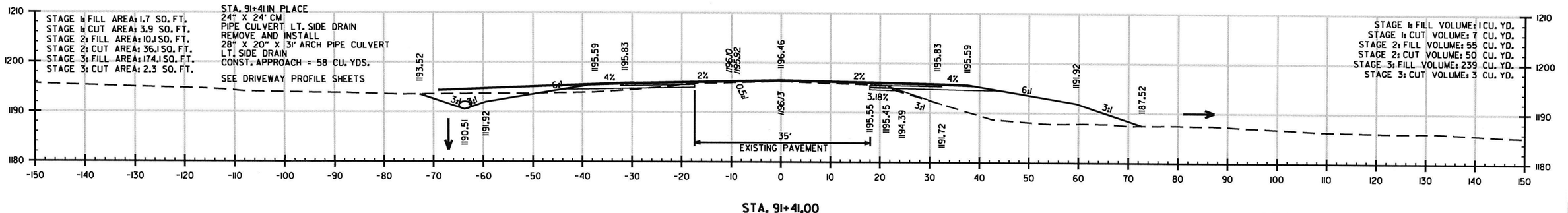
STA. 92+62.00



STA. 91+80.00 BEGIN
0.61% LT. DITCH GRADE
ELEV. 1191.12

STA. 92+00.00

STA. 91+80.00 END
1.58% LT. DITCH GRADE
ELEV. 1191.12



STA. 91+41.00

STA. 91+41.00 TO STA. 92+62.00

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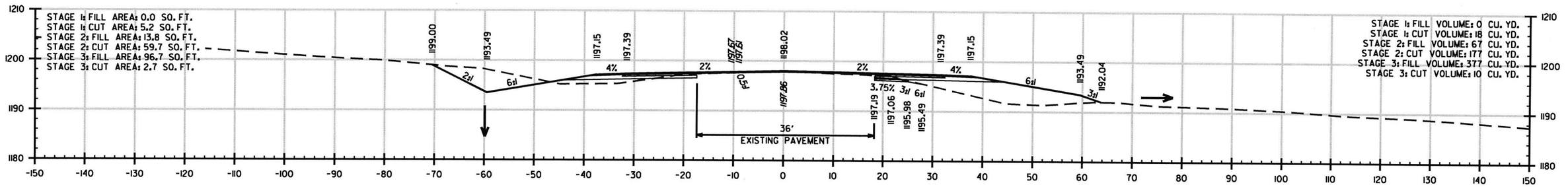
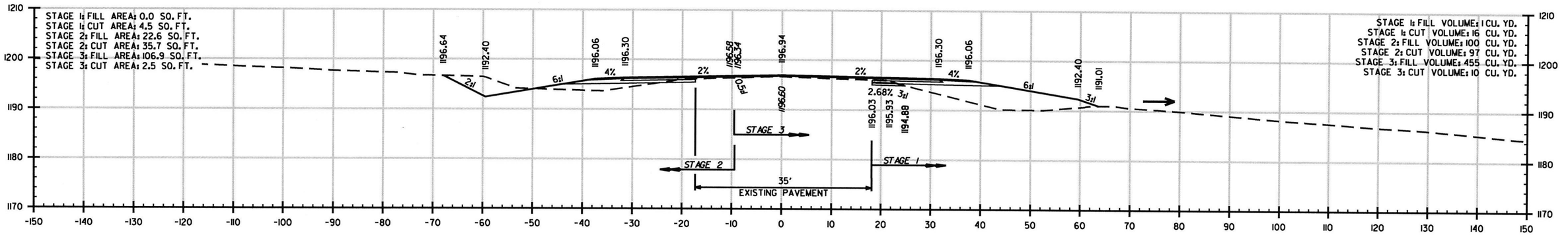
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	256	417

(2) CROSS SECTIONS

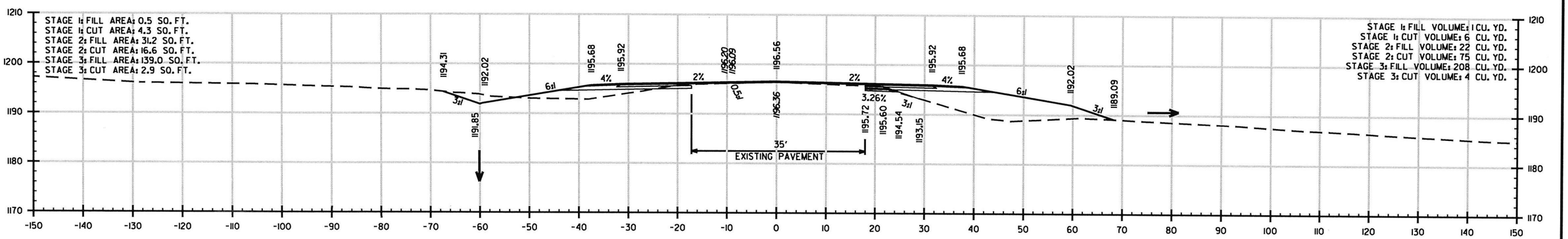


STA. 95+00.00



STA. 93+40.00 END
0.61% LT. DITCH GRADE
ELEV. 1192.09

STA. 94+00.00



STA. 93+00.00

STA. 93+00.00 TO STA. 95+00.00

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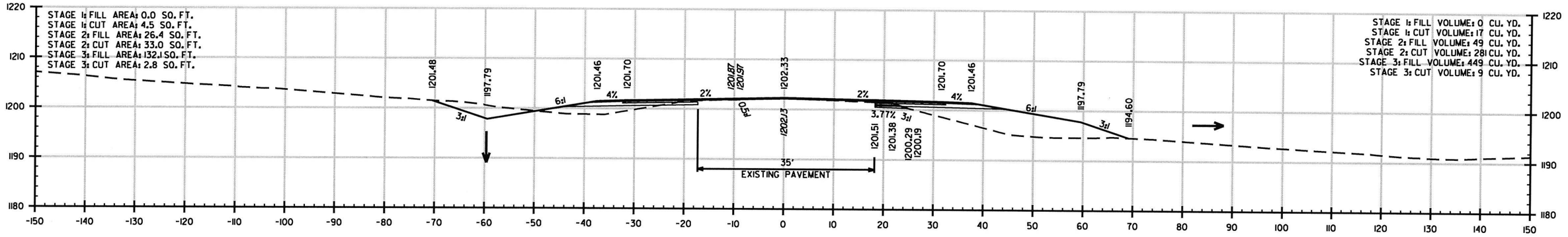
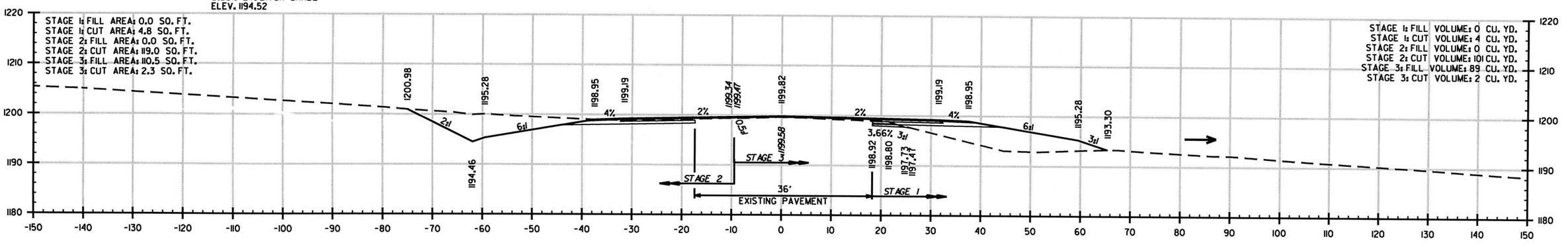
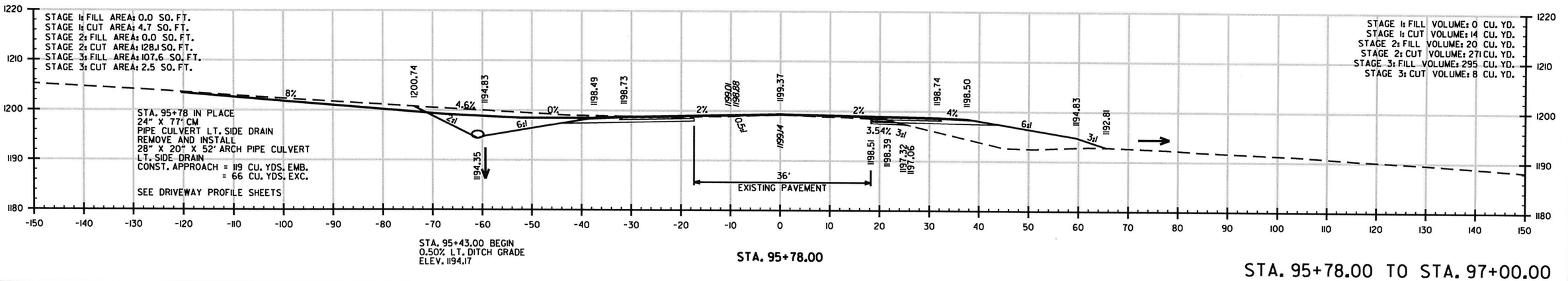
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	257	417

(2) CROSS SECTIONS







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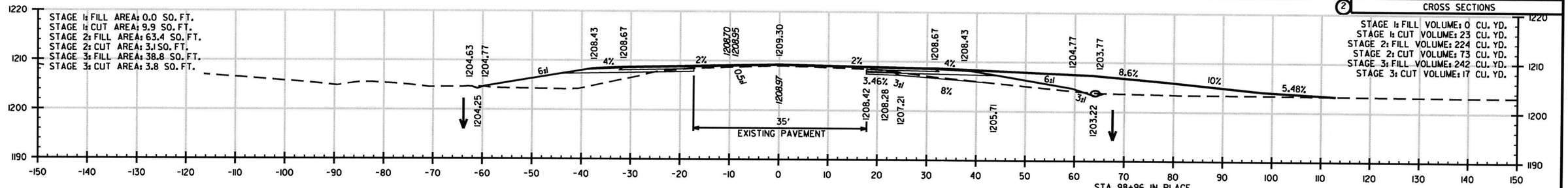
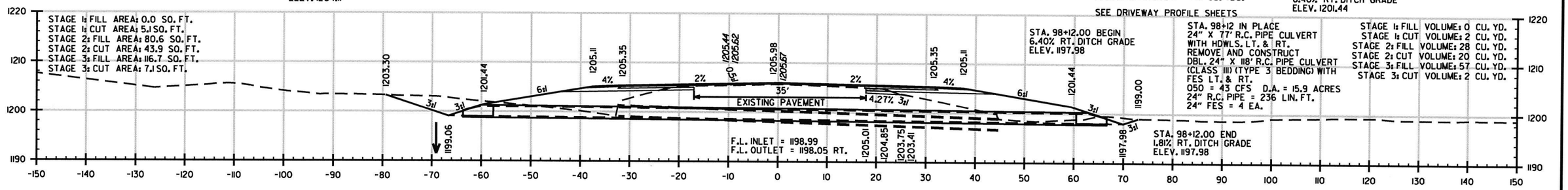
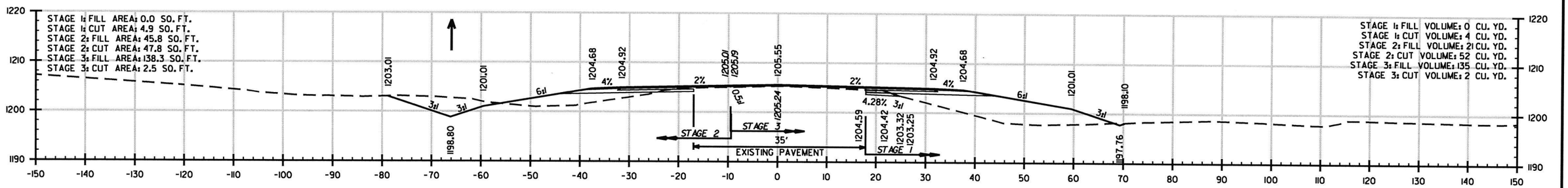
STA. 95+78.00 TO STA. 97+00.00

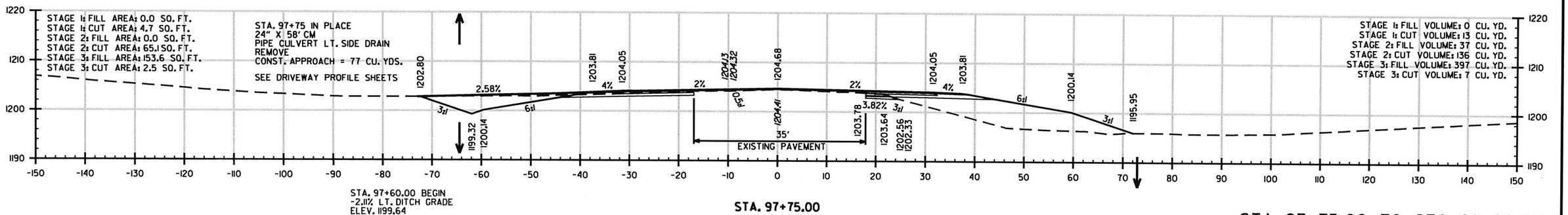
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	258	417

(2) CROSS SECTIONS









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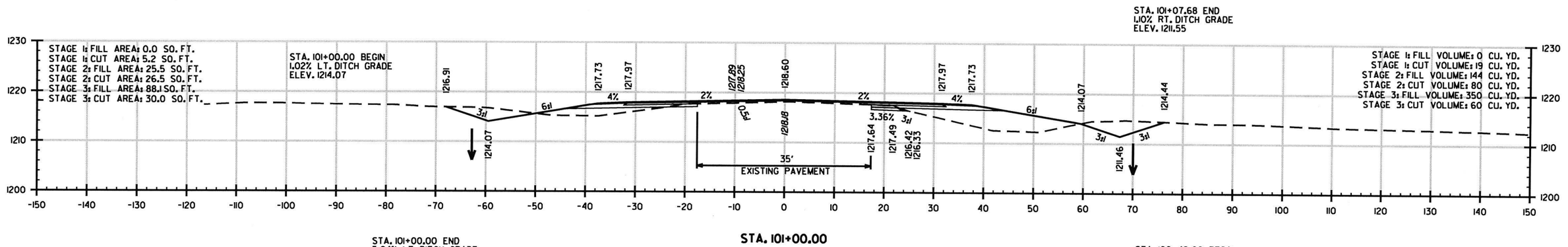
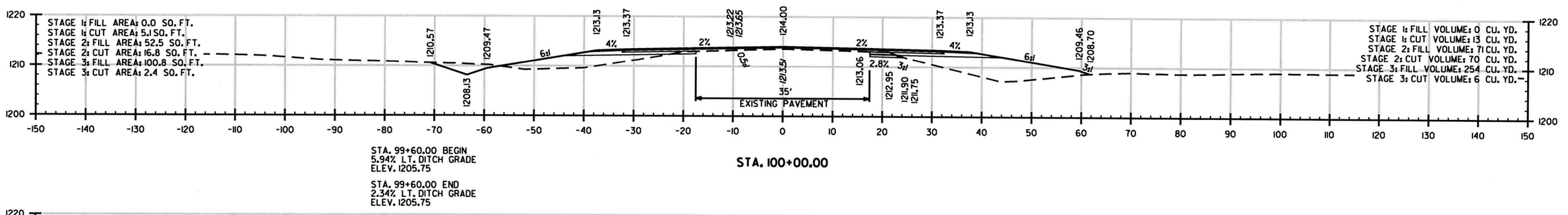
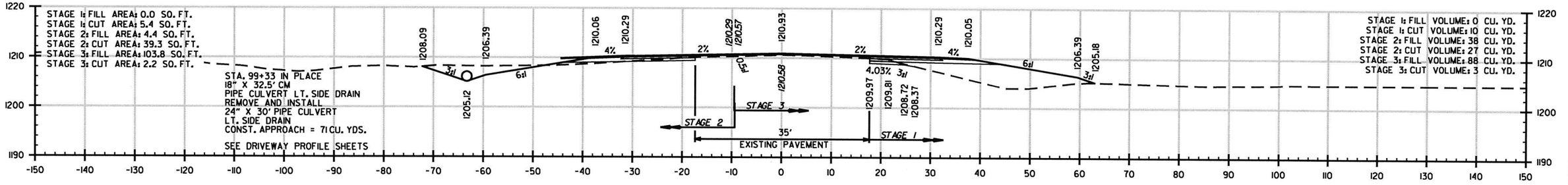
STA. 97+75.00 TO STA. 98+96.00

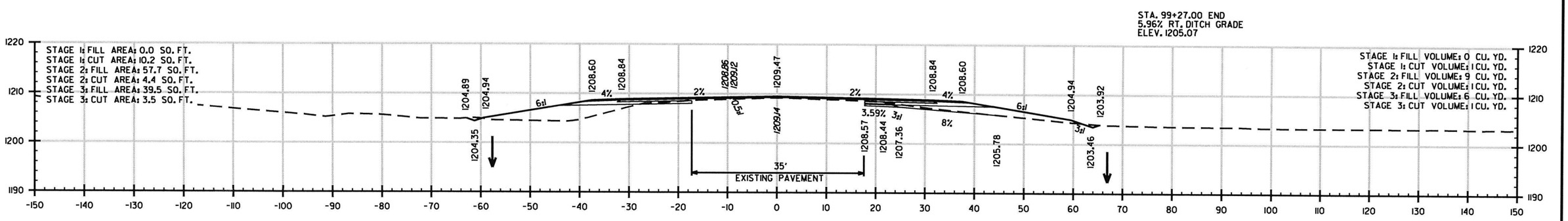
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	259	417

(2) CROSS SECTIONS









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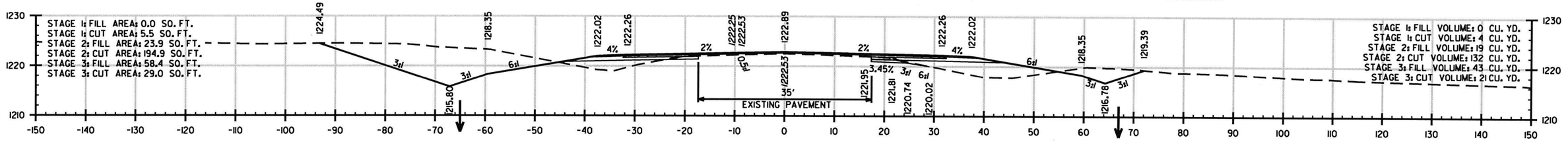
STA. 99+00.00 TO STA. 101+00.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	260	417

(2) CROSS SECTIONS

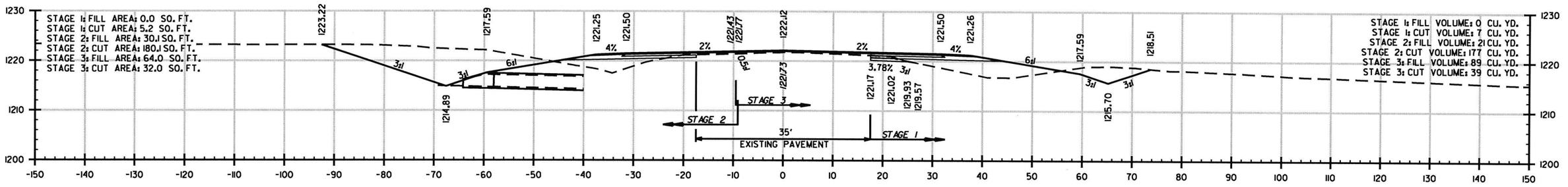
STA. 102+80.00 END
5.66% RT. DITCH GRADE
ELEV. 1221.30



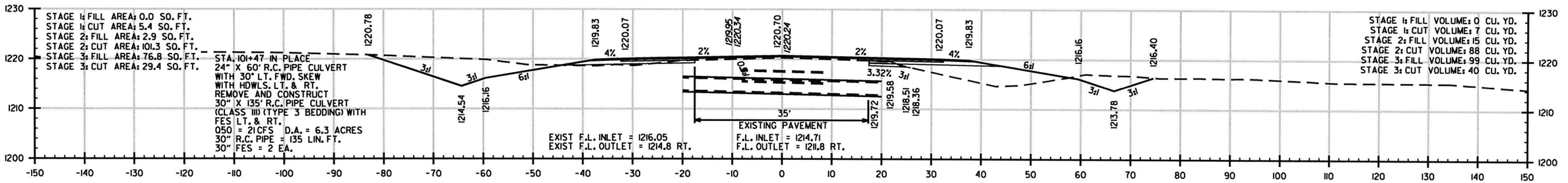
STA. 102+00.00

STA. 101+86.00 END
1.02% LT. DITCH GRADE
ELEV. 1214.94

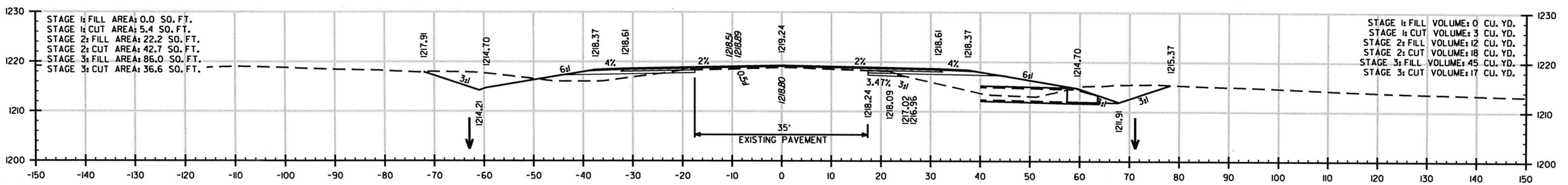
STA. 101+86.00 BEGIN
6.18% LT. DITCH GRADE
ELEV. 1214.94



STA. 101+81.00



STA. 101+47.00



STA. 101+14.00

STA. 101+07.68 BEGIN
5.66% RT. DITCH GRADE
ELEV. 1211.55

STA. 101+14.00 TO STA. 102+00.00

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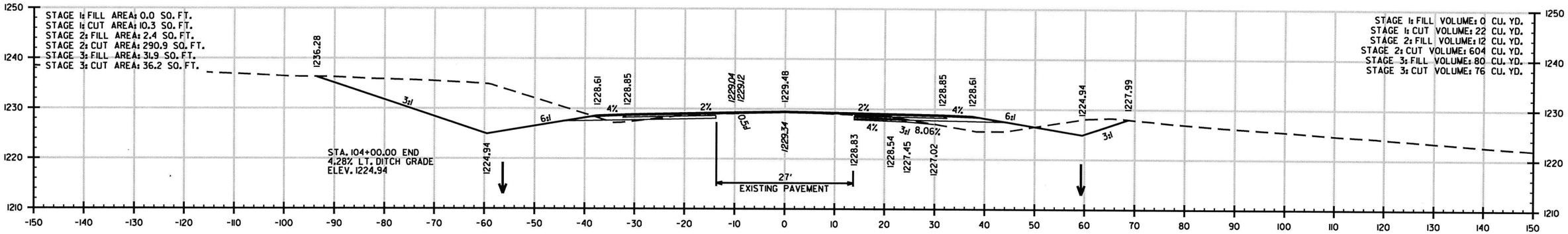
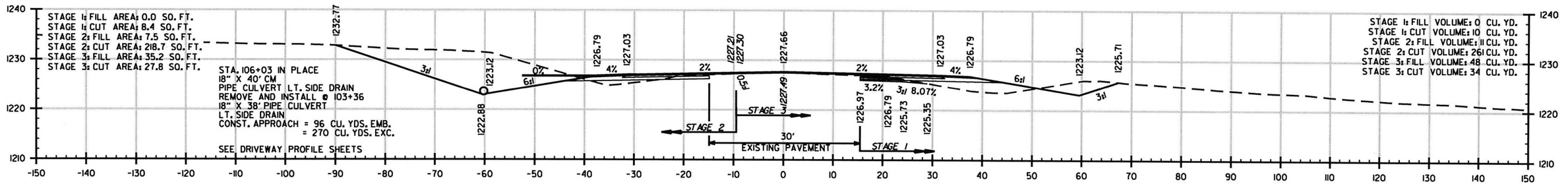
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	261	417

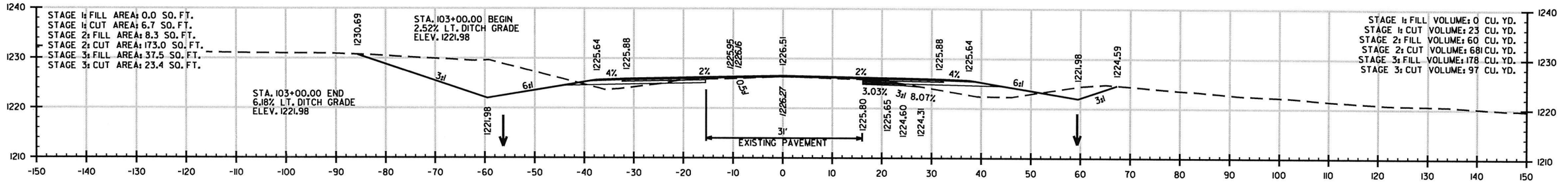
(2) CROSS SECTIONS



STA. 104+00.00



STA. 103+36.00



STA. 103+00.00

STA. 103+00.00 TO STA. 104+00.00

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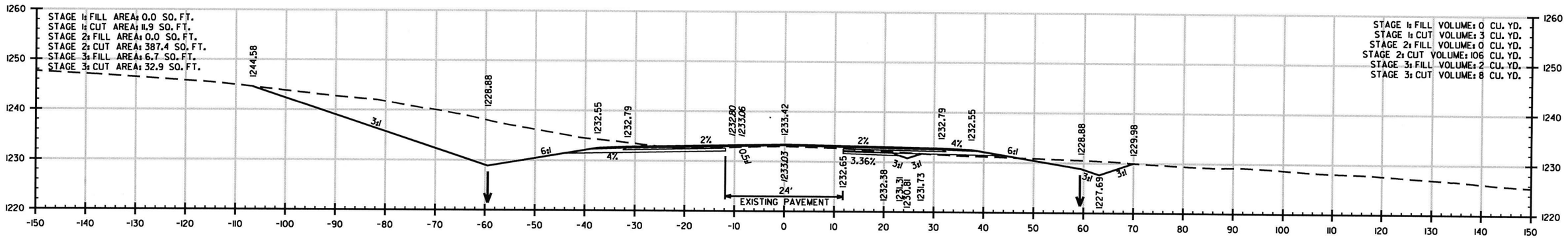
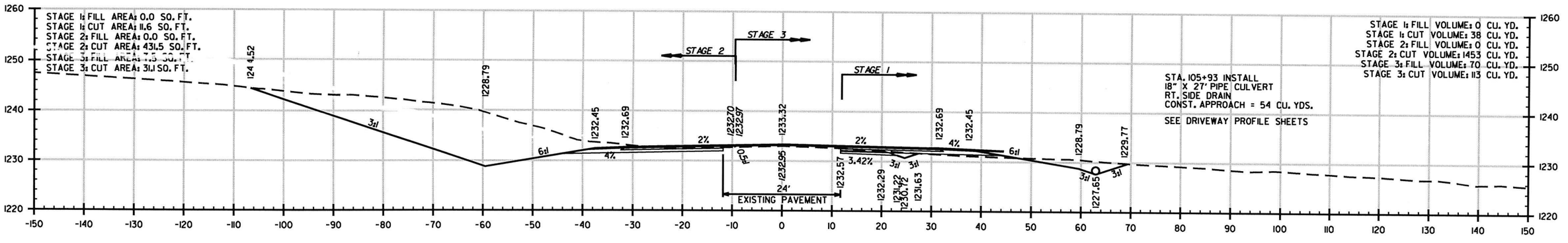
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	262	417

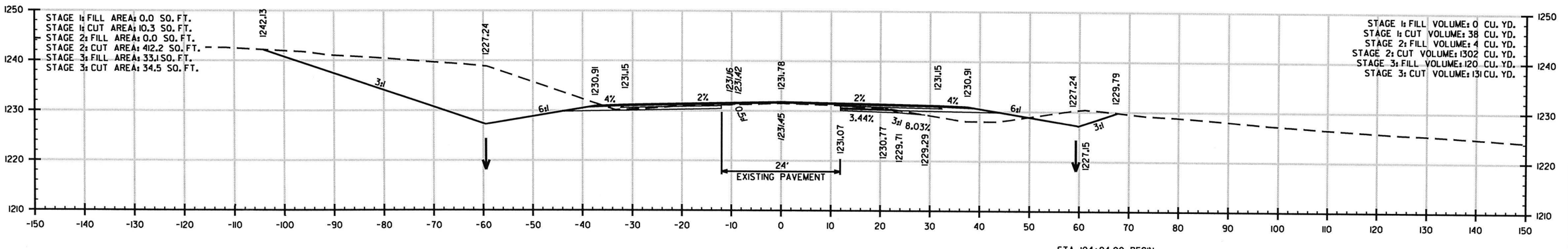
(2) CROSS SECTIONS



STA. 106+00.00



STA. 105+93.00



STA. 105+00.00

STA. 104+94.00 BEGIN
0.53% RT. DITCH GRADE
ELEV. 1227.12

STA. 105+00.00 TO STA. 106+00.00

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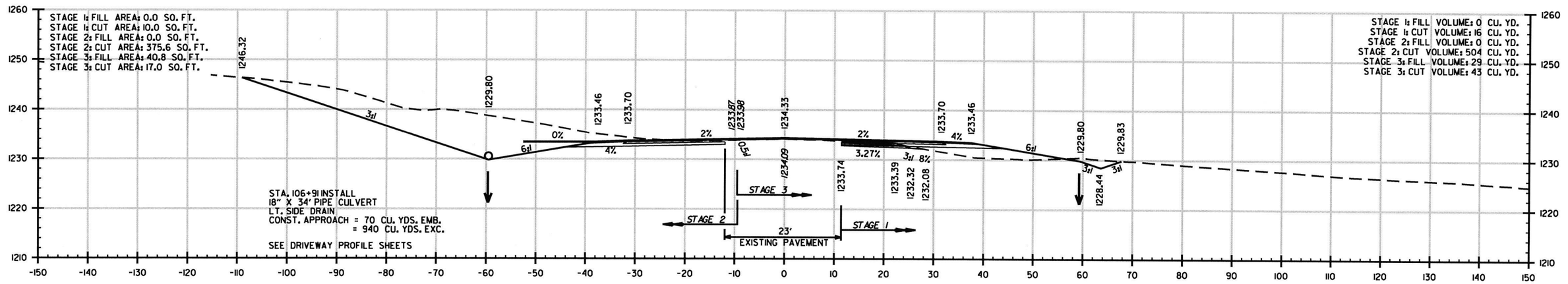
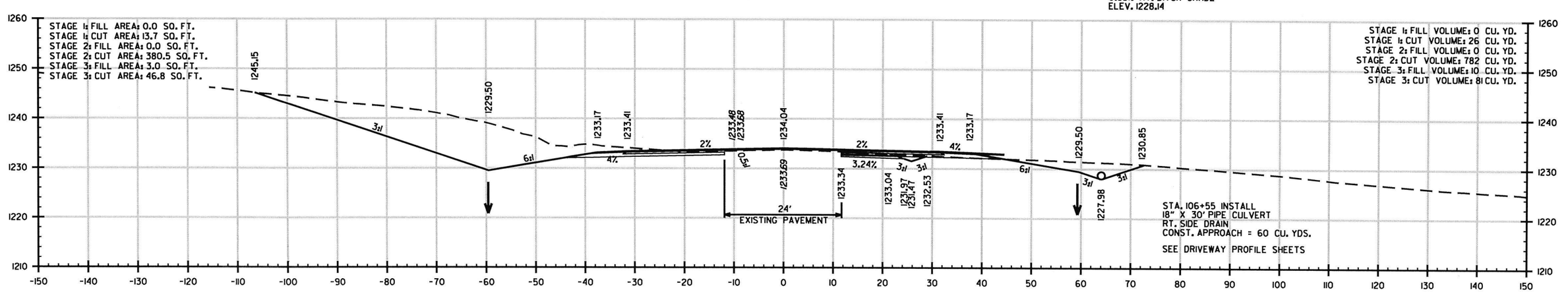
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	263	417

(2) CROSS SECTIONS





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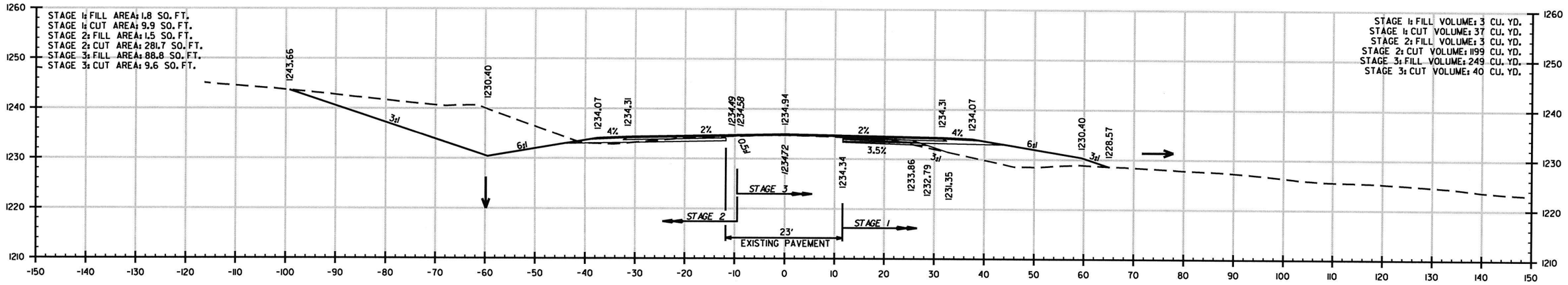
STA. 106+55.00 TO STA. 106+91.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED

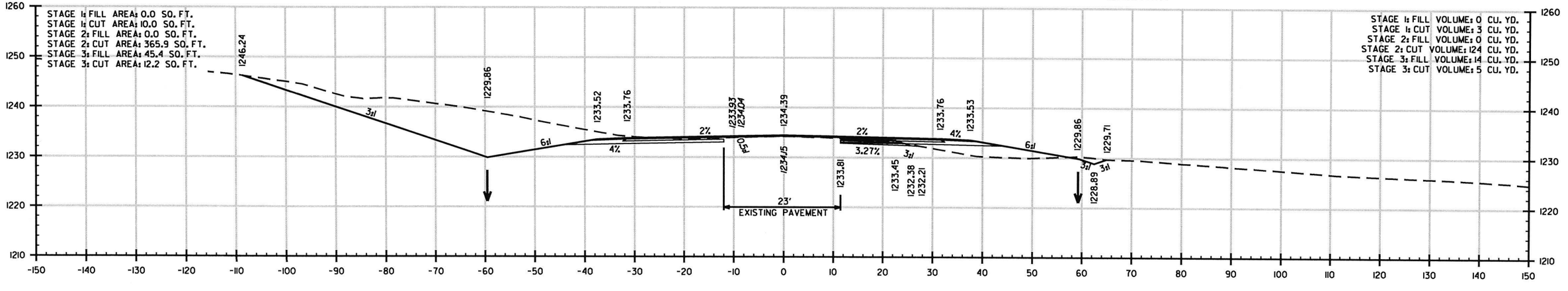
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	264	417

(2) CROSS SECTIONS



STA. 108+00.00

STA. 107+20.00 END
4.99% RT. DITCH GRADE
ELEV. 1229.89



STA. 107+00.00

STA. 107+00.00 TO STA. 108+00.00

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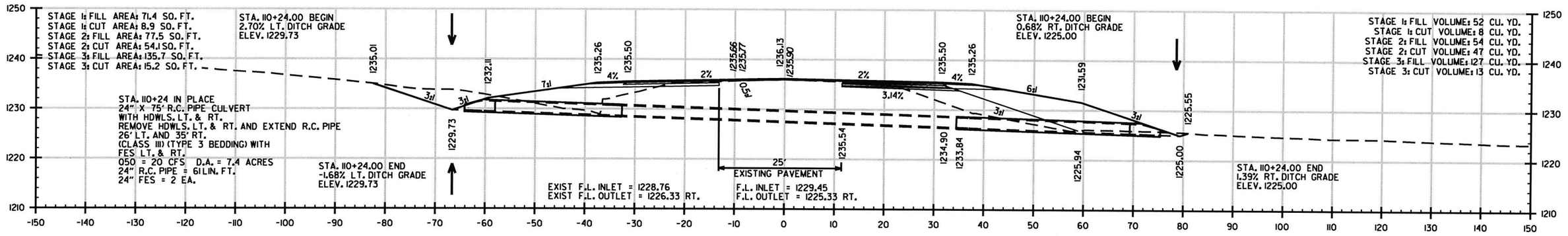
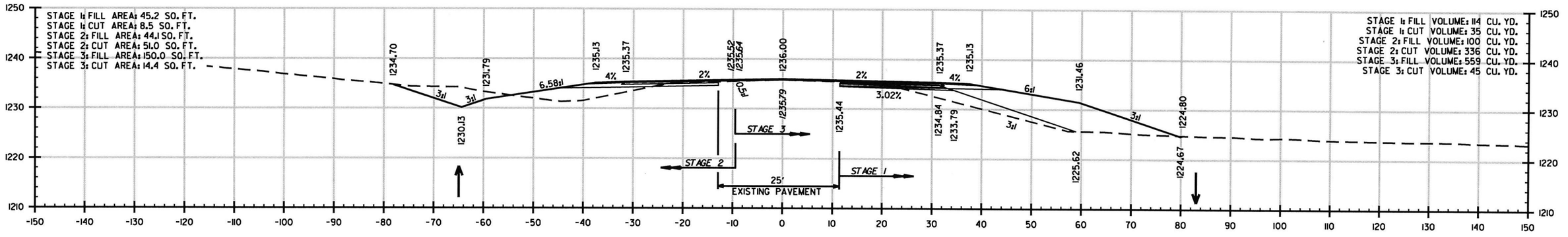
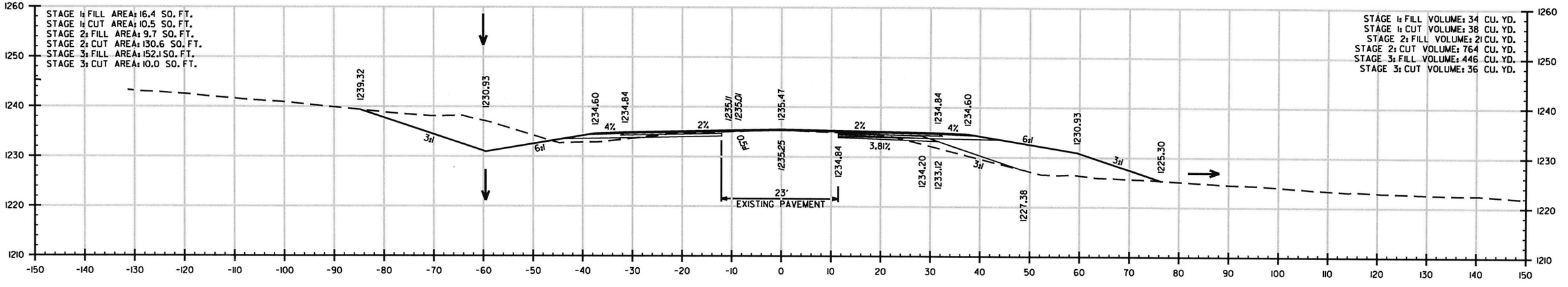
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	265	417

(2) CROSS SECTIONS







STA. 109+00.00 TO STA. 110+24.00

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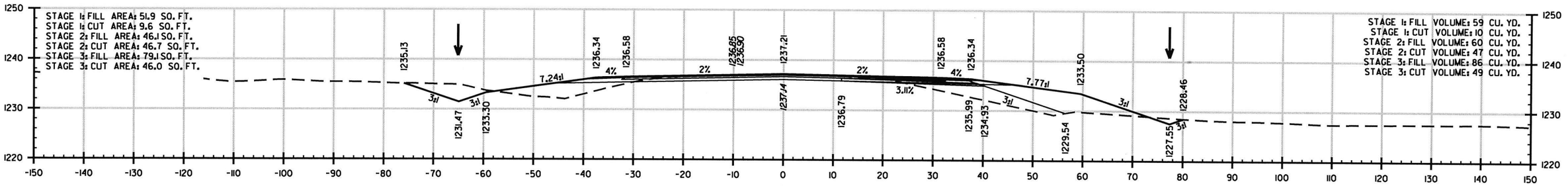
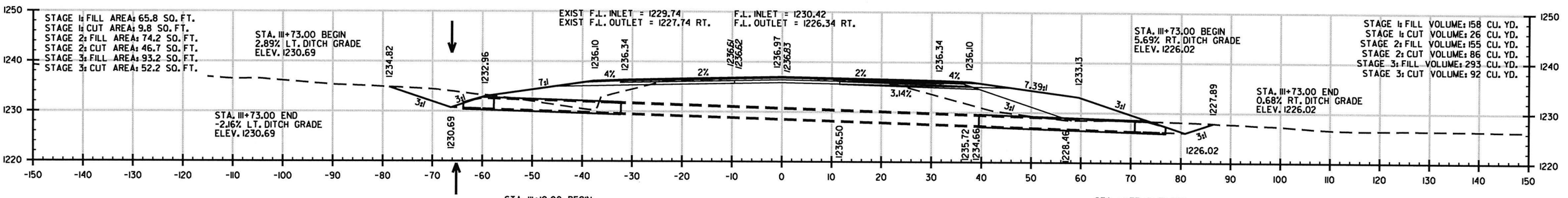
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	266	417

(2) CROSS SECTIONS

STA. 112+60.00 END
5.69% RT. DITCH GRADE
ELEV. 1230.97



STA. 112+00.00

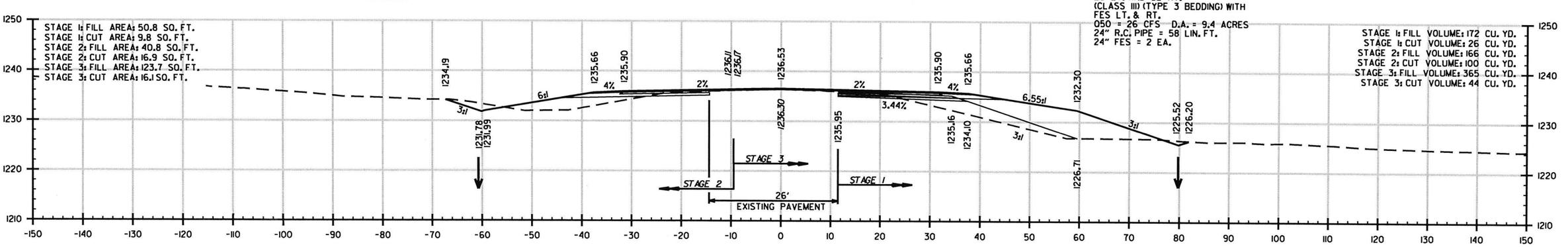


STA. 111+10.00 END
2.70% LT. DITCH GRADE
ELEV. 1232.05

STA. 111+10.00 BEGIN
-2.16% LT. DITCH GRADE
ELEV. 1232.05

STA. 111+73.00

STA. 111+73 IN PLACE
24" X 80' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
26' LT. AND 32' RT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 26 CFS D.A. = 9.4 ACRES
24" R.C. PIPE = 58 LIN. FT.
24" FES = 2 EA.



STA. 111+00.00

STA. 111+00.00 TO STA. 112+00.00

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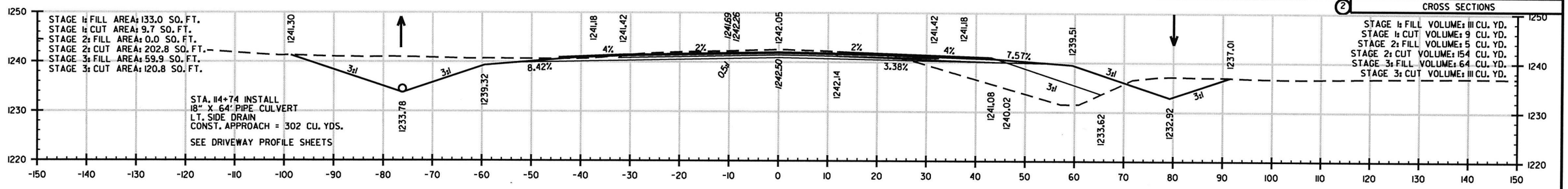
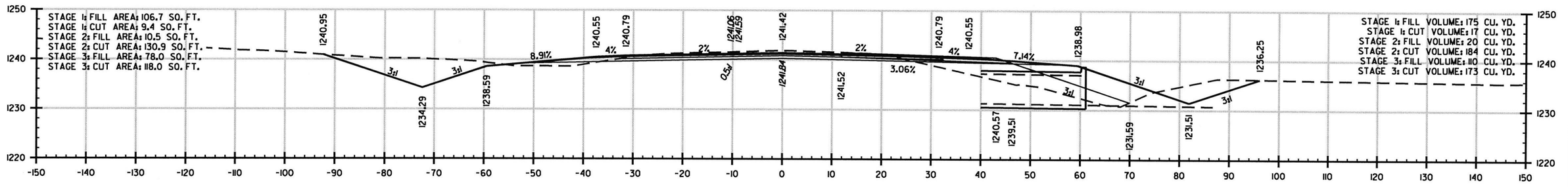
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	267	417

(2) CROSS SECTIONS



STA. 114+74.00

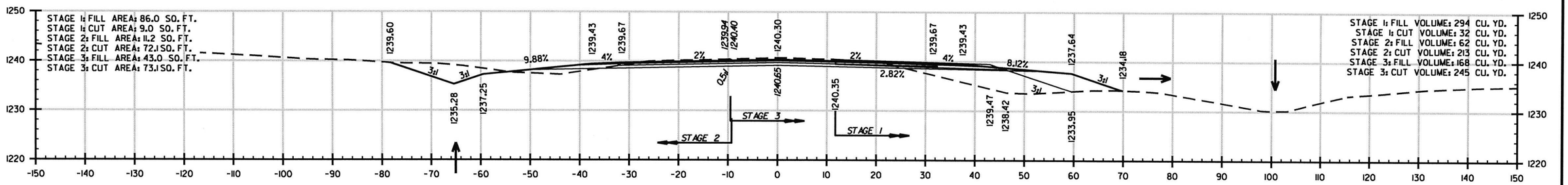


STA. 114+49.00

STA. 114+34.00 BEGIN
0.00% RT. DITCH GRADE
ELEV. 1231.00

STA. 114+40.00 END
0.00% RT. DITCH GRADE
ELEV. 1231.00

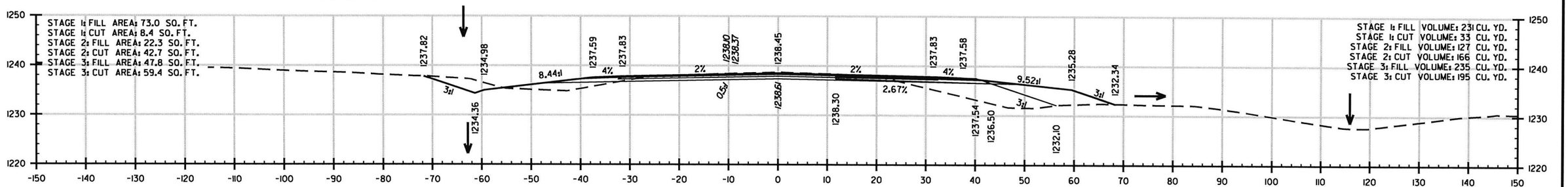
STA. 114+40.00 BEGIN
5.65% RT. DITCH GRADE
ELEV. 1231.00



STA. 114+00.00

STA. 113+60.00 END
2.89% LT. DITCH GRADE
ELEV. 1236.09

STA. 113+60.00 BEGIN
-2.02% LT. DITCH GRADE
ELEV. 1236.09



STA. 113+00.00

STA. 113+00.00 TO STA. 114+74.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	268	417

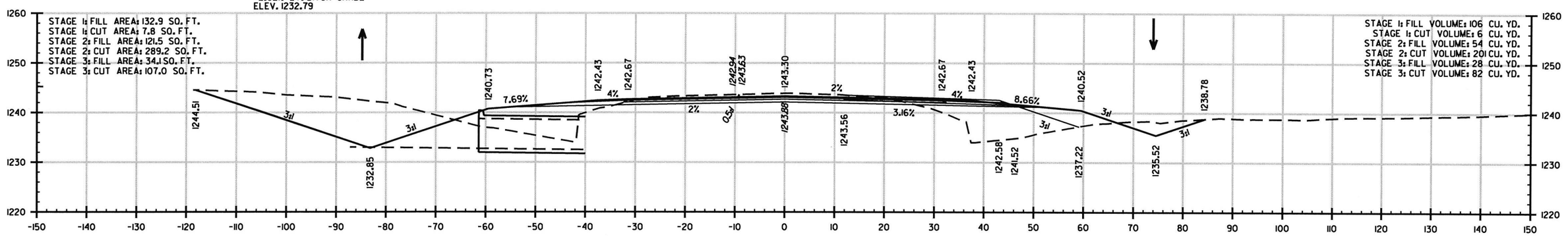
(2) CROSS SECTIONS

STA. 115+29.00 END
0% LT. DITCH GRADE
ELEV. 1232.79

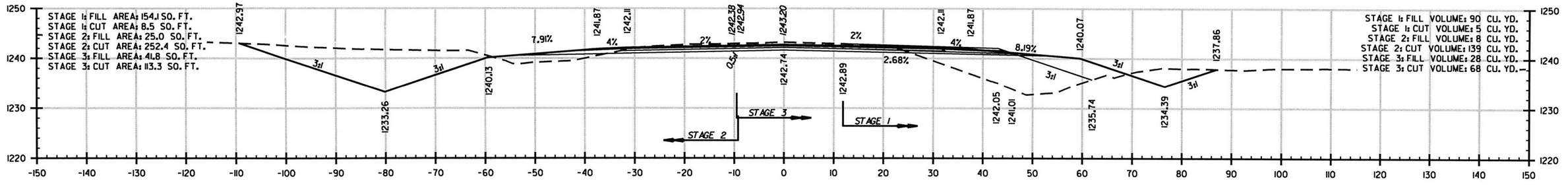
STA. 115+23.00 END
-2.02% LT. DITCH GRADE
ELEV. 1232.79

STA. 115+29.00 BEGIN
7.64% LT. DITCH GRADE
ELEV. 1232.79

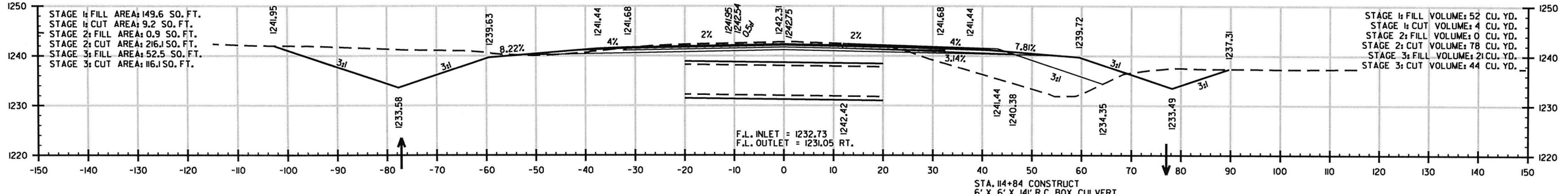
STA. 115+23.00 BEGIN
0% LT. DITCH GRADE
ELEV. 1232.79



STA. 115+20.00



STA. 115+00.00



STA. 114+84.00

STA. 114+84 CONSTRUCT
6' X 6' X 141' R.C. BOX CULVERT
WITH 30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 87 CFS D.A. = 49.2 ACRES

STA. 114+84.00 TO STA. 115+20.00

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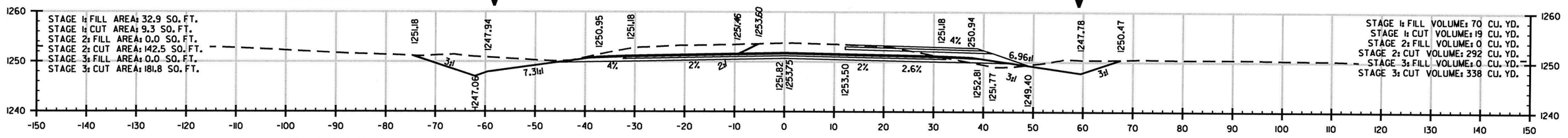
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	269	417

(2) CROSS SECTIONS

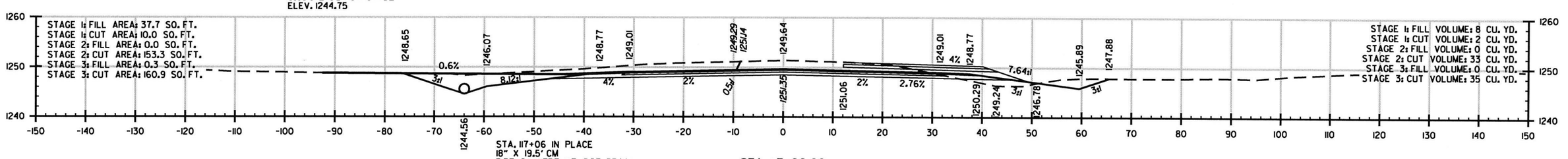
STA. 117+85.00 END
6.95% LT. DITCH GRADE
ELEV. 1248.85



STA. 117+59.23

STA. 117+26.00 BEGIN
6.95% LT. DITCH GRADE
ELEV. 1244.75

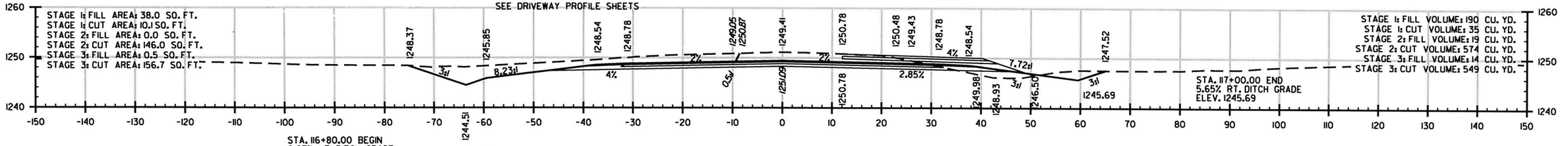
STA. 117+26.00 END
0.93% LT. DITCH GRADE
ELEV. 1244.75



STA. 117+06 IN PLACE
18" X 19.5' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 26' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 55 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS

STA. 117+06.00

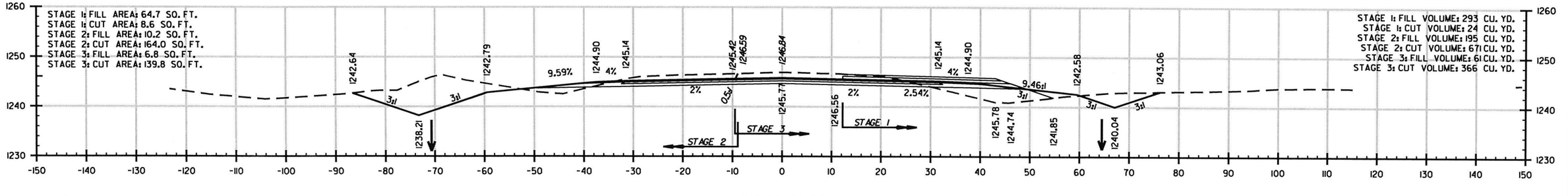


STA. 117+00.00 END
5.65% RT. DITCH GRADE
ELEV. 1245.69

STA. 117+00.00

STA. 116+80.00 BEGIN
0.93% LT. DITCH GRADE
ELEV. 1244.32

STA. 116+80.00 END
7.64% LT. DITCH GRADE
ELEV. 1244.32



STA. 116+00.00

STA. 116+00.00 TO STA. 117+59.23

6/7/2017
4:09:26 PM
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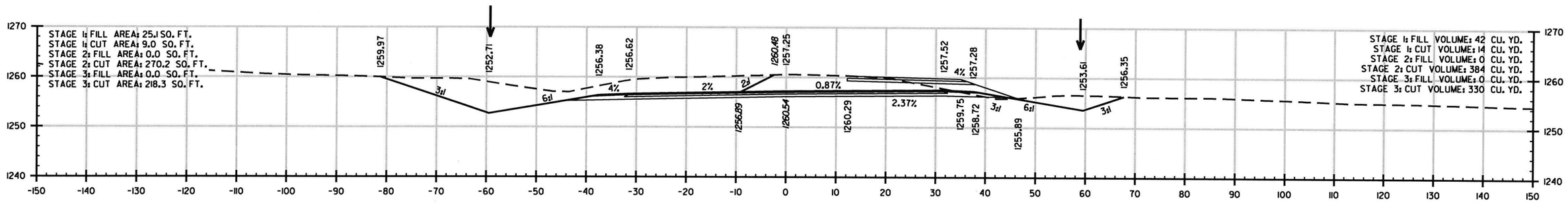
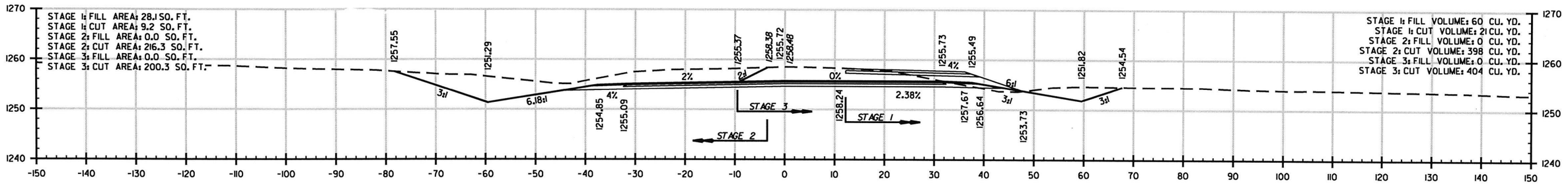
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	270	417

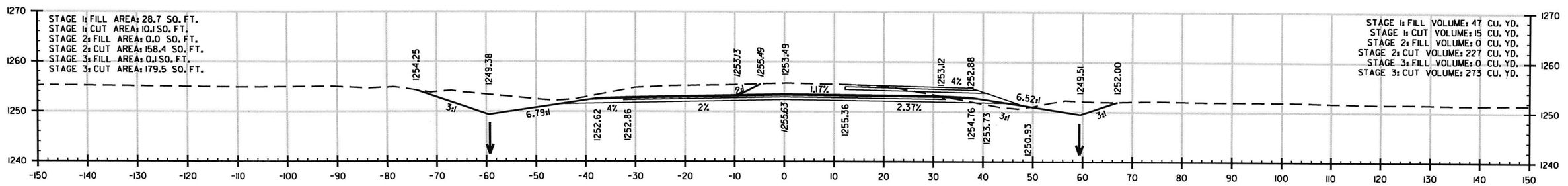
(2) CROSS SECTIONS



STA. 119+00.00



STA. 118+57.41



STA. 118+00.00

STA. 118+00.00 TO STA. 119+00.00

6/7/2017
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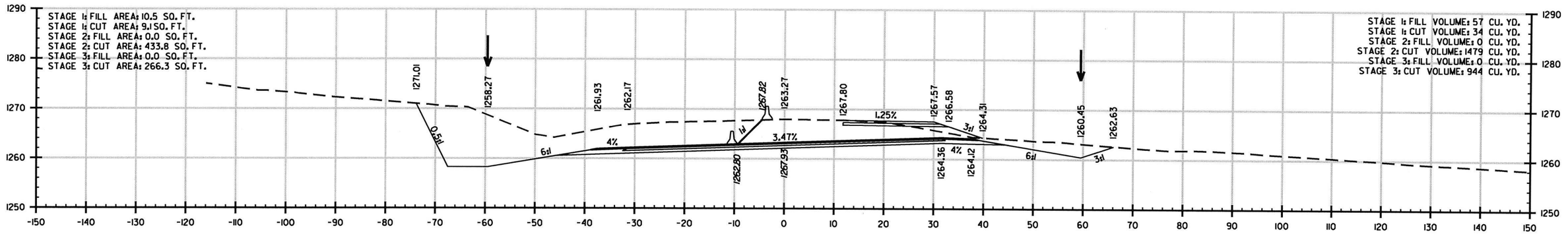
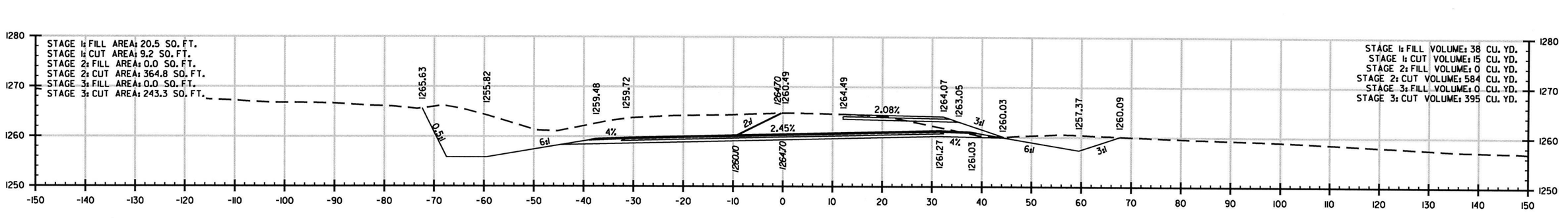
...\CA0906_CX_HWY65.dgn

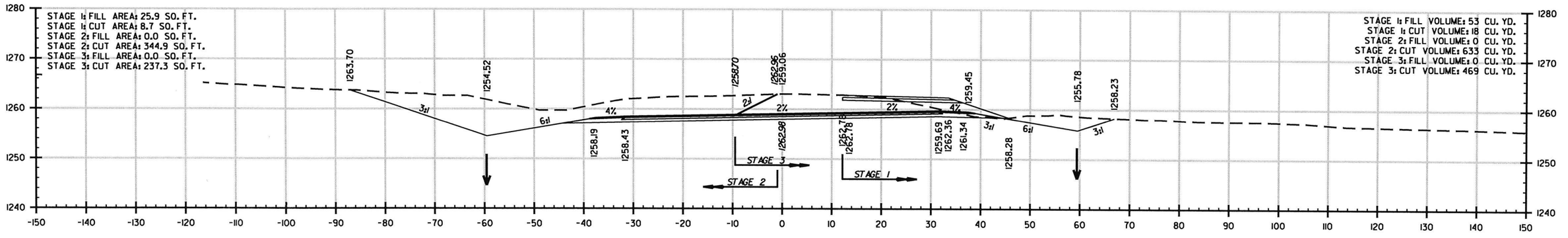
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	271	417
				(2)	CROSS SECTIONS			



STA. 121+00.00



STA. 120+00.00



STA. 119+55.59

STA. 119+55.59 TO STA. 121+00.00

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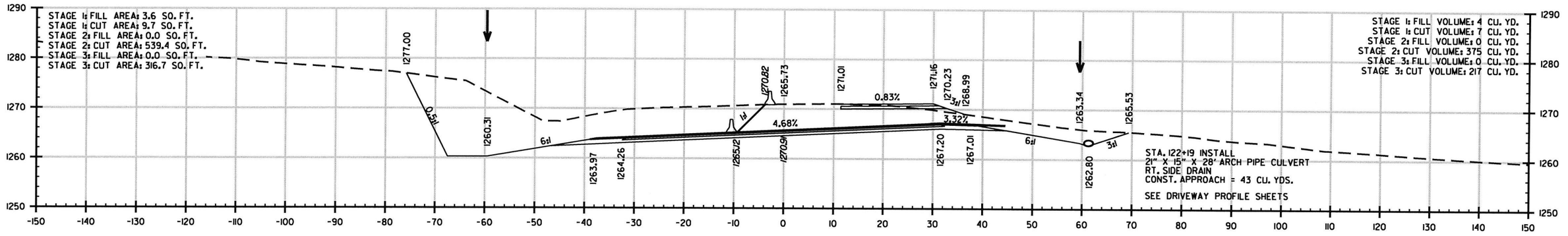
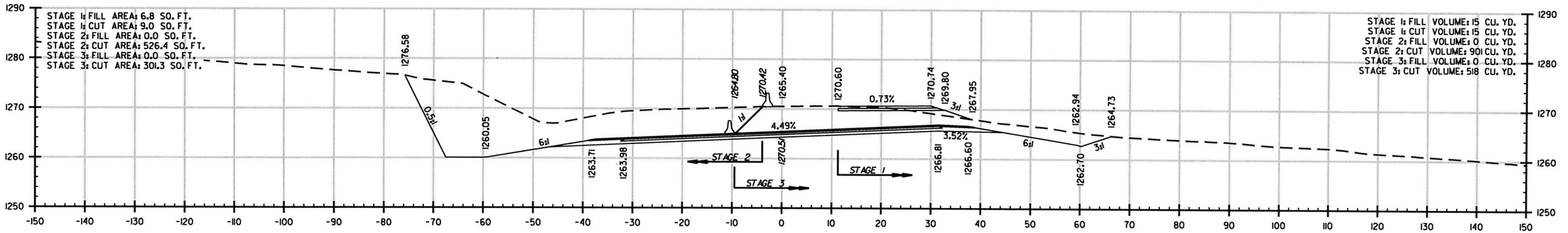
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	272	417

(2) CROSS SECTIONS

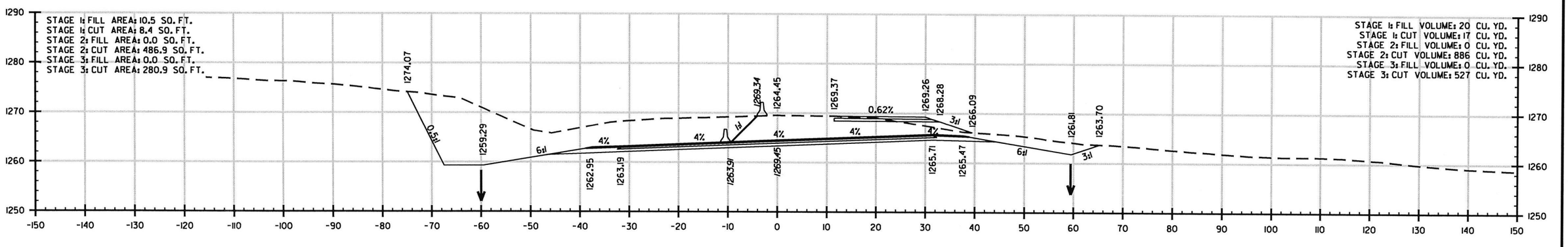


STA. 122+19.00



STA. 122+00.00

STA. 121+84.00 BEGIN
0.51% RT. DITCH GRADE
ELEV. 1262.62



STA. 121+51.96

STA. 121+51.96 TO STA. 122+19.00

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4:05:21 PM
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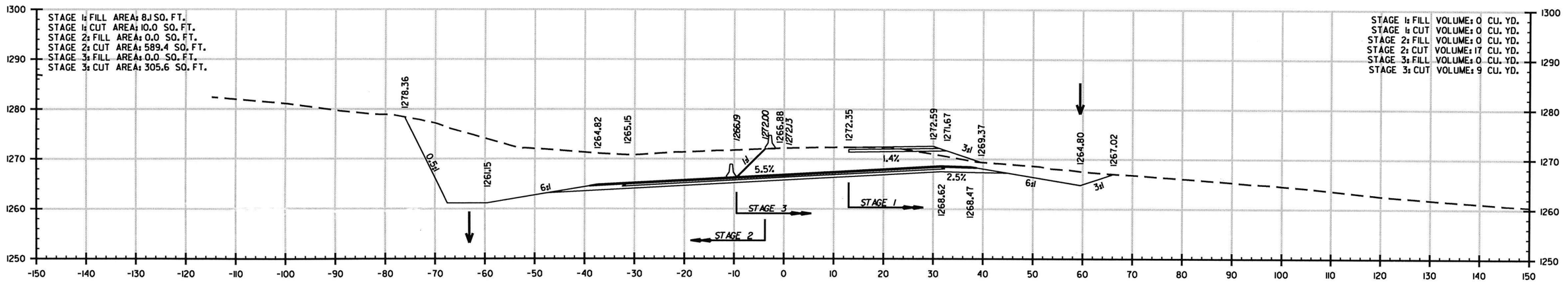
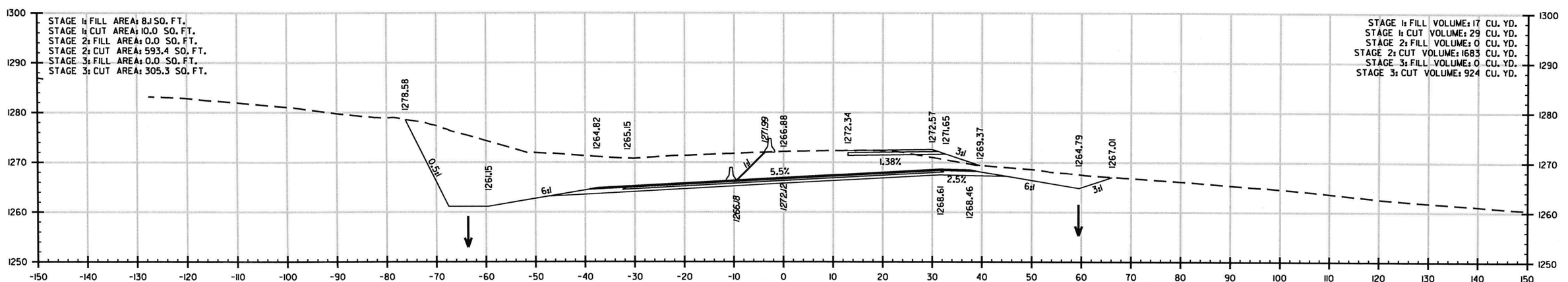
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	273	417

(2) CROSS SECTIONS



STA. 123+00.00



STA. 122+99.23

STA. 122+39.00 END
0.5% RT. DITCH GRADE
ELEV. 1262.90

STA. 122+39.00 BEGIN
6.89% RT. DITCH GRADE
ELEV. 1262.90

STA. 122+57.00 END
6.89% RT. DITCH GRADE
ELEV. 1264.14

STA. 122+99.23 TO STA. 123+00.00

6/7/2017
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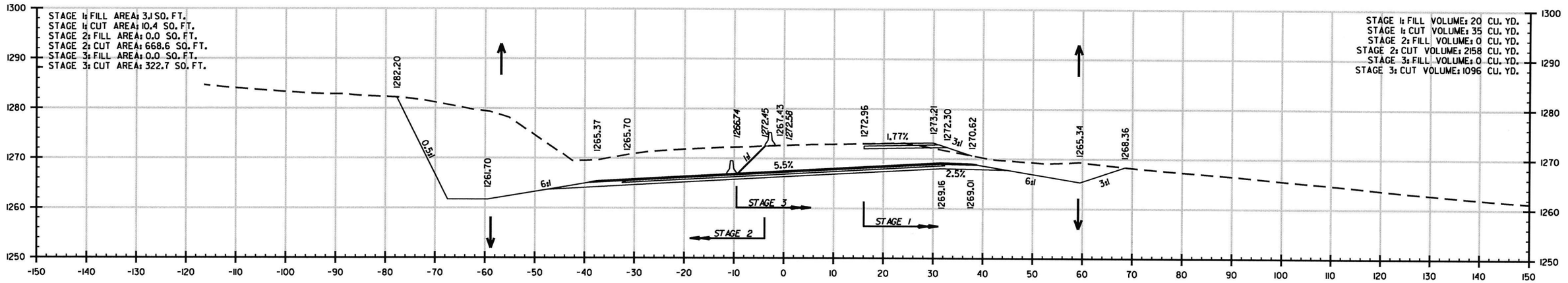
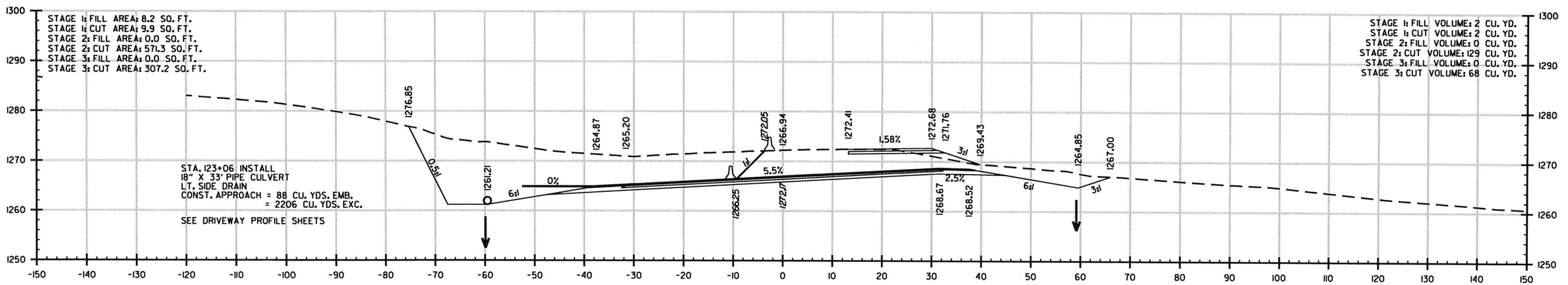
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	274	417
				(2)	CROSS SECTIONS			



STA. 124+00.00



STA. 123+06.00

STA. 123+06.00 TO STA. 124+00.00

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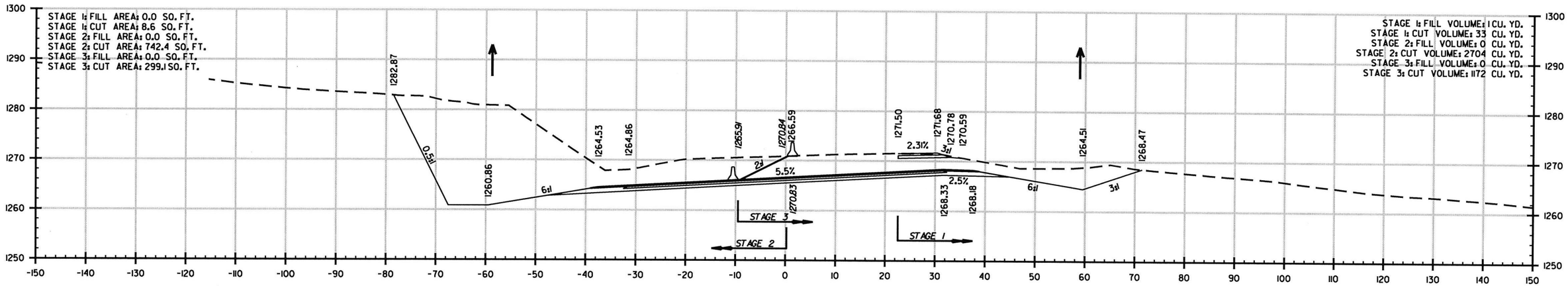
...\CA0906_CX_HWY65.dgn

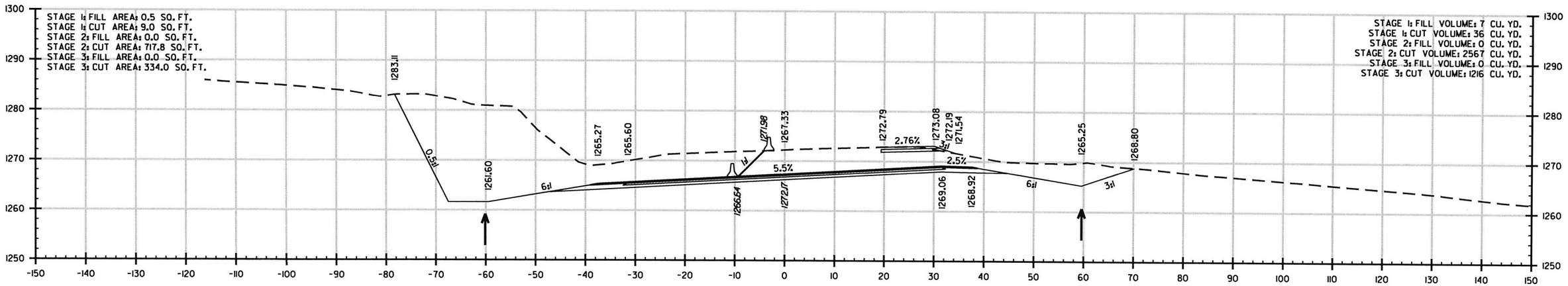
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	275	417

(2) CROSS SECTIONS



STA. 126+00.00



STA. 125+00.00

STA. 125+00.00 TO STA. 126+00.00

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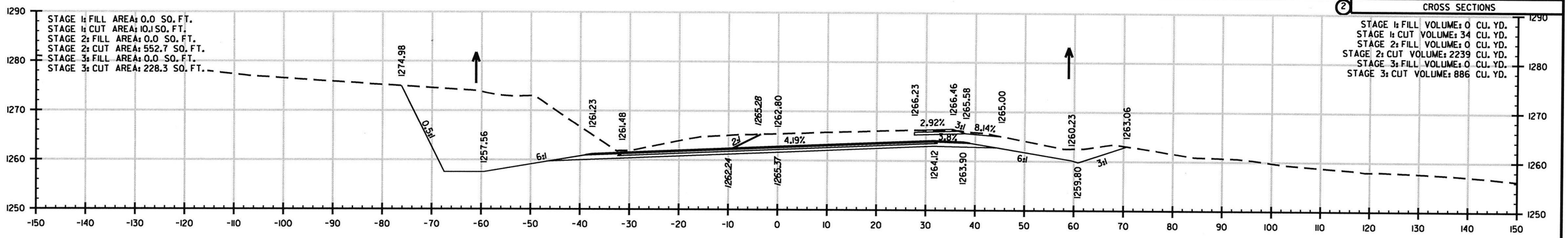
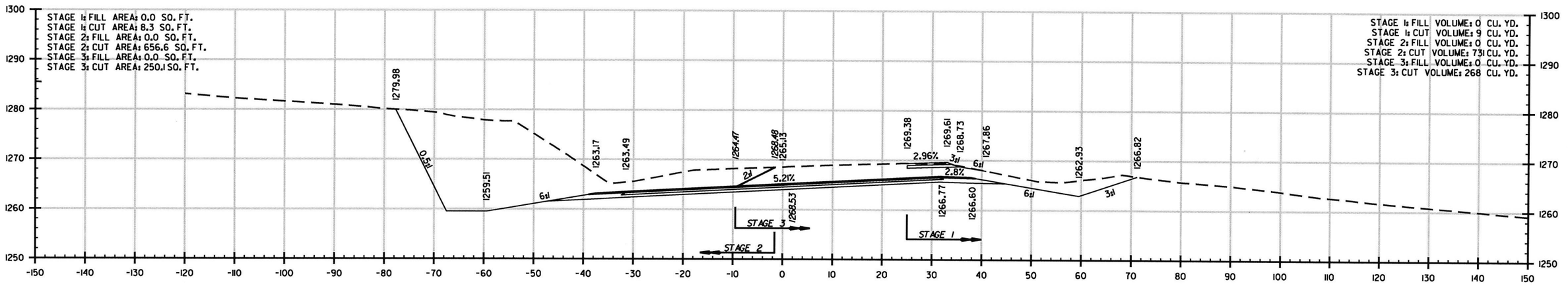
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	276	417

(2) CROSS SECTIONS

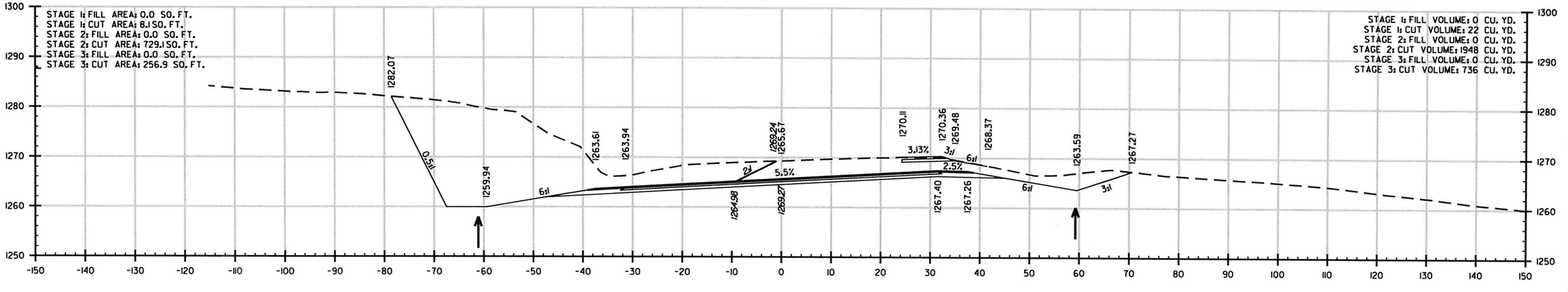


STA. 128+00.00

STA. 127+88.00 BEGIN
-6.99% RT. DITCH GRADE
ELEV. 1260.63



STA. 127+00.00



STA. 126+71.50

STA. 126+71.50 TO STA. 128+00.00

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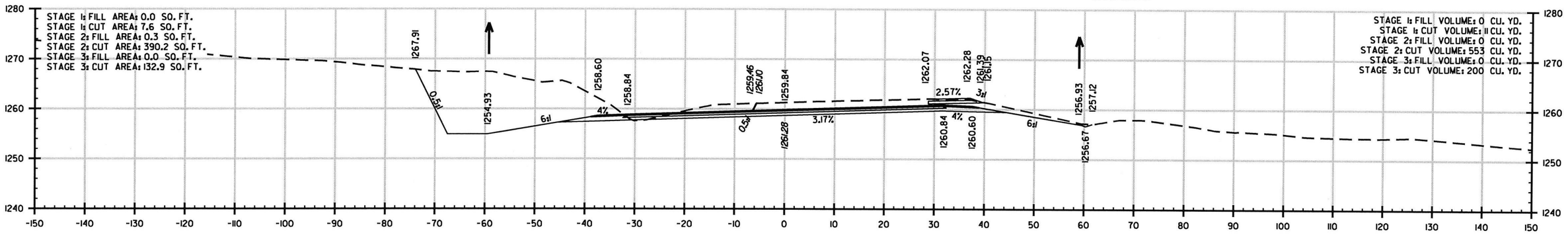
...\CA0906_CX_HWY65.dgn

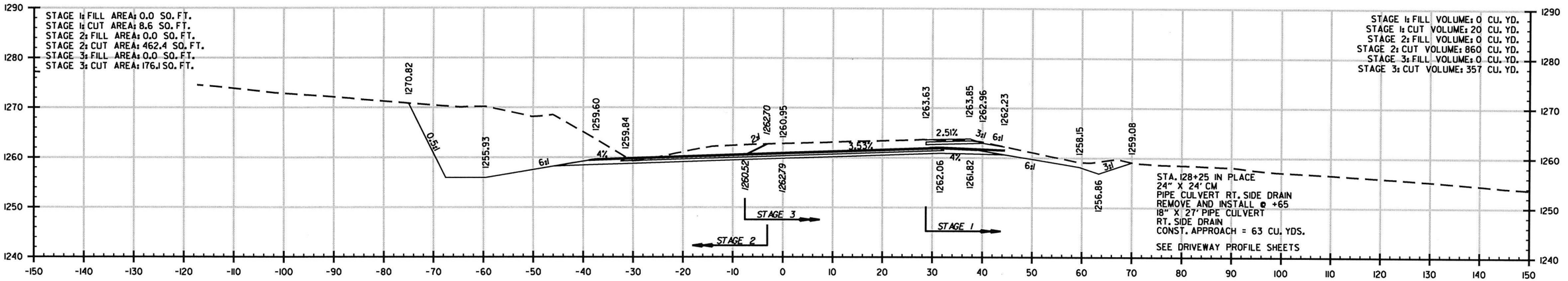
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	277	417

(2) CROSS SECTIONS

STA. 129+09.00 END
-0.54% RT. DITCH GRADE
ELEV. 1256.62



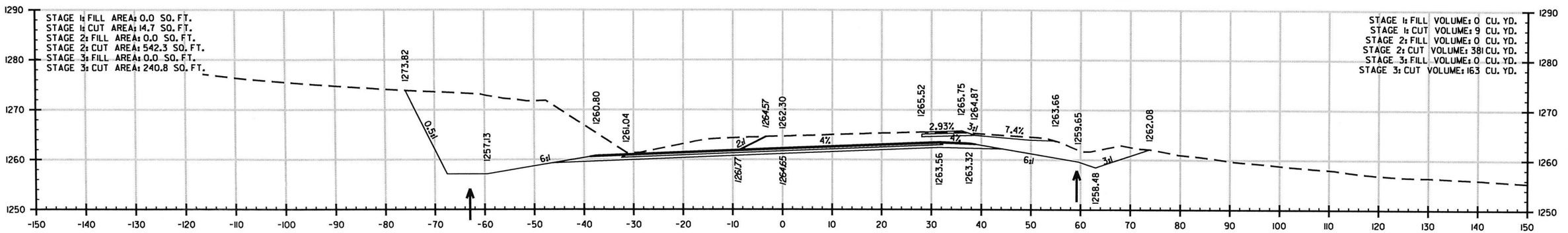
STA. 129+00.00



STA. 128+65.00

STA. 128+40.00 BEGIN
-0.54% RT. DITCH GRADE
ELEV. 1257.00

STA. 128+40.00 END
-6.99% RT. DITCH GRADE
ELEV. 1257.00



STA. 128+18.77

STA. 128+18.77 TO STA. 129+00.00

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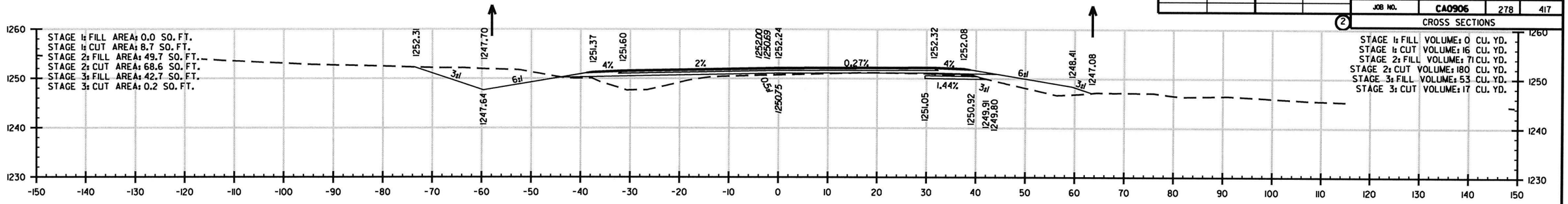
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	278	417

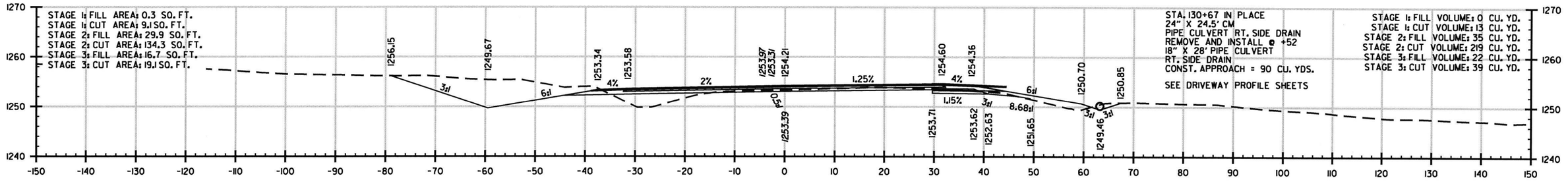
(2) CROSS SECTIONS



STA. 131+00.00

STA. 130+98.00 BEGIN
-6.97% LT. DITCH GRADE
ELEV. 1247.78

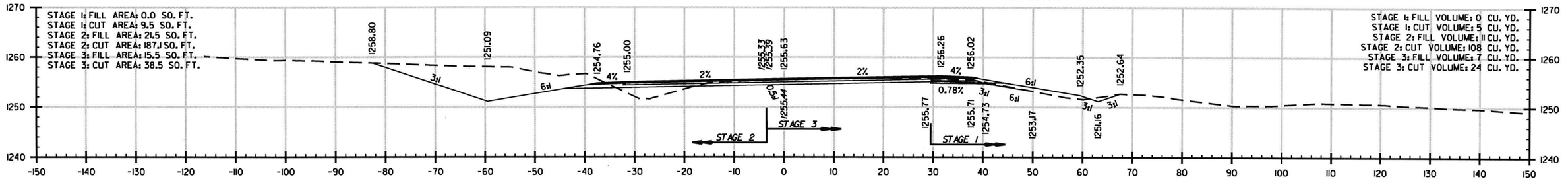
STA. 130+80.00 END
-3% RT. DITCH GRADE
ELEV. 1248.62



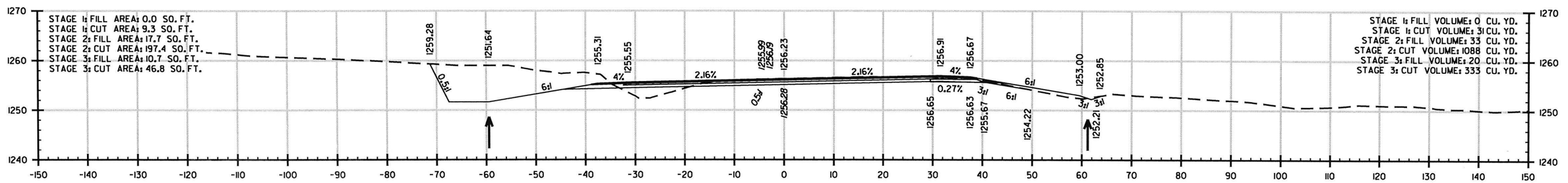
STA. 130+52.00

STA. 130+30.00 BEGIN
-3% RT. DITCH GRADE
ELEV. 1250.12

STA. 130+30.00 END
-6.97% RT. DITCH GRADE
ELEV. 1250.12



STA. 130+15.14



STA. 130+00.00

STA. 129+90.00 BEGIN
-6.97% RT. DITCH GRADE
ELEV. 1252.91

STA. 130+00.00 TO STA. 131+00.00

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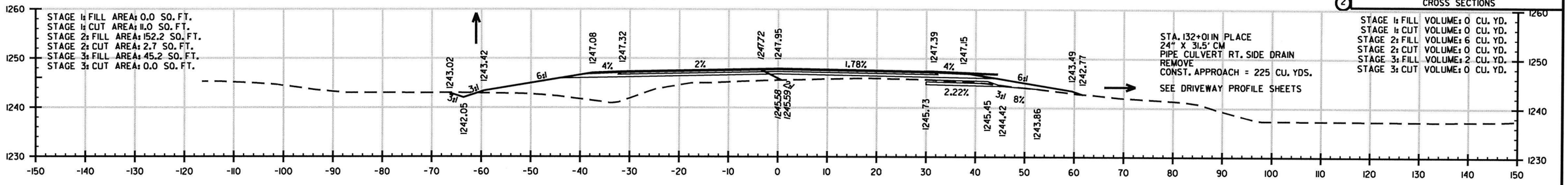
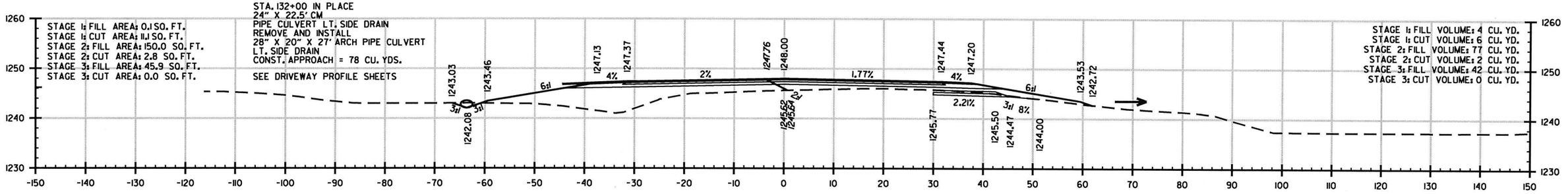
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	279	417

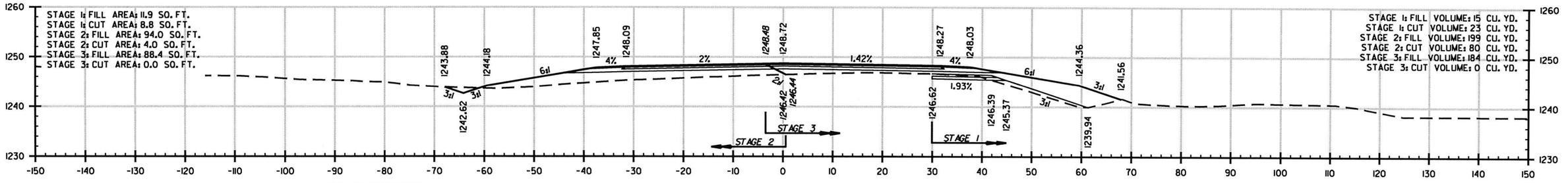
(2) CROSS SECTIONS



STA. 132+01.00



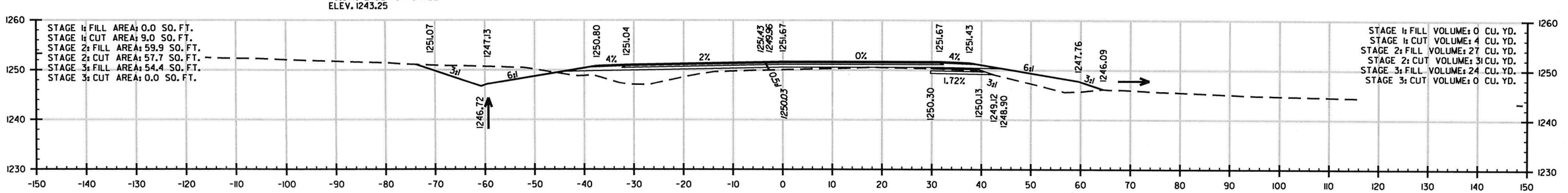
STA. 132+00.00



STA. 131+63.00 BEGIN
-3.18% LT. DITCH GRADE
ELEV. 1243.25

STA. 131+63.00 END
-6.97% LT. DITCH GRADE
ELEV. 1243.25

STA. 131+83.00



STA. 131+13.32

STA. 131+13.32 TO STA. 132+01.00

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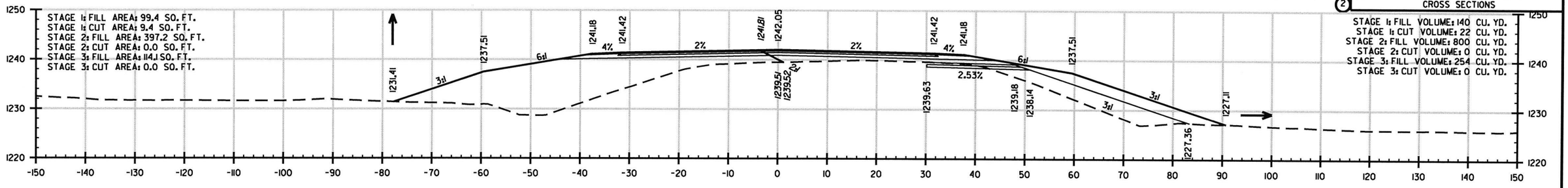
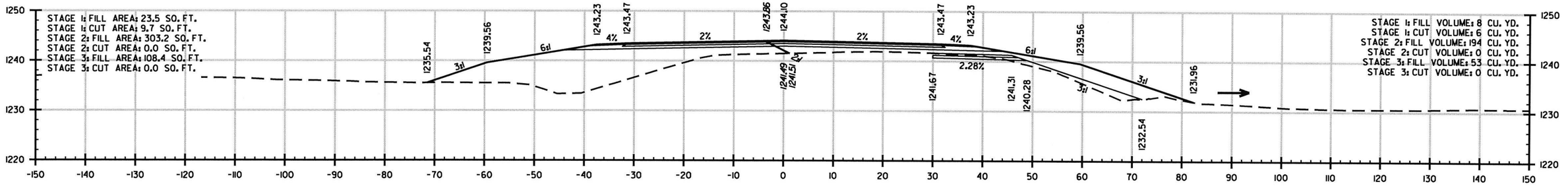
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	280	417

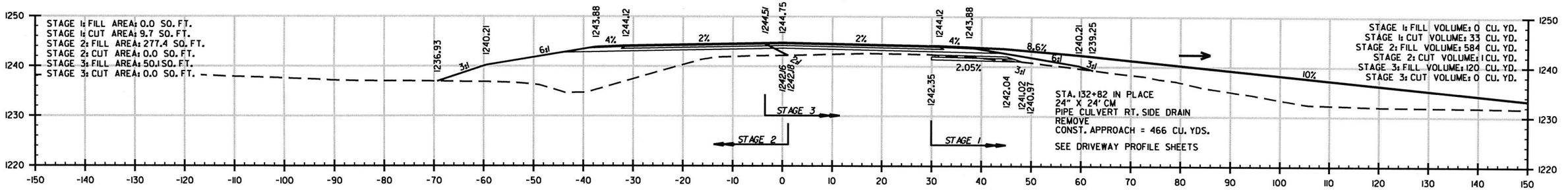
(2) CROSS SECTIONS



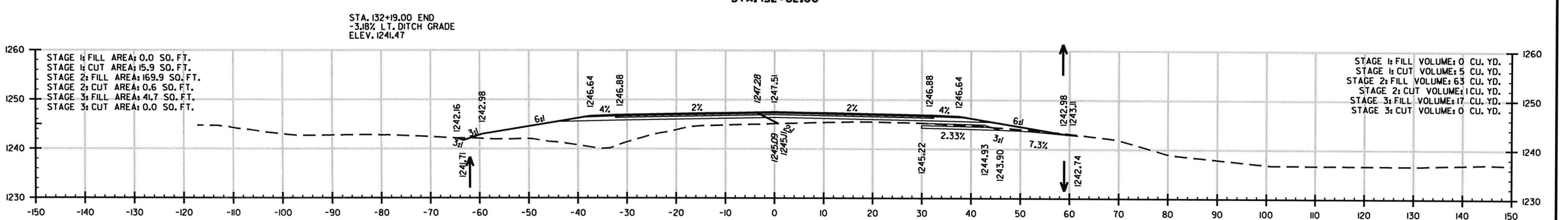
STA. 133+61.71



STA. 133+00.00



STA. 132+82.00



STA. 132+11.50

STA. 132+11.50 TO STA. 133+61.71

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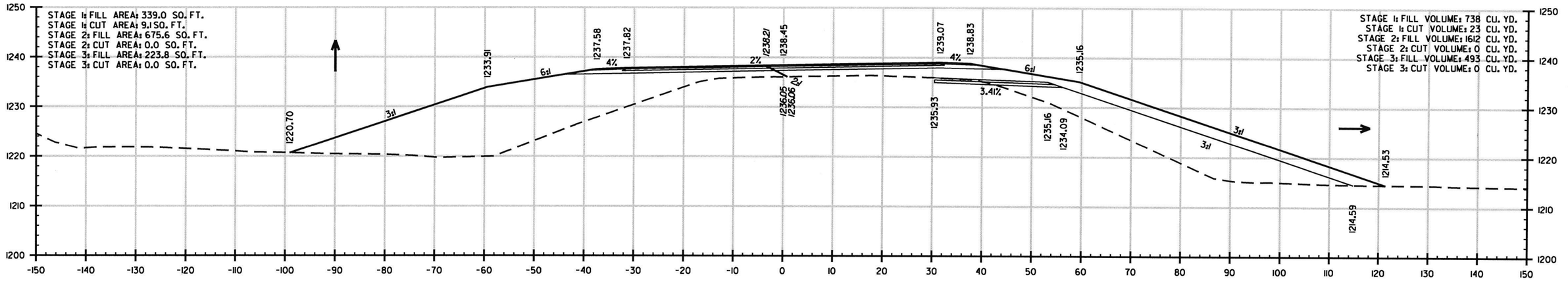
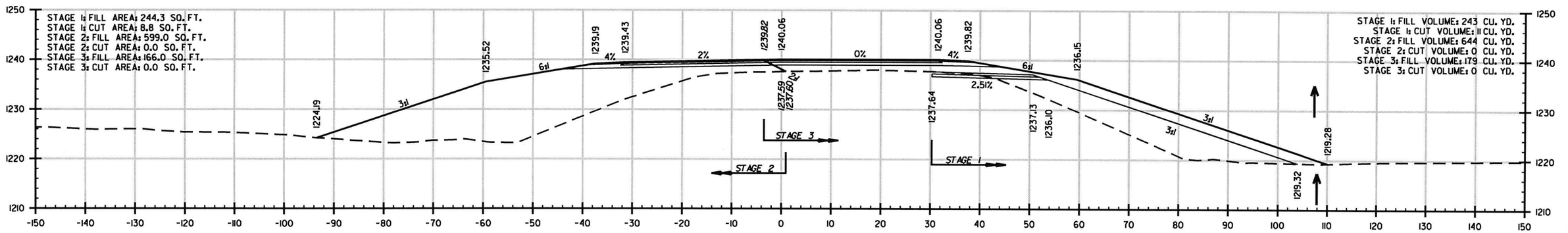
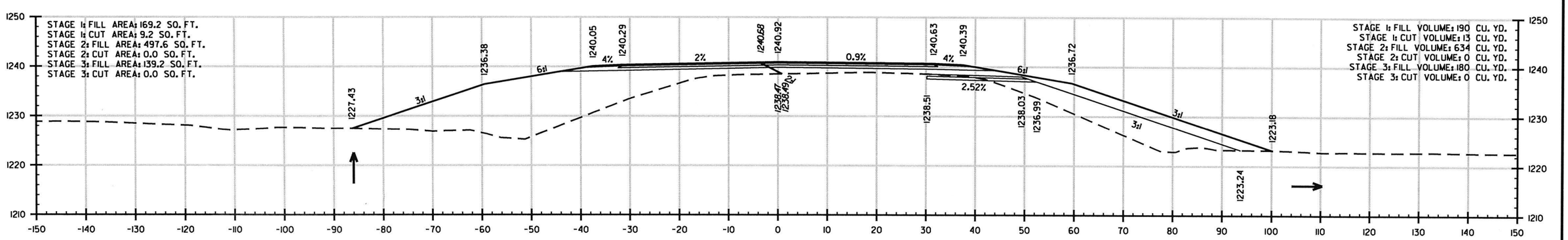
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	281	417
				(2)	CROSS SECTIONS			



STA. 135+00.00



STA. 134+31.71



STA. 134+00.00

STA. 134+00.00 TO STA. 135+00.00

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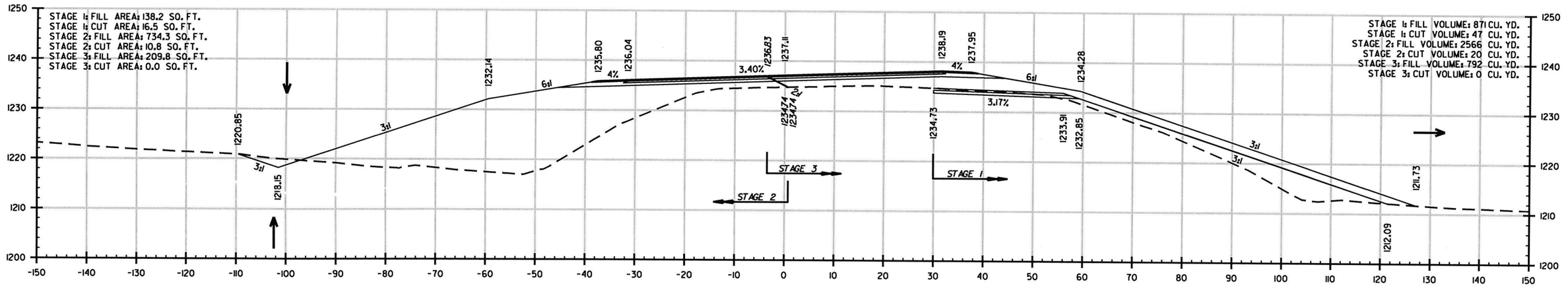
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	282	417
				(2)	CROSS SECTIONS			

STA. 136+18.00 END
0% LT. DITCH GRADE
ELEV. 1218.01

STA. 136+12.00 END
-1.15% LT. DITCH GRADE
ELEV. 1218.01

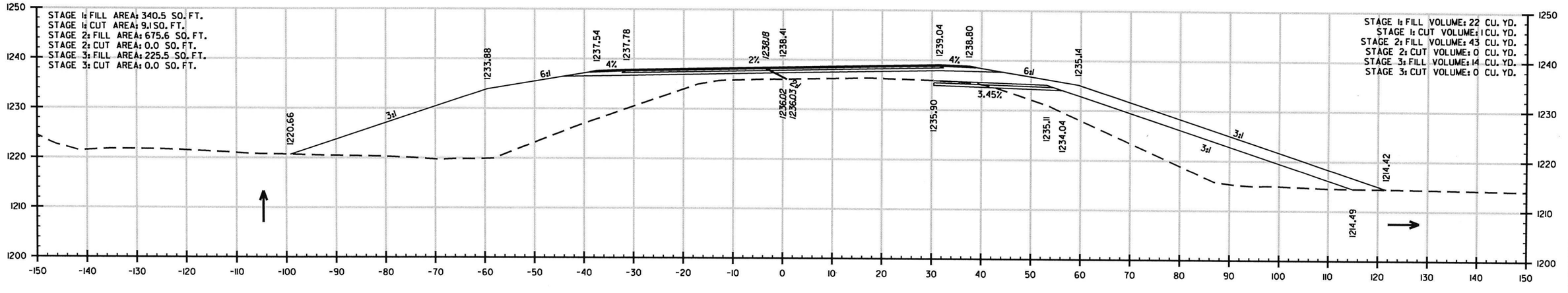
STA. 136+18.00 BEGIN
6.27% LT. DITCH GRADE
ELEV. 1218.01

STA. 136+12.00 BEGIN
0% LT. DITCH GRADE
ELEV. 1218.01



STA. 136+00.00

STA. 135+60.00 BEGIN
-1.15% LT. DITCH GRADE
ELEV. 1218.61



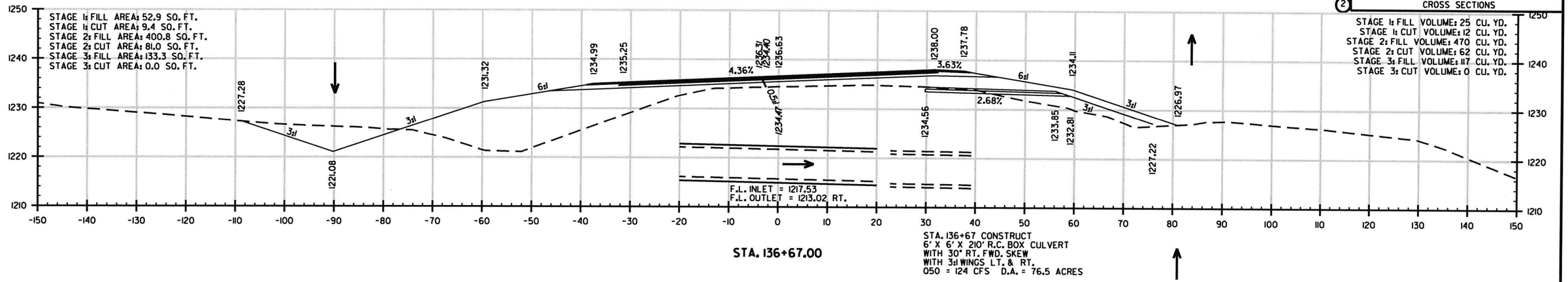
STA. 135+01.71

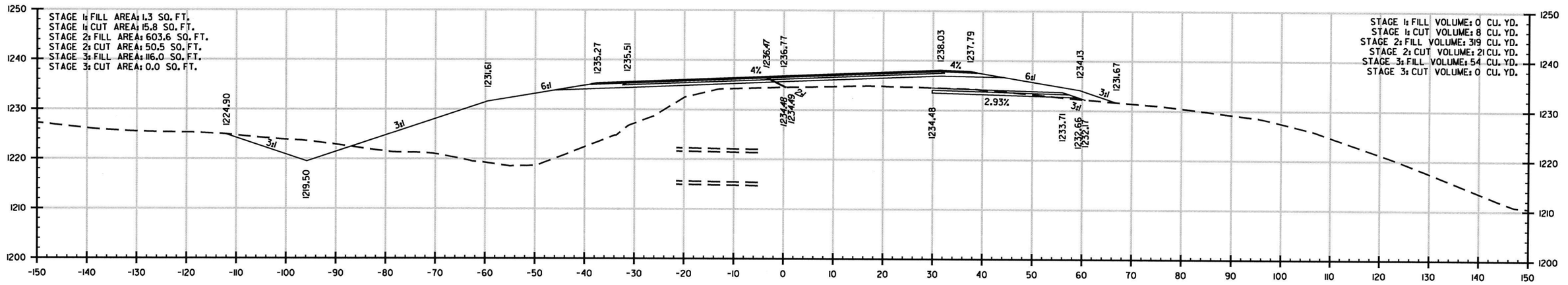
STA. 135+01.71 TO STA. 136+00.00

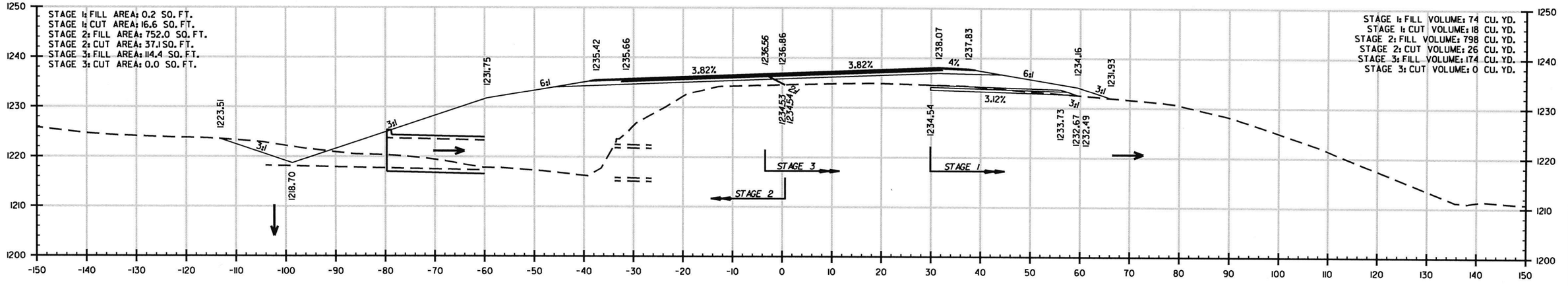
6/7/2017
4:09:30 PM
\\CA0906_CX_HW165.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	283	417

(2) CROSS SECTIONS





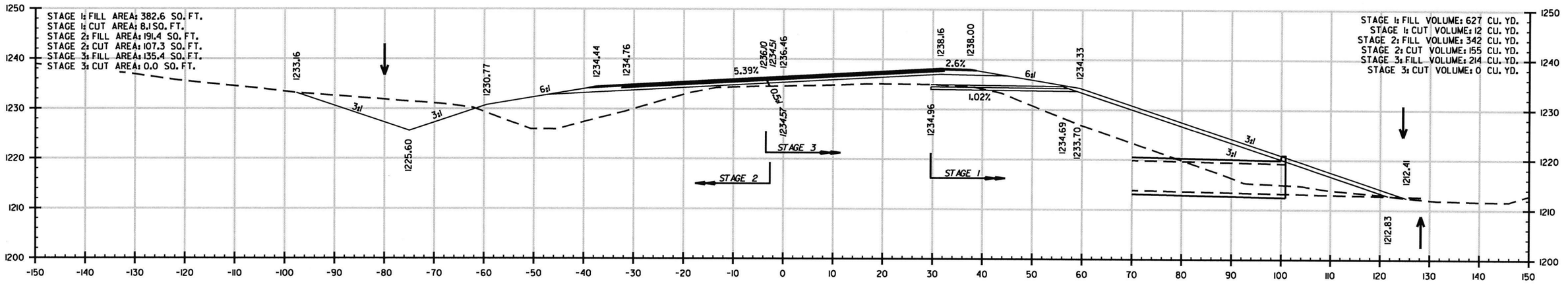


6/7/2017
4:09:30 PM
...\CA0906_CX_HWY65.dgn

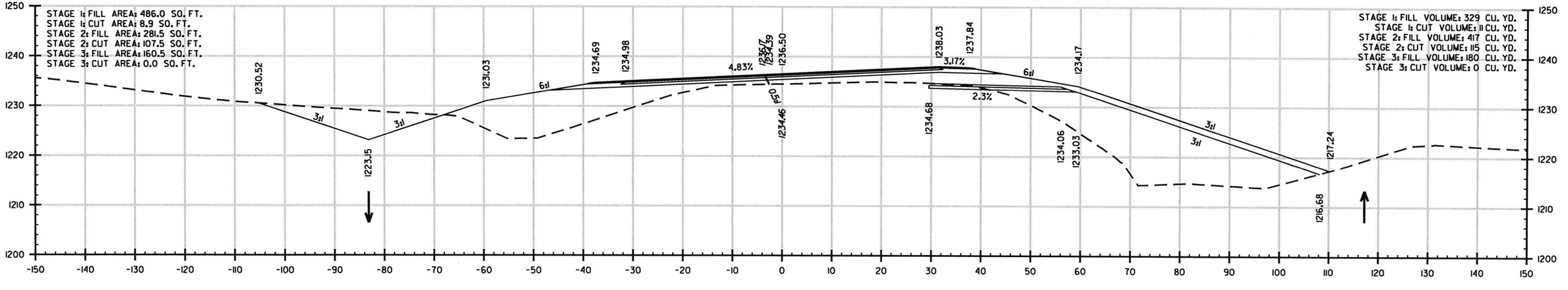
STA. 136+29.00 TO STA. 136+67.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	284	417

(2) CROSS SECTIONS



STA. 137+39.00



STA. 137+00.00

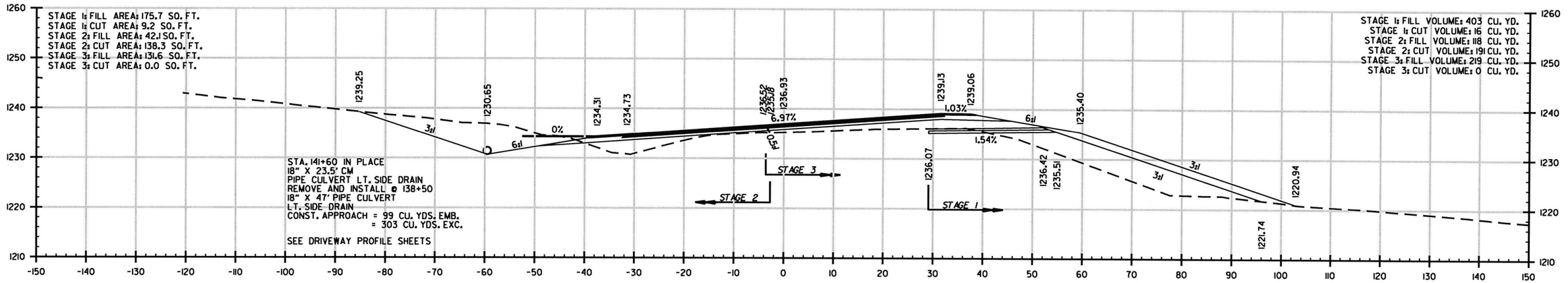
STA. 137+00.00 TO STA. 137+39.00

6/7/2017
4:09:31 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED

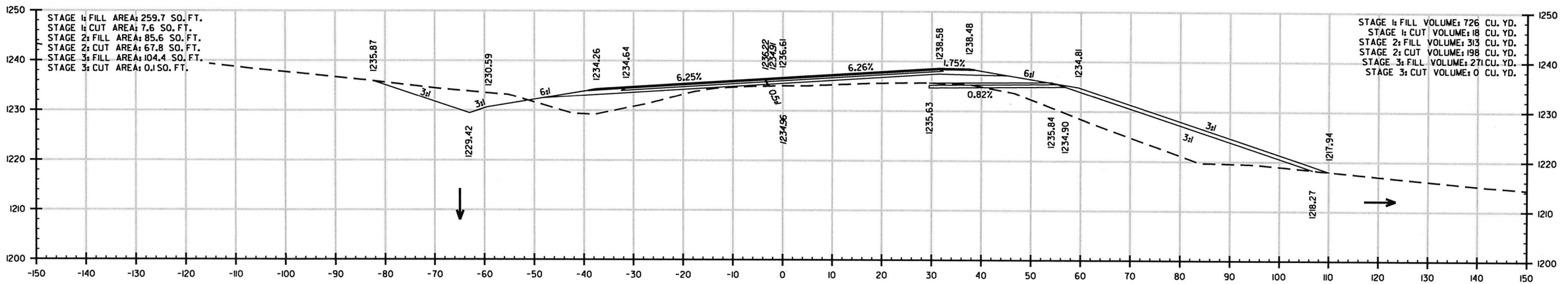
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	285	417

(2) CROSS SECTIONS



STA. 138+50.00

STA. 138+20.00 END
6.27% LT. DITCH GRADE
ELEV. 1230.68



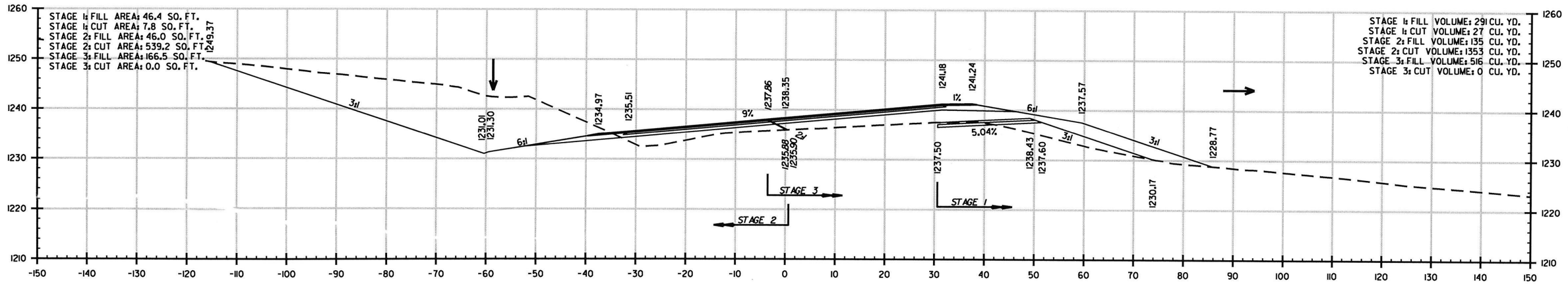
STA. 138+00.00

STA. 138+00.00 TO STA. 139+00.00

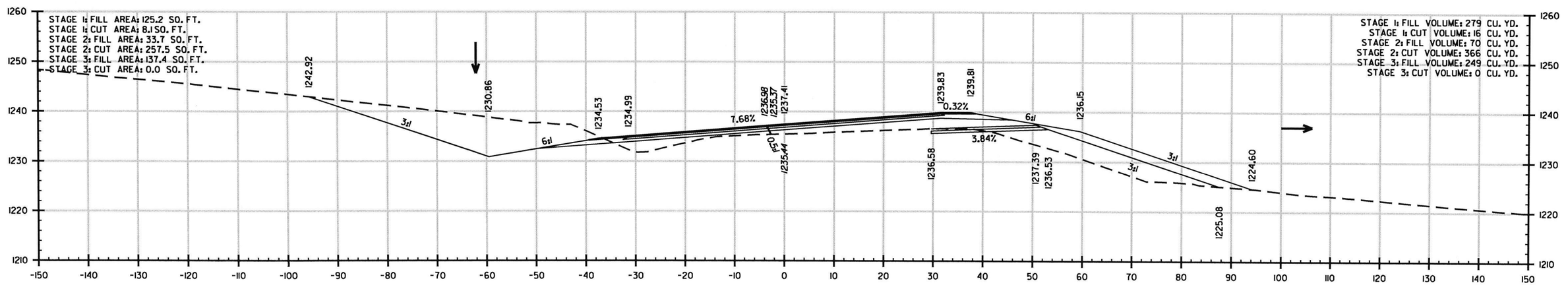
6/7/2017
4:09:51 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	286	417

(2) CROSS SECTIONS



STA. 139+91.71



STA. 139+00.00

STA. 139+62.00 TO STA. 139+91.71

6/7/2017
4:09:31 PM
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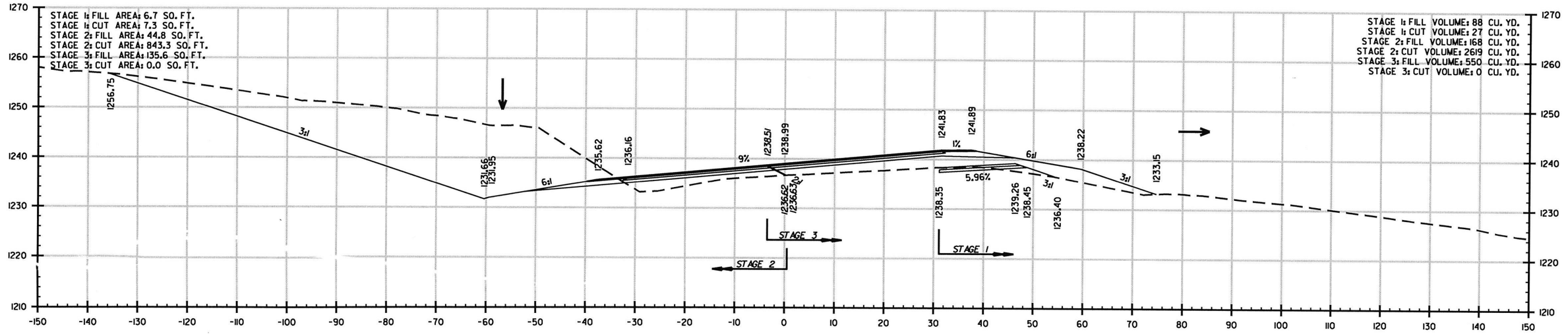
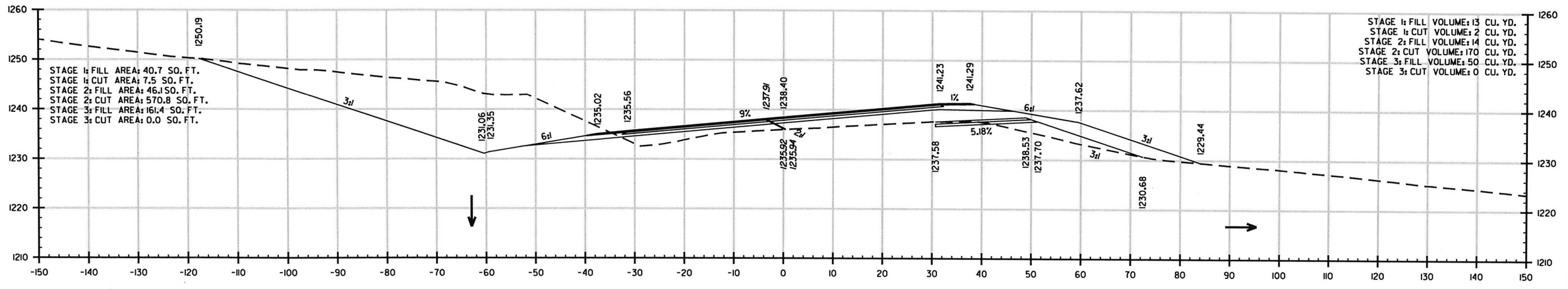
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	287	417

(2) CROSS SECTIONS



STA. 141+00.00



STA. 140+00.00

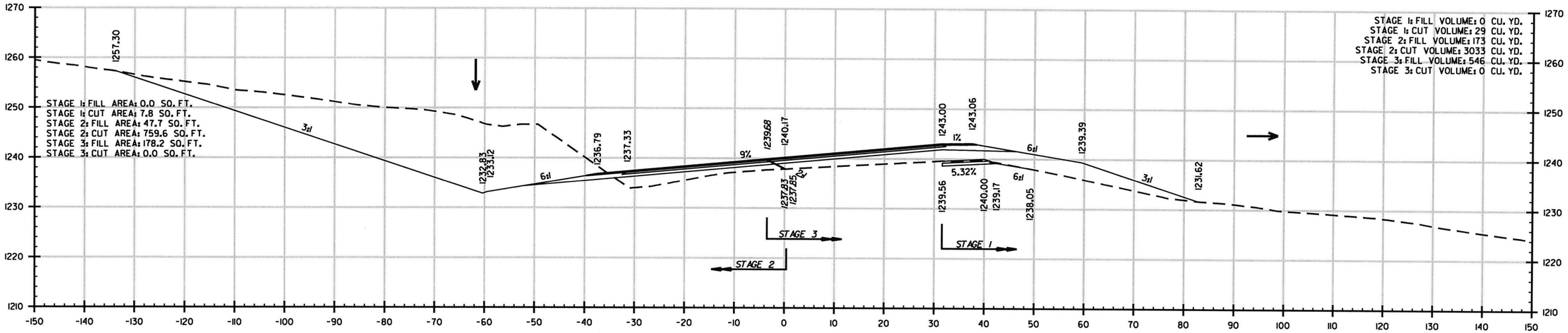
STA. 140+00.00 TO STA. 141+00.00

6/7/2017
4:09:32 PM
\\CA0906_CX_HWY65.dgn

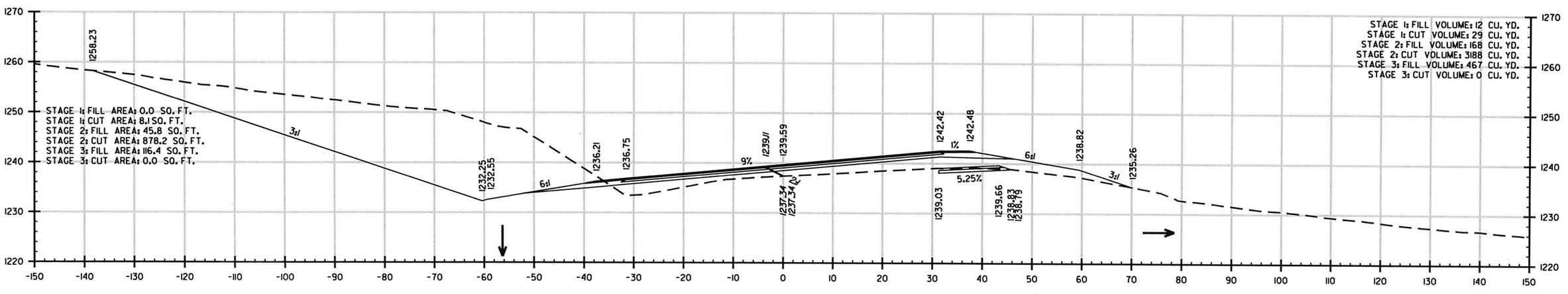
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	288	417

(2) CROSS SECTIONS



STA. 143+00.00

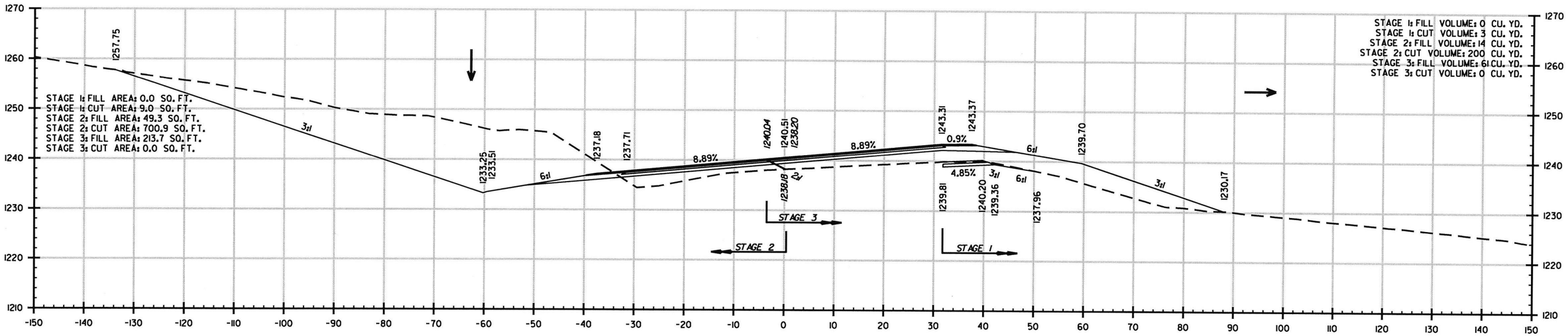


STA. 142+00.00

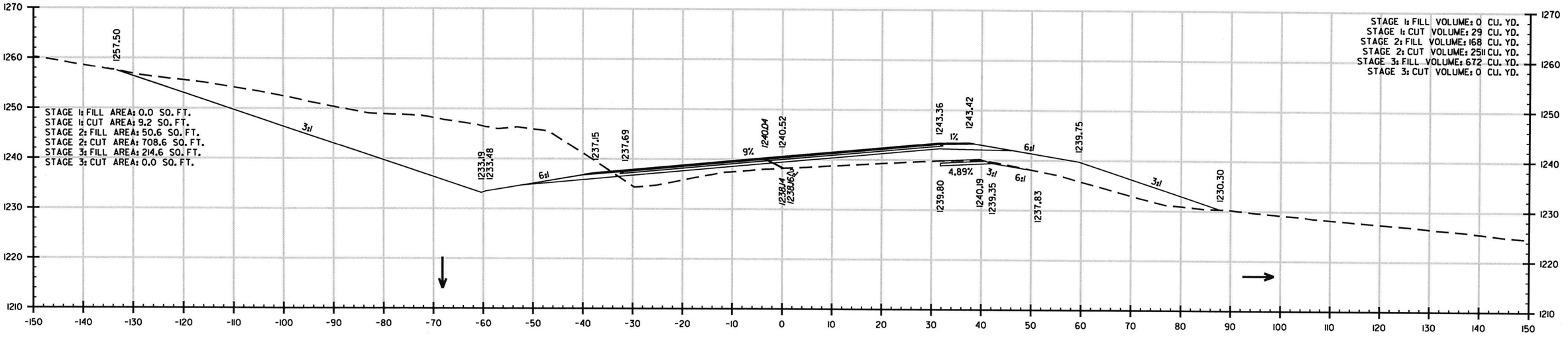
STA. 142+00.00 TO STA. 143+00.00

6/7/2017
4:09:32 PM
M:\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	289	417
				(2)	CROSS SECTIONS			



STA. 144+00.00



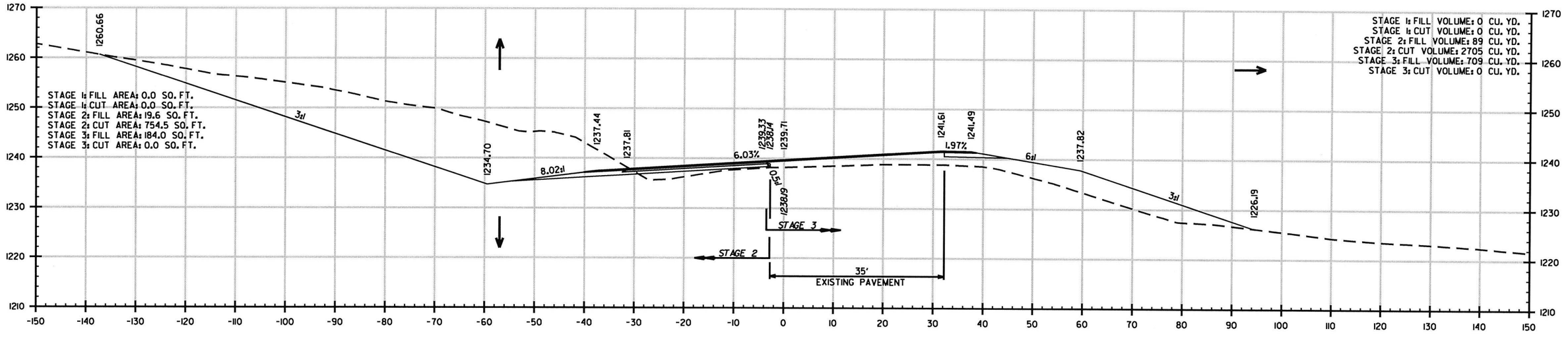
STA. 143+92.34

STA. 143+92.34 TO STA. 144+00.00

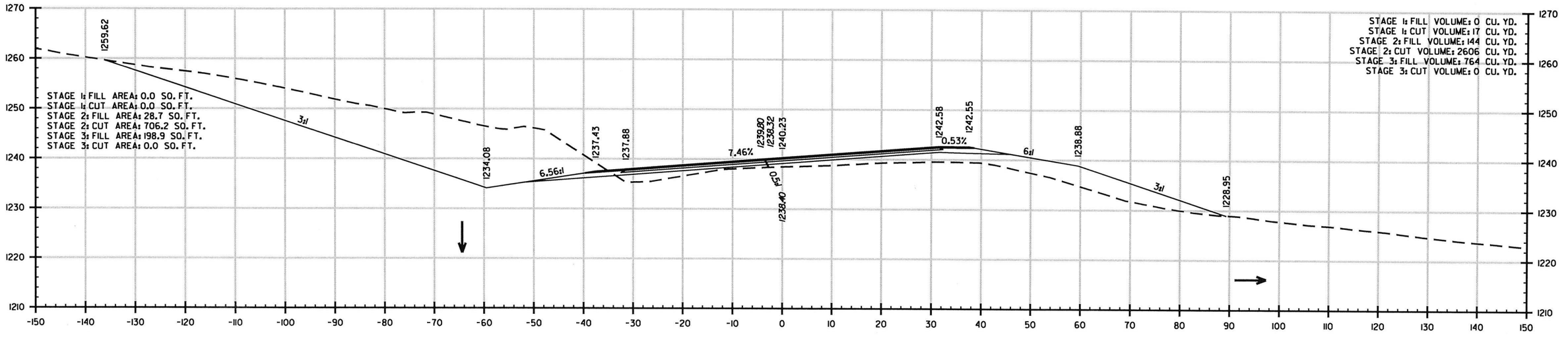
6/7/2017
4:09:32 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	290	417

(2) CROSS SECTIONS



STA. 146+00.00

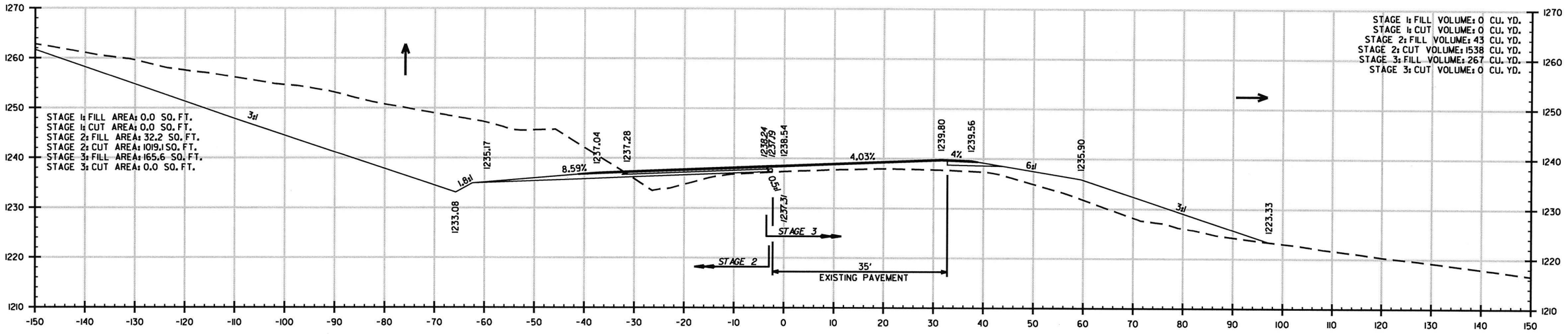


STA. 145+00.00

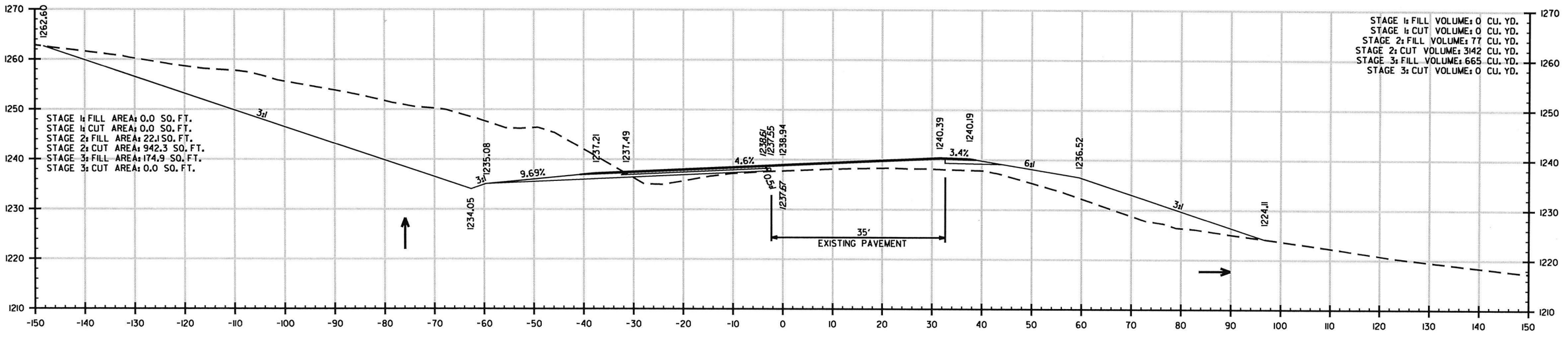
STA. 145+00.00 TO STA. 146+00.00

6/7/2017
4:09:33 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	291	417
				(2)	CROSS SECTIONS			



STA. 147+42.34



STA. 146+60.00 BEGIN
-2.27% LT. DITCH GRADE
ELEV. 1234.95

STA. 147+00.00

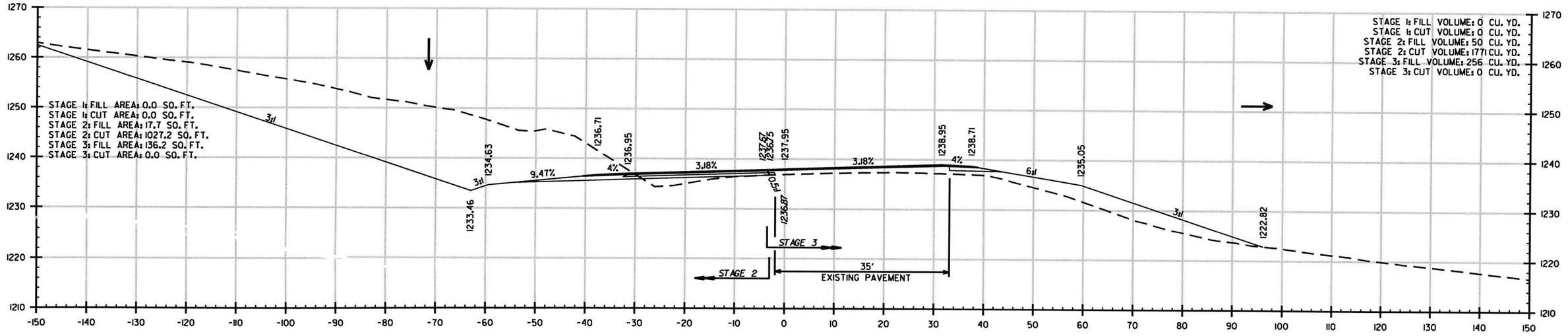
STA. 147+00.00 TO STA. 147+42.34

6/7/2017
4:09:33 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	292	417

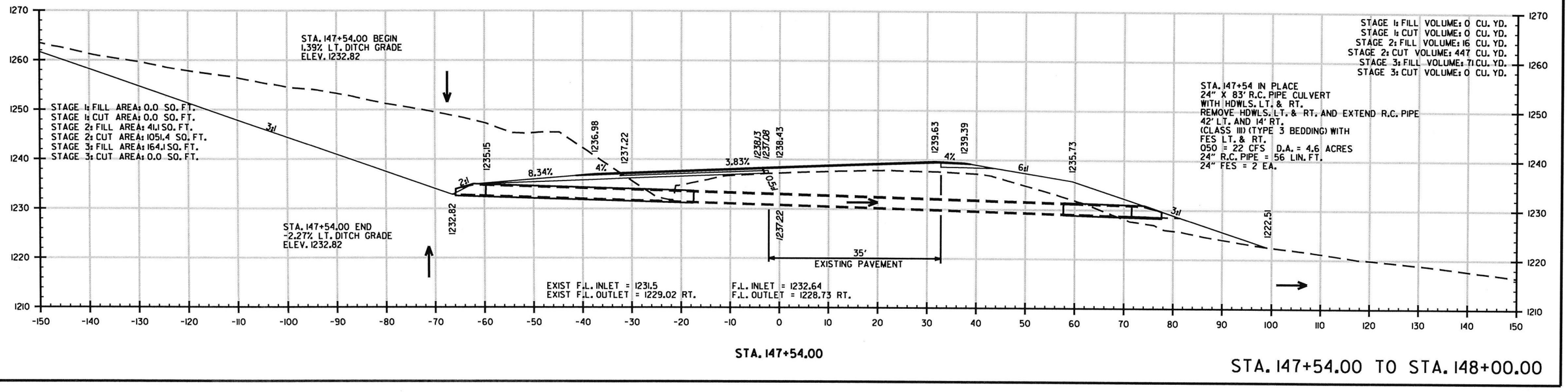
(2) CROSS SECTIONS

STA. 148+40.00 END
1.39% LT. DITCH GRADE
ELEV. 1234.02



STA. 148+00.00

STA. 147+54.00 BEGIN
1.39% LT. DITCH GRADE
ELEV. 1232.82



STA. 147+54.00

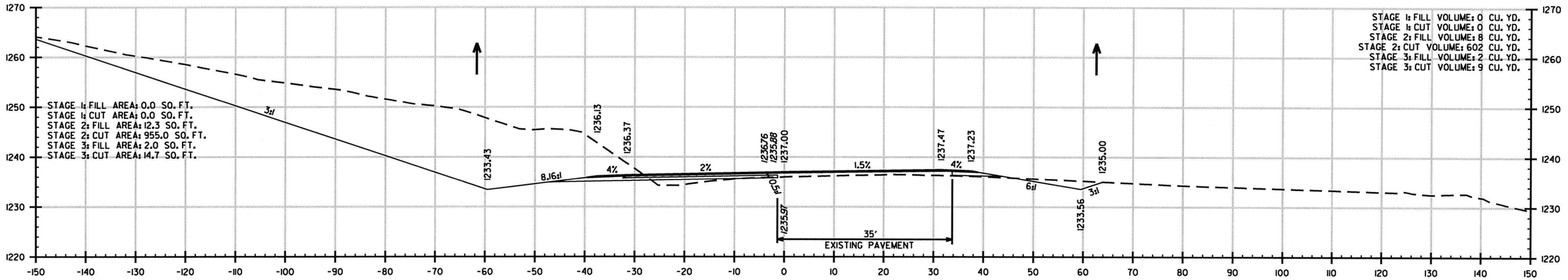
STA. 147+54.00 TO STA. 148+00.00

6/7/2017
4:09:33 PM
...\CA0906_CX_HWY65.dgn

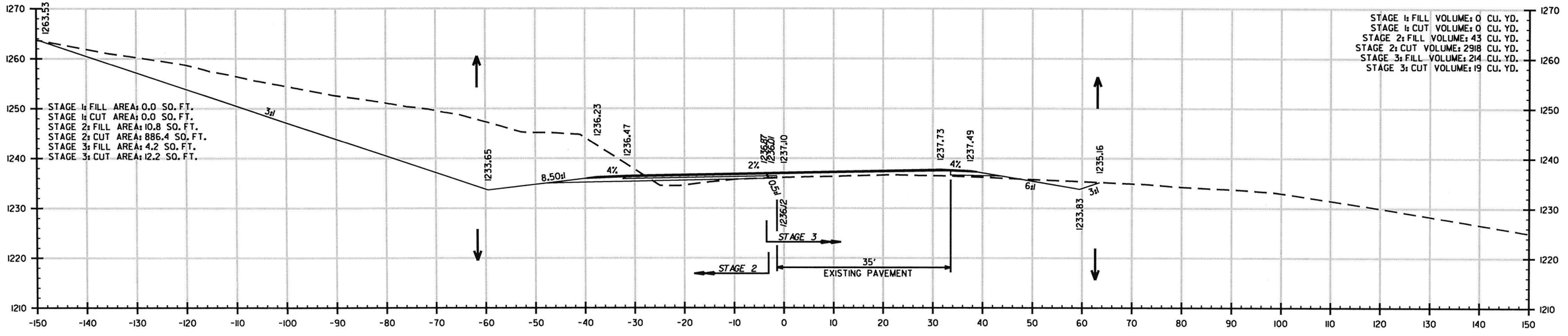
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	293	417

(2) CROSS SECTIONS



STA. 149+00.00



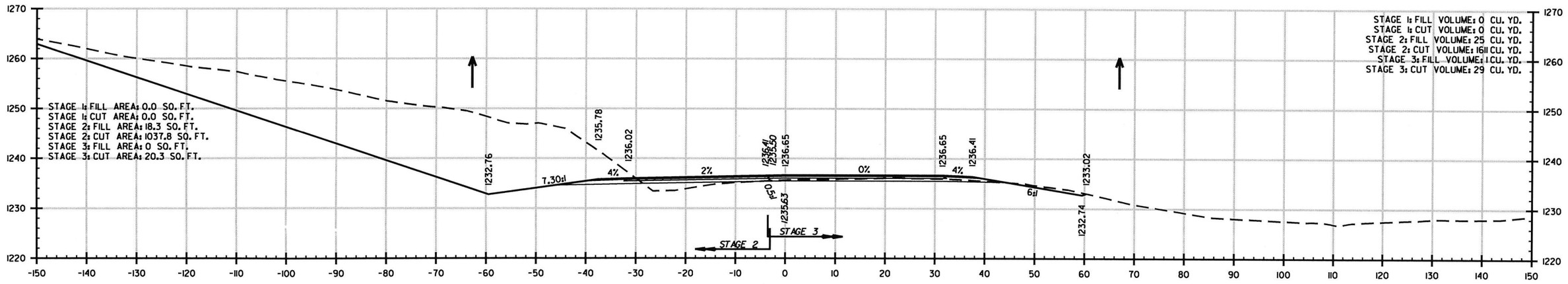
STA. 148+82.34

STA. 148+82.34 TO STA. 149+00.00

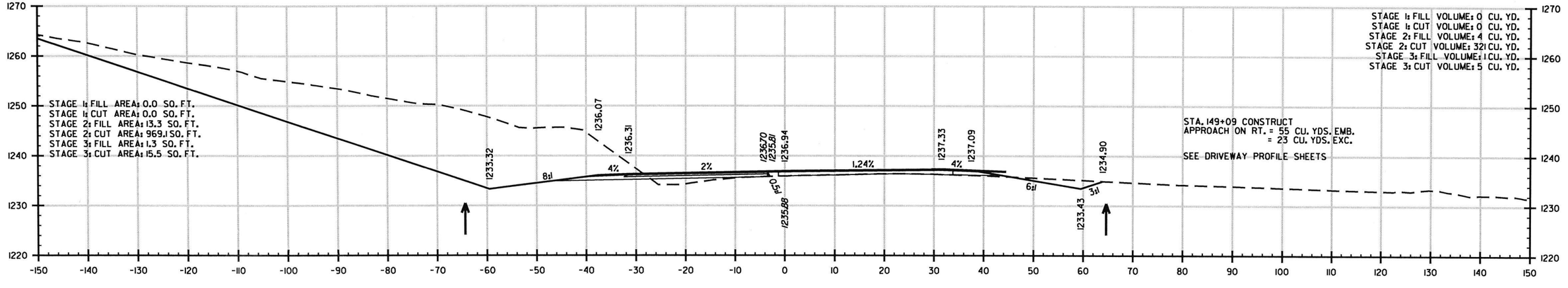
6/7/2017
4:09:54 PM
m:\CA0906.cx.HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	294	417

(2) CROSS SECTIONS



STA. 149+52.34



STA. 149+09.00

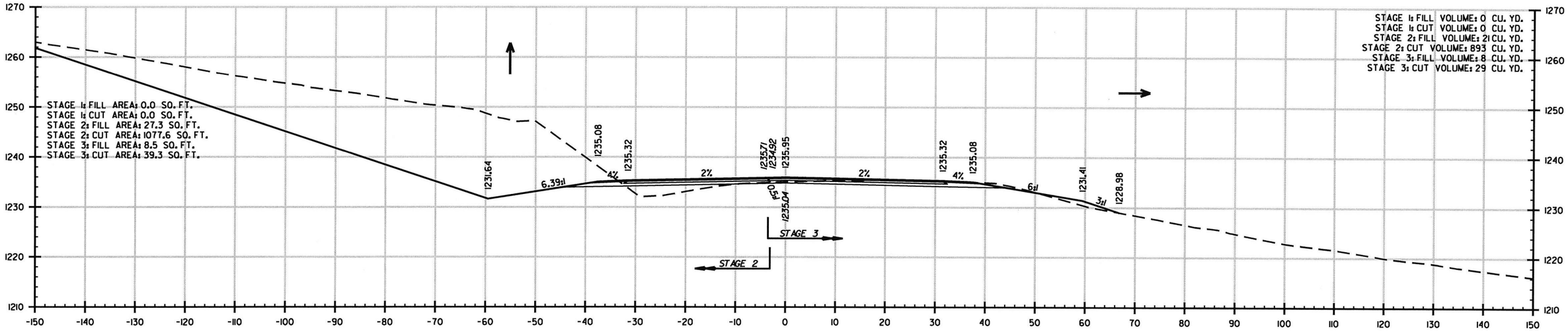
STA. 149+09.00 TO STA. 149+52.34

6/7/2017
4:09:34 PM
...\CA0906_CX_HWY65.dgn

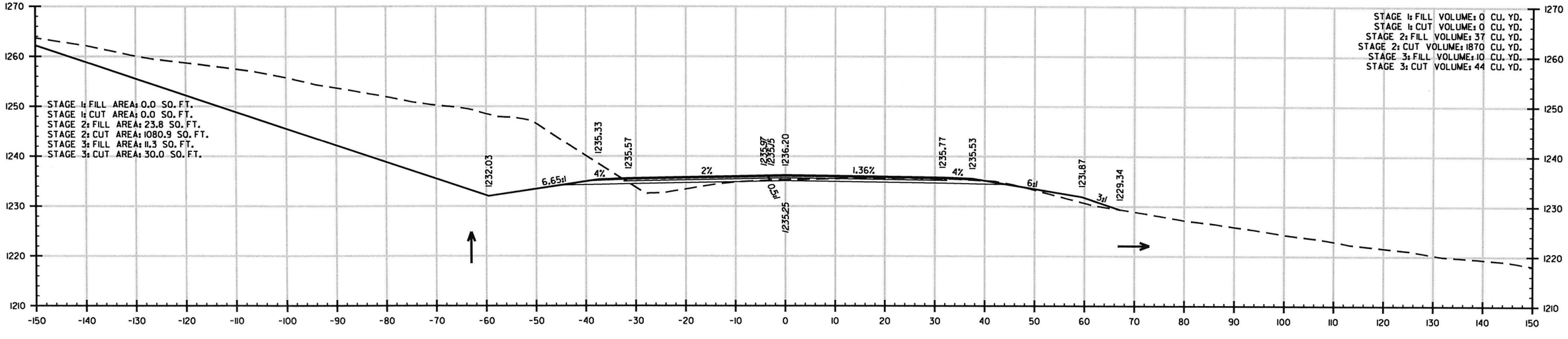
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	295	417

(2) CROSS SECTIONS



STA. 150+22.34



STA. 150+00.00

STA. 150+00.00 TO STA. 150+22.34

6/7/2017
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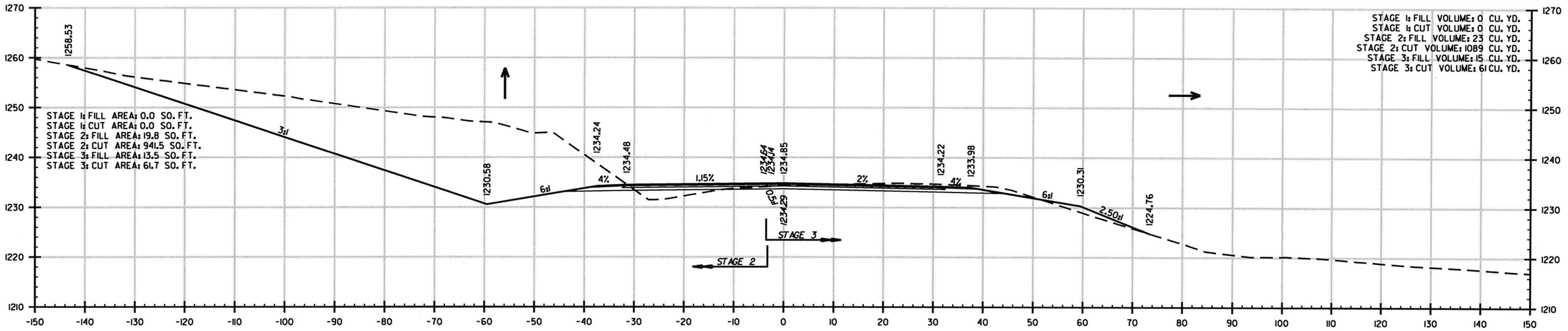
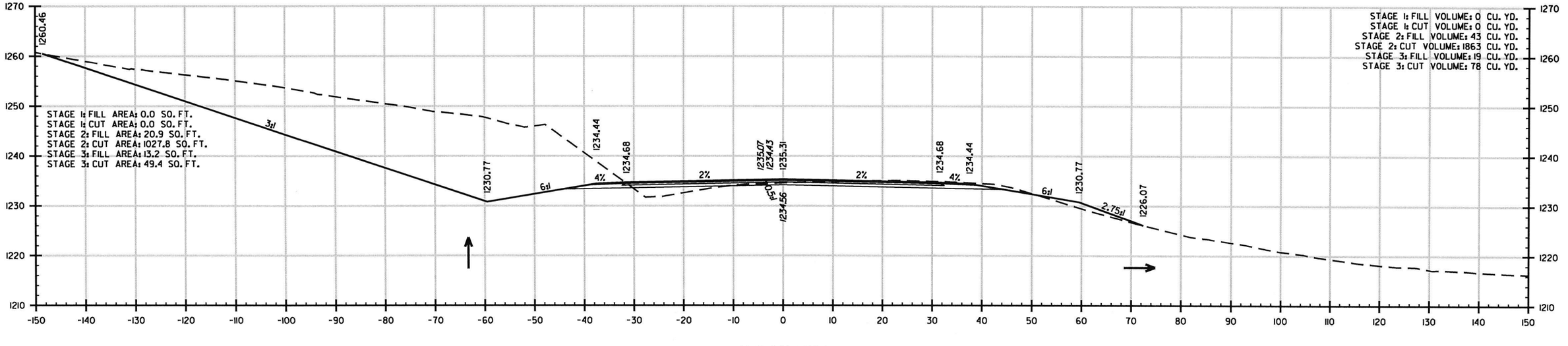
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	296	417
				(2)	CROSS SECTIONS			



STA. 151+00.00



STA. 150+70.13

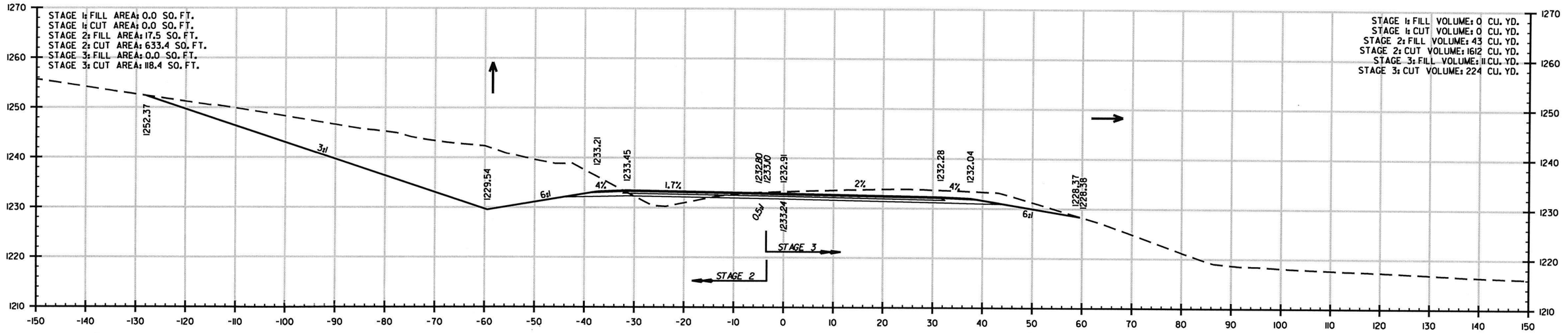
STA. 150+70.13 TO STA. 151+00.00

6/7/2017
4:09:24 PM
...\CA0906_CX_HWY65.dgn

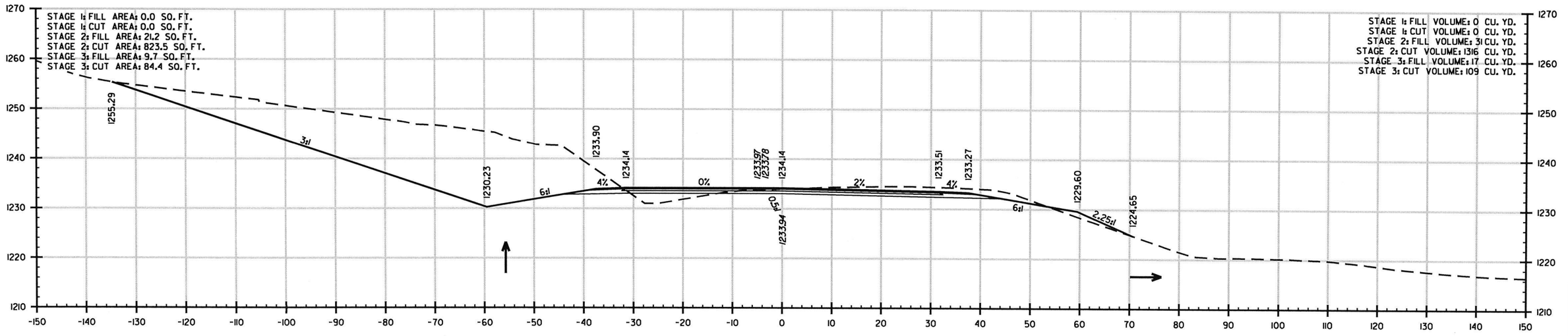
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	297	417

(2) CROSS SECTIONS



STA. 152+00.00



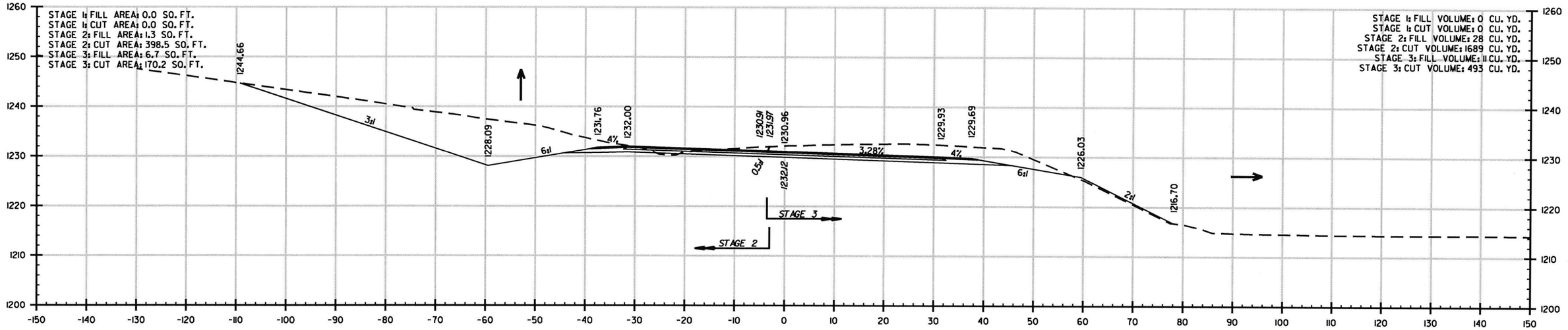
STA. 151+40.26

STA. 151+40.26 TO STA. 152+00.00

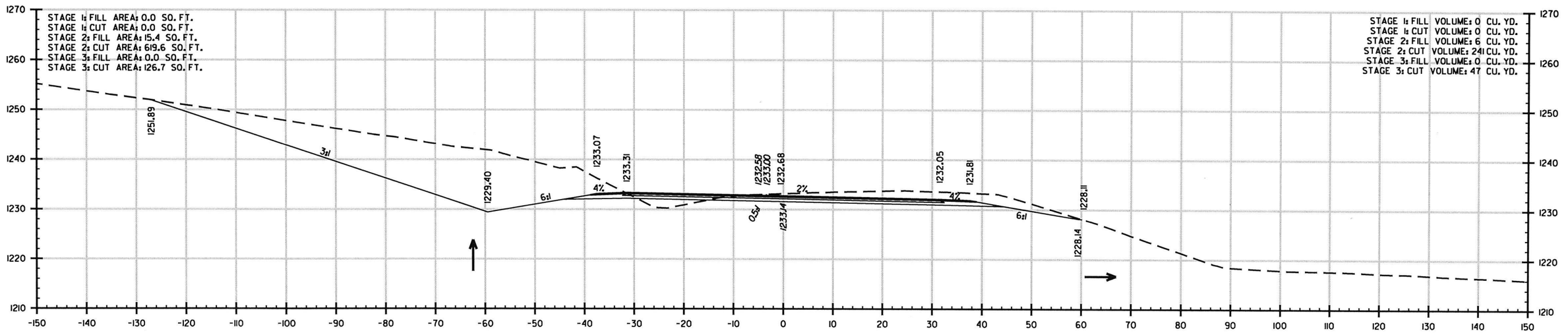
6/7/2017
4:09:55 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	298	417

(2) CROSS SECTIONS



STA. 153+00.00



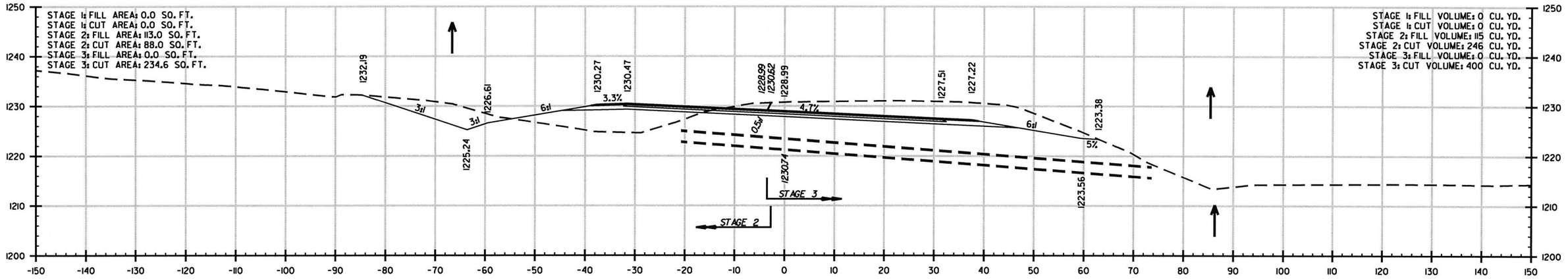
STA. 152+10.39

STA. 152+10.39 TO STA. 153+00.00

6/7/2017
4:09:35 PM
...\CA0906_CX_HWY65.dgn

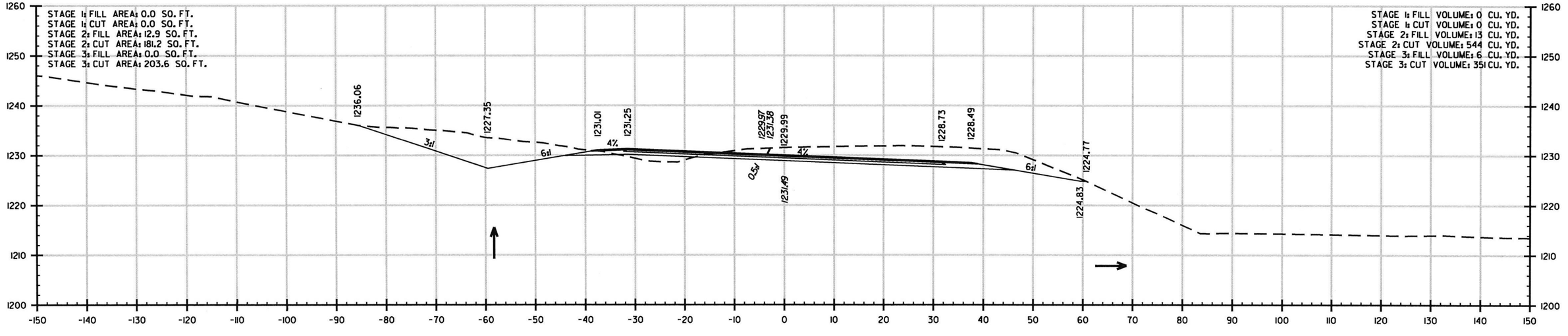
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	299	417

(2) CROSS SECTIONS



STA. 154+00.00

STA. 153+60.00 BEGIN
-5.04% LT. DITCH GRADE
ELEV. 1227.26



STA. 153+50.65

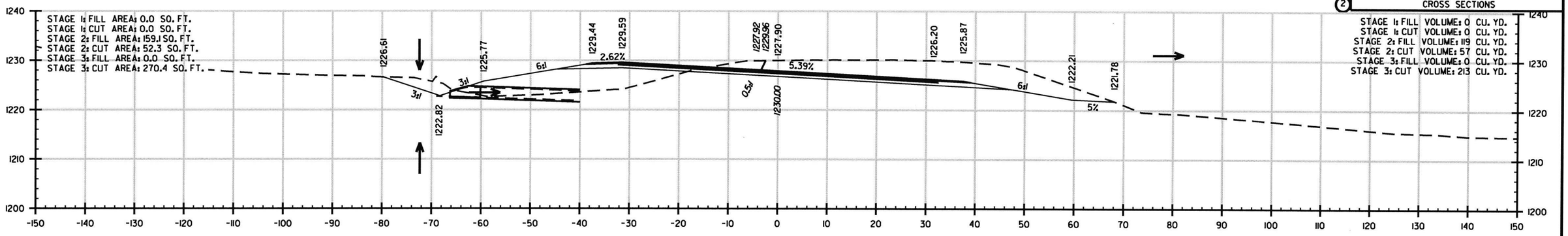
STA. 153+50.65 TO STA. 154+00.00

6/7/2017
4:09:35 PM
...\CA0906_CX_HWY65.dgn

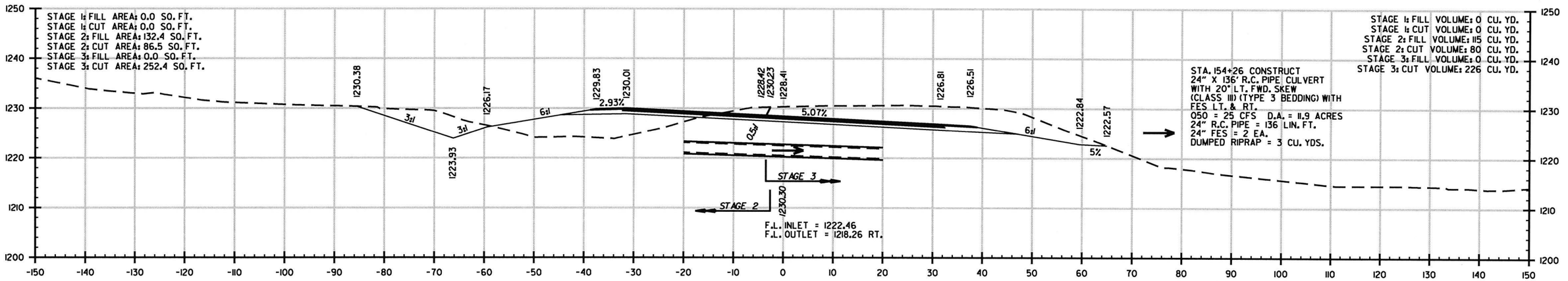
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	300	417

(2) CROSS SECTIONS

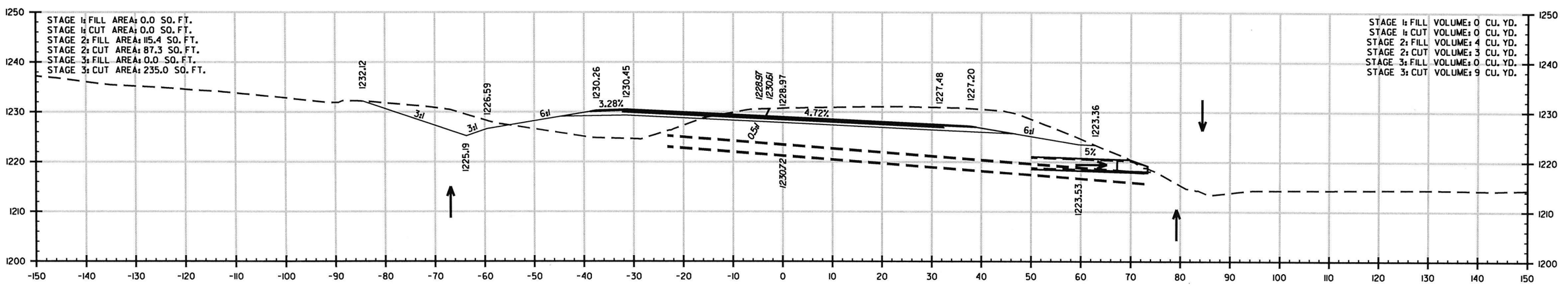
STA. 154+51.00 END
-5.04% LT. DITCH GRADE
ELEV. 1222.67



STA. 154+48.00



STA. 154+26.00



STA. 154+01.00

STA. 154+01.00 TO STA. 154+48.00

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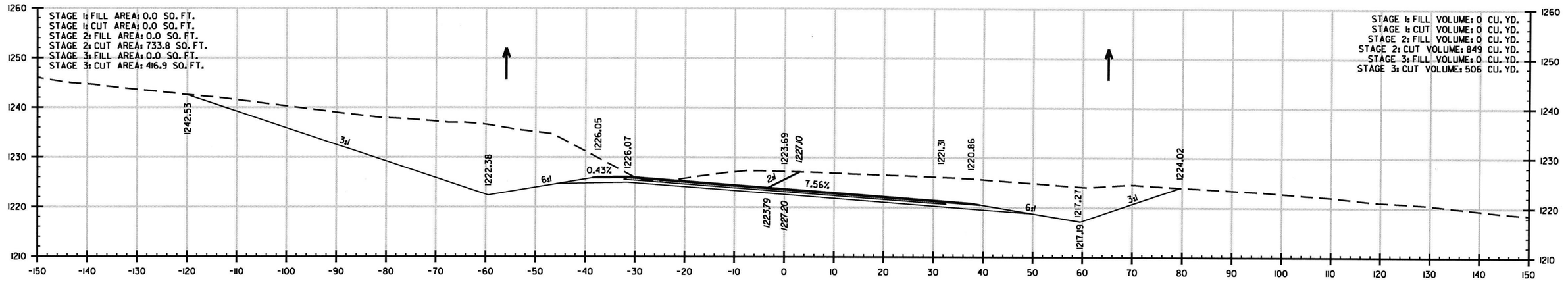
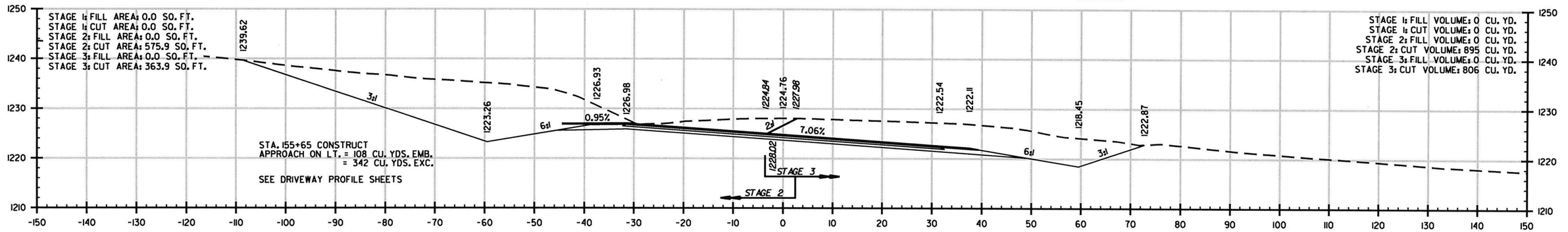
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	301	417

(2) CROSS SECTIONS



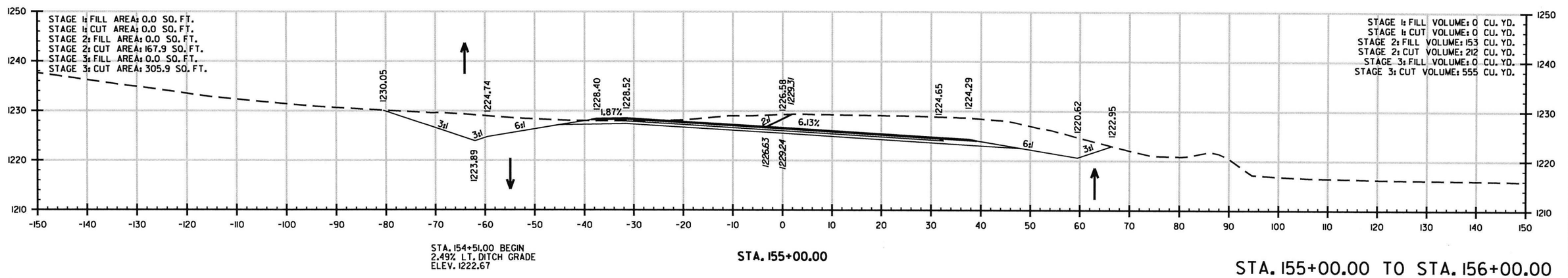
STA. 156+00.00

STA. 155+99.00 BEGIN
-6.93% RT. DITCH GRADE
ELEV. 1217.34



STA. 155+20.00 END
2.49% LT. DITCH GRADE
ELEV. 1224.39

STA. 155+65.00



STA. 154+51.00 BEGIN
2.49% LT. DITCH GRADE
ELEV. 1222.67

STA. 155+00.00

STA. 155+00.00 TO STA. 156+00.00

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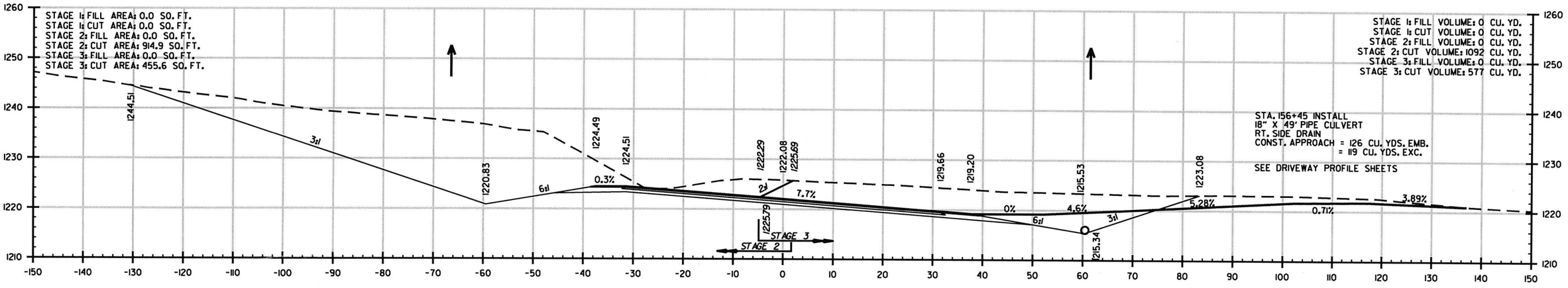
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	302	417

(2) CROSS SECTIONS

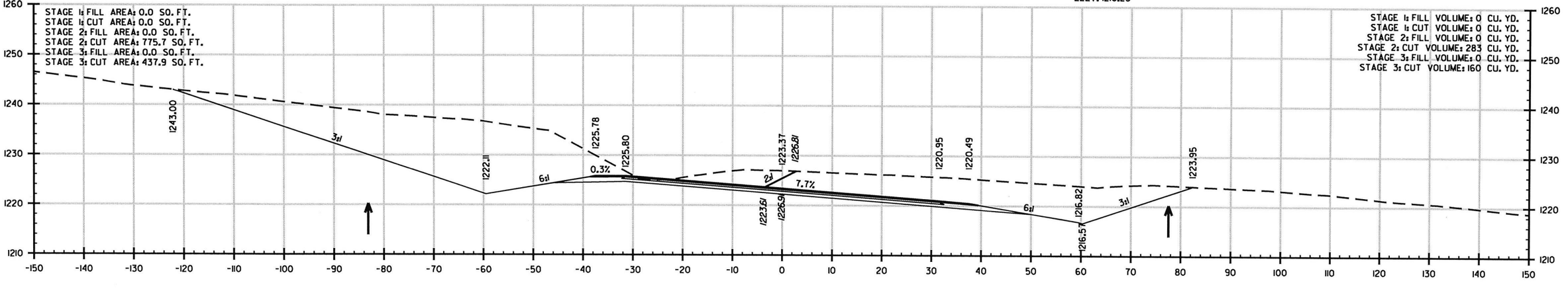
STA. 156+80.00 END
-2.98% RT. DITCH GRADE
ELEV. 1214.29



STA. 156+45.00

STA. 156+15.00 BEGIN
-2.98% RT. DITCH GRADE
ELEV. 1216.23

STA. 156+15.00 END
-6.93% RT. DITCH GRADE
ELEV. 1216.23



STA. 156+10.13

STA. 156+10.13 TO STA. 156+45.00

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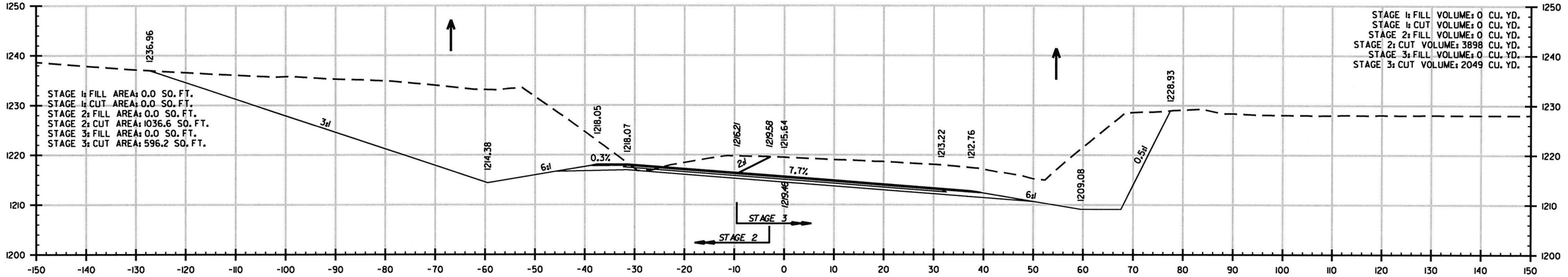
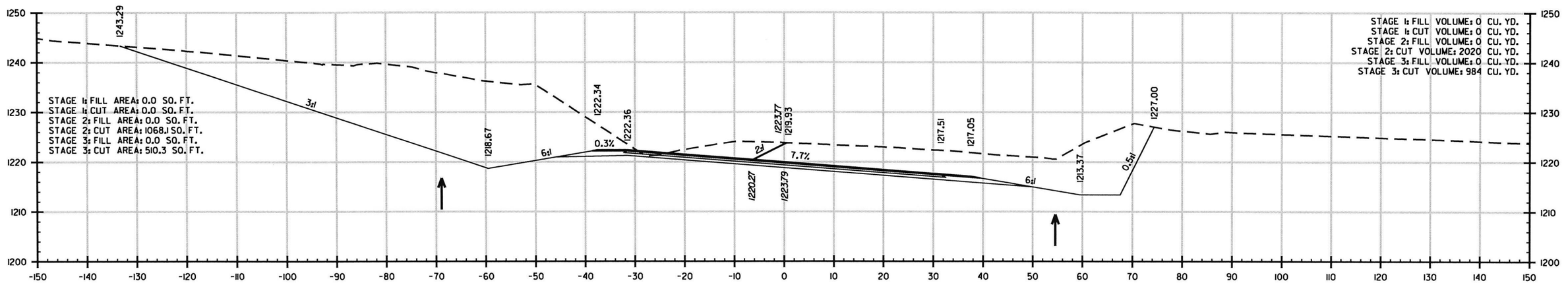
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	303	417

(2) CROSS SECTIONS



STA. 158+00.00



STA. 157+00.00

STA. 157+00.00 TO STA. 158+00.00

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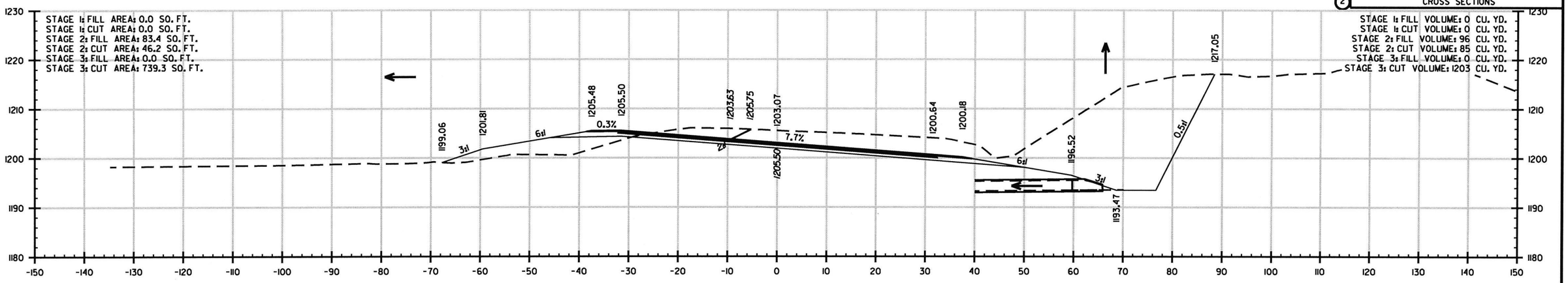
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	304	417

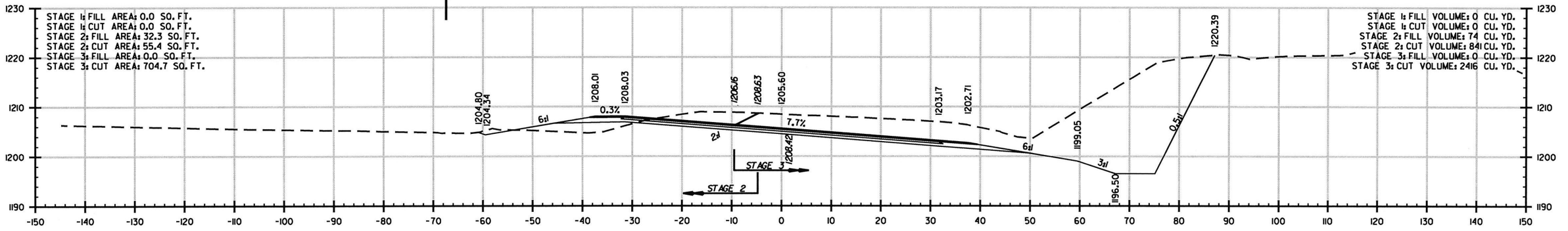
2 CROSS SECTIONS



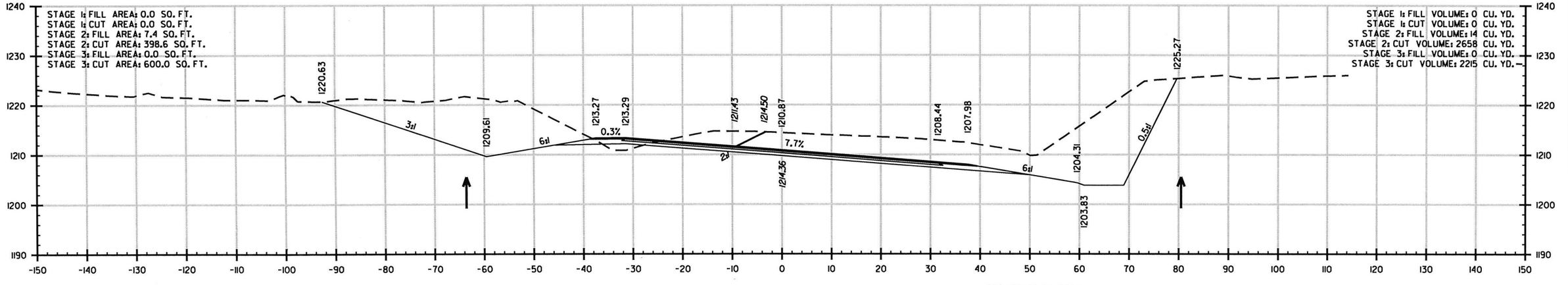
STA. 160+45.00

STA. 160+40.00 END
-7.33% RT. DITCH GRADE
ELEV. 1193.57

STA. 160+40.00 BEGIN
-2.06% RT. DITCH GRADE
ELEV. 1193.57



STA. 160+00.00



STA. 159+00.00

STA. 158+80.00 BEGIN
-7.33% RT. DITCH GRADE
ELEV. 1205.30

STA. 159+00.00 TO STA. 160+45.00

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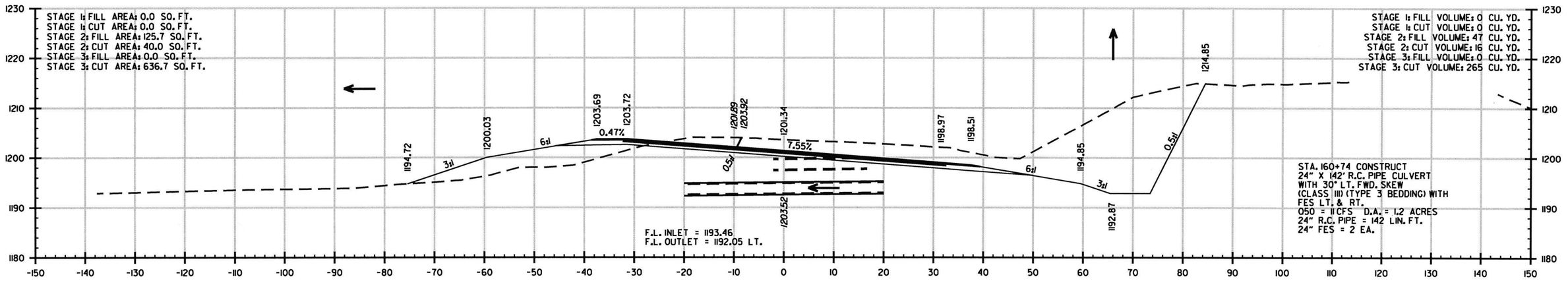
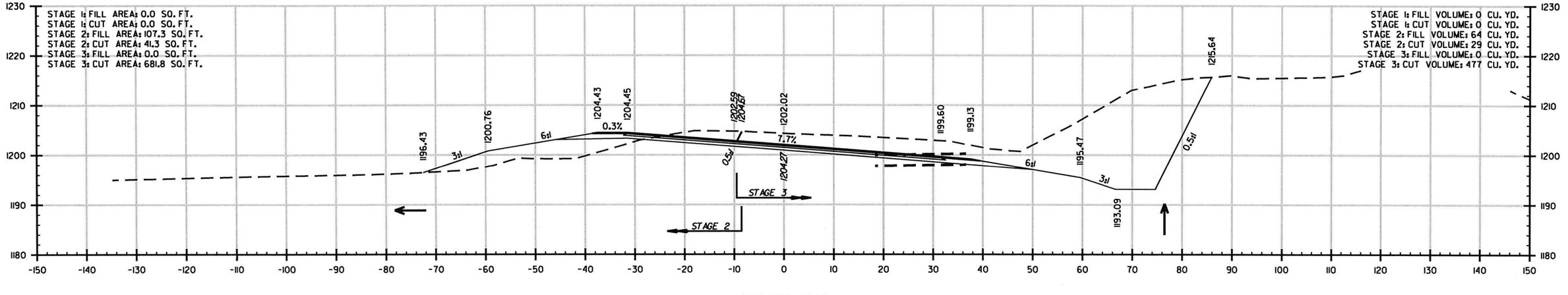
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	305	417
				(2)	CROSS SECTIONS			



STA. 160+74.00



STA. 160+63.14

STA. 160+63.14 TO STA. 160+74.00

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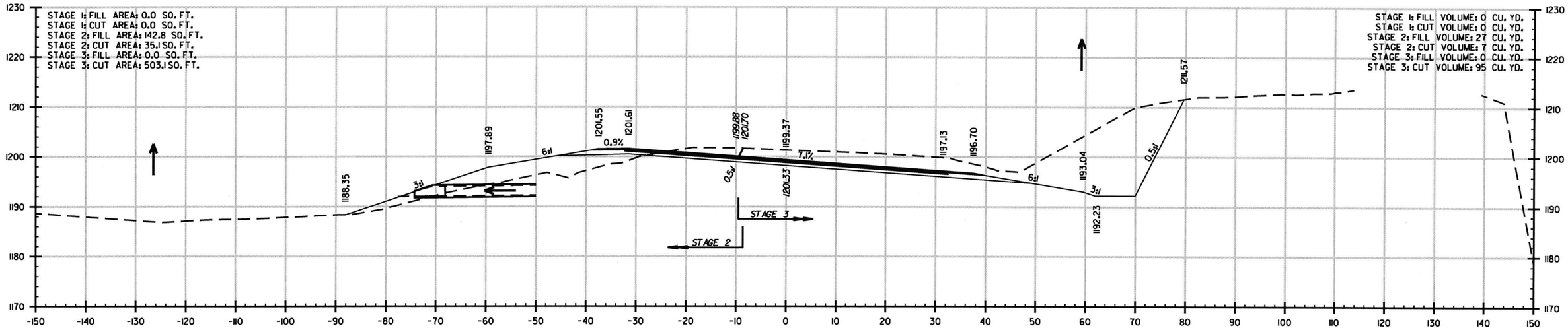
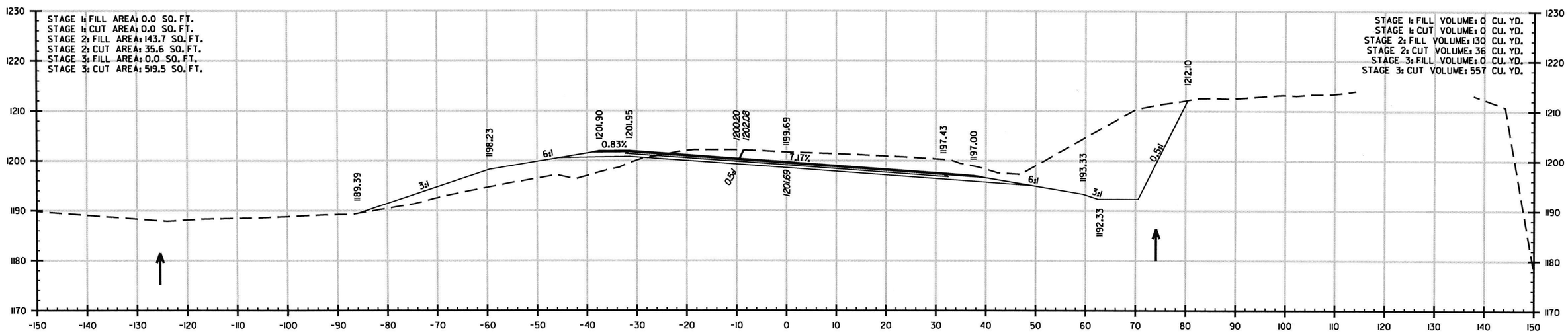
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	306	417

(2) CROSS SECTIONS

STA. 161+25.00 END
-2.06% RT. DITCH GRADE
ELEV. 1191.82



STA. 161+05.00



STA. 161+00.00

STA. 161+00.00 TO STA. 161+05.00

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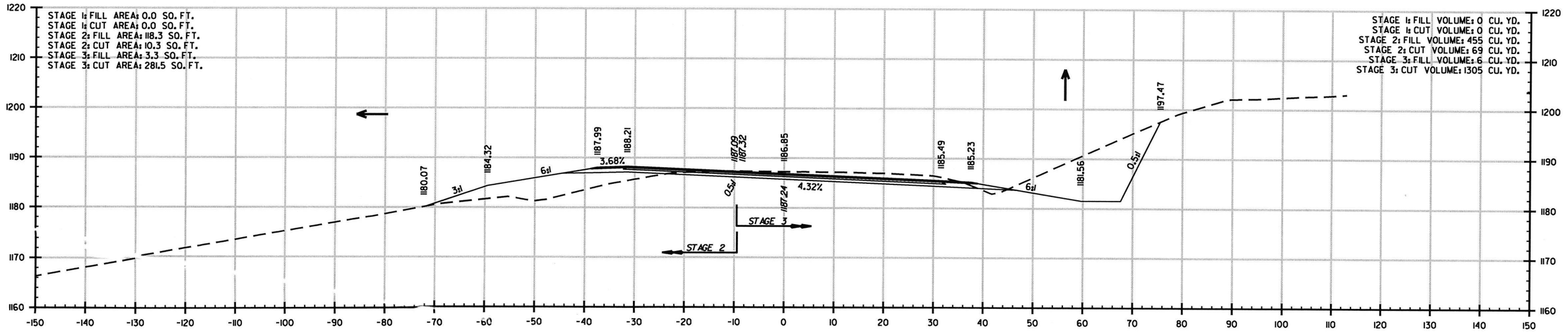
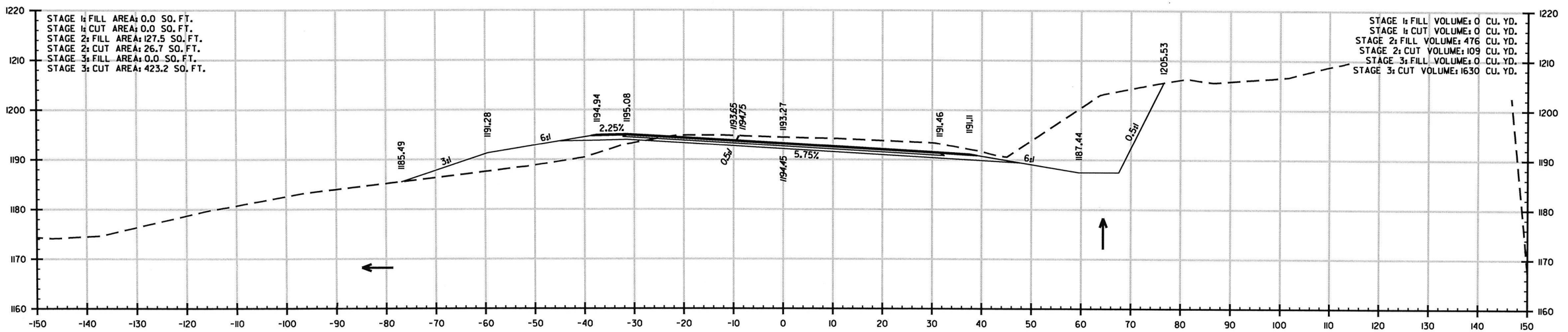
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	307	417

(2) CROSS SECTIONS



STA. 163+00.00



STA. 162+00.00

STA. 162+00.00 TO STA. 163+00.00

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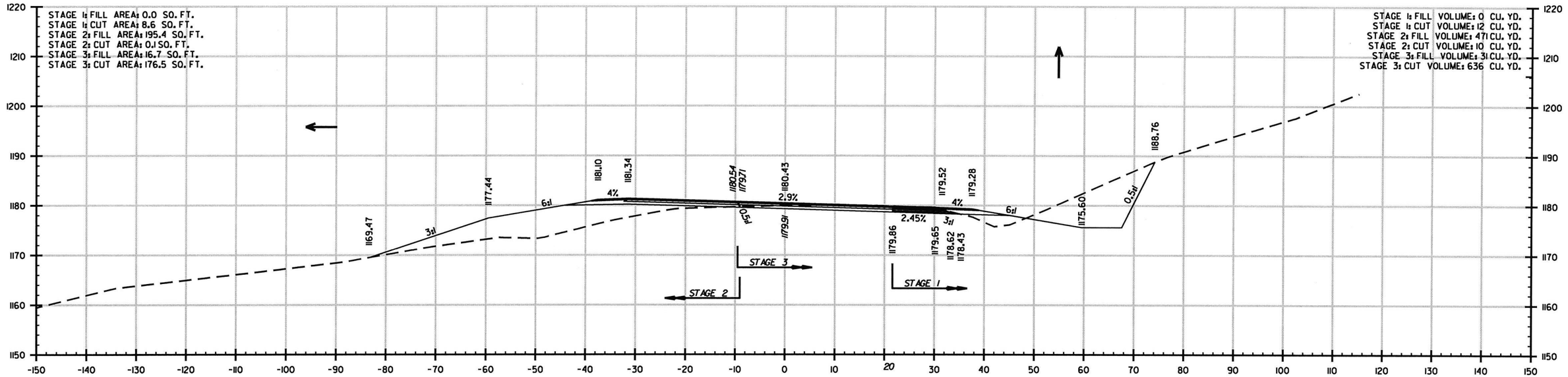
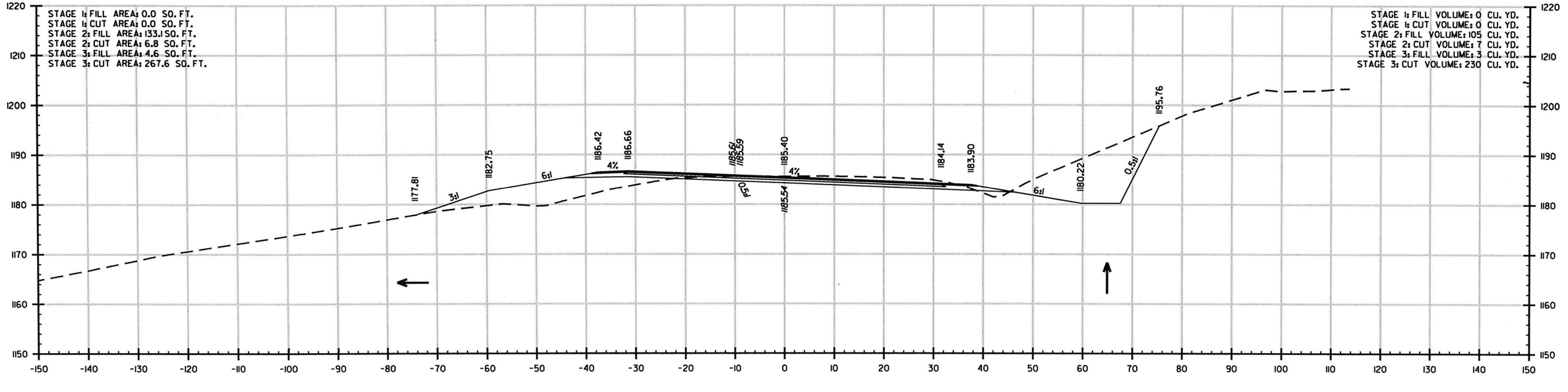
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	308	417

(2) CROSS SECTIONS



STA. 164+00.00



STA. 163+22.62

STA. 163+22.62 TO STA. 164+00.00

6/7/2017
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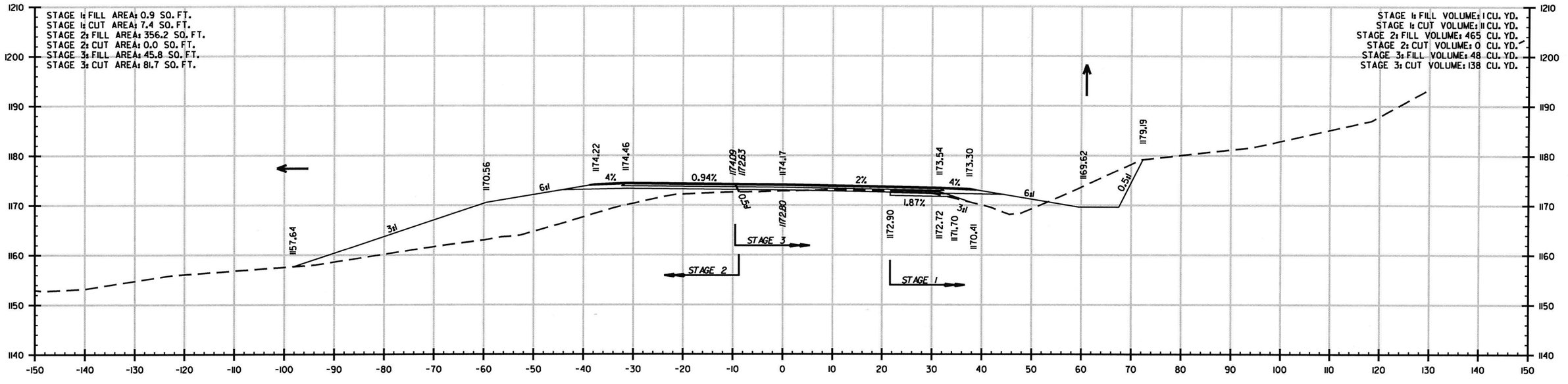
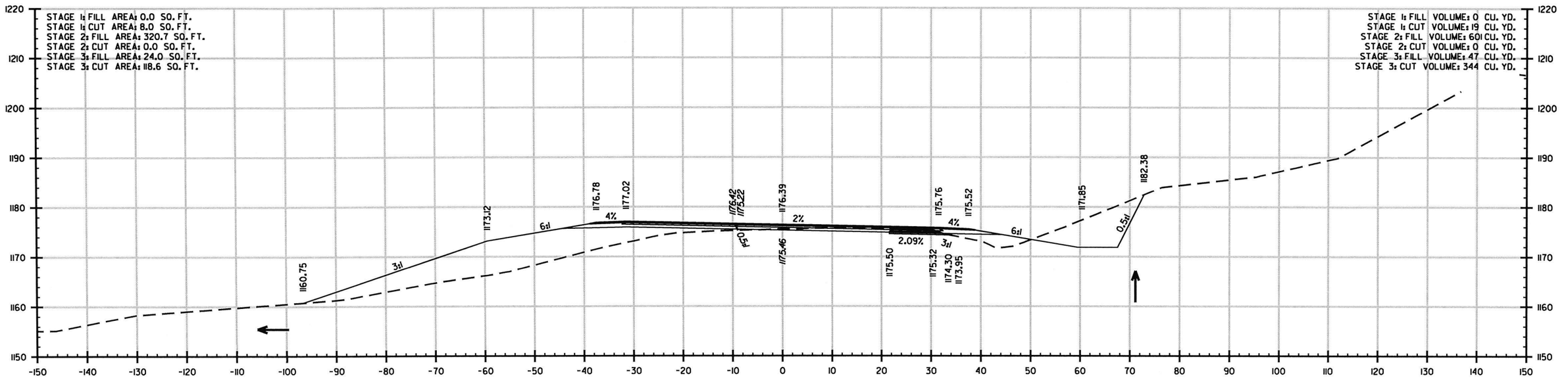
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	309	417

(2) CROSS SECTIONS



STA. 165+00.00



STA. 164+62.88

STA. 164+62.88 TO STA. 165+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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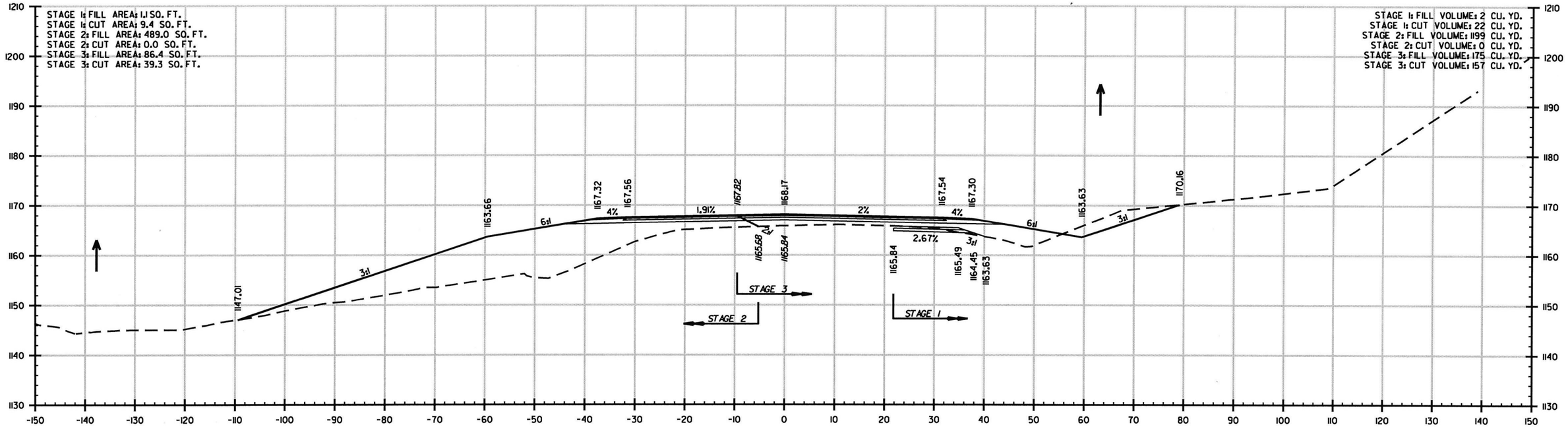
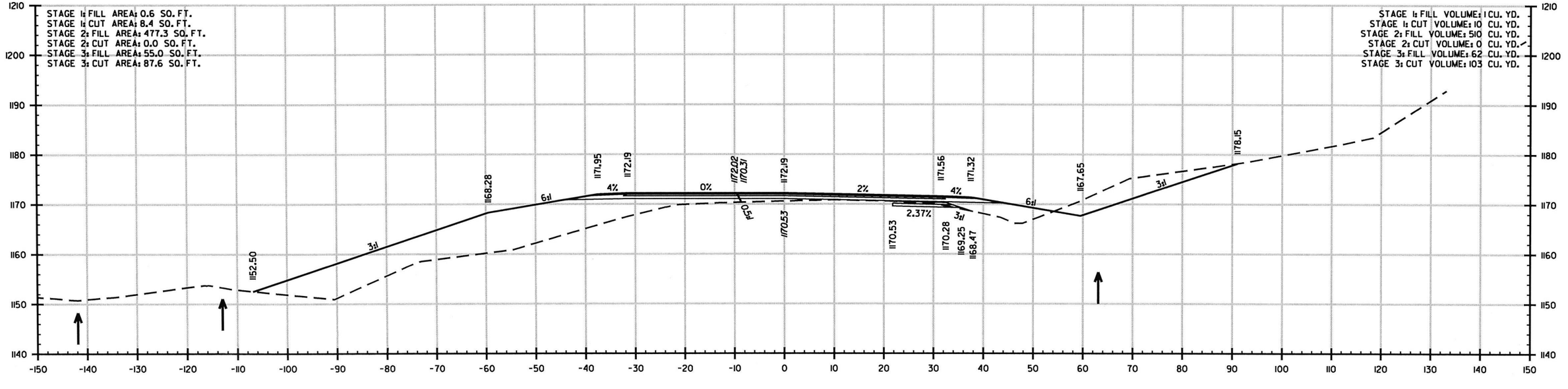
				JOB NO.		CA0906	310	417

(2) CROSS SECTIONS



STA. 166+00.00



STA. 165+33.01

STA. 165+33.01 TO STA. 166+00.00

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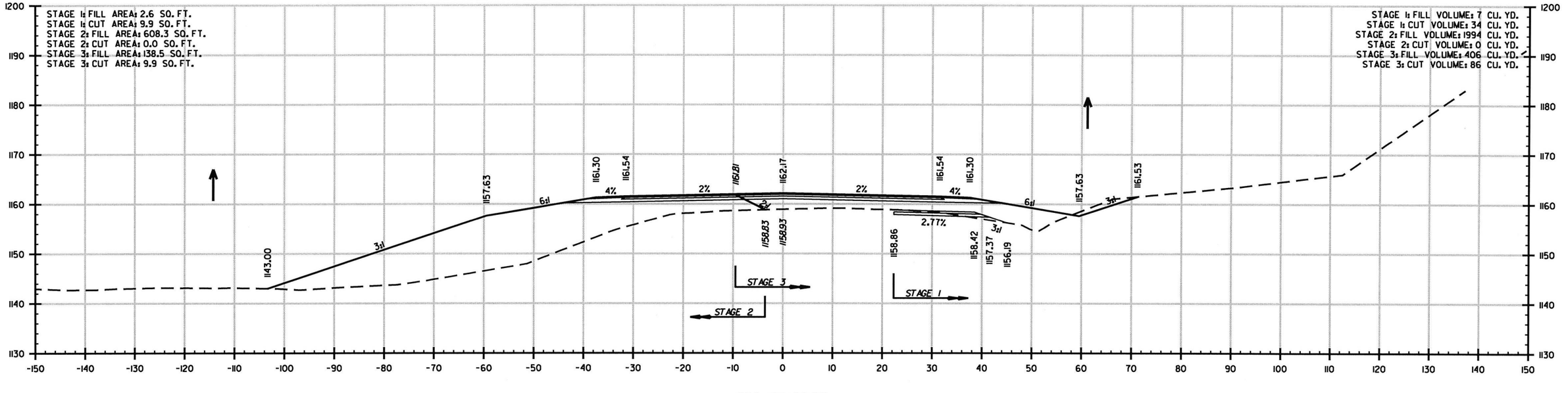
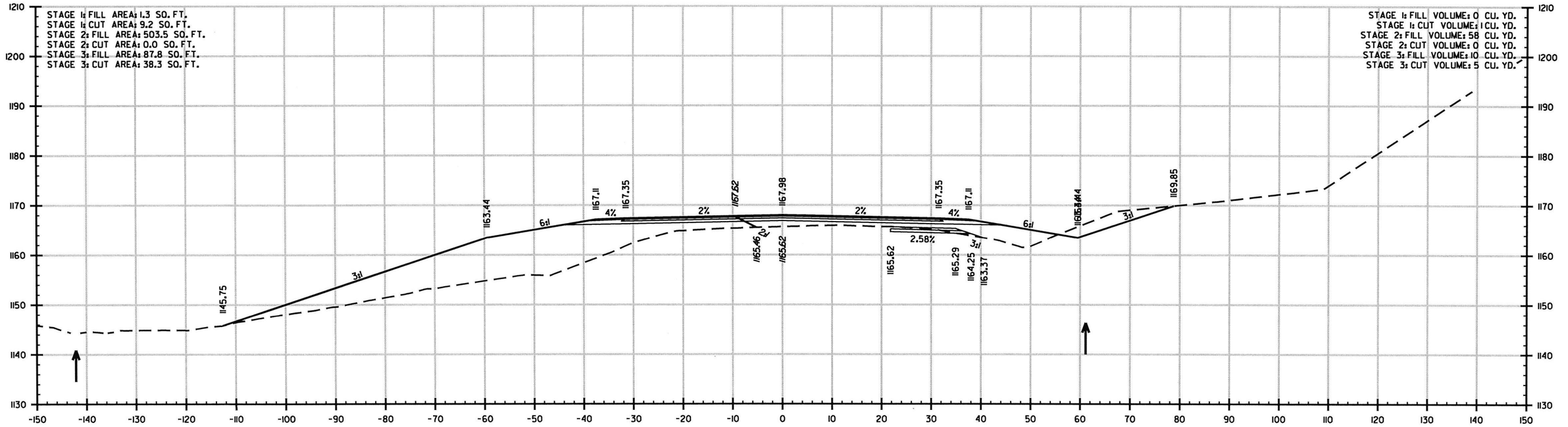
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	311	417

(2) CROSS SECTIONS



STA. 167+00.00



STA. 166+03.14

STA. 166+03.14 TO STA. 167+00.00

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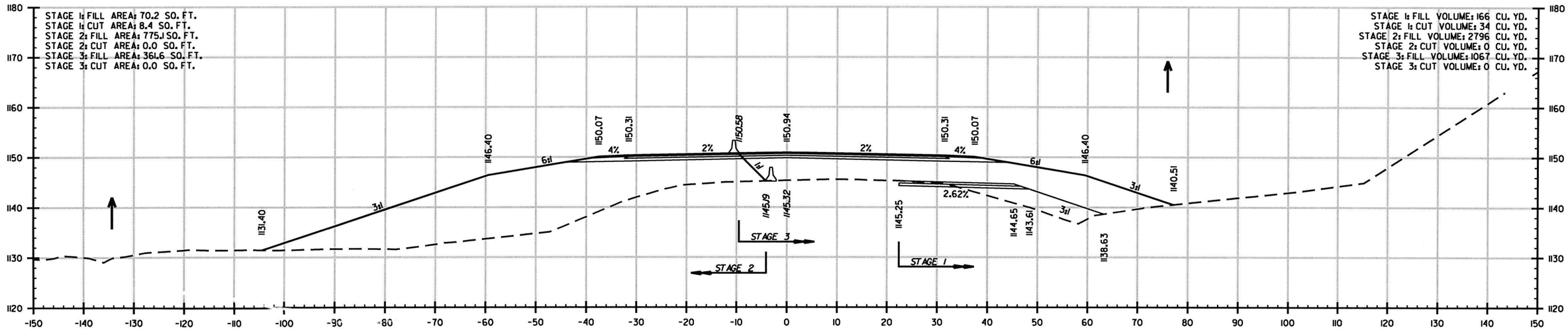
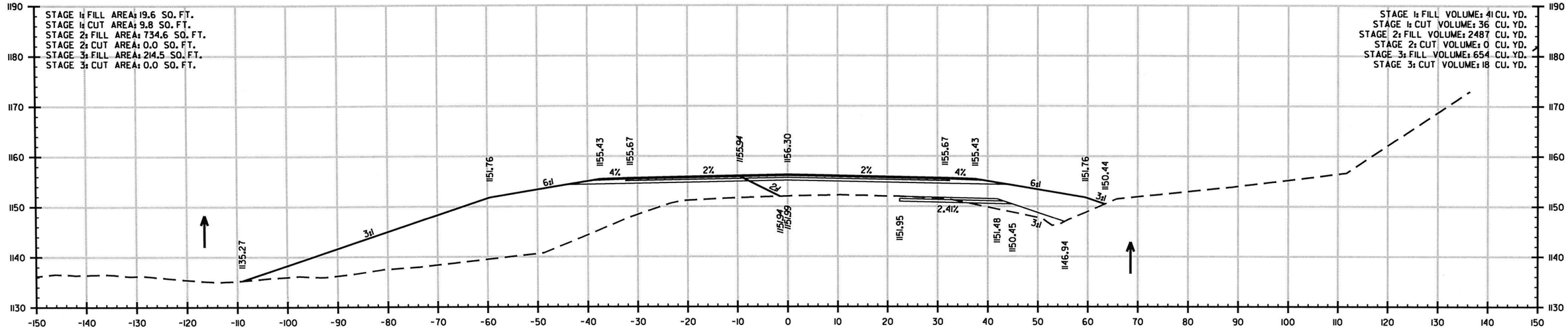
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	312	417

(2) CROSS SECTIONS



STA. 169+00.00



STA. 168+00.00

STA. 168+00.00 TO STA. 169+00.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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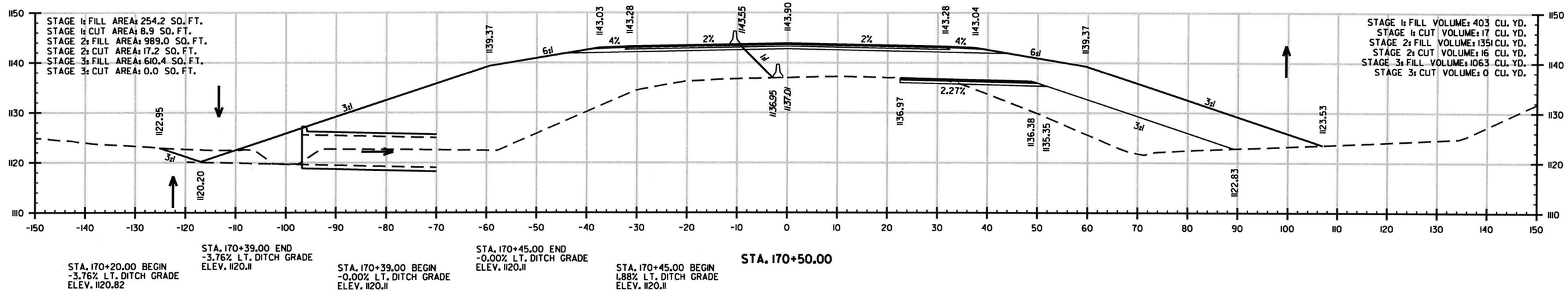
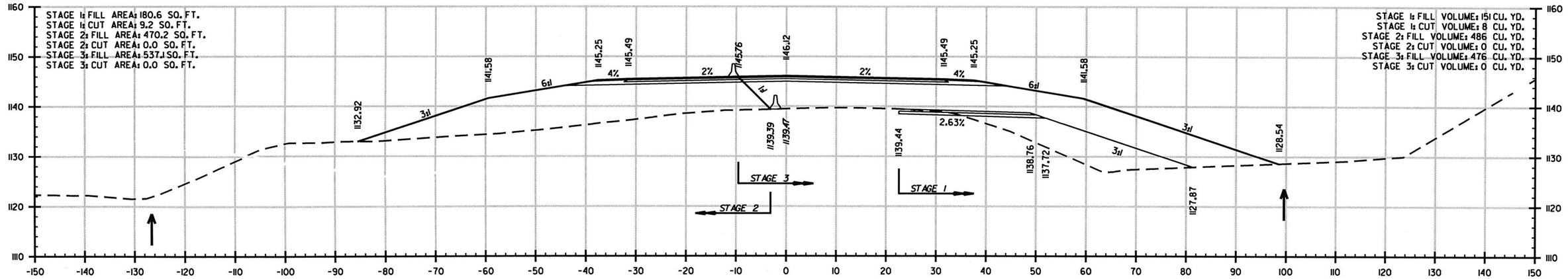
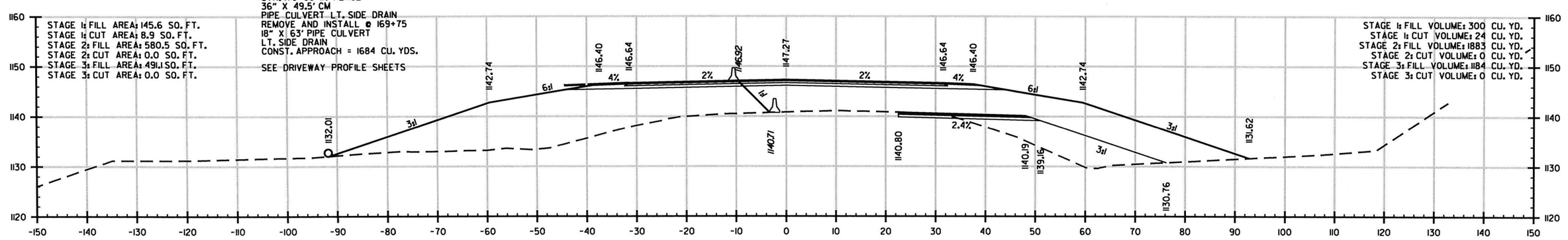
				JOB NO.		CA0906	313	417

(2) CROSS SECTIONS







STA. 170+00.00 TO STA. 170+50.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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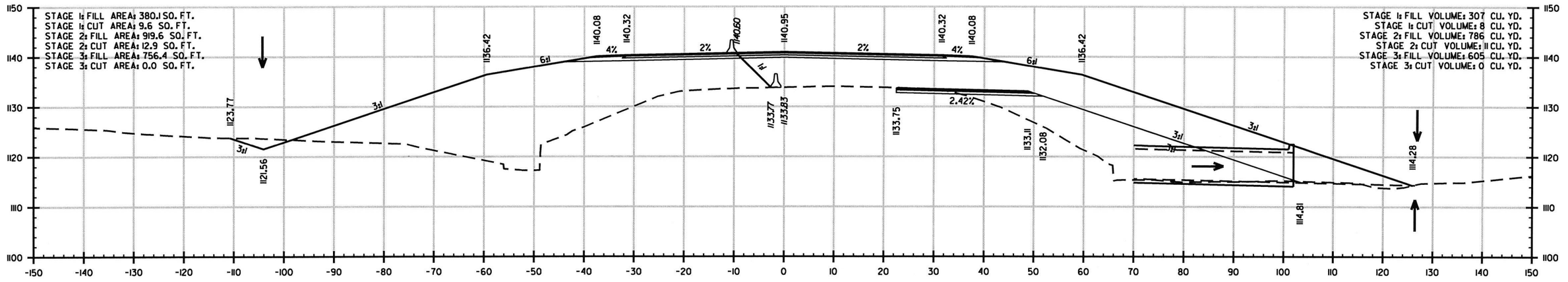
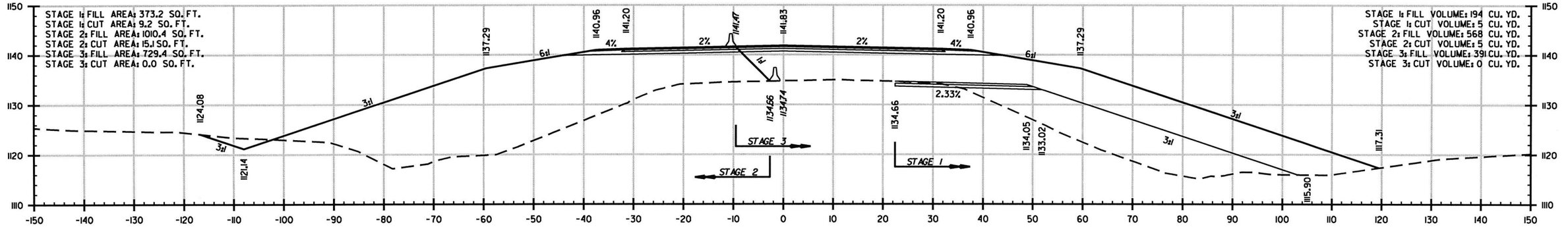
				JOB NO.		CA0906	314	417

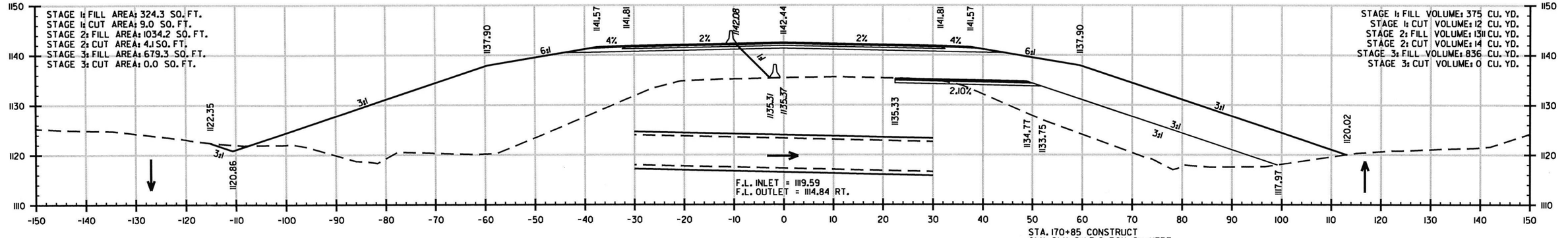
(2) CROSS SECTIONS



STA. 171+22.00



STA. 171+00.00



STA. 170+85.00

STA. 170+85.00 CONSTRUCT
6' X 6' X 211' R.C. BOX CULVERT
WITH 20° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 217 CFS D.A. = 125.3 ACRES

STA. 170+85.00 TO STA. 171+22.00

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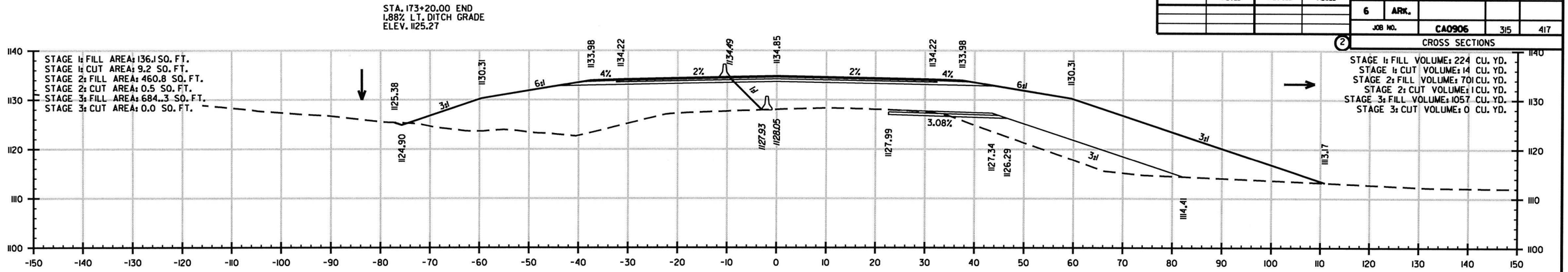
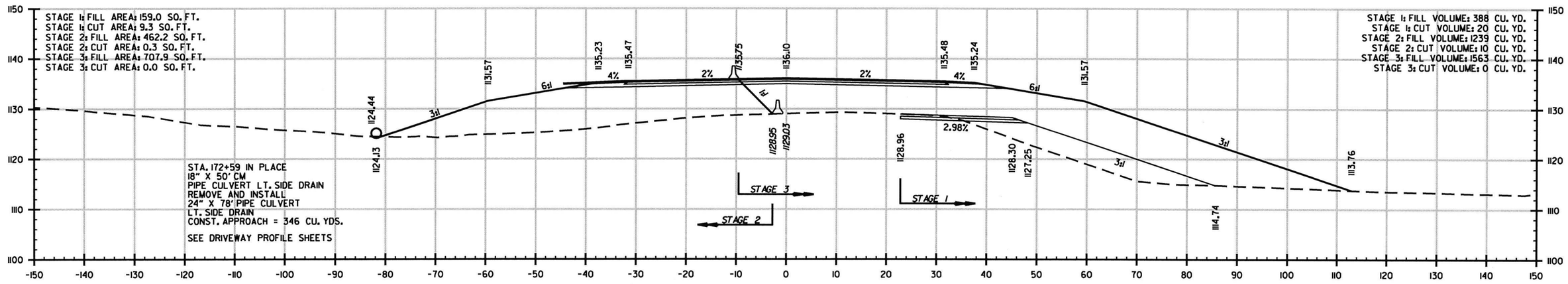
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	315	417

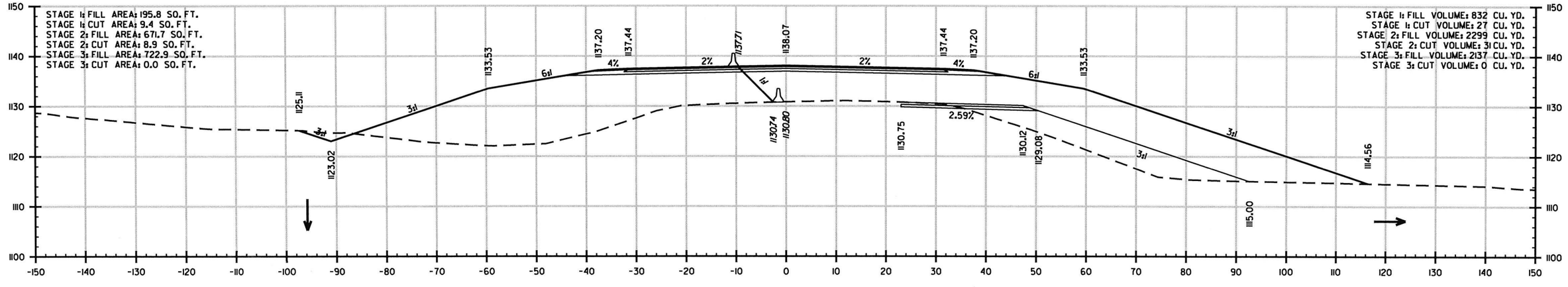
(2) CROSS SECTIONS



STA. 173+00.00



STA. 172+59.00



STA. 172+00.00

STA. 172+00.00 TO STA. 173+00.00

6/7/2017
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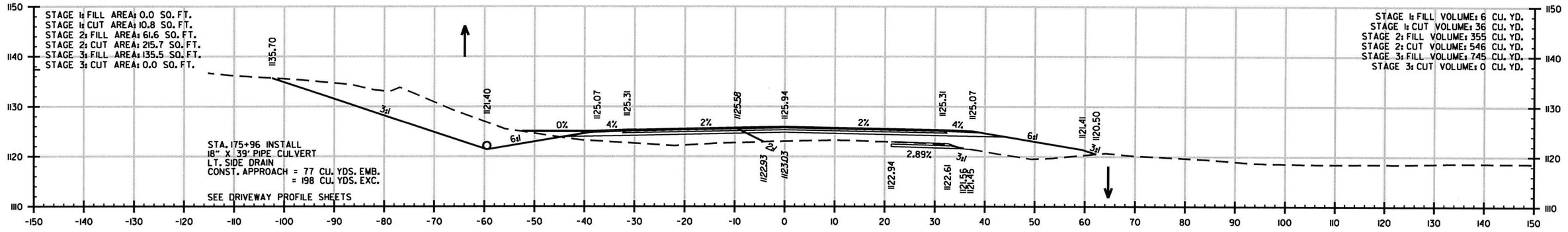
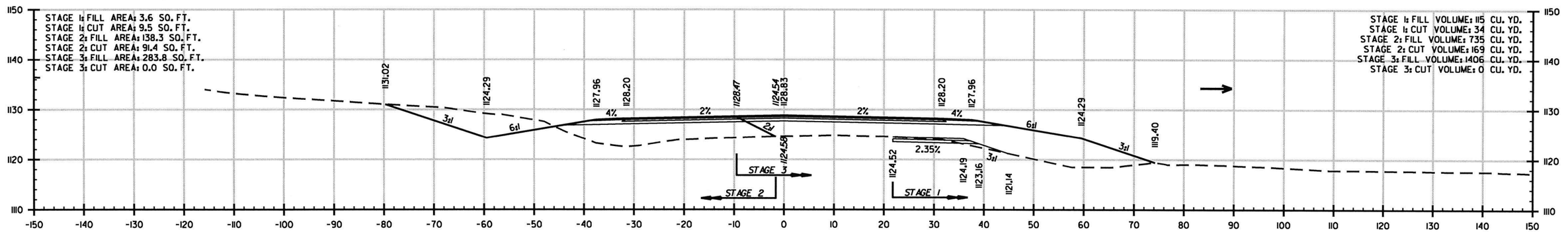
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	316	417

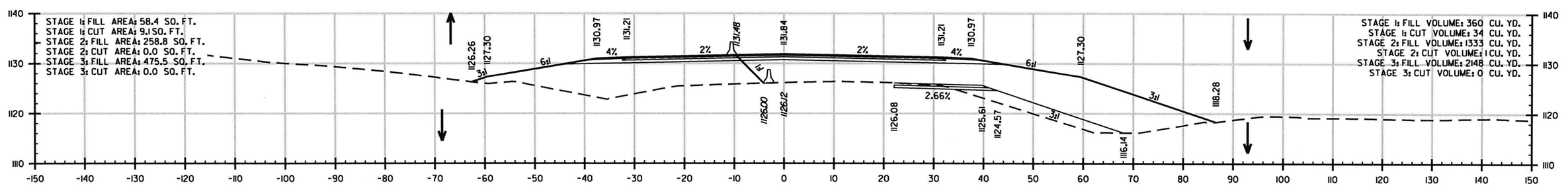
(2) CROSS SECTIONS



STA. 175+96.00



STA. 175+00.00



STA. 174+00.00

STA. 174+00.00 TO STA. 175+96.00

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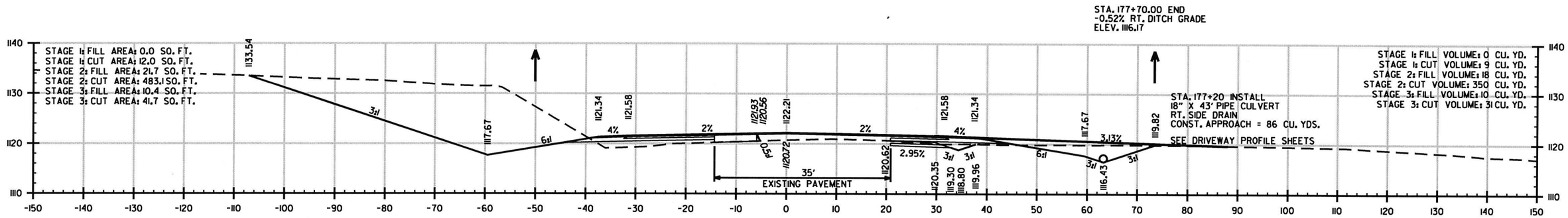
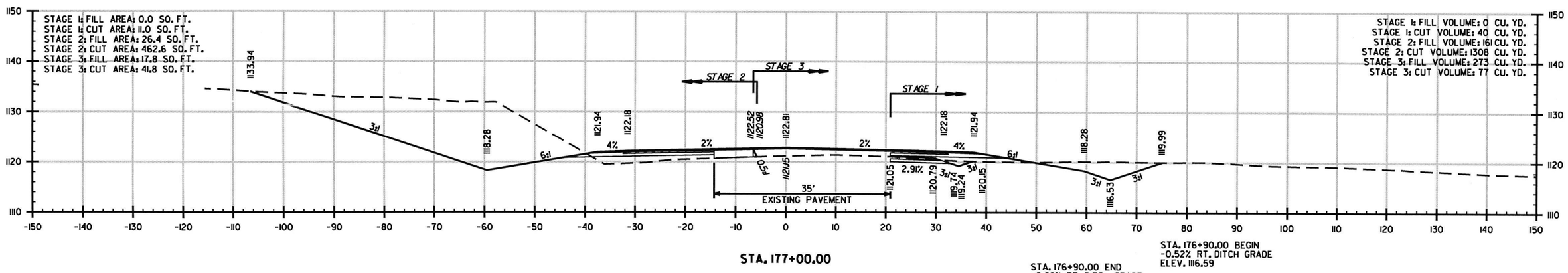
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	317	417

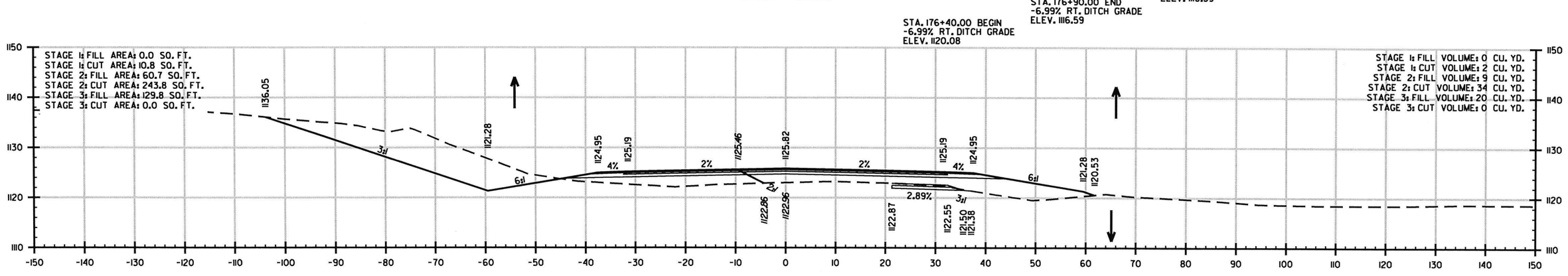
(2) CROSS SECTIONS



STA. 177+20.00



STA. 177+00.00



STA. 176+00.00

STA. 176+00.00 TO STA. 177+20.00

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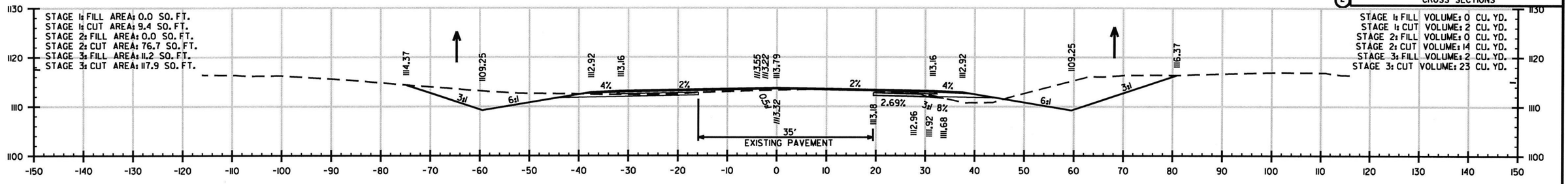
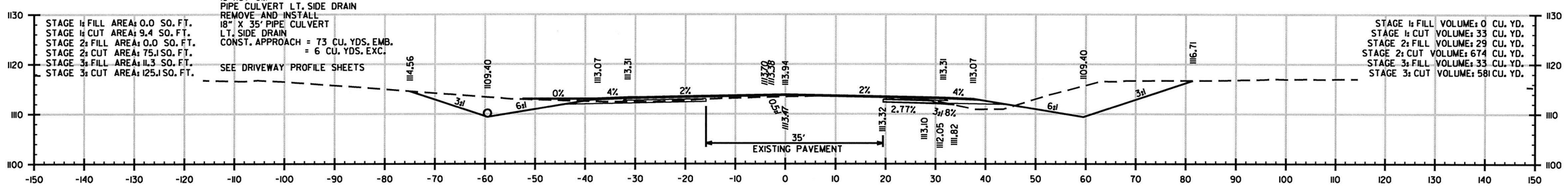
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	318	417

(2) CROSS SECTIONS

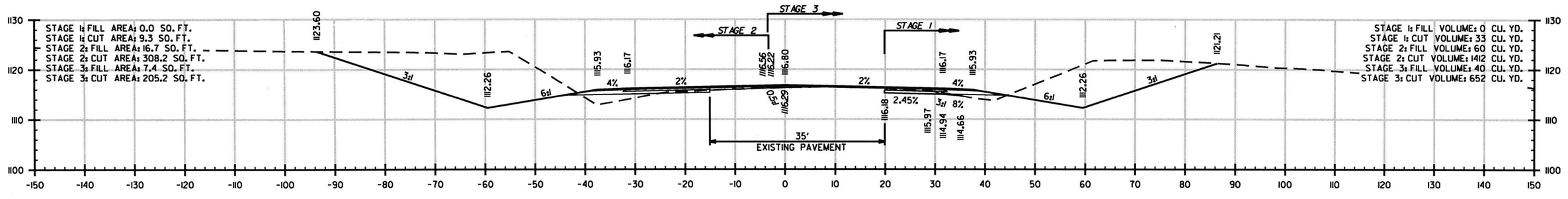


STA. 180+00.00

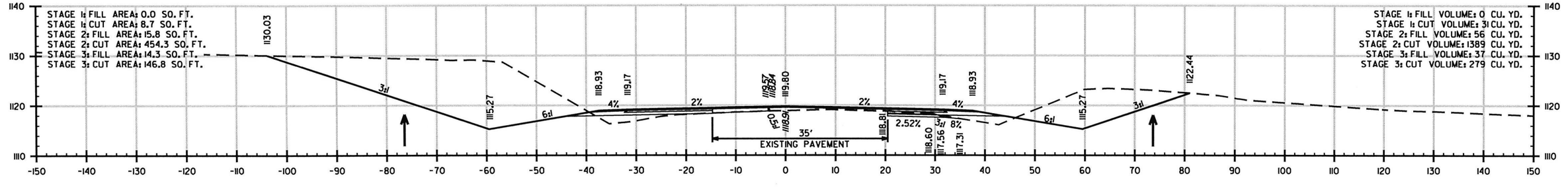
STA. 179+95 IN PLACE
18"X37' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 35' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 73 CU. YDS. EMB.
= 6 CU. YDS. EXC.
SEE DRIVEWAY PROFILE SHEETS



STA. 179+95.00



STA. 179+00.00



STA. 178+00.00

STA. 178+00.00 TO STA. 180+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	319	417

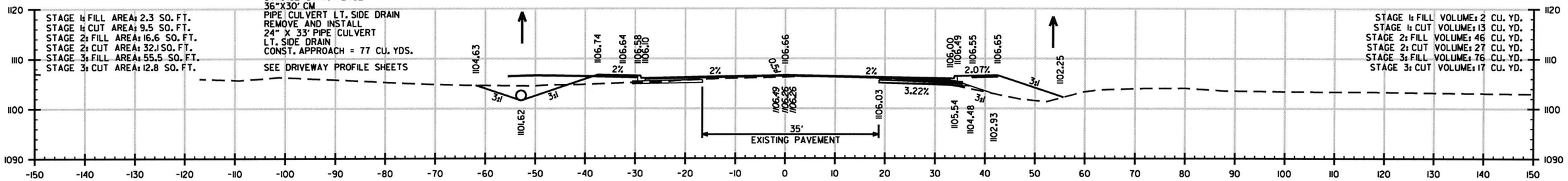
(2) CROSS SECTIONS

STA. 182+37 IN PLACE
36"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 33' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 77 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS

STAGE 1: FILL AREA: 2.3 SQ. FT.
STAGE 1: CUT AREA: 9.5 SQ. FT.
STAGE 2: FILL AREA: 16.6 SQ. FT.
STAGE 2: CUT AREA: 32.1 SQ. FT.
STAGE 3: FILL AREA: 55.5 SQ. FT.
STAGE 3: CUT AREA: 12.8 SQ. FT.

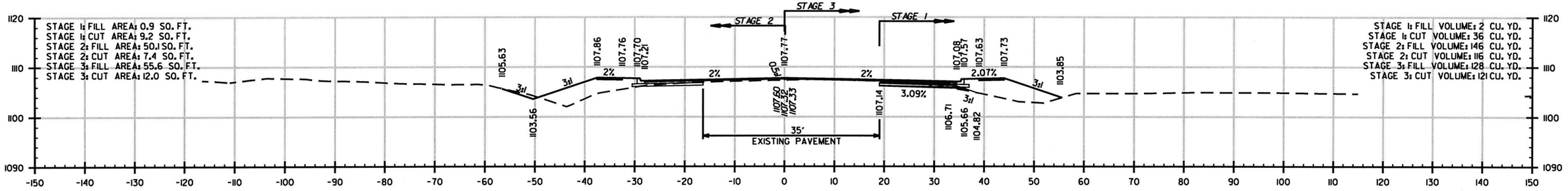
STAGE 1: FILL VOLUME: 2 CU. YD.
STAGE 1: CUT VOLUME: 13 CU. YD.
STAGE 2: FILL VOLUME: 46 CU. YD.
STAGE 2: CUT VOLUME: 27 CU. YD.
STAGE 3: FILL VOLUME: 76 CU. YD.
STAGE 3: CUT VOLUME: 17 CU. YD.



STA. 182+37.00

STAGE 1: FILL AREA: 0.9 SQ. FT.
STAGE 1: CUT AREA: 9.2 SQ. FT.
STAGE 2: FILL AREA: 50.1 SQ. FT.
STAGE 2: CUT AREA: 7.4 SQ. FT.
STAGE 3: FILL AREA: 55.6 SQ. FT.
STAGE 3: CUT AREA: 12.0 SQ. FT.

STAGE 1: FILL VOLUME: 2 CU. YD.
STAGE 1: CUT VOLUME: 36 CU. YD.
STAGE 2: FILL VOLUME: 146 CU. YD.
STAGE 2: CUT VOLUME: 116 CU. YD.
STAGE 3: FILL VOLUME: 128 CU. YD.
STAGE 3: CUT VOLUME: 121 CU. YD.

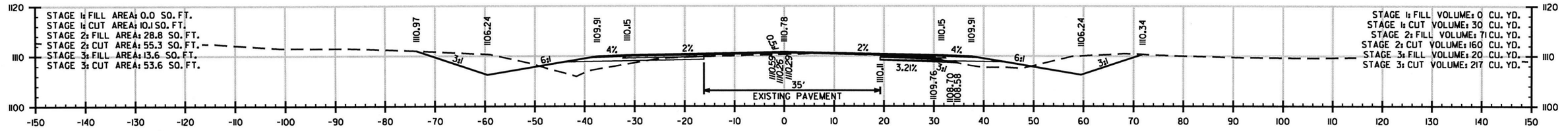


STA. 182+00.00

STA. 181+80.00 BEGIN
-5.24% LT. DITCH GRADE
ELEV. 1104.61

STAGE 1: FILL AREA: 0.0 SQ. FT.
STAGE 1: CUT AREA: 10.1 SQ. FT.
STAGE 2: FILL AREA: 28.8 SQ. FT.
STAGE 2: CUT AREA: 55.3 SQ. FT.
STAGE 3: FILL AREA: 13.6 SQ. FT.
STAGE 3: CUT AREA: 53.6 SQ. FT.

STAGE 1: FILL VOLUME: 0 CU. YD.
STAGE 1: CUT VOLUME: 30 CU. YD.
STAGE 2: FILL VOLUME: 71 CU. YD.
STAGE 2: CUT VOLUME: 160 CU. YD.
STAGE 3: FILL VOLUME: 20 CU. YD.
STAGE 3: CUT VOLUME: 217 CU. YD.



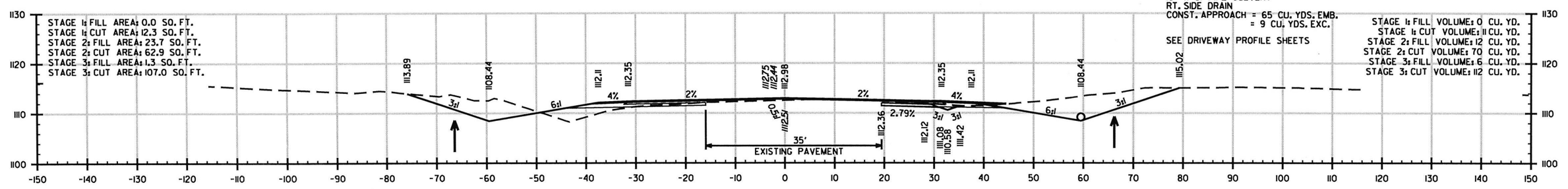
STA. 181+00.00

STA. 180+27 IN PLACE
18"X30' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 31' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 65 CU. YDS. EMB.
= 9 CU. YDS. EXC.

SEE DRIVEWAY PROFILE SHEETS

STAGE 1: FILL AREA: 0.0 SQ. FT.
STAGE 1: CUT AREA: 12.3 SQ. FT.
STAGE 2: FILL AREA: 23.7 SQ. FT.
STAGE 2: CUT AREA: 62.9 SQ. FT.
STAGE 3: FILL AREA: 1.3 SQ. FT.
STAGE 3: CUT AREA: 107.0 SQ. FT.

STAGE 1: FILL VOLUME: 0 CU. YD.
STAGE 1: CUT VOLUME: 11 CU. YD.
STAGE 2: FILL VOLUME: 12 CU. YD.
STAGE 2: CUT VOLUME: 70 CU. YD.
STAGE 3: FILL VOLUME: 6 CU. YD.
STAGE 3: CUT VOLUME: 112 CU. YD.



STA. 180+27.00

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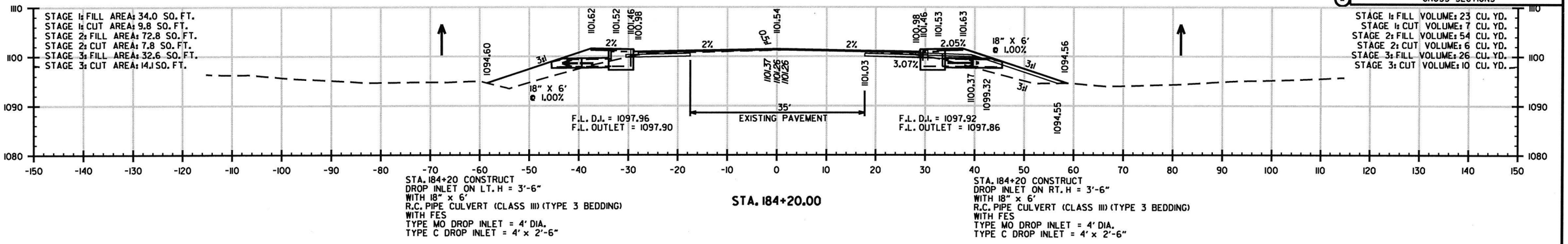
STA. 180+27.00 TO STA. 182+37.00

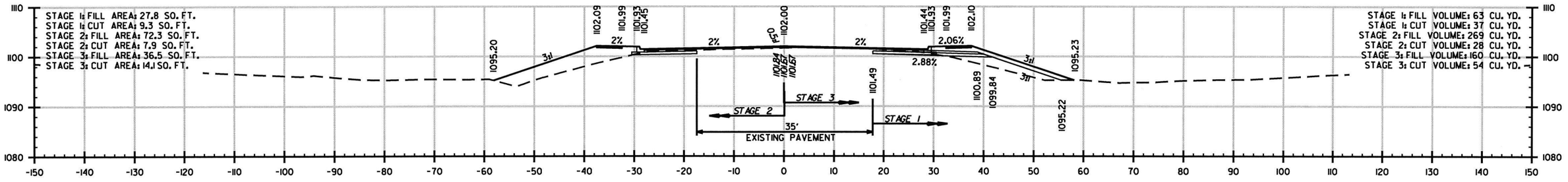
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	320	417

(2) CROSS SECTIONS

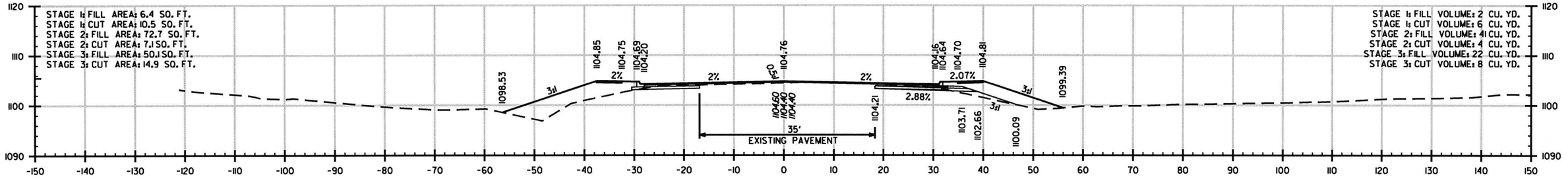
STA. 184+70.00 BEGIN
-5.26% RT. DITCH GRADE
ELEV. 1091.87



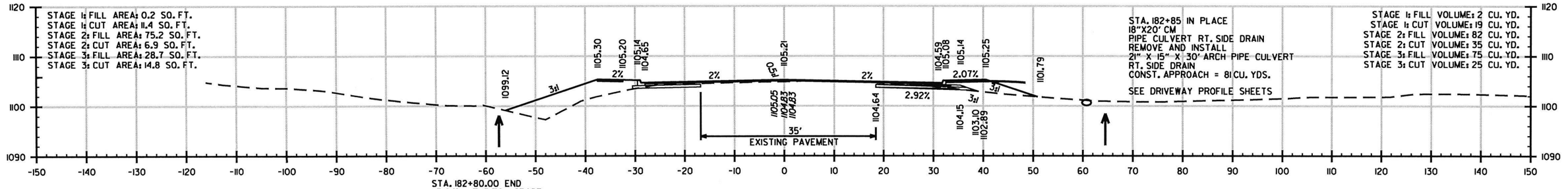
STA. 184+20.00



STA. 184+00.00



STA. 183+00.00



STA. 182+80.00 END
-5.24% LT. DITCH GRADE
ELEV. 1099.37

STA. 182+85.00

STA. 182+85.00 TO STA. 184+20.00

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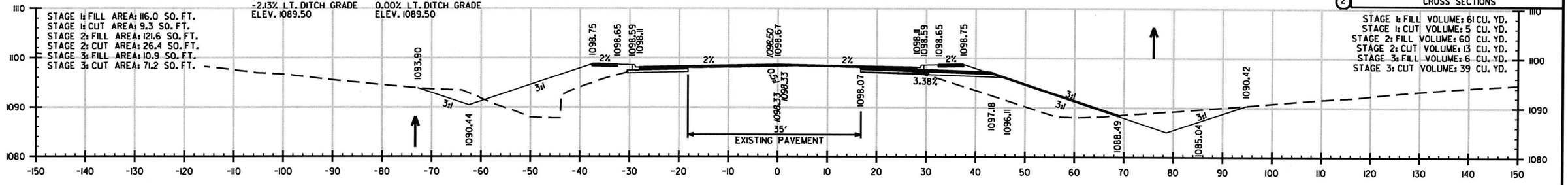
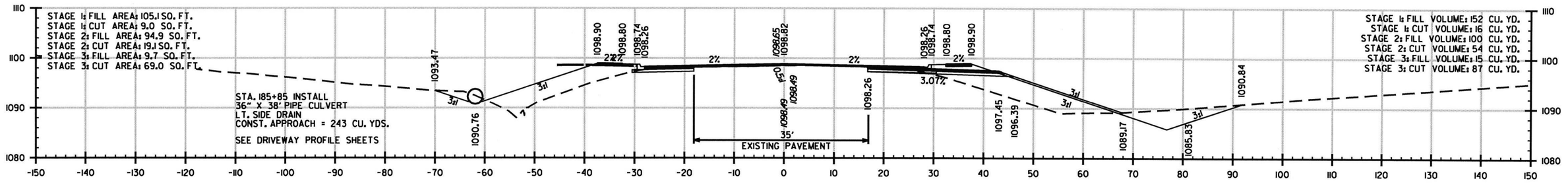
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	321	417

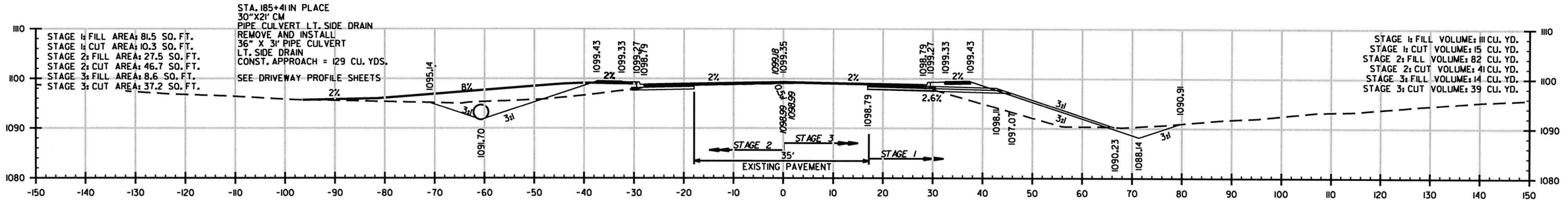
(2) CROSS SECTIONS



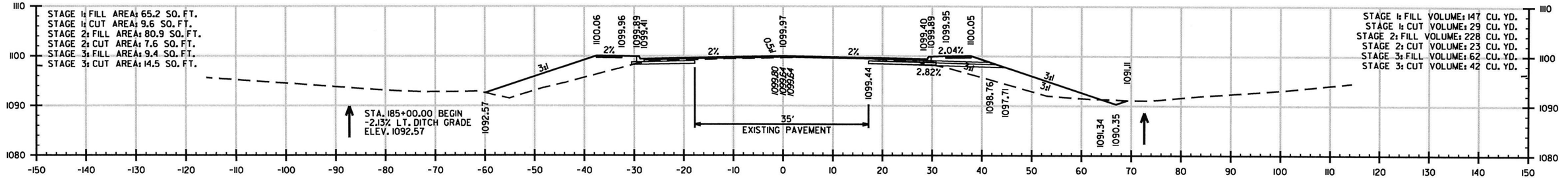
STA. 186+00.00



STA. 185+85.00



STA. 185+41.00



STA. 185+00.00

STA. 185+00.00 TO STA. 186+00.00

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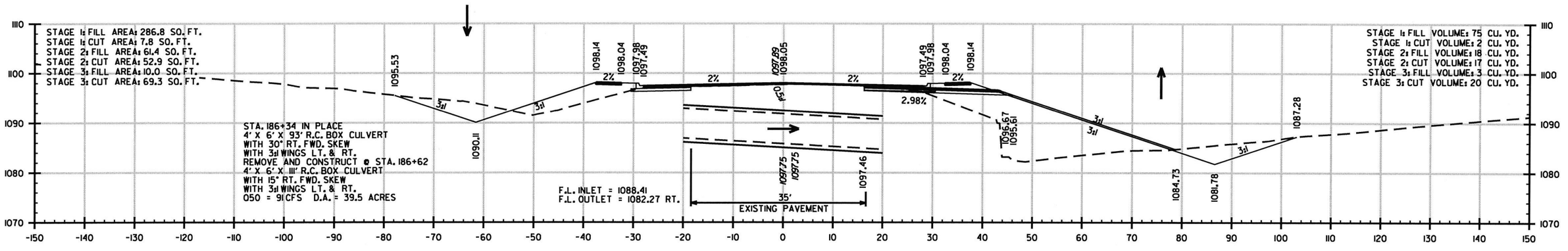
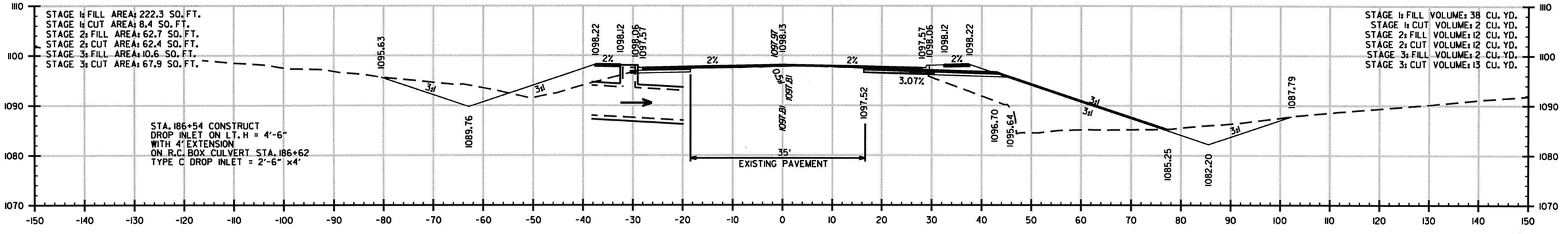
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	322	417

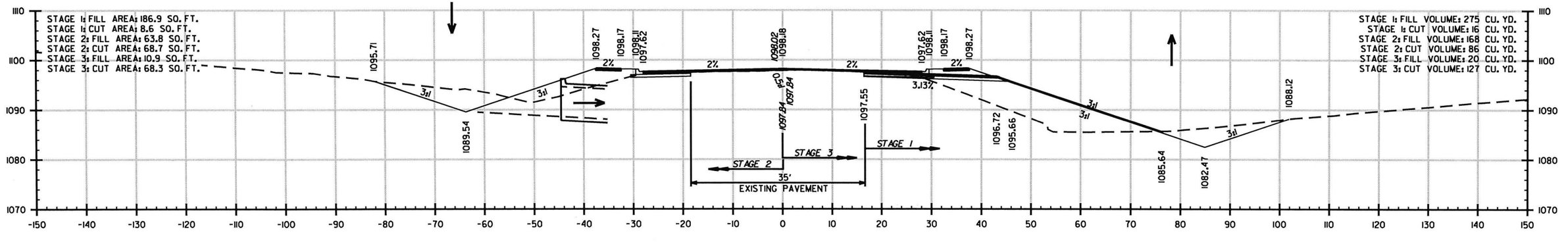
(2) CROSS SECTIONS



STA. 186+62.00



STA. 186+54.00



STA. 186+49.00

STA. 186+49.00 TO STA. 186+62.00

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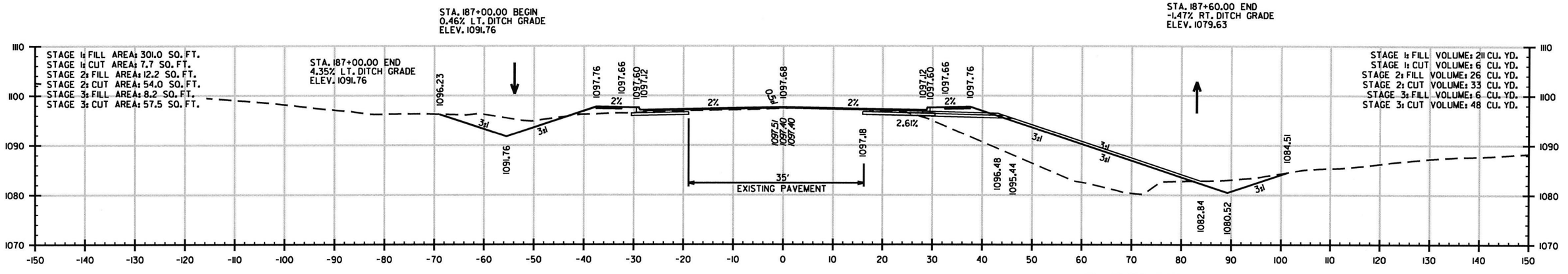
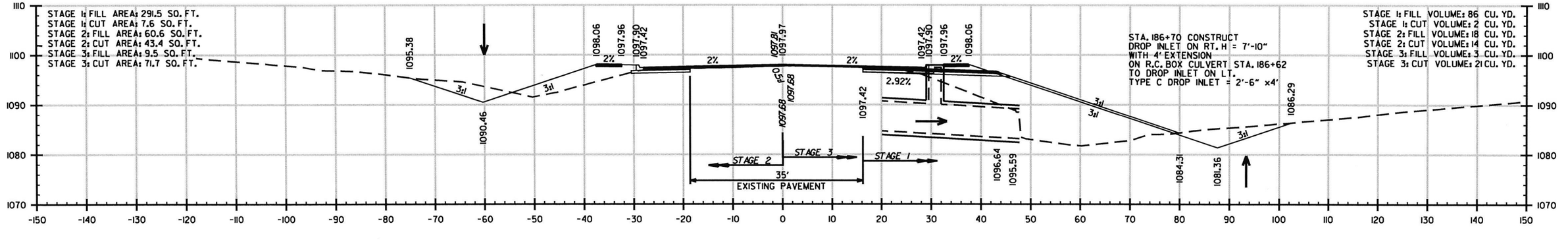
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	323	417

(2) CROSS SECTIONS







STA. 186+70.00 TO STA. 187+00.00

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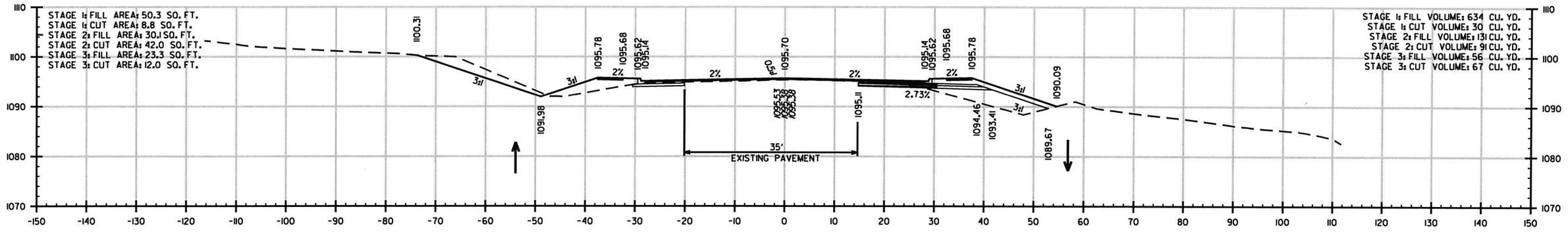
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	324	417

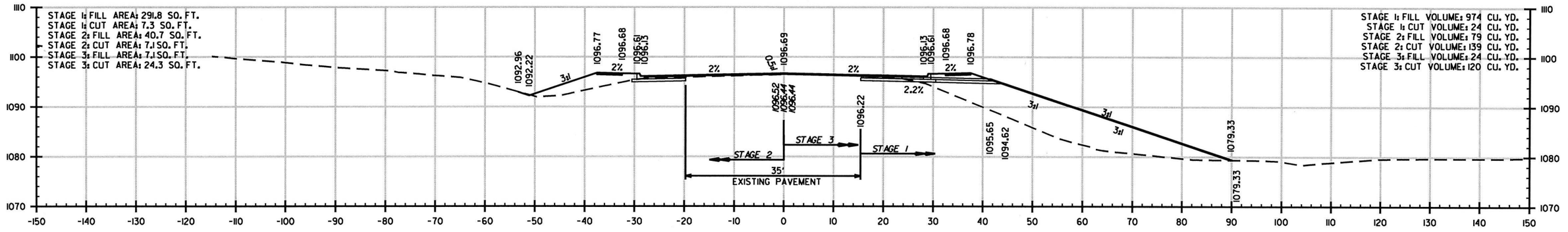
(2) CROSS SECTIONS



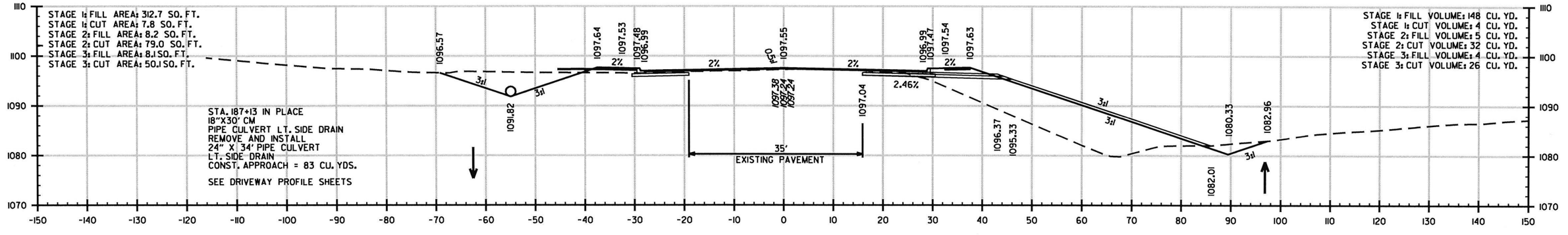
STA. 188+60.00 END
0.46% LT. DITCH GRADE
ELEV. 1092.50

STA. 188+60.00 BEGIN
-1.29% LT. DITCH GRADE
ELEV. 1092.50

STA. 189+00.00



STA. 188+00.00



STA. 187+13.00

STA. 187+13.00 TO STA. 189+00.00

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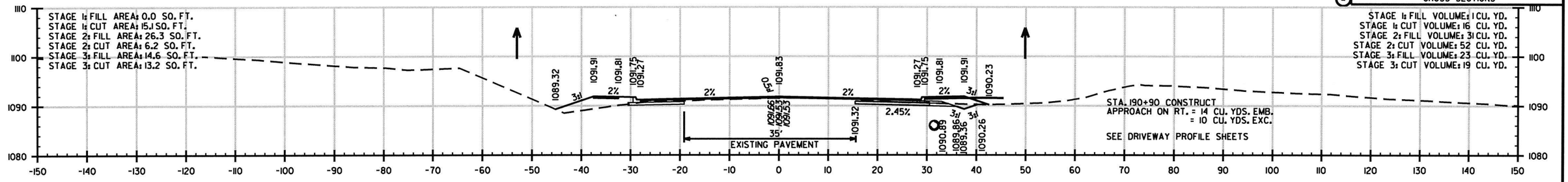
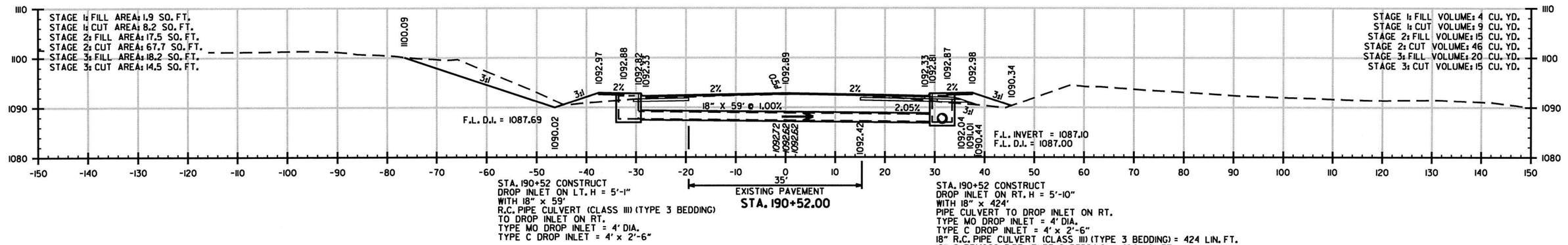
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	325	417

(2) CROSS SECTIONS



STA. 190+90.00

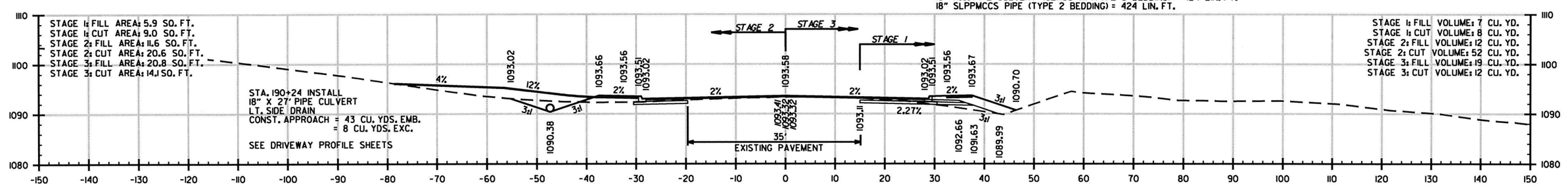
STA. 190+80.00 END
-1.29% LT. DITCH GRADE
ELEV. 1089.66



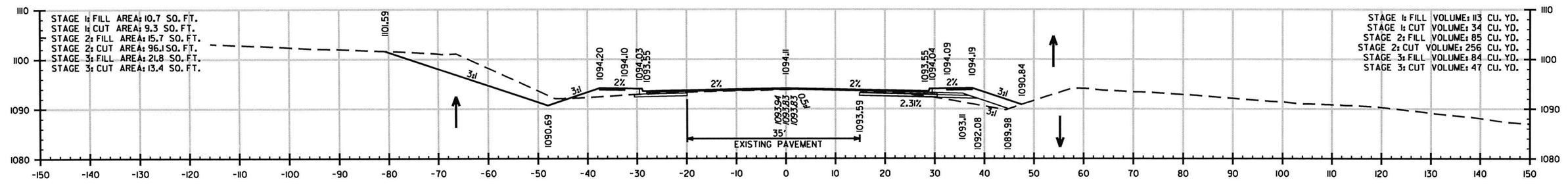
STA. 190+52 CONSTRUCT
DROP INLET ON LT. H = 5'-1"
WITH 18" x 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 190+52.00

STA. 190+52 CONSTRUCT
DROP INLET ON RT. H = 5'-10"
WITH 18" x 424'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 424 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 424 LIN. FT.



STA. 190+24.00



STA. 190+00.00

STA. 190+00.00 TO STA. 190+90.00

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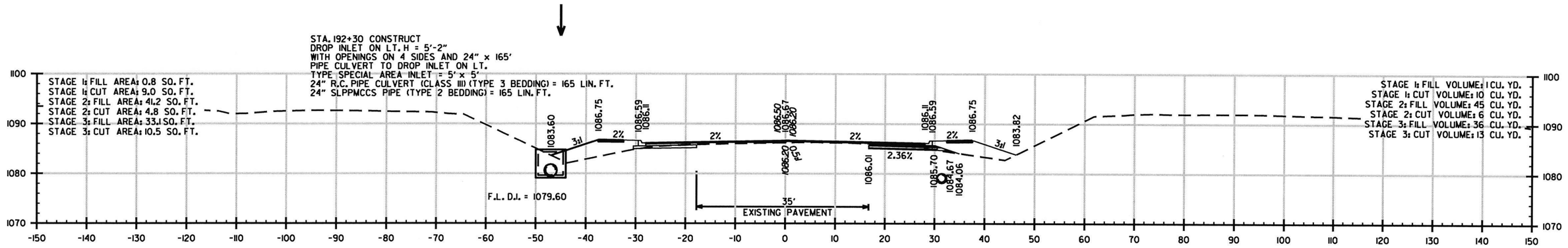
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	326	417

(2) CROSS SECTIONS



STA. 191+00.00 TO STA. 192+30.00

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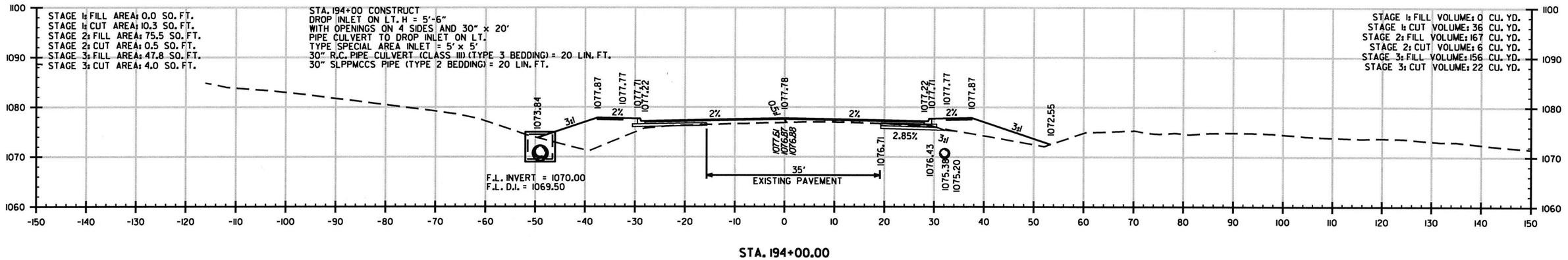
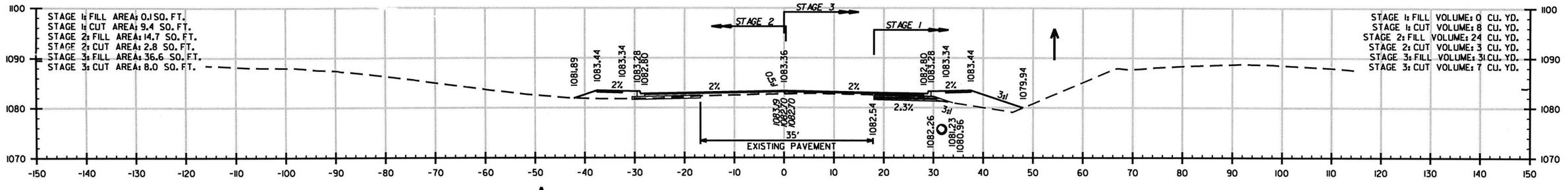
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	327	417

(2) CROSS SECTIONS

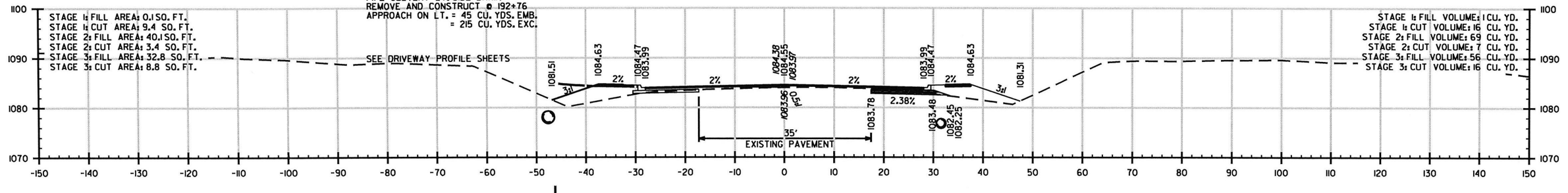


STA. 194+00.00



STA. 193+00.00

STA. 193+11 IN PLACE
24"X30' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND CONSTRUCT @ 192+76
APPROACH ON LT. = 45 CU. YDS. EMB.
= 215 CU. YDS. EXC.



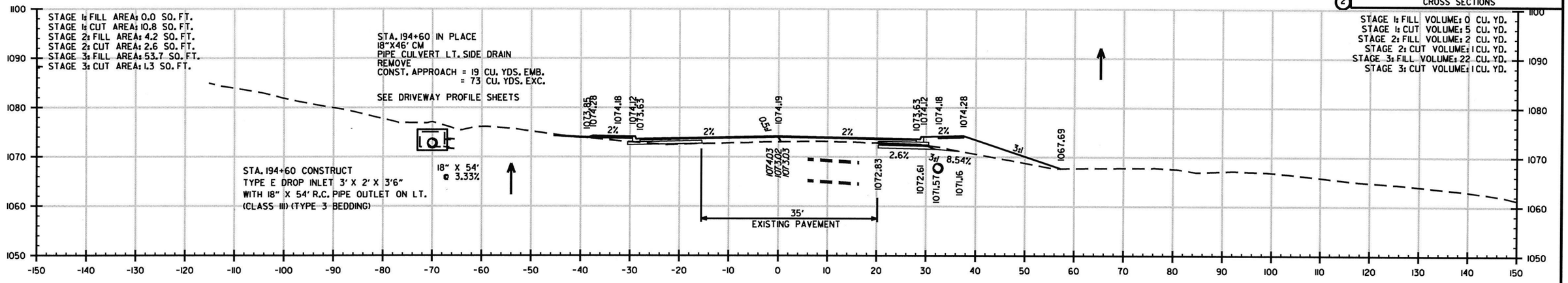
STA. 192+76.00

STA. 192+76.00 TO STA. 194+02.00

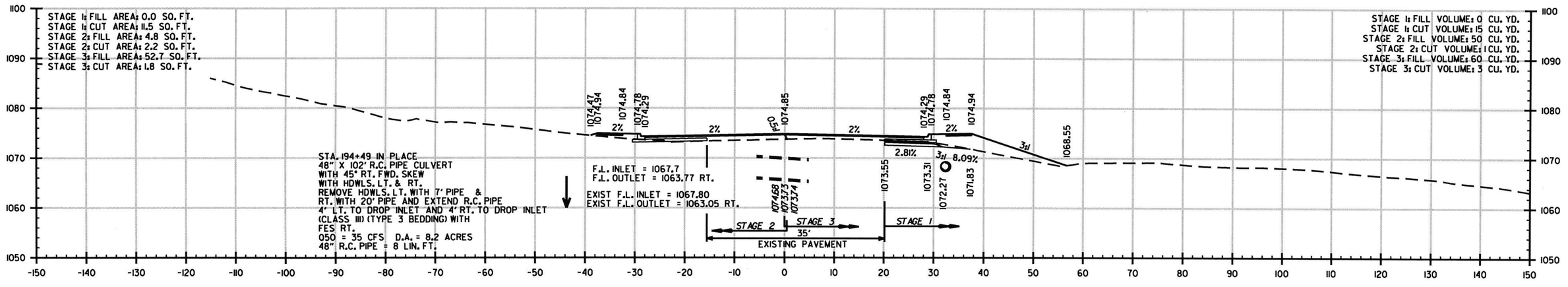
6/7/2017
4:09:44 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	328	417

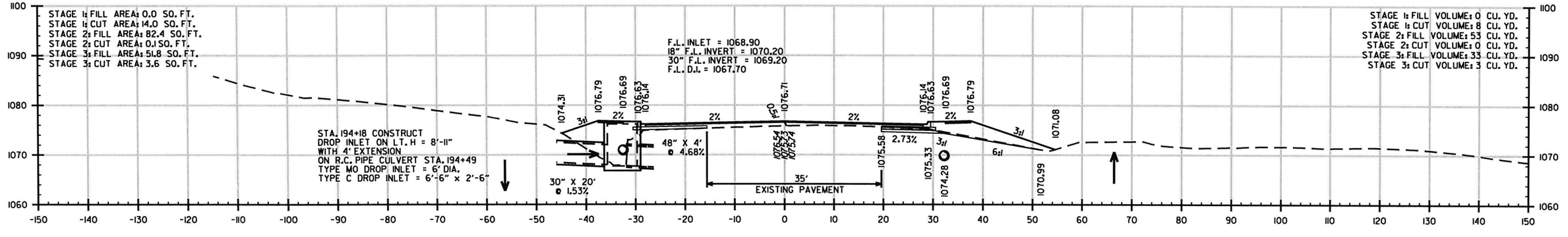
(2) CROSS SECTIONS



STA. 194+60.00



STA. 194+49.00



STA. 194+18.00

STA. 194+18.00 TO STA. 194+60.00

6/7/2017
4:09:45 PM
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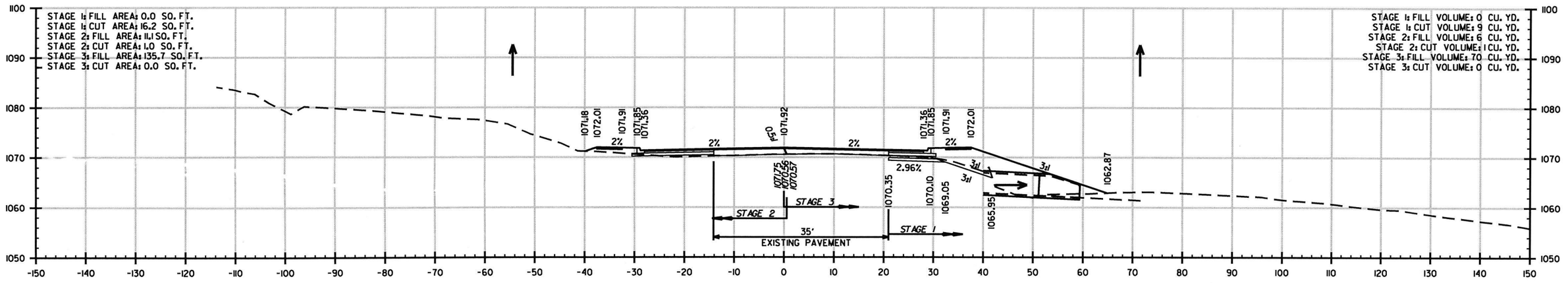
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	329	417
				(2)	CROSS SECTIONS			



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4:03:25 PM
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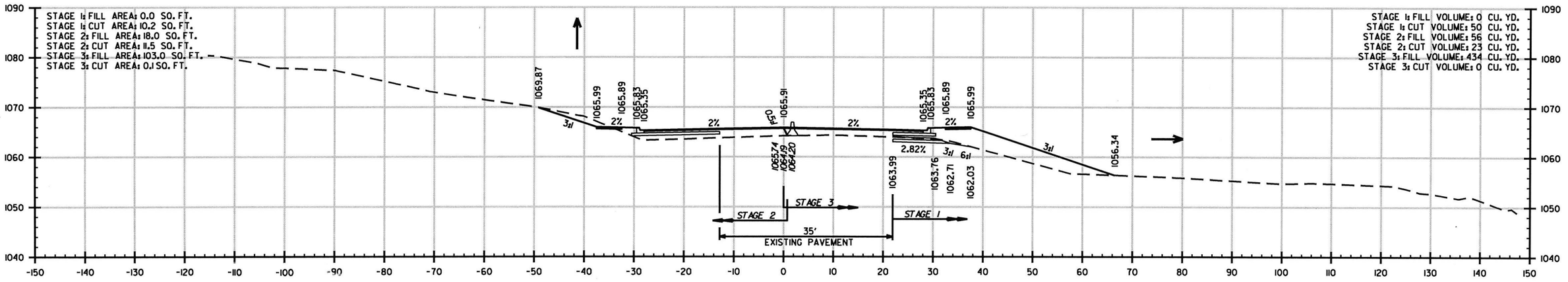
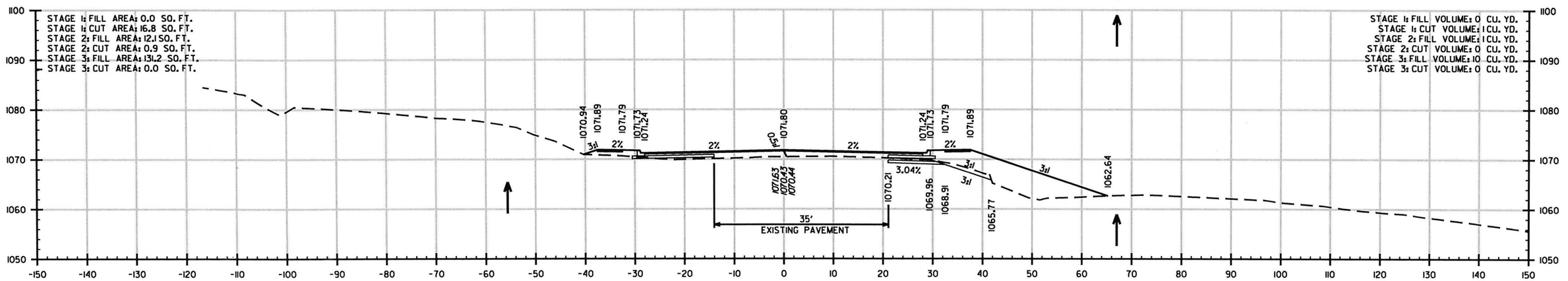
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	330	417
				(2)	CROSS SECTIONS			



STA. 196+00.00



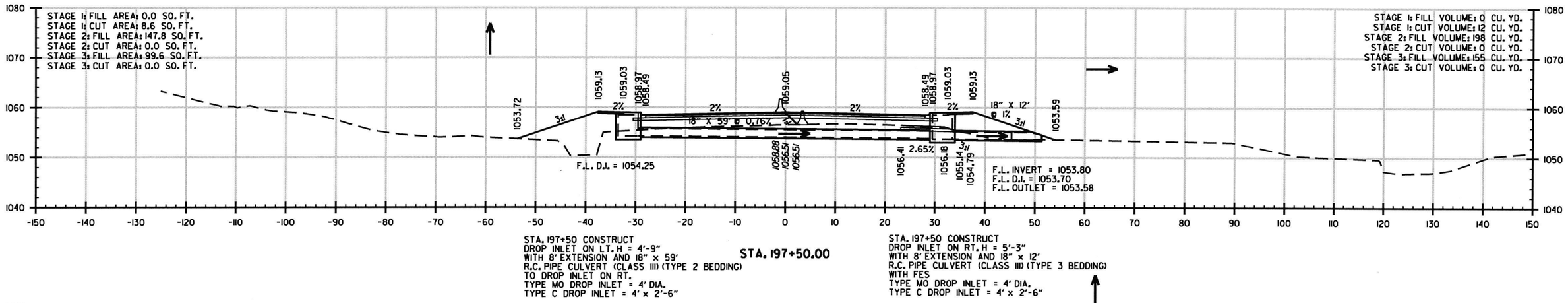
STA. 195+00.00

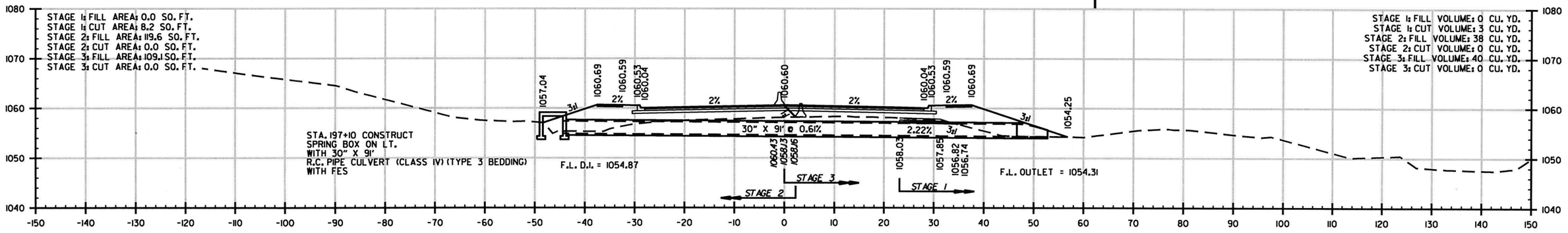
STA. 195+00.00 TO STA. 196+00.00

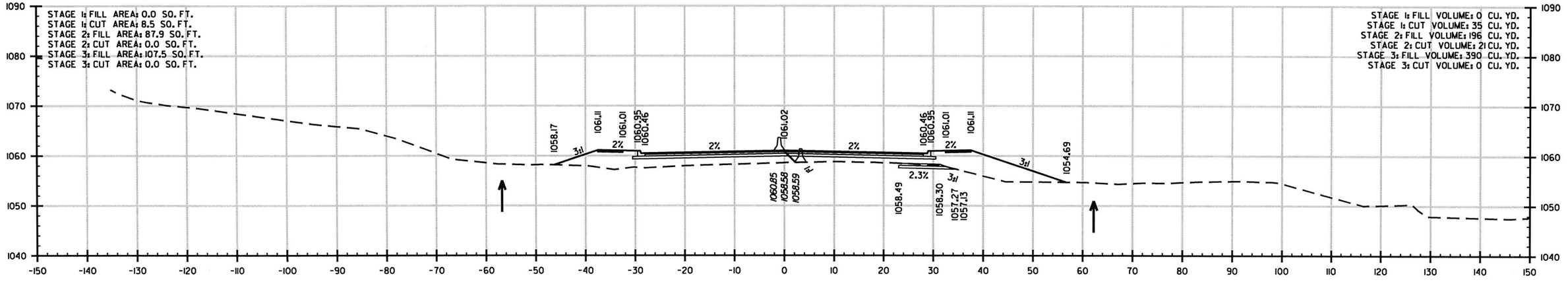
6/7/2017
4:09:45 PM
\\...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	331	417

2 CROSS SECTIONS







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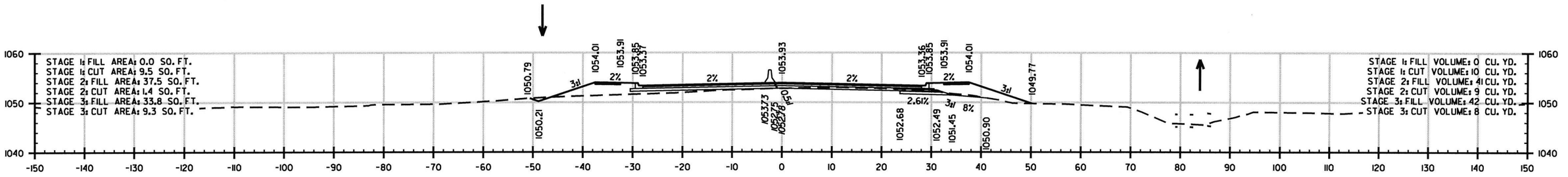
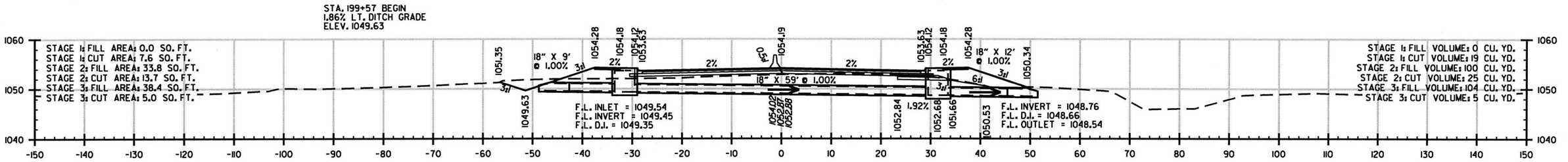
STA. 197+00.00 TO STA. 197+50.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	332	417
				(2)	CROSS SECTIONS			



STA. 199+88.18



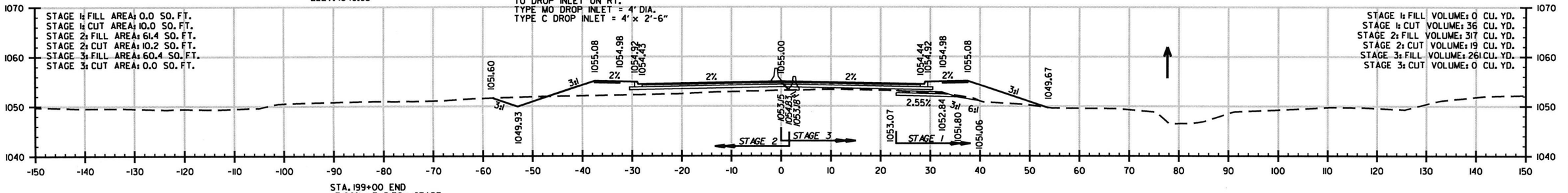
STA. 199+57 END
-0.53% LT. DITCH GRADE
ELEV. 1049.63

STA. 199+57 CONSTRUCT
DROP INLET ON LT. H = 4'-9"
WITH 4' EXTENSION AND 18" x 9'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
WITH 18" X 59'
R.C. PIPE CULVERT (CLASS III) (TYPE 2 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 199+57.00

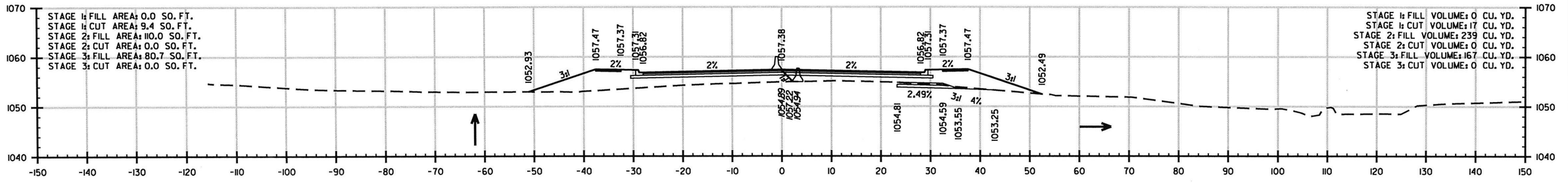
STA. 199+57 CONSTRUCT
DROP INLET ON RT. H = 5'-6"
WITH 4' EXTENSION AND 18" x 12'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 199+00 BEGIN
-0.53% LT. DITCH GRADE
ELEV. 1049.93



STA. 199+00 END
-3.00% LT. DITCH GRADE
ELEV. 1049.93

STA. 199+00.00



STA. 198+00 BEGIN
-3.00% LT. DITCH GRADE
ELEV. 1052.93

STA. 198+00.00

STA. 198+00.00 TO STA. 199+88.18

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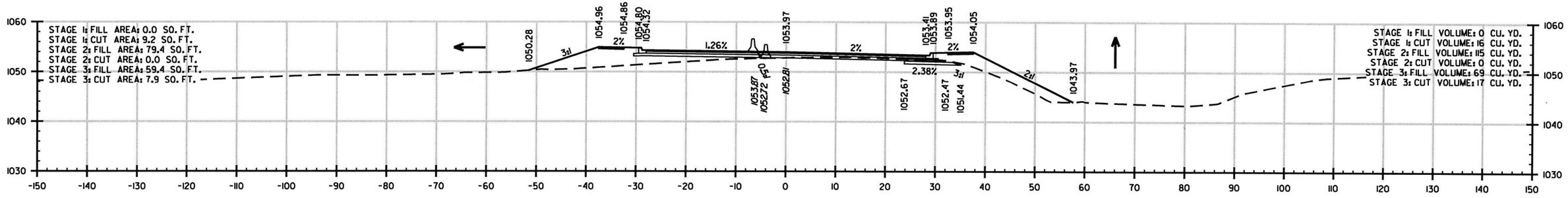
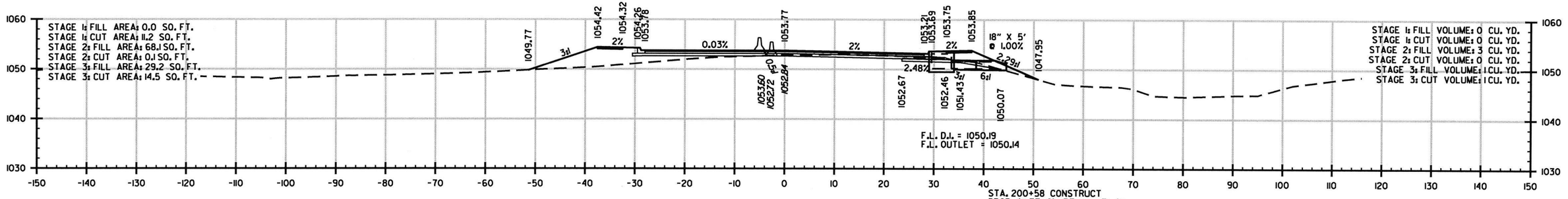
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	333	417

(2) CROSS SECTIONS

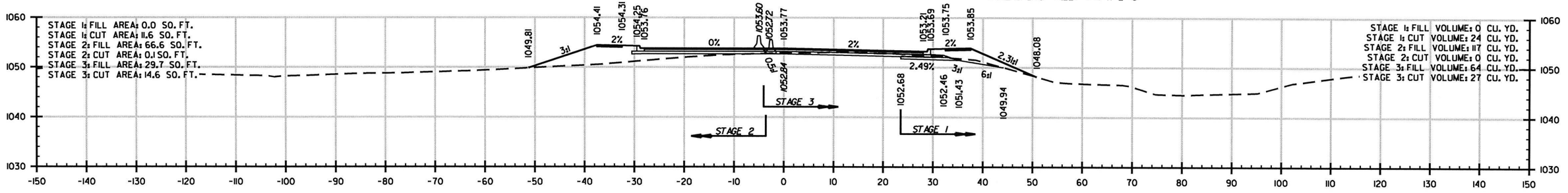


STA. 201+00.00

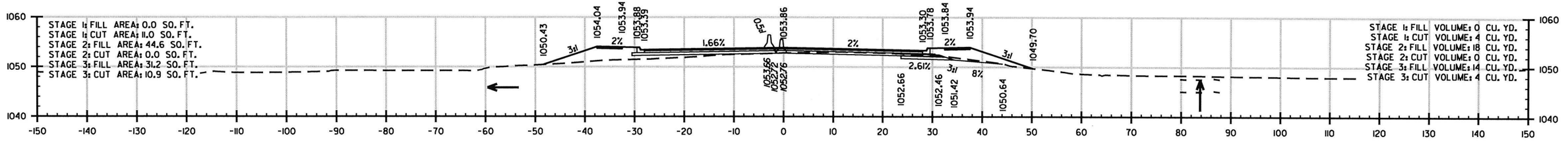


STA. 200+58.00

STA. 200+58 CONSTRUCT
DROP INLET ON RT. H = 3'-6"
WITH 4' EXTENSION AND 18" x 5'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"



STA. 200+56.82



STA. 200+00 END
1.86% LT. DITCH GRADE
ELEV. 1050.43

STA. 200+00.00

STA. 200+00.00 TO STA. 201+00.00

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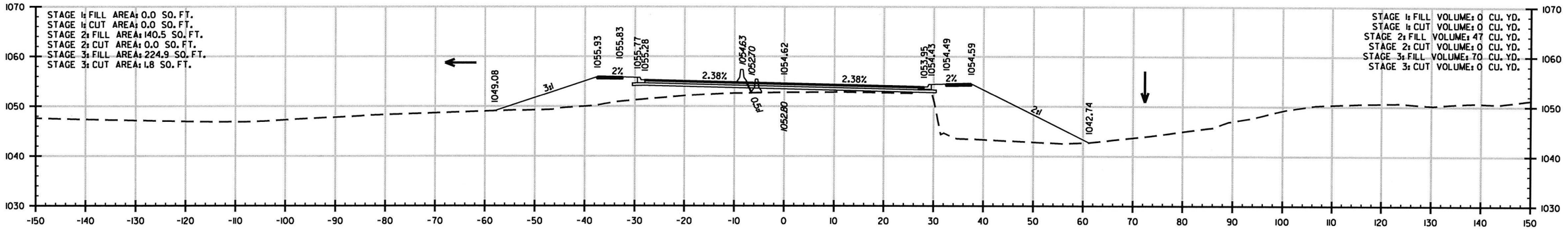
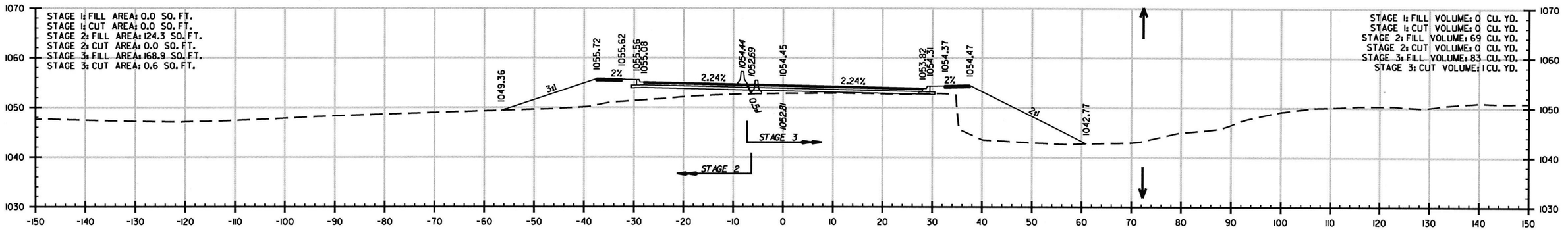
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	334	417

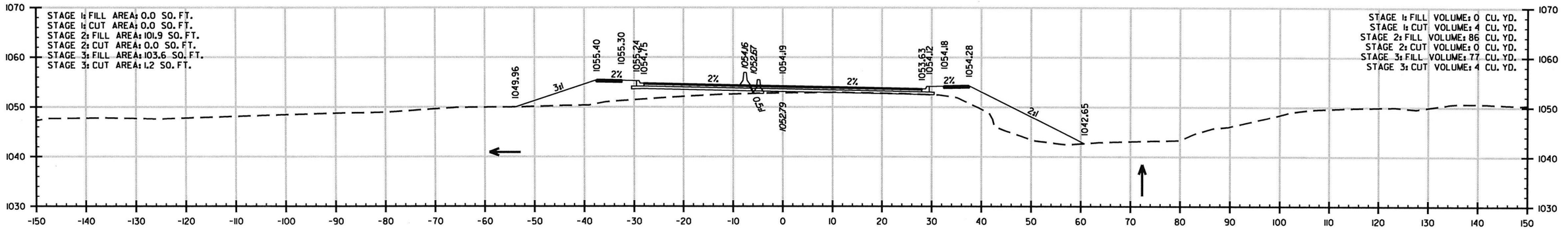
(2) CROSS SECTIONS



STA. 201+51.50



STA. 201+41.84



STA. 201+25.47

STA. 201+25.47 TO STA. 201+51.50

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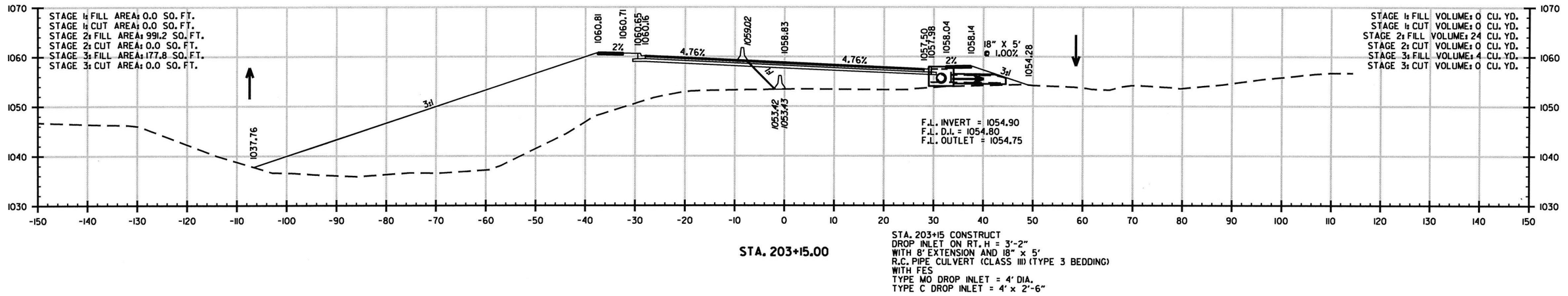
...\CA0906_CX_HWY65.dgn

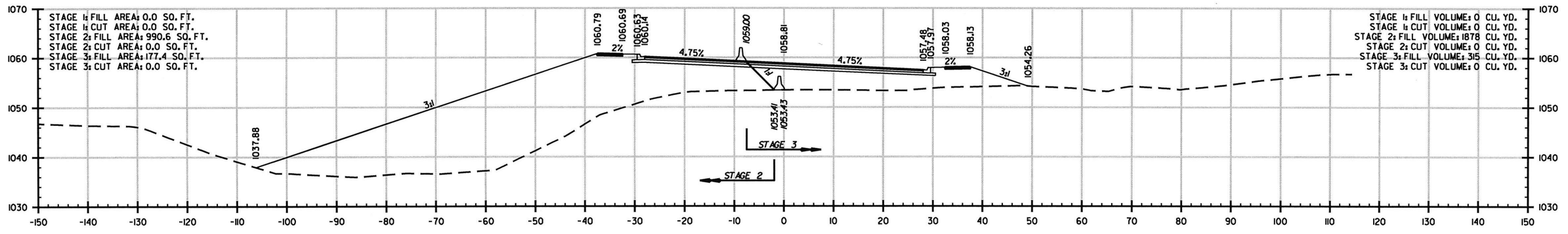
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	335	417

(2) CROSS SECTIONS

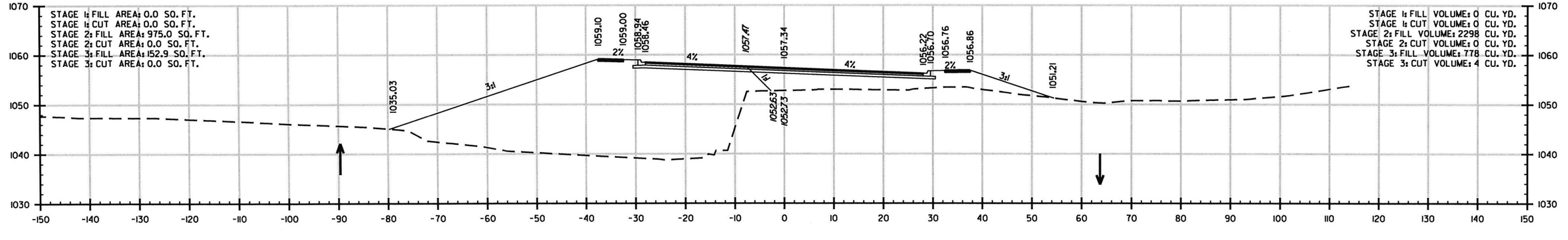


STA. 203+15.00

STA. 203+15 CONSTRUCT
DROP INLET ON RT. H = 3'-2"
WITH 8' EXTENSION AND 18" x 5'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"



STA. 203+14.34



STA. 202+62.76

STA. 202+62.76 TO STA. 203+15.00

6/7/2017
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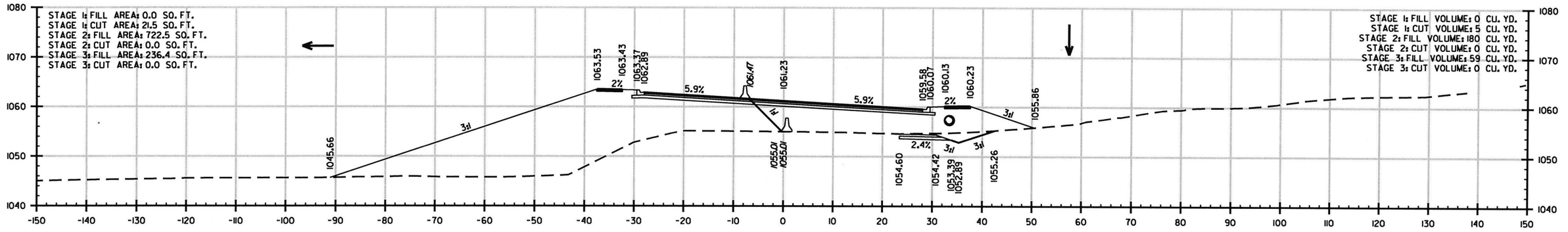
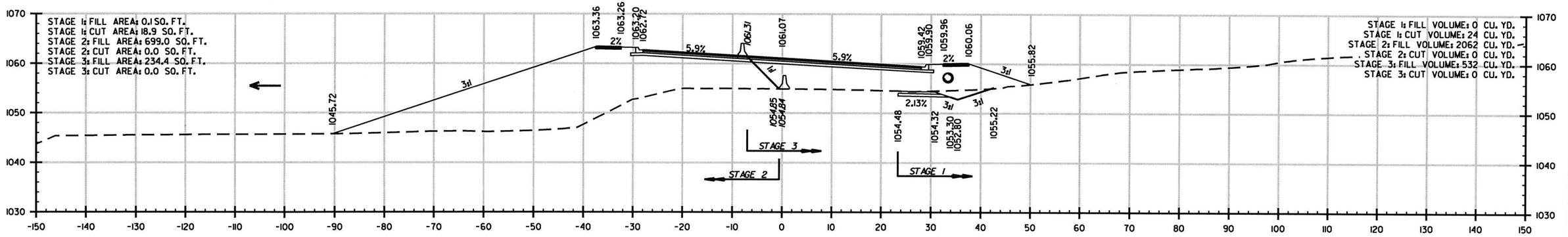
...\CA0906_CX_HWY65.dgn

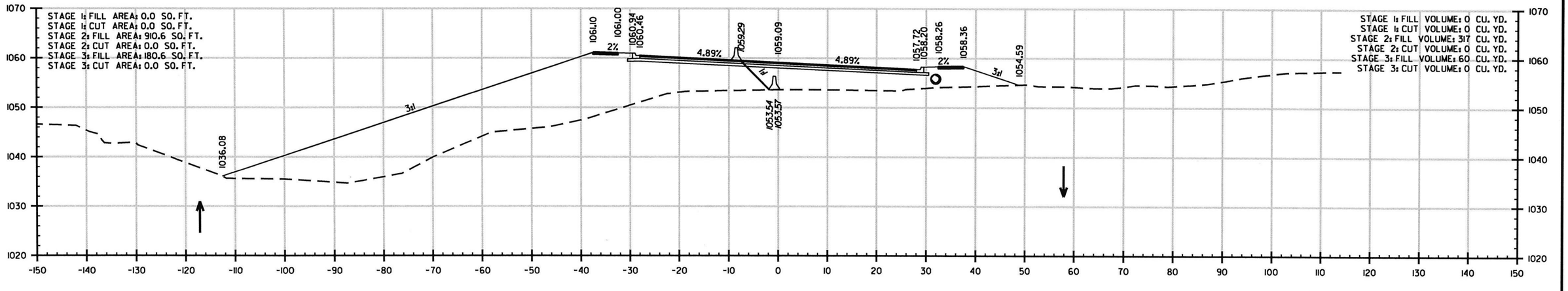
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	336	417
				(2)	CROSS SECTIONS			



STA. 204+00.00



STA. 203+93.18



STA. 203+24.00

STA. 203+24.00 TO STA. 204+00.00

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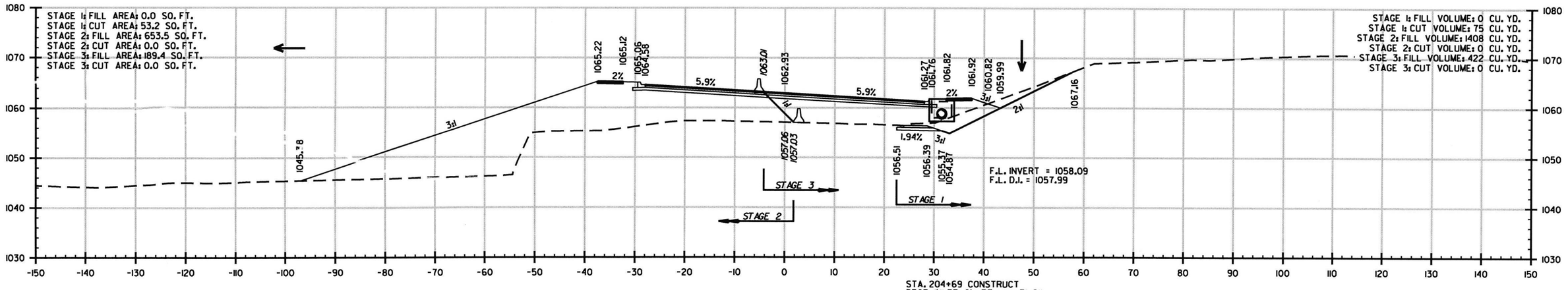
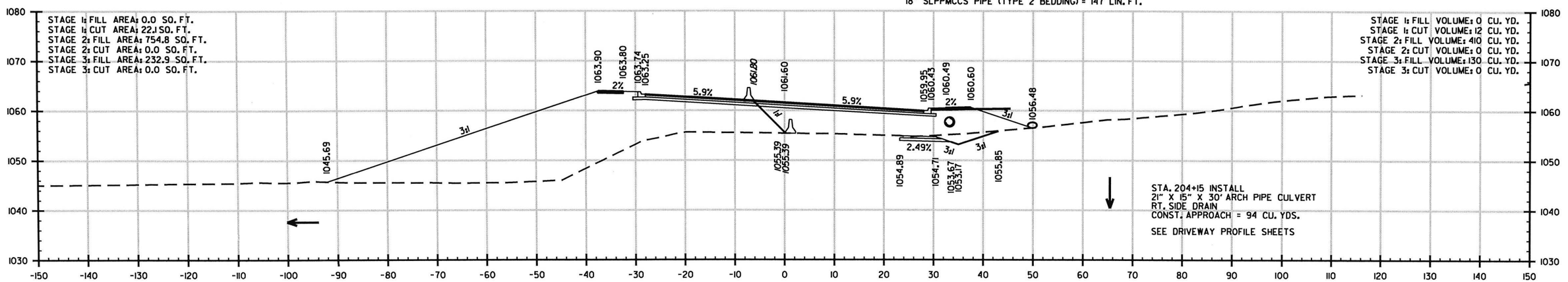
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	337	417
				(2)	CROSS SECTIONS			



STA. 204+69.00

STA. 204+69 CONSTRUCT
DROP INLET ON RT. H = 3'-9"
WITH 18" x 147'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 147 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 147 LIN. FT.



STA. 204+15.00

STA. 204+15.00 TO STA. 204+69.00

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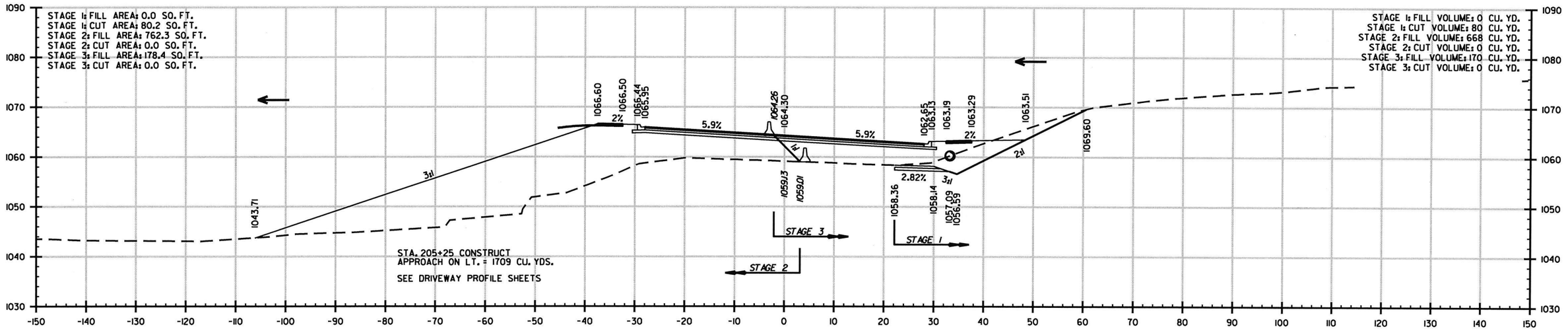
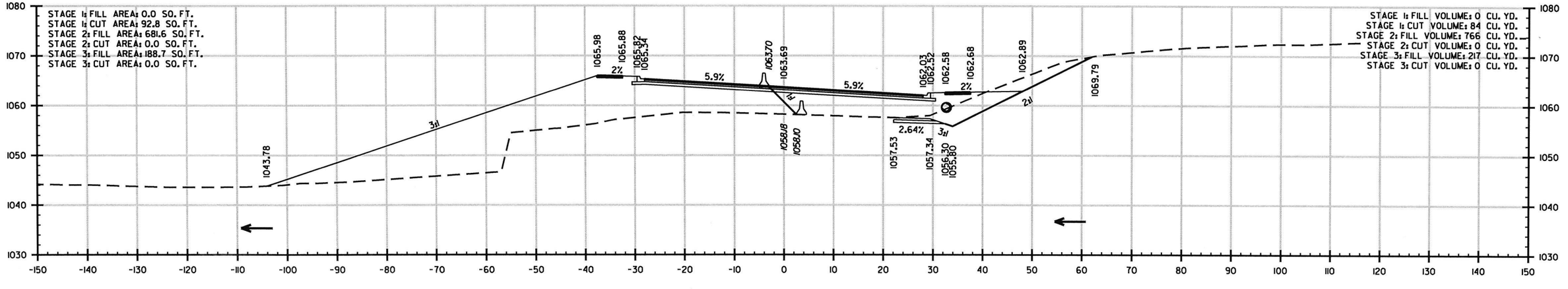
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	338	417
				(2)	CROSS SECTIONS			



STA. 205+25.00



STA. 205+00.00

STA. 205+00.00 TO STA. 205+25.00

6/7/2017
4:09:49 PM
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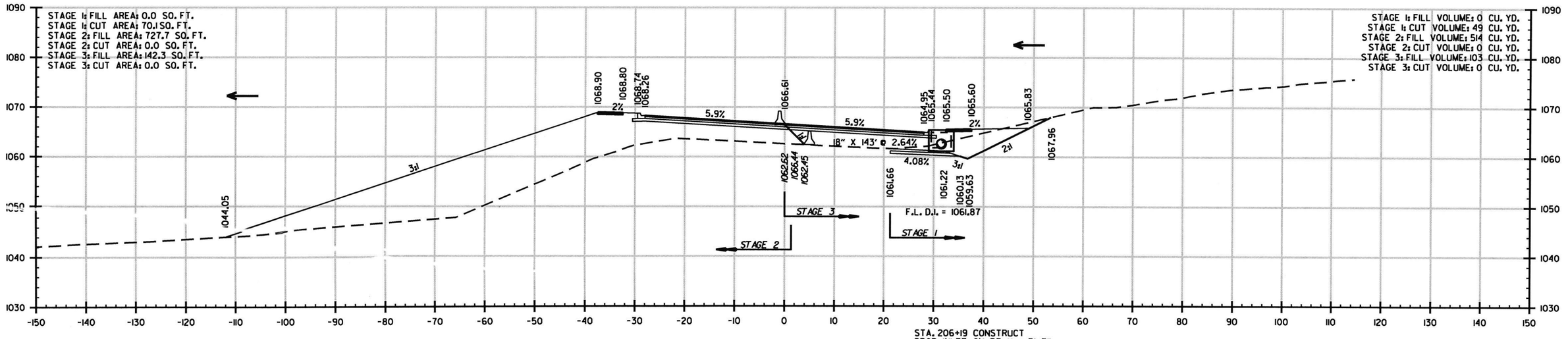
DATE	DATE FILMED	DATE REVISED	DATE FILMED

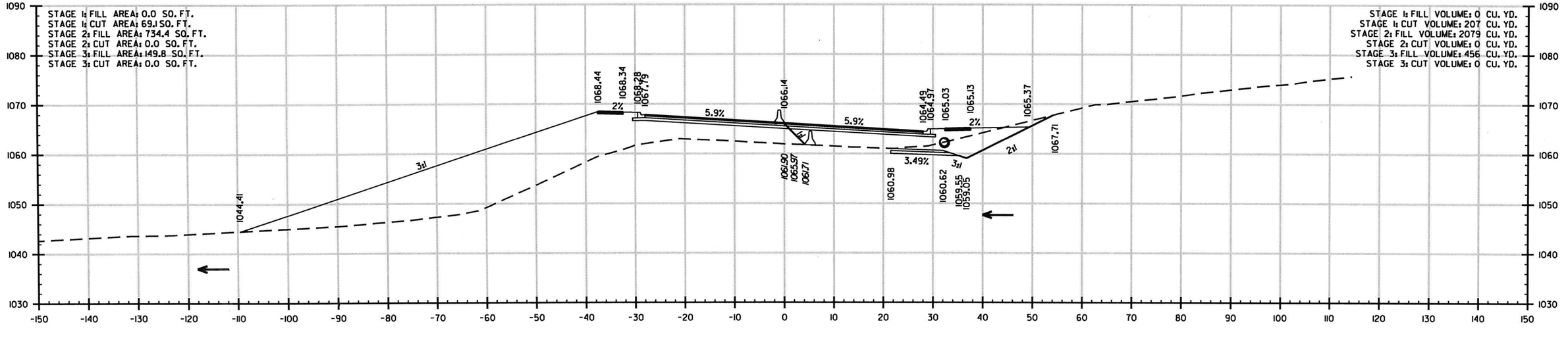
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	339	417

(2) CROSS SECTIONS



STA. 206+19.00

STA. 206+19 CONSTRUCT
DROP INLET ON RT. H = 3'-7"
WITH 18" x 143'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 143 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 143 LIN. FT.



STA. 206+00.00

STA. 206+00.00 TO STA. 206+19.00

6/7/2017
4:09:50 PM
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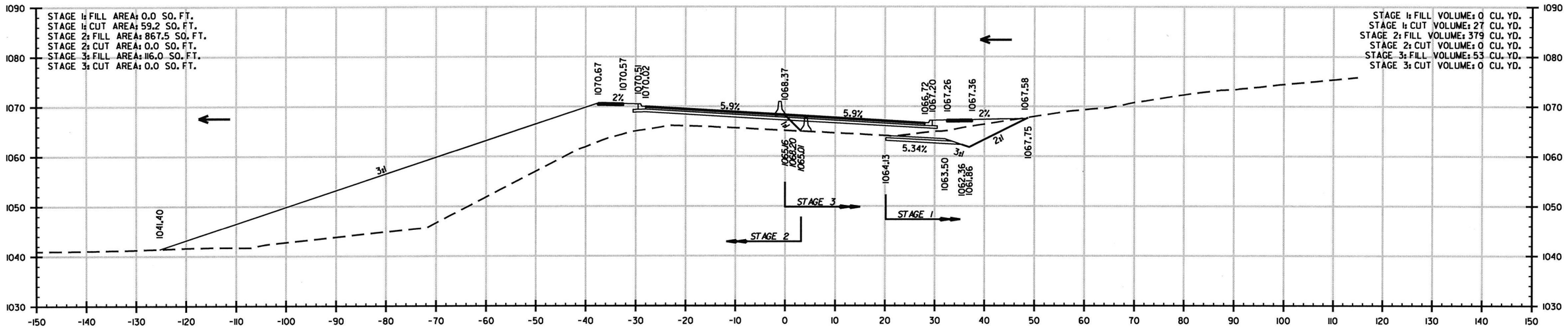
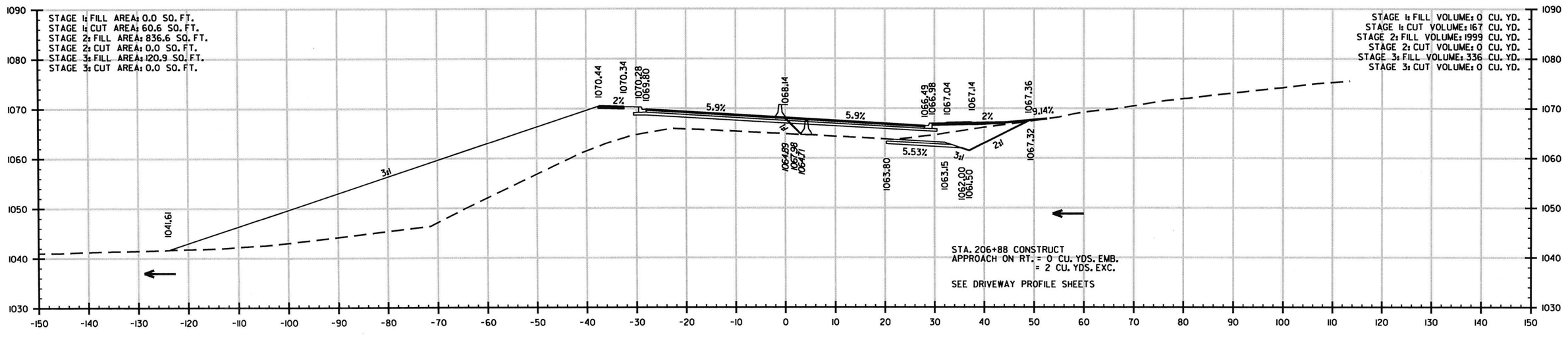
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	340	417
				(2)	CROSS SECTIONS			



STA. 207+00.00



STA. 206+88 CONSTRUCT
APPROACH ON RT. = 0 CU. YDS. EMB.
= 2 CU. YDS. EXC.

SEE DRIVEWAY PROFILE SHEETS

STA. 206+88.00

STA. 206+88.00 TO STA. 207+00.00

6/7/2017
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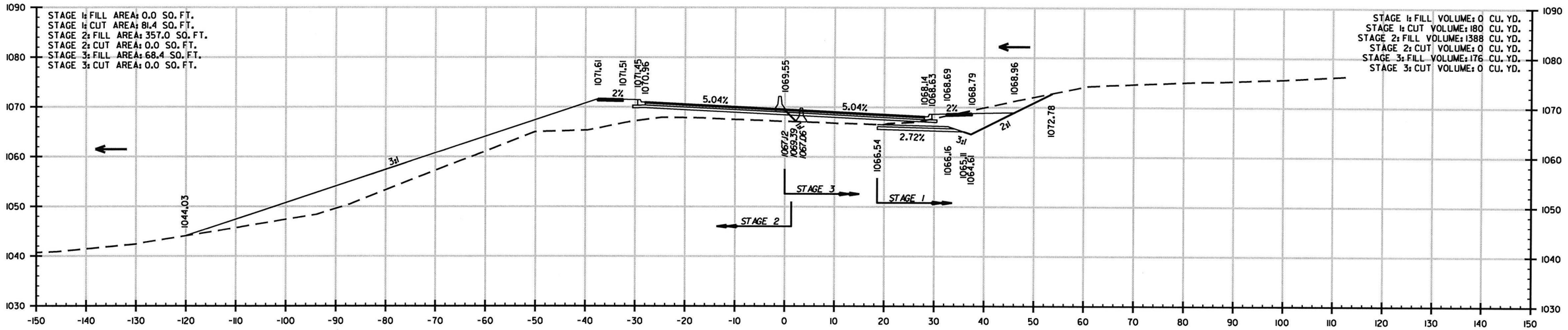
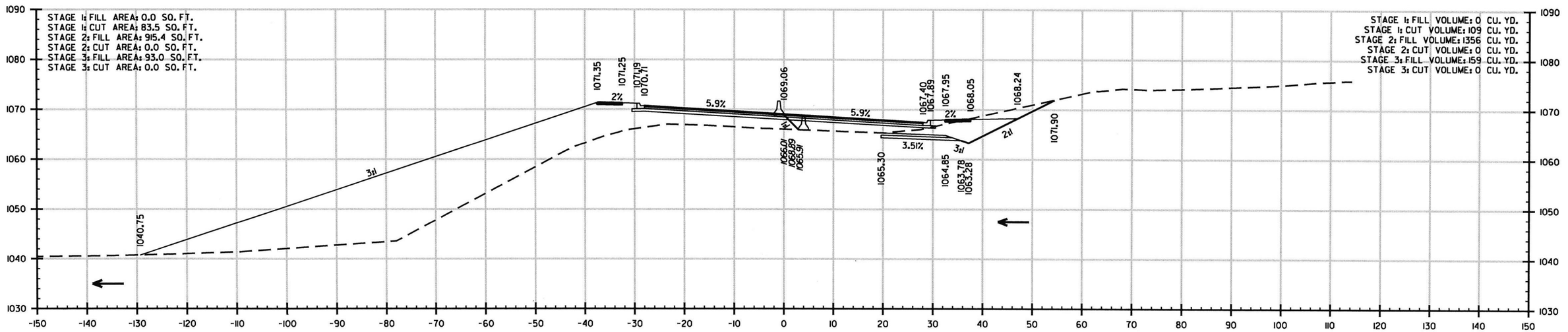
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	341	417

2 CROSS SECTIONS



STA. 208+00.00



STA. 207+41.08

STA. 207+41.08 TO STA. 208+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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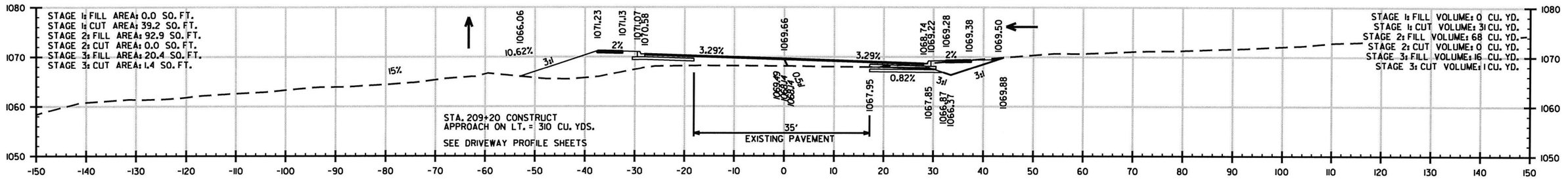
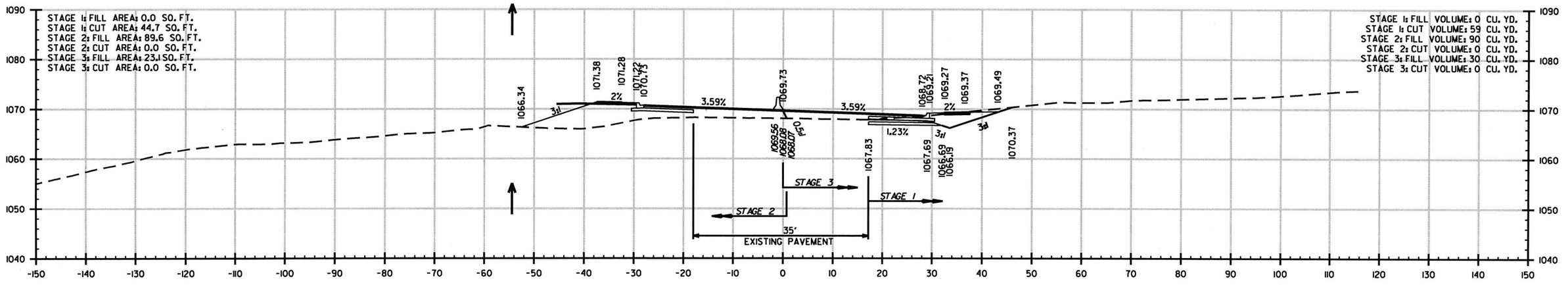
				JOB NO.		CA0906	342	417

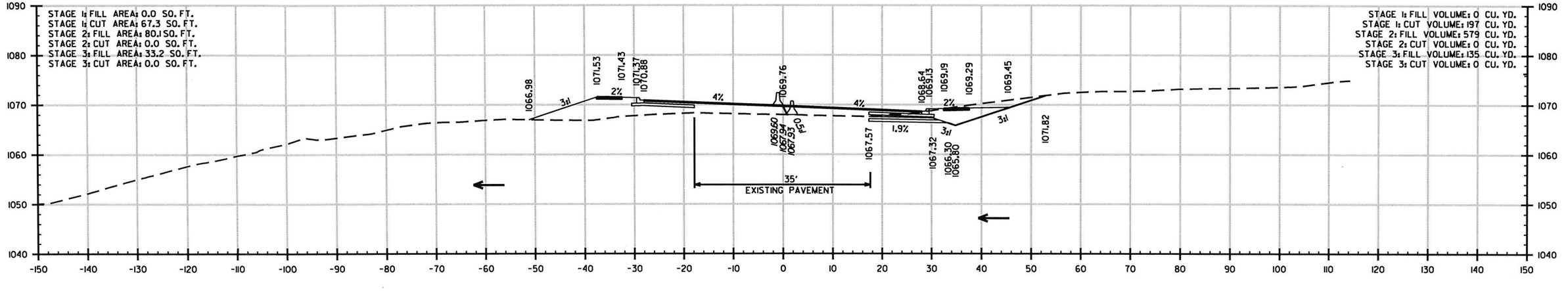
(2) CROSS SECTIONS



STA. 209+20.00



STA. 209+00.00



STA. 208+71.50

STA. 208+71.50 TO STA. 209+20.00

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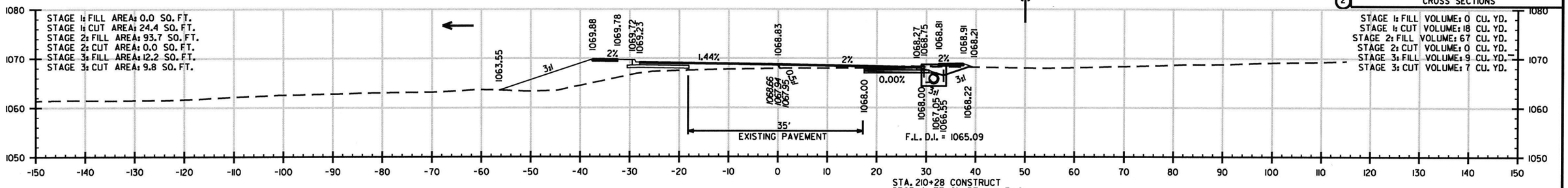
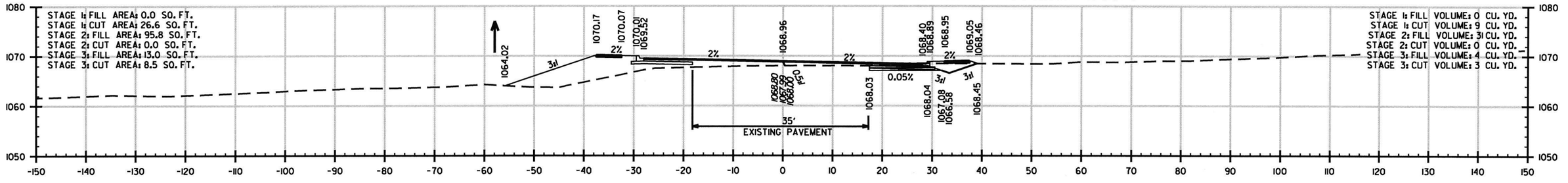
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	343	417

(2) CROSS SECTIONS

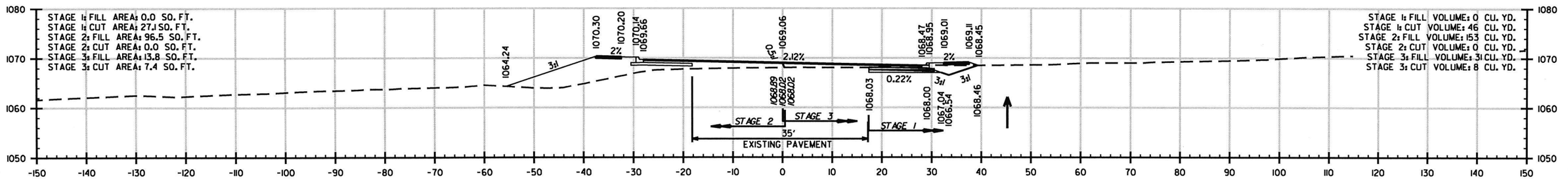


STA. 210+28.00

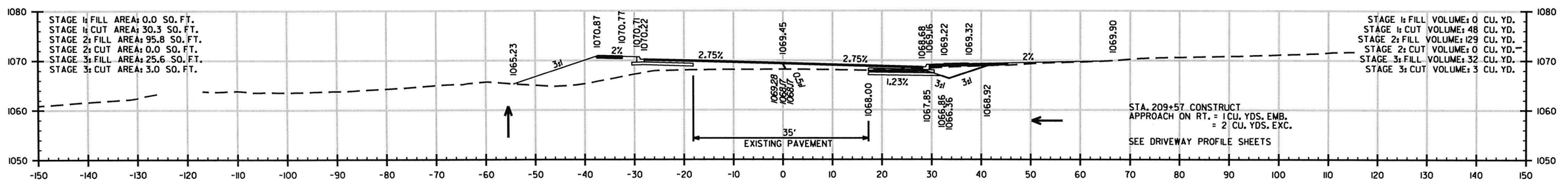
STA. 210+28 CONSTRUCT
DROP INLET ON RT. H = 3'-8"
WITH 18" x 163'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
18" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 163 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 163 LIN. FT.



STA. 210+08.79



STA. 210+00.00



STA. 209+57.00

STA. 209+57.00 TO STA. 210+28.00

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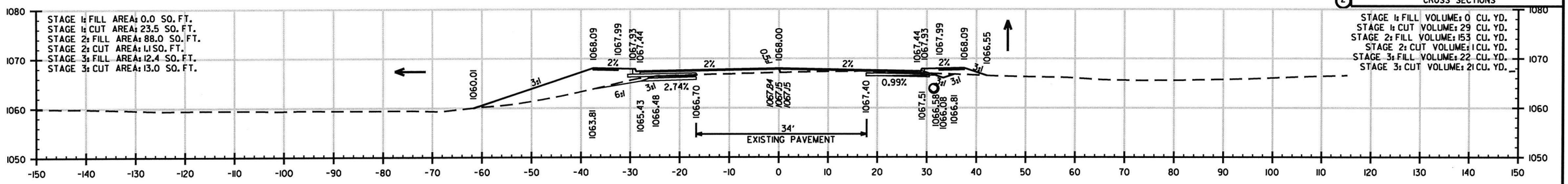
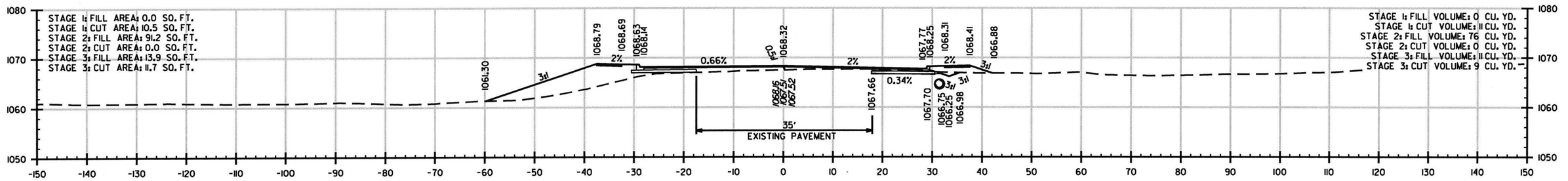
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	344	417

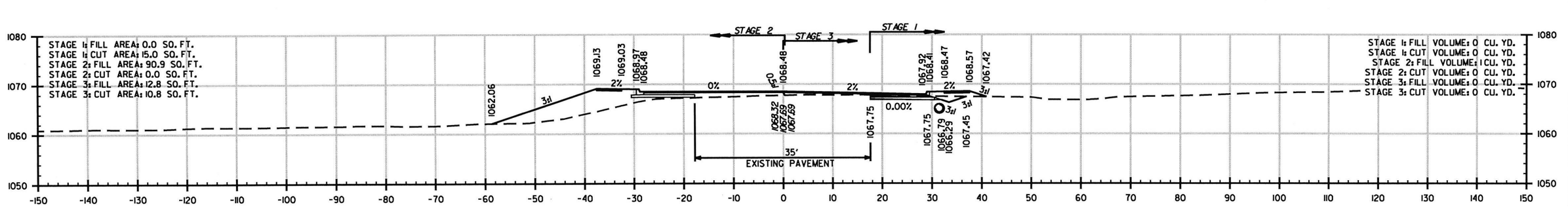
(2) CROSS SECTIONS



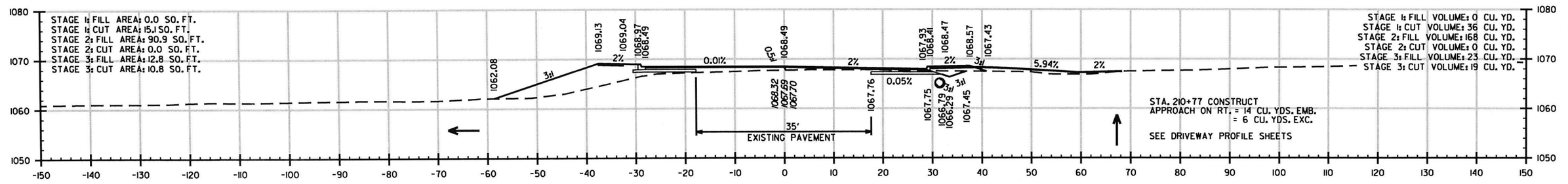
STA. 211+46.08



STA. 211+00.00



STA. 210+77.44



STA. 210+77.00

STA. 210+77.00 TO STA. 211+46.08

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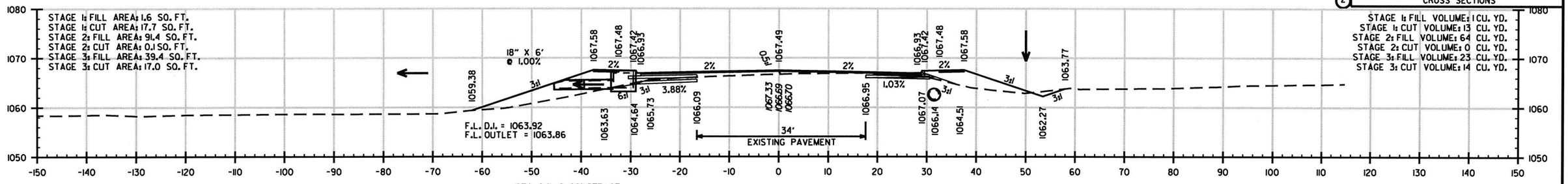
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	345	417

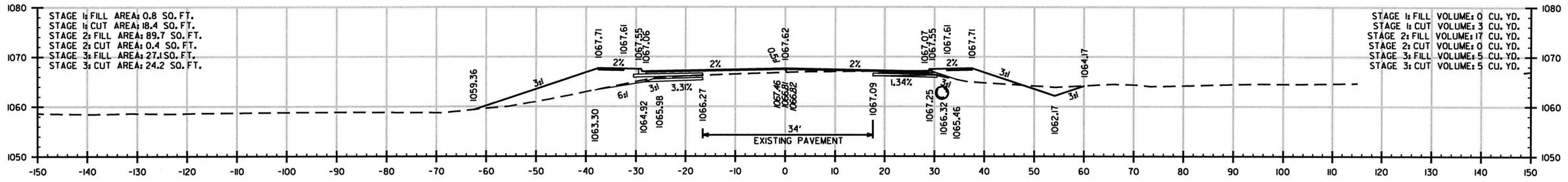
(2) CROSS SECTIONS

STA. 212+60.00 END
0.50% RT. DITCH GRADE
ELEV. 1062.47

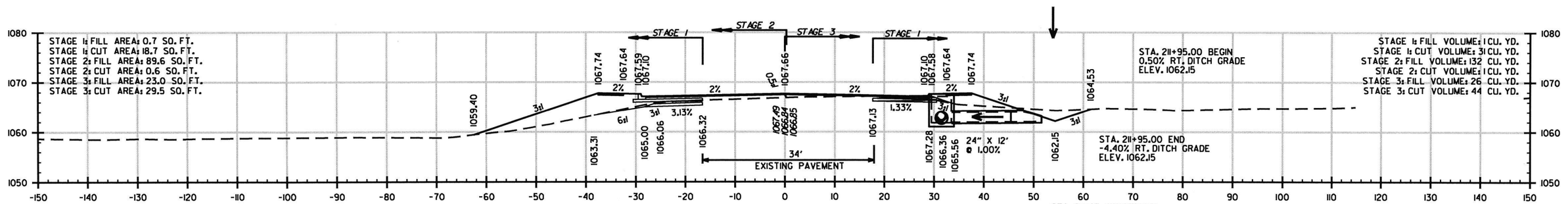


STA. 212+19 CONSTRUCT
DROP INLET ON LT. H = 3'-6"
WITH 18" x 6'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"

STA. 212+19.00



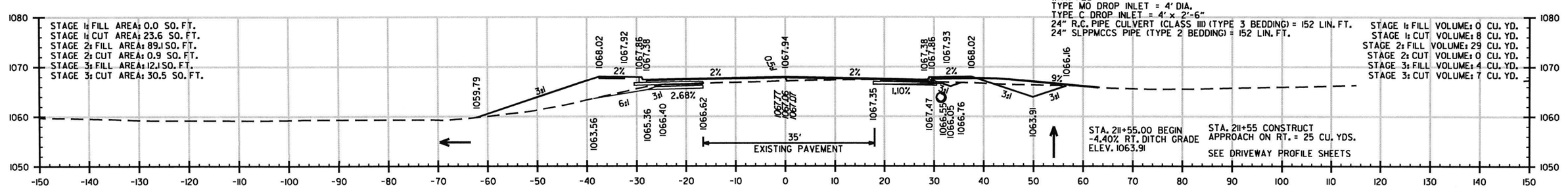
STA. 212+00.00



STA. 211+95.00

18" F.L. INVERT = 1062.39
24" F.L. INLET = 1062.01
24" F.L. INVERT = 1061.89
F.L. D.I. = 1061.79

STA. 211+95 CONSTRUCT
DROP INLET ON RT. H = 5'-10"
WITH 24" x 152'
PIPE CULVERT TO DROP INLET ON RT.
WITH 24" x 12'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' x 2'-6"
24" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 152 LIN. FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 152 LIN. FT.



STA. 211+55.00

STA. 211+55.00 TO STA. 212+19.00

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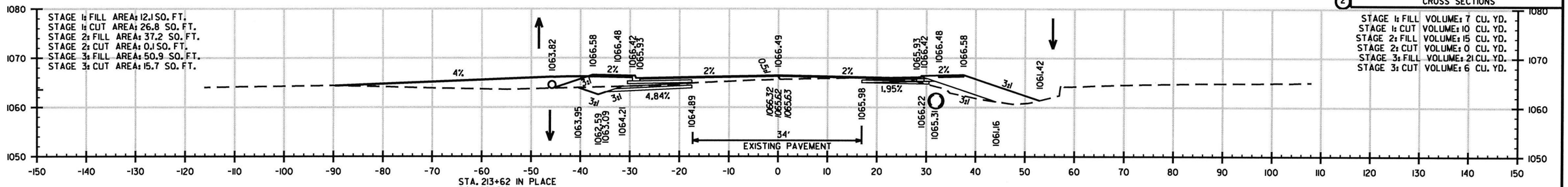
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	346	417

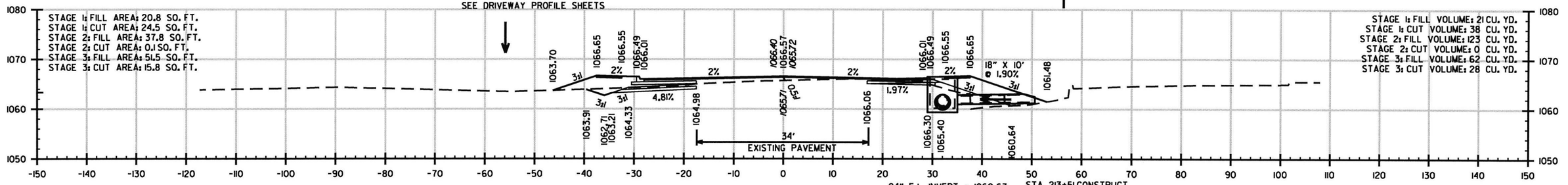
2 CROSS SECTIONS



STA. 213+62 IN PLACE
24"X29' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 95 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS

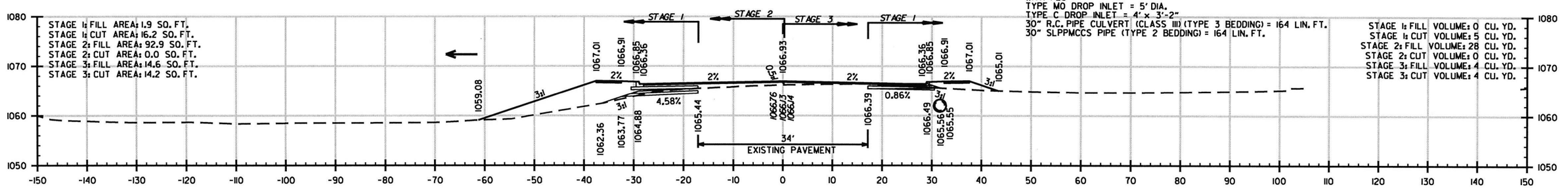
STA. 213+62.00



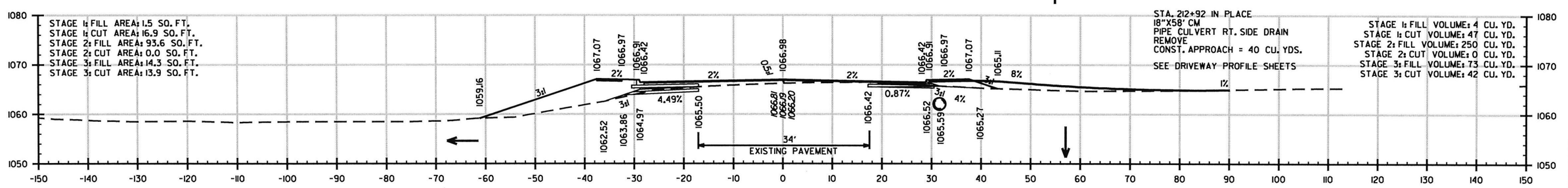
STA. 213+51.00

24" F.L. INVERT = 1060.63
18" F.L. INLET = 1061.32
18" F.L. INVERT = 1061.13
F.L. D.I. = 1060.13

STA. 213+51 CONSTRUCT
DROP INLET ON RT. H = 6'-4"
WITH 30" x 164'
PIPE CULVERT TO DROP INLET ON RT.
WITH 18" x 10'
R.C. PIPE CULVERT (CLASS III) (TYPE3 BEDDING)
WITH FES
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' x 3'-2"
30" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 164 LIN. FT.
30" SLPPMCCS PIPE (TYPE 2 BEDDING) = 164 LIN. FT.



STA. 213+00.00



STA. 212+92 IN PLACE
18"X58' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 40 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS

STA. 212+92.00

STA. 212+92.00 TO STA. 213+62.00

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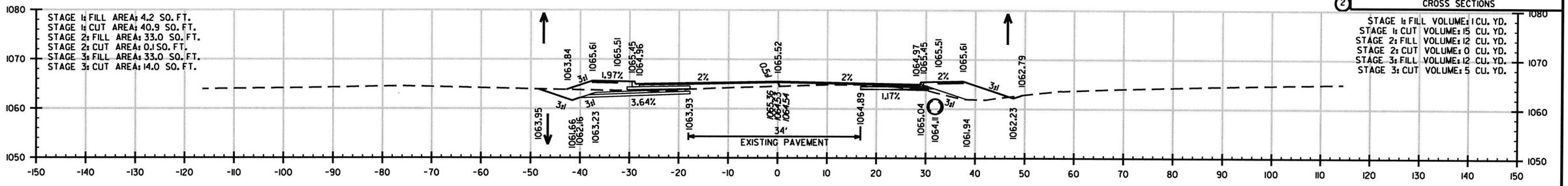
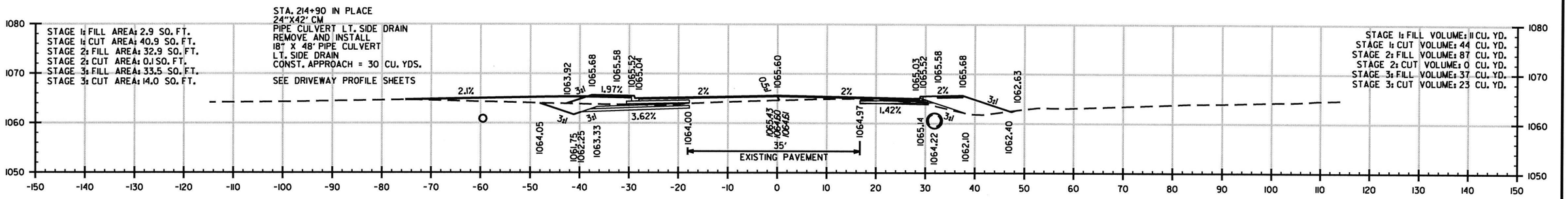
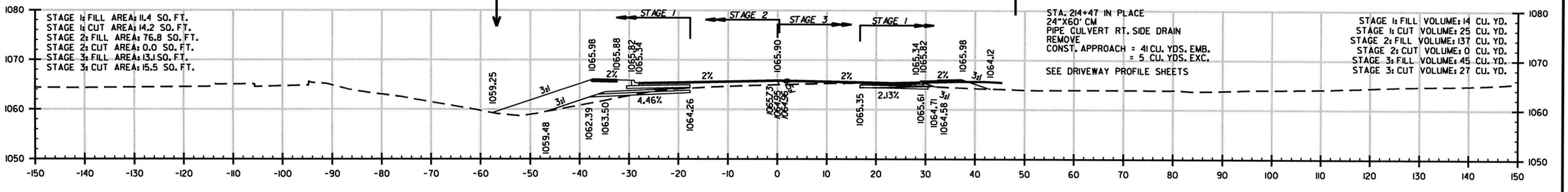
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	347	417

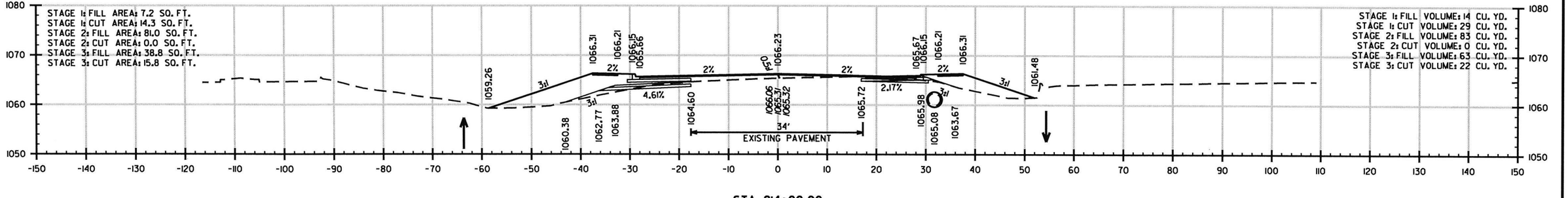
(2) CROSS SECTIONS





STA. 214+85.00 BEGIN
-1.72% RT. DITCH GRADE
ELEV. 1062.48





STA. 214+00.00 TO STA. 215+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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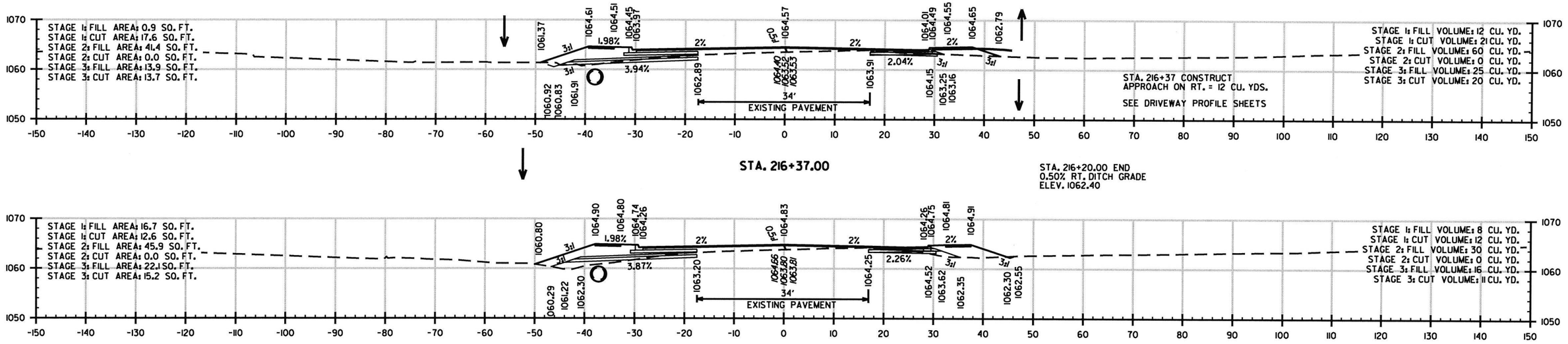
				JOB NO.		CA0906	348	417

(2) CROSS SECTIONS



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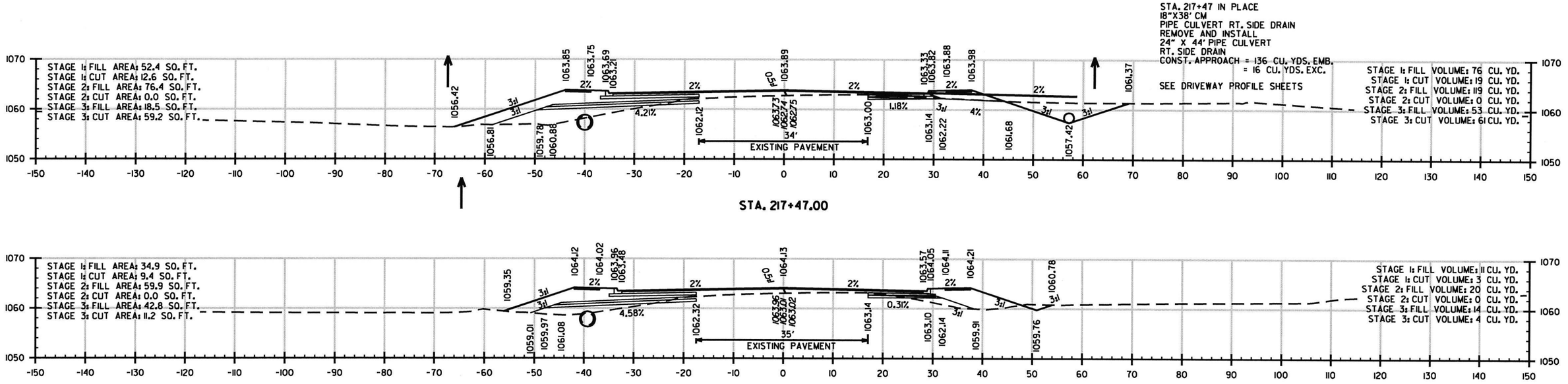
				6	ARK.			
				JOB NO.		CA0906	349	417

(2) CROSS SECTIONS



STA. 216+50.00 TO STA. 217+47.00

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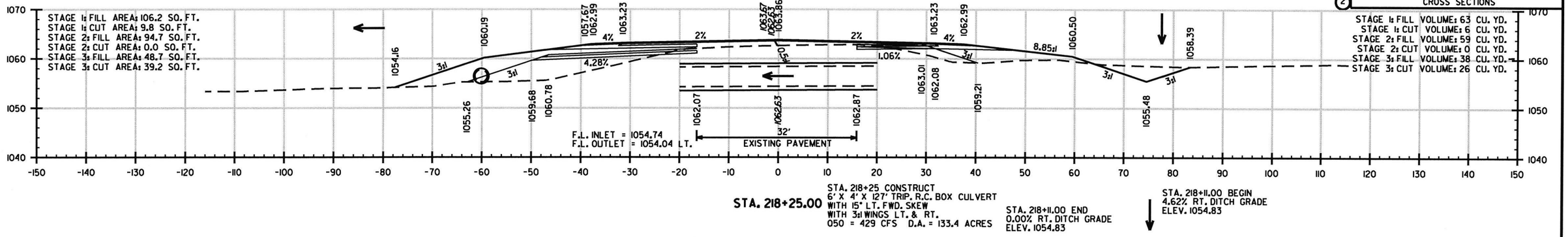
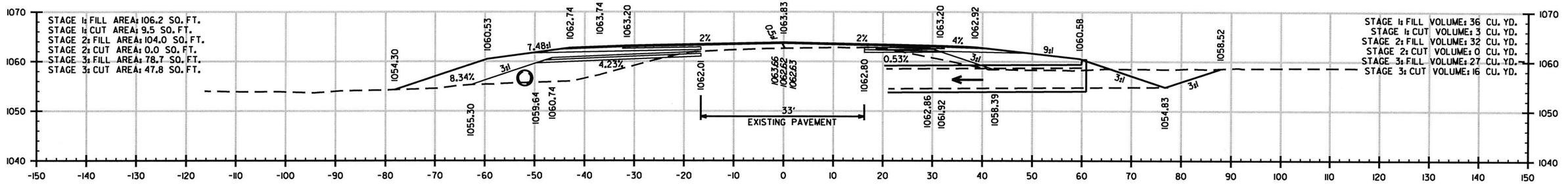
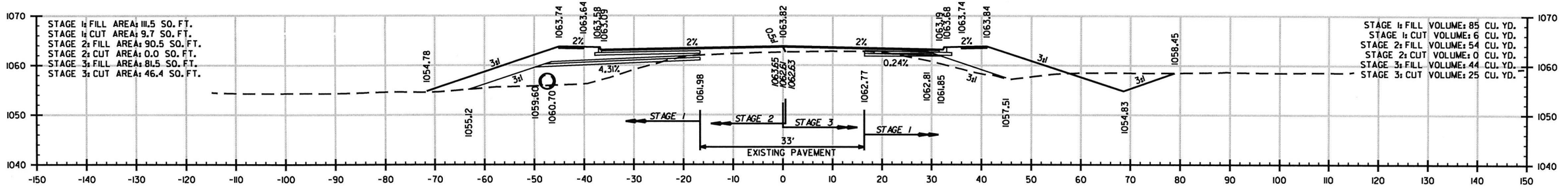
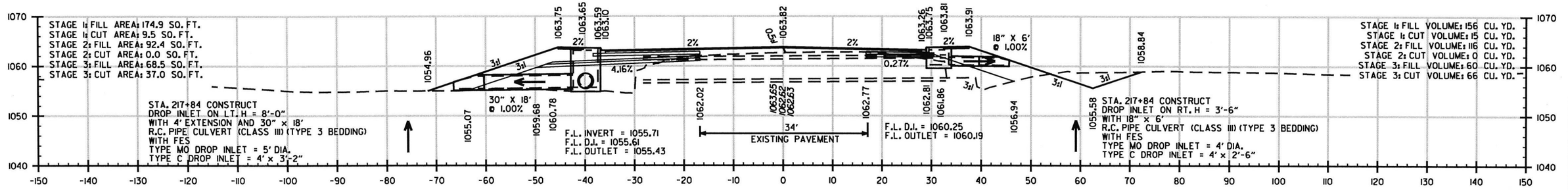
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	350	417

(2) CROSS SECTIONS









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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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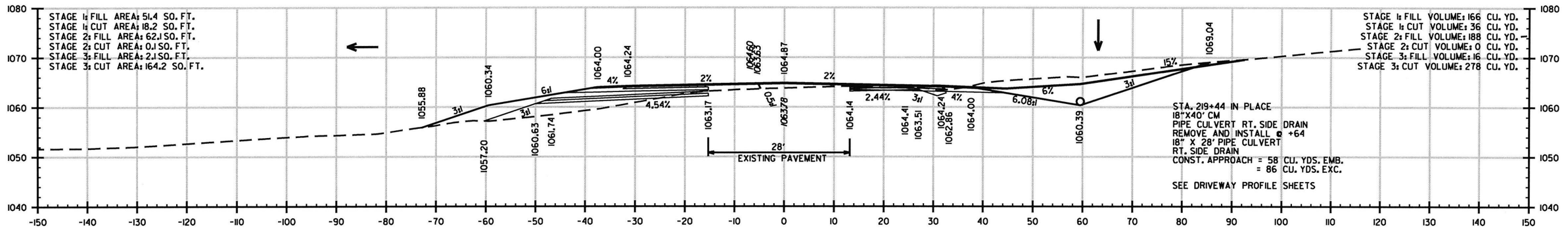
				JOB NO.		CA0906	351	417

(2) CROSS SECTIONS



STA. 219+64.00

STA. 219+20.00 END
4.62% RT. DITCH GRADE
ELEV. 1059.86



STA. 219+00.00



STA. 218+42.00

STA. 218+42.00 TO STA. 219+64.00

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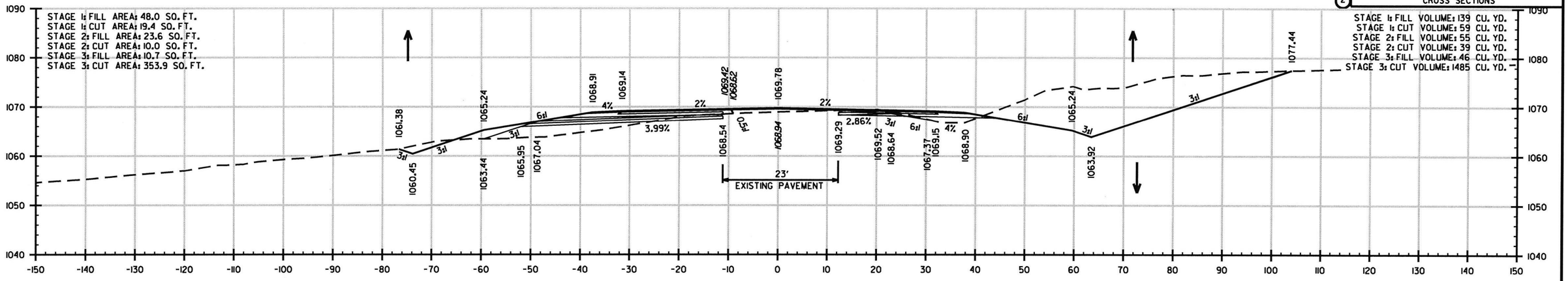
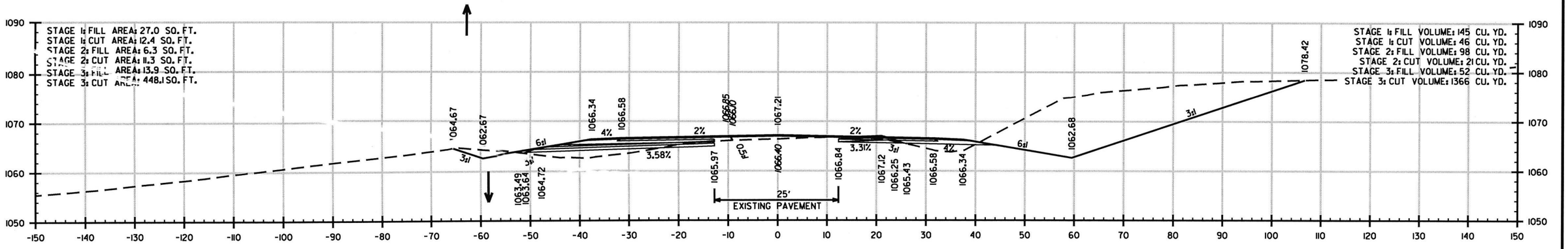
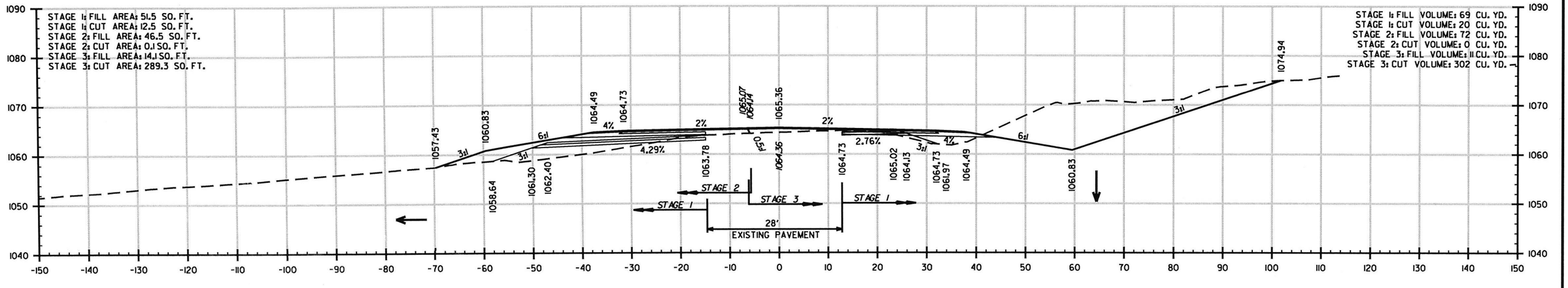
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	352	417

(2) CROSS SECTIONS







STA. 220+00.00 TO STA. 222+00.00

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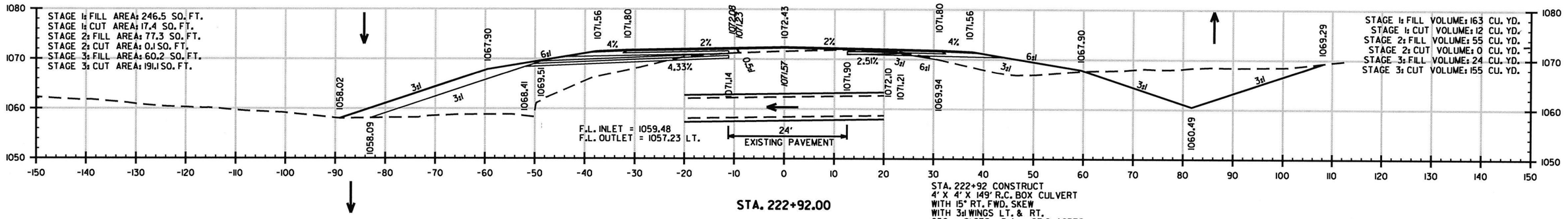
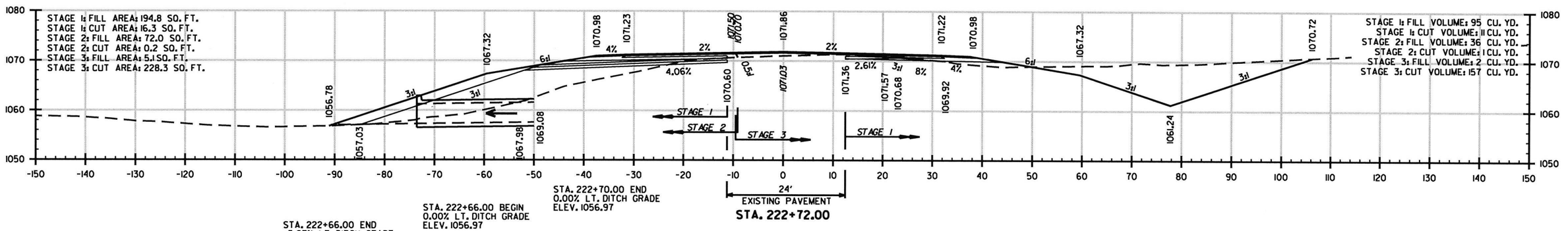
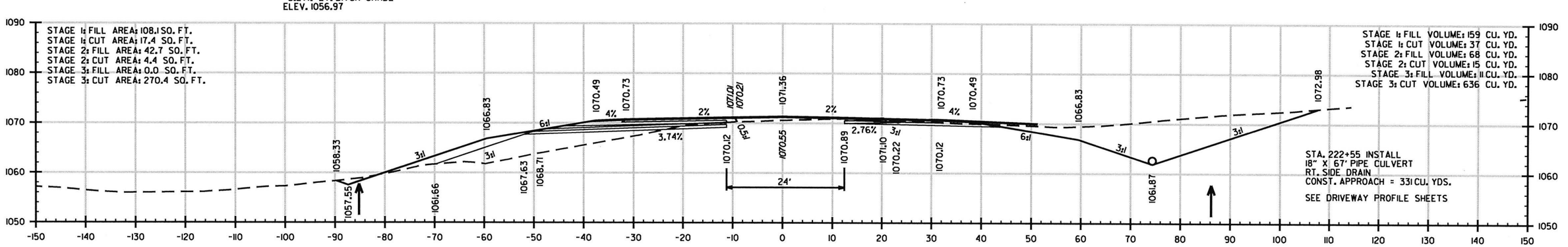
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	353	417
				(2)	CROSS SECTIONS			







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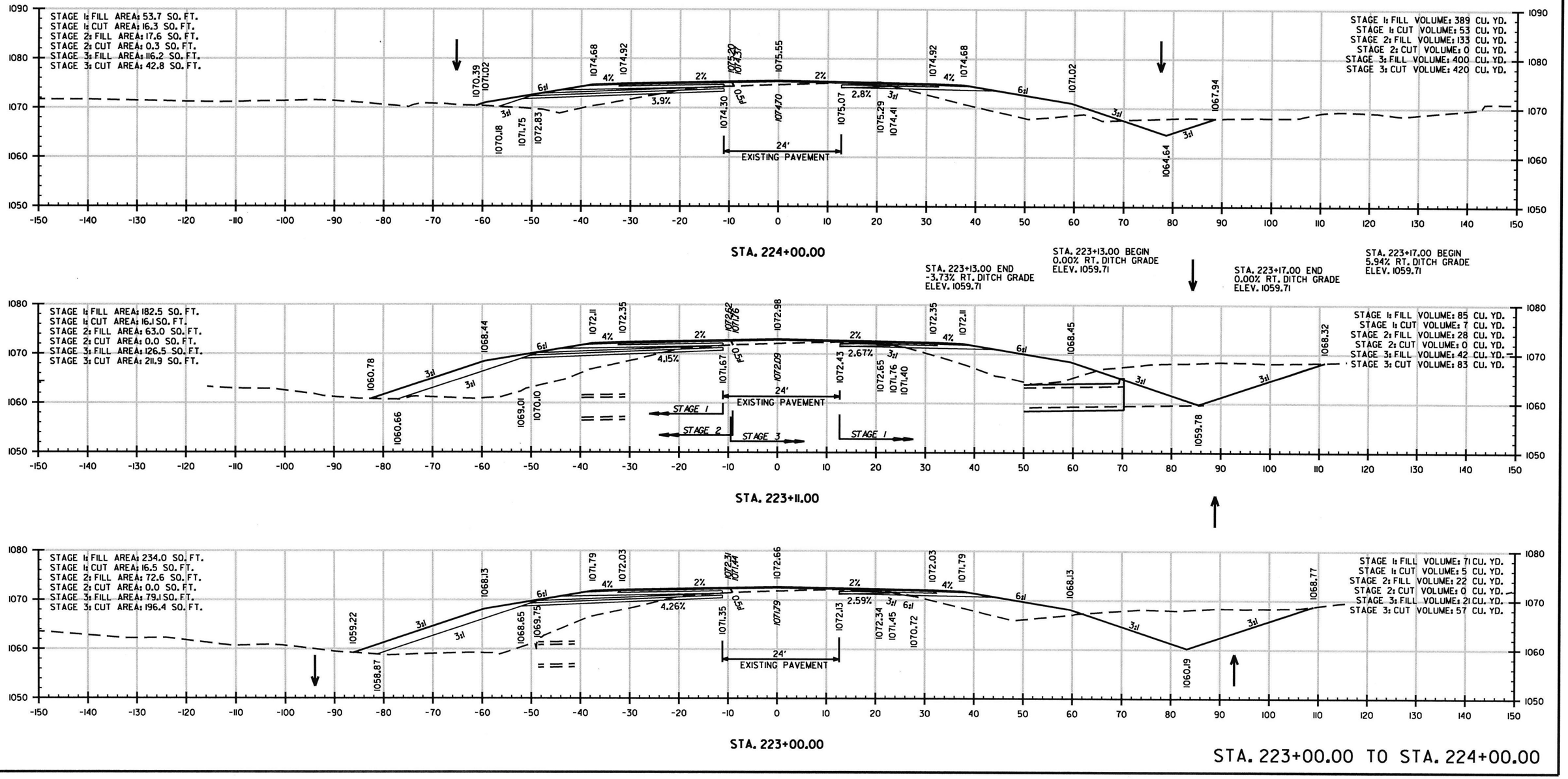
STA. 222+55.00 TO STA. 222+92.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	354	417

(2) CROSS SECTIONS

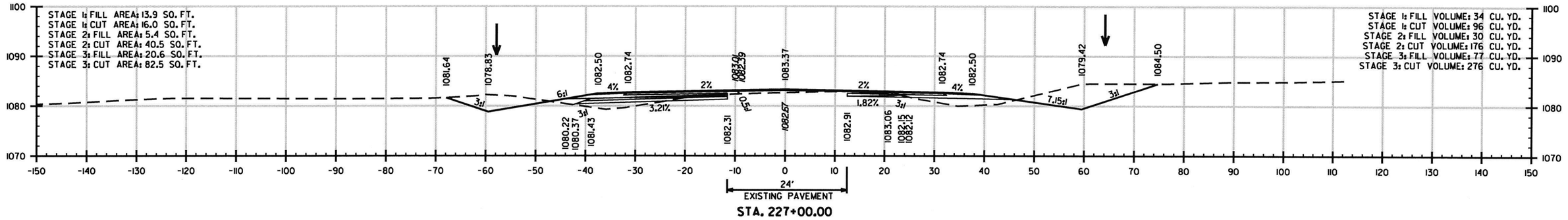


STA. 223+00.00 TO STA. 224+00.00

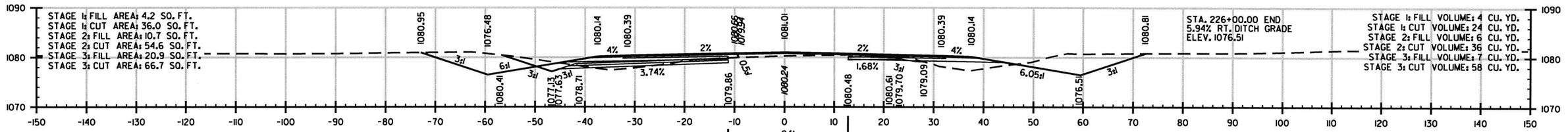
6/7/2017
4:10:01 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	355	417

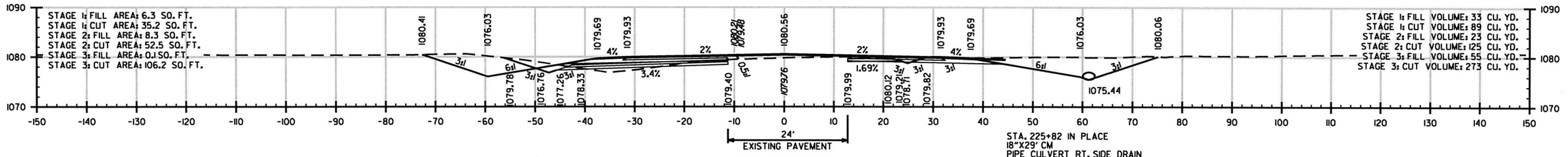
(2) CROSS SECTIONS



STA. 227+00.00

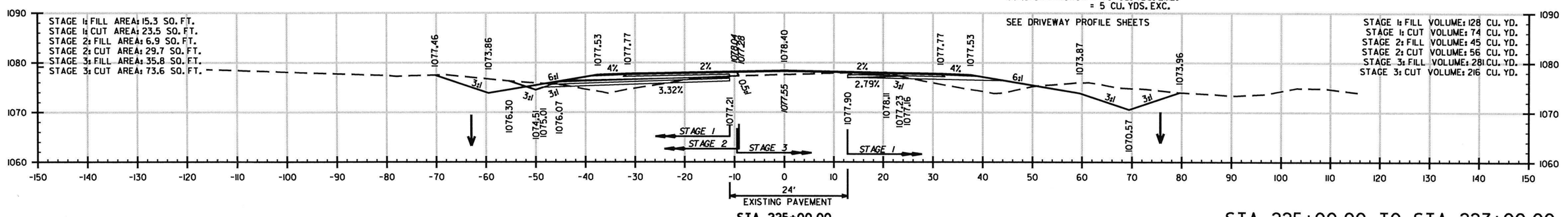


STA. 226+00.00



STA. 225+82 IN PLACE
18"X29' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 38' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 70 CU. YDS. EMB.
= 5 CU. YDS. EXC.

STA. 225+82.00



STA. 225+00.00

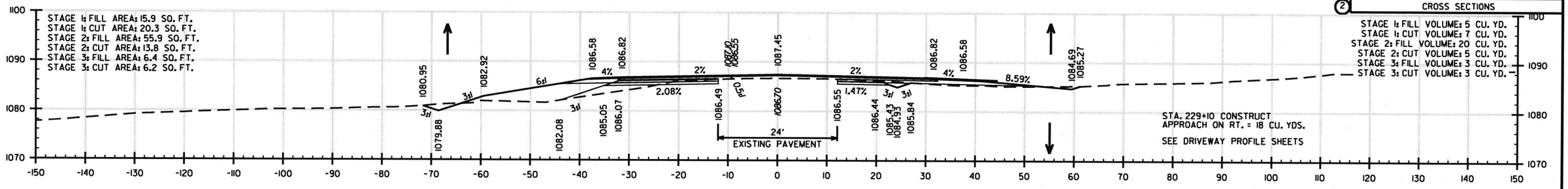
STA. 225+00.00 TO STA. 227+00.00

6/7/2017
4:10:01 PM
...\CA0906_CX_HWY65.dgn

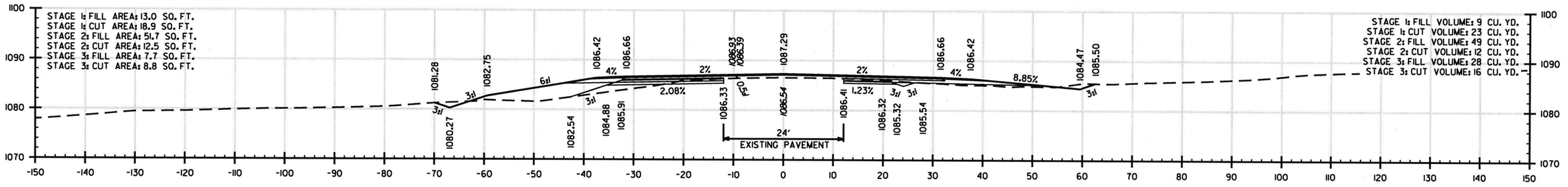
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	356	417

(2) CROSS SECTIONS

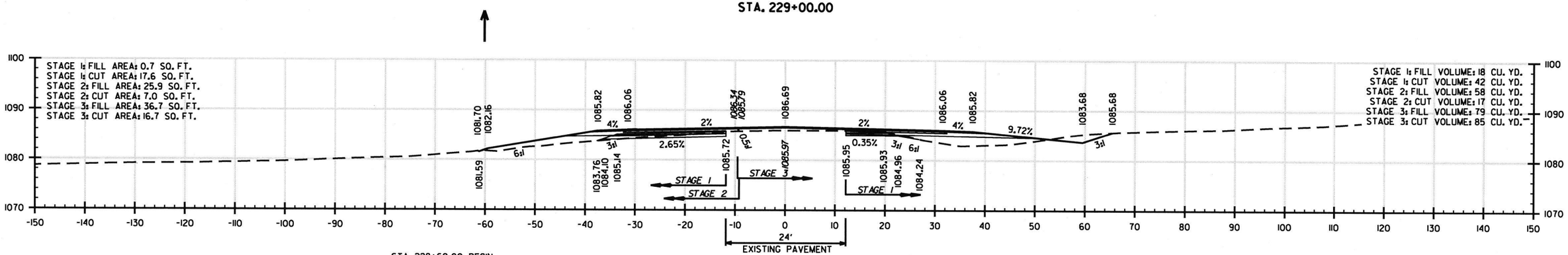
STA. 229+40.00 END
-3.87% LT. DITCH GRADE
ELEV. 1078.72



STA. 229+10.00

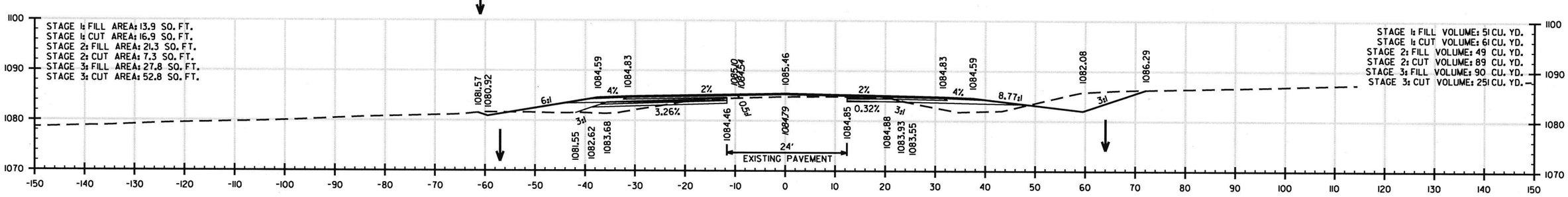


STA. 229+00.00



STA. 228+66.00

STA. 228+60.00 BEGIN
-3.87% LT. DITCH GRADE
ELEV. 1081.82



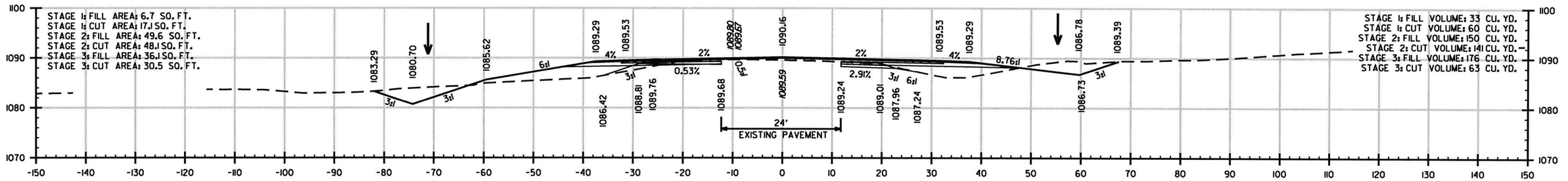
STA. 228+00.00

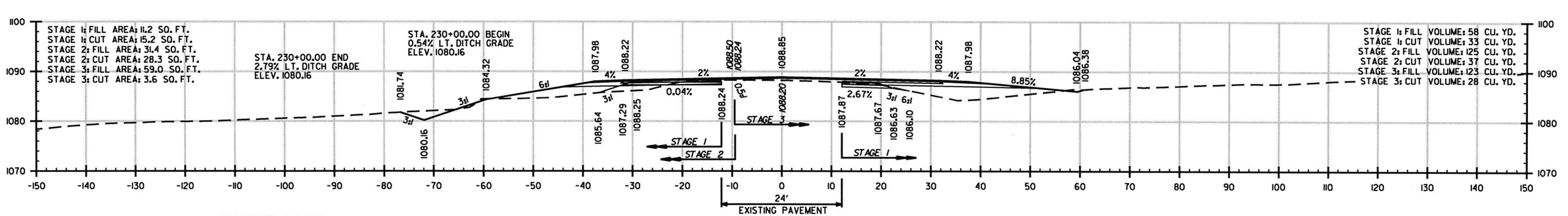
STA. 228+00.00 TO STA. 229+10.00

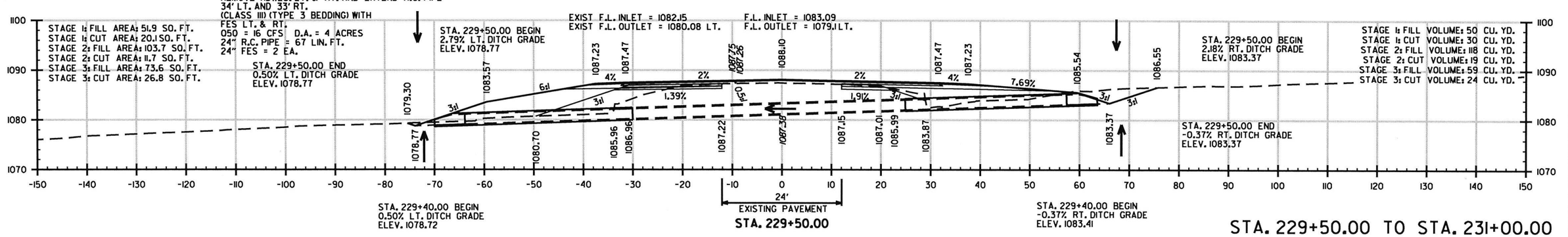
7/17/2017
1:56:55 PM
\\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	357	417

(2) CROSS SECTIONS







STA. 229+50.00 TO STA. 231+00.00

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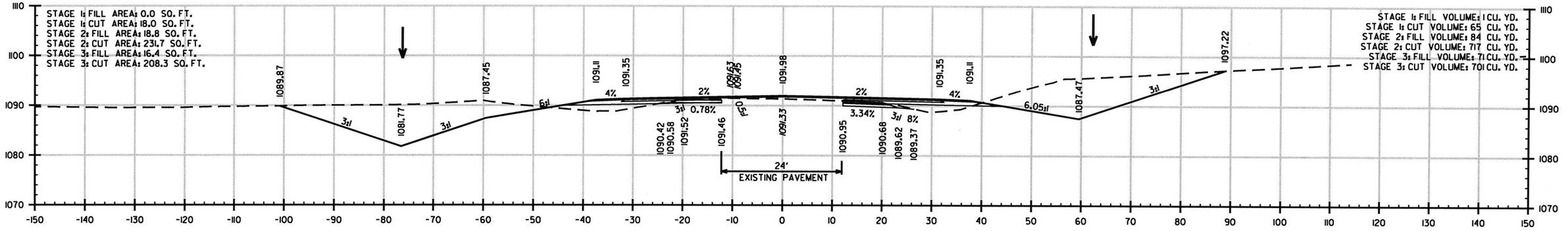
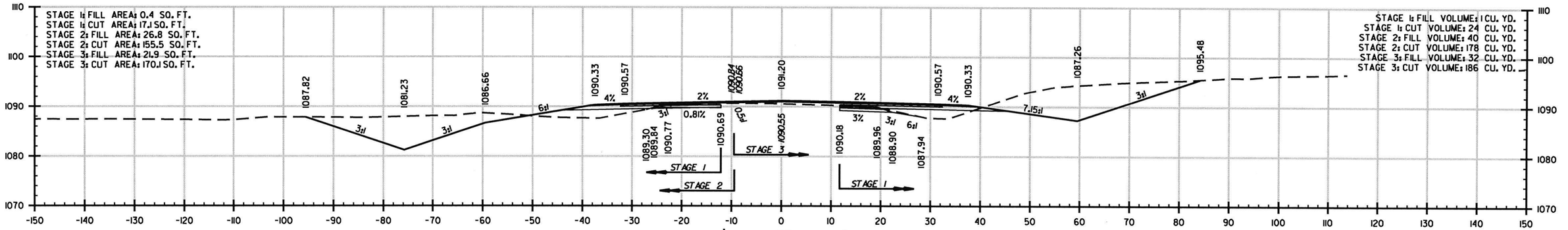
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	358	417

(2) CROSS SECTIONS



STA. 233+00.00

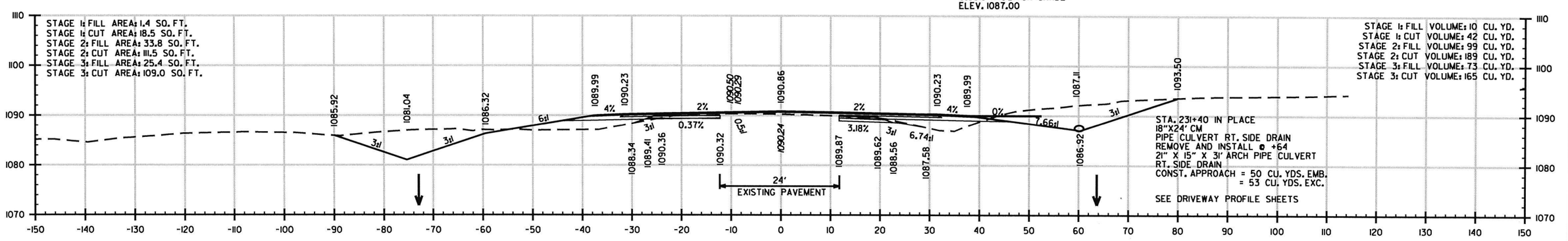


STA. 232+00.00

STA. 231+89.00 END
0.30% RT. DITCH GRADE
ELEV. 1087.00

STA. 231+89.00 BEGIN
2.34% RT. DITCH GRADE
ELEV. 1087.00

STA. 232+00.00 END
2.34% RT. DITCH GRADE
ELEV. 1087.26



STA. 231+64.00

STA. 231+64.00 TO STA. 233+00.00

6/7/2017
4:10:03 PM
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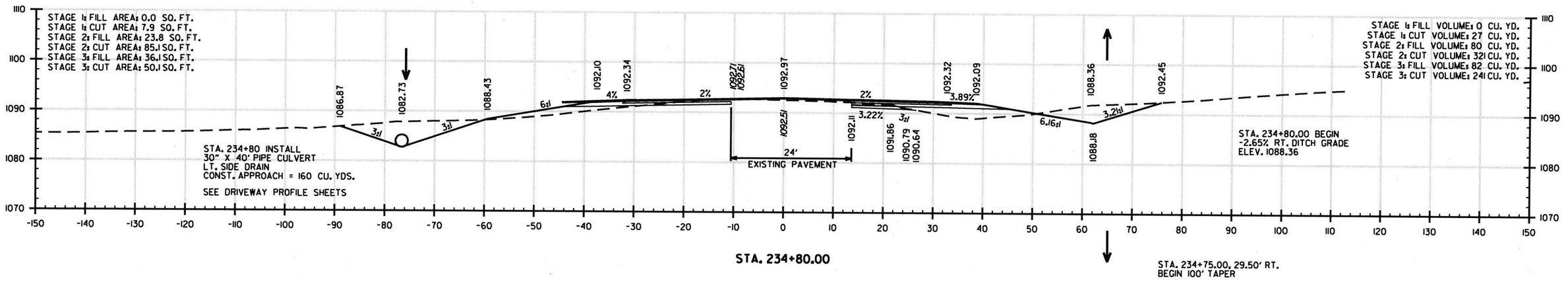
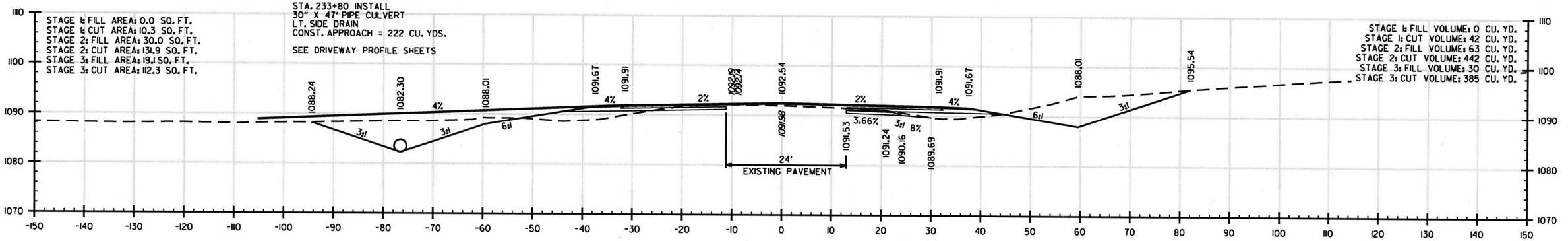
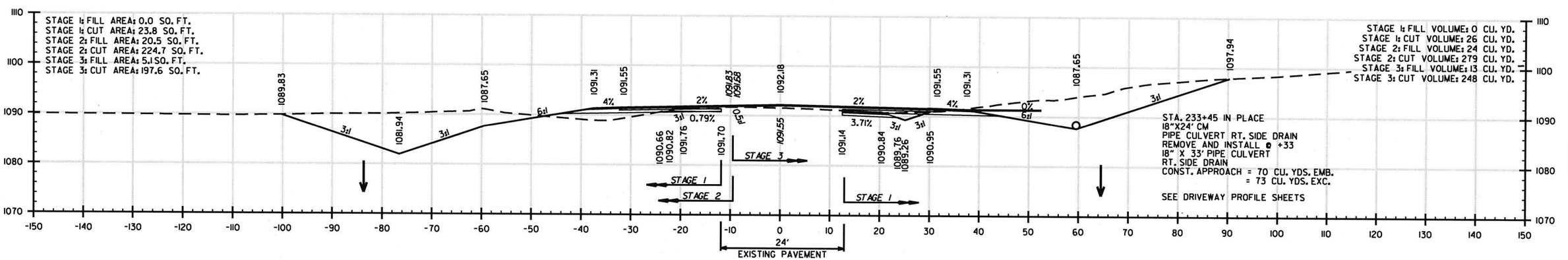
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	359	417

(2) CROSS SECTIONS





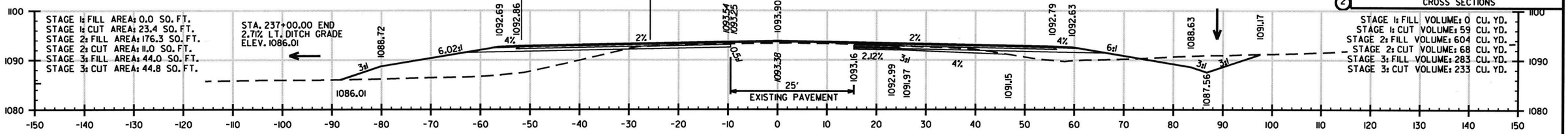


STA. 233+33.00 TO STA. 234+80.00

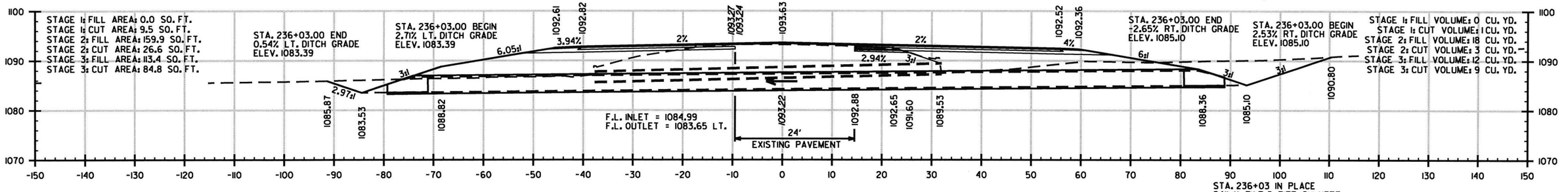
7/17/2017
1:56:56 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	360	417

(2) CROSS SECTIONS

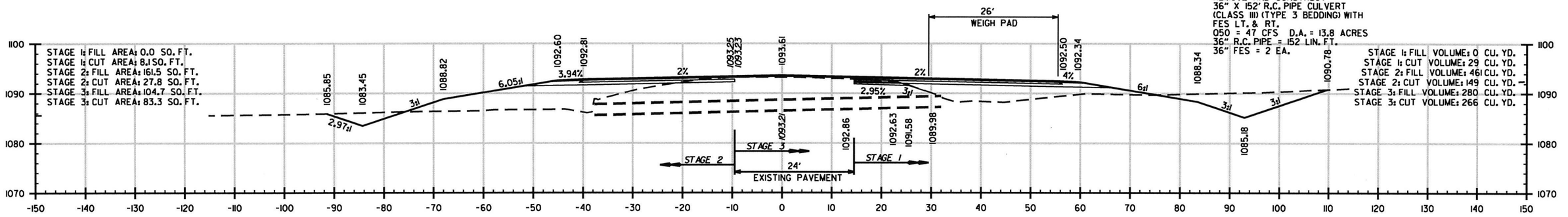


STA. 237+00.00



STA. 236+03.00

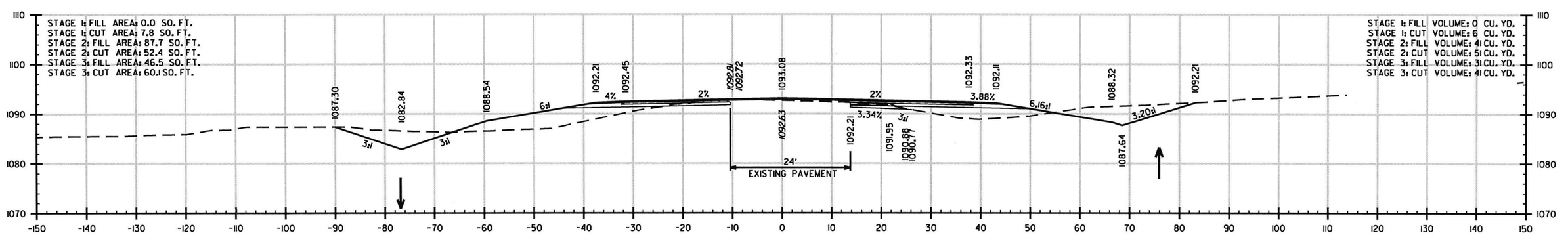
STA. 236+03 IN PLACE
24" X 71' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36" X 152' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 47 CFS D.A. = 13.8 ACRES
36" R.C. PIPE = 152 LIN. FT.
36" FES = 2 EA.



STA. 236+00.00

STA. 235+30.00, 29.50' LT.
BEGIN 100' TAPER

STA. 235+75.00, 55.50' RT.
END 100' TAPER



STA. 235+00.00

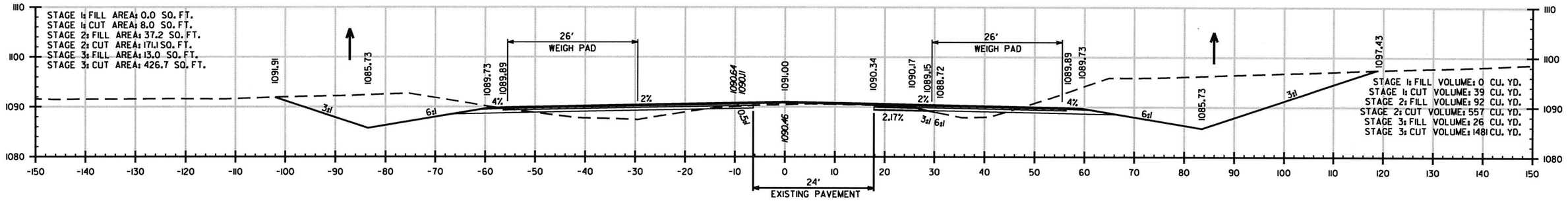
STA. 235+00.00 TO STA. 237+00.00

6/7/2017
4:10:22 PM
...\CA0906_CX_HWY65.dgn

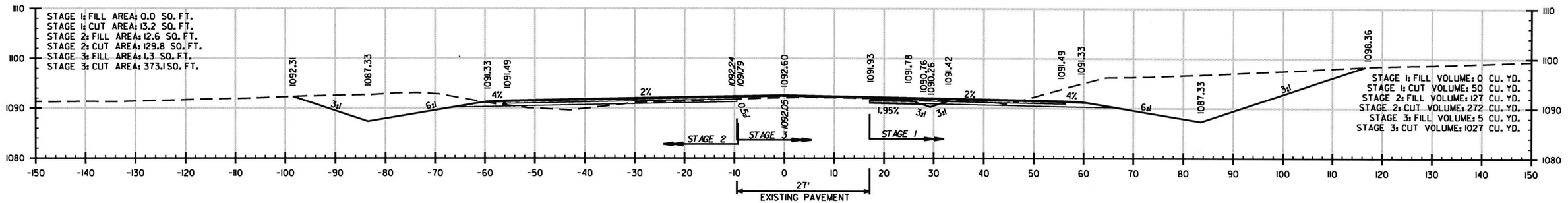
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	361	417

(2) CROSS SECTIONS

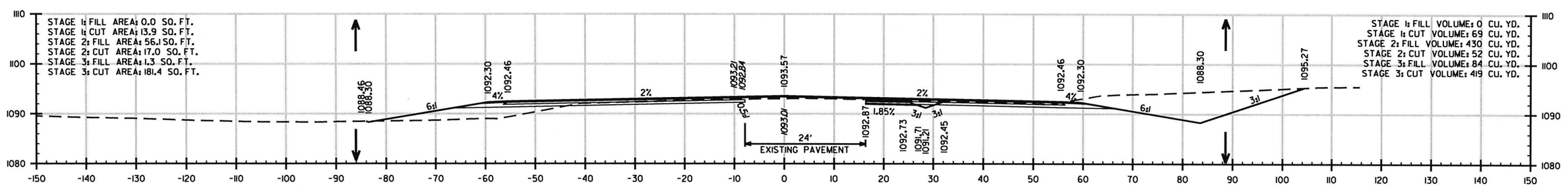
STA. 240+75.00, 55.50' RT.
BEGIN 100' TAPER



STA. 240+00.00



STA. 239+00.00



STA. 237+30.00, 55.50' LT.
END 100' TAPER

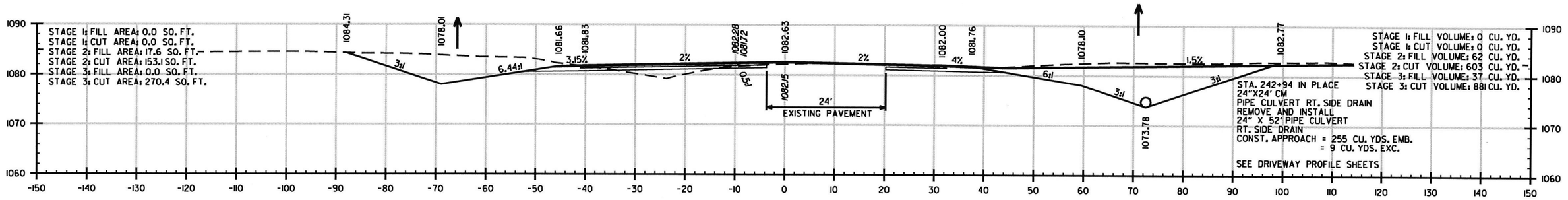
STA. 238+00.00

STA. 238+00.00 TO STA. 240+00.00

6/7/2017
4:10:35 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	362	417

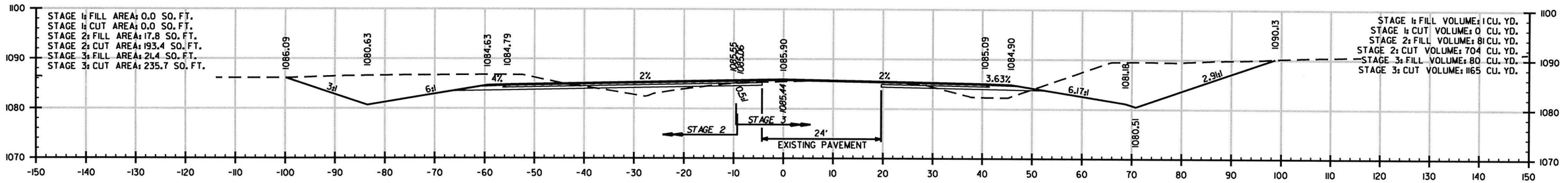
(2) CROSS SECTIONS



STA. 242+94.00

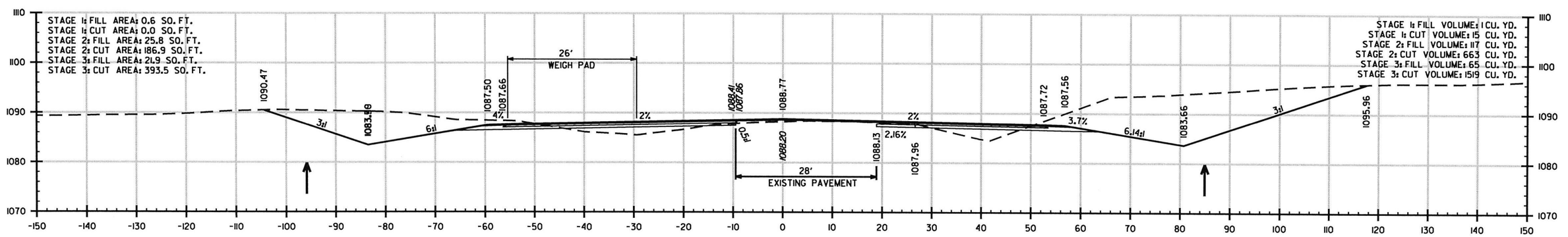
STA. 242+30.00, 55.50' LT.
BEGIN 100' TAPER

STA. 242+75.00, 29.50' RT.
END 100' TAPER



STA. 242+00.00

STA. 241+80.00 BEGIN
-6.90% RT. DITCH GRADE
ELEV. 1081.64



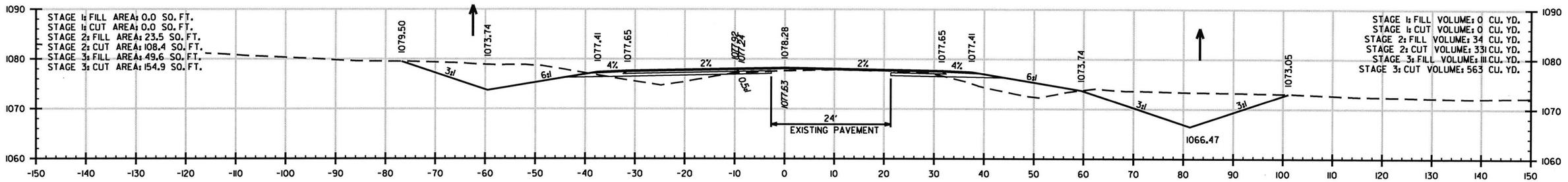
STA. 241+00.00

STA. 241+00.00 TO STA. 242+94.00

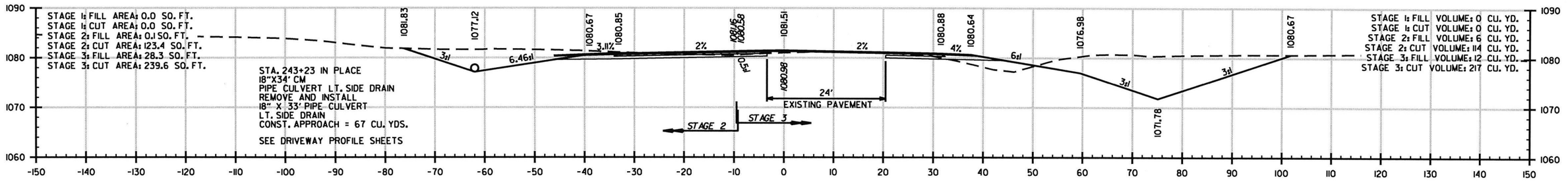
6/7/2017
4:10:06 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	363	417

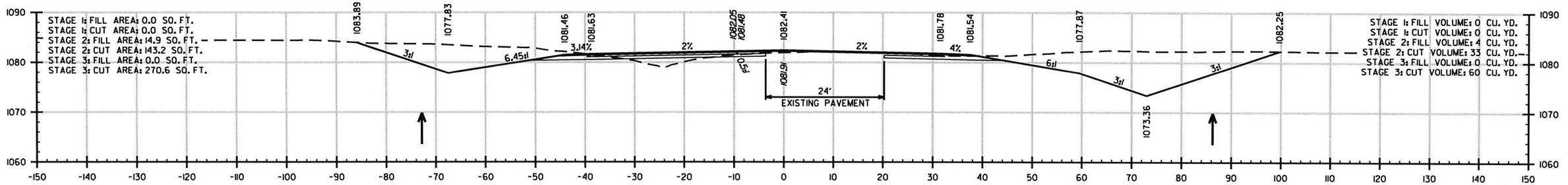
(2) CROSS SECTIONS



STA. 244+00.00



STA. 243+23.00



STA. 243+00.00

STA. 243+00.00 TO STA. 244+00.00

6/7/2017
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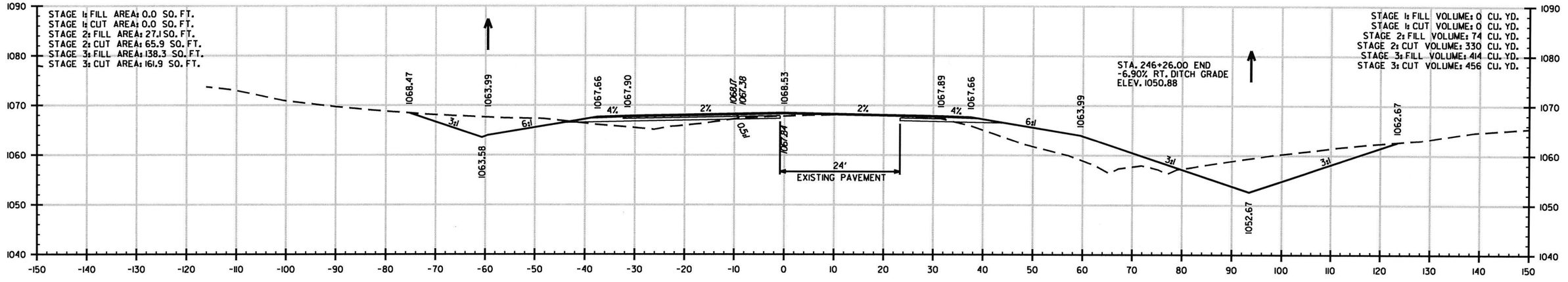
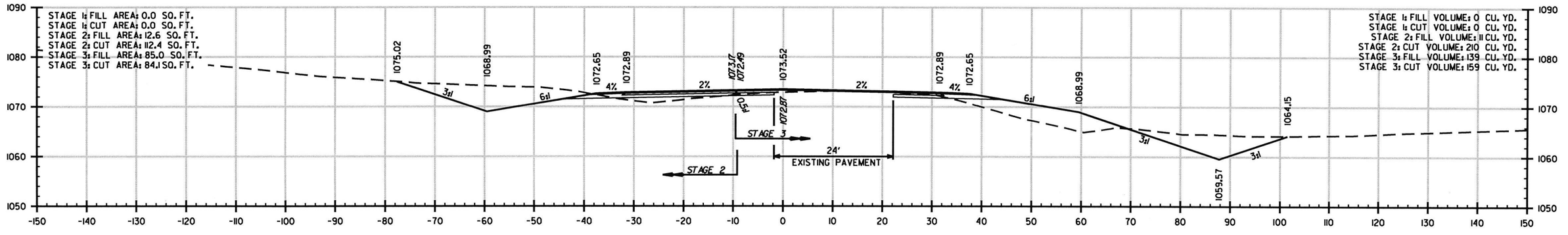
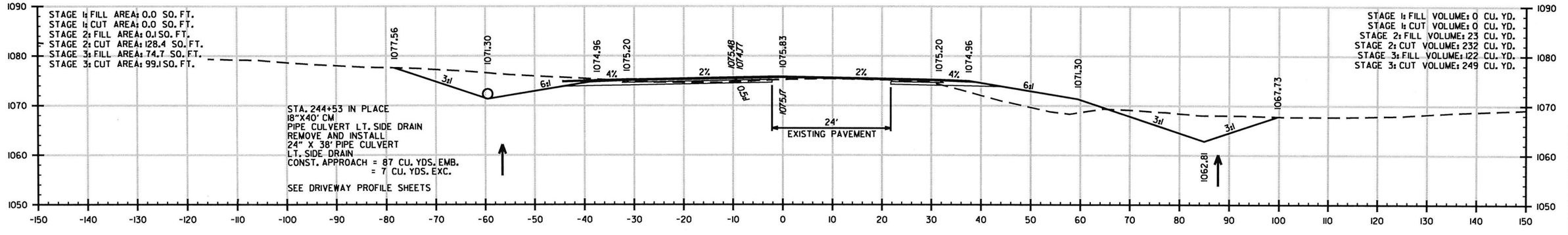
\\CA0906.CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	364	417
				(2)	CROSS SECTIONS			



STA. 245+80.00 BEGIN
-7.01% LT. DITCH GRADE
ELEV. 1064.99





STA. 244+53.00 TO STA. 246+00.00

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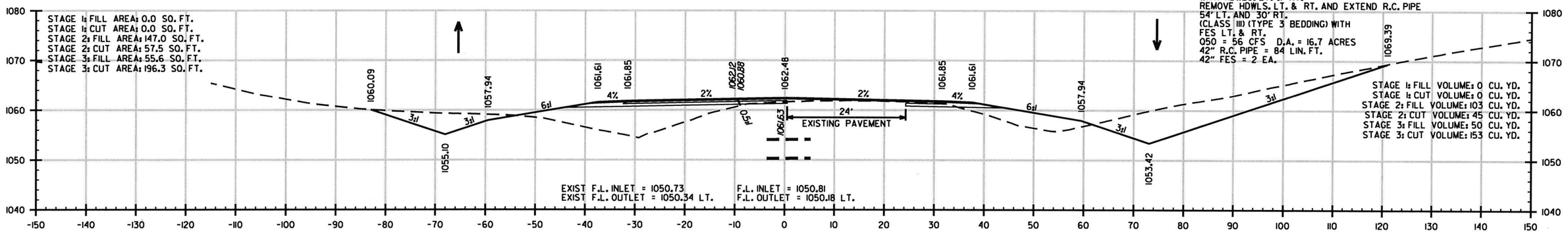
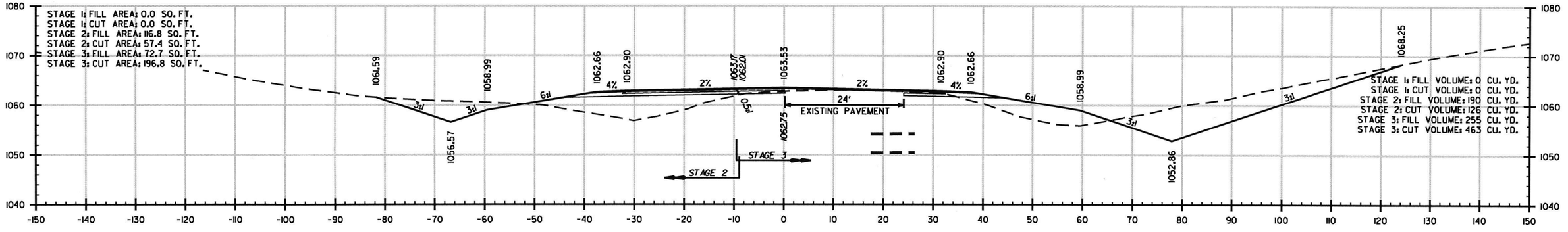
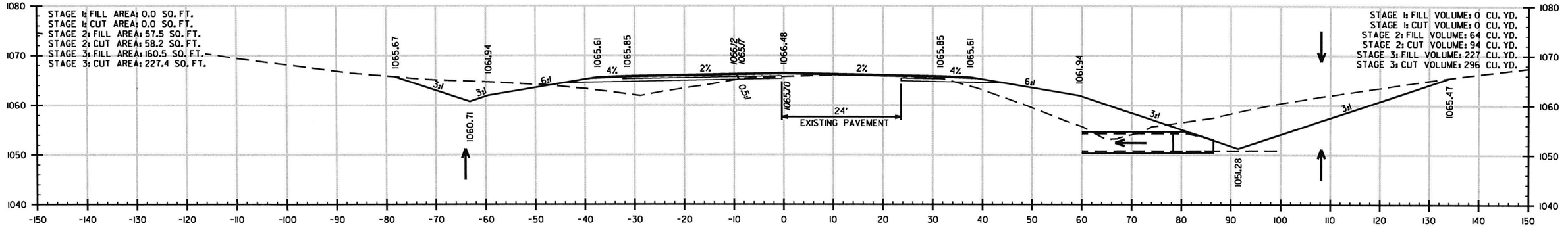
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	365	417
				(2)	CROSS SECTIONS			



STA. 247+21.00



STA. 247+00.00



STA. 246+41.00

STA. 246+26.00 BEGIN
2.67% RT. DITCH GRADE
ELEV. 1050.88

STA. 246+41.00 TO STA. 247+21.00

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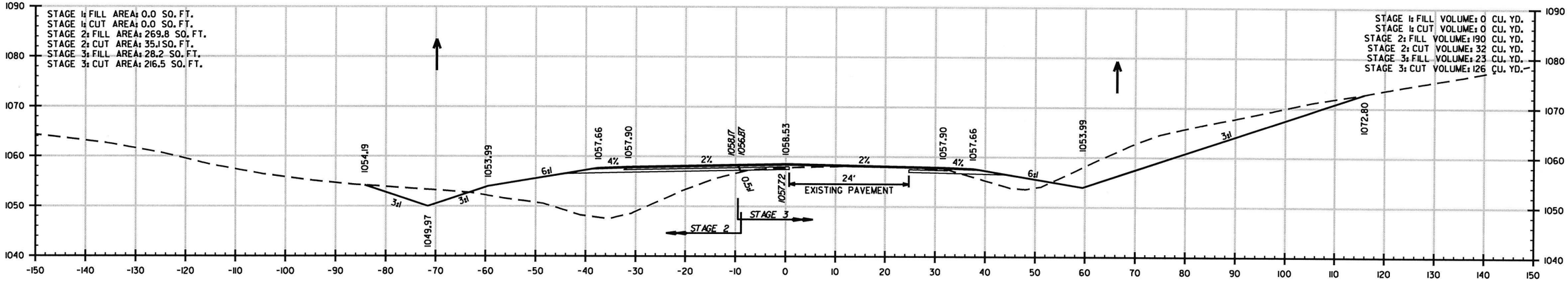
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	366	417
				(2)	CROSS SECTIONS			

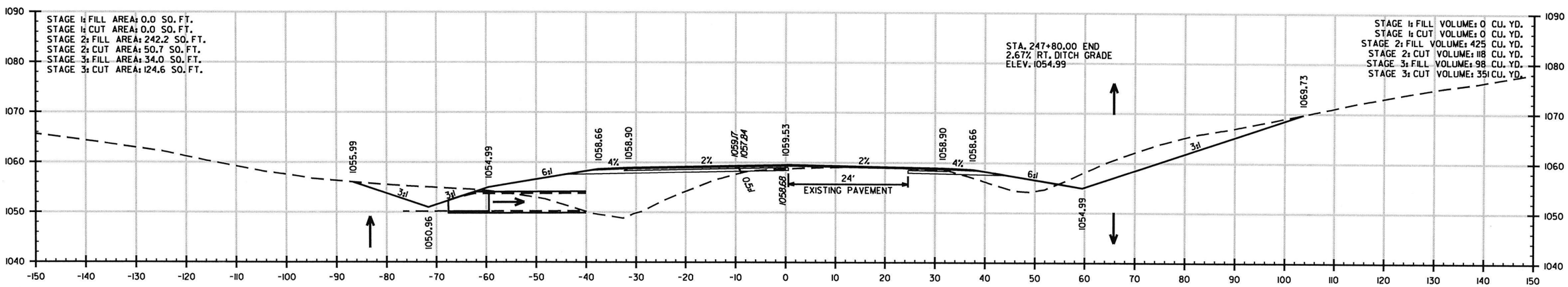
STA. 248+40.00 END
-1.86% LT. DITCH GRADE
ELEV. 1049.23



STA. 248+00.00

STA. 247+92.00 END
-7.01% LT. DITCH GRADE
ELEV. 1050.12

STA. 247+92.00 BEGIN
-1.86% LT. DITCH GRADE
ELEV. 1050.12



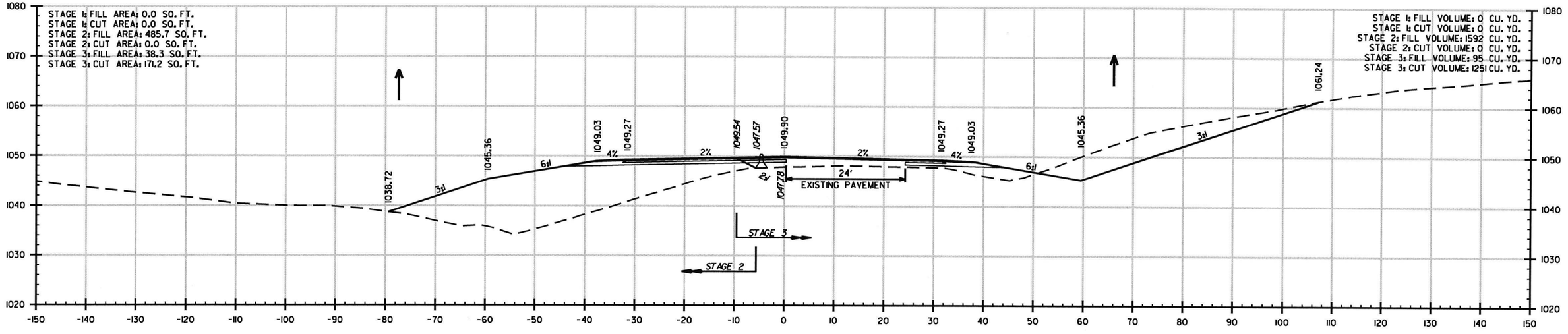
STA. 247+80.00

STA. 247+80.00 TO STA. 248+00.00

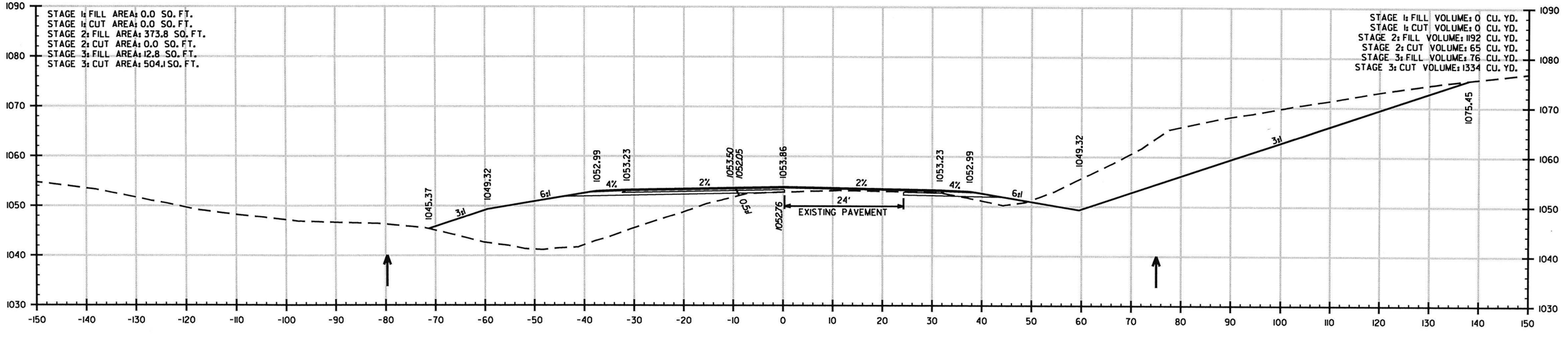
6/7/2017
4:10:09 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	367	417

(2) CROSS SECTIONS



STA. 250+00.00



STA. 249+00.00

STA. 249+00.00 TO STA. 250+00.00

6/7/2017
4:10:10 PM
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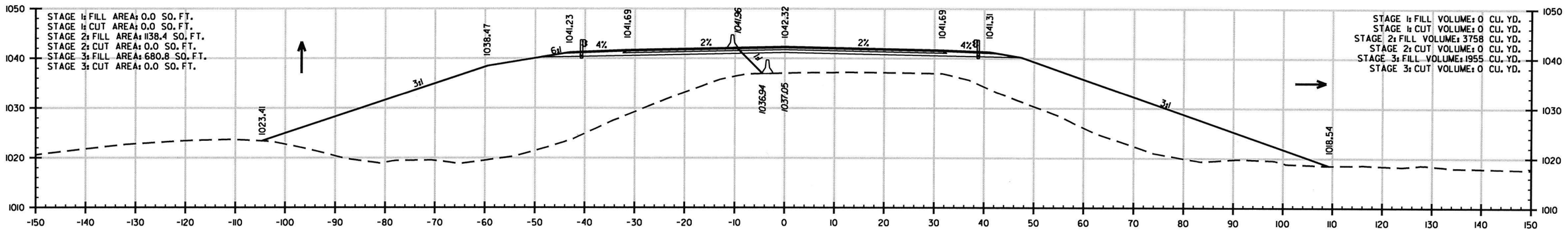
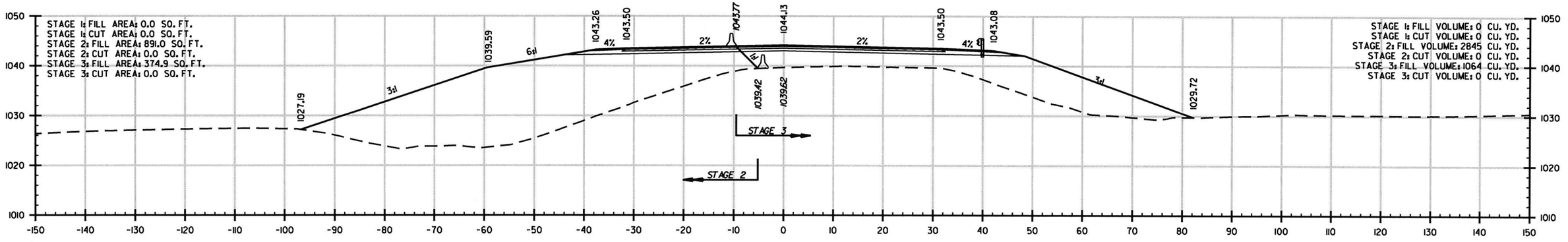
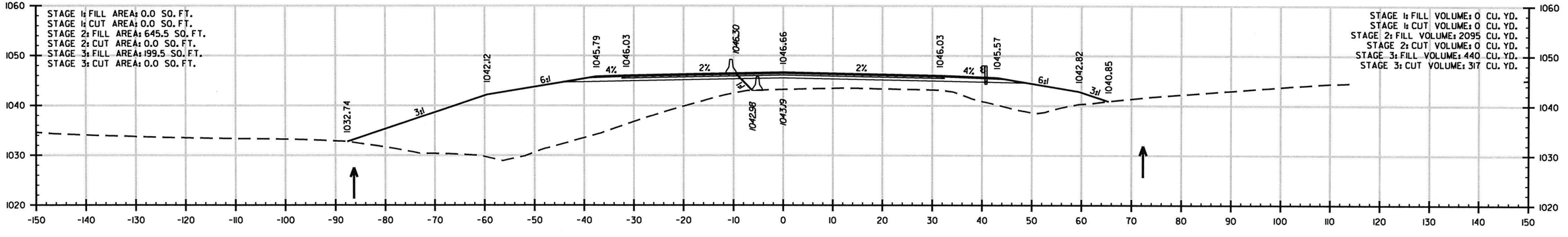
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	368	417
				(2)	CROSS SECTIONS			



STA. 253+00.00



STA. 252+00.00



STA. 251+00.00

STA. 251+00.00 TO STA. 253+00.00

6/7/2017
4:10:52 PM
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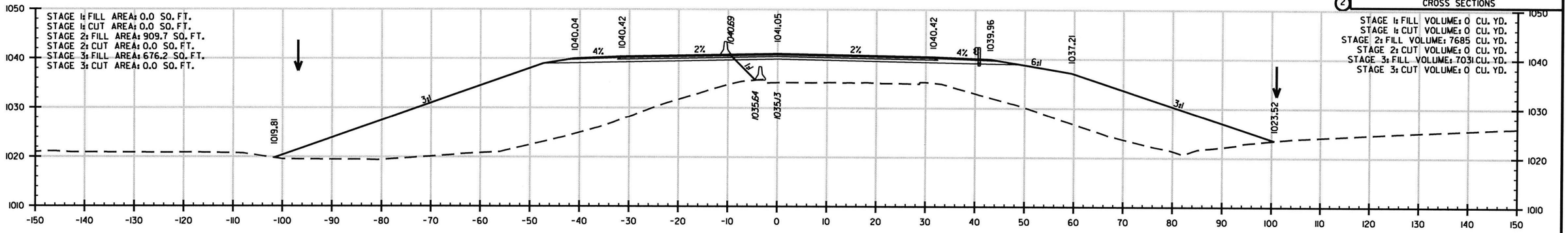
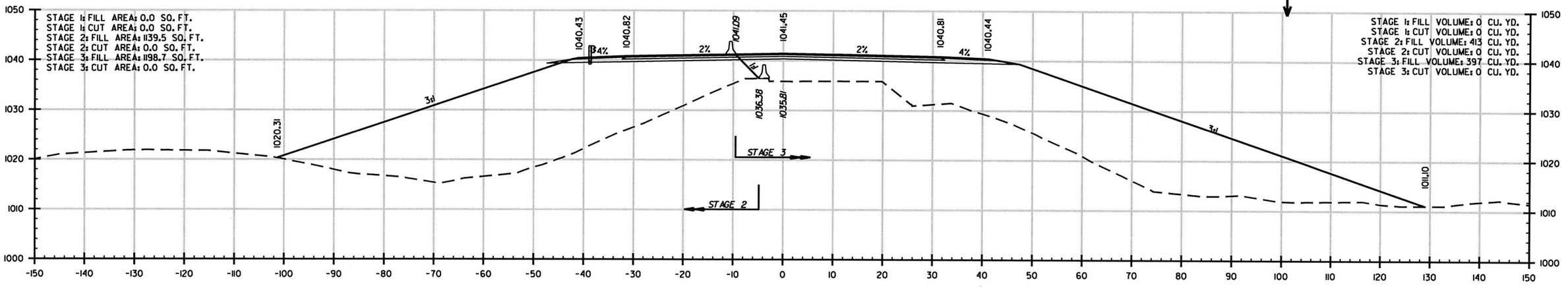
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	369	417

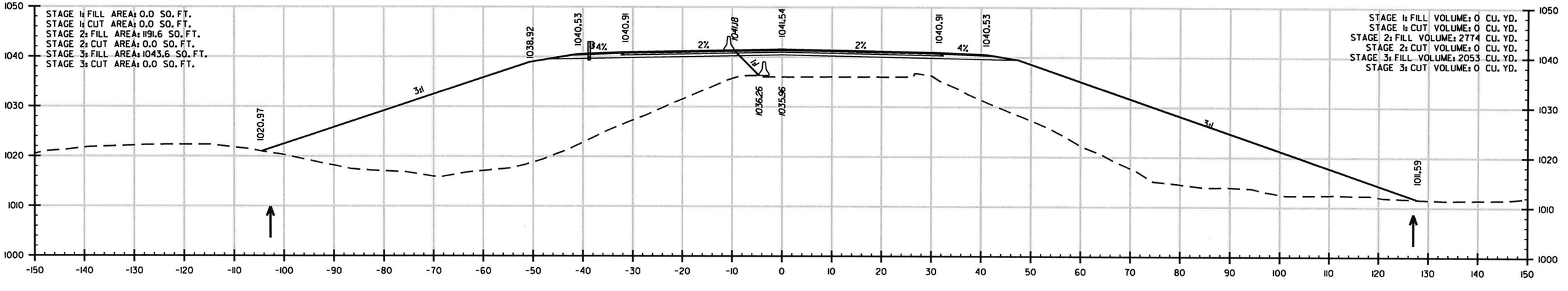
(2) CROSS SECTIONS



STA. 255+76.35



STA. 253+73.85



STA. 253+64.29

STA. 253+64.29 TO STA. 255+76.35

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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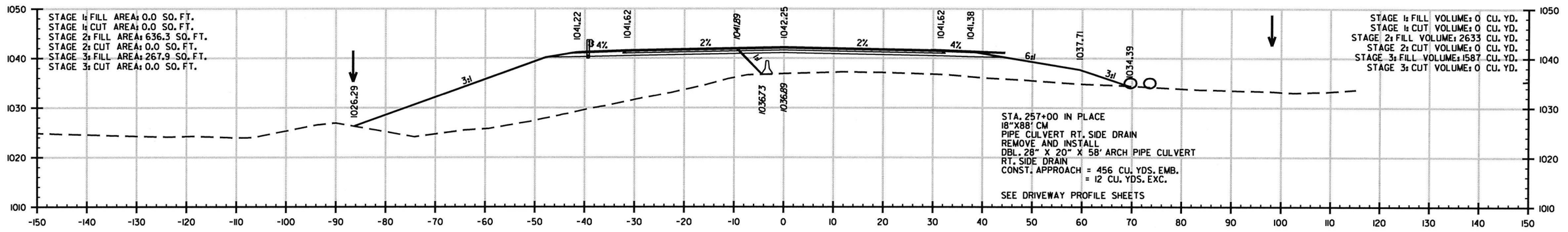
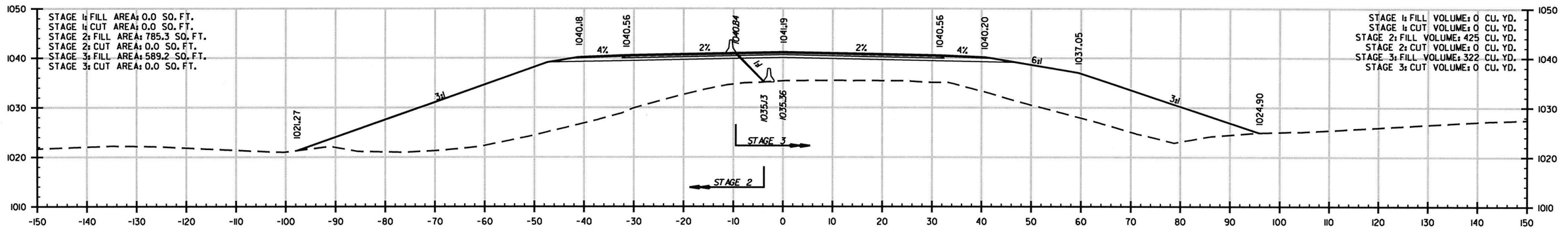
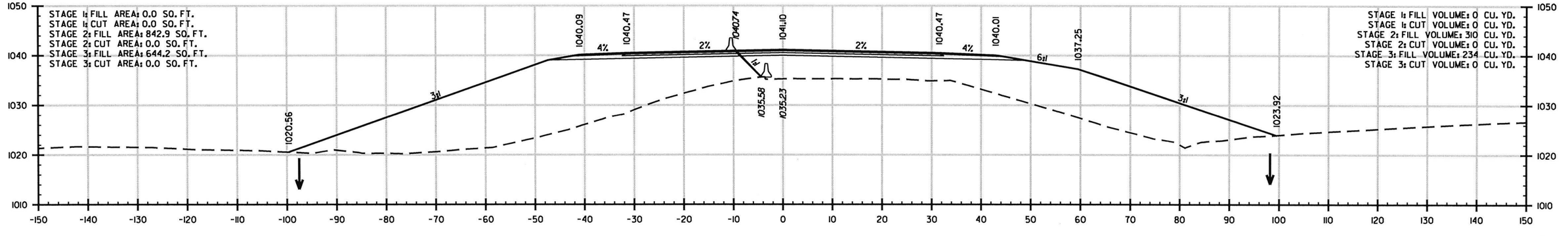
				JOB NO.		CA0906	370	417
				(2)	CROSS SECTIONS			



STA. 257+00.00



STA. 256+00.00



STA. 255+85.91

STA. 255+85.91 TO STA. 257+00.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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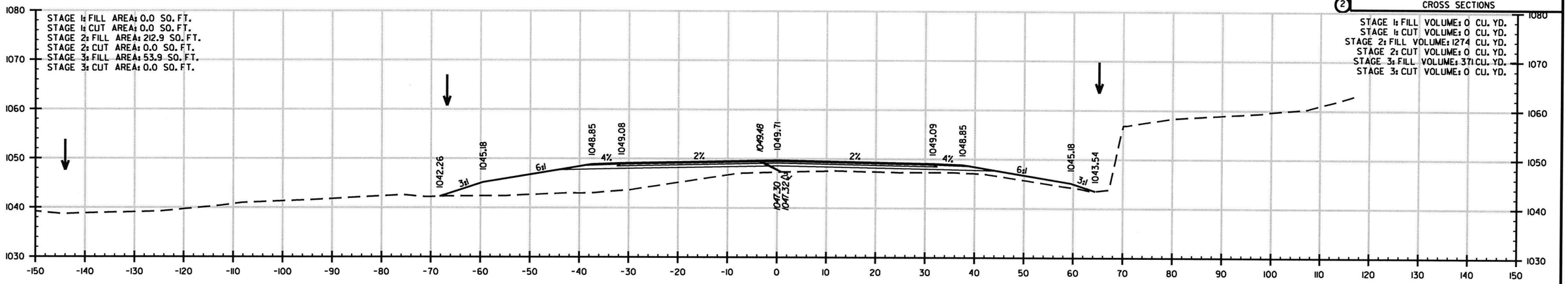
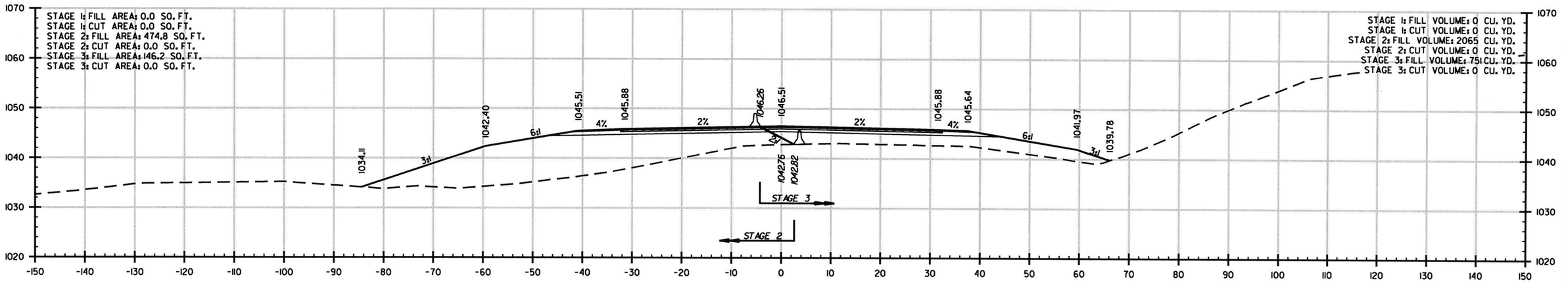
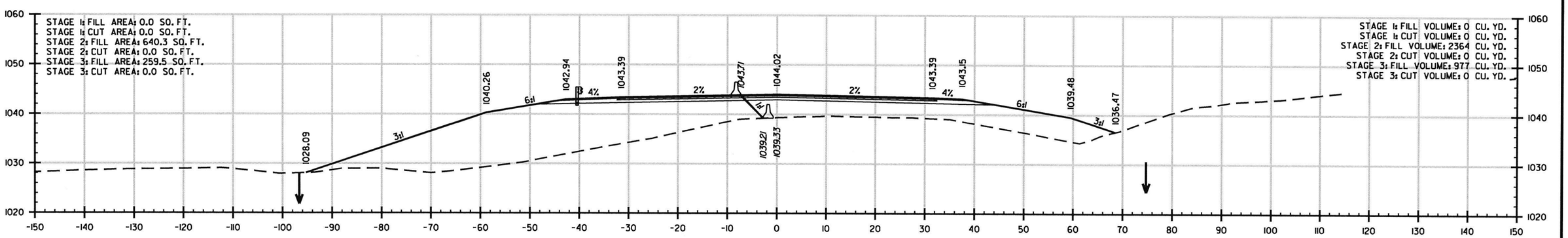
(2) CROSS SECTIONS



STA. 260+00.00



STA. 259+00.00



STA. 258+00.00

STA. 258+00.00 TO STA. 260+00.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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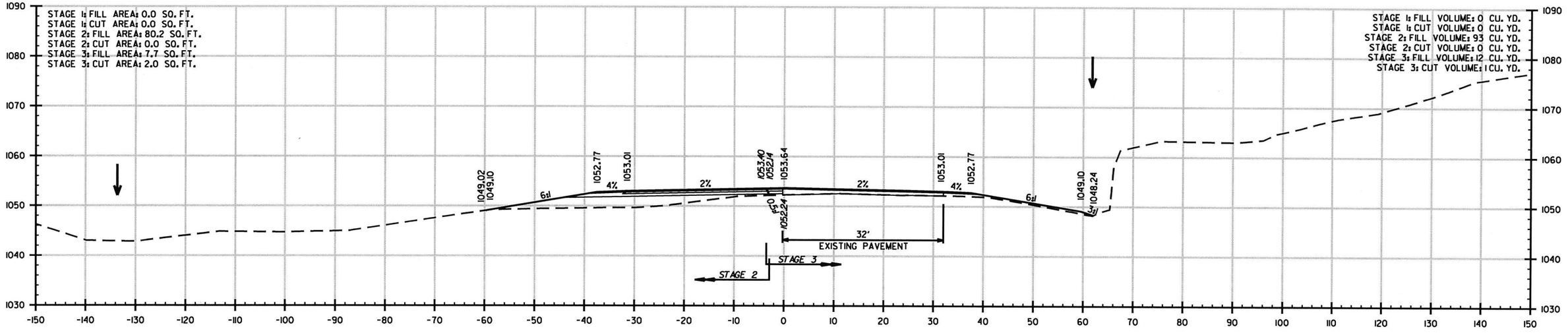
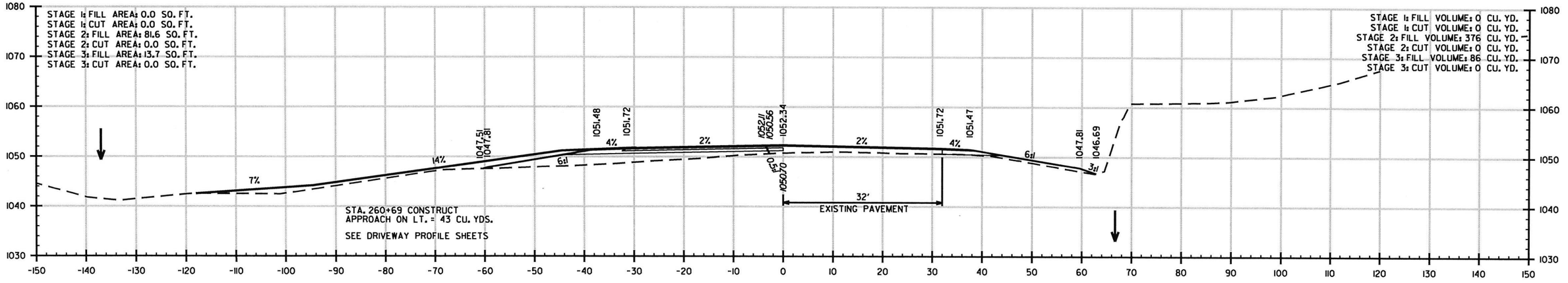
(2) CROSS SECTIONS



STA. 261+00.00



STA. 260+69.00

STA. 260+69.00 TO STA. 261+00.00

6/7/2017
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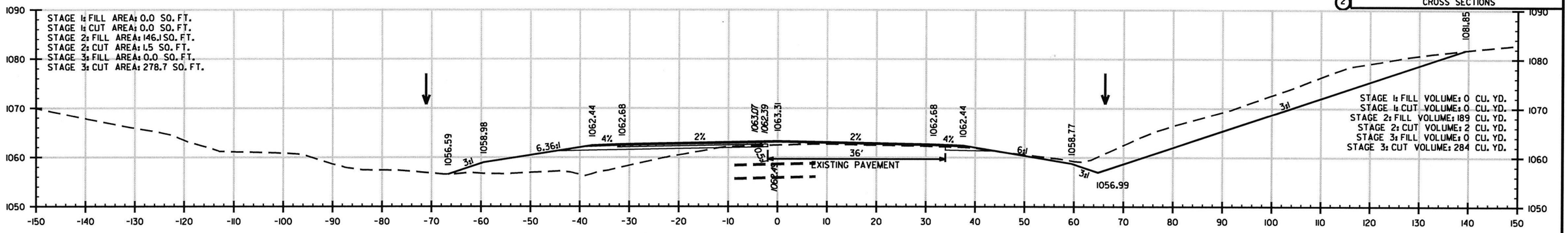
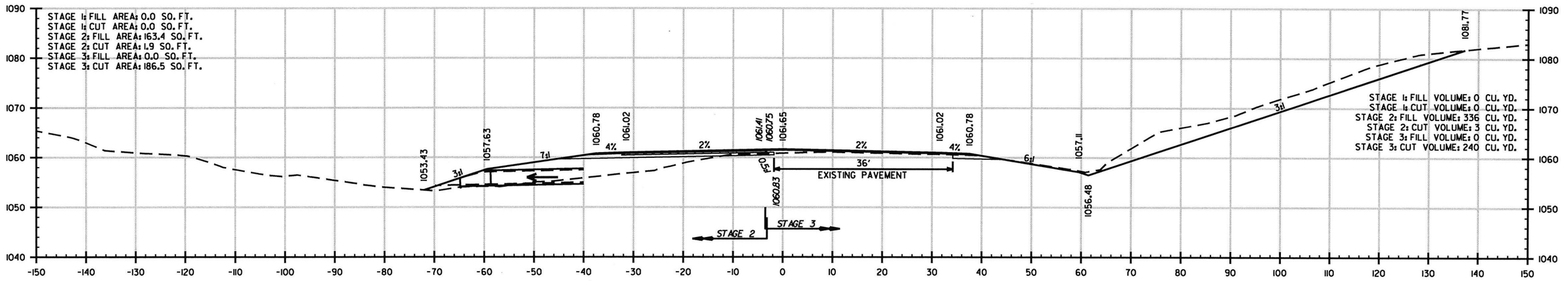
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	373	417

(2) CROSS SECTIONS

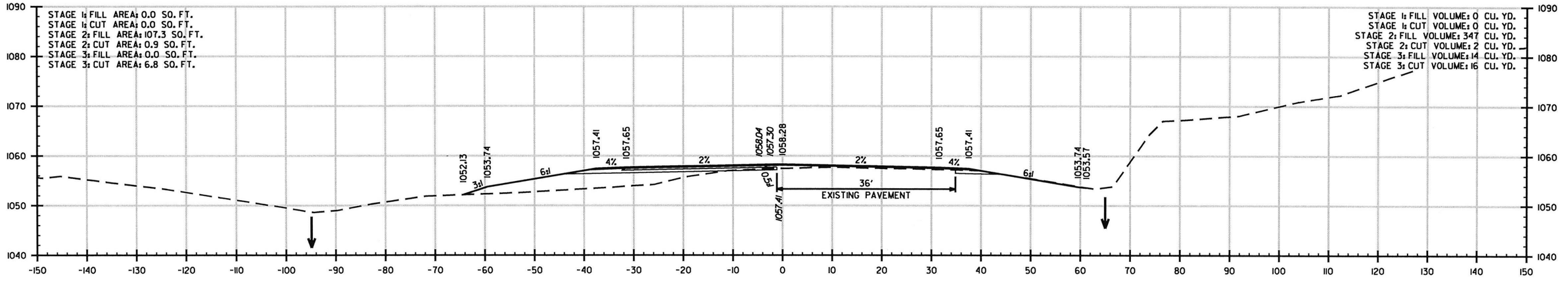


STA. 263+00.00



STA. 262+67.00

STA. 262+50.00 BEGIN
1.57% RT. DITCH GRADE
ELEV. 1056.21



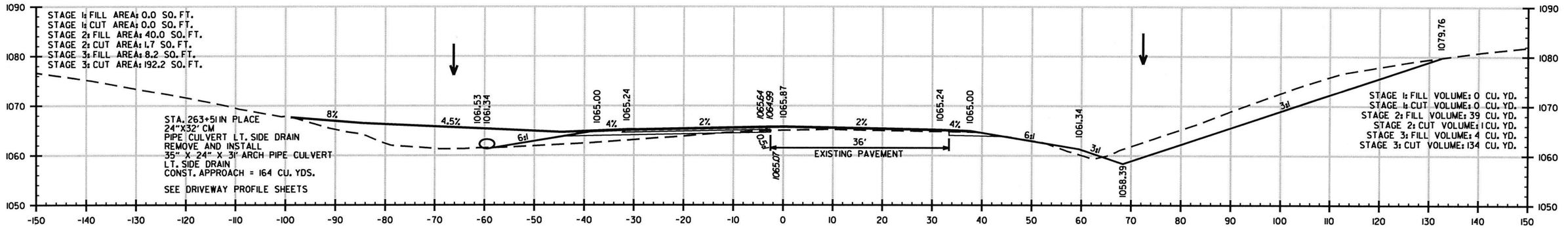
STA. 262+00.00

STA. 262+00.00 TO STA. 263+00.00

6/7/2017
4:10:33 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	374	417

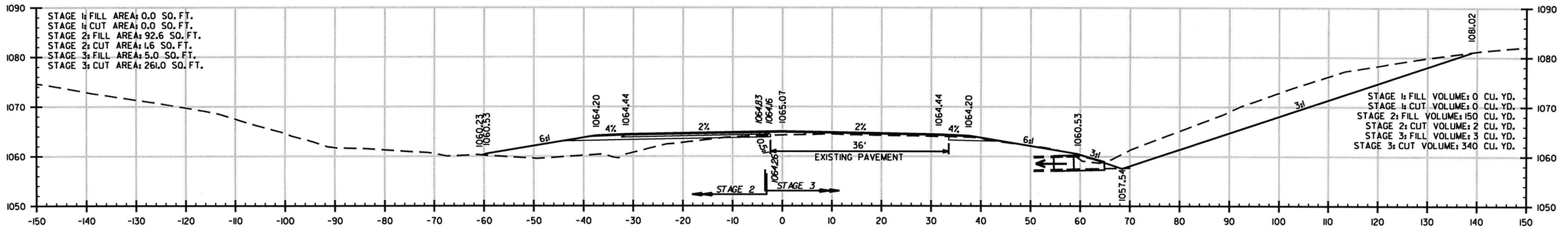
(2) CROSS SECTIONS



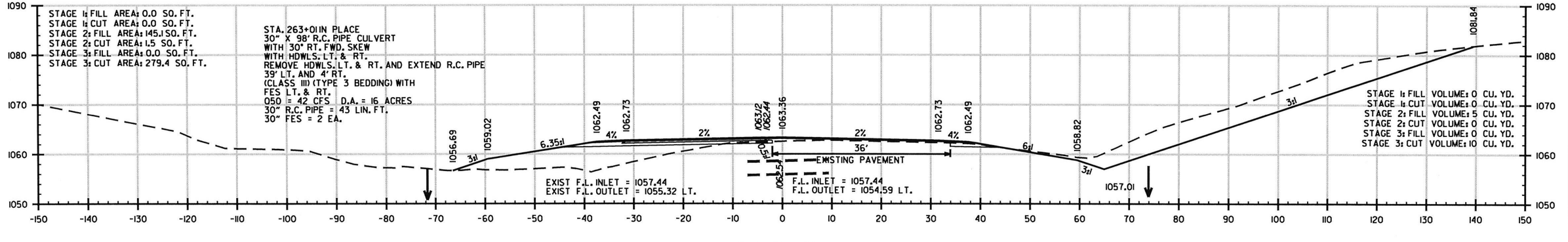
STA. 263+51.00

STA. 263+40.00 END
1.57% RT. DITCH GRADE
ELEV. 1057.62

STA. 263+40.00 BEGIN
6.98% RT. DITCH GRADE
ELEV. 1057.62



STA. 263+35.00



STA. 263+01.00

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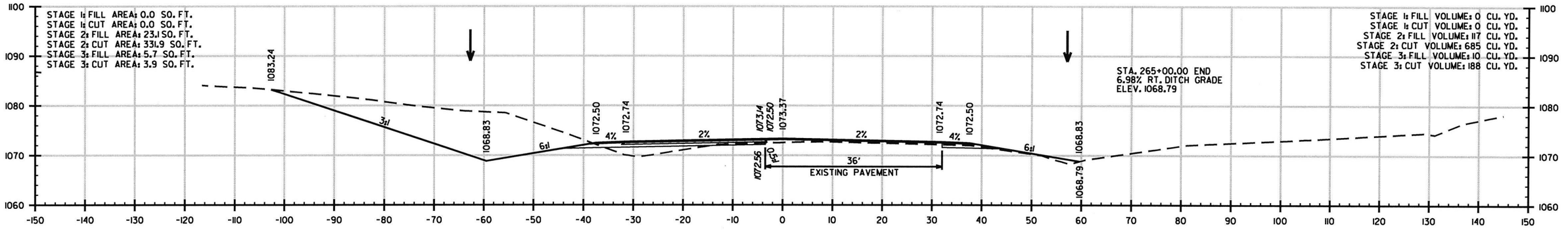
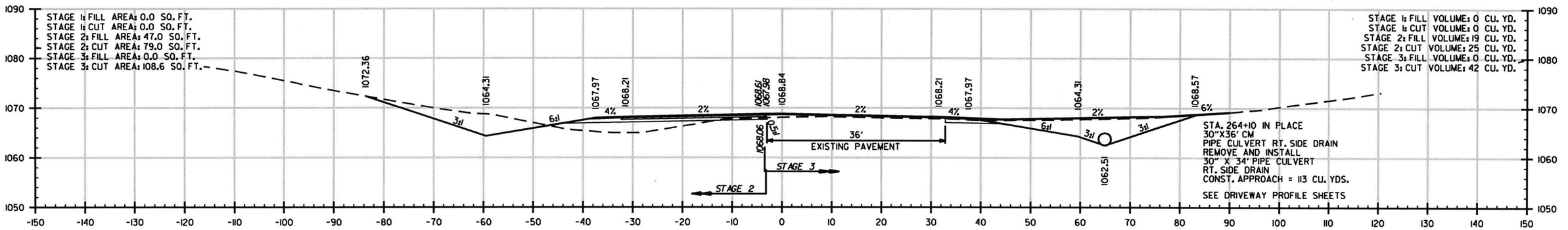
STA. 263+01.00 TO STA. 263+51.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	375	417

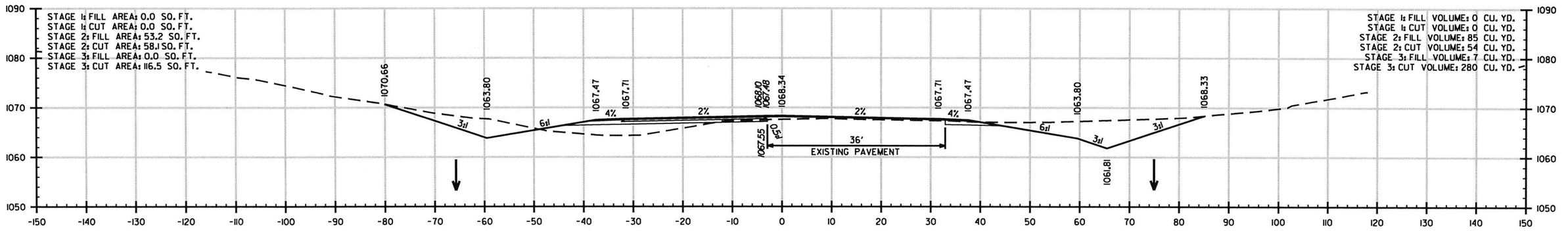
(2) CROSS SECTIONS



STA. 265+00.00



STA. 264+10.00



STA. 264+00.00

STA. 264+00.00 TO STA. 265+00.00

6/7/2017
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...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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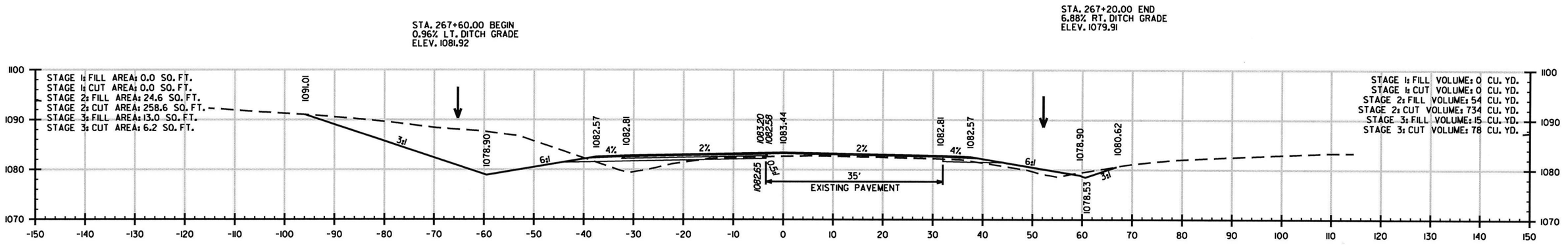
				JOB NO.		CA0906	376	417

(2) CROSS SECTIONS



STA. 266+00.00 TO STA. 267+00.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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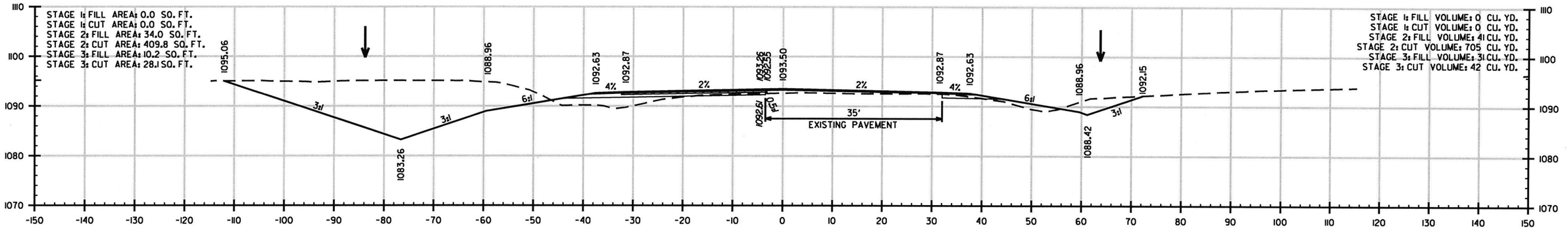
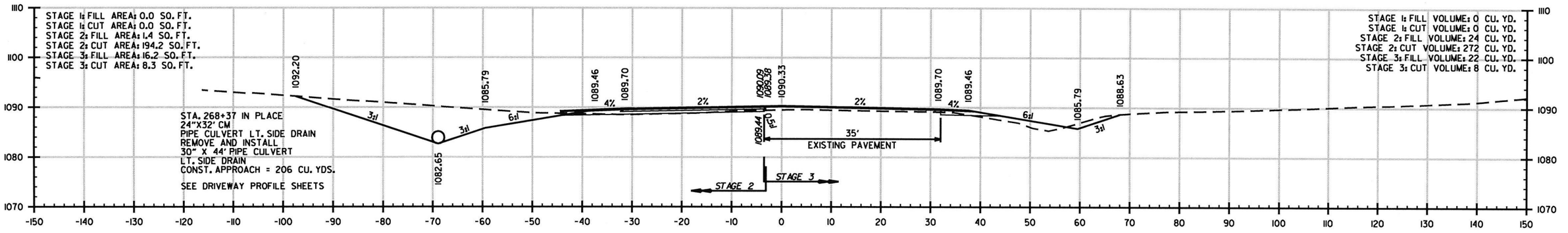
				JOB NO.		CA0906	377	417

(2) CROSS SECTIONS

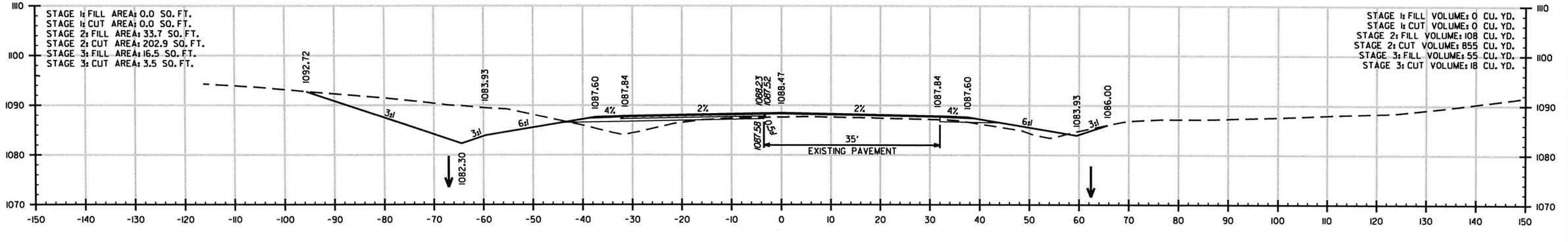


STA. 269+00.00

STA. 268+88.00 BEGIN
0.53% RT. DITCH GRADE
ELEV. 1088.36



STA. 268+37.00



STA. 268+00.00

STA. 268+00.00 TO STA. 269+00.00

6/7/2017
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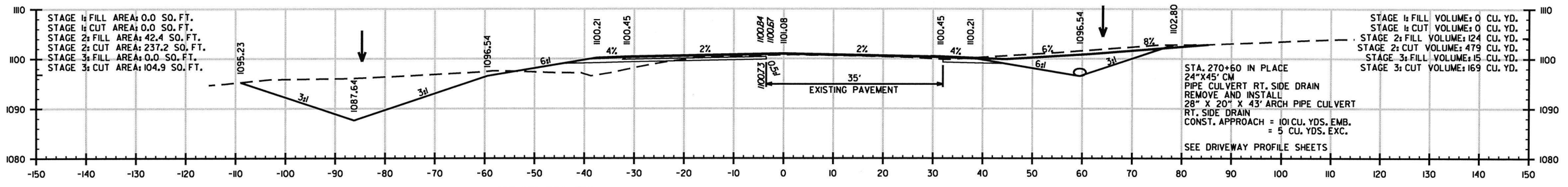
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	378	417

(2) CROSS SECTIONS

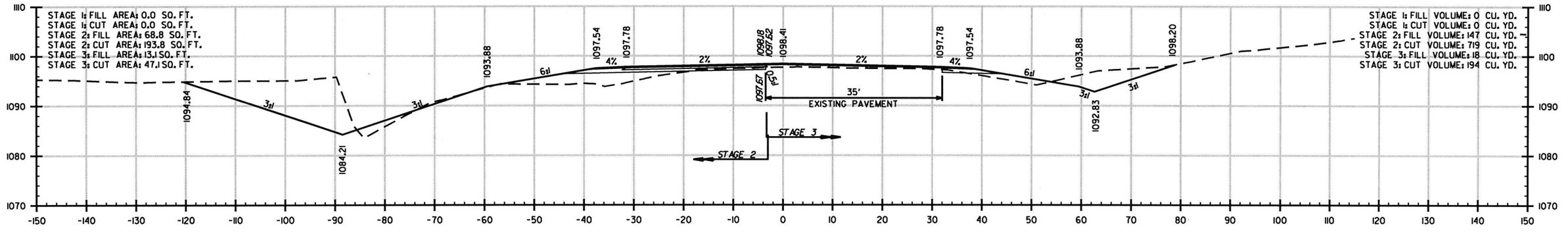


STA. 270+14.00 END
0.96% LT. DITCH GRADE
ELEV. 1084.35

STA. 270+14.00 BEGIN
7.16% LT. DITCH GRADE
ELEV. 1084.35

STA. 270+60.00

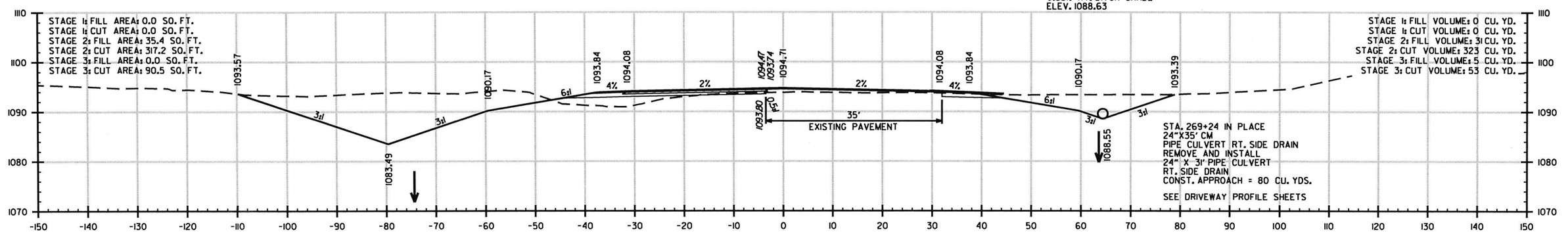
STA. 270+42.00 END
6.99% RT. DITCH GRADE
ELEV. 1095.77



STA. 270+00.00

STA. 269+40.00 BEGIN
6.99% RT. DITCH GRADE
ELEV. 1088.63

STA. 269+40.00 END
0.53% RT. DITCH GRADE
ELEV. 1088.63



STA. 269+24.00

STA. 269+24.00 TO STA. 270+60.00

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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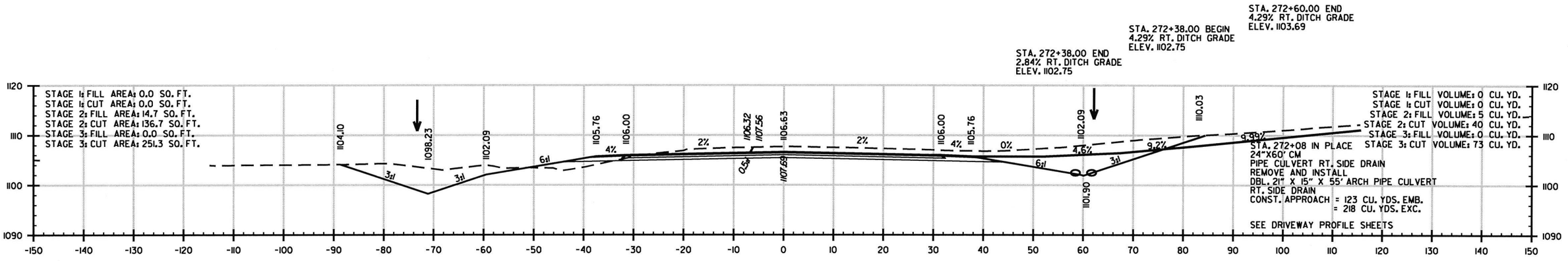
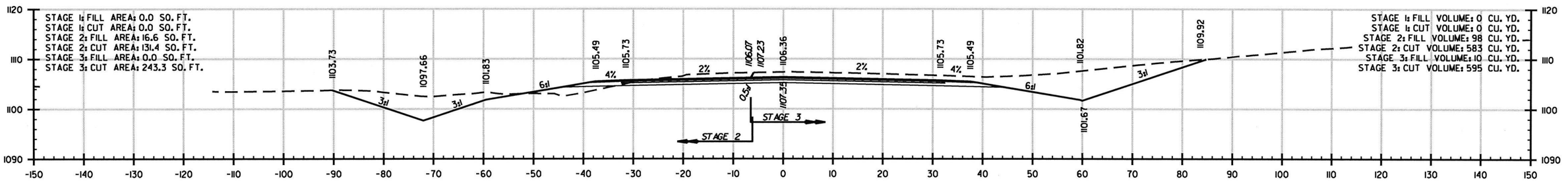
				JOB NO.		CA0906	379	417

(2) CROSS SECTIONS

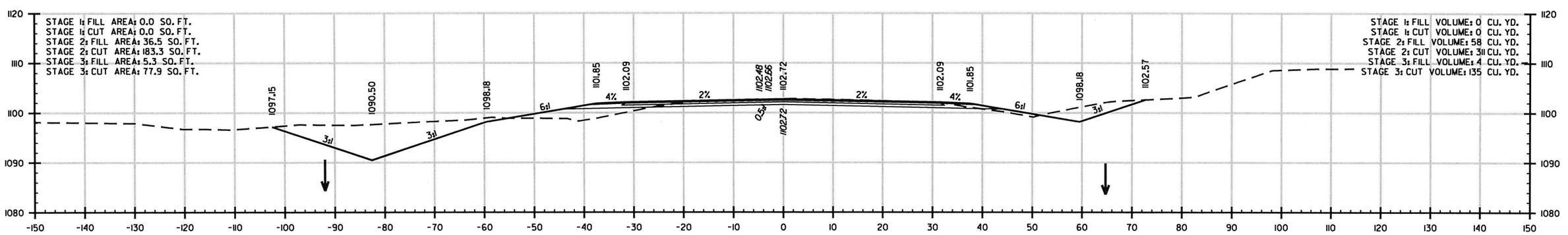


STA. 272+08.00



STA. 272+00.00

STA. 271+73.00 BEGIN
2.84% RT. DITCH GRADE
ELEV. 1100.91



STA. 271+00.00

STA. 271+00.00 TO STA. 272+08.00

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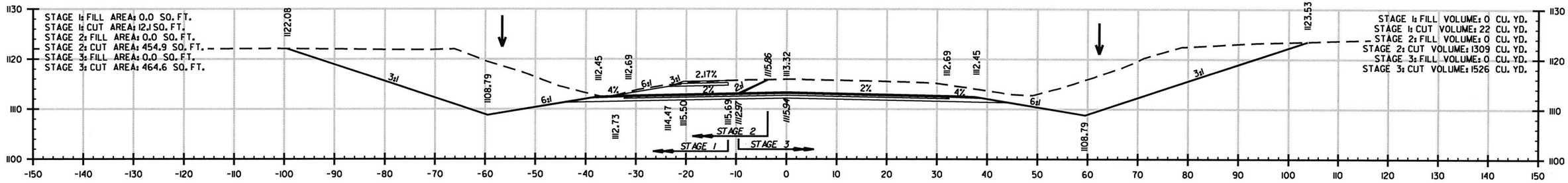
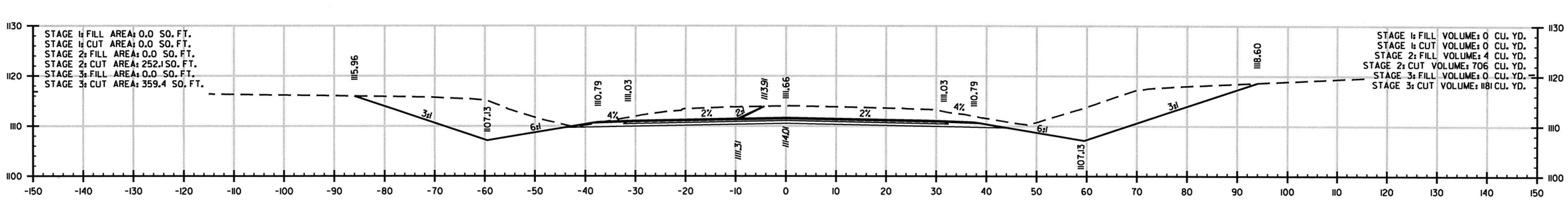
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	380	417

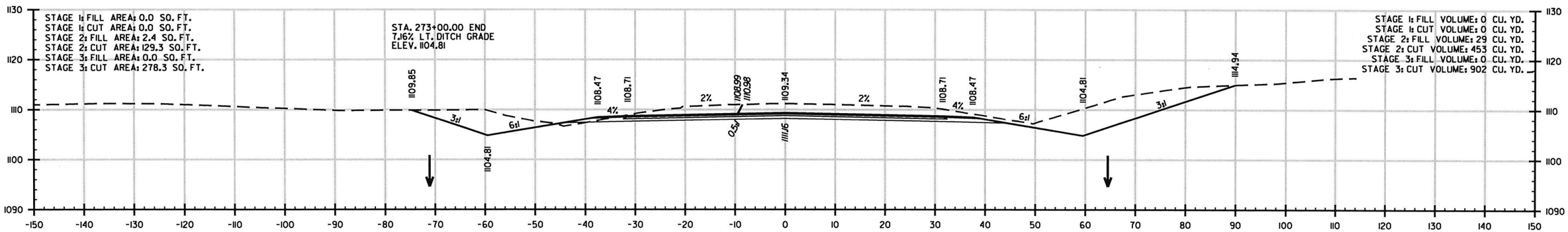
(2) CROSS SECTIONS



STA. 275+00.00



STA. 274+00.00



STA. 273+00.00

STA. 273+00.00 TO STA. 275+00.00

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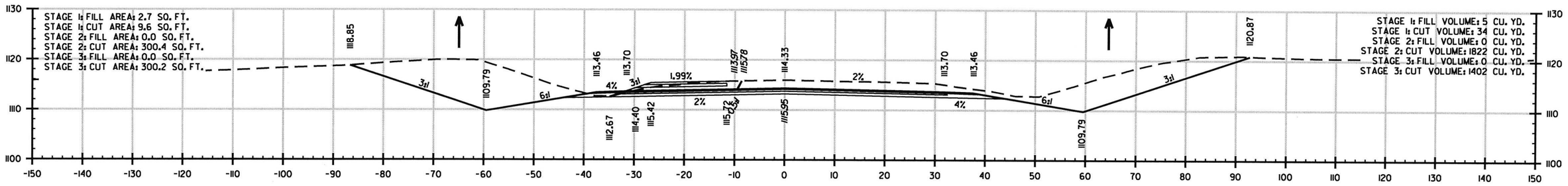
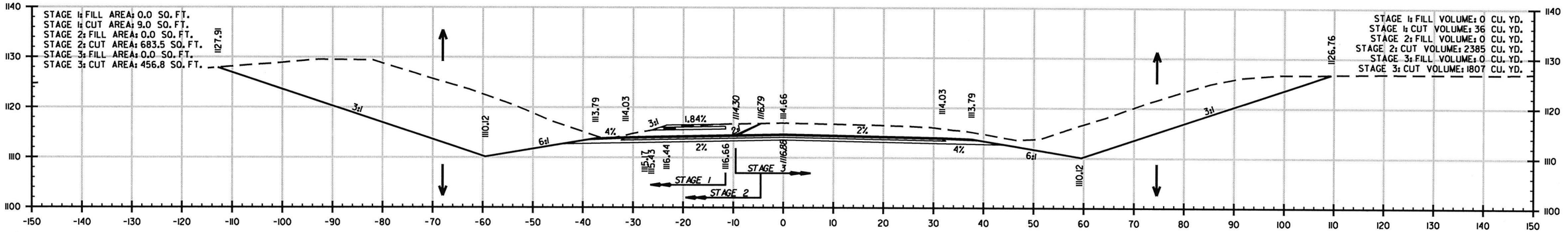
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	381	417

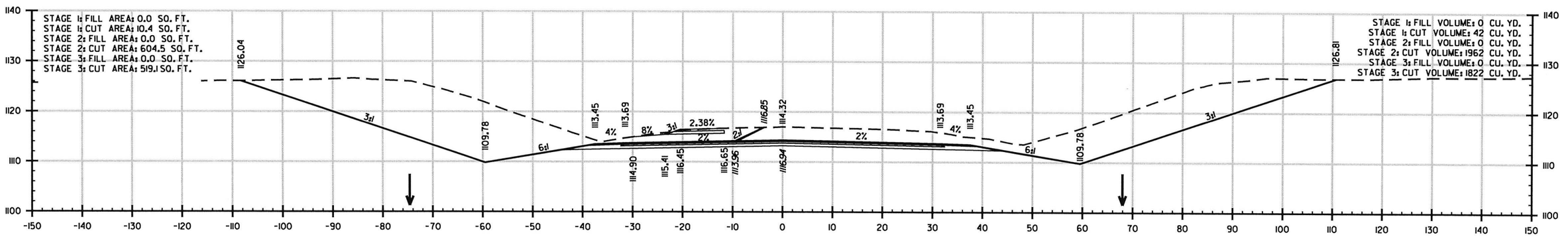
(2) CROSS SECTIONS



STA. 278+00.00



STA. 277+00.00



STA. 276+00.00

STA. 276+00.00 TO STA. 278+00.00

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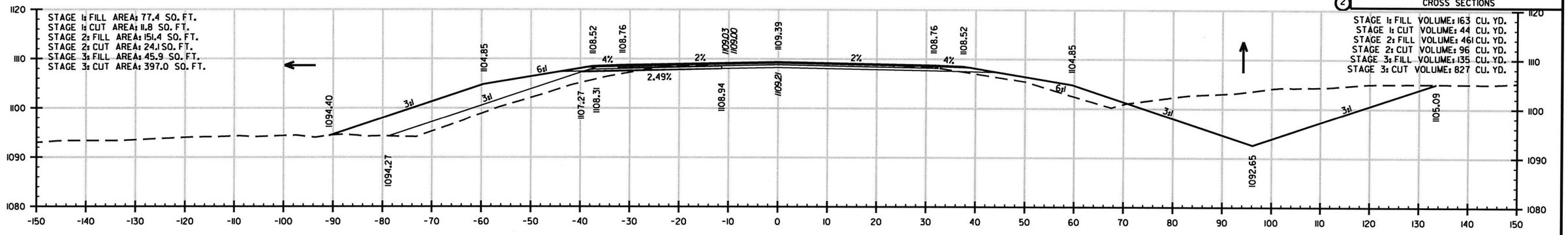
...\CA0906_CX_HWY65.dgn

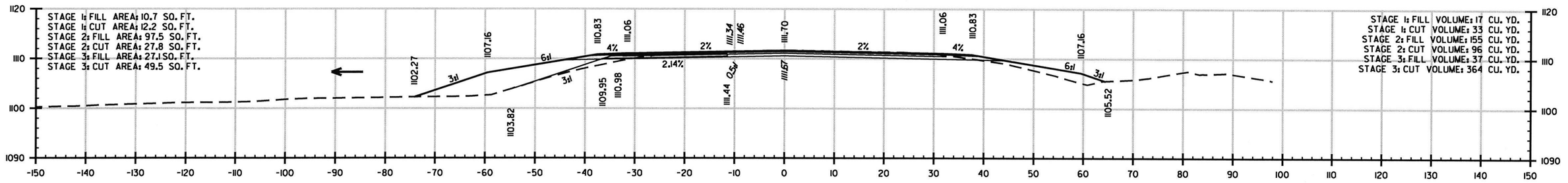
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	382	417

(2) CROSS SECTIONS

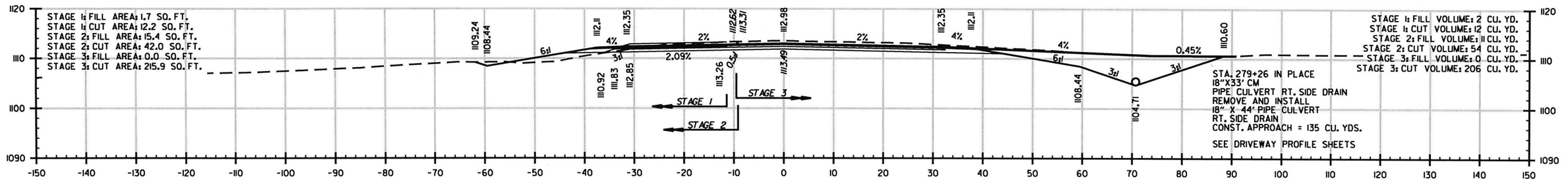
STA. 281+65.00 END
-6.93% RT. DITCH GRADE
ELEV. 1088.14



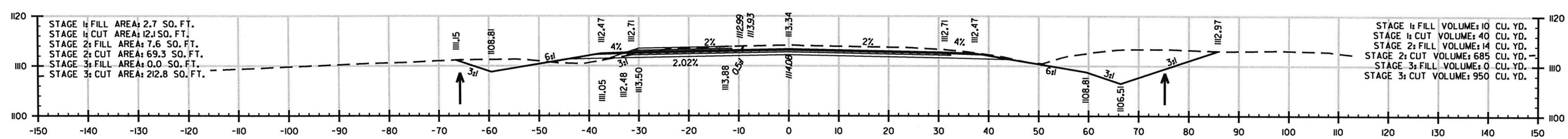
STA. 281+00.00



STA. 280+00.00



STA. 279+26.00



STA. 279+00.00

STA. 278+60.00 BEGIN
-6.93% RT. DITCH GRADE
ELEV. 1109.28

STA. 279+00.00 TO STA. 281+00.00

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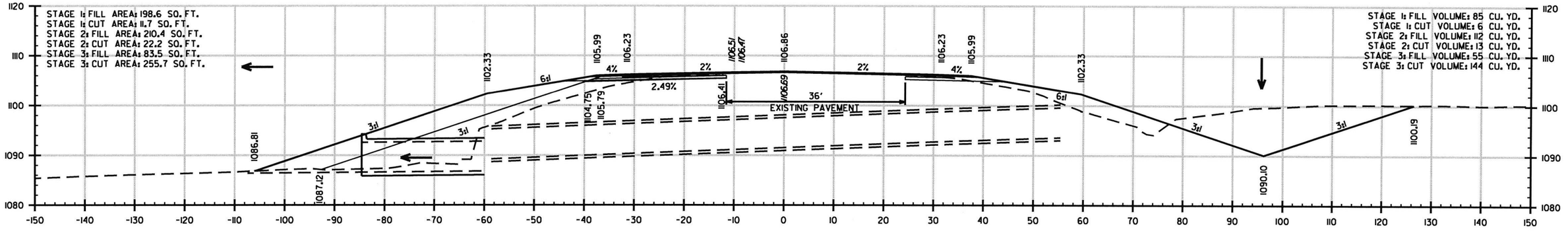
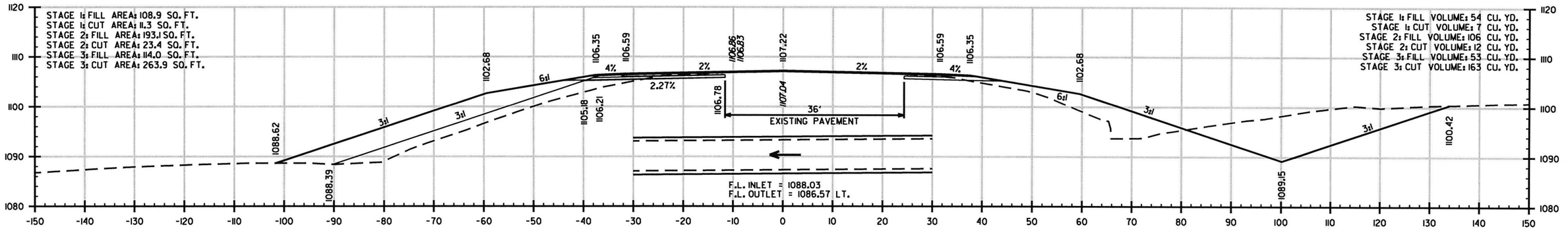
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	383	417

(2) CROSS SECTIONS

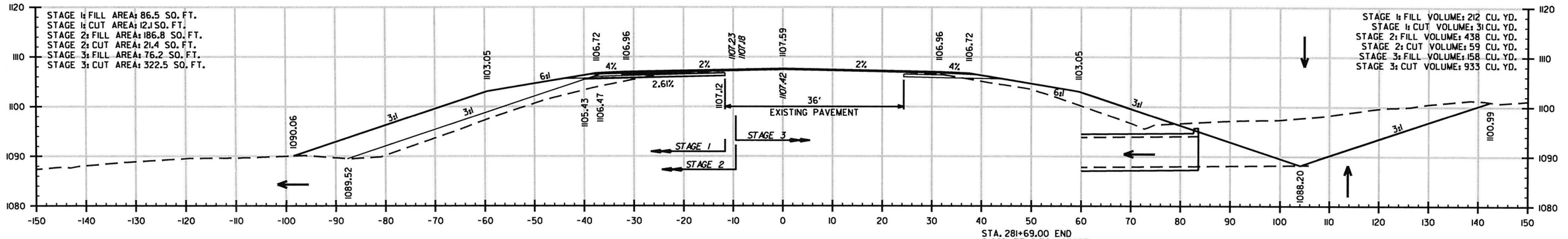


STA. 282+00.00



STA. 281+85.00

STA. 281+85 CONSTRUCT
4' X 6' X 170' R.C. BOX CULVERT
WITH 10° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 42 CFS D.A. = 17.2 ACRES



STA. 281+70.00

STA. 281+65.00 BEGIN
0.00% RT. DITCH GRADE
ELEV. 1088.14

STA. 281+69.00 END
0.00% RT. DITCH GRADE
ELEV. 1088.14

STA. 281+69.00 BEGIN
6.31% RT. DITCH GRADE
ELEV. 1088.14

STA. 281+70.00 TO STA. 282+00.00

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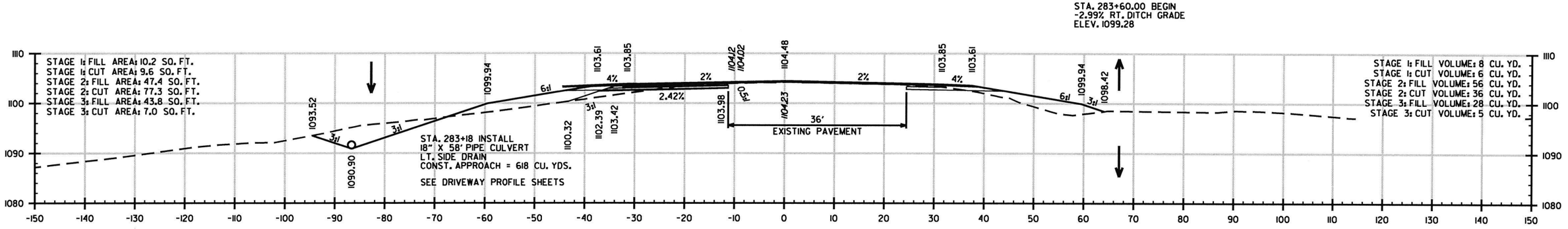
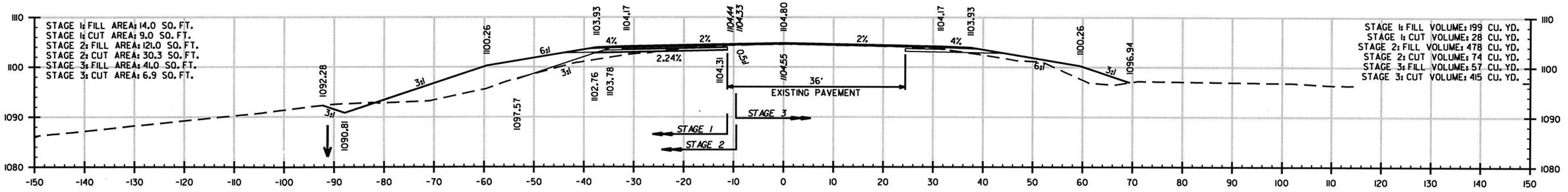
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	384	417

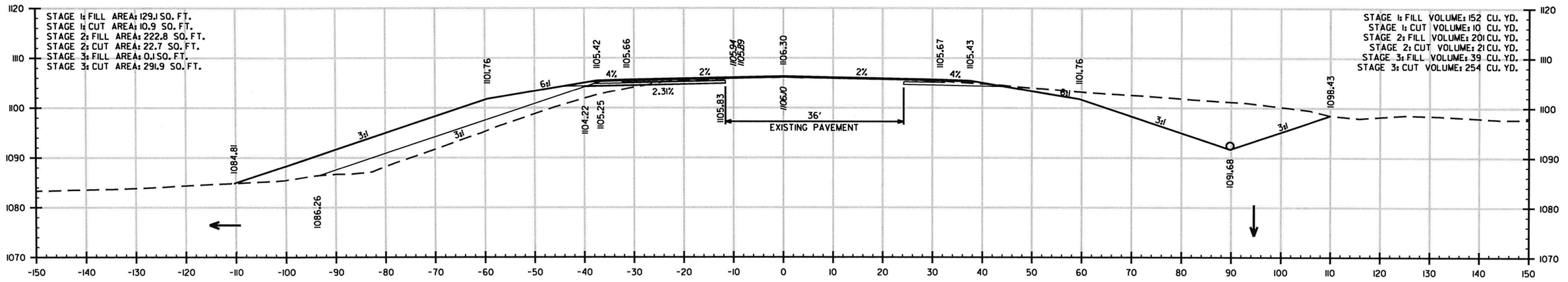
(2) CROSS SECTIONS





STA. 282+87.00 BEGIN
0.50% LT. DITCH GRADE
ELEV. 1090.74

STA. 282+87.00 END
6.31% RT. DITCH GRADE
ELEV. 1095.59



STA. 282+25.00 TO STA. 283+18.00

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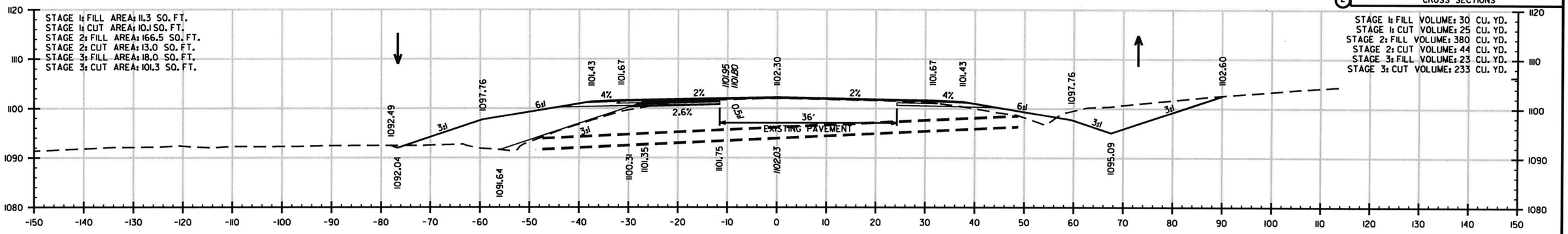
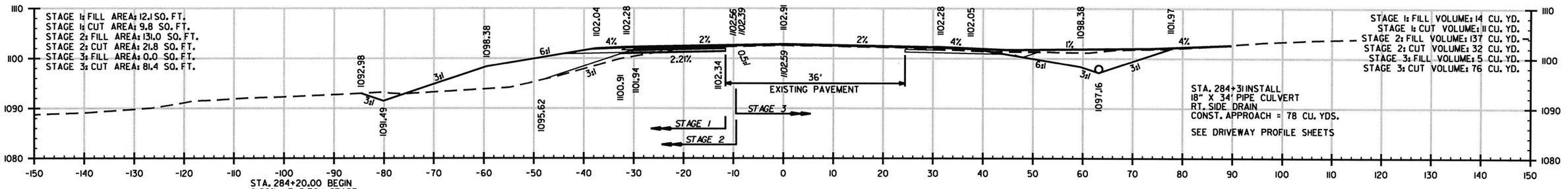
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	385	417

(2) CROSS SECTIONS



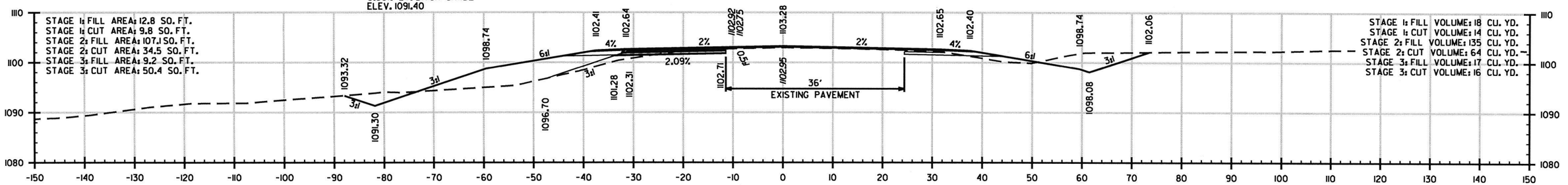
STA. 285+00.00



STA. 284+20.00 BEGIN
0.80% LT. DITCH GRADE
ELEV. 1091.40

STA. 284+31.00

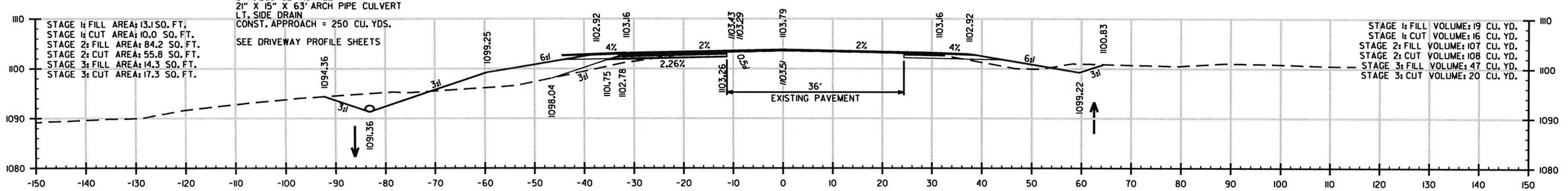
STA. 284+20.00 END
0.50% LT. DITCH GRADE
ELEV. 1091.40



STA. 284+00.00

STA. 283+62 INSTALL
21" X 15" X 63' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 250 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS



STA. 283+62.00

STA. 283+62.00 TO STA. 285+00.00

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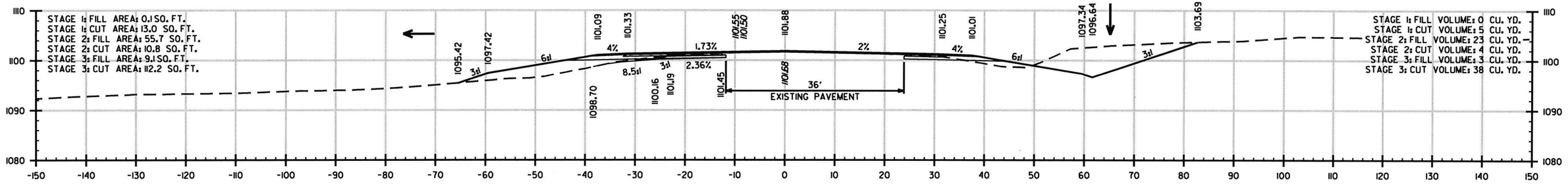
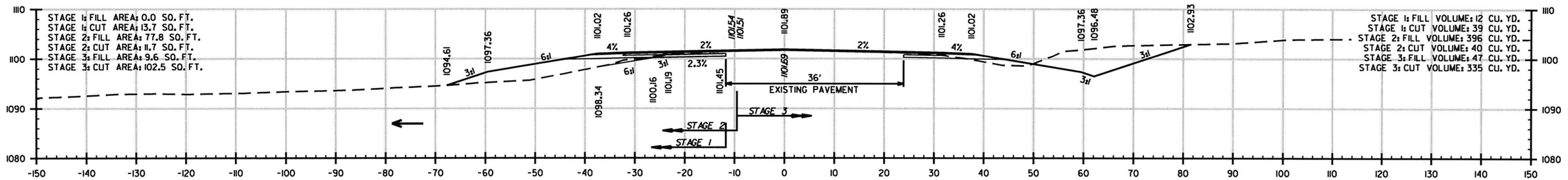
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	386	417

(2) CROSS SECTIONS

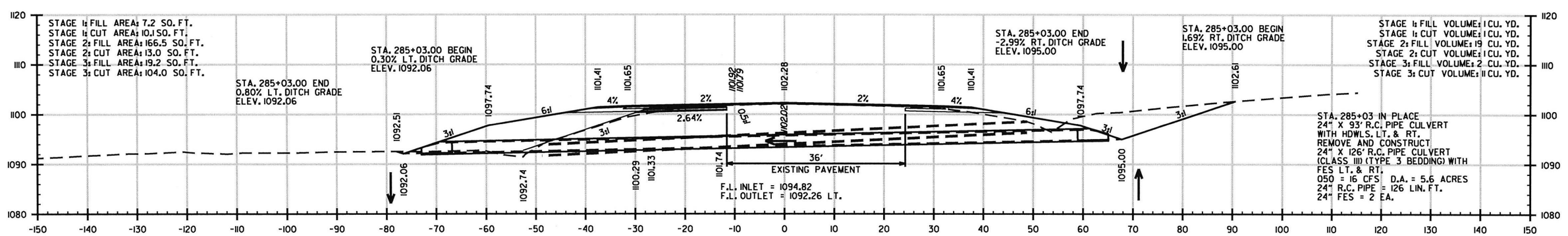


STA. 286+00.00



STA. 285+90.56

STA. 285+40.00 END
0.30% LT. DITCH GRADE
ELEV. 1092.17



STA. 285+03.00

STA. 285+03.00 TO STA. 286+00.00

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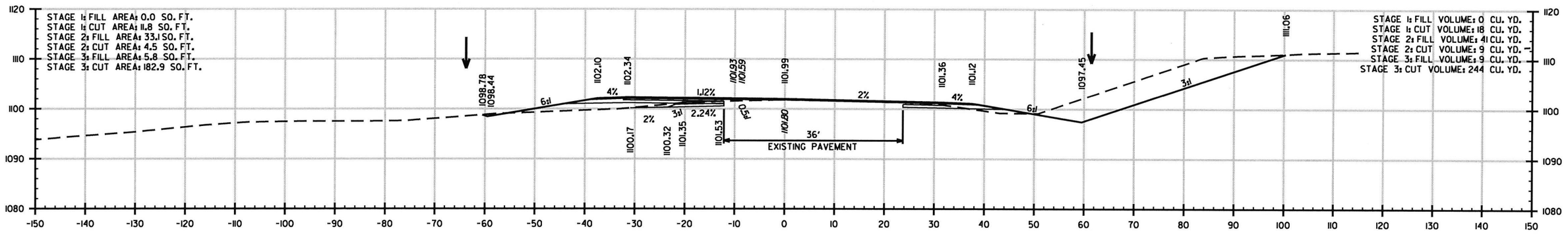
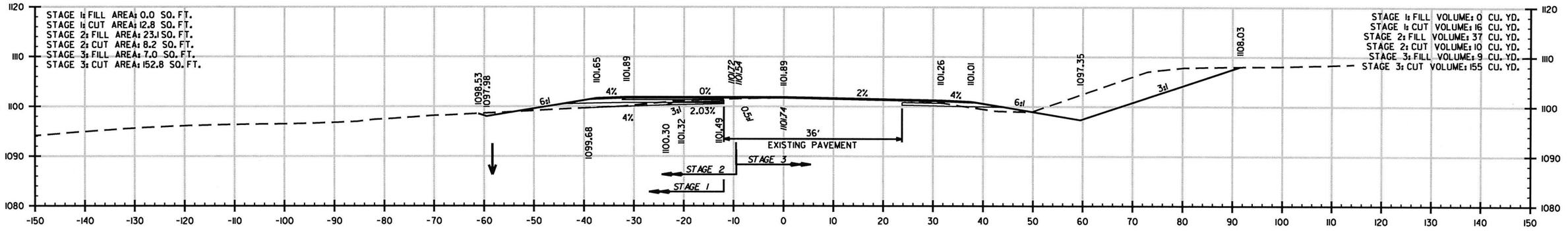
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	387	417

(2) CROSS SECTIONS

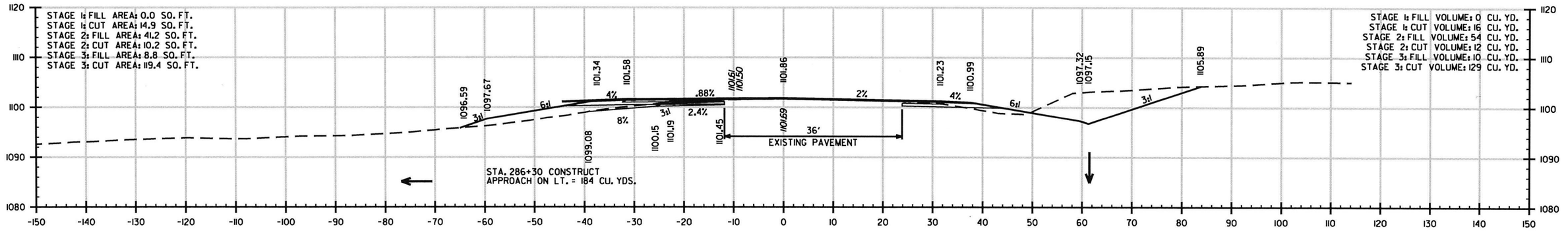


STA. 287+00.00



STA. 286+60.69

STA. 286+40.00 END
1.69% RT. DITCH GRADE
ELEV. 1097.32



STA. 286+30.00

STA. 286+30.00 TO STA. 287+00.00

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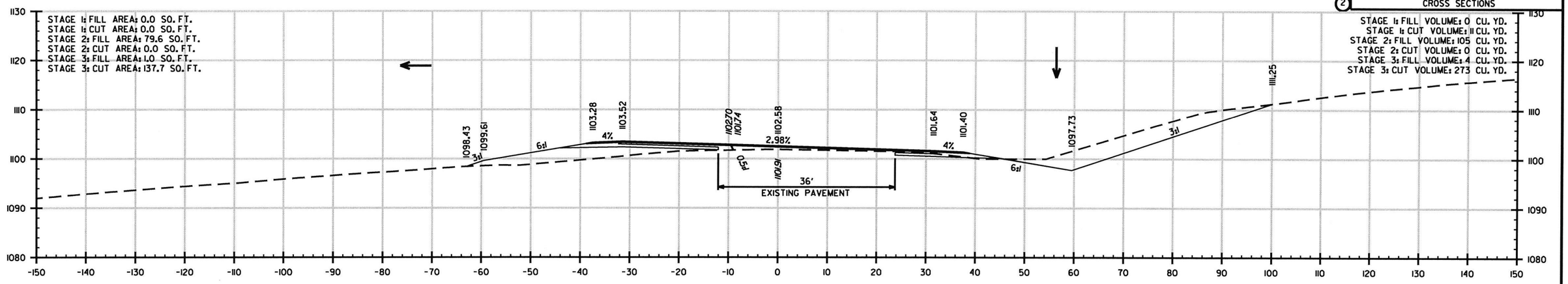
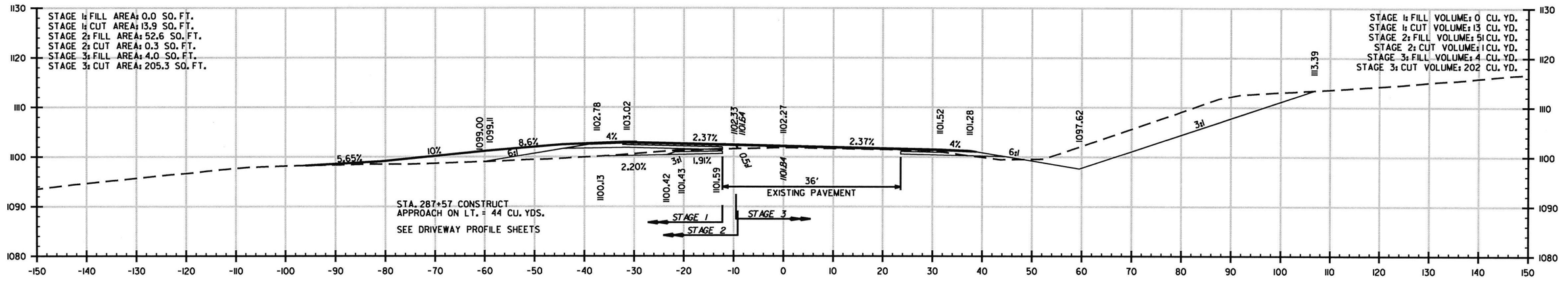
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	388	417

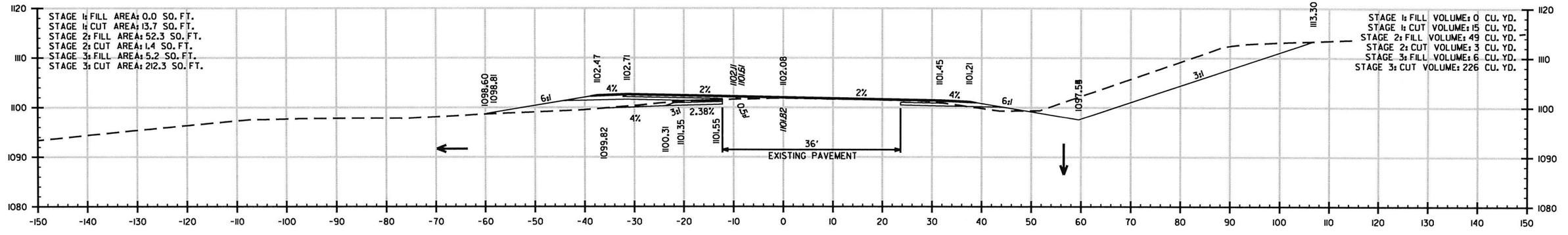
2 CROSS SECTIONS



STA. 288+00.00



STA. 287+57.00



STA. 287+30.82

STA. 287+30.82 TO STA. 288+00.00

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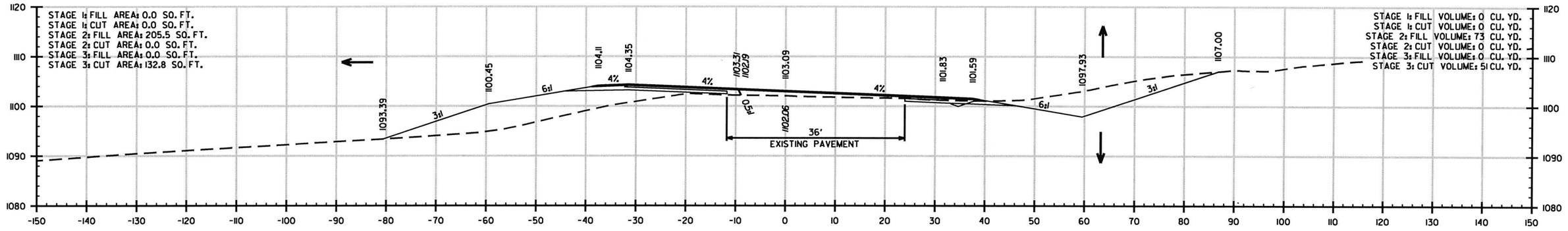
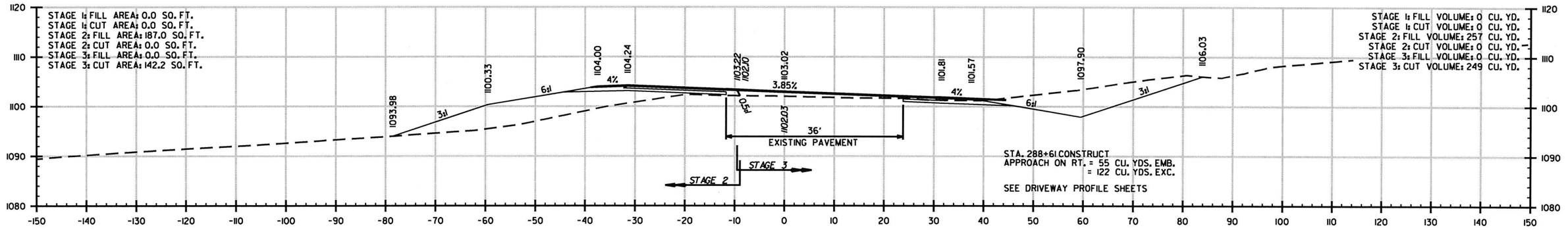
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	389	417

(2) CROSS SECTIONS

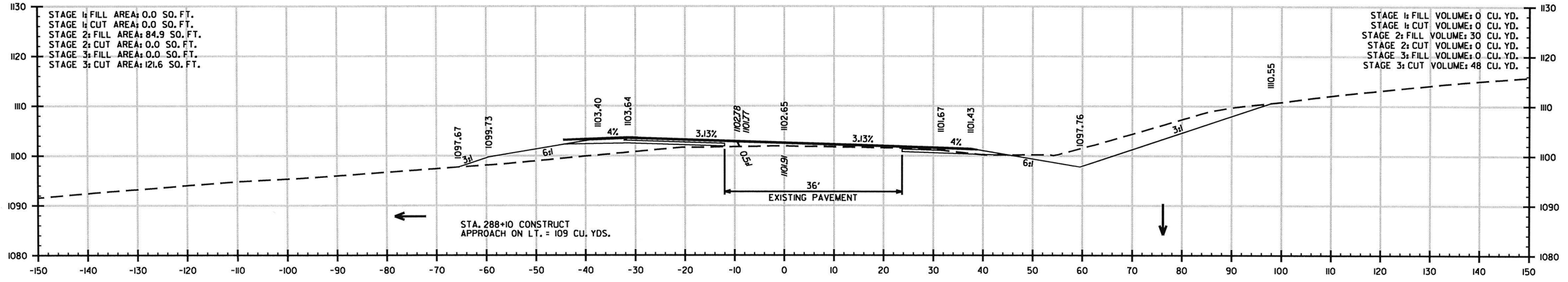
STA. 288+80.00 BEGIN
-1.56% RT. DITCH GRADE
ELEV. 1097.94



STA. 288+71.08



STA. 288+61.00



STA. 288+10.00

STA. 288+10.00 TO STA. 288+71.08

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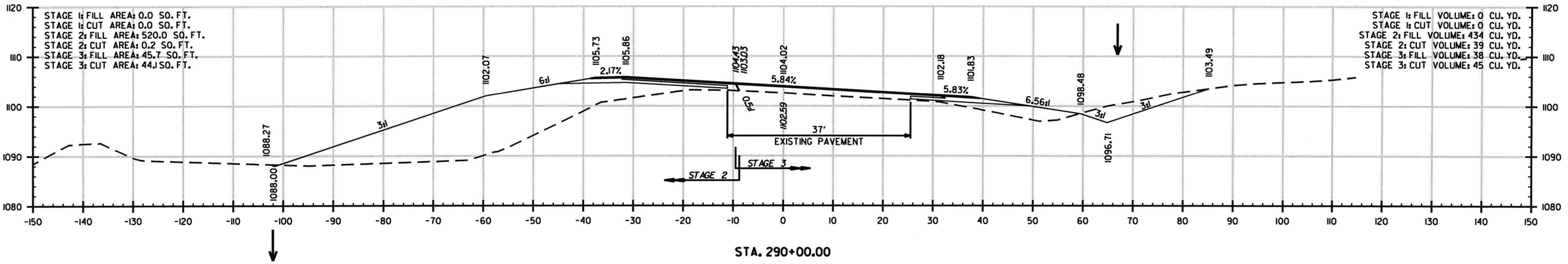
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	390	417
				(2)	CROSS SECTIONS			

STA. 290+08.00 END
0.31% LT. DITCH GRADE
ELEV. 1088.03



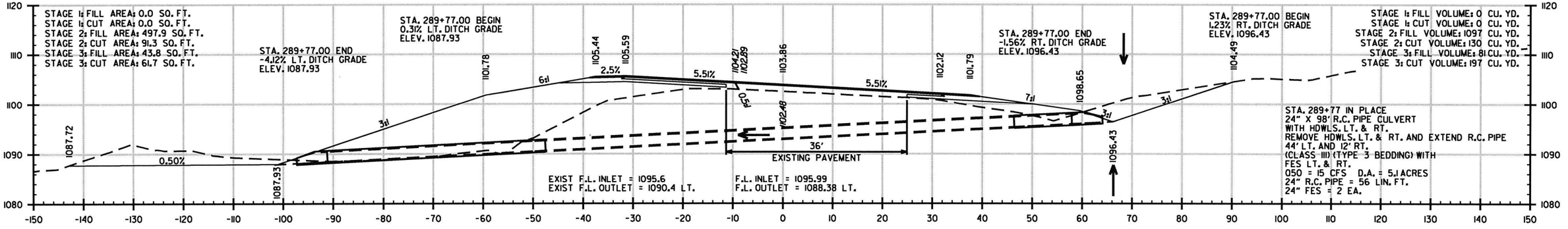
STA. 290+00.00

STA. 289+77.00 BEGIN
0.31% LT. DITCH GRADE
ELEV. 1087.93

STA. 289+77.00 END
-4.12% LT. DITCH GRADE
ELEV. 1087.93

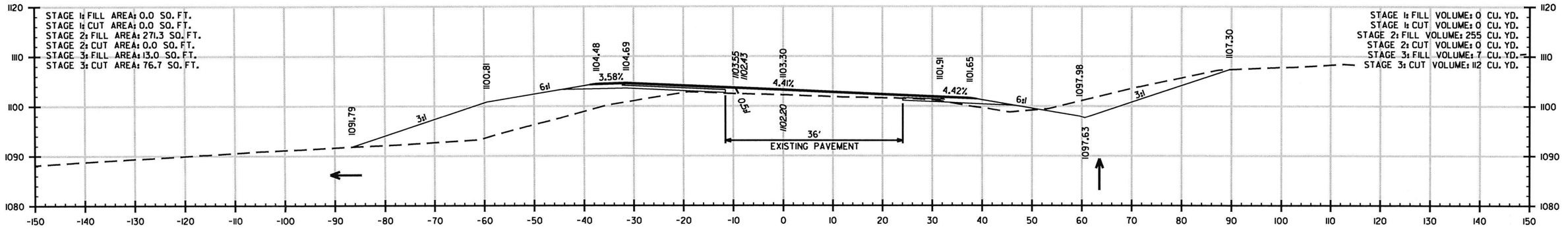
STA. 289+77.00 END
-1.56% RT. DITCH GRADE
ELEV. 1096.43

STA. 289+77.00 BEGIN
1.23% RT. DITCH GRADE
ELEV. 1096.43



STA. 289+00.00

STA. 289+40.00 BEGIN
-4.12% LT. DITCH GRADE
ELEV. 1089.45



STA. 289+00.00

STA. 289+00.00 TO STA. 290+00.00

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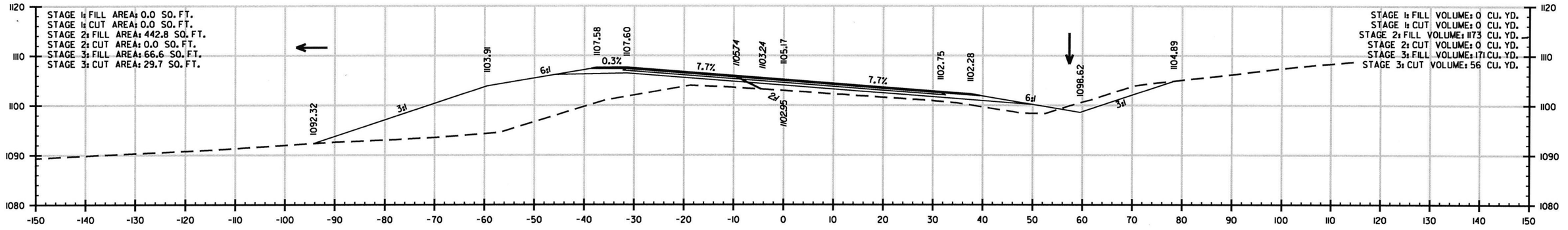
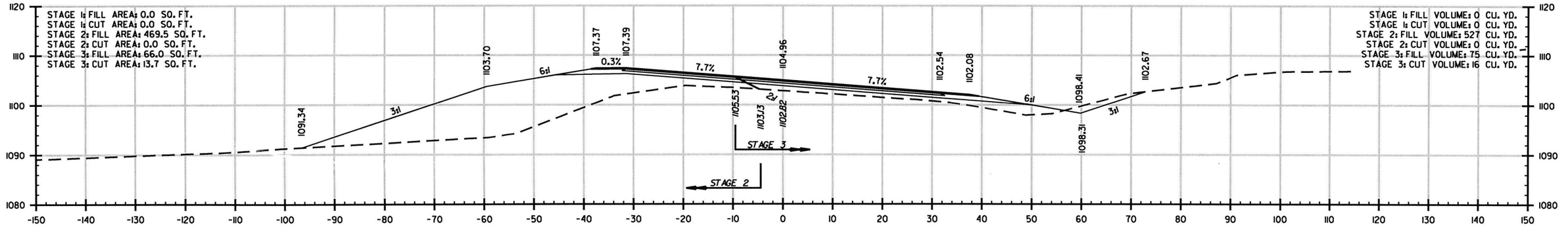
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	391	417

(2) CROSS SECTIONS

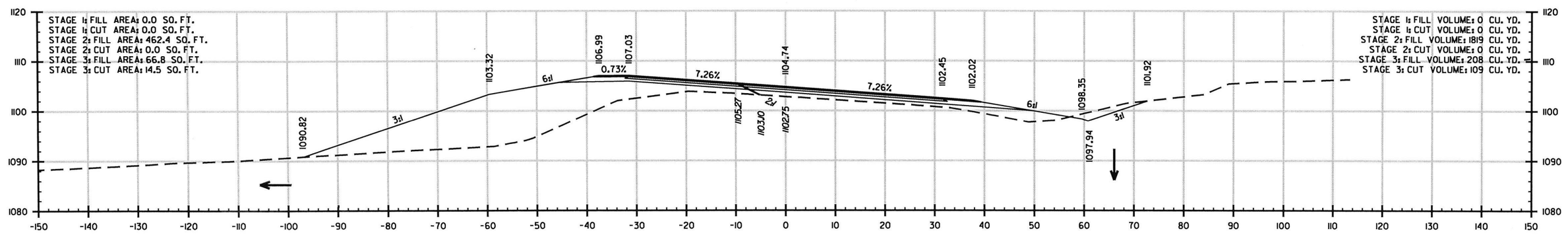


STA. 292+00.00

STA. 291+40.00 END
1.23% RT. DITCH GRADE
ELEV. 1098.43



STA. 291+30.56



STA. 291+00.00

STA. 291+00.00 TO STA. 292+00.00

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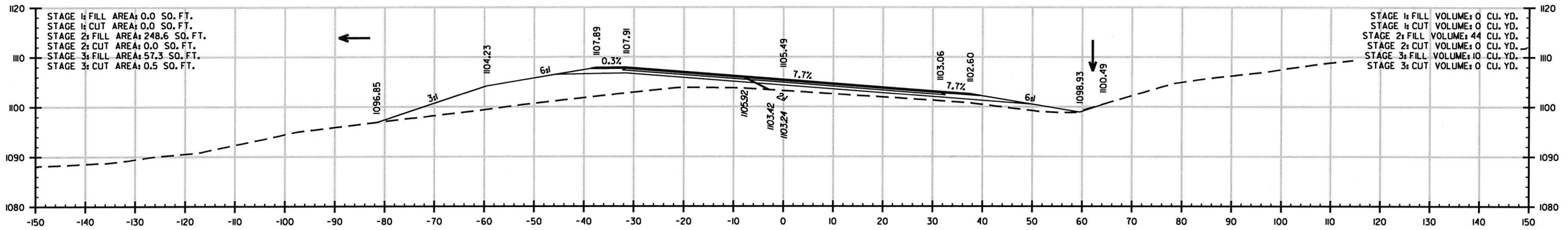
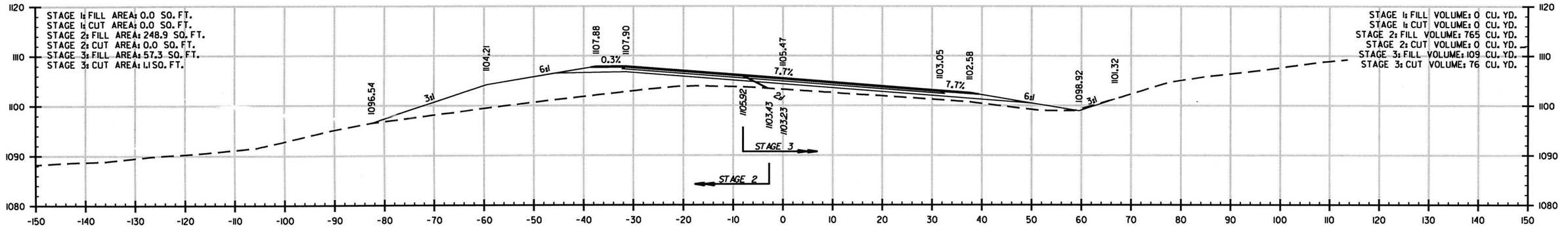
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	392	417

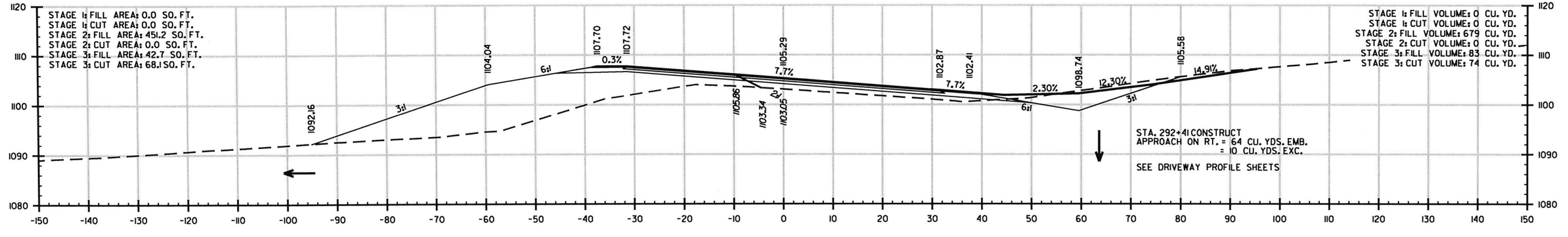
(2) CROSS SECTIONS



STA. 293+04.81



STA. 293+00.00



STA. 292+41.00

STA. 292+41.00 TO STA. 293+04.81

6/7/2017
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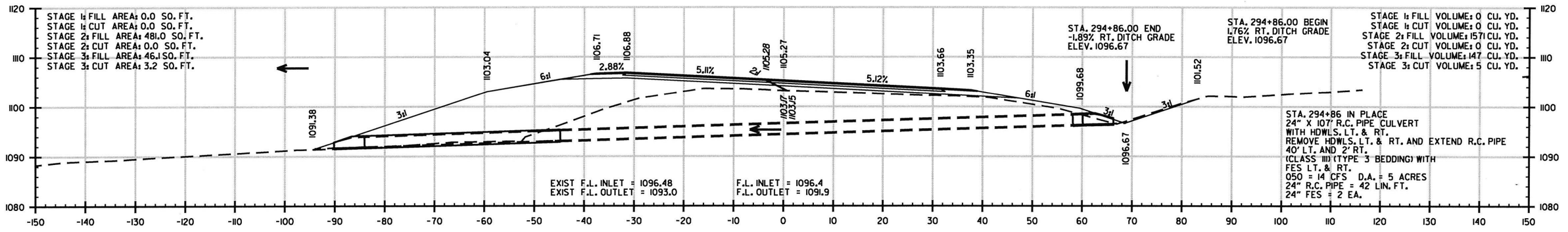
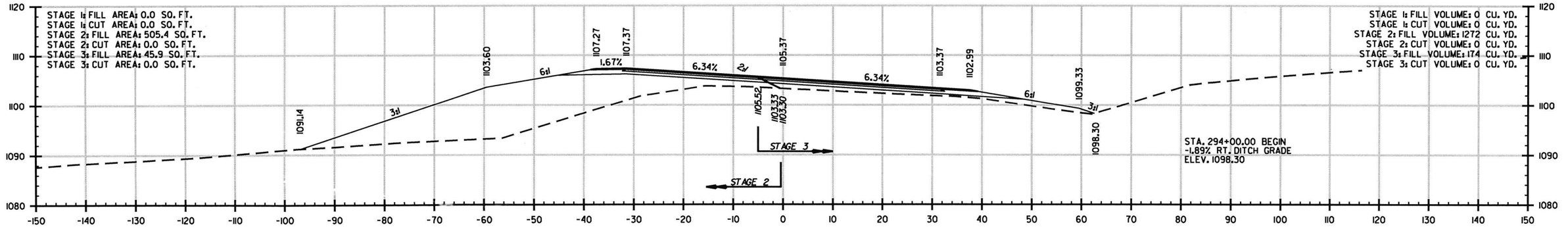
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	393	417

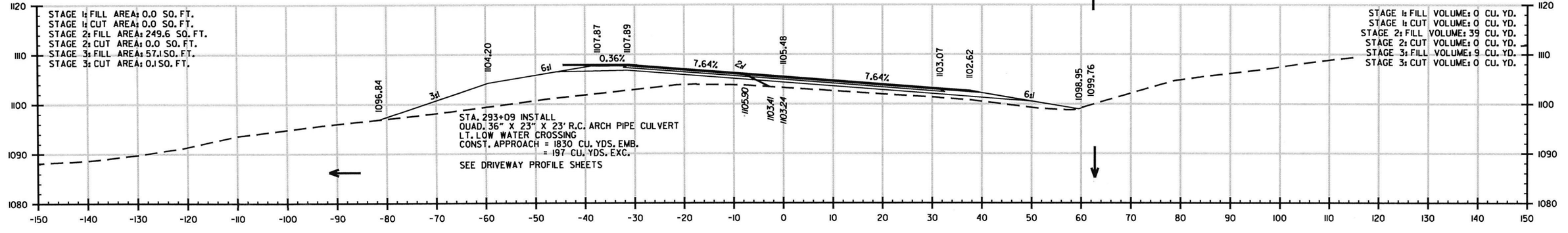
2 CROSS SECTIONS



STA. 294+86.00



STA. 294+00.00



STA. 293+09.00

STA. 293+09.00 TO STA. 294+86.00

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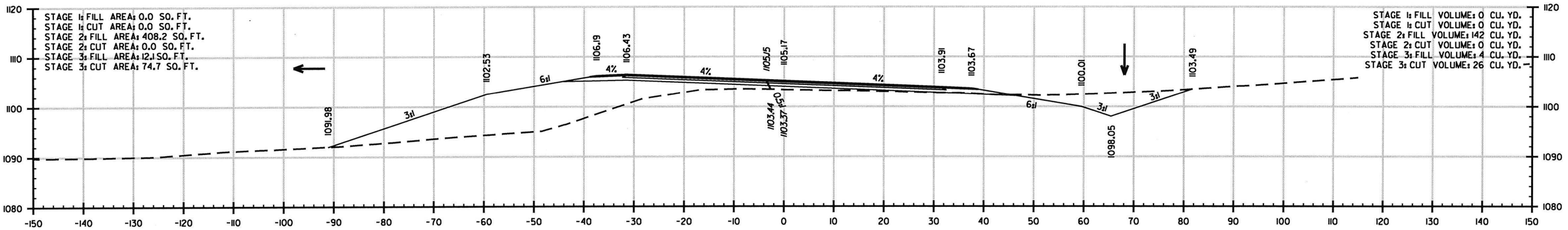
...\CA0906_CX_HW165.dgn

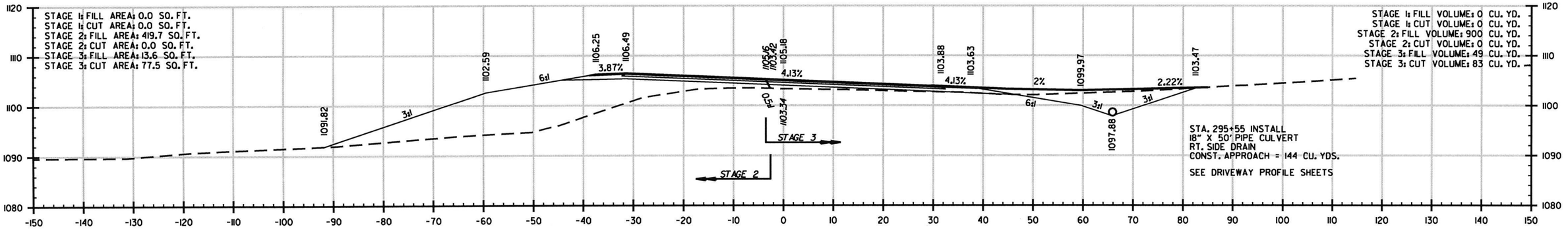
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	394	417

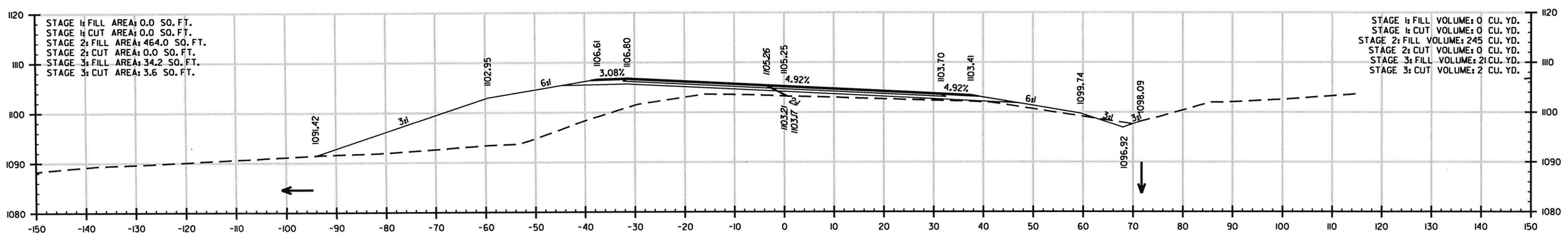
(2) CROSS SECTIONS



STA. 295+64.29



STA. 295+55.00

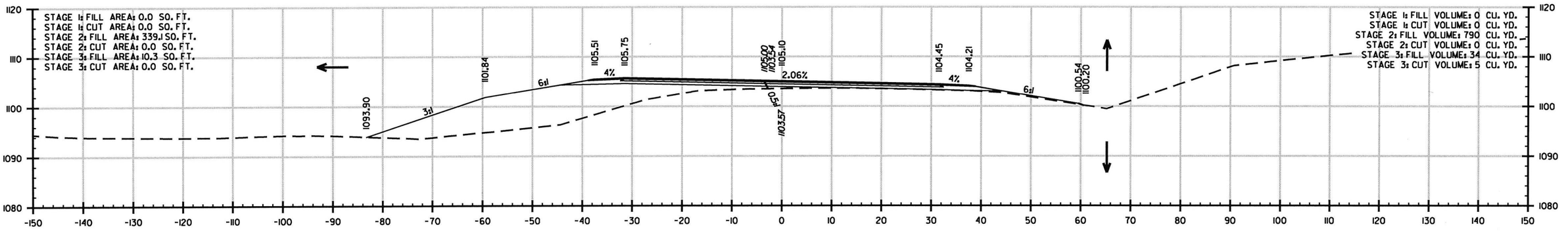


STA. 295+00.00

STA. 295+00.00 TO STA. 295+64.29

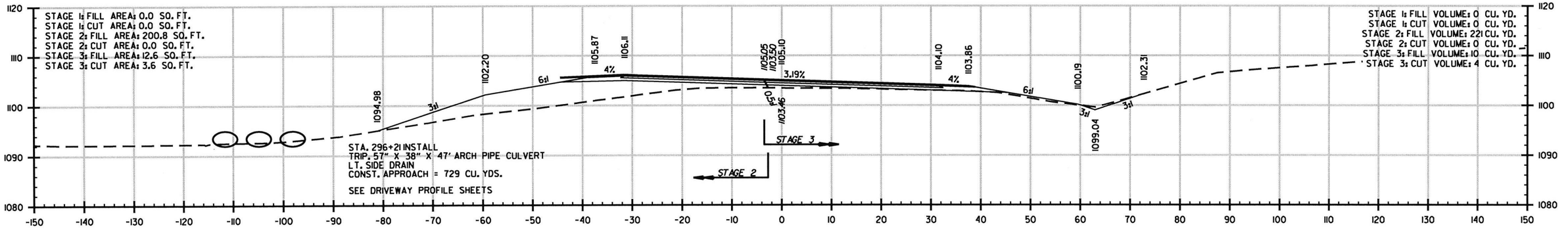
6/7/2017
4:10:40 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	395	417
				(2)	CROSS SECTIONS			

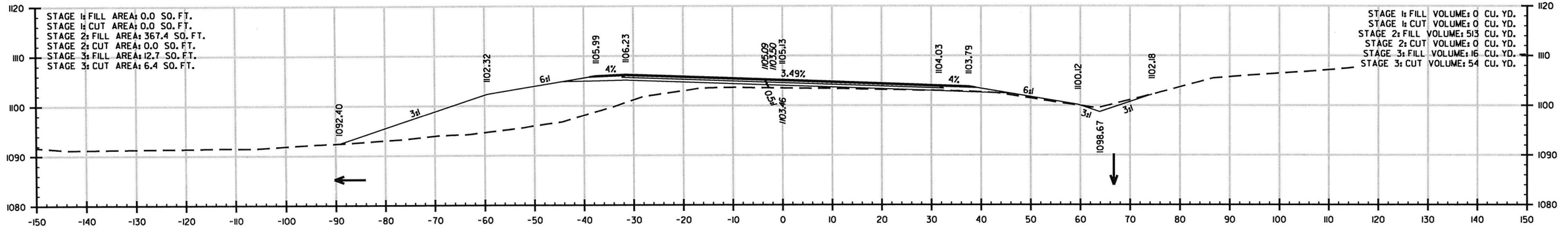


STA. 297+00.00

STA. 296+80.00 END
1.76% RT. DITCH GRADE
ELEV. 1100.08



STA. 296+21.00



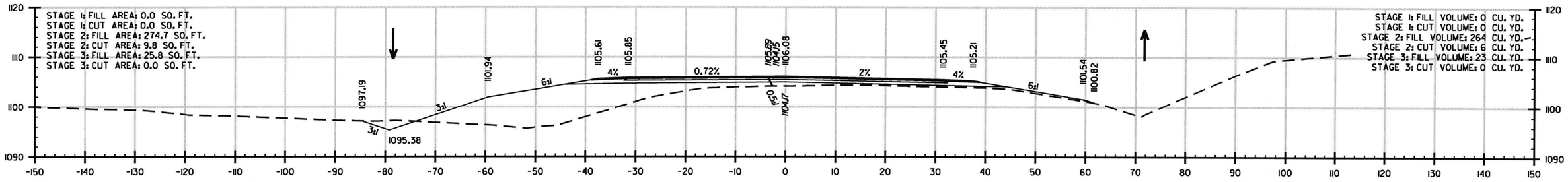
STA. 296+00.00

STA. 296+00.00 TO STA. 297+00.00

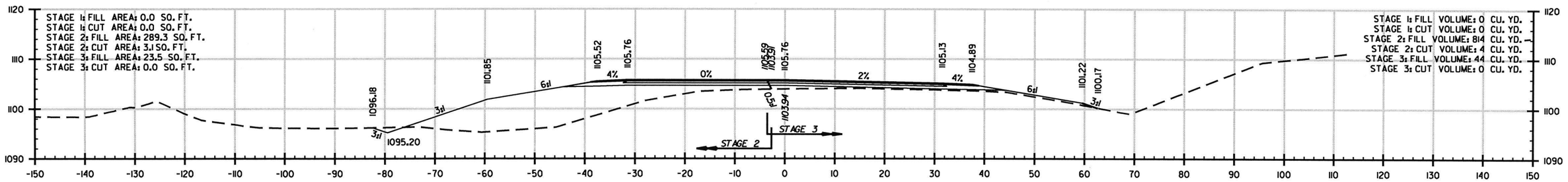
6/7/2017
4:10:41 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	396	417

(2) CROSS SECTIONS

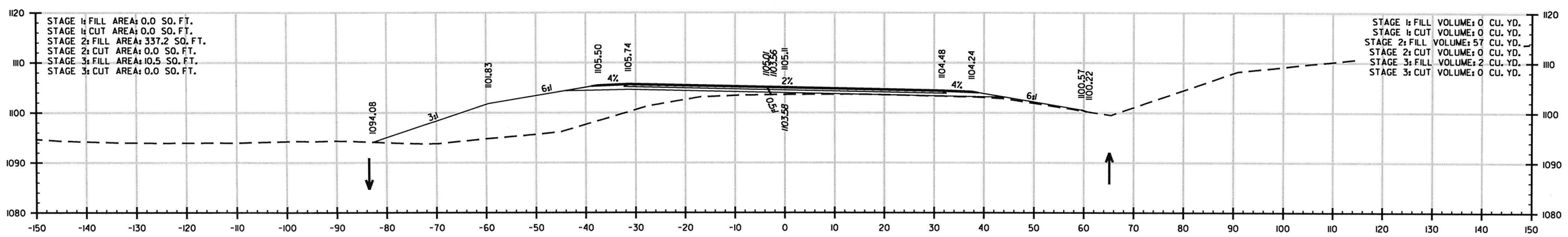


STA. 298+00.00



STA. 297+74.68

STA. 297+40.00 BEGIN
0.70% LT. DITCH GRADE
ELEV. 1094.96



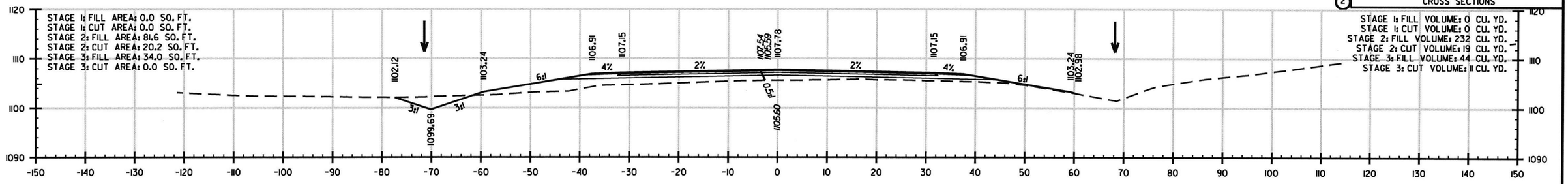
STA. 297+04.55

STA. 297+04.55 TO STA. 298+00.00

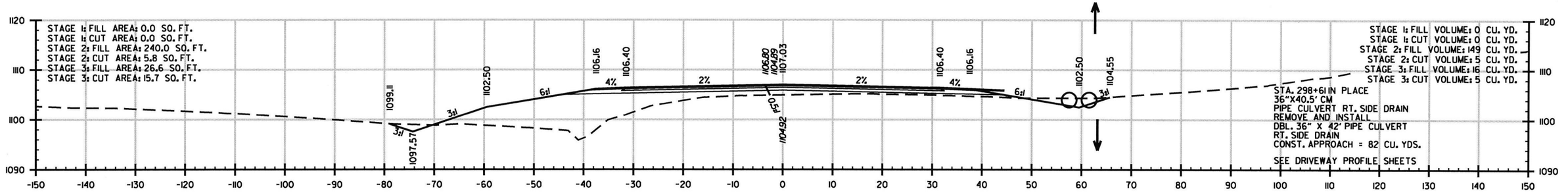
6/7/2017
4:10:41 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	397	417

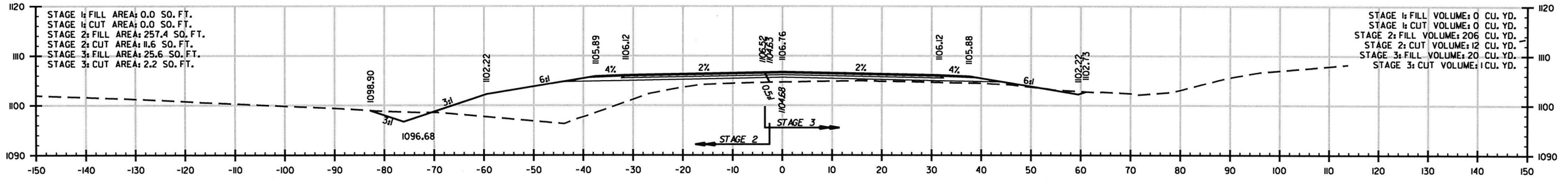
(2) CROSS SECTIONS



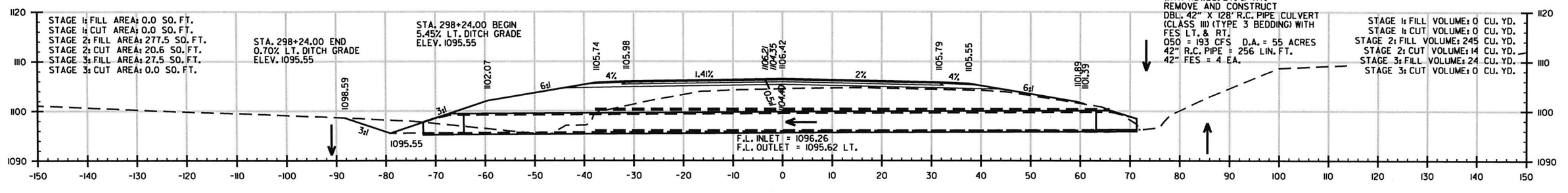
STA. 299+00.00



STA. 298+61.00



STA. 298+44.81



STA. 298+24.00

STA. 298+24.00 TO STA. 299+00.00

6/7/2017
4:04:41 PM
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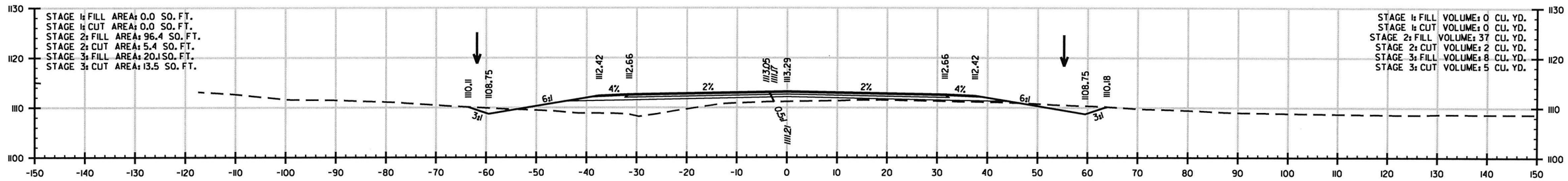
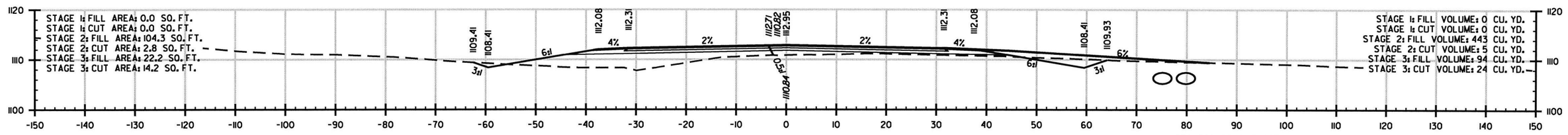
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	398	417

(2) CROSS SECTIONS



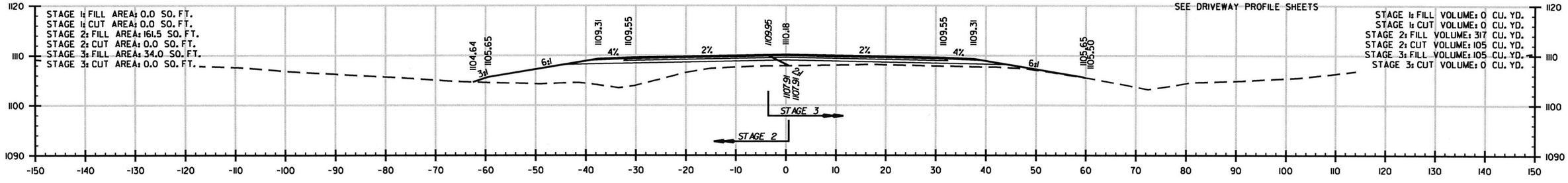
STA. 301+00.00



STA. 300+90.00

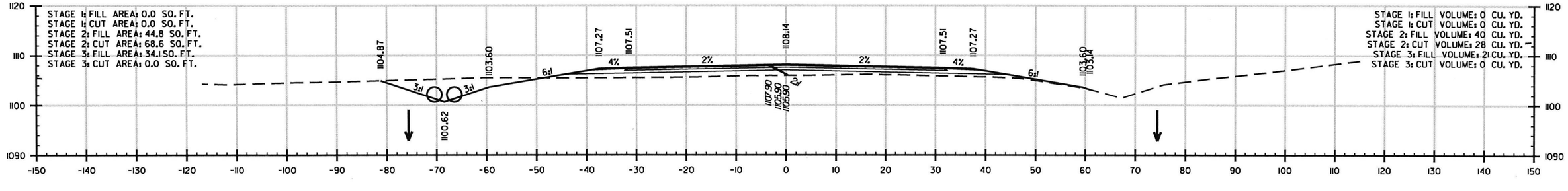
STA. 300+90 IN PLACE
36"X66' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 42" X 29" X 57' R.C. ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 65 CU. YDS.

SEE DRIVEWAY PROFILE SHEETS



STA. 300+00.00

STA. 299+80.00 END
5.45% LT. DITCH GRADE
ELEV. 1104.06



STA. 299+17.00

STA. 299+17.00 TO STA. 301+00.00

6/7/2017
4:10:41 PM
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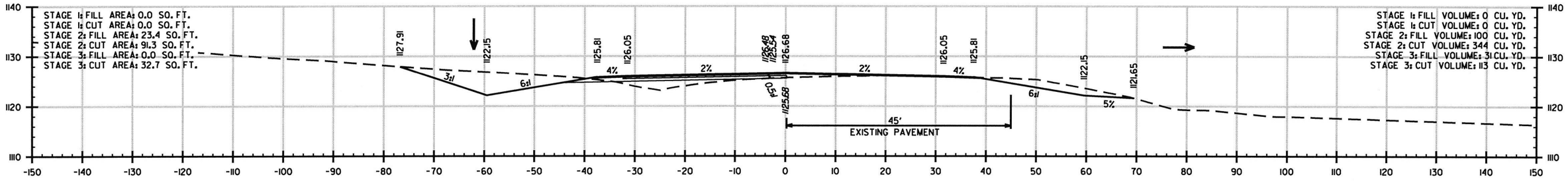
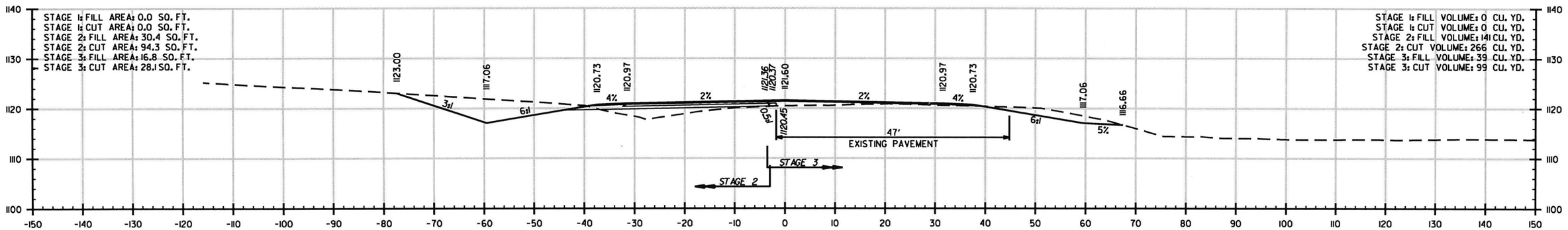
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	399	417

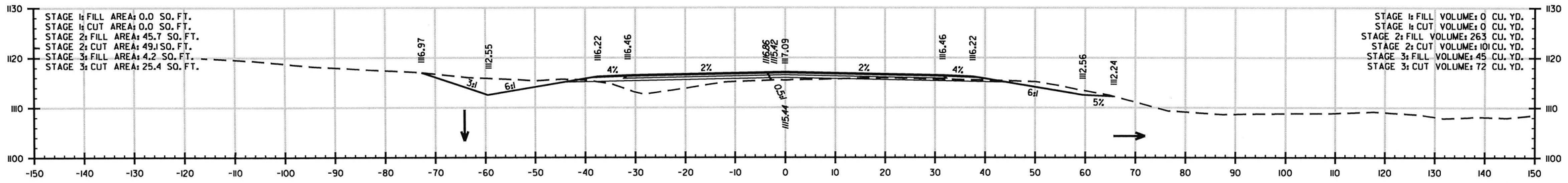
(2) CROSS SECTIONS



STA. 304+00.00
END JOB CA0906
LOG MILE 10.49



STA. 303+00.00



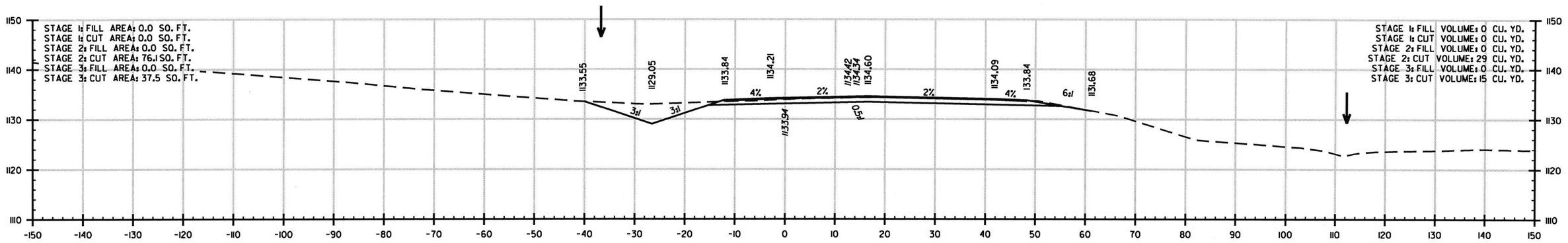
STA. 302+00.00

STA. 302+00.00 TO STA. 304+00.00

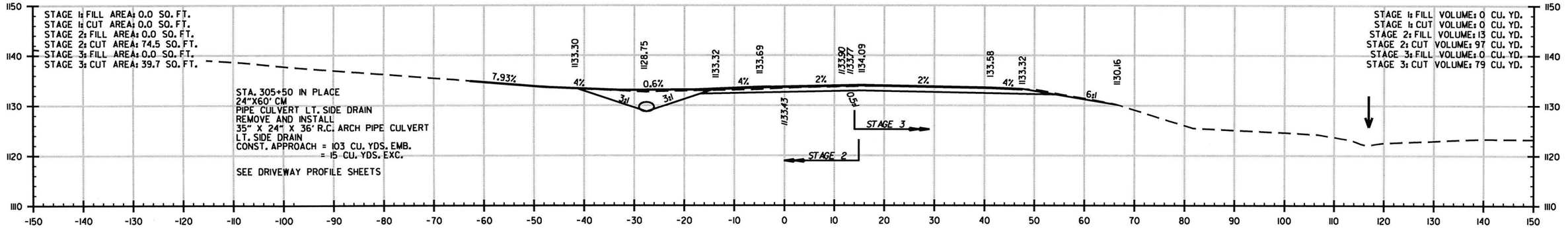
6/7/2017
4:10:42 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	400	417

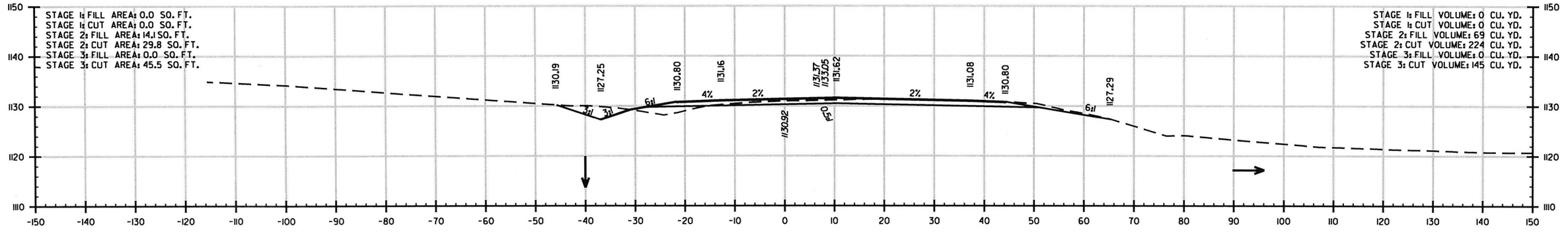
(2) CROSS SECTIONS



STA. 305+60.37



STA. 305+50.00



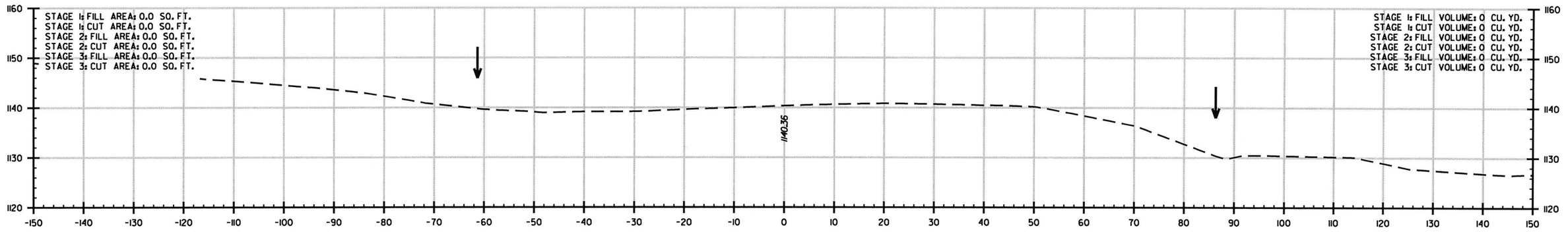
STA. 305+00.00

STA. 305+00.00 TO STA. 305+60.37

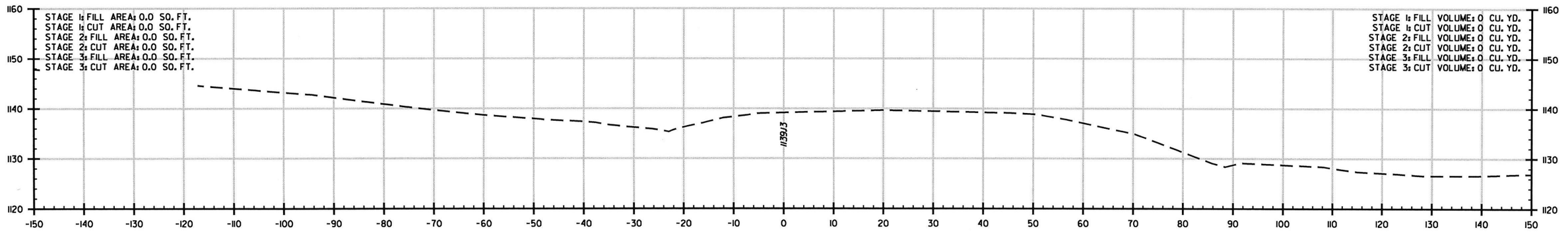
6/7/2017
4:10:42 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	401	417

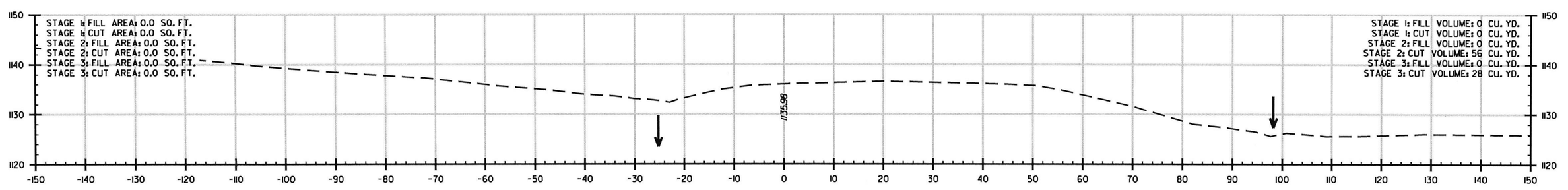
2 CROSS SECTIONS



STA. 306+82.00



STA. 306+58.55



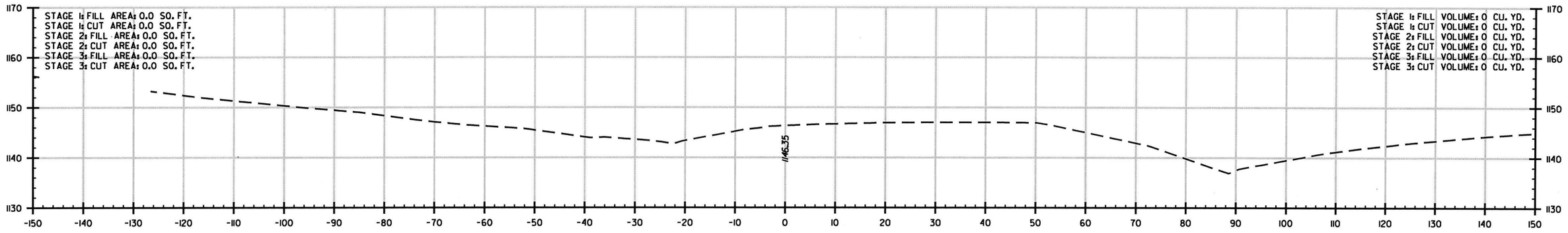
STA. 306+00.00

STA. 306+00.00 TO STA. 306+82.00

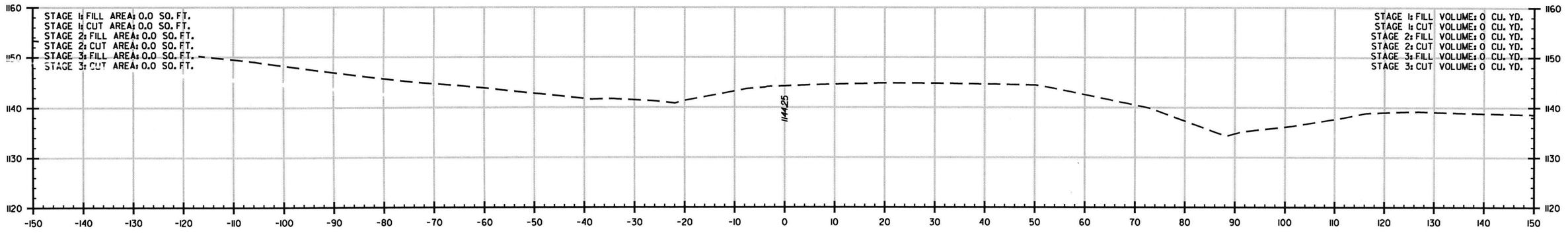
6/7/2017
4:10:42 PM
\\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	402	417

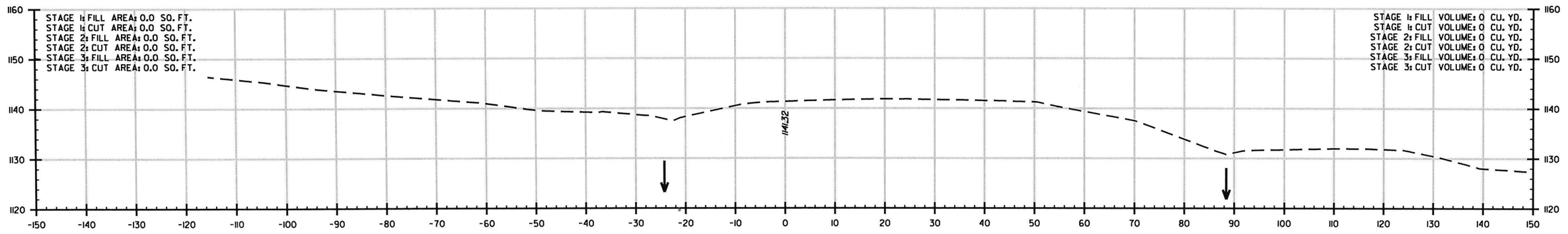
(2) CROSS SECTIONS



STA. 308+00.00



STA. 307+56.73



STA. 307+00.00

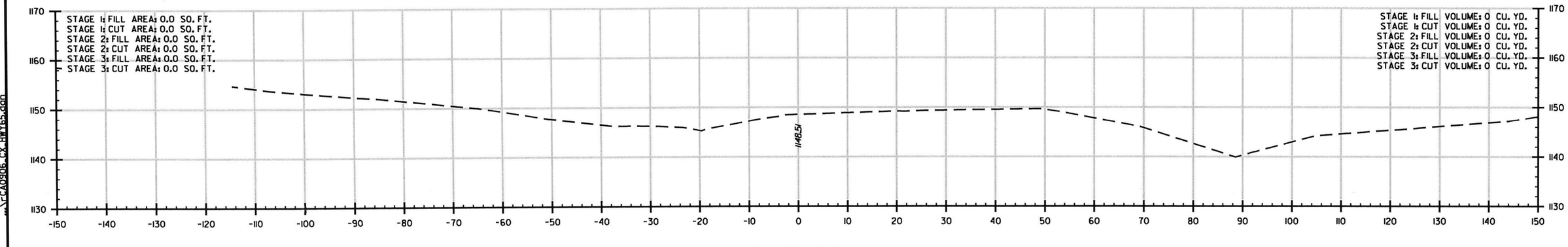
STA. 307+00.00 TO STA. 308+00.00

6/7/2017
4:10:43 PM
...\CA0906_CX_HWY65.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	403	417

(2) CROSS SECTIONS

STA. 326+50.00
END CONSTRUCTION CA0906
LOG MILE 10.97



STA. 308+50.00

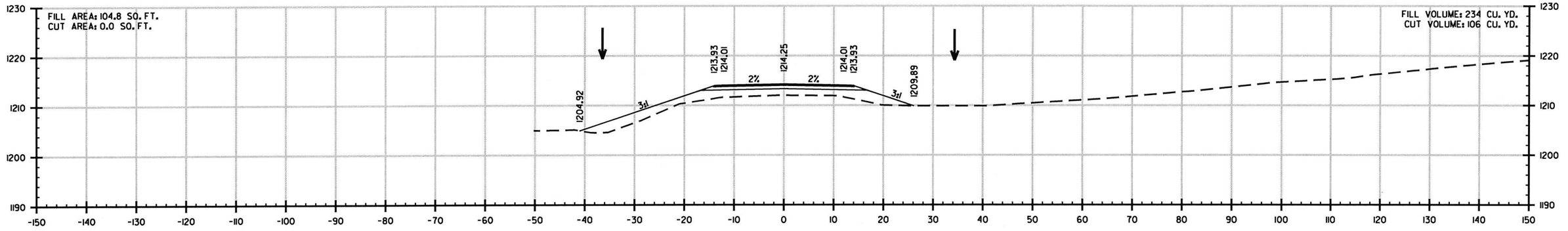
STA. 308+50.00 TO STA. 308+50.00

6/7/2017
4:10:43 PM
\\CA0906_cx_HWY65.dgn

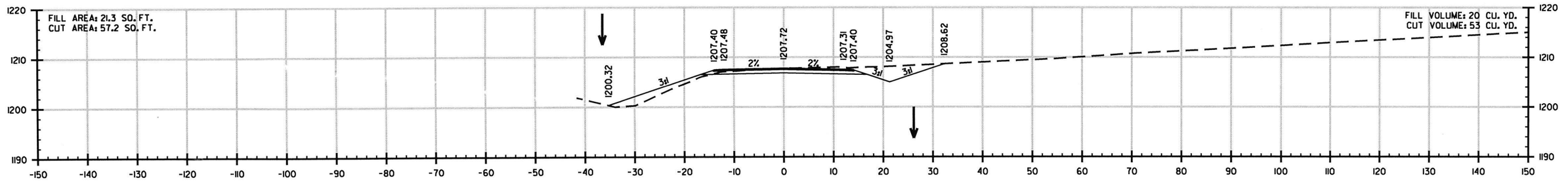
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	404	417

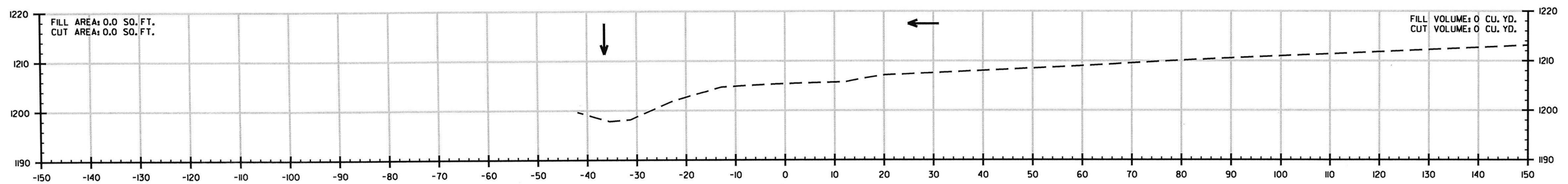
(2) ASPEN RD. CROSS SECTIONS



STA. 11+00.00



STA. 10+00.00

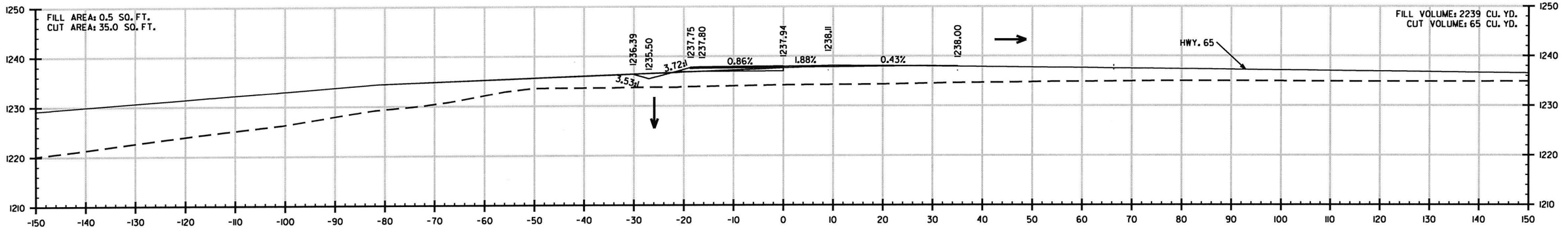


STA. 9+50.00
BEGIN CONSTRUCTION

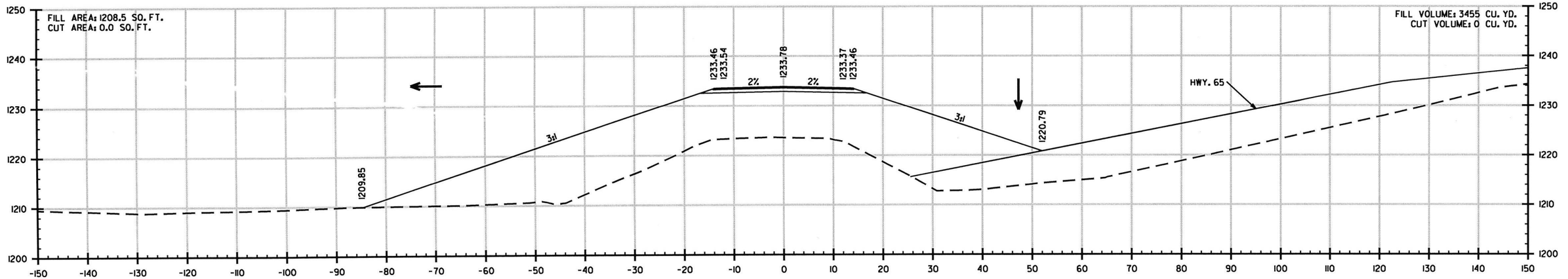
ASPEN RD.
STA. 9+50.00 TO STA. 11+00.00

6/7/2017
4:10:52 PM
\\CA0906_CX_ROADS.dgn

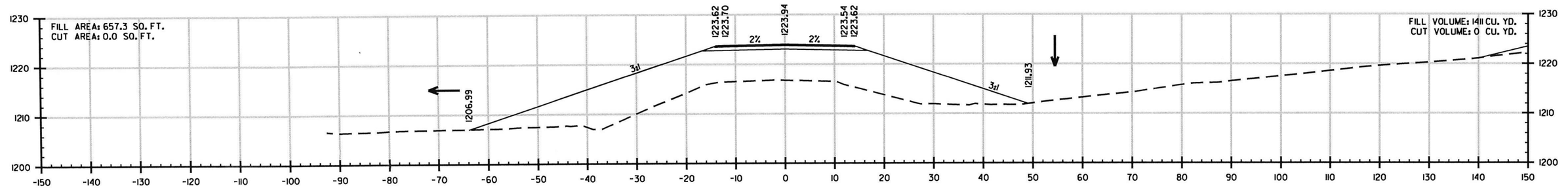
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	405	417
				(2)	ASPEN RD. CROSS SECTIONS			



STA. 14+00.00



STA. 13+00.00



STA. 12+00.00

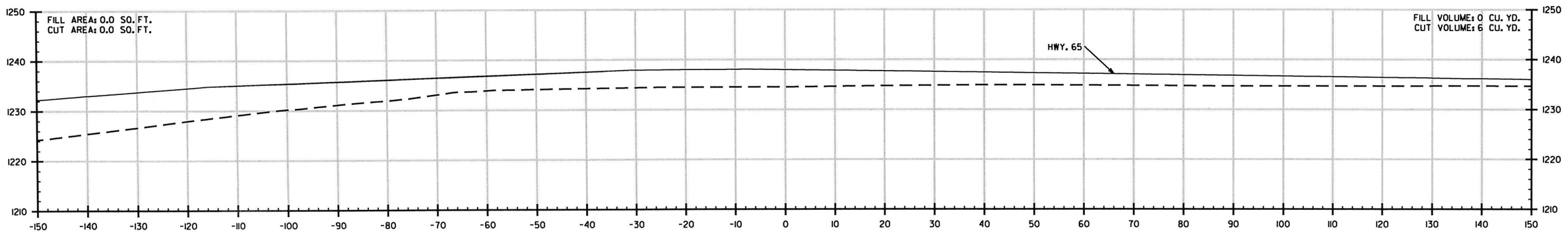
ASPEN RD.
STA. 12+00.00 TO STA. 14+00.00

6/7/2017
4:01:53 PM
...\CA0906_CX_ROADS.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	406	417

(2) ASPEN RD. CROSS SECTIONS



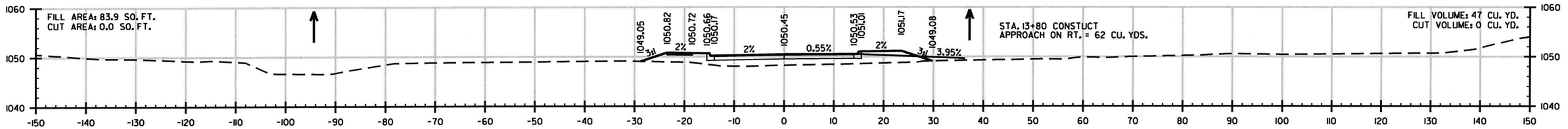
STA. 14+09.34
MATCH HWY. 65

ASPEN RD.
STA. 14+09.34 TO STA. 14+09.34

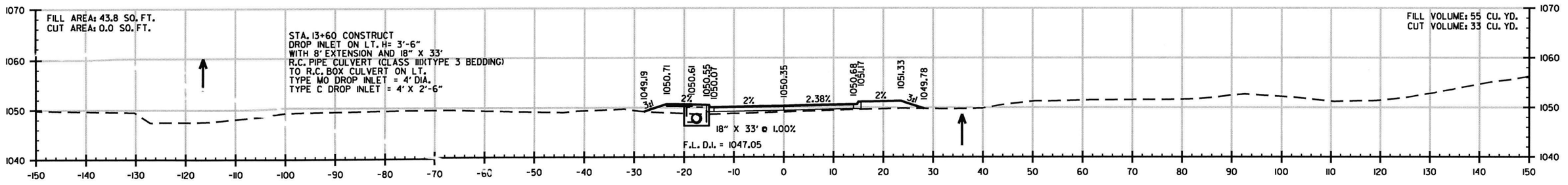
6/7/2017
4:10:53 PM
\\FCA0906_CX_ROADS.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0906	407	417

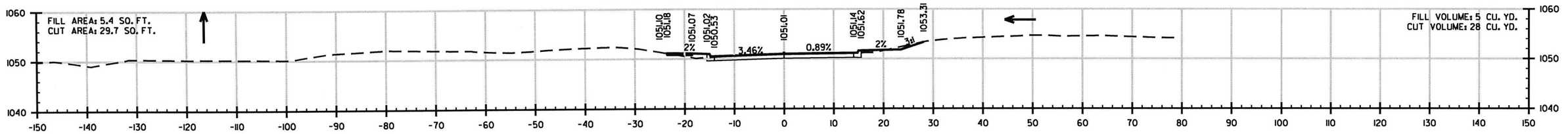
(2) ELM ST. & RALLY HILL RD. CROSS SECTIONS



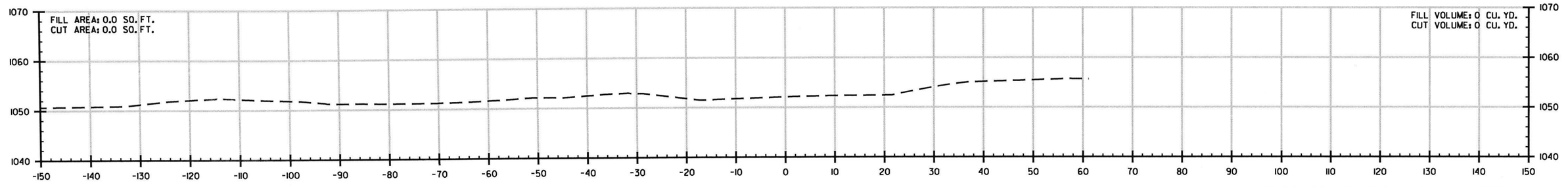
STA. 13+80.00
CONST. APPROACH RT.



STA. 13+60.00



STA. 13+00.00



STA. 12+50.00
BEGIN CONSTRUCTION

ELM ST. & RALLY HILL RD.
STA. 12+50.00 TO STA. 13+80.00

6/7/2017
4:10:53 PM
***CA0906_CX_ROADS.dgn

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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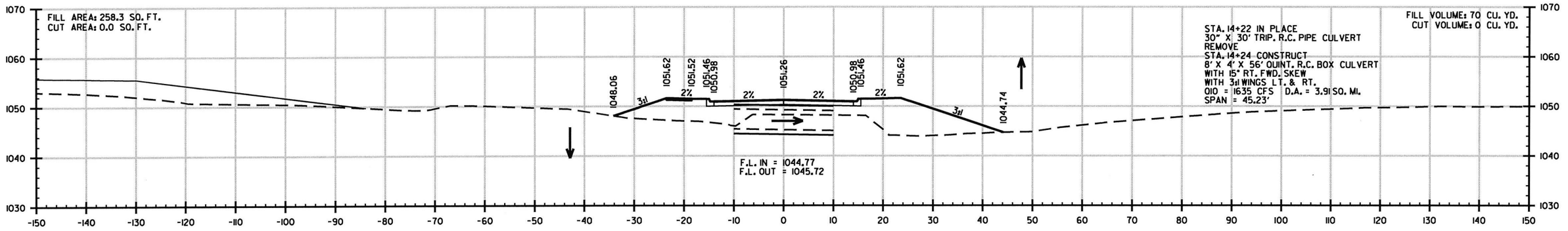

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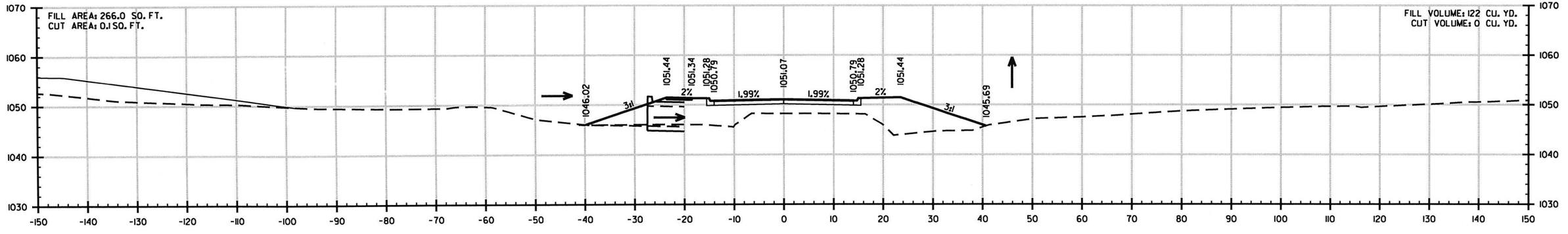

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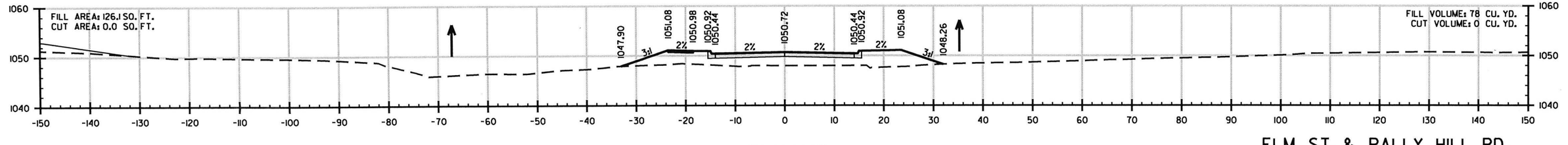

STA. 14+00.00

ELM ST. & RALLY HILL RD.
STA. 14+00.00 TO STA. 14+24.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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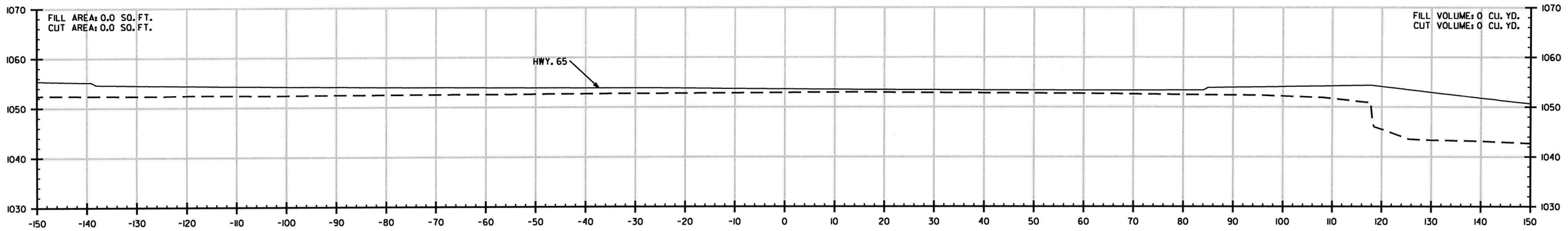
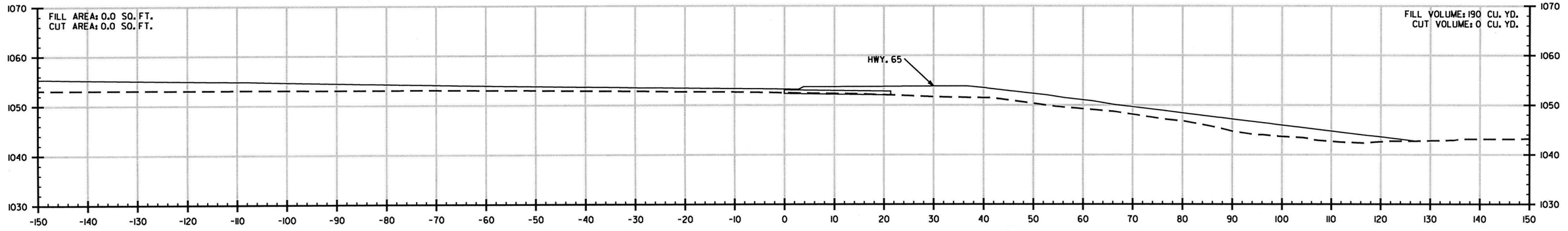
				JOB NO.		CA0906	409	417

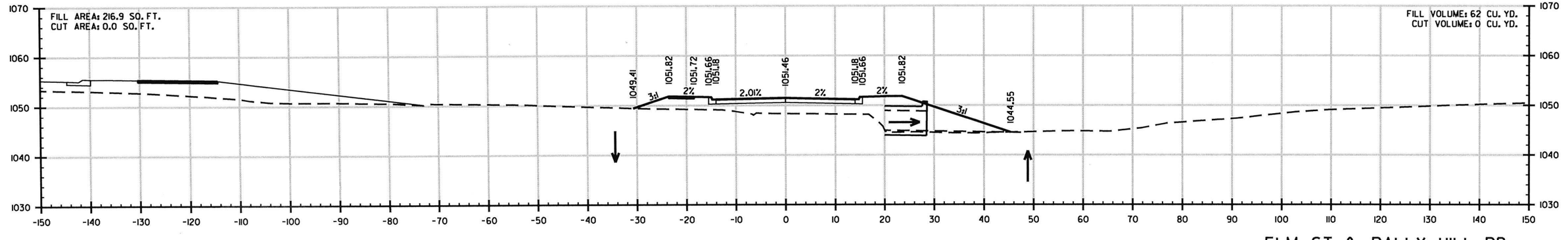
(2) ELM ST. & RALLY HILL RD. CROSS SECTIONS



STA. 15+00.00



STA. 14+78.26
MATCH HWY. 65



STA. 14+30.99

ELM ST. & RALLY HILL RD.
STA. 14+30.99 TO STA. 15+00.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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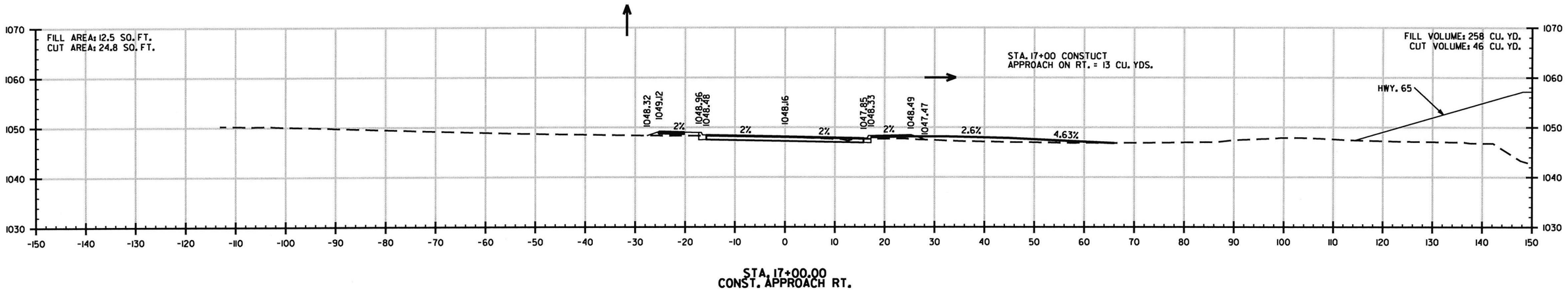
				JOB NO.		CA0906	410	417

(2) ELM ST. & RALLY HILL RD. CROSS SECTIONS



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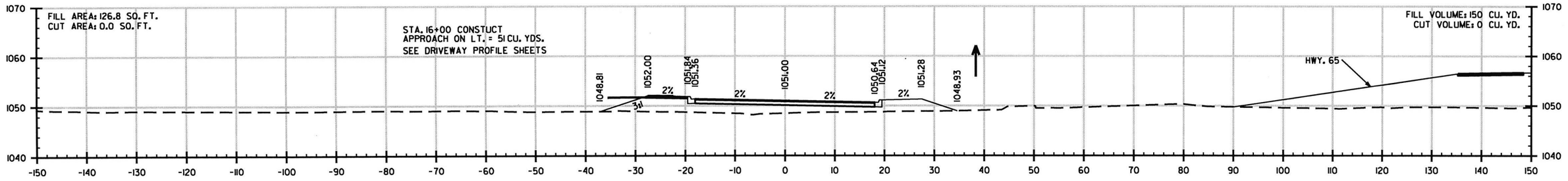
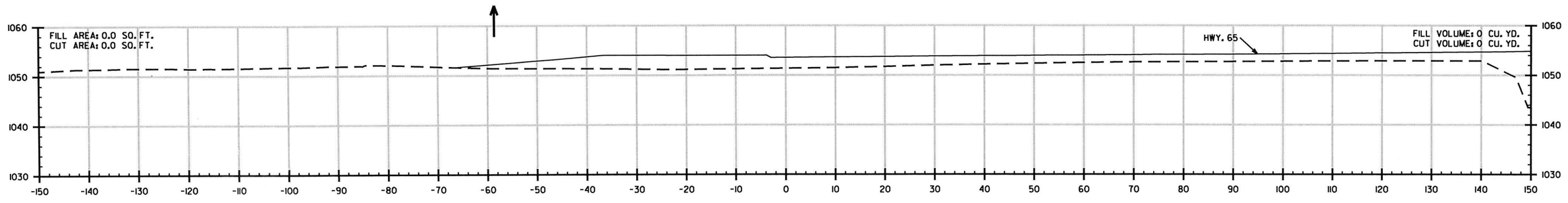


STA. 16+00.00
CONST. APPROACH LT.



STA. 15+36.24
MATCH HWY. 65

6/7/2017
4:10:53 PM
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ELM ST. & RALLY HILL RD.
STA. 15+36.24 TO STA. 17+00.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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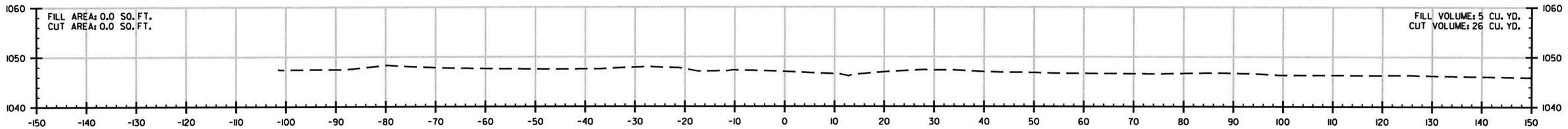
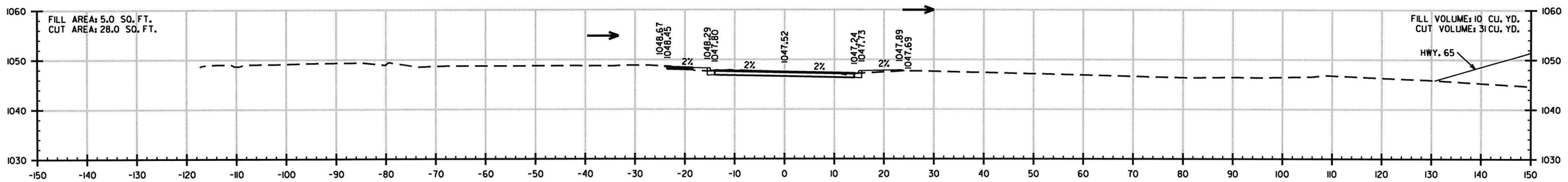
JOB NO.		CA0906	411	417

(2) ELM ST. & RALLY HILL RD. CROSS SECTIONS



STA. 17+88.00
END CONSTRUCTION



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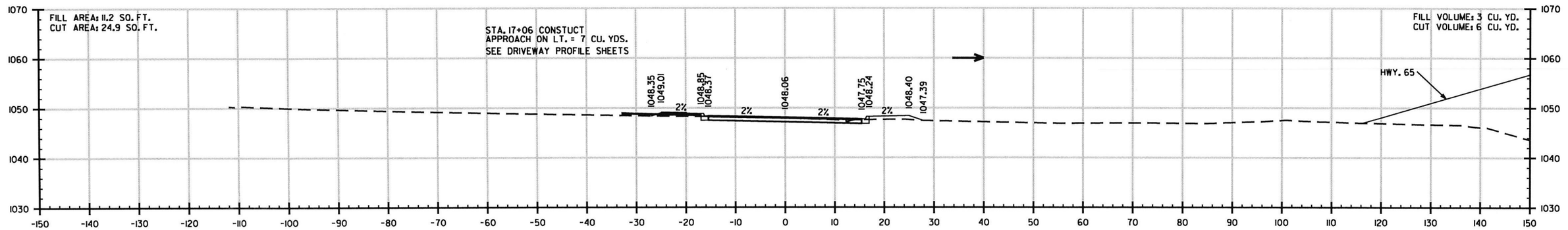

STA. 17+06.00
CONST. APPROACH LT.

ELM ST. & RALLY HILL RD.
STA. 17+06.00 TO STA. 17+88.00

6/7/2017
4:10:54 PM
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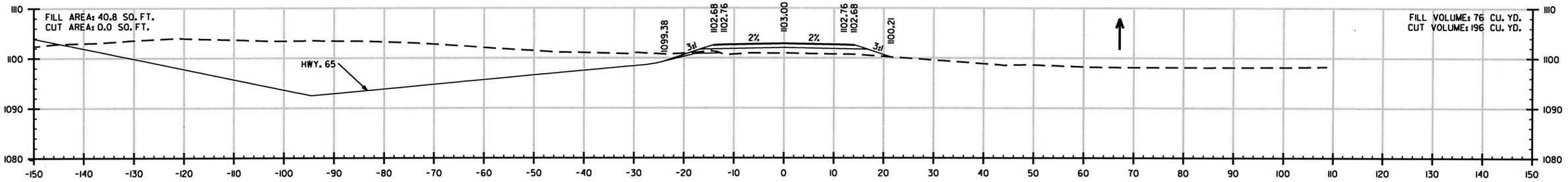
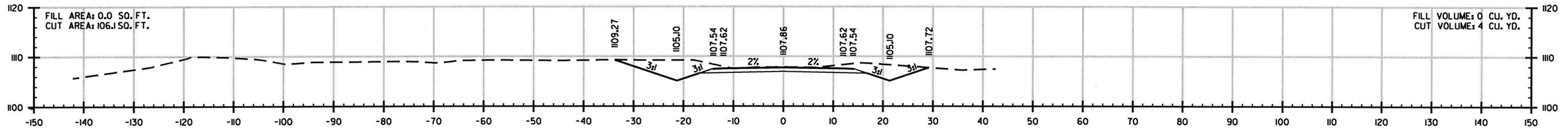
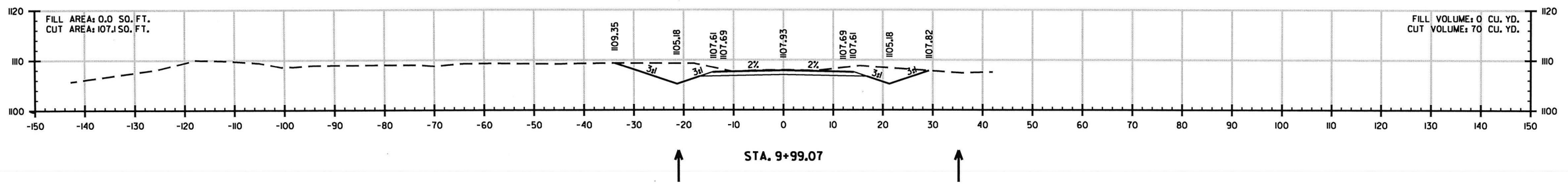
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0906	412	417

(2) MURRAY RD. CROSS SECTIONS







MURRAY RD.
STA. 9+63.78 TO STA. 11+00.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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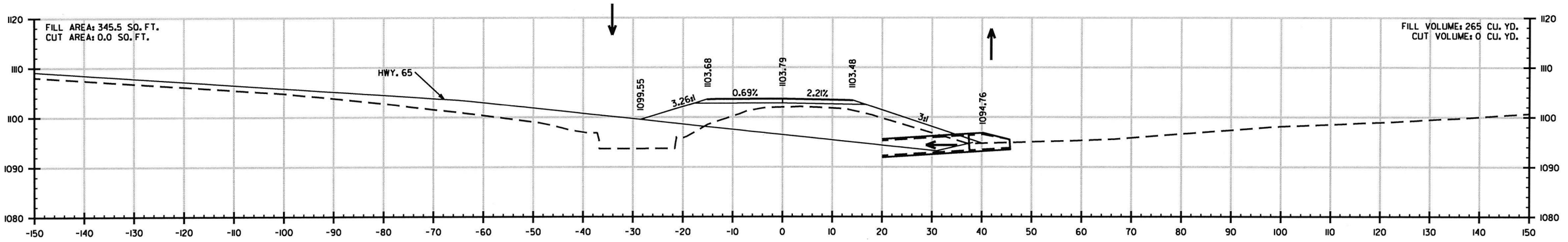
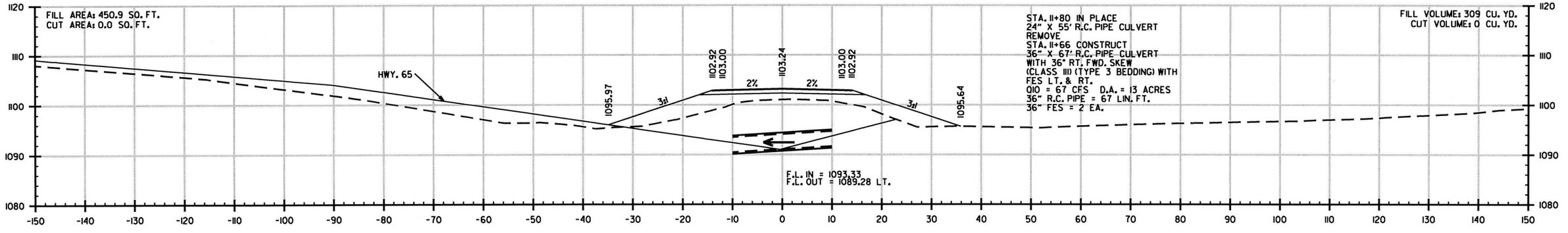
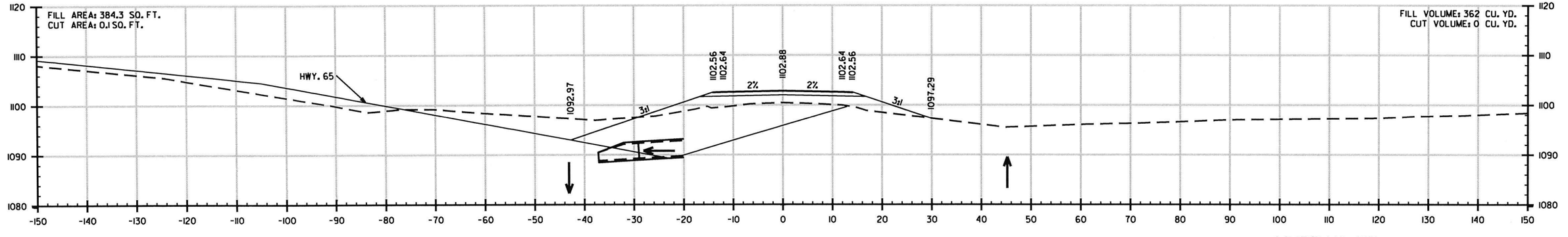


STA. 11+84.00



STA. 11+66.00



STA. 11+46.00

MURRAY RD.
STA. 11+46.00 TO STA. 11+84.00

6/7/2017
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DATE	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.		CA0906	414	417
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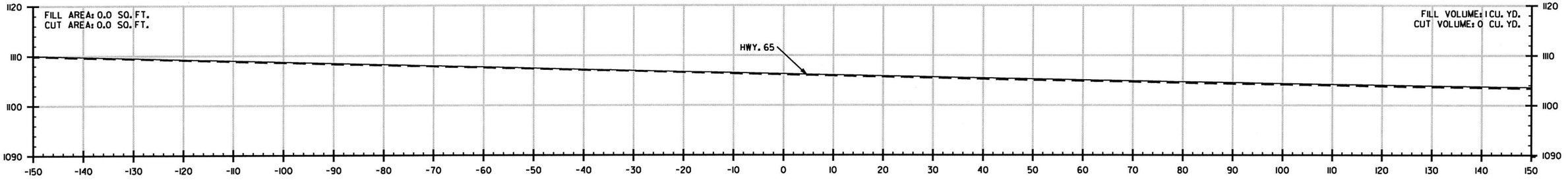
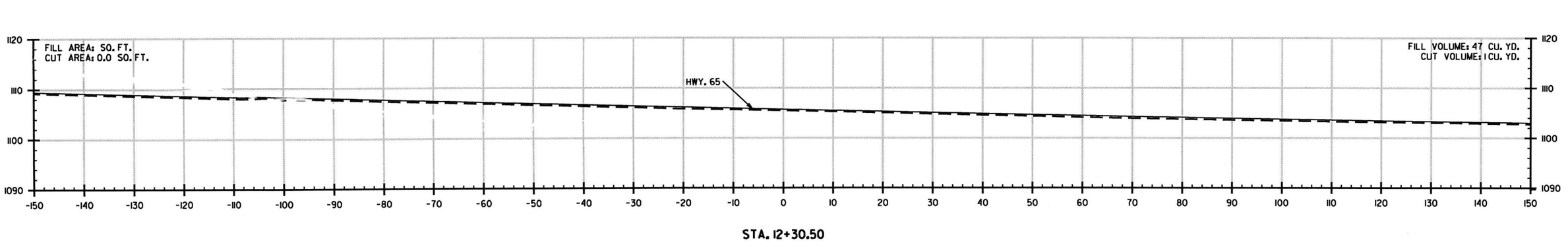


STA. 12+60.00



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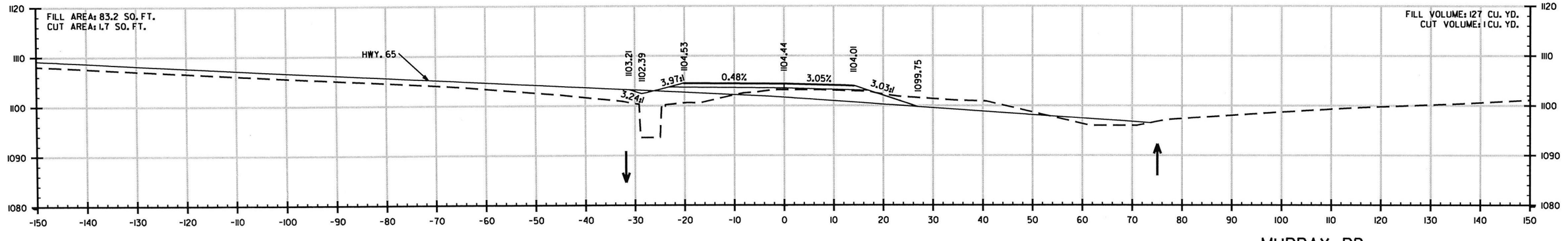

STA. 12+00.00

MURRAY RD.
STA. 12+00.00 TO STA. 12+60.00

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4:10:54 PM
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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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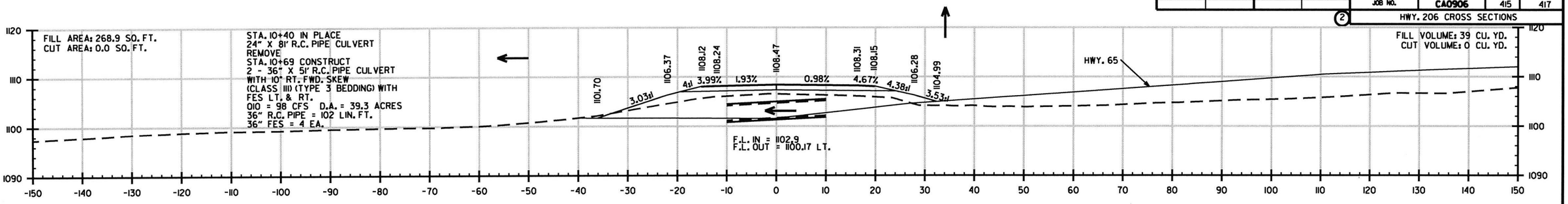
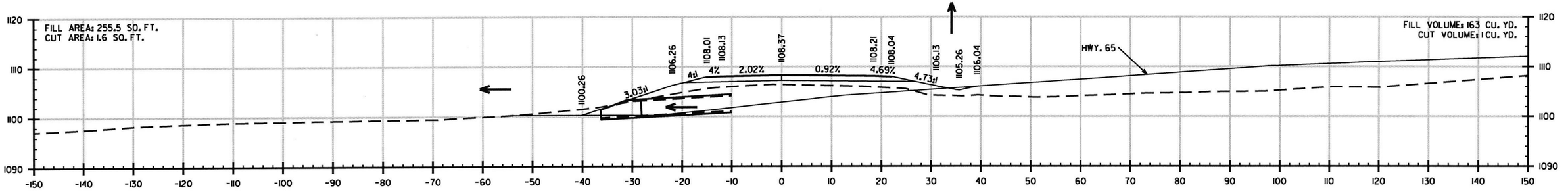
(2) HWY. 206 CROSS SECTIONS



STA. 10+69.00



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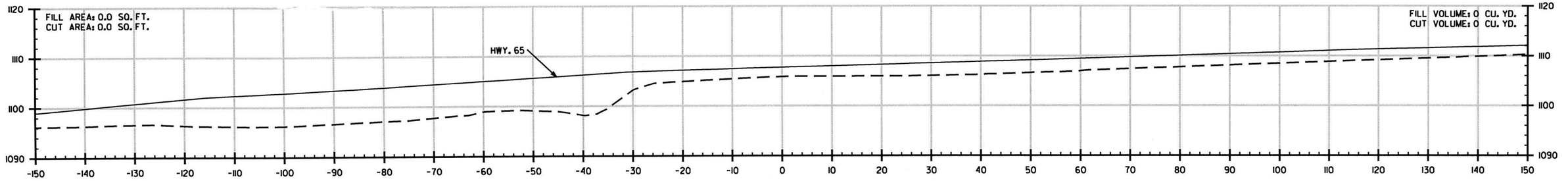

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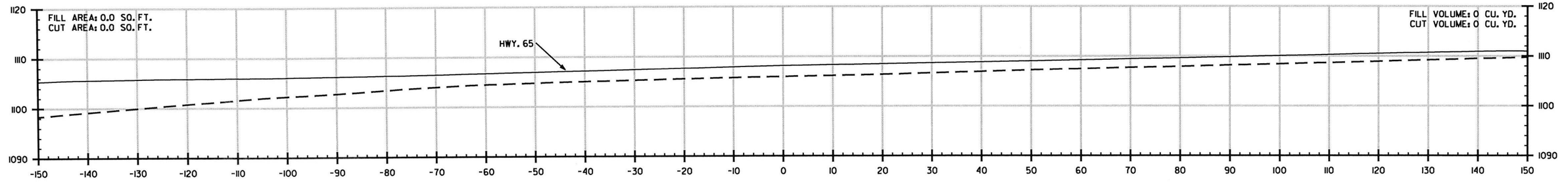

STA. 10+00.00

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HWY. 206
STA. 10+00.00 TO STA. 10+69.00

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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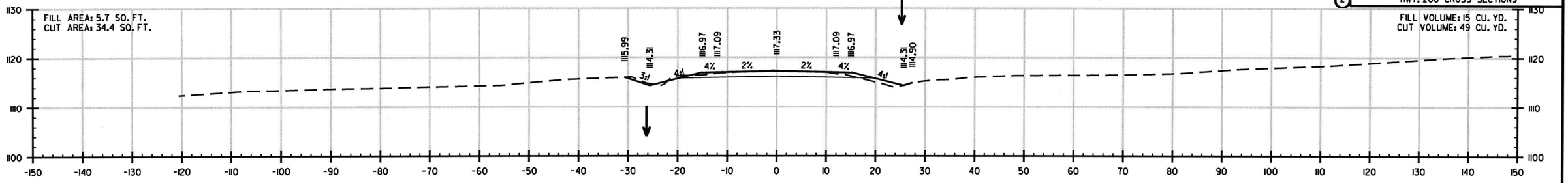

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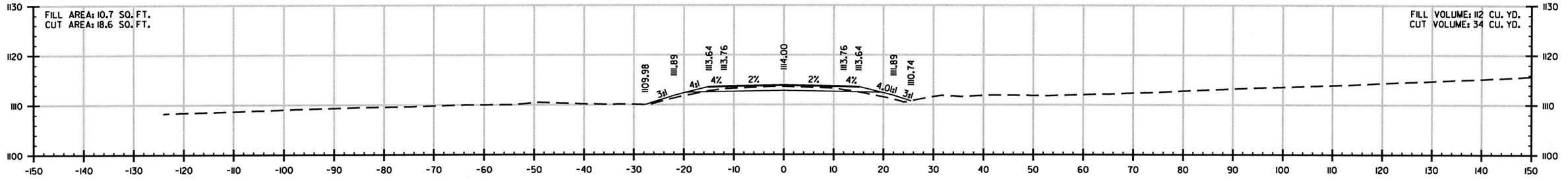

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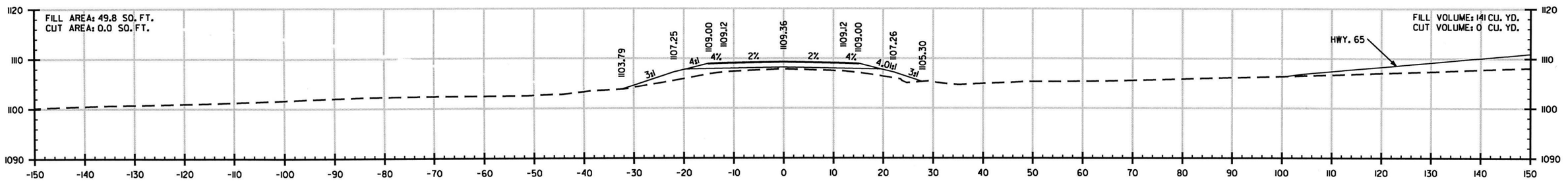
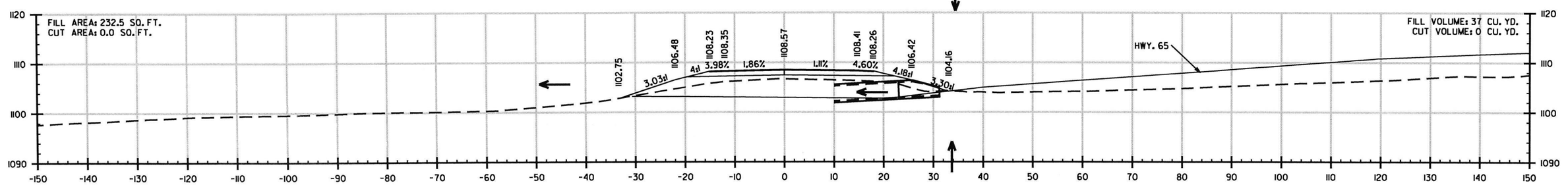


STA. 11+00.00



STA. 10+73.00

HWY. 206
STA. 10+73.00 TO STA. 12+50.00

6/7/2017
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DATE	DATE FILMED	DATE REVISED	DATE FILMED

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JOB NO.		CA0906	417	417

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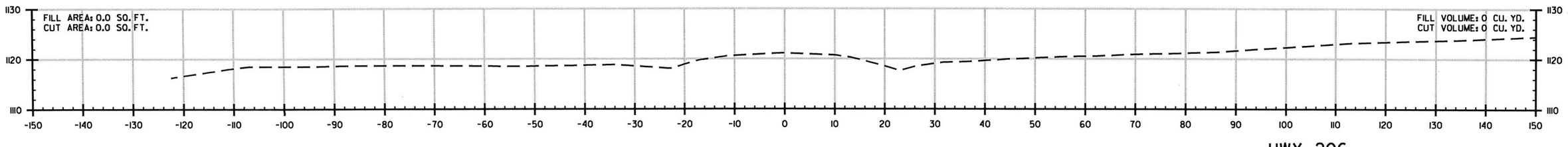

STA. 13+00.00

HWY. 206
STA. 13+00.00 TO STA. 13+63.24

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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
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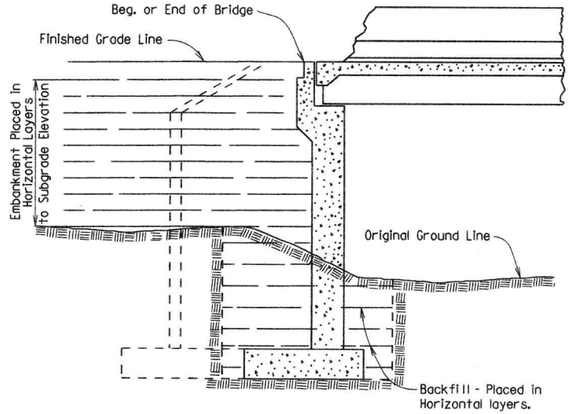
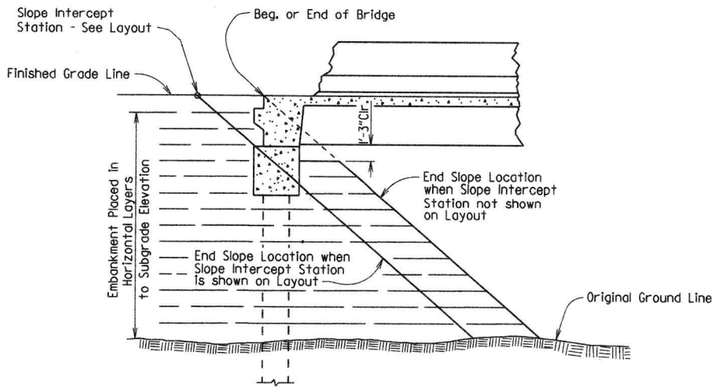
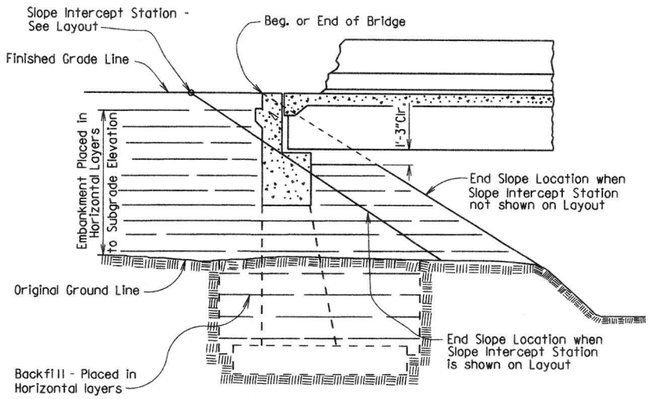
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



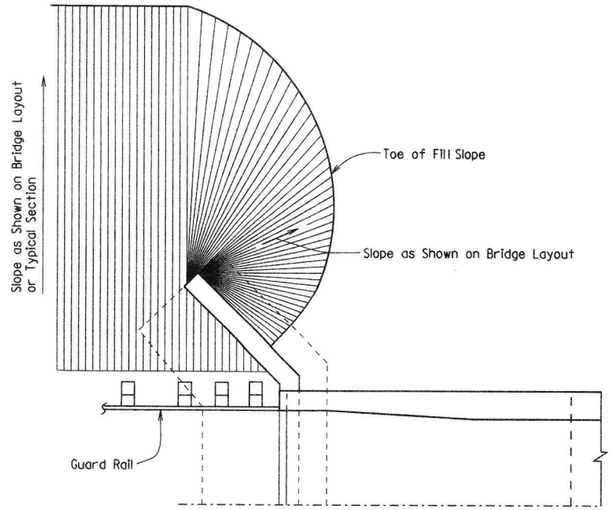
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



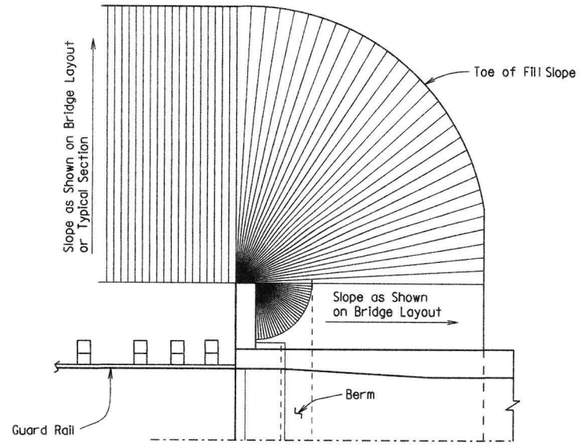
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



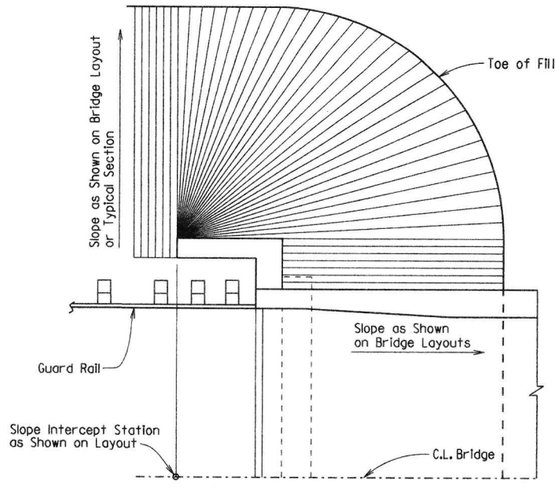
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



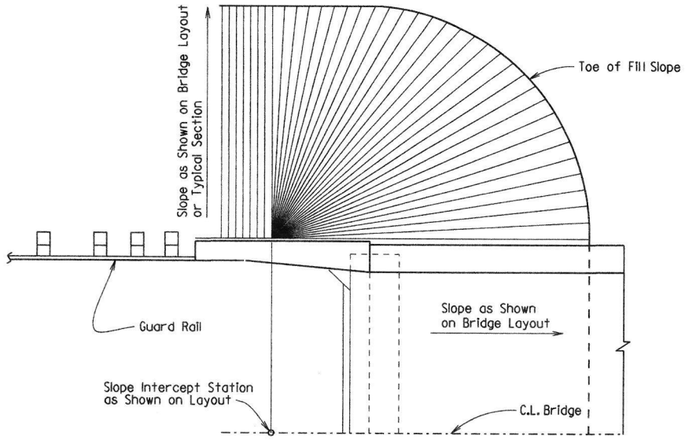
VERTICAL WALL ABUTMENTS



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.

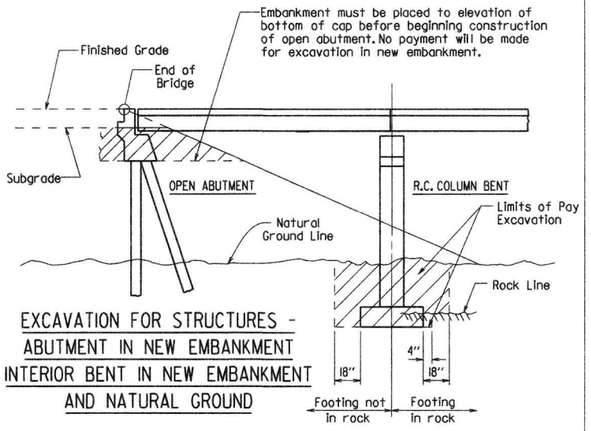
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

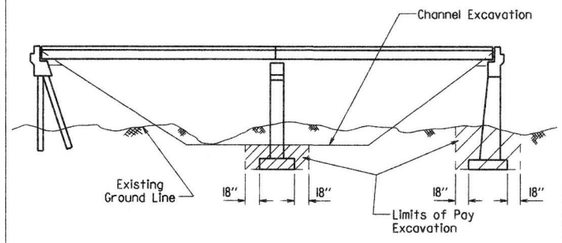
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

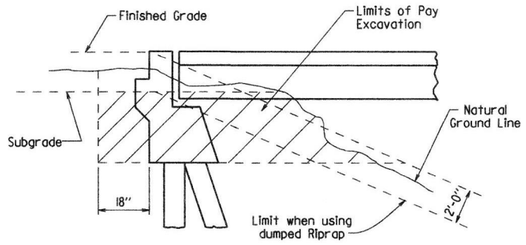
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				1	RIPRAP & EXCAV. 55001			



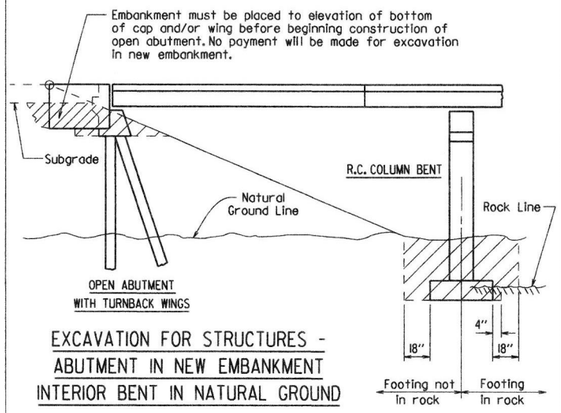
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



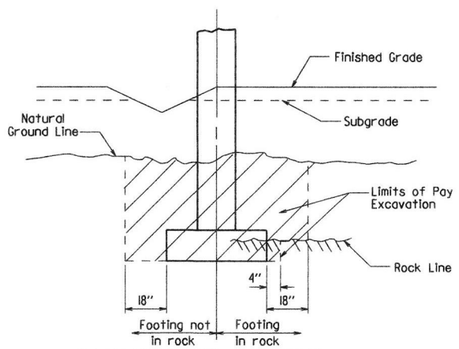
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



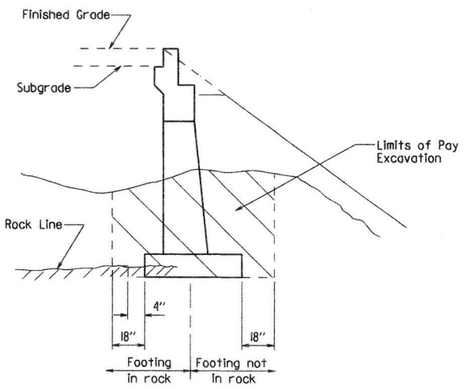
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



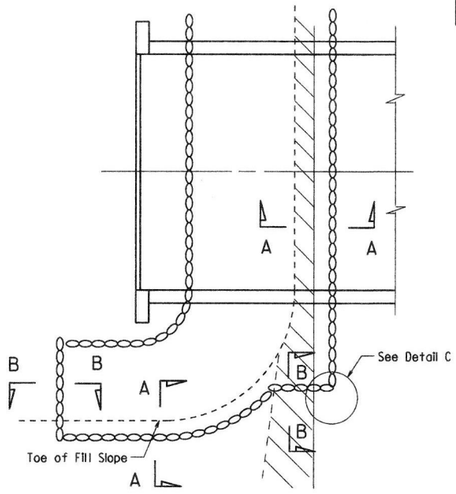
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



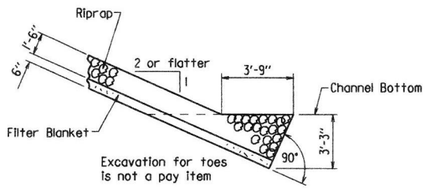
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



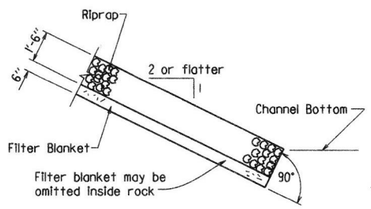
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

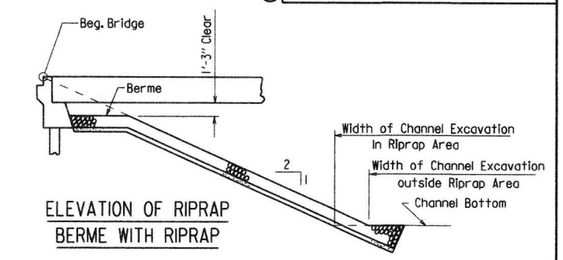


SECTION A-A
(Toe Excavation in Rock)

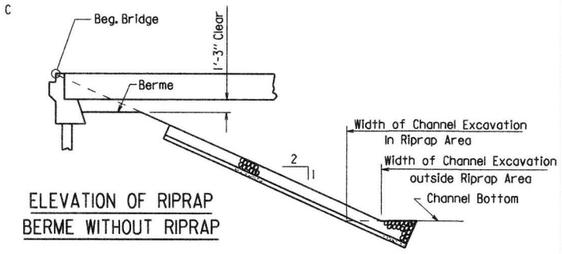
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

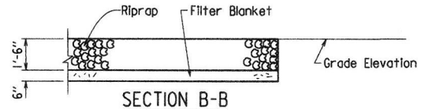
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



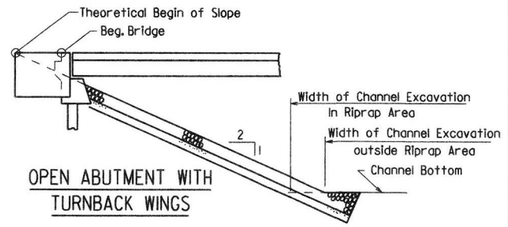
ELEVATION OF RIPRAP BERME WITH RIPRAP



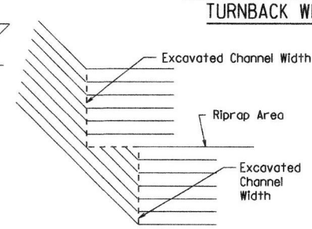
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



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

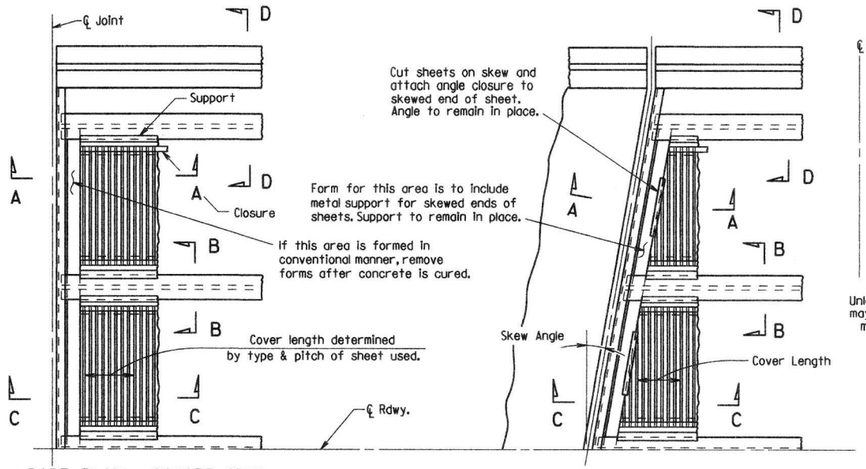
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE:

FILENAME: b55001.dgn
SCALE: NO SCALE

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

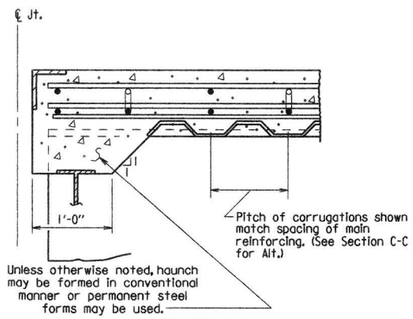


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

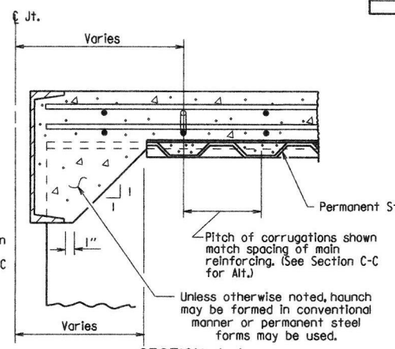
3/8" = 1'-0"



SECTION A-A

N.T.S.

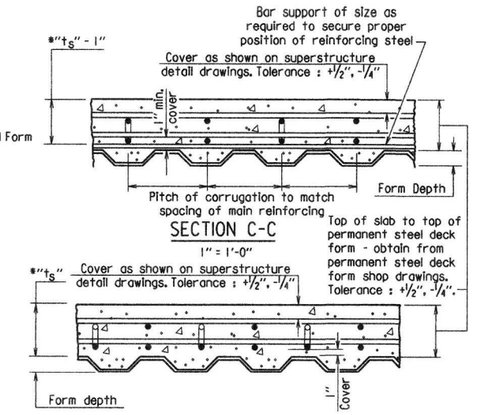
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



SECTION C-C

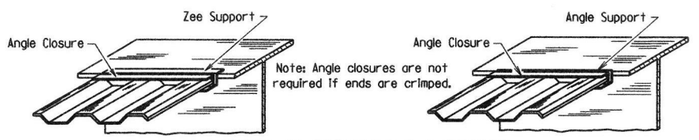
1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

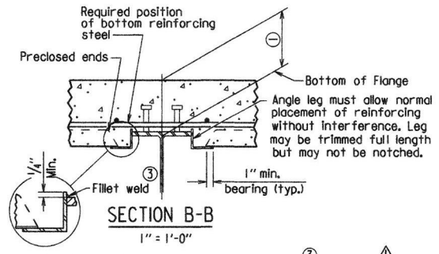
(Applicable when corrugations do not match spacing of main reinforcement)

*t_s = slab thickness as shown on superstructure detail drawings.



SKETCH OF PERMISSIBLE SUPPORTS

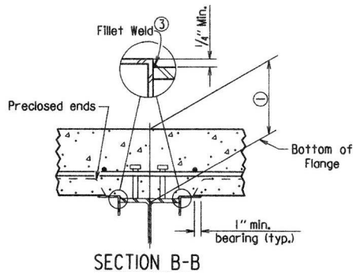
N.T.S.



SECTION B-B

1" = 1'-0"

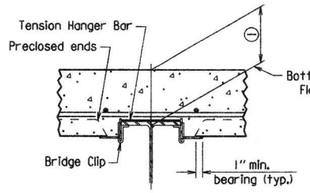
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

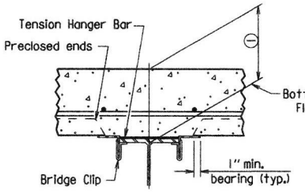
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)

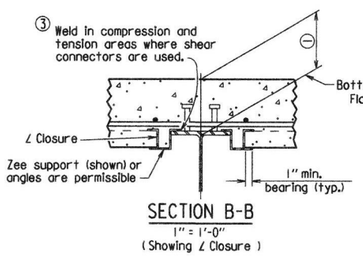


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)

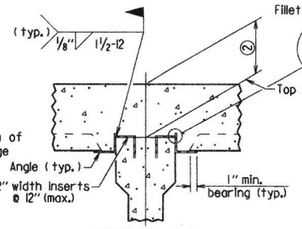
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

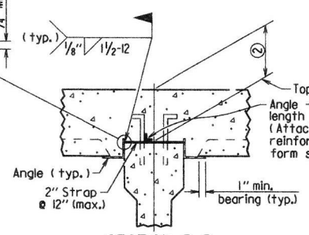


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)



SECTION B-B

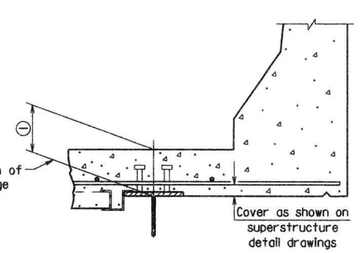
(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)

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 + 1 3/4" + 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.



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

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: —

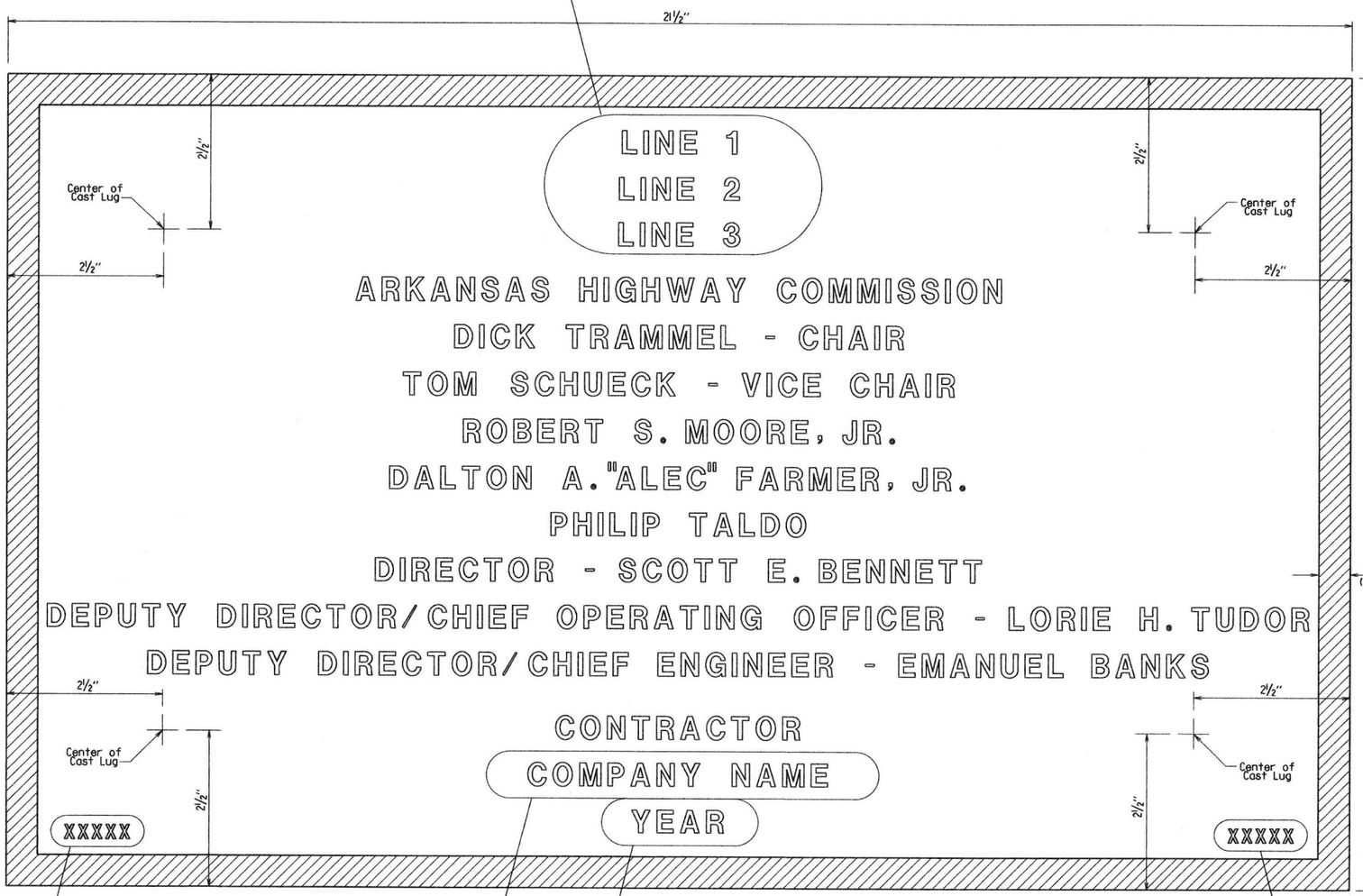
DRAWING NO. 55005

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.			
1-14-15				JOB NO.				
1-17-17								

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	



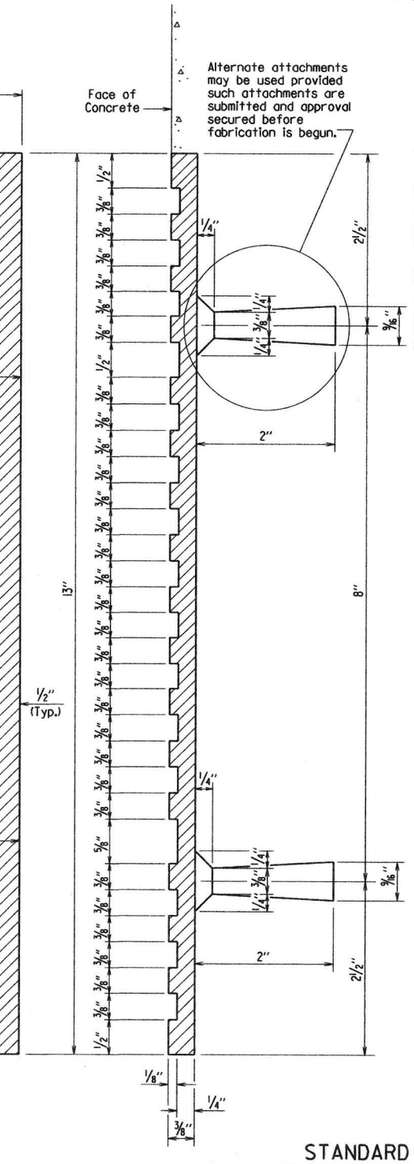
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20 HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

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 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.

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

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
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

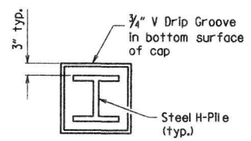
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

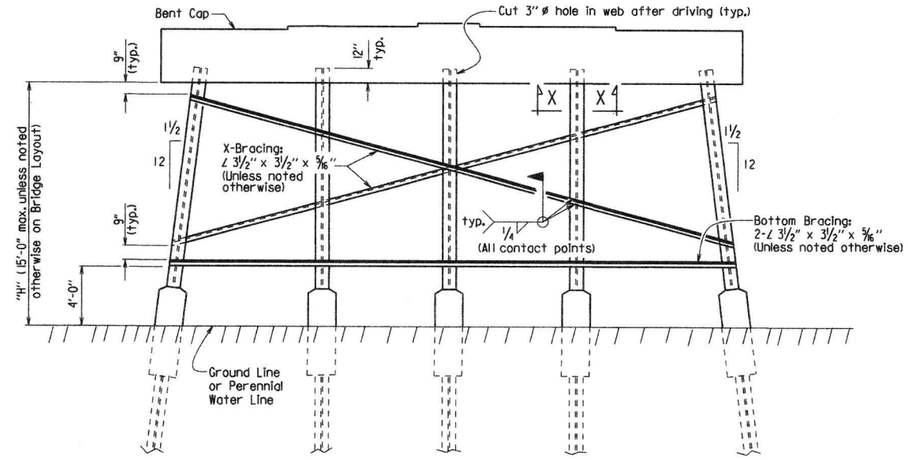
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (If required) and for driving information.

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.

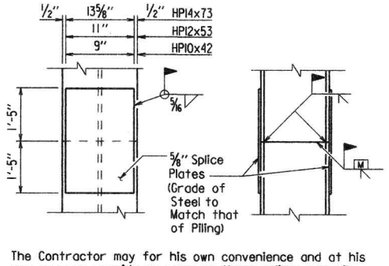
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



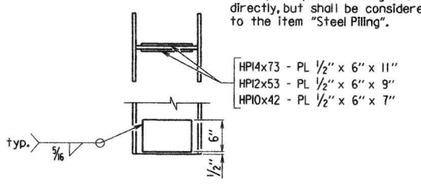
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).

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:

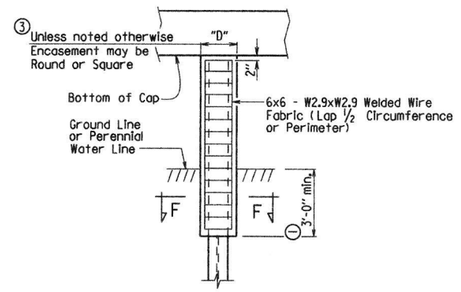
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

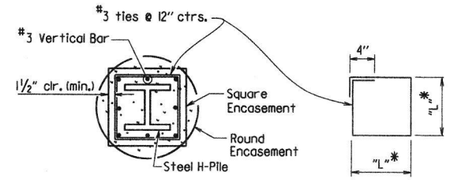
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

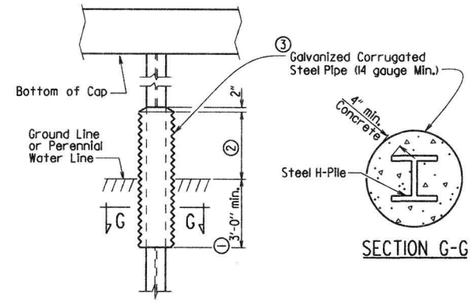


SECTION F-F

*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

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.

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

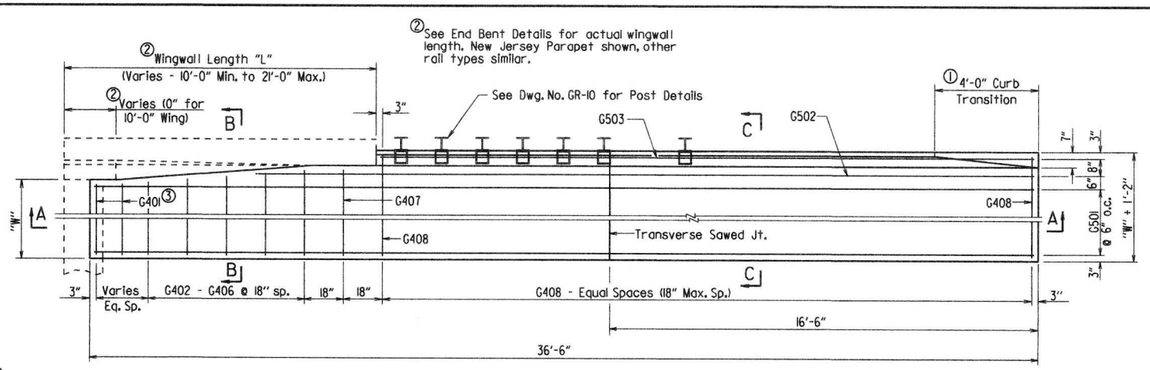
ARKANSAS STATE HIGHWAY COMMISSION

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: —

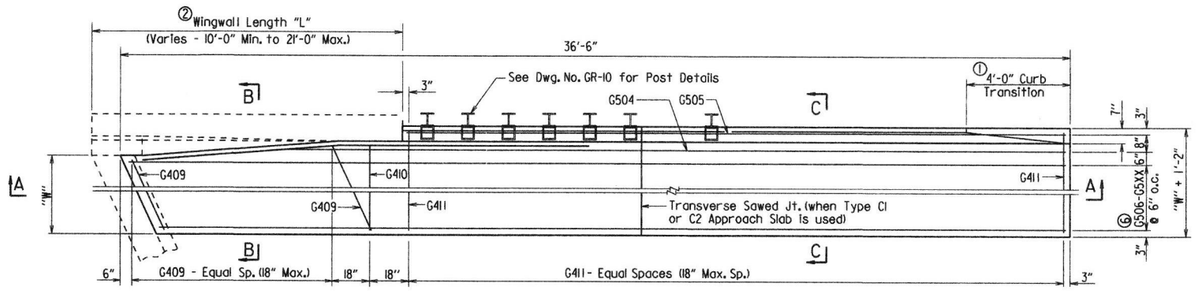
DRAWING NO. 55020

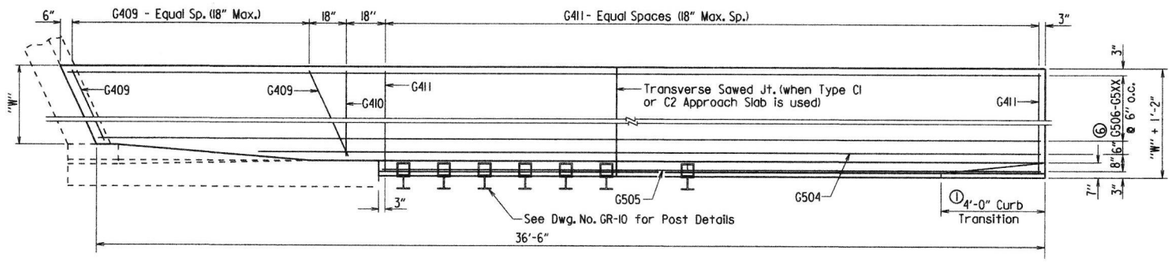
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE C GUTTERS		55030C	



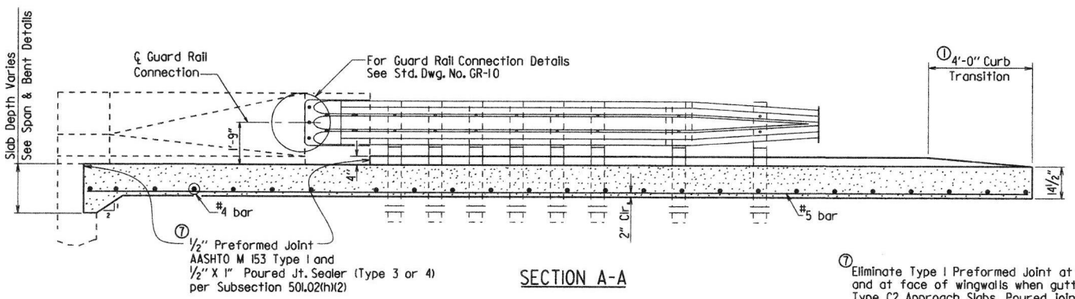
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





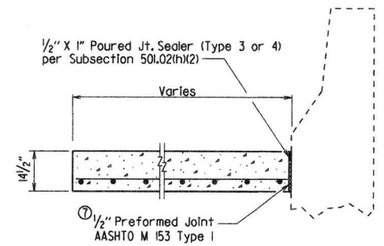
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



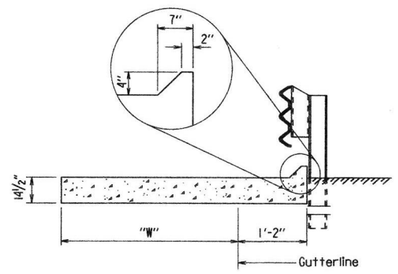
SECTION A-A

①Construct 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.

⑦Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

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.

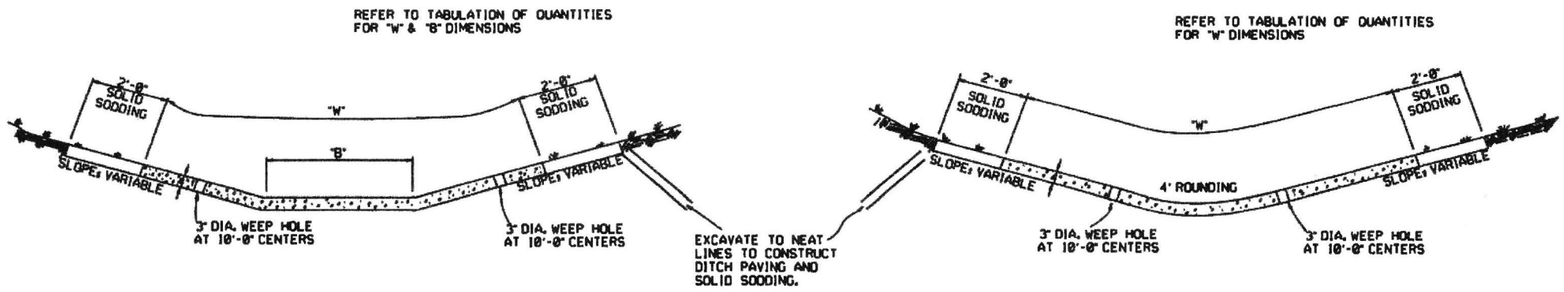
STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

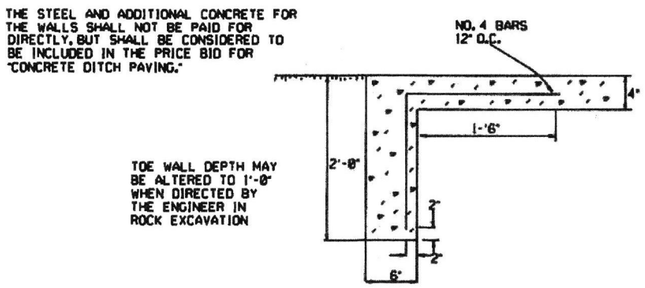
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030C

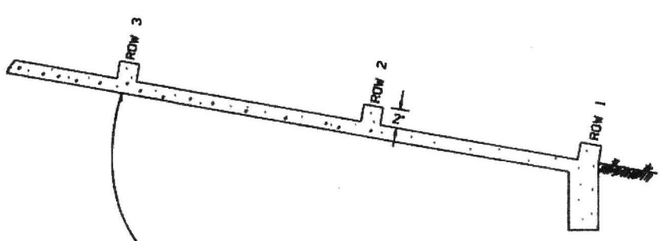


TYPE A

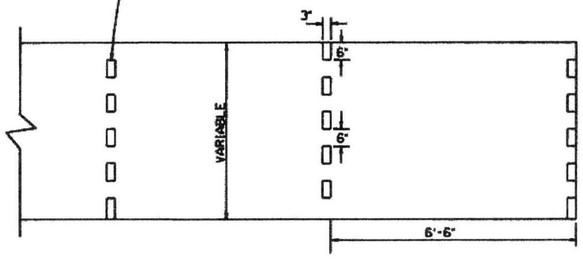
TYPE B



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

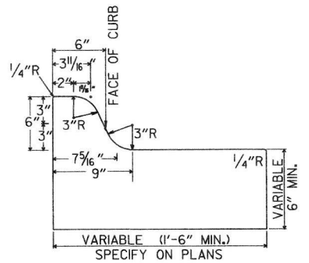
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
8-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-84
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-5-87	MODIFIED NOTE ON ENERGY DISS.	512-1-5-87
11-1-86	ADDED NOTE TO ENERGY DISS.	488-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1



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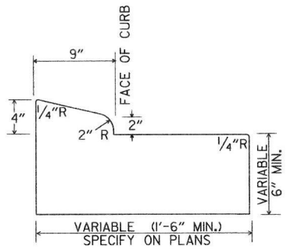
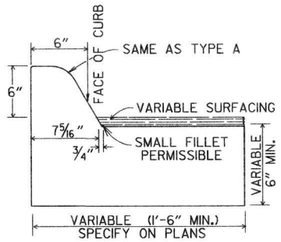
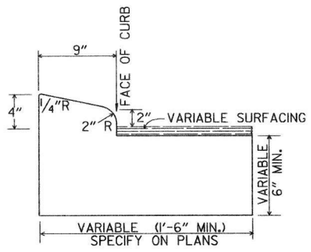


TYPE B-I



TYPE C



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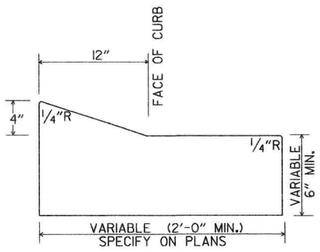
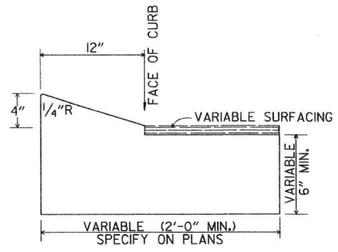
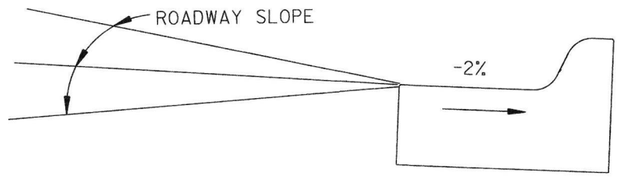


TYPE E-I



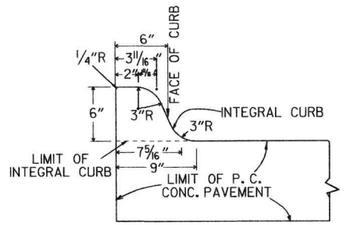
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

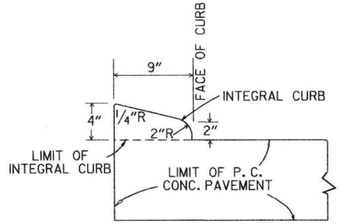


DETAIL OF GUTTER SLOPE

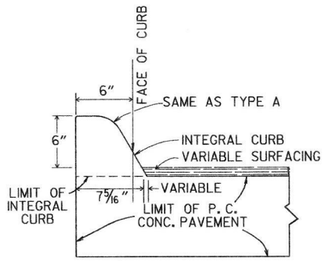
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

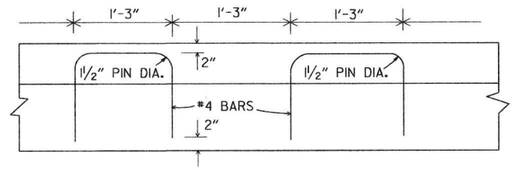


TYPE B

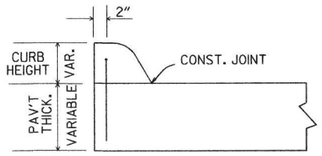


TYPE C

INTEGRAL CURB

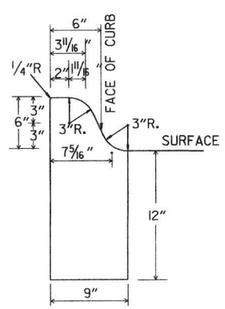


LONGITUDINAL SECTION

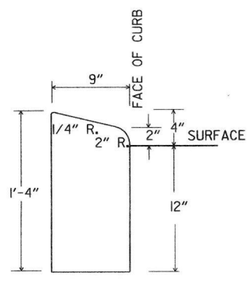


ELEVATION

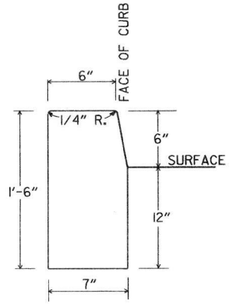
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



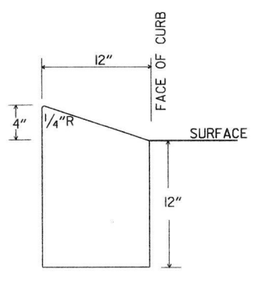
TYPE A



TYPE B

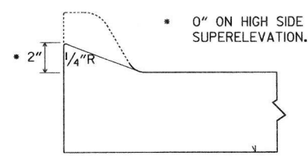


TYPE D



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.

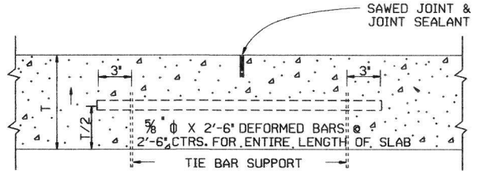
DETAILS OF MODIFIED CURB

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 I	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

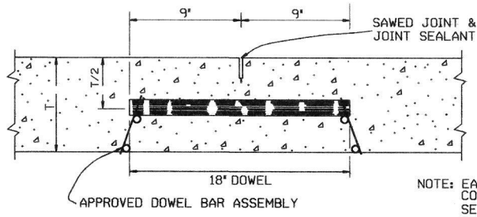
STANDARD DRAWING CG-1



LONGITUDINAL JOINT

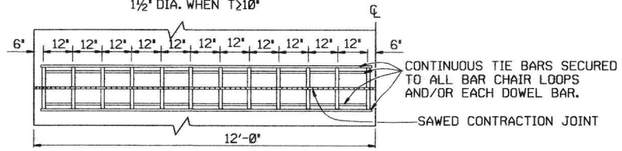
NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED.

TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.



NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.

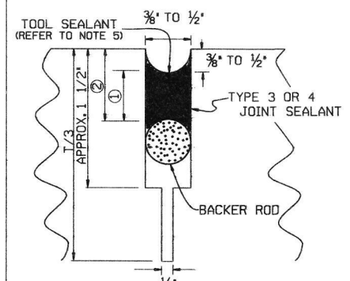
ROUND STEEL BAR DOWEL
1¼" DIA. WHEN T<10"
1½" DIA. WHEN T≥10"



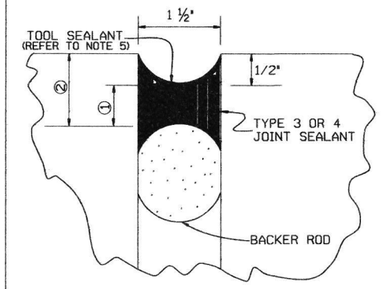
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 15' PAVEMENT USE 15 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 26' PAVEMENT USE 26 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12" CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



DETAIL OF SAWED CONTRACTION JOINT



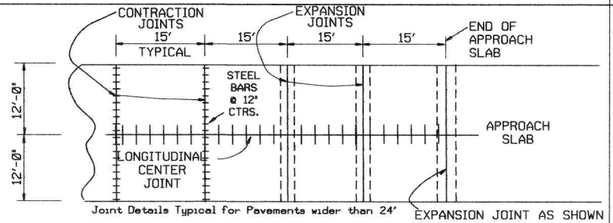
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

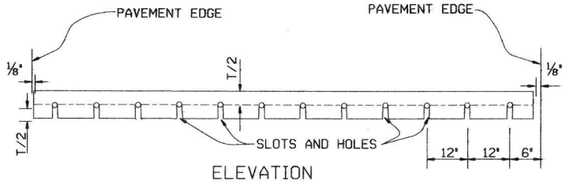
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	⅝	½
⅝	⅜	¾	⅞
¾	⅜	⅞	⅞
1 ½	¾	2	1 ¼

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	½	⅜	¾
⅜	¾	½	1

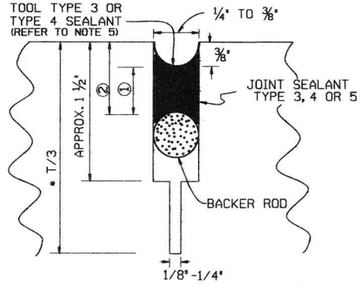


PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS



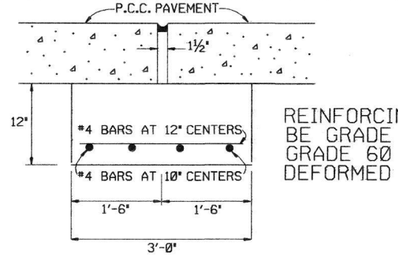
ELEVATION

NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.



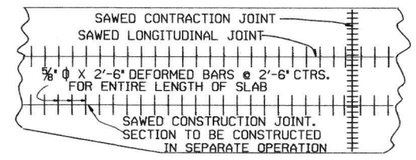
*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

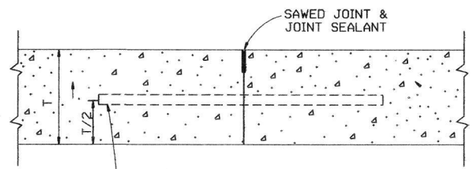
DETAIL OF SAWED LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT



REINFORCING SHALL BE GRADE 40 OR GRADE 60 DEFORMED BARS.

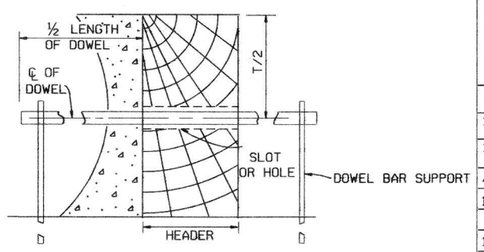
DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS





NOTE: TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.

LONGITUDINAL CONSTRUCTION JOINT



SECTION

TRANSVERSE CONSTRUCTION JOINT

GENERAL NOTES

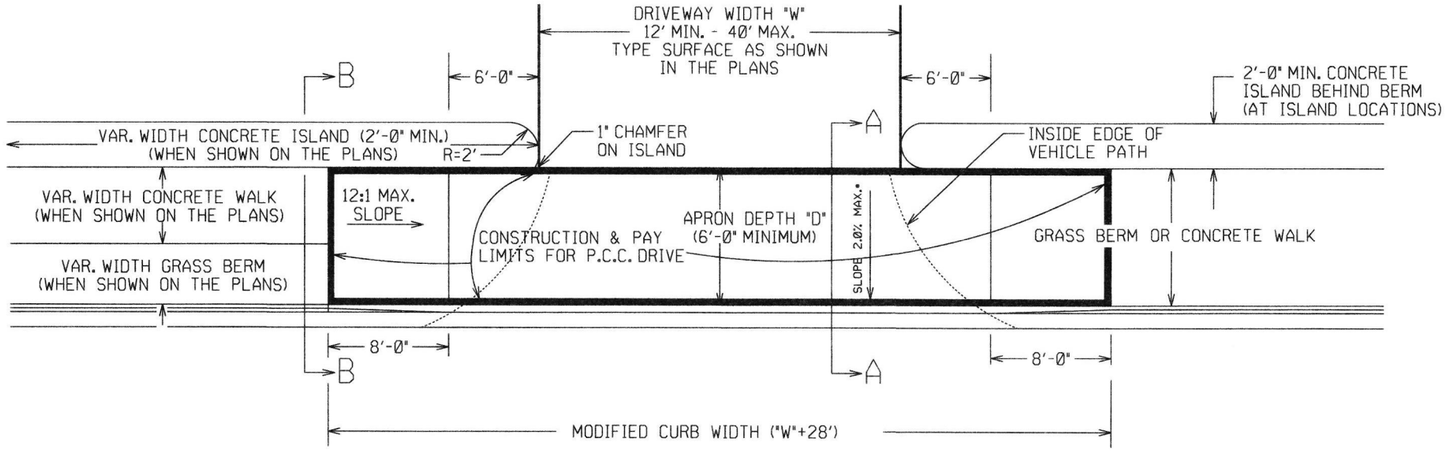
1. "T" DENOTES THICKNESS OF SLAB.
2. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED FOR A MINIMUM DISTANCE OF 2" GREATER THAN HALF THE LENGTH OF THE BAR WITH AN APPROVED GREASE AS A BOND BREAKER JUST PRIOR TO PLACEMENT OF CONCRETE.
3. THE EXPANSION JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS "A", "S" OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE SPECIFIED IN THE PLANS. PAYMENT FOR ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.
4. CONTRACTION JOINTS SHALL BE CONSTRUCTED ON 15' CENTERS.
5. TOOLING NOT REQUIRED FOR SELF-LEVELING SILICONE.
6. UNLESS OTHERWISE SPECIFIED IN THE PLANS, CONCRETE SHOULDERS SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN HEREON. CONTRACTION JOINTS SHALL MATCH CONTRACTION JOINTS IN THE LANES.
7. TIE WIRES IN DOWEL BAR ASSEMBLIES SHALL NOT BE CUT PRIOR TO PLACEMENT OF PAVING CONCRETE.

DATE	REVISION	DATE FILMED
5-25-06	ADDED GENERAL NOTE 7	
10-9-03	REMOVED TIE BAR COATING & REVISED GENERAL NOTES	
11-16-01	ADDED TOOL SEALANT AND NOTE 5; REVISED NOTE 3	
4-26-96	REVISED CONTRACTION JOINT NOTE	
11- 3-94	ADDED NOTE RE: REINF. BARS	
4- 1-93	REVISED DOWEL BARS & GEN. NOTES	4- 1-93
10- 1-92	REVISED DOWEL SPACING	10- 1-92
8- 15-91	ADDED SPAC FOR CONTR JTS & DEL KEYWAY	
05-24-90	REVISED TIE BAR, DOWEL & JOINT SIZE	
01-25-90	ADDED EXPANSION JOINT	01-25-90
11-30-89	CHANGED T/4+1 TO T/3+1	11-30-89
03-23-89	ALTERED SAWED JOINT & ADDED NOTE	512-03-23-89
07-15-88	REVISED AND REDRAWN	632-07-15-88

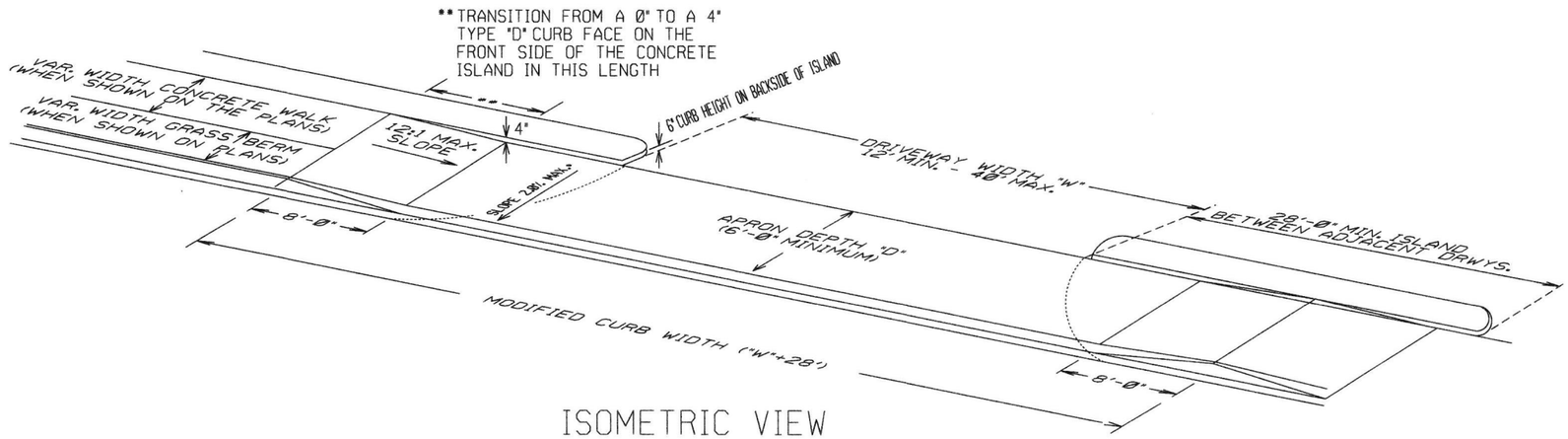
ARKANSAS STATE HIGHWAY COMMISSION

TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)

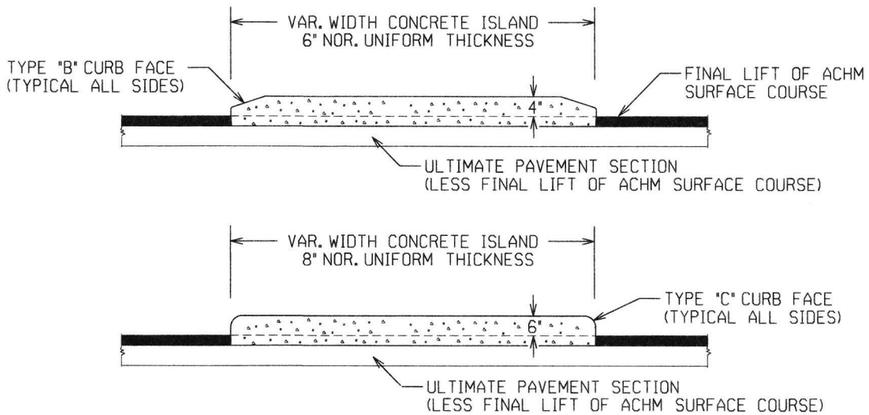
STANDARD DRAWING CPTJ - 6A



PLAN VIEW

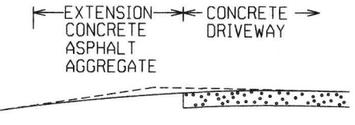


ISOMETRIC VIEW



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

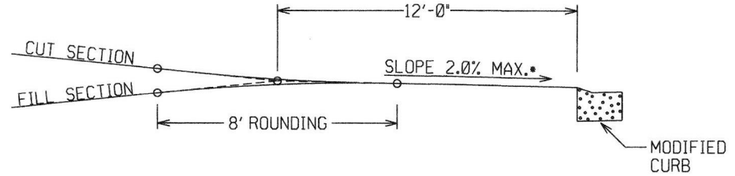
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

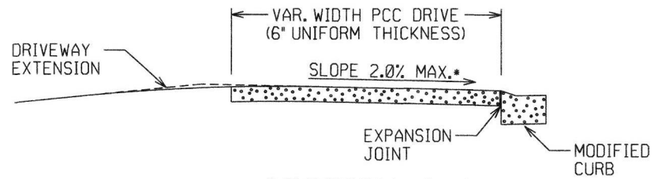
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

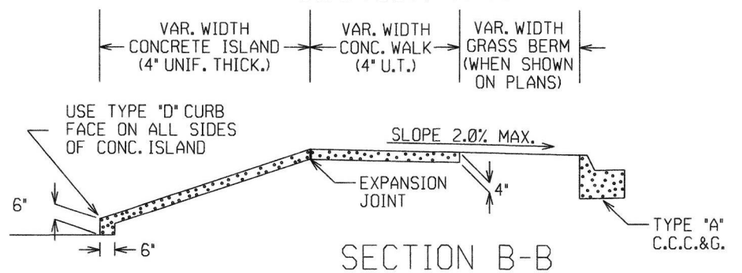


DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



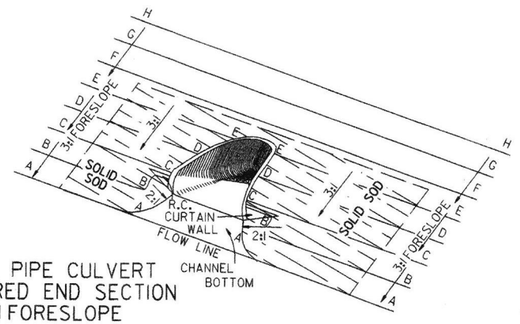
SECTION A-A



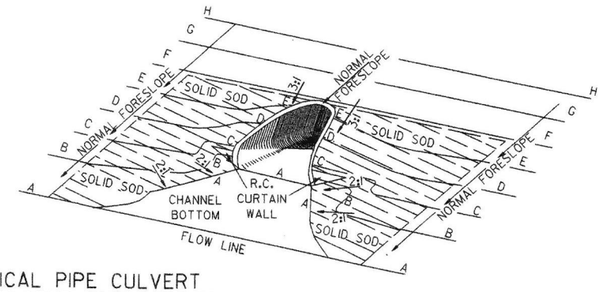
SECTION B-B
CURBED ISLAND BEHIND WALK

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

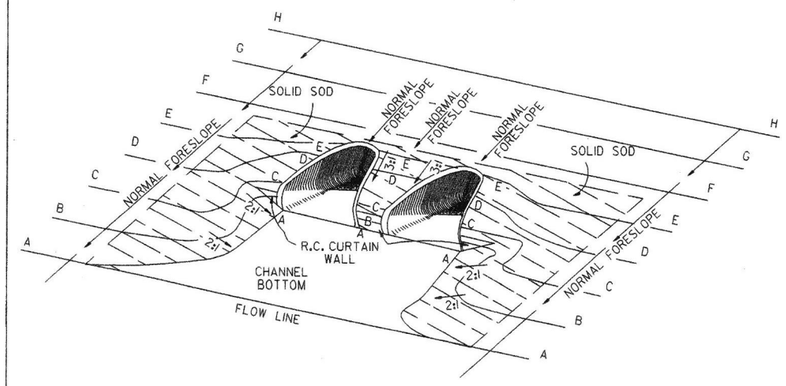
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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

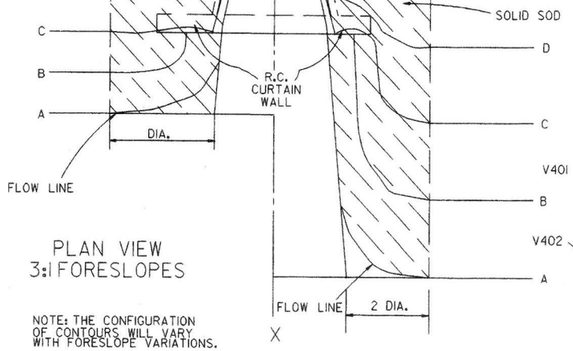
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"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

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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								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'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

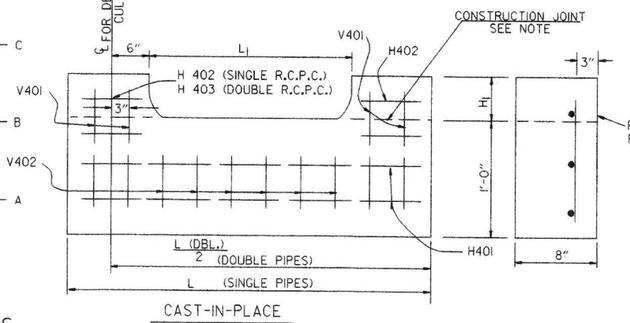
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

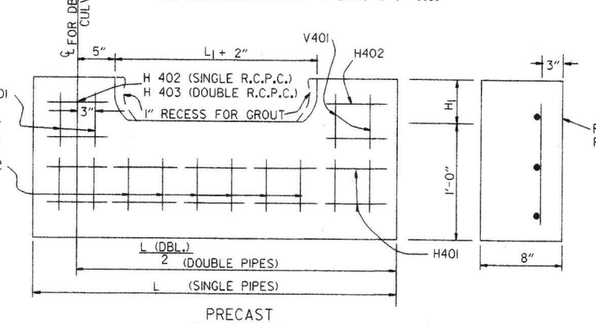
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

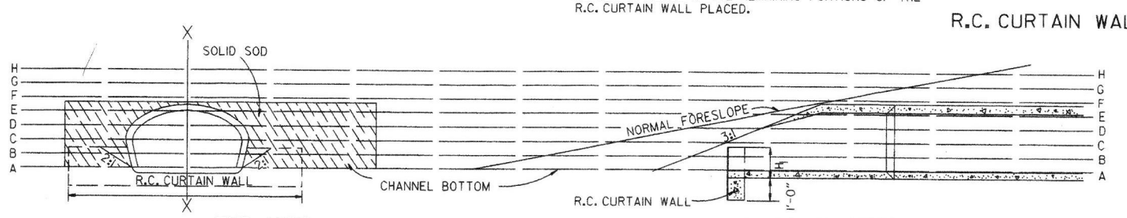
SOLID SODDING

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	36	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



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

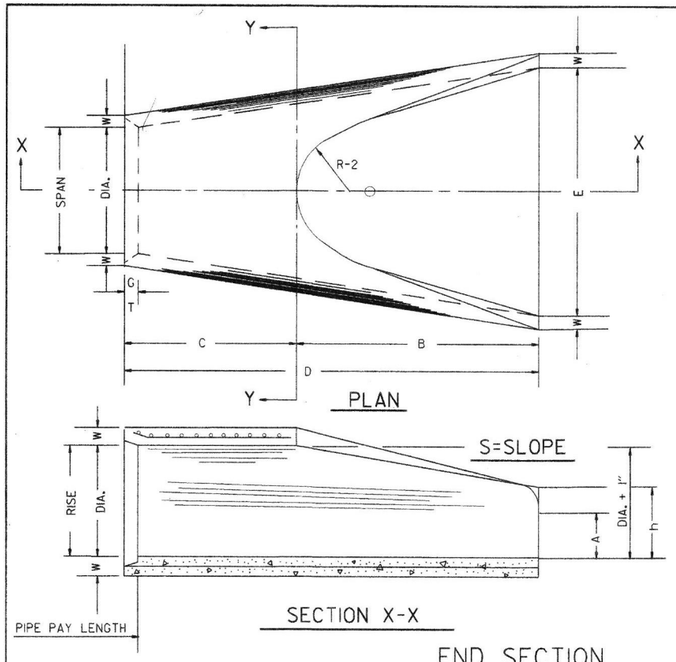


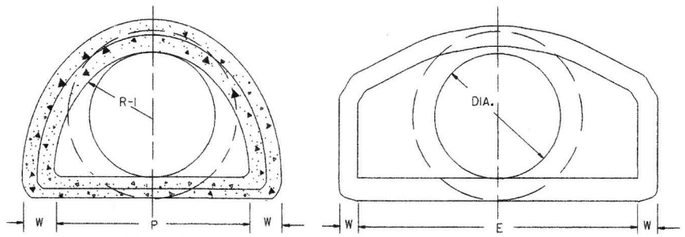
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 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"	53⅛"	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 1/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

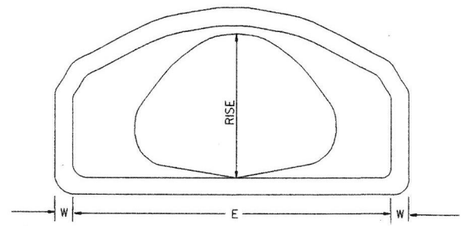
ARCH PIPE

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"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 3/16	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"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

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

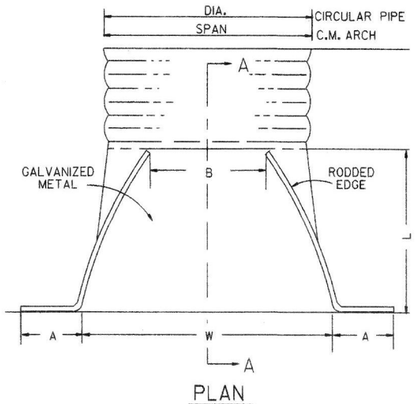


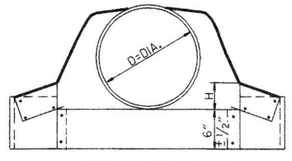
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

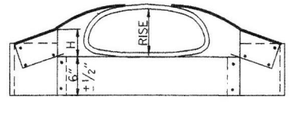


END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS







CIRCULAR PIPE

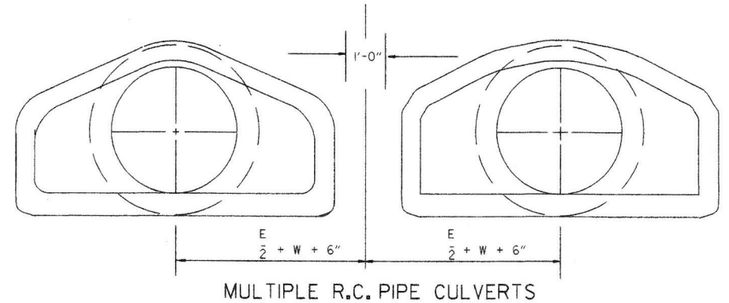
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

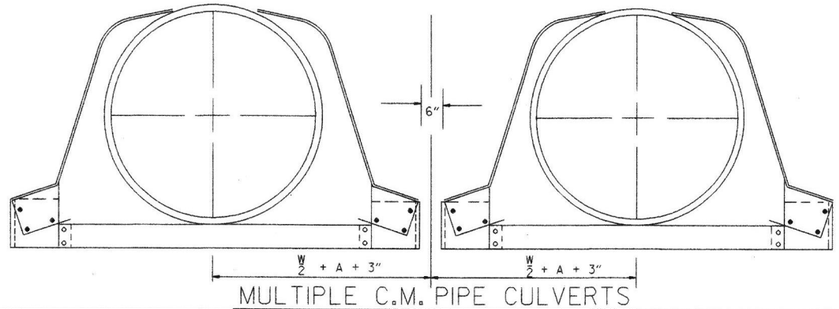
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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

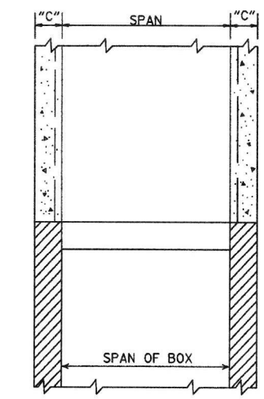
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
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

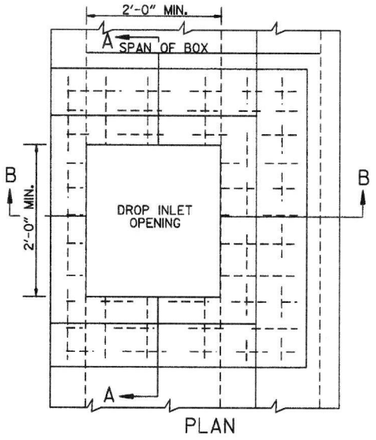
FLARED END SECTION

STANDARD DRAWING FES-2

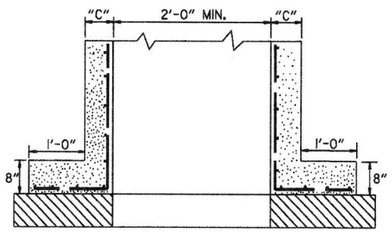
stdfes2.dgn



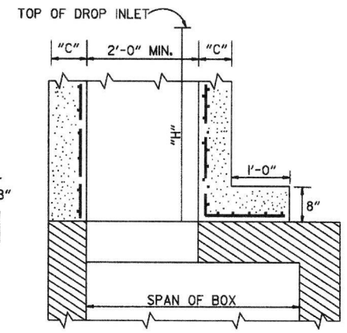
SECTION B-B



PLAN

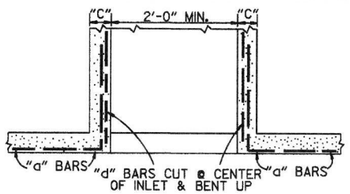


SECTION A-A

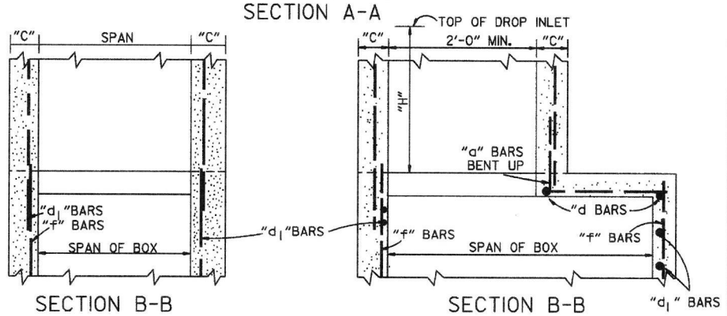


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



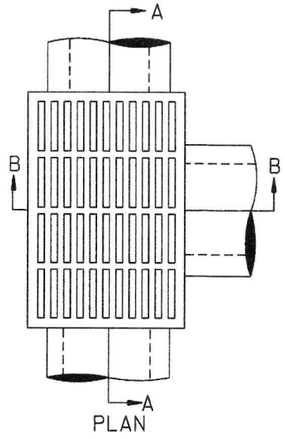
SECTION A-A



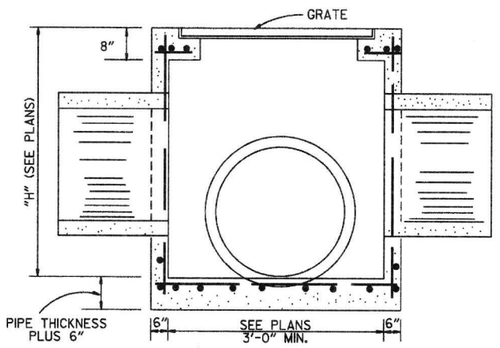
SECTION B-B SECTION B-B

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.

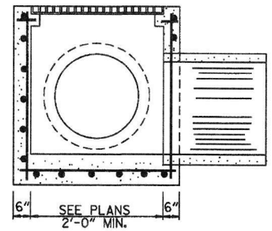


PLAN



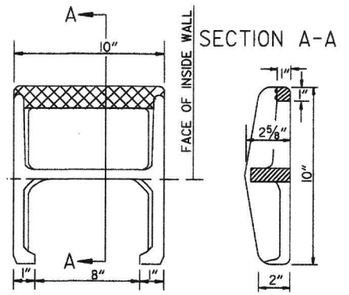
SECTION A-A

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)

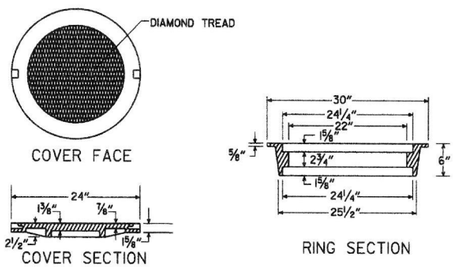


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

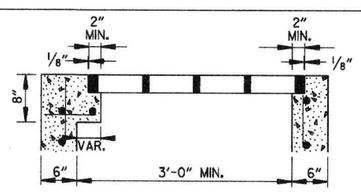
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

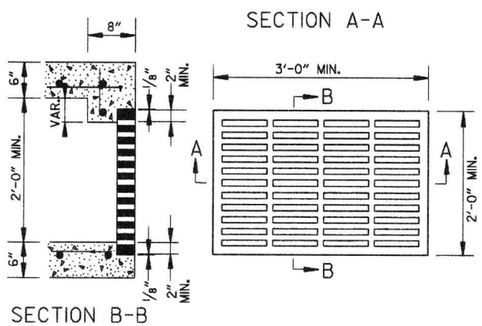


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



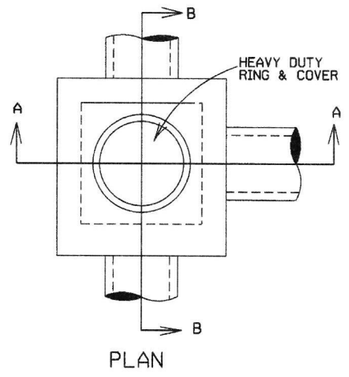
SECTION A-A



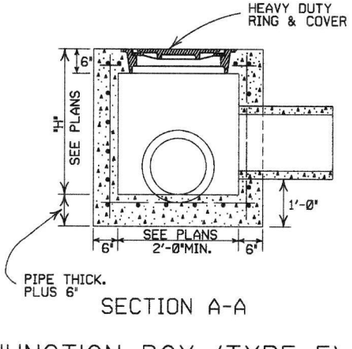
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

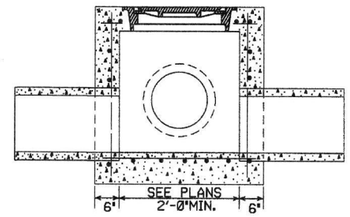


PLAN



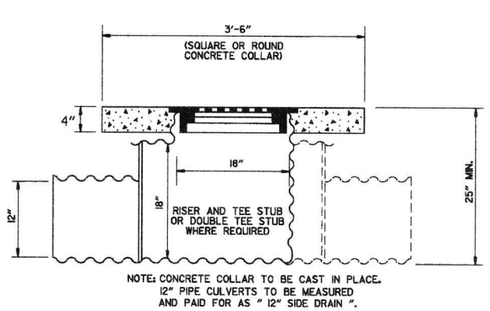
SECTION A-A

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.

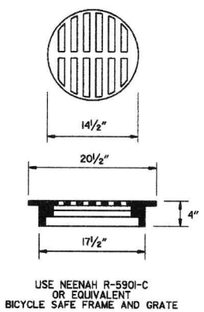


SECTION B-B

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. CU. YDS.	HEIGHT 5′-0″ REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL 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

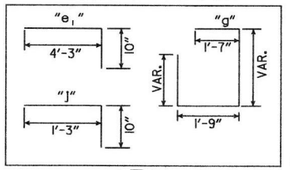
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

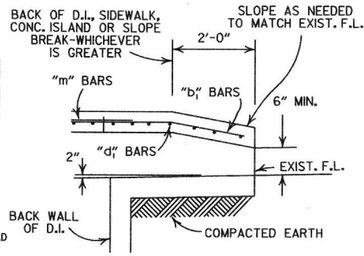
DROP INLET EXTENSION

4′-0″ CLASS A CONC. CU. YDS.	4′-0″ REINF. STEEL POUNDS	8′-0″ CLASS A CONC. CU. YDS.	8′-0″ REINF. STEEL 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

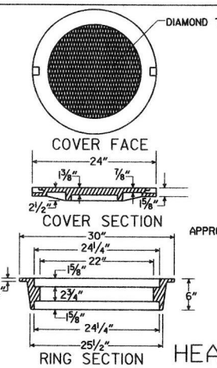
BAR DIAGRAM





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).

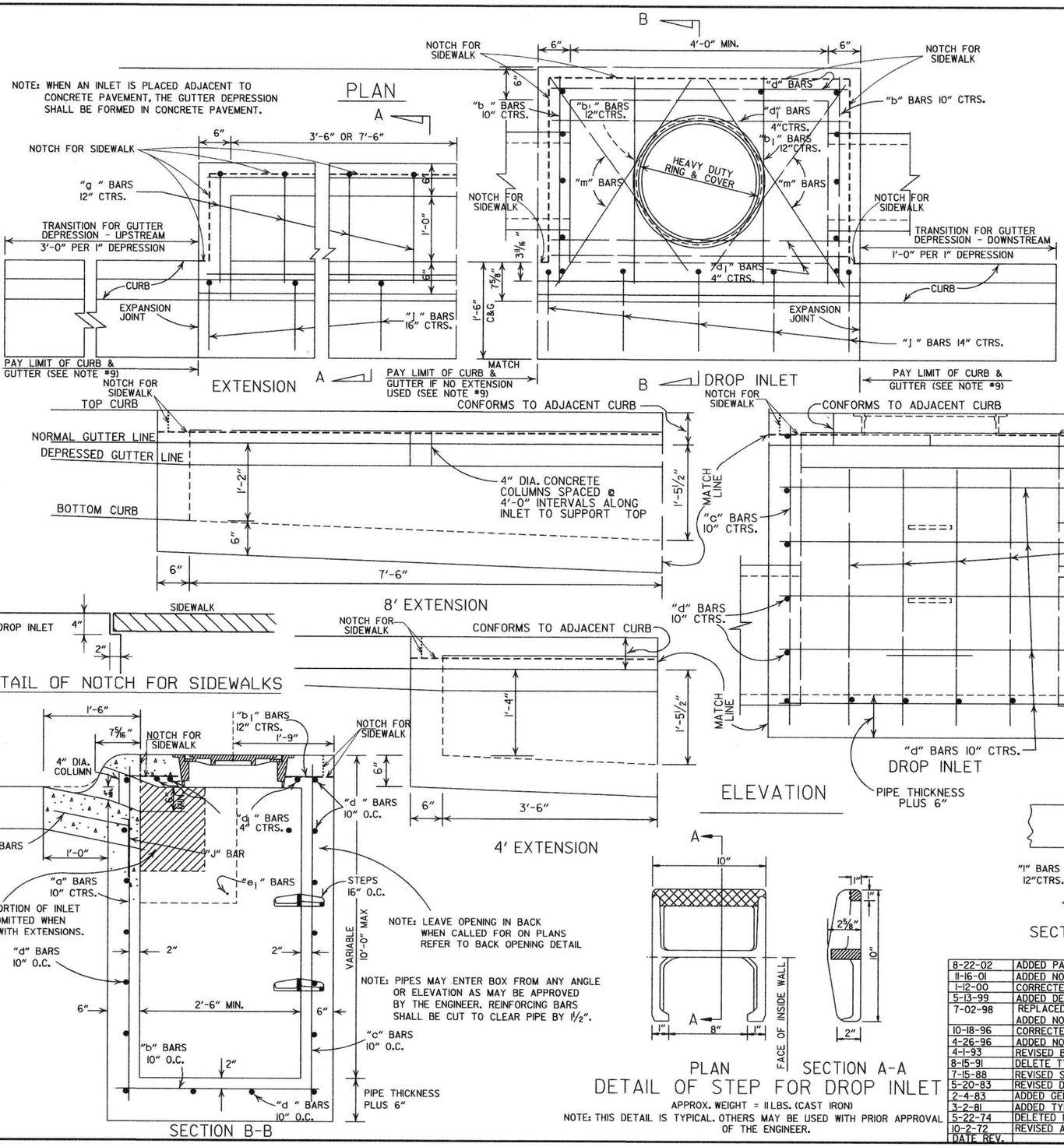


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

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.



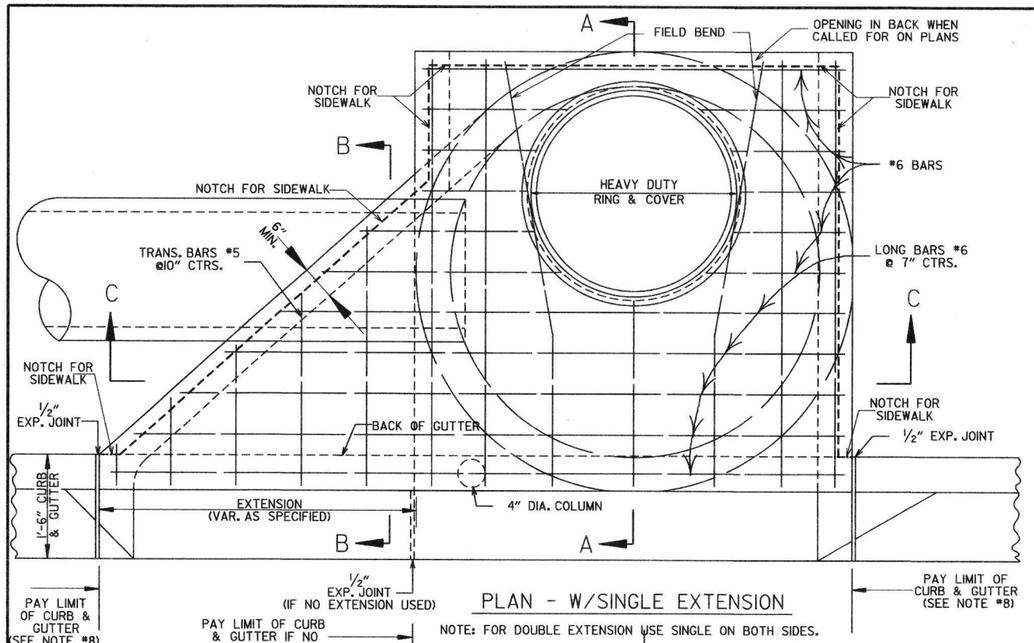
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER 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

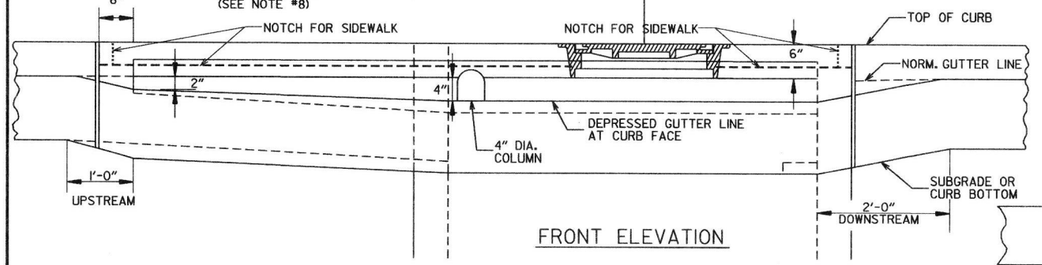
(TYPE C)

STANDARD DRAWING FPC-9E

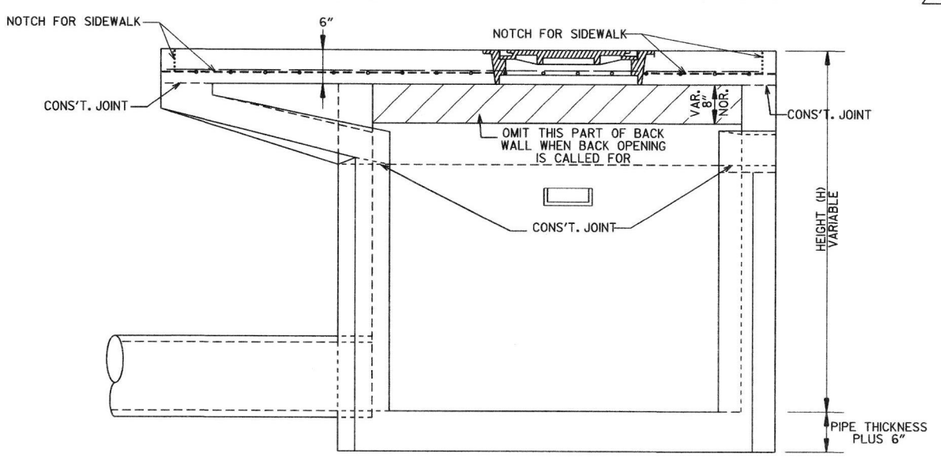


PLAN - W/SINGLE EXTENSION

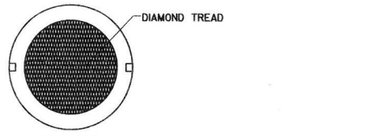
NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.



FRONT ELEVATION



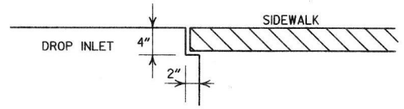
SECTION C-C



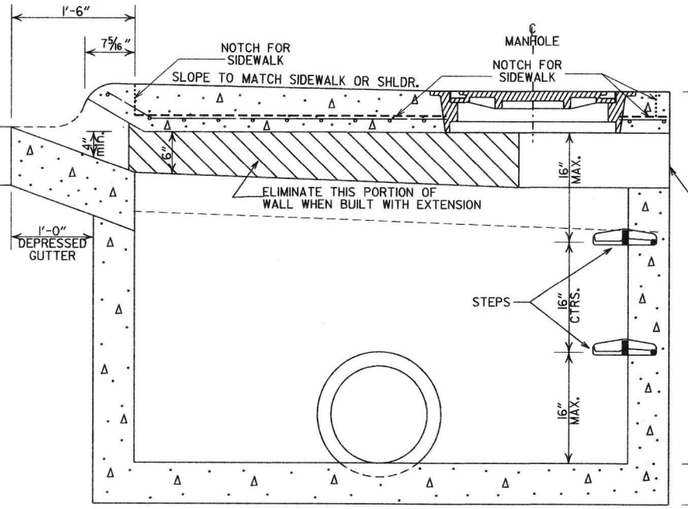
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

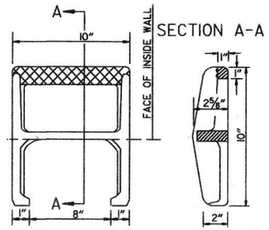
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A

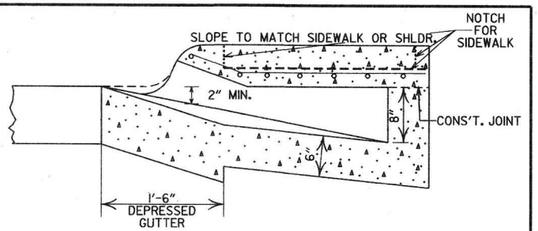


APPROX. WEIGHT = 11 LBS. (CAST IRON)

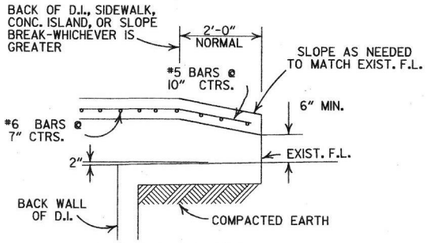
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B



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 3/4" 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. 1 1/2" 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.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

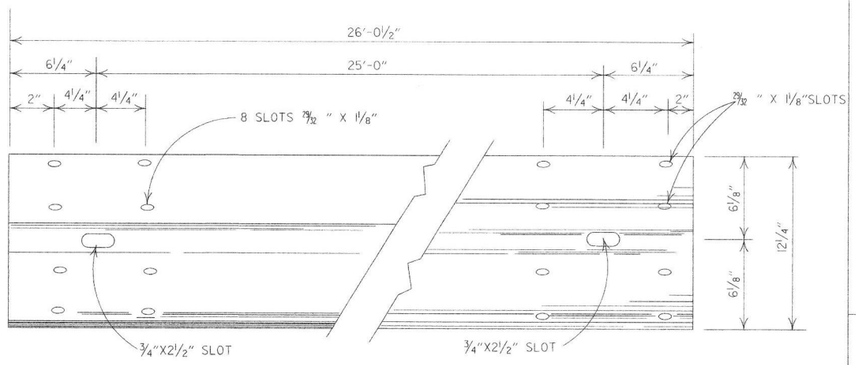
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

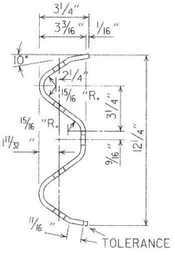
DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 AND 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)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
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	699-7-15-88
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)

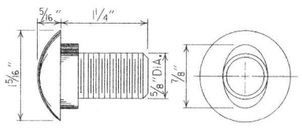
STANDARD DRAWING FPC-9M



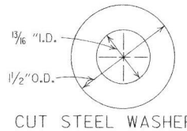


DETAILS OF W-BEAM GUARD RAIL

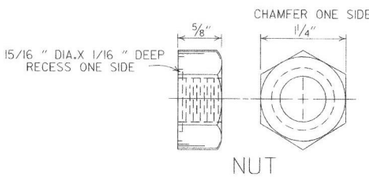
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



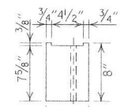
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

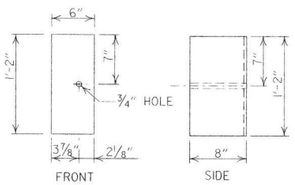


NUT

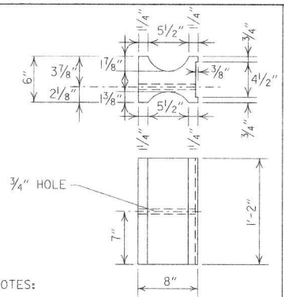


WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

TOP



WOOD BLOCKOUT (W-BEAM)

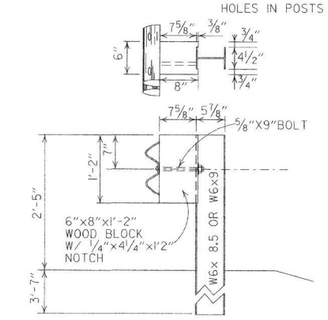


NOTES:

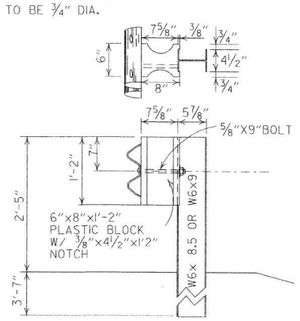
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

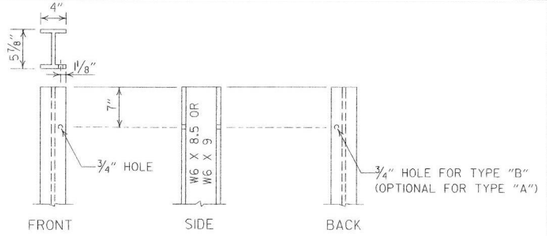


WOOD BLOCKOUT CONNECTIONS

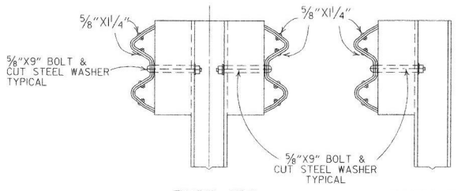


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



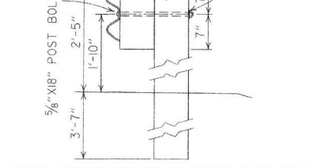
STEEL POST



TYPE "B" TYPE "A"

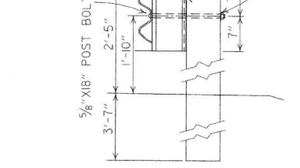
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

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 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

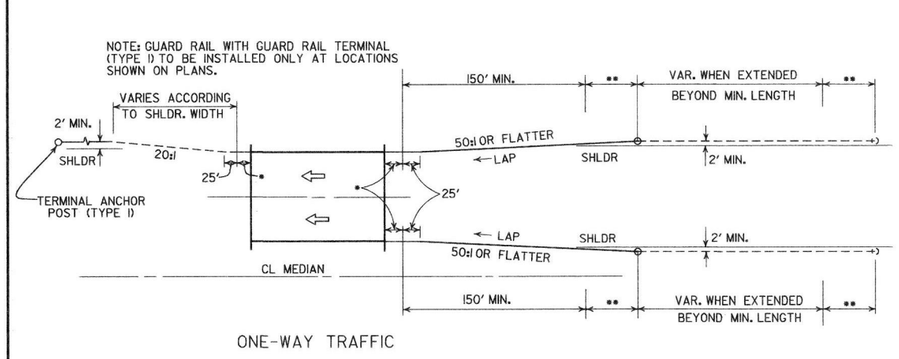
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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

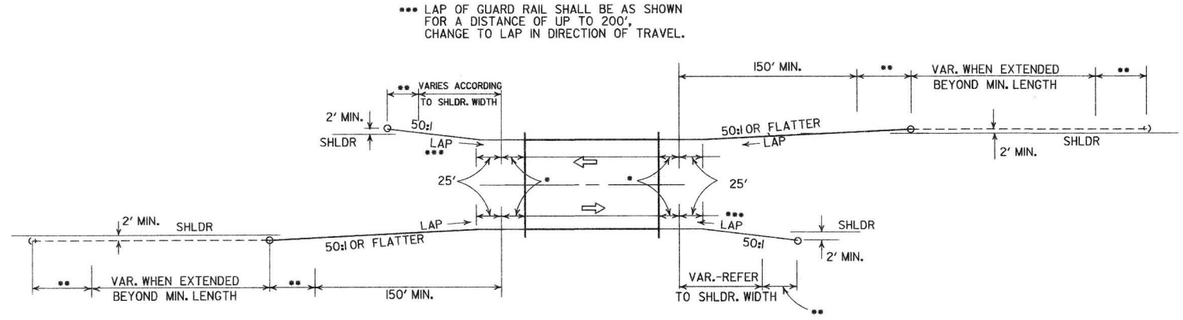
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

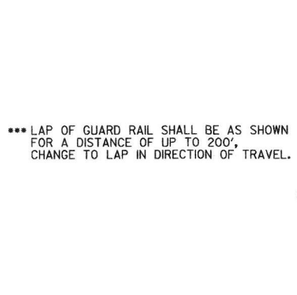


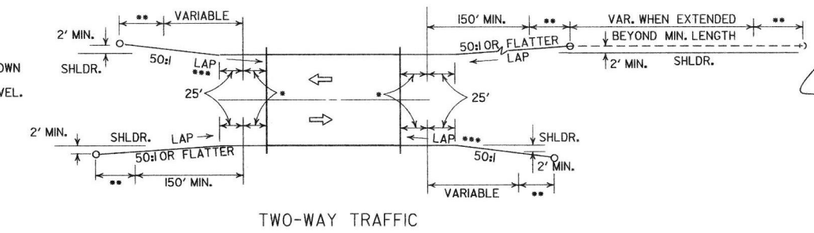
ONE-WAY TRAFFIC



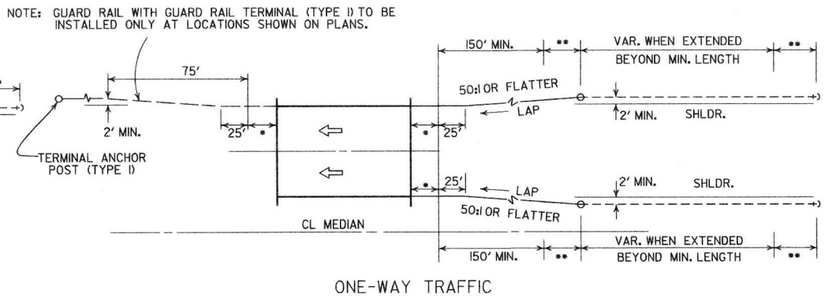
TWO-WAY TRAFFIC

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





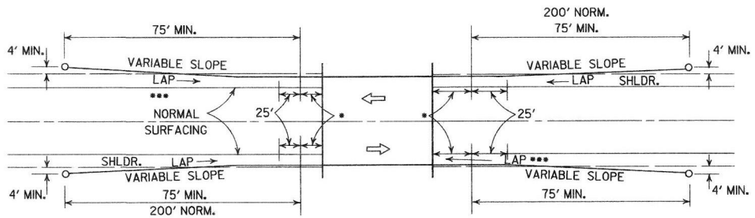
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

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

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



LEGEND

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

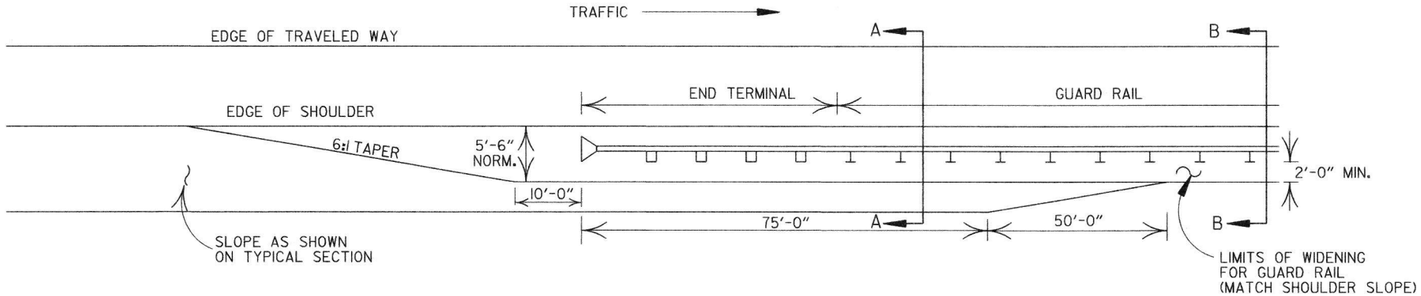
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

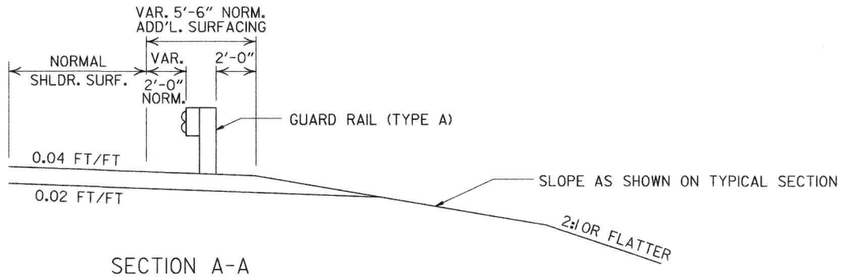
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

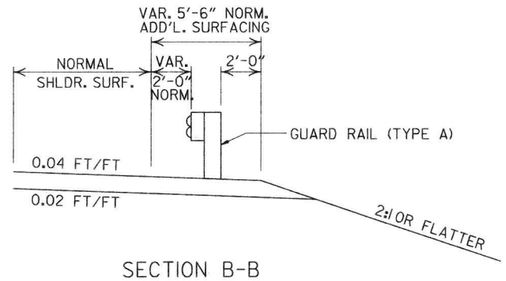
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





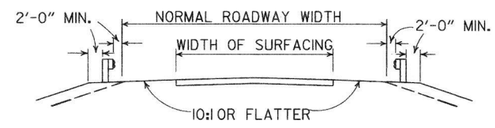
SECTION A-A



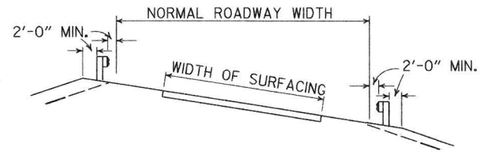
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

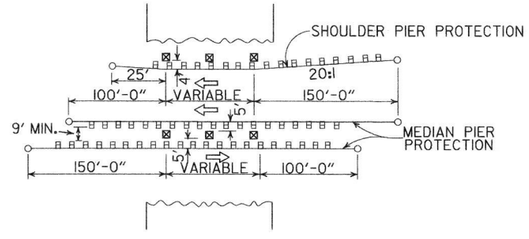


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



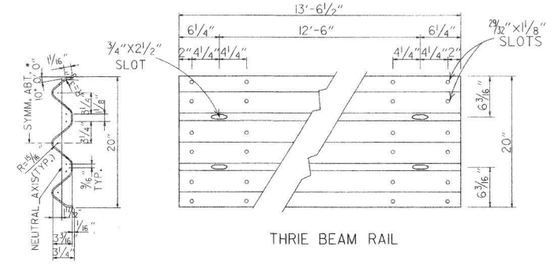
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

ARKANSAS STATE HIGHWAY COMMISSION

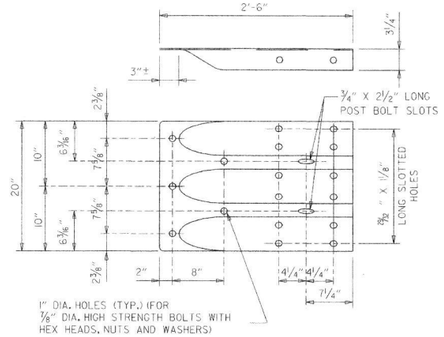
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



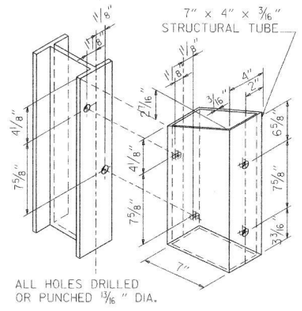
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



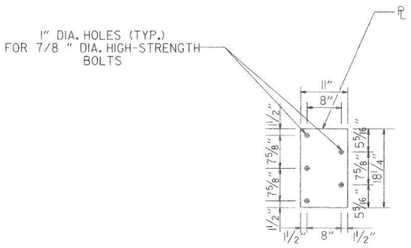
1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

SPECIAL END SHOE



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

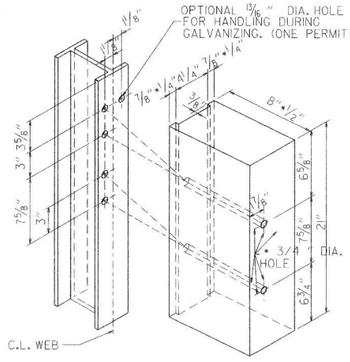
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



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.

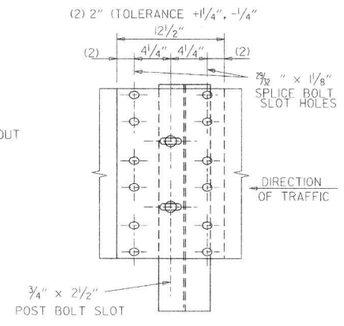
NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



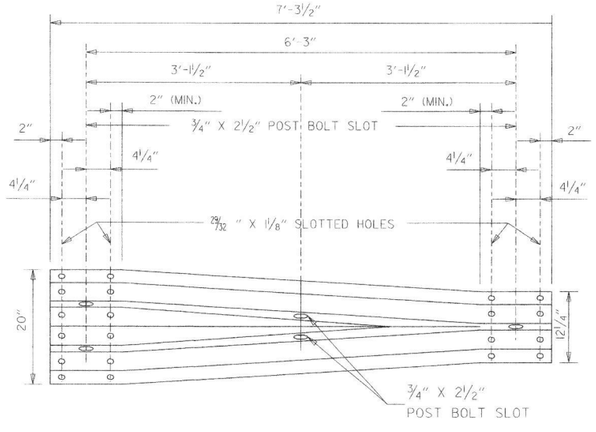
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

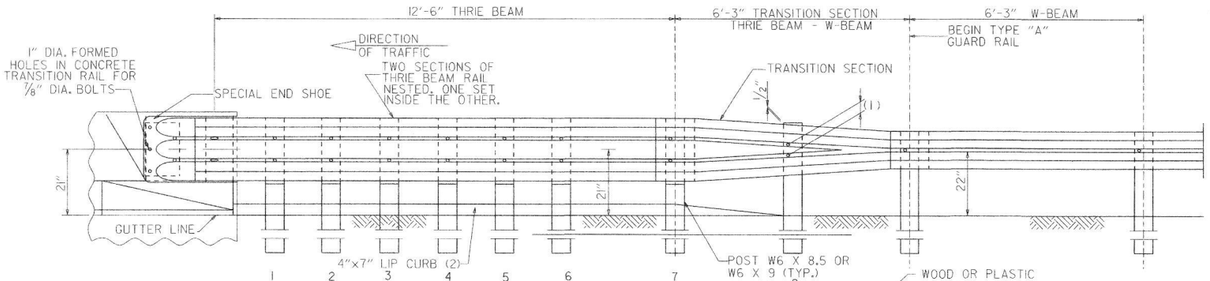
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



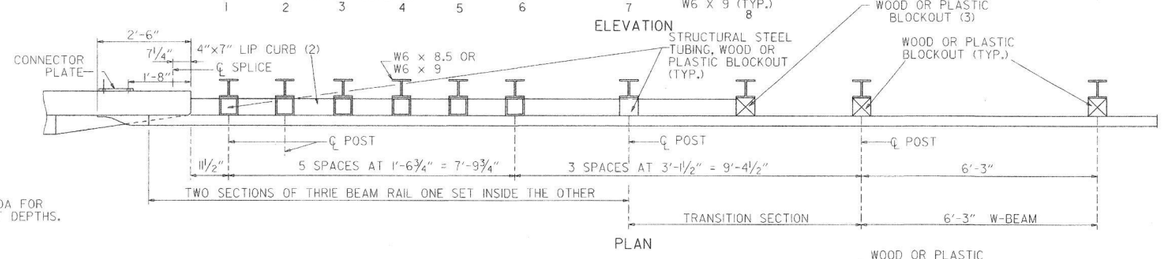
THRIE BEAM RAIL SPLICE AT POST



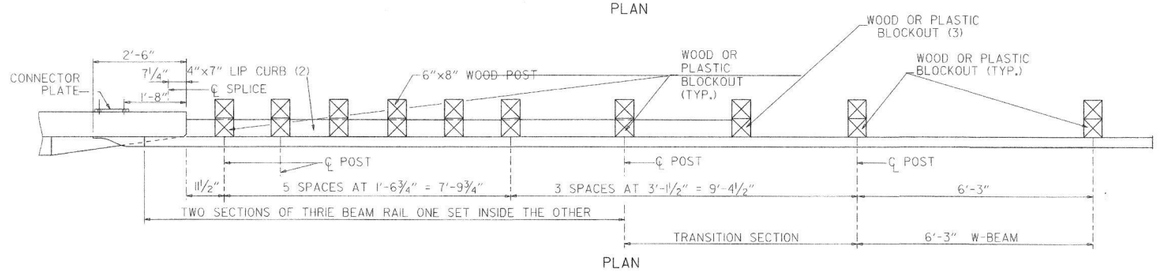
TRANSITION SECTION



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

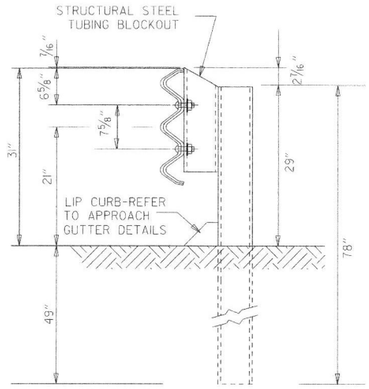
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

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

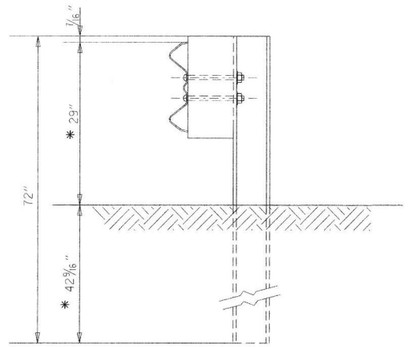
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

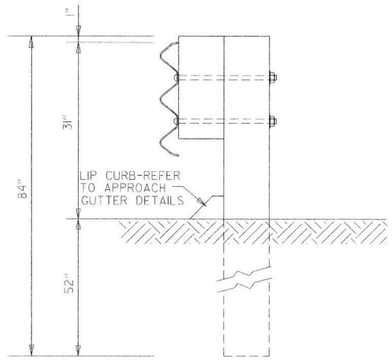


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

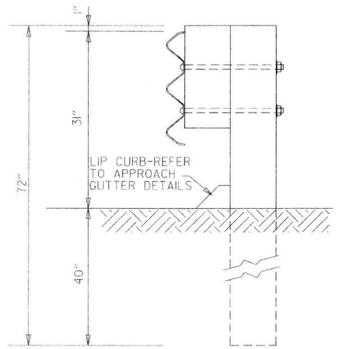


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

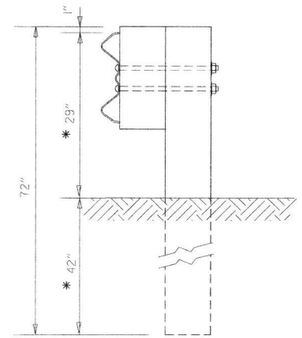
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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



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



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

GENERAL NOTES:

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

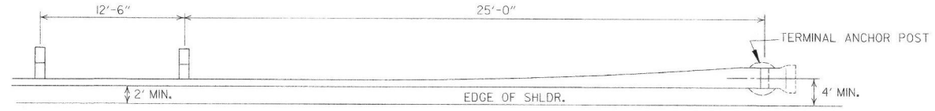
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

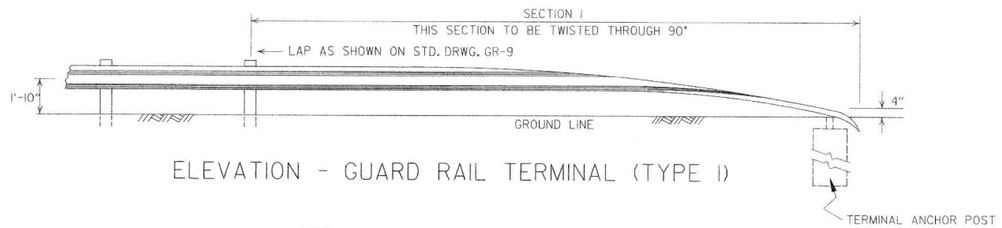
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

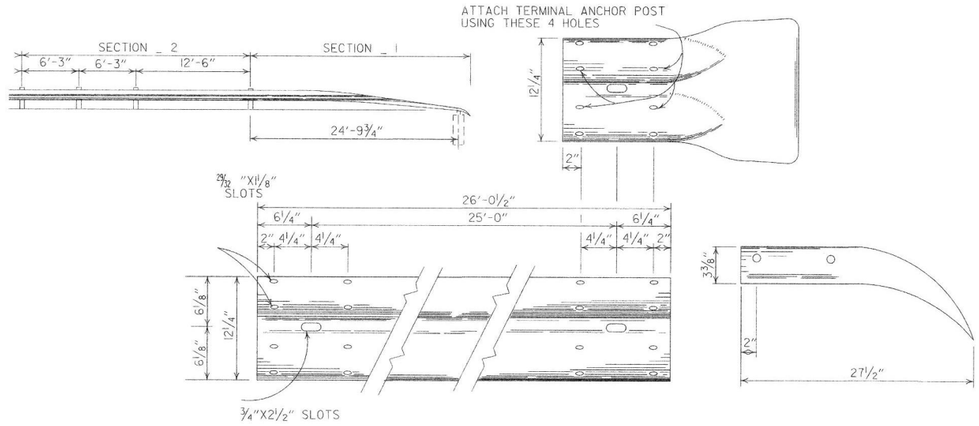


PLAN - GUARD RAIL TERMINAL (TYPE I)



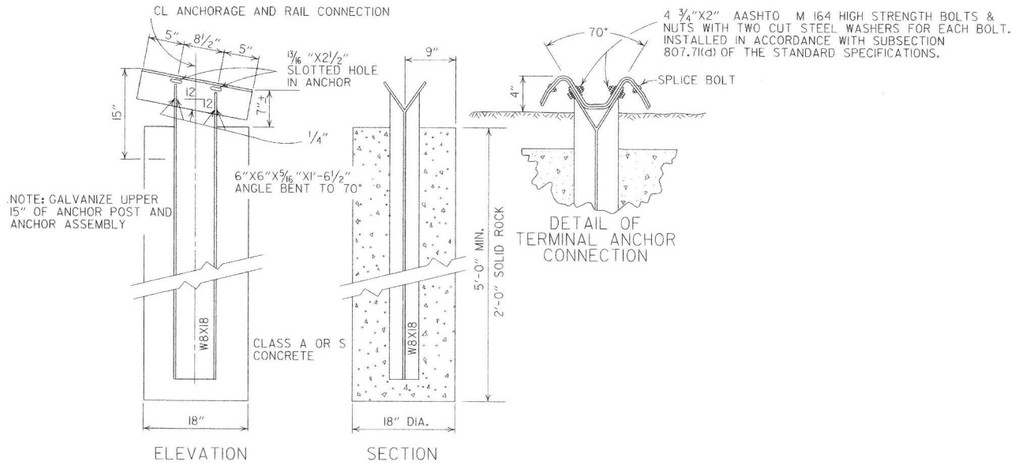
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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



ELEVATION SECTION

DETAIL OF TERMINAL ANCHOR CONNECTION

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

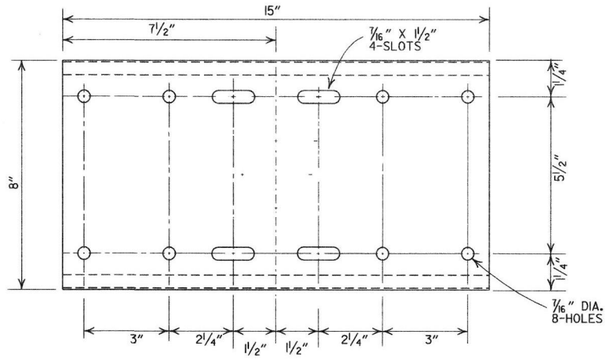
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

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

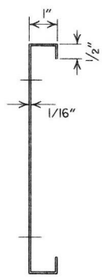
ARKANSAS STATE HIGHWAY COMMISSION

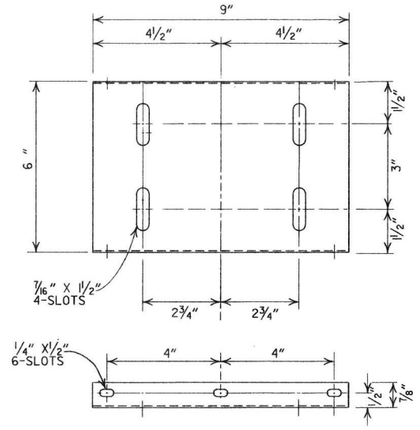
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

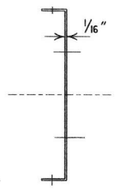


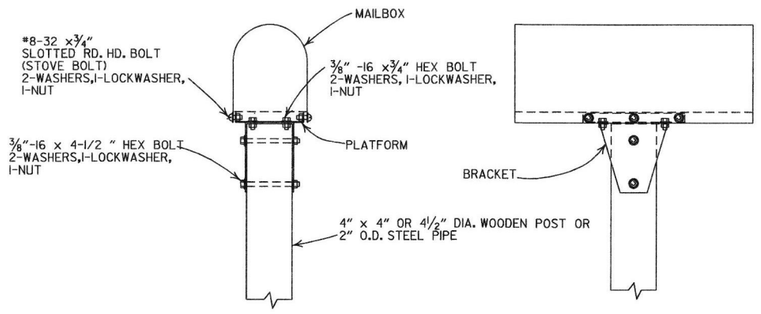
SHELF



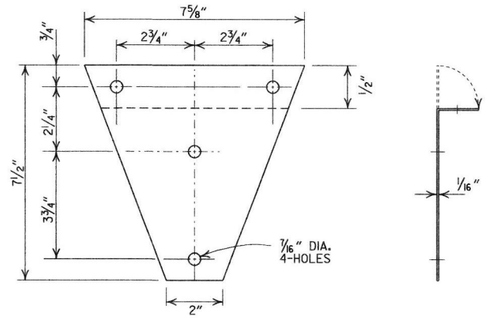


PLATFORM





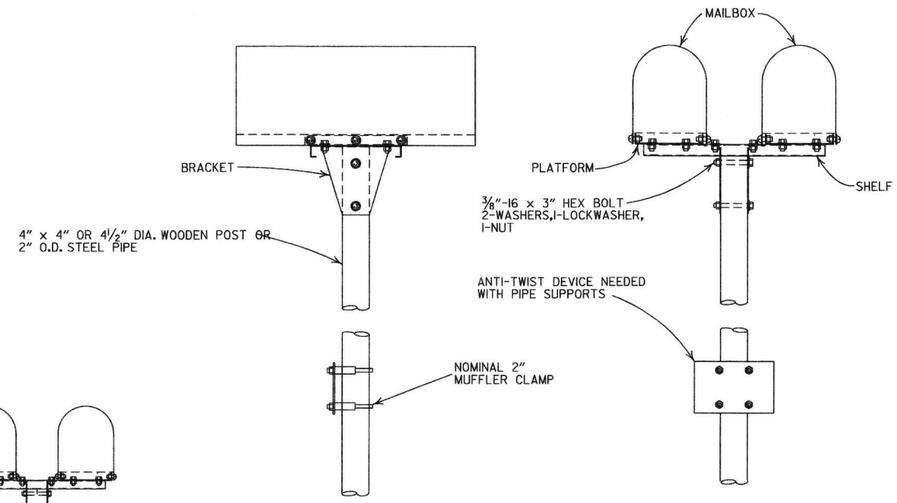
SINGLE INSTALLATION



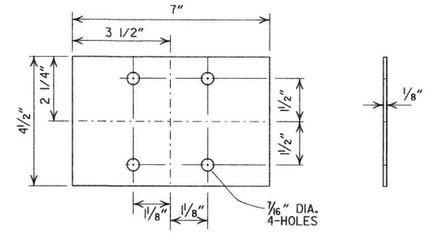
BRACKET

GENERAL NOTES

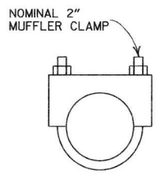
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



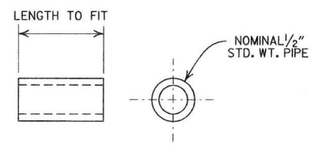
DOUBLE INSTALLATION



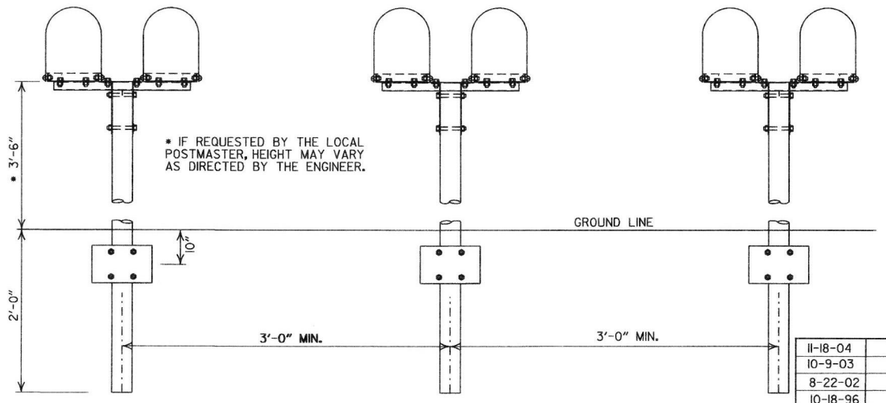
ANTI-TWIST PLATE



CLAMP



SPACER



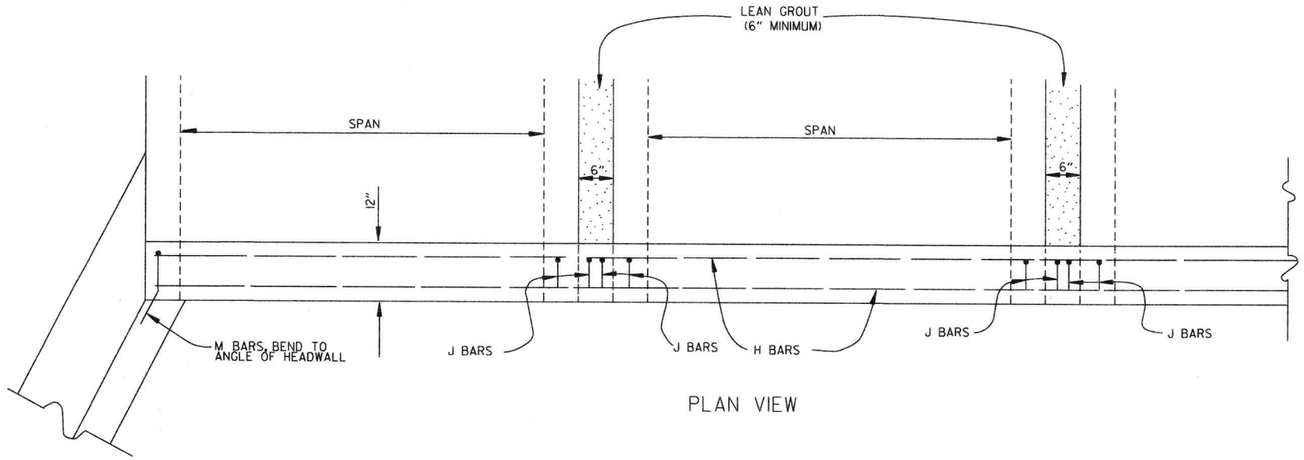
SPACING FOR MULTIPLE POST INSTALLATION

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

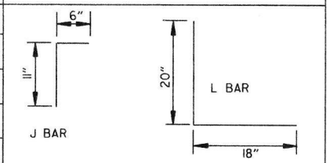
STANDARD DRAWING MB-1



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.

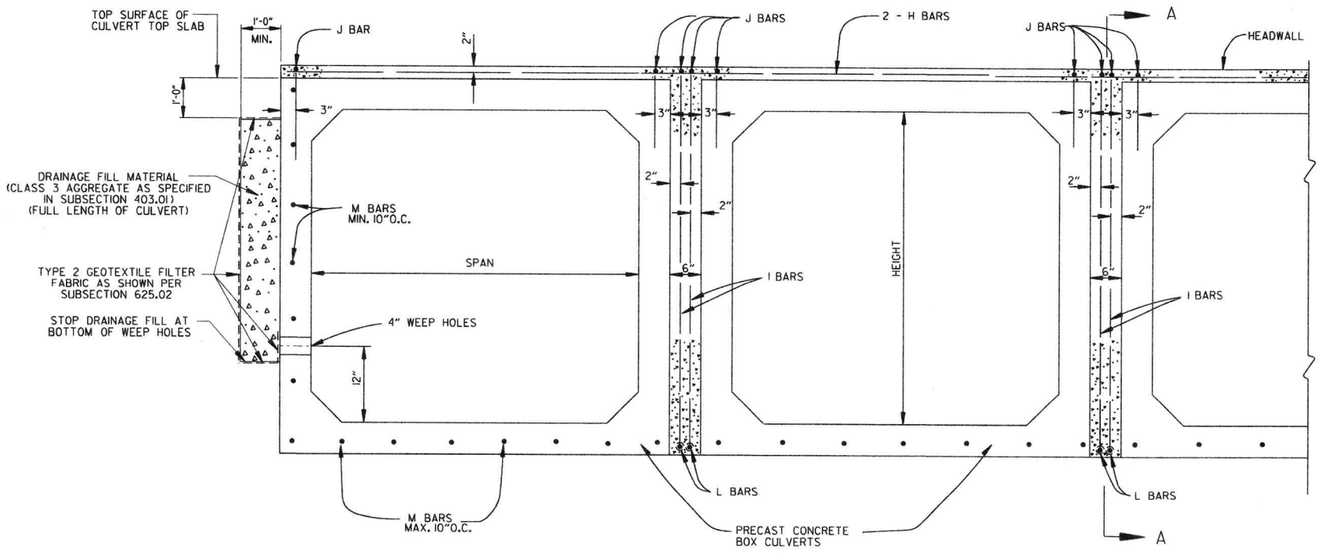
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

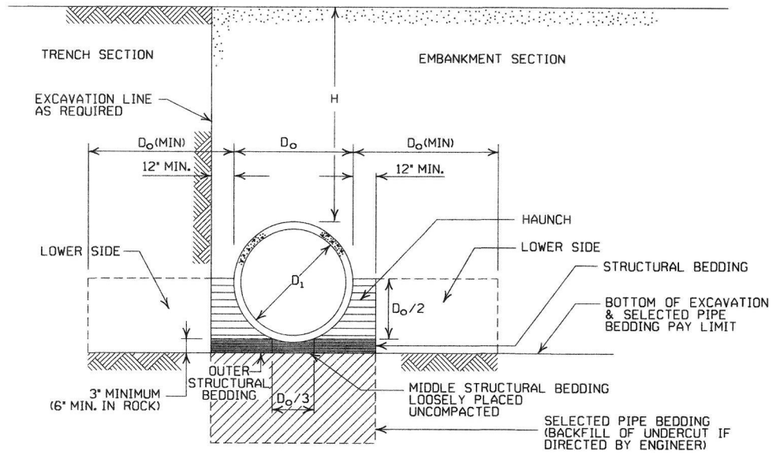
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2⅔ 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 / TYPE 1	INSTALLATION TYPE 2 / TYPE 1			
36	40x31	5	0.079	3 / 2	12 / 15			
42	46x36	6	0.079	3 / 2	13 / 15			
48	53x41	7	0.079	3 / 2	13 / 15			
54	60x46	8	0.079	3 / 2	13 / 15			
60	66x51	9	0.079	3 / 2	13 / 15			
66	73x55	12	0.079	3 / 2	15 / 15			
72	81x59	14	0.079	3 / 2	15 / 15			
78	87x63	14	0.079	3 / 2	15 / 15			
84	95x67	16	0.109	3 / 2	15 / 15			
90	103x71	16	0.109	3 / 2	15 / 15			
96	112x75	18	0.109	3 / 2	15 / 15			
102	117x79	18	0.109	3 / 2	15 / 15			
108	128x83	18	0.138	3 / 2	15 / 15			

CONSTRUCTION SEQUENCE

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

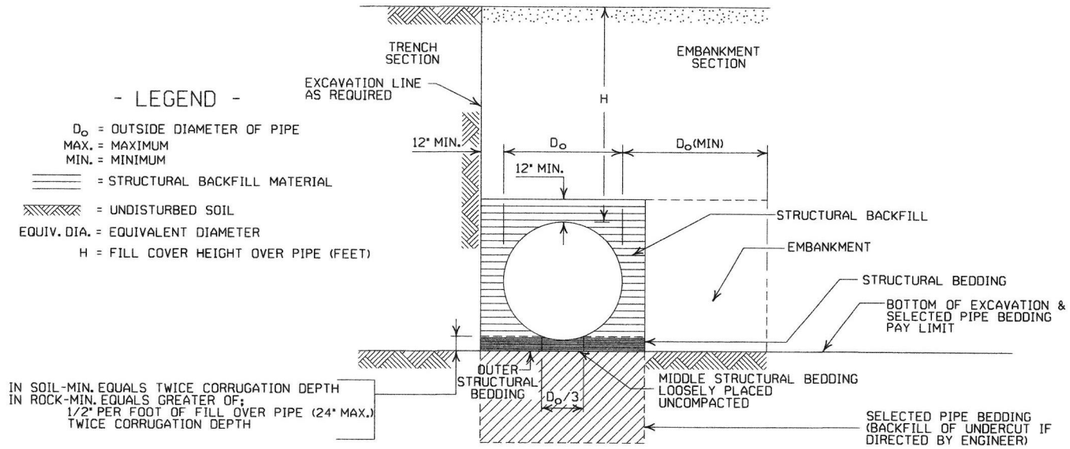
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



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 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

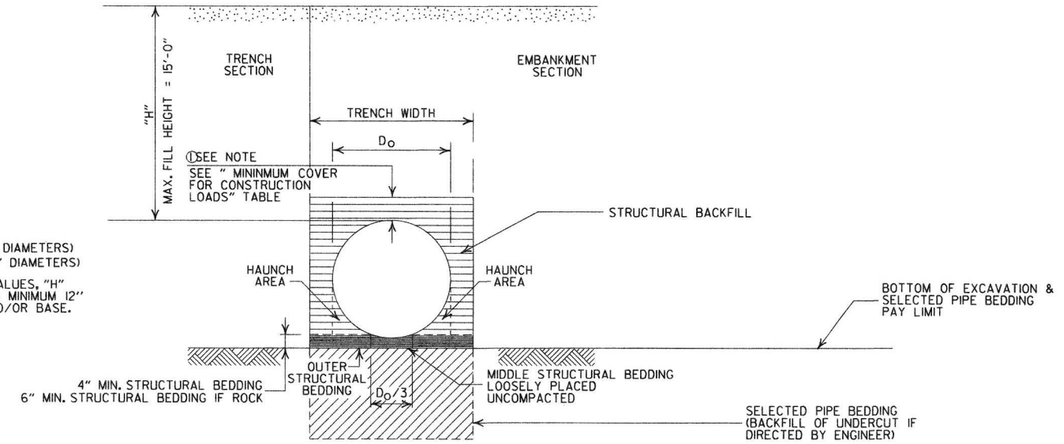
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

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.)
B = 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

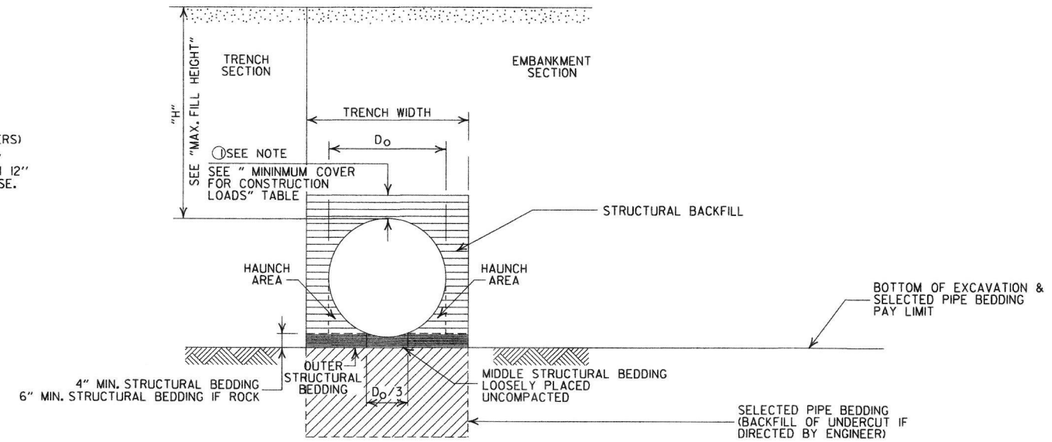
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

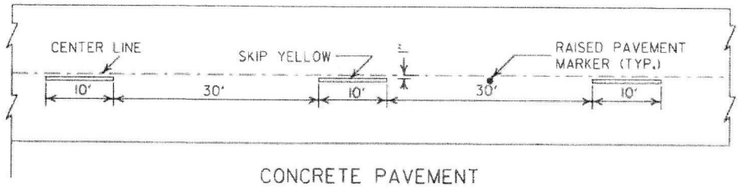
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

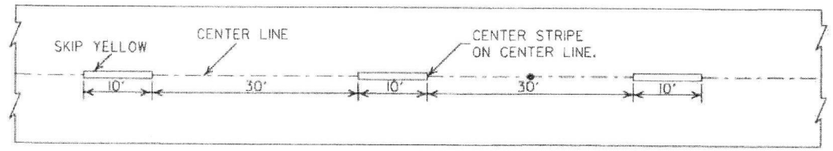
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

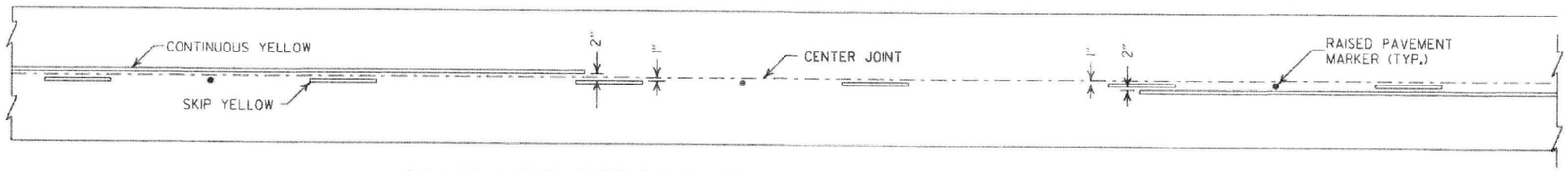


CONCRETE PAVEMENT

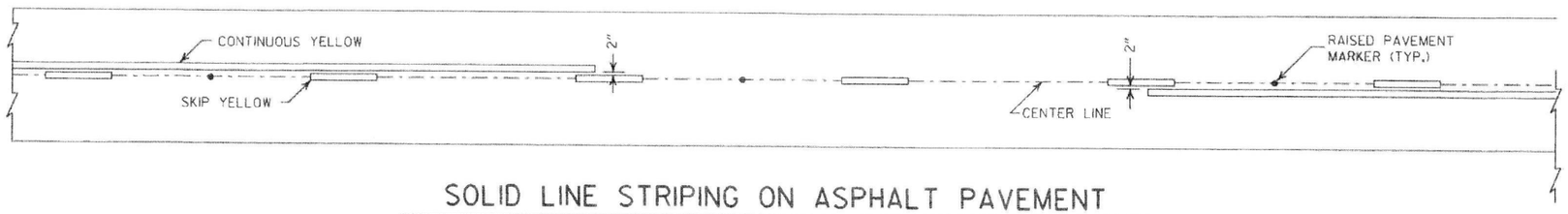


ASPHALT PAVEMENT

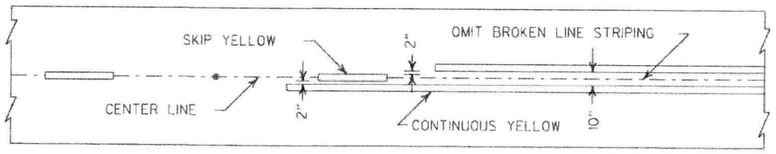
BROKEN LINE STRIPING



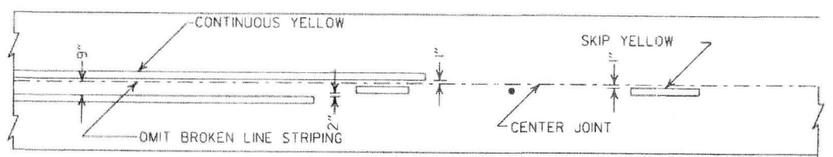
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

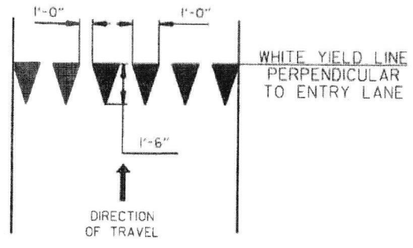


ASPHALT PAVEMENT

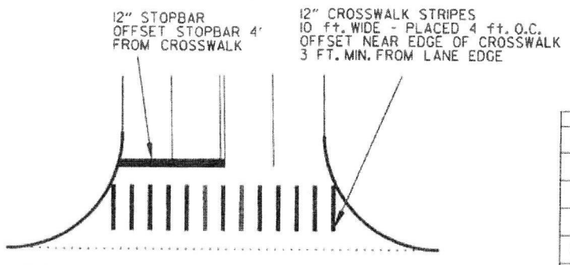


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

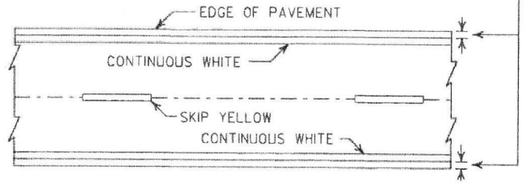


YIELD LINE DETAIL



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.

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

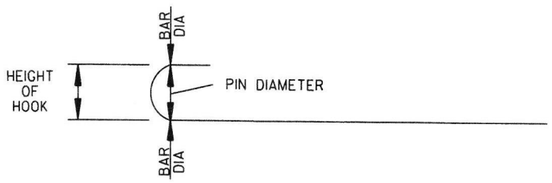
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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

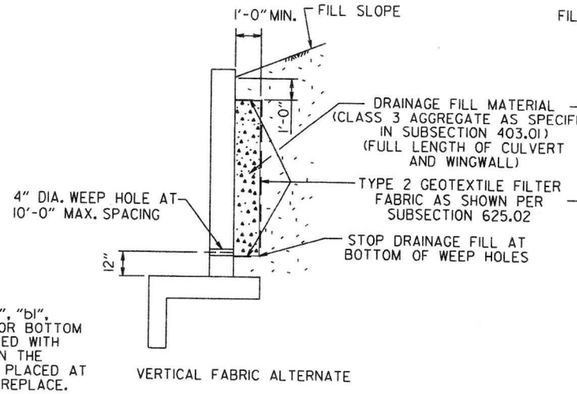
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

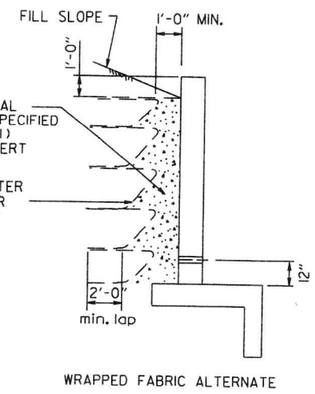
FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

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.

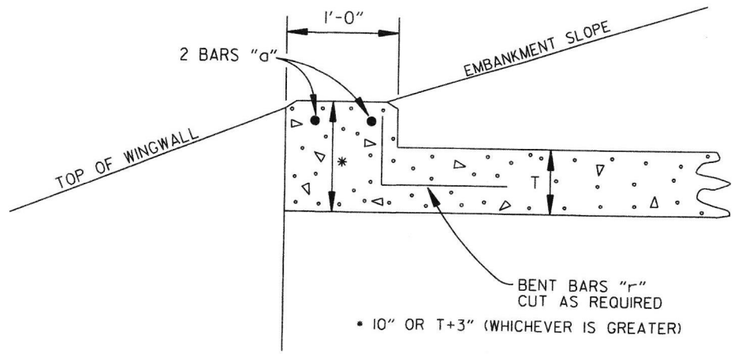
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

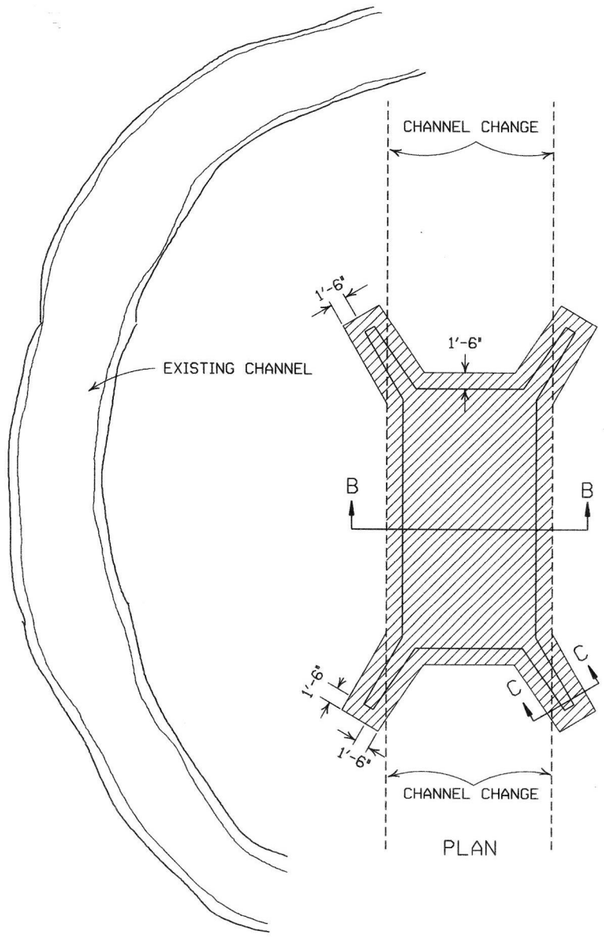
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

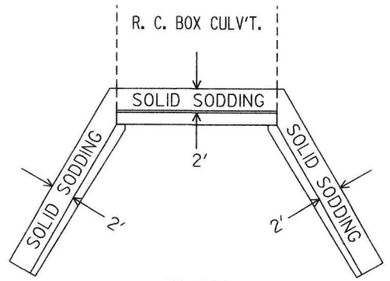
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

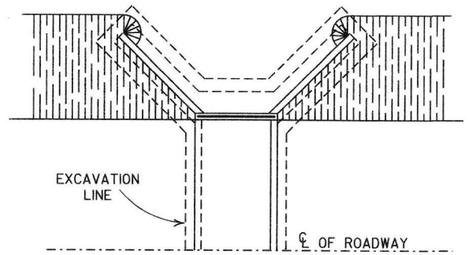
SOLID SODDING



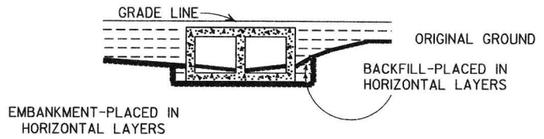
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

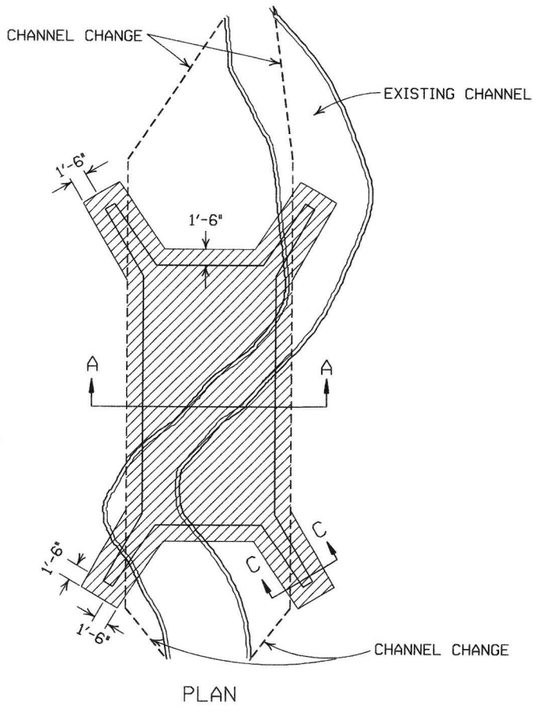


PLAN

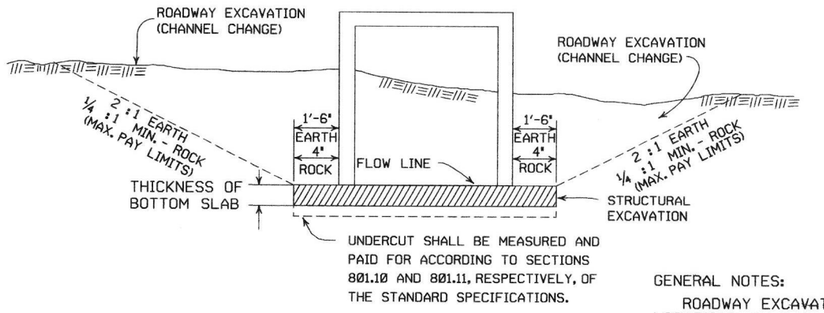


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

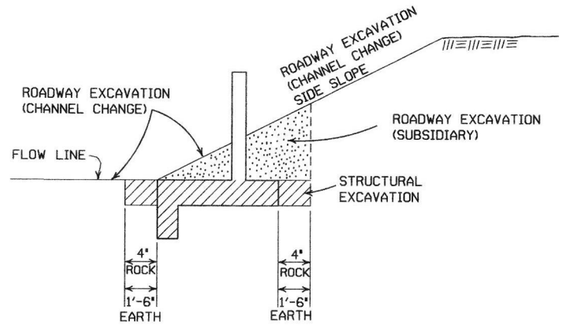


PLAN

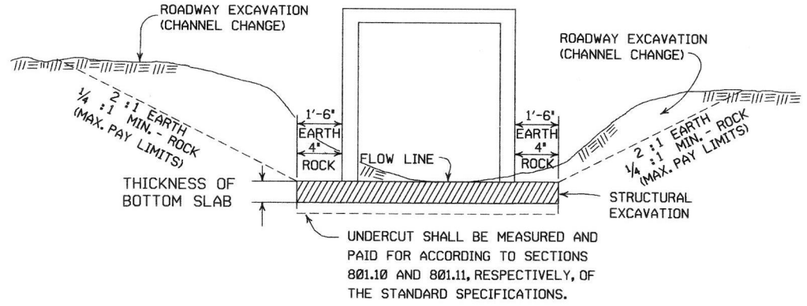


SECTION B-B

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

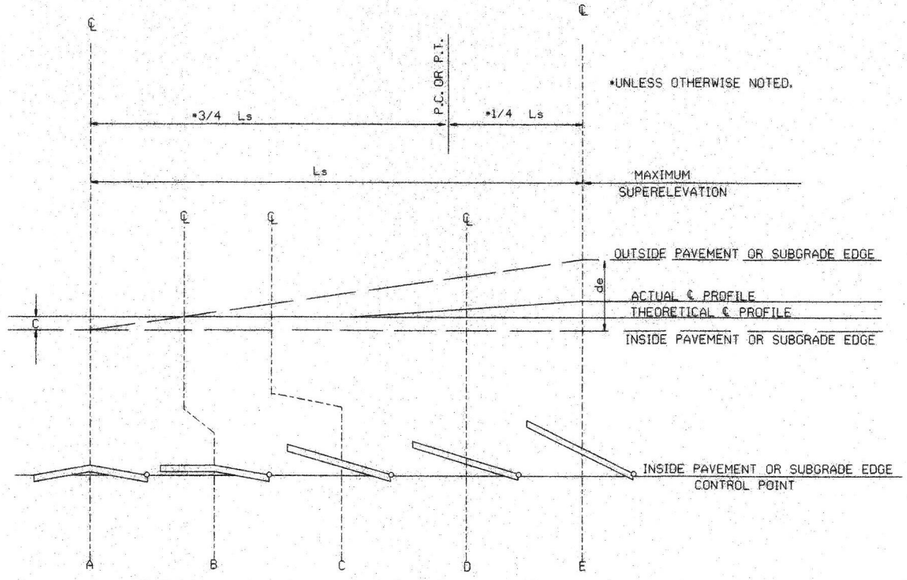
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

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



*UNLESS OTHERWISE NOTED.

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

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

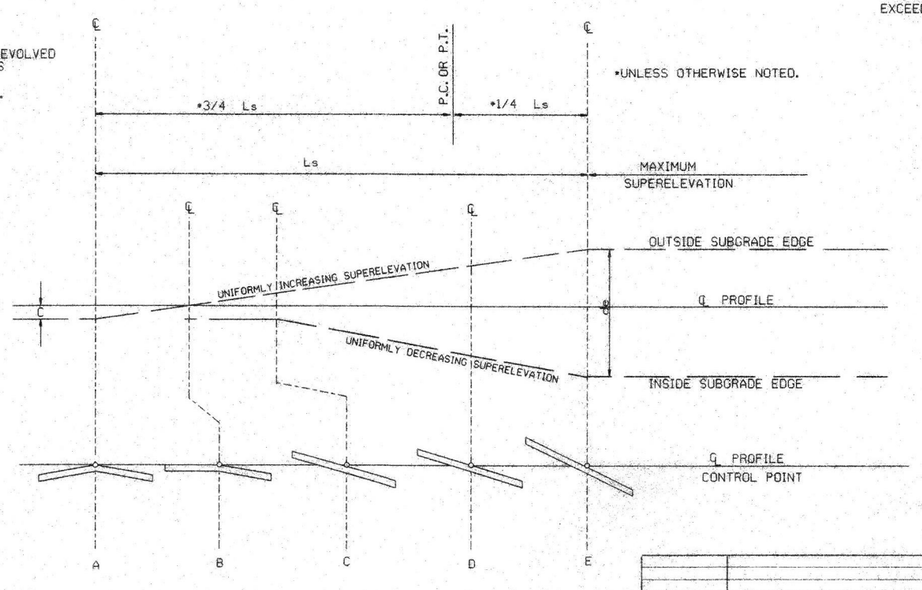
GENERAL NOTES

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

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

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

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



*UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

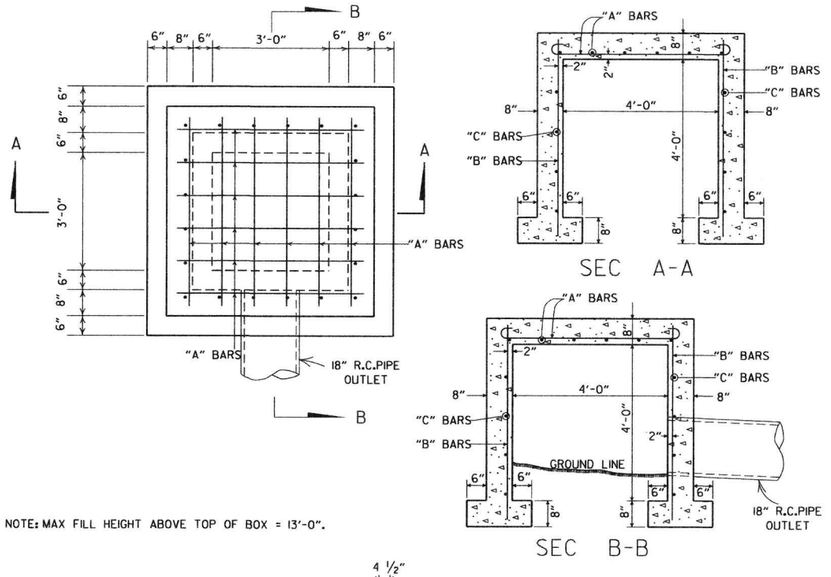
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

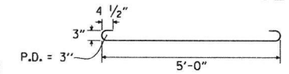


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS



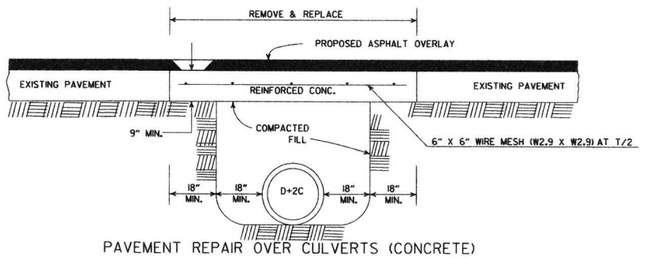
"A" BARS

QUANTITIES

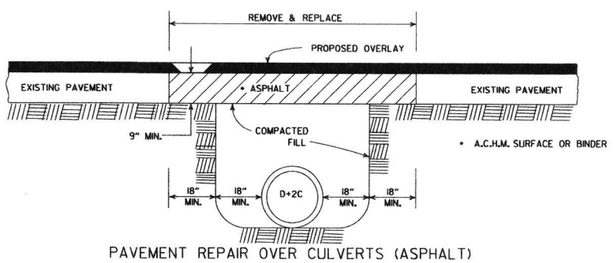
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

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

REINFORCED CONCRETE SPRING BOX



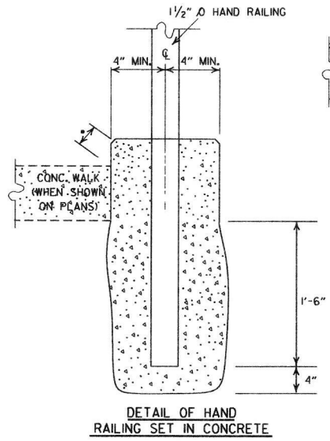
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



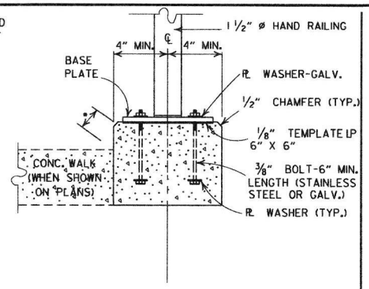
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

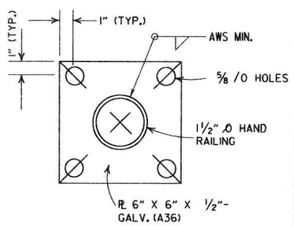
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

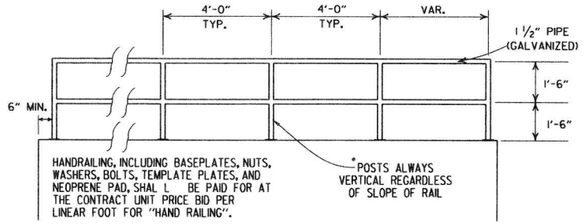


POST CONNECTION TO WALL

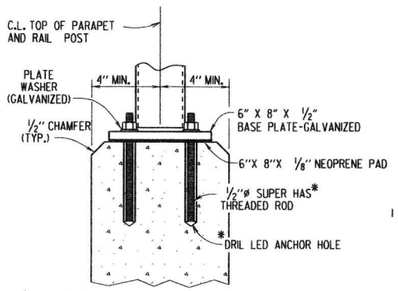


BASE PLATE

POST CONNECTION DETAILS



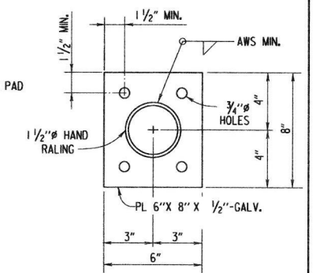
HAND RAILING SHALL CONFORM TO SECTION 633.



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

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

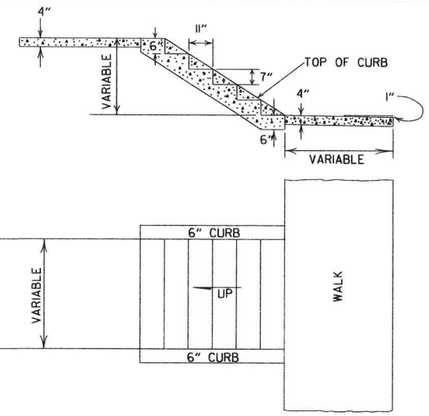
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

DETAILS OF CONCRETE STEPS & WALKS

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

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



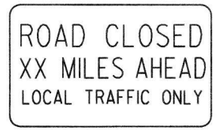
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



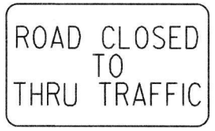
48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a



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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



STD. 48"X48"

W1-6



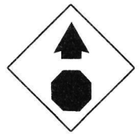
STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



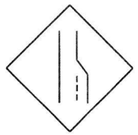
STD. 36"X36"
SPECIAL 48"X48"

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"

W13-1



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"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



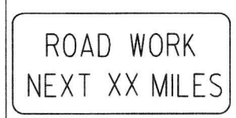
STD. 36"X36"
FWY. 48"X48"

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.

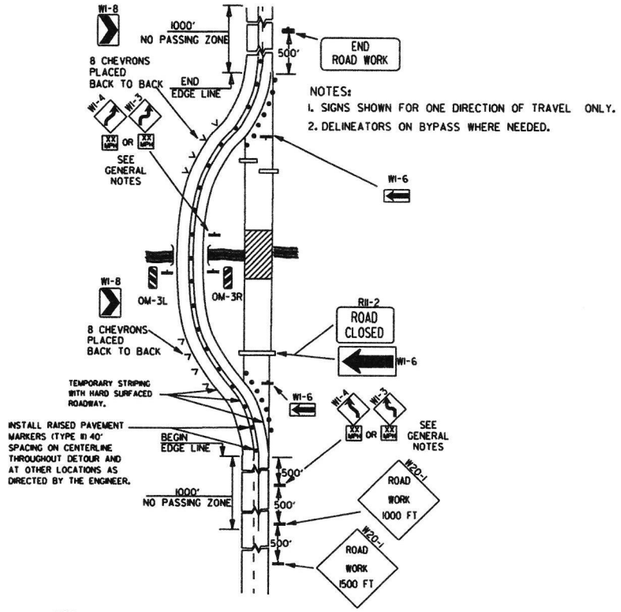
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
4-13-17	DELETED RSP-1 & ADDED W21-5a	
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	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

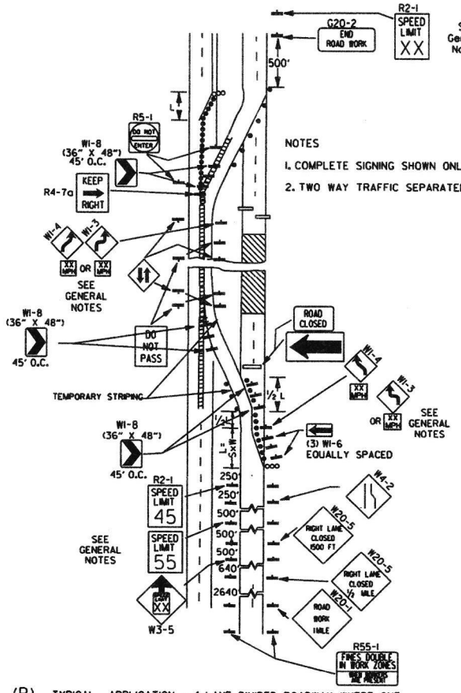
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



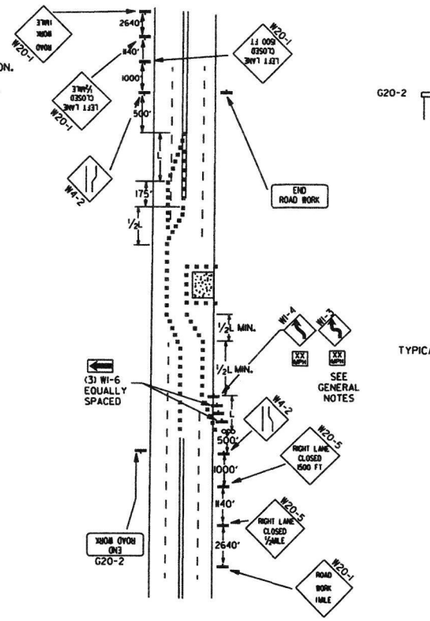
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

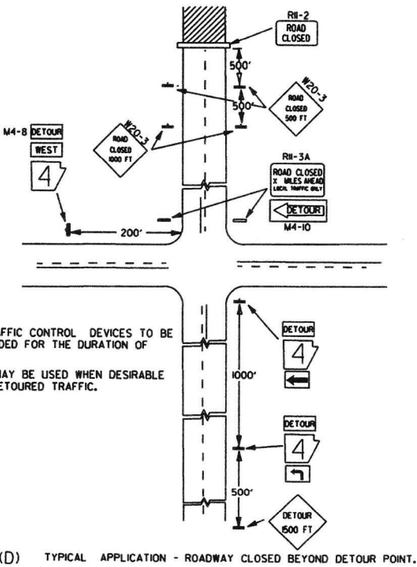


(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

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

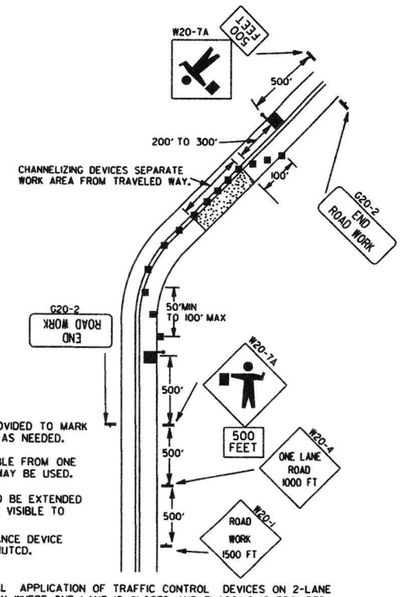


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



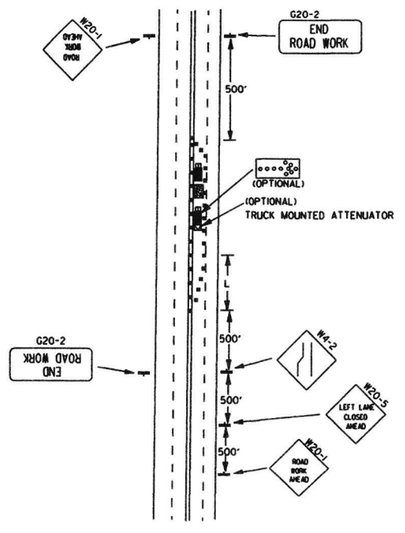
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



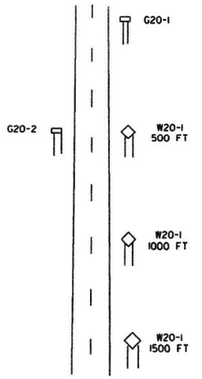
NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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

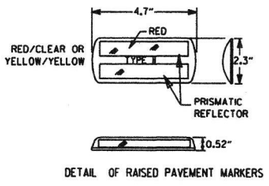


(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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



TYPICAL ADVANCE WARNING SIGN PLACEMENT



DETAIL OF RAISED PAVEMENT MARKERS

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

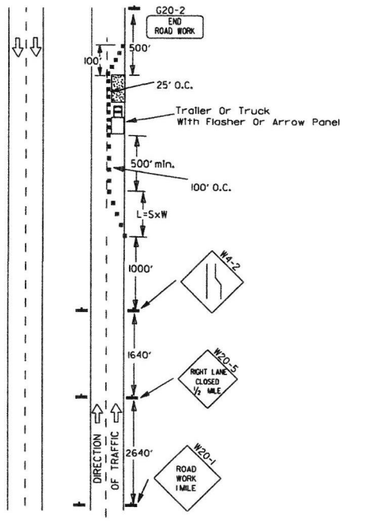
GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5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

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	

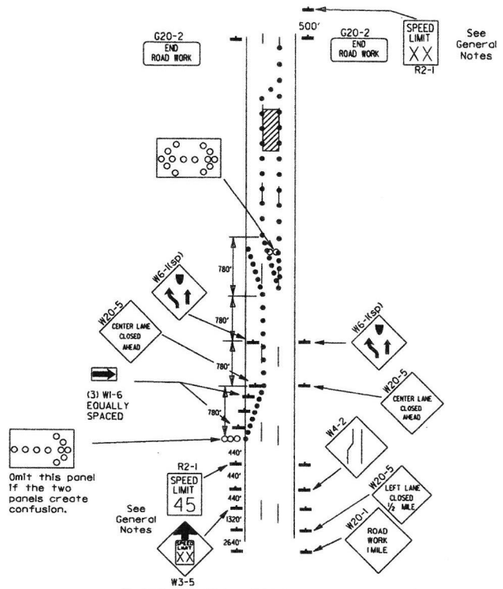
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

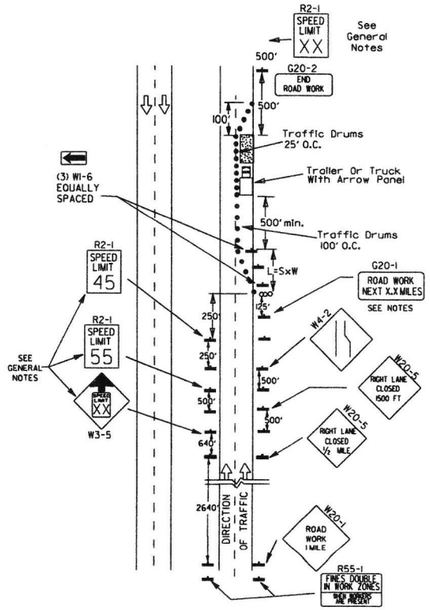
STANDARD DRAWING TC-2



(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.

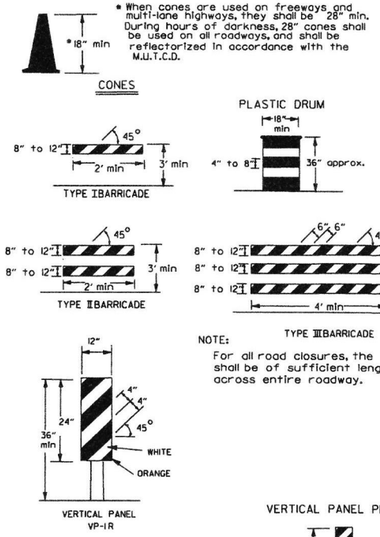
KEY:

- ○○○ 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



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

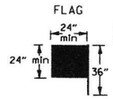
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

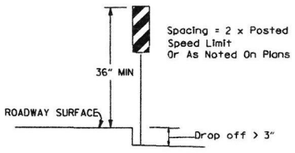
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

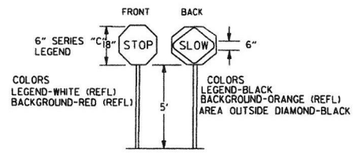


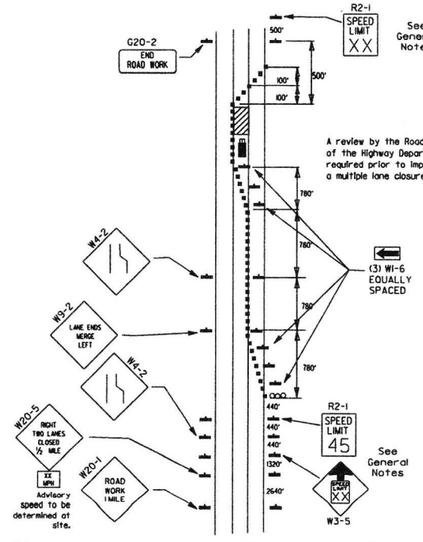
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



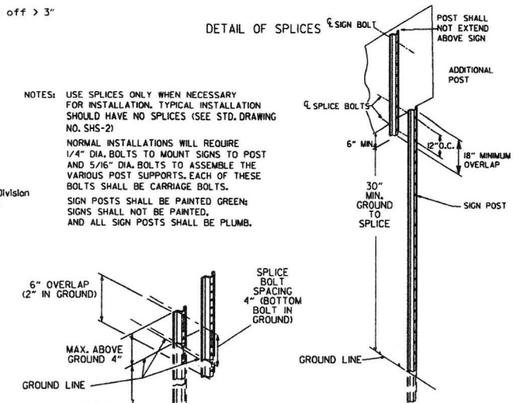
STOP SLOW PADDLE





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

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

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

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

DATE	REVISION	FILMED
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	

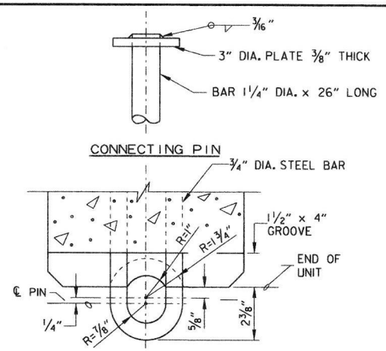
ARKANSAS STATE HIGHWAY COMMISSION

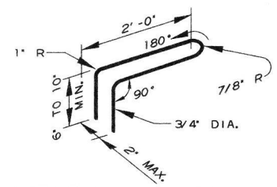
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

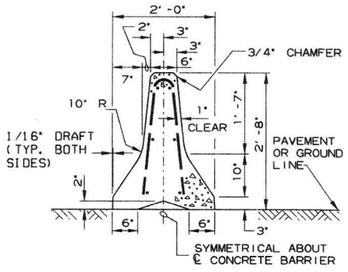
STANDARD DRAWING TC-3

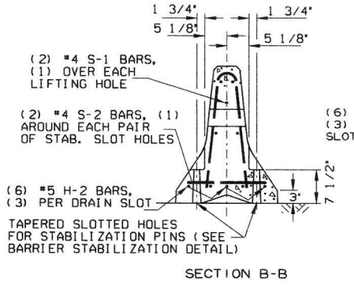
REINFORCING BAR TABLE PER BARRIER UNIT

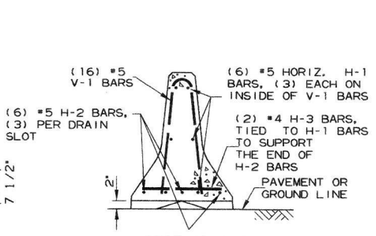
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2. TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. 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°; 19 1/2"; 2'-1 3/8"; 4 3/8"

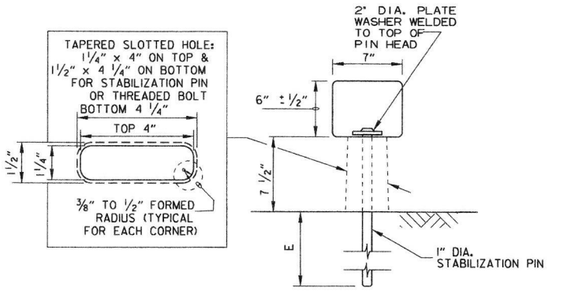






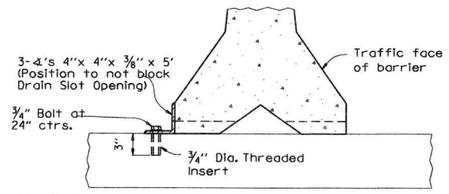






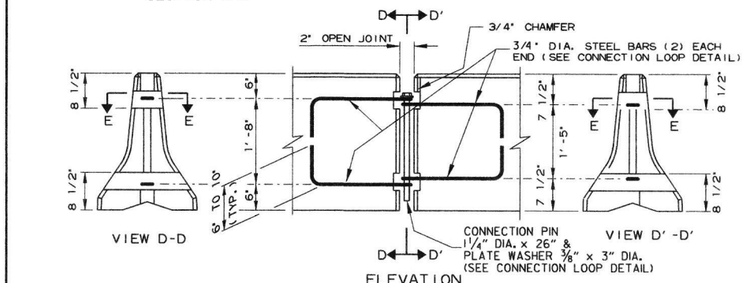
ROADWAY SECTION

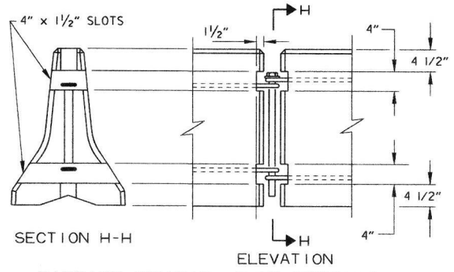
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas

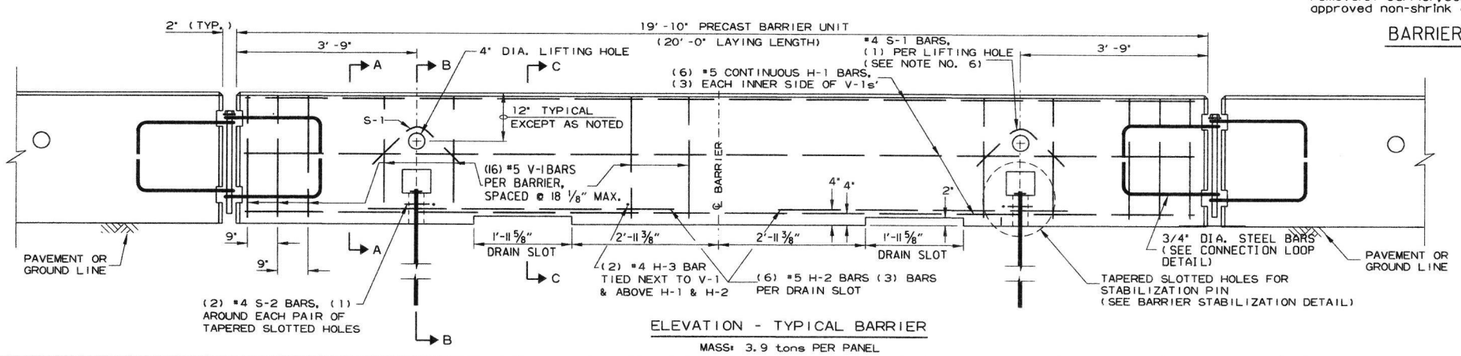


NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL
BRIDGE DECKS







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.

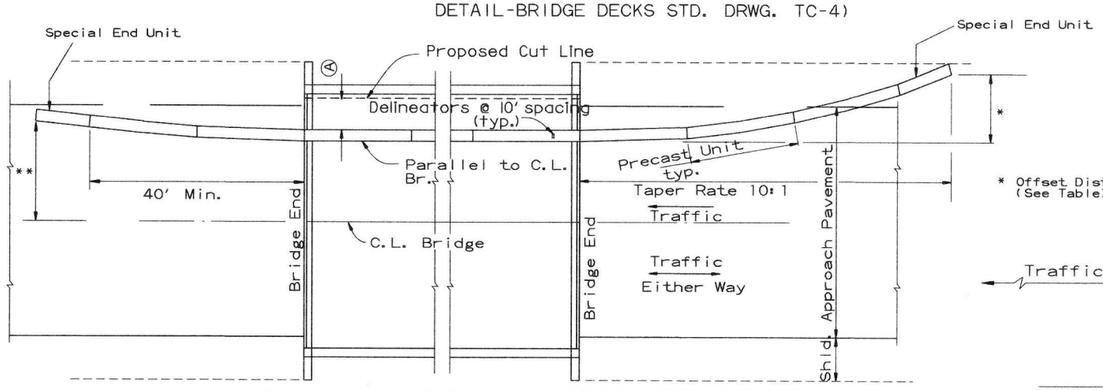
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	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)

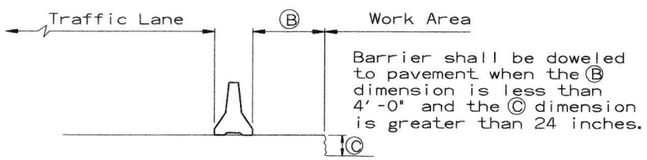


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only

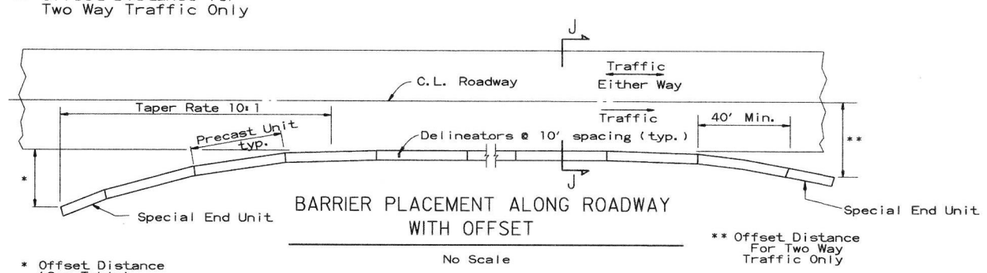
* Offset Distance (See Table)



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



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

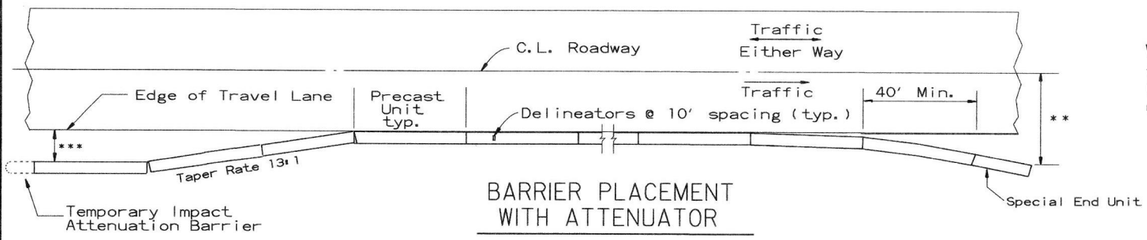
* Offset Distance (See Table)

** 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.

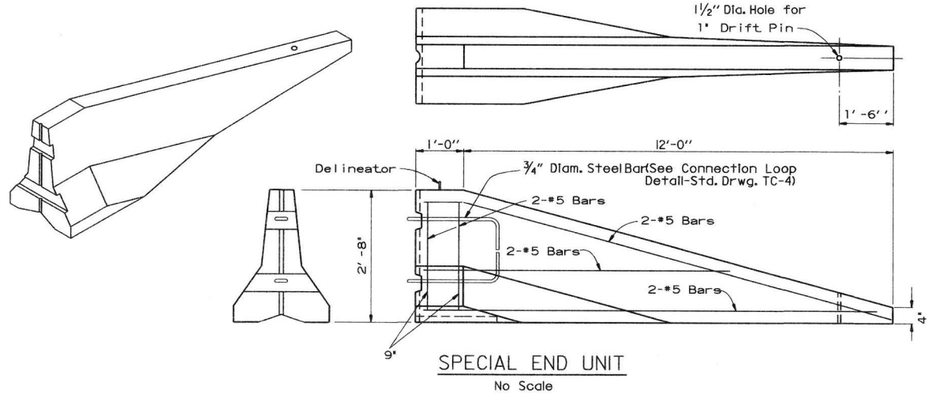


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

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

** Offset Distance For Two Way Traffic Only



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	

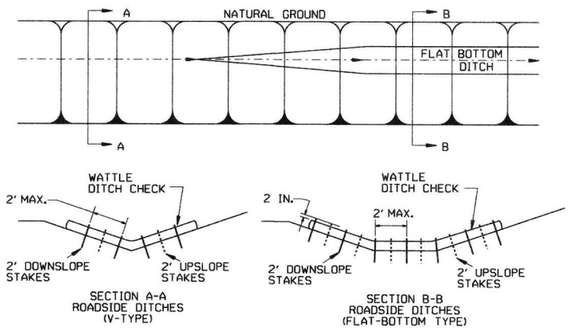
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

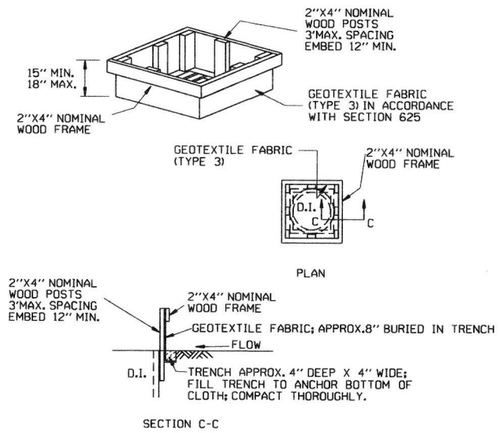
STANDARD DRAWING TC-5

GENERAL NOTES

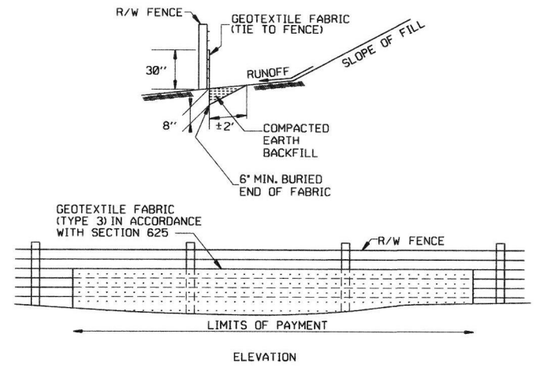
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



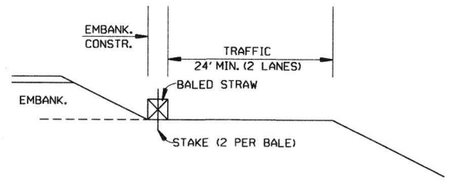
SILT FENCE ON R/W FENCE (E-4)

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.

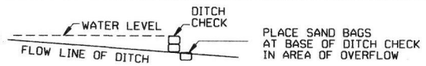
GENERAL NOTES

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.

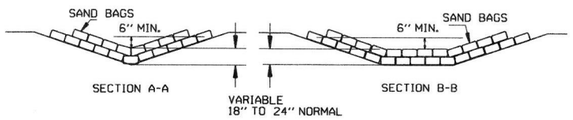


BALED STRAW FILTER BARRIER (E-2)

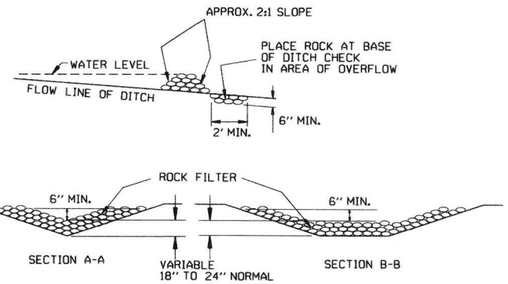
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.



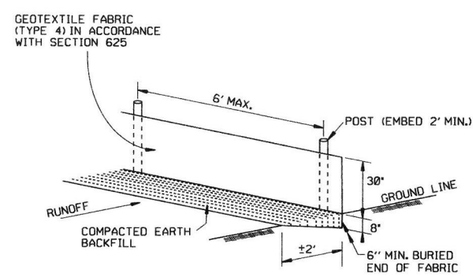
PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

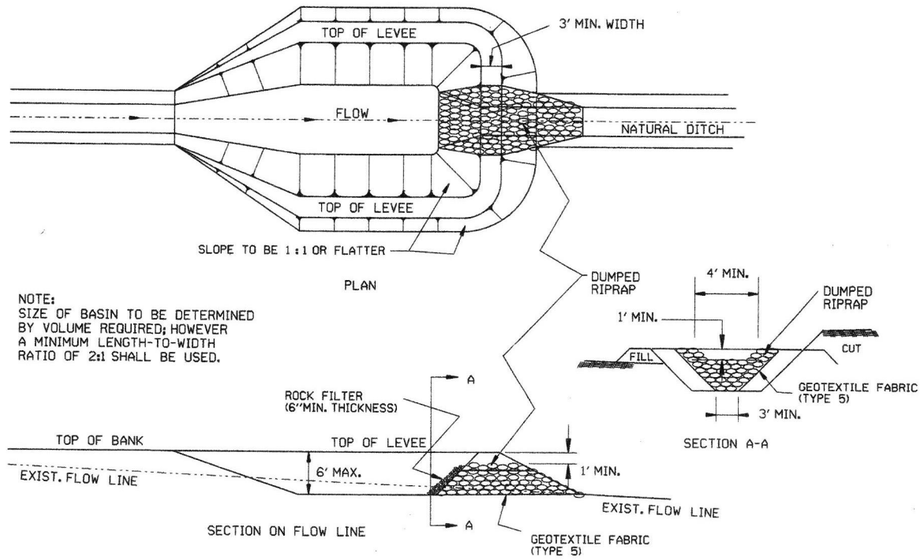
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

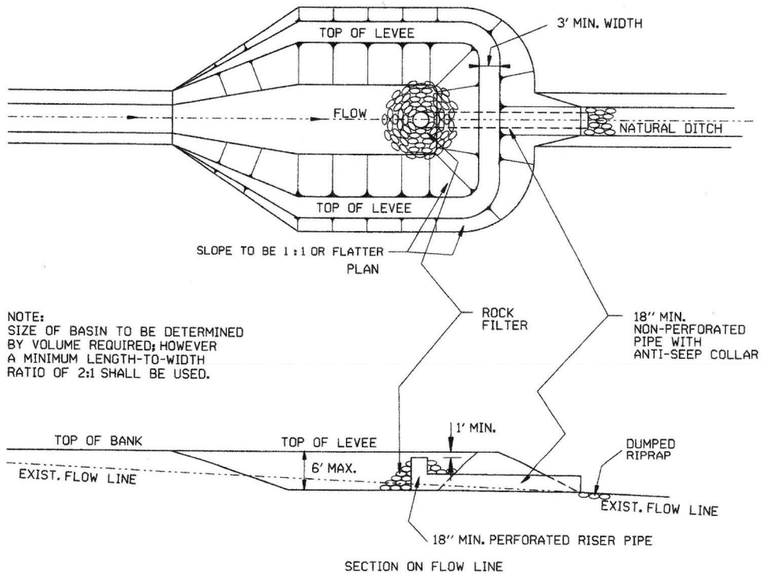
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

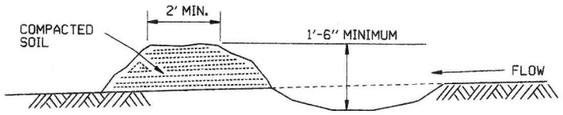
STANDARD DRAWING TEC-1



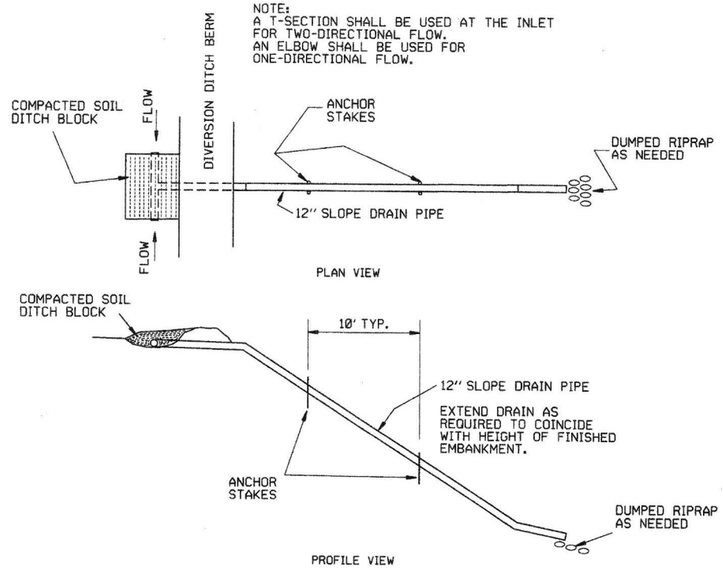
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



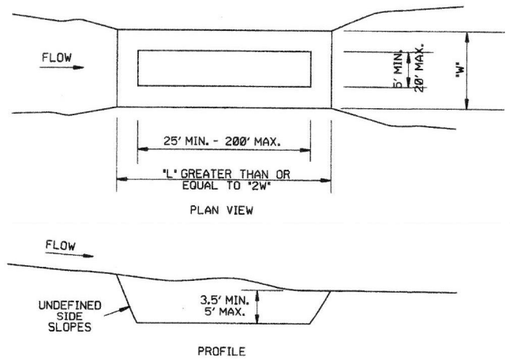
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

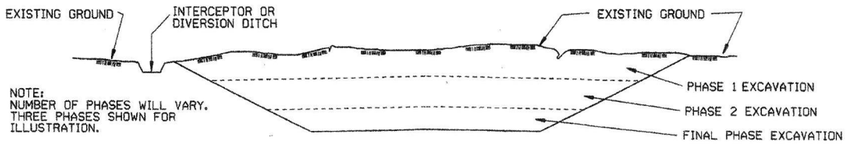
STANDARD DRAWING TEC-2

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



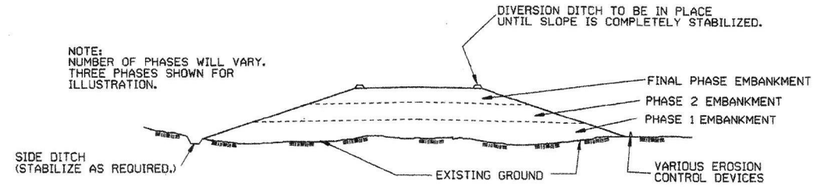
GENERAL NOTE

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.

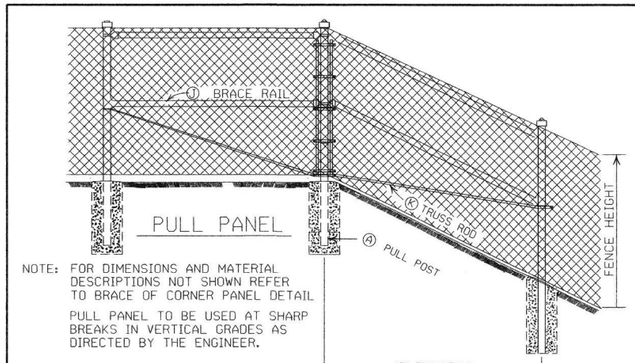
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

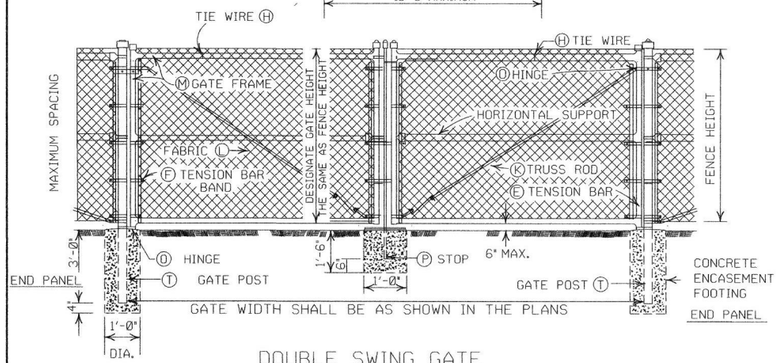
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

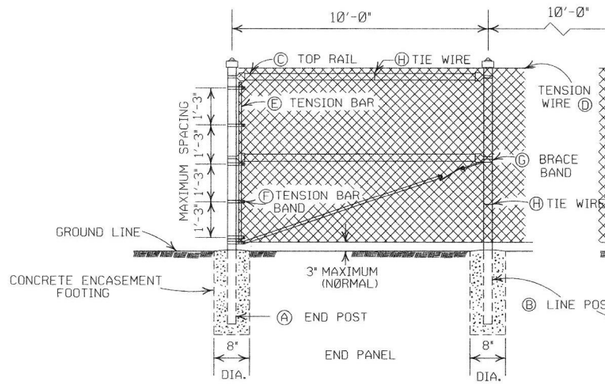
stdtec3.dgn

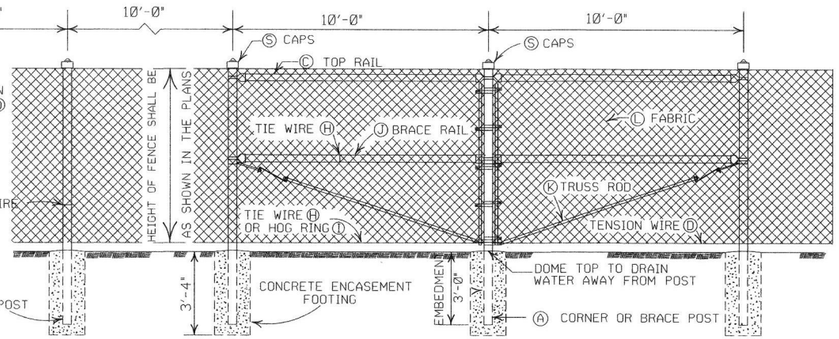




DOUBLE SWING GATE

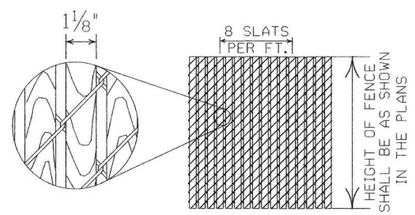
POST SPACING DETAIL





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.

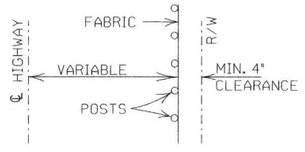
HEIGHT OF FENCE FABRIC	Ⓐ END, PULL CORNER OR BRACE POST	Ⓑ LINE POSTS SIZE	Ⓑ LINE POSTS TIE SPACING	Ⓒ TOP RAIL SIZE	Ⓒ TOP RAIL TIE SPACING	Ⓒ TOP RAIL MIN. LENGTH	Ⓓ TENSION WIRE SIZE	Ⓓ TENSION WIRE TIE SPACING	Ⓔ TENSION BAR SIZE	Ⓔ TENSION BAR LENGTH	Ⓕ TENSION BAR BAND SIZE	Ⓕ TENSION BAR BAND BOLT SIZE	Ⓕ TENSION BAR BAND SPACING	Ⓖ BRACE BAND SIZE	Ⓖ 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 1¼"	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	Ⓗ TIE WIRE	Ⓘ HOG RING	Ⓙ BRACE RAIL SIZE	Ⓙ BRACE RAIL TIE SPACING	Ⓚ TRUSS ROD	Ⓛ FABRIC SIZE	Ⓛ FABRIC MESH	Ⓛ FABRIC SELVAGE	Ⓜ GATE FRAME SIZE	Ⓜ GATE FRAME TIE SPACING	Ⓝ HORIZONTAL SUPPORT SIZE	Ⓝ HORIZONTAL SUPPORT TIE SPACING	Ⓞ HINGE TYPE 180° SWING	Ⓣ GATE POST GATE WIDTH 12' AND LESS	Ⓣ 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	0.120	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	0.160	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
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

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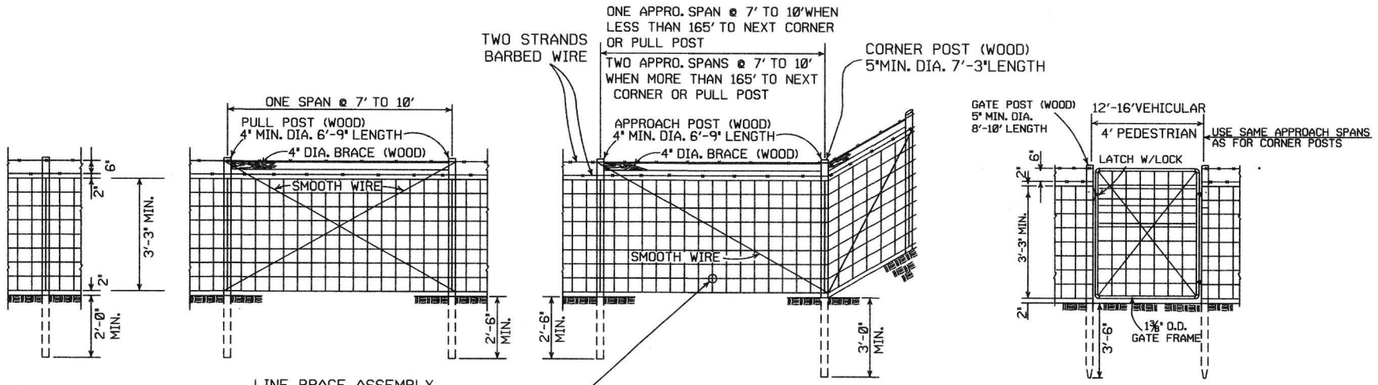
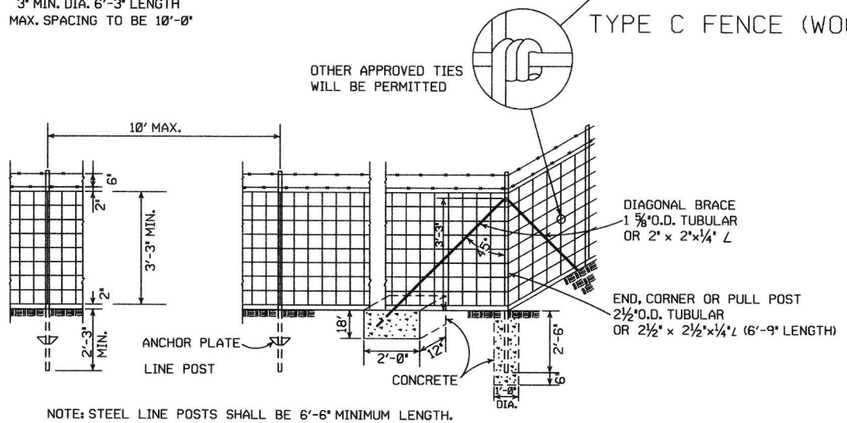
CHAIN LINK FENCE

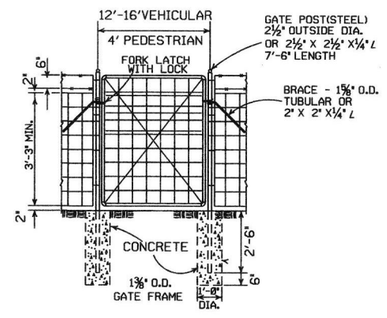
STANDARD DRAWING WF-3

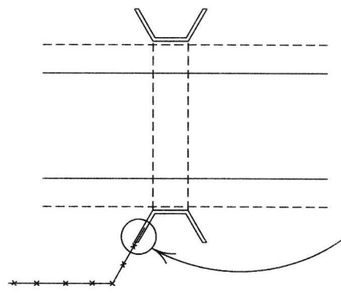


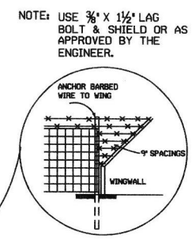
TYPE C FENCE (WOOD POSTS)



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







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

GENERAL NOTES:

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

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

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

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

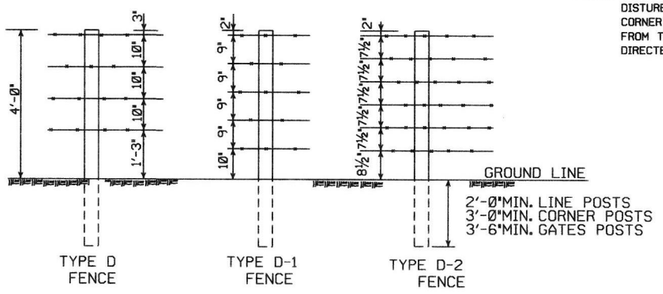
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

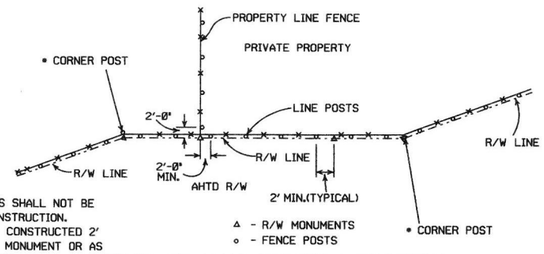
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

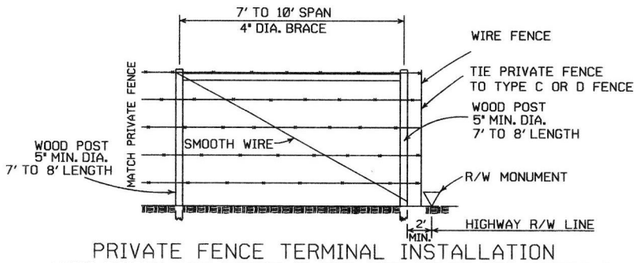


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

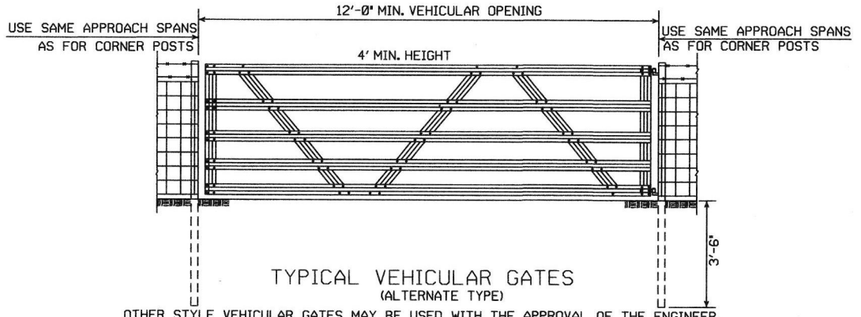


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



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

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

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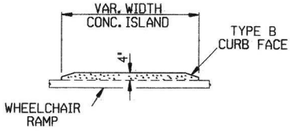
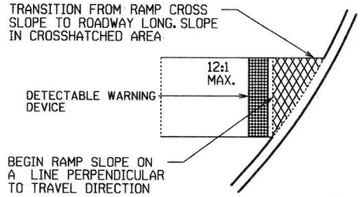
WIRE FENCE TYPE C AND D

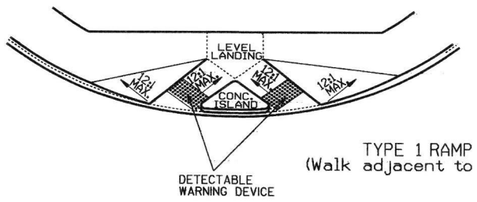
STANDARD DRAWING WF-4



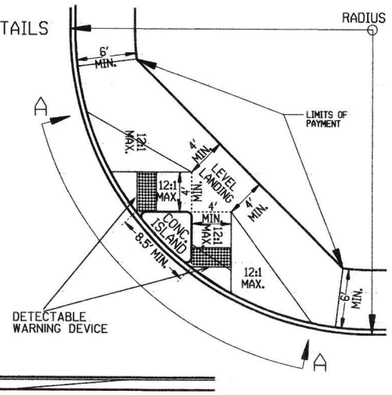
CONCRETE ISLAND DETAIL

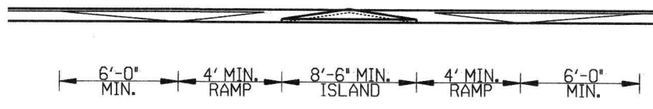


SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

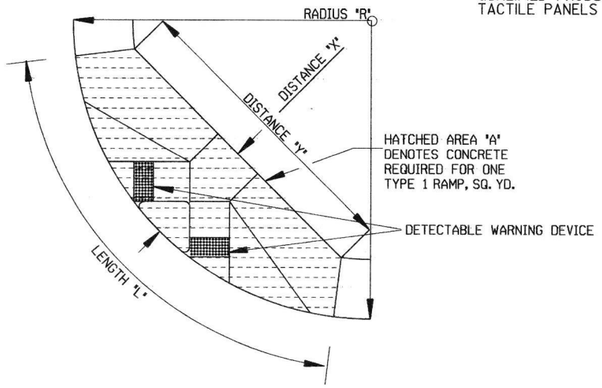




SECTION A-A

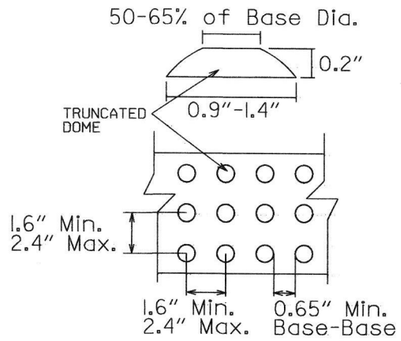
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

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

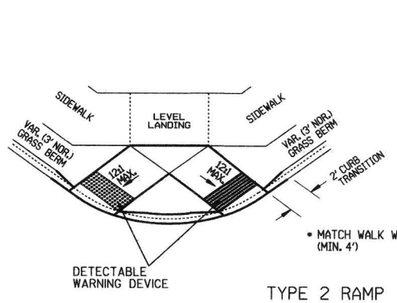
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT 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).



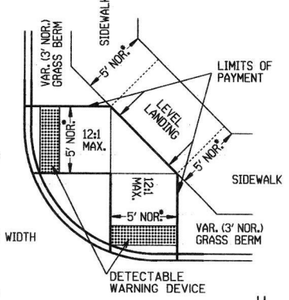
DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

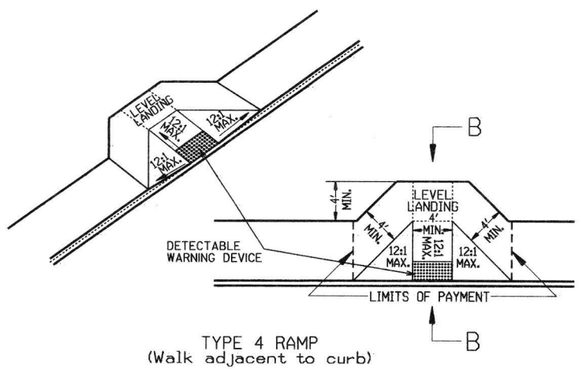
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK 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.



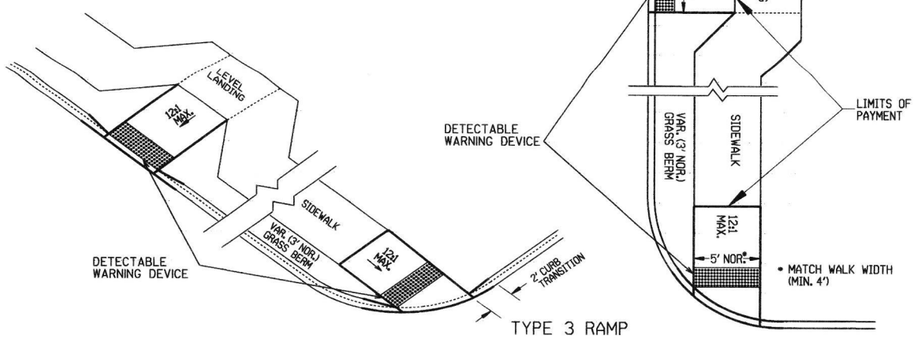
TYPE 2 RAMP



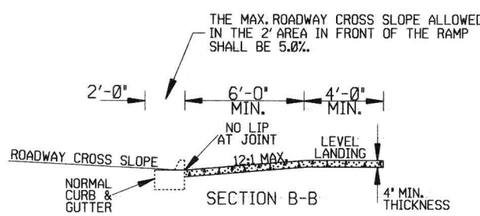
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.



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
8-10-05	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&TO12MAX.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