DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	1	335

(2) HWY. 71 - CO. RD. 34 (ADD'L LNS.) (B.V. BYPASS) (S)

"A FULLY CONTROLLED ACCESS FACILITY"

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

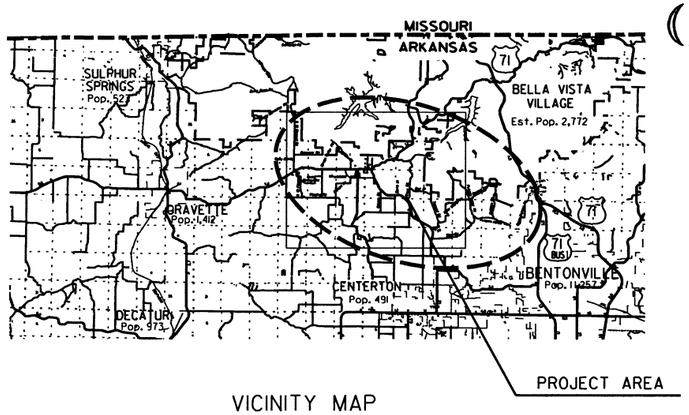
HWY. 71 - CO. RD. 34
(ADD'L LNS.) (B.V. BYPASS) (S)

BENTON COUNTY

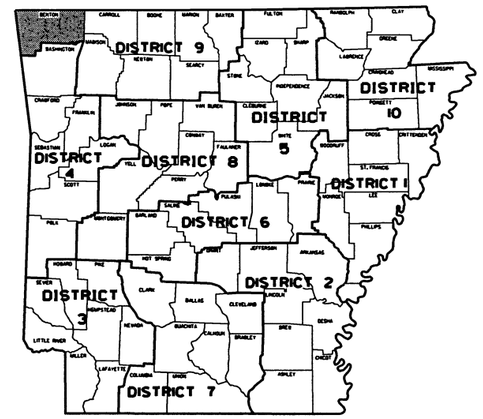
ROUTE 549 SECTION 9

JOB 090508

FED. AID PROJ. NHPP-HSIP-0004(72)



VICINITY MAP



ARK. HWY. DIST. NO. 9

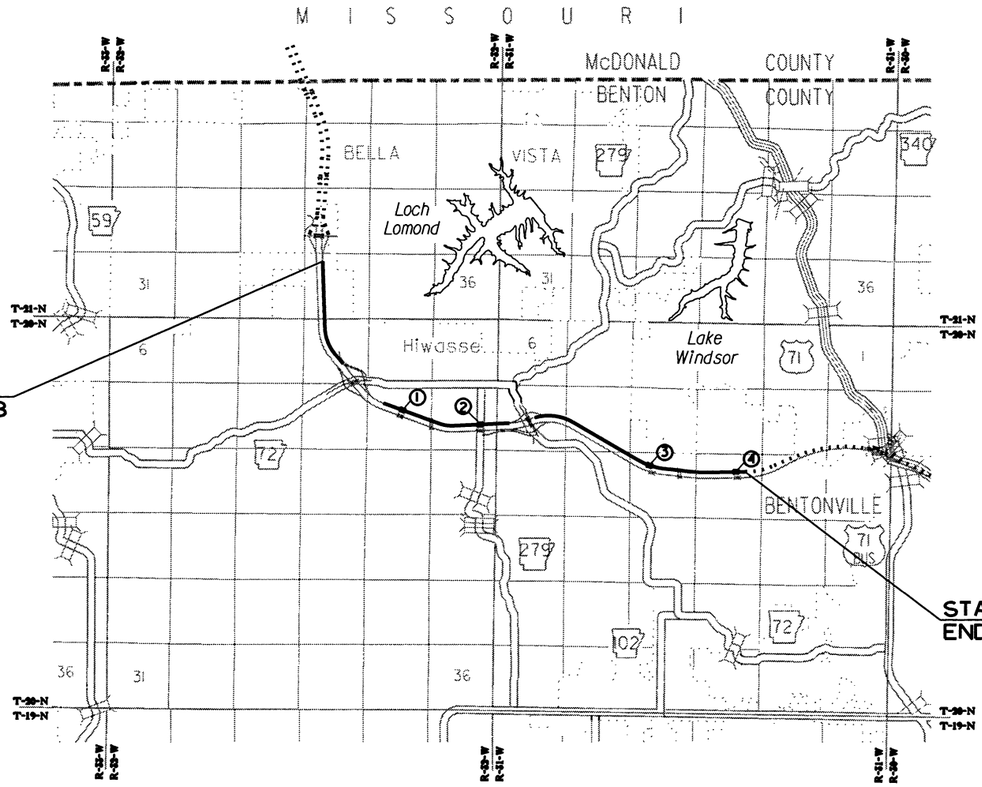
BRIDGE DATA

(1) STA. 712+37.87 BRIDGE END
BRIDGE NO. A7195
204'-0" CONT. COMP. W-BEAM (62'-80'-62')
40'-0" CLEAR ROADWAY
206'-3 1/8" BRIDGE LENGTH
STA. 714+44.13 BRIDGE END

(2) STA. 780+34.43 BRIDGE END
BRIDGE NO. A7196
205'-0" CONT. COMP. W-BEAM UNIT (55'-95'-55')
40'-0" CLEAR ROADWAY
207'-1 3/4" BRIDGE LENGTH
STA. 782+41.57 BRIDGE END

(3) STA. 928+78.65 BRIDGE END
BRIDGE NO. A7274
210'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (105'-105')
345'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (115'-115'-115')
557'- 8 3/8" BRIDGE LENGTH
STA. 934+36.35 BRIDGE END

(4) STA. 999+21.84 BRIDGE END
BRIDGE NO. A7276
186'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (54'-78'-54')
188'- 3 1/8" BRIDGE LENGTH
STA. 1001+10.16 BRIDGE END



N

DESIGN TRAFFIC DATA

DESIGN YEAR	2037
2017 ADT	23500
2037 ADT	33000
2037 DHV	3630
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	8%
DESIGN SPEED	70 MPH

	BEGIN PROJECT	MID POINT OF PROJECT	END PROJECT
LATITUDE	N 36°25'59"	N 36°25'20"	N 36°25'24"
LONGITUDE	W 94°22'12"	W 94°20'46"	W 94°19'11"

LENGTH OF PROJECT CALCULATED ALONG CONSTRUCTION C.L. HWY. 549

GROSS LENGTH OF	PROJECT	46172.00	FEET	OR	8.745	MILES
NET	" "	ROADWAY	45012.58	"	"	8.525	"
NET	" "	BRIDGES	1159.42	"	"	0.220	"
NET	" "	PROJECT	46172.00	"	"	8.745	"

P.E. JOB 090224

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7606
M.E. BANKS

9-27-17

DEPUTY DIRECTOR
AND CHIEF ENGINEER

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	2	335

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6 - 12	SPECIAL DETAILS		
13 - 48	TEMPORARY EROSION CONTROL DETAILS		
49 - 61	MAINTENANCE OF TRAFFIC DETAILS		
62 - 64	PERMANENT PAVEMENT MARKING DETAILS		
65 - 72	QUANTITIES		
73	SCHEDULE OF BRIDGE QUANTITIES	A7195, A7196, A7274, A7276	57984
74	SUMMARY OF QUANTITIES AND REVISIONS		
75 - 99	SURVEY CONTROL DETAILS		
100 - 116	PLAN AND PROFILE SHEETS		
117 - 123	BOX CULVERT DIAGRAMS		
124	LAYOUT OF BRIDGE OVER COUNTY ROAD 35 (SHEET 1 OF 2)	A7195	59282
125	LAYOUT OF BRIDGE OVER COUNTY ROAD 35 (SHEET 2 OF 2)	A7195	59283
126	DETAILS OF END BENTS COUNTY ROAD 35 (SHEET 1 OF 3)	A7195	59284
127	DETAILS OF END BENTS COUNTY ROAD 35 (SHEET 2 OF 3)	A7195	59285
128	DETAILS OF END BENTS COUNTY ROAD 35 (SHEET 3 OF 3)	A7195	59286
129	DETAILS OF INTERMEDIATE BENTS COUNTY ROAD 35	A7195	59287
130	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 1 OF 6)	A7195	59288
131	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 2 OF 6)	A7195	59289
132	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 3 OF 6)	A7195	59290
133	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 4 OF 6)	A7195	59291
134	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 5 OF 6)	A7195	59292
135	DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35 (SHEET 6 OF 6)	A7195	59293
136	DETAILS OF ELASTOMERIC BEARINGS COUNTY ROAD 35	A7195	59294
137	LAYOUT OF BRIDGE OVER HWY. 279 (SHEET 1 OF 2)	A7196	59295
138	LAYOUT OF BRIDGE OVER HWY. 279 (SHEET 2 OF 2)	A7196	59296
139	DETAILS OF END BENTS HWY. 279 (SHEET 1 OF 3)	A7196	59297
140	DETAILS OF END BENTS HWY. 279 (SHEET 2 OF 3)	A7196	59298
141	DETAILS OF END BENTS HWY. 279 (SHEET 3 OF 3)	A7196	59299
142	DETAILS OF INTERMEDIATE BENTS HWY. 279	A7196	59300
143	DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279 (SHEET 1 OF 5)	A7196	59301
144	DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279 (SHEET 2 OF 5)	A7196	59302
145	DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279 (SHEET 3 OF 5)	A7196	59303
146	DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279 (SHEET 4 OF 5)	A7196	59304
147	DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279 (SHEET 5 OF 5)	A7196	59305
148	DETAILS OF ELASTOMERIC BEARINGS HIGHWAY 279	A7196	59306
149	LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK (SHEET 1 OF 3)	A7274	57985
150	LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK (SHEET 2 OF 3)	A7274	57986
151	LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK (SHEET 3 OF 3)	A7274	57987
152	DETAILS OF END BENTS CR 49 (BECKETT ROAD) (SHEET 1 OF 4)	A7274	57988
153	DETAILS OF END BENTS CR 49 (BECKETT ROAD) (SHEET 2 OF 4)	A7274	57989
154	DETAILS OF END BENTS CR 49 (BECKETT ROAD) (SHEET 3 OF 4)	A7274	57990
155	DETAILS OF END BENTS CR 49 (BECKETT ROAD) (SHEET 4 OF 4)	A7274	57991
156	DETAILS OF BENT 2 CR 49 (BECKETT ROAD)	A7274	57992
157	DETAILS OF BENT 3 CR 49 (BECKETT ROAD)	A7274	57993
158	DETAILS OF BENT 4 CR 49 (BECKETT ROAD)	A7274	57994
159	DETAILS OF BENT 5 CR 49 (BECKETT ROAD)	A7274	57995
160	DETAILS OF ELASTOMERIC BEARINGS CR 49 (BECKETT ROAD)	A7274	57996
161	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 1 OF 7)	A7274	57997
162	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 2 OF 7)	A7274	57998
163	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 3 OF 7)	A7274	57999
164	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 4 OF 7)	A7274	58000
165	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 5 OF 7)	A7274	58001
166	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 6 OF 7)	A7274	58002
167	COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD) (SHEET 7 OF 7)	A7274	58003
168	DETAILS OF 210'-0" CONTINUOUS PLATE GIRDER UNIT CR 49 (BECKETT ROAD) (SHEET 1 OF 2)	A7274	58004
169	DETAILS OF 210'-0" CONTINUOUS PLATE GIRDER UNIT CR 49 (BECKETT ROAD) (SHEET 2 OF 2)	A7274	58005
170	DETAILS OF 345'-0" CONTINUOUS PLATE GIRDER UNIT CR 49 (BECKETT ROAD) (SHEET 1 OF 2)	A7274	58006
171	DETAILS OF 345'-0" CONTINUOUS PLATE GIRDER UNIT CR 49 (BECKETT ROAD) (SHEET 2 OF 2)	A7274	58007
172	DETAILS OF TYPE 2 SPECIAL APPROACH SLAB	A7274	58008
173	DETAILS OF TYPE 2 SPECIAL APPROACH GUTTERS	A7274	58009
174	LAYOUT OF BRIDGE A OVER CR 39 (ARTHUR ROAD) (SHEET 1 OF 2)	A7276	58010
175	LAYOUT OF BRIDGE A OVER CR 39 (ARTHUR ROAD) (SHEET 2 OF 2)	A7276	58011
176	DETAILS OF BENT 1 CR 39 (ARTHUR ROAD) (SHEET 1 OF 2)	A7276	58012
177	DETAILS OF BENT 1 CR 39 (ARTHUR ROAD) (SHEET 2 OF 2)	A7276	58013
178	DETAILS OF BENTS 2 AND 3 CR 39 (ARTHUR ROAD) (SHEET 1 OF 2)	A7276	58014
179	DETAILS OF BENTS 2 AND 3 CR 39 (ARTHUR ROAD) (SHEET 2 OF 2)	A7276	58015
180	DETAILS OF BENT 4 CR 39 (ARTHUR ROAD) (SHEET 1 OF 2)	A7276	58016
181	DETAILS OF BENT 4 CR 39 (ARTHUR ROAD) (SHEET 2 OF 2)	A7276	58017
182	DETAILS OF ELASTOMERIC BEARINGS CR 39 (ARTHUR ROAD)	A7276	58018
183	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 1 OF 6)	A7276	58019
184	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 2 OF 6)	A7276	58020
185	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 3 OF 6)	A7276	58021
186	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 4 OF 6)	A7276	58022
187	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 5 OF 6)	A7276	58023
188	DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD) (SHEET 6 OF 6)	A7276	58024
189	DETAILS OF TYPE 1 SPECIAL APPROACH SLAB CR 39 (ARTHUR ROAD)	A7276	58025
190	DETAILS OF TYPE 1 SPECIAL APPROACH GUTTERS CR 39 (ARTHUR ROAD)	A7276	58026
191 - 335	CROSS SECTIONS		

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

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
55002	STANDARD DETAILS FOR CONCRETE RIPRAP	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
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	2-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CPTJ-6A	TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)	5-25-06
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9D	DETAILS OF DROP INLETS	8-22-02
FPC-9N	DETAILS OF DROP INLETS AND SPILLWAY OUTLET	7-02-98
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
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
PM-1	PAVEMENT MARKING DETAILS	6-01-17
PM-2	PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS	12-08-16
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	7-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SE-1	TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC	1-09-87
SHS-8	TYPICAL DELINEATOR PLACEMENT ALONG THE INTERSTATE SYSTEM	6-01-17
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
TEC-4	TEMPORARY EROSION CONTROL DEVICES	7-26-12
TR-1	DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMPS	1-21-00
TR-1A	DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMPS (NON-REINFORCED)	8-22-02
WF-1	WIRE FENCE TYPE A AND B	8-22-02
WF-2	WIRE FENCE WATER GAPS	4-20-79
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5-10-66
W-X15	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	6-13-63
W-X153-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5-10-66
W-X30	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	7-15-63
W-X303-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5-10-66
W-X45	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	6-15-64
W-X453-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5-10-66
R-100X-X1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-10-62
R-100X-X2	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	1-14-63
R-100X-X3	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	12-11-64
R-200X-X1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-15-62
R-200X-X4	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	1-08-65
R-115X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-24-63
R-215X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-03-63
R-230X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	1-28-64
R-245X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	8-12-64

9/14/2017

R090508.DGN

INDEX OF SHEETS AND STANDARD DRAWINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
11/01/17				JOB NO.		090508	3	335
				(2) GOVERNING SPECIFICATIONS & GENERAL NOTES				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB 090508
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
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
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
620-1_____	MULCH COVER
621-1_____	FILTER SOCKS
JOB 090508__	AIRPORT CLEARANCE REQUIREMENTS
JOB 090508__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 090508__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090508__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090508__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090508__	CAVE DISCOVERY
JOB 090508__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 090508__	CONCRETE DITCH PAVING
JOB 090508__	CONSTRUCTION PROJECT INFORMATION SIGN
JOB 090508__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 090508__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 090508__	ENHANCED THERMOPLASTIC PAVEMENT MARKING
JOB 090508__	EXPLORATORY HOLES
JOB 090508__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090508__	MANDATORY ELECTRONIC CONTRACT
JOB 090508__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 090508__	NESTING SITES OF MIGRATORY BIRDS
JOB 090508__	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 090508__	PARTNERING REQUIREMENTS
JOB 090508__	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB 090508__	PIPE CULVERTS
JOB 090508__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 090508__	PROTECTION OF WATER QUALITY AND WETLANDS
JOB 090508__	REINFORCED CONCRETE PIPE CULVERTS (CLASS SPECIAL)
JOB 090508__	ROCK DITCH LINER
JOB 090508__	ROCK FILL
JOB 090508__	SEQUENCE OF CONSTRUCTION
JOB 090508__	SHORING FOR CULVERTS
JOB 090508__	SOIL STABILIZATION
JOB 090508__	SPECIAL CLEARING REQUIREMENTS
JOB 090508__	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 090508__	STORM WATER POLLUTION PREVENTION PLAN
JOB 090508__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090508__	TEXTURED COATING FINISH
JOB 090508__	UTILITY ADJUSTMENTS
JOB 090508__	VALUE ENGINEERING
JOB 090508__	WARM MIX ASPHALT
JOB 090508__	WELLHEAD PROTECTION
JOB 090508__	WIRE ROPE SAFETY FENCE (POST REPAIR)
JOB 090508__	WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS
JOB 090508__	WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS
JOB 090508__	WRSF TRAINING WORKSHOP

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. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. 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.
7. 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.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. 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.

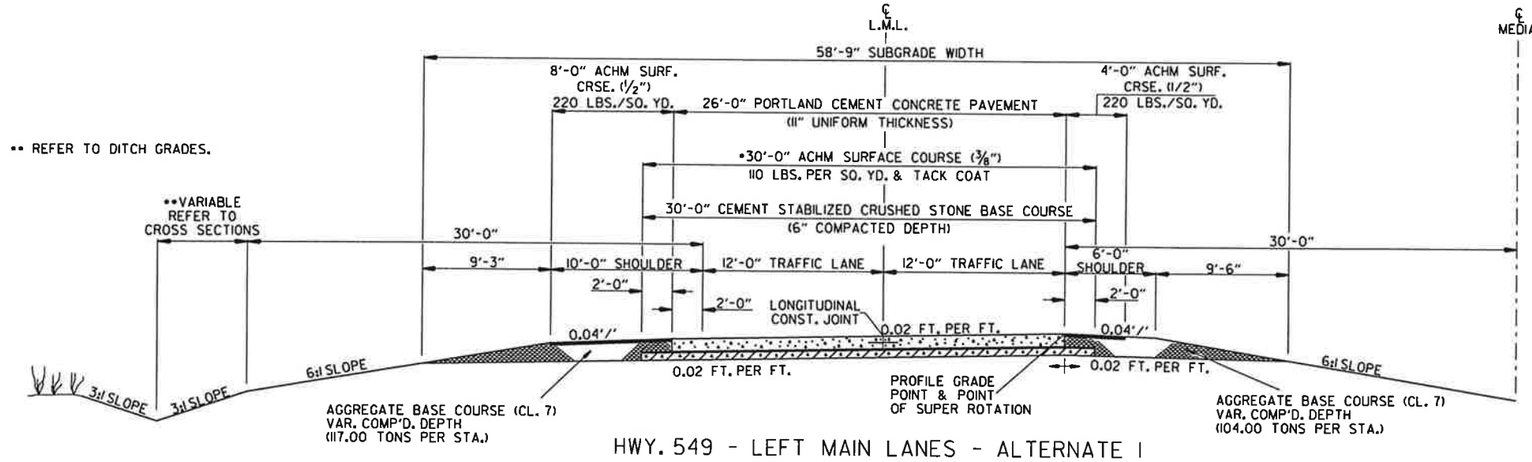
11/1/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	4	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17



HWY. 549 - LEFT MAIN LANES - ALTERNATE I

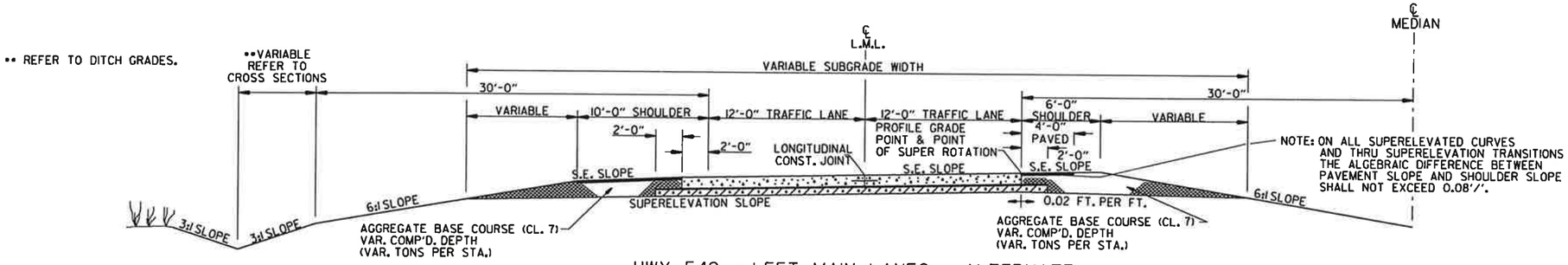
STA. 559+00.00 TO STA. 611+71.00
STA. 641+92.96 TO STA. 687+00.00
STA. 700+67.78 TO STA. 711+98.12
STA. 714+85.17 TO STA. 742+30.86
STA. 762+77.02 TO STA. 779+97.93
STA. 782+78.07 TO STA. 799+00.00
STA. 845+00.00 TO STA. 998+83.84
STA. 1001+48.16 TO STA. 1020+72.00

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 (25mm) 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.

•DENSITY REQUIREMENTS WAIVED.



HWY. 549 - LEFT MAIN LANES - ALTERNATE I
SUPERELEVATION SECTION (CURVE TO LEFT)
(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

10/16/2017

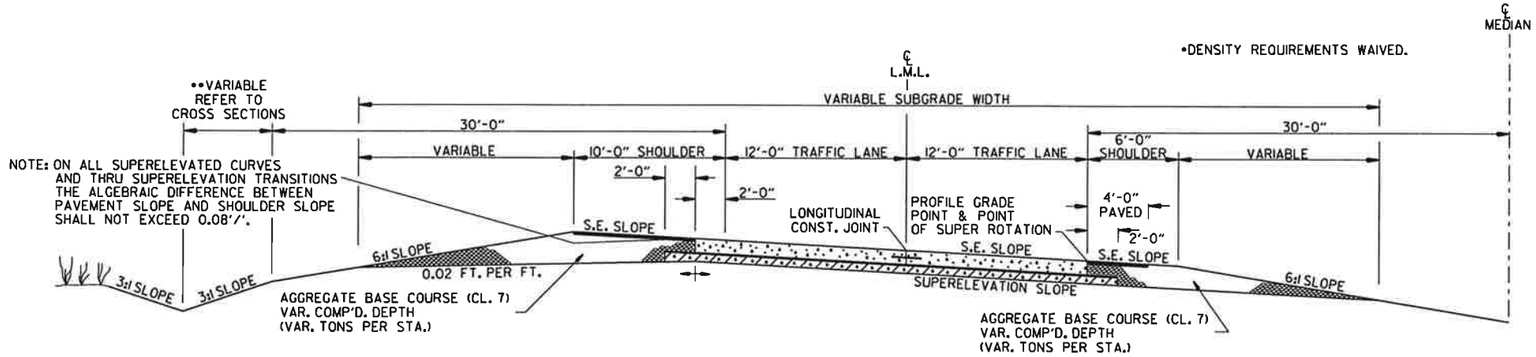
R090508.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	4A	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

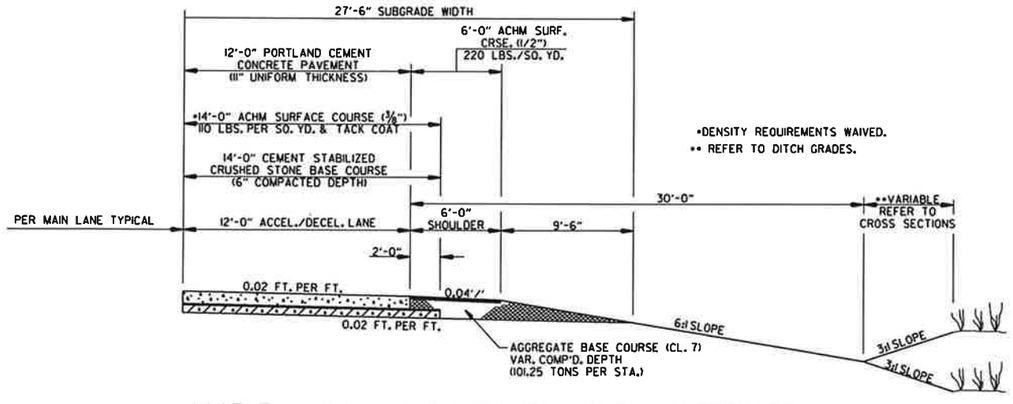


HWY. 549 - LEFT MAIN LANES - ALTERNATE 1
SUPERELEVATION SECTION (CURVE TO RIGHT)
(PAVEMENT SECTION IS SAME AS SHOWN ON PAGE 4)

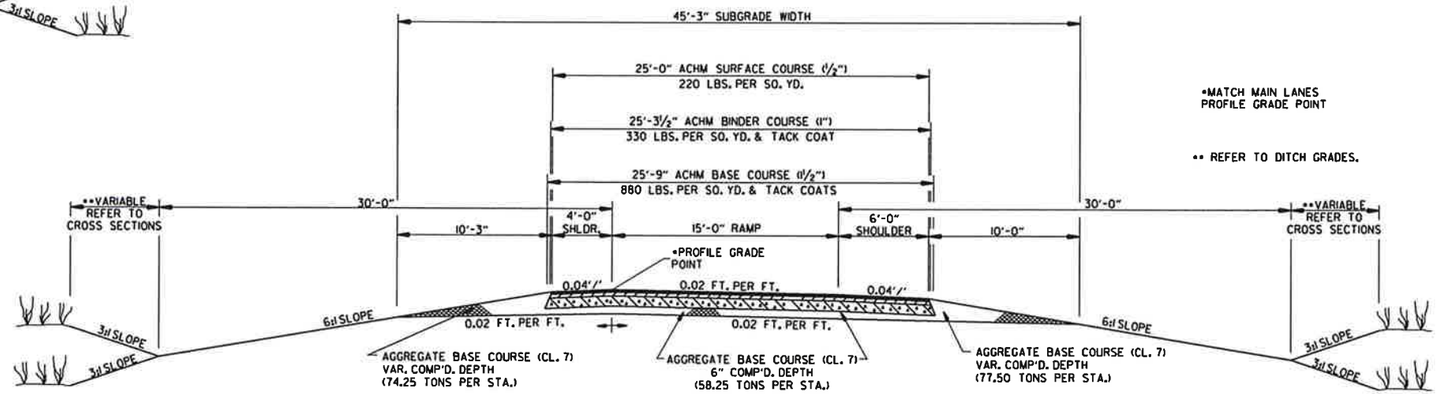
NOTES:

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 (25mm) 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.



ACCELERATION & DECELERATION LANE - ALTERNATE 1
(SHOWN IN DIRECTION OF TRAFFIC)



TEMPORARY CROSSOVER - ALTERNATES 1& 2
(SHOWN IN DIRECTION OF TRAFFIC)

10/16/2017

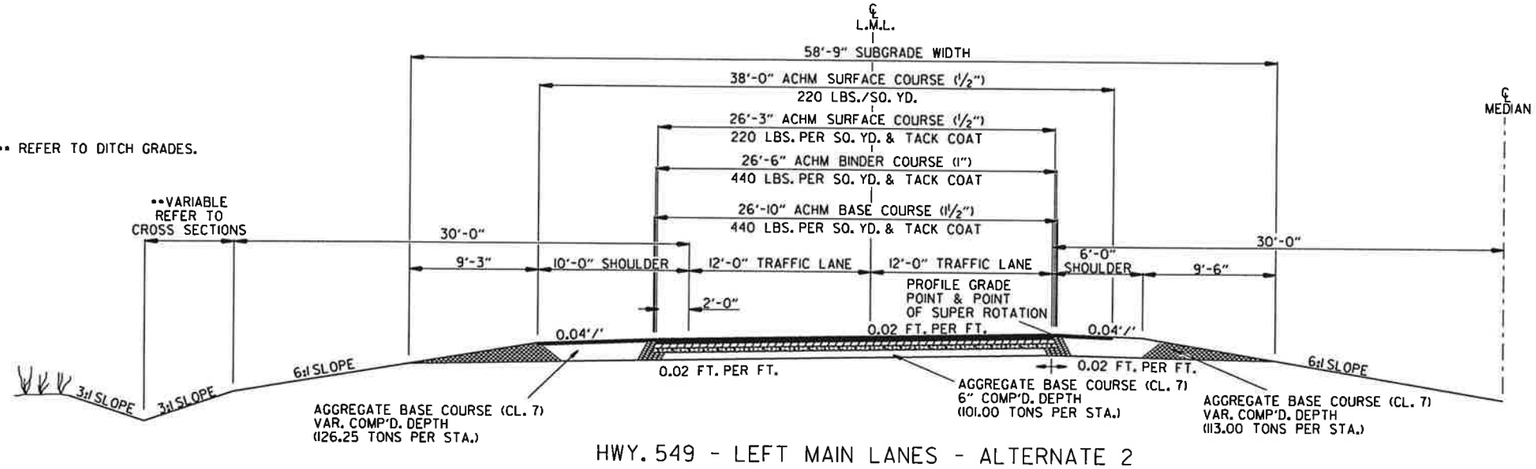
R090508.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	4B	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17



HWY. 549 - LEFT MAIN LANES - ALTERNATE 2

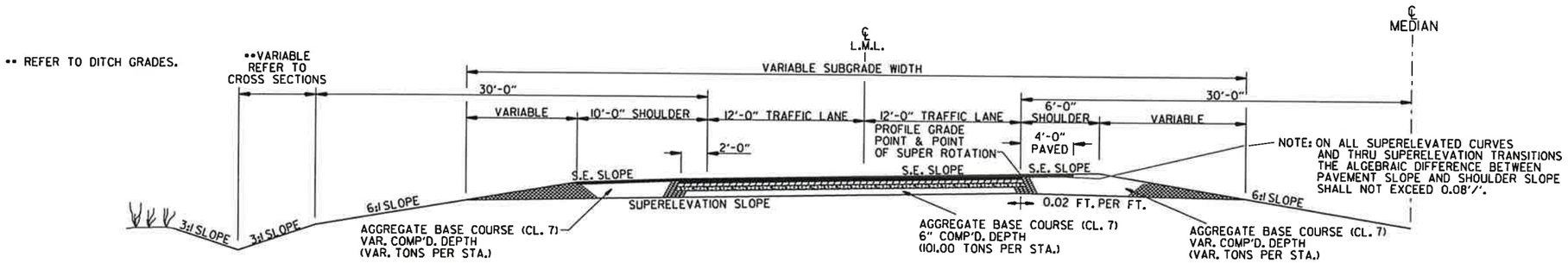
STA. 559+00.00 TO STA. 611+71.00
STA. 641+92.96 TO STA. 687+00.00
STA. 700+67.78 TO STA. 711+98.12
STA. 714+85.17 TO STA. 742+30.86
STA. 762+77.02 TO STA. 779+97.93
STA. 782+78.07 TO STA. 799+00.00
STA. 845+00.00 TO STA. 998+83.84
STA. 1001+48.16 TO STA. 1020+72.00

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



HWY. 549 - LEFT MAIN LANES - ALTERNATE 2
SUPERELEVATION SECTION (CURVE TO LEFT)
(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

10/16/2017

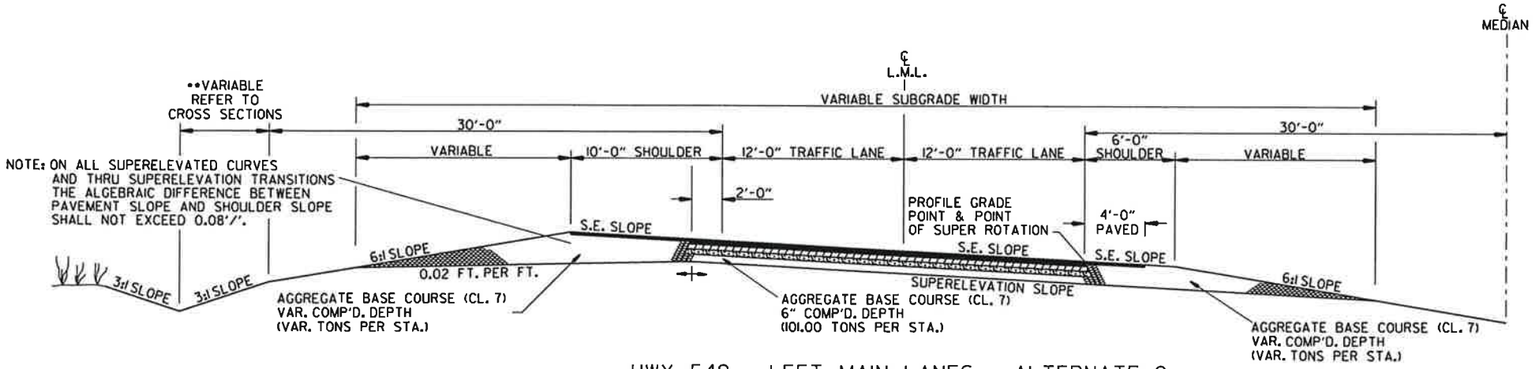
R090508.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	5	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17



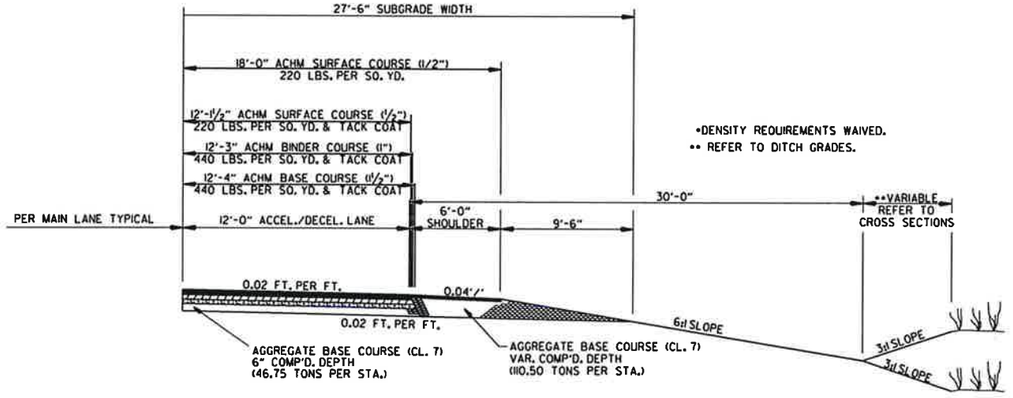
HWY. 549 - LEFT MAIN LANES - ALTERNATE 2
SUPERELEVATION SECTION (CURVE TO RIGHT)
(PAVEMENT SECTION IS SAME AS SHOWN ON PAGE 4B)

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



ACCELERATION & DECELERATION LANE - ALTERNATE 2
(SHOWN IN DIRECTION OF TRAFFIC)

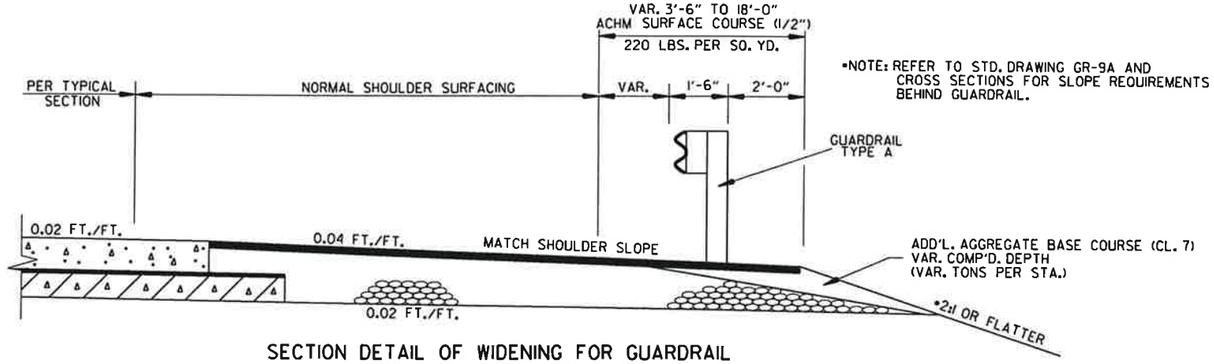
10/16/2017

R090508.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	6	335

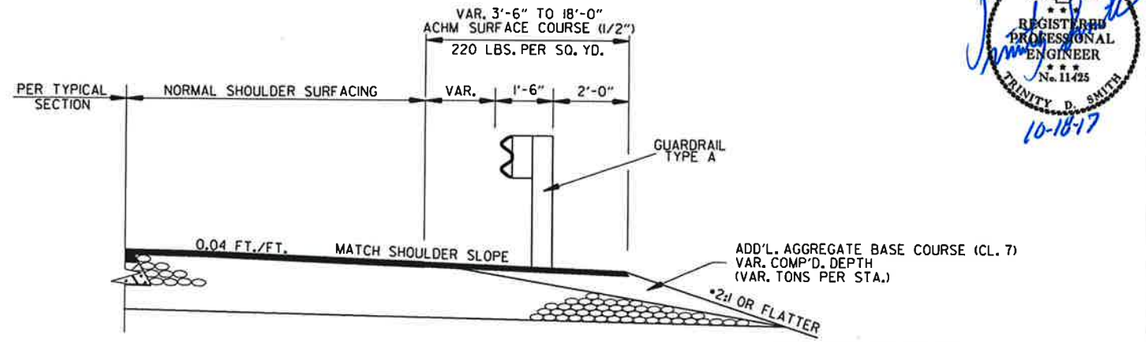
(2) SPECIAL DETAILS



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

SECTION DETAIL OF WIDENING FOR GUARDRAIL
HWY. 549 - ALTERNATE 1

NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-8A, GR-9, GR-9A, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.

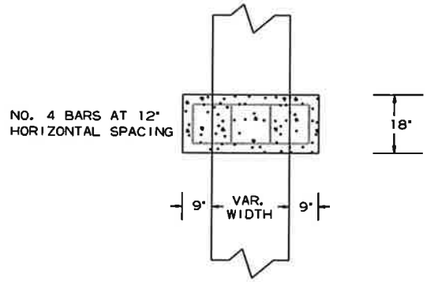


SECTION DETAIL OF WIDENING FOR GUARDRAIL
HWY. 549 - ALTERNATE 2

NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-8A, GR-9, GR-9A, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.

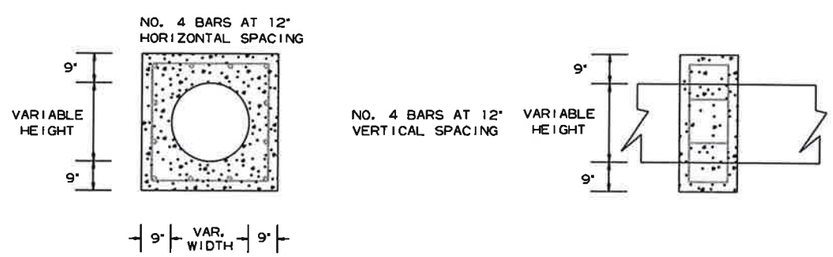
*NOTE: REFER TO STD. DRAWING GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17



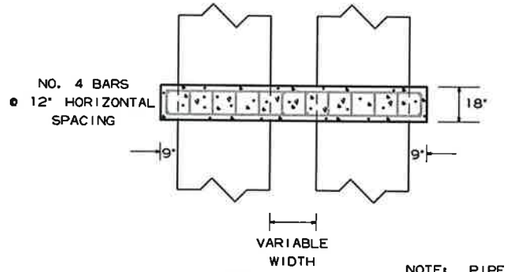
TOP VIEW

MIN. 3" COVER



FRONT VIEW SIDE VIEW

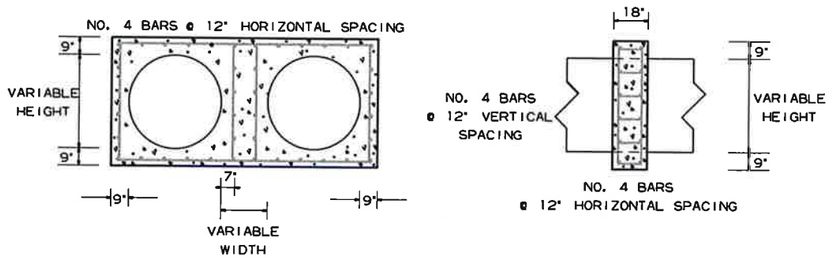
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



TOP VIEW

NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.

MIN. 3" COVER



FRONT VIEW SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

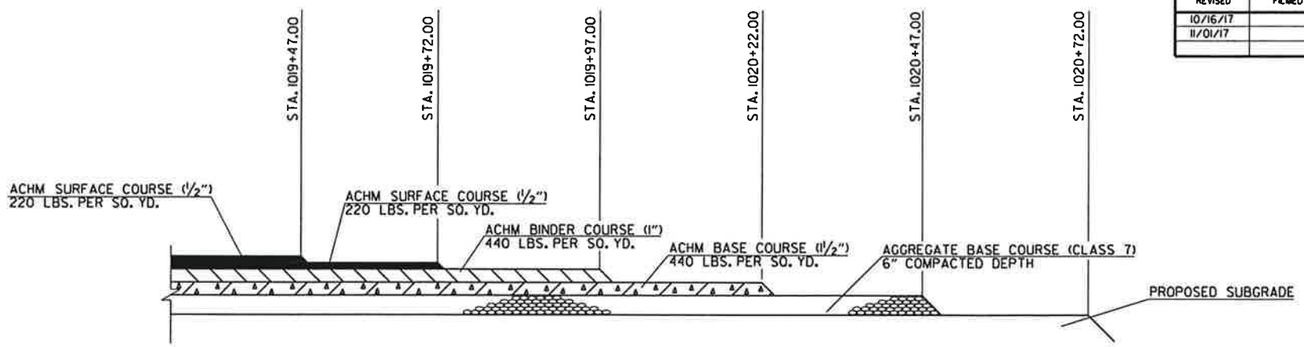
10/16/2017

R090508.DGN

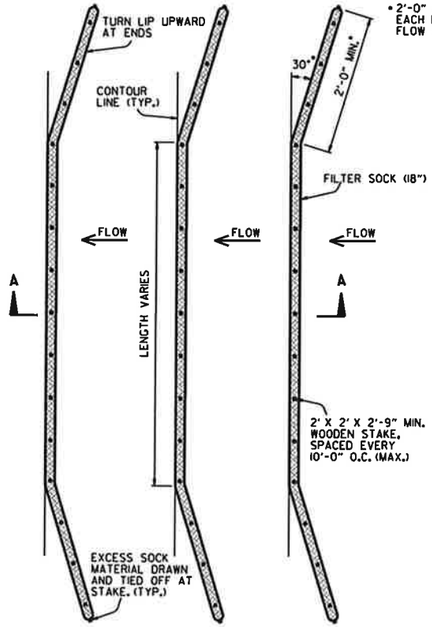
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
11/01/17				JOB NO.		090508	6A	335

(2) SPECIAL DETAILS

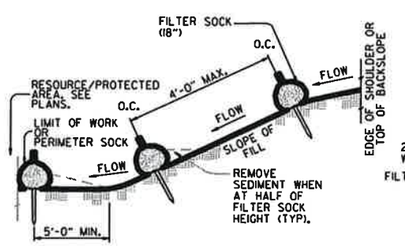
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17



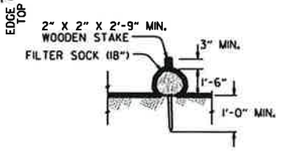
DETAIL OF PAVEMENT TRANSITION - ALTERNATE 2
AT END OF JOB



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.



STAKING DETAIL
N.T.S.

NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

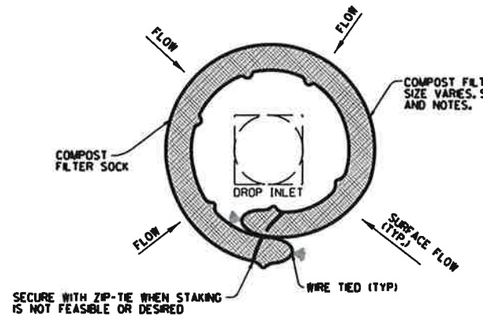
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

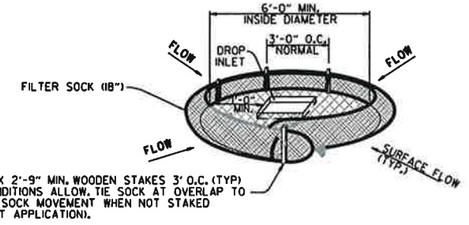
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

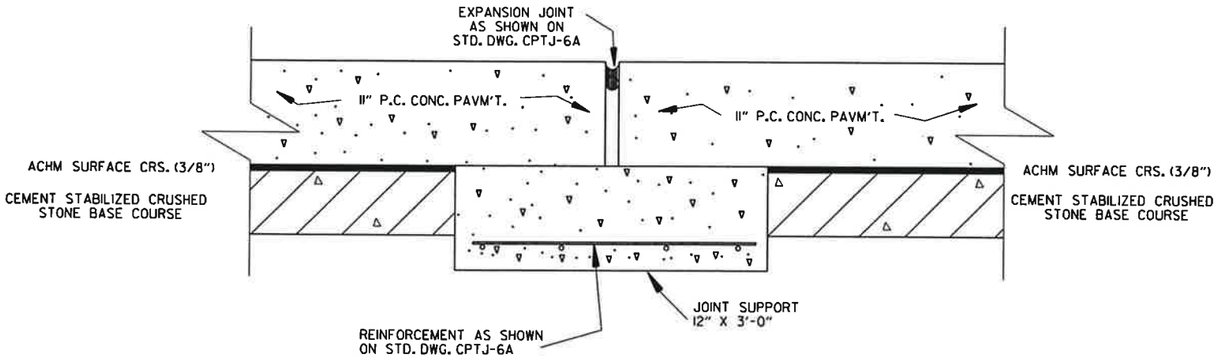
10/16/2017

R090508.DGN

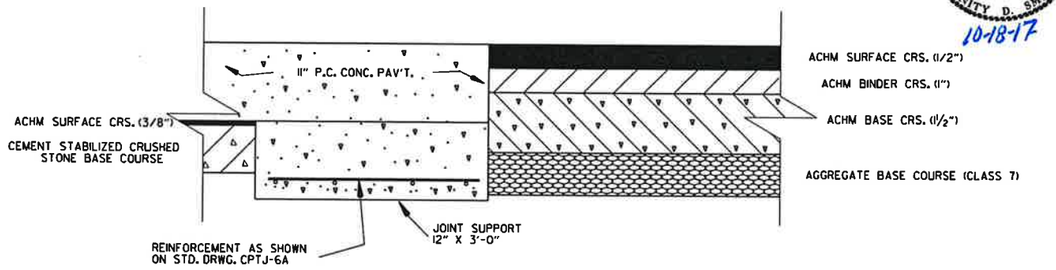
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	7	335

(2) SPECIAL DETAILS

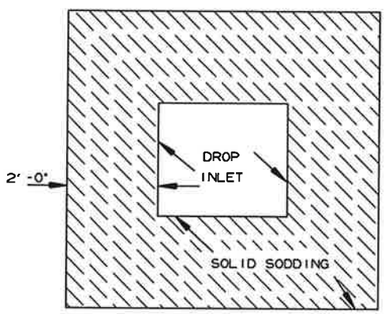
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17



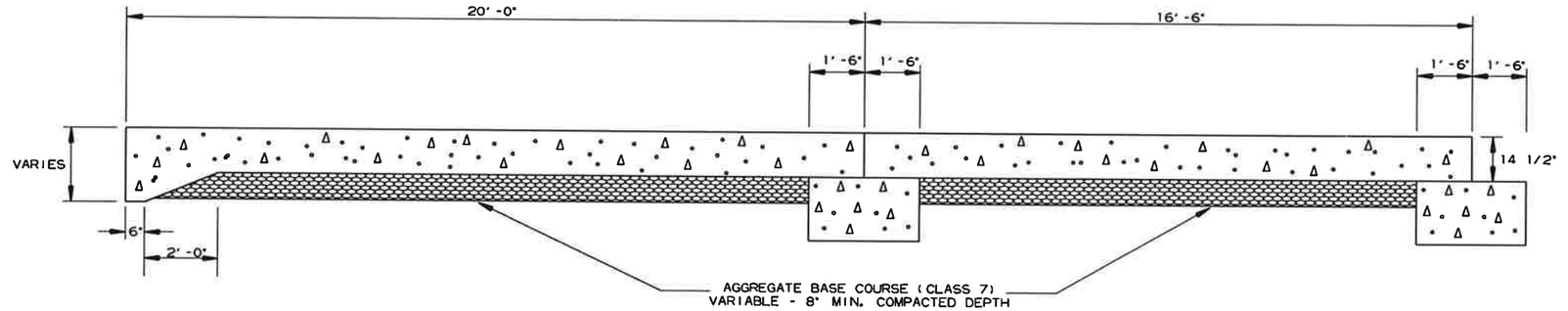
DETAILS OF JOINT SUPPORT -ALTERNATE 1



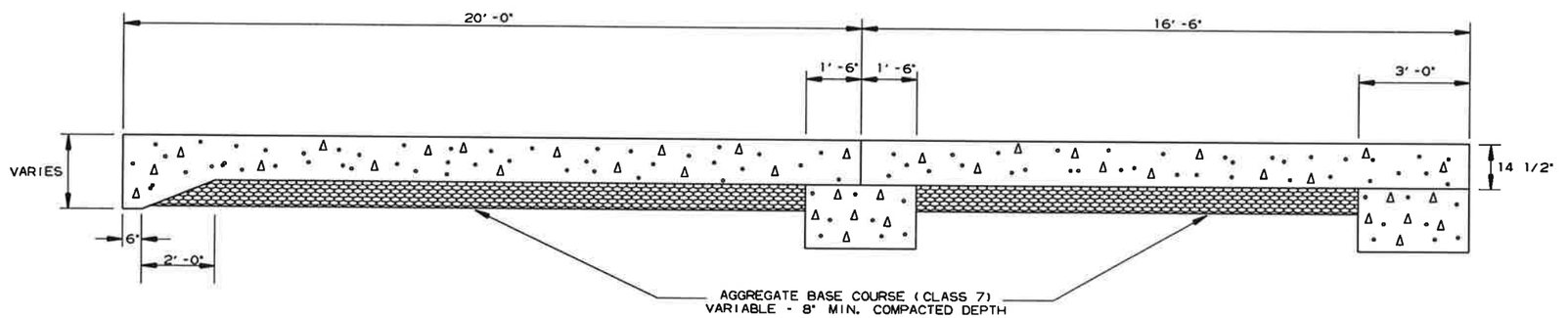
DETAILS OF JOINT SUPPORT AT BEGIN AND END OF EXISTING CONCRETE PAVEMENT ALTERNATE 2



DETAIL FOR SOLID SODDING AROUND DROP INLETS



SECTION OF APPROACH SLAB - ALTERNATE 1



SECTION OF APPROACH SLAB - ALTERNATE 2

10/16/2017

R090508.DGN

SPECIAL DETAILS

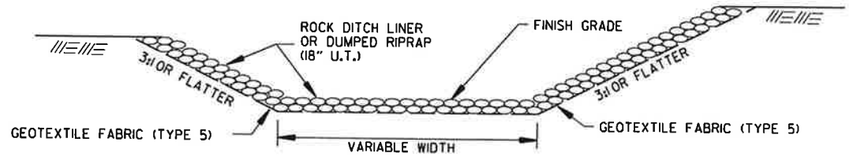
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	8	335

(2) SPECIAL DETAILS

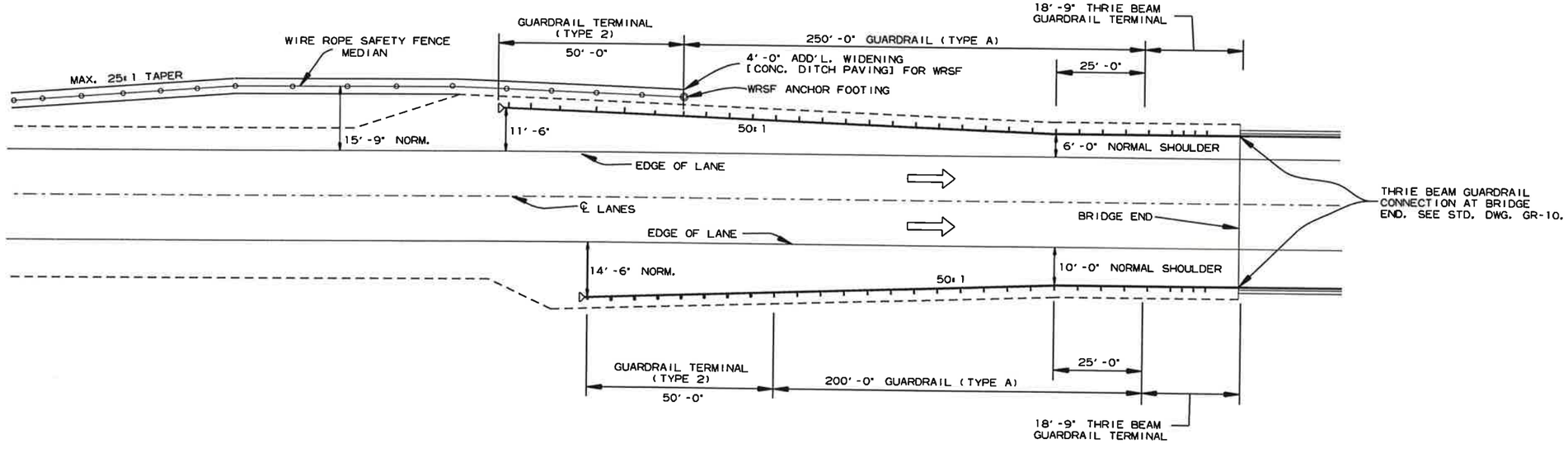
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

6.0" Radius, 1.3" Border, Black on Orange;
"Job 090298" C 2K; "Start Date Mo Year" C 2K;
"Est Completion Mo Year" C 2K; "IDRIVE " Arial;
" ARKANSAS.COM " Arial;

CONSTRUCTION PROJECT INFORMATION SIGN



DETAILS OF ROCK DITCH LINER OR DUMPED RIPRAP



TYPICAL LAYOUT OF GUARDRAIL AT BRIDGE ENDS

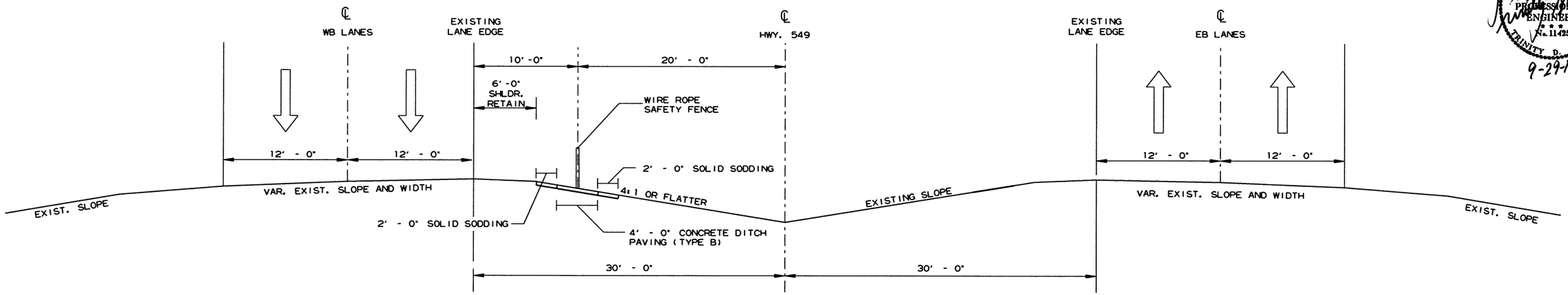
10/16/2017

R090508.DGN

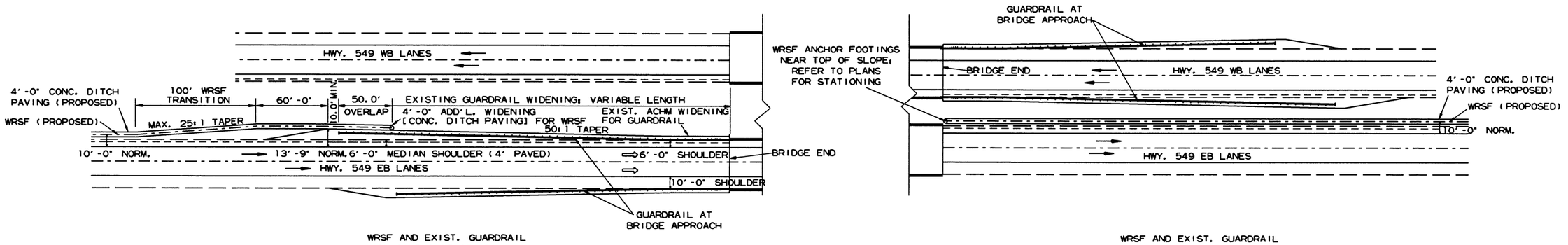
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	9	335

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



TYPICAL SECTION OF IMPROVEMENT
FOR WIRE ROPE SAFETY FENCE LEFT OF CENTERLINE



DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS

REFER TO PLANS FOR RELATIVE PLACEMENT
OF GUARDRAIL AND WIRE ROPE SAFETY FENCE
AT EACH BRIDGE END

9/14/2017

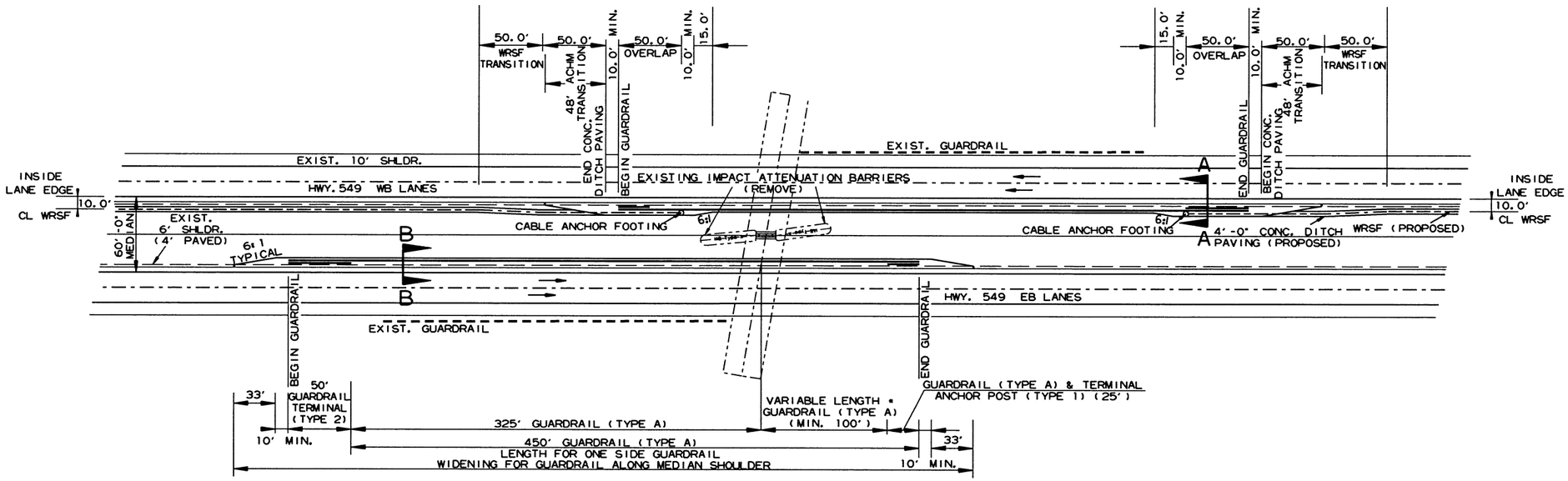
R090508.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	10	335

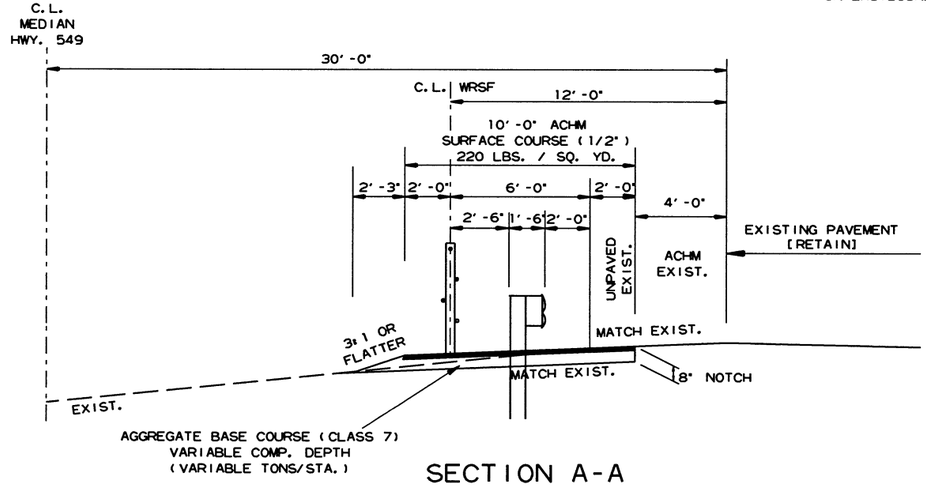
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

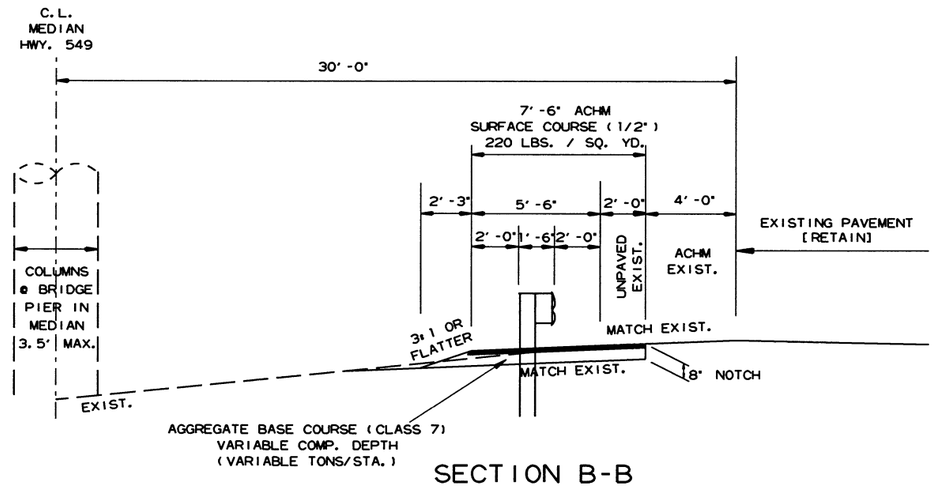


DETAIL AT OVERPASSES

NOTE: REFER TO PLAN SHEETS FOR PLACEMENT OF WIRE ROPE SAFETY FENCE ON EASTBOUND OR WESTBOUND FORESLOPES.



SECTION A-A



SECTION B-B

DETAILS OF SHOULDER WIDENING FOR GUARDRAIL AND OVERLAPS WITH ENDS OF WIRE ROPE SAFETY FENCE

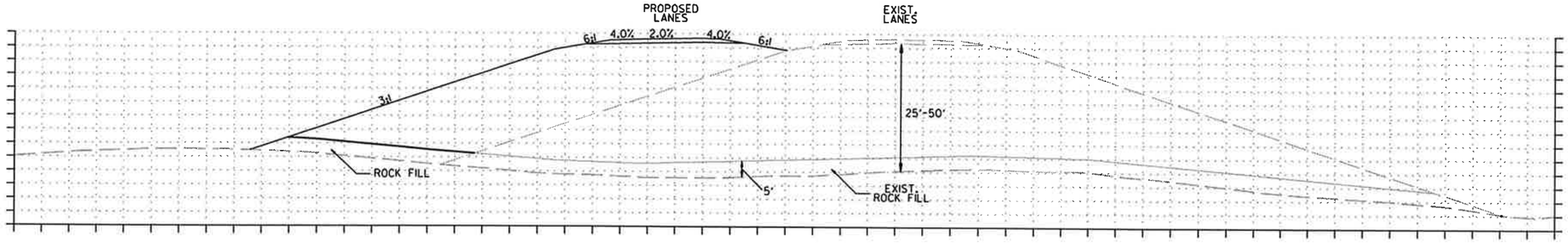
9/14/2017

R090508.DGN

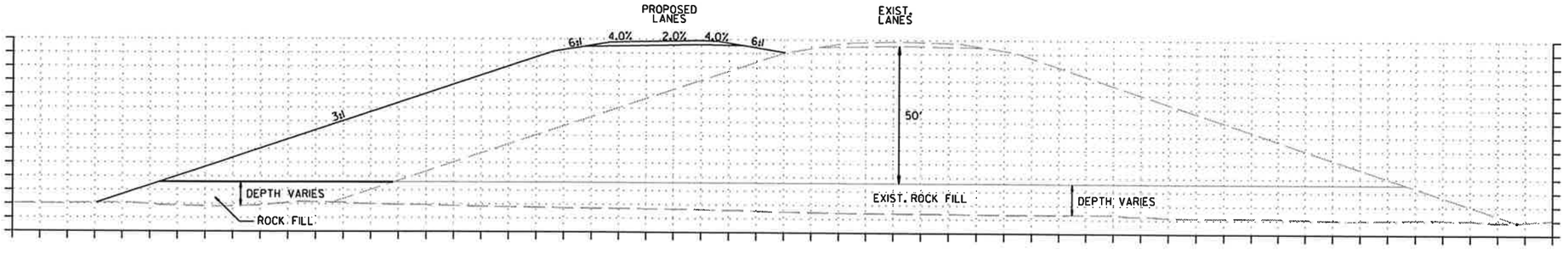
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	11	335

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17



TYPICAL PLACEMENT OF ROCK FILL FOR COMPACTED EMBANKMENT DEPTHS OF 25'-50'



TYPICAL PLACEMENT OF ROCK FILL FOR COMPACTED EMBANKMENT DEPTHS OF GREATER THAN 50'

NOTES:
FOR ALL COMPACTED EMBANKMENT DEPTHS GREATER THAN 25' BUT LESS THAN 50' THERE SHALL BE A 5' LAYER OF ROCK FILL ALONG THE EXISTING SURFACE.

FOR ALL COMPACTED EMBANKMENT DEPTHS GREATER THAN 50' THERE SHALL BE A ROCK FILL LAYER FROM 50' TO THE EXISTING SURFACE.

REFER TO "ROCK FILL" SPECIAL PROVISION FOR ADDITIONAL INFORMATION.

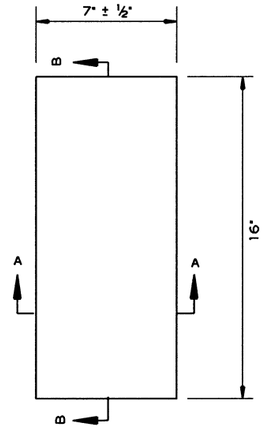
10/16/2017

R090508.DGN

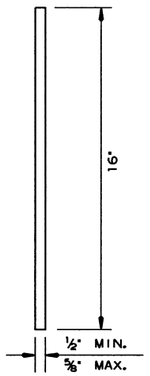
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	12	335

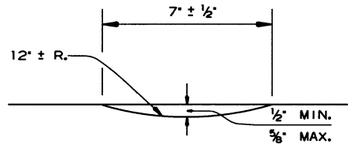
(2) SPECIAL DETAILS



PLAN

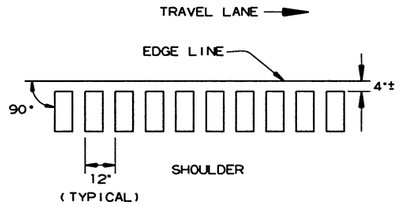


SECTION B-B



SECTION A-A

DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS

LEFT OR RIGHT SHOULDER

PLAN VIEW

NOTES:

1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE.
2. THE ½" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
3. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.

R090508.DGN 9/14/2017

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	13	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 599+00.00
BEGIN JOB 090508

E-11 =1208 LIN.FT.

E-11 =283 LIN.FT.

E-11 =27.19 LIN.FT.

S 0°30'06" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	14	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

E-14 10370 CU.FT.

E-14 8273 CU.FT.

E-11 =2262 LIN.FT.

PC614+33.50

S 0°30'06" E

S 0°30'06" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	15	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

E-11
1489 LIN.FT.

PT 639+30.46

S 37°57'22" E

S 37°57'22" E

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	16	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

650 655 660

S 37°57'22" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

P.C. 677+67.

665 670 675 680

S 37°57'22" E

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	17	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

680 685 690 695

E-11 =335 LIN.FT.

E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1

S 68°31'34" E

695 700 705 710

PT 698+05.28

E-11 =114 LIN.FT.

E-11 =172 LIN.FT.

E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	18	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

E-11 =315 LIN.FT.

E-11 =278 LIN.FT.

16'-0" GATE

710 715 720 725

S 68°31'34" E

E-1

REVISIONS

DATE OF REVISION	REVISION

+68.67 160'

+72.61 366.51' RT

+00 175'

+37.53 170'

725 730 735 740

S 68°31'34" E

E-1

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	19	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

740
745 PC744+83.36
750
755
760 PT760+14.52
765
770
-939

E-11 =808 LIN.FT.
E-11 =808 LIN.FT.
E-11 =111 LIN.FT.

N 88°39'24" E

FENCE COR N-E
FENCELINE E-W
BARBED WIRE FE COR N-W

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	20	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-19-17

E-11 =939 LIN.FT.

E-11 =87 LIN.FT.

E-11 =523 LIN.FT.

16'-0" GATE

METER BOX

METER BOX

N 88°39'24" E

775

780

785

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	21	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

POWER TRANSMISSION LINE

N 88°39'24" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

PC 804+62.15

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	22	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

PT817+62.46

815 820 825 830

N 75°39'13" E

N 75°39'13" E

N

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

830 835 840 845

N

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	23	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17

E-11 =208 LIN.FT.

S 58°21'48" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	24	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

875 880 885 890

S 58°21'48" E

E-1 E-1 E-1 E-1 E-1

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

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

REVISIONS

DATE OF REVISION	REVISION

E-11 E-11 E-11 E-11

≈990 LIN.FT.

890 895 900 905

E-1

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	25	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

905 910 915 920 925 930 935

E-11 =600 LIN.FT.

E-11 =125 LIN.FT.

PC917+75.67

S 58°21'48" E

E-11 =369 LIN.FT.

N

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	26	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

935 940 945 950

PT 941+43.45

E-11 =1037 LIN. FT.

S 82°02'29" E

E-1 E-1 E-1

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

950 955 960 965

POND

PC 962+37.44

E-11 =194 LIN. FT.

E-1 E-1 E-1 E-1 S 82°02'29" E E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1

E-11

9/14/2017

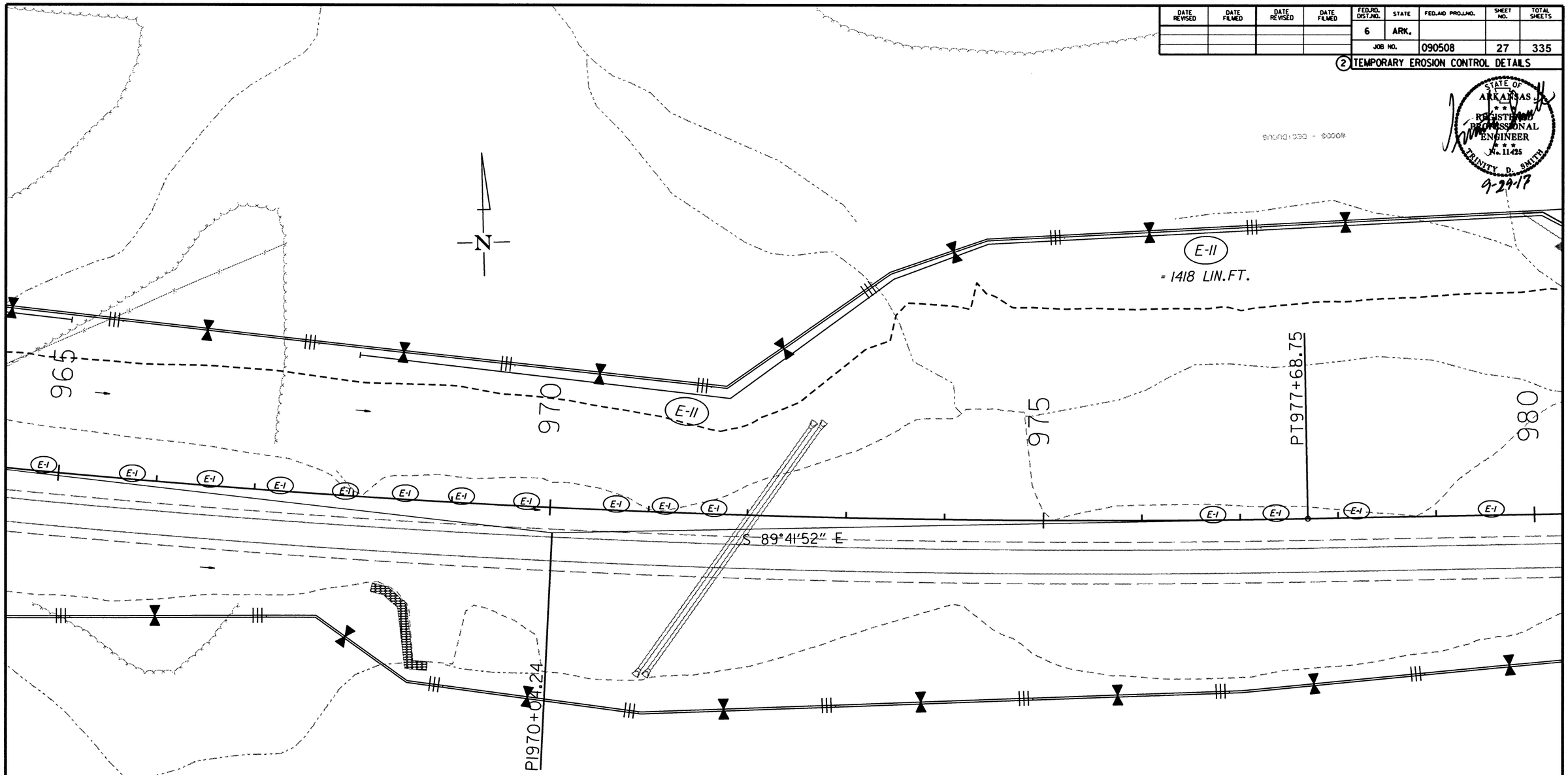
R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	27	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



LEGEND

E-1	= WATTLE DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-11	= SILT FENCE
E-14 XX CU FT	= SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	28	335

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

E-11 = 903 LIN.FT.

E-11

E-11 = 442 LIN.FT.

LEVEE

980

985

987

990

995

P1989+16.78

PC987+11.80

PT991+21.06

PC993+00.14

P1995+05.32

S 89°41'52" E

POND

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	29	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

POND

LEVEE

N

E-11

E-11

442 LIN.FT.

PT 997+09.79

995

1000

1005

1010

S 89°41'52" E

52" E

995

997

PI 995+05.32

235

95'

+60

60'

+00

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN, XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

9/14/2017

R090508.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	30	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

PC011+07.14

1010

1015

1020

1025

STA. 1020+72.00
END JOB 090508

PI1021+01.84

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	31	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

E-6 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-7 E-1 E-1 E-1

55 56 57 57 5

E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-7 E-1 E-1 E-1

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

N

E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-7 E-1 E-7 E-11

57 58 58 5

E-1 E-1 E-1 E-1 E-1 E-1 E-1 E-7 E-1 E-7 E-11

S 0°30'06" E

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	32	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-29-17

N

595 595 600 605

25' BUFFER ZONE

25' BUFFER ZONE

25' BUFFER ZONE

E-1 E-1 E-1 E-1 E-1 E-6 E-6 E-1 E-1 E-11 E-11 E-11 E-7 E-7 E-7 E-14

S 0°30'06" E

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

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

REVISIONS

DATE OF REVISION	REVISION

N

PC614+33.50

605 605 610 610

E-1 E-1 E-1 E-1 E-1 E-1 E-7 E-7 E-7 E-11 E-11 E-14

S 0°30'06" E

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	33	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

PT639+30.46

S 37°57'22" E

S 37°57'22" E

25' BUFFER ZONE

25' BUFFER ZONE

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	34	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

S 37°57'22" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

PC 677+67.

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	35	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

PT 698+05.28

S 68°31'34" E

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	36	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

16'-0" GATE

C.D.P.

S 68°31'34" E

+68.67 160'

+72.61 166.51' RT TO NE N.S

+00 175'

+37.53 170'

GATE

GAME FENCE (TYP) E.W.S

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	37	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

PC 744+83.36

PT 760+14.54

N 88°39'24" E

BARBED WIRE FE COR N-W

FENCE COR N,S,E

FENCELINE S-W

BARBED WIRE FE COR N-W

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	38	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

POND

25'F

METER BOX
METER BOX

16' 0" GATE

N 88°39'24" E

775

780

780

16'

16'

E-1 E-5 E-6 E-7 E-11 E-14

LEGEND

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

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

REVISIONS

DATE OF REVISION	REVISION

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	39	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

POWER TRANSMISSION LINE

E-11 =700 LIN.FT.

N 88°39'24" E

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

PC 804+62.15

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	40	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

PT817+62.46

815 820 825 830 835 840 845

N 75°39'13" E

N 75°39'13" E

E-7 E-7 E-7 E-7

N N

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	41	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

S 58°21'48" E

+05 265'

+00 210'

+90 280'

+50 305'

+90 210'

+80 195'

.219 CU.FT.

.85 CU.FT.

33.18

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	42	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

+40 380
+00 60'
S 58°21'48" E
E-14 :265 CU FT
E-11 :590 LIN.FT.
E-11 :760 LIN.FT.
875 880 885 890 895 900 905

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	43	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN (XX CU FT)

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

REVISIONS

DATE OF REVISION	REVISION

905 910 915 920 925 930 935

E-14 ·302 CU.FT.

E-11 ·205 LIN.FT.

E-11 ·180 LIN.FT.

PC 91+75.67

E-14 ·149 CU.FT.

Δ 58°28'48" E

N

9/28/2017

R090508.DGN

STAGES 1& 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	44	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-27-17

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

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

REVISIONS

DATE OF REVISION	REVISION

PT 941+43.45

PC 962+37.44

S 82°02'29" E

S 88°02'29" E

•396 CU.FT.

POND

9/28/2017

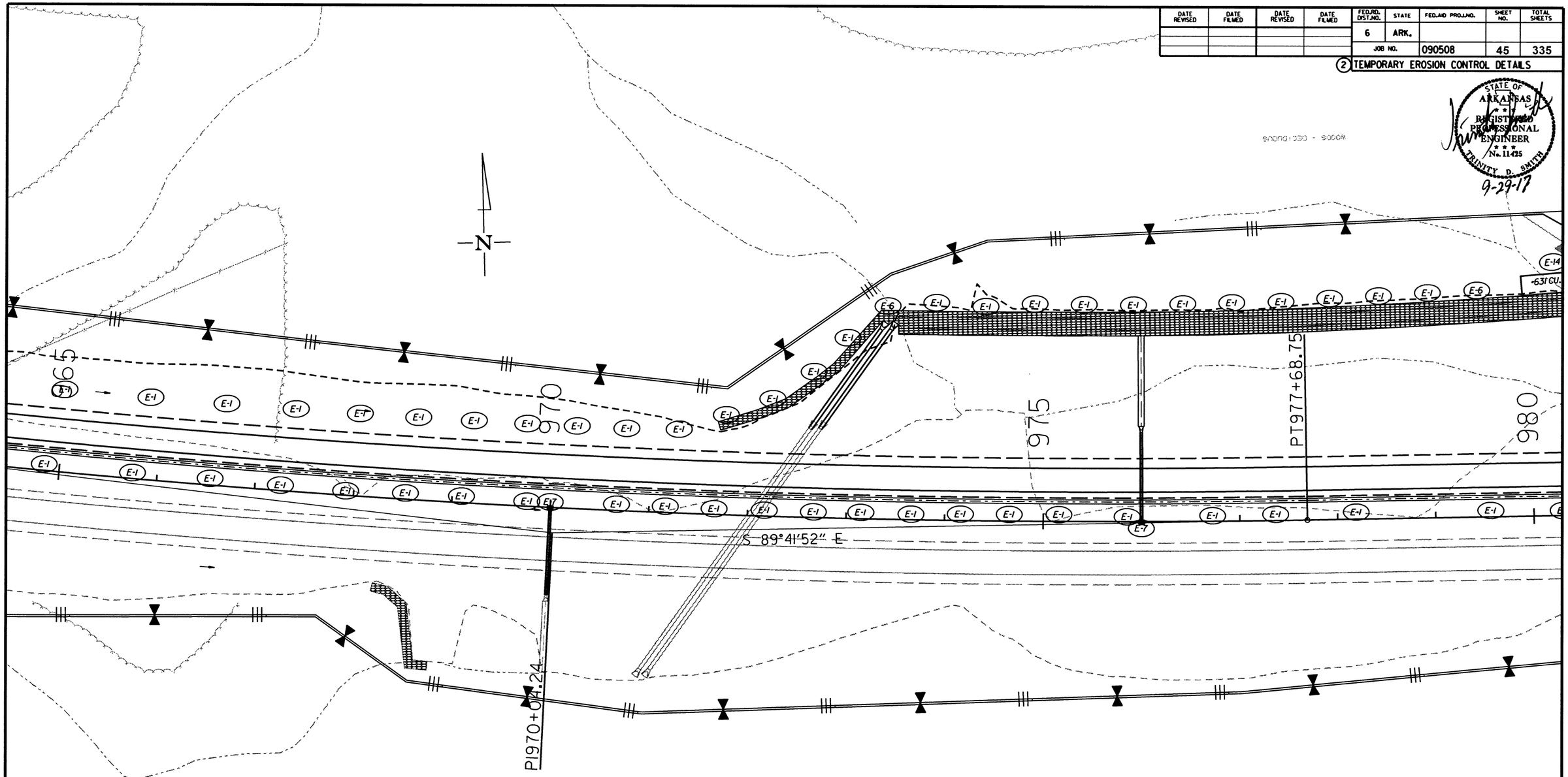
R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	45	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



LEGEND

E-1	= WATTLE DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-7	= DROP INLET SILT FENCE
E-11	= SILT FENCE
E-14 XX CU FT	= SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

9/28/2017

R090508.DGN

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	46	335

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

LEVEE

E-14 -631 CU.FT.

E-6 E-6 E-14 -321 CU.FT.

E-11 -150 LIN.FT.

980

985

987

990

995

P1989+18.70

PC993+00.14

S 89°41'53" E

PC987+11.80

PT991+21.06

P1995+05.32

POND

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	47	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

POND

N

E-11 -150 LIN.FT.

E-14 -232 CU.FT.

PT997+09.79

P1995+05.32

S 89°41'52" E

995

997

1000

1005

1010

965

235'

+60.95

+00.09

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

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

REVISIONS

DATE OF REVISION	REVISION

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	48	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-27-17

N

PC1011+07.14

E-14 148 CU.FT.

1000 1005 1020 1025

P1102I+01.84

LEGEND

- E-1 = WATTLE DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

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

REVISIONS

DATE OF REVISION	REVISION

STAGES 1 & 2
TEMPORARY EROSION CONTROL DETAILS

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	49	335

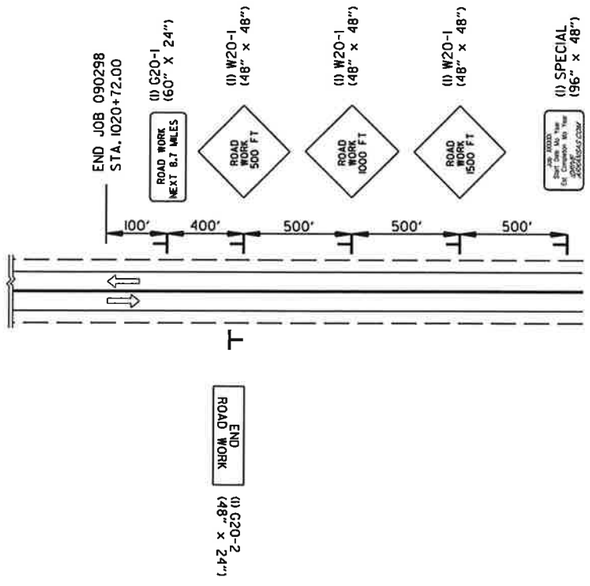
(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

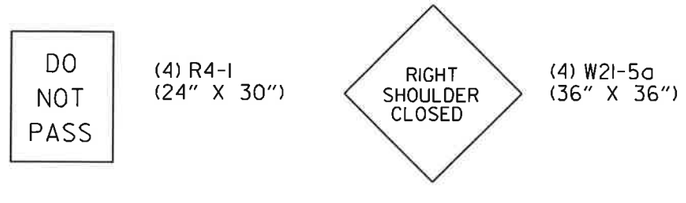
STAGE 1:
MAINTAIN HEAD TO HEAD TRAFFIC IN THE RIGHT MAIN LANES SEPARATED WITH AN EXISTING DOUBLE YELLOW LINE. CONSTRUCT LEFT MAIN LANES STA. 559+00.00 TO STA. 641+00.00, STA. 687+00.00 TO STA. 799+00.00, AND STA. 845+00.00 TO STA. 1020+72.00. CONSTRUCT BRIDGES STA. 712+37.87 TO STA. 714+44.13, STA. 780+34.43 TO STA. 782+41.57 STA. 928+78.65 TO 934+36.65, STA. 999+21.84 TO STA. 1001+10.16. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING FROM STA. 717+28.07 TO STA. 780+10.17 ON LT., STA. 885+22.03 TO STA. 928+84.30 LT., STA. 937+37.14 TO STA. 954+73.67 LT., STA. 958+73.67 TO STA. 987+00.00 LT. CONSTRUCT GUARDRAIL AT BRIDGE ENDS AND STA. 664+79.04 TO STA. 669+79.04 ON LT., STA. 820+47.92 TO STA. 825+47.92 ON LT.

STAGE 2: SHIFT NORTHBOUND TRAFFIC TO OUTSIDE LEFT MAIN LANES AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. MAINTAIN SOUTHBOUND TRAFFIC IN OUTSIDE RIGHT MAIN LANE AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING STA. 563+00 TO STA. 665+29.04 ON LT., STA. 668+29.04 TO STA. 712+26.28 ON LT., STA. 785+22.92 TO STA. 821+07.92 ON LT., AND STA. 822+63.13 TO STA. 878+95.81 ON RT. CONSTRUCT GUARDRAIL STA. 662+13.35 TO STA. 667+13.35. REMOVE ALL CONFLICTING PAVEMENT MARKINGS AND PLACE CONSTRUCTION PAVEMENT MARKINGS AS NEEDED. REMOVE ALL TEMPORARY RAMP CROSSOVERS.

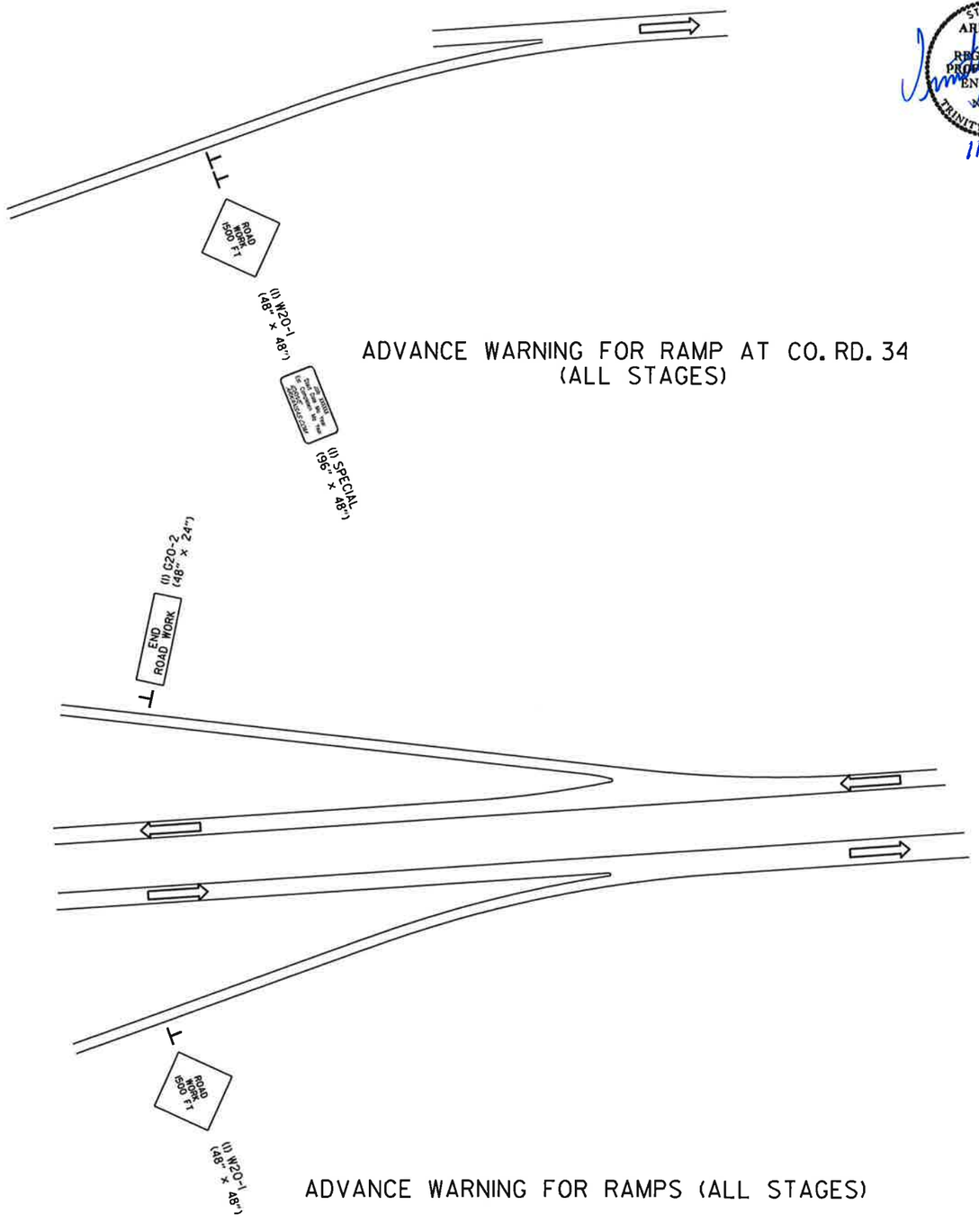
END OF JOB: PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN PLANS AND STD. DWGS. PM-1 AND PM-2.



ADVANCE WARNING (ALL STAGES)



USE IF AND WHERE DIRECTED BY ENGINEER



ADVANCE WARNING FOR RAMP AT CO. RD. 34 (ALL STAGES)

ADVANCE WARNING FOR RAMPS (ALL STAGES)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

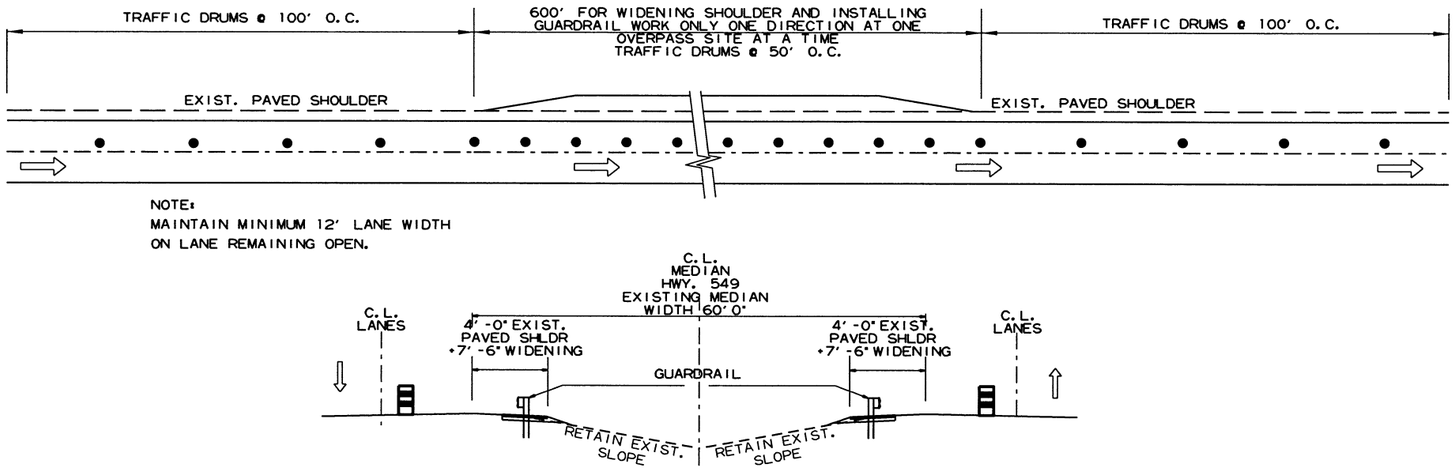
ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

9/26/2017
R090508.DGN

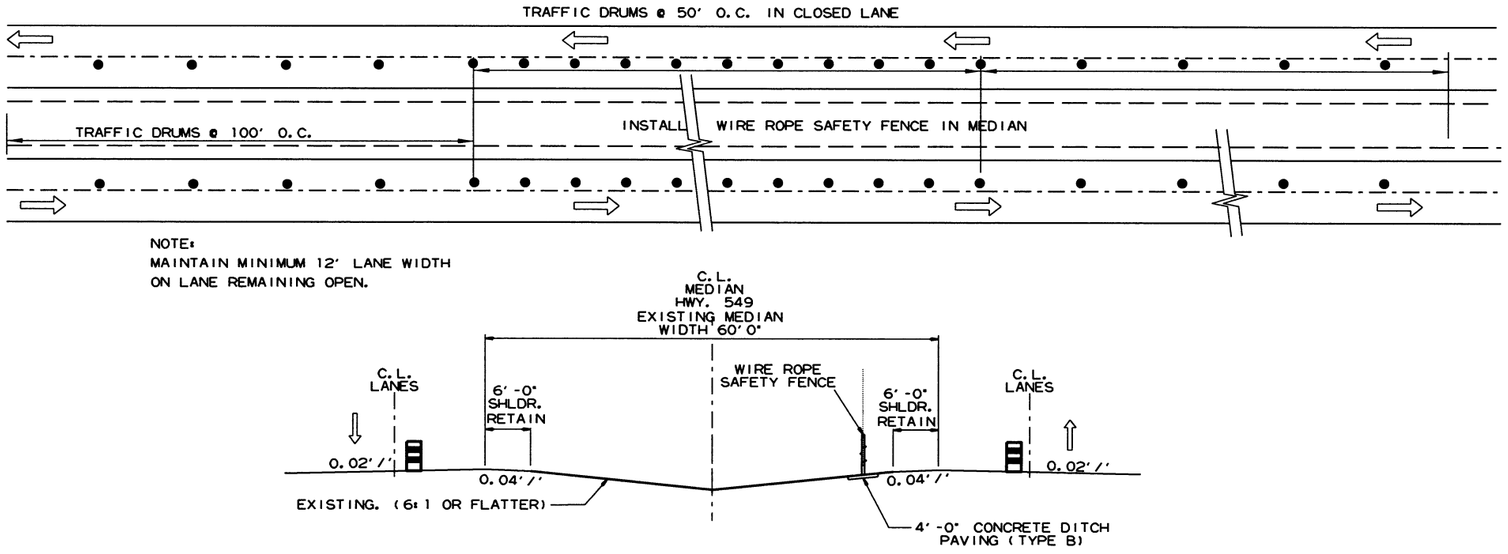
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	50	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



WORK ZONE FOR GUARDRAIL INSTALLATION



WORK ZONE FOR WRSF INSTALLATION

9/26/2017

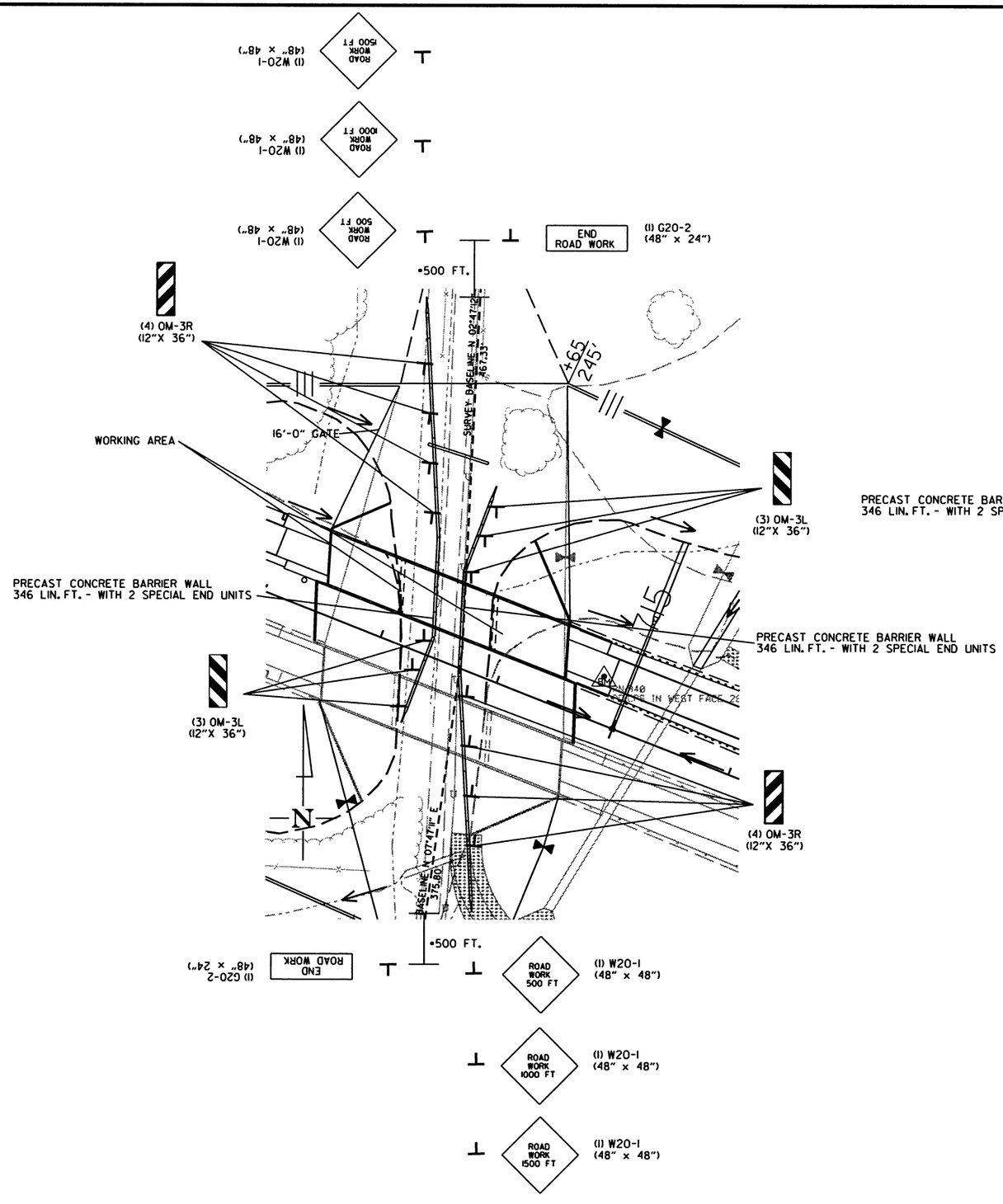
R090508.DGN

WORK AREAS
MAINTENANCE OF TRAFFIC DETAILS

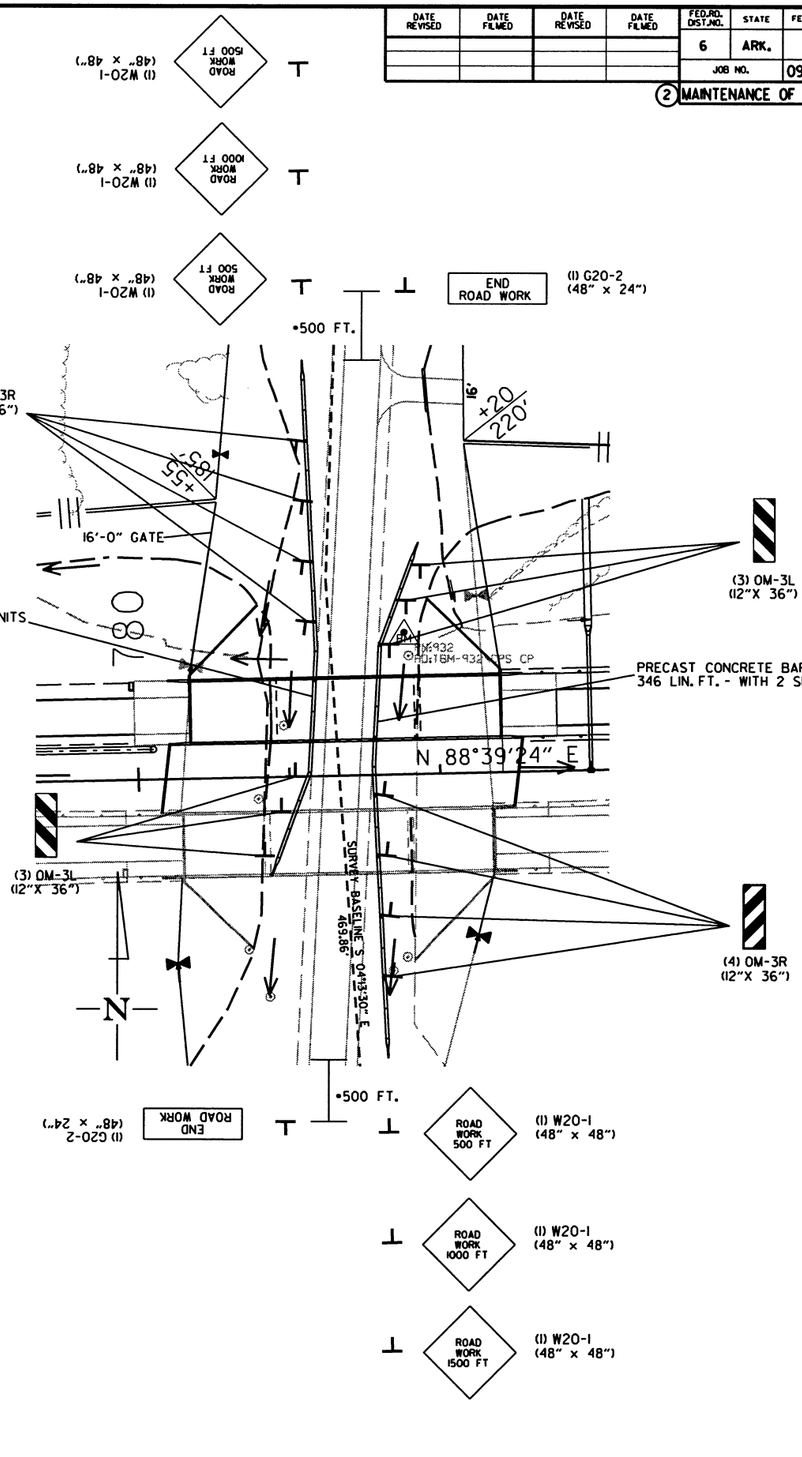
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	51	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17



CO. RD. 35



HWY. 279

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

9/26/2017

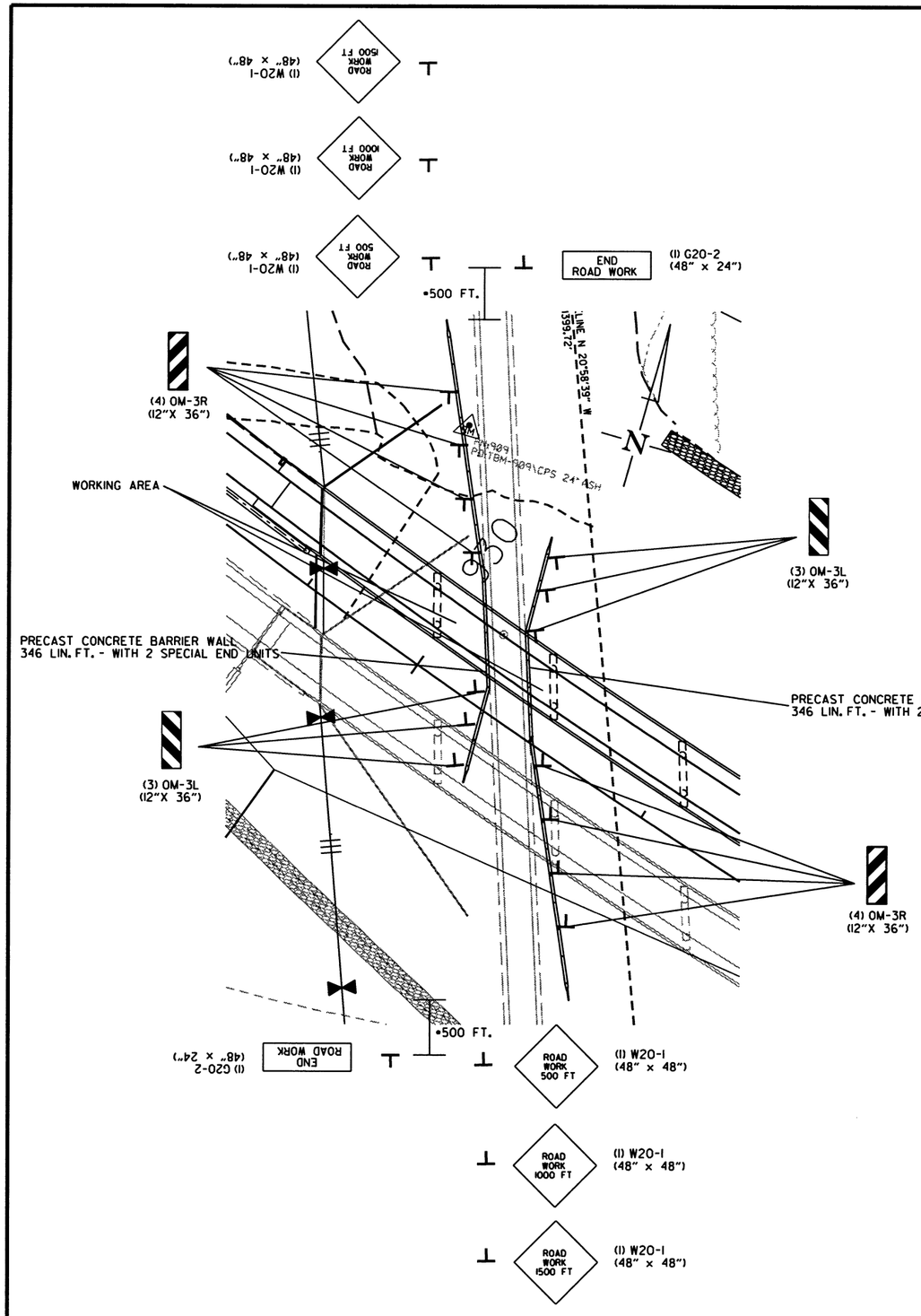
R090508.DGN

•NOT TO SCALE

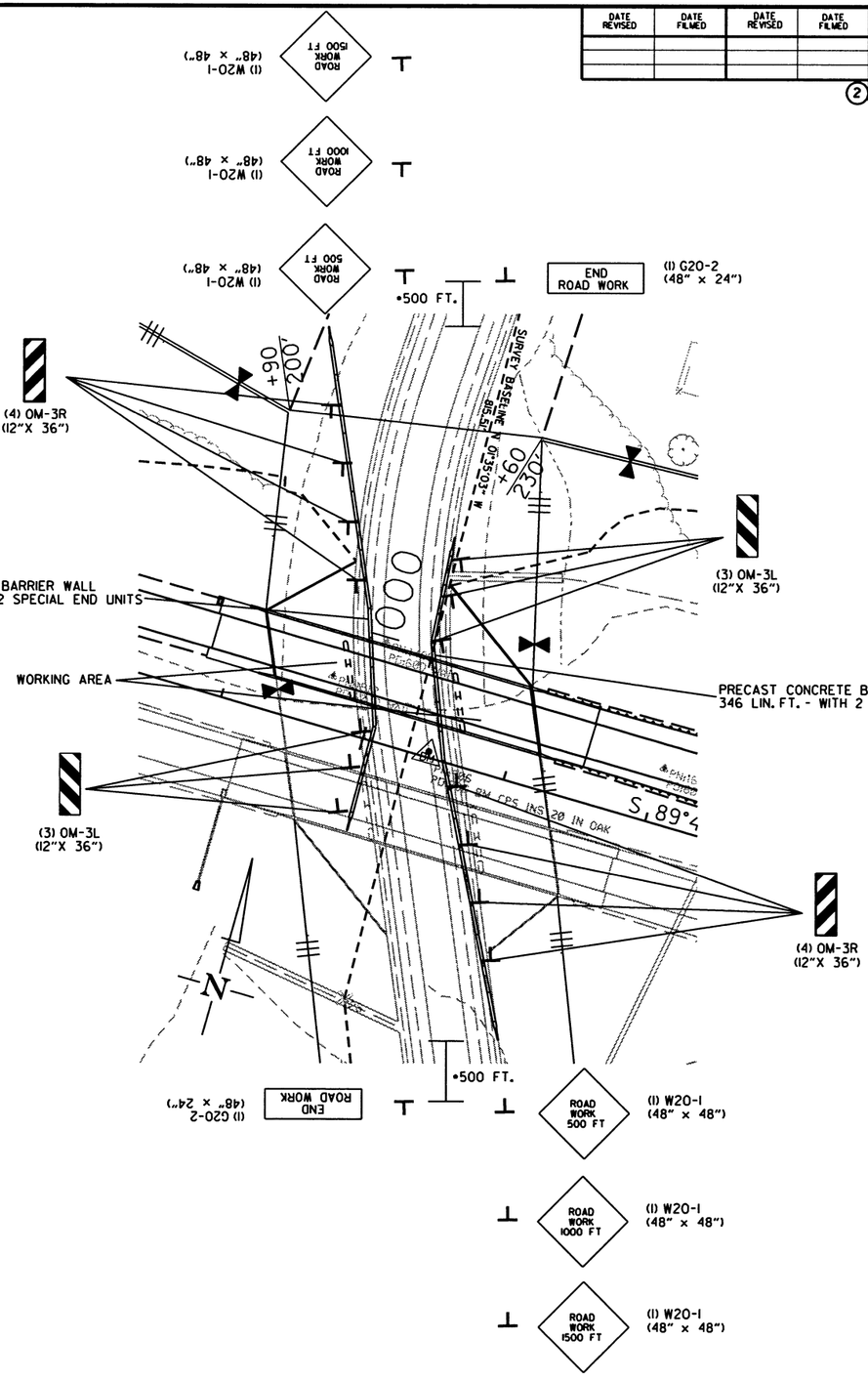
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	52	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



BECKETT RD./TANYARD CREEK



ARTHUR RD.

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

9/26/2017

R090508.DGN

•NOT TO SCALE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	53	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN HEAD TO HEAD TRAFFIC IN THE RIGHT MAIN LANES SEPARATED WITH AN EXISTING DOUBLE YELLOW LINE. CONSTRUCT LEFT MAIN LANES STA. 559+00.00 TO STA. 641+00.00, STA. 687+00.00 TO STA. 799+00.00, AND STA. 845+00.00 TO STA. 1020+72.00. CONSTRUCT BRIDGES STA. 712+37.87 TO STA. 714+44.13, STA. 780+34.43 TO STA. 782+41.57 STA. 928+78.65 TO 934+36.35, STA. 999+21.84 TO STA. 1001+10.16. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING FROM STA. 717+28.07 TO STA. 780+10.17 ON LT., STA. 885+22.03 TO STA. 928+84.30 LT., STA. 937+37.14 TO STA. 954+73.67 LT., STA. 958+73.67 TO STA. 987+00.00 LT. CONSTRUCT GUARDRAIL AT BRIDGE ENDS AND STA. 664+79.04 TO STA. 669+79.04 ON LT., STA. 820+47.92 TO STA. 825+47.92 ON LT.

STAGE 2:
SHIFT NORTHBOUND TRAFFIC TO OUTSIDE LEFT MAIN LANES AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. MAINTAIN SOUTHBOUND TRAFFIC IN OUTSIDE RIGHT MAIN LANE AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING STA. 563+00 TO STA. 665+29.04 ON LT., STA. 668+29.04 TO STA. 712+26.28 ON LT., STA. 785+22.92 TO STA. 821+07.92 ON LT., AND STA. 822+63.13 TO STA. 878+95.81 ON RT. CONSTRUCT GUARDRAIL STA. 662+13.35 TO STA. 667+13.35. REMOVE ALL CONFLICTING PAVEMENT MARKINGS AND PLACE CONSTRUCTION PAVEMENT MARKINGS AS NEEDED. REMOVE ALL TEMPORARY RAMP CROSSOVERS.

END OF JOB: PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN PLANS AND STD. DWGS. PM-1 AND PM-2.

SIGNS = 775 SQ. FT.
TRAFFIC DRUMS = 472 EACH
PCCB = 2768

SIGN AND BARRICADE LEFT IN PLACE
FROM JOB 090293
RETAIN

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

PRECAST CONCRETE BARRIER WALL
LEFT IN PLACE FROM 090293
733 LIN. FT. WITH 1 SPECIAL END UNIT
RETAIN

TRAFFIC DRUMS = 8 EACH
50' O.C.

TRAFFIC DRUMS = 10 EACH
LEFT IN PLACE FROM 090293
50' O.C.
RETAIN

CRASH CUSHION IN SHOULDER GORE = 1 EACH
LEFT IN PLACE FROM JOB 090293
RETAIN

TRAFFIC DRUMS
100' O.C.

PRECAST CONCRETE BARRIER WALL
LEFT IN PLACE FROM 090293
753 LIN. FT. WITH 1 SPECIAL END UNIT
RETAIN

+05.90 / 170'
SURVEY BASELINE S 73°30'31" E 1477.08'
+00 / 140'
555
50
565
+29.47 / 142.76'
+50 / 195'
+12.52 / 196.25'
+00 / 220'
+35 / 300'
+80.42 / 339.83

PN=7835 PD=TBM-985.CPS
PN=7835 PD=280 NAIL
PN=7835 PD=TBM-984.CPS
PN=7835 PD=TBM-985.CPS

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

9/28/2017
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	54	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

+85 600'
+95 505'
+30 480'
+00 405'
+70 450'
+30 355'
+30 320'
+20 255'
+95 310'
+90 270'
+30 270'
+30 300'
+71.85 165'
9+30.46
PT 639+30.46
+18.76 160'
+95 135'
635
640
645
25' BUFFER ZONE
700' TEMPORARY ACCELERATION LANE
S 37°57'22" E
TRAFFIC DRUMS 100' O.C.
TRAFFIC DRUMS = 10 EACH 50' O.C.
TRAFFIC DRUMS = 8 EACH LEFT IN PLACE FROM 090293 50' O.C. RETAIN
PRECAST CONCRETE BARRIER WALL LEFT IN PLACE FROM 090293 446 LIN. FT. WITH 2 SPECIAL END UNIT RETAIN
+50 115'
+60.28 133.74'
+26.28
+50 175'
+50 198.65'
+50 265'
T.C.E.
POND
UPC
ANHYDRO POLYBRIDGE UCPS
STREET LIGHT
CURB INLET
ELEC. MANHOLE
CONC. CURB & GUTTER
STREET SIGN
ELEC. POLE
CONC. CURB & GUTTER

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

9/28/2017
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	55	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

SIGN AND BARRICADE LEFT IN PLACE
FROM JOB 090293
RETAIN

ROAD CLOSED — (1) R11-2 (48" X 30")

16' BARR. TYP. WRT.
16' BARR. TYP. WLT.

PRECAST CONCRETE BARRIER WALL
LEFT IN PLACE FROM 090292
446 LIN. FT. WITH 2 SPECIAL END UNIT
RETAIN

TRAFFIC DRUMS = 11 EACH
LEFT IN PLACE FROM 090293
50' O.C.
RETAIN

TRAFFIC DRUMS = 8 EACH
50' O.C.

TRAFFIC DRUMS
100' O.C.

TRAFFIC DRUMS = 11 EACH
50' O.C.

700' ACCELERATION LANES

300' TAPER

S 37°57'22" E

PC677+67.29

P1688+11.17

+40 245'
+20 225'
+05 170'
+40.70 175.69
+25 245'
+25 172.69'
+08.26 160'
+15 215'
+15 125'
+65 270'
+35 205'
+03.50 150'
+00 120'
+13.24 163.06'
+25 210'
+80.55 260'
+25 174.40'
+25 270'
+00 120'

680
685
690

PN:978 PD:TBM-978-CPS
PN:1303 PD:500 NAIL
PN:1304 PD:500 NAIL
PN:1305 PD:500 NAIL
PN:1306 PD:500 NAIL
PN:1307 PD:500 NAIL
PN:1308 PD:500 NAIL
PN:1309 PD:500 NAIL
PN:1310 PD:500 NAIL
PN:1311 PD:500 NAIL
PN:1312 PD:500 NAIL
PN:1313 PD:500 NAIL
PN:1314 PD:500 NAIL
PN:1315 PD:500 NAIL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	56	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

POWER TRANSMISSION LINE

POWER TRANSMISSION LINE

NAIL

795

BM
PK NAIL
PD:TBM-989\CPS

800

PRECAST CONCRETE BARRIER WALL
LEFT IN PLACE FROM 090292
446 LIN. FT. WITH 2 SPECIAL END UNIT
RETAIN

PC 804+62.15

+80
155'

805

TRAFFIC DRUMS = 11 EACH
LEFT IN PLACE FROM 090293
50' O.C.
RETAIN

+58
205'

PN:002
PD:NBC

PN:1193
PD:60 D NAIL

TRAFFIC DRUMS = 19 EACH
50' O.C.

TRAFFIC DRUMS
100' O.C.

PN:1194
PD:60 D NAIL

+55
235'

+30
265'

SIGN AND BARRICADE LEFT IN PLACE
FROM JOB 090293
RETAIN

ROAD CLOSED

(1) R11-2
(48" X 30")

16' BARR.
TYP. III RT.
16' BARR.
TYP. III LT.

GR DRIVE

BARBWIRE FENCE,N,S

TREELINE

BOB WIRE N-S-W
BOB WIRE N-S

BARBWIRE N,S

OHE

9/28/2017

R090508.DGN

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	57	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

PRECAST CONCRETE BARRIER WALL
LEFT IN PLACE FROM CA0904
906 LIN. FT. WITH 2 SPECIAL END UNIT
RETAIN

TRAFFIC DRUMS = 8 EACH
50' O.C.

700' ACCELERATION LANE

ROAD WORK AHEAD

(1) W20-1 (48" x 48")

PARKING

OPEN STORAGE

EXPOSED SEWER

EXPOSED WATER MAIN

PN:1873 PD:60 D NAIL

PN:1875 PD:60 D NAIL

PN:1794 PD:60 D NAIL

PN:1793 PD:60 D NAIL

PN:1792 PD:60 D NAIL

PN:1791 PD:60 D NAIL

PN:1795 PD:60 D NAIL

PN:1796 PD:60 D NAIL

PN:1797 PD:60 D NAIL

PN:1798 PD:60 D NAIL

PN:1799 PD:60 D NAIL

PN:1800 PD:60 D NAIL

PN:1801 PD:60 D NAIL

PN:1802 PD:60 D NAIL

PN:1803 PD:60 D NAIL

PN:1804 PD:60 D NAIL

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN HEAD TO HEAD TRAFFIC IN THE RIGHT MAIN LANES SEPARATED WITH AN EXISTING DOUBLE YELLOW LINE. CONSTRUCT LEFT MAIN LANES STA. 559+00.00 TO STA. 641+00.00, STA. 687+00.00 TO STA. 799+00.00, AND STA. 845+00.00 TO STA. 1020+72.00. CONSTRUCT BRIDGES STA. 712+37.87 TO STA. 714+44.13, STA. 780+34.43 TO STA. 782+41.57 STA. 928+78.65 TO 934+36.65, STA. 999+21.84 TO STA. 1001+10.16. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING FROM STA. 717+28.07 TO STA. 780+10.17 ON LT., STA. 885+22.03 TO STA. 928+84.30 LT., STA. 937+37.14 TO STA. 954+73.67 LT., STA. 958+73.67 TO STA. 987+00.00 LT. CONSTRUCT GUARDRAIL AT BRIDGE ENDS AND STA. 664+79.04 TO STA. 669+79.04 ON LT., STA. 820+47.92 TO STA. 825+47.92 ON LT.

STAGE 2: SHIFT NORTHBOUND TRAFFIC TO OUTSIDE LEFT MAIN LANES AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. MAINTAIN SOUTHBOUND TRAFFIC IN OUTSIDE RIGHT MAIN LANE AND DELINEATE LANE CLOSURE WITH TRAFFIC DRUMS SPACED AT 100' O.C. CONSTRUCT WIRE ROPE SAFETY FENCE AND CONCRETE DITCH PAVING STA. 563+00 TO STA. 665+29.04 ON LT., STA. 668+29.04 TO STA. 712+26.28 ON LT., STA. 785+22.92 TO STA. 821+07.92 ON LT., AND STA. 822+63.13 TO STA. 878+95.81 ON RT. CONSTRUCT GUARDRAIL STA. 662+13.35 TO STA. 667+13.35. REMOVE ALL CONFLICTING PAVEMENT MARKINGS AND PLACE CONSTRUCTION PAVEMENT MARKINGS AS NEEDED. REMOVE ALL TEMPORARY RAMP CROSSOVERS.

END OF JOB: PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN PLANS AND STD. DWGS. PM-1 AND PM-2.

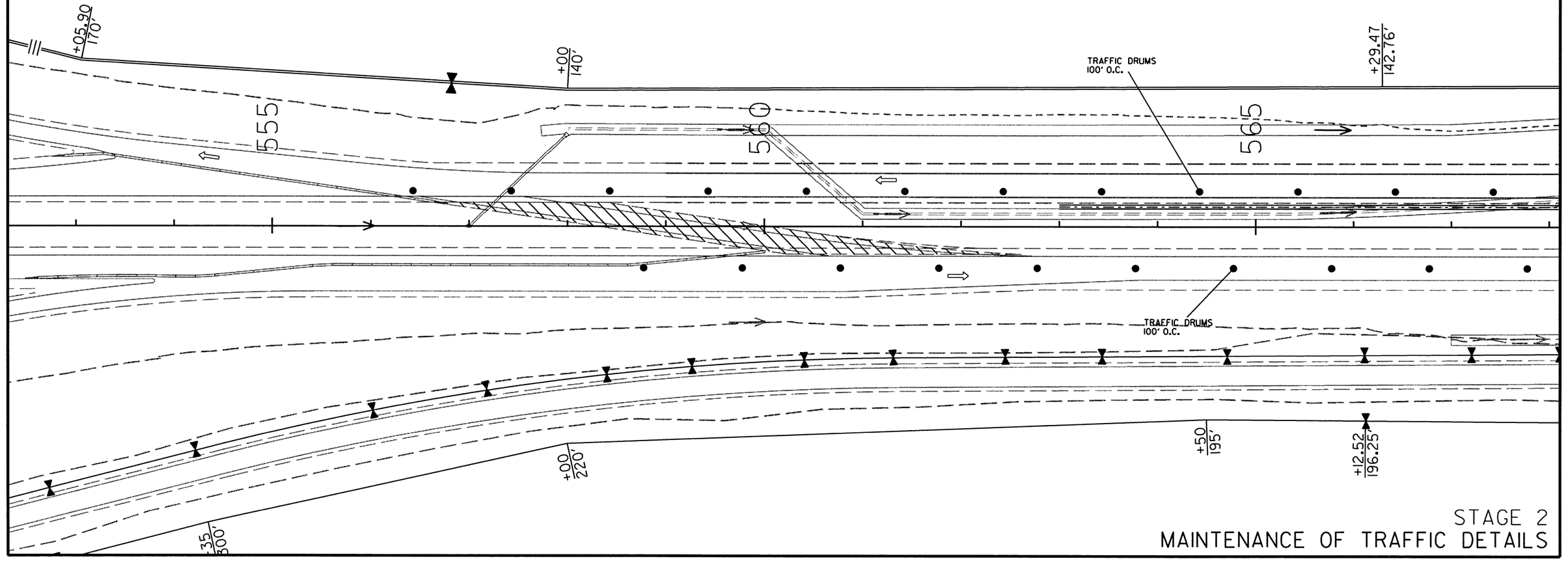
SIGNS = 359
TRAFFIC DRUMS = 1179

DENOTES REMOVAL OF TEMPORARY RAMPS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	58	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	59	335

(2) MAINTENANCE OF TRAFFIC DETAILS

DENOTES REMOVAL OF TEMPORARY RAMPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

630 635 640 685 690 680

PT 639+30.46

TRAFFIC DRUMS 100' O.C.

TRAFFIC DRUMS 100' O.C.

TRAFFIC DRUMS 100' O.C.

S 37°57'22" E

25' BUFFER ZONE

+20 225'
+71.85 165'
+75 115'
+18.7 160'
+50 115'
+50 175'
+75 210'
+50 98.65'
+65.77 168.20'
+00 180.85'
+70 240'
+05 170'
+40.70 175.69
+25 172.69'
+08.26 160'
+15 125'
+50 145'
+00 120'
+03.50 150'
+13.24 163.06'
+25 210'
+25 174.40'

9/14/2017

R090508.DGN

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	60	335

(2) MAINTENANCE OF TRAFFIC DETAILS

DENOTES REMOVAL OF TEMPORARY RAMPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

790 +25 120'

795

800

TRAFFIC DRUMS 100' O.C.

N 88°39'24" E

TRAFFIC DRUMS 100' O.C.

845 +00 145'

S 58°21'48" E

+25 120'

850

TRAFFIC DRUMS 100' O.C.

+34.78 137.06

+00 210'

+15 130'

L5

L8

+50 125'

+50 210'

+50 190'

TRAFFIC DRUMS 100' O.C.

DENOTES REMOVAL OF TEMPORARY RAMPS

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	61	335

(2) MAINTENANCE OF TRAFFIC DETAILS

DENOTES REMOVAL OF TEMPORARY RAMPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

+00 355'

+50 175'

+50 275'

+36.76 310'

PI989+16.78

PC987+11.80

PT991+21.06

PC993+00.14

PI995+05.32

PT997+09.79

985

987

990

995

997

TRAFFIC DRUMS = 19 EACH 50' O.C.

TRAFFIC DRUMS 100' O.C.

TRAFFIC DRUMS 100' O.C.

FURNISH, INSTALL, AND LEAVE IN PLACE PRECAST CONCRETE BARRIER WALL WITH TEMPORARY IMPACT ATTENUATION BARRIER 400 LIN. FT.

FURNISH, INSTALL, AND LEAVE IN PLACE PRECAST CONCRETE BARRIER WALL WITH SPECIAL END UNIT 433 LIN. FT.

S 89°41'52" E

N

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

9/14/2017

R090508.DGN

PERMANENT PAVEMENT MARKINGS

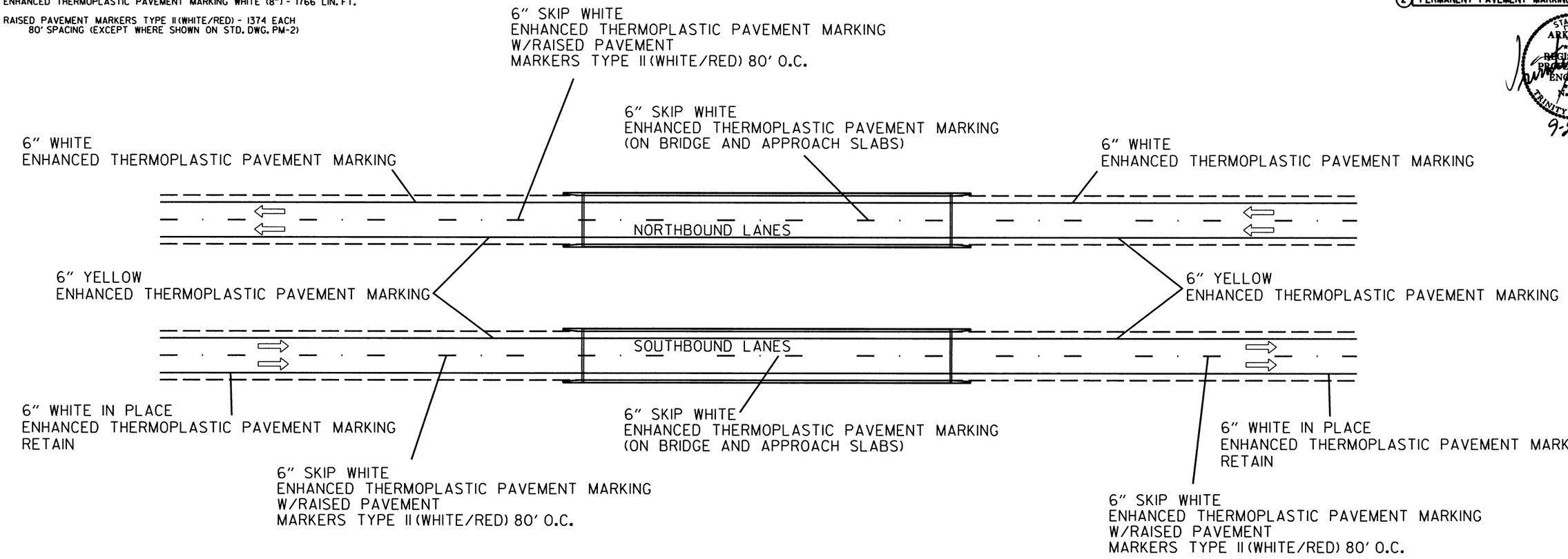
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (6") - 42643 LIN. FT.
ENHANCED THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) WHITE (6") - 21006 LIN. FT.
ENHANCED THERMOPLASTIC PAVEMENT MARKING YELLOW (6") - 84286 LIN. FT.
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (8") - 1766 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) - 1374 EACH
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	62	335

(2) PERMANENT PAVEMENT MARKING DETAILS

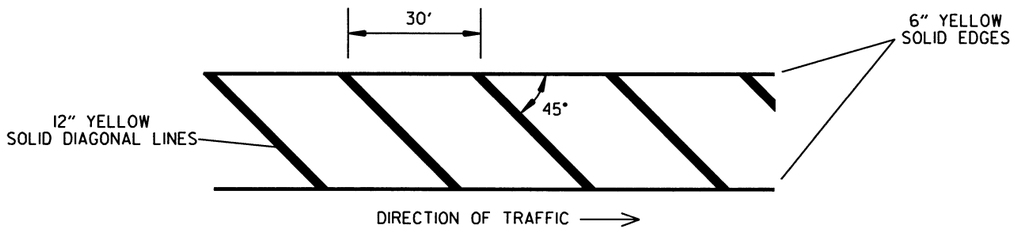
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



NOTE: SEE STD. DWG. PM-2 FOR ENTRANCE RAMP, EXIT RAMP, GORE AREAS, AND ACCEL. LANE PAV'T MARKING.

TYPICAL STRIPING DETAIL

HWY. 549 NORTHBOUND AND SOUTHBOUND LANES



ENLARGED DETAIL OF DIAGONAL MARKINGS

NOT TO SCALE

8/23/2017

R090508.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	63	335

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-22-17

6" YELLOW
REMOVABLE CONSTRUCTION
PAVEMENT MARKING

+05.90
170'

555

500' TAPER

+00
140'

560

6" YELLOW
ENHANCED THERMOPLASTIC PAVEMENT MARKING

6" WHITE
ENHANCED THERMOPLASTIC PAVEMENT MARKING

+29.47
142.76'

565

840' TAPER

6" SKIP WHITE
ENHANCED THERMOPLASTIC PAVEMENT MARKING
W/RAISED PAVEMENT
MARKERS TYPE II (WHITE/RED) 80' O.C.

6" YELLOW
ENHANCED THERMOPLASTIC PAVEMENT MARKING

+50
5'

+62
55'

+50
240'

T.C.E.

+25
250'

+50
144.50'

+00
145'

+25
138.30'

+53.09
110'

570

575

580

S 0°30'06" E

8/23/2017

R090508.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	64	335

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17

6" YELLOW ENHANCED THERMOPLASTIC PAVEMENT MARKING

6" WHITE ENHANCED THERMOPLASTIC PAVEMENT MARKING

6" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

6" SKIP WHITE ENHANCED THERMOPLASTIC PAVEMENT MARKING W/RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) 80' O.C.

840' TAPER

6" YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

6" YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

6" WHITE ENHANCED THERMOPLASTIC PAVEMENT MARKING

6" WHITE ENHANCED THERMOPLASTIC PAVEMENT MARKING

6" YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

S 89°41'52" E

S 89°41'52" E

8/23/2017

R090508.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	65	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	ENHANCED THERMOPLASTIC PAVEMENT MARKING		
						TYPE II	6"	8"	6"
						(WHITE/RED)	WHITE		YELLOW
	LIN. FT. - EACH		LIN. FT.		LIN. FT.	EACH	LIN. FT.		
REMOVAL OF PERMANENT PAVEMENT MARKINGS	52887		52887						
CONSTRUCTION PAVEMENT MARKINGS	148833			148833					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		7968			7968				
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)		1288				1288			
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (6")		63453					63453		
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (8")		1766						1766	
ENHANCED THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		83614							83614
TOTALS:			**52887**	**148833**	**7968**	**1288**	**63453**	**1766**	**83614**

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	TRAFFIC DRUMS	FURNISHING & INSTALLING PRECAST CONC. BARRIER
			LIN. FT. - EACH			NO.	SQ. FT.	EACH		LIN. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	10	2	10	10	160.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	9	1	9	9	144.0			
W20-1	ROAD WORK 500 FT.	48"x48"	9	1	9	9	144.0			
W20-1	ROAD WORK AHEAD	48"x48"								
G20-2	END ROAD WORK	48"x24"	6	2	6	6	48.0			
G20-1	ROAD WORK NEXT XX MILES	60"x24"	1	1	1	1	10.0			
W1-4AR	REVERSE CURVE RT.	48"x48"								
W1-4AL	REVERSE CURVE LT.	48"x48"								
W13-1	SPEED LIMIT (ADVISORY)	24"x24"								
R11-2	ROAD CLOSED	48"x30"								
OM-3L	OBJECT MARKER	12"x36"	28	28	28	28	84.0			
OM-3R	OBJECT MARKER	12"x36"	28	28	28	28	84.0			
W1-6	LARGE ARROW	48"x24"								
W1-8	CHEVRONS	18"x24"								
R4-1	DO NOT PASS	24"x30"	4	4	4	4	20.0			
R4-2	PASS WITH CARE	24"x30"								
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	9	9	9	9	81.0			
W8-1	BUMP	30"x30"								
W8-9	LOW SHOULDER	36"X36"								
W8-11	UNEVEN LANES	48"x48"								
W24-1R	DOUBLE REVERSE CURVE RT.	48"x48"								
W24-1L	DOUBLE REVERSE CURVE LT.	48"x48"								
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"			2	2	64.0			
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE				10			10		
	TRAFFIC DRUMS		472	1179	1179				1179	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2768		2768					2768
TOTALS:							**839.0**	**10**	**1179**	**2768**

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

10/16/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	66	335

(2) QUANTITIES

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
631+00	638+00	LT. OF HWY. 549	7	7
689+00	691+00	LT. OF HWY. 549	2	2
703+00	706+00	LT. OF HWY. 549	3	3
710+00	719+00	LT. OF HWY. 549	9	9
752+00	753+00	LT. OF HWY. 549	1	1
768+00	780+00	LT. OF HWY. 549	12	12
845+00	847+00	LT. OF HWY. 549	2	2
894+00	903+00	LT. OF HWY. 549	9	9
909+00	915+00	LT. OF HWY. 549	6	6
917+00	919+00	LT. OF HWY. 549	2	2
921+00	925+00	LT. OF HWY. 549	4	4
944+00	954+00	LT. OF HWY. 549	10	10
963+00	965+00	LT. OF HWY. 549	2	2
968+00	999+00	LT. OF HWY. 549	31	31
1001+00	1021+00	LT. OF HWY. 549	20	20
TOTALS:			120	120

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DITCH PAVING	ROCK DITCH LINING	IMPACT ATTENUATION BARRIER	CRASH CUSHION
			SQ. YD.		EACH	
560+25		LT. MAIN LANES - OUTSIDE SHOULDER				1
560+00	573+04	LT. OF HWY. 549	1594			
622+94	627+00	LT. OF HWY. 549	271			
633+99	640+08	LT. OF HWY. 549	812			
666+04		C.L. OF HWY. 549			2	
687+59	689+65	LT. OF HWY. 549	230			
715+60	716+43	LT. OF HWY. 549		171		
716+45	736+24	LT. & RT. OF HWY. 549	2474			
753+27	755+00	LT. & RT. OF HWY. 549	125			
784+25	785+81	LT. OF HWY. 549		207		
821+73		C.L. OF HWY. 549			2	
882+09		C.L. OF HWY. 549			2	
955+49		C.L. OF HWY. 549			2	
TOTALS:			5506	378	8	1

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
600+68	601+17	LT. OF HWY. 549	196	1
712+40	712+60	LT. OF HWY. 549	216	1
713+65	714+67	LT. OF HWY. 549	284	
715+31	715+43	LT. OF HWY. 549	157	
715+59	715+83	LT. OF HWY. 549	156	
775+67	775+86	LT. OF HWY. 549	99	
775+88	776+12	LT. OF HWY. 549	92	
780+27	780+55	LT. OF HWY. 549	208	1
782+20	782+35	LT. OF HWY. 549	241	
783+93	784+04	LT. OF HWY. 549	106	
784+25	784+54	LT. OF HWY. 549	108	
904+70	905+02	LT. OF HWY. 549	125	
905+24	905+54	LT. OF HWY. 549	116	
916+64	917+00	LT. OF HWY. 549	119	
916+88	918+00	LT. OF HWY. 549	180	
927+50	929+31	LT. AND RT. OF HWY. 549	276	
932+01	934+82	LT. AND RT. OF HWY. 549	471	
979+90	982+52	LT. OF HWY. 549	316	
982+67	982+70	LT. OF HWY. 549	185	
994+07	994+12	LT. OF HWY. 549	94	
994+32	994+63	LT. OF HWY. 549	97	
998+90	999+52	LT. AND RT. OF HWY. 549	227	
1000+60	1001+39	LT. AND RT. OF HWY. 549	263	
TOTALS:			4332	3

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	450
ENGINEER	
TOTAL:	450

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
ENTIRE	PROJECT	TO BE USED IF AND WHERE	11350.00	10088.89
		DIRECTED BY THE ENGINEER		
TOTAL:				10088.89

NOTE: AVERAGE WIDTH = 8'-0"

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL	* SOIL STABILIZATION
			CU. YD.			TON
559+00	641+00	HWY. 549	19630	241527		
599+00	608+00	HWY. 549			14643	
687+00	799+00	HWY. 549	318961	310652		
845+00	1020+72	HWY. 549	355576	653127	57169	
ENTIRE	PROJECT	OBLITERATION OF EXISTING CROSSOVERS	4380			
600+71.52	600+71.52	CHANNEL CHANGE	700			
649+99.48	661+03.80	TEMP. CROSSOVER	34	308		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE				1000
		DIRECTED BY THE ENGINEER				
TOTALS:			699281	1205614	71812	1000

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

ROCK DITCH LINER, DUMPED RIPRAP, AND FILTER BLANKET

STATION	STATION	LOCATION	LENGTH	WIDTH	ROCK DITCH LINER	DUMPED RIPRAP	FILTER BLANKET
			LIN. FT		TON	CU. YD.	SQ. YD.
570+00		OUTLET OF PIPE CULVERT				70	
573+00		OUTLET OF PIPE CULVERT				40	
597+00		OUTLET OF PIPE CULVERT				44	
601+20		OUTLET OF PIPE CULVERT				32	
610+00		OUTLET OF PIPE CULVERT				15	
849+80	851+90	LT. OF HWY. 549	265	9	318		265
893+59	899+80	LT. OF HWY. 549	621	22	1822		1518
913+50	914+91	LT. OF HWY. 549	209	9	251		209
922+44	922+91	LT. OF HWY. 549	60	9	72		60
971+70	973+41	LT. OF HWY. 549	198	9	238		198
973+41	982+00	LT. OF HWY. 549	859	24	2749		2291
982+00	982+50	LT. OF HWY. 549	50	18	120		100
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			500	125	800
		DIRECTED BY THE ENGINEER					
TOTALS:					6070	326	5441

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

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	50

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10	20
DIRECTED BY THE ENGINEER		
TOTALS:	10	20

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

10/16/2017

R090508.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	67	335

(2) QUANTITIES

WIRE ROPE SAFETY FENCE

STATION	STATION	LOCATION	WIRE ROPE SAFETY FENCE	*WRSF ANCHOR	WRSF MAINTENANCE MATERIALS	**WRSF (POST REPAIR)
			LIN. FT.	EACH	LUMP SUM	EACH
563+00.00	665+29.04	RT. OF LT. MAIN LANES	10229	2		
669+29.04	712+26.28	RT. OF LT. MAIN LANES	4297	2		
717+28.07	780+10.17	RT. OF LT. MAIN LANES	6282	2		
785+22.92	821+07.92	RT. OF LT. MAIN LANES	3585	2		
823+23.13	878+95.81	LT. OF RT. MAIN LANES	5573	2		
885+22.03	928+84.30	RT. OF LT. MAIN LANES	4362	2		
937+37.17	954+73.67	RT. OF LT. MAIN LANES	1737	2		
958+73.67	987+00.00	RT. OF LT. MAIN LANES	2826	2		
ENTIRE	PROJECT				1.00	50
TOTALS:			38891	16	1.00	50

*SHOWN FOR INFORMATION ONLY.
**QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.

REMOVAL OF SIGNS AND DEVICES LEFT IN PLACE

DESCRIPTION	SIGNS	BARRICADES	TRAFFIC DRUMS	PRECAST CONCRETE BARRIER WALL
	EACH	EACH	EACH	LIN. FT.
SIGNS R11-2 (ROAD CLOSED)	1			
OBJECT MARKERS	6			
TYPE III BARRICADE - RT. (16')		1		
TYPE III BARRICADE - LT. (16')		1		
TRAFFIC DRUMS			10	
PRECAST CONCRETE BARRIER WALL				1212
TOTALS:	7	2	10	1212

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			15000	64
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			15000	64

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	"B"	NHPP-004(72) CONC. DITCH PAVING (TYPE A)	NHPP-004(72) CONC. DITCH PAVING (TYPE B)	NHPP-004(72) SOLID SODDING	NHPP-004(72) WATER	HSIP-0004(72) CONC. DITCH PAVING (TYPE B)	HSIP-0004(72) SOLID SODDING	HSIP-0004(72) WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.	SQ. YD.	SQ. YD.	M. GAL.
560+00.00	573+26.40	LT. OF LT. MAIN LANES	1326.40	11.00			1621.16	589.51	7.43			
563+00.00	665+29.04	RT. OF LT. MAIN LANES	10229.04	4.00						4546.24	4546.24	57.28
597+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	23.00	6.00			15.33	10.22	0.13			
601+20.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	100.00	6.00			66.67	44.44	0.56			
633+81.00	640+08.12	LT. OF LT. MAIN LANES	627.12	12.00			836.16	278.72	3.51			
669+89.04	712+26.28	RT. OF LT. MAIN LANES	4237.24	4.00						1883.22	1883.22	23.73
715+76.00	736+24.00	LT. OF LT. MAIN LANES	2048.00	11.25	2.00	2560.00		910.22	11.47			
717+28.07	780+10.17	RT. OF LT. MAIN LANES	6282.10	4.00						2792.04	2792.04	35.18
768+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	44.00	6.00			29.33	19.56	0.25			
783+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	84.00	6.00			56.00	37.33	0.47			
785+22.92	820+47.92	RT. OF LT. MAIN LANES	3525.00	4.00						1566.67	1566.67	19.74
823+23.13	878+45.81	LT. OF RT. MAIN LANES	5522.68	4.00						2454.52	2454.52	30.93
885+72.03	928+84.30	RT. OF LT. MAIN LANES	4312.27	4.00						1916.56	1916.56	24.15
895+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	176.12	6.00			117.41	78.28	0.99			
904+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	115.70	6.00			77.13	51.42	0.65			
914+25.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	42.25	6.00			28.17	18.78	0.24			
922+91.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	30.76	6.00			20.51	13.67	0.17			
935+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	121.59	6.33			85.52	54.04	0.68			
937+37.14	954+23.67	RT. OF LT. MAIN LANES	1686.53	4.00						749.57	749.57	9.44
943+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	52.66	6.00			35.11	23.40	0.29			
959+33.72	986+99.94	RT. OF LT. MAIN LANES	2766.22	4.00						1229.43	1229.43	15.49
976+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	92.08	6.00			61.39	40.92	0.52			
980+50.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	108.51	6.00			72.34	48.23	0.61			
984+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	99.37	6.33			69.89	44.16	0.56			
990+00.00		LT. OF LT. MAIN LANES PIPE CULVERT OUTLET	125.77	6.33			88.46	55.90	0.70			
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	1250.00	6.00			833.33	555.56	7.00			
TOTALS:						2560.00	4113.91	2874.36	36.23	17138.25	17138.25	215.94

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)	* 16'-0" GATES
			LIN. FT.	EACH
600+68	601+17	LT. OF HWY. 549	33	1
904+70	905+02	LT. OF HWY. 549	48	
905+24	905+54	LT. OF HWY. 549	43	
917+00	917+13	LT. OF HWY. 549	43	
917+50	918+00	LT. OF HWY. 549	55	
927+50	928+67	LT. OF HWY. 549	168	
932+01	934+26	LT. OF HWY. 549	367	
979+93	981+61	LT. OF HWY. 549	191	
982+00	982+67	LT. OF HWY. 549	170	
994+07	994+21	LT. OF HWY. 549	26	
994+41	994+63	LT. OF HWY. 549	32	
998+90	999+13	LT. OF HWY. 549	135	
1000+60	1001+01	LT. OF HWY. 549	168	
TOTALS:			1479	1

* DENOTES ALTERNATE BID ITEM.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY EROSION CONTROL TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (18") DITCH CHECKS (E-1)	FILTER SOCK (18") (E-3)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	TRIANGULAR SILT DIKE	DIVERSION DITCH (E-8)	PIPE FOR SLOPE DRAINS SLOPE DRAIN (E-12)	DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	LIN. FT.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						77.31	77.31	1577.1				60		21109					18792	18792	19332
ENTIRE	PROJECT	STAGE 1	69.13	138.26	69.13	7051.3	69.13	150.77	150.77	3075.7	3906		1100	510	1059	2585					2900	2900	3689
ENTIRE	PROJECT	STAGE 2	39.85	79.70	39.85	4064.7	39.85	3.24	3.24	66.1			88	9	125						150	150	170
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			54.49	108.98	54.49	5558.0	54.49	115.66	115.66	2359.5	1953	500	594	290	592	11847	5420	11940	3660	58	10921	10921	11596
TOTALS:			163.47	326.94	163.47	16674.0	163.47	346.98	346.98	7078.4	5859	500	1782	869	1776	35541	5420	11940	3660	58	32763	32763	34787

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

10/16/2017

R090508.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	68	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS - ALTERNATE 1

STATION	STATION	LOCATION	* RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS
			LIN.FT.
553+38	647+10	LEFT OF LT. MAIN LANES	9372
647+10	681+40	LEFT OF LT. MAIN LANES	3430
681+83	711+95	LEFT OF LT. MAIN LANES	3012
714+74	779+98	LEFT OF LT. MAIN LANES	6524
782+78	804+90	LEFT OF LT. MAIN LANES	2212
806+23	834+54	LEFT OF LT. MAIN LANES	2831
834+87	928+32	LEFT OF LT. MAIN LANES	9345
934+88	998+83	LEFT OF LT. MAIN LANES	6395
1001+49	1020+72	LEFT OF LT. MAIN LANES	1923
TOTAL:			45044

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

RUMBLE STRIPS IN ASPHALT SHOULDERS - ALTERNATE 1

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
560+00	712+08	RIGHT OF LT. MAIN LANES	15208
714+87	779+98	RIGHT OF LT. MAIN LANES	6511
782+78	928+32	RIGHT OF LT. MAIN LANES	14554
934+88	998+83	RIGHT OF LT. MAIN LANES	6395
1001+49	1020+72	RIGHT OF LT. MAIN LANES	1923
TOTAL:			44591

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
			LIN. FT.	EACH		
662+13.35	667+13.35	LT. SIDE OF RT. MAIN LANES	450		1	1
664+79.04	669+79.04	RT. SIDE OF LT. MAIN LANES	450		1	1
714+46.98	717+15.73	LT. SIDE OF LT. MAIN LANES	200	1	1	
714+50.56	717+69.31	RT. SIDE OF LT. MAIN LANES	250	1	1	
782+50.97	785+19.72	LT. SIDE OF LT. MAIN LANES	200	1	1	
782+50.97	785+69.72	RT. SIDE OF LT. MAIN LANES	250	1	1	
818+03.11	823+03.11	LT. SIDE OF RT. MAIN LANES	450		1	1
820+47.92	825+47.92	RT. SIDE OF LT. MAIN LANES	450		1	1
927+09.31	928+53.06	LT. SIDE OF LT. MAIN LANES	125	1		1
934+39.44	937+33.19	LT. SIDE OF LT. MAIN LANES	225	1	1	
934+67.39	937+86.14	RT. SIDE OF LT. MAIN LANES	250	1	1	
1001+11.50	1003+80.25	LT. SIDE OF LT. MAIN LANES	200	1	1	
1001+29.29	1004+23.04	RT. SIDE OF LT. MAIN LANES	225	1	1	
TOTALS:			3725	9	12	5

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTERS			APPROACH SLABS			REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			TYPE C	TYPE 1 SPECIAL	TYPE 2 SPECIAL	TYPE C1	TYPE 1 SPECIAL	TYPE 2 SPECIAL		
			CU.YD.						POUND	TON
711+94.84	712+31.34	LT. OF LT. MAIN LANES	18.10						995	
711+98.12	712+38.52	LT. MAIN LANES				49.15			5775	38.00
712+07.90	712+44.40	RT. OF LT. MAIN LANES	11.55						630	
714+37.60	714+74.10	LT. OF LT. MAIN LANES	18.10						995	
714+44.78	714+85.17	LT. MAIN LANES				49.15			5775	38.00
714+49.60	714+86.10	RT. OF LT. MAIN LANES	11.55						630	
779+97.93	780+34.43	LT. OF LT. MAIN LANES	18.10						995	
779+97.93	780+34.43	LT. MAIN LANES				49.15			5775	38.00
779+97.93	780+34.43	RT. OF LT. MAIN LANES	11.55						630	
782+41.57	782+78.07	LT. OF LT. MAIN LANES	18.10						995	
782+41.57	782+78.07	LT. MAIN LANES				49.15			5775	38.00
782+41.57	782+78.07	RT. OF LT. MAIN LANES	11.55						630	
928+32.38	928+65.38	LT. OF LT. MAIN LANES			17.70				1015	
928+32.33	928+93.33	RT. OF LT. MAIN LANES			18.50				1031	
928+44.00	928+80.80	LT. MAIN LANES						53.90	6008	34.10
934+27.10	934+88.10	LT. OF LT. MAIN LANES			28.60				1607	
934+42.58	934+79.38	LT. MAIN LANES						53.90	6008	34.10
934+55.36	934+88.36	RT. OF LT. MAIN LANES			10.70				603	
998+83.00	999+13.00	LT. OF LT. MAIN LANES		15.67					881	
998+82.80	999+30.80	RT. OF LT. MAIN LANES		14.80					809	
998+84.80	999+22.80	LT. MAIN LANES					55.00		5965	35.50
1001+01.20	1001+49.20	LT. OF LT. MAIN LANES		22.76					1266	
1001+10.98	1001+48.98	LT. MAIN LANES					55.00		5965	35.50
1001+19.17	1001+49.17	RT. OF LT. MAIN LANES		9.66					535	
TOTALS:			118.60	62.89	75.50	196.60	110.00	107.80	61293	291.20

NOTE: USE T =18" FOR 10' SHOULDER.

RUMBLE STRIPS IN ASPHALT SHOULDERS - ALTERNATE 2

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
560+00	712+08	RIGHT OF LT. MAIN LANES	15208
714+87	779+98	RIGHT OF LT. MAIN LANES	6511
782+78	928+32	RIGHT OF LT. MAIN LANES	14554
934+88	998+83	RIGHT OF LT. MAIN LANES	6395
1001+49	1020+72	RIGHT OF LT. MAIN LANES	1923
553+38	640+85	LEFT OF LT. MAIN LANES	8747
687+15	711+95	LEFT OF LT. MAIN LANES	2480
714+74	779+98	LEFT OF LT. MAIN LANES	6524
782+78	798+85	LEFT OF LT. MAIN LANES	1607
845+15	928+32	LEFT OF LT. MAIN LANES	8317
934+88	998+83	LEFT OF LT. MAIN LANES	6395
1001+49	1020+72	LEFT OF LT. MAIN LANES	1923
TOTAL:			80584

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

RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS - ALTERNATE 2

STATION	STATION	LOCATION	* RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS
			LIN.FT.
640+85	647+10	LEFT OF LT. MAIN LANES	625
647+10	681+40	LEFT OF LT. MAIN LANES	3430
681+83	687+15	LEFT OF LT. MAIN LANES	532
798+85	804+90	LEFT OF LT. MAIN LANES	605
806+23	834+54	LEFT OF LT. MAIN LANES	2831
834+87	845+15	LEFT OF LT. MAIN LANES	1028
TOTAL:			9051

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

JOINT SUPPORT - ALTERNATE 1

STATION	LOCATION	WIDTH	LENTGH	DEPTH	CLASS S CONCRETE-RDWY.
		FEET	LIN. FT.	INCH	CU. YD.
711+68.12	LT. MAIN LANES - BR. NO. A7195 APPROACH	26	3	12	2.89
711+83.12	LT. MAIN LANES - BR. NO. A7195 APPROACH	26	3	12	2.89
715+00.17	LT. MAIN LANES - BR. NO. A7195 APPROACH	26	3	12	2.89
715+15.17	LT. MAIN LANES - BR. NO. A7195 APPROACH	26	3	12	2.89
779+67.93	LT. MAIN LANES - BR. NO. A7196 APPROACH	26	3	12	2.89
779+82.93	LT. MAIN LANES - BR. NO. A7196 APPROACH	26	3	12	2.89
782+93.07	LT. MAIN LANES - BR. NO. A7196 APPROACH	26	3	12	2.89
783+08.07	LT. MAIN LANES - BR. NO. A7196 APPROACH	26	3	12	2.89
928+14.00	LT. MAIN LANES - BR. NO. A7274 APPROACH	26	3	12	2.89
928+29.00	LT. MAIN LANES - BR. NO. A7274 APPROACH	26	3	12	2.89
934+94.38	LT. MAIN LANES - BR. NO. A7274 APPROACH	26	3	12	2.89
935+09.38	LT. MAIN LANES - BR. NO. A7274 APPROACH	26	3	12	2.89
998+54.79	LT. MAIN LANES - BR. NO. A7276 APPROACH	26	3	12	2.89
998+69.79	LT. MAIN LANES - BR. NO. A7276 APPROACH	26	3	12	2.89
1001+64.26	LT. MAIN LANES - BR. NO. A7276 APPROACH	26	3	12	2.89
1001+79.26	LT. MAIN LANES - BR. NO. A7276 APPROACH	26	3	12	2.89
TOTAL:					46.24

JOINT SUPPORT - ALTERNATE 2

STATION	LOCATION	WIDTH	LENGTH	DEPTH	CLASS S CONCRETE-RDWY.
		FEET	LIN. FT.	INCH	CU. YD.
559+15.00	LT. MAIN LANES	26	3	12	2.89
640+85.00	LT. MAIN LANES	36	3	12	4.00
687+15.00	LT. MAIN LANES	26	3	12	2.89
798+85.00	LT. MAIN LANES	36	3	12	4.00
845+15.00	LT. MAIN LANES	26	3	12	2.89
TOTAL:					16.67

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
600+72	R.C. BOX CULVERT	1
714+44	LEFT MAIN LANES BRIDGE	1
715+33	LEFT MAIN LANES BRIDGE	1
775+58	LEFT MAIN LANES BRIDGE	1
782+50	LEFT MAIN LANES BRIDGE	1
783+96	LEFT MAIN LANES BRIDGE	1
905+13	R.C. BOX CULVERT	1
915+65	R.C. BOX CULVERT	1
934+36	LEFT MAIN LANES BRIDGE	1
984+00	R.C. BOX CULVERT	1
993+98	R.C. BOX CULVERT	1
1001+10	LEFT MAIN LANES BRIDGE	1
TOTAL:		12

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

10/16/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	69	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	36"	42"	44"X27"	(CLASS IV) 42"	(CLASS V) 24"	36"	42"	48"	CLASS SPECIAL 36"	48"	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) 12"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	36"	42"	48"	44"X27"	DROP INLETS TYPE RM	N3	CONCRETE SPILLWAY (TYPE A)	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.												EACH							EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
570+00	RM DROP INLET IN MEDIAN	90												1					1												FES-1, FES-2, FPC-9D, PCC-1
573+00	EXTEND R.C. PIPE CULVERT			92												1													23	0.29	FES-1, FES-2, PCC-1
579+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
589+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
597+00	RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
600+72	EXTEND 6' X 5' BOX CULVERT																					6	5	76	54.46	6440	25	21	0.26	RCB-1, RCB-2, RCB-3, R-100X-X1, W-X003-1, SPECIAL DETAIL
601+20	RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
610+00	RM DROP INLET IN MEDIAN	88												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
614+00	RM DROP INLET IN MEDIAN	84												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
620+00	RM DROP INLET IN MEDIAN						96							1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
622+84	EXTEND R.C. PIPE CULVERT		80												1														17	0.21	FES-1, FES-2, PCC-1
631+00	RM DROP INLET IN MEDIAN						92							1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
634+56	EXTEND DBL. R.C. PIPE CULVERT								144							2													46	0.58	FES-1, FES-2, PCC-1
690+23	RM DROP INLET IN MEDIAN	107												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
694+00	RM DROP INLET IN MEDIAN	83												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
704+62	EXTEND R.C. PIPE CULVERT									136							1												29	0.37	FES-1, FES-2, FPC-9D, PCC-1
705+00	RM DROP INLET IN MEDIAN	104												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
711+94	N3 DROP INLET ON LT.												88							1	1									FPC-9N, PCM-1
715+00	RM DROP INLET IN MEDIAN	82												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
715+33	EXTEND 7' x 7' BOX CULVERT																		1			7	7	80	83.54	9373	40	12	0.15	RCB-1, RCB-2, RCB-3, R-100X-X2, W-X153-1, W-X15, R-115X-1, SPECIAL DETAIL
725+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
736+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
742+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
747+00	RM DROP INLET IN MEDIAN	84												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
753+35	EXTEND R.C. PIPE CULVERT				102													1											17	0.21	FES-1, FES-2, PCC-1
758+00	RM DROP INLET IN MEDIAN	84												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
768+00	RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
768+91	EXTEND DBL. R.C. PIPE CULVERT								176							2													46	0.58	FES-1, FES-2, PCC-1
775+58	EXTEND 5' x 5' BOX CULVERT																		1			5	5	78	46.02	5050	24	9	0.11	RCB-1, RCB-2, RCB-3, R-100X-X1, W-X153-1, W-X15, R-115X-1, SPECIAL
779+97	N3 DROP INLET ON LT.												82							1	1									FPC-9N, PCM-1
783+00	RM DROP INLET IN MEDIAN	82												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
783+96	EXTEND DBL. 5' x 5' BOX CULVERT																					5	5	76	79.20	10409	36	10	0.13	RCB-1, RCB-2, RCB-3, R-200X-X1, W-X153-1, W-X15, R-215X-1, SPECIAL DETAIL
793+00	RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
851+11	EXTEND 48" RC PIPE CULVERT									120							1												29	0.37	FES-1, FES-2, PCC-1
877+23	EXTEND 42" RC PIPE CULVERT			142												1													23	0.29	FES-1, FES-2, PCC-1
895+00	CONSTRUCT RM DROP INLET IN MEDIAN	88												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
895+55	EXTEND 48" RC PIPE CULVERT											108					1												29	0.37	FES-1, FES-2, PCC-1
904+00	CONSTRUCT RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
905+13	EXTEND 6'X5' RC BOX CULVERT																					6	5	92	69.85	7381	28	9	0.11	RCB-1, RCB-2, RCB-3, R-100X-X1, R-100X-X3, W-X003-1
914+25	CONSTRUCT RM DROP INLET IN MEDIAN	88												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
915+65	EXTEND 6'X5' RC BOX CULVERT																					6	5	97	117.99	14618	45	11	0.14	RCB-1, RCB-2, RCB-3, R-230X-1, R-200X-X1, R-200X-X4, W-X30, W-X303-1, W-X003-1
922+91	CONSTRUCT RM DROP INLET IN MEDIAN	86												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
926+70	CONSTRUCT RM DROP INLET IN MEDIAN	82												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
928+30	N3 DROP INLET ON LT.												50							1	1									FPC-9N, PCM-1
935+00	CONSTRUCT RM DROP INLET IN MEDIAN	80												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
943+00	CONSTRUCT RM DROP INLET IN MEDIAN	88												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
972+68	EXTEND DBL. 42" RC PIPE CULVERT					252										2													25	0.32	FES-1, FES-2, PCC-1
976+00	CONSTRUCT RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
980+50	CONSTRUCT RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
984+00	EXTEND DBL. 5'X5' RC BOX CULVERT																					5	5	111	119.27	15459	40	10	0.13	RCB-1, RCB-2, R-245X-1, R-200X-X1, W-X45, W-X453-1, W-X003-1
984+00	CONSTRUCT RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
989+84	EXTEND 48" RC PIPE CULVERT											80					1												29	0.37	FES-1, FES-2, PCC-1
990+00	CONSTRUCT RM DROP INLET IN MEDIAN	90												1					1										14	0.18	FES-1, FES-2, FPC-9D, PCC-1
993+98	EXTEND 5'X5' RC BOX CULVERT																					5	5	77	51.36	4828	21	9	0.11	RCB-1, RCB-2, R-100X-X1, W-X003-1
998+81	N3 DROP INLET ON LT.												46							1	1									FPC-9N, PCM-1
1002+51	EXTEND 36" RC PIPE CULVERT						72								1													17	0.21	FES-1, FES-2, PCC-1
1016+32	EXTEND 36" RC PIPE CULVERT										86				1													17	0.21	FES-1, FES-2, PCC-1
TOTALS:		2636	80	234	102	252	188	72	320	256	86	188	266	32	3	8	4	1	34	4	4				621.69	73558	259	886	11.28	

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.

10/16/2017

R090508.DGN

QUANTITIES

SOIL LOG

BORING NO.	NORTHING	EASTING	STATION	LOCATION HWY. 71	DEPTH (FEET)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LL	PL	PI	SIEVE ANALYSIS (PERCENT PASSING) 3/4"	3/8"	No. 4	No. 10	No. 40	No. 200	pH	CONDUCTIVITY (mm/cm)	UNIT WEIGHT IN-SITU	DRY	UNCONFINED (PSI)	AASHTO CLASSIFICATION
AC-2	794902.226	612660.396	431+98.00	125' RT.	4.5-10.0	26.0															
					20-25	20.3															
					30-35	18.3															
AC-5	794343.886	612888.355	438+01.00	115' RT.			33	23	10				70		50						A-4(1)
					10-35'																
					10-35	14.0	31	21	10	100	91	79	66	52	44						
AC-7	793665.383	613374.088	446+00.00	120' LT.																	
					38-39															3500	
AC-12	793049.930	613415.388	452+02.00	10' LT.																	
					21-28.7	9.9	44	23	21												
					57															3820	
					44.5															6690	
AC-17	792448.687	613391.645	457+95.00	114' RT.	7.5-16	12.4	33	31	2												
					21.5-29	28.3	50	25	25												
AC-20	792056.924	613421.090	461+94.00	125' RT.	12-18	3.2	27	20	7												
					35-35.6															5100	
AC-23	791254.571	613688.033	470+03.00	123' LT.	7-25	14.5	37	20	17												
AC-25	791062.041	613561.882	471+99.00	5' LT.	1.5-9.5	17.0	48	19	29	100	86	76	72	66	62						A-7-6(15)
					29-34	14.4	46	20	26												
					41-47	17.0	43	19	24												
					68-68.8															6370	
AC-28	790663.238	613528.571	475+99.00	4' LT.	3.5-6.5	31.3															
					6.5-11.5	32.1															
					11.5-16	26.0															
					16-20	24.2															
AC-30	790171.680	613350.204	481+07.00	120' RT.	2-9	27.6															
					19-24	29.4															
AC-31	789970.886	613447.999	482+96.00	1' RT.	2.5-9.5	29.8	39	21	18	100	96	88	79	71	64						A-6(10)
AC-33	789557.124	613404.859	487+12.00	1' LT.	2-4	25.2															
					9-12	24.1															
AC-36	788370.623	613280.411	499+05.00	6' LT.																	
AC-37	788164.063	613366.511	501+01.00	114' LT.	7-26	31.8	45	24	21												
AC-44	787402.230	613046.980	508+93.00	121' RT.	3.5-13.5	19.3	48	19	29												
					23.5-33.5	3.0	49	20	19												
AC-52	785493.358	612960.392	528+00.00	C.L.	3-23	30.5	47	23	24												
AC-57	784657.375	613365.902	536+00.00	490' LT.	3.5-7	23.7	45	21	24												
AC-61	783898.746	612839.627	544+00.00	C.L.	0-2	21.9	22	19	3												
					2-4.5	10.5															
					4.5-10	25.8															
					10-15	32.8															
AC-67	783098.772	612844.033	552+00.00	C.L.	0-2	20.8															
					2-8	14.7	32	17	15												
AC-80	773019.047	614621.310	657+00.00	220' RT.	0-2.5	15.6															
					2.5-5	19.6	33	18	15												
					5-10	23.3															
AC-86	772083.457	616023.298	673+00.00	310' LT.	0.3-1.5	20.8															
					1.5-10	27.5	44	23	21												
AC-95	770737.970	617114.592	691+00.00	120' LT.	12-17.0	40.9	41	25	16												
AC-98	770549.910	617453.120	695+00.00	120' LT.	3-5.5	24.7															
					15-20.0	38.4	42	22	20												
AC-100	770359.006	617582.309	697+00.00	C.L.	15-30.0	35.4	46	22	24	100	97	90	81	61	37						A-7-6(4)
					10-10.3'																
AC-102	770172.775	617723.953	699+00.00	120' RT.	4.5-10.0	34.9															
					15-20.0	36.4															
AC-103	770211.229	617953.999	701+00.00	C.L.	2-6.0	32.8	43	23	20												
					13-17.0	37.4	44	22	22												
AC-106	769445.131	618945.364	713+03.00	350' RT.	5-6.5'	22.7	42	20	22										112.1	91.4	
AC-107	769479.071	619815.167	721+00.00	C.L.	0-3.5	21.0	23	18	5												
					3.5-7.0	17.9															
AC-110	769332.639	620187.400	725+00.00	C.L.	7-20.0	19.4	53	30	23	100	98	93	87	80	69						A-7-5(16)
																3.92	140.0				
AC-115	769001.322	620701.821	731+00.00	120' RT.	10-15.0	33.9	70	20	50												
					15-20.0	36.8															
AC-123	768562.027	621818.522	743+00.00	120' RT.	25-30.0	31.1	36	19	17												
AC-126	768418.620	622198.810	747+00.00	120' RT.	7.5-12.5	18.5	41	20	21												
					30-37.3	33.1	38	18	20												
AC-129	768309.288	622596.430	751+00.00	120' RT.	6-10.0	22.8	40	21	19												
					15-20	38.5	42	21	21												
AC-131	768480.634	623029.947	755+00.00	120' LT.	10-15.0	33.8	40	21	19												
AC-138	768225.537	623818.474	763+00.00	120' RT.	6.5-10.0	27.0	40	22	18												
AC-140	768234.914	624218.364	767+00.00	120' RT.	4.5-4.8	30.4	50	30	20										could not perform		
AC-142	768035.547	626124.562	786+01.00	364' RT.	5-5.4'	34.5	64	29	35										107.8	80.2	
AC-144	768307.588	627317.512	798+00.00	120' RT.	0-3	21.9	29	18	11												
AC-145	768567.832	628108.728	806+00.00	120' LT.	8-8.5'	29.3	54	23	31										117.7	91.0	
AC-146	768447.968	628114.427	806+00.00	C.L.	4.5-15.0'	26.4	47	24	23	100	96	89	81	71	62	5.23	140				A-7-6(12)
					4.5-15'																
AC-149	768480.888	628512.988	810+00.00	C.L.	7-15.0'	23.5	42	21	21	100	98	93	86	75	67	5.42	353				A-7-6(12)
					7-15'											4.01	362.0				
AC-152	768541.531	628908.283	814+00.00	C.L.	10-20.0'	26.4				100	97	89	79	61	29						A-2
					10-20'		*														
AC-155	768629.482	629298.414	818+00.00	C.L.	7-17.5'	28.0	52	24	28	100	95	87	78	65	57	5.61	85				A-7-6(13)
					7	35.2	67	28	39								could not perform				
					8.5	33.6											could not perform				
					2-7	25.9	56	25	31												
AC-156	768513.224	629328.149	818+00.00	120' RT.	0-1.5'																
					1.5-3'																
					3-7'	18.4															
					7-11'	35.4															
					11-16.5'																
					16.5-22'	4.0															
					22-30.0	4.9	43	22	21												
AC-149	768480.888	628512.988	810+00.00	C.L.	7-15.0	23.5	42	21	21	100	98	93	86	75	67	5.4	353				A-7-6(12)
					7-15											4.01	362.0				
AC-152	768541.531	628908.283	814+00.00	C.L.	10-20.0	26.4				100	97	89	79	61	29						A-2
AC-155	768629.482	629298.414	818+00.00	C.L.	7-17.5	28.0	52	24	28	100	95	87	78	65	57	5.6	85				A-7-6(13)
					7	35.2	67	28	39												
					8.5	33.6															
					2-7	25.9	56	25	31												
AC-156	768513.224	629328.149	818+00.00	120' RT.	3-7	18.4															
					7-11	35.4															
					16.5-22	4.0															
					22-30.0	4.9	43	22	21												
AC-158	768808.821	630579.449	831+00.00	120' RT.	5-10.0	18.2				100	95	84	75	60	33						A-2
AC-159	768580.982	630610.907	831+00.00	350' RT.	10-15.0	12.7	39	24	15	99	97	93	84	70	59	5.7	331				A-6(7)
					7-8.5	20.5	46	21	25										113.3	94	
AC-163	768928.327	632180.579	847+00.00	120' LT.	0-2.5	24.5	27	19	8												
AC-164	768697.786	632113.867	847+00.00	120' RT.	5.5-10.0	24.8															
					15-20.0	27.7	47	25	22												
AC-165	768752.460	632337.798	849+00.00	C.L.	3-10.0	24.9	35	18	17												
AC-168	768359.516	632915.097	856+00.00	120' RT.	12.6-16.0	26.1															
					5-25.0	23.8	37	21	16	100	95	88	78	60	35						A-2-6(1)
AC-169	768360.900	633145.914	858+00.00	C.L.	2-5.0	35.5	34	18	16												
AC-171	767993.730	633741.889	865+00.00	C.L.	6-10.0	21.5	40	22	18												
AC-173	767786.657	633849.224	867+00.00	120' RT.	0-3.0	21.7															
					3-5.0	25.3															
					10-15.0	28.6															
					15-20.0	28.5															
					20-25.0	29.2															
					25-30	33.4	40	22	18												
AC-174	767783.918	634082.446	869+00.00	C.L.	8-10	27.2	53	26	27												
AC-177	767419.486	634445.199	874+00.00	120' RT.	10-20.0	20.7	43	21	22	100	99	96	89	78	68						A-7-6(13)
					7-7.8	24.8	58	24	34										106.3	85.2	
AC-178	767312.351	634878.376	878+25.00	16' LT.	5-10.0	22.4				96	92	84	75	62	46						
					25-30.0	31.1				100	100	96	88	70	50						
AC-188	766422.881	636062.844	893+00.00	120' RT.	1.0-30.0	28.9	39	20	19	100	93	87	78	66	55						A-6(8)
AC-197	765734.991	637636.950	910+01.00	120' LT.	0-2.0	21.0															
					5-10.0	27.5	32	22	10												
					20-25.0	30.5															
AC-203	765217.140	638485.698	920+00.00	120' LT.	5-10.0	30.2	42	22	20												
					35-40.0	34.0															
AC-208	764845.992	638964.015	926+00.00	C.L.	5.5-45.0	20.5	28	22	6	100	96	90	74	58	48	6.4					A-4(1)
AC-210	764487.933	640107.054	938+00.00	C.L.	20-25.0	10.0															
AC-220	764228.544	641888.088	956+00.00	C.L.	0-15.0	15.2	47	21	26	98	91	82	74	64	55						
AC-226	764119.911	642680.661	964+00.00	1' LT.	5-32.0	28.3	53	23	30												
AC-241	764015.669	646776.797	1005+00.00	C.L.	15-15.5	51.2															
					35-40.0															4460	
					65-70.0															2550	
					2-25	14.9	45	22	23	100	94	86	76	63	53						A-7-6(9)
AC-250	764008.815	648076.779	1017+98.11	31.35' RT.	10-11.5	55.1	90	37	53												
					5-35.0	26.6	43	24	19	100	97	94	79	63	54						A-7-6(8)

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 TIMOTHY D. SMITH REGISTERED PROFESSIONAL ENGINEER No. 11435 9-29-17

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	090508	70	335

(2) QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	71	335

(2) QUANTITIES

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

10-18-17

CONCRETE BASE - ALTERNATE 1

STATION	STATION	LOCATION	LENGTH	CEMENT STABILIZED CRUSHED STONE BASE COURSE (6" COMP'D. DEPTH)				ACHM SURFACE COURSE (3/8") 110 LBS. PER SQ. YD.			TACK COAT 0.05 GAL. PER SQ. YD.			PORTLAND CEMENT CONCRETE PAVEMENT	
				AVG. WID.	PROCESSING	CEMENT	AGGREGATE	AVG. WID.	SQ. YD.	PG 64-22 TON	AVG. WID.	SQ. YD.	GAL.	AVG. WID.	11" U.T.
			FEET	FEET	SQ. YD.	TON	TON	FEET			FEET			FEET	SQ. YD.
559+00.00	637+08.12	LT. MAIN LANES	7808.12	30.00	26027.07	546.57	8562.91	30.00	26027.07	1431.49	30.00	26027.07	1301.35	26.00	22556.79
637+08.12	640+08.12	LT. MAIN LANES - ACCEL. LANE TAPER	300.00	35.00	1166.67	24.50	383.83	35.00	1166.67	64.17	35.00	1166.67	58.33	31.00	1033.33
640+08.12	641+00.00	LT. MAIN LANES - ACCEL. LANE	91.88	40.00	408.36	8.58	134.35	40.00	408.36	22.46	40.00	408.36	20.42	36.00	367.52
687+00.00	711+98.12	LT. MAIN LANES	2498.12	30.00	8327.07	174.87	2739.61	30.00	8327.07	457.99	30.00	8327.07	416.35	26.00	7216.79
714+85.17	779+97.93	LT. MAIN LANES	6512.76	30.00	21709.20	455.89	7142.33	30.00	21709.20	1194.01	30.00	21709.20	1085.46	26.00	18814.64
782+78.07	794+88.02	LT. MAIN LANES	1209.95	30.00	4033.17	84.70	1326.91	30.00	4033.17	221.82	30.00	4033.17	201.66	26.00	3495.41
794+88.02	797+88.02	LT. MAIN LANES - ACCEL. LANE TAPER	300.00	35.00	1166.67	24.50	383.83	35.00	1166.67	64.17	35.00	1166.67	58.33	31.00	1033.33
797+88.02	799+00.00	LT. MAIN LANES - ACCEL. LANE	111.98	40.00	1723.04	36.18	566.88	40.00	1723.04	94.77	40.00	1723.04	86.15	36.00	447.92
845+00.00	928+44.00	LT. MAIN LANES	8344.00	30.00	27813.33	584.08	9150.59	30.00	27813.33	1529.73	30.00	27813.33	1390.67	26.00	24104.89
934+79.38	998+84.80	LT. MAIN LANES	6405.42	30.00	21351.40	448.38	7024.61	30.00	21351.40	1174.33	30.00	21351.40	1067.57	26.00	18504.55
1001+48.98	1020+72.00	LT. MAIN LANES	1923.02	30.00	6410.07	134.61	2108.91	30.00	6410.07	352.55	30.00	6410.07	320.50	26.00	5555.39
TOTALS:					**120136.05**	**2522.86**	**39524.76**		**120136.05**	**6607.49**		**120136.05**	**6006.79**		**103130.56**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
CEMENT STABILIZED CRUSHED STONE BASE COURSE = 94.0% AGGR. 6.0% CEMENT
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/16/2017

R090508.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	71A	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

BASE AND SURFACING ALTERNATE 1 - BOX 1 OF 2

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES																					
559+00.00	637+08.12	LT. MAIN LANES - OUTSIDE SHOULDER	7808.12	117.00	9135.50													8.00	6940.55	220.00	763.46
637+08.12	640+08.12	LT. MAIN LANES - OUTSIDE SHOULDER	300.00	120.75	362.25													7.00	233.33	220.00	25.67
640+08.12	641+00.00	LT. MAIN LANES - OUTSIDE SHOULDER	91.88	124.50	114.39													6.00	61.25	220.00	6.74
687+00.00	712+08.92	LT. MAIN LANES - OUTSIDE SHOULDER	2508.92	117.00	2935.44													8.00	2230.15	220.00	245.32
714+86.08	779+97.93	LT. MAIN LANES - OUTSIDE SHOULDER	6511.85	117.00	7618.86													8.00	5788.31	220.00	636.71
782+78.07	794+88.02	LT. MAIN LANES - OUTSIDE SHOULDER	1209.95	117.00	1415.64													8.00	1075.51	220.00	118.31
794+88.02	797+88.02	LT. MAIN LANES - OUTSIDE SHOULDER	300.00	120.75	362.25													7.00	233.33	220.00	25.67
797+88.02	799+00.00	LT. MAIN LANES - OUTSIDE SHOULDER	111.98	124.50	139.42													6.00	74.65	220.00	8.21
845+00.00	928+32.38	LT. MAIN LANES - OUTSIDE SHOULDER	8332.38	117.00	9748.88													8.00	7406.56	220.00	814.72
934+88.10	998+83.00	LT. MAIN LANES - OUTSIDE SHOULDER	6394.90	117.00	7482.03													8.00	5684.36	220.00	625.28
1001+49.20	1020+72.00	LT. MAIN LANES - OUTSIDE SHOULDER	1922.80	117.00	2249.68													8.00	1709.16	220.00	188.01
559+00.00	641+00.00	LT. MAIN LANES - INSIDE SHOULDER	8200.00	104.00	8528.00													4.00	3644.44	220.00	400.89
687+00.00	712+07.90	LT. MAIN LANES - INSIDE SHOULDER	2507.90	104.00	2608.22													4.00	1114.62	220.00	122.61
714+86.10	779+97.93	LT. MAIN LANES - INSIDE SHOULDER	6511.83	104.00	6772.30													4.00	2894.15	220.00	318.36
782+78.07	799+00.00	LT. MAIN LANES - INSIDE SHOULDER	1621.93	104.00	1686.81													4.00	720.86	220.00	79.29
845+00.00	928+32.33	LT. MAIN LANES - INSIDE SHOULDER	8332.33	104.00	8665.62													4.00	3703.26	220.00	407.36
934+88.36	998+82.80	LT. MAIN LANES - INSIDE SHOULDER	6394.44	104.00	6650.22													4.00	2841.97	220.00	312.62
1001+49.17	1020+72.00	LT. MAIN LANES - INSIDE SHOULDER	1922.83	104.00	1999.74													4.00	854.59	220.00	94.00
ADDITIONAL FOR SUPERELEVATION																					
611+71.00	615+21.00	SUPERELEVATION TRANSTITION - OUTSIDE SHOULDER	350.00	16.75	58.63																
615+21.00	638+42.96	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	2321.96	33.25	772.05																
637+42.96	641+92.96	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	450.00	16.75	75.38																
687+00.00	697+17.78	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1017.78	16.75	170.48																
697+17.78	700+67.78	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	33.25	116.38																
742+30.86	745+80.86	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	16.75	58.63																
745+80.86	759+27.02	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1346.16	33.25	447.60																
759+27.02	762+77.02	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	16.75	58.63																
845+00.00	856+45.68	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1145.68	90.25	1033.98																
856+45.68	859+95.68	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	45.25	158.38																
915+13.17	918+63.17	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	17.25	60.38																
918+63.17	928+31.99	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	968.82	32.25	312.44																
934+88.62	940+55.95	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	567.33	32.25	182.96																
940+55.95	944+05.95	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	17.25	60.38																
1009+13.37	1012+63.37	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	32.00	112.00																
1012+63.37	1020+72.00	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	808.63	47.25	382.08																
611+71.00	615+21.00	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	30.75	107.63																
615+21.00	638+42.96	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	2321.96	61.25	1422.20																
637+42.96	641+92.96	SUPERELEVATION TRANSITION - INSIDE SHOULDER	450.00	30.75	138.38																
687+00.00	697+17.78	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1017.78	61.25	623.39																
697+17.78	700+67.78	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	30.75	107.63																
742+30.86	745+80.86	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	30.75	107.63																
745+80.86	759+27.02	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1346.16	61.25	824.52																
759+27.02	762+77.02	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	30.75	107.63																
845+00.00	856+45.68	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1145.68	28.25	323.65																
856+45.68	859+95.68	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	14.25	49.88																
915+13.17	918+63.17	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	18.00	63.00																
918+63.17	928+32.12	SUPERELEVATION TRANSITION - INSIDE SHOULDER	968.95	36.00	348.82																
934+88.52	940+55.95	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	567.43	36.00	204.27																
940+55.95	944+05.95	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	18.00	63.00																
SUBTOTALS (BOX 1 OF 2):					**87027.26**														**47211.05**		**5193.23**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/16/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	71B	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

BASE AND SURFACING ALTERNATE 1 - BOX 2 OF 2

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
			FEET	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON
ADDITIONAL FOR TEMPORARY CROSSOVER																					
652+67.47	653+94.01	NOTCH AND WIDEN	126.54	180.88	228.89	38.41	540.04	0.05	27.00	12.88	181.09	880.00	79.68	12.65	177.86	330.00	29.35	12.50	175.75	220.00	19.33
653+94.01	657+43.51	FULL DEPTH	349.50	210.00	733.95	76.79	2982.01	0.05	149.10	25.75	999.96	880.00	439.98	25.29	982.10	330.00	162.05	25.00	970.83	220.00	106.79
657+43.51	658+39.76	NOTCH AND WIDEN	96.25	180.88	174.10	38.41	410.77	0.05	20.54	12.88	137.74	880.00	60.61	12.65	135.28	330.00	22.32	12.50	133.68	220.00	14.70
987+11.80	990+93.29	NOTCH AND WIDENING	381.49	152.38	581.31	38.41	1628.11	0.05	81.41	12.88	545.95	880.00	240.22	12.65	536.21	330.00	88.47	12.50	529.85	220.00	58.28
990+93.29	994+27.03	FULL DEPTH	333.74	175.75	586.55	76.79	2847.54	0.05	142.38	25.75	954.87	880.00	420.14	25.29	937.81	330.00	154.74	25.00	927.06	220.00	101.98
994+27.03	997+09.79	NOTCH AND WIDENING	282.76	152.38	430.87	38.41	1206.76	0.05	60.34	12.88	404.66	880.00	178.05	12.65	397.43	330.00	65.58	12.50	392.72	220.00	43.20
ADDITIONAL FOR WIDENING AT GUARDRAIL																					
714+46.98	717+25.73	LT. OF LT. MAIN LANES	278.75	89.36	249.09													5.50	170.35	220.00	18.74
717+25.73	717+58.73	LT. OF LT. MAIN LANES	33.00	44.68	14.74													2.75	10.08	220.00	1.11
714+50.56	717+79.31	RT. OF LT. MAIN LANES	328.75	102.38	336.57													5.50	200.90	220.00	22.10
717+79.31	718+12.31	RT. OF LT. MAIN LANES	33.00	51.19	16.89													2.75	10.08	220.00	1.11
782+50.97	785+29.72	LT. OF LT. MAIN LANES	278.75	89.36	249.09													5.50	170.35	220.00	18.74
785+29.72	785+62.72	LT. OF LT. MAIN LANES	33.00	44.68	14.74													2.75	10.08	220.00	1.11
782+50.97	785+79.72	RT. OF LT. MAIN LANES	328.75	102.38	336.57													5.50	200.90	220.00	22.10
785+79.72	786+12.72	RT. OF LT. MAIN LANES	33.00	51.19	16.89													2.75	10.08	220.00	1.11
926+66.31	926+99.31	LT. OF LT. MAIN LANES	33.00	20.25	6.68													2.75	10.08	220.00	1.11
926+99.31	928+53.06	LT. OF LT. MAIN LANES	153.75	40.25	61.88													5.50	93.96	220.00	10.34
934+39.44	934+83.19	LT. OF LT. MAIN LANES	43.75	40.25	17.61													5.50	26.74	220.00	2.94
934+83.19	937+33.19	LT. OF LT. MAIN LANES	250.00	48.50	121.25													6.75	187.50	220.00	20.63
937+33.19	937+43.19	LT. OF LT. MAIN LANES	10.00	56.50	5.65													8.00	8.89	220.00	0.98
937+43.19	937+91.19	LT. OF LT. MAIN LANES	48.00	28.25	13.56													4.00	21.33	220.00	2.35
934+67.39	935+11.14	RT. OF LT. MAIN LANES	43.75	39.00	17.06													7.50	36.46	220.00	4.01
935+11.14	937+86.14	RT. OF LT. MAIN LANES	275.00	51.25	140.94													9.25	282.64	220.00	31.09
937+86.14	937+96.14	RT. OF LT. MAIN LANES	10.00	63.50	6.35													11.00	12.22	220.00	1.34
937+96.14	938+50.14	RT. OF LT. MAIN LANES	54.00	31.75	17.15													5.50	33.00	220.00	3.63
1001+11.50	1001+55.25	LT. OF LT. MAIN LANES	43.75	40.25	17.61													5.50	26.74	220.00	2.94
1001+55.25	1003+80.25	LT. OF LT. MAIN LANES	225.00	48.50	109.13													6.75	168.75	220.00	18.56
1003+80.25	1003+90.25	LT. OF LT. MAIN LANES	10.00	56.50	5.65													8.00	8.89	220.00	0.98
1003+90.25	1004+38.25	LT. OF LT. MAIN LANES	48.00	28.25	13.56													4.00	21.33	220.00	2.35
1001+29.29	1001+73.04	RT. OF LT. MAIN LANES	43.75	39.00	17.06													7.50	36.46	220.00	4.01
1001+73.04	1004+23.04	RT. OF LT. MAIN LANES	250.00	49.50	123.75													9.00	250.00	220.00	27.50
1004+23.04	1004+33.04	RT. OF LT. MAIN LANES	10.00	59.75	5.98													10.50	11.67	220.00	1.28
1004+33.04	1004+84.04	RT. OF LT. MAIN LANES	51.00	30.00	15.30													5.25	29.75	220.00	3.27
SUBTOTALS (BOX 2 OF 2):					**4686.42**		**9615.23**		**480.77**		**3224.27**		**1418.68**		**3166.69**		**522.51**		**5179.12**		**569.71**
SUBTOTALS (BOX 1 OF 2):					**87027.26**														**47211.05**		**5193.23**
TOTALS:					**91713.68**		**9615.23**		**480.77**		**3224.27**		**1418.68**		**3166.69**		**522.51**		**52390.17**		**5762.94**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/16/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	71C	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

CONCRETE BASE - ALTERNATE 2

STATION	STATION	LOCATION	LENGTH	CEMENT STABILIZED CRUSHED STONE BASE COURSE (6" COMP'D. DEPTH)				ACHM SURFACE COURSE (3/8") 110 LBS. PER SQ. YD.			TACK COAT 0.05 GAL. PER SQ. YD.			PORTLAND CEMENT CONCRETE PAVEMENT	
				AVG. WID.	PROCESSING	CEMENT	AGGREGATE	AVG. WID.	SQ. YD.	PG 64-22 TON	AVG. WID.	SQ. YD.	GAL.	AVG. WID.	11" U.T.
			FEET	FEET	SQ. YD.	TON	TON	FEET			FEET			FEET	SQ. YD.
559+00.00	559+15.00	LT. MAIN LANES	15.00	30.00	50.00	0.70	10.97	30.00	50.00	2.75	30.00	50.00	2.50	26.00	43.33
640+85.00	641+00.00	LT. MAIN LANES - ACCEL. LANE	15.00	40.00	66.67	1.05	16.45	40.00	66.67	3.67	40.00	66.67	3.33	36.00	60.00
687+00.00	687+15.00	LT. MAIN LANES	15.00	30.00	50.00	0.88	13.71	30.00	50.00	2.75	30.00	50.00	2.50	26.00	43.33
798+85.00	799+00.00	LT. MAIN LANES - ACCEL. LANE	15.00	40.00	66.67	1.28	20.11	40.00	66.67	3.67	40.00	66.67	3.33	36.00	60.00
845+00.00	845+15.00	LT. MAIN LANES	15.00	30.00	50.00	1.05	16.45	30.00	50.00	2.75	30.00	50.00	2.50	26.00	43.33
TOTALS:					283.34	4.96	77.69		283.34	15.59		283.34	14.16		249.99

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
CEMENT STABILIZED CRUSHED STONE BASE COURSE = 94.0% AGGR. 6.0% CEMENT
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

BASE AND SURFACING ALTERNATE 2 - BOX 1 OF 2

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT			ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																										
559+15.00	637+08.12	LT. MAIN LANES	7793.12	340.25	26516.09	79.58	68908.50	0.05	3445.43	26.83	23232.16	440.00	5111.08	26.50	22946.41	440.00	5048.21	26.25	22729.93	220.00	2500.29	38.00	32904.28	220.00	3619.47	6119.76
637+08.12	640+08.12	LT. MAIN LANES - TAPER	300.00	352.00	1056.00	94.58	3152.67	0.05	157.63	31.83	1061.00	440.00	233.42	31.50	1050.00	440.00	231.00	31.25	1041.67	220.00	114.58	42.00	1400.00	220.00	154.00	268.58
640+08.12	640+85.00	LT. MAIN LANES - ACCELERATION LANE	76.88	363.50	279.46	109.58	936.06	0.05	46.80	36.83	314.61	440.00	69.21	36.50	311.79	440.00	68.59	36.25	309.66	220.00	34.06	46.00	392.94	220.00	43.22	77.28
687+15.00	712+08.92	LT. MAIN LANES	2493.92	340.25	8485.56	79.58	22051.79	0.05	1102.59	26.83	7434.65	440.00	1635.62	26.50	7343.21	440.00	1615.51	26.25	7273.93	220.00	800.13	38.00	10529.88	220.00	1158.29	1958.42
714+86.08	779+97.93	LT. MAIN LANES	6511.85	340.25	22156.57	79.58	57579.23	0.05	2878.96	26.83	19412.55	440.00	4270.76	26.50	19173.78	440.00	4218.23	26.25	18992.90	220.00	2089.22	38.00	27494.48	220.00	3024.39	5113.61
782+78.07	794+88.02	LT. MAIN LANES	1209.95	340.25	4116.85	79.58	10698.65	0.05	534.93	26.83	3607.00	440.00	793.54	26.50	3562.63	440.00	783.78	26.25	3529.02	220.00	388.19	38.00	5108.68	220.00	561.95	950.14
794+88.02	797+88.02	LT. MAIN LANES - TAPER	300.00	352.00	1056.00	94.58	3152.67	0.05	157.63	31.83	1061.00	440.00	233.42	31.50	1050.00	440.00	231.00	31.25	1041.67	220.00	114.58	42.00	1400.00	220.00	154.00	268.58
797+88.02	798+85.00	LT. MAIN LANES - ACCELERATION LANE	96.98	363.50	352.52	109.58	1180.78	0.05	59.04	36.83	396.86	440.00	87.31	36.50	393.31	440.00	86.53	36.25	390.61	220.00	42.97	46.00	495.68	220.00	54.52	97.49
845+15.00	928+32.38	LT. MAIN LANES	8317.38	340.25	28299.89	79.58	73544.12	0.05	3677.21	26.83	24795.03	440.00	5454.91	26.50	24490.06	440.00	5387.81	26.25	24259.03	220.00	2668.49	38.00	35117.83	220.00	3862.96	6531.45
934+88.10	998+83.00	LT. MAIN LANES	6394.90	340.25	21758.65	79.58	56545.13	0.05	2827.26	26.83	19063.91	440.00	4194.06	26.50	18829.43	440.00	4142.47	26.25	18651.79	220.00	2051.70	38.00	27000.69	220.00	2970.08	5021.78
1001+49.20	1019+47.00	LT. MAIN LANES	1797.80	340.25	6117.01	79.58	15896.54	0.05	794.83	26.83	5359.44	440.00	1179.08	26.50	5293.52	440.00	1164.57	26.25	5243.58	220.00	576.79	38.00	7590.71	220.00	834.98	1411.77
1019+47.00	1019+72.00	LT. MAIN LANES	25.00	340.25	85.06	79.58	221.06	0.05	11.05	26.83	74.53	440.00	16.40	26.50	73.61	440.00	16.19	26.25	72.92	220.00	8.02					8.02
1019+72.00	1019+97.00	LT. MAIN LANES	25.00	340.25	85.06	53.33	148.14	0.05	7.41	26.83	74.53	440.00	16.40	26.50	73.61	440.00	16.19									
1019+97.00	1020+22.00	LT. MAIN LANES	25.00	340.25	85.06	26.83	74.53	0.05	3.73	26.83	74.53	440.00	16.40													
1020+22.00	1020+47.00	LT. MAIN LANES	25.00	340.25	85.06																					
ADDITIONAL FOR SUPERELEVATION																										
611+71.00	615+21.00	SUPERELEVATION TRANSTITION - OUTSIDE SHOULDER	350.00	17.00	59.50																					
615+21.00	638+42.96	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	2321.96	34.00	789.47																					
637+42.96	641+92.96	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	450.00	17.00	76.50																					
687+00.00	697+17.78	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1017.78	34.00	346.05																					
697+17.78	700+67.78	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	17.00	59.50																					
742+30.86	745+80.86	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	17.00	59.50																					
745+80.86	759+27.02	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1346.16	34.00	457.69																					
759+27.02	762+77.02	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	17.00	59.50																					
845+00.00	856+45.68	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	1145.68	91.00	1042.57																					
856+45.68	859+95.68	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	45.50	159.25																					
915+13.17	918+63.17	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	18.00	63.00																					
918+63.17	928+31.99	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	968.82	36.00	348.78																					
934+88.62	940+55.95	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	567.33	36.00	204.24																					
940+55.95	944+05.95	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	18.00	63.00																					
1009+13.37	1012+63.37	SUPERELEVATION TRANSITION - OUTSIDE SHOULDER	350.00	32.00	112.00																					
1012+63.37	1020+47.00	MAXIMUM SUPERELEVATION - OUTSIDE SHOULDER	783.63	47.25	370.27																					
611+71.00	615+21.00	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	31.25	109.38																					
615+21.00	638+42.96	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	2321.96	62.25	1445.42																					
637+42.96	641+92.96	SUPERELEVATION TRANSITION - INSIDE SHOULDER	450.00	31.25	140.63																					
687+00.00	697+17.78	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1017.78	62.25	633.57																					
697+17.78	700+67.78	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	31.25	109.38																					
742+30.86	745+80.86	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	31.25	109.38																					
745+80.86	759+27.02	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1346.16	62.25	837.98																					
759+27.02	762+77.02	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	31.25	109.38																					
845+00.00	856+45.68	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	1145.68	29.25	335.11																					
856+45.68	859+95.68	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	14.75	51.63																					
915+13.17	918+63.17	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	18.50	64.75																					
918+63.17	928+32.12	SUPERELEVATION TRANSITION - INSIDE SHOULDER	968.95	37.00	358.51																					
934+88.52	940+55.95	MAXIMUM SUPERELEVATION - INSIDE SHOULDER	567.43	37.00	209.95																					
940+55.95	944+05.95	SUPERELEVATION TRANSITION - INSIDE SHOULDER	350.00	18.50	64.75																					
ADDITIONAL FOR SHOULDERS																										
559+00.00	559+15.00	LT. MAIN LANES - OUTSIDE SHOULDER	15.00	117.00	17.55																	8.00	13.33	220.00	1.47	1.47
559+00.00	559+15.00	LT. MAIN LANES - INSIDE SHOULDER	15.00	104.00	15.60																	4.00	6.67	220.00	0.73	0.73
640+85.00	641+00.00	LT. MAIN LANES - OUTSIDE SHOULDER	15.00	117.00	17.55																	8.00	13.33	220.00	1.47	1.47
640+85.00	641+00.00	LT. MAIN LANES - INSIDE SHOULDER	15.00	104.00	15.60																	4.00	6.67	220.00	0.73	0.73
687+00.00	687+15.00	LT. MAIN LANES - OUTSIDE SHOULDER	15.00	117.00	17.55																	8.00	13.33	220.00	1.47	1.47
687+00.00	687+15.00	LT. MAIN LANES - INSIDE SHOULDER	15.00	104.00	15.60																	4.00	6.67	220.00	0.73	0.73
798+85.00	799+00.00	LT. MAIN LANES - OUTSIDE SHOULDER	15.00	117.00	17.55																	8.00	13.33	220.00	1.47	1.47
798+85.00	799+00.00	LT. MAIN LANES - INSIDE SHOULDER	15.00	104.00	15.60																	4.00	6.67	220.00	0.73	0.73
844+85.00	845+00.00	LT. MAIN LANES - OUTSIDE SHOULDER	15.00	117.00	17.55																	8.00	13.33	220.00	1.47	1.47
844+85.00	845+00.00	LT. MAIN LANES - INSIDE SHOULDER	15.00	104.00	15.60																	4.00	6.67	220.00	0.73	0.73
SUBTOTALS (BOX 1 OF 2):					129551.23		314089.87		15704.50		105961.80		23311.61		104591.36		23010.08		103536.71		11389.02		149535.17		16448.86	27837.88

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/16/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/16/17				6	ARK.			
				JOB NO.		090508	72	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-18-17

BASE AND SURFACING ALTERNATE 2 - BOX 2 OF 2

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
ADDITIONAL FOR TEMPORARY CROSSOVER																										
652+67.47	653+94.01	NOTCH AND WIDEN	126.54	180.88	228.89	38.41	540.04	0.05	27.00	12.88	181.09	880.00	79.68	12.65	177.86	330.00	29.35					12.50	175.75	220.00	19.33	19.33
653+94.01	657+43.51	FULL DEPTH	349.50	210.00	733.95	76.79	2982.01	0.05	149.10	25.75	999.96	880.00	439.98	25.29	962.10	330.00	162.05					25.00	970.83	220.00	106.79	106.79
657+43.51	658+39.76	NOTCH AND WIDEN	96.25	180.88	174.10	38.41	410.77	0.05	20.54	12.88	137.74	880.00	60.61	12.65	135.28	330.00	22.32					12.50	133.68	220.00	14.70	14.70
987+11.80	990+93.29	NOTCH AND WIDENING	381.49	152.38	581.31	38.41	1628.11	0.05	81.41	12.88	545.95	880.00	240.22	12.65	536.21	330.00	88.47					12.50	529.85	220.00	58.28	58.28
990+93.29	994+27.03	FULL DEPTH	333.74	175.75	586.55	76.79	2847.54	0.05	142.38	25.75	954.87	880.00	420.14	25.29	937.81	330.00	154.74					25.00	927.06	220.00	101.98	101.98
994+27.03	997+09.79	NOTCH AND WIDENING	282.76	152.38	430.87	38.41	1206.76	0.05	60.34	12.88	404.66	880.00	178.05	12.65	397.43	330.00	65.58					12.50	392.72	220.00	43.20	43.20
ADDITIONAL FOR WIDENING AT GUARDRAIL																										
714+46.98	717+25.73	LT. OF LT. MAIN LANES	278.75	89.36	249.09																	5.50	170.35	220.00	18.74	18.74
717+25.73	717+58.73	LT. OF LT. MAIN LANES	33.00	44.68	14.74																	2.75	10.08	220.00	1.11	1.11
714+50.56	717+79.31	RT. OF LT. MAIN LANES	328.75	102.38	336.57																	5.50	200.90	220.00	22.10	22.10
717+79.31	718+12.31	RT. OF LT. MAIN LANES	33.00	51.19	16.89																	2.75	10.08	220.00	1.11	1.11
782+50.97	785+29.72	LT. OF LT. MAIN LANES	278.75	89.36	249.09																	5.50	170.35	220.00	18.74	18.74
785+29.72	785+62.72	LT. OF LT. MAIN LANES	33.00	44.68	14.74																	2.75	10.08	220.00	1.11	1.11
782+50.97	785+79.72	RT. OF LT. MAIN LANES	328.75	102.38	336.57																	5.50	200.90	220.00	22.10	22.10
785+79.72	786+12.72	RT. OF LT. MAIN LANES	33.00	51.19	16.89																	2.75	10.08	220.00	1.11	1.11
926+66.31	926+99.31	LT. OF LT. MAIN LANES	33.00	20.25	6.68																	2.75	10.08	220.00	1.11	1.11
926+99.31	928+53.06	LT. OF LT. MAIN LANES	153.75	40.25	61.88																	5.50	93.96	220.00	10.34	10.34
934+39.44	934+83.19	LT. OF LT. MAIN LANES	43.75	40.25	17.61																	5.50	26.74	220.00	2.94	2.94
934+83.19	937+33.19	LT. OF LT. MAIN LANES	250.00	48.50	121.25																	6.75	187.50	220.00	20.63	20.63
937+33.19	937+43.19	LT. OF LT. MAIN LANES	10.00	56.50	5.65																	8.00	8.89	220.00	0.98	0.98
937+43.19	937+91.19	LT. OF LT. MAIN LANES	48.00	28.25	13.56																	4.00	21.33	220.00	2.35	2.35
934+67.39	935+11.14	RT. OF LT. MAIN LANES	43.75	39.00	17.06																	7.50	36.46	220.00	4.01	4.01
935+11.14	937+86.14	RT. OF LT. MAIN LANES	275.00	51.25	140.94																	9.25	282.64	220.00	31.09	31.09
937+86.14	937+96.14	RT. OF LT. MAIN LANES	10.00	63.50	6.35																	11.00	12.22	220.00	1.34	1.34
937+96.14	938+50.14	RT. OF LT. MAIN LANES	54.00	31.75	17.15																	5.50	33.00	220.00	3.63	3.63
1001+11.50	1001+55.25	LT. OF LT. MAIN LANES	43.75	40.25	17.61																	5.50	26.74	220.00	2.94	2.94
1001+55.25	1003+80.25	LT. OF LT. MAIN LANES	225.00	48.50	109.13																	6.75	168.75	220.00	18.56	18.56
1003+80.25	1003+90.25	LT. OF LT. MAIN LANES	10.00	56.50	5.65																	8.00	8.89	220.00	0.98	0.98
1003+90.25	1004+38.25	LT. OF LT. MAIN LANES	48.00	28.25	13.56																	4.00	21.33	220.00	2.35	2.35
1001+29.29	1001+73.04	RT. OF LT. MAIN LANES	43.75	39.00	17.06																	7.50	36.46	220.00	4.01	4.01
1001+73.04	1004+23.04	RT. OF LT. MAIN LANES	250.00	49.50	123.75																	9.00	250.00	220.00	27.50	27.50
1004+23.04	1004+33.04	RT. OF LT. MAIN LANES	10.00	59.75	5.98																	10.50	11.67	220.00	1.28	1.28
1004+33.04	1004+84.04	RT. OF LT. MAIN LANES	51.00	30.00	15.30																	5.25	29.75	220.00	3.27	3.27
SUBTOTALS (BOX 2 OF 2):					**4686.42**		**9615.23**		**480.77**		**3224.27**		**1418.68**		**3166.69**		**522.51**						**5179.12**		**569.71**	**569.71**
SUBTOTALS (BOX 1 OF 2):					**129551.23**		**314089.87**		**15704.50**		**105961.80**		**23311.61**		**104591.36**		**23010.08**	**103536.71**		**11389.02**		**149535.17**		**16448.86**	**27837.88**
TOTALS:					**134237.65**		**323705.10**		**16185.27**		**109186.07**		**24730.29**		**107758.05**		**23532.59**	**103536.71**		**11389.02**		**154714.29**		**17018.57**	**28407.59**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/16/2017

R090508.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	73	335
				① A7276, A7274, A7196, A7195		QUANTITIES	- 57984	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090508

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	802	SP & 802	803	804	804	805	805	SP & 807	SP & 807	808	809	812	816	SP JOB 090508	SP JOB 090508
			ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	② STEEL ③ PILING (HP 12X53)	③ PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M270-GR. 50W)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR. 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	EXPLORATORY HOLES ③	TEXTURED COATING FINISH
			UNIT	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	LB.	CUBIC INCH	LIN. FT.	EACH	CU. YD.	LIN. FT.	SQ. YD.
A7276	COUNTY ROAD 39																		
		BENT 1		31	39.52		4.9	4,118		190		901		2,136.5			114		32
		BENT 2		150	86.22			15,427		192	90			2,396.0				64	102
		BENT 3		151	87.82			15,817		192	90			2,396.0				64	107
		BENT 4			39.44		4.9	4,118		210		901		2,136.5					32
		186' CONT. W-BEAM UNIT				236.40	826.7		60,860			180,578			94	1			418
TOTALS FOR BRIDGE NO. A7276				332	253.00	236.40	836.5	39,480	60,860	784	180	182,380	0	9,065.0	94	1	114	128	691
A7274	COUNTY ROAD 49																		
		BENT 1			56.05		5.4	5,625		312			1,005	4,987.5			283		49
		BENT 2		180	170.15			21,505						4,950.0					203
		BENT 3		152	183.36			21,850		240	264			9,975.0				64	246
		BENT 4		248	201.80			24,961						4,950.0					255
		BENT 5		292	204.22			25,574						9,529.0					234
		BENT 6			56.62		5.4	5,625		472			1,005	4,987.5					49
		210' CONT. PLATE GIRDER UNIT				270.55	933.3		65,780				249,490		104				472
		345' CONT. PLATE GIRDER UNIT				442.25	1,533.3		110,250				425,820		52	1			776
TOTALS FOR BRIDGE NO. A7274				①872	872.20	712.80	2,477.4	105,140	176,030	1,024	264	0	677,320	39,379.0	156	1	283	64	2,284
A7196	HWY. 279																		
		BENT 1			30.68		12.8	3,586		255		823		1,646.9			122		22
		BENT 2		98	65.65			11,265		170				2,690.6					104
		BENT 3		103	66.40			11,403		160				2,690.6					106
		BENT 4			30.67		12.8	3,586		255		823		1,646.9			124		22
		205' CONT. W-BEAM UNIT				260.20	1,075.5		65,210			222,334			86	1			279
TOTALS FOR BRIDGE NO. A7196				201	193.40	260.20	1,101.1	29,840	65,210	840	0	223,980	0	8,675.0	86	1	246	0	533
A7195	C.R. 35																		
		BENT 1			32.14		10.7	3,566		185		866		3,375.0			127		27
		BENT 2		45	58.48			8,740		72	56			3,000.0					129
		BENT 3		41	59.54			8,898		184				3,000.0					131
		BENT 4			32.14		10.7	3,566		225		867		3,375.0			149		27
		204' CONT. W-BEAM UNIT				258.90	1,070.3		66,410			205,557			90	1			283
TOTALS FOR BRIDGE NO. A7195				86	182.30	258.90	1,091.7	24,770	66,410	666	56	207,290	0	12,750.0	90	1	276	0	597
TOTALS FOR JOB NO. 090508				1,491	1,500.9	1,468.30	5,506.70	199,230	368,510	3,314	500	613,650	677,320	69,869.0	426	4	919	192	4,105

① Includes approx. 126 cu. yds. of rock excavation.

② These steel piles shall be Grade 50 and have special pile tips which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 12X53)". All piles shall conform to Std. Dwg. No. 55020.

③ The quantities shown for steel piling, preboring, and exploratory holes are for estimating and bidding purposes only. Actual quantities for preboring and exploratory holes, if any, and for steel piling will be determined in the field.

JIM POOL/KYLE YEARY
DESIGN SECTION SUPERVISORS

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 71 - CO. RD. 34
(ADD'L LNS.) (B.V. BYPASS) (S)
BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8-22-17 FILENAME: b090508_ql.dgn
CHECKED BY: KWY DATE: 9/7/17 SCALE: NONE
DESIGNED BY: ____ DATE: ____

BRIDGE NO. A7276, A7274, A7196, A7195 DRAWING NO. 57984

PRINT DATE: 9/1/2017

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	CONCRETE QUANTITIES - ALTERNATE NO. 1			ASPHALT QUANTITIES - ALTERNATE NO. 2			UNIT
		NHPP-0004(72)	HSIP-0004(72)	TOTAL	NHPP-0004(72)	HSIP-0004(72)	TOTAL	
SP & 201	CLEARING	120		120	120		120	STATION
201	GRUBBING	120		120	120		120	STATION
202	REMOVAL AND DISPOSAL OF FENCE	4332		4332	4332		4332	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	3		3	3		3	EACH
202	REMOVAL AND DISPOSAL OF ROCK DITCH LINING	378		378	378		378	SQ. YD.
202	REMOVAL AND DISPOSAL OF PRECAST CONCRETE BARRIER WALL LEFT IN PLACE	1212		1212	1212		1212	LIN. FT.
202	REMOVAL AND DISPOSAL OF TRAFFIC DRUMS LEFT IN PLACE	10		10	10		10	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING	5506		5506	5506		5506	SQ. YD.
202	REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER	8		8	8		8	EACH
202	REMOVAL AND DISPOSAL OF BARRICADES LEFT IN PLACE	2		2	2		2	EACH
202	REMOVAL AND DISPOSAL OF SIGNS LEFT IN PLACE	7		7	7		7	EACH
202	REMOVAL AND DISPOSAL OF CRASH CUSHIONS	1		1	1		1	EACH
210	UNCLASSIFIED EXCAVATION	699281		699281	699281		699281	CU. YD.
210	COMPACTED EMBANKMENT	1205614		1205614	1205614		1205614	CU. YD.
SP & 210	ROCK FILL	71812		71812	71812		71812	CU. YD.
SP & 210	SOIL STABILIZATION	1000		1000	1000		1000	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	92005		92005	134529		134529	TON
308	AGGREGATE IN CEMENT STABILIZED CRUSHED STONE BASE COURSE	39525		39525	78		78	TON
308	CEMENT IN CEMENT STABILIZED CRUSHED STONE BASE COURSE	2523		2523	5		5	TON
308	PROCESSING CEMENT STABILIZED CRUSHED STONE BASE COURSE	120136		120136	283		283	SQ. YD.
SS & 401	TACK COAT	6508		6508	16219		16219	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	1361		1361	23716		23716	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	58		58				TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")				1014		1014	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	499		499	22474		22474	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	24		24				TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")				1059		1059	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")	6224		6224	15		15	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8")	383		383	1		1	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	5446		5446	26846		26846	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	317		317				TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")				1562		1562	TON
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	10		10	10		10	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	50		50	50		50	TON
SP & 501	PORTLAND CEMENT CONCRETE PAVEMENT (11" UNIFORM THICKNESS)	103131		103131	250		250	SQ. YD.
504	APPROACH SLABS	414.40		414.40	414.40		414.40	CU. YD.
504	APPROACH GUTTERS	256.99		256.99	256.99		256.99	CU. YD.
601	MOBILIZATION	1.00		1.00	1.00		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1		1	1		1	EACH
603	MAINTENANCE OF TRAFFIC	1.00		1.00	1.00		1.00	LUMP SUM
SS & 604	SIGNS	839		839	839		839	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	10		10	10		10	EACH
SS & 604	TRAFFIC DRUMS	1179		1179	1179		1179	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	2768		2768	2768		2768	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	148833		148833	148833		148833	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	7968		7968	7968		7968	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	52887		52887	52887		52887	LIN. FT.
605	CONCRETE DITCH PAVING (TYPE A)	2560		2560	2560		2560	SQ. YD.
605	CONCRETE DITCH PAVING (TYPE B)	4114		4114	4114		4114	SQ. YD.
SP & 605	CONCRETE DITCH PAVING (TYPE B)		17138	17138		17138	17138	SQ. YD.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	2636		2636	2636		2636	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	188		188	188		188	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	80		80	80		80	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	72		72	72		72	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	234		234	234		234	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	252		252	252		252	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	320		320	320		320	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	256		256	256		256	LIN. FT.
SP & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS SPECIAL)	86		86	86		86	LIN. FT.
SP & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS SPECIAL)	188		188	188		188	LIN. FT.
606	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	266		266	266		266	LIN. FT.
606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	102		102	102		102	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	32		32	32		32	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	3		3	3		3	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8		8	8		8	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4		4	4		4	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	1		1	1		1	EACH
606	SELECTED PIPE BEDDING	450		450	450		450	CU. YD.
609	DROP INLETS (TYPE N3)	4		4	4		4	EACH
609	DROP INLETS (TYPE RM)	34		34	34		34	EACH
611	UNDERDRAIN OUTLET PROTECTORS	64		64	64		64	EACH
611	4" PIPE UNDERDRAINS	15000		15000	15000		15000	LIN. FT.
614	CONCRETE SPILLWAY (TYPE A)	4		4	4		4	EACH
617	GUARDRAIL (TYPE A)	3725		3725	3725		3725	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)	5		5	5		5	EACH
617	GUARDRAIL TERMINAL (TYPE 2)	12		12	12		12	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	9		9	9		9	EACH
SP	WIRE ROPE SAFETY FENCE		38891	38891		38891	38891	LIN. FT.
SP	WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS		1.00	1.00		1.00	1.00	LUMP SUM
SP	WIRE ROPE SAFETY FENCE (POST REPAIR)		50	50		50	50	EACH
619	WIRE FENCE (TYPE A)	1479		1479	1479		1479	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	1		1	1		1	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	1		1	1		1	EACH
620	LIME	327		327	327		327	TON
620	SEEDING	163.47		163.47	163.47		163.47	ACRE
SS & 620	MULCH COVER	510.45		510.45	510.45		510.45	ACRE
620	WATER	23799.9	215.9	24015.8	23799.9	215.9	24015.8	M. GAL.
621	TEMPORARY SEEDING	346.98		346.98	346.98		346.98	ACRE
621	SILT FENCE	35541		35541	35541		35541	LIN. FT.
621	SAND BAG DITCH CHECKS	1782		1782	1782		1782	BAG
621	DIVERSION DITCH	11940		11940	11940		11940	LIN. FT.
621	DROP INLET SILT FENCE	1776		1776	1776		1776	LIN. FT.
621	SEDIMENT BASIN	32763		32763	32763		32763	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	32763		32763	32763		32763	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	34787		34787	34787		34787	CU. YD.
621	PIPE FOR SLOPE DRAINS	3660		3660	3660		3660	LIN. FT.
621	ROCK DITCH CHECKS	869		869	869		869	CU. YD.
SP	ROCK DITCH LINER	6070		6070	6070		6070	TON
SS & 621	FILTER SOCK (18")	500		500	500		500	LIN. FT.
621	WATTLE (18")	5859		5859	5859		5859	LIN. FT.
621	TRIANGULAR SILT DIKE	5420		5420	5420		5420	LIN. FT.
623	SECOND SEEDING APPLICATION	163.47		163.47	163.47		163.47	ACRE
624	SOLID SODDING	3760	17138	20898	3760	17138	20898	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	10089		10089	10089		10089	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00		1.00	1.00		1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	44591		44591	80584		80584	LIN. FT.
642	RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS	45044		45044	9051		9051	LIN. FT.
SP	ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (6")	63453		63453	63453		63453	LIN. FT.
SP	ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (8")	1766		1766	1766		1766	LIN. FT.
SP	ENHANCED THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	83614		83614	83614		83614	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	1288		1288	1288		1288	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	259		259	259		259	CU. YD.
802	CLASS S CONCRETE-ROADWAY	667.93		667.93	638.36		638.36	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	134851		134851	134851		134851	POUND
816	FILTER BLANKET	5441		5441	5441		5441	SQ. YD.
816	DUMPED RIPRAP	384		384	384		384	CU. YD.
	STRUCTURES OVER 20' SPAN							
636	BRIDGE CONSTRUCTION CONTROL	1.00		1.00	1.00		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	1491		1491	1491		1491	CU. YD.
802	CLASS S CONCRETE-BRIDGE	1500.9		1500.9	1500.9		1500.9	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE	1468.30		1468.30	1468.30		1468.30	CU. YD.
SP	TEXTURED COATING FINISH	4105		4105	4105		4105	SQ. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	5506.70		5506.70	5506.70		5506.70	SQ. YD.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	199230		199230	199230		199230	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	368510		368510	368510		368510	POUND
805	STEEL PLING (HP 12X53)	3314		3314	3314		3314	LIN. FT.
805	PREBORING	500		500	500		500	LIN. FT.
SP	EXPLORATORY HOLES	192		192	192		192	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	613650		613650	613650		613650	POUND
SP & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)	677320		677320	677320		677320	POUND
808	ELASTOMERIC BEARINGS	69869.0		69869.0	69869.0		69869.0	CU. IN.
809	SILICONE JOINT SEALANT	426		426	426		426	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	4		4	4		4	EACH
816	CONCRETE RIPRAP	919		919	919		919	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/3/2017	REVISED SCALE OF CROSS SECTIONS STA. 687+00 TO STA. 799+00 AND ADDED GRAPHICS TO INDICATE LOCATIONS FOR WIDENING FOR GUARDRAIL AT OVERPASSES STA. 878+33 TO STA. 886+00 AND STA. 952+00 TO STA. 959+00.	74, 219-250, 266-269, 300-303
10/16/2017	REVISED THE QUANTITIES FOR AGGREGATE BASE COURSE (CLASS 7), TACK COAT, MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2"), MINERAL AGGREGATE IN ACHM BINDER COURSE (1"), MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8"), ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8"), MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2"), RUMBLE STRIPS IN ASPHALT SHOULDERS, RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS, AND CLASS S CONCRETE - ROADWAY, ADDED SPECIAL PROVISION "PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS", ADDED ASPHALT CONCRETE HOT MIX PAVEMENT TYPICAL SECTIONS, ADDED SPECIAL DETAILS FOR JOINT SUPPORT AND END OF JOB, ADDED QUANTITIES FOR ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2"), ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1"), AND ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2").	3-8, 66-68, 71-72, 74
11/1/2017	REVISED "ROCK FILL" SPECIAL DETAIL, REVISED SURVEY CONTROL POINTS IN PLAN SHEETS AND SURVEY CONTROL DETAILS, REVISED SURVEY CONTROL COORDINATE TABLES, ADDED FILTER SOCK SPECIAL DETAILS, REVISED SIGN QUANTITIES, ADDED "CONSTRUCTION PROJECT INFORMATION SIGN UPDATE" PAY ITEM, ADDED "CONSTRUCTION PROJECT INFORMATION SIGN" AND "PIPE CULVERTS" SPECIAL PROVISIONS, REVISED LOCATION OF PIPE CULVERT AT STA. 972+06.	3, 6A, 11, 49, 65, 69, 74-76, 92-99, 109-115, 306-308
11/8/2017	REVISED "BIDDING REQUIREMENTS AND CONDITIONS" SPECIAL PROVISION.	74

SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED
10/3/17	
10/16/17	
11/1/17	
11/8/17	

(2) SUMMARY OF QUANTITIES & REVISIONS

FED. NO. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	090508	74	335

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	75	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

SURVEY CONTROL COORDINATES

Project Name: s090293 ctl
Date: 7/8/2011
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
24	772346.1873	614936.2667	0.000	CTL	*T-24 RBR CAP
28	784314.6826	613657.7333	1288.723	CTL	*T-28 RBR CAP
29	784257.2760	614349.4503	1290.247	CTL	*T-29 RBR CAP
31	788522.6538	614353.3026	0.000	CTL	*T-31 RBR CAP
32	789450.5137	614105.0032	0.000	CTL	*T-32 RBR CAP
34	788699.3436	612779.0470	1177.694	CTL	*T-34 RBR CAP
35	795883.7571	614972.8834	1225.595	CTL	*T-35 RBR CAP
36	795641.2779	614523.1817	1184.838	CTL	*T-36 RBR CAP
70	772574.5414	615403.3323	1315.266	CTL	*2' REBAR with 2" Aluminum Cap
71	772877.2079	615205.2640	1322.900	CTL	*2' REBAR with 2" Aluminum Cap
72	773289.0306	615013.3160	1320.916	CTL	*2' REBAR with 2" Aluminum Cap
73	773662.3823	614976.5933	1312.628	CTL	*2' REBAR with 2" Aluminum Cap
74	774079.6049	614494.0612	1306.299	CTL	*2' REBAR with 2" Aluminum Cap
75	774527.5357	614048.4893	1301.544	CTL	*2' REBAR with 2" Aluminum Cap
76	773839.2408	614060.4732	1307.236	CTL	*2' REBAR with 2" Aluminum Cap 4' W FENCEN
77	774873.8831	613731.8913	1294.173	CTL	*2' REBAR with 2" Aluminum Cap
78	775473.7019	613351.4175	1294.541	CTL	*2' REBAR with 2" Aluminum Cap
79	776110.1839	613107.2182	1280.082	CTL	*2' REBAR with 2" Aluminum Cap 86.5' N 24" SYAMORE
80	776838.1559	613077.4758	1270.953	CTL	*2' REBAR with 2" Aluminum Cap
81	777233.4380	612423.4629	1254.660	CTL	*2' REBAR with 2" Aluminum Cap
82	778026.4732	612342.1298	1220.080	CTL	*2' REBAR with 2" Aluminum Cap
83	778586.3309	612601.1665	1228.605	CTL	*2' REBAR with 2" Aluminum Cap
84	779108.8320	612653.2601	1261.865	CTL	*2' REBAR with 2" Aluminum Cap
85	779926.9242	612654.0175	1266.412	CTL	*2' REBAR with 2" Aluminum Cap
86	780720.6540	612676.5458	1267.701	CTL	*2' REBAR with 2" Aluminum Cap
87	781477.3885	612626.2630	1269.710	CTL	*2' REBAR with 2" Aluminum Cap
88	782283.6538	612597.6237	1276.356	CTL	*2' REBAR with 2" Aluminum Cap
89	782988.7680	612506.1595	1288.557	CTL	*2' REBAR with 2" Aluminum Cap
90	782978.7993	612858.9962	1290.648	CTL	*2' REBAR with 2" Aluminum Cap
91	783577.8173	612798.8733	1291.315	CTL	*2' REBAR with 2" Aluminum Cap CNT LINE LOGGING ROAD
92	784314.9330	612876.2731	1301.976	CTL	*2' REBAR with 2" Aluminum Cap
93	784319.0416	611898.2437	1291.663	CTL	*2' REBAR with 2" Aluminum Cap
94	783486.3611	611801.5054	1289.992	CTL	*2' REBAR with 2" Aluminum Cap
95	784955.7075	612977.2069	1307.332	CTL	*2' REBAR with 2" Aluminum Cap 36.2759
96	785635.6452	613074.3446	1303.784	CTL	*2' REBAR with 2" Aluminum Cap
97	785699.7331	612340.6688	1300.077	CTL	*2' REBAR with 2" Aluminum Cap 11.2' E FENCE 25' SE PP
98	786432.4271	613220.4122	1274.343	CTL	*2' REBAR with 2" Aluminum Cap 50.5' W C/L DIRT ROAD
99	786912.1247	613009.6749	1264.591	CTL	*2' REBAR with 2" Aluminum Cap
109	771646.3139	613416.6919	1320.461	GPS	*AHTD GPS *040030
112	784639.0702	614554.0001	1293.249	GPS	*AHTD GPS *040031
113	795801.5313	615492.6258	1246.871	GPS	*AHTD GPS *040032
150	787194.4049	613130.6181	1258.749	CTL	*2' REBAR with 2" Aluminum Cap
151	787466.9609	613073.4343	1269.726	CTL	*2' REBAR with 2" Aluminum Cap
152	787800.1781	612992.8794	1273.369	CTL	*2' REBAR with 2" Aluminum Cap
153	788135.1177	613402.1398	1257.688	CTL	*2' REBAR with 2" Aluminum Cap
154	788758.2733	613496.4172	1239.346	CTL	*2' REBAR with 2" Aluminum Cap
155	788983.2283	613237.7369	1166.881	CTL	*2' REBAR with 2" Aluminum Cap
156	789485.8352	613366.5601	1224.441	CTL	*2' REBAR with 2" Aluminum Cap
157	790136.2869	613475.5850	1238.133	CTL	*2' REBAR with 2" Aluminum Cap
158	790622.9180	613711.1296	1211.905	CTL	*2' REBAR with 2" Aluminum Cap
159	791053.7920	613256.2152	1262.098	CTL	*2' REBAR with 2" Aluminum Cap
160	791352.5526	613677.7297	1247.547	CTL	*2' REBAR with 2" Aluminum Cap
161	791712.2166	613325.8031	1216.906	CTL	*2' REBAR with 2" Aluminum Cap
162	792344.0533	613205.9062	1259.046	CTL	*2' REBAR with 2" Aluminum Cap
163	792857.5714	613065.2878	1242.372	CTL	*2' REBAR with 2" Aluminum Cap
164	793457.2407	613372.7338	1221.373	CTL	*2' REBAR with 2" Aluminum Cap
165	794022.3298	613345.0458	1148.314	CTL	*2' REBAR with 2" Aluminum Cap
166	794727.1030	613311.6103	1068.334	CTL	*2' REBAR with 2" Aluminum Cap
167	795075.2652	612773.9514	1094.028	CTL	*2' REBAR with 2" Aluminum Cap
168	795707.1244	612723.7882	1068.000	CTL	*2' REBAR with 2" Aluminum Cap
169	796203.7454	612326.2442	1063.091	CTL	*2' REBAR with 2" Aluminum Cap
170	796209.8045	611927.9902	1051.273	CTL	*2' REBAR with 2" Aluminum Cap
171	796750.3460	611798.2818	1039.886	CTL	*2' REBAR with 2" Aluminum Cap
981	776711.2844	613095.1092	1276.580	TBM	*CPS IN SIDE OF 10" OAK

Note - Rebar and Cap - Standard - "" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 1.000002867 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s090293gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 040030-040031 040031-040032
CONVERGENCE ANGLE: 1-22-51.0 LEFT AT LT:36-27-57.0 LG:094-22-22.76
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

SURVEY CONTROL COORDINATES

Project Name: Default
Date: 3/11/2011
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
18	768639.6332	621694.4769	1310.977	CTL	*RBR CAP
19	769389.5332	619085.2666	1258.832	CTL	*RBR CAP
22	770126.9205	617833.4528	1283.921	CTL	*RBR CAP
37	767754.3987	629775.1361	1352.647	CTL	*2' REBAR/CAP
38	768835.0805	628676.2752	1349.775	CTL	*2' REBAR/CAP
39	768593.0306	627996.5615	1341.771	CTL	*2' REBAR/CAP
40	768180.5665	627312.5802	1336.262	CTL	*2' REBAR/CAP
41	768139.5410	626834.1639	1328.559	CTL	*2' REBAR/CAP
42	767914.6230	626092.7056	1320.353	CTL	*2' REBAR/CAP, 2.5'W OF FENCE
43	767919.4063	625594.5192	1305.607	CTL	*2' REBAR/CAP
44	767980.5922	625054.3674	1272.904	CTL	*2' REBAR/CAP
45	768102.0717	624671.5075	1289.861	CTL	*2' REBAR/CAP
46	768421.9066	624548.8900	1302.888	CTL	*2' REBAR/CAP
47	768462.3154	623837.0179	1312.722	CTL	*2' REBAR/CAP, 39' S OF FENCE
48	768478.2239	623157.0112	1311.260	CTL	*2' REBAR/CAP
49	768703.9728	622402.2328	1319.993	CTL	*2' REBAR/CAP, 10.6 SE R\W
50	768940.4946	621669.0479	1303.475	CTL	*2' REBAR/CAP
51	768773.7456	621172.8963	1305.817	CTL	*2' REBAR/CAP
52	768941.2855	620392.7441	1305.132	CTL	*2' REBAR/CAP, 12.3' E FENCE
53	769422.8861	619692.0677	1277.853	CTL	*2' REBAR/CAP, 9.5' NE R\W
54	770092.9475	619169.0297	1266.486	CTL	*2' REBAR/CAP
55	770247.9955	618574.4878	1278.676	CTL	*2' REBAR/CAP
56	770427.0847	617790.6116	1289.351	CTL	*2' REBAR/CAP
57	770719.9733	617187.0595	1286.634	CTL	*2' REBAR/CAP, 115' W\FENCE COR
58	771287.8323	616563.9862	1277.417	CTL	*2' REBAR/CAP
59	771884.7291	616199.6708	1293.273	CTL	*2' REBAR/CAP
61	771413.9823	615604.7313	1291.654	CTL	*2' REBAR/CAP
62	772234.6009	615365.4880	1308.400	CTL	*2' REBAR/CAP
63	772450.3110	616972.7481	1301.841	CTL	*2' REBAR/CAP
64	772642.8630	615661.8389	1316.229	CTL	*
105	766861.5731	633463.3153	1340.622	GPS	*AHTD GPS 040029A
106	766933.0192	631786.5837	1360.065	GPS	*CAP/REBAR LT BANK *040029
109	771646.3139	613416.6919	1320.462	GPS	*AHTD GPS *040030
110	770791.9291	612006.5264	1311.174	GPS	*NGS POINT N 34 RESET 1987
922	769401.8461	622591.9950	1315.147	BM	*TBM-922\CPS PP

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 1.000002867 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s090292gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 040030 - N 34 040029 - 040029A
CONVERGENCE ANGLE: 1-22-56.9 LEFT/RIGHT AT LT:36-25-48.3 LG:094-22-32.8
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	76	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

SURVEY CONTROL COORDINATES

Project Name: s090298
Date: 10/17/2017
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	769049.9395	630898.5078	1309.43	CTL	STD ARDOT MON. STAMPED PN: 1 549
2	768897.5589	631414.5139	1301.96	CTL	STD ARDOT MON. STAMPED PN: 2 549
3	768704.5091	632286.2745	1302.77	CTL	STD ARDOT MON. STAMPED PN: 3 549
4	768362.4708	633039.6665	1313.59	CTL	STD ARDOT MON. STAMPED PN: 4 549
5	767872.1245	633839.3982	1326.50	CTL	STD ARDOT MON. STAMPED PN: 5 549
6	767416.2640	634581.0899	1333.40	CTL	STD ARDOT MON. STAMPED PN: 6 549
7	766932.2305	635217.8949	1355.52	CTL	STD ARDOT MON. STAMPED PN: 7 549
8	767247.8927	635234.7918	1356.51	CTL	STD ARDOT MON. STAMPED PN: 8 549
9	766726.7848	635696.8391	1325.38	CTL	STD ARDOT MON. STAMPED PN: 9 549
10	766259.3906	636460.1319	1309.43	CTL	STD ARDOT MON. STAMPED PN: 10 549
11	765768.7540	637254.2007	1290.60	CTL	STD ARDOT MON. STAMPED PN: 11 549
12	765272.6260	638061.3508	1272.00	CTL	STD ARDOT MON. STAMPED PN: 12 549
13	764774.2520	638888.7409	1259.39	CTL	STD ARDOT MON. STAMPED PN: 13 549
14	764416.0169	639498.7779	1218.79	CTL	STD ARDOT MON. STAMPED PN: 14 549
15	764455.2767	639986.0255	1273.96	CTL	STD ARDOT MON. STAMPED PN: 15 549
16	764279.0570	641139.9708	1305.10	CTL	STD ARDOT MON. STAMPED PN: 16 549
17	764106.9085	641859.6417	1339.13	CTL	STD ARDOT MON. STAMPED PN: 17
18	764365.5757	641874.6626	1336.70	CTL	STD ARDOT MON. STAMPED PN: 18 549
19	764083.0224	642507.6239	1313.72	CTL	STD ARDOT MON. STAMPED PN: 19 549
20	763991.4677	643460.9335	1300.76	CTL	STD ARDOT MON. STAMPED PN: 20 549
21	763972.8958	644379.8315	1288.41	CTL	STD ARDOT MON. STAMPED PN: 21 549
22	763966.8175	645295.7452	1300.18	CTL	STD ARDOT MON. STAMPED PN: 22 549
23	763962.2812	646078.5983	1312.21	CTL	STD ARDOT MON. STAMPED PN: 23 549
24	763809.0506	646397.2620	1275.28	CTL	STD ARDOT MON. STAMPED PN: 24 549
25	764375.3309	646257.9375	1310.55	CTL	STD ARDOT MON. STAMPED PN: 25 549
26	763961.7151	646729.2221	1311.95	CTL	STD ARDOT MON. STAMPED PN: 26 549
27	763964.2322	647693.4773	1293.06	CTL	STD ARDOT MON. STAMPED PN: 27 549
28	764055.1496	648591.5894	1262.30	CTL	STD ARDOT MON. STAMPED PN: 28 549
29	764277.2601	649580.0834	1229.83	CTL	STD ARDOT MON. STAMPED PN: 29 549
30	764525.2056	650534.8866	1230.59	CTL	STD ARDOT MON. STAMPED PN: 30 549
31	764754.9312	651420.4618	1252.76	CTL	STD ARDOT MON. STAMPED PN: 31 549
32	764998.3894	652358.1523	1263.13	CTL	STD ARDOT MON. STAMPED PN: 32 549
33	765241.5478	653295.6088	1257.13	CTL	STD ARDOT MON. STAMPED PN: 33 549
34	765474.2637	654220.0873	1234.76	CTL	STD ARDOT MON. STAMPED PN: 34 549
35	765587.0012	655110.7803	1199.62	CTL	STD ARDOT MON. STAMPED PN: 35 549
36	765556.8898	656017.2174	1152.08	CTL	STD ARDOT MON. STAMPED PN: 36 549
37	765419.2134	656738.8360	1110.76	CTL	STD ARDOT MON. STAMPED PN: 37 549
38	764996.9382	657833.3125	1064.15	CTL	STD ARDOT MON. STAMPED PN: 38 549
39	764674.2922	658976.0787	1054.34	CTL	STD ARDOT MON. STAMPED PN: 39 549
41	764453.0450	659839.4948	1086.69	CTL	STD ARDOT MON. STAMPED PN: 41 71
42	764933.0654	639328.0566	1210.07	CTL	STD ARDOT MON. STAMPED PN: 42 549
100	765733.6807	658565.2012	1040.48	GPS	ARDOT GPS MON. 040026A
101	765852.4303	646149.4638	1328.15	GPS	ARDOT GPS MON. 40027
102	765945.7507	631797.8949	1360.05	GPS	ARDOT GPS MON. 040029
103	766875.3032	633474.6570	1340.62	GPS	ARDOT GPS MON. 040029A
900	768620.2703	629769.3689	1356.16	TBM	ARDOT DISK 549 BELLA VISTA
901	768976.5919	631270.2761	1301.26	TBM	SQUARE CUT IN DI 549 BELLA VISTA
902	767984.5869	632367.2243	1276.38	TBM	SQUARE CUT IN CU S END OF E 549
903	767535.3640	634290.1607	1318.05	TBM	SQUARE CUT IN CU 549 BELLA VISTA
904	766987.9714	635216.4910	1358.72	TBM	DISK IN SE CRNER OF BR CR 453 549
905	766241.3874	636264.1222	1284.27	TBM	SQUARE CUT IN CU 549 BELLA VISTA
906	765226.9536	637815.5311	1223.26	TBM	SQUARE CUT IN CNTER HW 549
907	764667.1617	639284.9442	1264.37	TBM	ARDOT DISK IN BR WALL 549 BELLA VISTA
908	764499.2793	639832.6192	1273.58	TBM	SQUARE CUT IN BR ABUT 549 BELLA VISTA
910	764137.4515	641857.2849	1341.85	TBM	DISK IN SE CRNER BR CR49 549
911	763896.4712	643423.7921	1274.90	TBM	SQUARE CUT IN E CU 549 BELLA VISTA
912	763793.4099	644933.1453	1238.92	TBM	SQUARE CUT CNTER HW 549 BELLA VISTA
913	763967.0609	646246.9647	1316.50	TBM	SQUARE CUT ON NW CRNR BR 549
914	764092.4656	648375.3708	1269.47	TBM	SQUARE CUT IN DI 41.0' N OF CL 549
915	764279.7786	649391.6291	1235.49	TBM	SQUARE CUT IN DI 22.0' N OF CL 549
916	764304.1937	650386.9306	1172.32	TBM	SQUARE CUT CENTER OF HW 549
917	765090.0184	652883.3501	1251.25	TBM	SQUARE CUT IN CU 549 BELLA VISTA
918	765469.2452	653953.7530	1244.72	TBM	SQUARE CUT IN DI 29.0' N OF CL 549
919	765646.0997	655540.3701	1181.22	TBM	SQUARE CUT IN DI 28.8' N OF CL 549
920	765418.9757	656753.9533	1113.26	TBM	ARDOT DISK IN SW CRNER BR 549
921	765019.2139	657781.9097	1069.32	TBM	ARDOT DISK IN SE CRNER BR 549
922	764747.8742	658855.1962	1044.91	TBM	SQUARE CUT CENTER HW 549 BELLA VISTA
923	764894.3438	659354.7738	1081.23	TBM	ARDOT DISK IN NE CRNER BR 71

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF .9999849630 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME- s090298gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 040026A - 040027
CONVERGENCE ANGLE: 01-19-29 LEFT AT LAT N 39-24-40 LON W 94-16-34
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

FRONTAGE RD.

POINT NAME	TYPE	STATION	NORTHING	EASTING
8337	POB	10+00.00	768013.0170	625631.8810
8338	P.C.	11+78.84	768004.5860	625810.5200
	P.I.	14+32.58	767992.6230	626063.9770
8339	CC		769435.3874	625878.0503
8340	P.T.	16+81.11	768068.4530	626306.1210
8341	P.C.	19+88.49	768160.3140	626599.4550
	P.I.	22+57.67	768240.7585	626856.3348
8342	CC		766337.7346	627170.2156
8343	P.T.	25+23.33	768247.0690	627125.4420
8344	P.C.	34+34.51	768268.4300	628036.3730
	P.I.	3971.75	768281.0249	628573.4670
8345	CC		766359.0957	628081.1463
8346	P.T.	44+81.93	768011.7610	629038.3610
8347	P.C.	46+17.49	767943.8190	629155.6650
	P.I.	50+13.33	767745.4233	629498.2028
8348	CC		768770.1519	629634.2723
8349	P.T.	53+68.00	767847.5520	629880.6460
8350	POE	56+21.73	767913.0140	630125.7850

RELOCATED COUNTY RD. 553

POINT NAME	TYPE	STATION	NORTHING	EASTING
8000	POB	9+00.00	767028.5758	629900.0043
8420	P.C.	12+42.59	767370.4340	629922.3399
	P.I.	14+05.47	767532.9677	629932.9592
8421	CC		767423.7984	629105.5702
8422	P.T.	15+64.15	767687.1846	629880.5465
8423	POE	17+20.82	767835.5237	629830.1314

HWY. 72 (SOUTH)

POINT NAME	TYPE	STATION	NORTHING	EASTING
8001	POB	98+50.00	767342.8030	630633.7340
8353	P.C.	102+97.27	767659.0679	630317.4691
	P.I.	104+48.62	767766.0926	630210.4444
8354	CC		768469.3526	631127.7538
8355	P.T.	105+98.24	767897.2346	630134.8774
8356	P.C.	129+09.31	769899.6563	628981.0364
	P.I.	129+94.59	769973.5474	628938.4586
8357	CC		769459.5655	628217.2853
8358	P.T.	130+79.34	770037.9060	628882.5055
8359	POE	131+48.96	770090.4510	628836.8230

HWY. 72 (SOUTH) RAMP 1

POINT NAME	TYPE	STATION	NORTHING	EASTING
8361	P.C.	806+51.48	768389.0330	628167.3128
	P.I.	809+64.59	768396.3734	628480.3392
8362	CC		766479.6985	628212.0863
8363	P.T.	812+72.18	768303.3776	628779.3228
8364	P.C.	817+37.15	768165.2783	629223.3154
	P.I.	820+68.22	768066.9494	629539.4452
8365	CC		769259.4857	629563.6573
8366	P.T.	823+81.74	768152.3657	629859.3056
8367	POE	824+97.06	768182.1184	629970.7209

HWY. 72 (SOUTH) RAMP 4

POINT NAME	TYPE	STATION	NORTHING	EASTING
8381	P.C.	803+25.21	768498.3520	627838.3938
	P.I.	810+89.26	768516.2639	628602.2316
8382	CC		770407.6865	627793.6203
8383	P.T.	817+78.82	769056.0699	629142.9518
8372	POE	820+69.61	769261.5170	629348.7468

HWY. 72 (SOUTH) TEMPORARY RAMP 4

POINT NAME	TYPE	STATION	NORTHING	EASTING
8204	P.C.	794+99.40	768395.0153	627014.7785
	P.I.	796+87.17	768399.4172	627202.4951
8205	CC		771259.0170	626947.6182
8206	P.T.	798+74.40	768428.2834	627388.0312
8207	P.C.	801+84.80	768476.0027	627694.7442
	P.I.	803+03.41	768494.2358	627811.9366
8208	CC		765645.2691	628135.1572
8209	P.T.	804+21.87	768502.7195	627930.2351

HWY. 72 (NORTH) RAMP 3

POINT NAME	TYPE	STATION	NORTHING	EASTING
8311	POB	668+60.15	772530.7333	616042.1934
8312	P.C.	674+02.49	771993.2114	616114.3374
	P.I.	680+65.17	771336.4158	616202.4898
8313	CC		772210.9732	617736.8114
8314	P.T.	686+61.84	770925.8939	616722.7043

HWY. 72 (NORTH) TEMPORARY RAMP 3

POINT NAME	TYPE	STATION	NORTHING	EASTING
8200	POB	683+00.00	771179.4904	616465.6367
8201	P.C.	685+56.23	770980.5237	616627.0864
	P.I.	689+12.58	770703.8148	616851.6192
8202	CC		772183.9203	618110.1235
8203	P.T.	692+60.82	770526.6930	617160.8290

COUNTY ROAD 21

POINT NAME	TYPE	STATION	NORTHING	EASTING
8329	POB	24+93.10	773685.5209	614832.0521
8330	P.C.	38+11.14	773176.4543	616047.8126
	P.I.	42+02.87	773025.1557	616409.1461
8331	CC		772647.9568	615826.5187
8332	P.T.	44+98.35	772633.5487	616399.2953
8333	POE	45+96.39	772535.5384	616396.8299

HWY. 279

POINT NAME	TYPE	STATION	NORTHING	EASTING
8334	POB	99+00.00	767196.3047	625593.0795
8336	POE	120+35.49	769329.3850	625694.4200

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	77	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

HWY. 549

POINT NO.	TYPE		STATION	NORTHING	EASTING
8071	POB		103+39.00	826496.8400	609425.2380
8072	PC		109+76.36	825936.7454	609729.4195
	PI		127+27.31	824398.0680	610565.0590
8073	PT		142+59.91	822760.6646	609944.7916
8074	PC		193+90.42	817962.8561	608127.3261
	PI		208+15.70	916630.0060	607622.4270
8075	PT		221+84.27	815215.9410	607800.8440
8076	PC		319+25.94	805550.8950	609020.3131
	PI		333+39.84	804148.1170	609197.3060
8077	PT		347+39.52	802830.4325	609709.9660
8078	PC		439+46.91	794249.5972	613048.4364
	PI		458+15.35	792508.3120	613725.9030
8079	PT		476+11.83	790650.9074	613523.2125
8080	PC		532+98.14	784998.1577	612906.3526
	PI		539+71.86	784328.4100	612833.2660
8081	PT		546+44.04	783654.7122	612839.1652
8082	PC		614+33.50	776865.5111	612898.6145
	PI		627+28.42	775570.6350	612909.9530
8083	PT		639+30.46	774549.6093	613706.4072
8084	PC		677+67.29	771524.3398	616066.2779
	PI		688+11.17	770701.2610	616708.3230
8085	PT		698+05.28	770319.1193	617679.7386
8086	PC		744+93.36	768602.9116	622042.3899
	PI		752+64.15	768320.7410	622759.6760
8087	PT		760+14.52	768338.8109	623530.2557
8088	PC		804+62.15	768443.0783	627976.6632
	PI		811+15.11	768458.3860	628629.4470
8089	PT		817+62.46	768620.1806	629262.0476
8090	PC		826+67.64	768844.4708	630138.9995
	PI		842+88.35	769246.0580	631709.1650
8091	PT		857+33.18	768395.9498	633089.0230
8092	PC		917+75.67	765226.4877	638233.5532
	PI		929+76.70	764596.5100	639256.1050
8093	PT		941+43.45	764430.2158	640445.5714
8094	PC		962+37.44	764140.2844	642519.3870
	PI		970+04.24	764034.1140	643278.8010
8095	PT		977+68.75	764030.0708	644045.5900
8096	PC		1011+07.14	764012.4679	647383.9281
	PI		1021+01.84	764007.2230	648378.6158
8097	PT		1030+85.41	764256.8635	649341.4816
8098	PC		1078+22.12	765445.6375	653926.5943
	PI	a	1094+25.61	765832.8743	655420.1702
8099	PT	a	1108+97.06	765417.7055	656906.2240
8100	PC	a	1141+01.72	764555.4172	659992.6962
	PI	a	1151+19.25	764281.6269	660972.7003
8042	PT	a	1161+15.78	763687.1384	661798.5044
8101	POE	a	1184+82.06	762304.6510	663718.9180

AR 72N (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8291	POB	30+98.53	771711.4770	613605.3190
8292	PC	36+23.92	771965.5212	614065.2062
	PI	50+59.04	772659.4541	615321.4083
8294	PT	64+05.54	772513.0862	616749.0507
8295	POE	68+60.80	772466.6540	617201.9410

AR 72N RAMP 1 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8297	PC	645+15.38	774059.8100	614029.5023
	PI	646+10.60	773984.7326	614088.0667
8299	PT	647+05.66	773904.2024	614138.8731
8300	PC	652+12.40	773475.6230	614409.2633
	PI	656+77.07	773082.6309	614657.2015
8302	PT	661+24.03	772619.6608	614696.8846
8303	POE	664+79.58	772265.4088	614727.2489

AR 72N RAMP 2 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8303	POB	662+32.37	772265.4088	614727.2489
8304	PC	664+35.55	772098.7654	614843.4970
	PI	667+50.44	771840.5033	615023.6570
8306	PT	670+50.17	771710.5689	615310.4915
8307	PC	675+48.22	771505.0571	615764.1658
	PI	678+19.01	771393.3205	616010.8281
8309	PT	680+86.21	771217.4201	616216.7076
8310	POE	685+36.21	770925.1090	616558.8380

AR 72N RAMP 3 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8311	POB	668+60.15	772530.7333	616042.1934
8312	PC	674+02.49	771993.2114	616114.3374
	PI	680+65.17	771336.4158	616202.4898
8314	PT	686+61.84	770925.8939	616722.7043

AR 72N RAMP 4 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8317	PC	645+46.34	774099.9842	614131.3312
	PI	650+34.75	773714.8786	614431.7338
8319	PT	655+02.67	773521.2665	614880.1336
8320	PC	661+35.61	773270.3622	615461.2202
	PI	665+67.30	773099.2341	615857.5475
8322	PT	669+46.48	772688.6531	615990.9020
8311	POE	671+12.52	772530.7333	616042.1934

AR 72N - TEMPORARY RAMP 4 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8357	PC	635+74.38	774826.4262	613479.3097
	PI	638+96.76	774554.8793	613653.0704
8359	PT	642+16.44	774328.7424	613882.8367
8360	PC	645+83.31	774071.3993	614144.3101
	PI	646+49.34	774025.0817	614191.3711
8362	PT	647+15.35	773976.6450	614236.2481

CO. RD. 34 - SOUTH FRONTAGE RD. (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8273	POB	10+00.00	783673.5900	611852.2990
8274	PC	12+14.52	783665.7950	612066.6774
	PI	15+42.31	783653.8840	612394.2520
8276	PT	17+78.20	783336.7334	612477.0922
8277	PC	22+90.88	782840.6963	612606.6578
	PI	26+37.07	782505.7428	612694.1482
8279	PT	29+79.92	782159.5903	612699.3313
8280	PC	40+31.06	781108.5769	612715.0685
	PI	41+54.65	780984.9955	612716.9190
8282	PT	42+78.24	780861.4030	612716.1035
8283	PC	54+63.10	779676.5701	612708.2855
	PI	56+70.23	779469.4360	612706.9187
8285	PT	58+76.65	779264.6530	612675.7683
8286	PC	65+16.28	778632.2965	612579.5778
	PI	66+63.28	778486.9730	612557.4720
8288	PT	68+09.25	778340.1887	612565.3429
8289	PI	76+12.31	777538.2810	612608.3430
8290	POE	77+22.52	777428.2255	612614.2444

RELOCATED CO. RD. 21 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8323	POB	9+40.61	774925.3330	614089.3760
8324	PC	11+62.53	774703.6991	614078.0268
	PI	14+54.79	774411.8290	614063.0810
8326	PT	17+17.50	774192.8285	614256.6018
8327	PC	20+62.87	773934.0244	614485.2953
	PI	22+81.70	773770.0410	614630.2000
8329	PT	24+93.10	773685.5209	614832.0521
8330	PC	38+11.14	773176.4543	616047.8126
	PI	42+02.87	773025.1557	616409.1461
8332	PT	44+98.35	772633.5487	616399.2953
8333	POE	45+96.39	772535.5383	616396.8299

CO. RD. 34 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8200	POB	4+50.23	784428.3209	611529.5172
8202	PC	19+75.39	784363.1753	613053.2863
	PI	22+07.88	784353.2448	613285.5621
8204	PT	24+40.11	784324.5279	613516.2696
8205	PC	24+68.84	784320.9794	613544.7777
	PI	27+01.33	784292.2626	613775.4853
8207	PT	29+33.56	784282.3321	614007.7611
8208	POE	39+00.00	784241.0518	614973.3165

CO. RD. 34 REALIGNMENT (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8265	POB	10+00.00	783613.6680	611850.1200
8266	PC	18+73.04	784486.1308	611881.8433
	PI	21+40.75	754753.6630	611891.5710
8268	PT	23+73.92	784917.8539	612103.0171
8269	PC	27+48.92	785147.8483	612399.2053
	PI	33+05.75	785489.3630	612839.0100
8271	PT	35+43.35	785838.9871	612405.6240
8272	POE	39+18.35	786074.4420	612113.7594

TEMP. CROSSOVER

POINT NO.	TYPE	STATION	NORTHING	EASTING
8363	POB	649+99.48	773728.8458	614392.3034
8364	PC	651+15.86	773637.0856	614463.8812
8366	PT	655+58.31	773268.6335	614708.0468
8367	PC	655+83.02	773247.0412	614720.0684
8369	PT	660+25.47	772878.5891	614964.2340
8370	POE	661+03.80	772816.8242	615012.4138

CO. RD. 34 - RAMP 1 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8230	PC	520+37.04	786256.8639	612996.9345
	PI	521+32.25	786162.2082	612986.6051
8232	PT	522+27.31	786069.0493	612966.9121
8233	PC	525+08.04	785794.3899	612908.8514
	PI	528+59.31	785450.7131	612836.2009
8235	PT	532+02.82	785155.3777	612646.0199
8236	PC	535+56.84	784857.7310	612454.3505
	PI	537+11.08	784728.0559	612370.8464
8238	PT	538+63.47	784580.9169	612324.6002
8239	POE	540+56.46	784396.8027	612266.7326

CO. RD. 34 - RAMP 2 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8239	POB	538+02.14	784396.8027	612266.7326
8240	PC	540+18.36	784185.7568	612313.7211
	PI	541+85.41	784022.6960	612350.0259
8242	PT	543+50.13	783876.7867	612431.3728
8243	PC	545+87.31	783669.6237	612546.8698
	PI	550+74.82	783243.8232	612784.2609
8245	PT	555+41.94	782756.3375	612788.5295

CO. RD. 34 - RAMP 3 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8247	POB	538+55.57	784331.1819	613460.5909
8248	PC	540+17.96	784175.0853	613415.8097
	PI	541+64.20	784034.5160	613375.4830
8250	PT	543+08.87	783908.5799	613301.1454
8251	PC	545+48.98	783701.8008	613179.0878
	PI	549+78.44	783331.9675	612960.7824
8253	PT	553+93.85	782904.2817	612921.8100
8254	PC	555+95.93	782703.0320	612903.4713
	PI	556+91.15	782608.2089	612894.8306
8256	PT	557+86.20	782512.9966	612895.6642

CO. RD. 34 - TEMPORARY RAMP 3 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8347	POB	553+04.28	782986.8514	612931.1492
8348	PC	560+34.02	782263.6889	612833.3774
	PI	561+70.95	782127.9993	612815.0321
8350	PT	563+07.40	781991.0804	612816.2311

CO. RD. 34 - RAMP 4 (SHOWN FOR INFORMATION ONLY)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8259	PC	522+30.50	786053.1524	613080.3269
	PI	527+35.95	785550.6868	613025.4950
8261	PT	532+18.74	785086.8771	613226.3901
8262	PC	535+34.94	784796.7271	613352.0660
	PI	536+85.33	784658.7224	613411.8415
8264	PT	538+34.02	784509.9668	613433.9815
8247	POE	540+14.77	784331.1819	613460.5909

CROSSOVER

POINT NO.	TYPE	STATION	NORTHING	EASTING
8500	PC	987+11.80	764073.0975	644988.8755
8502	PT	991+21.06	764041.7081	645396.5803
8503	PC	993+00.14	764015.2531	645573.6976
8505	PT	997+09.79	763983.8616	645981.7942

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	78	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

FUTURE RAMP 4
P.I. 527+35.95
Δ = 29°38'50"LT.
D = 3°00'00"
T = 505.45'
L = 988.24'
P.C. 522+30.50
P.T. 532+18.74

FUTURE RAMP 4
P.I. 536+85.33
Δ = 14°57'14"RT.
D = 5°00'00"
T = 150.39'
L = 299.08'
P.C. 535+34.94
P.T. 538+34.02

HWY. 549 C.L. MEDIAN
P.I. 539+71.86
Δ = 6°43'46"LT.
D = 0°30'00"
T = 673.72'
L = 1345.90'
P.C. 532+98.14
P.T. 546+44.04

FUTURE RAMP 1
P.I. 521+32.25
Δ = 5°42'30"RT.
D = 3°00'00"
T = 95.22'
L = 190.28'
P.C. 520+37.04
P.T. 522+27.31

FUTURE RAMP 1
P.I. 528+59.31
Δ = 20°50'36"RT.
D = 3°00'00"
T = 351.27'
L = 694.78'
P.C. 525+08.04
P.T. 532+02.82

COUNTY RD 34 REALIGNMENT

COUNTY ROAD 34 -
REALIGNMENT TO WEST
P.I. 33+05.75
Δ = 103°16'34"LT.
D = 13°00'00"
T = 556.83'
L = 794.43'
P.C. 27+48.92
P.T. 35+43.35

FUTURE RAMP 1
P.I. 537+11.08
Δ = 15°19'53"LT.
D = 5°00'00"
T = 154.24'
L = 306.63'
P.C. 535+56.84
P.T. 538+63.47

RAMP 2
P.I. 541+85.41
Δ = 16°35'19"LT.
D = 5°00'00"
T = 167.05'
L = 331.77'
P.C. 540+18.36
P.T. 543+50.13

COUNTY RD 34 TEMPORARY RAMP

CONSTRUCTION C.L. HWY. 549

COUNTY ROAD 34

FUTURE RAMP 4 — S56°13'40"W 5686.31'

FUTURE RAMP 1 — S11°56'10"W 280.73'

FUTURE RAMP 4 — S23°25'10"E 316.20'

FUTURE RAMP 4 — S58°27'55"E 180.75'

RAMP 3 — 182.39'

FUTURE RAMP 1 — S32°46'45"W 354.02'

FUTURE RAMP 1 — S61°06'21"W 375.00'

FUTURE RAMP 1 — S17°26'53"W 192.99'

RAMP 2 — S12°33'07"E 216.21'

S67°33'07"E 1525.16'

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	79	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

RAMP 3
P.I. 541+64.20
Δ = 14°32'43"RT.
D = 5°00'00"
T = 146.24'
L = 290.91'
P.C. 540+17.96
P.T. 543+08.87

RAMP 3
P.I. 549+78.44
Δ = 25°20'45"LT.
D = 3°00'00"
T = 429.46'
L = 844.86'
P.C. 545+48.98
P.T. 553+93.85

RAMP 3
P.I. 556+91.15
Δ = 5°42'30"LT.
D = 3°00'00"
T = 95.22'
L = 190.27'
P.C. 555+95.93
P.T. 557+86.21

TEMPORARY RAMP 3
P.I. 561+70.95
Δ = 8°12'05"LT.
D = 3°00'00"
T = 136.92'
L = 273.38'
P.C. 560+34.02
P.T. 563+07.40

STA. 559+00.00 CONSTRUCTION C.L.
BEGIN JOB 090508

RAMP 2
P.I. 541+85.41
Δ = 16°35'19"LT.
D = 5°00'00"
T = 167.05'
L = 331.77'
P.C. 540+18.36
P.T. 543+50.13

RAMP 2
P.I. 550+74.82
Δ = 28°38'19"RT.
D = 3°00'00"
T = 487.50'
L = 954.62'
P.C. 545+87.31
P.T. 555+41.94

COUNTY ROAD 34 - SOUTH FRONTAGE ROAD
P.I. 26+37.07
Δ = 13°46'51"RT.
D = 2°00'00"
T = 346.19'
L = 689.04'
P.C. 22+90.88
P.T. 29+79.92

COUNTY ROAD 34 - SOUTH FRONTAGE ROAD
P.I. 15+42.31
Δ = 73°16'44"RT.
D = 13°00'00"
T = 327.79'
L = 563.68'
P.C. 12+14.52
P.T. 17+78.20

CONSTRUCTION C.L. HWY. 549
TEMPORARY RAMP 3
SOUTH FRONTAGE ROAD
COUNTY ROAD 34
FUTURE RAMP 4
FUTURE RAMP 1
RAMP 3
RAMP 2

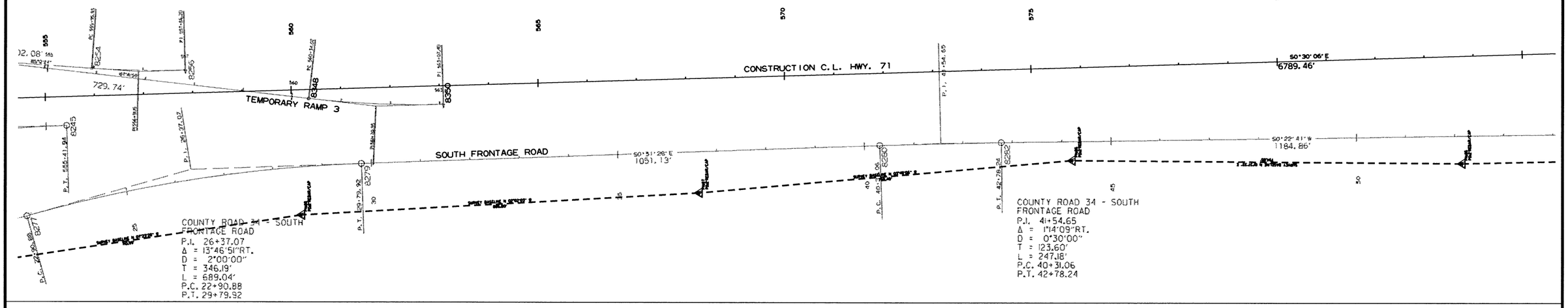
9/28/2017
R090508.DGN

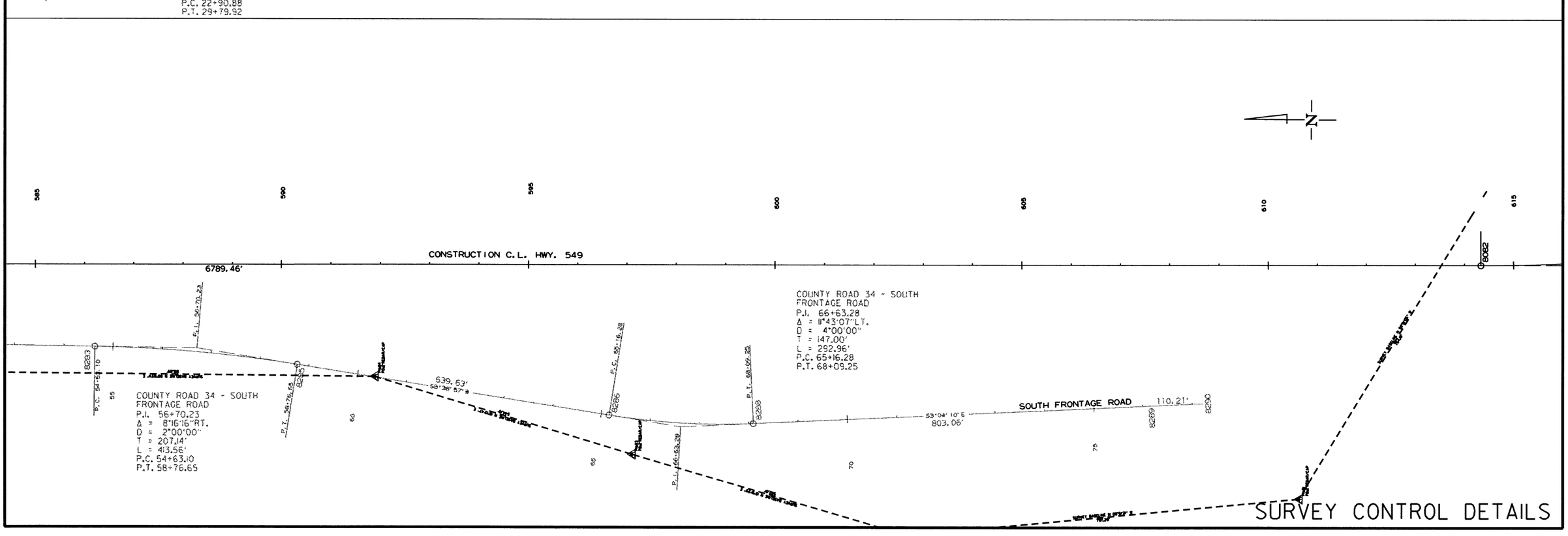
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	80	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17





9/28/2017

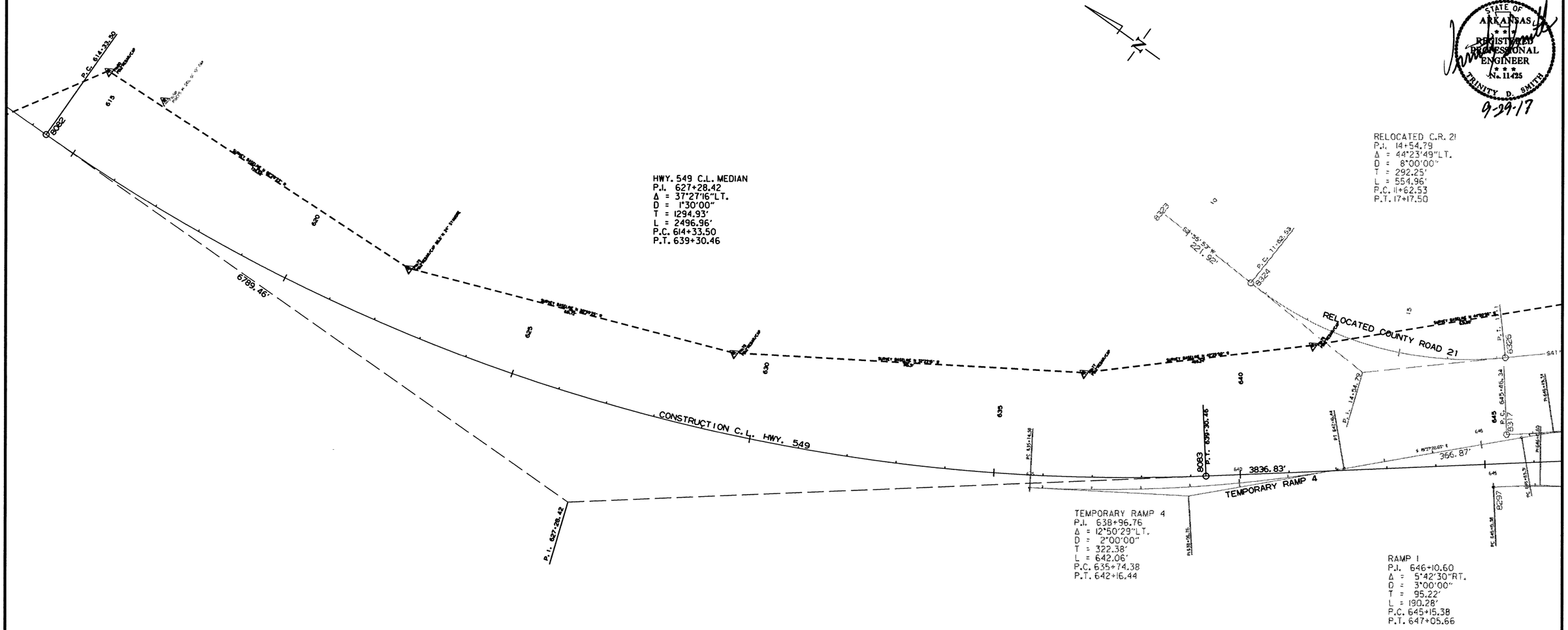
R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	81	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	82	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

RELOCATED C.R. 21
P.I. 22+81.70
Δ = 25°48'51"LT.
D = 6°00'00"
T = 218.83'
L = 430.24'
P.C. 20+62.87
P.T. 24+93.10

RELOCATED COUNTY ROAD 21

RAMP 4
P.I. 665+67.30
Δ = 48°39'09"RT.
D = 6°00'00"
T = 431.69'
L = 810.88'
P.C. 661+35.61
P.T. 669+46.48

RAMP 4
P.I. 650+34.75
Δ = 28°41'24"LT.
D = 3°00'00"
T = 488.41'
L = 956.33'
P.C. 645+46.34
P.T. 655+02.67

TEMP. CROSSOVER
P.I. 658+04.69
Δ = 8°50'57"LT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 655+83.02
P.T. 660+25.47

TEMPORARY RAMP 4
P.I. 646+49.34
Δ = 2°38'27"RT.
D = 2°00'00"
T = 66.03'
L = 132.04'
P.C. 645+83.31
P.T. 647+15.35

TEMP. CROSSOVER
P.I. 653+37.52
Δ = 8°50'57"RT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 651+15.86
P.T. 655+58.31

RAMP 1
P.I. 646+10.60
Δ = 5°42'30"RT.
D = 3°00'00"
T = 95.22'
L = 190.28'
P.C. 645+15.38
P.T. 647+05.66

RAMP 1
P.I. 656+77.07
Δ = 27°20'55"RT.
D = 3°00'00"
T = 464.67'
L = 911.62'
P.C. 652+12.41
P.T. 661+24.03

RAMP 4
RAMP 1
TEMP. CROSSOVER
TEMP. CROSSOVER
HWY. 72
CONSTRUCTION C.L. HWY. 549
POB 649+99.48
POE 661+03.80
P.I. 653+37.52
P.C. 655+83.02
P.T. 655+58.31
P.I. 658+04.69
P.T. 660+25.47
P.C. 651+15.86
541°27'56"E 335.37'
S37°57'22"E 3836.83'
S37°57'22"E 506.75'
S37°57'22"E 355.55'
S17°49'37"E 166.04'
S66°38'46"E 632.94'
S67°16'47"E 1318.04'

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	83	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

TEMP. CROSSOVER
P.I. 653+37.52
Δ = 8°50'57"RT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 651+15.86
P.T. 655+58.31

TEMP. CROSSOVER
P.I. 658+04.69
Δ = 8°50'57"LT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 655+83.02
P.T. 660+25.47

RAMP 1
P.I. 656+77.07
Δ = 27°20'55"RT.
D = 3°00'00"
T = 464.67'
L = 911.62'
P.C. 652+12.41
P.T. 661+24.03

RAMP 4
P.I. 665+67.30
Δ = 48°39'09"RT.
D = 6°00'00"
T = 431.69'
L = 810.88'
P.C. 661+35.61
P.T. 669+46.48

RELOCATED C.R. 21
P.I. 42+02.87
Δ = 68°43'15"RT.
D = 10°00'00"
T = 391.73'
L = 687.21'
P.C. 38+11.14
P.T. 44+98.35

HWY. 72
P.I. 50+59.04
Δ = 34°46'13"RT.
D = 1°15'00"
T = 1435.13'
L = 2781.62'
P.C. 36+23.92
P.T. 64+05.54

RELOCATED COUNTY ROAD 21

CONSTRUCTION C.L. HWY. 549

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	84	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N

RELOCATED COUNTY ROAD 21

P.I. 653+37.52

TEMP. CROSSOVER
P.I. 653+37.52
Δ = 8°50'57"RT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 651+15.86
P.T. 655+58.31

P.C. 655+83.02

P.T. 655+58.31

TEMP. CROSSOVER
P.I. 658+04.69
Δ = 8°50'57"RT.
D = 2°00'00"
T = 221.67'
L = 442.45'
P.C. 655+83.02
P.T. 660+25.47

P.I. 658+04.69

P.I. 660+25.47

POE 661+03.80

RAMP 1
P.I. 656+77.07
Δ = 27°20'55"RT.
D = 3°00'00"
T = 464.67'
L = 911.62'
P.C. 652+12.41
P.T. 661+24.03

P.T. 661+24.03

POE 661+79.58

RAMP 4
P.I. 665+67.30
Δ = 48°39'09"RT.
D = 6°00'00"
T = 431.69'
L = 810.88'
P.C. 661+35.61
P.T. 669+46.48

P.I. 665+67.30

P.C. 38+11.14

P.I. 42+02.87

RELOCATED C.R. 21
P.I. 42+02.87
Δ = 68°43'15"RT.
D = 10°00'00"
T = 391.73'
L = 687.21'
P.C. 38+11.14
P.T. 44+98.35

P.T. 669+46.48

P.T. 44+98.35

HWY. 72
P.I. 50+59.04
Δ = 34°46'13"RT.
D = 1°15'00"
T = 1435.13'
L = 2781.62'
P.C. 36+23.92
P.T. 64+05.54

P.T. 64+05.54

CONSTRUCTION C.L. HWY. 549

S84°08'47"E
455.26'

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	85	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

COUNTY ROAD 34 - REALIGNMENT TO WEST
P.I. 21+40.75
Δ = 50°05'16"RT.
D = 10°00'00"
T = 267.91'
L = 500.88'
P.C. 18+73.04
P.T. 23+73.92

FUTURE RAMP 1
P.I. 537+11.08
Δ = 15°19'53"LT.
D = 5°00'00"
T = 154.24'
L = 306.63'
P.C. 535+56.84
P.T. 538+63.47

FUTURE RAMP 4
P.I. 536+85.33
Δ = 14°57'14"RT.
D = 5°00'00"
T = 150.39'
L = 299.08'
P.C. 535+34.94
P.T. 538+34.02

CONSTRUCTION C.L. HWY. 549

COUNTY ROAD 34
P.I. 22+07.88
Δ = 4°38'50"RT.
D = 1°00'00"
T = 232.49'
L = 464.72'
P.C. 19+75.39
P.T. 24+40.11

COUNTY ROAD 34 M.O.T.
P.I. 33+87.14
Δ = 24°07'58"LT.
D = 13°15'00"
T = 92.44'
L = 182.13'
P.C. 32+94.70
P.T. 34+76.84

COUNTY ROAD 34
P.I. 27+01.33
Δ = 4°38'50"LT.
D = 1°00'00"
T = 232.49'
L = 464.72'
P.C. 24+68.84
P.T. 29+33.56

COUNTY ROAD 34 M.O.T.
P.I. 17+31.25
Δ = 90°21'56"RT.
D = 22°00'00"
T = 262.10'
L = 410.75'
P.C. 14+69.15
P.T. 18+79.90

RAMP 2
P.I. 541+85.41
Δ = 16°35'19"LT.
D = 5°00'00"
T = 167.05'
L = 331.77'
P.C. 540+18.36
P.T. 543+50.13

COUNTY ROAD 34 M.O.T.
P.I. 30+64.30
Δ = 4°28'29"RT.
D = 1°00'00"
T = 223.84'
L = 447.46'
P.C. 28+40.45
P.T. 32+87.91

RAMP 3
P.I. 541+64.20
Δ = 14°32'43"RT.
D = 5°00'00"
T = 146.24'
L = 290.91'
P.C. 540+17.96
P.T. 543+08.87

COUNTY ROAD 34 M.O.T.
P.I. 35+59.93
Δ = 20°31'05"RT.
D = 13°15'00"
T = 78.26'
L = 154.85'
P.C. 34+81.67
P.T. 36+36.52

COUNTY ROAD 34 - SOUTH FRONTAGE ROAD
P.I. 15+42.31
Δ = 73°16'44"RT.
D = 13°00'00"
T = 327.79'
L = 563.68'
P.C. 12+14.52
P.T. 17+78.20

COUNTY ROAD 34 M.O.T.
P.I. 10+45.78
Δ = 15°19'17"LT.
D = 13°15'00"
T = 58.16'
L = 115.63'
P.C. 9+87.61
P.T. 11+03.25

COUNTY ROAD 34 M.O.T.
P.I. 9+25.05
Δ = 15°19'17"RT.
D = 24°00'00"
T = 32.11'
L = 63.84'
P.C. 8+92.94
P.T. 9+56.78

COUNTY RD 34 REALIGNMENT

COUNTY ROAD 34

FUTURE RAMP 1

RAMP 2

RAMP 3

FUTURE RAMP 4

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	86	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

FUTURE RAMP 1
P.I. 537+11.08
Δ = 15°19'53"LT.
D = 5°00'00"
T = 154.24'
L = 306.63'
P.C. 535+56.84
P.T. 538+63.47

FUTURE RAMP 4
P.I. 536+85.33
Δ = 14°57'14"RT.
D = 5°00'00"
T = 150.39'
L = 299.08'
P.C. 535+34.94
P.T. 538+34.02

COUNTY ROAD 34
P.I. 22+07.88
Δ = 4°38'50"RT.
D = 1°00'00"
T = 232.49'
L = 464.72'
P.C. 19+75.39
P.T. 24+40.11

COUNTY ROAD 34
P.I. 27+01.33
Δ = 4°38'50"LT.
D = 1°00'00"
T = 232.49'
L = 464.72'
P.C. 24+68.84
P.T. 29+33.56

RAMP 2
P.I. 541+85.41
Δ = 16°35'19"LT.
D = 5°00'00"
T = 167.05'
L = 331.77'
P.C. 540+18.36
P.T. 543+50.13

RAMP 3
P.I. 541+64.20
Δ = 14°32'43"RT.
D = 5°00'00"
T = 146.24'
L = 290.91'
P.C. 540+17.96
P.T. 543+08.87

COUNTY ROAD 34 - SOUTH FRONTAGE ROAD
P.I. 15+42.31
Δ = 73°16'44"RT.
D = 13°00'00"
T = 327.79'
L = 563.68'
P.C. 12+14.52
P.T. 17+78.20

CONSTRUCTION C.L. HWY. 549

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	87	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

RAMP 3
PI = 680+65.17
Δ = 44°04'38" LT.
D = 3°30'00"
L = 1259.35'
T = 662.68'
PC = 674+02.49
PT = 686+61.84

RAMP 2
PI = 678+19.01
Δ = 16°08'23" RT.
D = 3°00'00"
L = 537.99'
T = 270.79'
PC = 675+48.22
PT = 680+86.21

TEMPORARY RAMP 3
PI = 689+12.58
Δ = 21°08'16" LT.
D = 3°00'00"
L = 704.59'
T = 356.35'
PC = 685+56.23
PT = 692+60.82

CONSTRUCTION C.L.
P.I. 688+11.17
Δ = 30°34'11.6" LT.
D = 1°30'00"
T = 1043.88'
L = 2037.99'
P.C. 677+67.29
P.T. 698+05.28

P.C. 674+02.49
P.C. 675+48.22
P.I. 678+19.01
P.C. 677+67.29
P.I. 680+65.17
P.I. 680+86.21
P.C. 685+56.23
P.T. 686+61.84
POB 683+00.00
POE 685+36.21
P.I. 688+11.17
P.I. 689+12.58
P.T. 692+60.82
P.T. 698+05.28
C.L. RAMP 3
C.L. RAMP 4
TEMP. RAMP 3
C.L. HWY. 549
S 66°32'41" E
S 49°29'24" E
S 39°03'26" E
S 37°57'22" E
S 68°31'34" E
675
680
685
690
695
700

761 NBC 761 BASE OF PP
S27°47'04"W 764.62'
760 NBC 760 FE POST
N6°31'56"E 398.55'
22 T-22 RBR CAP
S15°40'57"W 558.65'
23 T-23 RBR CAP
S49°30'12"W 808.52'
759 NBC 759 BASE OF PP
N54°23'19"W 2041.78'
799 BASE OF PP

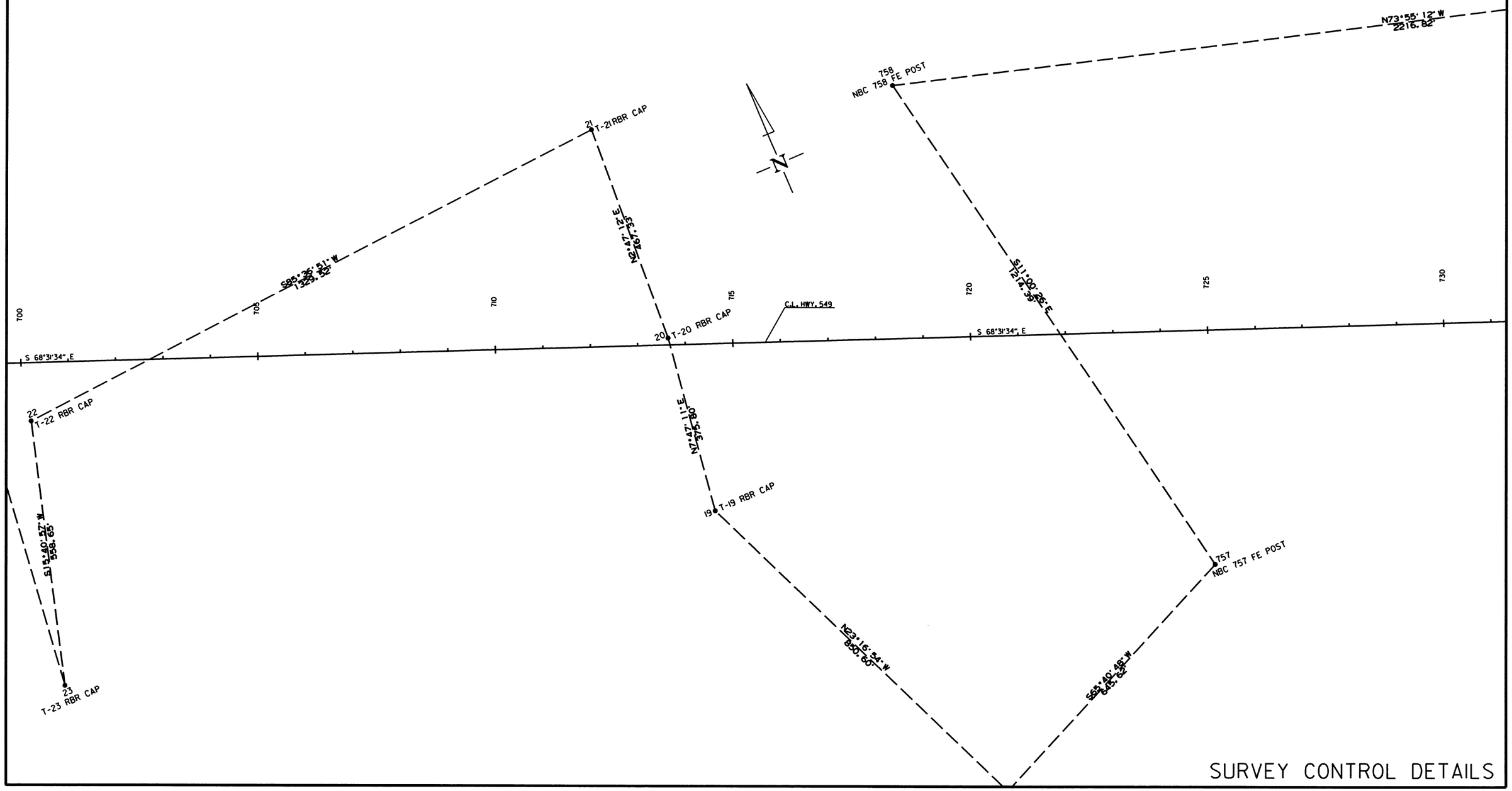
9/28/2017
R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	88	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



SURVEY CONTROL DETAILS

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	89	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

TBM-9

108 ADS GPS 040102

S55° 12' W
16.82'

N35° 33' 41" E
473.62'

755 BASE S SD MAPLE TR\NAIL

N8° 24' 27" W
450.12'

730 735 740 745 750 755 760

C.L. HWY. 549

S 68° 31' 34" E

P.C. 744+93.36

P.T. 760+14.52

N 88° 39' 24" E

CONSTRUCTION C.L.
P.I. 752+64.15
Δ = 22°49'02.4"LT.
D = 1°30'00"
T = 770.79'
L = 1521.16'
P.C. 744+93.36
P.T. 760+14.52

I8 T-I8 \RBR CAP

N2° 18' 33" E
305.60'

I07
CAP REBAR GPS 040102A

N80° 56' 27" W
226.83'

754 N SD WESTERN GATE PST\NBC

N25° 03' 01" E
722.90'

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	90	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

749
BASE SN\NAIL

S3°24'43"W
495.10'

POE 120+35.49

120

15
T-15\RBR CAP

S1°53'32"W
624.70'

115

STA. 781+34.56 CONSTRUCTION C.L. HWY. 549 =
STA. 110+93.55 C.L. HWY. 279
Δ=85°56'12"

C.L. HWY. 279

16
T-16\RBR CAP

932
TBM-932\CPS CP

760 765 770 775 780 785 790

P.T. 760+14.52

C.L. HWY. 549

N 88°39'24" E.

110

N 2°43'12" E
463.86'
S24°13'30"E

FRONTAGE RD.
PI = 14+32.58
Δ = 20°05'27" LT.
D = 4°00'00"
L = 502.27'
T = 253.74'
PC = 11+78.84
PT = 16+81.11

20

15

P.T. 16+81.11

N 12°26'W E

P.C. 11+78.84

POB 10+00.00

BASE CP\NAIL 748

S 87°17'52" E

P.I. 14+32.58

S6°06'53"W
393.78'

105

17
T-17\RBR CAP

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	91	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

N59°20'38"W 3127.26'

C.L. HWY. 549

N, 88°39'24" E

C.L. HWY. 71(SOUTH)

T-14\RBR CAP 14

STA. 121+72.80 C.L. HWY. 72 (SOUTH)
STA. 820+69.61 C.L. RAMP 4
Δ=75°00'

N 75°02'55" E

S 27°43'14" W 1082.07'

N 45°02'55" E

N 29°00'17" W 821.93'

N 75°39'13" E

TBM-913\CPS CP

T-13\RBR CAP 13

TEMPORARY RAMP 4
PI = 803+03.41
Δ = 4°44'29"RT.
D = 2°00'00"
L = 237.07'
T = 118.60'
PC = 801+84.80
PT = 804+21.87

TEMPORARY RAMP 4
PI = 796+87.17
Δ = 7°30'00"LT.
D = 2°00'00"
L = 375.00'
T = 187.77'
PC = 794+99.40
PT = 798+74.40

TEMP. RAMP 4

C.L. RAMP 4

BASE EASTRN GATE POST\NBC 746

RAMP 4
PI = 810+89.26
Δ = 43°36'30"LT.
D = 3°00'00"
L = 1453.61'
T = 764.05'
PC = 803+25.21
PT = 817+78.82

CONSTRUCTION C.L.
P.I. 811+15.11
Δ = 13°00'11.4"LT.
D = 1°00'00"
T = 652.96'
L = 1300.32'
P.C. 804+62.15
P.T. 817+62.46

P.I. 22+57.67
P.C. 794+99.40
P.I. 796+87.17
P.C. 801+84.80
P.T. 804+21.87
P.C. 806+51.48
P.I. 809+64.59
P.I. 811+15.11
P.I. 39+71.75
P.T. 812+72.18
P.C. 817+37.15
P.T. 817+62.46
P.I. 44+81.93
P.C. 46+17.49
P.I. 820+68.22

FRONTAGE RD.
PI = 22+57.67
Δ = 16°02'43"RT.
D = 3°00'00"
L = 534.84'
T = 269.18'
PC = 19+88.49
PT = 25+23.33

C.L. FRONTAGE ROAD

RAMP 1
PI = 809+64.59
Δ = 18°37'16"RT.
D = 3°00'00"
L = 620.70'
T = 313.11'
PC = 806+51.48
PT = 812+72.18

FRONTAGE RD.
PI = 39+71.75
Δ = 31°25'21"RT.
D = 3°00'00"
L = 1047.42'
T = 537.24'
PC = 34+34.51
PT = 44+81.93

C.L. RAMP 1

RAMP 1
PI = 820+68.22
Δ = 32°13'45"LT.
D = 5°00'00"
L = 644.59'
T = 331.07'
PC = 817+37.15
PT = 823+81.74

FRONTAGE RD.
PI = 50+13.33
Δ = 45°01'50"LT.
D = 6°00'00"
L = 750.51'
T = 395.84'
PC = 46+17.49
PT = 53+68.00

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	92	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

C.L. RAMP 3 TEMP. RAMP
PI = 841+96.98
Δ = 22°04'21" RT.
D = 3°00'00"
T = 372.49'
L = 735.75'
PC = 838+24.49
PT = 845+60.24

C.L. MEDIAN
PI = 842+88.35
Δ = 45°58'59" RT.
D = 1°30'00"
T = 1620.71'
L = 3065.54'
PC = 826+67.64
PT = 857+33.18
Ls = 350'
e = 0.054'/'

RAMP 3
PI = 834+63.45
Δ = 15°07'25" LT.
D = 3°00'00"
T = 253.53'
L = 504.12'
PC = 832+09.92
PT = 837+14.03
e = 0.057'/'
Ls = 200'

RAMP 3
PI = 847+79.60
Δ = 29°45'41" RT.
D = 1°28'39"
T = 1030.52'
L = 2014.48'
PC = 837+49.08
PT = 857+63.56
NO SUPER

POB 10+00.00
S 32°25'57" W 142.42'
PC 11+42.42
C.L. RELOC. CO. RD. 554

RELOCATED CO. RD. 554
PI = 17+13.89
Δ = 61°47'45" LT.
D = 6°00'00"
T = 571.47'
L = 1029.93'
PC = 11+42.42
PT = 21+72.36
e = 0.070'/'
Ls = 190'

PI 842+88.35
PI 841+96.98
PI 847+79.60
PI 837+14.03
PI 834+63.45
PI 17+13.89
PT 21+72.36

C.L. HWY. 72 (SOUTH) RAMP 3
S 88°07'30" E 35.05'
SURVEY BASELINE S 73°32'52" E 538.04'
S 86°49'48" E
S 64°45'27" E
S 78°30'43" E 5.33'
SURVEY BASELINE S 77°30'43" E 892.88'
S 72°13'27" E
SURVEY BASELINE S 65°34'55" E 827.40'
SURVEY BASELINE
S 58°21'48" E 1175.70'
S 58°21'48" E 6042.49'
SURVEY BASELINE S 58°29'09" E 938.09'

PN:1 PD:STD ARDOT MON. STAMPED PN:1 549
PN:2 PD:STD ARDOT MON. STAMPED PN:2 549
PN:3 PD:STD ARDOT MON. STAMPED PN:3 549
PN:4 PD:STD ARDOT MON. STAMPED PN:4 549
PN:5 PD:STD ARDOT MON. ST
PN:901 TBM PD:SQUARE CUT IN DI549 BELLE VISTA
PN:902 TBM PD:SQUARE CUT IN CU S END OF E 549
PN:912 TBM PD:TBM-911\CPS CP
PN:965 TBM PD:TBM-965\CPS
PN:964 TBM PD:TBM-964\CPS

POB 837+45.08
PC 837+49.08
PT 837+14.03
POB 889+24.49
PT 843+84.61
POE 843+89.94
PC 845+60.24
PT 845+60.24
PI 846+84.86
PT 848+09.13
PT 857+63.56
PT 857+73.18

RAMP 2
PI = 835+28.20
Δ = 56°26'22" RT.
D = 3°00'00"
T = 1024.90'
L = 1881.32'
PC = 825+03.30
PT = 843+84.61
e = 0.057'/'
Ls = 200'

C.L. HWY. 72 (SOUTH) RAMP 2

STA. 845+00.00
BEGIN JOB 090298

C.L. HWY. 72 (SOUTH) RAMP 3 TEMP. RAMP

C.L. RAMP 3 TEMP. RAMP
PI = 846+84.86
Δ = 7°27'59" LT.
D = 3°00'00"
T = 124.62'
L = 248.88'
PC = 845+60.24
PT = 848+09.13

C.L. HWY. 549

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	93	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

RELOCATED CO. RD. 554
PI = 35+33.82
Δ = 29°04'52" LT.
D = 8°00'00"
T = 185.76'
L = 363.51'
PC = 33+48.06
PT = 37+11.57
e = 0.070'/'
Ls = 190'

PC 33+48.06
PT 37+11.57
PI 35+33.82
C.L. RELOC. CO. RD. 554
POE 114+00.01
POE 45+13.37
Δ = 0°00'00" RT.
N 2°33'20" E 100.00'
S 87°26'40" E 801.80'
N 2°33'20" E 524.85'
Δ = 0°41'45" LT.
SURVEY BASELINE S 58°25'27" E 870.58'
S 58°21'48" E 6042.49'
SURVEY BASELINE S 52°15'42" E 999.88'
N 3°15'05" E 775.15'
SURVEY BASELINE S 66°46'58" E 521.15'
SURVEY BASELINE S 58°21'48" E 6042.49'
SURVEY BASELINE S 58°31'09" E 895.03'
C.L. HWY. 549
C.L. CO. RD. 453
SURVEY BASELINE
POB 100+00.00

PN:5
PD:STD ARDOT MON. STAMPED PN:5 549

PN:903
PD:SQUARE CUT IN CU 549 BELLA VISTA

PN:6
PD:STD ARDOT MON. STAMPED PN:6 549

PN:963
PD:TBM-963\CPS

PN:8
PD:STD ARDOT MON. STAMPED PN:8 549

PN:910
PD:TBM-910\CPS 36" OAK

PN:904
PD:DISK IN SE CRNER OF BR CR 453 549

PN:7
PD:STD ARDOT MON. STAMPED PN:7 549

PN:9
PD:STD ARDOT MON. STAMPED PN:9 549

PN:997
PD:TBM-997\NAIL 12" OAK

PN:962
PD:TBM-962\CPS

PN:905
PD:SQUARE CUT IN CU 549 BELLA VISTA

PN:10
PD:STD ARDOT MON. STAMPED PN:10 549

870 875 880 885 890 895 900
105 110 115 100

8398 8390 8389 8388

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	94	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

PN:986
PD:TBM-996\NAIL PP

N

9/28/2017

R090508.DGN

8402
POE 23+35.57
N 17°12'55" W
406.60'
8401
20
Δ = 1°16'11" LT.
PI 19+28.97
PN:42
PD:STD ARDOT MON
PN:985
PD:TBM-985\CPS 24"
PN:960
PD:TBM-960\CPS
C.L. BECKETT

900 905 910 915 920 925 930

ON. STAMPED PN10 549
S 58°21'48" E
6042.49'
SURVEY BASELINE S 58°17'21" E
933.42'
PN:9
PD:STD ARDOT MON. STAMPED PN11 549
SURVEY BASELINE S 58°25'20" E
947.44'
C.L. HWY. 549
SURVEY BASELINE
PC 917+75.67
8092
STAMPED PN12 549
PN:12
PD:STD ARDOT MON.
SURVEY BASELINE S 61°44'48" E
1052.82'
PN:13
PD:STD ARDOT MON. STAMPED PN13 549
SURVEY BASELINE S 54°55'01" E
623.27'
PI 929+76.70
PN:961
PD:TBM-961\CPS
PN:906
PD:SQUARE CUT IN CNTER HW 549

C.L. MEDIAN
PI = 929+76.70
Δ = 23°40' 40.3" LT.
D = 1°00' 00"
T = 1201.03'
L = 2367.79'
PC = 917+75.67
PT = 941+43.45
Ls = 350'
e = 0.037'/'

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	95	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

CO. RD. 49
PI = 25+86.54
Δ = 41°04'26" RT.
D = 8°00'00"
T = 268.30'
L = 513.42'
PC = 23+18.24
PT = 28+31.66
e = 0.084'/'
Ls = 220'

PC 23+18.24
PT 28+31.66
PI 25+86.54
8411
25
C.L. CO. RD. 49

PN:42
PD:STD ARDOT MON. STAMPED PN:42 549
PN:909
PD:TBM-909\CPS 24" ASH
PN:907
PD:ARDOT DISK IN BR WALL 549 BELLA VISTA
PN:908
PD:SQUARE CUT IN BR ABUT 549 BELLA VISTA
PN:959
PD:TBM-959\CPS
PN:14
PD:STD ARDOT MON. STAMPED PN:14 549
PN:15
PD:STD ARDOT MON. STAMPED PN:15 549
PN:16
PD:STD ARDOT MON. STAMPED PN:16 549
PN:908
PD:TBM-908\CPS RP GUY
PN:910
PD:DISK IN SE CRNER BR CR49 5
PN:17
PD:STD ARDOT MON. STAMPED PN:
PN:18
PD:STD ARDOT MON. STAMPED PN

ARDOT MON. STAMPED PN:13 549
SURVEY BASELINE S 54°30'01" E 625.27'
SURVEY BASELINE N 85°23'36" E 486.83'
SURVEY BASELINE S 81°19'03" E 1167.32'
S 82°02'29" E 2093.98'
SURVEY BASELINE S 76°32'51" E 739.97'
SURVEY BASELINE
C.L. HWY. 549
C.L. BECKETT
C.L. MEDIAN
PI = 929+76.70
Δ = 23°40'40.3" LT.
D = 1°00'00"
T = 1201.03'
L = 2367.79'
PC = 917+75.67
PT = 941+43.45
Ls = 350'
e = 0.037'/'
PT 941+43.45
8093
PI929+76.70
N 18°29'06" W 926.97'
N 17°12'55" W 209.04'
Δ = 1°16'11" LT.
PI19+28.97
POE 23+35.57
POB 10+00.00
8400
8410
PT 14+30.56
PI12+54.49
CO. RD. 49
PI = 12+54.49
Δ = 28°47'29" RT.
D = 8°00'00"
T = 183.83'
L = 359.89'
PC = 10+70.66
PT = 14+30.56
e = 0.084'/'
Ls = 220'
3°36'00" E 887.68'
N
S

9/28/2017
R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	96	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

CO. RD. 49
PI = 12+54.49
Δ = 28°47'29" RT.
D = 8°00'00"
T = 183.83'
L = 359.89'
PC = 10+70.66
PT = 14+30.56
e = 0.084'/'
Ls = 220'

CO. RD. 49
PI = 25+86.54
Δ = 41°04'26" RT.
D = 8°00'00"
T = 268.30'
L = 513.42'
PC = 23+18.24
PT = 28+31.66
e = 0.084'/'
Ls = 220'

CO. RD. 49
PI = 29+40.28
Δ = 48°11'54" RT.
D = 63°39'43"
T = 40.26'
L = 75.71'
PC = 29+00.02
PT = 29+75.73

CO. RD. 49
PI = 9+35.67
Δ = 8°21'52" RT.
D = 11°27'33"
T = 36.56'
L = 72.99'
PC = 8+99.11
PT = 9+72.10

C.L. MEDIAN
PI = 970+04.24
Δ = 7°39'23.7" LT.
D = 0°30'00"
T = 766.80'
L = 1531.32'
PC = 962+37.44
PT = 977+68.75
NO SUPERELEVATION

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	97	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

PN:907
PD:907 TBM CPS INS PP

N

C.L. MEDIAN
PI = 970+04.24
Δ = 7°39'23.7" LT.
D = 0°30'00"
T = 766.80'
L = 1531.32'
PC = 962+37.44
PT = 977+68.75
NO SUPERELEVATION

PN:957
PD:TBM-957\RRS

PT 977+68.75

8095

975 980 985 990 995 1000

S 89°41'52" E
3338.38'

SURVEY BASELINE S 88°50'27" E
918.09'

SURVEY BASELINE S 89°37'13" E
916.93'

SURVEY BASELINE S 89°40'05" E
782.87'

650.62'

SURVEY BASELINE S 89°57'01" E

SURVEY BASELINE

C.L. HWY. 549

PN:20
PD:STD ARDOT MON. STAMPED PN:20 549

PN:21
PD:STD ARDOT MON. STAMPED PN:21 549

PN:22
PD:STD ARDOT MON. STAMPED PN:22 549

PN:23
PD:STD ARDOT MON. STAMPED PN:23 549

PN:911
PD:SQUARE CUT IN E CU 549 BELLA VISTA

PN:912
PD:SQUARE CUT CNTER HW 549 BELLA VISTA

PN:913
PD:SQUARE CUT ON NW CRNR BR 549

PN:956
PD:TBM-956\RRS

PN:906
PD:906 BM CPS INS 20 IN OAK

PC 22+12.96

CO. RD. 39
PI = 23+36.65
Δ = 26°43'02" RT.
D = 11°00'00"
T = 123.69'
L = 242.88'
PC = 22+12.96
PT = 24+55.84
NO SUPERELEVATION

PI 24+55.84

PI 23+36.65

C.L. CO. RD. 39

PE 36+33.05

8513

35

N 0°27'31" E
223.68'

8512

Δ = 1°55'38" RT.

PI 34+09.37

N 2°23'09" W
425.86'

Δ = 0°37'55" LT.

8511

PI 29+83.50

N 3°11'04" E
248.83'

8510

PI 27+34.67

N 3°11'04" E
278.83'

25

8509

PN:25
PD:STD ARDOT MON. STAMPED PN:25 549

PI 24+55.84

PI 23+36.65

N 23°31'58" W
402.24'

PN:24
PD:STD ARDOT MON. STAM

9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	98	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

CO. RD. 39
PI = 13+96.97
Δ = 32°53'09" RT.
D = 9°32'57"
T = 177.08'
L = 344.38'
PC = 12+19.89
PT = 15+64.27
NO SUPERELEVATION

CO. RD. 39
PI = 17+30.87
Δ = 21°32'09" LT.
D = 13°00'00"
T = 83.82'
L = 165.66'
PC = 16+47.05
PT = 18+12.71
NO SUPERELEVATION

CO. RD. 39
PI = 23+36.65
Δ = 26°43'02" RT.
D = 11°00'00"
T = 123.69'
L = 242.88'
PC = 22+12.96
PT = 24+55.84
NO SUPERELEVATION

PNT22 PDSTD ARDOT MON. STAMPED PN22 549
PNT23 PDSTD ARDOT MON. STAMPED PN23 549
PNT24 PDSTD ARDOT MON. STAMPED PN24 549
PNT25 PDSTD ARDOT MON. STAMPED PN25 549
PNT26 PDSTD ARDOT MON. STAMPED PN26 549
PNT913 PDSQUARE CUT ON NW CRNR BR 549
PNT986 PDTBM CPS INS 20 IN OAK
PNT955 PDTBM-955\RRS
PNT1003 PDRBR CAP
PNT1002 PDSQPS BENTONVILLE 16

SURVEY BASELINE S 89°40'05" E 782.17'
S 89°41'52" E 3338.38'
SURVEY BASELINE S 89°57'01" E
SURVEY BASELINE N 88°51'02" E 364.26'
N 23°31'58" W 400.24'
N 34°52'58" W 219.89'
N 1°59'49" W 82.78'
N 3°11'04" E 278.83'
N 3°11'04" E 248.83'
N 2°23'09" W 425.86'
N 0°27'31" E 223.68'

C.L. HWY. 549
C.L. CO. RD. 39

POB 10+00.00
PC 12+19.89
PI 13+96.97
PT 15+64.27
PC 16+47.05
PI 17+30.87
PT 18+12.71
PI 23+36.65
PT 24+55.84
PC 22+12.96
PI 27+34.67 Δ = 0°00'00" LT.
PI 29+83.50 Δ = 0°37'55" LT.
PI 34+09.37 Δ = 1°55'38" RT.
POE 36+33.05
PC 1010+38.41
POB 1010+38.41
PC 1011+07.14

9/28/2017
R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	99	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

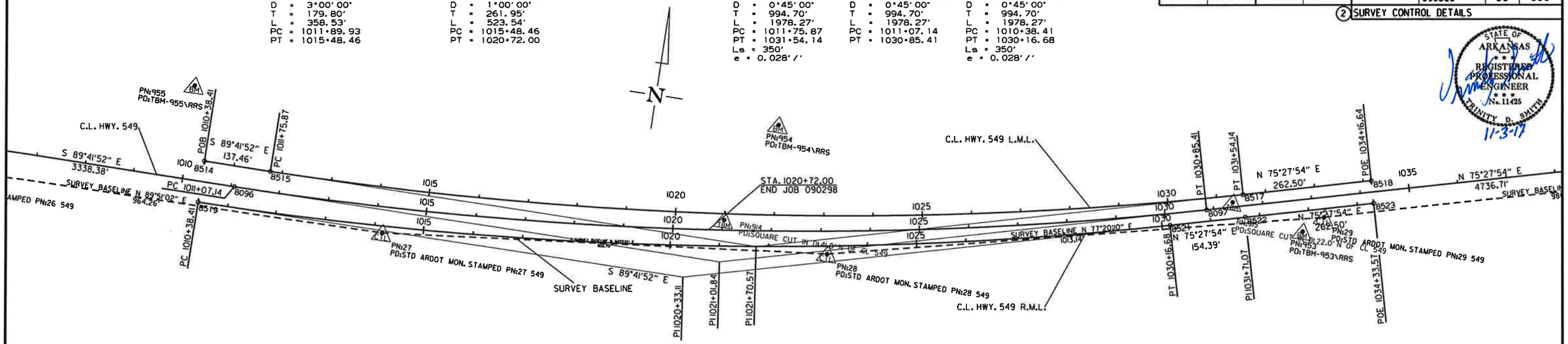
C.L. HWY. 549 TEMP. CROSSOVER
PI = 1013+69.73
Δ = 10°45'22" LT.
D = 3°00'00"
T = 179.80'
L = 358.53'
PC = 1011+89.93
PT = 1015+48.46

C.L. HWY. 549 TEMP. CROSSOVER
PI = 1018+10.42
Δ = 5°14'07" RT.
D = 1°00'00"
T = 261.95'
L = 523.54'
PC = 1015+48.46
PT = 1020+72.00

C.L. L.M.L.
PI = 1021+70.57
Δ = 14°50'13" LT.
D = 0°45'00"
T = 994.70'
L = 1978.27'
PC = 1011+75.87
PT = 1031+54.14
Ls = 350'
e = 0.028'/'

C.L. MEDIAN
PI = 1021+01.84
Δ = 14°50'13" LT.
D = 0°45'00"
T = 994.70'
L = 1978.27'
PC = 1011+07.14
PT = 1030+85.41

C.L. R.M.L.
PI = 1020+33.11
Δ = 14°50'13" LT.
D = 0°45'00"
T = 994.70'
L = 1978.27'
PC = 1010+38.41
PT = 1030+16.68
Ls = 350'
e = 0.028'/'



9/28/2017

R090508.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	100	335

(2) PLAN AND PROFILE SHEETS

STA. 557+00 IN PLACE
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 130' R.C. PIPE OUTLET (CL. III)
F.E.S. LT.
(USE TYPE 3 BEDDING)
RETAIN

STA. 560+00 - STA. 573+04 IN PLACE
CONCRETE DITCH PAVING
REMOVE

STA. 570+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.

STA. 573+00 IN PLACE
42" x 114' R.C. PIPE CULV'T. (CL. III) W/
F.E.S. LT. & RT.
050= 75 C.F.S., D.A.= 17 AC.
REMOVE F.E.S. LT. AND EXTEND 88' LT.
FOR A TOTAL COMPLETED LENGTH 200'
42" R.C. PIPE = 92 LIN. FT.
42" FES = 1 EACH

STA. 579+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 86' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE III BEDDING)
F.E.S. ON LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
560+00.00	573+26.40	LT.	11	162.16

STA. 563+00
BEGIN WRSF AND
CONC. DITCH PAVING

EXISTING ROW & C OF A FENCE

T.C.E.

PROPOSED CONST. LIMITS

CL. CONST. HWY. 549 S 0°30'06" E

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

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

STA. 559+00.00
BEGIN JOB 090508

+00 TOP D.I. 1279.47

-0.80% LT.DT.GR

+00.00 LT.DT.GR
LT. ELEV. 1282.27

-4.30% LT.DT.GR

+00.00 LT.DT.GR
LT. ELEV. 1279.85

F.L. D.I. 1276.47
F.L. OUTLET 1275.13 LT.

+00.00 LT.DT.GR
LT. ELEV. 1275.13

-0.49% LT.DT.GR

-0.44%

+00.00 LT.DT.GR
LT. ELEV. 1270.72

+00 TOP D.I. 1273.75

F.L. D.I. 1270.75
F.L. OUTLET 1269.08 LT.

+00
EXIST. F.L. INLET 1263.60 RT.
EXIST. F.L. OUTLET 1262.18 LT.
F.L. OUTLET 1261.46 LT.

+00 TOP D.I. 1269.79

F.L. D.I. 1266.79
F.L. OUTLET 1265.89 LT.

1330 1320 1310 1300 1290 1280 1270 1260 1250 1240

550+00 555+00 560+00 565+00 570+00 575+00 580+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	101	335

(2) PLAN AND PROFILE SHEETS

STA. 589+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 86' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.

STA. 597+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.

STA. 600+72 IN PLACE
6' x 5' x 305' R.C. BOX CULV'T.
(7° 30' LT. FWD. SKEW)
Q50= 300 C.F.S., D.A.= 96 AC.
REMOVE LT. WINGS AND EXTEND 76' LT.
FOR A TOTAL COMPLETED LENGTH 385'

STA. 600+74.09 - STA. 601+19.80 IN PLACE
TYPE D WIRE FENCE 147 LIN.FT. &
16'-0" GATE
REMOVE

STA. 601+20 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

S 0°30'06" E

C.L. CONST. HWY. 549

T.C.E.

25' BUFFER ZONE

WRSF & CONC. DITCH PAVING

EXISTING ROW & C OF A FENCE

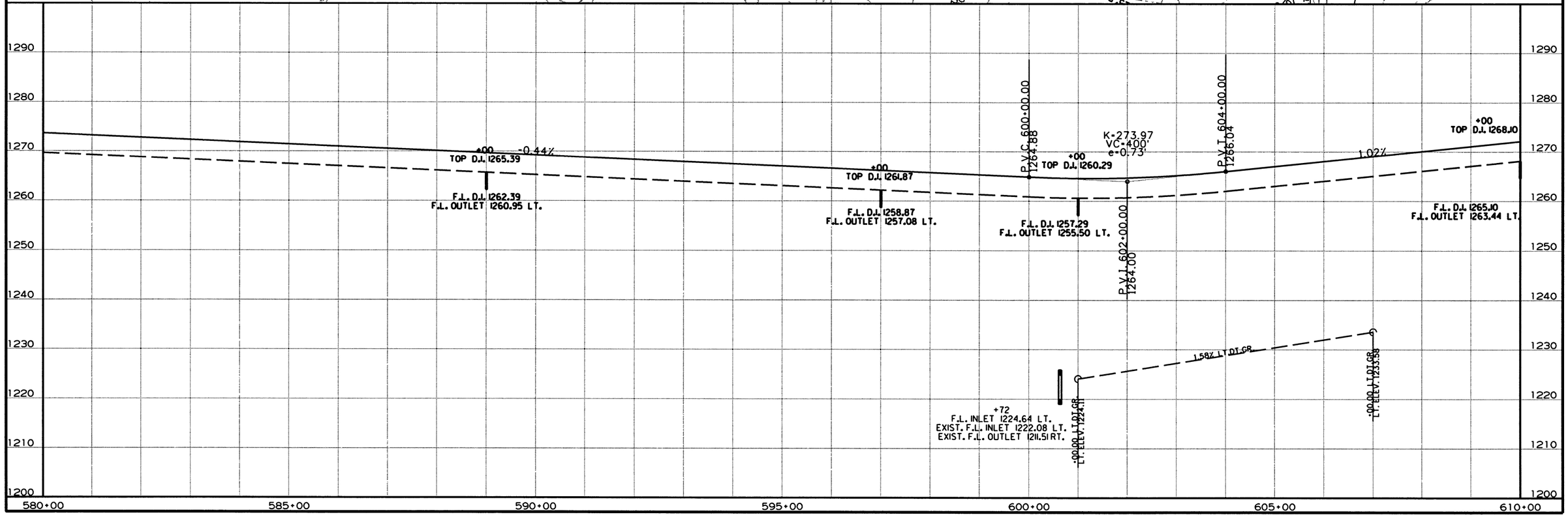
WIRE FENCE (TYPE D) AND GATES

STA.	STA.	SIDE	LIN.FT.	16'-0 GATE EACH
600+74.09	601+19.80	LT.	34'	1

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
597+00.00		LT.	10	25.56
601+20.00		LT.	10	111.11
610+00.00		LT.	10	81.11

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



9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	102	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
N. 11425
9-29-17

STA. 620+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 96' R.C. PIPE OUTLET
(CLASS V PIPE)
(ARE TO BE JACKED UNDER SOUTHBOUND LANES)
F.E.S. ON RT.

STA. 622+84 IN PLACE
36" X 132' R.C. PIPE CULV'T.
(19° 42' LT. FWD. SKEW) W/
F.E.S. LT. & RT.
Q50= 28 C.F.S., D.A.= 11 AC.
REMOVE F.E.S. LT. AND EXTEND 72' LT.
FOR A TOTAL COMPLETED LENGTH 204'
(CLASS III PIPE)(TYPE 3 BEDDING)
36" R.C. PIPE = 76 LIN. FT.
36" FES = 1 EACH

STA. 631+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 92' R.C. PIPE OUTLET
(TYPE 3 BEDDING)
(ARE TO BE JACKED UNDER SOUTHBOUND LANES)
F.E.S. ON RT.

STA. 622+94.00 - STA. 627+00.00 IN PLACE
CONCRETE DITCH PAVING
REMOVE

STA. 634+56 IN PLACE
DBL. 42" x 200' R.C. PIPE CULV'T.
W/F.E.S. LT. & RT.
(CLASS V PIPE)(TYPE 3 BEDDING)
Q50= 171 C.F.S., D.A.= 37 AC.
REMOVE F.E.S. LT. AND EXTEND 68' LT.
FOR A TOTAL COMPLETED LENGTH 262'
42" R.C. PIPE = 144 LIN. FT.
42" FES = 2 EACH

STA. 633+99.00 - STA. 640+08.12 IN PLACE
CONCRETE DITCH PAVING
REMOVE

C.L. MEDIAN
P.I. 627+28.42
Δ = 37°27'16"LT.
D = 1°30'00"
T = 1294.93'
L = 2496.96'
P.C. 614+33.50
P.T. 639+30.46
e = 0.054'/'
Ls = 350'

C.L. CONST. HWY. 549

PC 614+33.50

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

EXISTING ROW & C OF A FENCE

S 0°30'06" E

S 31°51'22" E

WRSF & CONC. DITCH PAVING

WRSF & CONC. DITCH PAVING

STA. 614+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 84' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.

STA. 610+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 88' R.C. PIPE OUTLET
(CLASS III)(TYPE 3 BEDDING)
F.E.S. ON LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
610+00.00		LT.	10	81.11
620+00.00		LT.	10	53.22

T.C.E.

T.C.E.

300' TAPER

25' BUFFER ZONE

25' BUFFER ZONE

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

STA. 611+71.00 BEGIN SUPERELEVATION (-0.020'/')
STA. 615+21.00 MAX. SUPERELEVATION (0.054'/')
STA. 638+42.96 MAX. SUPERELEVATION (0.054'/')
STA. 641+92.96 END SUPERELEVATION (-0.020'/')

1.02%

+00
TOP D.I. 1272.42
F.L. D.I. 1269.42
F.L. OUTLET 1268.32 LT.

+00
TOP D.I. 1278.47
F.L. D.I. 1275.47
F.L. OUTLET 1273.49 RT.

+84
F.L. INLET 1275.71 LT.
EXIST. F.L. INLET 1272.34 LT.
EXIST. F.L. OUTLET 1270.65 RT.

+00
TOP D.I. 1289.69
F.L. D.I. 1286.69
F.L. OUTLET 1285.79 RT.

-1.34% LT. DT. GR.
2.49% LT. DT. GR.
1.04% LT. DT. GR.
1.16% LT. DT. GR.

+55.98 LT. DT. GR. LT. ELEV. 1284.00
-79.00 LT. DT. GR. LT. ELEV. 1282.03
-21.00 LT. DT. GR. LT. ELEV. 1282.82
+00.00 LT. DT. GR. LT. ELEV. 1285.51

+56
F.L. INLET 1281.03 LT.
EXIST. F.L. INLET 1277.43 LT.
EXIST. F.L. OUTLET 1266.12 RT.

FOR CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 1222 FT. MSL. BETWEEN STATIONS 600+80 AND 602+00. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

FOR CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 1278 FT. MSL. BETWEEN STATIONS 634+40 AND 634+60. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

1320 1310 1300 1290 1280 1270 1260 1250 1240 1230

610+00 615+00 620+00 625+00 630+00 635+00 640+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	103	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
633+81.00	640+08.12	LT.	12	836.16

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 1)	GUARDRAIL TERMINAL (TYPE 2)
662+13.35	667+13.35	R.M.L. - LT.	450 LIN. FT.	1EA.	1EA.
664+79.04	669+79.04	L.M.L. - RT.	450 LIN. FT.	1EA.	1EA.

EXISTING ROW & C OF A FENCE
EXISTING C OF A FENCE
700' ACCELERATION LANE
STA. 641+00.00 END PAVING
S 37°57'22" E
C.L. CONST. HWY. 549
STA. 665+29.04 END WRSF
STA. 665+29.04 END CONC. DITCH PAVING

C.L. MEDIAN
P.I. 627+28.42
Δ = 37°27'16"LT.
D = 1°30'00"
T = 1294.93'
L = 2496.96'
P.C. 614+33.50
P.T. 639+30.46
Ls= 350'
e = 0.054'/'

STA. 645+00 IN PLACE
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 84' R.C. PIPE CULV'T.
W/F.E.S. RT.
RETAIN

STA. 653+00 IN PLACE
TYPE RM DROP INLET IN GORE
4'-0" x 3'-0" x H= 3'-0"
24" x 72' R.C. PIPE CULV'T.
W/F.E.S. RT.
RETAIN

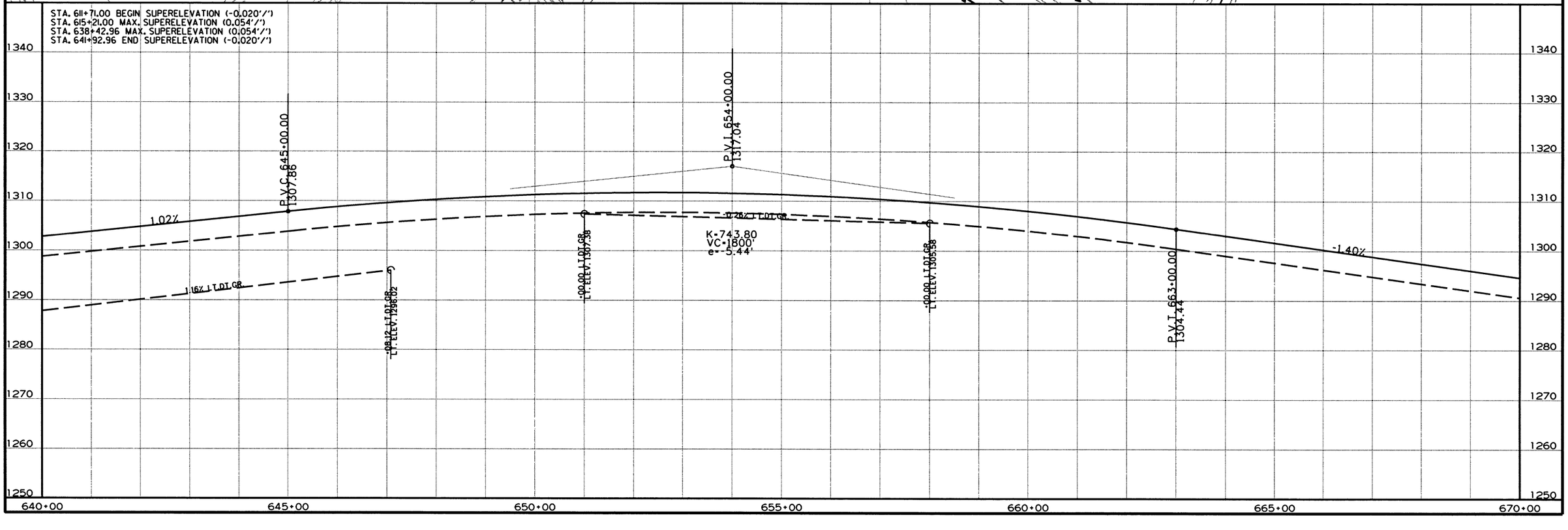
IMPACT ATTENUATION BARRIER (TYPE A)
STA. 666+04.09 C.L. MEDIAN HWY. 549 = 2 EA.
REMOVE

STA. 662+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 86' R.C. PIPE CULV'T.
W/F.E.S. RT.
RETAIN

STA. 669+29.04 BEGIN WRSF
STA. 669+89.04 BEGIN CONC. DITCH PAVING

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

STA. 611+71.00 BEGIN SUPERELEVATION (-0.020'/')
STA. 615+21.00 MAX. SUPERELEVATION (0.054'/')
STA. 638+42.96 MAX. SUPERELEVATION (0.054'/')
STA. 641+92.96 END SUPERELEVATION (-0.020'/')



9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	104	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-17

STA. 675+00 IN PLACE
42" x 174' R.C. PIPE CULV'T.
W/F.E.S. LT. & RT.
050=95 CFS., D.A.=24 AC.
RETAIN

STA. 672+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 86' R.C. PIPE CULV'T.
W/F.E.S. RT.
RETAIN

STA. 683+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 106' R.C. PIPE CULV'T.
W/F.E.S. RT.
RETAIN

C.L. MEDIAN
P.I. 688+11.17
Δ = 30°34'11.6"LT.
D = 1°30'00"
T = 1043.88'
L = 2037.99'
P.C. 677+67.29
P.T. 698+05.28
Ls = 350'
e = 0.054'/'

STA. 690+23.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-00"
24" x 86' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 694+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-00"
24" x 83' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 687+00.00
BEGIN PAVING

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

WRSF & CONC. DITCH PAVING

S 31°57'22" E

S 68°31'34" E

P.I. 698+05.28

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

STA. 675+04.79 BEGIN SUPERELEVATION (-0.020'/')
STA. 678+54.79 MAX. SUPERELEVATION (-0.054'/')
STA. 697+17.78 MAX. SUPERELEVATION (-0.054'/')
STA. 700+67.78 END SUPERELEVATION (-0.020'/')

-1.40%

P.V.C. 677+50.00
1284.14

P.V.I. 685+00.00
1273.64

P.V.T. 692+50.00
1275.51

0.25%

+23
TOP D.I. 1271.10

+00
TOP D.I. 1271.76

0.67% LT DT GR
F.L. D.I. 1268.10
F.L. OUTLET 1267.02 LT.

0.18% LT DT GR
F.L. D.I. 1268.76
F.L. OUTLET 1267.70 LT.

1.75% LT DT GR

+00.00 LT DT GR
LT ELEV. 1264.97

+24.00 LT DT GR
LT ELEV. 1267.64

+00.00 LT DT GR
LT ELEV. 1267.90

+00.00 LT DT GR
LT ELEV. 1271.23

1320 1310 1300 1290 1280 1270 1260 1250 1240 1230

670+00 675+00 680+00 685+00 690+00 695+00 700+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	105	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
9-29-17

STA. 704+62 IN PLACE
48" x 212' R.C. PIPE CULVERT
(15° RT. FWD. SKEW)
(CLASS V)(TYPE 3 BEDDING)
FES LT. & RT.
RETAIN AND EXTEND 82' LT.
FOR A COMPLETED LENGTH OF 346'
48" PIPE R.C. PIPE (CLASS V) = 184'
050 = 123 CFS, D.A. = 32 ACRES

STA. 705+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 104' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 711+94 CONSTRUCT
TYPE N3 DROP INLET
H= 3'-0"
WITH 12" x 88' C.M. PIPE CULVERT
WITH CONCRETE SPILLWAY (TYPE A)

STA. 715+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 82' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 715+32.71 IN PLACE
7' x 7' x 220' R.C. BOX CULVERT
ON 10° LT. FWD. SKEW
WITH WINGS LT. & RT.
RETAIN AND EXTEND 80' LT.
FOR A COMPLETED LENGTH OF 300'
050 = 646 CFS D.A. = 399 ACRES

STA. 725+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-2"
24" x 86' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 715+76 TO STA. 736+24
CONCRETE DITCH PAVING = 2469 SQ. YD.

STA. 712+37.87 BRIDGE END
BRIDGE NO. A7195 - CONSTRUCT
204'-0" CONT. COMP. W-BEAM (62'-80'-62')
40'-0" CLEAR ROADWAY
206'-3 1/8" BRIDGE LENGTH
STA. 714+44.13 BRIDGE END

STA. 713+55.70 CONSTRUCTION C.L. =
STA. 21+99.55 CO. RD. 35 C.L.
Δ = 7°52'33"

STA. 712+37.87
BR. END

STA. 714+44.13
BR. END

STA. 711+98.12

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

S 68°31'34" E

STA. 714+85.17

STA. 712+26.28
END WRSF AND
CONC. DITCH PAVING

STA. 717+28.07
BEGIN WRSF AND
CONC. DITCH PAVING

WRSF & CONC.
DITCH PAVING

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
714+46.98	717+15.73	L.M.L. - LT.	200 LIN. FT.	1EA.	1EA.
714+50.56	717+69.31	L.M.L. - RT.	250 LIN. FT.	1EA.	1EA.

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

TRIBUTARY TO SPAVINAW CREEK
STA. 715+00 TO STA. 715+40
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFID AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 1247.0 FT. MSL. SEE SUBSECTION 110.06(c) FOR THE STANDARD SPECIFICATIONS REGUARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN INTERMITTENT STREAM LIMITS.

STA. 712+37.87
BR. END

STA. 714+44.13
BR. END
0.25%

STA. 712+30.51
SLOPE INTERCEPT

STA. 714+51.49
SLOPE INTERCEPT

+00
TOP D.I. 1274.30
F.L. D.I. 1271.30
F.L. INLET 1263.93 LT.

+00
TOP D.I. 1276.80
F.L. D.I. 1273.80
F.L. OUTLET 1272.06 LT.

+00
TOP D.I. 1279.30
F.L. D.I. 1276.30
F.L. OUTLET 1275.44 LT.

0.27% LT.DT.GR

+62
F.L. INLET 1254.46 LT.
EXIST. F.L. INLET 1252.19 LT.
EXIST. F.L. OUTLET 1245.65 RT.

+33
F.L. INLET 1246.56 LT.
EXIST. F.L. INLET 1245.78 LT.
EXIST. F.L. OUTLET 1243.58 RT.

+00.00 LT.DT.GR
LT. ELEV. 1247.51

+74.00 LT.DT.GR
LT. ELEV. 1252.87

+74.00 LT.DT.GR
LT. ELEV. 1251.59

+64.00 LT.DT.GR
LT. ELEV. 1246.51

+73.00 LT.DT.GR
LT. ELEV. 1251.86

0.98% LT.DT.GR
1.79% LT.DT.GR
2.54% LT.DT.GR
3.25% LT.DT.GR

1320
1310
1300
1290
1280
1270
1260
1250
1240
1230

700+00
705+00
710+00
715+00
720+00
725+00
730+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	106	335

(2) PLAN AND PROFILE SHEETS

STA. 736+00.00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H= 3'-0" 24" x 86' R.C. PIPE CULVERT TO LT. (CLASS III) (TYPE 3 BEDDING) WITH FES LT.

STA. 742+00.00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H= 3'-0" 24" x 86' R.C. PIPE CULVERT TO LT. (CLASS III) (TYPE 3 BEDDING) WITH FES LT.

STA. 747+00.00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H= 3'-0" 24" x 84' R.C. PIPE CULVERT TO LT. (CLASS III) (TYPE 3 BEDDING) WITH FES LT.

C.L. MEDIAN
P.I. 752+64.15
Δ = 22°49'02.4"LT.
D = 1°30'00"
T = 770.79'
L = 1521.16'
P.C. 744+93.36
P.T. 760+14.52
Ls = 350'
e = 0.054'/'

STA. 753+35 IN PLACE 44" x 27" x 130' R.C. ARCH PIPE CULVERT (42° RT. FWD. SKEW) (CLASS III)(TYPE 3 BEDDING) FES LT. & RT. RETAIN AND EXTEND 114' LT. FOR A COMPLETED LENGTH OF 244' 44" X 27" PIPE R.C. PIPE (CLASS III) = 116' 050 = 60 CFS, D.A.= 16 ACRES

STA. 758+00.00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H= 3'-0" 24" x 84' R.C. PIPE CULVERT TO LT. (CLASS III) (TYPE 3 BEDDING) WITH FES LT.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER TRINITY D. SMITH N. 11425 9-28-17

EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS
WRSF & CONC. DITCH PAVING
EXISTING ROW & C OF A FENCE
N 88°39'24" E
S 68°31'34" E
PC 744+93.36
PT 760+14.52
PI 752+64.15

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

STA. 742+30.86 BEGIN SUPERELEVATION (+0.020'/')
STA. 745+80.86 MAX. SUPERELEVATION (-0.054'/')
STA. 759+27.02 MAX. SUPERELEVATION (-0.054'/')
STA. 762+77.02 END SUPERELEVATION (+0.020'/')

0.25%
P.V.C. 732+50.00
1285.50
K=2880.55
VC=1500'
e=0.98'
P.V.I. 740+00.00
1287.37
0.77%
P.V.T. 747+50.00
1293.15
0.27% LT.DT.GR.
0.47% LT.DT.GR.
0.72% LT.DT.GR.
1.32% LT.DT.GR.
0.88% LT.DT.GR.
0.42% LT.DT.GR.
1.52% LT.DT.GR.

+00 TOP D.I. 1282.25
F.L. D.I. 1279.25
F.L. OUTLET 1278.40 LT.
-00.00 LT.DT.GR. LT. ELEV. 1278.40

+00 TOP D.I. 1285.11
F.L. D.I. 1282.11
F.L. OUTLET 1281.25 LT.
-00.00 LT.DT.GR. LT. ELEV. 1281.25

+00 TOP D.I. 1288.64
F.L. D.I. 1285.64
F.L. OUTLET 1284.84 LT.
-00.00 LT.DT.GR. LT. ELEV. 1284.84

-00.00 LT.DT.GR. LT. ELEV. 1291.45
-52.12 LT.DT.GR. LT. ELEV. 1291.06
+35
F.L. INLET 1291.06 LT.
EXIST. F.L. INLET 1290.25 LT.
EXIST. F.L. OUTLET 1289.07 RT.

+00 TOP D.I. 1297.11
F.L. D.I. 1294.11
F.L. OUTLET 1293.31 LT.
-00.00 LT.DT.GR. LT. ELEV. 1293.31

1340 1330 1320 1310 1300 1290 1280 1270 1260 1250

730+00 735+00 740+00 745+00 750+00 755+00 760+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	107	335

(2) PLAN AND PROFILE SHEETS

STA. 768+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 90' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 768+91 IN PLACE
DBL. 42" x 238' R.C. PIPE CULVERT
(25° RT. FWD. SKEW)
(CLASS V) (TYPE 3 BEDDING)
FES LT. & RT.
RETAIN AND EXTEND 88' LT.
FOR A COMPLETED LENGTH OF 326'
42" R.C. PIPE CULVERT = 192 LIN. FT.
42" FES = 2 EACH

STA. 775+58 IN PLACE
5' x 5' x 290' R.C. BOX CULVERT
ON 10° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 78' LT.
FOR A COMPLETED LENGTH OF 371'
Q50 = 205 CFS D.A. = 73 ACRES

STA. 779+97 CONSTRUCT
TYPE N3 DROP INLET
H= 3'-0"
WITH 12" x 82' C.M. PIPE CULVERT
WITH CONCRETE SPILLWAY (TYPE A)

STA. 783+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H=3'-0"
24" x 82' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.

STA. 780+34.43 BRIDGE END
BRIDGE NO. A7196 - CONSTRUCT
205'-0" CONT. COMP. W-BEAM UNIT (55'-95'-55')
40'-0" CLEAR ROADWAY
207'-1¾" BRIDGE LENGTH
STA. 782+41.57 BRIDGE END

STA. 783+96 IN PLACE
DBL. 5' x 5' x 282' R.C. BOX CULVERT
ON 10° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 76' LT.
FOR A COMPLETED LENGTH OF 358'
Q50 = 325 CFS D.A. = 228 ACRES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
9-29-17

STA. 780+34.43
BR. END

STA. 779+97.93

STA. 780+10.17
END WRSF AND
CONC. DITCH PAVING

STA. 782+78.07

STA. 785+22.92
BEGIN WRSF AND
CONC. DITCH PAVING

STA. 782+41.57
BR. END

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

EXISTING C OF A FENCE

N 88°39'24" E

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
782+50.97	785+19.72	L.M.L. - LT.	200 LIN. FT.	1EA.	1EA.
782+50.97	785+69.72	L.M.L. - RT.	250 LIN. FT.	1EA.	1EA.

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

TRIBUTARY TO SPAVINAW CREEK
STA. 780+80 TO STA. 780+90
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFID AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 1278.0 FT. MSL. SEE SUBSECTION 110.06(c) FOR THE STANDARD SPECIFICATIONS REGUARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN INTERMITTENT STREAM LIMITS.

STA. 780+25.93
BR. END

STA. 782+41.57
BR. END

0.77%

+00
TOP D.I. 1304.61
F.L. D.I. 1301.61
F.L. OUTLET 1299.61 LT.

+00
TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.55 LT.

STA. 780+25.93
SLOPE INTERCEPT

STA. 782+50.07
SLOPE INTERCEPT

+00.00 LT. DT. GB
LT. ELEV. 1300.92

+91
F.L. INLET 1284.73 LT.
EXIST. F.L. INLET 1282.48 LT.
EXIST. F.L. OUTLET 1275.27 RT.

+58
F.L. INLET 1277.26 LT.
EXIST. F.L. INLET 1275.18 LT.
EXIST. F.L. OUTLET 1267.17 RT.

+96
F.L. INLET 1282.36 LT.
EXIST. F.L. INLET 1279.64 LT.
EXIST. F.L. OUTLET 1275.93 RT.

1340 1330 1320 1310 1300 1290 1280 1270 1260 1250

760+00 765+00 770+00 775+00 780+00 785+00 790+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	108	335

(2) PLAN AND PROFILE SHEETS

STA. 793+00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H= 3'-0" 24" x 86' R.C. PIPE CULVERT TO LT. (CLASS III) (TYPE 3 BEDDING) WITH FES LT.

STA. 801+00 IN PLACE TYPE RM DROP INLET IN MEDIAN W/24" X 96' R.C. PIPE OUTLET F.E.S. ON LT. RETAIN

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 1)	GUARDRAIL TERMINAL (TYPE 2)
818+03.11	823+03.11	R.M.L. - LT.	450 LIN. FT.	1EA.	1EA.
820+47.92	825+47.92	L.M.L. - RT.	450 LIN. FT.	1EA.	1EA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

300' TAPER
700' ACCELERATION LANE
EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS
STA. 799+00.00 END PAVING
WRSF & CONC. DITCH PAVING
EXISTING C OF A FENCE
EXISTING ROW
N 88°39'24" E
N 75°39'13" E
PI 804+62.15
PI 817+62.46
STA. 821+07.92 END WRSF
STA. 820+47.92 END CONC. DITCH PAVING

STA. 813+00 IN PLACE TYPE RM DROP INLET IN MEDIAN W/24" X 86' R.C. PIPE OUTLET F.E.S. ON LT. RETAIN

C.L. MEDIAN
P.I. 811+15.11
Δ = 13°00'11.4"LT.
D = 1°00'00"
T = 652.96'
L = 1300.32'
P.C. 804+62.15
P.T. 817+62.46
Ls = 350'
e = 0.037'/'

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

STA. 801+99.65 BEGIN SUPERELEVATION (-0.020'/')
STA. 805+49.65 MAX. SUPERELEVATION (-0.037'/')
STA. 816+74.96 MAX. SUPERELEVATION (-0.037'/')
STA. 820+24.96 END SUPERELEVATION (-0.020'/')

0.77%
0.46% LT.OT.GR.
1.67% LT.OT.GR.
+00 TOP D.I. 1323.87
F.L. D.I. 1320.87
F.L. OUTLET 1320.02 LT.
+00 (EXIST.) TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.
+00.00 LT.OT.GR. LT. ELEV. 1319.18
+00.00 LT.OT.GR. LT. ELEV. 1320.02
+00.00 LT.OT.GR. LT. ELEV. 1326.88
P.V.I. 800+00.00 1333.59
815+00.00 1345.15
K=1089.21
VC=3000'
e=-10.33'

1370 1360 1350 1340 1330 1320 1310 1300 1290 1280

790+00 795+00 800+00 805+00 810+00 815+00 820+00

9/28/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	109	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
11-3-17

IMPACT ATTENUATION BARRIER (TYPE A)
STA. 821+72.91 C.L. MEDIAN HWY. 549 = 2 EA.
REMOVE

STA. 820+50 IN PLACE
TYPE RM DROP INLET IN MEDIAN W/
24" X 86' R.C. PIPE OUTLET
F.E.S. ON LT.
RETAIN

CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)
STA. 821+50.66 RT. TO STA. 821+95.16 LT. C.L. MEDIAN HWY. 549 = 45 LIN. FT.
STA. 821+50.66 RT. TO STA. 821+95.16 RT. C.L. MEDIAN HWY. 549 = 45 LIN. FT.
RETAIN

STA. 823+23.13
BEGIN CONC.
DITCH PAVING

STA. 822+63.13
BEGIN WRSF

PN:900
PD:ARDOT DISK 549 BELLA VISTA

STA. 821+72.91 HWY. 549 C.L.
= STA. 115+49.99 HWY. 72 (SOUTH) C.L.
Δ=105°36'18"

STA. 829+03 IN PLACE
48" X 282' R.C. PIPE CULV'T. (CL V)
(17° LT. FWD. SKEW)
FES LT. & RT.
Q50=104cfs, D.A.=20Ac.
RETAIN

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

STA. 833+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 88' R.C. PIPE OUTLET (CL. III)
FES ON RT.
RETAIN

EXISTING ROW & C OF A FENCE

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
821+85	829+86	LT.	6'	548
822+50	828+59	RT.	6'	404

STA. 838+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 102' R.C. PIPE OUTLET (CL. III)
FES ON LT.
RETAIN

STA. 838+20 IN PLACE
DBL. 42" X 518' R.C. PIPE CULV'T. (CL. V)
(25° LT. FWD. SKEW)
FES LT. & RT.
Q50=1550cfs, D.A.=32Ac.
RETAIN

PI842

C.L. RAMP 3
PI = 847+79.60
Δ = 29°45'41" RT.
D = 1°28'39"
T = 1030.52'
L = 2014.48'
PC = 837+49.08
PT = 857+63.56
e = 0.000'/'
Ls = 000'

PN:1
PD:STD ARDOT MON. STAMPED PN:1 549

PN:2
PD:STD ARDOT MON. STAMPED PN:2 549

PN:901
PD:SQUARE CUT IN DI 549 BELLA VISTA

STA. 847+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 98' R.C. PIPE OUTLET (CL. III)
FES ON RT.
RETAIN

PROPOSED CONST. LIMITS

STA. 845+00.00
BEGIN PAVING

PN:3
PD:STD ARDOT MON. STAMPED PN:3 5

C.L. MEDIAN
PI = 842+88.35
Δ = 45°58'59" RT.
D = 1°30'00"
T = 1620.71'
L = 3065.54'
PC = 826+67.64
PT = 857+33.18
Ls = 350'
e = 0.054'/'

STA. 842+27 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 100' R.C. PIPE OUTLET (CL. III)
FES ON RT.
RETAIN

STA. 842+84 IN PLACE
DBL. 42" X 432' R.C. PIPE CULV'T. (CL. V)
(17° RT. FWD. SKEW)
FES LT. & RT.
Q50=176cfs, D.A.=40Ac.
RETAIN

STA. 824+05.14 BEGIN SUPERELEVATION L.M.L. (-0.020'/')
STA. 827+55.14 MAX. SUPERELEVATION L.M.L. (0.054'/')
STA. 856+45.68 MAX. SUPERELEVATION L.M.L. (0.054'/')
STA. 859+95.68 END SUPERELEVATION L.M.L. (-0.020'/')

+00 (EXIST.) TOP D.I. 1316.17
-0.80% LT.DT.GR.
-1.03% LT.DT.GR.
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.
-50.00 LT.DT.GR. LT. ELEV. 1321.91
-65.00 LT.DT.GR. LT. ELEV. 1316.87

K=1089.21
VC=3000'
e=-10.33'

-1.98%

+03 (EXISTING)
-3.36% LT.DT.GR.
2.06% LT.DT.GR.
F.L. INLET 1294.79
F.L. OUTLET 1290.96
-87.00 LT.DT.GR. LT. ELEV. 1299.34
-42.83 LT.DT.GR. LT. ELEV. 1290.75
-11.00 LT.DT.GR. LT. ELEV. 1292.15

P.V.R.C. 830+00.00
1333.59

+00 (EXIST.) TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.

K=618.73
VC=2000'
e=8.08'

P.V.I. 840+00.00
1295.55

+00 (EXIST.) TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.

+00 (EXIST.) TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.

+00 (EXIST.) TOP D.I. 1316.17
F.L. D.I. 1313.17
F.L. OUTLET 1311.37 LT.

P.V.R.C. 850+00.00
1308.04

+20 (EXISTING)
-4.40% LT.DT.GR.
F.L. INLET 1271.96
F.L. OUTLET 1250.67
-94.55 LT.DT.GR. LT. ELEV. 1276.57
-20.00 LT.DT.GR. LT. ELEV. 1251.88

+84 (EXISTING)
F.L. INLET 1263.68
F.L. OUTLET 1249.27

1330 1320 1310 1300 1290 1280 1270 1260 1250 1240

820+00 825+00 830+00 835+00 840+00 845+00 850+00

11/3/2017
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	110	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
11-3-17

STA. 851+11 IN PLACE
48" X 296' R.C. PIPE CULV'T.
(33° RT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT. AND EXTEND
118' LT. WITH FES
AND CONCRETE COLLAR
TO A COMPLETETED LENGTH OF 414'
(CLASS V PIPE)(TYPE 2 BEDDING)
050=127cfs, D.A.=28Ac.
48" R.C. PIPE=120 LIN. FT.
48" FES=1 EACH

C.L. RAMP 3
PI = 847+79.60
Δ = 29°45'41" RT.
D = 1°28'39"
T = 1030.52'
L = 2014.48'
PC = 837+49.08
PT = 857+63.56
e = 0.000'/'
Ls = 000'

STA. 861+30 IN PLACE
DBL. 42" X 568' R.C. PIPE CULV'T.
(CLASS SPECIAL)
(22° RT. FWD. SKEW)
FES LT. & RT.
050=173cfs, D.A.=37Ac.
RETAIN

STA. 865+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 152' R.C. PIPE OUTLET
F.E.S. ON LT.
RETAIN

STA. 871+61.60 IN PLACE
TYPE RM DROP INLET 121.39' LT.
W/30" X 242' R.C. PIPE INLET (CL. V)
(10° RT. FWD SKEW)
42" X 132' R.C. STUB INLET (CL. III)
54" X 162' R.C. PIPE OUTLET CL. V)
F.E.S. ON INLETS AND OUTLET
050=23cfs, D.A.=9Ac.
RETAIN

STA. 877+23 IN PLACE
42" X 160' R.C. PIPE CULV'T.
(49° RT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT. AND EXTEND
140' LT. WITH FES
WITH CONCRETE COLLAR
TO A COMPLETED LENGTH OF 300'
(CLASS III PIPE)(TYPE 3 BEDDING)
050=91cfs, D.A.=24Ac.
42" R.C. PIPE=142 LIN. FT.
42" FES=1 EACH

EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS

PI NO.4 POST'D ARDOT MON. STAMPED PK# 549

PI NO.5 POST'D ARDOT MON. STAMPED PK# 549

PI NO.6 POST'D ARDOT MON. STAMPED PK# 549

PI NO.902 POST'D SQUARE CUT IN CU S END OF E 549

PI NO.903 POST'D SQUARE CUT IN CU S/A BEG. EL. 549

STA. 869+00.00 CL MEDIAN
END L.M.L. GRADING

STA. 874+99.99 CL MEDIAN
BEGIN L.M.L. GRADING

STA. 878+45.81
END CONC. DITCH PAVING

STA. 878+95.81
END WRSF

STA. 880+00.00 CL MEDIAN
END L.M.L. GRADING

C.L. MEDIAN
PI = 842+88.35
Δ = 45°58'59" RT.
D = 1°30'00"
T = 1620.71'
L = 3065.54'
PC = 826+67.64
PT = 857+33.18
Ls = 350'
e = 0.054'/'

PT 857+33.18

STA. 856+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 88' R.C. PIPE OUTLET (CL. III)
FES ON RT.
RETAIN

IMPACT ATTENUATION BARRIER (TYPE A)
STA. 882+03.91 C.L. MEDIAN HWY. 549 = 1 EACH
STA. 882+13.91 C.L. MEDIAN HWY. 549 = 1 EACH
RETAIN

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

STA. 824+05.14 BEGIN SUPERELEVATION L.M.L. (-0.020'/')
STA. 827+55.14 MAX. SUPERELEVATION L.M.L. (0.054'/')
STA. 856+45.68 MAX. SUPERELEVATION L.M.L. (0.054'/')
STA. 859+95.68 END SUPERELEVATION L.M.L. (-0.020'/')

P.V.T. 850+00.00
1308.04

+00 (EXIST.)
TOP D.I. 1311.75
F.L. D.I. 1308.75 (EXIST.)
F.L. OUTLET 1307.69 RT. (EXIST.)

1.25%

+11
F.L. INLET RT. 1278.93 (EXISTING)
F.L. OUTLET LT. 1268.80 (EXISTING)
F.L. OUTLET LT. 1264.13

+30 (EXISTING)
F.L. INLET RT. 1272.67
F.L. OUTLET LT. 1253.38 (EXIST.)

P.V.C. 866+75.00
1328.95

+00 (EXIST.)
TOP D.I. 1322.44
F.L. D.I. 1319.44 (EXIST.)
F.L. OUTLET 1315.54 LT. (EXIST.)

K=815.75
VC=2650'
e=-10.76'

+23
F.L. INLET RT. 1324.92 (EXIST.)
F.L. OUTLET LT. 1322.72 (EXIST.)
F.L. OUTLET LT. 1321.45

P.V.T. 880+00.00
1345.49

1350 1340 1330 1320 1310 1300 1290 1280 1270 1260

850+00 855+00 860+00 865+00 870+00 875+00 880+00

11/1/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	111	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

STA. 881+25 IN PLACE
TYPE 'RM' DROP INLET IN MEDIAN
W/24" X 86' R.C. PIPE OUTLET (CL. III)
F.E.S. ON RT.
RETAIN

STA. 895+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 88' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
FES ON LT.

STA. 882+08.91 HWY. 549 C.L.
= STA. 105+49.95 CO. RD. 453 C.L.
Δ =118°23'06"

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
878+45.81	883+45.81	R.M.L. - LT.	450 LIN. FT.	1 EA.	1 EA.
880+72.03	885+72.03	L.M.L. - RT.	450 LIN. FT.	1 EA.	1 EA.

STA. 895+55 IN PLACE
48" X 336' R.C. PIPE CULV'T.
FES LT. & RT.
REMOVE FES LT. AND EXTEND 106'
WITH CONCRETE COLLAR
TO A COMPLETED LENGTH OF 442'
(CLASS SPECIAL)(TYPE 1 BEDDING)
Q50=98cfs, D.A.=27Ac.
48" R.C. PIPE=108 LIN. FT.
48" FES=1 EACH

STA. 904+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 905+13 IN PLACE
6' X 5' X 420' R.C. BOX CULV'T
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 92' LT.
TO A COMPLETED LENGTH OF 512'
Q50=260cfs, D.A.=75Ac.

EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS
ROCK DITCH LINER
1822 TONS
PN#8 PDISTD ARDOT MON. STAMPED PN#549
STA. 885+22.03 BEGIN WRSF
STA. 885+72.03 BEGIN CONC. DITCH PAVING
PROPOSED CONST. LIMITS
PN#903 PDISK IN SE CRNER OF BR. OVER 453
S 58°21'48" E
S 52°45'42" E
PN#904 PDISK IN SE CRNER OF BR. OVER 453
PN#7 PDISTD ARDOT MON. STAMPED PN#549
STA. 883+00.00 CL MEDIAN BEGIN L.M.L. GRADING
SURVEY BASELINE S 66°46'58" E
521.15
PN#6 PDISTD ARDOT MON. STAMPED PN#549
SURVEY BASELINE S 58°21'09" E
895.09'
PN#10 PDISTD ARDOT MON. STAMPED PN#549
PN#905 PDISQUARE CUT IN CU 549 BELLE VISTA
SURVEY BASELINE S 58°17'21" E
933.42'
PN#9 PDISTD ARDOT MON. STAMPED PN#549
SURVEY BAS
WIRE ROPE SAFETY FENCE AND CONC. DITCH PAVING
EXISTING ROW & C OF A FENCE
IMPACT ATTENUATION BARRIER (TYPE A)
STA. 882+08.91 C.L. MEDIAN HWY. 549 = 2 EA.
REMOVE
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

TRIBUTARY TO TANYARD CREEK - FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 1240.0FT. MSL. SEE SUBSECTION 110.06(c) FOR THE STANDARD SPECIFICATIONS REGUARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN INTERMITTENT STREAM LIMITS.

P.V.T. 880+00.00
1345.49
+25 (EXIST.)
TOP D.I. 1330.20
F.L. D.I. 1326.70
F.L. OUTLET 1326.25 RT.

K=815.75
VC=2650'
e=-10.76'
P.V.T. 893+25.00
1318.99
+00
TOP D.I. 1311.16
-2.00%
F.L. D.I. 1308.16
F.L. OUTLET 1306.05 LT.
+55
F.L. INLET 1274.85 RT. (EXISTING)
F.L. OUTLET LT. 1252.78 (EXISTING)
F.L. OUTLET LT. 1244.52
-60.00 LT DI GR
LT. ELEV. 1252.88
-4.29% LT DI GR
-60.28 LT DI GR
LT. ELEV. 1240.00
-2.68% LT DI GR
-80.00 LT DI GR
LT. ELEV. 1231.43

+00
TOP D.I. 1293.16
-2.00%
F.L. D.I. 1290.16
F.L. OUTLET 1288.23 LT.
TRIBUTARY TO TANYARD CREEK - FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 1218.0FT. MSL. SEE SUBSECTION 110.06(c) FOR THE STANDARD SPECIFICATIONS REGUARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN INTERMITTENT STREAM LIMITS.
+13
F.L. INLET RT. 1235.95 (EXISTING)
F.L. OUTLET LT. 1223.71 (EXISTING)
F.L. OUTLET LT. 1221.00

880+00 885+00 890+00 892+00 895+00 900+00 905+00 910+00

R090508.DGN 11/1/2017

STA. 914+25 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 88' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 915+65 IN PLACE
DBL. 6' X 5' X 477' R.C. BOX CULV'T
(32° LT. FWD. SKEW)
WITH 3H WINGS LT. & RT.
RETAIN AND EXTEND 97' LT.
TO A COMPLETED LENGTH OF 574'
Q50=560cfs, D.A.=168Ac.

STA. 922+91 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 86' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 926+70 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 82' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 928+30.32 CONSTRUCT
TYPE N3 DROP INLET
H= 3'-0"
WITH 12" x 50' C.M. PIPE CULVERT
WITH CONCRETE SPILLWAY (TYPE A)

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE I)	GUARDRAIL TERMINAL (TYPE 2)
927+09.31	928+53.06	L.M.L. - LT.	125 LIN. FT.	1 EA.	1 EA.	1 EA.
934+39.44	937+33.19	L.M.L. - LT.	225 LIN. FT.	1 EA.		1 EA.
934+67.39	937+86.14	L.M.L. - RT.	250 LIN. FT.	1 EA.		

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	112	335

(2) PLAN AND PROFILE SHEETS

STA. 935+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 80' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS
S 58°21'48" E
PC 917+75.67
STA. 928+78.65 BR. END
STA. 930+84.05 HWY. 549 C.L. = STA. 16+08.12 BECKET C.L. Δ=127°02'16"
STA. 934+36.35 BR. END
STA. 937+40.00 CL MEDIAN BEGIN L.M.L. GRADING
STA. 937+37.14 BEGIN WRSF AND CONC. DITCH PAVING
STA. 934+79.38
STA. 928+44.00
STA. 928+84.30 END WRSF AND CONC. DITCH PAVING
PN2 PD/STD ARDOT MON. STAMPED PN2 549
PN3 PD/STD ARDOT MON. STAMPED PN3 549
PN4 PD/STD ARDOT MON. STAMPED PN4 549
PN5 PD/STD ARDOT MON. STAMPED PN5 549
PN906 PD/SQUARE CUT IN CNTER HW 549
PN907 PD/ARDOT DISK IN BR WALL 549 BELLA VISTA
PN908 PD/SQUARE CUT IN BR ABUT 549 BELLA VISTA
STA. 928+78.65 BRIDGE END
BRIDGE NO. A7274 - CONSTRUCT
210'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (105'-105')
345'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (115'-115'-115')
557'- 8⅜" BRIDGE LENGTH
STA. 934+47.35 BRIDGE END
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

C.L. MAINTAIN EXISTING ROW & C OF A FENCE.
PI = 929+76.70
Δ = 23°40' 40.3" LT.
D = 1°00' 00"
T = 1201.03'
L = 2367.79'
PC = 917+75.67
PT = 941+43.45
Ls = 350'
e = 0.037'/'

STA. 915+13.17 BEGIN SUPERELEVATION L.M.L. (-0.020'/')
STA. 918+63.17 MAX. SUPERELEVATION L.M.L. (-0.037'/')
STA. 940+55.95 MAX. SUPERELEVATION L.M.L. (-0.037'/')
STA. 944+05.95 END SUPERELEVATION L.M.L. (-0.020'/')

TANYARD CREEK - FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 1208.0

-2.00%
+25 TOP D.I. 1272.87
F.L. D.I. 1269.87
F.L. OUTLET LT. 1267.97
P.V.C. 919+68.64 1266.12
+91 TOP D.I. 1257.04
F.L. D.I. 1254.04
F.L. OUTLET 1252.18 LT.
+70.00 LT DT GR LT. ELEV. 1250.93
+81.00 LT DT GR LT. ELEV. 1242.79
2.95% LT DT GR
2.15% LT DT GR
+70 TOP D.I. 1255.41
F.L. D.I. 1252.41
F.L. OUTLET 1250.93 LT.
+43.00 LT DT GR LT. ELEV. 1253.08
K=350.91
VC=1930'
e=13.27'
P.V.I. 929+33.64 1246.82
STA. 928+67.65 SLOPE INTERCEPT
STA. 928+78.65 BR. END
STA. 934+36.35 BR. END
STA. 934+47.35 SLOPE INTERCEPT
+00 TOP D.I. 1265.49
F.L. D.I. 1262.49
F.L. OUTLET 1260.74 LT.
P.V.T. 938+98.64 1280.50
P.V.C. 939+75.00 1283.27
3.50%
K=554.53
VC=3050'
e=-20.97'
+65
F.L. INLET RT. 1216.59 (EXISTING)
F.L. OUTLET LT. 1208.31 (EXISTING)
F.L. OUTLET LT. 1206.65

1290 1280 1270 1260 1250 1240 1230 1220 1210 1200
910+00 915+00 920+00 925+00 930+00 935+00 940+00

11/3/2017
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	113	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
11-3-17

STA. 943+00 CONSTRUCT TYPE RM DROP INLET IN MEDIAN 4'-0" X 3'-0" X H=3'-0" W/24" X 88' R.C. PIPE OUTLET (CLASS III PIPE)(TYPE 3 BEDDING) WITH FES ON LT.

PROPOSED CONST. LIMITS

EXISTING ROW & C OF A FENCE

PI 941+43.45

STA. 941+80.00 CL MEDIAN BEGIN L.M.L. GRADING

PNI5 549

PNI6 PD:STD ARDOT MON. STAMPED PNI6 549

S 82°02'29" E

STA. 954+13.67 END CONC. DITCH PAVING

STA. 954+73.67 END WRSF

STA. 954+00.00 CL MEDIAN BEGIN L.M.L. GRADING

IMPACT ATTENUATION BARRIER (TYPE A)
STA. 955+44.02 C.L. MEDIAN HWY. 549 = 1 EACH
STA. 955+54.02 C.L. MEDIAN HWY. 549 = 1 EACH
REMOVE

IMPACT ATTENUATION BARRIER (TYPE A)
STA. 955+49.01 C.L. MEDIAN HWY. 549 = 2 EA.
REMOVE

STA. 955+49.01 HWY. 549 C.L. = STA. 18+23.35 CO. RD. 49 C.L.
Δ=94°21'31"

C.L. MEDIAN
PI = 970+04.24
Δ = 7°39'23.7" LT.
D = 0°30'00"
T = 766.80'
L = 1531.32'
PC = 962+37.44
PT = 977+68.75
NO SUPERELEVATION

PI 962+37.44

PNI8 PD:STD ARDOT MON. STAMPED PNI8 549

STA. 957+00.00 CL MEDIAN BEGIN L.M.L. GRADING

EXISTING ROW & C OF A FENCE

PROPOSED CONST. LIMITS

PNI10 PD:DISK IN FS CRNER BR CR49 549

STA. 958+73.67 BEGIN WRSF

PNI7 PD:STD ARDOT MON. STAMPED PNI7

STA. 958+82.03 END CONC. DITCH PAVING

PNI9 PD:STD ARDOT MON. STAMPED PNI9 549

EXISTING ROW & C OF A FENCE

PI 970+08.24

STA. 956+50 IN PLACE TYPE RM DROP INLET IN MEDIAN W/24" X 150' R.C. PIPE OUTLET (55° LT. FWD. SKEW) FES ON RT. RETAIN

STA. 970+00 IN PLACE TYPE RM DROP INLET IN MEDIAN W/24" X 88' R.C. PIPE OUTLET FES ON RT. RETAIN

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
951+73.67	956+73.67	R.M.L. - LT.	450 LIN. FT.	1EA.	1EA.
954+23.67	959+23.67	L.M.L. - RT.	450 LIN. FT.	1EA.	1EA.

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

P.V.I. 955+00.00
1336.64

+00 (EXIST.)
TOP D.I. 1289.62
F.L. D.I. 1286.62
F.L. OUTLET 1284.74 LT.

+50 (EXIST.)
TOP D.I. 1289.62
F.L. D.I. 1286.62
F.L. OUTLET 1284.74 LT.

+00 (EXIST.)
TOP D.I. 1302.30
F.L. D.I. 1299.17
F.L. OUTLET 1298.30

3.50%

2.73% LT DI GR

+00.00 LT DI GR
LT. ELEV. 1291.17

+30.00 LT DI GR
LT. ELEV. 1289.44

1340 1330 1320 1310 1300 1290 1280 1270 1260 1250

940+00 945+00 950+00 955+00 960+00 965+00 970+00

11/1/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11/01/17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	090508		114	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
11-3-17

STA.972+68 IN PLACE
DBL. 42" X 300' R.C. PIPE CULV'T. (CL. V)
(35° LT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT. AND EXTEND
124' WITH FES
WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 424'
(CLASS V PIPE)(TYPE 2 BEDDING)
Q50=150cfs, D.A.=37Ac.
42" R.C. PIPE=252 LIN. FT.
42" FES=2 EACH

STA. 976+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 984+00 IN PLACE
DBL. 5' X 5' X 525' R.C. BOX CULV'T
(45° RT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 111' LT.
TO A COMPLETED LENGTH OF 636'
Q50=450cfs, D.A.=129Ac.

STA. 980+50 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 984+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 989+84 IN PLACE
48" X 482' R.C. PIPE CULV'T.
(9° RT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT AND EXTEND
78' LT WITH FES
WITH CONCRETE COLLAR
TO A COMPLETED LENGTH OF 560'
(CLASS SPECIAL)(USE TYPE 1 BEDDING)
Q50=125cfs, D.A.=25Ac.
48" R.C. PIPE=80 LIN. FT.
48" FES=1 EACH

STA. 990+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

STA. 993+98 IN PLACE
5' X 5' X 529' R.C. BOX CULV'T.
(6° 43' LT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 77' LT.
TO A COMPLETED LENGTH OF 606'
Q50=224cfs, D.A.=48Ac.

STA. 998+81.42 CONSTRUCT
TYPE N3 DROP INLET
H= 3'-0"
WITH 12" X 46' C.M. PIPE CULVERT
WITH CONCRETE SPILLWAY (TYPE A)

STA. 999+21.84 BRIDGE END CONSTRUCT
BRIDGE NO. A7276
186'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(54'-78'-54')
188'-3⅞" BRIDGE LENGTH
STA. 1001+10.16 BRIDGE END

PROPOSED CONST. LIMITS

EXISTING ROW & C OF A FENCE

EXISTING ROW & C OF A FENCE

PI970+04.24

S 89°41'52" E

PN:20 PD:STD ARDOT MON. STAMPED PN:20 549

PN:911 PD:SQUARE CUT IN E CU 549 BELLA VISTA

PT977+68.75

PN:21 PD:STD ARDOT MON. STAMPED PN:21 549

PN:912 PD:SQUARE CUT CNTER HW 549 BELLA VISTA

PC987+11.80

STA. 987+00.00
END WRSF

CROSSOVER
PI = 989+16.78
Δ = 8°11'07" RT.
D = 2°00'00"
T = 204.98'
L = 409.26'
PC = 987+11.80
PT = 991+21.06
NO SUPERELEVATION

PN:22 PD:STD ARDOT MON. STAMPED PN:22 549

PT991+21.06

PC993+00.14

CROSSOVER
PI = 995+05.32
Δ = 8°11'35" RT.
D = 2°00'00"
T = 205.18'
L = 409.65'
PC = 993+00.14
PT = 997+09.79
NO SUPERELEVATION

PT997+09.79

STA. 999+21.84
BR. END

STA. 998+84.79

S 89°41'52" E

PN:23 PD:STD ARDOT MON. STAMPED PN:23 549

PN:913 PD:SQUARE CU

PN:25 PD:STD A

STA. 1000+34.50 HWY. 549 C.L.
= STA. 21+96.73 CO. RD. 39 C.L.
Δ=113°50'06"

C.L. MEDIAN
PI = 970+04.24
Δ = 7°39'23.7" LT.
D = 0°30'00"
T = 766.80'
L = 1531.32'
PC = 962+37.44
PT = 977+68.75
NO SUPERELEVATION

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

N

TRIBUTARY TO MCKISIC CREEK - FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 1246.0

TRIBUTARY TO MCKISIC CREEK - FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 1237.0

K=554.53
VC=3050'
e=-20.97'

-2.00%

P.V.T. 970+25.00
1306.14

P.V.C. 976+00.00
1294.64

+00
TOP D.I. 1290.31

F.L. D.I. 1287.31
F.L. OUTLET 1285.38 LT.

K=225.34
VC=800'
e=3.55'

+50
TOP D.I. 1285.80

F.L. D.I. 1282.80
F.L. OUTLET 1280.87 LT.

P.V.T. 980+00.00
1286.64

P.V.T. 984+00.00
1292.84

+00
TOP D.I. 1288.51

F.L. D.I. 1285.51
F.L. OUTLET 1283.60 LT.

1.55%

+00
TOP D.I. 1297.81

F.L. D.I. 1294.81
F.L. OUTLET 1292.90 LT.

P.V.C. 995+00.00
1309.89

K=396.04
VC=2000'
e=-12.63'

STA. 999+12.54
SLOPE INTERCEPT

STA. 999+21.84
BR. END

+68

F.L. INLET RT. 1271.50 (EXISTING)
F.L. OUTLET LT. 1262.00 (EXISTING)
F.L. OUTLET LT. 1257.73

+47.00 LT DT GR
LT. ELEV. 1258.83

-2.08% LT DT GR

-37.04 LT DT GR
LT. ELEV. 1241.18

4.53% LT DT GR

+00

+20.00 LT DT GR
LT. ELEV. 1251.25

F.L. INLET LT. 1241.16
F.L. INLET RT. 1239.48 (EXISTING)
F.L. OUTLET RT. 1232.54 (EXISTING)

+84

F.L. INLET LT. 1240.11
F.L. INLET LT. 1236.69 (EXISTING)
F.L. OUTLET RT. 1219.57 (EXISTING)

+98

F.L. INLET LT. 1236.30
F.L. INLET LT. 1235.30 (EXISTING)
F.L. OUTLET RT. 1217.46 (EXISTING)

1310 1300 1290 1280 1270 1260 1250 1240 1230 1220

970+00 975+00 980+00 985+00 990+00 995+00 1000+00

11/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	115	335

(2) PLAN AND PROFILE SHEETS

STA. 1002+51.11N PLACE
36" X 314' R.C. PIPE CULV'T.
(10° LT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT. AND EXTEND
70' LT. WITH FES
WITH CONCRETE COLLAR
TO A COMPLETE LENGTH OF 384'
(CLASS V PIPE(TYPE I BEDDING)
Q50=35cfs, D.A.=9Ac.
36" R.C. PIPE=325 LIN. FT.
36" FES=1 EACH

C.L. MEDIAN
STA. 1016+32 IN PLACE
36" X 542' R.C. PIPE OUTLET
(45° RT. FWD. SKEW)
FES LT. & RT.
REMOVE FES LT. AND EXTEND
84' LT. WITH FES
WITH CONCRETE COLLAR
TO A COMPLETED LENGTH OF 626'
(CLASS SPECIAL PIPE(TYPE I BEDDING)
Q50=55cfs, D.A.=14Ac.
36" R.C. PIPE=86 LIN. FT.
36" FES=1 EACH

C.L. L.M.L.
PI = 1021+70.57
Δ = 14°50' 13" LT.
D = 0°45' 00"
T = 994.70'
L = 1978.27'
PC = 1011+75.87
PT = 1031+54.14
Ls = 350'
e = 0.028'/'

C.L. MEDIAN
PT = 1021+01.84
Δ = 14°50' 13" LT.
D = 0°45' 00"
T = 994.70'
L = 1978.27'
PC = 1011+07.14
PT = 1030+85.41

C.L. R.M.L.
PI = 1020+33.11
Δ = 14°50' 13" LT.
D = 0°45' 00"
T = 994.70'
L = 1978.27'
PC = 1010+38.41
PT = 1030+16.68
Ls = 350'
e = 0.028'/'

C.L. MEDIAN
STA. 1020+90.70 IN PLACE
TYPE ST DROP INLET 6'-11" LT. OF C.L. MEDIAN
W/24" X 140' R.C. PIPE INLET
(10° RT. FWD. SKEW)
24" X 210' R.C. PIPE OUTLET
(10° RT. FWD. SKEW) WITH
FES LT. & RT.
Q50=13cfs, D.A.=3Ac.
RETAIN

C.L. MEDIAN
STA. 1030+01 IN PLACE
DBL. 6' X 5' X 517' R.C. BOX CULV'T.
(26° 17' RT. FWD. SKEW)
Q50=490cfs, D.A.=168Ac.
RETAIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-3-17

PROPOSED CONST. LIMITS
EXISTING ROW & C OF A FENCE
PROPOSED CONST. LIMITS
EXISTING ROW & C OF A FENCE

STA. 1001+10.16
BR. END

S.89°41'52" E.

STA. 1001+49.26

STA. 1000+34.50 HWY. 549 C.L.
= STA. 21+96.73 CO. RD. 39 C.L.
Δ=113°50'06"

PN:25 PD:STD ARDOT MON. STAMPED PN:25 549
PN:98 PD:SQUARE CUT ON NE CRNR BR 549
PN:26 PD:STD ARDOT MON. STAMPED PN:26 549
PN:24 PD:STD ARDOT MON. STAMPED PN:24 549
PN:27 PD:STD ARDOT MON. STAMPED PN:27 549
PN:94 PD:SQUARE CUT IN DI 41.0' N OF CL 549
PN:28 PD:STD ARDOT MON. STAMPED PN:28 549

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
1001+11.50	1003+80.25	L.M.L. - LT.	200 LIN. FT.	1 EA.	1 EA.
1001+29.29	1004+23.04	L.M.L. - RT.	225 LIN. FT.	1 EA.	1 EA.

STA. 1006+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 90' R.C. PIPE OUTLET WITH
FES ON RT.
RETAIN

S6
109* STA. 999+21.84 BRIDGE END
BRIDGE NO. A7276 - CONSTRUCT
186'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(54'-78'-54')
188'- 3"8" BRIDGE LENGTH
STA. 1001+10.16 BRIDGE END

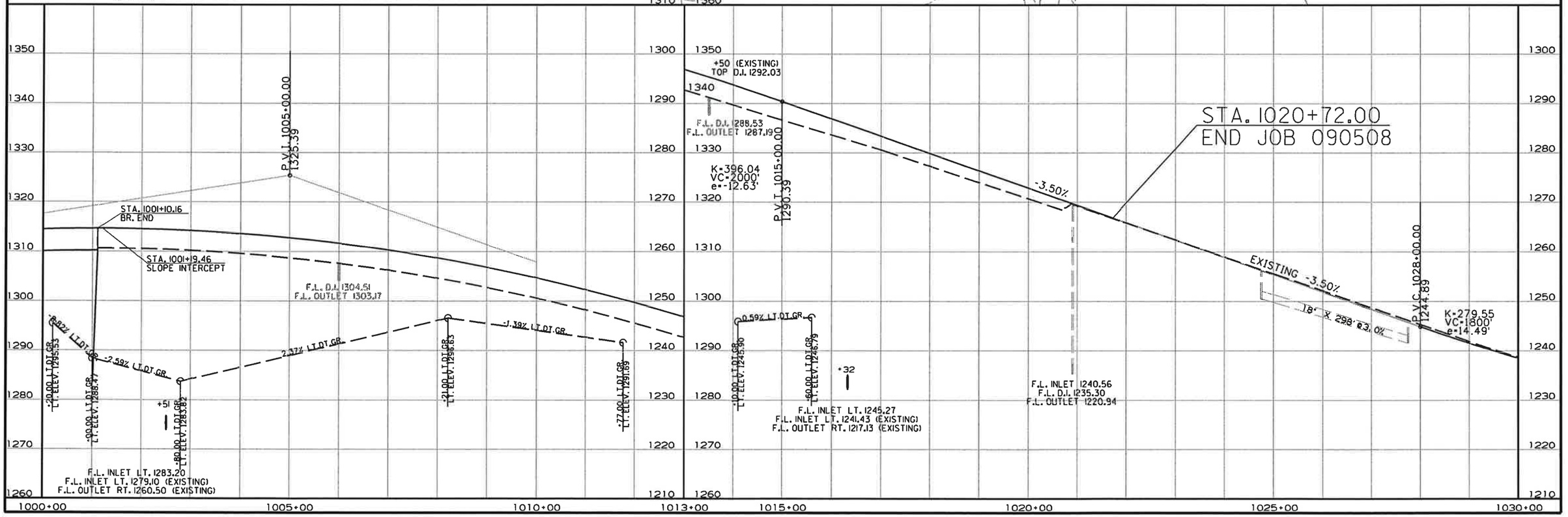
C.L. MEDIAN
STA. 1013+50 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/24" X 90' R.C. PIPE OUTLET WITH
FES ON RT.
RETAIN

STA. 1020+72.00
END JOB 090508

C.L. MEDIAN
STA. 1024+75 CONSTRUCT
TYPE ST DROP INLET 3'-3" LT. C.L. MEDIAN
W/18" X 298' R.C. PIPE OUTLET (CL. III)
TO D.I. STA. 1027+75
RETAIN

C.L. MEDIAN
STA. 1027+75 IN PLACE
TYPE ST DROP INLET 0'-3" LT. C.L. MEDIAN
W/24" X 68' R.C. PIPE OUTLET (CL. III)
FES ON RT.
RETAIN

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



11/3/2017
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	116	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

P.V.I. 1010+38.41 C.L. L.M.L. = 1010+38.41 C.L. MEDIAN ELEV. 1303.86

P.V.C. 1010+38.74 ELEV. 1303.85

-2.33%

P.V.I. 1012+68.74 ELEV. 1298.48

K=394.51
VC=460'
e=-0.67'

P.V.T. 1014+98.74 ELEV. 1290.43

-3.50%

STA. 1009+13.37 BEGIN SUPERELEVATION L.M.L. (-0.020'/')
STA. 1012+63.37 MAX. SUPERELEVATION L.M.L. (-0.028'/')
STA. 1030+66.64 MAX SUPERELEVATION L.M.L. (-0.028'/')
STA. 1034+16.64 END SUPERELEVATION L.M.L. (-0.020'/')

STA. 1020+72.00
END JOB 090298

P.V.C. 1028+39.68 ELEV. 1243.50

-3.50%

K=257.14
VC=575'
e=1.61'

P.V.I. 1031+27.18 ELEV. 1233.44

P.V.T. 1034+14.68 ELEV. 1229.81

-1.26%

P.V.I. 1034+16.64 C.L. L.M.L. = 1034+25.11 C.L. MEDIAN ELEV. 1229.78

HWY. 549 - L.M.L.

P.V.I. 1010+38.41 C.L. R.M.L. = 1010+38.41 C.L. MEDIAN ELEV. 1303.86

P.V.C. 1010+38.74 ELEV. 1303.85

-2.33%

P.V.I. 1012+68.74 ELEV. 1298.48

K=419.71
VC=460'
e=-0.63'

P.V.T. 1014+98.74 ELEV. 1290.60

-3.43%

STA. 1007+75.91 BEGIN SUPERELEVATION R.M.L. (-0.020'/')
STA. 1011+25.91 MAX. SUPERELEVATION R.M.L. (0.028'/')
STA. 1029+29.18 MAX SUPERELEVATION R.M.L. (0.028'/')
STA. 1032+79.18 END SUPERELEVATION R.M.L. (-0.020'/')

P.V.C. 1029+22.36 ELEV. 1241.76

-3.43%

K=235.45
VC=510'
e=1.38'

P.V.I. 1031+77.36 ELEV. 1233.02

P.V.T. 1034+32.36 ELEV. 1229.80

-1.26%

P.V.I. 1034+33.57 C.L. R.M.L. = 1034+25.11 C.L. MEDIAN ELEV. 1229.78

(FOR INFORMATION ONLY)
HWY. 549 - R.M.L.

9/28/2017

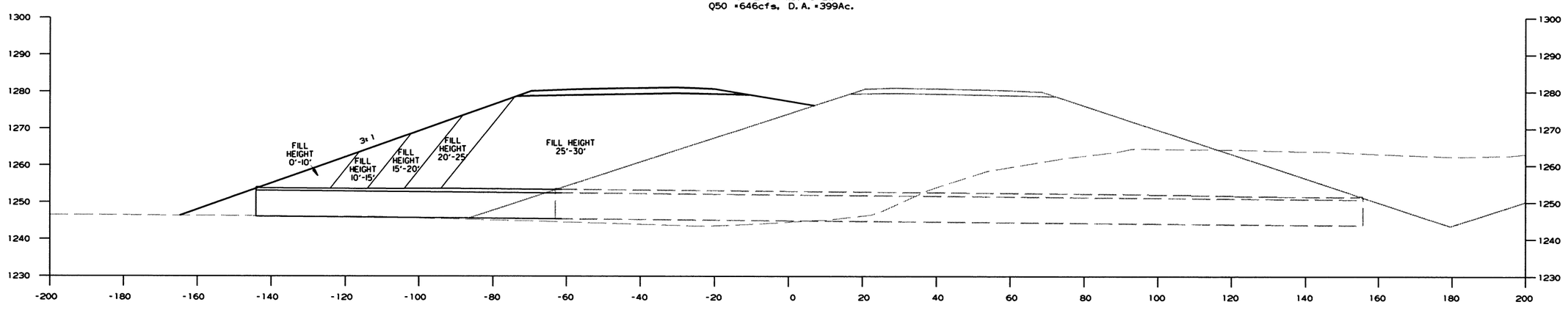
R090508.DGN

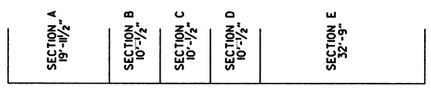
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	117	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 715+33 CONSTRUCT
7' x 7' x 300' R.C. BOX CULV'T.
(10° LT. FWD. SKEW)
Q50 =646cfs, D.A. =399Ac.





BOX CULVERT DIAGRAM
STA. 715+33

Concrete:

A Section	19.96	X	0.744	=	14.85
B Section	10.04	X	0.782	=	7.85
C Section	10.04	X	0.833	=	8.36
D Section	10.04	X	0.925	=	9.29
E Section	32.75	X	1.005	=	32.91
Headwalls & Wings				=	10.28
Total C.Y.				=	83.54

Reinforcing Steel:

* A Section				=	1,567.72
B Section	10.04	X	93.23	=	936.03
C Section	10.04	X	106.2	=	1,066.25
D Section	10.04	X	114.06	=	1,145.16
E Section	32.75	X	122.23	=	4,003.03
2	Laps @		25.05 Lbs. Each	=	50.10
2 Wings				=	605.00
Total Lbs.				=	9,373.29

* Total Includes Hdwl. & Aprons

Unclassified Excavation for Structures - Roadway:

A Section	19.96	=	5.891
B Section	10.04	=	3.225
C Section	10.04	=	3.573
D Section	10.04	=	3.967
E Section	32.75	=	13.949
V.I.		=	8.965
Total C.Y.		=	39.570

**QUANTITIES FROM SPECIAL DETAILS

9/27/2017

R090508.DGN

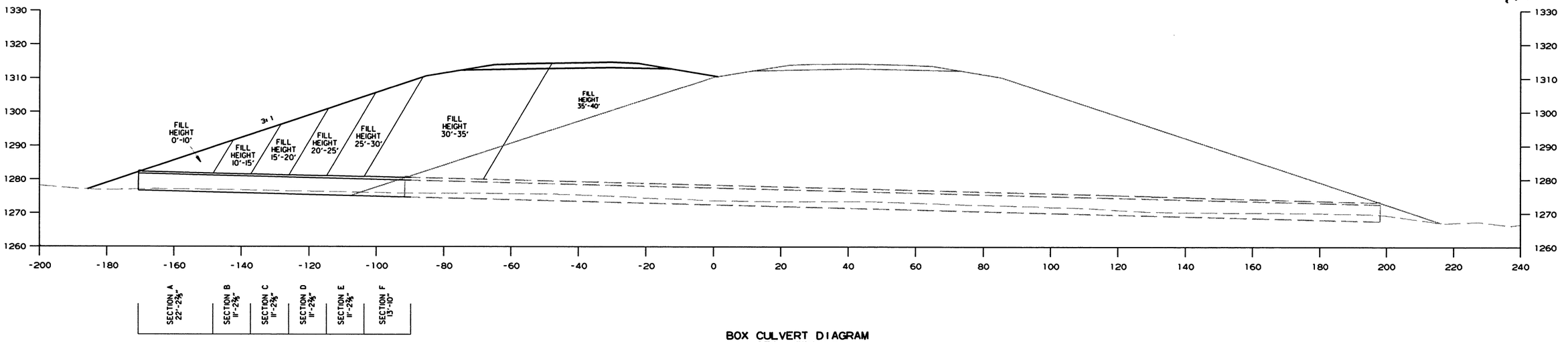
HWY. 549-STA. 715+33
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	118	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 775+58 CONSTRUCT
5' x 5' x 368' R.C. BOX CULV'T.
(10° LT. FWD. SKEW)
Q50=205cfs D.A.=73Ac.



BOX CULVERT DIAGRAM
STA. 775+58

Concrete:

A Section	22.22		0.444	=	10.11
B Section	11.20	X	0.444	=	4.97
C Section	11.20	X	0.468	=	5.24
D Section	11.20	X	0.501	=	5.61
E Section	11.20	X	0.549	=	6.15
F Section	13.83	X	0.588	=	8.13
Headwalls & Wings					5.81
Total C.Y.				=	46.02

Reinforcing Steel:

*	A Section				=	1,117.36
	B Section	11.20	X	55.12	=	617.34
	C Section	11.20	X	58.92	=	659.90
	D Section	11.20	X	61.61	=	690.03
	E Section	11.20	X	66.77	=	747.82
	F Section	13.83	X	71.65	=	990.92
2	Laps @	18.37	Lbs. Each		=	36.74
2 Wings					=	189.50
Total Lbs.					=	5,049.61

* Total Includes Hdwl. & Aprons

Unclassified Excavation for Structures - Roadway:

A Section	22.22	=	4.321
B Section	11.20	=	2.178
C Section	11.20	=	2.411
D Section	11.20	=	2.656
E Section	11.20	=	2.919
F Section	13.83	=	3.833
V.I.		=	5.493
Total C.Y.		=	23.811

**QUANTITIES FROM SPECIAL DETAILS

R090508.DGN 9/27/2017

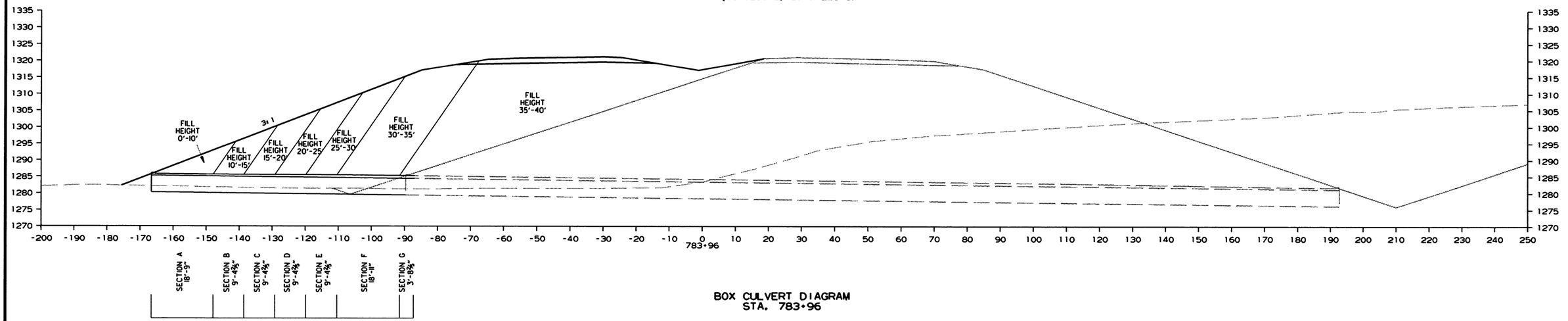
HWY. 549-STA. 775+58
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	119	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 783+96 CONSTRUCT
DBL. 5' x 5' x 356' R.C. BOX CULV'T.
(8° LT. FWD. SKEW)
Q50=325cfs, D.A. =228Ac.



BOX CULVERT DIAGRAM
STA. 783+96

Concrete:

A Section	18.75		0.777	=	14.57
B Section	9.37	X	0.831	=	7.79
C Section	9.37	X	0.885	=	8.29
D Section	9.37	X	0.931	=	8.72
E Section	9.37	X	1.005	=	9.42
F Section	18.92	X	1.052	=	19.90
G Section	3.70	X	1.109	=	4.10
Headwalls & Wings				=	6.41
Total C.Y.				=	79.20

Reinforcing Steel:

* A Section				=	2,091.19
B Section	9.37	X	108.71	=	1,018.61
C Section	9.37	X	118.18	=	1,107.35
D Section	9.37	X	130.9	=	1,226.53
E Section	9.37	X	140.27	=	1,314.33
F Section	18.92	X	147.79	=	2,796.19
G Section	3.70	X	156.47	=	578.94
2 Laps @	43.42	Lbs. Each		=	86.84
2 Wings				=	189.50
Total Lbs.				=	10,409.48

* Total Includes Hdwl. & Aprons

Unclassified Excavation for Structures - Roadway:

A Section	18.75	=	5.518
B Section	9.37	=	3.182
C Section	9.37	=	3.500
D Section	9.37	=	3.722
E Section	9.37	=	4.063
F Section	18.92	=	8.660
G Section	3.70	=	1.789
V.I.		=	6.015
Total C.Y.		=	36.449

**QUANTITIES FROM SPECIAL DETAILS

9/27/2017

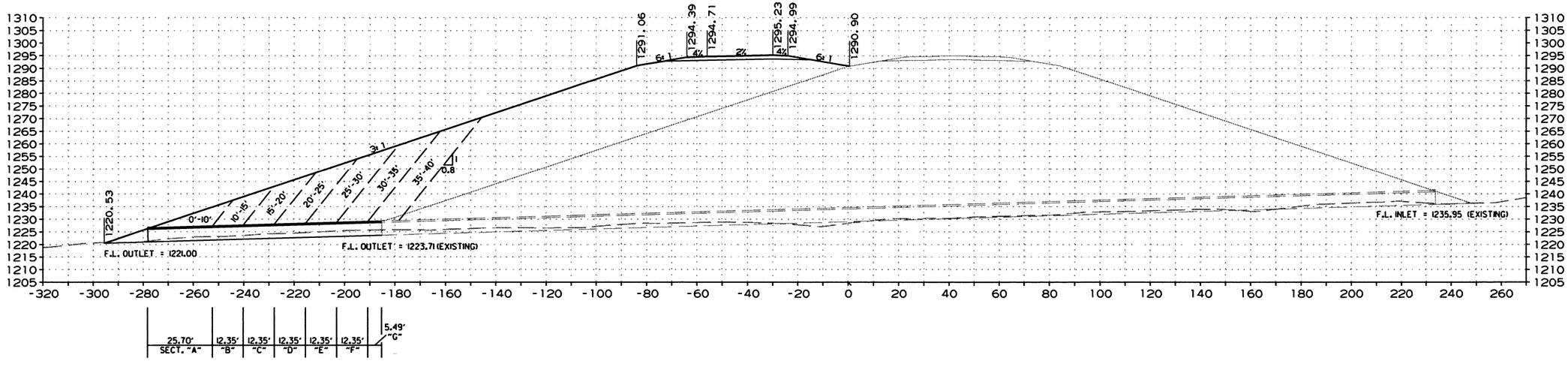
R090508.DGN

HWY. 549-STA. 783+96
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	120	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



STA. 905+13 IN PLACE
6' X 5' X 420' R.C. BOX CULV'T
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 92' LT.
TO A COMPLETED LENGTH OF 512'
Q50=260cfs, D.A.=75Ac.

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL ROADWAY (GR. 60)						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
						BAR LAPS						
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	25.70	0.509	13.08	61.66	1584.66				1584.66	5.94		
SECTION "B"	12.35	0.536	6.62	66.63	822.88				822.88	2.85		
SECTION "C"	12.35	0.563	6.95	72.06	889.94				889.94	2.85		
SECTION "D"	12.35	0.616	7.61	76.21	941.19				941.19	2.85		
SECTION "E"	12.35	0.669	8.26	83.78	1034.68	1	20.04	20.04	1054.72	2.85		
SECTION "F"	12.35	0.724	8.94	91.60	1131.26				1131.26	2.85		
SECTION "G"	5.49	0.779	4.28	98.15	538.84				538.84	1.27		
HEADWALLS & APRONS (OUTLET)					46.65				46.65		2	0.03
WINGS (OUTLET)			** 5.80		178.90				178.90		7	0.08
V.O.										6.45		
TOTALS			**61.54**		**7169**			**20.04**	**7189.04**	**27.91**	**9**	**0.11**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS, AND APRONS.

STANDARD DRAWINGS: RCB-1, RCB-2, RCB-3, R-100X-X1, R-100X-X3, W-X003-1

9/27/2017

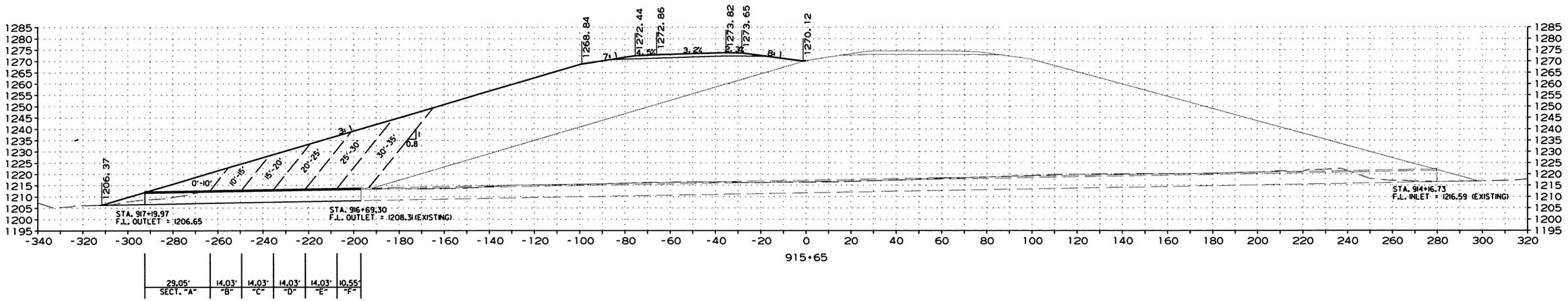
R090508.DGN

HWY. 549-STA. 905+13
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	121	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



STA. 915+65 IN PLACE
DBL. 6' X 5' X 477' R.C. BOX CULV'T
(32° LT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 97' LT.
TO A COMPLETED LENGTH OF 574'
Q50=560cfs, D.A.=168Ac.

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL ROADWAY (GR. 60)						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
						BAR LAPS						
	LIN.FT.	CU.YD./L.F.	CU. YD.	LBS./L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	29.05	0.823	23.91	114.29	***3320.00				3320.00	11.21		
SECTION "B"	14.03	1.005	14.10	128.35	1800.75				1800.75	5.42		
SECTION "C"	14.03	1.068	14.98	149.57	2098.47				2098.47	5.42		
SECTION "D"	14.03	1.152	16.16	158.19	2219.41	1	46.76	46.76	2266.17	5.42		
SECTION "E"	14.03	1.236	17.34	168.46	2363.49				2363.49	5.42		
SECTION "F"	12.38	1.321	16.35	180.40	2233.35				2233.35	4.78		
HEADWALLS & APRONS (OUTLET)											4	0.05
WINGS (OUTLET)			**8.37		230.00				230.00		7	0.09
V.O.										7.21		
TOTALS			**102.84**		**10945.47**			**46.76**	**14312.23**	**44.88**	**11**	**0.14**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS, AND APRONS.
*** INCLUDES: BARREL, APRON, HEADWALL, AND ONE LAP.

STANDARD DRAWINGS: RCB-1, RCB-2, RCB-3, R-230X-1, R-200X-X1, R-200X-X4, W-X30, W-X303-1, W-X003-1

9/27/2017

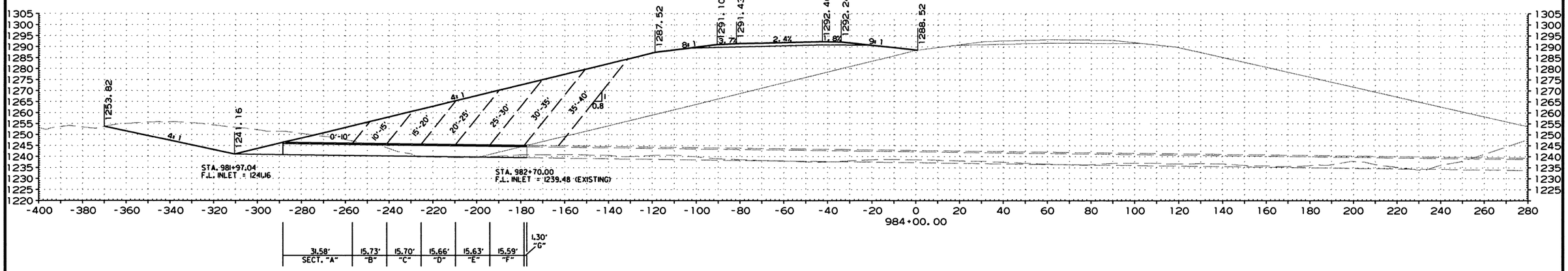
R090508.DGN

HWY. 549-STA. 915+65
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	122	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-29-17



STA. 982+70 IN PLACE
DBL. 5' X 5' X 525' R.C. BOX CULV'T
(45° RT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 111' LT.
TO A COMPLETED LENGTH OF 636'
Q50=450cfs, D.A.=129Ac.

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL ROADWAY (GR. 60)						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
						BAR LAPS						
	LIN.FT.	CU.YD./L.F.	CU. YD.	LBS./L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	31.58	1.113	35.15	165.04	***5212.00				5212.00	9.28		
SECTION "B"	15.73	0.831	13.07	108.71	1710.01				1710.01	4.62		
SECTION "C"	15.70	0.885	13.89	118.18	1855.43				1855.43	4.62		
SECTION "D"	15.66	0.931	14.58	130.9	2049.89	1	43.42	43.42	2093.31	4.60		
SECTION "E"	15.63	1.005	15.71	140.27	2192.42				2192.42	4.60		
SECTION "F"	15.59	1.052	16.40	147.79	2304.05	1	43.42	43.42	2347.47	4.58		
SECTION "G"	3.13	1.109	3.47	156.47	489.75				489.75	0.92		
HEADWALLS & APRONS (INLET)											3	0.04
WINGS (INLET)			**9.79		302.10				302.10		7	0.09
V.I.										6.43		
TOTALS			**112.27**		**10903.65**			**86.84**	**16202.49**	**39.65**	**10**	**0.13**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS, AND APRONS.
*** INCLUDES: BARREL, APRON, HEADWALL, AND ONE LAP.

STANDARD DRAWINGS: RCB-1, RCB-2, R-245X-1, R-200X-X1, W-X45, W-X453-1, W-X003-1

9/27/2017

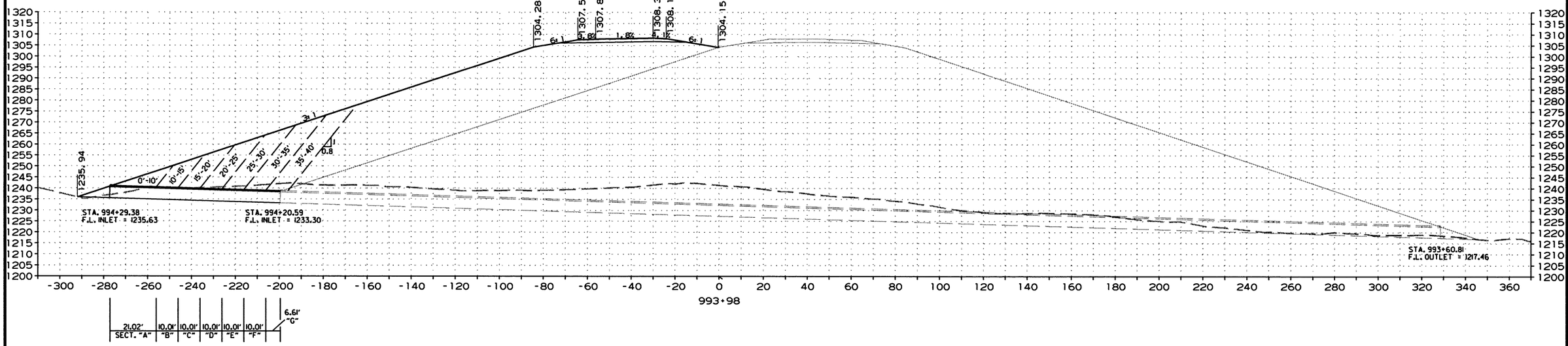
R090508.DGN

HWY. 549-STA. 984+00
BOX CULVERT DIAGRAMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	123	335

(2) BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



STA. 993+98 IN PLACE
5' X 5' X 529' R.C. BOX CULV'T.
(6° 30' LT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 77' LT.
TO A COMPLETED LENGTH OF 606'
Q50=224cfs, D.A.=48Ac.

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL ROADWAY (GR. 60)						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
						BAR LAPS						
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	21.02	0.444	9.33	48.5	1019.47				1019.47	4.08		
SECTION "B"	10.01	0.444	4.44	55.12	551.75				551.75	1.94		
SECTION "C"	10.01	0.468	4.68	58.92	589.79				589.79	1.94		
SECTION "D"	10.01	0.501	5.02	61.61	616.72				616.72	1.94		
SECTION "E"	10.01	0.549	5.50	66.77	668.37				668.37	1.94		
SECTION "F"	10.01	0.588	5.89	71.65	717.22	1	18.37	18.37	735.59	1.94		
SECTION "G"	8.44	0.628	5.30	76.56	646.17				646.17	1.64		
HEADWALLS & APRONS (INLET)					39.69				39.69		2	0.03
WINGS (INLET)			**5.26		178.90				178.9		7	0.09
V.I.										5.93		
TOTALS			**40.16**		**5028.08**			**18.37**	**5046.45**	**21.35**	**9**	**0.12**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS, AND APRONS.

STANDARD DRAWINGS: RCB-1, RCB-2, R-100X-X1, W-X003-1

9/27/2017

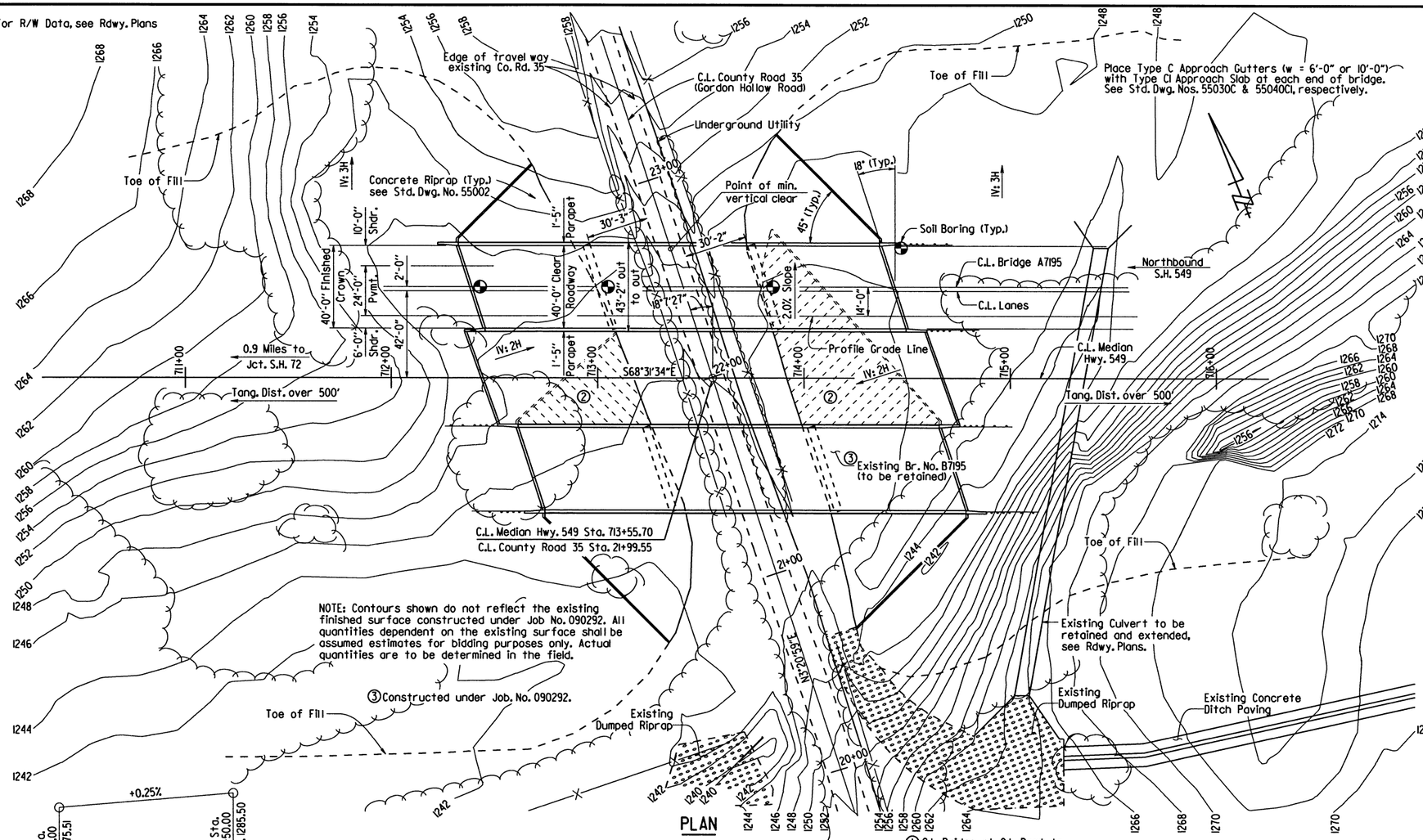
R090508.DGN

HWY. 549-STA. 993+98
BOX 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.		090508	124	335

A7195 - BRIDGE LAYOUT - 59282

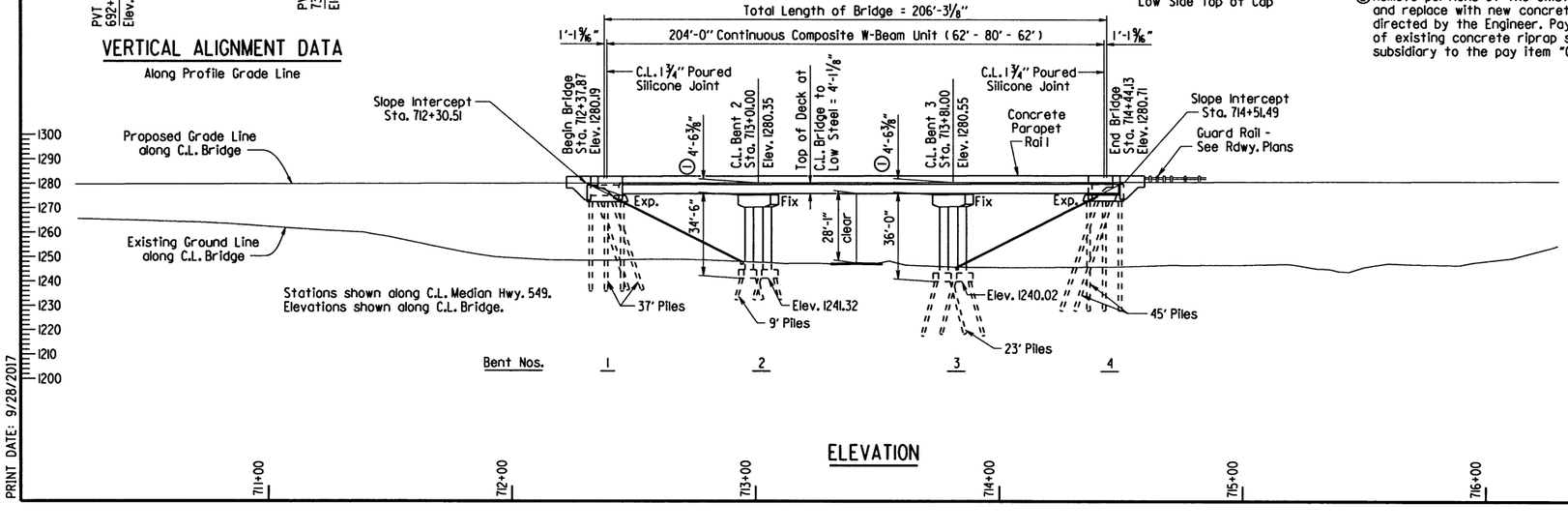
For R/W Data, see Rdwy. Plans



PLAN

VERTICAL ALIGNMENT DATA

Along Profile Grade Line



ELEVATION

① C.L. Bridge at C.L. Bent to Low Side Top of Cap

②Remove portions of the existing concrete riprap and replace with new concrete riprap as directed by the Engineer. Payment for removal of existing concrete riprap shall be considered subsidiary to the pay item "Concrete Riprap".

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survery Control Details.

CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2004 edition with 2005 & 2006 interims).

LIVE LOADING: HL93 SEISMIC ZONE: 1

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 M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 thru 4 shall be HP 12x53; AASHTO M 270, Gr. 50 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons and into material designated as Hard, Gray Cherty Limestone or Hard, Gray Limestone on the boring legend. Minimum penetration shall be 8' below natural ground for all piles in Bents 1 and 4, and 8' below bottom of footings for all piles in Bents 2 and 3. Piles at Bents 1 & 4 shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

PREBORING: Preboring is required for all piles in Bent 2 to achieve minimum penetration. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

FOOTINGS: The top of footings for Bents 2 & 3 shall have a minimum cover above top of footings of 2'-0". Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. 090508 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

DETAIL DRAWINGS:	DRAWING NUMBER(S):
End Bents	59284-59286
Intermediate Bents	59287
Steel Piles	55020
204' Continuous Composite W-Beam Unit	59288-59293
Elastomeric Bearings	59294
Type C Approach Gutters	55030C
Type CI Approach Slab	55040CI
Soil Borings	59283

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-28-17
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER COUNTY ROAD 35
HWY. 71 - CO. RD. 34
(ADD'L LNS.)(B.V. BYPASS)(S)
BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

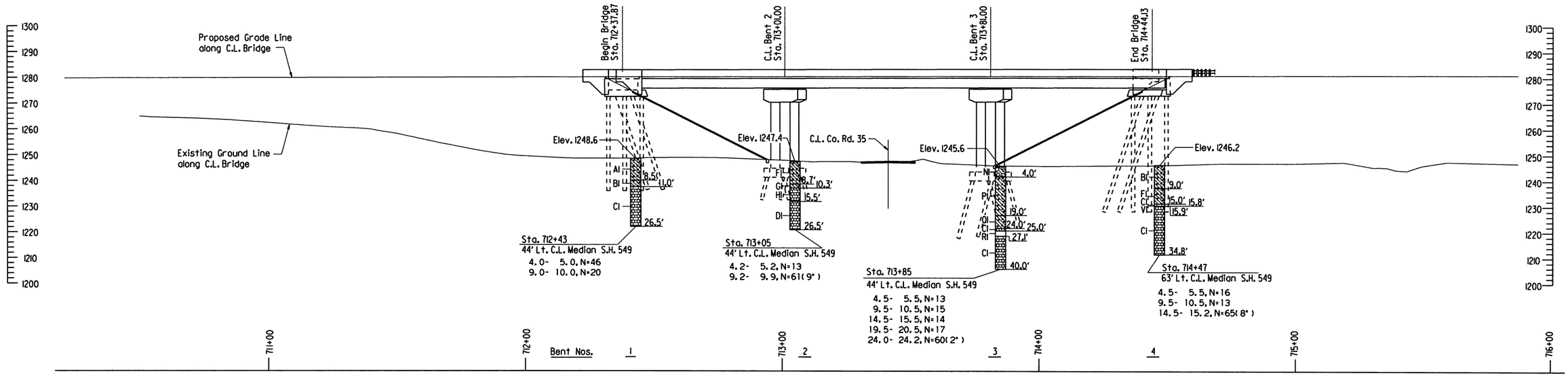
LITTLE ROCK, ARK.

DRAWN BY: DDD DATE: 2-26-07 FILENAME: b090508a4_LI.dgn
CHECKED BY: CMW DATE: 9/28/17 SCALE: 1" = 30'-0"
DESIGNED BY: CSL DATE: 02-07

BRIDGE NO. A7195 DRAWING NO. 59282

PRINT DATE: 9/28/2017

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.		090508	125	335
				①	A7195 - BRIDGE LAYOUT - 59283			



ELEVATION OF SOIL BORINGS

BORING LEGEND

Al-Moist, Hard, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Bl-Moist, Very Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Cl-Hard, Gray Cherty Limestone
Dl-Hard, Gray Cherty Limestone
El-Hard, Gray Cherty Limestone with some Vertically Fractured Seams
Fl-Moist, Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Gl-Moist, Very Hard, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Hl-Hard, Gray Limestone
Jl-Moist, Medium Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Kl-Hard, Gray Fractured Cherty Limestone
Ll-Soil-filled Cavity (14.0' to 16.0')
Ml-Soil-filled Cavity (17.4' to 23.0')
Nl-Moist, Medium Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Chert Cobbles
Pl-Moist, Stiff, Reddish Brown Gravely (Chert Fragments) Clay
Ol-Moist, Very Stiff, Reddish Brown Gravely (Chert Fragments) Clay
Rl-Cavity (25.0' to 27.1')
Sl-Moist, Hard, Reddish Brown Gravely (Chert Fragments) Clay
Tl-Moist, Medium Stiff, Reddish Brown Gravely (Chert Fragments) Clay
Ul-Wet, Medium Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments)
Vl-Soil-filled Cavity (15.8' to 15.9')
Wl-Moist, Soft, Reddish Brown Gravely (Chert Fragments) Clay with Sand
Xl-Soil-filled Cavity (28.0' to 28.8')

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER COUNTY ROAD 35
HWY. 71 - CO. RD. 34
(ADD'L LNS.)(B.V. BYPASS)(S)
BENTON COUNTY

ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWD DATE: 8-10-07 FILENAME: b090508a4_ll.dgn
CHECKED BY: CMW DATE: 9/7/17 SCALE: 1" = 20'-0"
DESIGNED BY: CSL DATE: 02-07

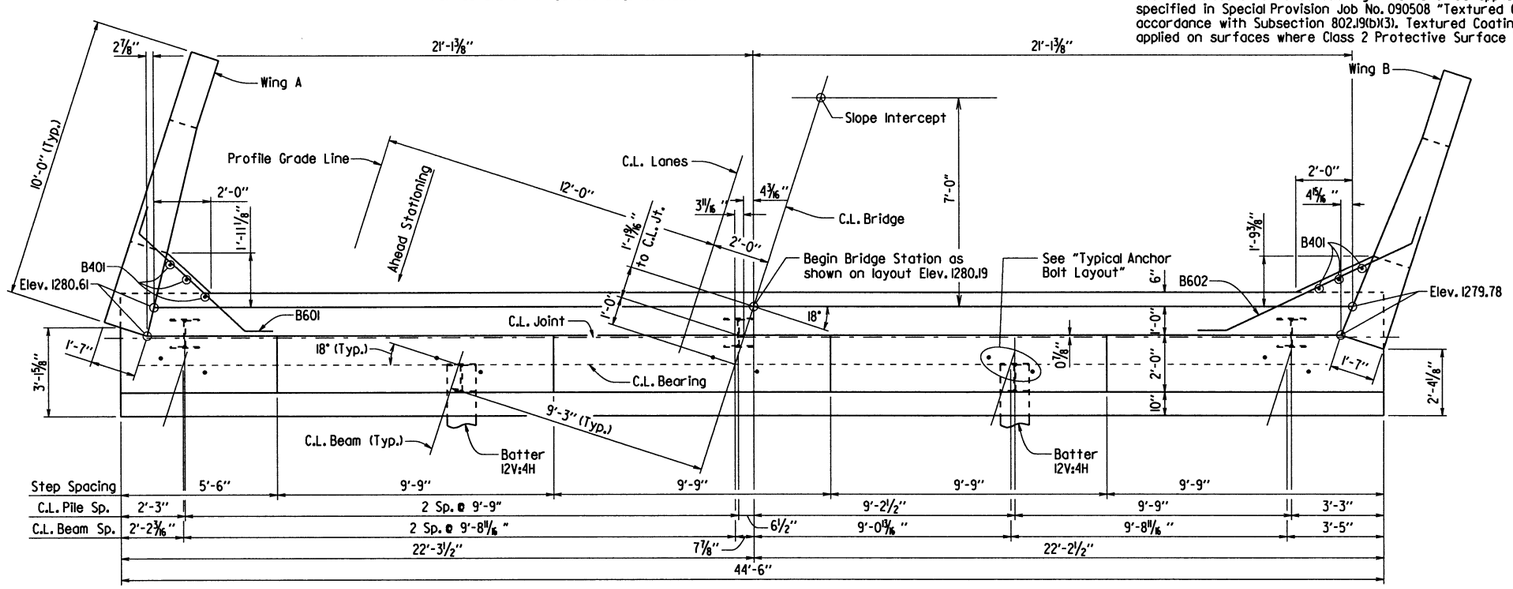
BRIDGE NO. A7195 DRAWING NO. 59283

PRINT DATE: 9/6/2017

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.		090508	126	335
				①	A7195 - END BENTS - 59284			

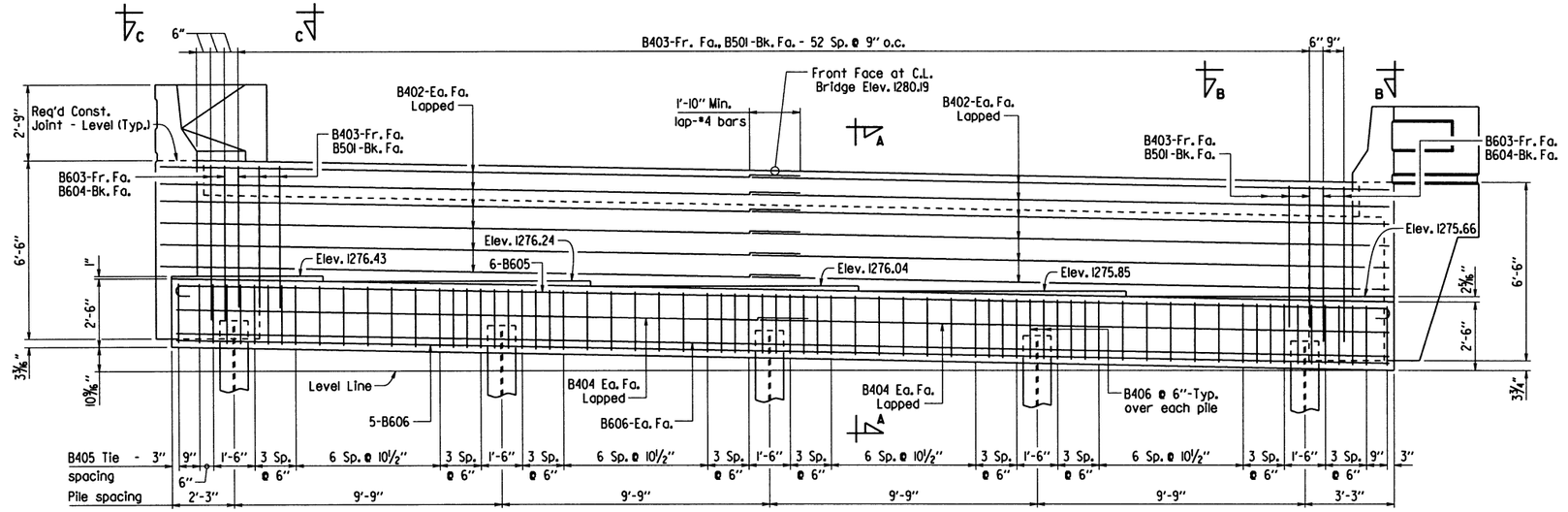
For details of wings, see Dwg. No. 59286.

Class 2 Protective Surface Treatment shall be applied to the top of the backwall. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. 090508 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.



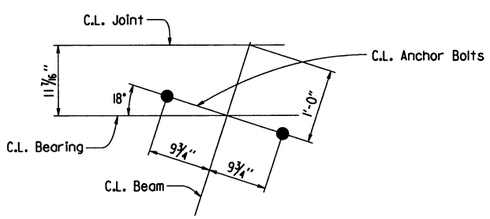
PLAN - BENT 1

⅜" = 1'-0"



ELEVATION - BENT 1

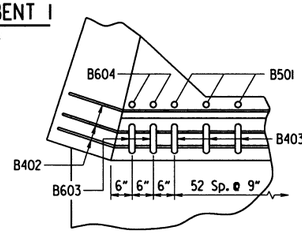
Looking Back
⅜" = 1'-0"



For details of Elastomeric Bearings, See Dwg. No. 59294.

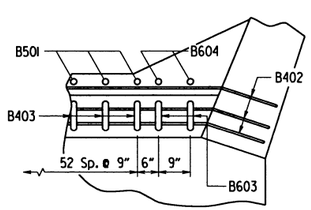
TYPICAL ANCHOR BOLT LAYOUT

No Scale



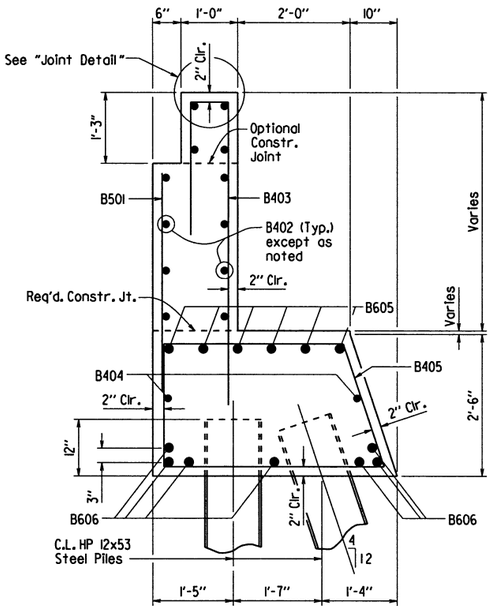
VIEW C-C

No Scale



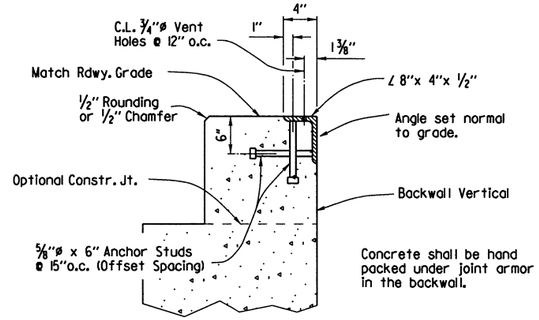
VIEW B-B

No Scale



SECTION A-A

¾" = 1'-0"



For additional Joint Details See Dwg. No. 59293.

JOINT DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

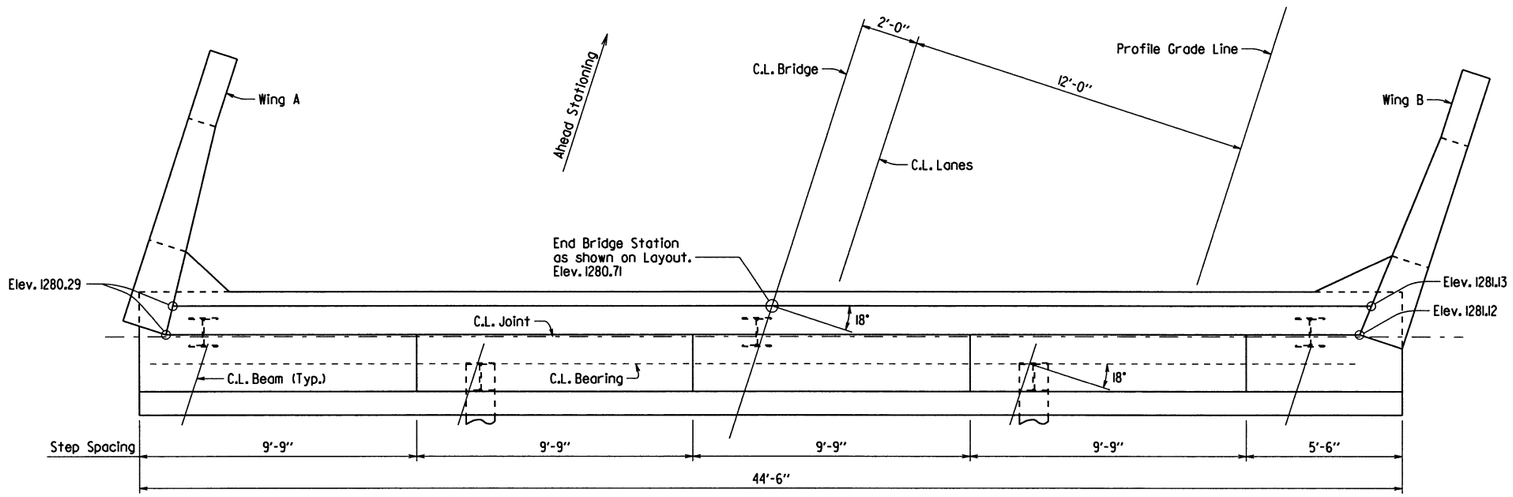
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-05-07 FILENAME: b090508a4_bl.dgn
CHECKED BY: BHS DATE: 9-7-17 SCALE: As Shown
DESIGNED BY: CRE DATE: 05-07

BRIDGE NO. A7195 DRAWING NO. 59284

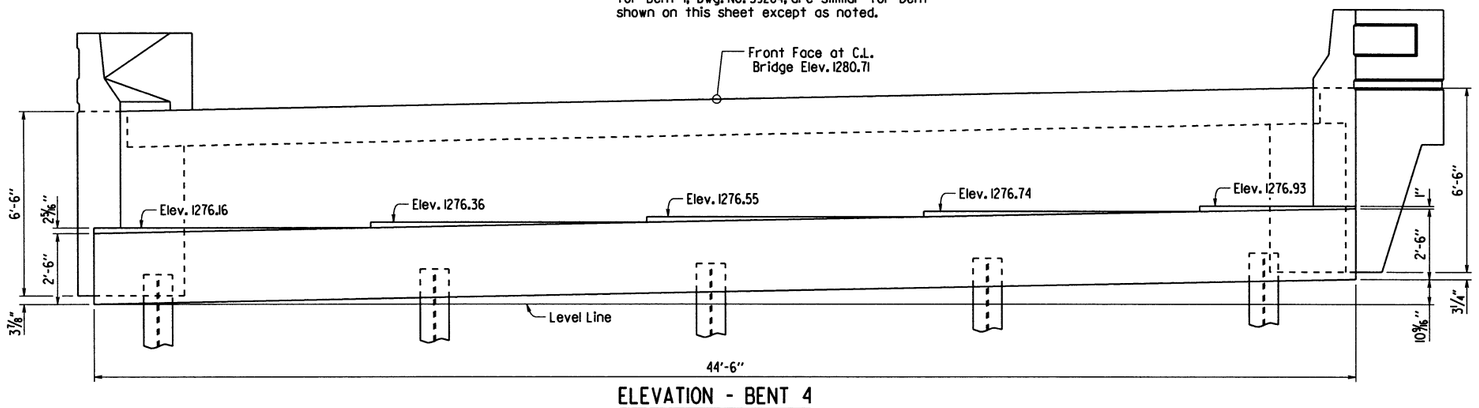
PRINT DATE: 9/6/2017

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.		090508	127	335
				①		A7195 - END BENTS - 59285		



PLAN - BENT 4

Reinforcing steel, details and dimensions shown for Bent 1, Dwg. No. 59284, are similar for bent shown on this sheet except as noted.



ELEVATION - BENT 4

Looking Ahead

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

All structural steel shall be AASHTO M 270, Gr. 50W. Structural Steel in backwall shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

All piling shall be AASHTO M 270, Grade 50.

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note on Dwg. No. 59293.

For additional information, See Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
COUNTY ROAD 35

ROUTE SEC.

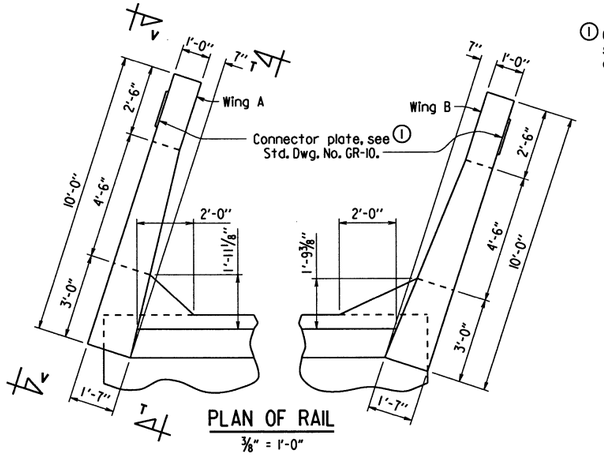
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-05-07 FILENAME: b090508a4_bl.dgn
CHECKED BY: BrH3 DATE: 9-7-17 SCALE: ⅜" = 1'-0"
DESIGNED BY: CRE DATE: 05-07

BRIDGE NO. A7195 DRAWING NO. 59285

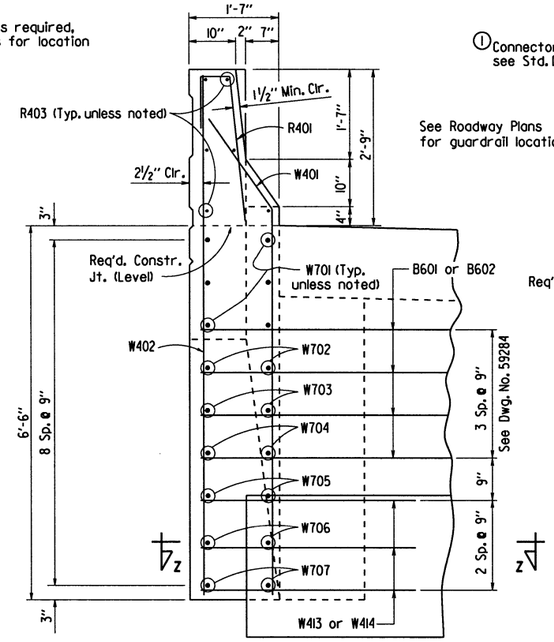
PRINT DATE: 9/6/2017

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.		090508	128	335
				①		A7195 - END BENTS - 59286		



PLAN OF RAIL

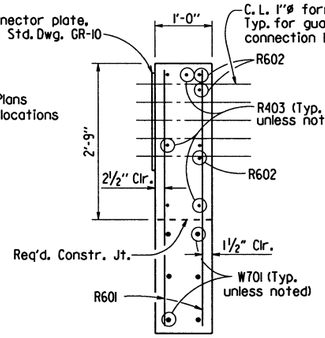
⅜" = 1'-0"



VIEW W-W

No Scale

See Roadway Plans for guardrail locations



SECTION Y-Y

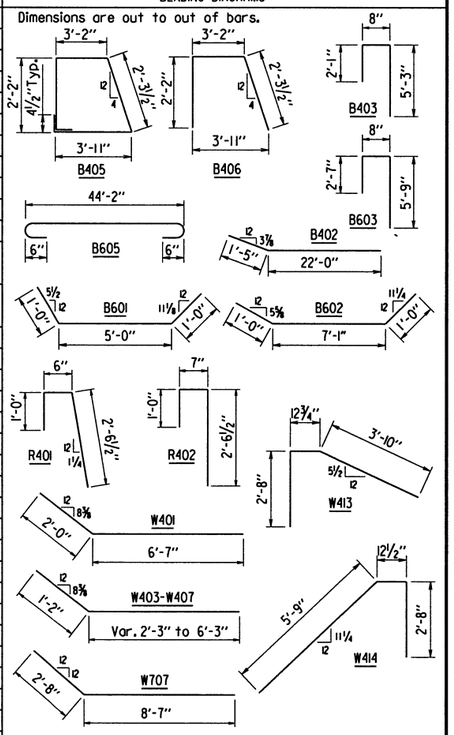
No Scale

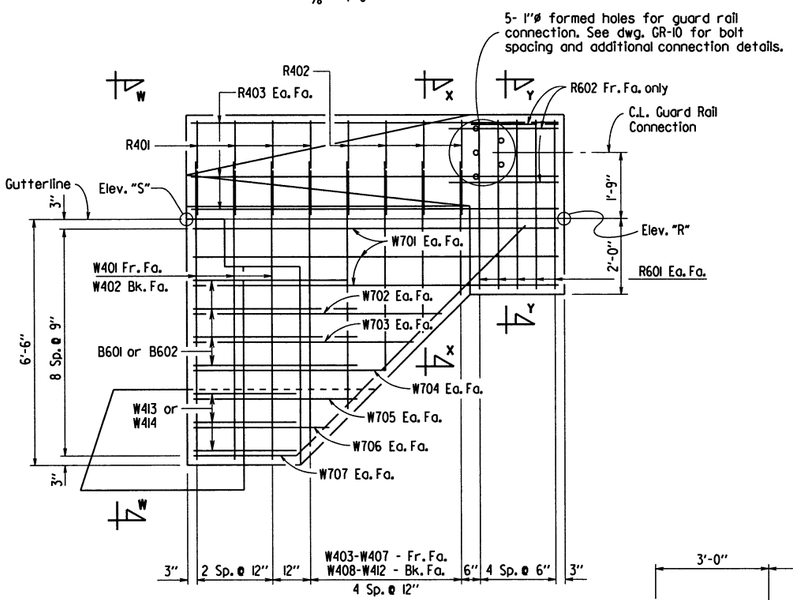
BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-11"	Str.
B402	24	23'-5"	2"
B403	53	7'-10"	2"
B404	4	23'-0"	Str.
B405	60	11'-11"	2"
B406	10	7'-6"	2"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	6	8'-7"	2"
W402	6	8'-11"	Str.
W403-W407	2 each	Var. 3'-5" to 7'-5"	2"
W408-W412	2 each	Var. 4'-7" to 8'-7"	Str.
W413	3	7'-6"	2"
W414	3	9'-4"	2"
B501	53	4'-3"	Str.
B601	4	7'-0"	4½"
B602	4	9'-1"	4½"
B603	4	8'-8"	4½"
B604	4	4'-6"	Str.
B605	6	45'-6"	4½"
B606	7	44'-2"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-7"	Str.
W703	4	5'-10"	Str.
W704	4	5'-1"	Str.
W705	4	4'-4"	Str.
W706	4	3'-7"	Str.
W707	4	11'-3"	5¼"

BENDING DIAGRAMS

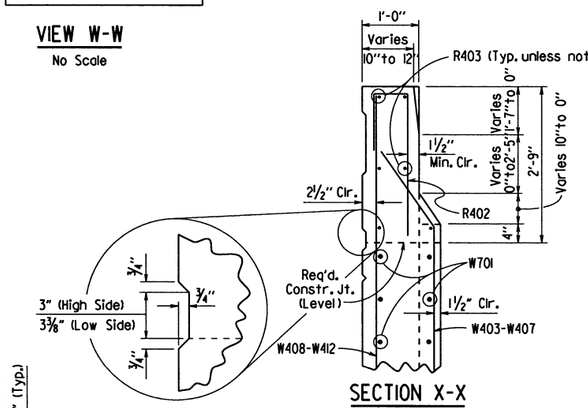
Dimensions are out to out of bars.





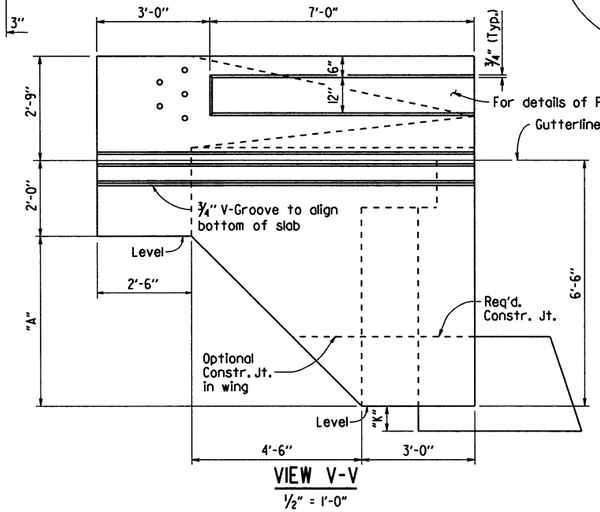
VIEW T-T

½" = 1'-0"



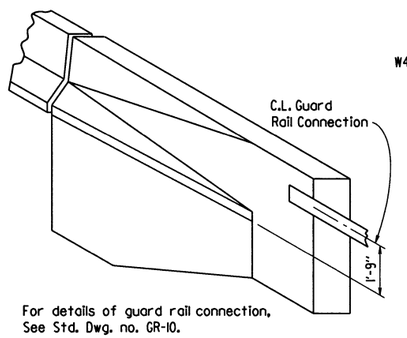
SECTION X-X

No Scale



VIEW V-V

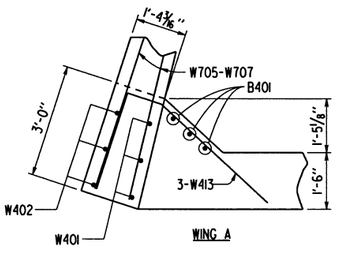
½" = 1'-0"

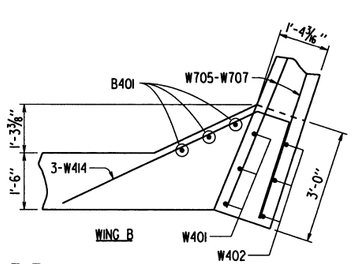


For details of guard rail connection, See Std. Dwg. no. GR-10.

THREE DIMENSIONAL VIEW OF RAIL

No Scale





SECTION Z-Z

No Scale

TABLE OF VARIABLES

BENT	WING	Elev. "S"	Elev. "R"	"A"	"K"
1	A	1280.61	1280.59	4'-5¾"	3⅜"
	B	1279.78	1279.76	4'-5¾"	3¾"
4	A	1280.29	1280.32	4'-6⅜"	3⅞"
	B	1281.12	1281.15	4'-6⅜"	3¼"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

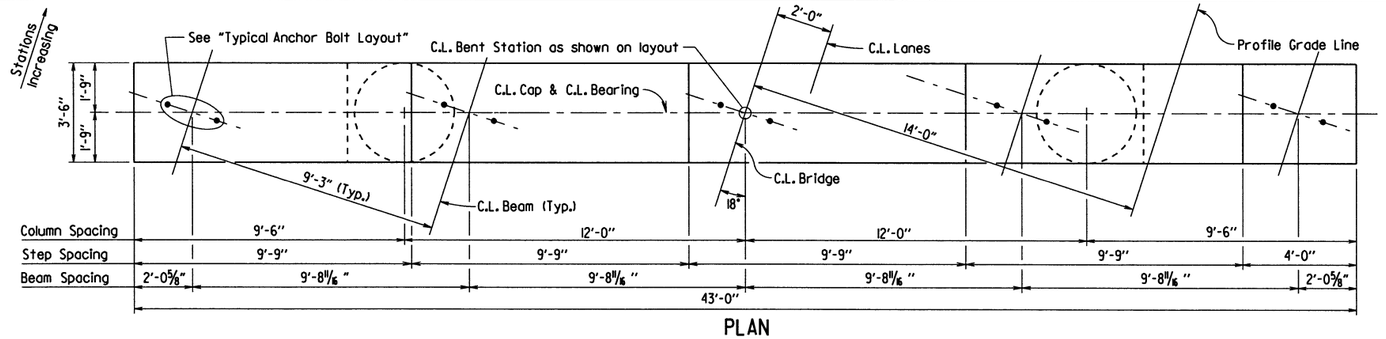
DRAWN BY: KDH DATE: 6-08-07
CHECKED BY: BHS DATE: 9-7-17
DESIGNED BY: CRE DATE: 05-07
FILENAME: b090508a4_bl.dgn
SCALE: As Shown

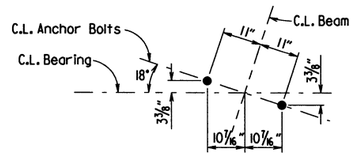
BRIDGE NO. A7195 DRAWING NO. 59286

PRINT DATE: 9/6/2017

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.		090508	129	335

(1) A7195 - INTERMEDIATE BENTS - 59287





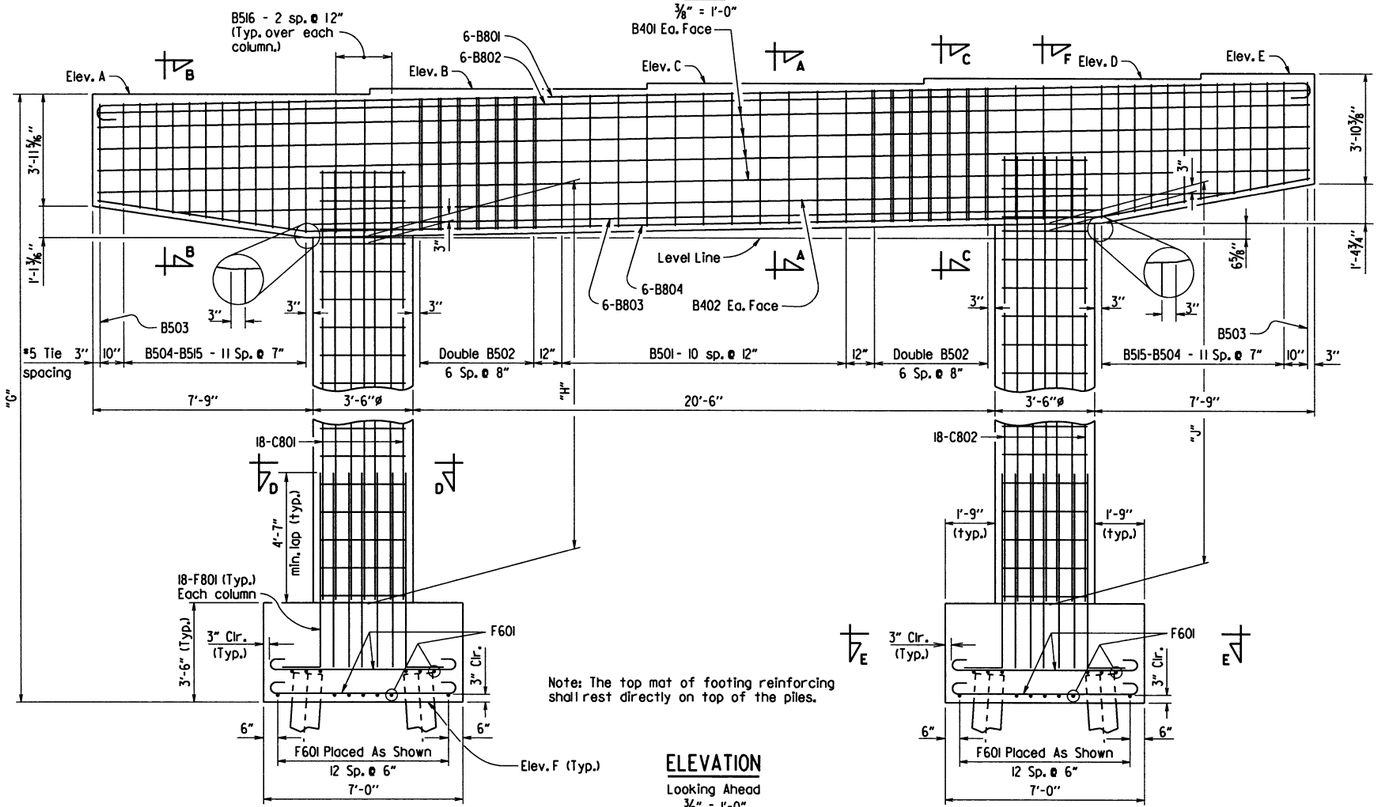
For Details of Elastomeric Bearings, See Dwg. No. 59294.

TYPICAL ANCHOR BOLT LAYOUT

3/4" = 1'-0"

PLAN

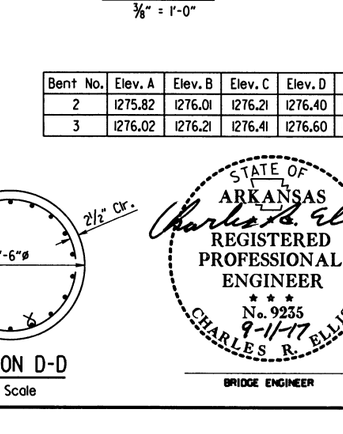
3/8" = 1'-0"



Note: The top mat of footing reinforcing shall rest directly on top of the piles.

ELEVATION

Looking Ahead
3/8" = 1'-0"



SECTION F-F

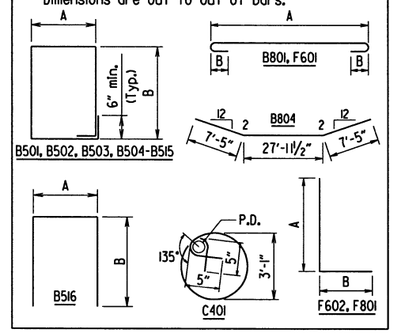
3/8" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B401	8	42'-8"			Str.
B402	2	37'-6"			Str.
B501	11	16'-2"	3'-2"	4'-8"	2 1/2"
B502	28	14'-2"	2'-2"	4'-8"	2 1/2"
B503	2	13'-9"	3'-2"	3'-5 1/2"	2 1/2"
B504-B515	2 each	Var. 14'-0" to 16'-1"	3'-2"	Var. 3'-7" to 4'-7 1/2"	2 1/2"
B516	6	12'-4"	3'-2"	4'-8"	2 1/2"
B801	6	44'-6"	42'-8"	8"	6"
B802	6	42'-8"			Str.
B803	6	27'-6"			Str.
B804	6	42'-10"			6"
C401	"L"	10'-9"			3"
C801	18	"M"			Str.
C802	18	"N"			Str.
F601	52	7'-10"	6'-6"	6"	4 1/2"
F602	8	4'-10"	2'-6"	2'-6"	4 1/2"
F801	36	10'-2"	9'-0"	1'-4"	6"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

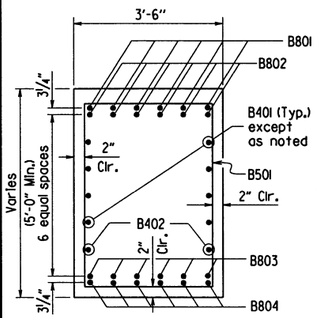
All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

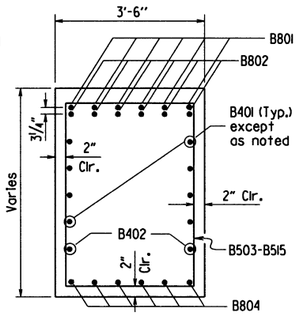
All piling shall be AASHTO M 270, Grade 50.

For additional information, See Layout.



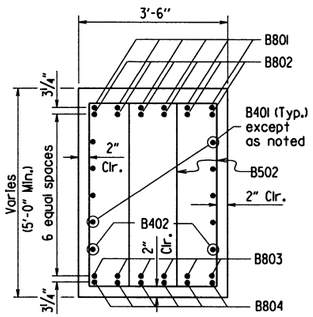
SECTION A-A

No Scale



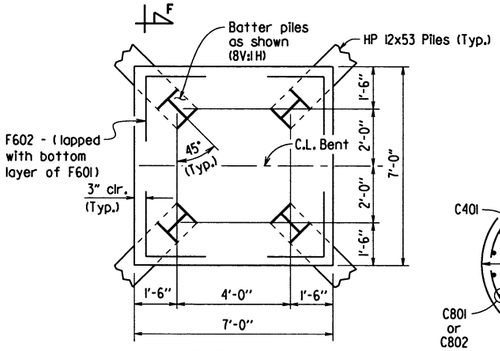
SECTION B-B

No Scale



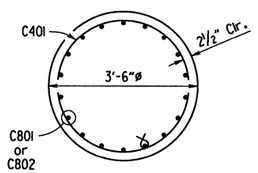
SECTION C-C

No Scale



SECTION E-E

No Scale



SECTION D-D

No Scale

TABLE OF VARIABLES

Bent No.	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	G	H	J	K	L	M	N
2	1275.82	1276.01	1276.21	1276.40	1276.59	1241.32	34'-6"	26'-0"	26'-5 5/8"	26	60	28'-8"	29'-2"
3	1276.02	1276.21	1276.41	1276.60	1276.79	1240.02	36'-0"	27'-6"	27'-11 5/8"	27	62	30'-2"	30'-8"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-1-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 6-08-07 FILENAME: b090508a4_b2.dgn
CHECKED BY: BHS DATE: 9-7-17 SCALE: As Shown
DESIGNED BY: CRE DATE: 05-07

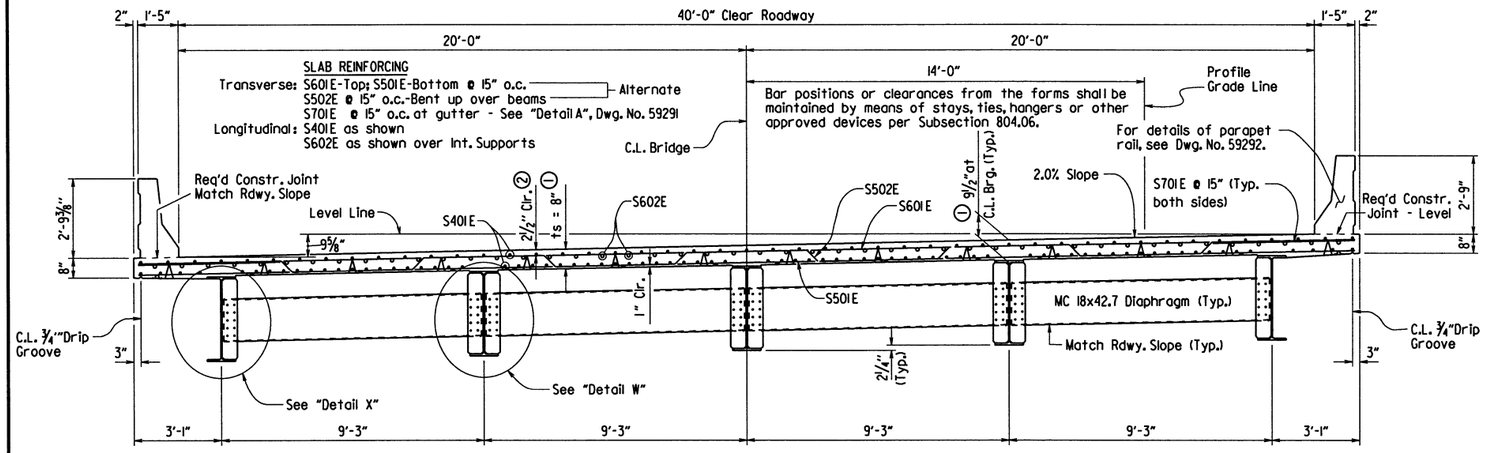
BRIDGE NO. A7195 DRAWING NO. 59287

PRINT DATE: 9/6/2017

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.		090508	130	335
				①	A7195 - 204' CONT. UNIT - 59288			

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the front face and top of the Concrete Parapet Rail. A Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. 090508 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 protective Surface treatment is applied.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.



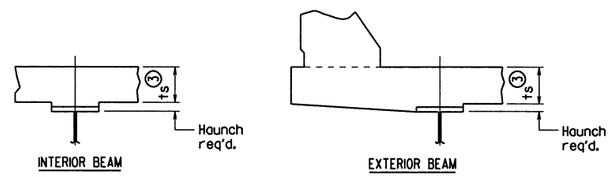
TYPICAL ROADWAY SECTION

Looking Ahead
⅜" = 1'-0"

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete.

① See Adjustment for Slab Thickness Tolerance

② Tolerance: Minus = ¼"
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".



③ Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ts = slab thickness as shown in "Typical Roadway Section."

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.

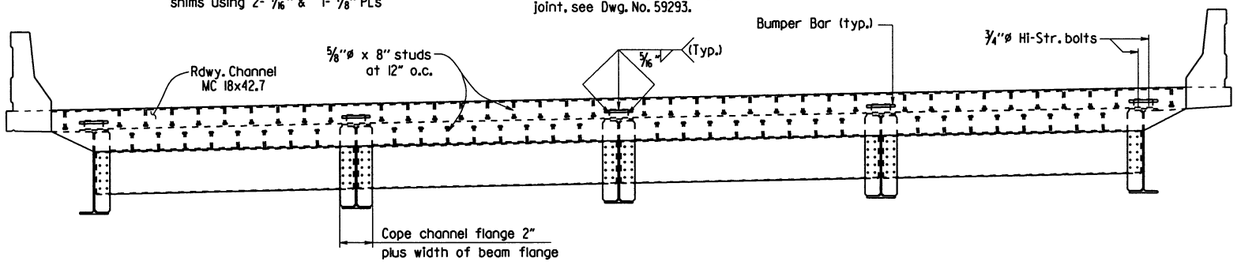
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

④ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.

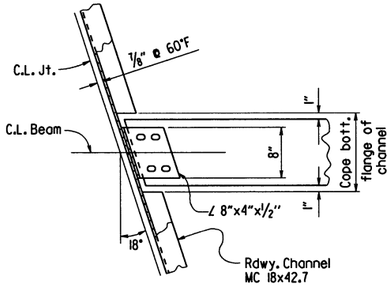
Expansion Device:
Rdwy. Channel - MC 18x42.7
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- ⅛" PLs

For details of poured silicone joint, see Dwg. No. 59293.



SECTION THRU JOINT

Looking Ahead
⅜" = 1'-0"



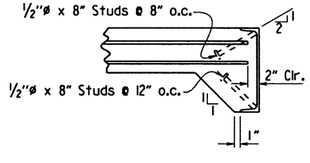
CHANNEL CONNECTION DETAIL

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

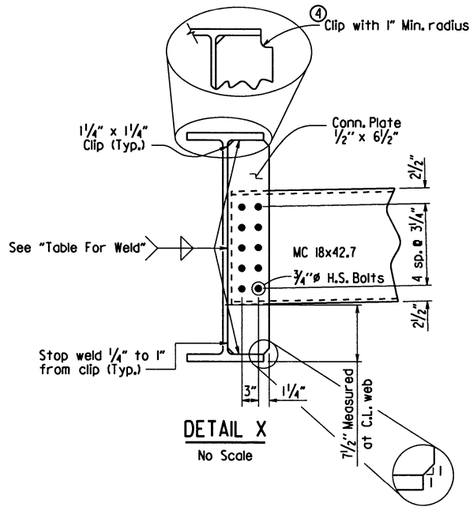
When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

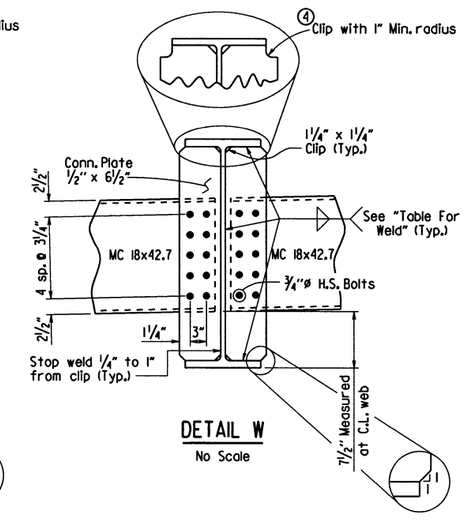
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCING

No Scale



DETAIL X

No Scale



DETAIL W

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35

ROUTE SEC.

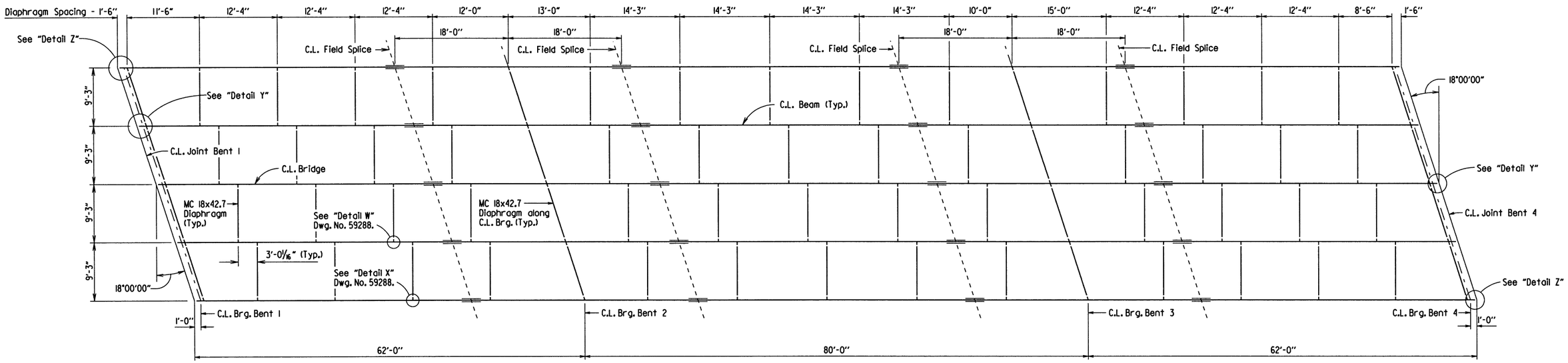
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/25/10 FILENAME: b090508a4_sl.dgn
CHECKED BY: KWW DATE: 9/7/17 SCALE: As Shown
DESIGNED BY: JWD DATE: 03-07

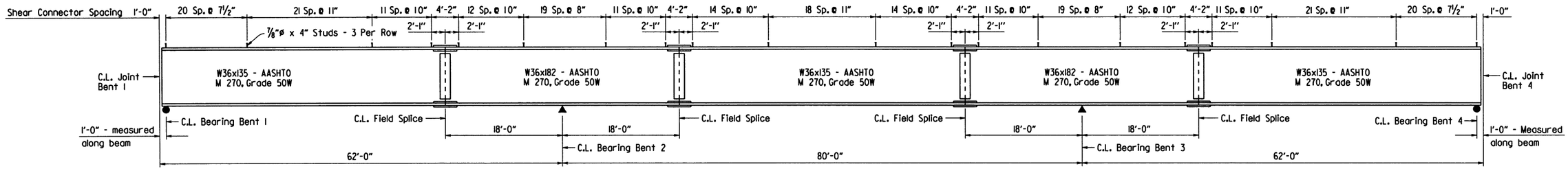
BRIDGE NO. A7195 DRAWING NO. 59288

PRINT DATE: 9/6/2017

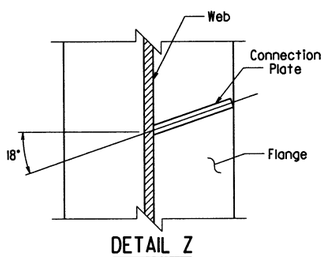
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	131	335
				(1)	A7195 - 204' CONT. UNIT - 59289			



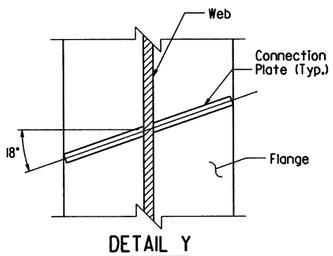
FRAMING PLAN
1/8" = 1'-0"



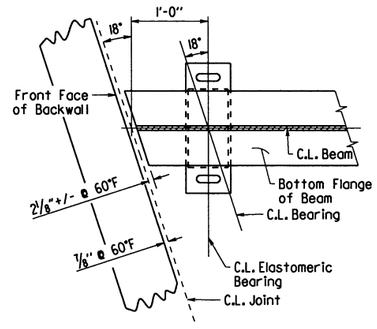
BEAM ELEVATION
No Scale



DETAIL Z
Ext. Beams
No Scale



DETAIL Y
Int. Beams
No Scale



PLAN OF BEARING AT END BENTS
No Scale

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.

For details of field splices, See Dwg. No. 59290.

All structural steel shall be AASHTO M 270, Gr. 50W, unless otherwise noted, and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 204'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

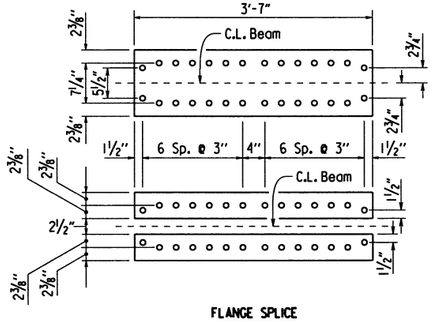
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/25/10 FILENAME: b090508a4_sl.dgn
CHECKED BY: DWY DATE: 9/7/17 SCALE: As Shown
DESIGNED BY: JWD DATE: 03-07

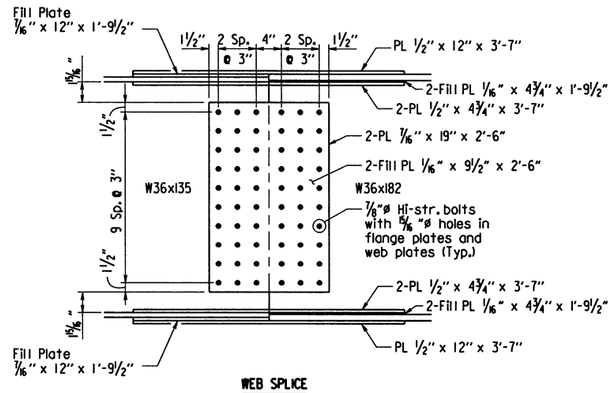
BRIDGE NO. A7195 DRAWING NO. 59289

PRINT DATE: 9/6/2017

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.		090508	132	335
				(1)	A7195 - 204' CONT. UNIT - 59290			



FLANGE SPLICE

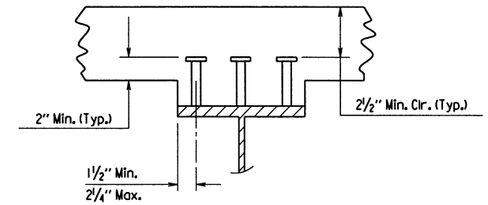


WEB SPLICE

All splice plates shall be AASHTO M 270, Gr. 50W steel.

FIELD SPLICE - DETAILS

1" = 1'-0"



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

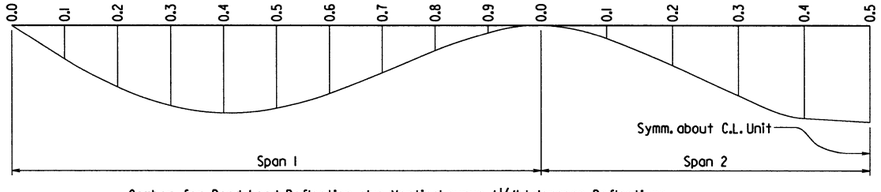
SHEAR CONNECTOR DETAIL

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0	0	0	0	0	0
	0.1	0.029	0.026	0.197	0.166	0.210	0.180
	0.2	0.054	0.048	0.359	0.303	0.383	0.328
	0.3	0.069	0.062	0.464	0.391	0.495	0.424
	0.4	0.075	0.066	0.499	0.421	0.532	0.456
	0.5	0.069	0.062	0.465	0.392	0.496	0.425
	0.6	0.056	0.049	0.373	0.314	0.398	0.341
	0.7	0.036	0.032	0.246	0.207	0.263	0.225
	0.8	0.017	0.015	0.118	0.099	0.126	0.107
	0.9	0.003	0.002	0.023	0.019	0.024	0.021
	0	0	0	0	0	0	0
Span 2	0.1	0.020	0.019	0.122	0.104	0.131	0.113
	0.2	0.056	0.052	0.345	0.294	0.370	0.320
	0.3	0.093	0.087	0.584	0.497	0.625	0.541
	0.4	0.121	0.112	0.762	0.647	0.815	0.703
C.L. Unit →	0.5	0.131	0.122	0.827	0.703	0.885	0.764

Table is symmetrical about C.L. Unit



Camber for Dead Load Deflection plus Vertical curve ±¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord. Deflections are based on the pouring sequence shown on Dwg. No. 59291. Deviations from the plans may require adjustment to structural steel camber.

DEAD LOAD DEFLECTION DIAGRAM

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 204' CONTINUOUS COMPOSITE W-BEAM UNIT COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/25/10 FILENAME: b090508a4_sl.dgn
CHECKED BY: KWY DATE: 9/7/17 SCALE: As Shown
DESIGNED BY: JWD DATE: 03-07

BRIDGE NO. A7195 DRAWING NO. 59290

PRINT DATE: 9/6/2017

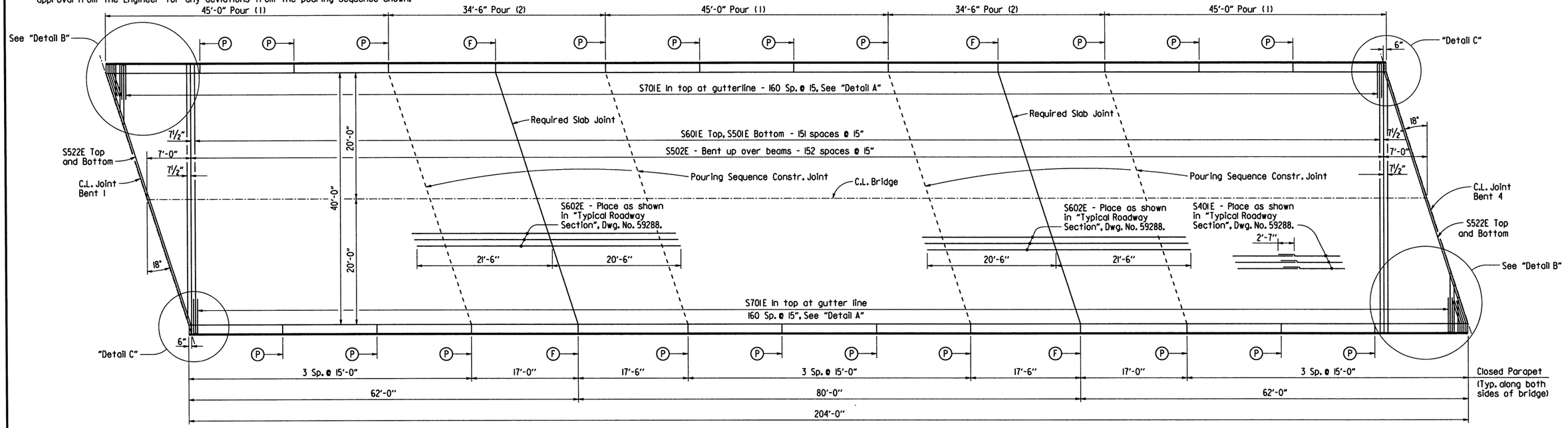
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. 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. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

(F) C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) Stop 1'-2" from top of slab.

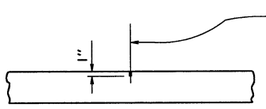
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	133	335

(1) A7195 - 204' CONT. UNIT - 59291



REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"



SLAB JOINT DETAIL

No Scale

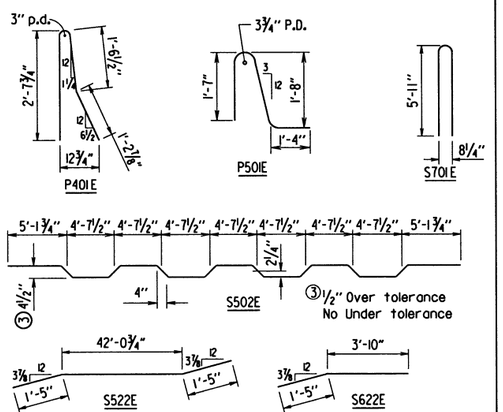
½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutter line to gutter line). Slab joints shall align with parapet open joints at the gutterline.

BAR LIST

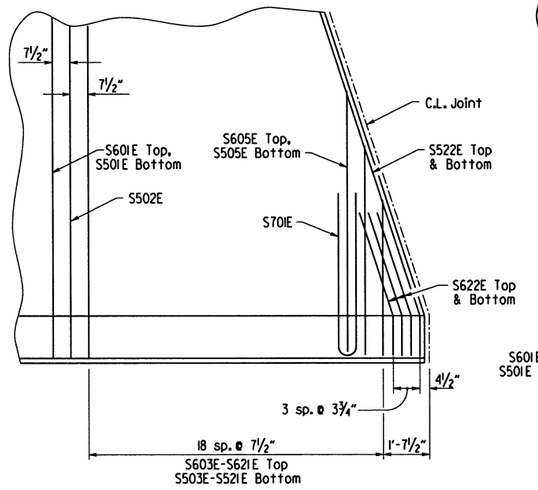
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	738	36'-1"	Str.
S501E	152	42'-10"	Str.
S502E	153	43'-6"	3"
S503E-S521E	2 each	Var. 5'-7" to 40'-3"	Str.
S522E	4	44'-11"	3¾"
S601E	152	42'-8"	Str.
S602E	92	42'-0"	Str.
S603E-S621E	2 each	Var. 5'-6" to 40'-2"	Str.
S622E	12	5'-3"	4½"
S701E	322	12'-1"	6½"
P401E	816	5'-6"	3"
P402E	54	14'-8"	Str.
P403E	12	16'-8"	Str.
P404E	12	17'-2"	Str.
P405E	32	32'-1"	Str.
P406E	16	41'-2"	Str.
P501E	816	4'-8"	3¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.

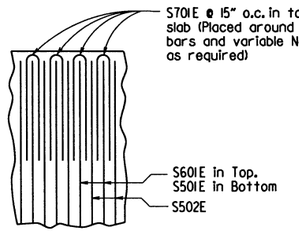


Bars marked with an "E" suffix shall be epoxy coated.



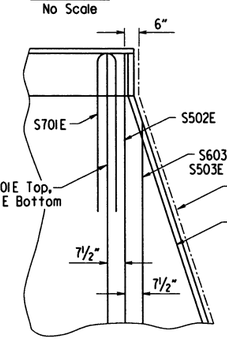
DETAIL B

No Scale



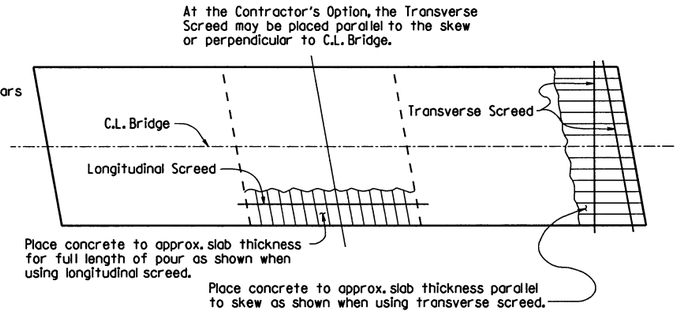
DETAIL A

No Scale



DETAIL C

No Scale



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 204' CONTINUOUS COMPOSITE W-BEAM UNIT
COUNTY ROAD 35

ROUTE SEC.

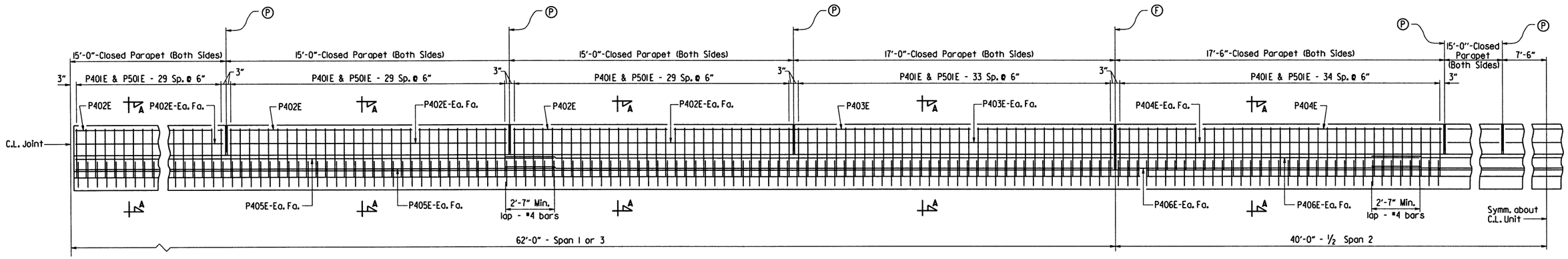
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/25/10
CHECKED BY: DATE: 9/7/17
DESIGNED BY: JWD DATE: 03-07
FILENAME: b090508a4_si.dgn
SCALE: As Shown

BRIDGE NO. A7195 DRAWING NO. 59291

PRINT DATE: 9/6/2017

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.		090508	134	335
				(1)		A7195 - 204' CONT. UNIT - 59292		

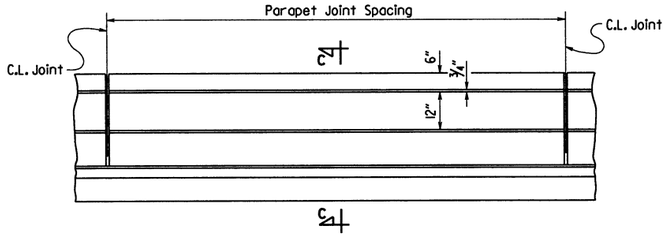


Ⓕ C.L. Full-Depth Parapet Joint 1¼" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 59291. Stop 4" from top of slab.

Ⓟ C.L. Partial-Depth Parapet Joint 1¼" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 59291. Stop 1'-2" from top of slab.

DETAILS OF PARAPET RAIL

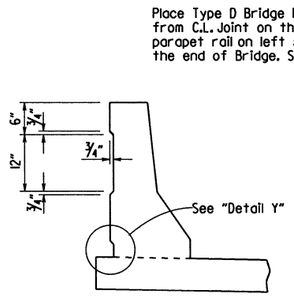
⅜" = 1'-0"



DETAILS OF PARAPET ENHANCEMENT

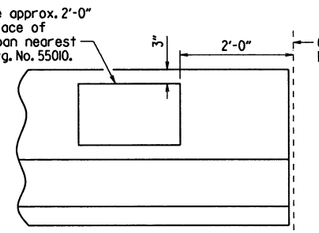
Outside Face Of Rail
No Scale

Place Type D Bridge Name Plate approx. 2'-0" from C.L. Joint on the front face of parapet rail on left side of span nearest the end of Bridge. See Std. Dwg. No. 55010.



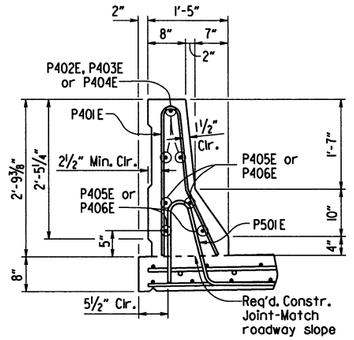
SECTION C-C

No Scale



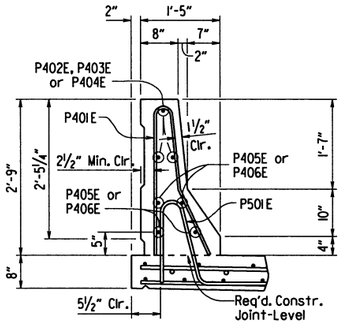
NAME PLATE DETAIL

No Scale



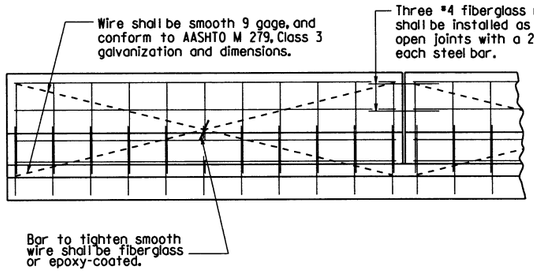
SECTION A-A

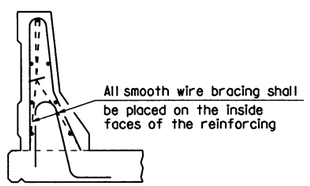
Low Side
¾" = 1'-0"

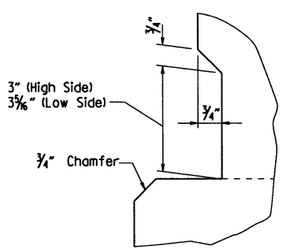


SECTION A-A

High Side
¾" = 1'-0"







DETAIL Y

No Scale

All panels shall be braced as required to prevent racking. All open 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.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 204' CONTINUOUS COMPOSITE W-BEAM UNIT
COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/25/10
CHECKED BY: KWY DATE: 9/7/17
DESIGNED BY: JWD DATE: 03-07
FILENAME: b090508a4_si.dgn
SCALE: As Shown

BRIDGE NO. A7195 DRAWING NO. 59292

PRINT DATE: 9/6/2017

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.		090508	135	335
				①	A7195 - 204' CONT. UNIT - 59293			

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Third Edition (2004) with 2005 and 2006 interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

STRUCTURAL STEEL:
All Structural Steel shall be AASHTO M 270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Structural Steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W. AASHTO M 270, Gr. 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless noted otherwise.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams, including web and flange splice plates, are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr.50W)".

Steel plates for main members 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

All beams shall be blocked in their true position in the shop as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60° F. A tolerance of 1/4" (plus or minus) is allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be 3/4"ø, except as noted, and open holes shall be 13/16 "ø unless otherwise noted. Holes for 3/4"ø bolts may be 15/16 "ø if a washer is supplied for use under both the nut and the head of the bolt. For field splices, bolts shall be 7/8"ø bolts. Open holes shall be 15/16 "ø. Bolts shall be placed with heads on the outside face of the exterior beam web and on the bottom of the beam flanges.

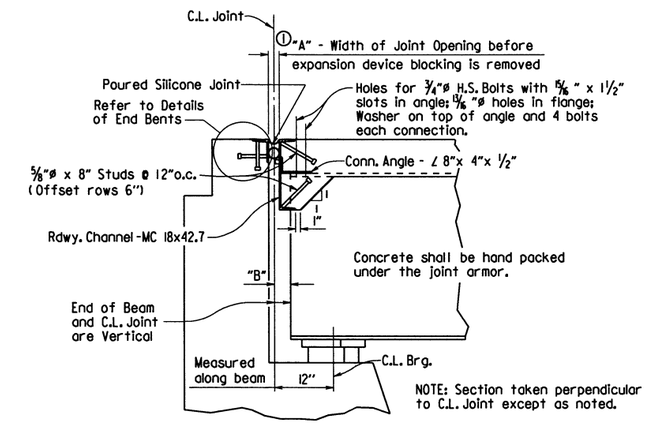
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer 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.

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 deck.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

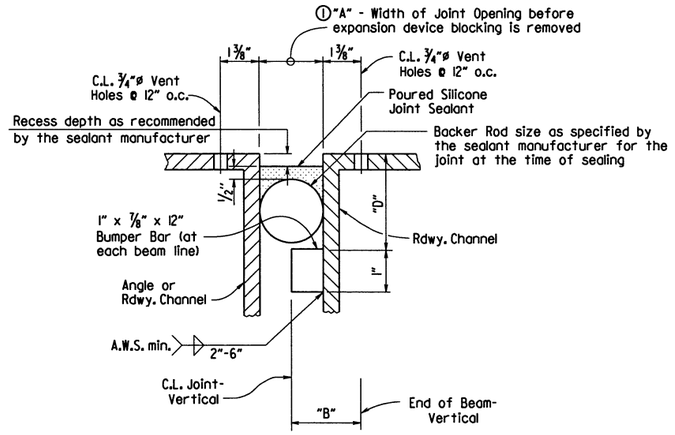
CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

The concrete deck shall be given a Tine Finish in accordance with Subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the parapet railing.



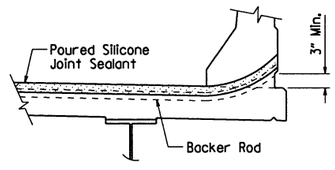
SECTION THRU JOINT AT BENTS 1 & 4

No Scale



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale

SILICONE JOINT DATA

Bent Number	① "A" Width Perpendicular to Joint at 24 Hour Average Temperature Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	"D"
	40°F	60°F	80°F			
1 & 4	1 7/8"	1 3/4"	1 5/8"	2 1/8" ±	1" x 7/8"	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.

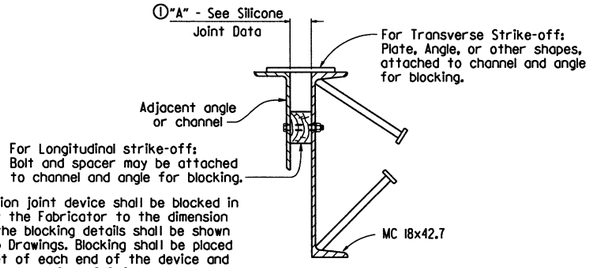
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

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 that can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension shown, 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

1 1/2" = 1'-0"

EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. 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. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 204' CONTINUOUS COMPOSITE W-BEAM UNIT
COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

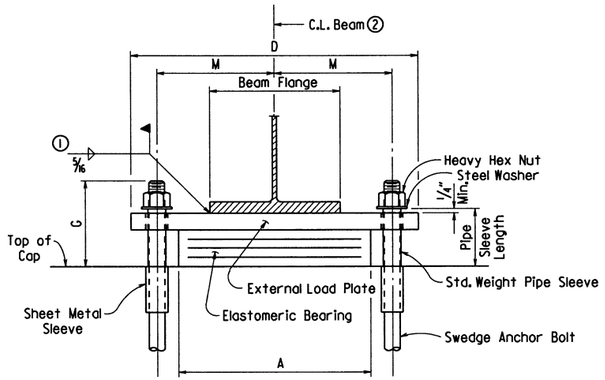
DRAWN BY: MRE DATE: 8/25/10
CHECKED BY: DATE: 9/7/17
DESIGNED BY: JWD DATE: 03-07
FILENAME: b090508a4_sl.dgn
SCALE: As Shown

BRIDGE NO. A7195 DRAWING NO. 59293

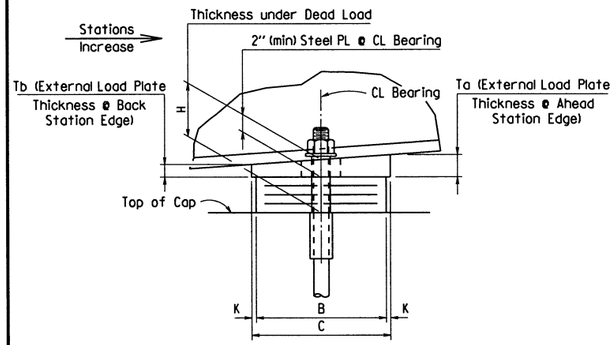
PRINT DATE: 9/6/2017

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.		090508	136	335

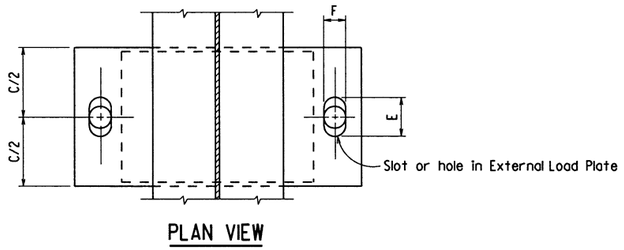
① A7195 - ELASTO BRGS - 59294



FRONT VIEW



SIDE VIEW



PLAN VIEW

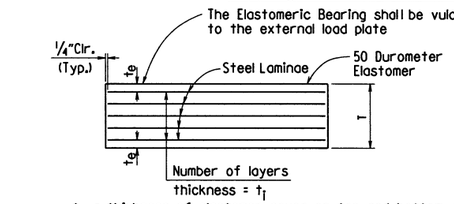
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② Centerline Beam shall align with centerline bearing.

The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

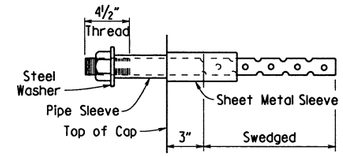
Prior to erection of the beams, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.

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° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.



t_e = thickness of elastomer cover on top and bottom of pad
t_i = thickness of elastomer between steel laminae
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the 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 Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)."

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: UNIT	LOCATION: BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD: G	ELASTOMERIC PAD: H	ELASTOMERIC PAD: A	ELASTOMERIC PAD: B	ELASTOMERIC PAD: N	ELASTOMERIC PAD: t_i	ELASTOMERIC PAD: t_e	ELASTOMERIC PAD: NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD: T	EXTERNAL LOAD PLATE: C	EXTERNAL LOAD PLATE: D	EXTERNAL LOAD PLATE: E	EXTERNAL LOAD PLATE: F	EXTERNAL LOAD PLATE:	EXTERNAL LOAD PLATE: K	EXTERNAL LOAD PLATE: M	EXTERNAL LOAD PLATE: T_a	EXTERNAL LOAD PLATE: T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	ANCHOR BOLT: GRADE	ANCHOR BOLT: PIPE SLEEVE SIZE (ø x L)	ANCHOR BOLT: SHEET METAL SLEEVE SIZE (ø x L)	ANCHOR BOLT: STEEL WASHER SIZE (O.D.)
A7195	1&4	204'	All	Exp	5	108	8½"	5 11/16"	15"	12"	5	½"	5/16"	6 @ 12 Ga.	3¾"	13"	25"	4"	2¼"	-	½"	9¾"	2.02	1.98	1½"ø x 25"	55	1½"ø x 6"	3"ø x 6"	3"
	2&3	204'	All	Fix	5	239	9"	5 11/16"	16"	12"	4	½"	5/16"	5 @ 12 Ga.	3⅛"	13"	29"	3¾"	3¾"	-	½"	11"	2.02	1.98	2½"ø x 37"	55	3"ø x 5½"	4"ø x 9"	4½"

③ Maximum Design Load = Service I Limit State

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings". External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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(e) for unpainted weathering steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (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 subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-1-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS COUNTY ROAD 35

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

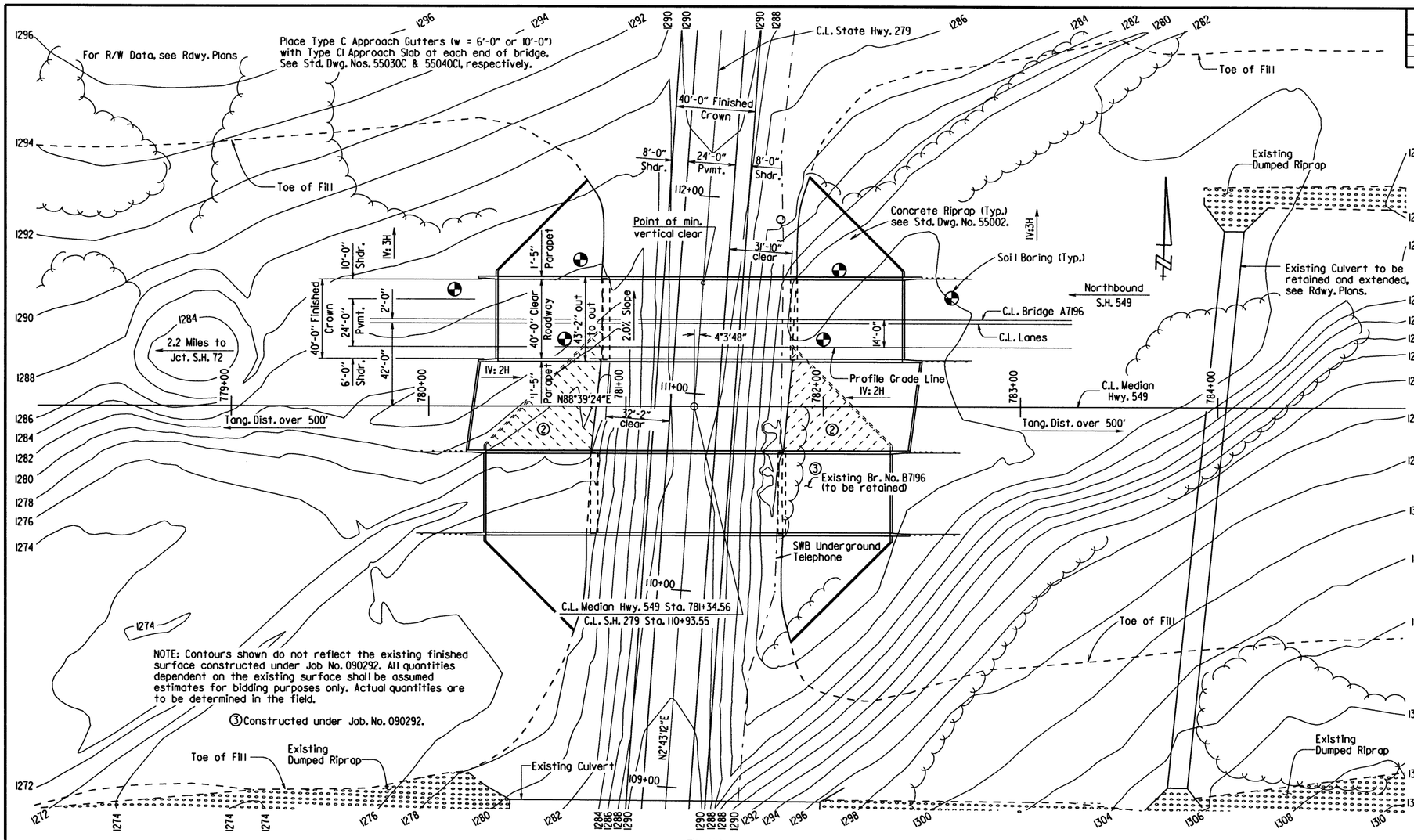
DRAWN BY: CRE DATE: 2-09-05 FILENAME: b090508a4_el.dgn
CHECKED BY: [illegible] DATE: 9/7/17 SCALE: No Scale
DESIGNED BY: JWD DATE: 03-07

BRIDGE NO. A7195 DRAWING NO. 59294

PRINT DATE: 9/7/2017

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.		090508	137	335

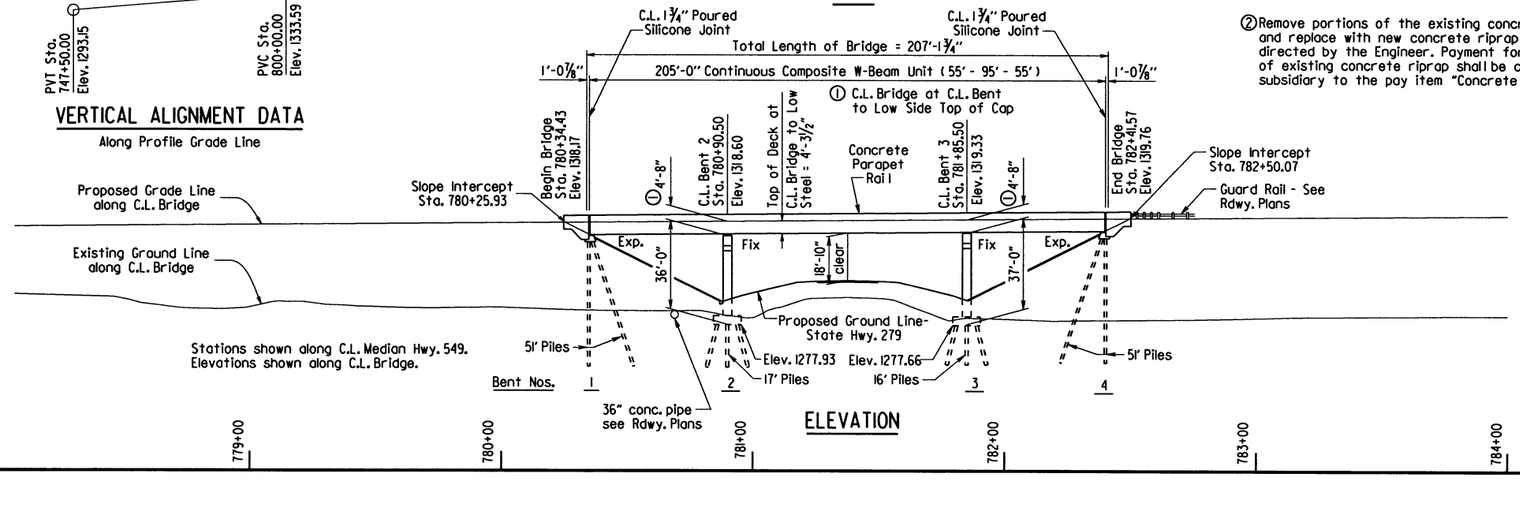
(1) A7196 - BRIDGE LAYOUT - 59295



PLAN

VERTICAL ALIGNMENT DATA

Along Profile Grade Line



ELEVATION

②Remove portions of the existing concrete riprap and replace with new concrete riprap as directed by the Engineer. Payment for removal of existing concrete riprap shall be considered subsidiary to the pay item "Concrete Riprap".

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survey Control Details.

CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2004 edition with 2005 & 2006 interims).

LIVE LOADING: HL93 SEISMIC ZONE: 1

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 M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 thru 4 shall be HP 12x53; AASHTO M 270, Gr. 50, and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons and into material designated as Chert and Limestone on the boring legend. Piles at Bents 1 & 4 shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

FOOTINGS: The top of footings for Bents 2 & 3 shall have a minimum cover above top of footings of 2'-0". Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class S Tined Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. 090508 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

DETAIL DRAWINGS:	DRAWING NUMBER(S):
End Bents	59297-59299
Intermediate Bents	59300
Steel Piles	55020
205' Continuous Composite W-Beam Unit	59301-59305
Elastomeric Bearings	59306
Type C Approach Gutters	55030C
Type CI Approach Slab	55040CI
Soil Borings	59296

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-28-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER HWY. 279
HWY. 71 - CO. RD. 34
(ADD'L LNS.)(B.V. BYPASS)(S)
BENTON COUNTY

ROUTE 549 SEC. 9

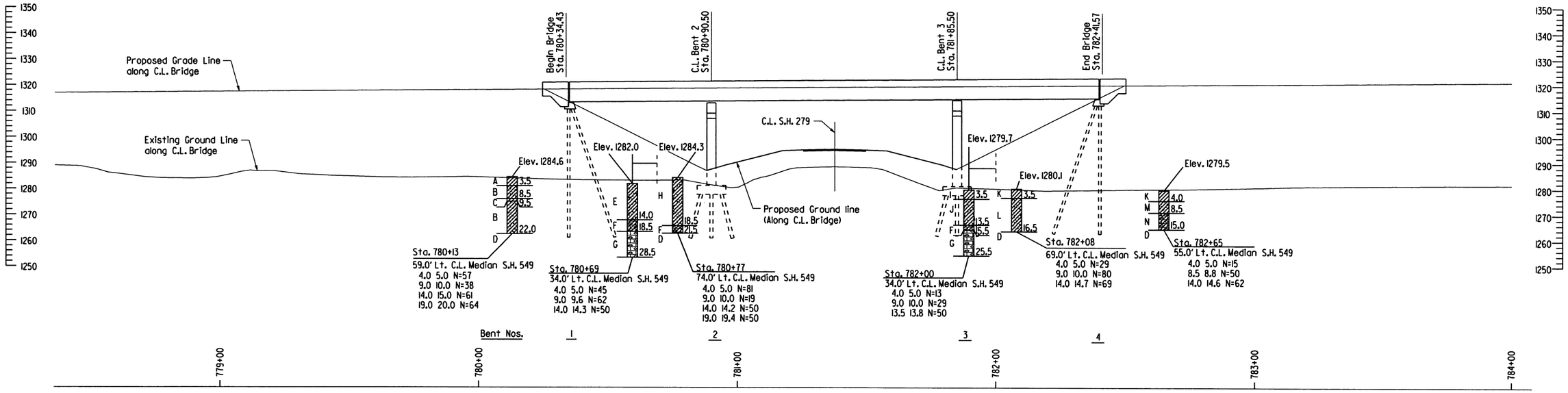
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWD DATE: 10-19-06
CHECKED BY: CMW DATE: 9/28/17
DESIGNED BY: CSL DATE: 09-06
FILENAME: b090508a3_II.dgn
SCALE: 1" = 30'-0"

BRIDGE NO. A7196 DRAWING NO. 59295

PRINT DATE: 9/28/2017

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.		090508	138	335
				① A7196 - BRIDGE LAYOUT - 59296				



ELEVATION OF SOIL BORINGS

Geotechnical information provided by others.

BORING LEGEND

A LEAN CLAY, some chert gravel reddish brown, moist (CL)
B LEAN CLAYEY GRAVEL, some sand reddish brown, dense, moist (GC)
C LEAN CLAY reddish brown, soft, wet (CL)
D Auger refusal on apparent limestone
E LEAN CLAYEY GRAVEL reddish brown, dense, moist to dry (GC)
F CHERT light gray, soft, highly weathered
G CHERT, stratified, limestone seams light gray, very fine grained, closely jointed, medium to thin bedded, slightly weathered to fresh, hard
H LEAN CLAYEY GRAVEL reddish brown, medium dense and dense, moist to dry (GC)
I SILTY LEAN CLAY, trace chert gravel brown, moist (CL)
J LEAN CLAYEY GRAVEL reddish brown, medium dense to dense, moist (GC)
K SILTY LEAN CLAY, some chert gravel brown, moist (CL)
L LEAN CLAYEY GRAVEL reddish brown, medium dense and dense, moist (GC)
M LEAN CLAYEY GRAVEL reddish brown, dense, moist (GC)
N CHERT, trace clay light gray, soft, highly weathered

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER HWY. 279
HWY. 71 - CO. RD. 34
(ADD'L LNS.)(B.V. BYPASS)(S)
BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

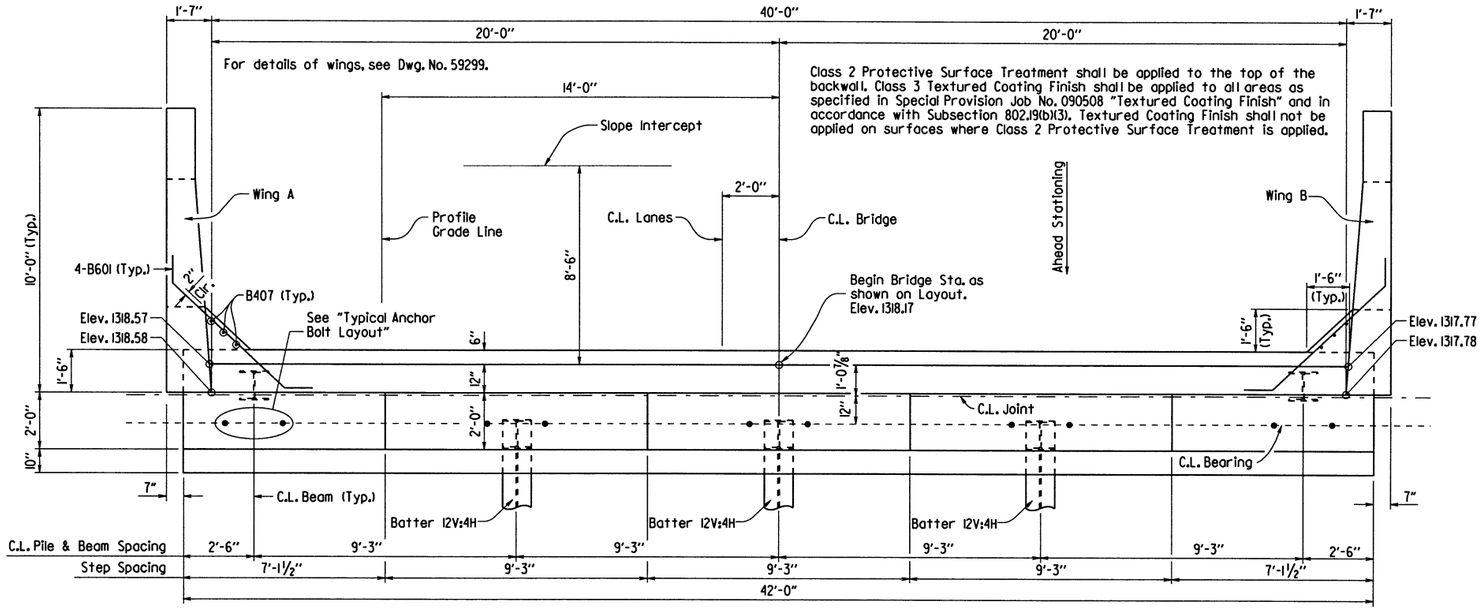
DRAWN BY: JWD DATE: 10-19-06
CHECKED BY: CMW DATE: 9/7/17
DESIGNED BY: CSL DATE: 09-06
FILENAME: b090508a3_ll.dgn
SCALE: 1" = 20'-0"

BRIDGE NO. A7196 DRAWING NO. 59296

PRINT DATE: 9/6/2017

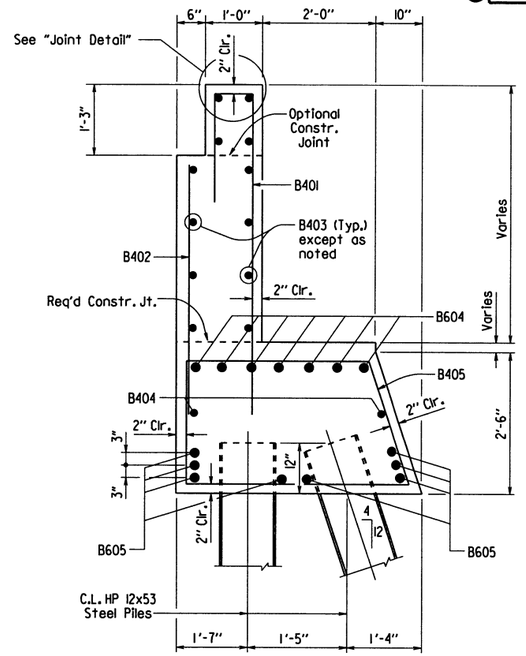
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	139	335

(1) A7196 - END BENTS - 59297



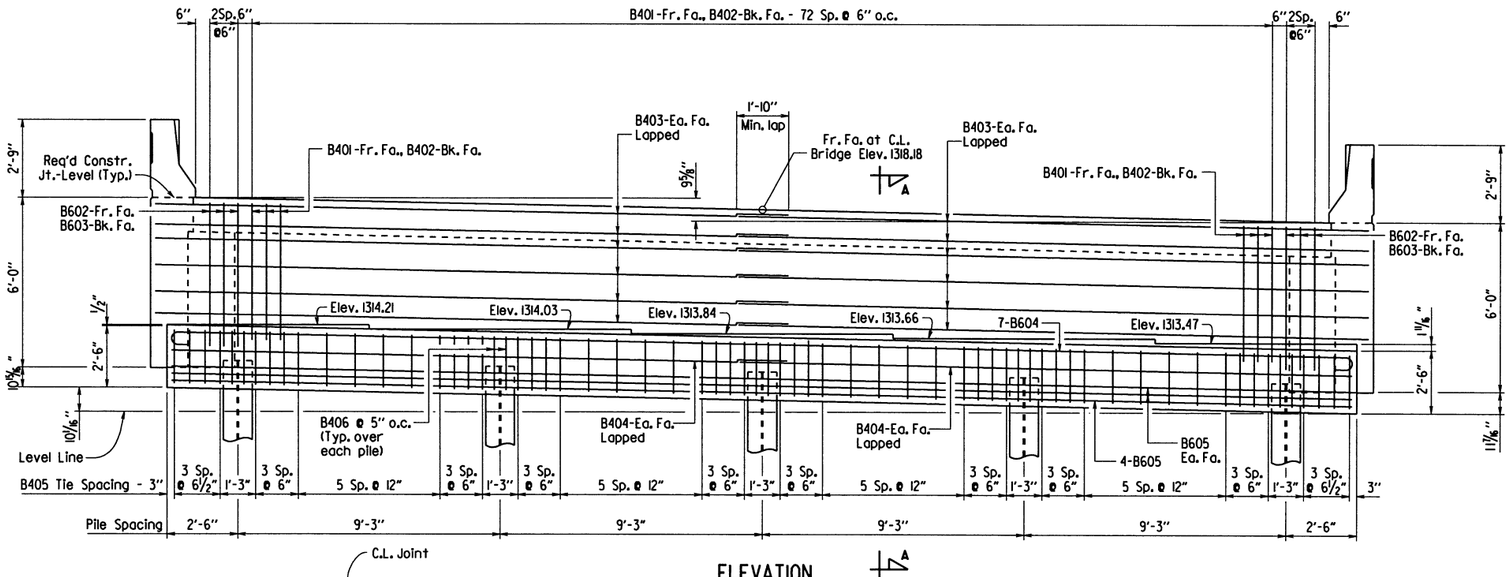
PLAN - BENT 1

⅜" = 1'-0"



SECTION A-A

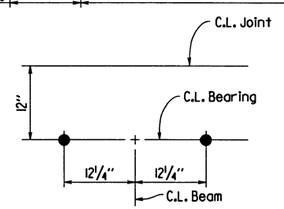
¾" = 1'-0"



ELEVATION

Bent 1 - Looking Back

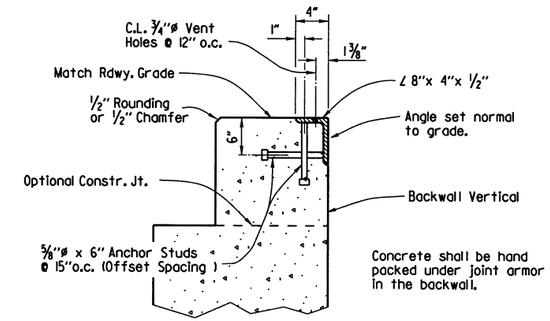
⅜" = 1'-0"



For details of Elastomeric Bearings, See Dwg. No. 59306.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



For additional Joint Details See Dwg. No. 59305.

JOINT DETAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

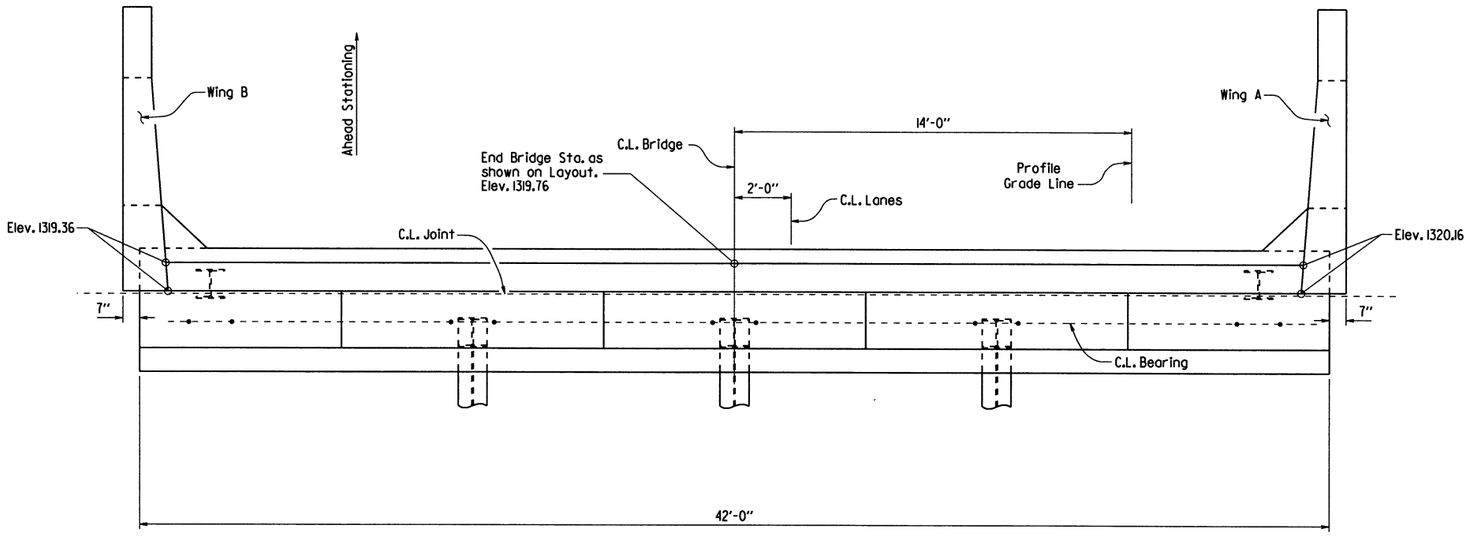
DRAWN BY: DHP DATE: 2-2-07
CHECKED BY: [illegible] DATE: 9-7-17
DESIGNED BY: DHP DATE: 01-07

FILENAME: b090508a3_bl.dgn
SCALE: As Shown

BRIDGE NO. A7196 DRAWING NO. 59297

PRINT DATE: 9/6/2017

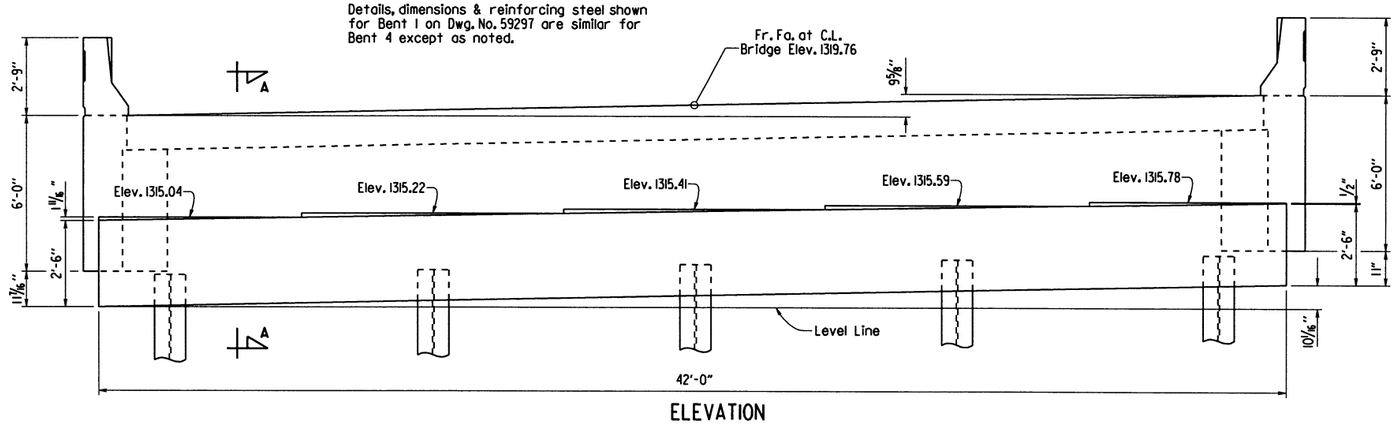
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	140	335
				①	A7196 - END BENTS - 59298			



PLAN - BENT 4

3/8" = 1'-0"

Details, dimensions & reinforcing steel shown for Bent 1 on Dwg. No. 59297 are similar for Bent 4 except as noted.



ELEVATION

Bent 4 - Looking Ahead

3/8" = 1'-0"

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

All structural steel shall be AASHTO M 270, Gr. 50W. Structural Steel in backwall shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

All piling shall be AASHTO M 270, Grade 50.

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note on Dwg. No. 59305.

For additional information, See Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DHP DATE: 2-2-07
CHECKED BY: BHS DATE: 9-7-17
DESIGNED BY: DHP DATE: 01-07

FILENAME: b090508a3_bl.dgn
SCALE: As Shown

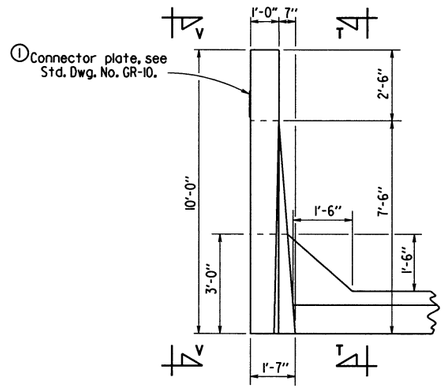
BRIDGE NO. A7196 DRAWING NO. 59298

PRINT DATE: 9/6/2017

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.		090508	141	335

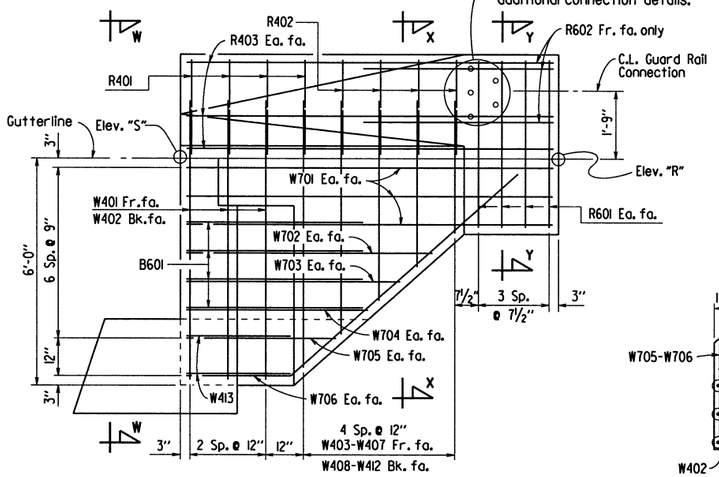
① A7196 - END BENTS - 59299

① Connector plate as required, see Roadway Plans for location of guardrail.



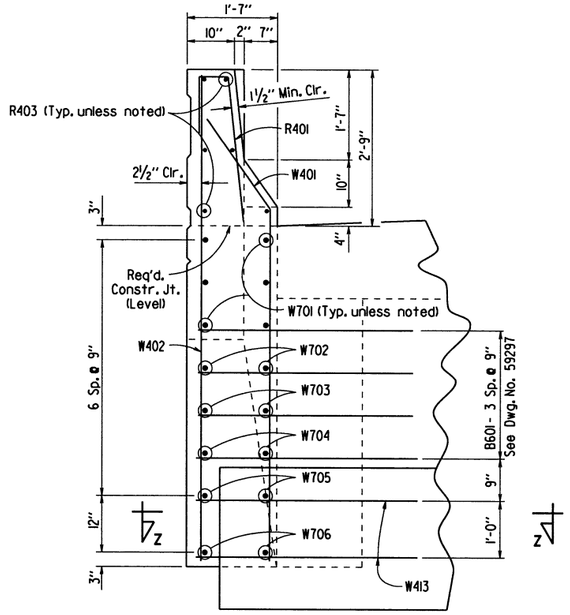
PLAN OF RAIL

3/8" = 1'-0"



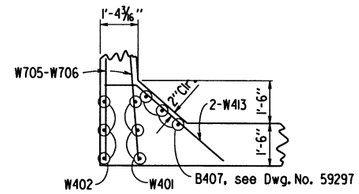
VIEW T-T

½"=1'-0"



VIEW W-W

¾"=1'-0"



SECTION Z-Z

⅜" = 1'-0"

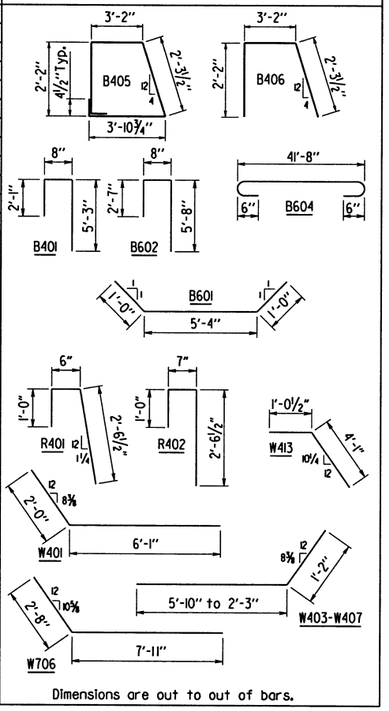
TABLE OF VARIABLES

BENT	WING	Elev. "S"	Elev. "R"	"A"
1	A	1318.58	1318.50	3'-11 1/16"
	B	1317.78	1317.70	3'-11 1/16"
4	A	1320.16	1320.24	4'-0 5/16"
	B	1319.36	1319.44	4'-0 5/16"

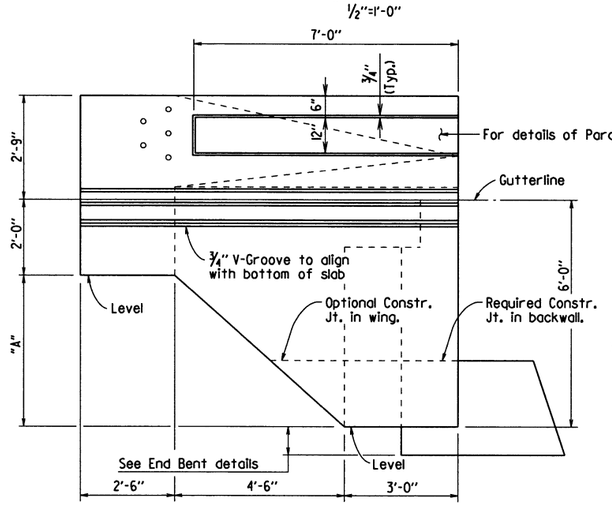
BAR LIST-PER BENT

Mark	No. Req'd	Length	Pin Dia.
B401	73	7'-10"	2"
B402	73	4'-0"	Str.
B403	24	22'-4"	Str.
B404	4	21'-9"	Str.
B405	56	11'-11"	2"
B406	10	7'-6"	2"
B407	6	4'-5"	Str.
B601	8	7'-4"	4½"
B602	6	8'-8"	4½"
B603	6	4'-6"	Str.
B604	7	43'-0"	4½"
B605	8	41'-8"	Str.
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	6	8'-1"	2"
W402	6	8'-5"	Str.
W403-W407	2 Ea.	7'-0" to 3'-5"	2"
W408-W412	2 Ea.	8'-1" to 4'-6"	Str.
W413	4	5'-1"	2"
W701	12	9'-8"	Str.
W702	4	6'-5"	Str.
W703	4	5'-7"	Str.
W704	4	4'-9"	Str.
W705	4	3'-11"	Str.
W706	4	10'-7"	5¼"

Bending Diagram

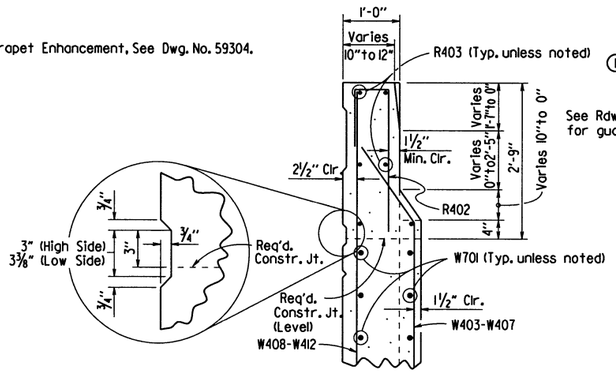


Dimensions are out to out of bars.



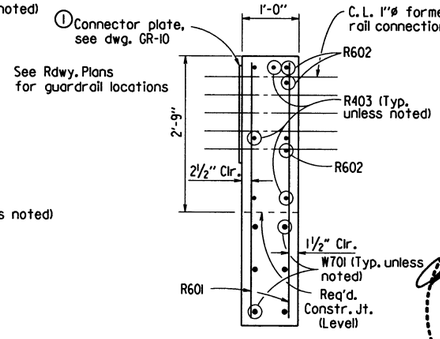
VIEW V-V

½"=1'-0"



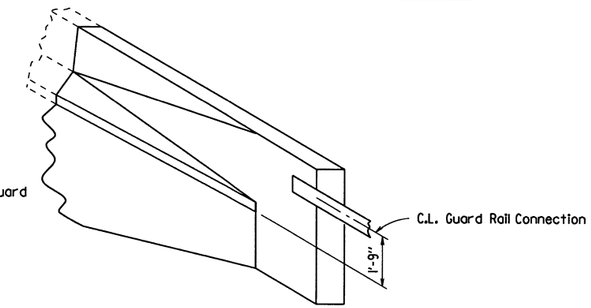
SECTION X-X

¾"=1'-0"



SECTION Y-Y

¾"= 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DHP DATE: 2-2-07
CHECKED BY: BHS DATE: 9-7-17
DESIGNED BY: DHP DATE: 01-07

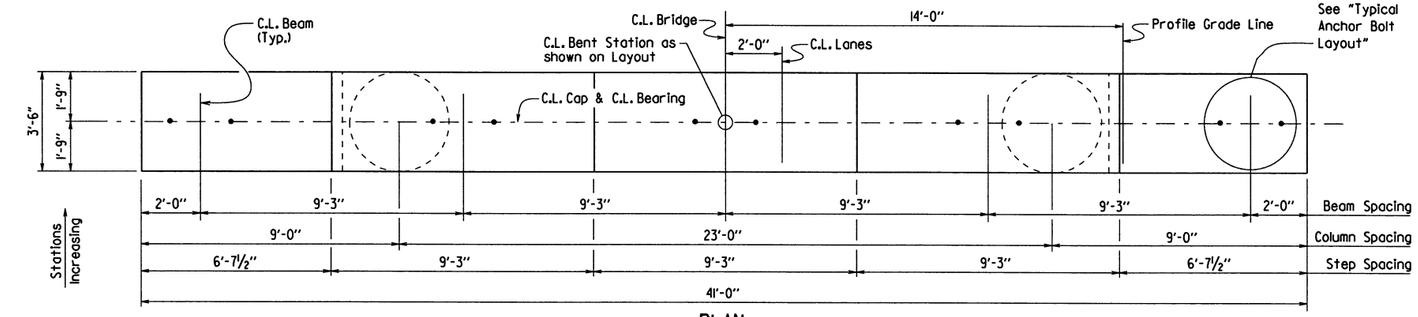
FILENAME: b090508a3.bl.dgn
SCALE: As Shown

BRIDGE NO. A7196 DRAWING NO. 59299

PRINT DATE: 9/6/2017

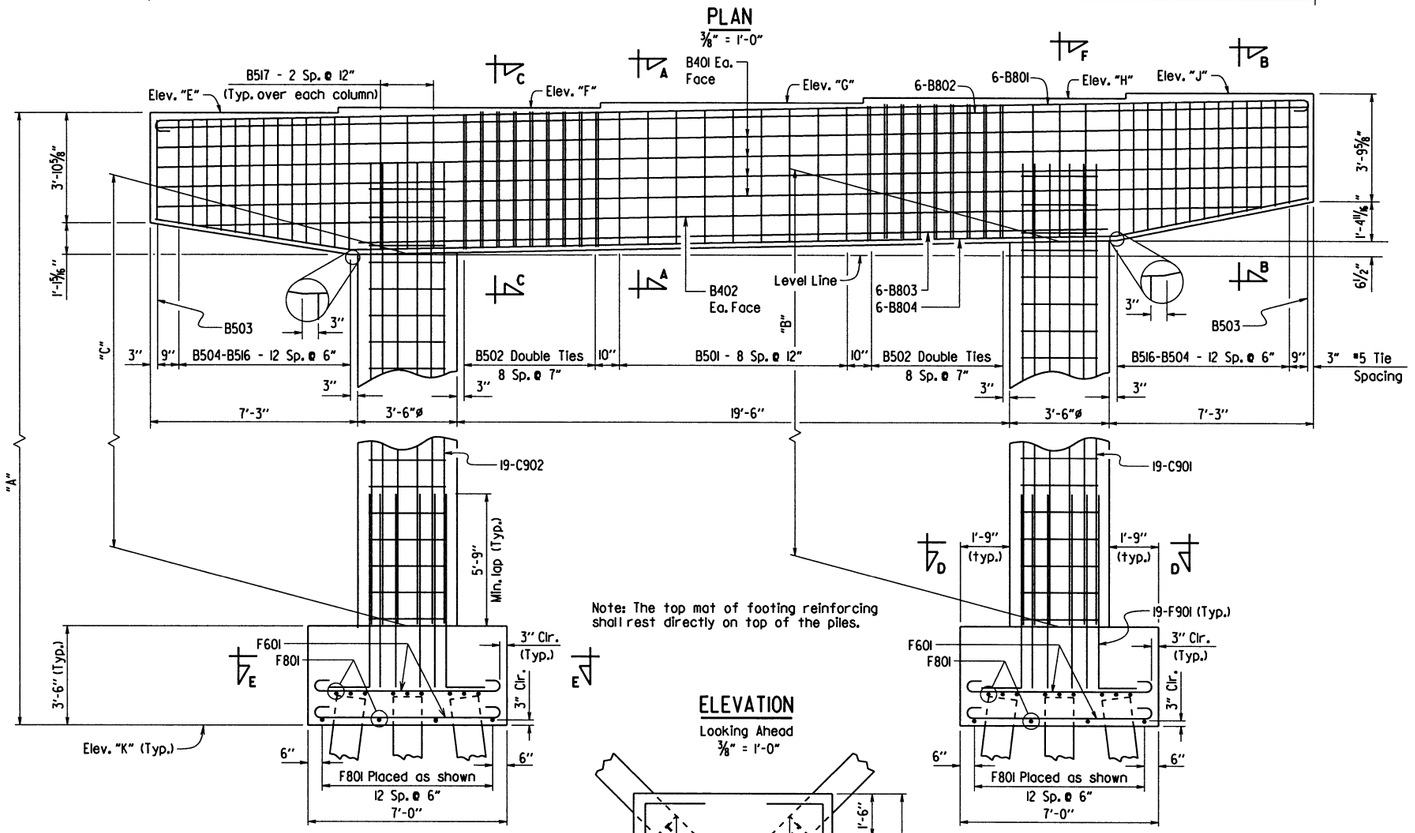
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	142	335

(1) A7196 - INTERMEDIATE BENTS - 59300

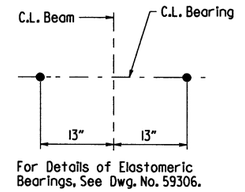


PLAN

¾" = 1'-0"



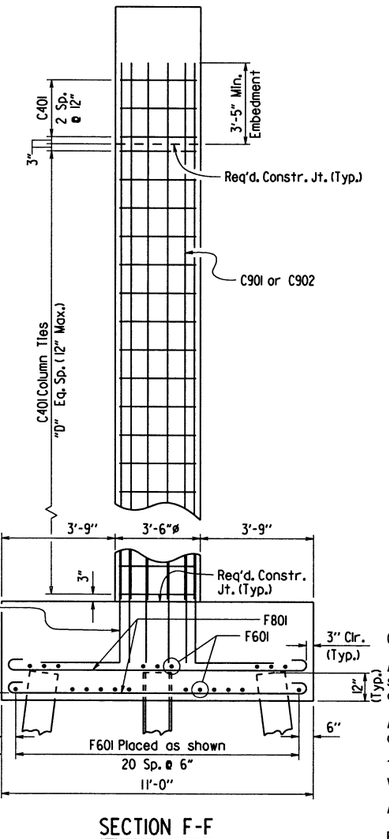
Note: The top mat of footing reinforcing shall rest directly on top of the piles.



For Details of Elastomeric Bearings, See Dwg. No. 59306.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"



SECTION F-F

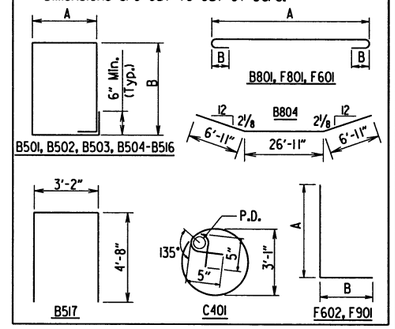
⅜" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B401	8	40'-8"			Str.
B402	2	37'-6"			Str.
B501	9	16'-2"	3'-2"	4'-8"	2½"
B502	36	14'-2"	2'-2"	4'-8"	2½"
B503	2	13'-9"	3'-2"	3'-5½"	2½"
B504-B516	2 each	Var. 14'-0" to 16'-2"	3'-2"	Var. 3'-7" to 4'-8"	2½"
B517	6	12'-4"			2½"
B801	6	42'-6"	40'-8"	8"	6"
B802	6	40'-8"			Str.
B803	6	26'-6"			Str.
B804	6	40'-9"			6"
C401	"N"	10'-9"			3"
C901	19	"L"			Str.
C902	19	"M"			Str.
F601	42	7'-10"	6'-6"	6"	4½"
F602	8	4'-10"	2'-6"	2'-6"	4½"
F801	26	12'-4"	10'-6"	8"	6"
F901	38	11'-5"	10'-0"	1'-8"	9"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

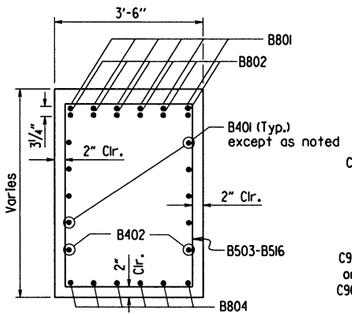
All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

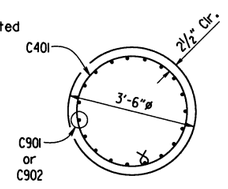
All piling shall be AASHTO M 270, Grade 50.

For additional information, See Layout.



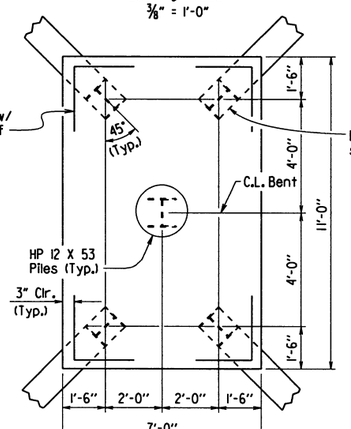
SECTION B-B

½" = 1'-0"



SECTION D-D

½" = 1'-0"



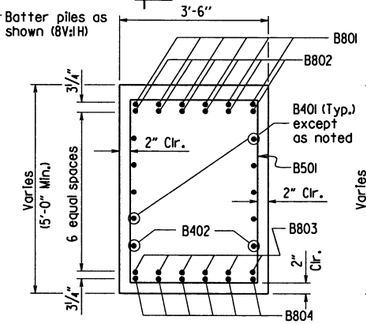
ELEVATION

Looking Ahead

⅜" = 1'-0"

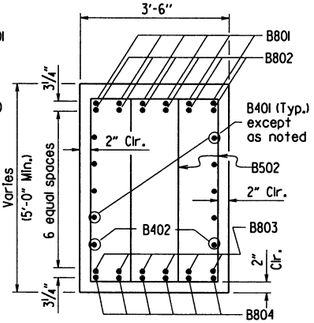
SECTION E-E

No Scale



SECTION A-A

½" = 1'-0"



SECTION C-C

½" = 1'-0"

TABLE OF VARIABLES

Bent No.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"
2	36'-0"	28'-0⅛"	27'-6⅝"	29	1313.93	1314.12	1314.30	1314.49	1314.67	1277.93	31'-5"	30'-11"	66
3	37'-0"	29'-0⅛"	28'-6⅝"	30	1314.66	1314.85	1315.03	1315.22	1315.40	1277.66	32'-5"	31'-11"	68

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DHP DATE: 2-13-07 FILENAME: b090508a3_b2.dgn

CHECKED BY: BHS DATE: 9-7-17 SCALE: As Shown

DESIGNED BY: DHP DATE: 01-07

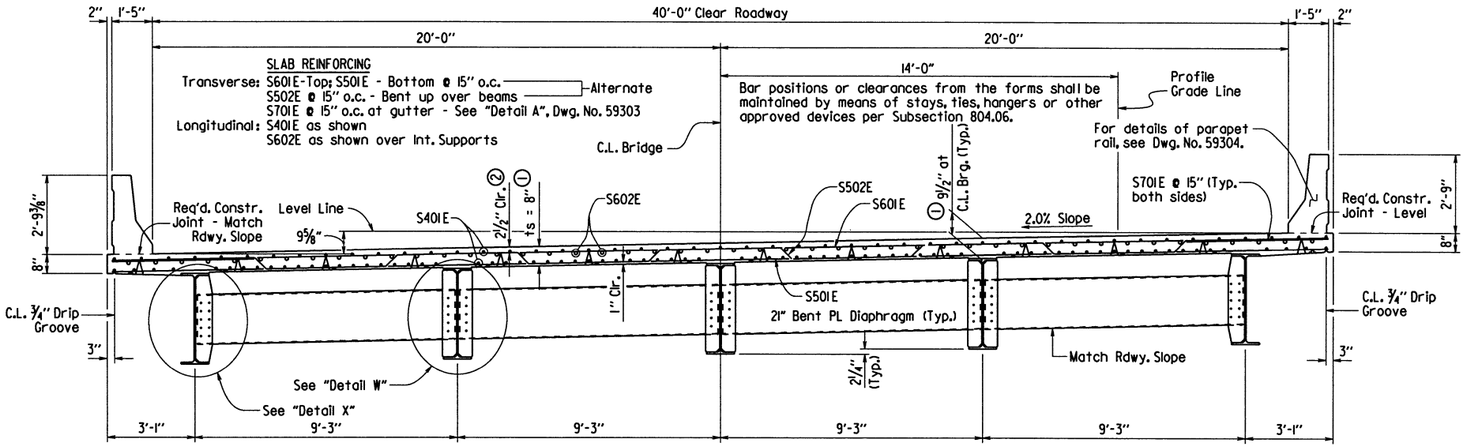
BRIDGE NO. A7196 DRAWING NO. 59300

PRINT DATE: 9/6/2017

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.		090508	143	335
				①	A7196 - 205' CONT. UNIT - 59301			

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the front face and top of the Concrete Parapet Rail. A Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job 090508 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 protective Surface treatment is applied.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

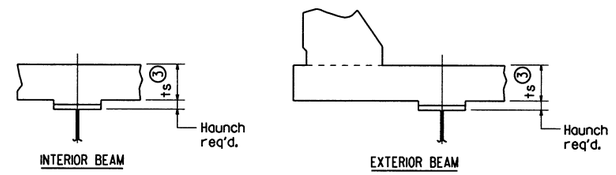


TYPICAL ROADWAY SECTION

Looking Ahead
⅜" = 1'-0"

① See Adjustment for Slab Thickness Tolerance

② Tolerance: Minus = ¼"
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".



③ Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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.

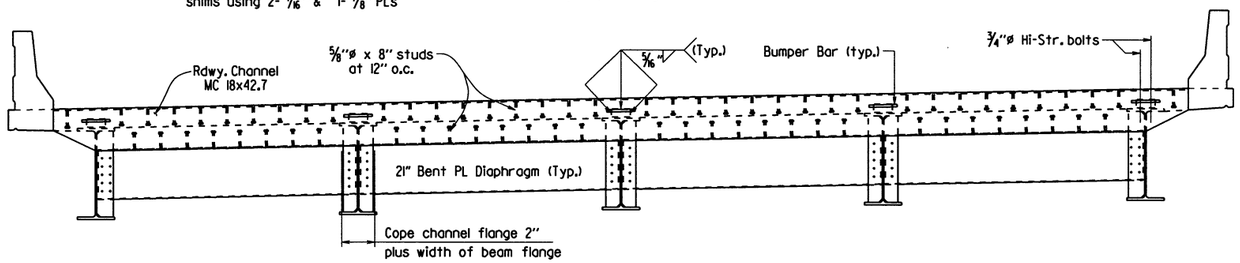
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

Expansion Device:
Rdwy. Channel-MC 18x42.7
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 5/16" & 1- ⅛" PLs

For details of poured silicone joint, see Dwg. No. 59305.

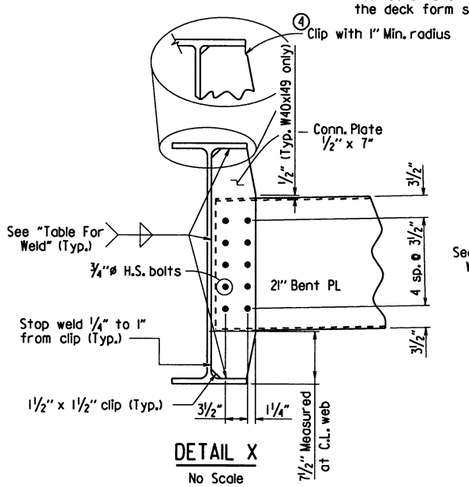
The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete.



SECTION THRU JOINT

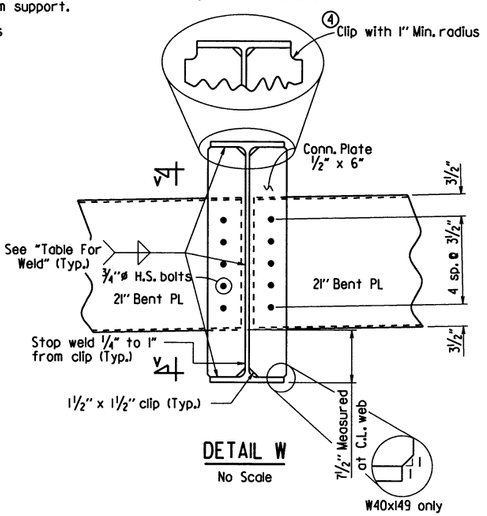
Looking Ahead
⅜" = 1'-0"

④ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



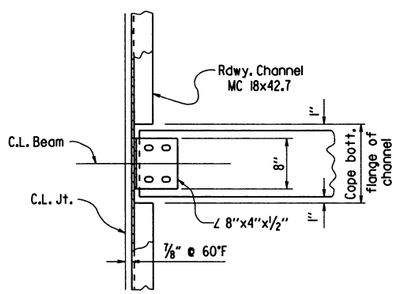
DETAIL X

No Scale



DETAIL W

No Scale



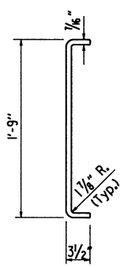
CHANNEL CONNECTION DETAIL

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

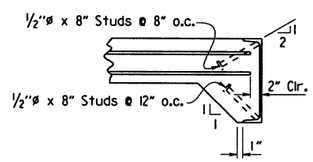
When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



Typical cross-section for all 21" bent plate diaphragms.

SECTION V-V

No Scale



As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCING

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
HWY. 279

ROUTE SEC.

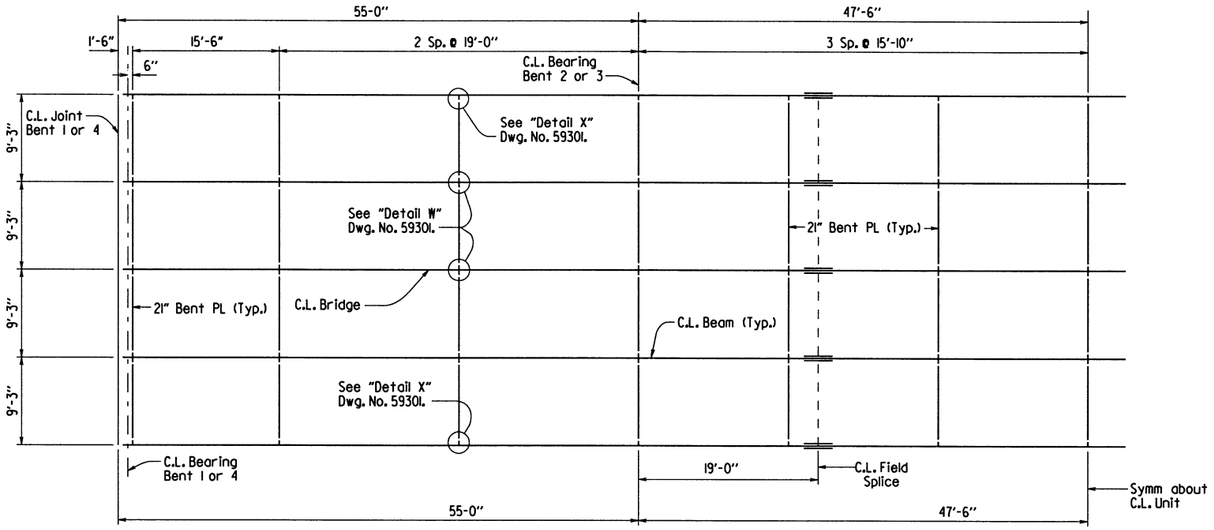
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/27/10 FILENAME: b090508a3_sl.dgn
CHECKED BY: KWH DATE: 9/7/17 SCALE: As Shown
DESIGNED BY: DHP DATE: 01-07

BRIDGE NO. A7196 DRAWING NO. 59301

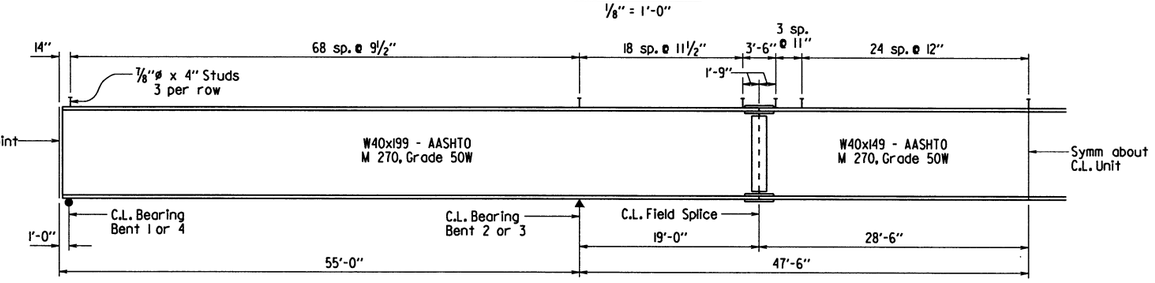
PRINT DATE: 9/6/2017

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.		090508	144	335
				A7196 - 205' CONT. UNIT - 59302				



FRAMING PLAN

1/8" = 1'-0"

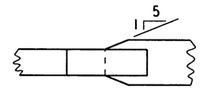


Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

All structural steel shall be AASHTO M 270, Gr. 50W, unless otherwise noted, and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

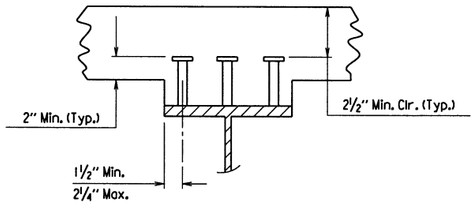
BEAM ELEVATION

No Scale



FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

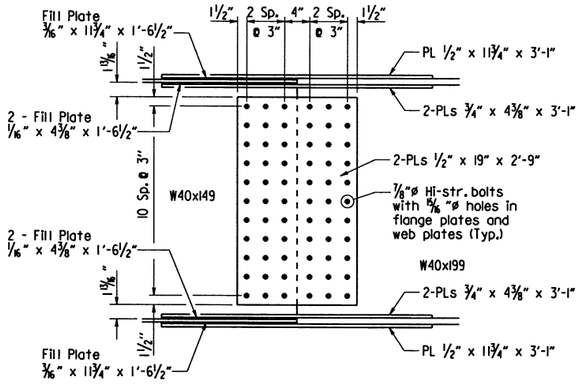
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

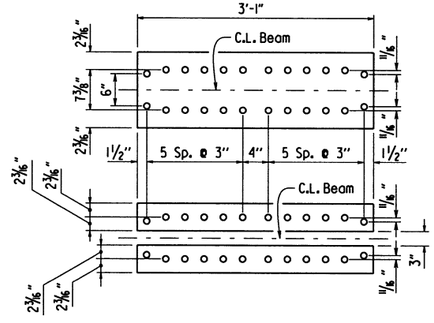
SHEAR CONNECTOR DETAIL

No Scale



WEB SPLICE

All splice plates shall be AASHTO M 270, Gr. 50W



FLANGE SPLICE

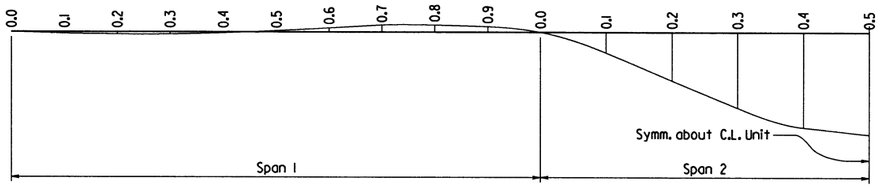
FIELD SPLICE DETAIL

1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0	0	0	0	0	0
	0.1	0.006	0.006	0.025	0.022	0.026	0.023
	0.2	0.009	0.009	0.040	0.035	0.041	0.036
	0.3	0.011	0.011	0.039	0.034	0.039	0.034
	0.4	0.009	0.009	0.019	0.017	0.017	0.015
	0.5	0.005	0.005	-0.018	-0.015	-0.023	-0.020
	0.6	-0.001	-0.001	-0.065	-0.055	-0.073	-0.063
	0.7	-0.008	-0.008	-0.103	-0.088	-0.113	-0.099
	0.8	-0.011	-0.011	-0.118	-0.101	-0.128	-0.112
	0.9	-0.010	-0.010	-0.091	-0.078	-0.099	-0.086
Span 2	0	0	0	0	0	0	0
	0.1	0.044	0.044	0.342	0.293	0.369	0.322
	0.2	0.107	0.107	0.808	0.693	0.872	0.760
	0.3	0.169	0.169	1.268	1.087	1.366	1.191
	0.4	0.215	0.215	1.596	1.369	1.719	1.499
C.L. Unit →	0.5	0.232	0.232	1.715	1.471	1.847	1.610

Table is symmetrical about C.L. Unit



Camber for Dead Load Deflection plus Vertical curve ±¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord. Deflections are based on the pouring sequence shown on Dwg. No. 59303. Deviations from the plans may require adjustment to structural steel camber.

DEAD LOAD DEFLECTION DIAGRAM

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/27/10
CHECKED BY: KWY DATE: 9/7/17
DESIGNED BY: DHP DATE: 01-07

FILENAME: b090508a3_sl.dgn
SCALE: As Shown

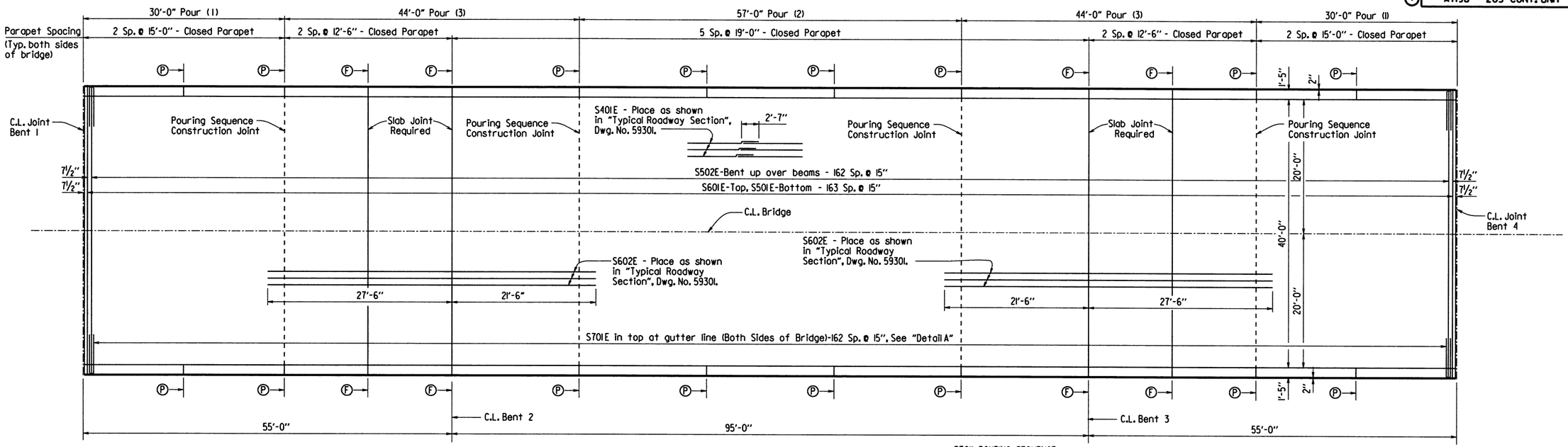
BRIDGE NO. A7196 DRAWING NO. 59302

PRINT DATE: 9/6/2017

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.		090508	145	335
				①	A7196 - 205' CONT. UNIT - 59303			

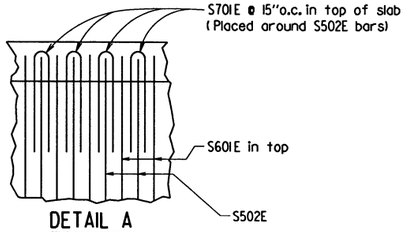
Ⓕ C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) Stop 4" from top of slab.

Ⓟ C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) Stop 1'-2" from top of slab.



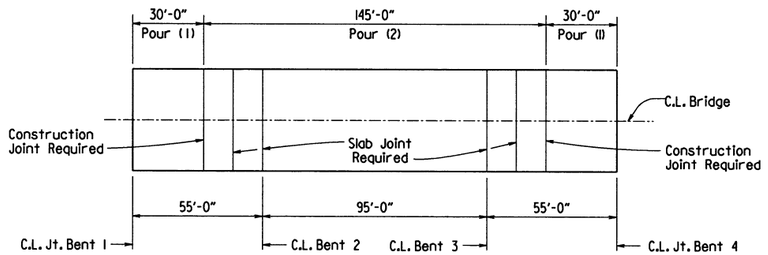
REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"



DETAIL A

No Scale



ALTERNATE POURING SEQUENCE

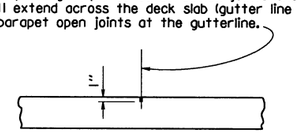
No Scale

DECK POURING SEQUENCE

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pour (2) can be placed. Pour (2) must be in place before Pours (3) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. 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. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. There will be no deviation from the Pouring Sequences shown.

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. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. There will be no deviation allowed from the Pouring Sequences shown.

1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutter line to gutter line). Slab joints shall align with parapet open joints at the gutterline.



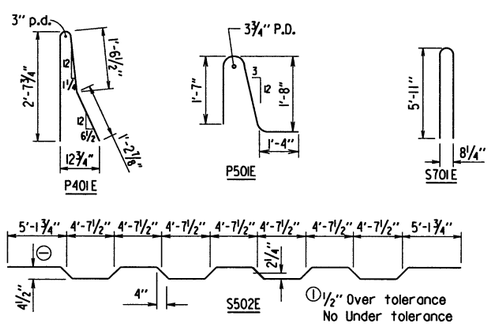
SLAB JOINT DETAIL

No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	615	39'-5"	Str.
P401E	820	5'-6"	3"
P402E	24	14'-8"	Str.
P403E	40	12'-2"	Str.
P404E	30	18'-8"	Str.
P405E	16	42'-2"	Str.
P406E	24	33'-4"	Str.
S501E	164	42'-10"	Str.
S502E	163	43'-6"	3"
P501E	820	4'-8"	3 3/4"
S601E	164	42'-10"	Str.
S602E	92	49'-0"	Str.
S701E	326	12'-1"	6 1/2"

BENDING DIAGRAMS



Dimensions are out to out of bars.
Bars marked with an "E" suffix shall be epoxy coated.

ALTERNATE POURING SEQUENCE

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
HWY. 279

ROUTE SEC.

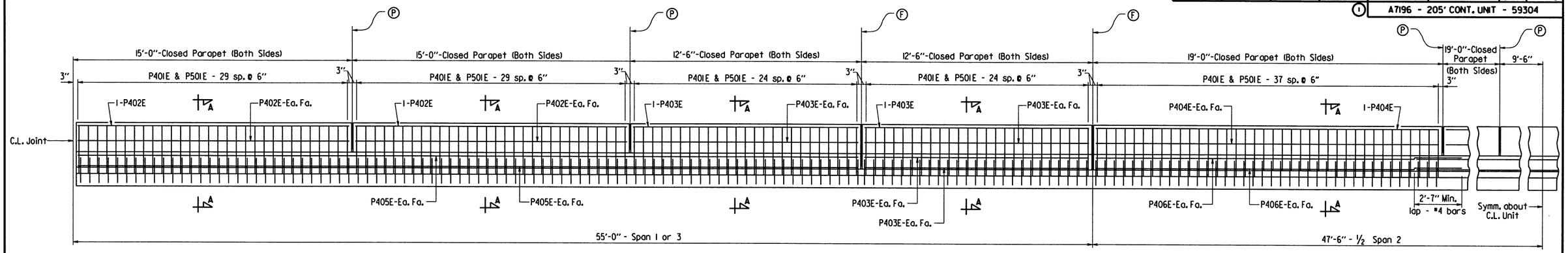
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/27/10
CHECKED BY: DHP DATE: 9/9/17
DESIGNED BY: DHP DATE: 01-07
FILENAME: b090508a3_sl.dgn
SCALE: As Shown

BRIDGE NO. A7196 DRAWING NO. 59303

PRINT DATE: 9/6/2017

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.		090508	146	335
				(1)	A7196 - 205' CONT. UNIT - 59304			

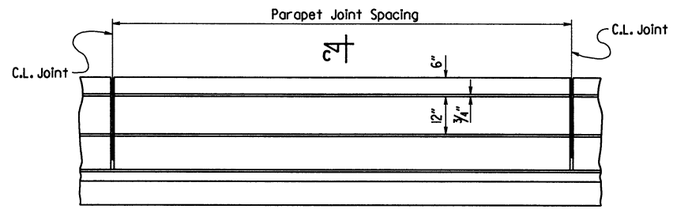


(F) C.L. Full-Depth Parapet Joint (¼" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 59303. Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 59303. Stop 1'-2" from top of slab.

DETAILS OF PARAPET RAIL

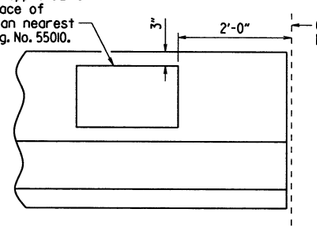
⅜" = 1'-0"



DETAILS OF PARAPET ENHANCEMENT

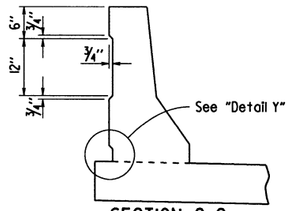
Outside Face Of Rail
No Scale

Place Type D Bridge Name Plate approx. 2'-0" from C.L. Joint on the front face of parapet rail on left side of span nearest the end of Bridge. See Std. Dwg. No. 55010.



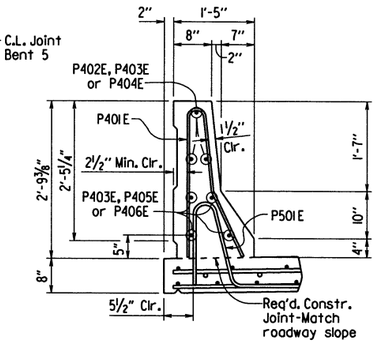
NAME PLATE DETAIL

¾" = 1'-0"



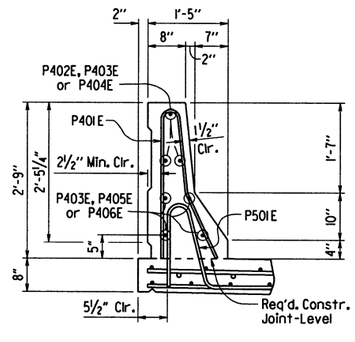
SECTION C-C

No Scale



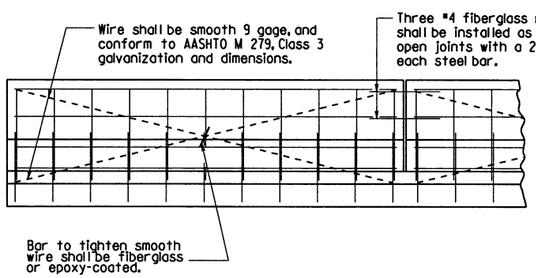
SECTION A-A

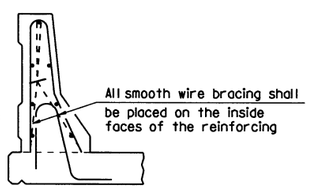
Low Side
¾" = 1'-0"



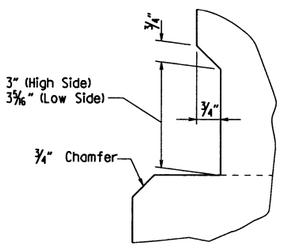
SECTION A-A

High Side
¾" = 1'-0"





For actual placement of reinforcing steel, see parapet details.



DETAIL Y

No Scale

All panels shall be braced as required to prevent racking. All open 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.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 8/27/10
CHECKED BY: KWY DATE: 9/7/17
DESIGNED BY: DHP DATE: 01-07
FILENAME: b090508a3_sl.dgn
SCALE: As Shown

BRIDGE NO. A7196 DRAWING NO. 59304

PRINT DATE: 9/6/2017

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.		090508	147	335
				①	A7196 - 205' CONT. UNIT - 59305			

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Third Edition (2004) with 2005 and 2006 interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

STRUCTURAL STEEL:
All Structural Steel shall be AASHTO M 270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Beam Spans (M 270, Gr.50W)". Structural Steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50, or Gr. 50W. AASHTO M 270, Gr.50W Steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless noted otherwise.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams including web and flange splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr.50W)".

Steel plates for main members 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

All beams shall be blocked in their true position in the shop as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60° F. A tolerance of 1/4" (plus or minus) allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be 3/4"ø, except as noted, and open holes shall be 15/16 "ø unless otherwise noted. Holes for 3/4"ø bolts may be 5/8 "ø if a washer is supplied for use under both the nut and the head of the bolt. For field splices, bolts shall be 7/8"ø bolts. Open holes shall be 5/8 "ø. Bolts shall be placed with heads on the outside face of the exterior beam web and on the bottom of the beam flanges.

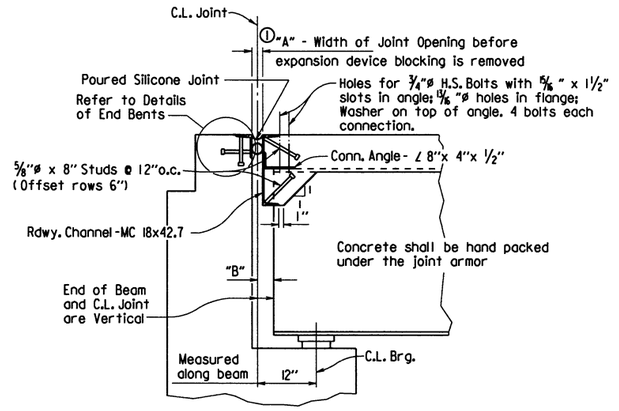
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer 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.

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 deck.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

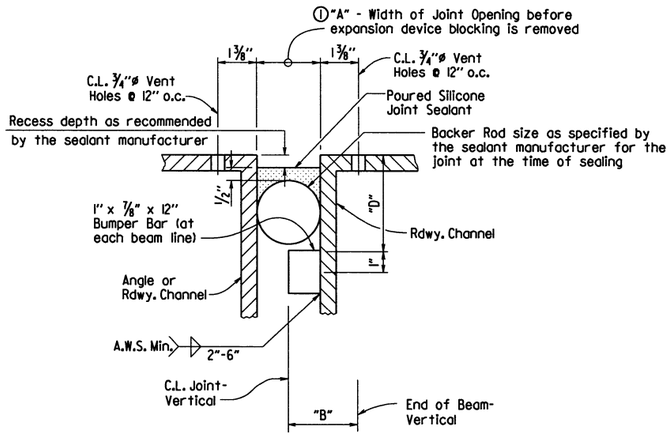
CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

The concrete deck shall be given a Tine Finish in accordance with Subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the parapet railing.



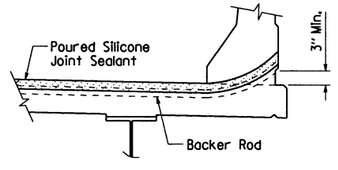
SECTION THRU JOINT AT BENTS 1 & 4

3/4" = 1'-0"



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale

SILICONE JOINT DATA

Bent Number	① "A" Width Perpendicular to Joint at 24 Hour Average Temperature Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	"D"
	40°F	60°F	80°F			
1 & 4	1 5/16 "	1 3/4"	1 3/16 "	2 1/8" ±	1" x 7/8"	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.

The temperature limitations recommended by the sealant manufacturer shall be observed.

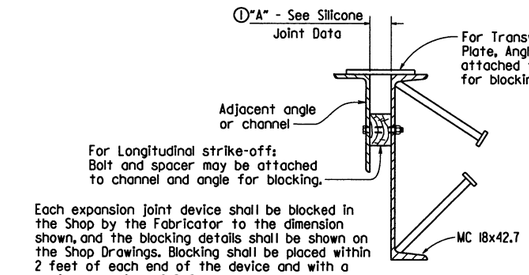
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

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 that can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension shown, 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

1 1/2" = 1'-0"

EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 205'-0" CONTINUOUS COMPOSITE W-BEAM UNIT HWY. 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

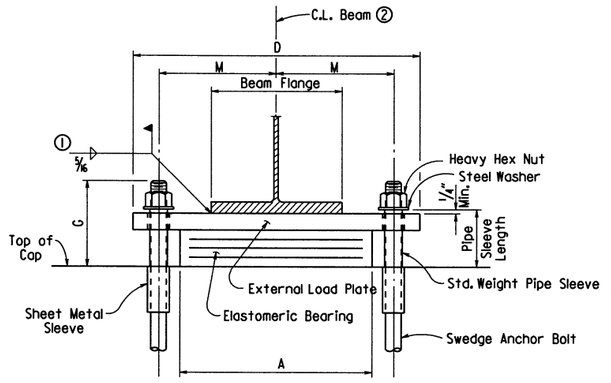
DRAWN BY: MRE DATE: 8/27/10 FILENAME: b090508a3_sl.dgn
CHECKED BY: KWW DATE: 9-7-17 SCALE: As Shown
DESIGNED BY: DHP DATE: 01-07

BRIDGE NO. A7196 DRAWING NO. 59305

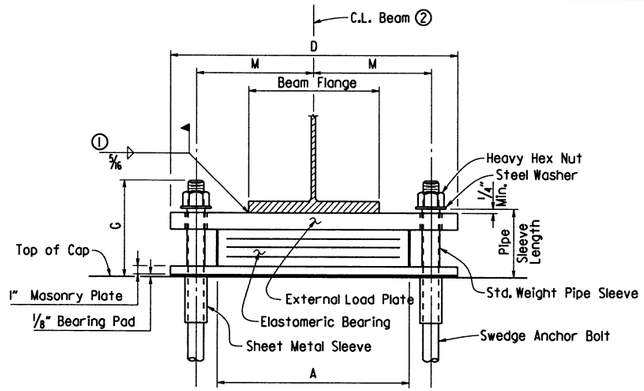
PRINT DATE: 9/6/2017

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.		090508	148	335

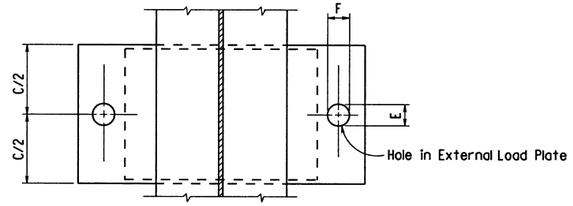
① A7196 - ELASTO. BRGS. - 59306



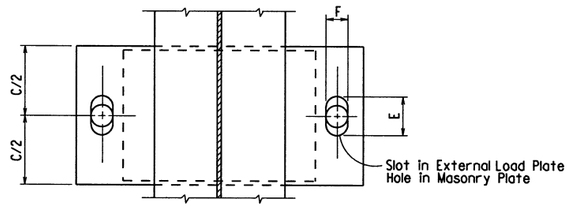
FRONT VIEW - AT BENT NOS. 2 & 3



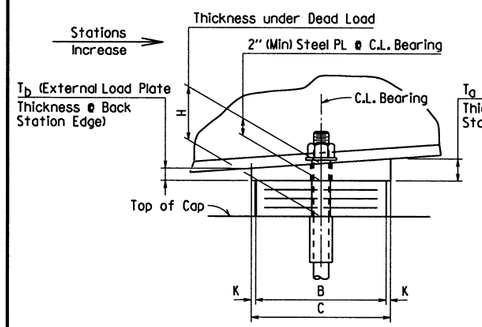
FRONT VIEW - AT BENT NOS. 1 & 4



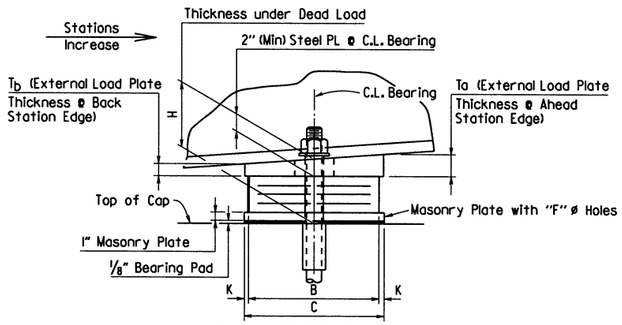
PLAN VIEW - AT BENT NOS. 2 & 3



PLAN VIEW - AT BENT NOS. 1 & 4



SIDE VIEW - AT BENT NOS. 2 & 3



SIDE VIEW - AT BENT NOS. 1 & 4

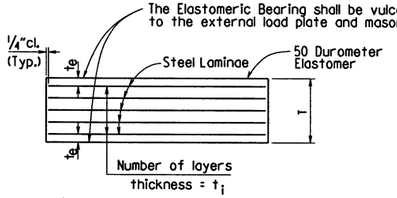
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② Centerline Beam shall align with centerline bearing.

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

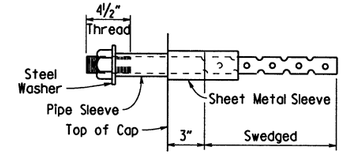
Prior to erection of the beams, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.

The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".



t_e = thickness of elastomer cover on top and bottom of pad
t_i = thickness of elastomer between steel laminae
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)."

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50. External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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(e) for unpainted weathering steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". External load plates, masonry plates, and 1/8" bearing pads will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION UNIT	LOCATION BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD G	ELASTOMERIC PAD H	ELASTOMERIC PAD A	ELASTOMERIC PAD B	ELASTOMERIC PAD N	ELASTOMERIC PAD t_i	ELASTOMERIC PAD t_e	ELASTOMERIC PAD NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD T	EXTERNAL LOAD PLATE C	EXTERNAL LOAD PLATE D	EXTERNAL LOAD PLATE ④E	EXTERNAL LOAD PLATE F	EXTERNAL LOAD PLATE	EXTERNAL LOAD PLATE K	EXTERNAL LOAD PLATE M	EXTERNAL LOAD PLATE T_a	EXTERNAL LOAD PLATE T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	ANCHOR BOLT GRADE	ANCHOR BOLT PIPE SLEEVE SIZE (ø x L)	ANCHOR BOLT SHEET METAL SLEEVE SIZE (ø x L)	ANCHOR BOLT STEEL WASHER SIZE (O.D.)
A7196	1&4	205'	All	Exp	5	90	8"	5 1/16"	20"	8 1/2"	2	1/2"	5/16"	3 @ 12 Ga.	1 5/16"	9 1/2"	30"	4"	2 1/4"	--	1/2"	12 1/4"	2.04"	1.96"	1 1/2"ø x 25"	55	1 1/2"ø x 5 1/2"	3"ø x 6"	3"
	2&3	205'	All	Fix	5	257	8 1/4"	4 1/2"	20"	10 1/2"	3	1/2"	5/16"	4 @ 12 Ga.	2 3/16"	11 1/2"	33"	3 3/4"	3 3/4"	--	1/2"	13"	2.04"	1.96"	2 1/2"ø x 35"	55	3"ø x 4 3/4"	4"ø x 6"	4 1/2"

③ Maximum Design Load = Service I Limit State

④ The dimension "E" does not apply to masonry plates - See "SIDE VIEW - AT BENT NOS. 1 & 4.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS HIGHWAY 279

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CRE DATE: 2-09-05 FILENAME: b090508a3_el.dgn
CHECKED BY: KWY DATE: 9/7/17 SCALE: No Scale
DESIGNED BY: DHP DATE: 01-07

BRIDGE NO. A7196 DRAWING NO. 59306

PRINT DATE: 9/6/2017

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.		090508	149	335
				①	A7274 -	LAYOUT		- 57985

For R/W Data, see Rdwy. Plans

For Soil Borings, See Dwg. No. 57987.

Tanyard Creek

Top of Cut

Toe of Fill

Concrete Riprap (Bent 1 only)
For Details, see Std. Dwg. No. 55002.

CL Beckett Road (CR 49)

Ditch Flowline (& Toe of Slope)

Pt. of Intersection
C.L. Constr. Hwy. 549 Sta. 930+84.05
CL Beckett Road Sta. 16+08.12

Pt. of Min. Vertical Clearance

Toe of Rock Fill

Toe of Existing Rock Fill

Note: Use Type 2 Special Approach Slab and Gutters (W= 6'-0" & 10'-0") at both ends of bridge.

Aggregate Base Course (Class 7) See "Detail A" On Dwg. No. 57986.

C.L. Bridge A

C.L. Constr. Hwy. 549

Radial Line

Profile Grade Line (Bridge A)

CL Lanes

Approx. 2.1 miles to State Hwy. 72

Remove existing concrete riprap as directed by the Engineer. Removal shall match the location of an existing construction joint. Payment shall be incidental to item "Concrete Riprap".

Toe of Rdwy. Embankment

C.L. Br. B7274 constructed under Job CA0904

Channel Relocation constructed under Job CA0904

Top of Cut

Note: Stations, Dimensions, and Elevations shown in Elevation View are along CL Bridge 'A'. Stations along CL Bridge are set according to "Layout of Bridge Centerlines and Stationing" - see Dwg. No. 57986. Bents are skewed from radial lines as shown.

PLAN

Horizontal Curve along C.L. Constr. Hwy. 549:
(Stations referred to are C.L. Constr. Hwy. 549 Stations)

P.I. Sta. 929+76.70
△ = 23°40'40.3" Left
D = 1°00'00"
T = 1201.03'
L = 2367.79'

Horizontal Curve along CL Bridge A:
(Stations referred to are CL Bridge A Stations)

P.C. Sta. 917+83.54
P.I. Sta. 929+75.35
P.T. Sta. 941+33.14
△ = 23°40'40.3" Left
D = 1°00'27.9"
T = 1191.81'
L = 2349.60'
R = 5685.58'
e = 0.037 '/'

Notes for Bridge A:

See General Notes on Dwg. No. 57986.

DETAIL DRAWINGS:	DWG. NOS.
End Bents	57988-57991
Intermediate Bents	57992-57995
Elastomeric Bearings	57996
Common Details of Plate Girder Units	57997-58003
210' Cont. Plate Girder Unit	58004-58005
345' Cont. Plate Girder Unit	58006-58007
Type 2 Special Approach Slab	58008
Type 2 Special Approach Gutters	58009
Steel Piling	55020

Total Length of Bridge = 557'-8 3/8"

210'-0" Cont. Comp. Plate Girder Unit (105'-105')

345'-0" Cont. Comp. Plate Girder Unit (115'-115'-115')

Beg. Br. Sta. 928+78.65
Elev. 1259.20

CL Bent Sta. 929+85
Elev. 1260.02

CL Bent Sta. 930+90
Elev. 1261.13

CL Bent Sta. 932+05
Elev. 1262.72

CL Bent Sta. 933+20
Elev. 1264.68

End Br. Sta. 934+36.35
Elev. 1267.05

Slope Intercept Sta. 928+67.65

Slope Intercept Sta. 934+47.35

CL 2½" Poured Silicone Jt.

Guardrail - see Rdwy. Plans

Concrete Parapet Railing

Exp.

Fix

42' Piles

38' Piles

58' Piles

62' Piles

10' Piles

Concrete Riprap

CL Beckett Road

Tanyard Creek

Rock Fill - see Special Provision & "Detail A" on Dwg. No. 57986.

Proposed Grade Line along CL Bridge

Existing Ground Line along CL Bridge

Elev. 1208.32

Elev. 1200.36

Elev. 1195.94

Elev. 1195.66

Bent No. 1 2 3 4 5 6

ELEVATION

① Dimensions are taken from CL Bridge at CL Bent to Low Seat of Cap

② Radial to C.L. Constr. Hwy. 549 Sta. 928+79.26

③ Radial to C.L. Constr. Hwy. 549 Sta. 934+41.27

L = 1930'
-1.985% 3.51 1%
PVI Sta. 929+32.57
PVI Elev. 1246.82

Note: Contours shown do not reflect the existing finished surface constructed under Job No. CA0904. All quantities dependent on the existing surface shall be assumed estimates for bidding purposes only. Actual quantities are to be determined in the field.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

BRIDGE A VERTICAL CURVE DATA ALONG PROFILE GRADE LINE

This vertical curve is to be used in construction of Bridge A only. Stations are CL Bridge A Stations.

SHEET 1 OF 3

LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK HWY. 71 - CO. RD. 34 (ADD'L LNS.) (B.V. BYPASS) (S) BENTON COUNTY

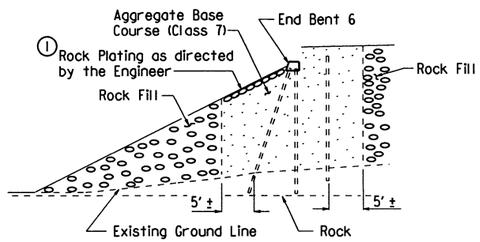
ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JAC DATE: 3-1-07 FILENAME: b090508a2_11.dgn
CHECKED BY: JNP DATE: 11-9-16 SCALE: 1"=30'-0"
DESIGNED BY: JAC DATE: 1-07
BRIDGE NO. A7274 DRAWING NO. 57985

PRINT DATE: 8/28/2017

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.		090508	150	335
				① A7274 -		LAYOUT		- 57986



① Portions of existing rock plating will have to be removed to facilitate construction of the final embankment and zone of aggregate base course (Class 7) that was not completed under Job CA0904.

Where rock fill is used for embankment construction, aggregate base course (Class 7), in accordance with Subsection 303.02, shall be placed as shown in areas where piling will be located. Aggregate base course (Class 7) shall be paid for as "Rock Fill".

At the Contractor's option, preboring or other methods as approved by the Engineer may be used to facilitate pile installation through the aggregate base course (Class 7) material at these locations. Preboring or other methods used for installation of piles, where rock fill is used for embankment construction, will not be paid for separately but shall be included in item "Steel Piling".

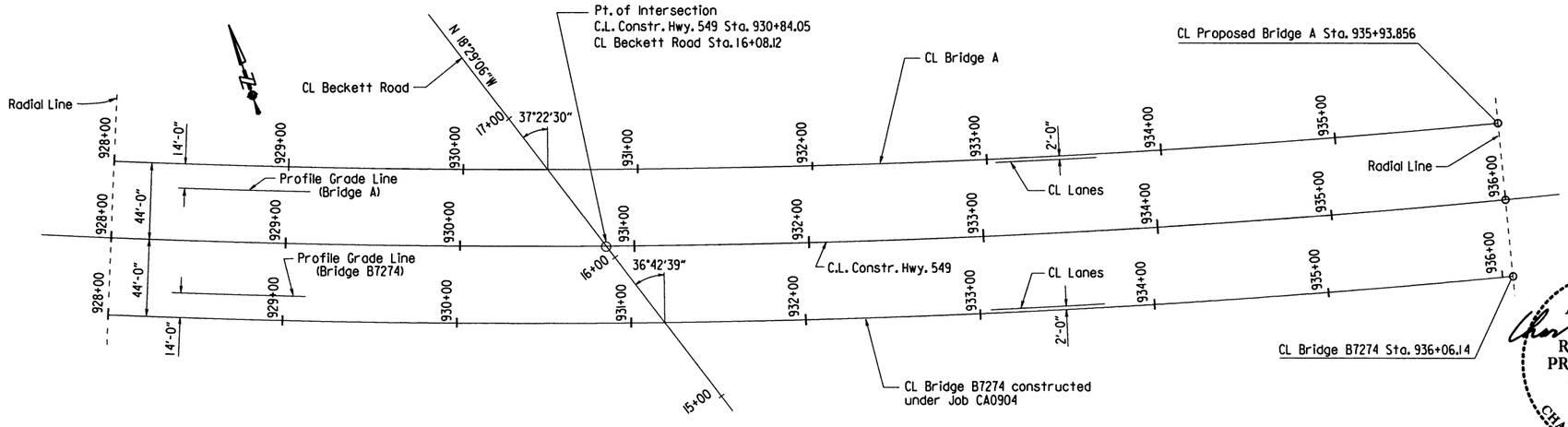
DETAIL A

(Shown Normal to End Bent 6)
Not to Scale

METHOD OF ESTABLISHING BRIDGE CENTERLINES:

CL Bridges are concentric to C.L. Constr. Hwy. 549.
Bridge Centerlines are only for use in Bridge Construction.

Sta. 928+00 of CL Bridge A and Sta. 928+00 of CL Bridge B7274 are defined as being 44', measured radially, on each side of C.L. Constr. Hwy. 549 Sta. 928+00, as shown in the sketch below.



LAYOUT OF BRIDGE CENTERLINES AND STATIONING

GENERAL NOTES

BENCH MARK: Cotton-picker Spike in 24" ø Ash Tree, 165.82' Left of C.L. Constr. Hwy. 549 Sta. 929+26.49, Elev. 1213.79.

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, Section and Subsection refer to the Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Third Edition with 2006 interim revisions.

LIVE LOADING: HL93
SEISMIC PERFORMANCE ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4000 psi.
Class S Concrete (substructure)	f'c = 3,500 psi.
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi.
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi.
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi.

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at both footing locations in Bent 3 in accordance with Job SP "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.

STEEL PILING: All piling shall be HP 12x53 (Grade 55) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into material designated as hard cherty limestone on the boring legend. Piles in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

Minimum penetration for all piling at end bents shall be 8' below natural ground. Minimum penetration for all piling at Bent 3 shall be 8' below bottom of footing.

PREBORING: Preboring is required for all piling in Bent 3 if exploratory holes indicate that the depth to rock is less than 8' below bottom of footing plan elevation. The depth of preboring shall be sufficient to provide the specified minimum pile penetration and to set the pile tips a minimum of 3' into material designated as Chert or Hard Cherty 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, prebored hole shall be backfilled with Class S Concrete to the bottom of footing to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

FOOTINGS: The top of the footings at Bent 2 shall be set a minimum of 2 feet below the bottom of the concrete riprap end slope. The top of footings at Bents 3 and 5 shall be set a minimum of 2' below the natural ground line. The top of footings at Bent 4 shall be set a minimum of 2' below the bottom of the channel of relocated Tanyard Creek. In addition, all spread footings shall be set a minimum of 2' into rock. Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled in accordance with Subsection 801.08. Rock excavations, where required, shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in spread footings shall be poured directly against excavated surfaces of rock.

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.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Job SP "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3

LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK HWY. 71 - CO. RD. 34 (ADD'L LNS.) (B.V. BYPASS) (S) BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

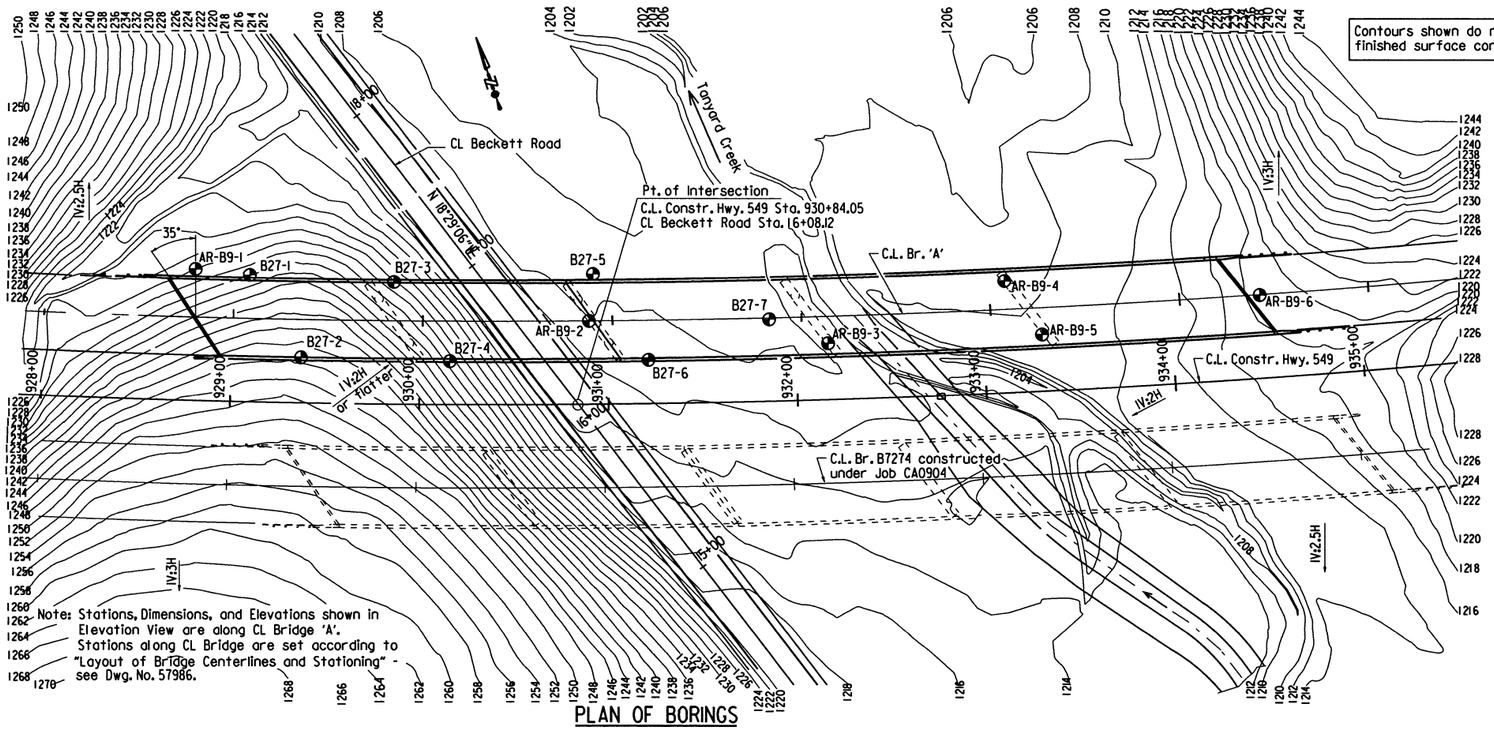
DRAWN BY: JAC DATE: 2-27-07 FILENAME: b090508a2_11.dgn
CHECKED BY: JNP DATE: 11-9-16 SCALE: 1"=40'-0"
DESIGNED BY: JAC DATE: 1-07

BRIDGE NO. A7274 DRAWING NO. 57986

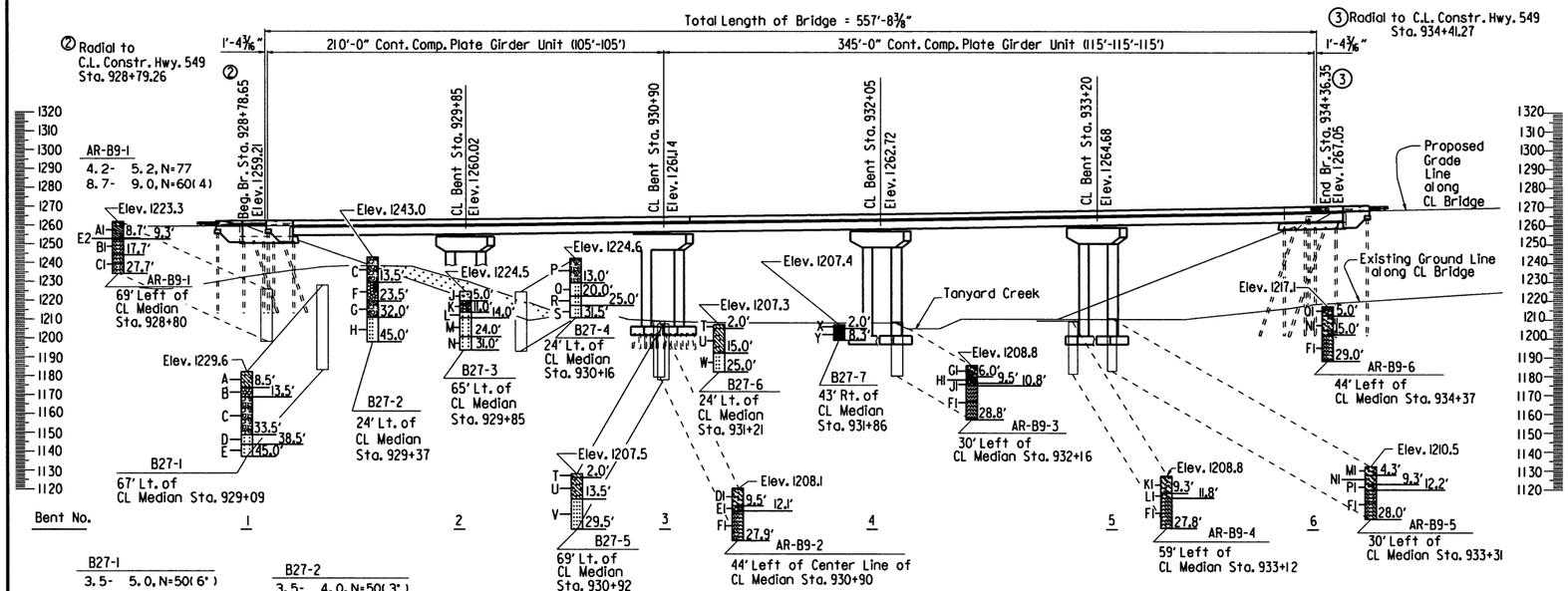
PRINT DATE: 8/28/2017

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.		090508	151	335
				A7274 -		LAYOUT		- 57987

Contours shown do not reflect the existing finished surface constructed under Job No. CA0904.



PLAN OF BORINGS



ELEVATION

Note: Reference to CL Median in Boring information = C.L. Constr. Hwy. 549.

BORING LEGEND

Note: Materials designated A1 thru G2 refer to borings for Bridge "A" (AR-B9-1 thru AR-B9-6), obtained from AHTD Materials Division report dated January 23, 2008.

A1-Moist, Very Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with some Cobbles
B1-Hard, Gray Fractured Cherty Limestone with some Cherty Clay
C1-Hard, Gray Cherty Limestone
D1-Wet, Medium Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
E1-Wet, Stiff, Reddish Brown Sandy Clay with Gravel (Chert Fragments)
F1-Hard, Gray Cherty Limestone
G1-Moist to Wet, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay with Sand
H1-Wet, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay with Sand and some Cobbles
J1-Wet, Loose, Reddish Brown Clayey Sand with Gravel (Chert Fragments)
K1-Moist, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
L1-Wet, Medium Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
M1-Moist, Loose, Reddish Brown and Gray Clayey Gravel (Chert Fragments)
N1-Wet, Medium Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments)
P1-Wet, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
Q1-Moist, Loose, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Cobbles
R1-Moist, Medium Stiff, Brown Clay with Sandstone and Shale Fragments
S1-Moist, Very Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments)
T1-Hard, Gray Fractured Cherty Limestone with some Cherty Clay
U1-Cavity (54.5' to 55.2')
V1-Hard, Gray Cherty Limestone
W1-Moist, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay with Sand
X1-Moist, Medium Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
Y1-Wet, Medium Stiff to Stiff, Reddish Brown Gravelly (Chert Fragments) Clay with Sand
Z1-Moist, Medium Stiff, Reddish Brown and Gray Gravelly (Chert Fragments) Clay
A2-Wet, Medium Stiff, Reddish Brown and Gray Gravelly (Chert Fragments) Clay
B2-Moist, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay with Cobbles
C2-Moist, Stiff, Reddish Brown Gravelly (Chert Fragments) Clay
D2-Hard, Gray Fractured Cherty Limestone
E2-Wet, Very Dense, Brown and Gray Clayey Gravel (Chert Fragments)
F2-Moist, Very Dense, Gray Clayey Gravel (Chery Fragments)
G2-Wet, Very Dense, Reddish Brown Sand with Gravel (Chert Fragments) and some Clay

Note: Materials designated as A thru Y refer to borings B27-1 thru B27-7, obtained from Geotechnical Investigation Report by others dated February 2004.

A-LEAN CLAY, some gravel, light brown and white, very stiff to hard, dry
B-GRAVEL, white and light brown, very dense, dry to moist
C-SANDY GRAVEL, white and light brown, very dense, moist
D-CHERT, stratified, white, light gray to gray, very fine grained, very thin bedded, highly weathered, moderately hard to hard, vuggy
E-CHERT, stratified, trace limestone seams, white, light gray and dark gray, very fine to fine grained, medium bedded, fresh, hard, solid
F-GRAVEL, with chert seams, white and light brown, very dense, moist
G-SANDY GRAVEL, little chert and clay seams, white, light brown and red, very dense
H-CHERT, stratified, some clay seams, white, light gray and red, very fine grained, thin bedded, highly weathered, hard, solid
J-GRAVEL, some sand and clay, light brown and white, loose, dry
K-GRAVEL, white and light brown, very dense, dry
L-CHERT, stratified, white and light gray, very fine, thin bedded, weathered, hard, solid
M-CHERT, stratified, trace limestone seams, white, light gray and gray, very fine grained, thin to medium bedded, slightly weathered, hard, solid
N-CHERT, stratified, trace limestone seams, white, light gray to dark gray, very fine grained, thin to medium bedded, fresh, hard, solid
P-SANDY GRAVEL, white and light brown, dense to very dense, dry to moist
Q-CHERT, stratified, trace limestone seams, few clay seams, white, light gray and gray, very fine grained, thin bedded, fresh, hard, solid
R-CHERT, stratified, some clay seams, white and light gray, very fine grained, thin bedded, weathered, hard, solid
S-CHERT, stratified, trace limestone seams, white, light gray and gray, very fine to fine grained, thin bedded, slightly weathered, hard, solid
T-GRAVEL, some clay, dark brown, medium dense, moist
U-GRAVEL, some clay, reddish brown, loose to medium dense, moist to wet
V-CHERT, stratified, trace limestone seams, white and light gray, fine grained, thin bedded, fresh, hard, solid
W-CHERT, stratified, trace limestone seams, white and light gray, fine grained, medium bedded, weathered, hard, solid
X-GRAVEL, little clay, light brown, medium dense, dry
Y-GRAVEL, some clay, red, medium dense, moist

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3

LAYOUT OF BRIDGE A OVER CR 49 (BECKETT ROAD) & TANYARD CREEK HWY. 71 - CO. RD. 34 (ADD'L LNS.) (B.V. BYPASS) (S) BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JAC DATE: 3-4-07 FILENAME: b090508a2_11.dgn
CHECKED BY: JWP DATE: 11-9-16 SCALE: 1"=40'-0"
DESIGNED BY: JAC DATE: 1-07

BRIDGE NO. A7274 DRAWING NO. 57987

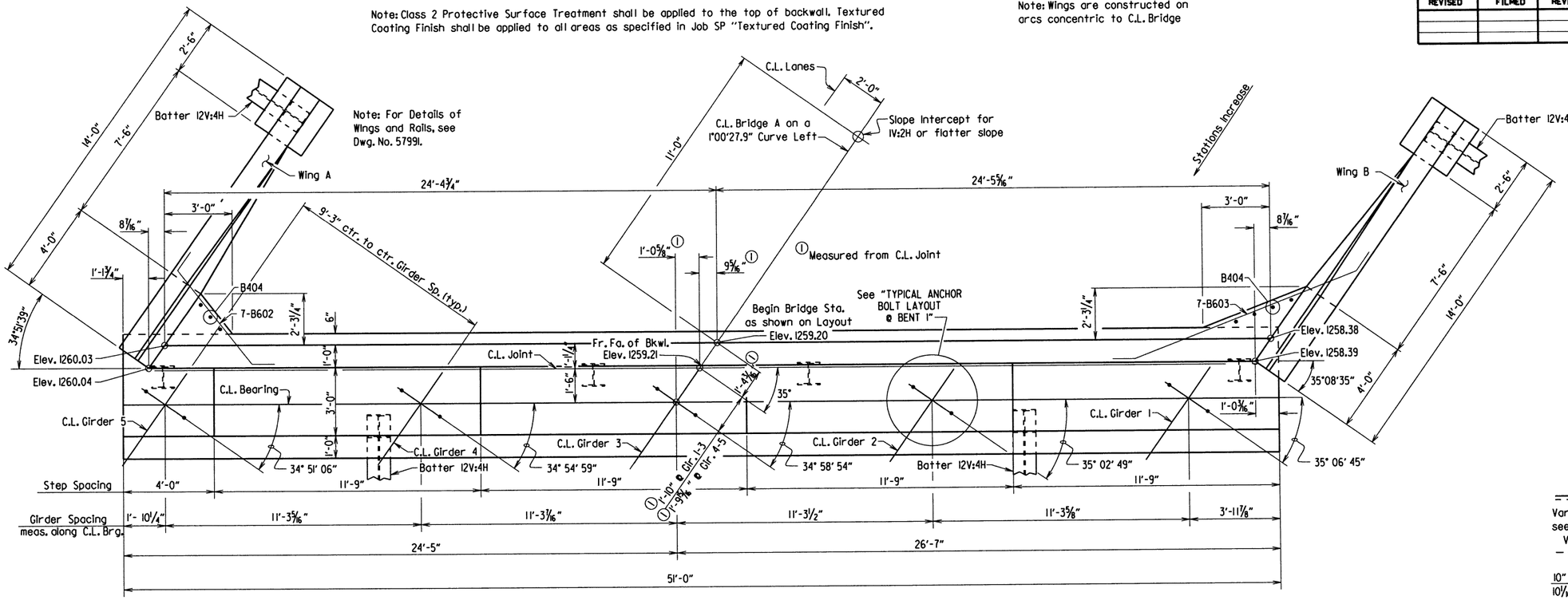
PRINT DATE: 8/28/2017

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.		090508	152	335
				(1) A7274 -		END BENTS		- 57988

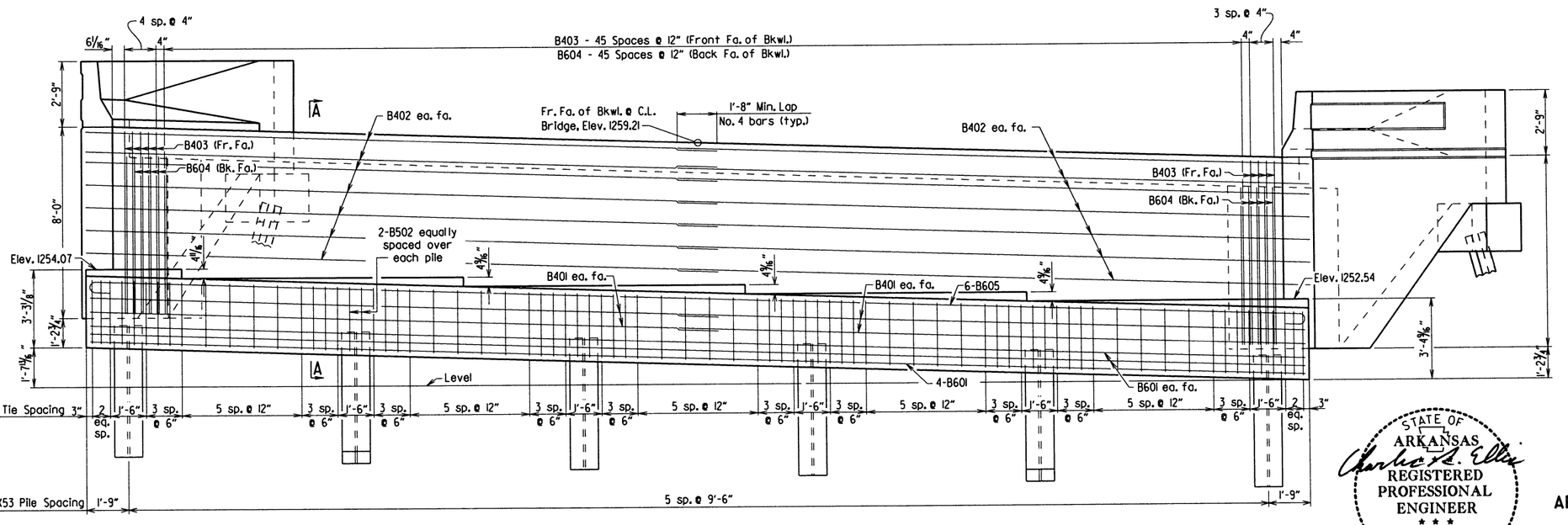
Note: Class 2 Protective Surface Treatment shall be applied to the top of backwall. Textured Coating Finish shall be applied to all areas as specified in Job SP "Textured Coating Finish".

Note: Wings are constructed on arcs concentric to C.L. Bridge

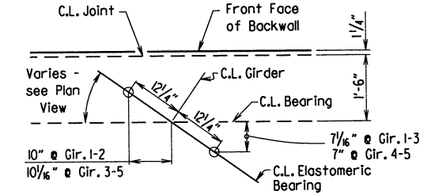
Note: For Details of Wings and Rails, see Dwg. No. 57991.



PLAN OF BENT NO. 1



ELEVATION OF BENT NO. 1
(LOOKING BACK)



For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYPICAL ANCHOR BOLT LAYOUT @ BENT 1

No Scale

Note: For General Notes, Section A-A, and Bar List, see Dwg. No. 57990.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF END BENTS
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

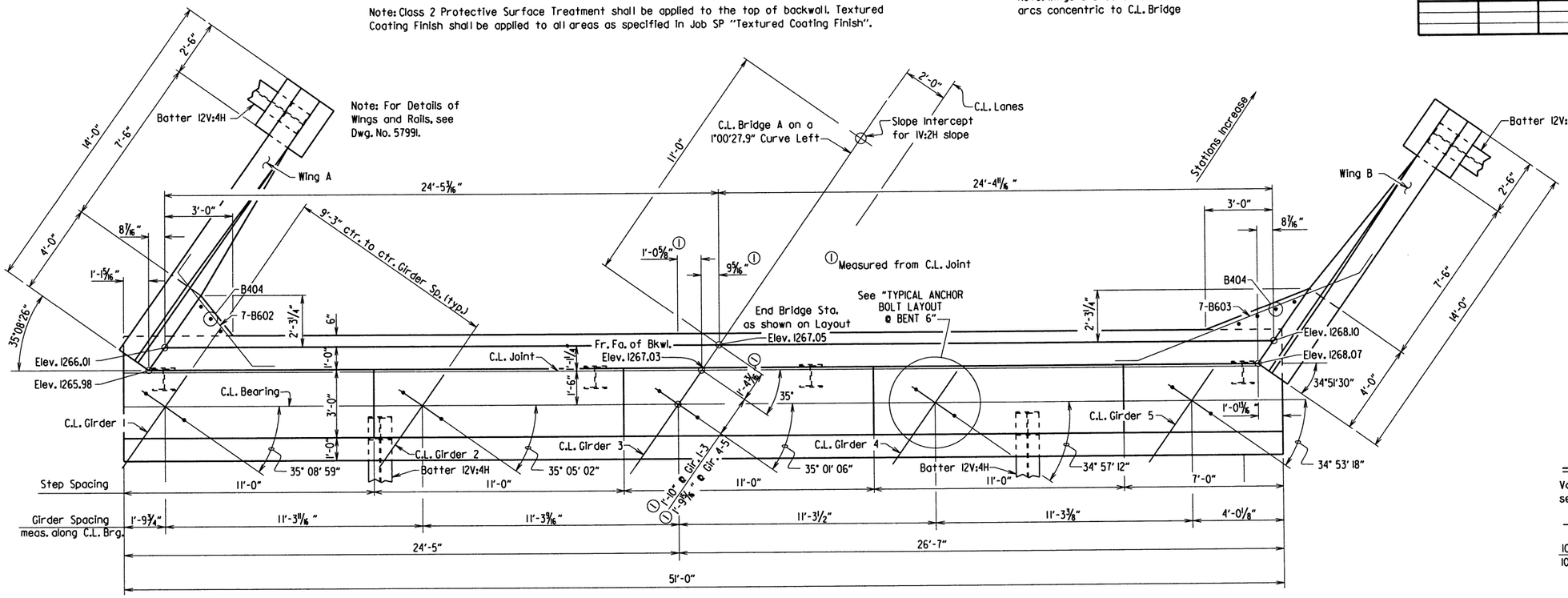
DRAWN BY: JYP DATE: 7/06/07 FILENAME: b090508a2_bl.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: 3/16" = 1'-0" or as noted
DESIGNED BY: JAC DATE: 6-07
BRIDGE NO. A7274 DRAWING NO. 57988

PRINT DATE: 8/21/2017

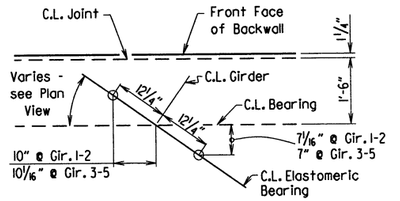
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	153	335
				(1) A7274 -		END BENTS		- 57989

Note: Class 2 Protective Surface Treatment shall be applied to the top of backwall. Textured Coating Finish shall be applied to all areas as specified in Job SP "Textured Coating Finish".

Note: Wings are constructed on arcs concentric to C.L. Bridge



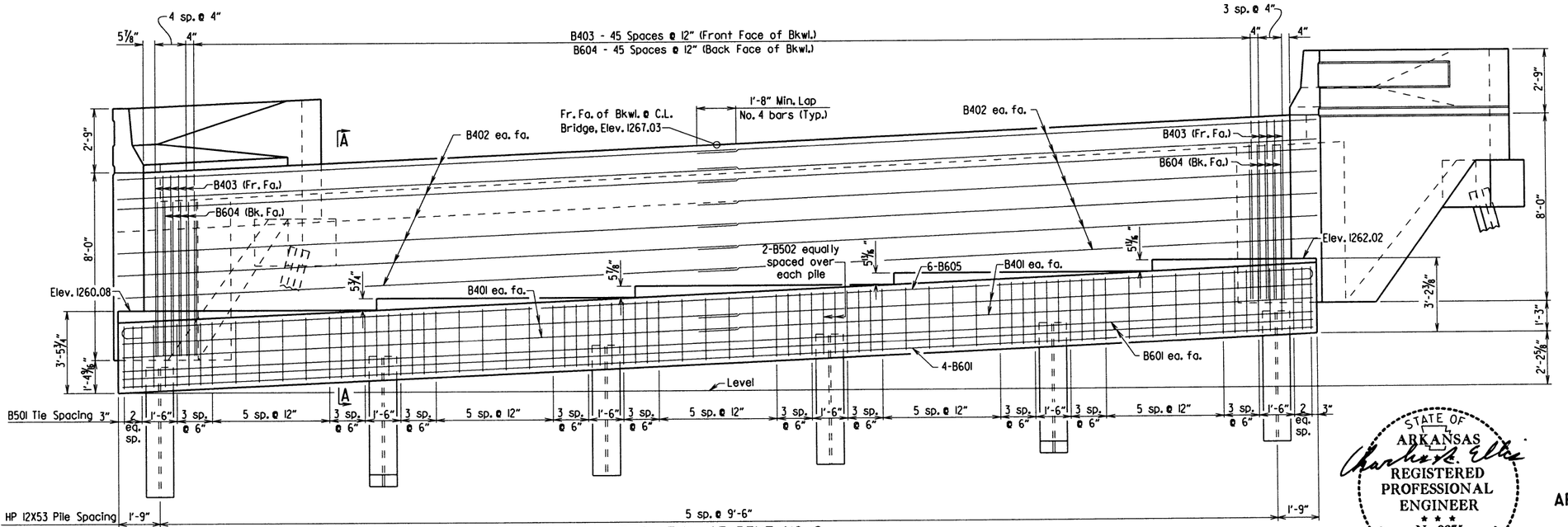
PLAN OF BENT NO. 6



For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYPICAL ANCHOR BOLT LAYOUT @ BENT 6

No Scale



ELEVATION OF BENT NO. 6
(LOOKING AHEAD)

Note: For General Notes, Section A-A, and Bar List, see Dwg. No. 57990.

SHEET 2 OF 4
DETAILS OF END BENTS
CR 49 (BECKETT ROAD)

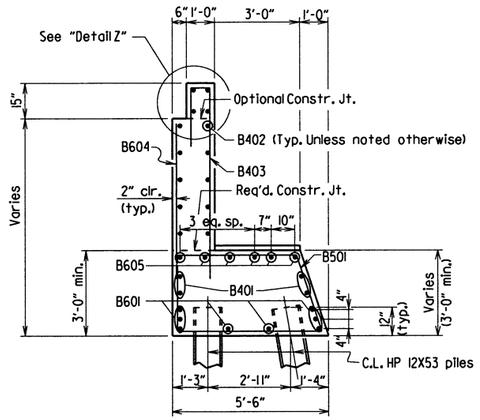
STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 7/06/07 FILENAME: b090508a2_bl.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: 3/8" = 1'-0" or as noted
DESIGNED BY: JAC DATE: 6-07
BRIDGE NO. A7274 DRAWING NO. 57989

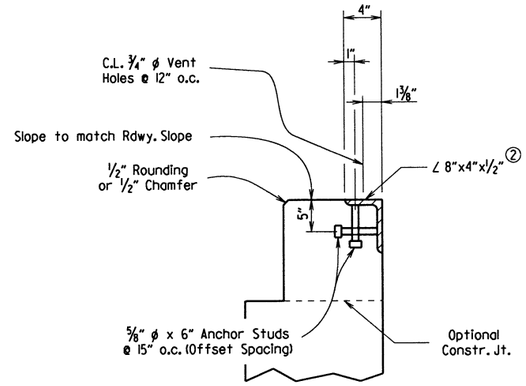
PRINT DATE: 8/21/2017

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.		090508	54	335
				1	A7274 -	END BENTS	- 57990	



SECTION A-A

3/8" = 1'-0"



DETAIL Z

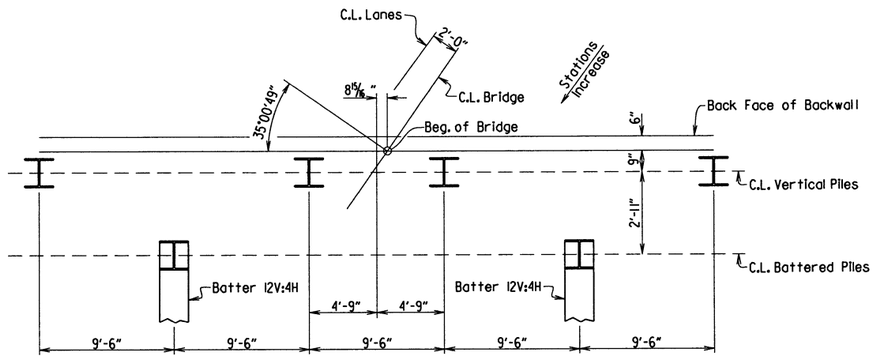
No Scale

NOTE: Concrete shall be hand packed under the joint armor in the backwall.

NOTE: For additional joint details, see Dwg. No. 58000.

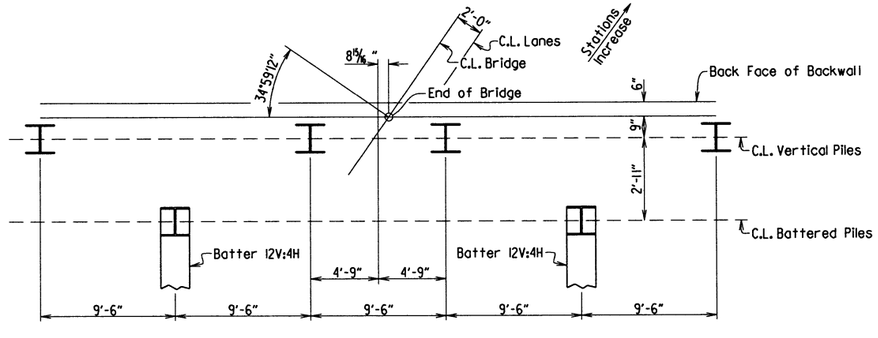
② The profile of the backwall angle shall be established based upon the vertical curve in conjunction with the skew.

Note: The backwall above the required construction joint shall not be poured until the girders are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "EXPANSION DEVICE INSTALLATION AT END BENTS" on Dwg. No. 58000 for additional information.



LAYOUT OF PILES (FOR BENT 1)

No Scale



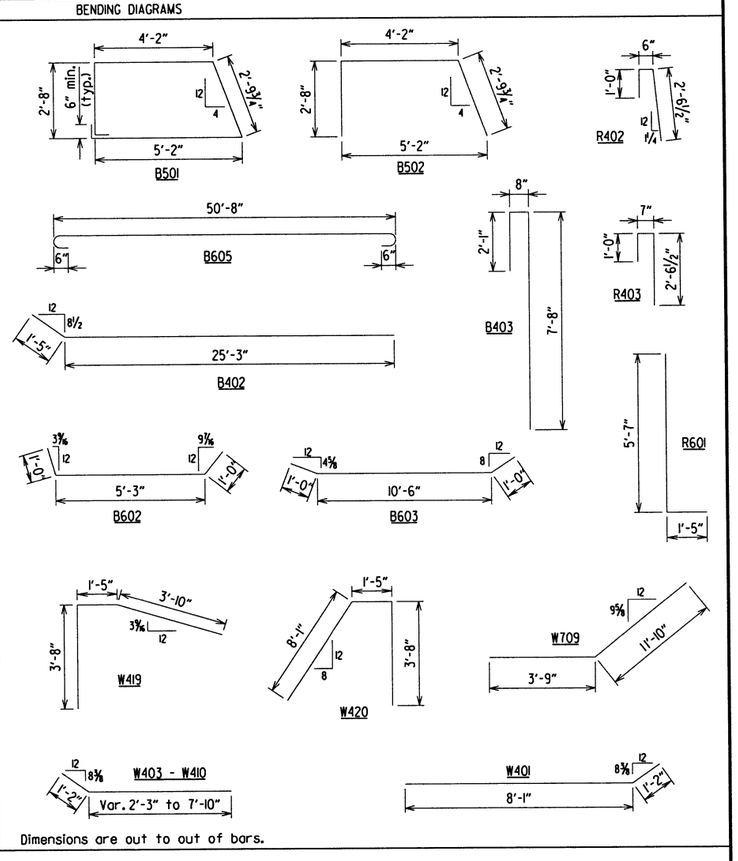
LAYOUT OF PILES (FOR BENT 6)

No Scale

BAR LIST (PER END BENT)

MARK	NO. REQ'D.	LENGTH	P.D.
B401	8	26'-2"	Str.
B402	28	26'-8"	2"
B403	56	10'-3"	2"
B404	7	6'-5"	Str.
B501	66	15'-4"	2 1/2"
B502	12	9'-5"	2 1/2"
B601	8	50'-8"	Str.
B602	7	7'-3"	4 1/2"
B603	7	12'-6"	4 1/2"
B604	55	6'-7"	Str.
B605	6	52'-0"	4 1/2"
R401	12	13'-8"	Str.
R402	16	3'-11"	2"
R403	8	4'-0"	2"
R601	16	6'-10"	4 1/2"
R602	6	5'-0"	Str.
W401	8	9'-3"	2"
W402	8	10'-5"	Str.
W403 - W410	2 each	Var. 3'-5" to 9'-0"	2"
W411 - W418	2 each	Var. 4'-6" to 10'-2"	Str.
W419	3	8'-9"	2"
W420	3	13'-0"	2"
W701	12	13'-8"	Str.
W702	4	10'-5"	Str.
W703	4	9'-6"	Str.
W704	4	8'-7"	Str.
W705	4	7'-8"	Str.
W706	4	6'-8"	Str.
W707	4	5'-9"	Str.
W708	4	4'-10"	Str.
W709	4	15'-7"	5 1/4"

BENDING DIAGRAMS



Dimensions are out to out of bars.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall 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 M 31 or M 322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Grade 50W and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GR. 50W)".

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information see Layout, Dwg. Nos. 57985-57987.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF END BENTS
CR 49 (BECKETT ROAD)

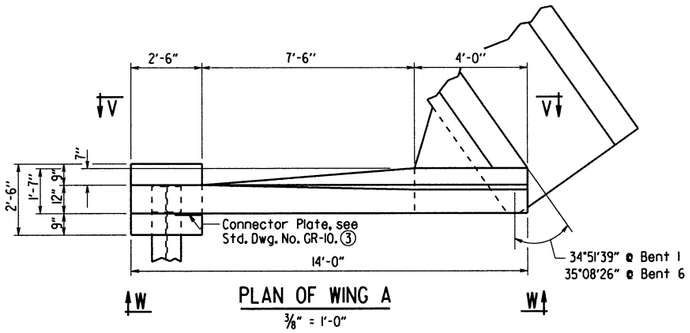
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 7/16/07 FILENAME: b090508a2_bl.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: as noted
DESIGNED BY: JAC DATE: 6-07
BRIDGE NO. A7274 DRAWING NO. 57990

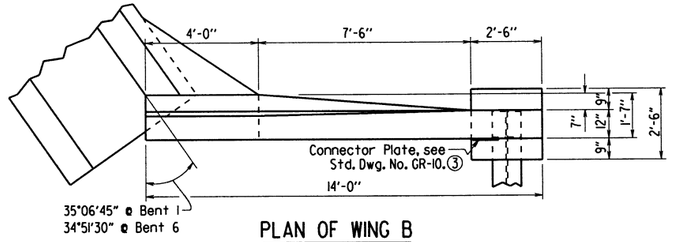
PRINT DATE: 8/21/2017

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.		090508	155	335
				①	A7274 -	END BENTS	- 57991	



PLAN OF WING A

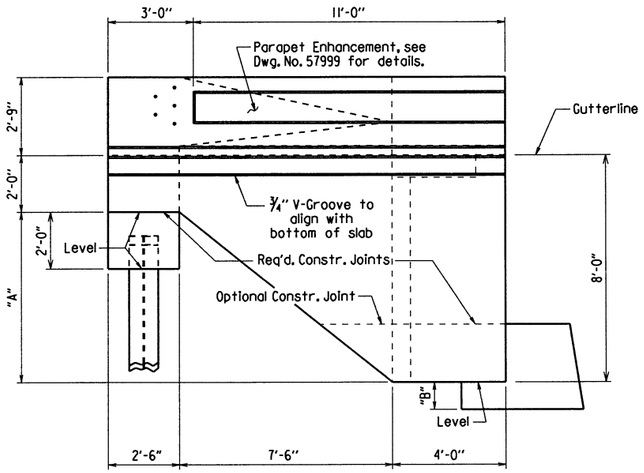
3/8" = 1'-0"



PLAN OF WING B

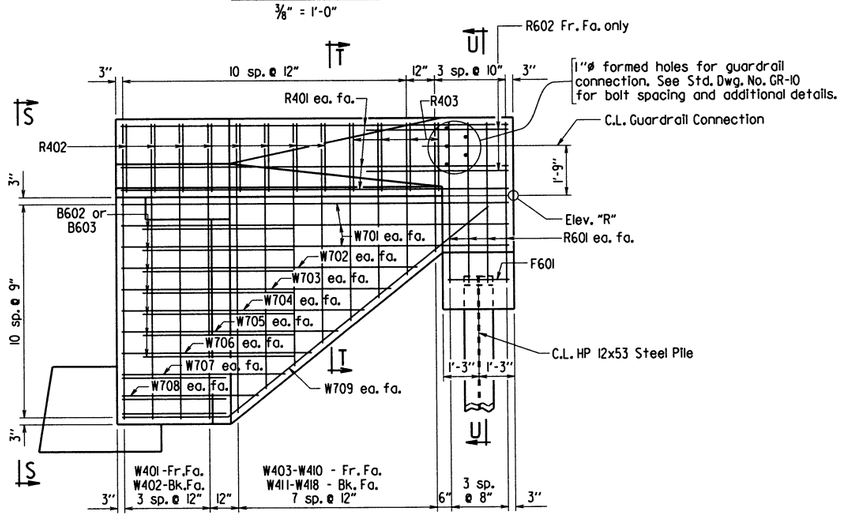
3/8" = 1'-0"

③ Connector Plate as required. See Roadway Plans for guardrail locations.



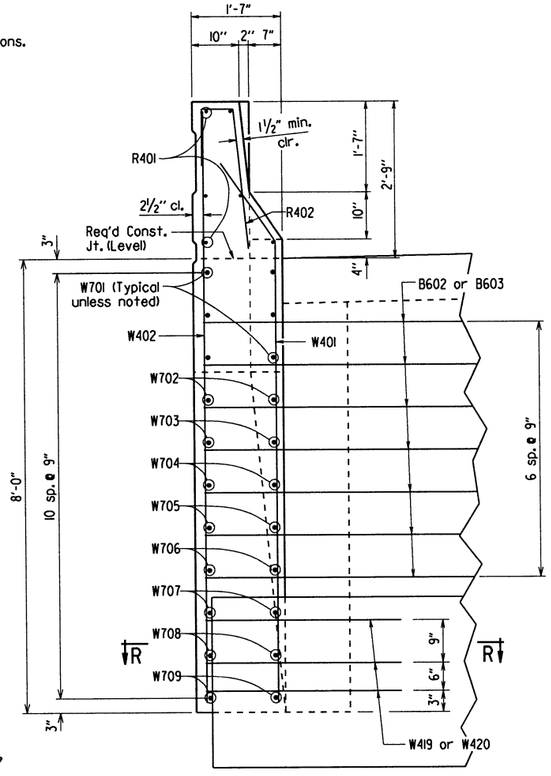
VIEW W-W

3/8" = 1'-0"



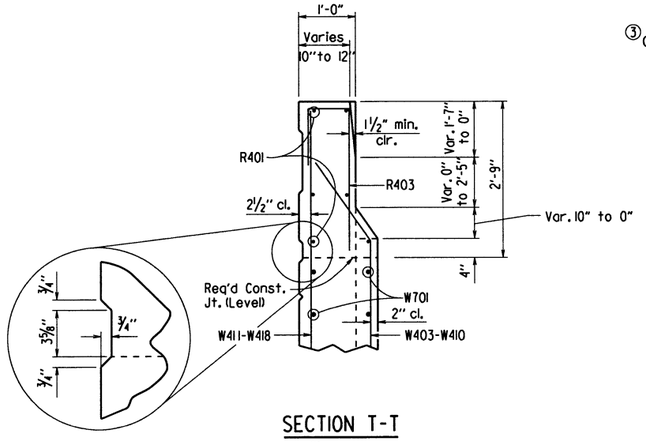
VIEW V-V

3/8" = 1'-0"



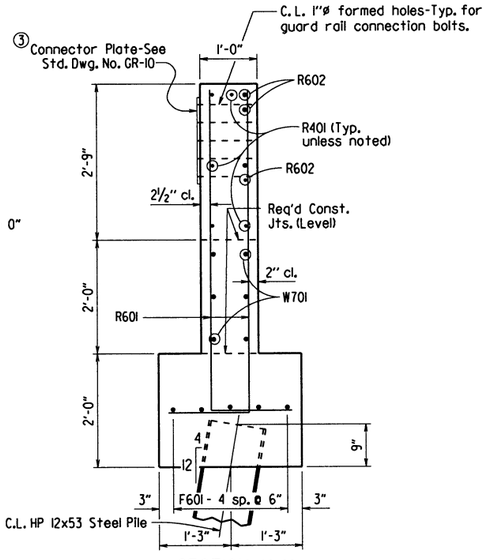
VIEW S-S

3/4" = 1'-0"



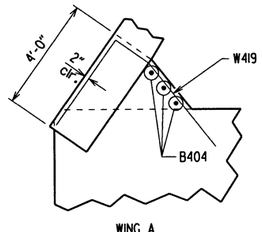
SECTION T-T

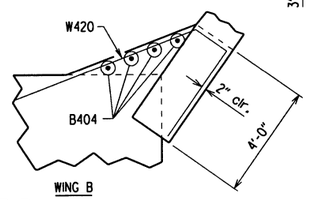
3/4" = 1'-0"



SECTION U-U

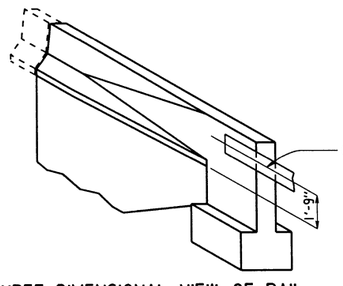
3/4" = 1'-0"





SECTION R-R

3/8" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale

TABLE OF VARIABLES

	Bent	Wing	"A"	"B"	Elev. 'R'
BRIDGE A	1	A	5'-10 5/16"	1'-2 3/4"	1259.95
		B	5'-11 1/16"	1'-2 3/4"	1258.31
	6	A	6'-3 5/8"	1'-4 1/16"	1266.28
		B	6'-3 11/16"	1'-2 3/4"	1268.39

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF END BENTS
CR 49 (BECKETT ROAD)

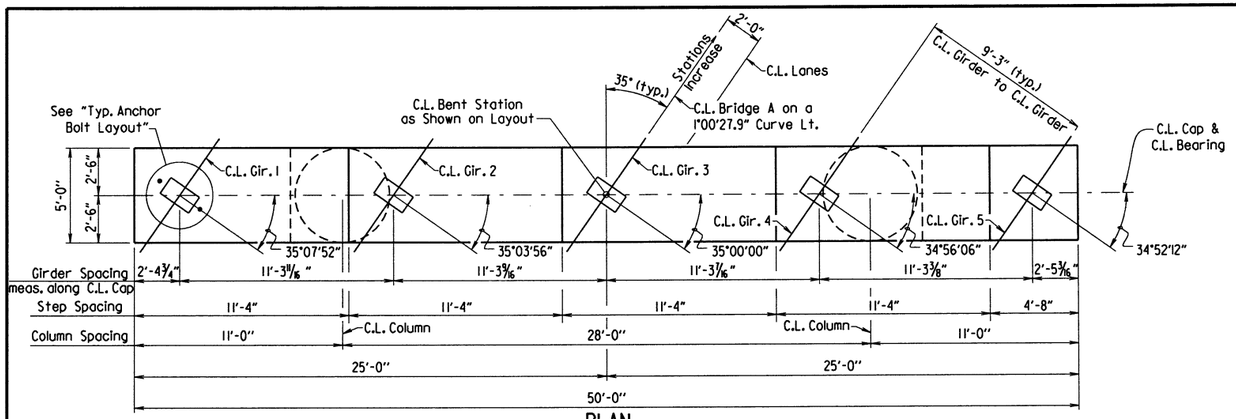
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 7/16/07 FILENAME: b090508a2_bl.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: as noted
DESIGNED BY: JAC DATE: 6-07
BRIDGE NO. A7274 DRAWING NO. 57991

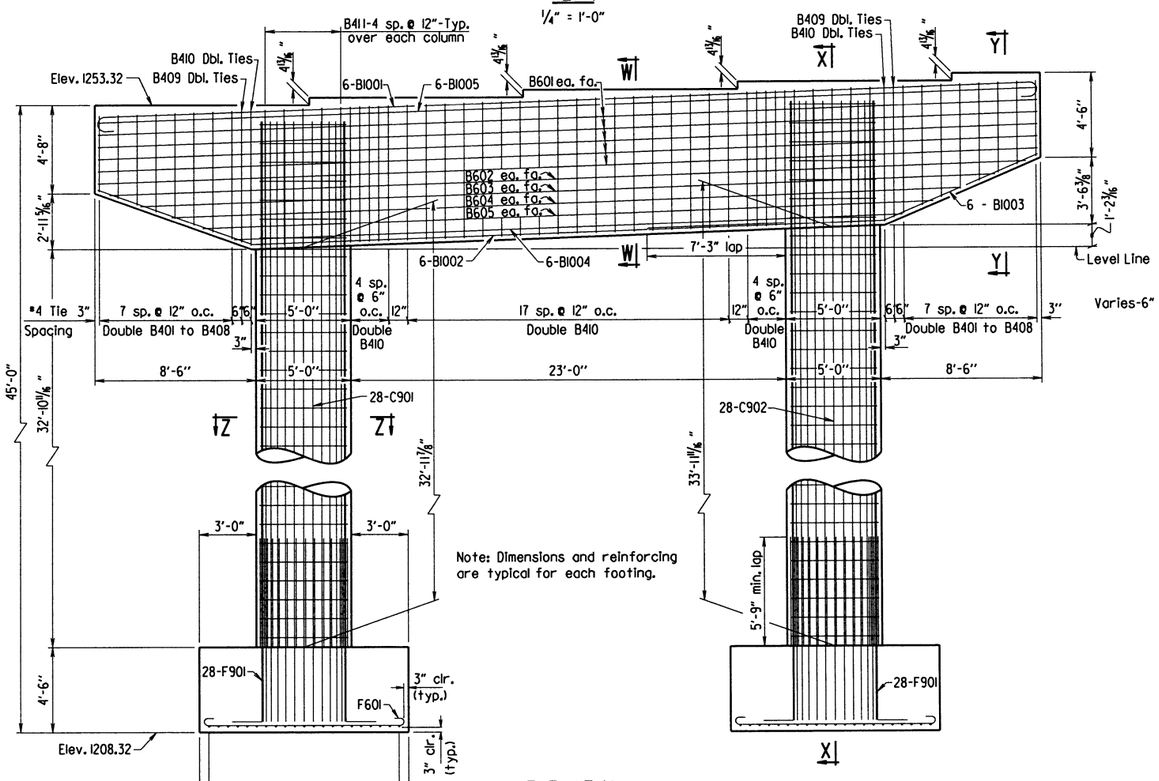
PRINT DATE: 8/21/2017

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.		090508	156	335
				A7274 -		INT. BENT	- 57992	



PLAN

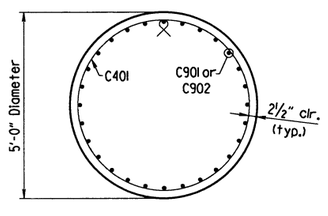
¼" = 1'-0"



ELEVATION

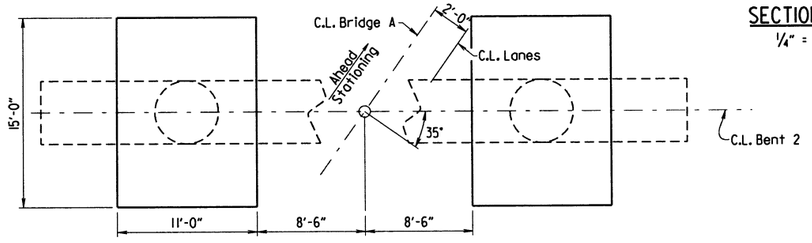
(Looking Ahead)

¼" = 1'-0"



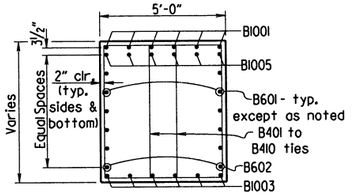
SECTION Z-Z

½" = 1'-0"



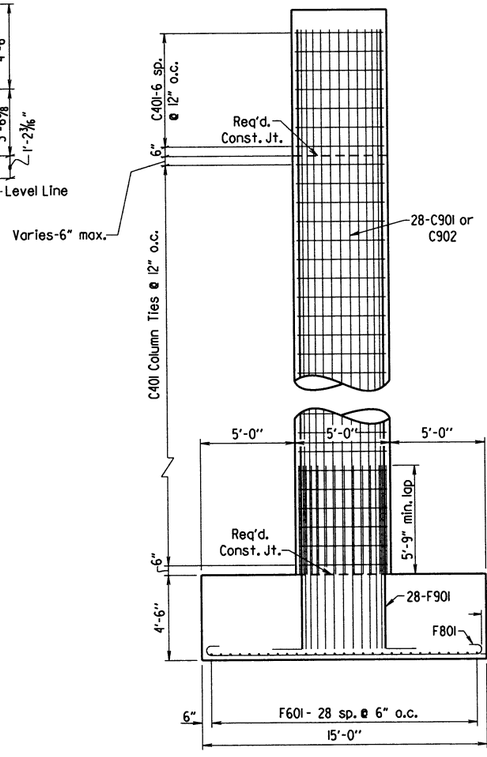
FOOTING LOCATION SKETCH

No Scale



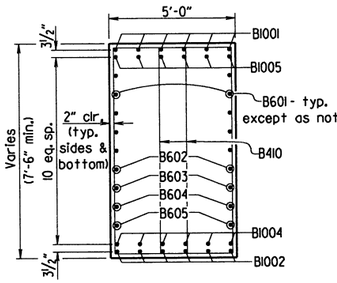
SECTION Y-Y

No Scale



SECTION X-X

¼" = 1'-0"

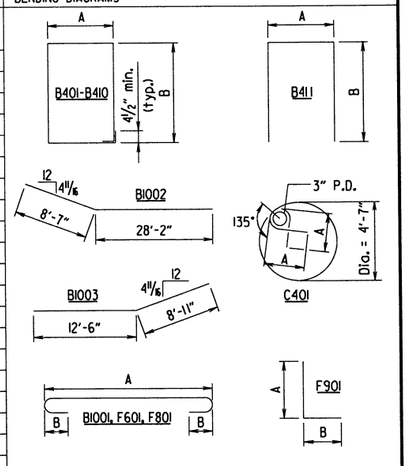


SECTION W-W

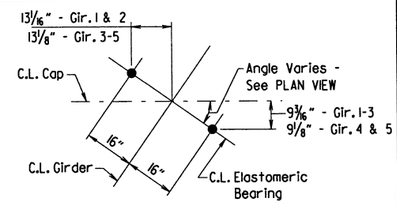
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
B401-B408	4 ea.	14'-3" to 19'-9"	2'-10½"	4'-0" to 6'-9"	2"	
B409	4	20'-1"	2'-10½"	6'-11"	2"	
B410	60	20'-7"	2'-10½"	7'-2"	2"	
B411	10	19'-10"	4'-8"	7'-2"	2"	
B601	10	49'-8"			Str.	
B602	2	48'-6"			Str.	
B603	2	45'-3"			Str.	
B604	2	42'-0"			Str.	
B605	2	38'-9"			Str.	
B1001	6	52'-6"	49'-8"	11½"	10"	
B1002	6	36'-9"			10"	
B1003	6	21'-5"			10"	
B1004	6	35'-5"			Str.	
B1005	6	49'-8"			Str.	
C401	81	15'-5½"	5"		3"	
C901	28	39'-6"			Str.	
C902	28	40'-6"			Str.	
F601	58	11'-10"	10'-6"	6"	4½"	
F801	42	16'-4"	14'-6"	8"	6"	
F901	56	13'-1"	11'-9"	1'-7"	9"	



Dimensions are out to out of bars.



For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF BENT 2
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

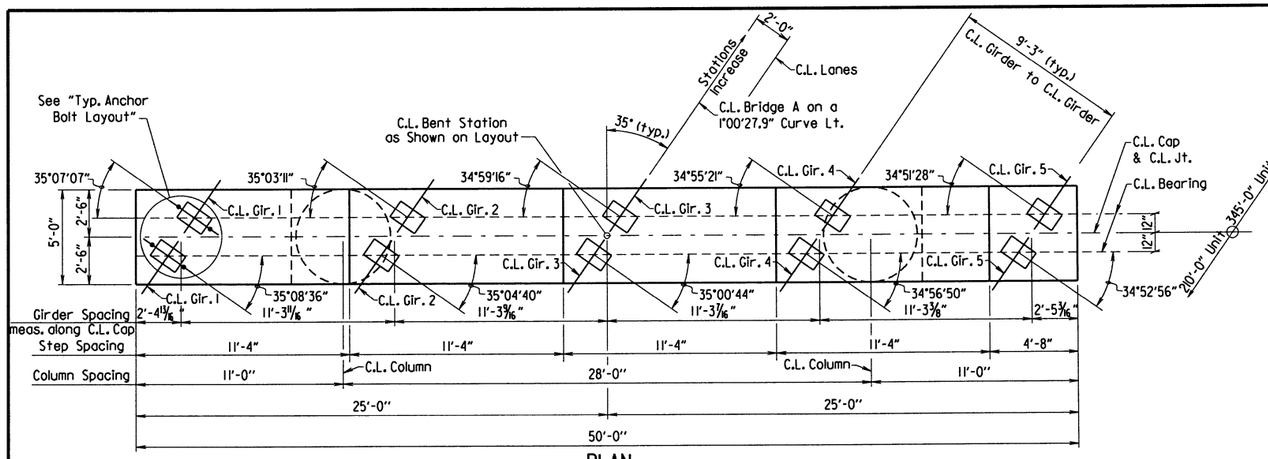
DRAWN BY: JYP DATE: 8-16-07 FILENAME: b090508a2_b2.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: as noted
DESIGNED BY: JAC DATE: 7-07

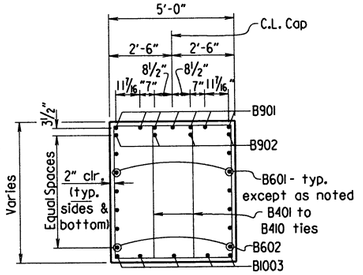
BRIDGE NO. A7274 DRAWING NO. 57992

PRINT DATE: 8/21/2017

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.		090508	157	335
				A7274 -		INT. BENT	- 57993	

1



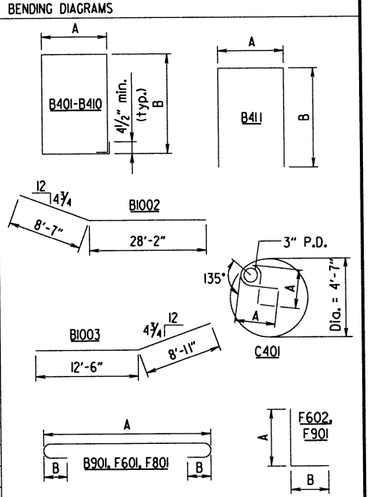


SECTION Y-Y

No Scale

BAR LIST

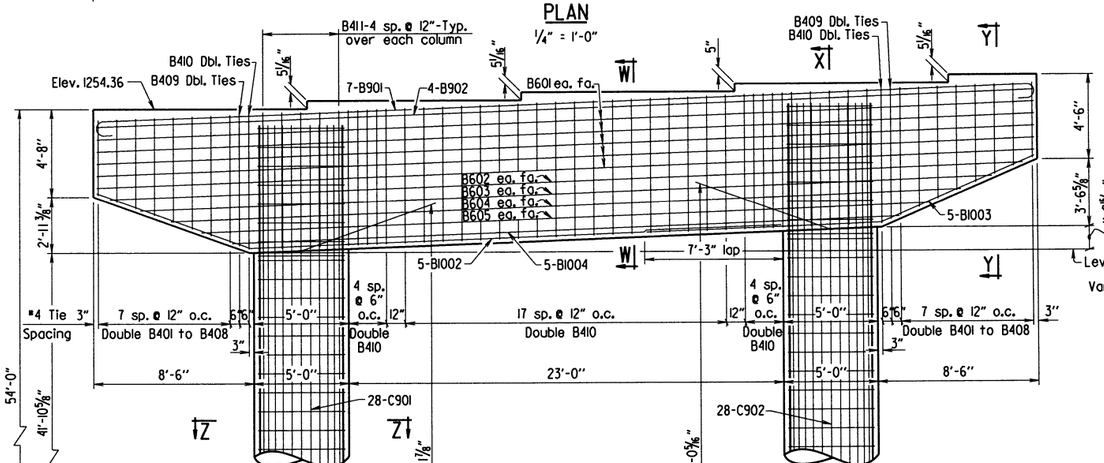
MARK	NO. REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
B401-B408	4 ea.	14'-3" to 19'-9"	2'-10½"	4'-0" to 6'-9"	2"	
B409	4	20'-1"	2'-10½"	6'-11"	2"	
B410	60	20'-7"	2'-10½"	7'-2"	2"	
B411	10	19'-10"	4'-8"	7'-2"	2"	
B601	10	49'-8"			Str.	
B602	2	48'-4"			Str.	
B603	2	45'-1½"			Str.	
B604	2	41'-11"			Str.	
B605	2	38'-8"			Str.	
B901	7	52'-2"	49'-8"	10"	9"	
B902	4	49'-8"			Str.	
B1002	5	36'-9"			10"	
B1003	5	21'-5"			10"	
B1004	5	35'-5"			Str.	
C401	101	15'-5½"	5"		3"	
C901	28	48'-6"			Str.	
C902	28	49'-6"			Str.	
F601	58	11'-10"	10'-6"	6"	4½"	
F602	8	4'-10"	2'-6"	2'-6"	4½"	
F801	42	16'-4"	14'-6"	8"	6"	
F901	56	10'-5"	9'-1"	1'-7"	9"	



Dimensions are out to out of bars.

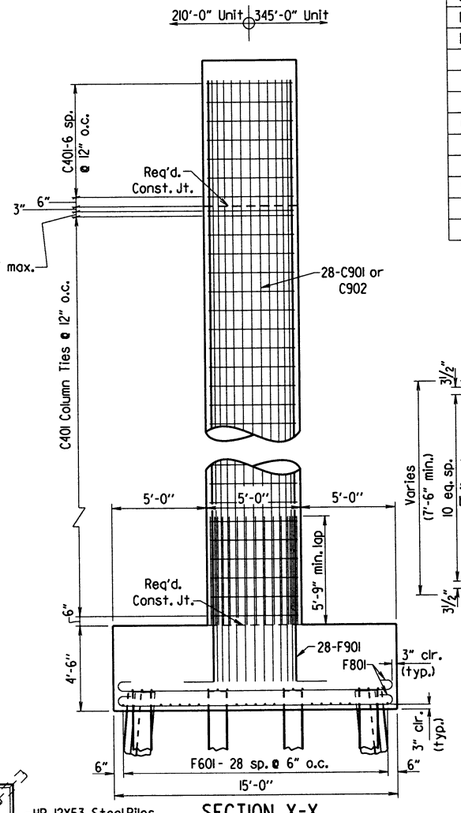
PLAN

1/4" = 1'-0"



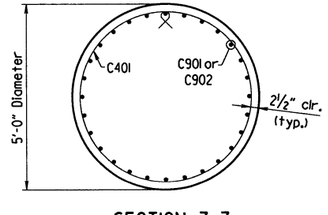
Notes: Dimensions and reinforcing are typical for each footing.

Top mat of reinforcing in footings may rest directly on piles.



SECTION X-X

1/4" = 1'-0"

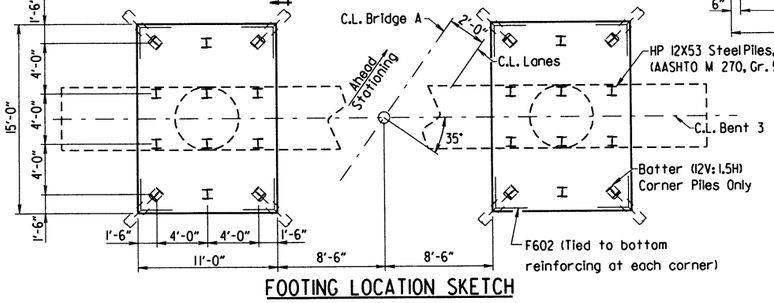


SECTION Z-Z

1/2" = 1'-0"

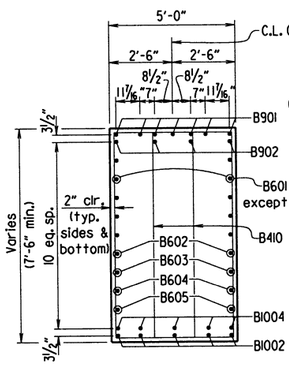
ELEVATION

(Looking Ahead)
1/4" = 1'-0"



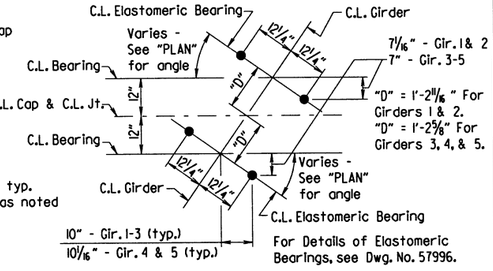
FOOTING LOCATION SKETCH

No Scale



SECTION W-W

No Scale



For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF BENT 3
CR 49 (BECKETT ROAD)

ROUTE SEC.

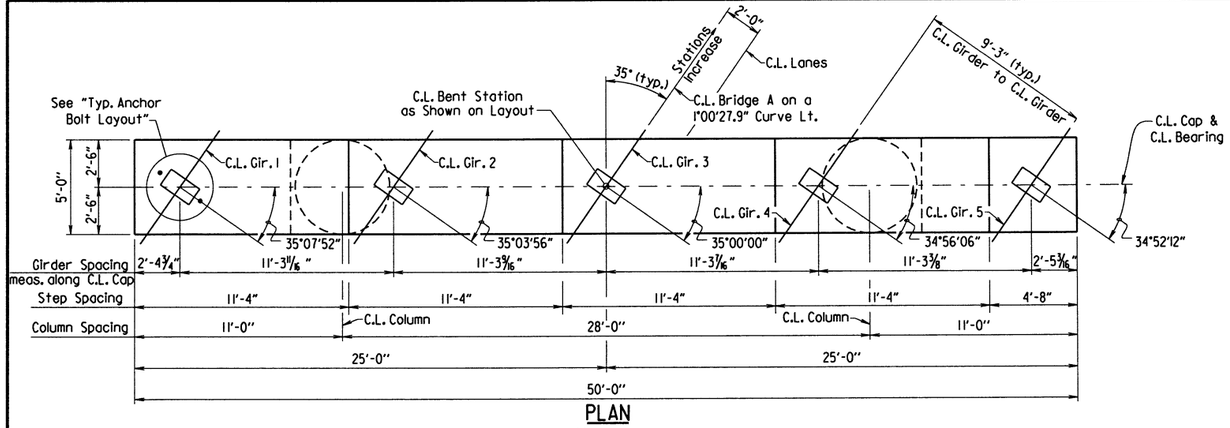
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 9-10-07 FILENAME: b090508a2_b2.dgn
CHECKED BY: LJB DATE: 12-19-16 SCALE: as noted
DESIGNED BY: JAC DATE: 7-07
BRIDGE NO. A7274 DRAWING NO. 57993

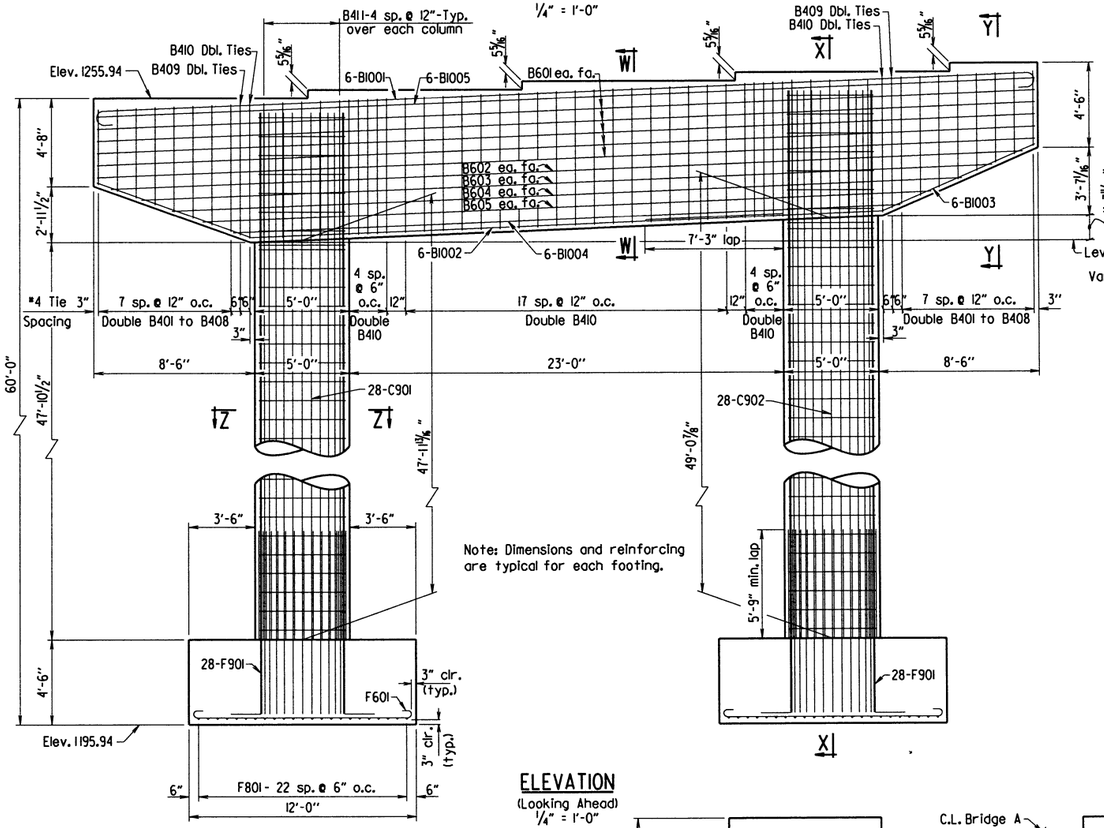
PRINT DATE: 8/21/2017

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.		090508	158	335
				①	A7274 -	INT. BENT	- 57994	



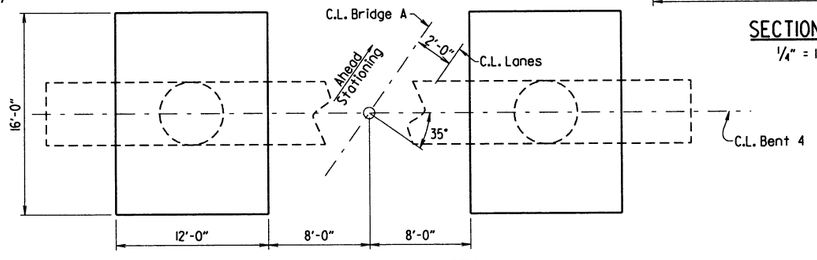
PLAN

1/4" = 1'-0"



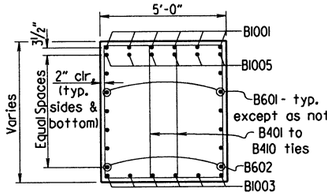
ELEVATION

(Looking Ahead)
1/4" = 1'-0"



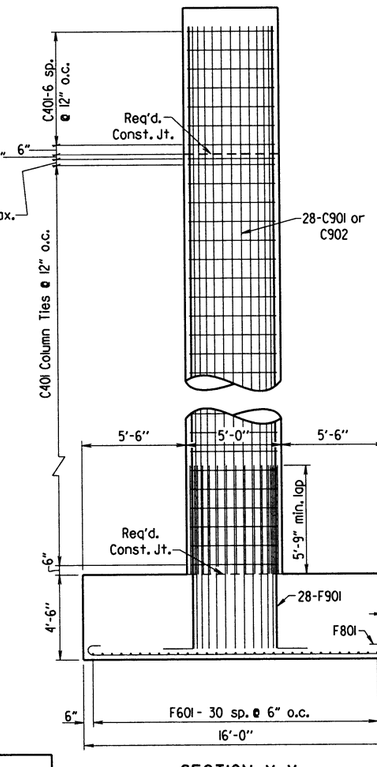
FOOTING LOCATION SKETCH

No Scale



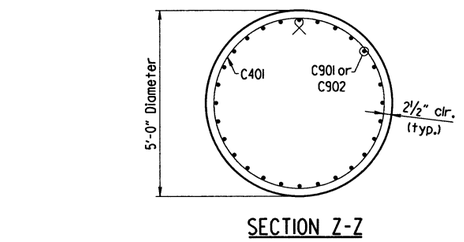
SECTION Y-Y

No Scale



SECTION X-X

1/4" = 1'-0"



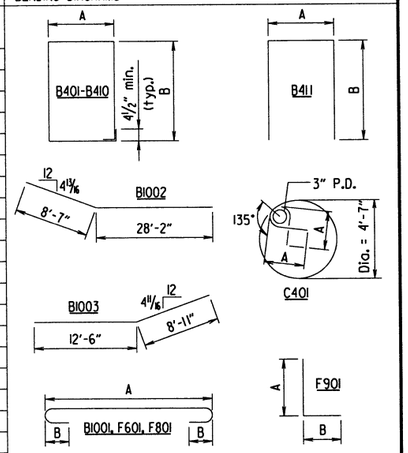
SECTION Z-Z

1/2" = 1'-0"

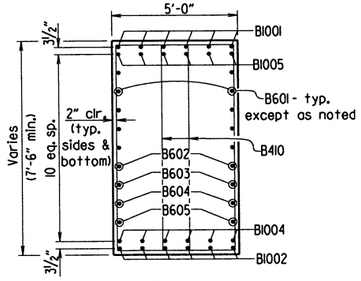
BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B401-B408	4 ea.	14'-3" to 19'-9"	2'-10½"	4'-0" to 6'-9"	2"
B409	4	20'-1"	2'-10½"	6'-11"	2"
B410	60	20'-7"	2'-10½"	7'-2"	2"
B411	10	19'-10"	4'-8"	7'-2"	2"
B601	10	49'-8"			Str.
B602	2	48'-6"			Str.
B603	2	45'-3"			Str.
B604	2	42'-0"			Str.
B605	2	38'-9"			Str.
B1001	6	52'-6"	49'-8"	11½"	10"
B1002	6	36'-9"			10"
B1003	6	21'-5"			10"
B1004	6	35'-5"			Str.
B1005	6	49'-8"			Str.
C401	113	15'-5½"	5"		3"
C901	28	54'-6"			Str.
C902	28	55'-6"			Str.
F601	62	12'-10"	11'-6"	6"	4½"
F801	46	17'-4"	15'-6"	8"	6"
F901	56	13'-1"	11'-9"	1'-7"	9"

BENDING DIAGRAMS

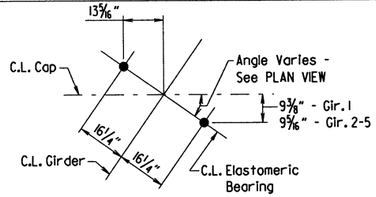


Dimensions are out to out of bars.



SECTION W-W

No Scale



For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF BENT 4
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

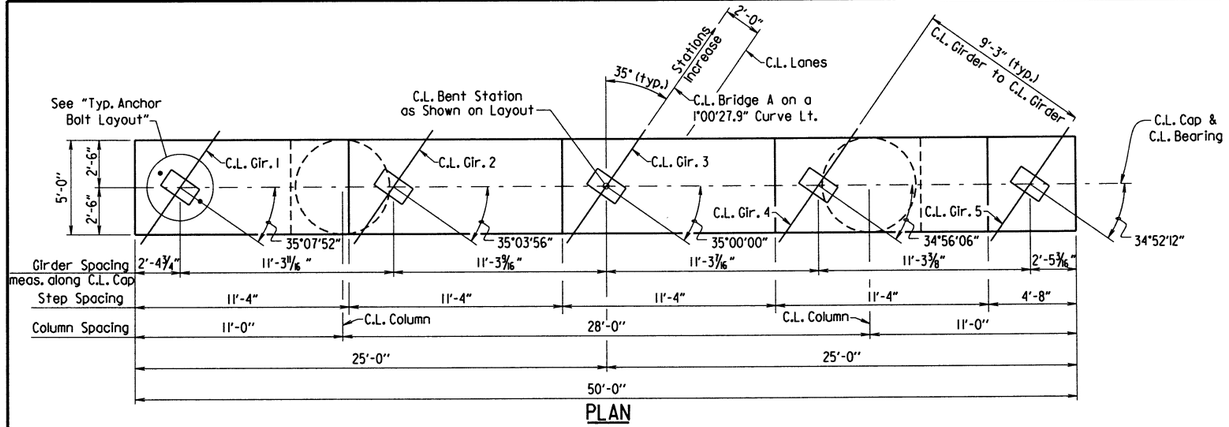
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 9-11-07
CHECKED BY: LJB DATE: 12-19-16
DESIGNED BY: J&C DATE: 7-07
FILENAME: b090508a2_b2.dgn
SCALE: as noted

BRIDGE NO. A7274 DRAWING NO. 57994

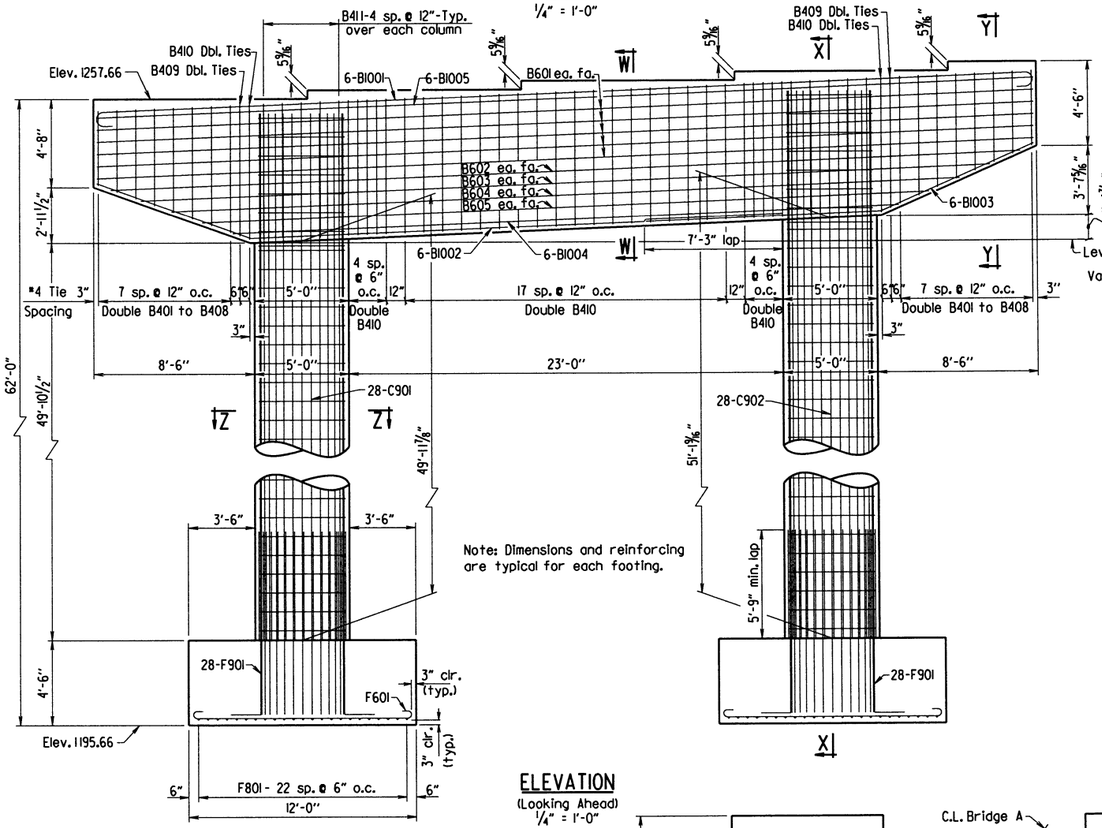
PRINT DATE: 8/21/2017

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.		090508	159	335
				①	A7274 -	INT. BENT	- 57995	



PLAN

1/4" = 1'-0"

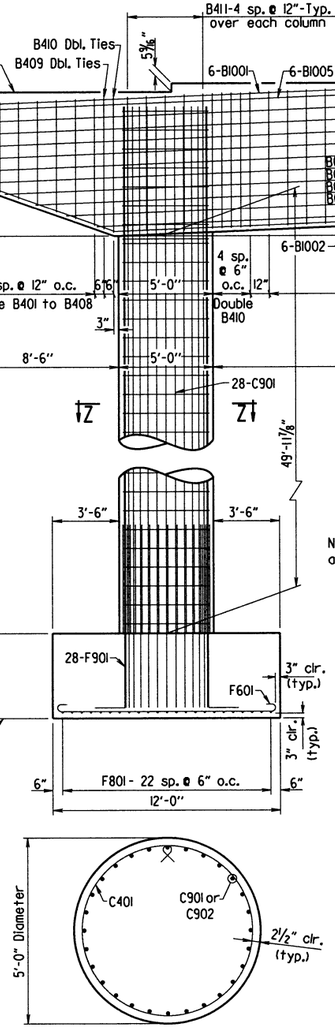


Note: Dimensions and reinforcing are typical for each footing.

ELEVATION

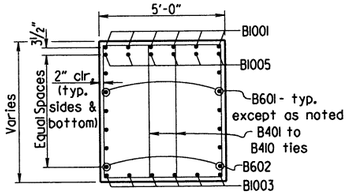
(Looking Ahead)

1/4" = 1'-0"



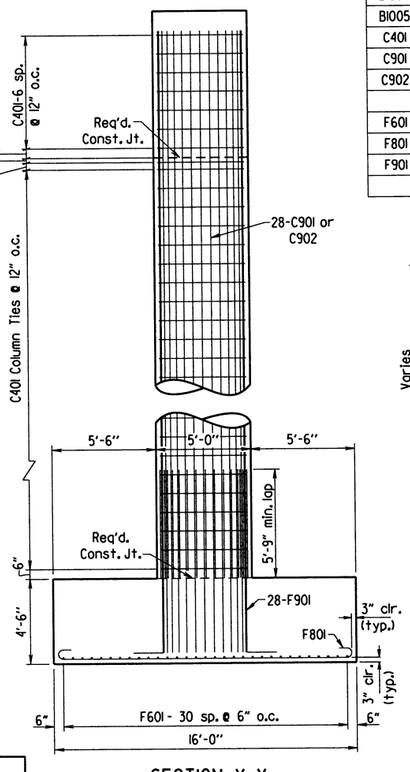
SECTION Z-Z

1/2" = 1'-0"



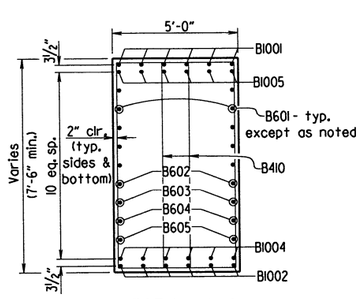
SECTION Y-Y

No Scale



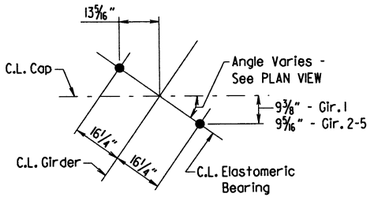
SECTION X-X

1/4" = 1'-0"



SECTION W-W

No Scale



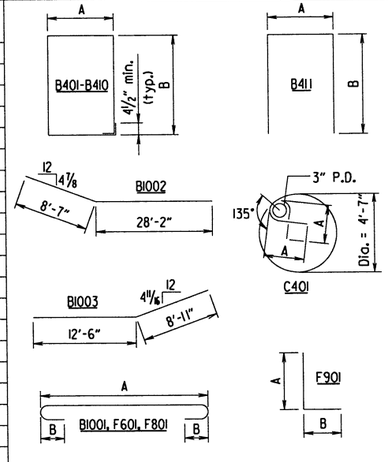
For Details of Elastomeric Bearings, see Dwg. No. 57996.

TYP. ANCHOR BOLT LAYOUT

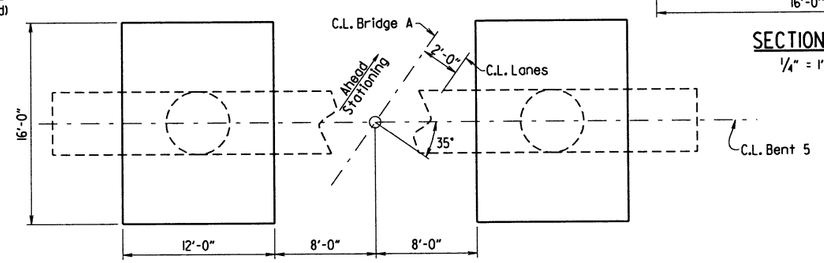
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
B401-B408	4 ea.	14'-3" to 19'-9"	2'-10½"	4'-0" to 6'-9"	2"	
B409	4	20'-1"	2'-10½"	6'-11"	2"	
B410	60	20'-7"	2'-10½"	7'-2"	2"	
B411	10	19'-10"	4'-8"	7'-2"	2"	
B601	10	49'-8"			Str.	
B602	2	48'-6"			Str.	
B603	2	45'-3"			Str.	
B604	2	42'-0"			Str.	
B605	2	38'-9"			Str.	
B1001	6	52'-6"	49'-8"	1½"	10"	
B1002	6	36'-9"			10"	
B1003	6	21'-5"			10"	
B1004	6	35'-5"			Str.	
B1005	6	49'-8"			Str.	
C401	117	15'-5½"	5"		3"	
C901	28	56'-6"			Str.	
C902	28	57'-6"			Str.	
F601	62	12'-10"	11'-6"	6"	4½"	
F801	46	17'-4"	15'-6"	8"	6"	
F901	56	13'-1"	11'-9"	1'-7"	9"	



Dimensions are out to out of bars.



FOOTING LOCATION SKETCH

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-07
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 5
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 9-11-07 FILENAME: b090508a2_b2.dgn

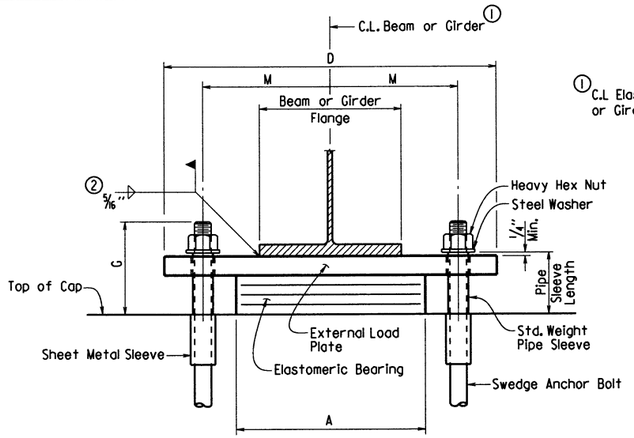
CHECKED BY: LJB DATE: 12-19-16 SCALE: as noted

DESIGNED BY: JAC DATE: 7-07

BRIDGE NO. A7274 DRAWING NO. 57995

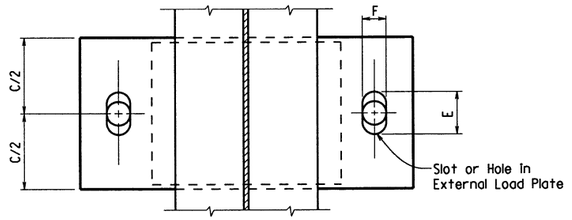
PRINT DATE: 8/21/2017

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.		090508	160	335
				①	A7274 -	ELASTO BRGS. - 57996		



① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.

FRONT VIEW - AT BENT NOS. 1, 3 & 6

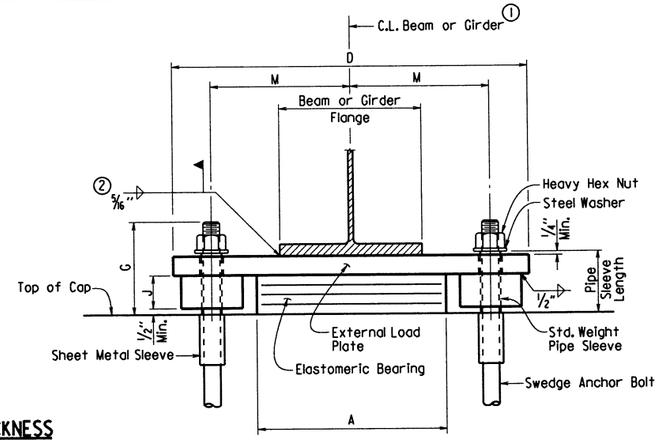


PLAN VIEW - AT BENT NOS. 1, 3 & 6

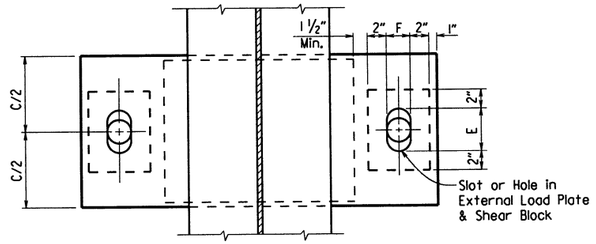
TABLE FOR EXTERNAL LOAD PL THICKNESS

Bent	Girder	No. of Bearings	T_a	T_b
1	All	5	2.04"	1.96"
2	All	5	2.06"	1.94"
3 back	All	5	2.08"	1.92"
3 ahd	All	5	2.33"	2.17"
4	All	5	2.10"	1.90"
5	All	5	2.14"	1.86"
6	All	5	2.14"	1.86"

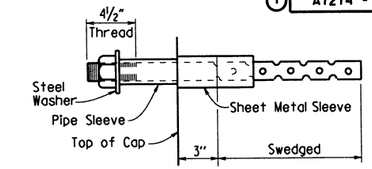
③ 4" shear blocks may be fabricated from built-up plates with a 5/16" groove weld on all sides. No plate shall be less than 2" nominal thickness.



FRONT VIEW - AT BENT NOS. 2, 4 & 5



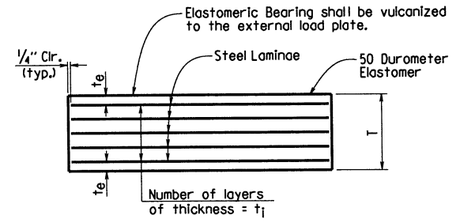
PLAN VIEW - AT BENT NOS. 2, 4 & 5



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)".



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

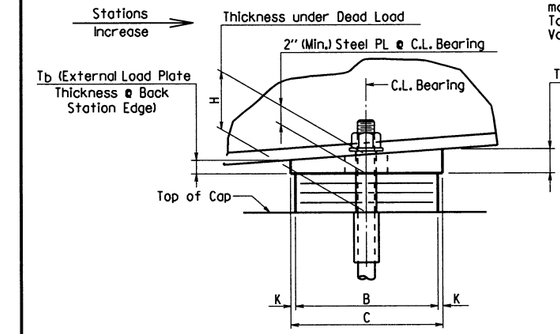
External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and shear blocks shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)". External load plates and shear blocks will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

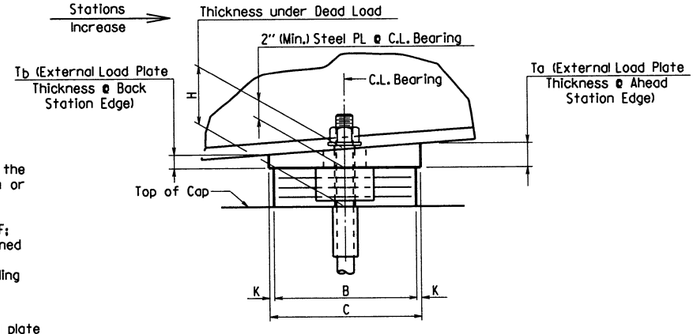


SIDE VIEW - AT BENT NOS. 1, 3 & 6

The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

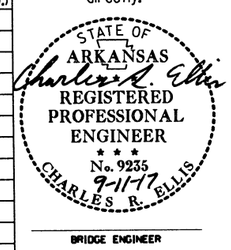


SIDE VIEW - AT BENT NOS. 2, 4 & 5

TABLE OF FABRICATOR VARIABLES

④ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	④ 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	J	K	M	T_a	T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
A7274	1	All	Exp	5	144	9 5/8"	6 5/16"	19"	12"	6	1/2"	5/16"	7 @ 12 Ga.	4 3/8"	13"	31"	5"	3 1/8"	N/A	1/2"	12 1/4"	See Table		2" x 32"	55	2 1/2" x 6 5/8"	4" x 12"	3 3/4"
	2	All	Fix	5	381	8 3/4"	5 5/8"	22"	12"	5	1/2"	5/16"	6 @ 12 Ga.	3 3/4"	13"	40 5/8"	2 5/8"	2 5/8"	3"	1/2"	16"	See Table		1 3/4" x 30"	55	2" x 6"	4" x 12"	3 3/8"
	3 back	All	Exp	5	144	9 5/8"	6 5/16"	19"	12"	6	1/2"	5/16"	7 @ 12 Ga.	4 3/8"	13"	31"	5"	3 1/8"	N/A	1/2"	12 1/4"	See Table		2" x 32"	55	2 1/2" x 6 5/8"	4" x 12"	3 3/4"
	3 ahd	All	Exp	5	158	9 3/16"	6 5/16"	19"	12"	6	1/2"	5/16"	7 @ 12 Ga.	4 3/8"	13"	31"	5 1/2"	3 1/8"	N/A	1/2"	12 1/4"	See Table		2" x 32"	55	2 1/2" x 6 13/16"	4" x 12"	3 3/4"
	4	All	Fix	5	375	9"	5 5/8"	22"	12"	5	1/2"	5/16"	6 @ 12 Ga.	3 3/4"	13"	41 5/8"	3 1/8"	3 1/8"	3"	1/2"	16 1/4"	See Table		2" x 32"	55	2 1/2" x 6"	4" x 12"	3 3/4"
	5	All	Exp	5	368	11 1/4"	8"	22"	14"	9	1/2"	5/16"	10 @ 12 Ga.	6 3/16"	15"	41 5/8"	3 3/4"	3 1/8"	4" ③	1/2"	16 1/4"	See Table		2" x 34"	55	2 1/2" x 8 1/4"	4" x 12"	3 3/4"
	6	All	Exp	5	158	9 5/8"	6 5/16"	19"	12"	6	1/2"	5/16"	7 @ 12 Ga.	4 3/8"	13"	31"	6 1/2"	3 1/8"	N/A	1/2"	12 1/4"	See Table		2" x 32"	55	2 1/2" x 6 5/8"	4" x 12"	3 3/4"



BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LW DATE: 5-2-07 FILENAME: b090508a2_el.dgn

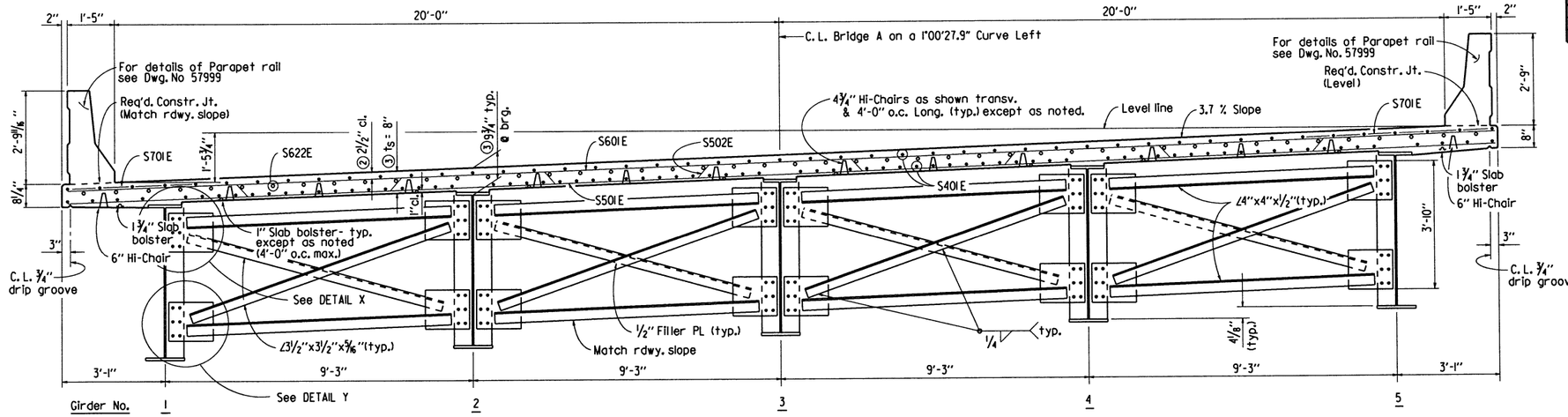
CHECKED BY: JWP DATE: 11-9-16 SCALE: None

DESIGNED BY: JAC DATE: 1-07

BRIDGE NO. A7274 DRAWING NO. 57996

PRINT DATE: 8/21/2017

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.		090508	161	335
				①	A7274 -	COMMON DET. - 57997		



TYP. ROADWAY SECTION

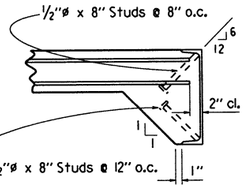
(Looking Ahead)
½" = 1'-0"

Slab Reinforcing:
Longitudinal: S401E Top & Bottom
S622E placed as shown over interior supports (See Reinf. Plan)
Transverse: S501E @ 15"o.c. in bottom, S502E @ 15"o.c. bent up over girders
S601E @ 15"o.c. in top,
S701E @ 15"o.c. in top of overhang

② Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance-
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

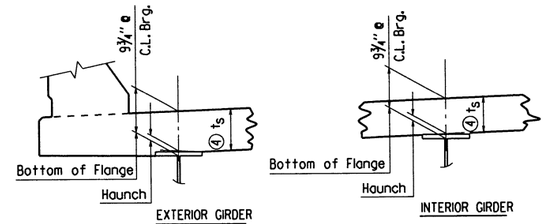
Note: Class 2 Protective Surface Treatment shall be applied to the Roadway Surface. Class 3 Textured Coating Finish shall be applied to all areas specified in Job SP "Textured Coating Finish".



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 AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

NTS



t_s = slab thickness as shown in "Typical Roadway Section"

④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

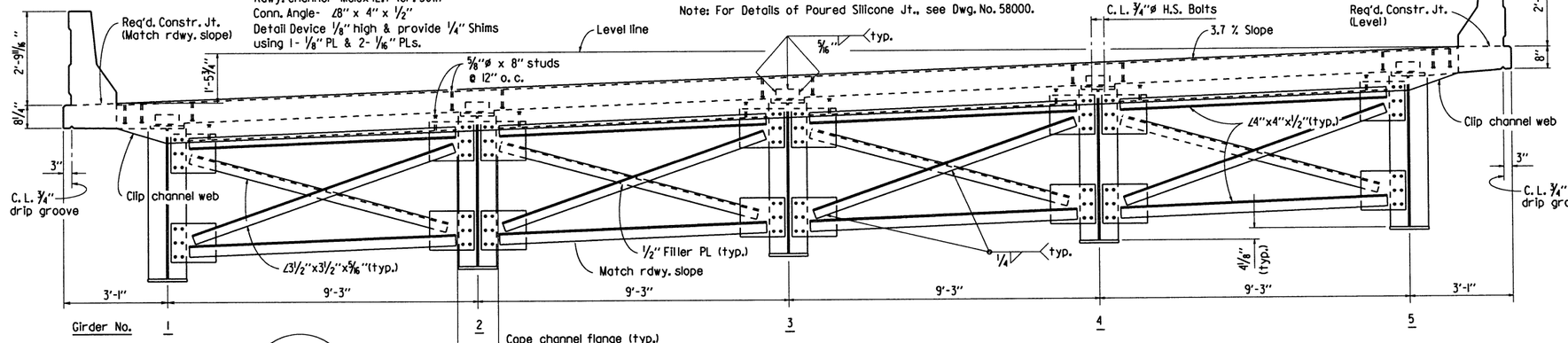
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NTS

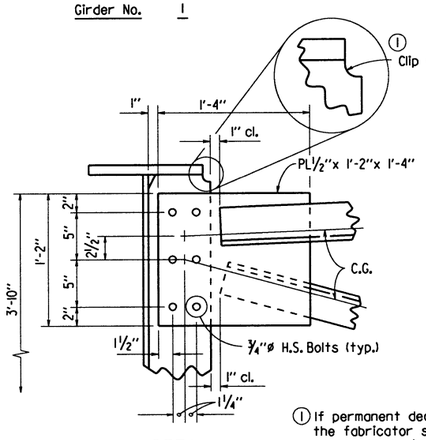
Expansion Device :
Rdwy. Channel- MC18x42.7 (Gr. 50W)
Conn. Angle- ∠8" x 4" x ½"
Detail Device ⅛" high & provide ¼" Shims using 1- ⅛" PL & 2- 1/16" PLs.

Note: For Details of Poured Silicone Jt., see Dwg. No. 58000.



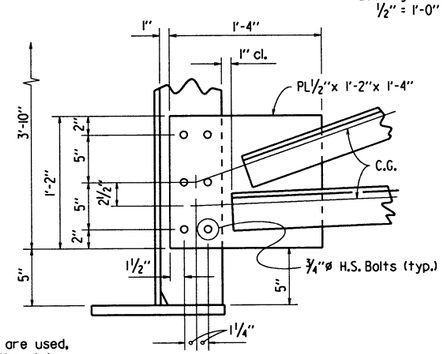
SECTION NEAR JOINT

(Looking Ahead)
½" = 1'-0"



DETAIL X

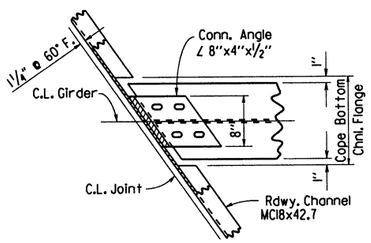
1½" = 1'-0"



DETAIL Y

1½" = 1'-0"

① If permanent deck forms are used, the fabricator shall clip the plate as necessary to accomodate the support angle.



CHANNEL CONNECTION DETAIL

NTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 7
COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD)

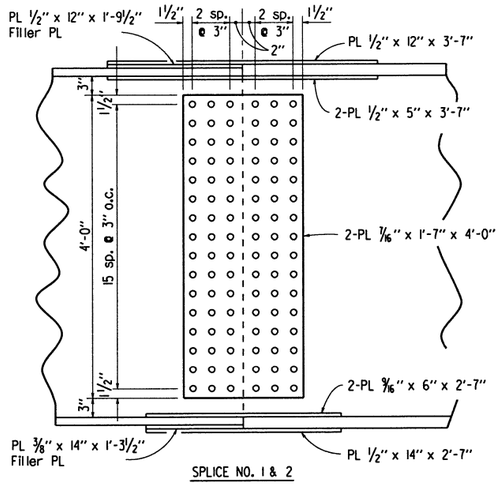
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

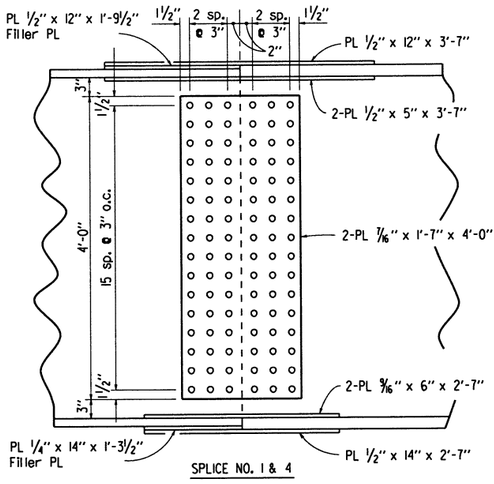
DRAWN BY: LM DATE: 7-10-07 FILENAME: b090508a2_cl.dgn
CHECKED BY: JHP DATE: 11-9-16 SCALE: As shown
DESIGNED BY: JAC DATE: 6-07
BRIDGE NO. A7274 DRAWING NO. 57997

PRINT DATE: 8/21/2017

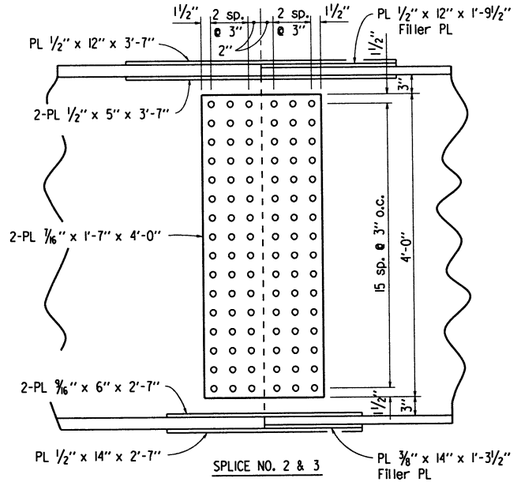
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	162	335
				①	A7274 -	COMMON DET. - 57998		



SPLICE NO. 1 & 2



SPLICE NO. 1 & 4



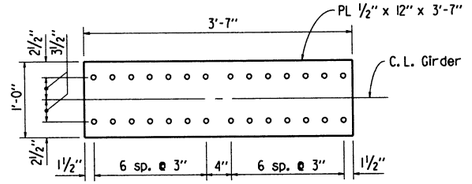
SPLICE NO. 2 & 3

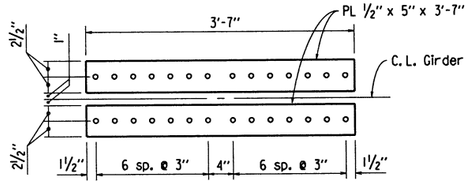
TYPICAL FIELD SPLICE DETAILS (210' UNIT)

1" = 1'-0"

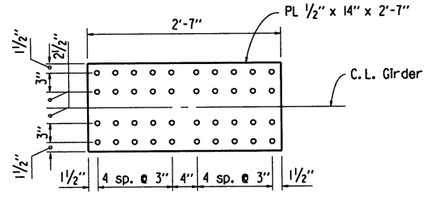
TYPICAL FIELD SPLICE DETAILS (345' UNIT)

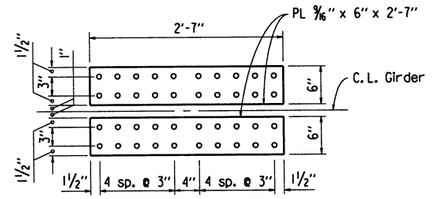
1" = 1'-0"





TOP FLANGE SPLICE PLATES





BOTTOM FLANGE SPLICE PLATES

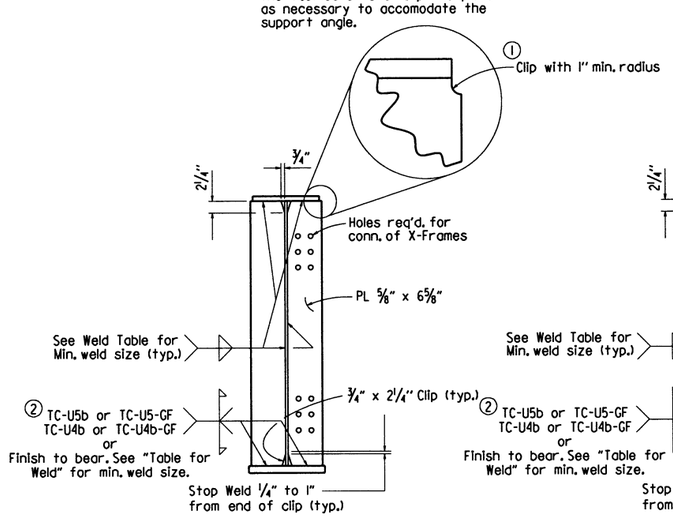
TYPICAL FLANGE SPLICE DETAILS (210' & 345' GIRDER)

1" = 1'-0"

All field splice bolts shall be 7/8"ø Hi-str. bolts
All holes for splice bolts shall be 15/16"ø
All field splice plates shall be AASHTO M 270 Gr. 50W steel.

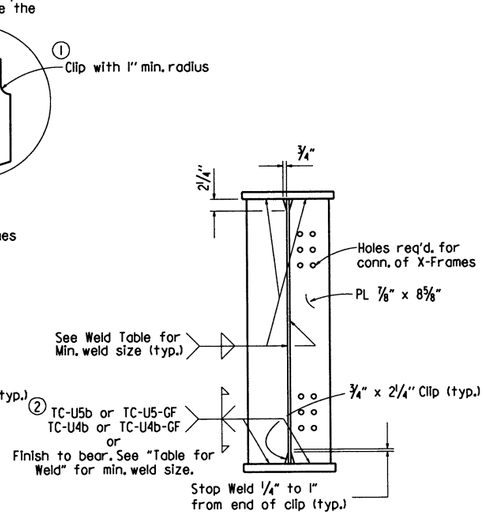
Note: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

① If permanent deck forms are used, the fabricator shall clip the plate as necessary to accomodate the support angle.



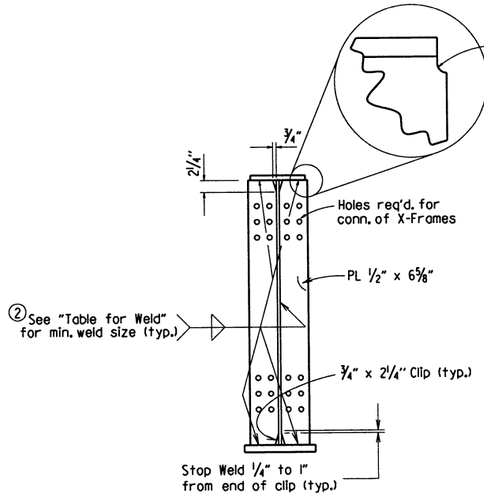
END BEARING STIFFENER DETAIL

N.T.S.



INT. BEARING STIFFENER DETAIL

N.T.S.



① If permanent deck forms are used, the fabricator shall clip the plate as necessary to accomodate the support angle.

CROSS FRAME CONNECTION DETAIL

N.T.S.

② For "Table for Weld", see Dwg. No. 58004 or 58006.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 7
COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS
CR 49 (BECKETT ROAD)

ROUTE SEC.

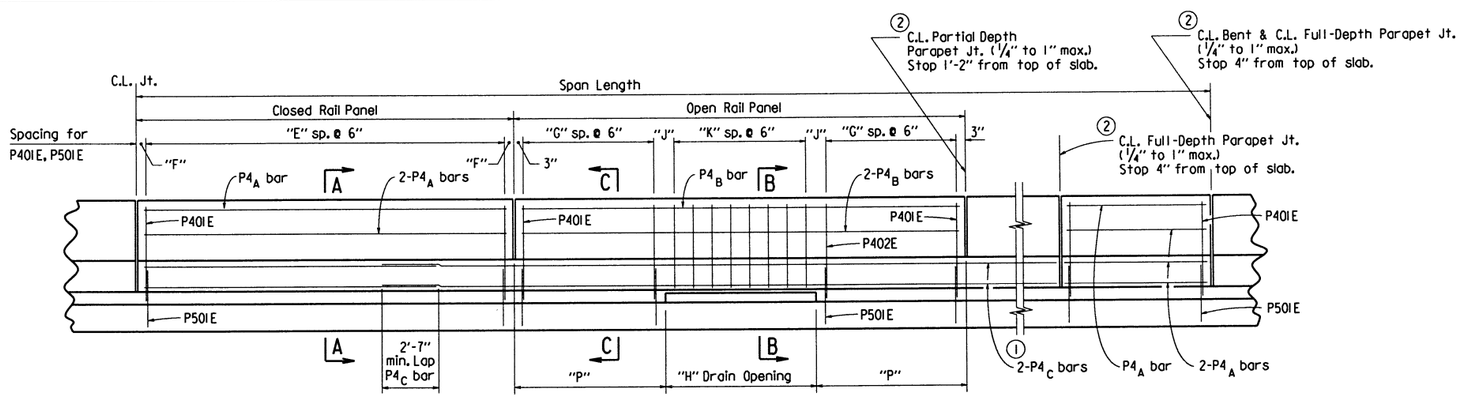
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 7-10-07 FILENAME: b090508a2_cl.dgn
CHECKED BY: JWP DATE: 11-9-16 SCALE: As shown
DESIGNED BY: JAC DATE: 6-07

BRIDGE NO. A7274 DRAWING NO. 57998

PRINT DATE: 8/21/2017

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.		090508	163	335
				(1) A7274 -		COMMON DET. - 57999		



ELEVATION - CONCRETE PARAPET RAIL

1/2" = 1'-0"

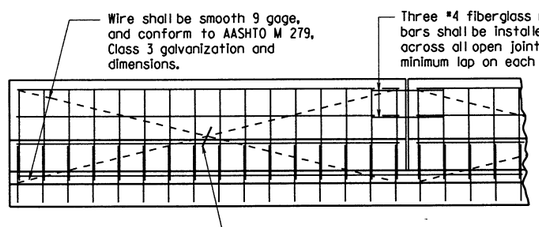
(1) Bar to be continuous between full depth parapet jts.

(2) For location of full and partial depth parapet joints, see Dwg. Nos. 58005 & 58007.

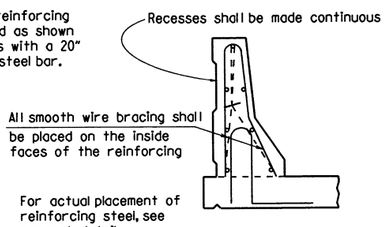
TABLE OF VARIABLES

	(3) Span Variable	Closed Rail Panel	"E"	"F"	$P4_A$ bar	Open Rail Panel	"G"	"H"	"J"	"K"	"P"	$P4_B$ bar	$P4_C$ bar
210' Unit	104'-7 9/16"	14'-11 3/8"	28	5 11/16"	P403E	14'-11 3/8"	9	4'-0"	11 11/16"	7	5'-5 11/16"	P403E	P404E
	105'-4 7/16"	15'-0 5/8"	29	3 5/16"	P403E								P404E
345' Unit	114'-7 1/8"	14'-3 7/8"	27	4 5/16"	P403E	14'-3 7/8"	9	4'-0"	7 5/16"	7	5'-1 5/16"	P403E	P404E, P405E
	115'-4 7/8"	14'-5 1/8"	27	5 5/16"	P403E								P406E, P407E

(3) Measured along gutterlines.



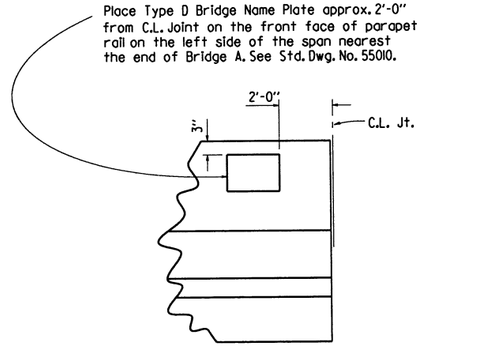
All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish. See Job SP "Textured Coating Finish".

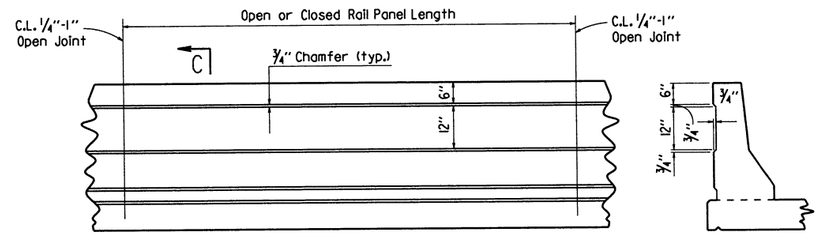
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

NTS



VIEW SHOWING LOCATION OF NAME PLATE

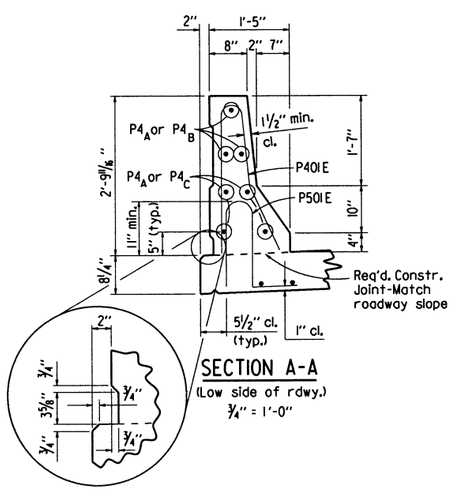
NTS



DETAILS OF PARAPET ENHANCEMENT

NTS

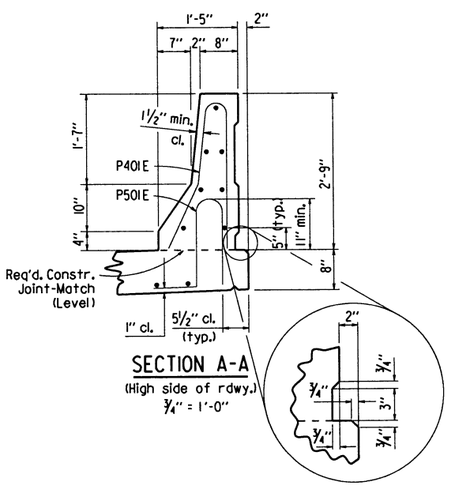
SECTION C-C



SECTION A-A

(Low side of rdwy.)

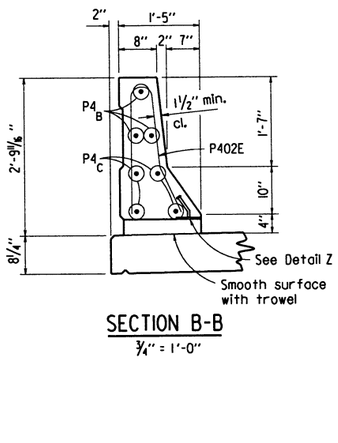
3/4" = 1'-0"



SECTION A-A

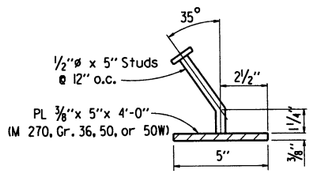
(High side of rdwy.)

3/4" = 1'-0"



SECTION B-B

3/4" = 1'-0"



Note:

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 PL Girder Spans (M 270, Gr. 50W).

The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted 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 PL Girder Spans (M 270, Gr. 50W).

DETAIL Z

NTS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 7
COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-24-07 FILENAME: b090508a2_cl.dgn

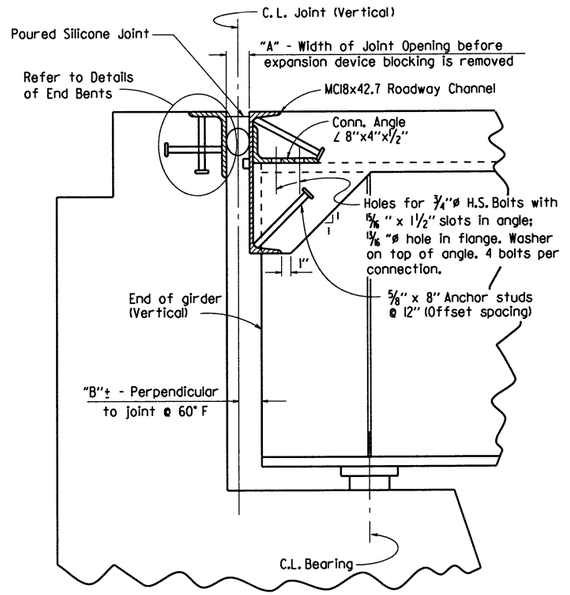
CHECKED BY: SHP DATE: 11-9-16 SCALE: As shown

DESIGNED BY: JAC DATE: 6-07

BRIDGE NO. A7274 DRAWING NO. 57999

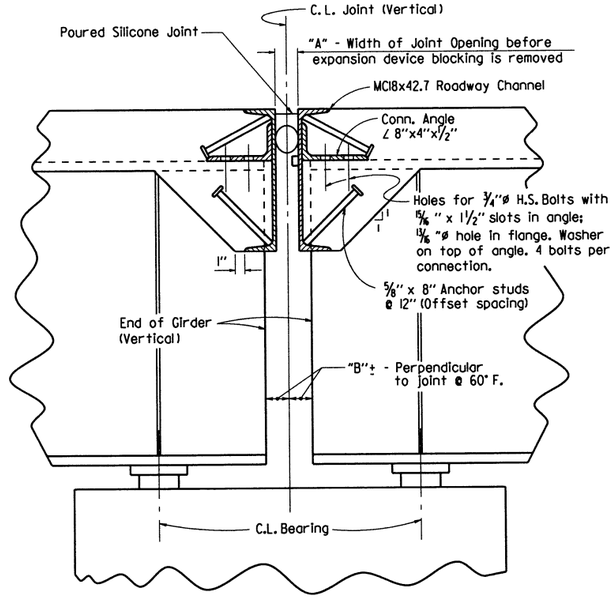
PRINT DATE: 8/21/2017

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.		090508	164	335
				①	A7274 -	COMMON DET. - 58000		



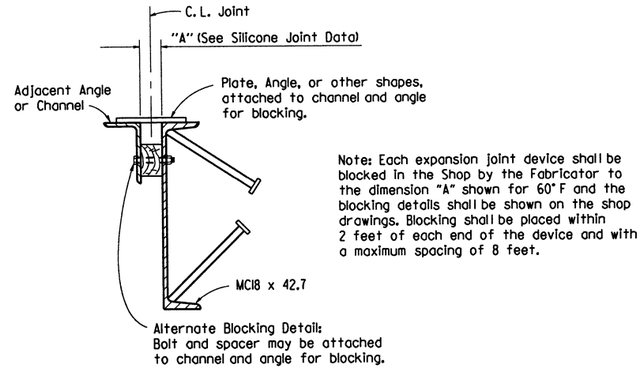
Note: Section taken perpendicular to C.L. Joint

SECTION THRU JOINT AT END BENT



Note: Section taken perpendicular to C.L. Joint

SECTION THRU JOINT AT INTERIOR BENT



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

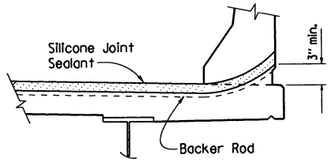
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature and grade, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after girders 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.

EXPANSION DEVICE INSTALLATION AT INTERIOR BENTS:

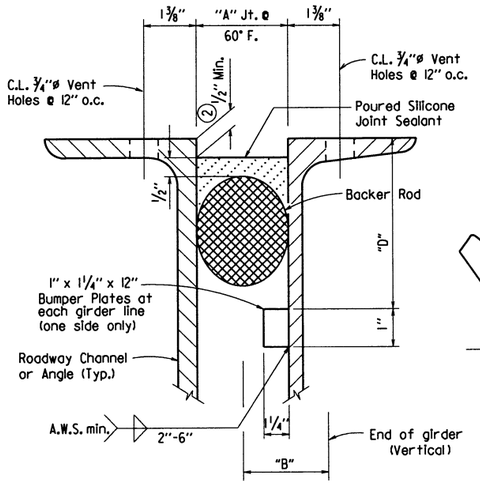
After all girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



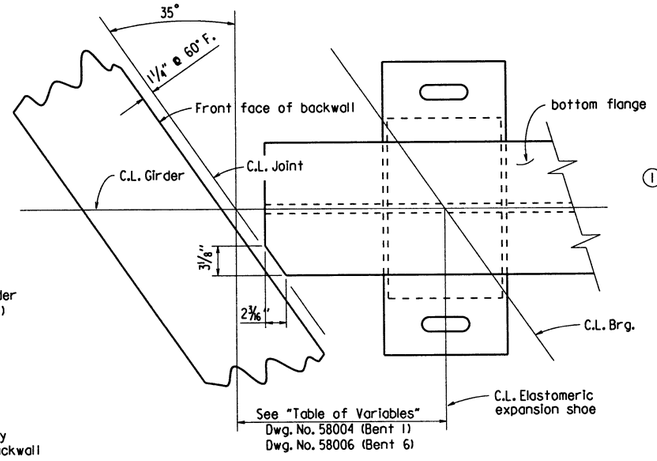
JOINT SEAL PLACEMENT AT CURB

②Recess depth as recommended by the sealant Manufacturer.



DETAIL OF POURED SILICONE JOINT

Note:
Concrete shall be hand packed under the joint armor. Care shall be taken to ensure that concrete completely fills the areas below the top channel flanges in the backwall and in the span.



PLAN OF BEARING AT END BENT 1

SILICONE JOINT DATA

Bent No.	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	"D"
	40°F	60°F	80°F		
1	2 11/16"	2 1/2"	2 5/16"	2 1/2" ±	5"
3	2 15/16"	2 1/2"	2 3/16"	2 1/2" ±	5"
6	2 3/4"	2 1/2"	2 1/4"	2 1/2" ±	5"

①The 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.

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 that can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 7
COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-27-07 FILENAME: b090508a2_cl.dgn
CHECKED BY: JW DATE: 11-9-16 SCALE: No Scale
DESIGNED BY: JAC DATE: 6-07

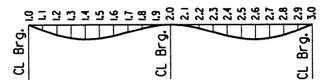
BRIDGE NO. A7274 DRAWING NO. 58000

PRINT DATE: 8/21/2017

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.		090508	165	335
				①		A7274 - COMMON DET. - 58001		

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girder 1 Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
1	1.0	0	0	0
	1.1	0.089	0.528	0.596
	1.2	0.163	0.968	1.094
	1.3	0.214	1.268	1.434
	1.4	0.232	1.373	1.554
	1.5	0.219	1.293	1.466
	1.6	0.181	1.061	1.205
	1.7	0.124	0.722	0.822
	1.8	0.067	0.387	0.441
	1.9	0.019	0.112	0.127
2	2.0	0	0	0
	2.1	0.018	0.103	0.119
	2.2	0.064	0.365	0.419
	2.3	0.125	0.722	0.825
	2.4	0.180	1.052	1.199
	2.5	0.222	1.303	1.481
	2.6	0.235	1.386	1.573
	2.7	0.217	1.285	1.456
	2.8	0.167	0.995	1.126
	2.9	0.091	0.542	0.613
	3.0	0	0	0

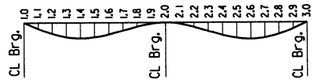


DEAD LOAD DEFLECTION DIAGRAM

Girder 1

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girders 2, 3, 4, Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
1	1.0	0	0	0
	1.1	0.093	0.625	0.647
	1.2	0.172	1.151	1.192
	1.3	0.223	1.494	1.547
	1.4	0.241	1.615	1.673
	1.5	0.227	1.515	1.569
	1.6	0.185	1.232	1.277
	1.7	0.126	0.834	0.864
	1.8	0.067	0.435	0.451
	1.9	0.020	0.129	0.134
2	2.0	0	0	0
	2.1	0.022	0.142	0.147
	2.2	0.073	0.480	0.498
	2.3	0.137	0.904	0.938
	2.4	0.198	1.315	1.364
	2.5	0.241	1.608	1.667
	2.6	0.254	1.704	1.767
	2.7	0.234	1.572	1.629
	2.8	0.180	1.211	1.255
	2.9	0.099	0.666	0.690
	3.0	0	0	0

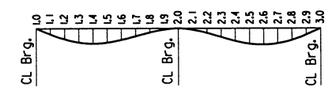


DEAD LOAD DEFLECTION DIAGRAM

Girders 2, 3, 4

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girder 5 Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
1	1.0	0	0	0
	1.1	0.092	0.549	0.621
	1.2	0.167	1.000	1.133
	1.3	0.218	1.297	1.471
	1.4	0.236	1.400	1.590
	1.5	0.222	1.310	1.490
	1.6	0.181	1.064	1.213
	1.7	0.123	0.715	0.818
	1.8	0.065	0.374	0.430
	1.9	0.020	0.115	0.133
2	2.0	0	0	0
	2.1	0.023	0.132	0.150
	2.2	0.073	0.426	0.484
	2.3	0.137	0.807	0.917
	2.4	0.198	1.168	1.325
	2.5	0.241	1.433	1.622
	2.6	0.255	1.518	1.716
	2.7	0.234	1.402	1.583
	2.8	0.181	1.085	1.224
	2.9	0.100	0.601	0.678
	3.0	0	0	0



DEAD LOAD DEFLECTION DIAGRAM

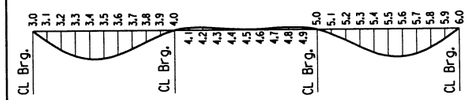
Girder 5

210'-0" UNIT

NOTE: Camber for Dead Load Deflection plus Vertical Curve +/- 1/4" tolerance. Deflections shown are along C.L. Girder from the plane perpendicular to the web extending from centerline bearing to centerline bearing. Vertical Curve correction not included. Negative sign (-) indicates point above chord.

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girder 1 Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
3	3.0	0	0	0
	3.1	0.166	0.969	1.079
	3.2	0.311	1.809	2.016
	3.3	0.412	2.396	2.671
	3.4	0.461	2.676	2.984
	3.5	0.456	2.641	2.945
	3.6	0.400	2.309	2.574
	3.7	0.305	1.760	1.961
	3.8	0.191	1.098	1.222
	3.9	0.082	0.473	0.524
4	4.0	0	0	0
	4.1	-0.037	-0.225	-0.239
	4.2	-0.043	-0.276	-0.280
	4.3	-0.031	-0.214	-0.194
	4.4	-0.018	-0.143	-0.104
	4.5	-0.010	-0.099	-0.051
	4.6	-0.015	-0.127	-0.086
	4.7	-0.028	-0.200	-0.178
	4.8	-0.039	-0.250	-0.250
	4.9	-0.033	-0.205	-0.216
5	5.0	0	0	0
	5.1	0.078	0.450	0.497
	5.2	0.182	1.044	1.160
	5.3	0.290	1.669	1.859
	5.4	0.388	2.238	2.495
	5.5	0.444	2.564	2.859
	5.6	0.451	2.611	2.912
	5.7	0.403	2.339	2.608
	5.8	0.305	1.771	1.975
	5.9	0.165	0.963	1.073
	6.0	0	0	0

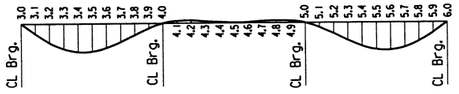


DEAD LOAD DEFLECTION DIAGRAM

Girder 1

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girders 2, 3, 4, Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
3	3.0	0	0	0
	3.1	0.179	1.164	1.211
	3.2	0.333	2.168	2.256
	3.3	0.442	2.873	2.989
	3.4	0.496	3.218	3.349
	3.5	0.490	3.175	3.305
	3.6	0.430	2.777	2.892
	3.7	0.328	2.114	2.204
	3.8	0.208	1.334	1.392
	3.9	0.089	0.571	0.596
4	4.0	0	0	0
	4.1	-0.041	-0.271	-0.286
	4.2	-0.048	-0.323	-0.343
	4.3	-0.039	-0.264	-0.286
	4.4	-0.026	-0.175	-0.197
	4.5	-0.020	-0.135	-0.155
	4.6	-0.025	-0.172	-0.193
	4.7	-0.039	-0.260	-0.282
	4.8	-0.047	-0.317	-0.338
	4.9	-0.040	-0.266	-0.280
5	5.0	0	0	0
	5.1	0.087	0.562	0.587
	5.2	0.201	1.296	1.352
	5.3	0.322	2.076	2.165
	5.4	0.423	2.736	2.849
	5.5	0.482	3.125	3.254
	5.6	0.487	3.167	3.296
	5.7	0.436	2.834	2.949
	5.8	0.329	2.139	2.226
	5.9	0.177	1.155	1.202
	6.0	0	0	0

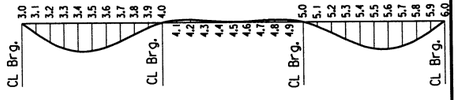


DEAD LOAD DEFLECTION DIAGRAM

Girders 2, 3, 4

TABLE OF DEFLECTIONS-INCHES

Span	Point of Deflection	Girder 5 Structural Steel	Structural Steel +Slab	Str. Steel + Slab+Rail
3	3.0	0	0	0
	3.1	0.180	1.053	1.174
	3.2	0.332	1.937	2.159
	3.3	0.440	2.564	2.858
	3.4	0.494	2.870	3.198
	3.5	0.488	2.829	3.152
	3.6	0.427	2.472	2.753
	3.7	0.327	1.887	2.100
	3.8	0.209	1.203	1.336
	3.9	0.091	0.522	0.577
4	4.0	0	0	0
	4.1	-0.043	-0.261	-0.278
	4.2	-0.051	-0.319	-0.325
	4.3	-0.042	-0.279	-0.263
	4.4	-0.030	-0.214	-0.179
	4.5	-0.024	-0.179	-0.137
	4.6	-0.028	-0.207	-0.172
	4.7	-0.041	-0.276	-0.261
	4.8	-0.048	-0.307	-0.312
	4.9	-0.040	-0.246	-0.262
5	5.0	0	0	0
	5.1	0.087	0.504	0.558
	5.2	0.201	1.164	1.294
	5.3	0.319	1.847	2.057
	5.4	0.419	2.436	2.714
	5.5	0.477	2.779	3.097
	5.6	0.483	2.819	3.142
	5.7	0.433	2.529	2.818
	5.8	0.327	1.912	2.130
	5.9	0.178	1.046	1.165
	6.0	0	0	0



DEAD LOAD DEFLECTION DIAGRAM

Girder 5

345'-0" UNIT

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 7
COMMON DETAILS OF
CONTINUOUS PLATE GIRDER UNITS
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

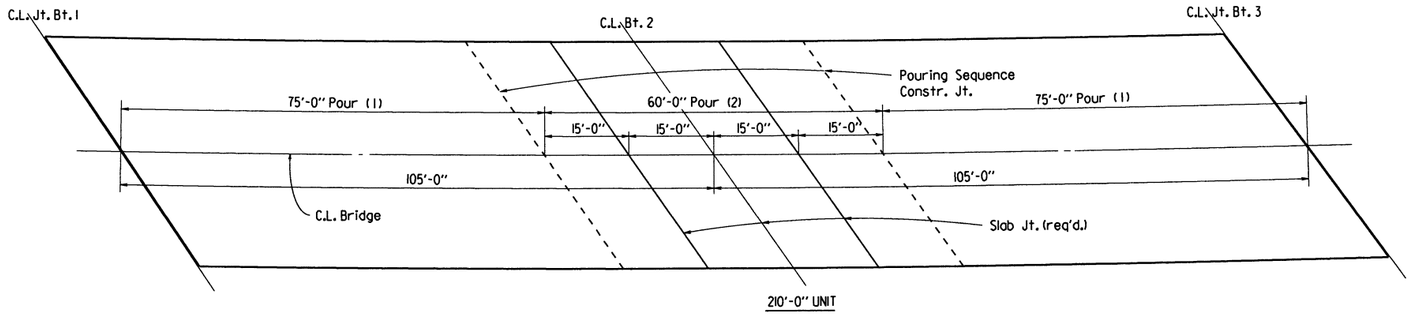
DRAWN BY: LM DATE: 6-25-07
CHECKED BY: JNP DATE: 11-9-16
DESIGNED BY: JAC DATE: 4-07

FILENAME: b090508a2_cl.dgn
SCALE: As Shown

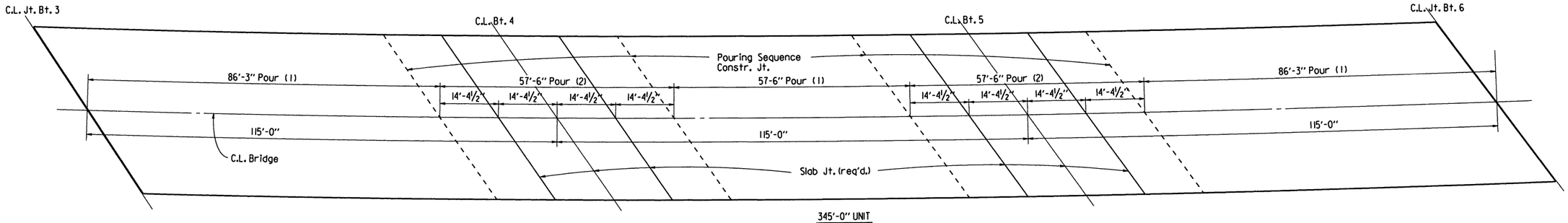
BRIDGE NO. A7274 DRAWING NO. 58001

PRINT DATE: 8/21/2017

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.		090508	166	335
				(1) A7274 -		COMMON DET. - 58002		



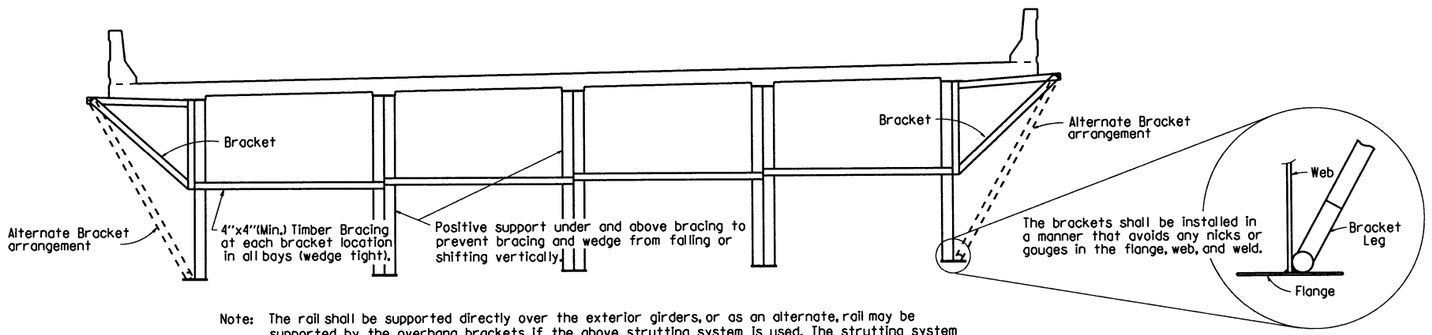
210'-0" UNIT



345'-0" UNIT

Note: Pours with the same number may be placed simultaneously or separately. For each unit, all Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence as shown.

SLAB POURING SEQUENCE



Note: The rail shall be supported directly over the exterior girders, or as an alternate, rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if ½"x6⅝" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on Dwg. No. 57998. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)".

SCREED RAIL SUPPORT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 7
COMMON DETAILS OF CONTINUOUS PLATE GIRDER UNITS CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-28-07 FILENAME: b090508a2_cl.dgn
CHECKED BY: JW DATE: 11-9-16 SCALE: No Scale
DESIGNED BY: JAC DATE: 6-07

BRIDGE NO. A7274 DRAWING NO. 58002

PRINT DATE: 8/21/2017

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.		090508	167	335
				(1) A7274 -		COMMON DET. - 58003		

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Third Edition with 2006 Interim Revisions).

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi

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 Std. Dwg. No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge 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 girder. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

Use of a longitudinal screed is prohibited.

REINFORCING STEEL :
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel 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 Plate Girder 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). Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36, 50 or 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, 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 shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Girder web and flange plates, field splice plates, cross frames, and connection 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 Plate Girder Spans (M 270, Gr. 50W)".

All girders shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length sections, distance between bearings and openings of joints shall be measured with the girders 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 girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Web and flange plates for main members and flange splice plates for main members 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.

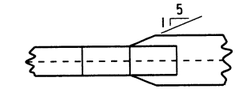
Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment for welds for these splices will be made.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the governing specifications in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Quality Control (Q.C.) testing is at the Contractor's expense.

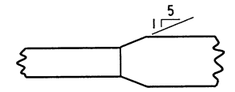
Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior girder webs and on the bottom of the girder flanges. The use of oversized holes will not be allowed on main members.

Cross-Frames shall be installed as girders are erected. All bolts in cross-frames and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

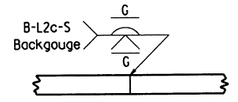
All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.



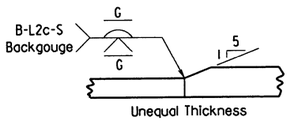
FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



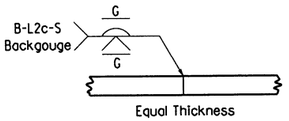
Plan-Unequal Width (Fig.)
FLANGE SPLICE



Equal Thickness
WEB SPLICE



Unequal Thickness
FLANGE SPLICE



Equal Thickness
FLANGE SPLICE

DETAILS OF WELDED SPLICES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 7
COMMON DETAILS OF
CONTINUOUS PLATE GIRDER UNITS
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

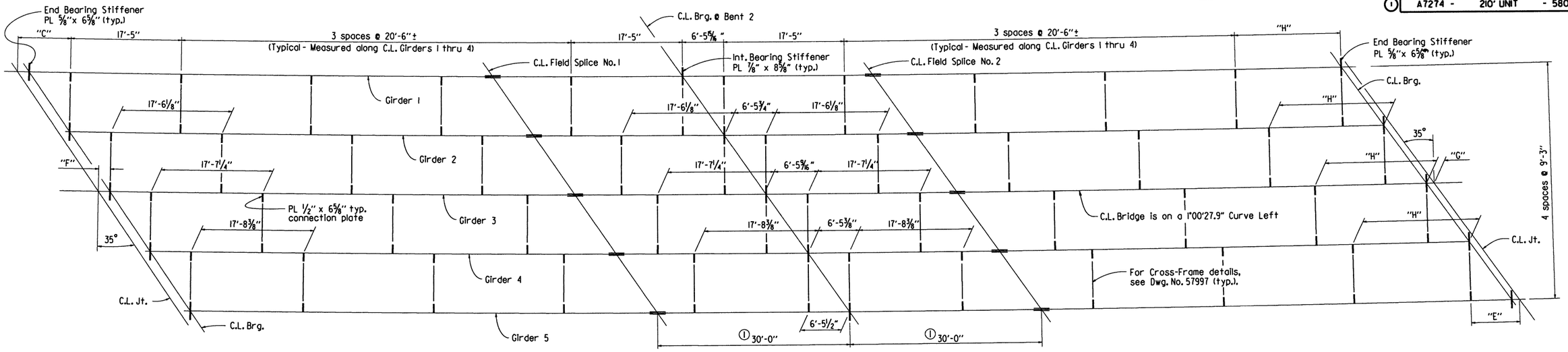
DRAWN BY: LM DATE: 8-29-07 FILENAME: b090508a2_cl.dgn
CHECKED BY: JNP DATE: 11-9-16 SCALE: As shown
DESIGNED BY: JAC DATE: 6-07

BRIDGE NO. A7274 DRAWING NO. 58003

PRINT DATE: 8/21/2017

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.		090508	168	335
				① A7274 -		210' UNIT	- 58004	

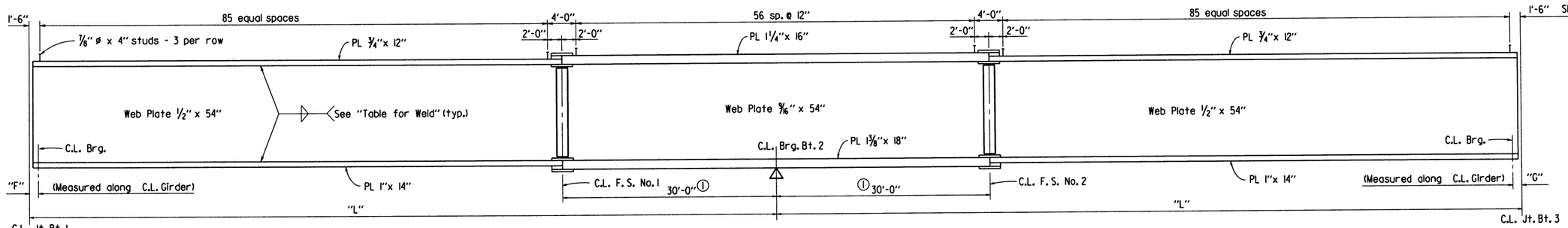
Note: Girders are curved and are concentric to C.L. Bridge.
Cross-Frames are on radial lines.



① Measured from C.L. Bearing to C.L. Field Splice along each girder.

FRAMING PLAN

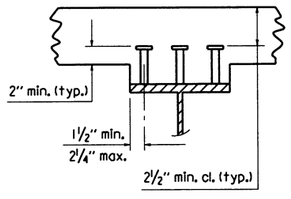
1/8" = 1'-0"



TYP. GIRDER ELEVATION

NTS

Note: All web and flange plates shall be AASHTO M 270, Gr. 50W steel.



Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors.

SHEAR CONNECTOR DETAIL

NTS

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.

TABLE OF VARIABLES

Girder	"L"	"C"	"E"	"F"	"G"	"H"
1	104'-7 1/8"	8'-3 7/16"	—	1'-10"	1'-2 11/16"	18'-0 1/4"
2	104'-9 15/16"	8'-3 11/16"	7'-8 3/4"	1'-10"	1'-2 11/16"	18'-1 3/8"
3	105'-0"	8'-3 1/2"	7'-8 9/16"	1'-10"	1'-2 5/16"	18'-2 1/2"
4	105'-2 1/16"	8'-3 5/16"	7'-8 3/16"	1'-9 15/16"	1'-2 5/8"	18'-3 5/8"
5	105'-4 1/8"	—	7'-8 3/16"	1'-9 15/16"	1'-2 5/8"	—

For Details of Typical Roadway Section, see Dwg. No. 57997
For Details of Pouring Sequence, see Dwg. No. 58002
For Details of Field Splices, see Dwg. No. 57998
For Details of Parapets, see Dwg. No. 57999
For Details of Dead Load Deflections, see Dwg. No. 58001
For Details of Silicone Jt., see Dwg. No. 58000
For General Notes, see Dwg. No. 58003

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF
210'-0" CONTINUOUS PLATE GIRDER UNIT
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 7-17-07
CHECKED BY: JSP DATE: 11-9-16
DESIGNED BY: JAC DATE: 6-07
FILENAME: b090508a2_sl.dgn
SCALE: As shown

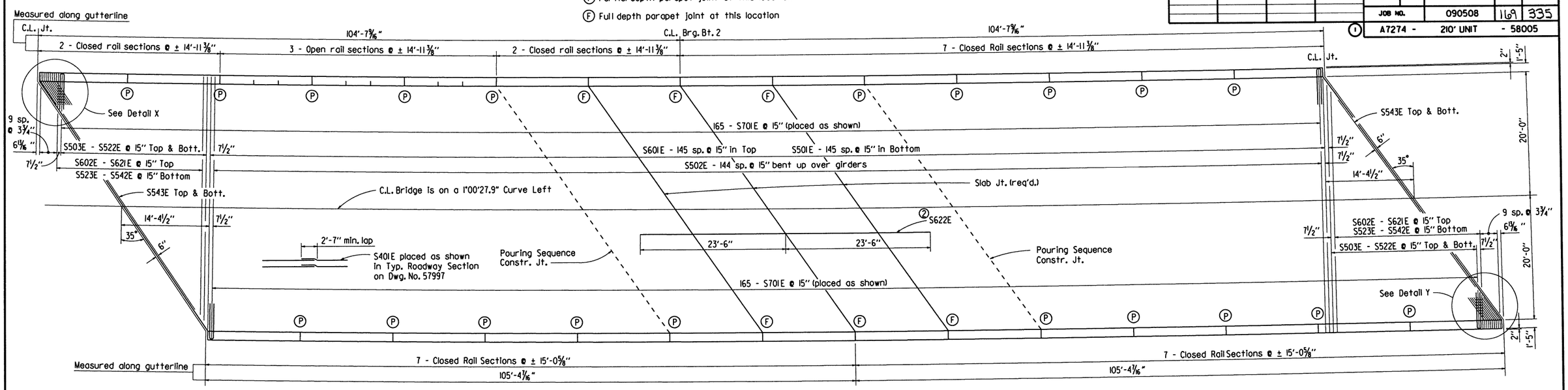
BRIDGE NO. A7274 DRAWING NO. 58004

PRINT DATE: 8/21/2017

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.		090508	169	335
				1	A7274 -	210' UNIT	- 58005	

Ⓟ Partial depth parapet joint at this location

Ⓕ Full depth parapet joint at this location



PLAN OF REINFORCING

1/8" = 1'-0"

Note: Required slab joints and Pouring Sequence Joints shall align with open joints in parapet rail at the gutterline.

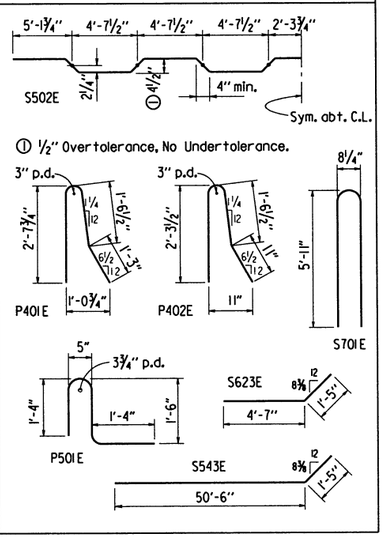
② Place this reinforcing in top of slab as shown in Typical Roadway Section.

Note: All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. All transverse reinforcing steel shall be placed on radial lines and shall be measured along C.L. Bridge.

BAR LIST

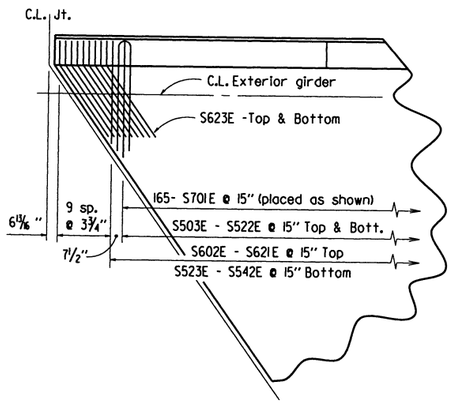
Mark	No. Req'd.	Length	Pin Dia.
S401E	738	37'-3"	Str.
S501E	146	42'-10"	Str.
S502E	145	43'-6"	3"
S503E-S522E	4 ea.	6'-10" to 40'-9"	Str.
S523E-S542E	2 ea.	5'-11" to 39'-10"	Str.
S543E	4	5'-11"	3"
S601E	146	42'-10"	Str.
S602E-S621E	2 ea.	5'-11" to 39'-10"	Str.
S622E	46	47'-0"	Str.
S623E	36	6'-0"	4 1/2"
S701E	330	12'-3"	6 1/2"
P401E	799	5'-6"	2"
P402E	24	4'-10"	2"
P403E	100	14'-7"	Str.
P404E	48	31'-9"	Str.
P501E	799	4'-3"	2 1/2"

Bending Diagrams (Dimensions are out to out of bars.)



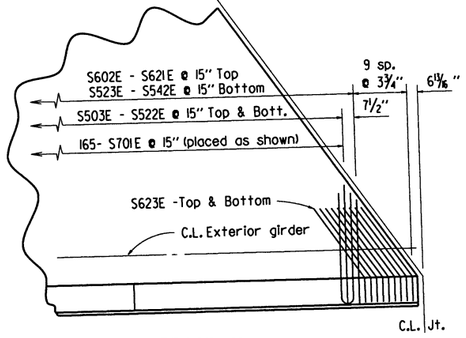
Note: Bars with "E" designation shall be epoxy coated.

Note: At the Contractor's option, two straight epoxy coated #5 bars, top and bottom, may be substituted for bar S502E. Payment will be based on weight of S502E.



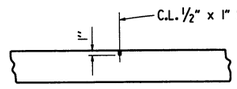
DETAIL X

1/4" = 1'-0"



DETAIL Y

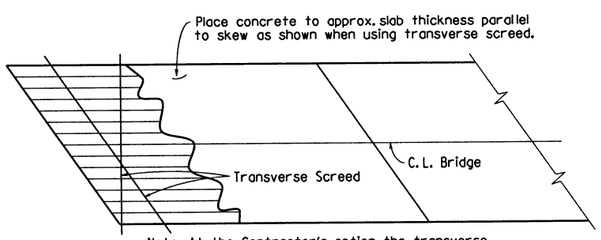
1/4" = 1'-0"



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 and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

SLAB JOINT DETAIL

NTS



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE

NTS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF
210'-0" CONTINUOUS PLATE GIRDER UNIT
CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-16-07 FILENAME: b090508a2_sl.dgn

CHECKED BY: JSP DATE: 11-9-16 SCALE: 1/8" = 1'-0" or as shown

DESIGNED BY: JAC DATE: 6-07

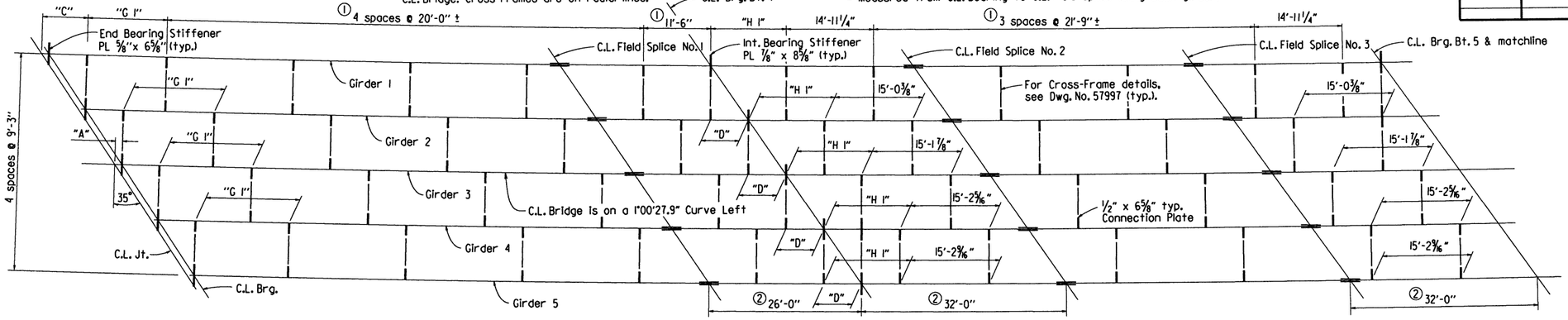
BRIDGE NO. A7274 DRAWING NO. 58005

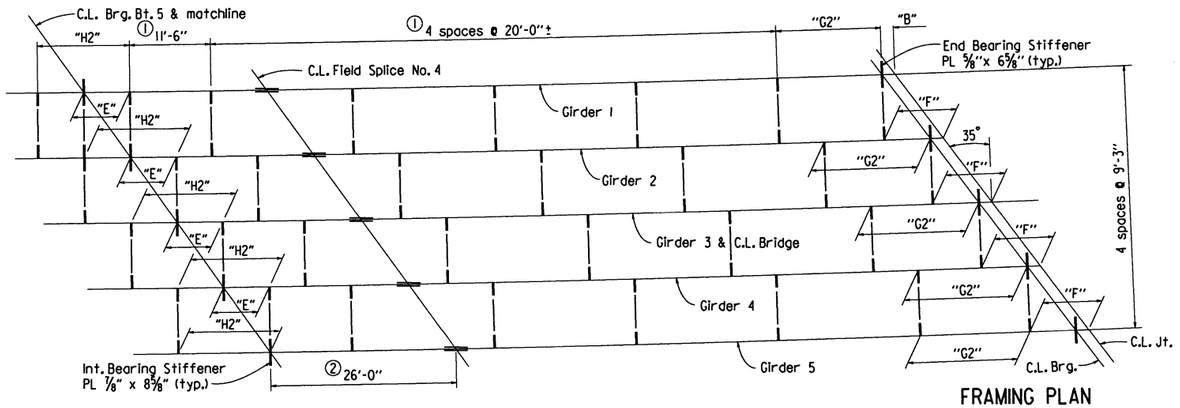
PRINT DATE: 8/21/2017

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.		090508	170	335
				(1)	A7274 -	345' UNIT	- 58006	

Note: Girders are curved and are concentric to C.L. Bridge. Cross-Frames are on radial lines.

(1) Measured along C.L. Girders 1 thru 4
(2) Measured from C.L. Bearing to C.L. Field Splice along each girder.





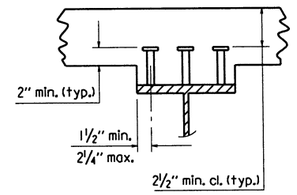
FRAMING PLAN

1/8" = 1'-0"

TABLE OF VARIABLES

Girder	"L"	"A"	"B"	"C"	"D"	"E"	"F"	"G 1"	"G2"	"H 1"	"H2"
1	114'-7 1/2"	1'-2 11/16"	1'-10"	7'-8 3/16"	—	6'-5 15/16"	—	15'-4 5/16"	14'-9 5/16"	13'-0"	13'-0"
2	114'-9 3/4"	1'-2 11/16"	1'-10"	7'-8 3/16"	6'-6 1/16"	6'-5 3/4"	8'-4 1/8"	15'-7 3/8"	15'-0"	13'-0"	12'-11 13/16"
3	115'-0"	1'-2 5/8"	1'-10"	7'-8 3/16"	6'-5 7/8"	6'-5 9/16"	8'-3 5/16"	15'-9 1/16"	15'-2 7/16"	12'-10 13/16"	13'-0"
4	115'-2 1/4"	1'-2 5/8"	1'-9 5/16"	7'-7 5/16"	6'-5 11/16"	6'-5 3/8"	8'-3 1/16"	16'-0 1/4"	15'-4 5/16"	13'-0"	13'-0"
5	115'-4 1/2"	1'-2 5/8"	1'-9 5/16"	—	6'-5 1/2"	—	8'-3 1/2"	16'-0 9/16"	15'-5 3/16"	13'-0 1/4"	13'-0 1/4"

For Details of Typical Roadway Section, see Dwg. No. 57997
For Details of Pouring Sequence, see Dwg. No. 58002
For Details of Field Splices, see Dwg. No. 57998
For Details of Parapets, see Dwg. No. 57999
For Details of Dead Load Deflections, see Dwg. No. 58001
For Details of Silicone Jt., see Dwg. No. 58000
For General Notes, see Dwg. No. 58003

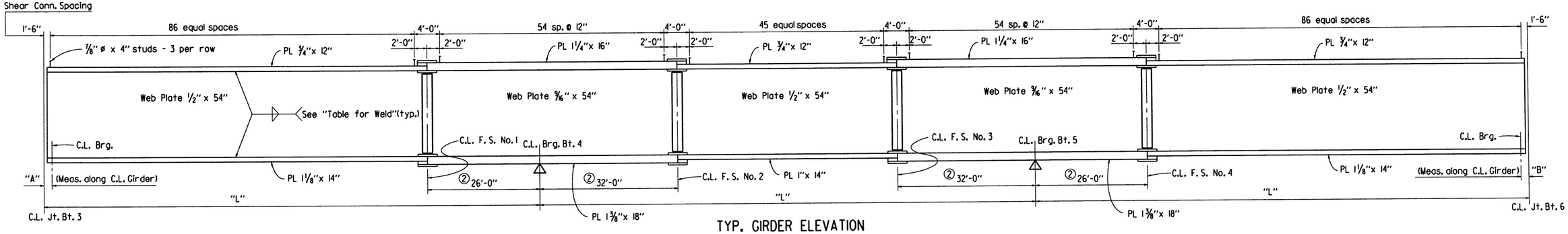


Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors.

SHEAR CONNECTOR DETAIL

NTS

Shear Conn. Spacing



TYP. GIRDER ELEVATION

NTS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF 345'-0" CONTINUOUS PLATE GIRDER UNIT CR 49 (BECKETT ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-1-07 FILENAME: b090508a2_s2.dgn
CHECKED BY: JNP DATE: 11-9-16 SCALE: As shown
DESIGNED BY: JAC DATE: 6-07

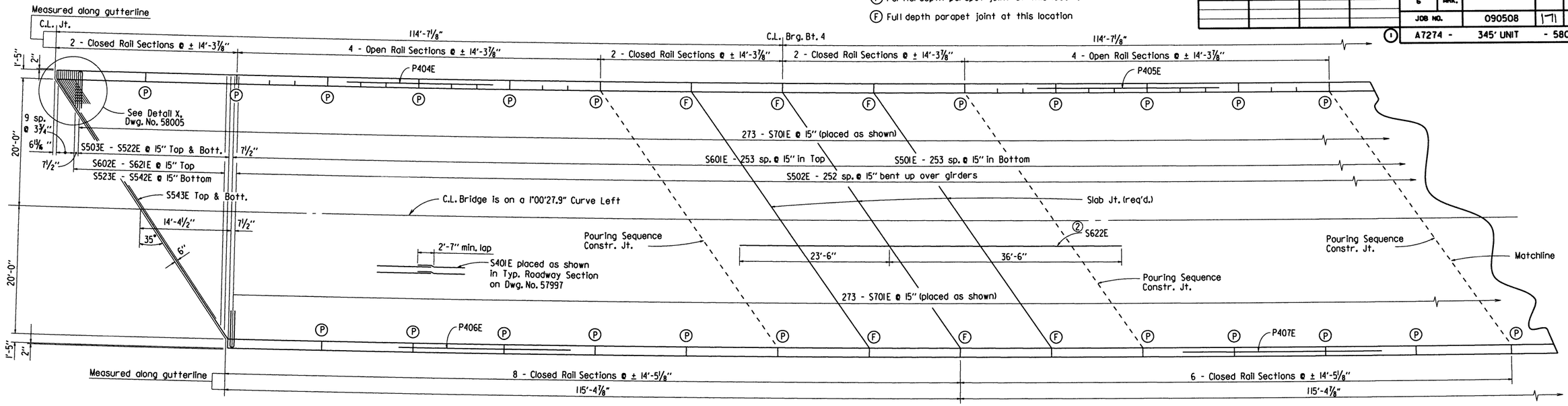
BRIDGE NO. A7274 DRAWING NO. 58006

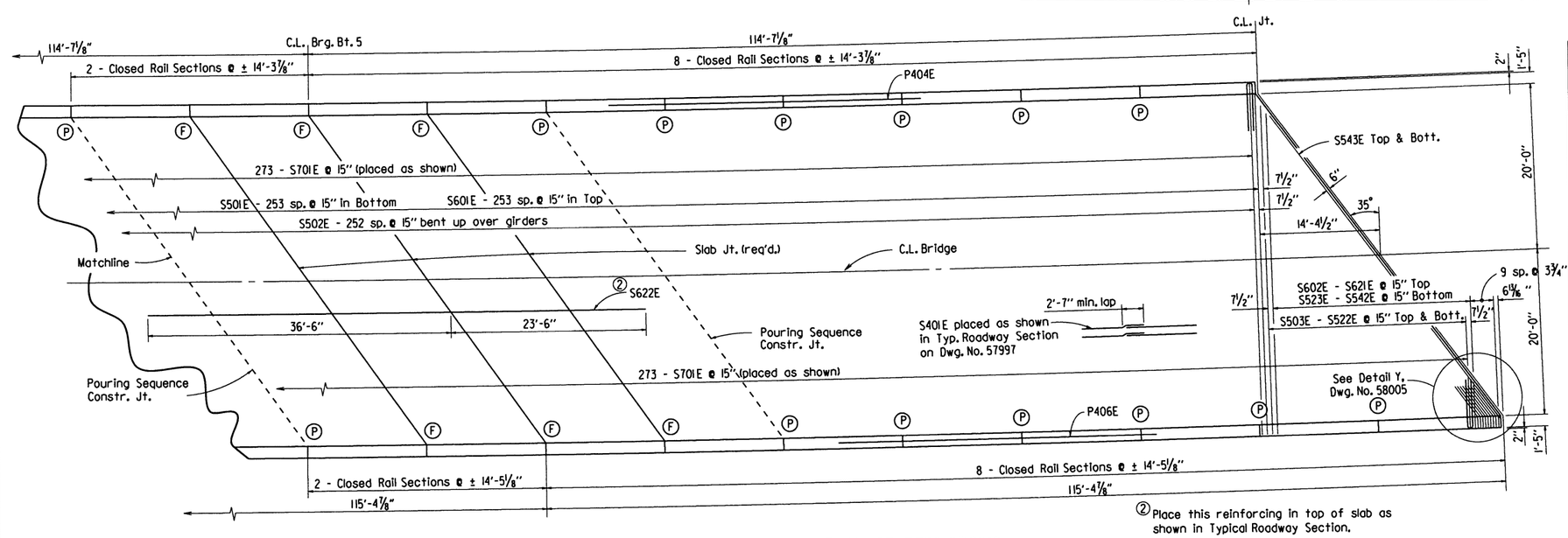
PRINT DATE: 8/21/2017

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.		090508	171	335
				1	A7274 -	345' UNIT	- 58007	

Ⓟ Partial depth parapet joint at this location

Ⓕ Full depth parapet joint at this location





② Place this reinforcing in top of slab as shown in Typical Roadway Section.

PLAN OF REINFORCING

1/8" = 1'-0"

Note: All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. All transverse reinforcing steel shall be placed on radial lines and shall be measured along C.L. Bridge.

Note: Required slab joints and Pouring Sequence Joints shall align with open joints in parapet rail at the gutterline.

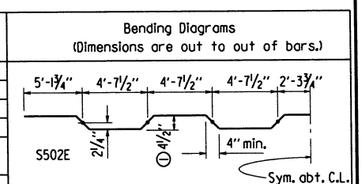
Note: At the Contractor's option, two straight epoxy coated #5 bars, top and bottom, may be substituted for bar S502E. Payment will be based on weight of S502E.

Note: For Slab Joint Detail & Concrete Placement Procedure, see Dwg. No. 58005.

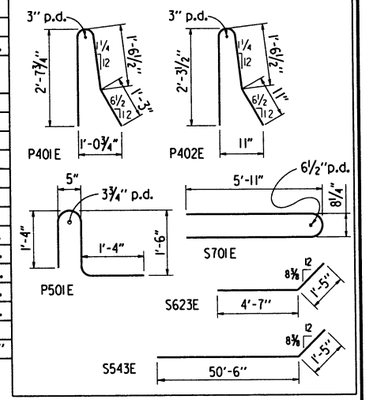
BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
S401E	1230	37'-0"	Str.
S501E	254	42'-10"	Str.
S502E	253	43'-6"	3"
S503E-S522E	4 ea.	6'-10" to 40'-9"	Str.
S523E-S542E	2 ea.	5'-11" to 39'-10"	Str.
S543E	4	51'-11"	3"
S601E	254	42'-10"	Str.
S602E-S621E	2 ea.	5'-11" to 39'-10"	Str.
S622E	92	60'-0"	Str.
S623E	36	6'-0"	4½"
S701E	546	12'-3"	6½"
P401E	1280	5'-6"	2"
P402E	64	4'-10"	2"
P403E	176	14'-0"	Str.
P404E	24	35'-5"	Str.
P405E	12	30'-7"	Str.
P406E	24	35'-5"	Str.
P407E	12	30'-7"	Str.
P501E	1280	4'-3"	2½"

Bending Diagrams (Dimensions are out to out of bars.)



① ½" Overtolerance, No Undertolerance.



Note: Bars with "E" designation shall be epoxy coated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF 345'-0" CONTINUOUS PLATE GIRDER UNIT
CR 49 (BECKETT ROAD)

ROUTE SEC.

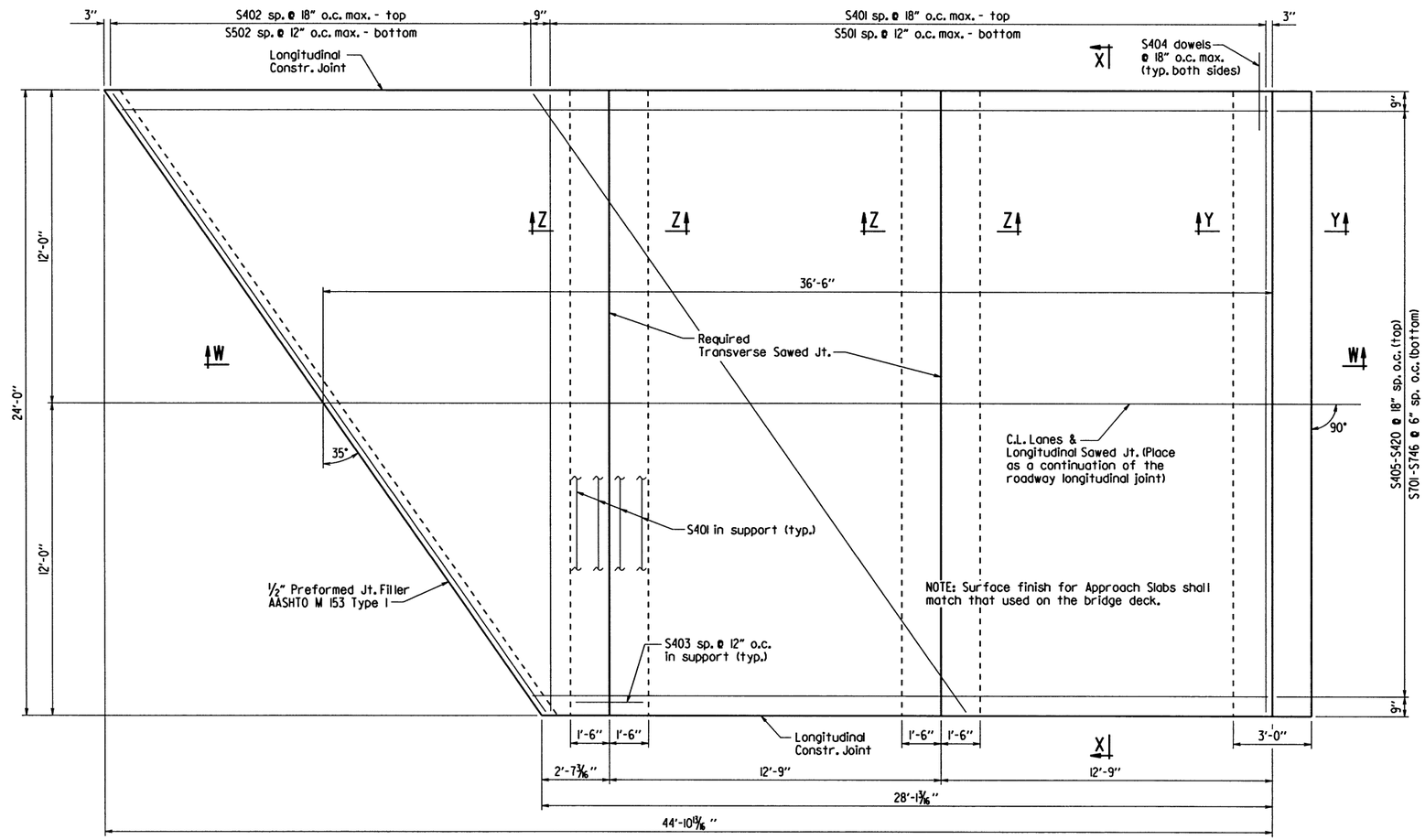
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 8-23-07
CHECKED BY: JNP DATE: 11-9-16
DESIGNED BY: JAC DATE: 10-07
FILENAME: b090508a2_s2.dgn
SCALE: 1/8" = 1'-0" or as shown

BRIDGE NO. A7274 DRAWING NO. 58007

PRINT DATE: 8/21/2017

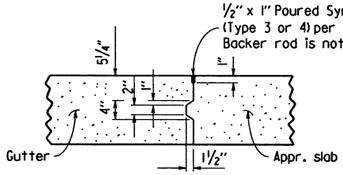
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	172	335
				①	A7274 -	APPROACH SLAB	- 58008	



PLAN - APPROACH SLAB

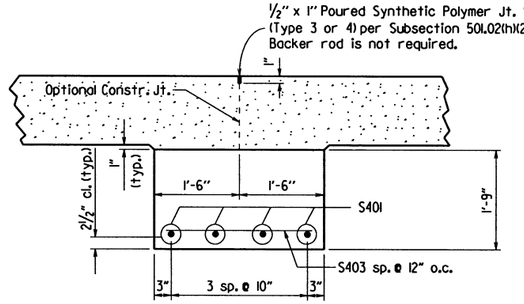
⅜" = 1'-0"

NOTE: The longitudinal lines of the approach slabs shall be constructed on curves concentric with C.L. Bridge.



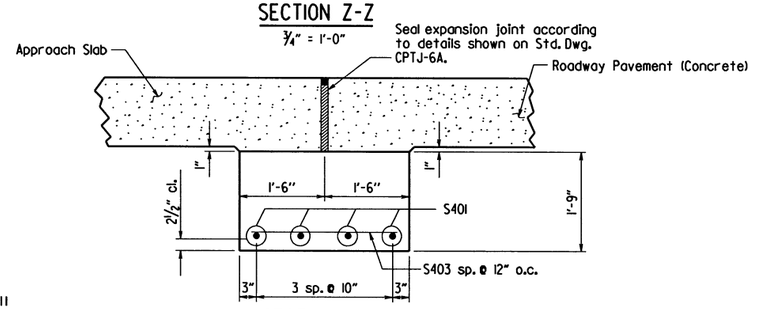
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



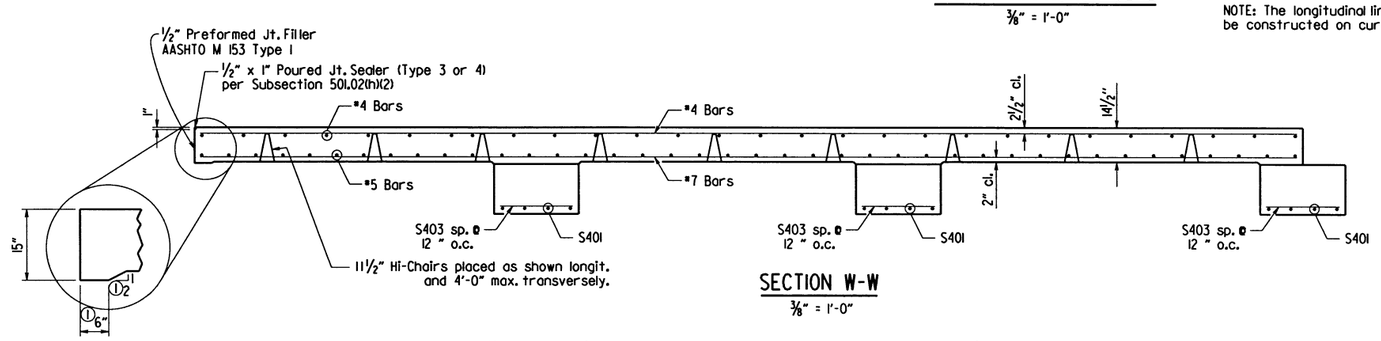
SECTION Z-Z

¾" = 1'-0"



SECTION Y-Y

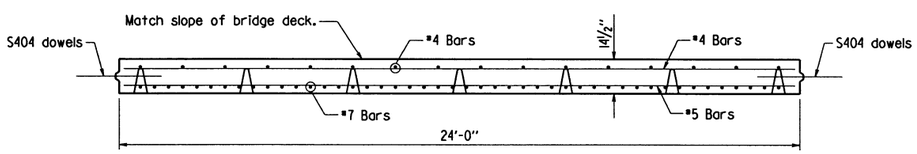
¾" = 1'-0"



SECTION W-W

⅜" = 1'-0"

①Measured perpendicular to bridge backwall.



SECTION X-X

⅜" = 1'-0"

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi 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 Slabs will be measured and paid for in accordance with Section 504.

BAR LIST

Mark	No. Req'd.	Length
S401	32	23'-8"
S402	12	28'-11"
S403	72	2'-8"
S404	50	3'-0"
S405 to S420	1 ea.	28'-3" to 44'-0"
S501	29	23'-8"
S502	18	28'-11"
S701 to S746	1 ea.	28'-3" to 44'-0"

TABLE OF QUANTITIES FOR ONE TYPE 2 SPECIAL APPROACH SLAB

Reinforcing Steel	Concrete (Cu. Yds.)
6007.6	53.9

STATE OF ARKANSAS
CHARLES R. ELLIS
No. 9235
REGISTERED PROFESSIONAL ENGINEER
9-11-17
BRIDGE ENGINEER

DETAILS OF TYPE 2 SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 2-21-07 FILENAME: b090508a2_as.dgn
CHECKED BY: JNP DATE: 11-9-16 SCALE: as noted
DESIGNED BY: STD. DATE:

BRIDGE NO. A7274 DRAWING NO. 58008

PRINT DATE: 9/20/2017

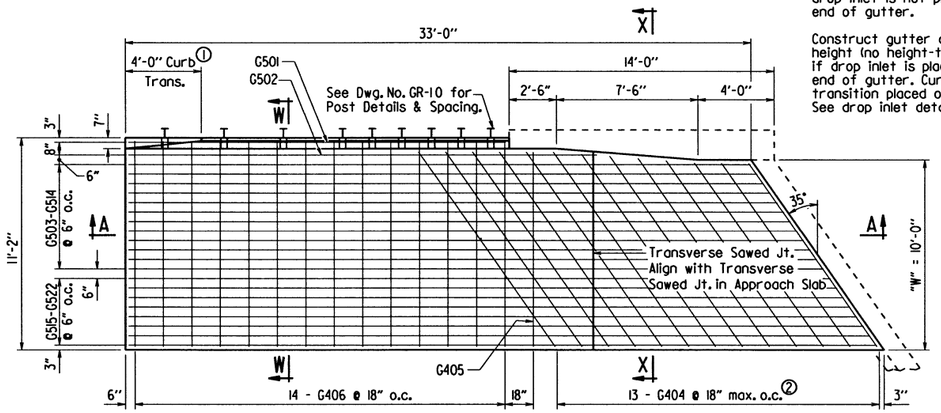
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	173	335

① A7274 - APPROACH GUTTERS - 58009

NOTE: The longitudinal lines of the approach gutters shall be constructed on curves concentric with C.L. Bridge.

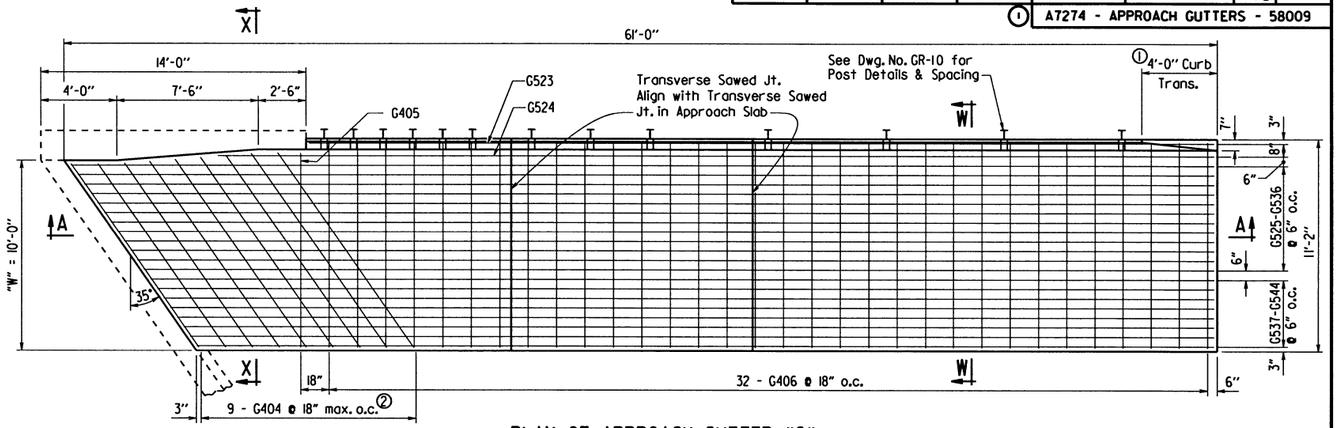
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



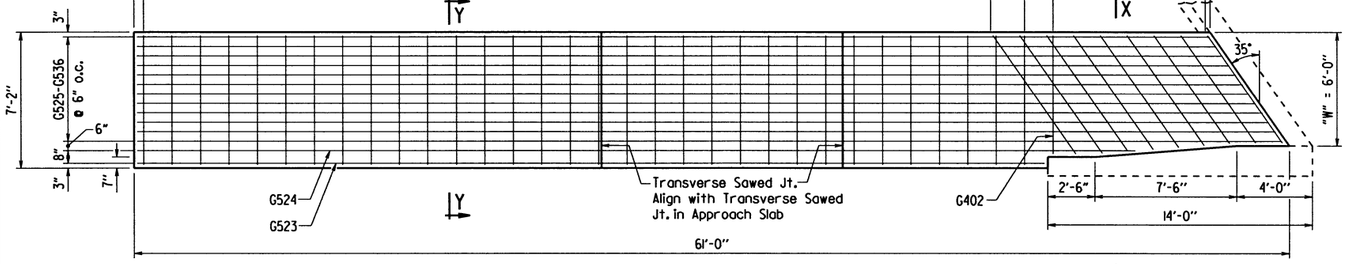
PLAN OF APPROACH GUTTER "A"

1/4" = 1'-0"



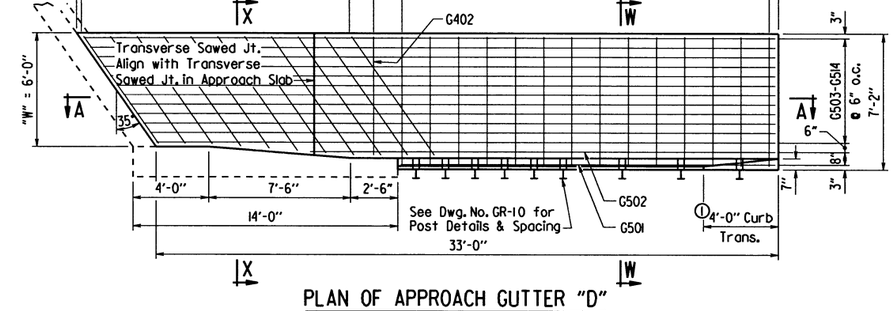
PLAN OF APPROACH GUTTER "C"

1/4" = 1'-0"



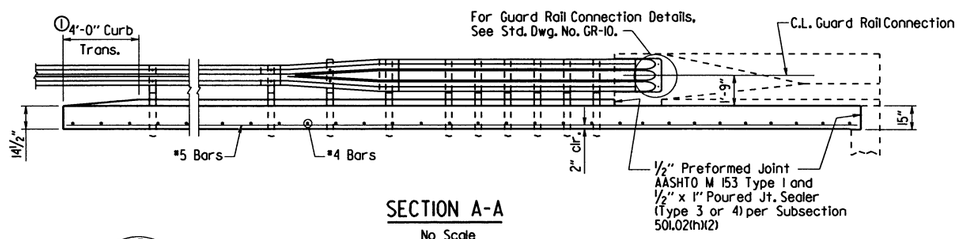
PLAN OF APPROACH GUTTER "B"

1/4" = 1'-0"



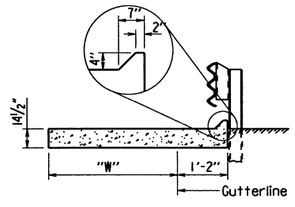
PLAN OF APPROACH GUTTER "D"

1/4" = 1'-0"



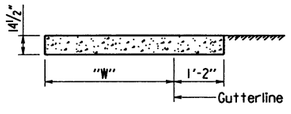
SECTION A-A

No Scale



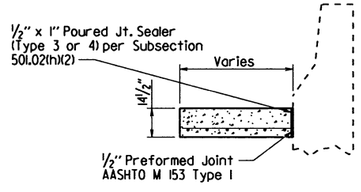
SECTION W-W

No Scale



SECTION Y-Y

No Scale



SECTION X-X

No Scale

BAR LIST

Mark	No. Req'd.	Length
G401	20	②
G402	2	6'-3"
G403	46	6'-10"
G404	22	②
G405	2	10'-3"
G406	46	10'-10"
G501	2	19'-10"
G502	2	24'-8"
G503 to G514	2 ea.	32'-10" to 36'-8"
G515 to G522	1 ea.	37'-0" to 39'-5"
G523	2	47'-10"
G524	2	52'-8"
G525 to G536	2 ea.	56'-7" to 60'-5"
G537 to G544	1 ea.	53'-9" to 56'-3"

② Bar lengths vary due to rail transition. Provide 2" cover minimum at ends.

TABLE OF QUANTITIES FOR TYPE 2 SPECIAL APPROACH GUTTERS

Approach Gutter	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
"A"	1014.5	17.7
"B"	1030.7	18.5
"C"	1607.1	28.6
"D"	603.0	10.7

STATE OF ARKANSAS
CHARLES R. ELLIS
No. 9235
REGISTERED PROFESSIONAL ENGINEER
9-11-17
BRIDGE ENGINEER

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.

DETAILS OF TYPE 2 SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 3-1-07 FILENAME: b090508a2_ag.dgn

CHECKED BY: JNP DATE: 11-9-16 SCALE: As Noted

DESIGNED BY: STD. DATE: —

BRIDGE NO. A7274 DRAWING NO. 58009

PRINT DATE: 9/20/2017

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.		090508	174	335

① A7276 - LAYOUT - 58010

For R/W Data, See Rdwy. Plans

Top of Cut See Rdwy. Plans

Ditch Flow Line

Top of Cut See Rdwy. Plans

Ditch Flow Line

C.L. Arthur Road

Rock Plating as directed by the Engineer

Top of Cut See Rdwy. Plans

Toe of Rock Fill and Top of Cut

Ditch Flow Line

Top of cut and Toe of fill

Point of min. vertical Clearance

Toe of Rock Fill

45°

1V:3H

1V:6H

1'-5" Para. Rail

21'-5" min. cl.

24" typ.

Aggregate Base Course (Class 7) See "Detail A" on Dwg. No. 58011

C.L. Bridge A

Tan. Dist. over 500'

Tan. Dist. over 500'

1V:2H or Flatter

PC Sta 22+12.96

C.L. Sta. 21+96.13 Arthur Road / C.L. Sta. 1000+34.50 C.L. Constr. Hwy. 549

40'-0" Finish Crown

10'-0" Shdr.

24'-0" Pvmt.

12'-0" Shdr.

2'-0"

2.0% Slope

43'-2" Out to out

40'-0" CL Rdwy.

6'-0" Shdr.

30'-0"

C.L. Lanes

Profile Grade line

3.4 miles to State Hwy. 72

S 89°41'52"E

C.L. Constr. Hwy. 549

998+00

999+00

1000+00

1001+00

1002+00

22+00

1V:4H

C.L. Sta. 21+96.13 Arthur Road / C.L. Sta. 1000+34.50 C.L. Constr. Hwy. 549

120'-11" min. cl.

10'-0" Shdr. | 8'-0" Lane | 12'-0" Lane | 12'-0" Lane | 9'-0" Lane | 9'-0" Lane | 8'-0" Lane | 10'-0" Shdr.

Future

Proposed

N 23° 31' 58.16" W

Top of Cut See Rdwy. Plans

Note: Use Type I Special Approach Slab and Gutters (W= 6'-0" & 10'-0") at both ends of bridge.

Note: Place Concrete Riprap at beginning of bridge as shown, see Std. Dwg. No. 55002.

Remove existing concrete riprap as directed by the Engineer. Removal shall match the location of an existing construction joint. Payment shall be incidental to item "Concrete Riprap".

C.L. Bridge B7276 constructed under Job CA0904

PLAN

Berm width varies

Concrete Riprap

2 or flatter

1

SECTION A - A

NTS

Note: All stations are shown along C.L. Constr. Hwy. 549.
All elevations are shown along C.L. Bridge.

① Dimensions are taken from C.L. Bridge at C.L. bent to low seat of cap

Total Length of Bridge = 188'-3⅞"

1'-1⅝"

186'-0" Continuous Composite W-Beam Unit (54'-0", 78'-0", 54'-0")

1'-1⅝"

C.L. 1½" Poured Silicone Joint

C.L. 1½" Poured Silicone Joint

Beg. Bridge Sta. 999+21.84
Elev. 1313.90

End Bridge Sta. 1001+10.16
Elev. 1314.37

Slope Intercept
Sta. 999+12.54

Slope Intercept
Sta. 1001+19.46

① 4'-5⅜"

C.L. Bent Sta. 999+77.00
Elev. 1314.13

C.L. Deck to low steel = 4'-2¼"

① 4'-5⅛"

C.L. Bent Sta. 1000+55.00
Elev. 1314.32

Concrete Parapet Rail

For Guard Rail- See Rdwy. Plans

Proposed Grade line along C.L. Bridge

Fix

Exp.

Fix

Exp.

15'-7" min. vert. cl.

25'-6"

27'-3"

Rock Fill - see Job SP "Rock Fill" & "Detail A" on Dwg. No. 58011

Rock Plating as directed by the Engineer

38' Piles

Elev. 1284.20

12' Piles

Elev. 1282.65

12' Piles

42' Piles

Existing Ground line along C.L. Bridge

1320 1310 1300 1290 1280 1270 1260

Bent No. 1 2 3 4

ELEVATION

PVI Sta. 1005+00
Elev. 1325.39

+1.55% -3.50%

2000' V. C.

VERTICAL CURVE DATA

Vertical Curve is along Profile Grade line

Note: Contours shown do not reflect the existing finished surface constructed under Job No. CA0904. All quantities dependent on the existing surface shall be assumed estimates for bidding purposes only. Actual quantities are to be determined in the field.

DETAIL DRAWINGS:	DWG. NOS.
End Bents	58012-58013, 58016-58017
Interior Bents	58014-58015
Elastomeric Bearings	58018
186' Cont. W-Beam Unit	58019-58024
Type I Special Approach Slab	58025
Type I Special Approach Gutters	58026
Steel Piling	55020

GENERAL NOTES
BENCH MARK: CPS in 20" Oak Tree 4.10' Lt. of C.L. Constr. Hwy. 549, Sta. 1000+45.60, Elev. 1299.25.

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, Section and Subsection refer to the Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Third Edition with 2006 interim revisions.

LIVE LOADING: HL93
SEISMIC PERFORMANCE ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4000 psi.
Class S Concrete (substructure)	f'c = 3,500 psi.
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi.
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi.
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi.

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at both footing locations in Bents 2 and 3 in accordance with Job SP "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.

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into material designated as hard cherty limestone on the boring legend. Piles in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

Minimum penetration for all piling at Bents 1 and 4 shall be 8' below natural ground. Minimum penetration for all piling at Bents 2 and 3 shall be 8' below bottom of footing.

PREBORING: Preboring is required for all piling in Bents 2 and 3 if exploratory holes indicate that the depth to rock is less than 8' below bottom of footing plan elevation. The depth of preboring shall be sufficient to provide the specified minimum pile penetration and to set the pile tips a minimum 3' into material designated as Chert or Hard Cherty 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, prebored hole shall be backfilled with Class S Concrete to the bottom of footing to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

FOOTINGS: The top of the footings at Bent 2 and 3 shall be set a minimum of 2 feet below the excavated ditch. Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Job SP "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

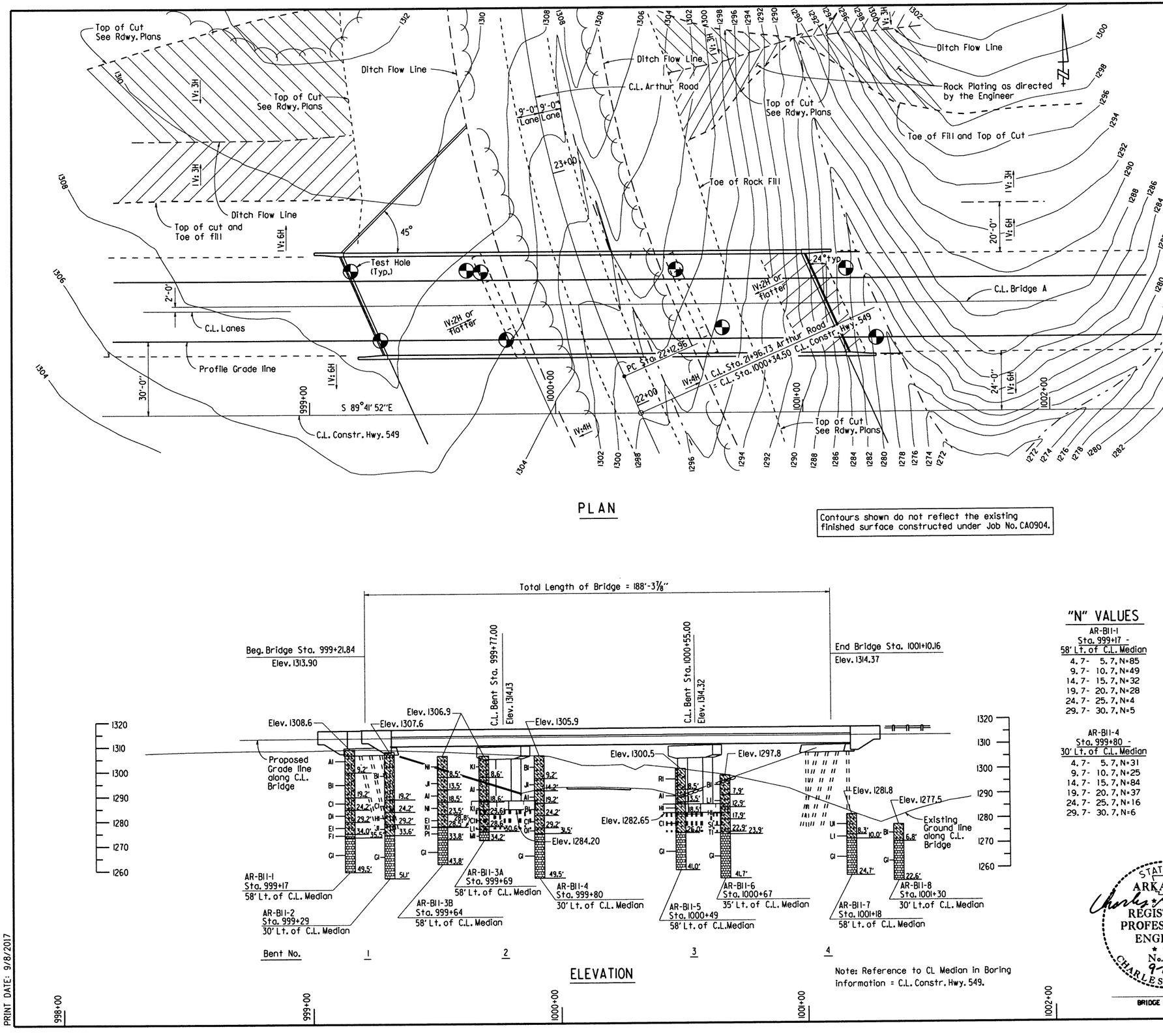
SHEET 1 OF 2
LAYOUT OF BRIDGE A
OVER CR 39 (ARTHUR ROAD)
HWY. 71 - CO. RD. 34
(ADD'L LNS.) (B.V. BYPASS) (S)
BENTON COUNTY
ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 1-17-07 FILENAME: b090508al_11.dgn
CHECKED BY: JHP DATE: 11-9-16 SCALE: 1" = 20'
DESIGNED BY: SWP DATE: 12-06
BRIDGE NO. A7276 DRAWING NO. 58010

PRINT DATE: 8/28/2017

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.		090508	175	335
① A7276 -		LAYOUT		- 58011

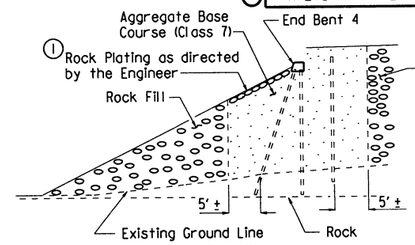


PLAN

Contours shown do not reflect the existing finished surface constructed under Job No. CA0904.

ELEVATION

Note: Reference to CL Median in Boring information = C.L. Constr. Hwy. 549.



① Portions of existing rock plating will have to be removed to facilitate construction of the final embankment and zone of aggregate base course (Class 7) that was not completed under Job CA0904 and will not be paid for separately but shall be included in item "Rock Fill".

Where rock fill is used for embankment construction, aggregate base course (Class 7), in accordance with Subsection 303.02, shall be placed as shown in areas where piling will be located. Aggregate base course (Class 7) shall be paid for as "Rock Fill".

At the Contractor's option, preboring or other methods as approved by the Engineer may be used to facilitate pile installation through the aggregate base course (Class 7) material at these locations. Preboring or other methods used for installation of piles, where rock fill is used for embankment construction, will not be paid for separately but shall be included in item "Steel Piling".

DETAIL A

(Shown Normal to End Bent 4)

Not to Scale

BORING LEGEND

AI-Moist, Very Hard, Reddish Brown Gravely (Chert Fragments) Clay with Sand
BI-Moist, Hard, Reddish Brown Gravely (Chert Fragments) Clay with Sand
CI-Moist, Medium Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Sand
DI-Moist, Soft, Reddish Brown Gravely (Chert Fragments) Clay with Sand
EI-Moist, Loose, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Sand
FI-Hard, Gray Limestone
GI-Hard, Gray Cherty Limestone
HI-Moist, Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
JI-Moist, Very Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
KI-Moist, Very Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Sand
LI-Moist, Very Dense, Brown and Gray Clayey Gravel (Chert Fragments) with Sand
MI-Hard, Gray Cherty Limestone with Tripoli Seams
NI-Moist, Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Sand
PI-Hard, Gray Cherty Limestone with some Tripoli Seams
QI-Moist, Medium Stiff, Reddish Brown Gravely (Chert Fragments) Clay with Sand
RI-Moist, Hard, Reddish Brown Clay with Sand and some Gravel (Chert Fragments)
SI-Moist to Wet, Medium Dense, Reddish Brown and Gray Clayey Gravel (Chert Fragments) with Sand
TI-Wet, Very Hard, Reddish Brown Gravely (Chert Fragments) Clay with Sand
UI-Moist, Medium Dense, Brown and Gray Clayey Gravel (Chert Fragments) with Sand

"N" VALUES

AR-BII-1 Sta. 999+17 - 58' Lt. of C.L. Median

4.7-	5.7,	N=85
9.7-	10.7,	N=49
14.7-	15.7,	N=32
19.7-	20.7,	N=28
24.7-	25.7,	N=4
29.7-	30.7,	N=5

AR-BII-2 Sta. 999+29 - 30' Lt. of C.L. Median

4.7-	5.7,	N=48
9.7-	10.7,	N=36
14.7-	15.7,	N=39
19.7-	20.7,	N=21
24.7-	25.7,	N=13
29.7-	30.7,	N=16

AR-BII-3A Sta. 999+69 - 58' Lt. of C.L. Median

4.1-	5.1,	N=83
9.1-	9.8,	N=105(2")
14.1-	15.1,	N=68
19.1-	20.1,	N=62
24.1-	25.1,	N=29
29.1-	29.5,	N=60(5")

AR-BII-3B Sta. 999+64 - 58' Lt. of C.L. Median

4.0-	5.0,	N=35
9.0-	10.0,	N=28
14.0-	15.0,	N=61
19.0-	20.0,	N=34
24.0-	25.0,	N=7
28.5-	28.7,	N=60(2")

AR-BII-4 Sta. 999+80 - 30' Lt. of C.L. Median

4.7-	5.7,	N=31
9.7-	10.7,	N=25
14.7-	15.7,	N=84
19.7-	20.7,	N=37
24.7-	25.7,	N=16
29.7-	30.7,	N=6

AR-BII-5 Sta. 1000+49 - 58' Lt. of C.L. Median

4.0-	5.0,	N=42
9.0-	10.0,	N=72
14.0-	15.0,	N=27
19.0-	20.0,	N=24
24.0-	25.0,	N=19

AR-BII-6 Sta. 1000+67 - 35' Lt. of C.L. Median

3.4-	4.4,	N=49
8.4-	9.1,	N=85(9")
13.4-	14.4,	N=9
18.4-	19.4,	N=15
23.4-	23.8,	N=60(5")

AR-BII-7 Sta. 1001+18 - 58' Lt. of C.L. Median

3.8-	4.8,	N=11
8.3-	8.6,	N=60(3")

AR-BII-8 Sta. 1001+30 - 30' Lt. of C.L. Median

4.7-	5.7,	N=52

SHEET 2 OF 2

LAYOUT OF BRIDGE A OVER CR 39 (ARTHUR ROAD) HWY. 71 - CO. RD. 34 (ADD'L LNS.) (B.V. BYPASS) (S) BENTON COUNTY

ROUTE 549 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DRAWN BY: A.M.S. DATE: 8-08-07
CHECKED BY: JYP DATE: 11-9-16
DESIGNED BY: SWP DATE: 12-06
FILENAME: b090508al.ll.dgn
SCALE: 1" = 20'

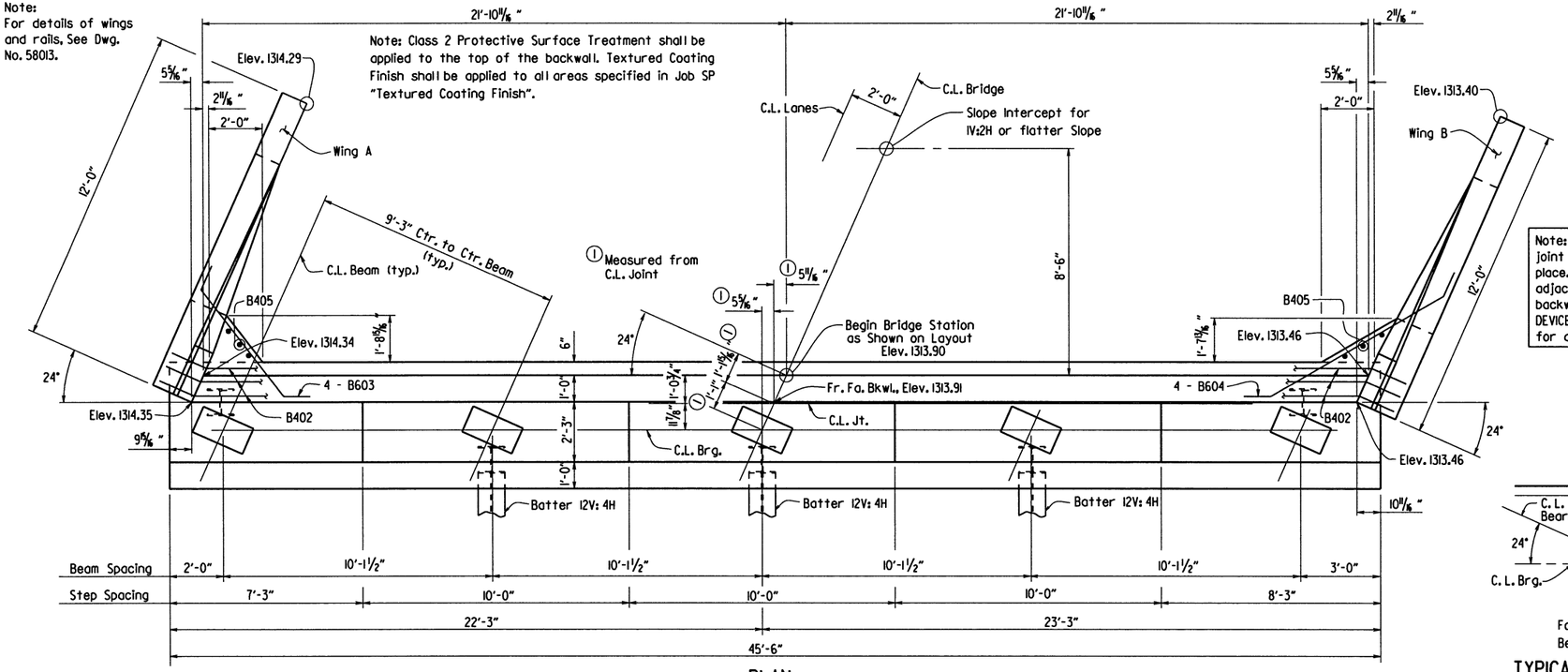
BRIDGE NO. A7276 DRAWING NO. 58011

PRINT DATE: 9/8/2017

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.		090508	176	335
				(1) A7276 -		END BENTS	- 58012	

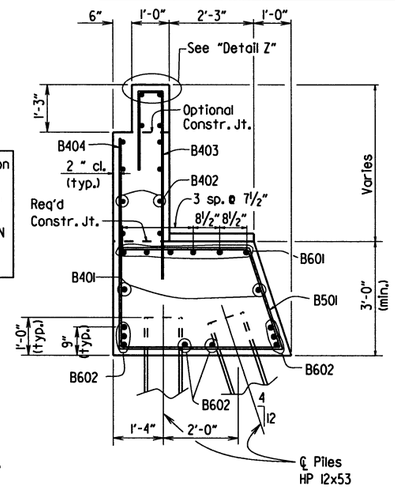
Note:
For details of wings and rails, See Dwg. No. 58013.

Note: Class 2 Protective Surface Treatment shall be applied to the top of the backwall. Textured Coating Finish shall be applied to all areas specified in Job SP "Textured Coating Finish".

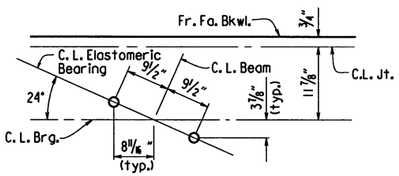


PLAN

Note: The backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "EXPANSION DEVICE INSTALLATION AT END BENTS" on Dwg. No. 58023 for additional information.

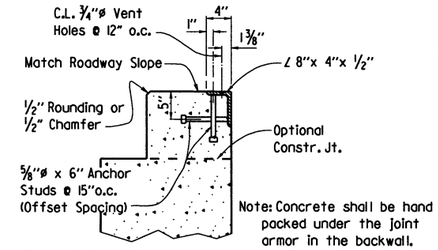


SECTION A-A
1/2" = 1'-0"



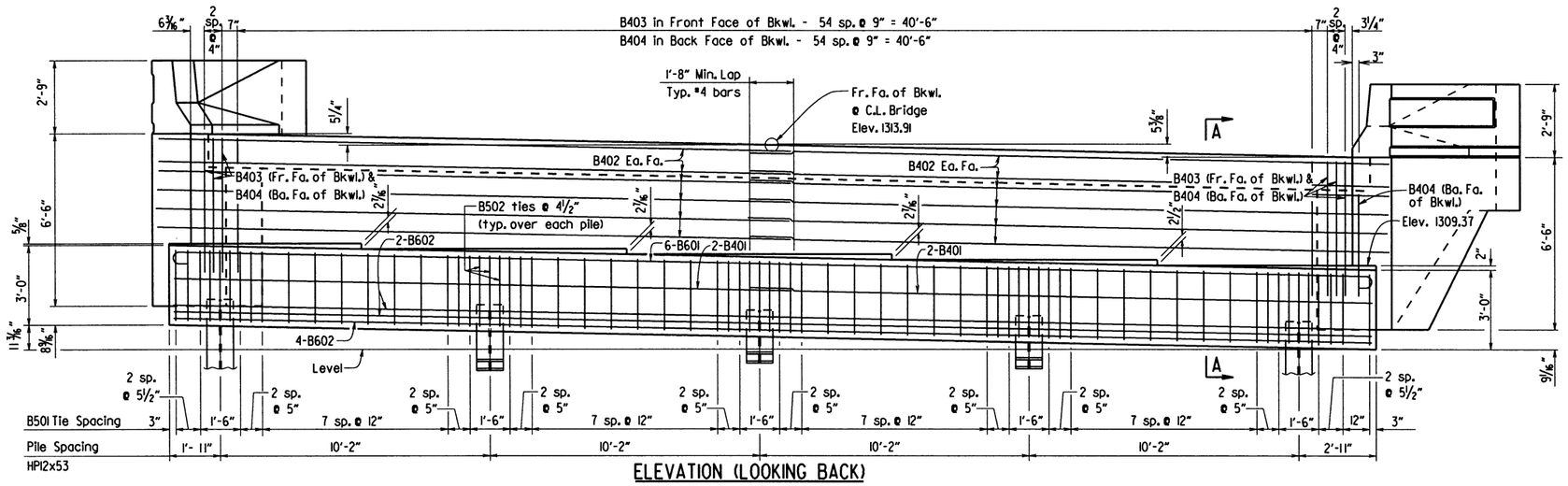
For Details of Elastomeric Bearings, see Dwg. No. 58018.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

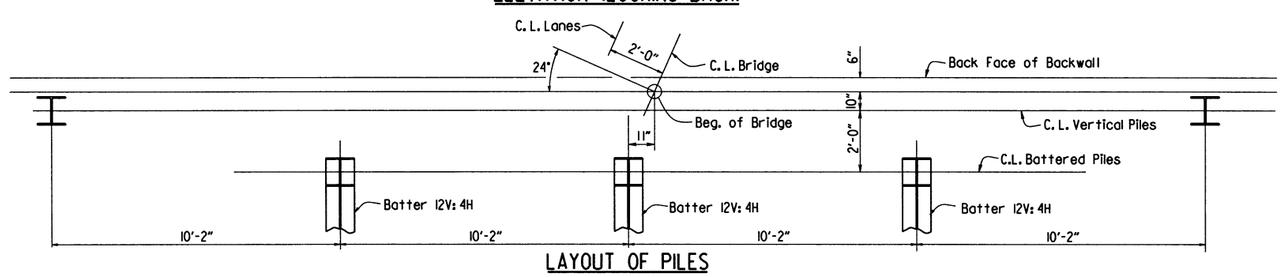


For additional joint details, see Dwg. No. 58023.

DETAIL Z
No Scale



ELEVATION (LOOKING BACK)



LAYOUT OF PILES

GENERAL NOTES:

All concrete shall be Class S with a minimum 28-day compressive strength f'c = 3,500 psi and shall 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 M 31 or M 322, 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 placed to avoid damage.

For additional information, see layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 1
CR 39 (ARTHUR ROAD)
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: dgm DATE: 02-22-07
CHECKED BY: JHP DATE: 12-19-16
DESIGNED BY: DGM DATE: 1-07
FILENAME: b090508al_bl.dgn
SCALE: 3/8" = 1'-0" or As Noted

BRIDGE NO. A7276 DRAWING NO. 58012

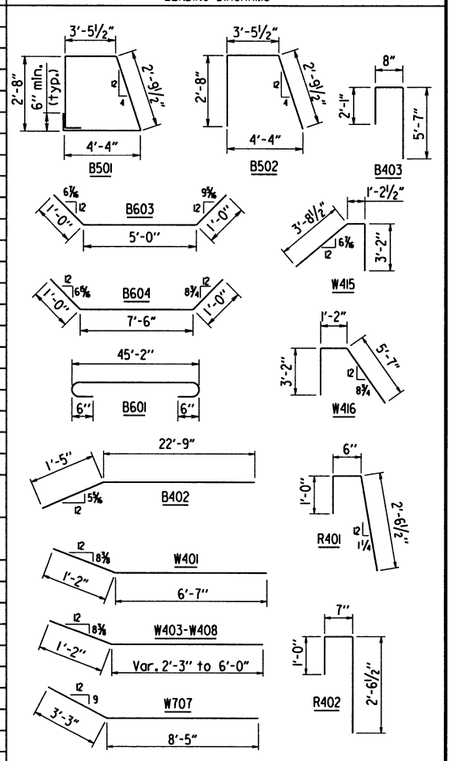
PRINT DATE: 8/22/2017

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.		090508	177	335
				① A7276 -		END BENTS	- 58013	

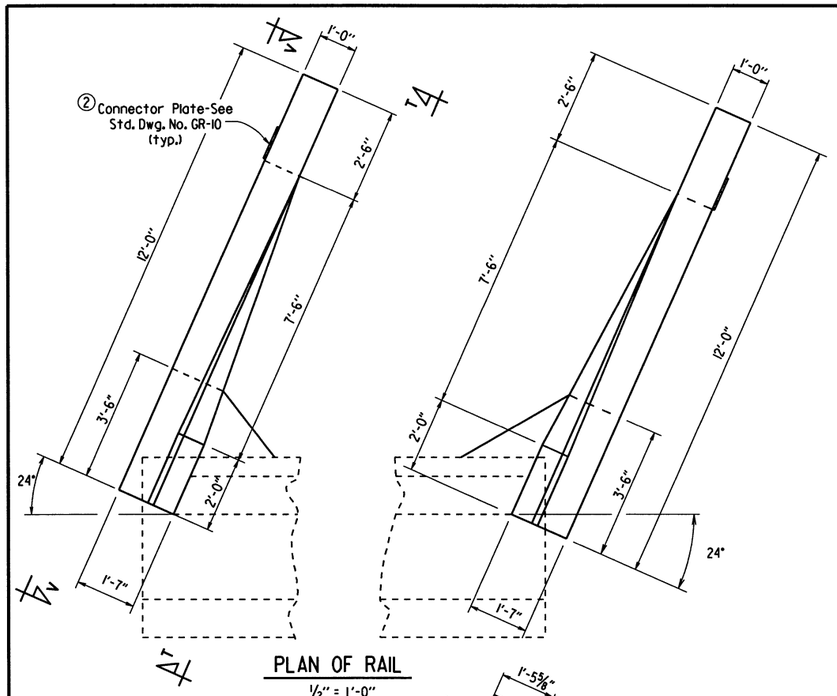
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	23'-5"	Str.
B402	24	24'-2"	2"
B403	61	8'-2"	4½"
B404	62	4'-2"	Str.
B405	6	4'-11"	Str.
B501	55	13'-9"	2½"
B502	15	8'-9"	2½"
B601	6	46'-6"	4½"
B602	8	45'-2"	Str.
B603	4	7'-0"	4½"
B604	4	9'-6"	4½"
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	7'-9"	2"
W402	8	8'-11"	Str.
W403-W408	2 each	Var. 3'-5" to 7'-2"	2"
W409-W414	2 each	Var. 4'-7" to 8'-3"	Str.
W415	3	8'-0"	2"
W416	3	9'-10"	2"
W701	12	11'-8"	Str.
W702	4	8'-4"	Str.
W703	4	7'-4"	Str.
W704	4	6'-4"	Str.
W705	4	5'-4"	Str.
W706	4	4'-4"	Str.
W707	4	11'-8"	5¼"

BENDING DIAGRAMS

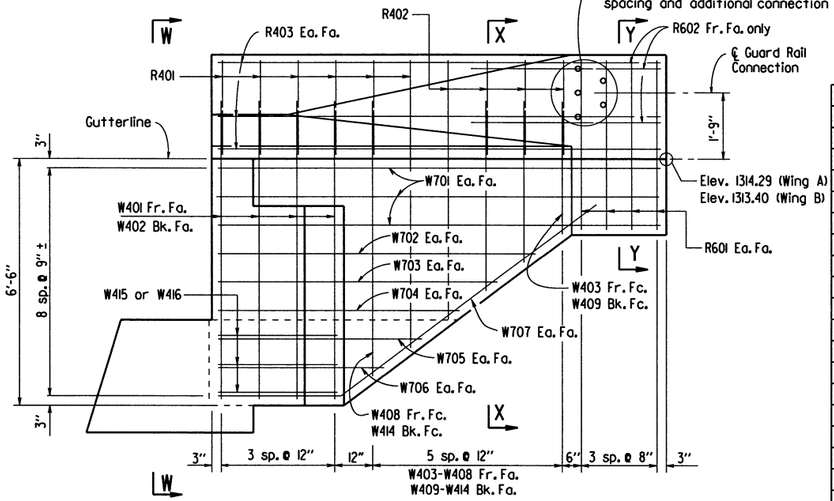


Dimensions are out to out of bars.



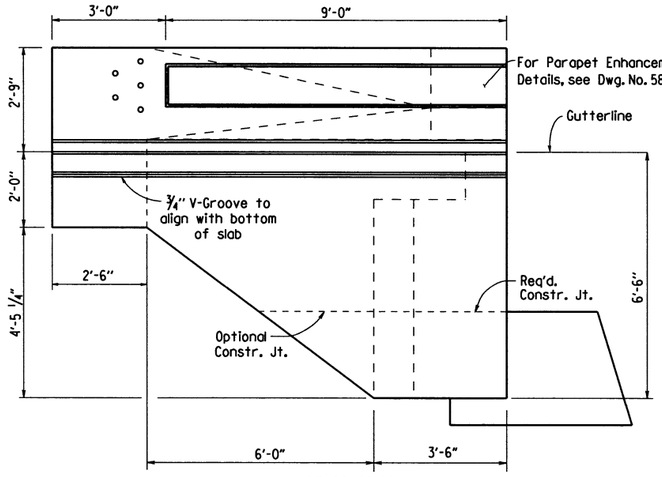
PLAN OF RAIL

½" = 1'-0"



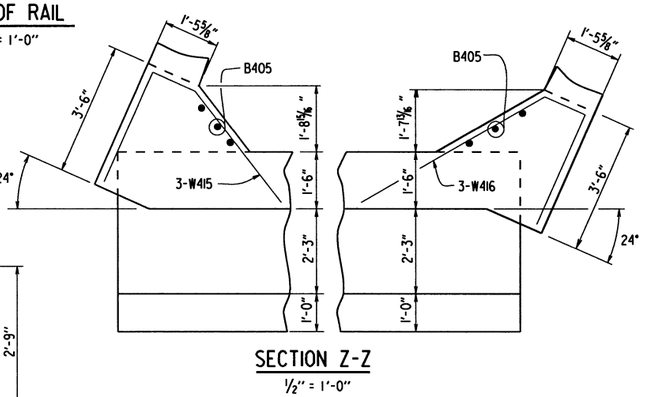
VIEW T-T

½"= 1'-0"



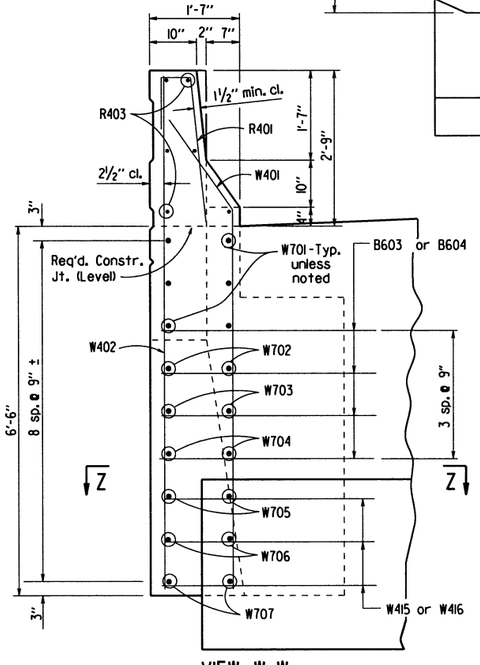
VIEW V-V

½"= 1'-0"



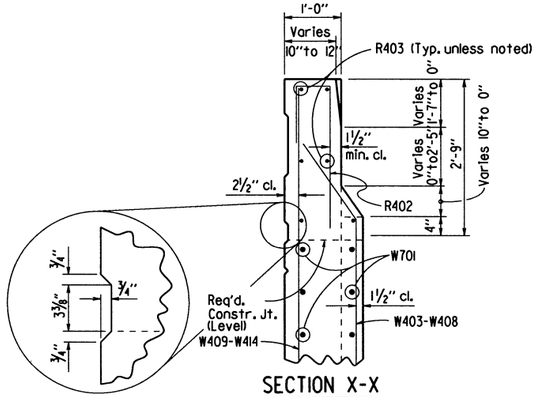
SECTION Z-Z

½" = 1'-0"



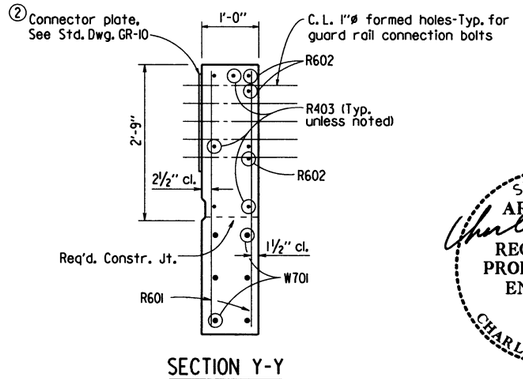
VIEW W-W

¾" = 1'-0"



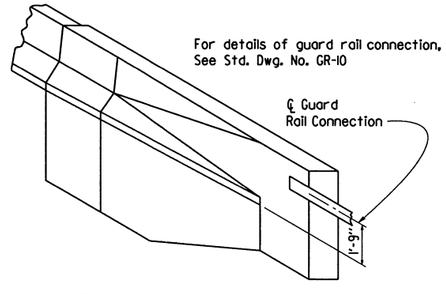
SECTION X-X

¾" = 1'-0"



SECTION Y-Y

¾"= 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 1
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: dgm DATE: 03-01-07 FILENAME: b090508a1_b1.dgn

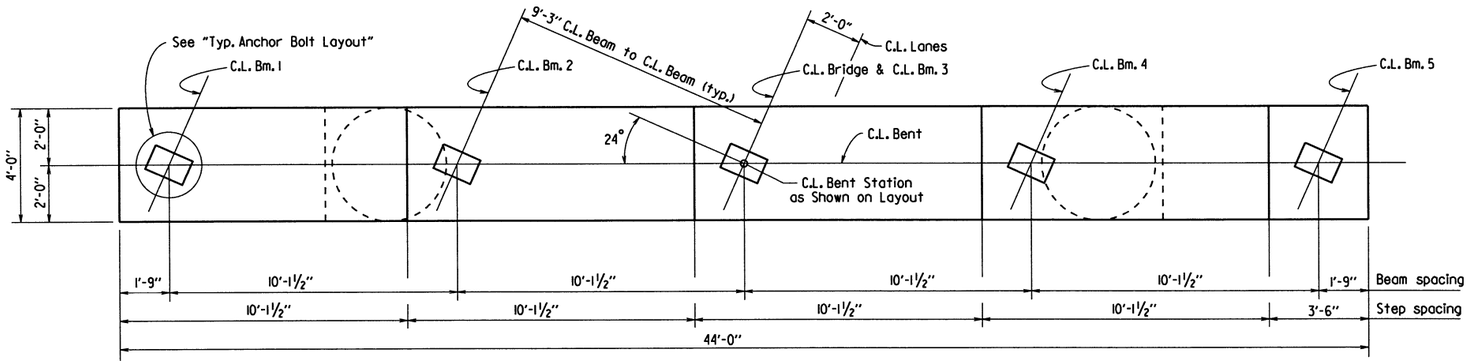
CHECKED BY: JW DATE: 12-9-16 SCALE: As Noted

DESIGNED BY: DGM DATE: 1-07

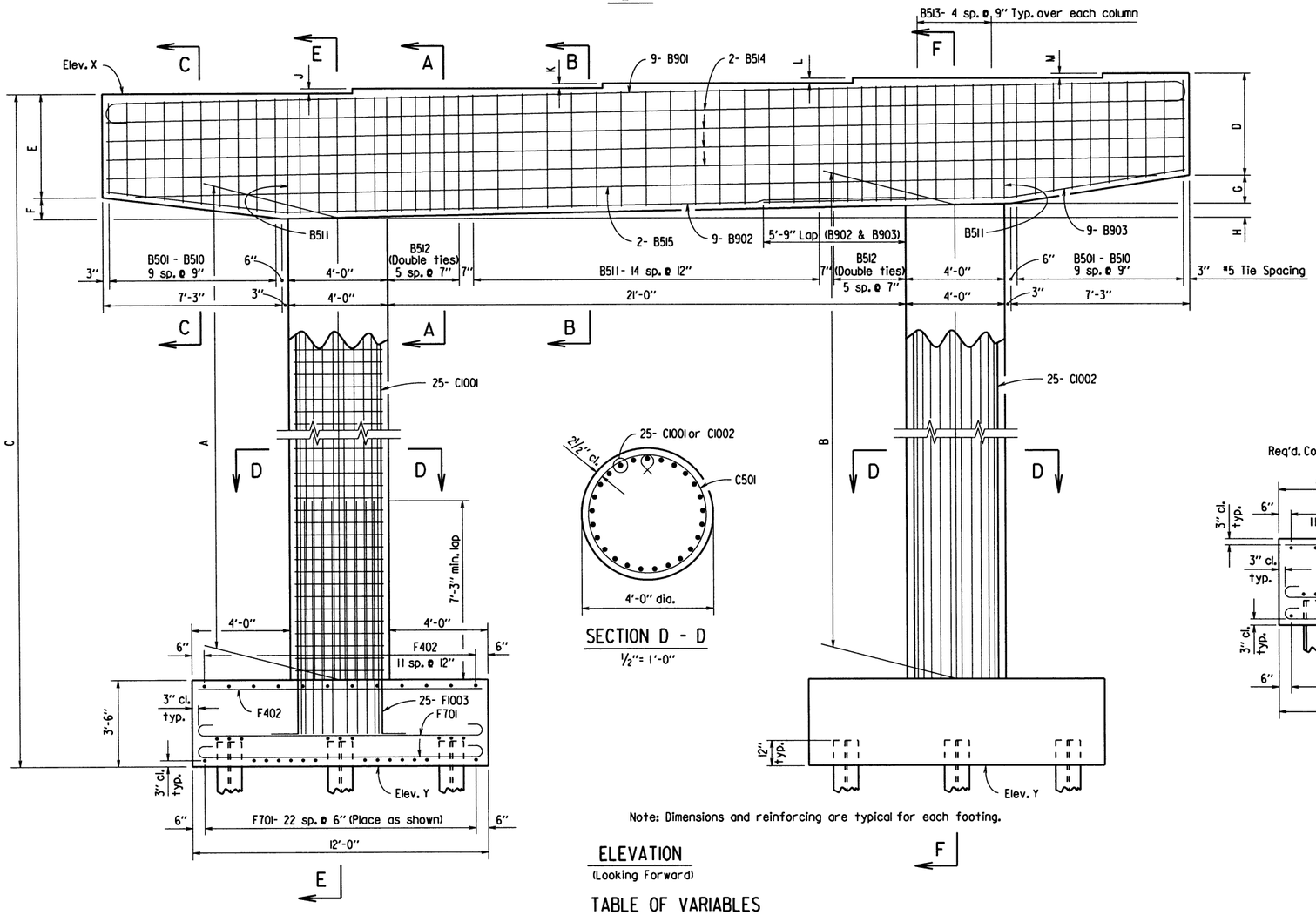
BRIDGE NO. A7276 DRAWING NO. 58013

PRINT DATE: 8/22/2017

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.		090508	178	335
				①	A7276 -	INT. BENTS	- 58014	



PLAN



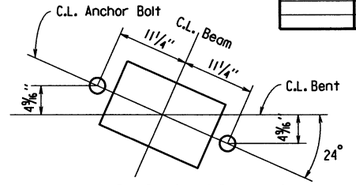
SECTION D - D

½"= 1'-0"

Note: Dimensions and reinforcing are typical for each footing.

ELEVATION

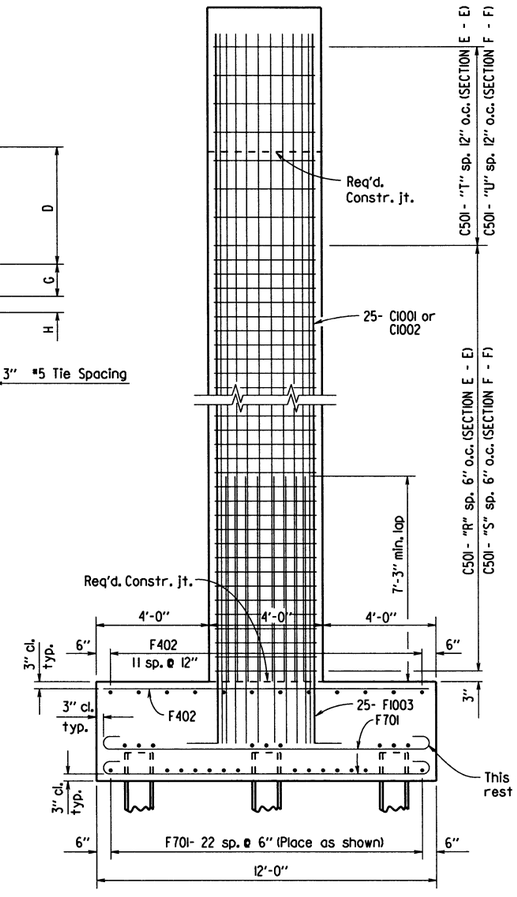
(Looking Forward)



For Details of Elastomeric Bearings, see Dwg. No. 58018.

TYP. ANCHOR BOLT LAYOUT

1"= 1'-0"



SECTION E - E or F - F

BAR LIST - PER BENT

Mark	No. Req'd.	Length	A	B	Pin Dia.
C1001	25	"N"			Str.
C1002	25	"P"			Str.
F1003	50	11'-3"	9'-8"	1-10"	10"
B901	9	46'-2"	43'-8"	10"	9"
B902	9	32'-5"			9"
B903	9	17'-2"			9"
F701	92	13'-2"	11'-6"	7"	5¼"
F601	8	4'-10"	2'-6"	2'-6"	4½"
B501-B510	2 ea.	15'-2" to 17'-0"	3'-8"	3'-8" to 4'-7"	2½"
B511	17	17'-2"	3'-8"	4'-8"	2½"
B512	24	14'-11"	2'-6½"	4'-8"	2½"
B513	10	12'-10"	3'-8"	4'-8"	2½"
B514	8	43'-8"			Str.
B515	2	41'-4"			Str.
C501	"V"	12'-7"			3¾"
F402	48	11'-6"			Str.

Bending Diagrams
(Dimensions are out to out of bars.)

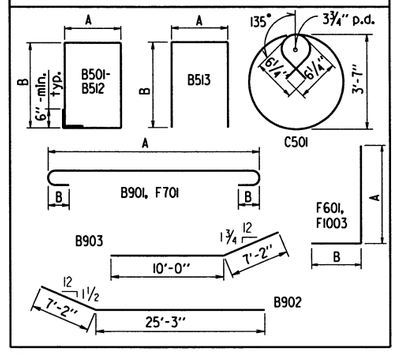


TABLE OF VARIABLES

Bent No.	Elev. X	Elev. Y	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
2	1309.70	1284.20	16'-11 13/16"	17'-5 5/8"	25'-6"	4'-1 5/8"	4'-2 7/16"	10 5/16"	1'-1 11/16"	6 15/16"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	21'-4"	21'-10"	27	28	7	7	71
3	1309.90	1282.65	18'-8 13/16"	19'-2 7/16"	27'-3"	4'-1 5/8"	4'-2 3/8"	10 3/8"	1'-1 5/8"	6 3/4"	2 5/16"	2 5/16"	2 5/16"	2 5/16"	23'-1"	23'-7"	26	25	9	10	72

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENTS 2 AND 3
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

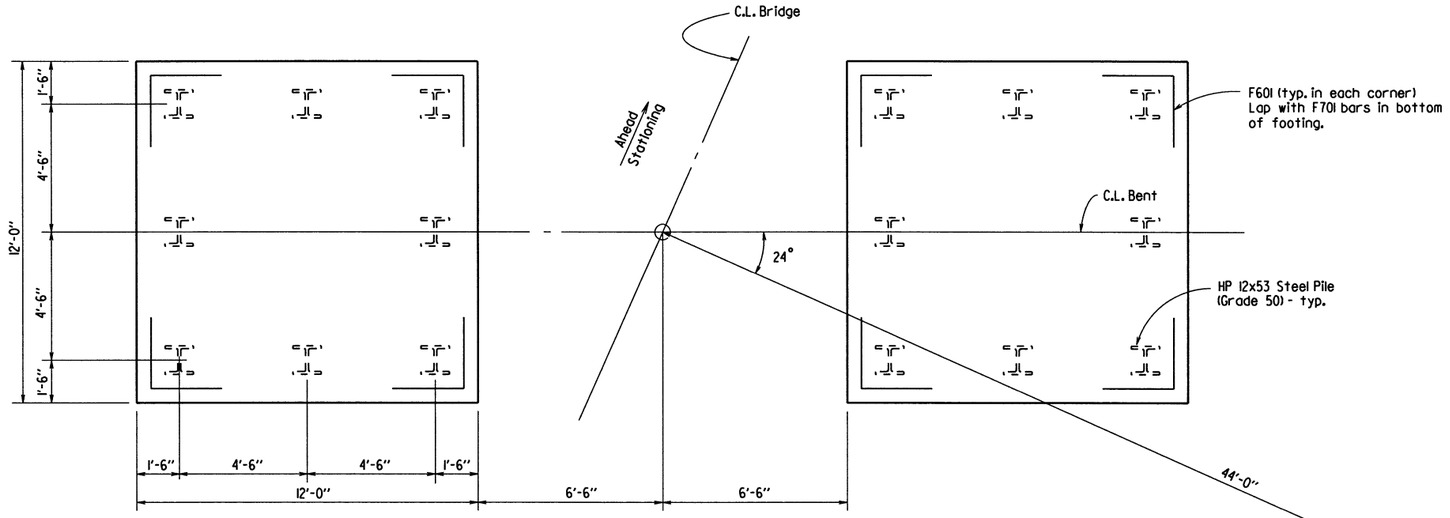
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 6-7-07 FILENAME: b090508a1_b2.dgn
CHECKED BY: JAP DATE: 11-2-16 SCALE: ⅜" = 1'-0" or as shown
DESIGNED BY: DAM DATE: 3-07

BRIDGE NO. A7276 DRAWING NO. 58014

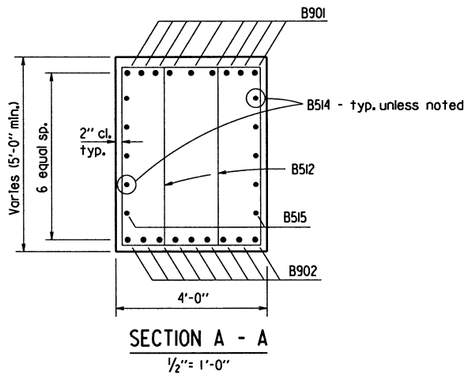
PRINT DATE: 8/22/2017

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.		090508	179	335
				A7276 -		INT. BENTS	- 58015	



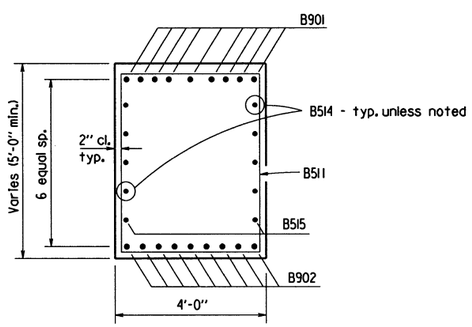
FOOTING LOCATION SKETCH

3/8"= 1'-0"



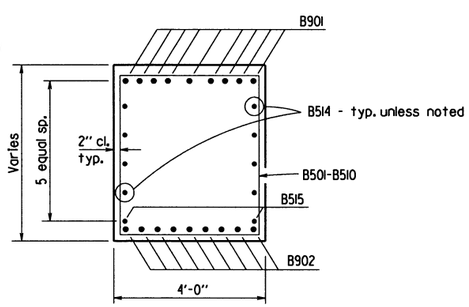
SECTION A - A

1/2"= 1'-0"



SECTION B - B

1/2"= 1'-0"



SECTION C - C

1/2"= 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and 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 M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENTS 2 AND 3
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 6-7-07
CHECKED BY: JHP DATE: 12-19-16
DESIGNED BY: DuM DATE: 3-07

FILENAME: b090508al_b2.dgn
SCALE: 3/8" = 1'-0" or as shown

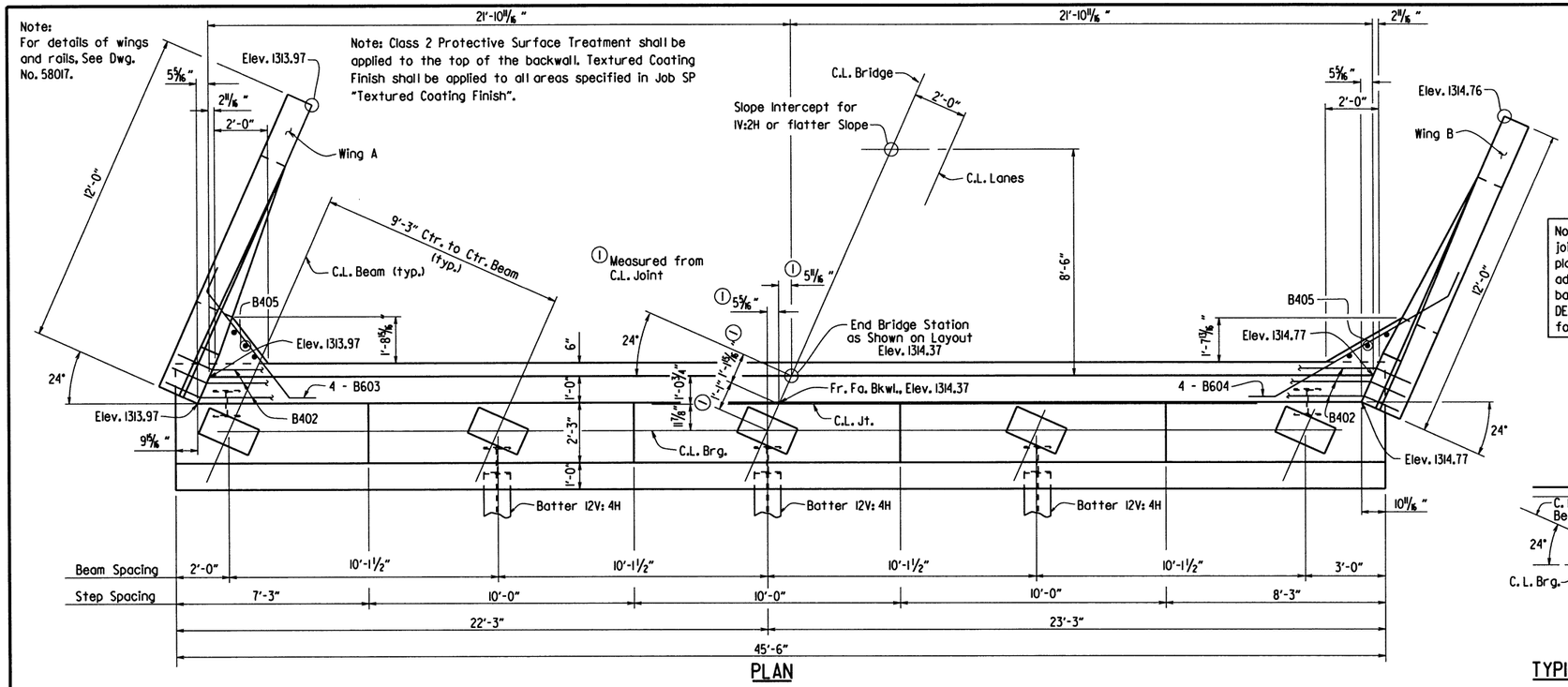
BRIDGE NO. A7276 DRAWING NO. 58015

PRINT DATE: 8/22/2017

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.		090508	180	335
				①	A7276 -	END BENTS	- 58016	

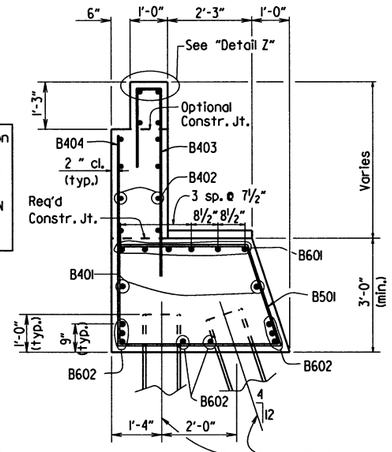
Note:
For details of wings and rails, See Dwg. No. 58017.

Note: Class 2 Protective Surface Treatment shall be applied to the top of the backwall. Textured Coating Finish shall be applied to all areas specified in Job SP "Textured Coating Finish".

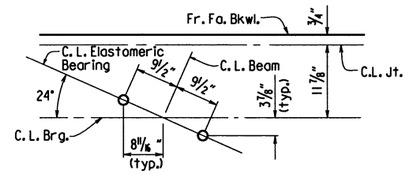


PLAN

Note: The backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "EXPANSION DEVICE INSTALLATION AT END BENTS" on Dwg. No. 58023 for additional information.

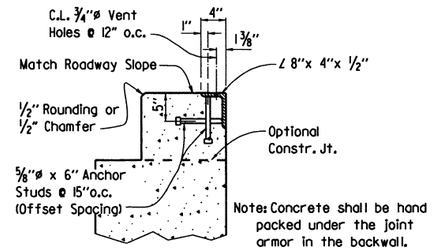


SECTION A-A
1/2" = 1'-0"



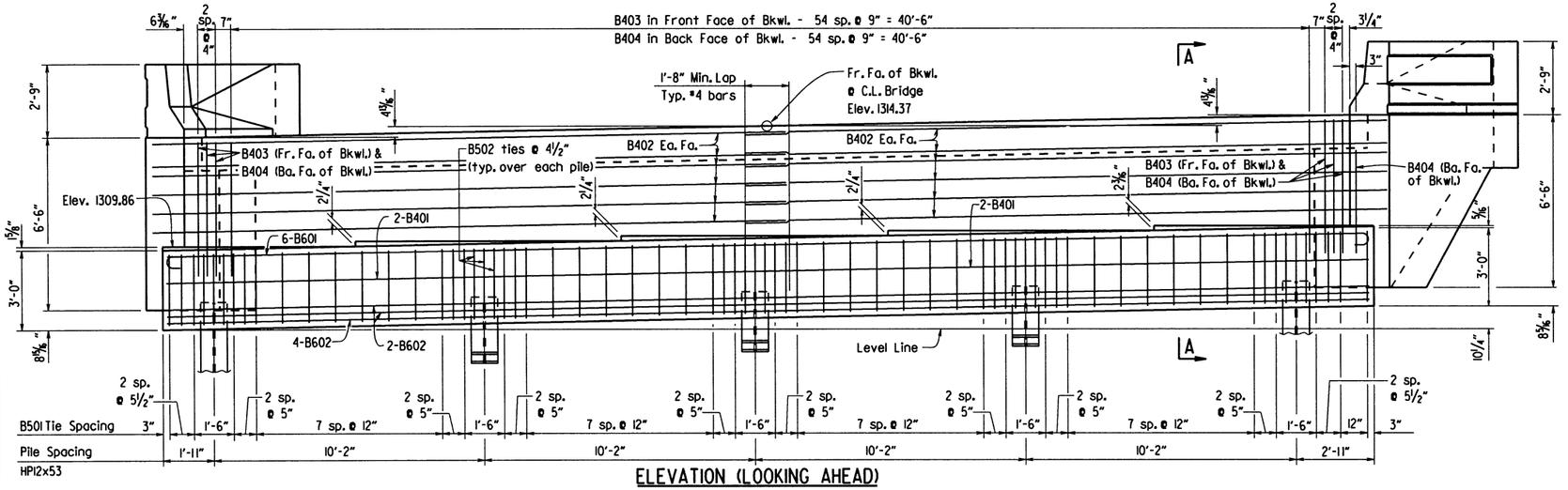
For Details of Elastomeric Bearings, see Dwg. No. 58018.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

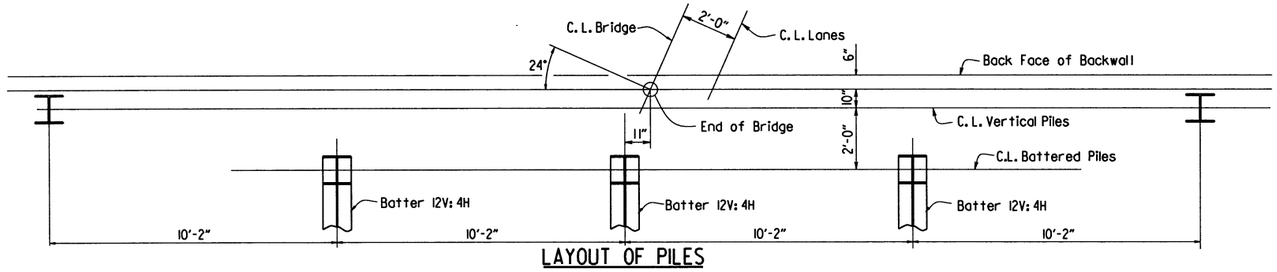


For additional joint details, see Dwg. No. 58023.

DETAIL Z
No Scale



ELEVATION (LOOKING AHEAD)



LAYOUT OF PILES

GENERAL NOTES:

All concrete shall be Class S with a minimum 28-day compressive strength f'c = 3,500 psi and shall 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 M 31 or M 322, 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 placed to avoid damage.

For additional information, see layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 4
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: dgm DATE: 02-22-07 FILENAME: b090508al_bl.dgn
CHECKED BY: NP DATE: 12-19-16 SCALE: 3/8" = 1'-0" or As Noted
DESIGNED BY: DGM DATE: 1-07
BRIDGE NO. A7276 DRAWING NO. 58016

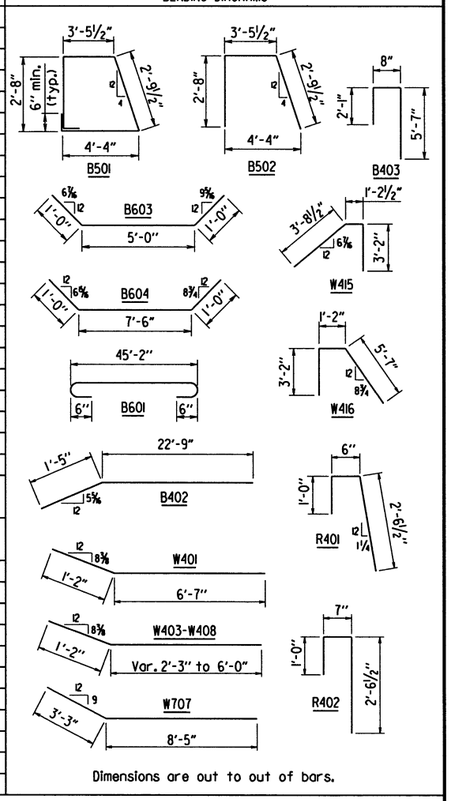
PRINT DATE: 8/22/2017

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.		090508	181	335
				① A7276 -		END BENTS	- 58017	

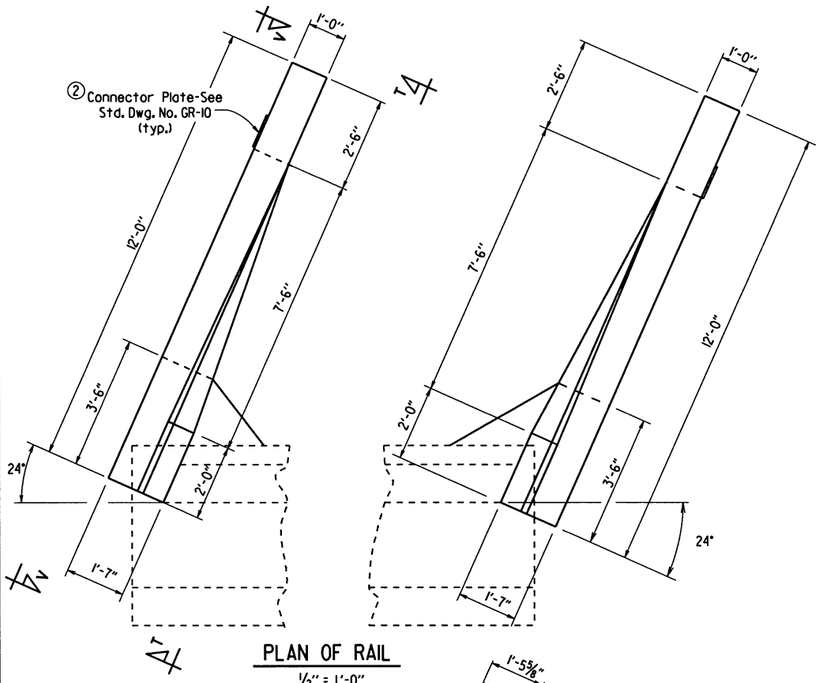
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	23'-5"	Str.
B402	24	24'-2"	2"
B403	61	8'-2"	4½"
B404	62	4'-2"	Str.
B405	6	4'-11"	Str.
B501	55	13'-9"	2½"
B502	15	8'-9"	2½"
B601	6	46'-6"	4½"
B602	8	45'-2"	Str.
B603	4	7'-0"	4½"
B604	4	9'-6"	4½"
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	7'-9"	2"
W402	8	8'-11"	Str.
W403-W408	2 each	Var. 3'-5" to 7'-2"	2"
W409-W414	2 each	Var. 4'-7" to 8'-3"	Str.
W415	3	8'-0"	2"
W416	3	9'-10"	2"
W701	12	11'-8"	Str.
W702	4	8'-4"	Str.
W703	4	7'-4"	Str.
W704	4	6'-4"	Str.
W705	4	5'-4"	Str.
W706	4	4'-4"	Str.
W707	4	11'-8"	5¼"

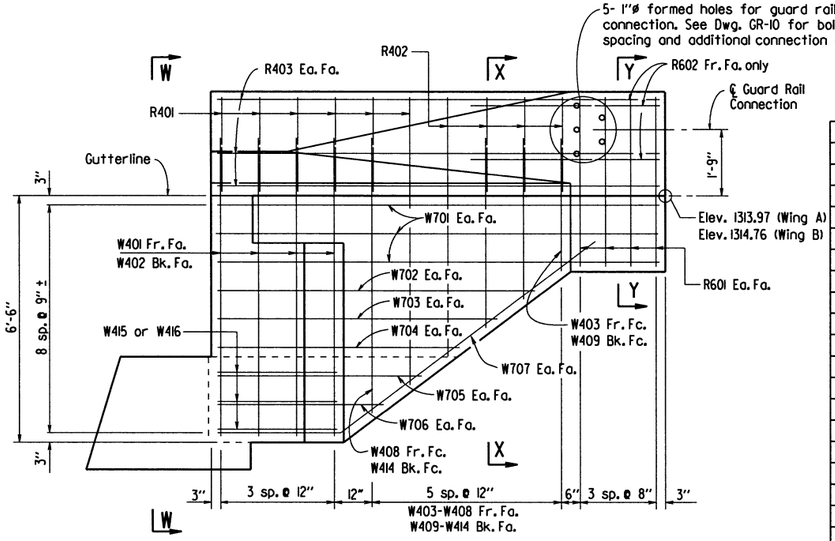
BENDING DIAGRAMS



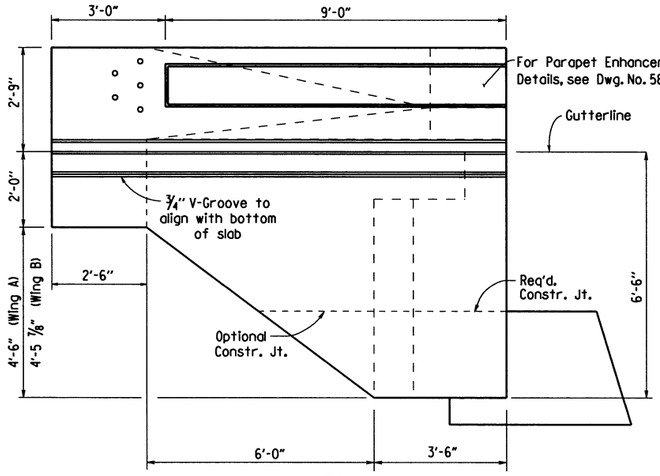
Dimensions are out to out of bars.



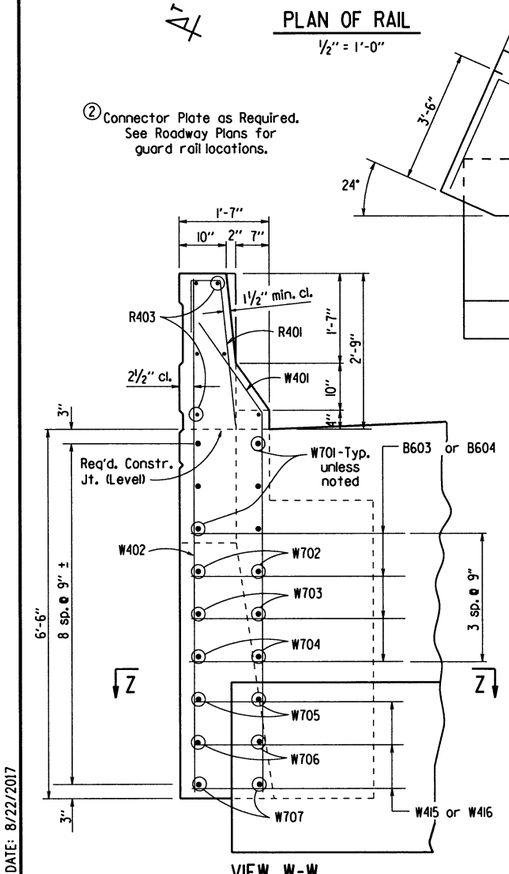
PLAN OF RAIL
½" = 1'-0"



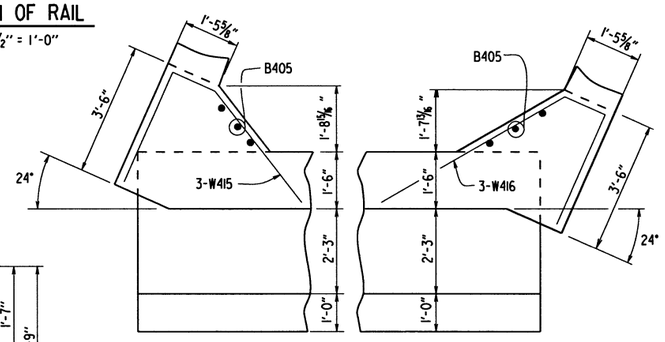
VIEW T-T
½"= 1'-0"



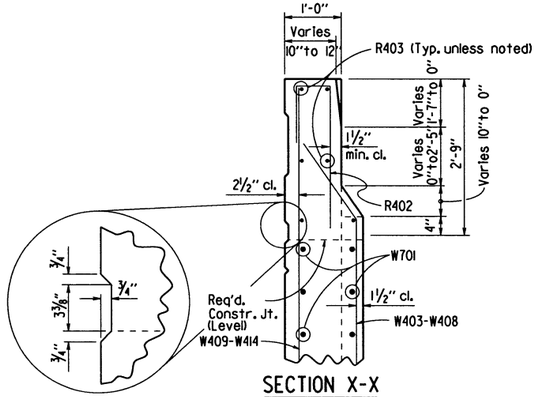
VIEW V-V
½"= 1'-0"



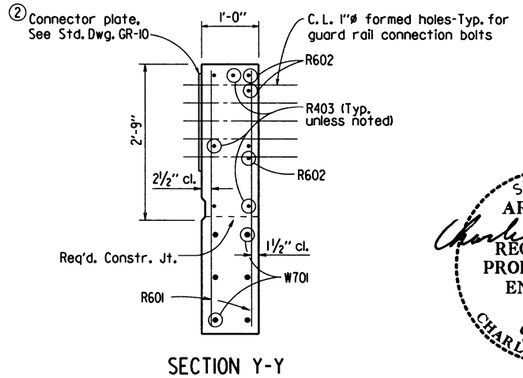
VIEW W-W
¾" = 1'-0"



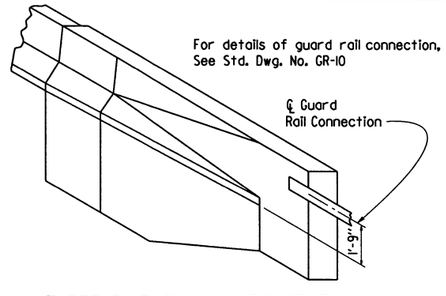
SECTION Z-Z
½" = 1'-0"



SECTION X-X
¾" = 1'-0"



SECTION Y-Y
¾"= 1'-0"



THREE DIMENSIONAL VIEW OF RAIL
No Scale

② Connector Plate as Required. See Roadway Plans for guard rail locations.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 4
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

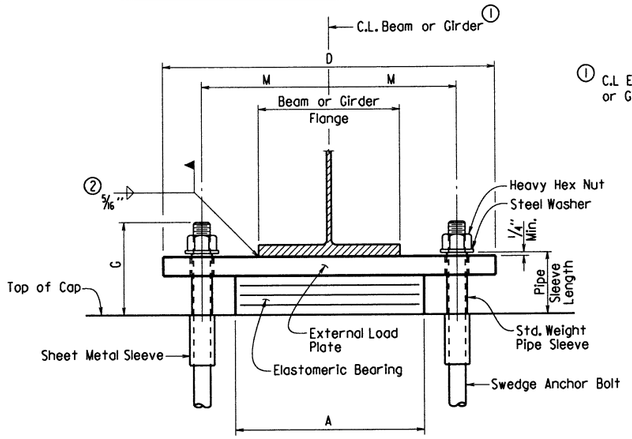
DRAWN BY: dgm DATE: 03-01-07 FILENAME: b090508al_bl.dgn
CHECKED BY: JHP DATE: 12-19-16 SCALE: As Noted
DESIGNED BY: DGM DATE: 1-07

BRIDGE NO. A7276 DRAWING NO. 58017

PRINT DATE: 8/22/2017

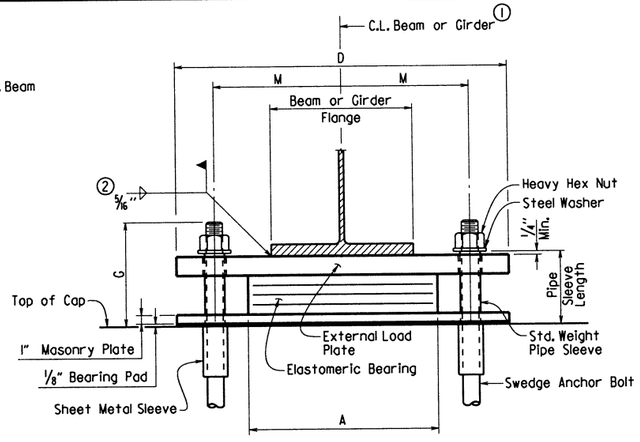
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	182	335

① A7276 - ELASTO BRGS. - 58018



FRONT VIEW - AT BENT NOS. 2 & 3

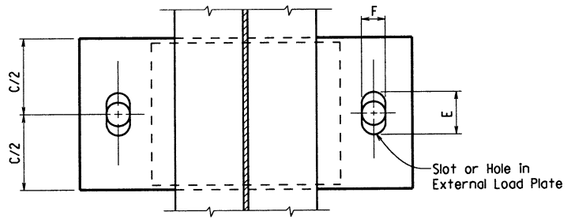
① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.



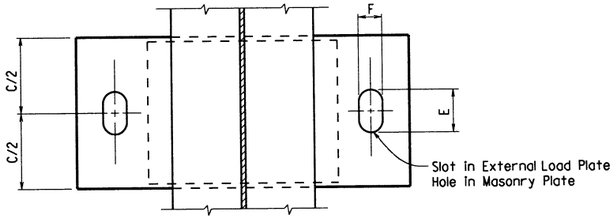
FRONT VIEW - AT BENT NOS. 1 & 4

TABLE FOR EXTERNAL LOAD PL THICKNESS

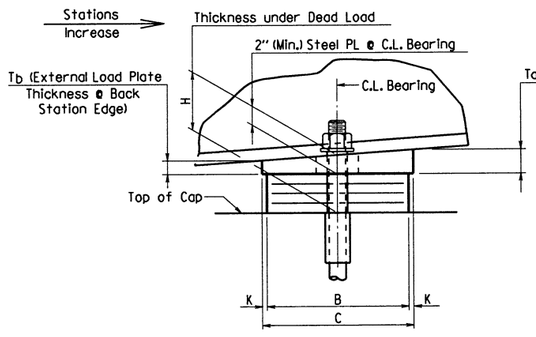
Bent	Beam	T_a	T_b
1	All	2.03"	1.97"
2	All	2.02"	1.98"
3	All	2.01"	1.99"
4	All	2"	2"



PLAN VIEW - AT BENT NOS. 2 & 3



PLAN VIEW - AT BENT NOS. 1 & 4

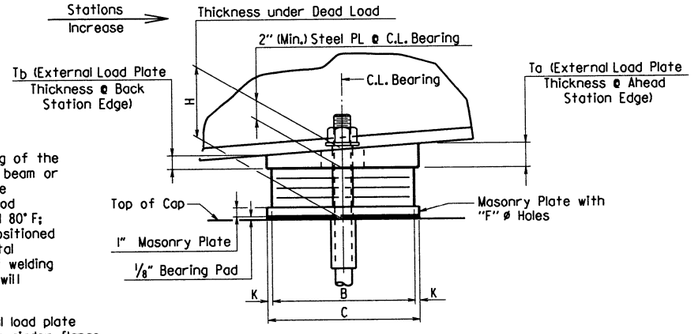


SIDE VIEW - AT BENT NOS. 2 & 3

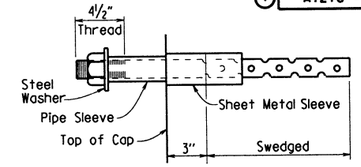
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



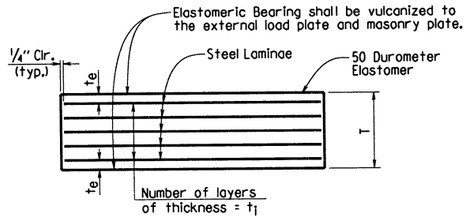
SIDE VIEW - AT BENT NOS. 1 & 4



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". External load plates, masonry plates and 1/8" bearing pads will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

③ Maximum Design Load = Service I Limit State

④ Dimension "E" applies to External Load Plates only. "F" ø Holes shall be used in Masonry Plates.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ 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	④ E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
A7276	1 & 4	All	Exp.	5	100	8⅜"	5⅝"	14½"	11½"	3	½"	5/16"	4 @ 12ga.	2⅜"	12½"	24½"	3¾"	2¼"	½"	9½"	See TABLE		1½" x 25"	55	1½" x 5⅞"	3" x 6"	3"
	2 & 3	All	Fix	5	226	8"	4½"	17"	11"	3	½"	5/16"	4 @ 12ga.	2⅜"	12"	29"	3⅛"	3⅛"	½"	11¼"	See TABLE		2¼" x 34"	55	2½" x 4¾"	4" x 12"	4"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 4-4-07 FILENAME: b090508al_el.dgn

CHECKED BY: JAP DATE: 11-2-16 SCALE: 1½" = 1'-0"

DESIGNED BY: DGM DATE: 2-07

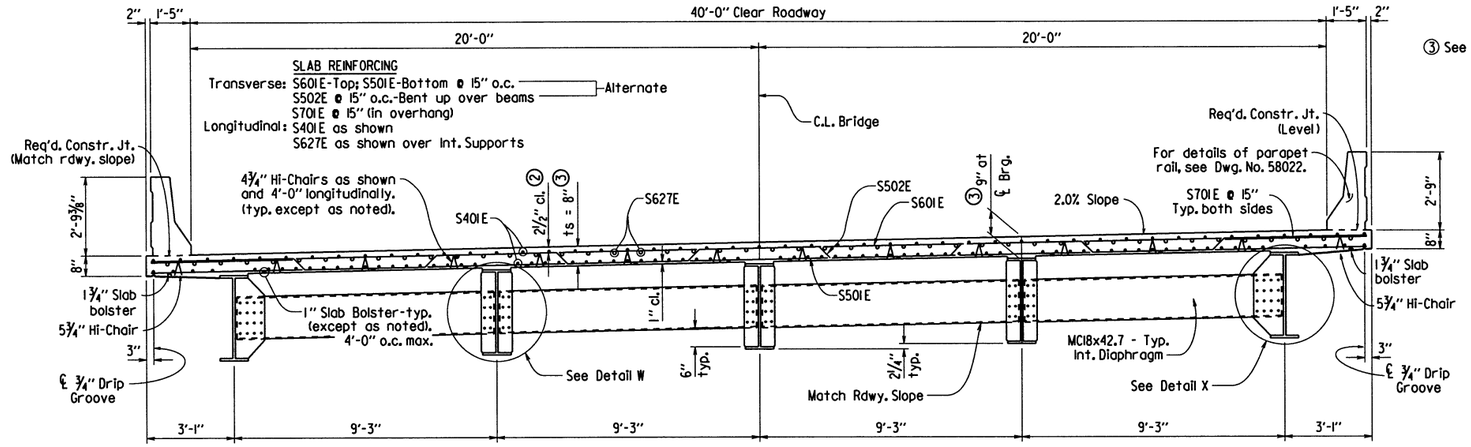
BRIDGE NO. A7276 DRAWING NO. 58018

PRINT DATE: 9/8/2017

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.		090508	183	335
				① A7276 - 186' CONT. UNIT - 58019				

NOTE: Class 2 Protective Surface Treatment shall be applied to the Roadway Surface. Class 3 Textured Coating Finish shall be applied to all areas specified in Job Special Provision "Textured Coating Finish".

NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.



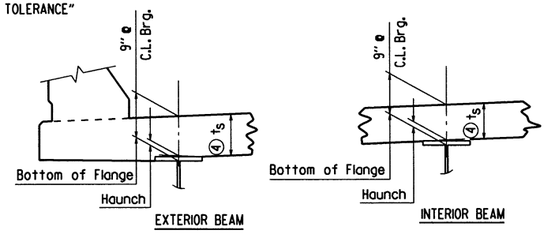
TYPICAL ROADWAY SECTION

Looking Ahead

⅜" = 1'-0"

② Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"



t_s = slab thickness as shown in "Typical Roadway Section"

④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

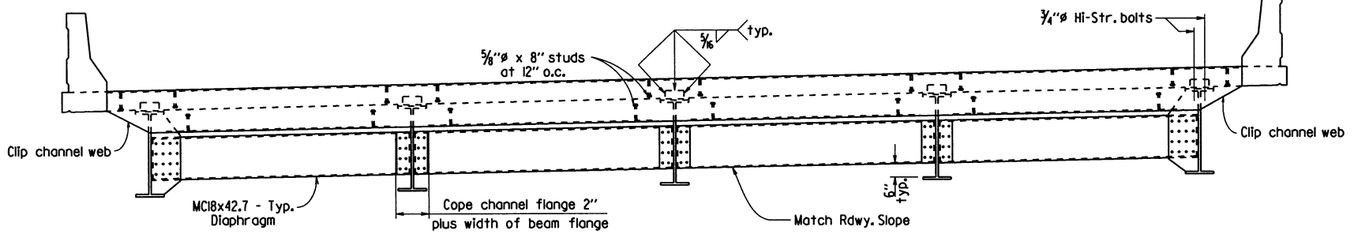
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NTS

Expansion Device:
Rdwy. Channel - MC18x42.7
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- ⅛" PLs

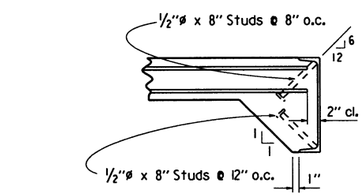
For details of Poured Silicone joint, see Dwg. No. 58023.



SECTION THRU JOINT

Looking Ahead

⅜" = 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 AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

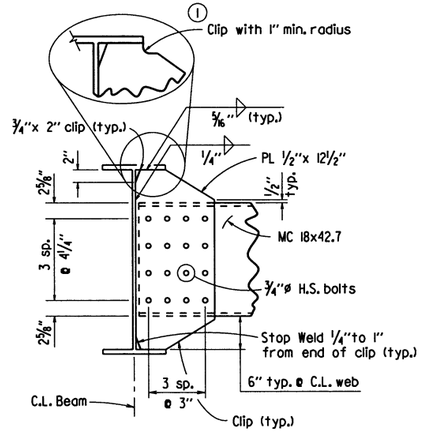
NTS

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

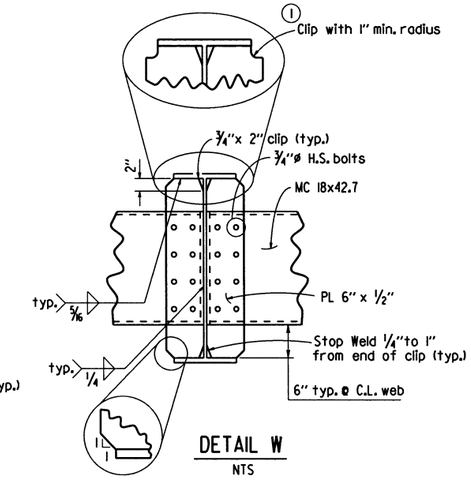
Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

① If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accomodate the deck form supports.



DETAIL X

NTS



DETAIL W

NTS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-1-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF
186'-0" CONTINUOUS W-BEAM UNIT
CR 39 (ARTHUR ROAD)

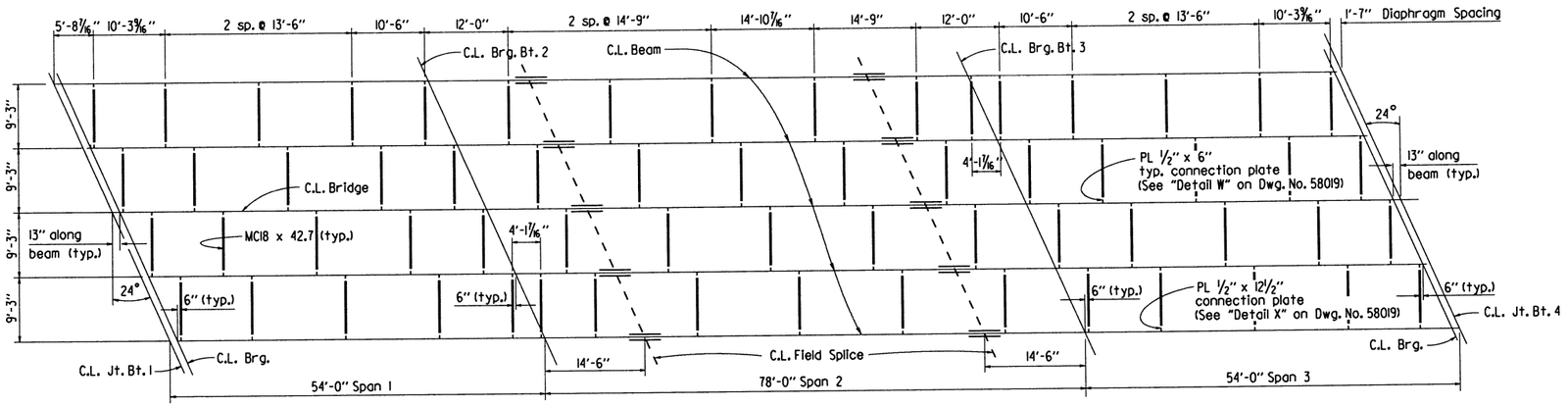
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 3-20-07 FILENAME: b090508al_sl.dgn
CHECKED BY: JHP DATE: 11-2-16 SCALE: AS NOTED
DESIGNED BY: LC&M DATE: 2-07
BRIDGE NO. A7276 DRAWING NO. 58019

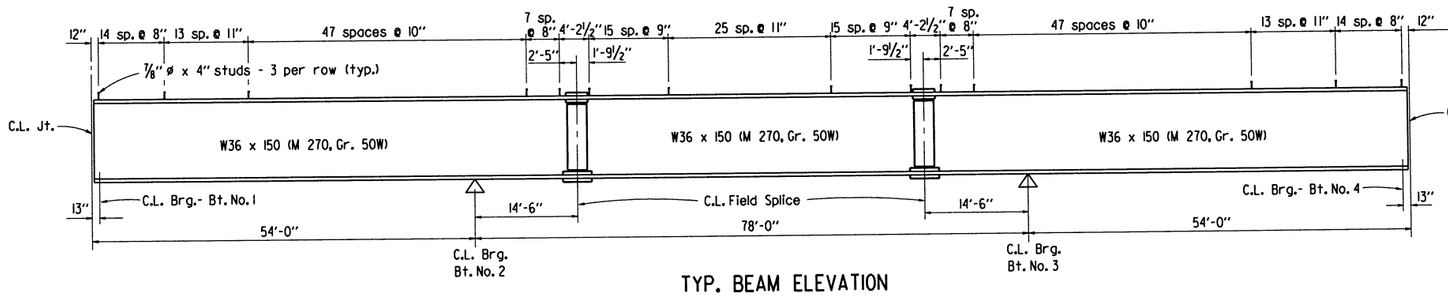
PRINT DATE: 8/28/2017

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.		090508	184	335
				(1) A7276 - 186' CONT. UNIT - 58020				



FRAMING PLAN

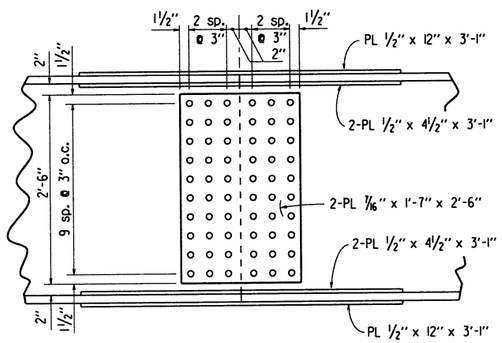
1/8" = 1'-0"



TYP. BEAM ELEVATION

NTS

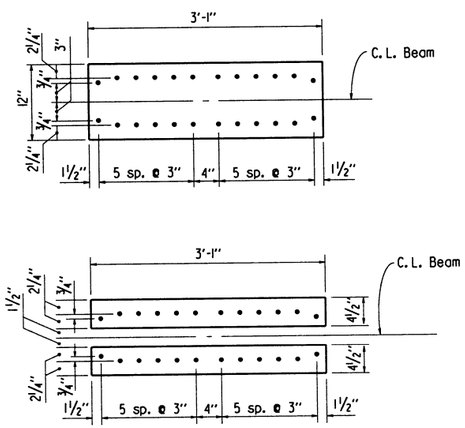
All field splice bolts shall be 7/8"ø Hi-str. bolts
All holes for splice bolts shall be 15/16 "ø
All field splice plates shall be AASHTO M 270 Gr. 50W steel.



DETAIL OF FIELD SPLICE

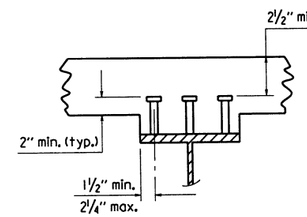
1"= 1'-0"

Note: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Bridge Engineer. Payment will be made on the basis of of the plan quantities.



FLANGE SPLICE PLATES (TOP & BOTT.)

1"= 1'-0"



Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors.

SHEAR CONNECTOR DETAIL

NTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-1117
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF
186'-0" CONTINUOUS W-BEAM UNIT
CR 39 (ARTHUR ROAD)

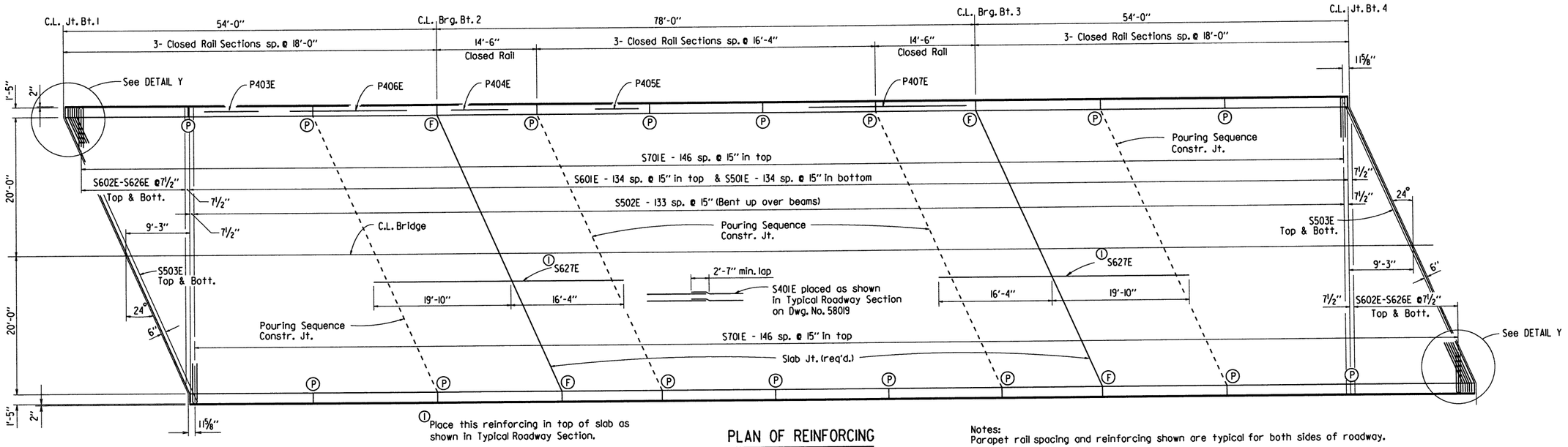
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 3-20-07 FILENAME: b090508al_sl.dgn
CHECKED BY: JNP DATE: 11-2-16 SCALE: 1/2" = 1'-0" or as shown
DESIGNED BY: DG&RA DATE: 2-07
BRIDGE NO. A7276 DRAWING NO. 58020

PRINT DATE: 8/28/2017

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.		090508	185	335
				①	A7276 - 186' CONT. UNIT - 58021			



① Place this reinforcing in top of slab as shown in Typical Roadway Section.

Ⓟ Partial depth parapet joint at this location

Ⓕ Full depth parapet joint at this location

PLAN OF REINFORCING

1/8" = 1'-0"

Notes:
Parapet rail spacing and reinforcing shown are typical for both sides of roadway.

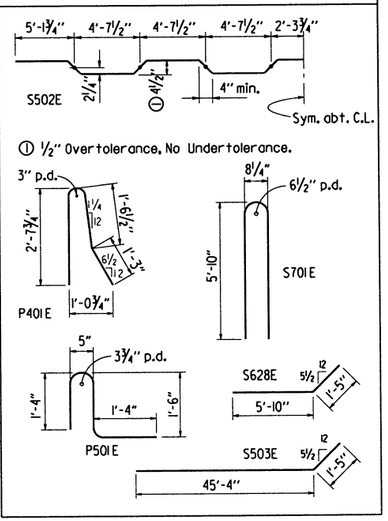
Required slab joints and Pouring Sequence Joints shall align with open joints in parapet rail at the gutterline.

For Slab Pouring Sequence, see Dwg. No. 58024.

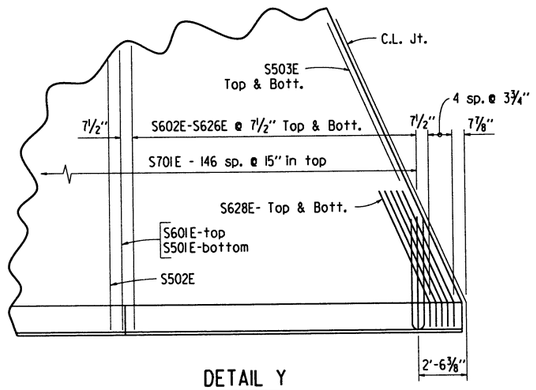
BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
S401E	615	39'-3"	Str.
S501E	135	42'-10"	Str.
S502E	134	43'-6"	3"
S503E	4	46'-9"	3"
S601E	135	42'-10"	Str.
S602E-S626E	4 ea.	6'-6" to 40'-2"	Str.
S627E	92	36'-2"	Str.
S628E	20	7'-3"	4½"
S701E	294	12'-1"	6½"
P401E	740	5'-6"	3"
P403E	36	17'-7"	Str.
P404E	12	14'-1"	Str.
P405E	18	15'-11"	Str.
P406E	32	28'-2"	Str.
P407E	16	40'-2"	Str.
P501E	740	4'-3"	3¾"

Bending Diagrams (Dimensions are out to out of bars.)

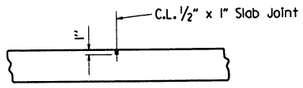


Note: Bars with "E" designation shall be epoxy coated.



DETAIL Y

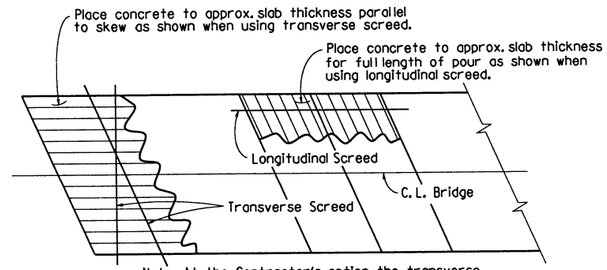
1/4" = 1'-0"



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 and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

SLAB JOINT DETAIL

NTS



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE

NTS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF
186'-0" CONTINUOUS W-BEAM UNIT
CR 39 (ARTHUR ROAD)

ROUTE SEC.

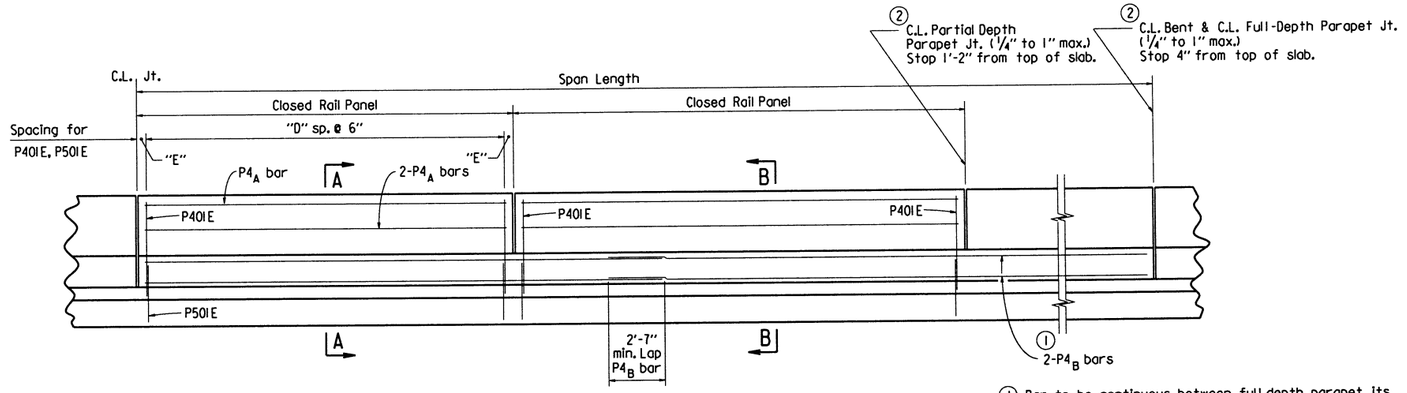
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 3-20-07
CHECKED BY: JHP DATE: 11-2-16
DESIGNED BY: PGM DATE: 2-07
FILENAME: b090508al_sl.dgn
SCALE: ½" = 1'-0" or as shown

BRIDGE NO. A7276 DRAWING NO. 58021

PRINT DATE: 8/28/2017

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.		090508	186	335
				① A7276 - 186' CONT. UNIT - 58022				



ELEVATION - CONCRETE PARAPET RAIL

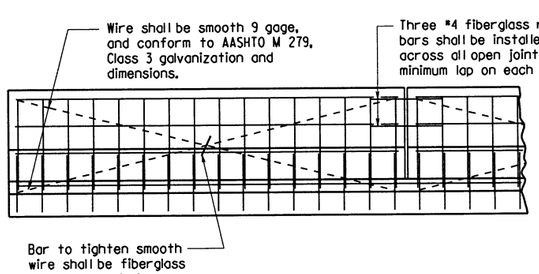
1/2" = 1'-0"

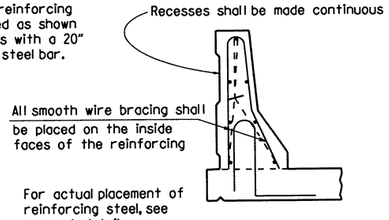
① Bar to be continuous between full depth parapet jts.

② For location of full and partial depth parapet joints, see Dwg. No. 58021.

TABLE OF VARIABLES

Span Length	$P4_B$ bar	Closed Rail Panel	"D"	"E"	$P4_A$ bar
54'-0"	P406E	18'-0"	35	3"	P403E
78'-0"	P407E	14'-6"	28	3"	P404E
		16'-4"	31	5"	P405E



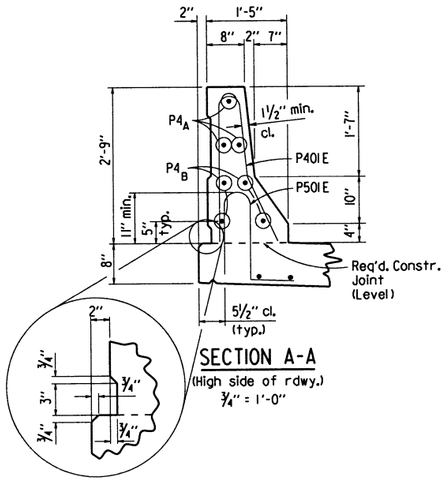


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the the Class 2, Rubbed Finish. See Job SP "Textured Coating Finsh".

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

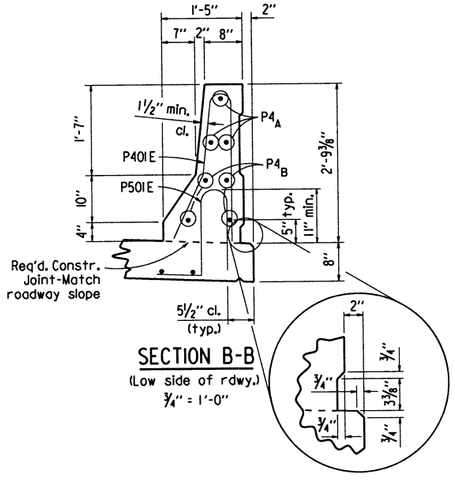
NTS



SECTION A-A

(High side of rdwy.)

3/4" = 1'-0"

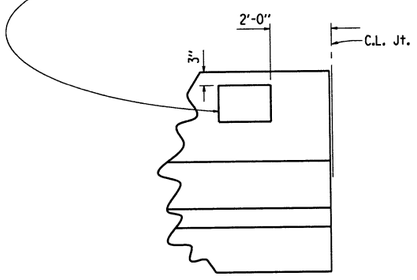


SECTION B-B

(Low side of rdwy.)

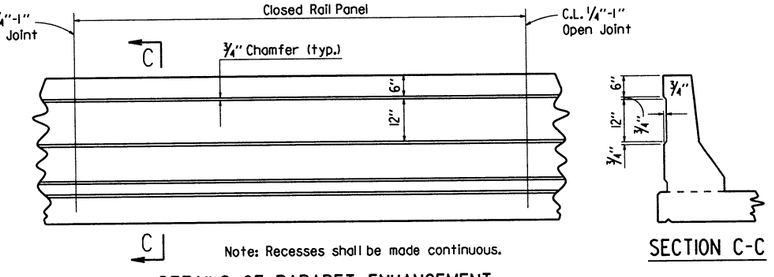
3/4" = 1'-0"

Place Type D Bridge Name Plate approx. 2'-0" from C. L. Joint on the front face of the parapet rail on the left side of the span at the end of Bridge A. See Std. Dwg. No. 55010.



VIEW SHOWING LOCATION OF NAME PLATE

NTS



SECTION C-C

DETAILS OF PARAPET ENHANCEMENT

NTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 186'-0" CONTINUOUS W-BEAM UNIT CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 4-2-07 FILENAME: b090508al_sl.dgn

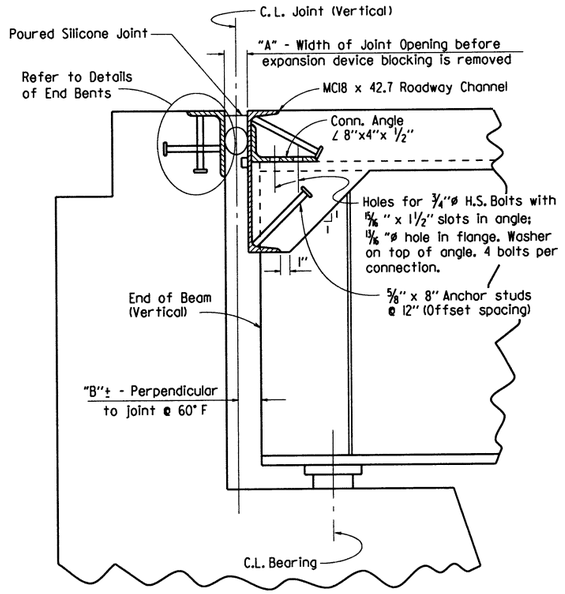
CHECKED BY: JNP DATE: 11-9-16 SCALE: As shown

DESIGNED BY: DiaM DATE: 2-07

BRIDGE NO. A7276 DRAWING NO. 58022

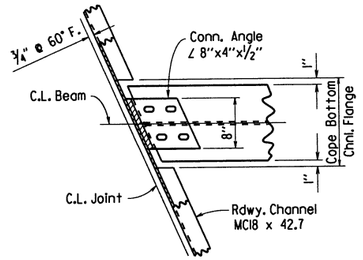
PRINT DATE: 8/21/2017

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.		090508	187	335
				① A7276 - 186' CONT. UNIT - 58023				

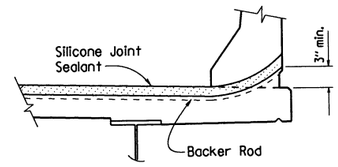


Note: Section taken perpendicular to C.L. Joint

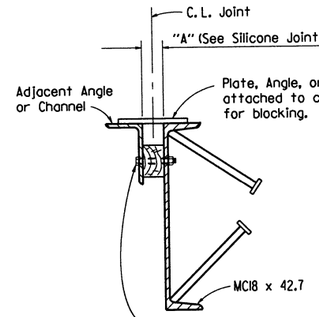
SECTION THRU JOINT AT END BENT



CHANNEL CONNECTION DETAIL



JOINT SEAL PLACEMENT AT CURB



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

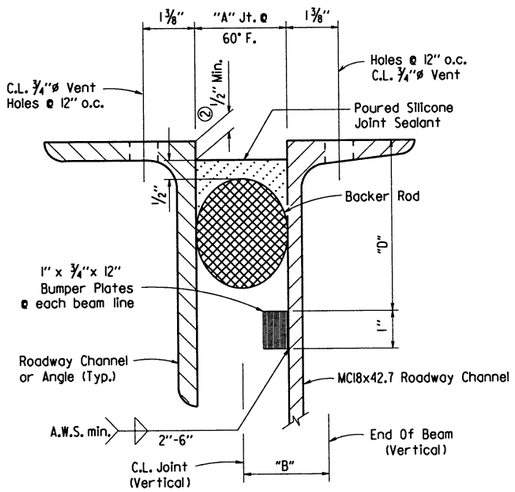
EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device 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 pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature and grade, 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.

② Recess depth as recommended by the sealant Manufacturer.



DETAIL OF POURED SILICONE JOINT

Note: Concrete shall be hand packed under the joint armor, in the backwall and in the span.

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	"D"
40°F	60°F	80°F		
1⅝"	1½"	1⅜"	2"±	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.

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 that can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF
186'-0" CONTINUOUS W-BEAM UNIT
CR 39 (ARTHUR ROAD)
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LM DATE: 4-3-07 FILENAME: b090508al_sl.dgn
CHECKED BY: JHP DATE: 11-6-16 SCALE: No Scale
DESIGNED BY: DGM DATE: 2-07
BRIDGE NO. A7276 DRAWING NO. 58023

PRINT DATE: 8/21/2017

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.		090508	188	335
				①	A7276 - 186' CONT. UNIT - 58024			

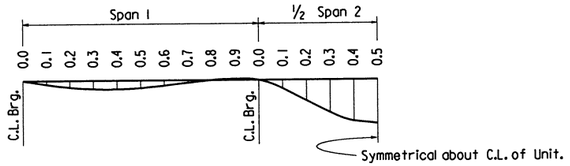
TABLE OF DEAD LOAD DEFLECTIONS-INCHES

Span	Point of Deflection	Structural Steel		Structural Steel+Slab		Str. Steel +Slab+Rail	
		Ext. Bms.	Int. Bms.	Ext. Bms.	Int. Bms.	Ext. Bms.	Int. Bms.
1	0	0	0	0	0	0	0
	0.1	0.012	0.014	0.075	0.091	0.081	0.097
	0.2	0.022	0.024	0.135	0.164	0.146	0.174
	0.3	0.028	0.031	0.170	0.206	0.183	0.219
	0.4	0.029	0.032	0.176	0.213	0.190	0.226
	0.5	0.025	0.027	0.152	0.184	0.164	0.195
	0.6	0.017	0.019	0.105	0.128	0.113	0.136
	0.7	0.008	0.009	0.047	0.057	0.051	0.061
	0.8	-0.001	-0.001	-0.005	-0.006	-0.005	-0.006
	0.9	-0.005	-0.005	-0.030	-0.037	-0.032	-0.039
½ span 2	0	0	0	0	0	0	0
	0.1	0.029	0.032	0.175	0.213	0.189	0.226
	0.2	0.071	0.078	0.430	0.521	0.464	0.553
	0.3	0.112	0.122	0.674	0.817	0.727	0.867
	0.4	0.140	0.153	0.846	1.025	0.912	1.088
	0.5	0.150	0.164	0.907	1.100	0.978	1.167

← Half point of unit

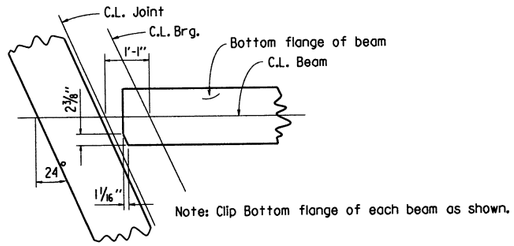
Note: Symmetrical about half-point of Unit.

Note: Camber for Dead Load Deflection plus Vertical Curve ± ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Vertical Curve corrections are not included. Negative sign (-) indicates point above chord.



DEAD LOAD DEFLECTION DIAGRAM

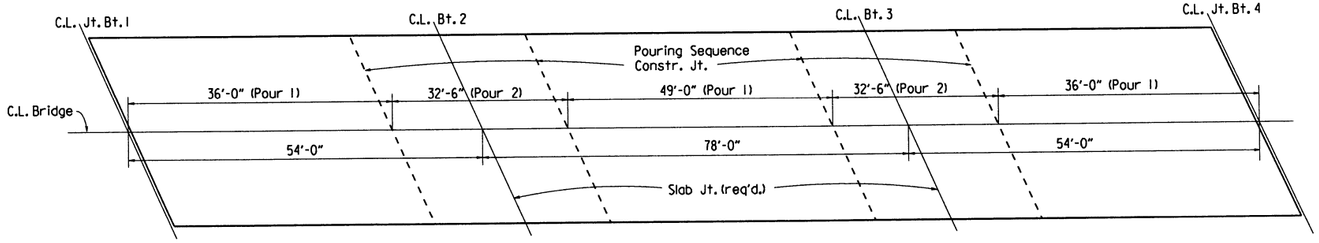
No Scale



Note: Clip Bottom flange of each beam as shown.

PLAN OF BEARING AT END BENT

¾" = 1'-0"



Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

SLAB POURING SEQUENCE

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Third Edition with 2006 Interim Revisions.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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 Std. Dwg. No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge 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 and the pouring of the parapet railing.

REINFORCING STEEL :
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel 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 unless otherwise noted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36, 50 or 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, 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.

Structural steel shapes of equal or greater strength may be substituted for shapes shown if prior approval is obtained from the Engineer. Payment will be made on the basis of shapes shown.

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.

All beams shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. 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 ¾" ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be 15/16" ø if a washer is supplied for use under both the nut and head of the bolt.

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 shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF
186'-0" CONTINUOUS W-BEAM UNIT
CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

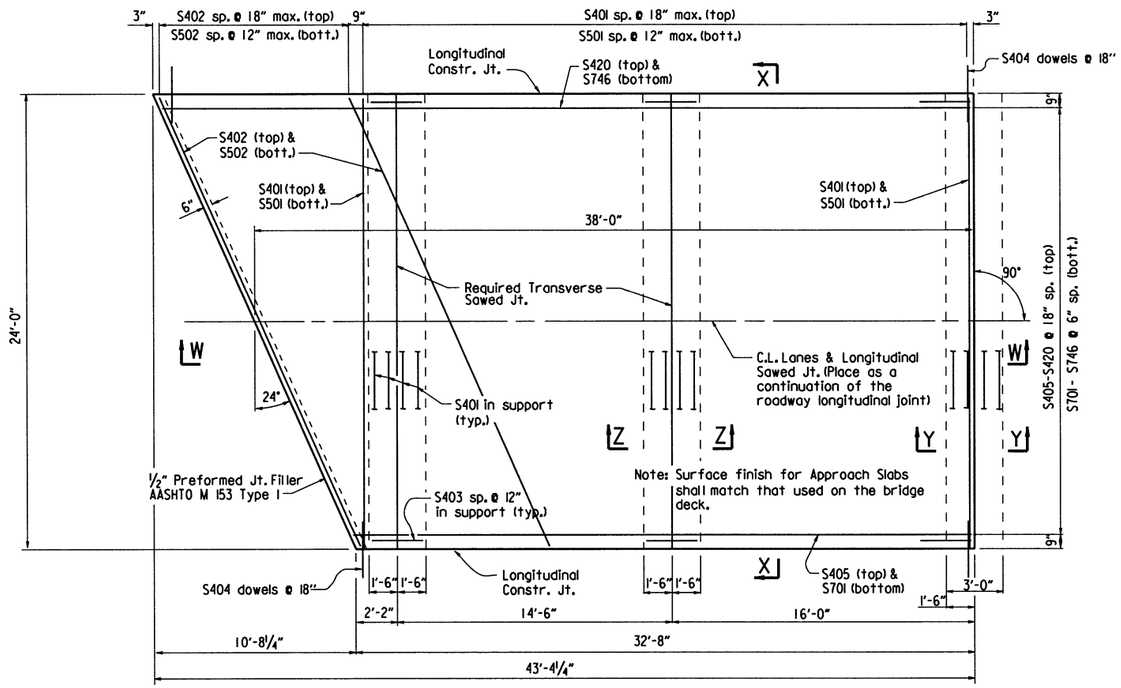
DRAWN BY: LM DATE: 4-3-07 FILENAME: b090508al_sl.dgn
CHECKED BY: JWP DATE: 11/2/16 SCALE: As shown
DESIGNED BY: DGM DATE: 2-07

BRIDGE NO. A7276 DRAWING NO. 58024

PRINT DATE: 8/21/2017

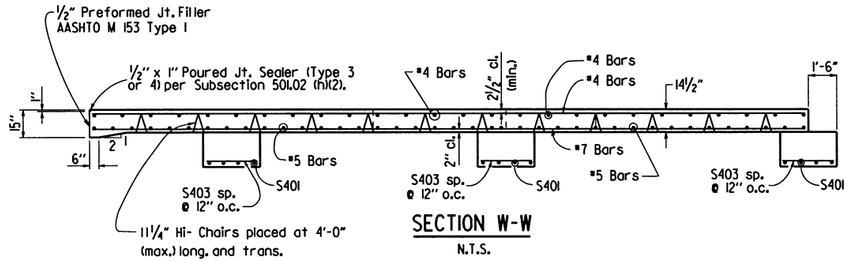
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	189	335

(1) A7276 - APPROACH SLAB - 58025



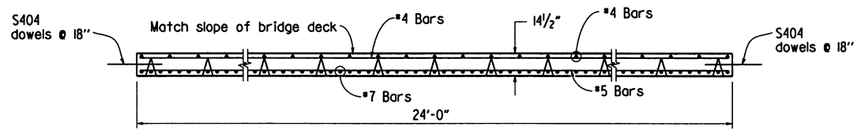
PLAN - APPROACH SLAB

¼" = 1'-0"



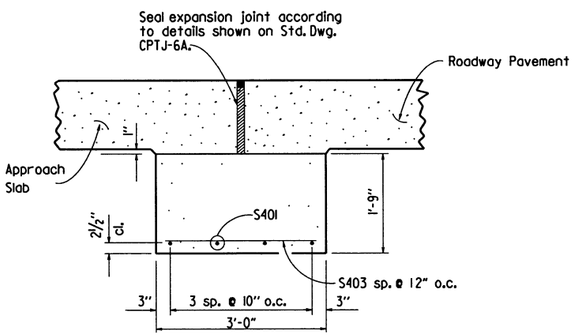
SECTION W-W

N.T.S.



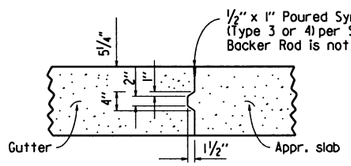
SECTION X-X

N.T.S.



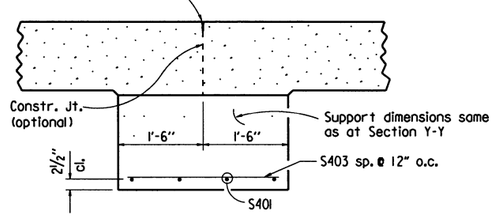
SECTION Y-Y

¾" = 1'-0"



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



SECTION Z-Z

¾" = 1'-0"

TABLE OF QUANTITIES FOR ONE TYPE I SPECIAL APPROACH SLAB

Reinforcing Steel	Concrete (Cu. Yds.)
5965 lbs.	55.0

BAR LIST

Mark	No. Req'd.	Length
S401	34	23'-8"
S402	8	25'-11"
S403	72	2'-8"
S404	51	3'-0"
S405-S420	1ea.	32'-8" to 42'-8"
S501	33	23'-8"
S502	11	25'-11"
S701 to S746	1ea.	32'-8" to 42'-8"

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi 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 Slabs will be measured and paid for in accordance with Section 504.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE I SPECIAL APPROACH SLAB CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JAC DATE: 1-25-07 FILENAME: b090508al_as.dgn

CHECKED BY: AMS DATE: 12-9-15 SCALE: As Noted

DESIGNED BY: STD DATE: -

BRIDGE NO. A7276 DRAWING NO. 58025

PRINT DATE: 8/22/2017

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.		090508	190	335
				① A7276 - APPROACH GUTTERS - 58026				

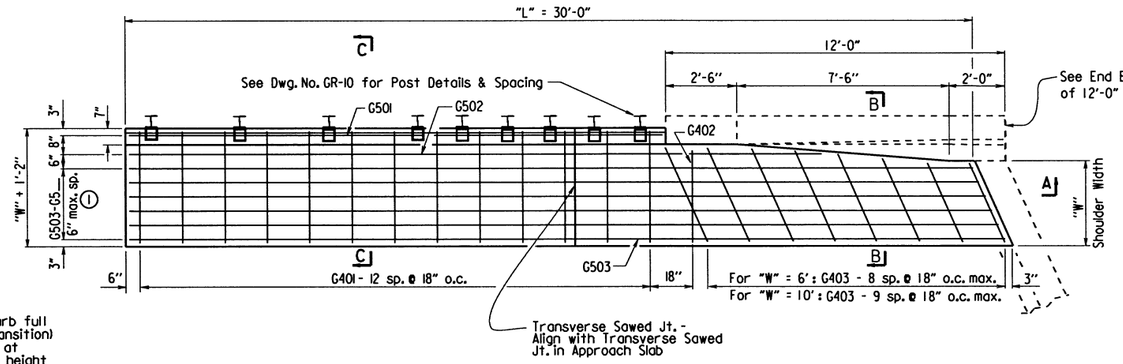
QUANTITIES FOR ONE TYPE I SPECIAL APPROACH GUTTER

For "L" = 30':

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
6	535	9.66
10	881	15.67

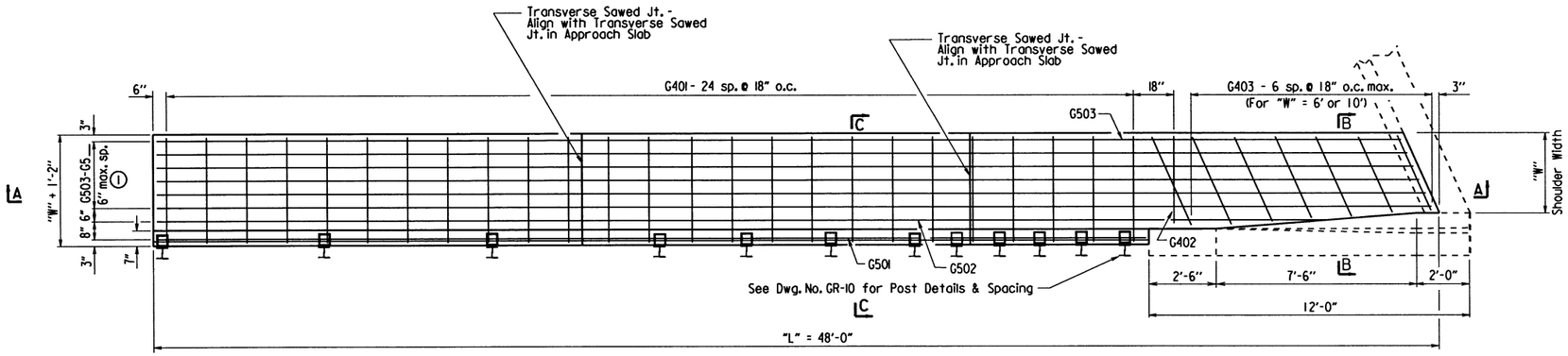
For "L" = 48':

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
6	809	14.80
10	1266	22.76



Note:
Construct gutter curb full height (no height-transition) and place drop inlet at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

PLAN OF TYPE I SPECIAL APPROACH GUTTERS (30 FT. LENGTH)



PLAN OF TYPE I SPECIAL APPROACH GUTTERS (48 FT. LENGTH)

BAR LIST - TYPE I SPECIAL GUTTER (30 FT. LENGTH)

Mark	No. Required for Width "W"		Length
	6'-0"	10'-0"	
G401	13	13	"W" + 10"
G402	1	1	"W" + 3"
G403	9	10	②
G501	1	1	18'-8"
G502	1	1	23'-6"
① G503-G5__	1 each	1 each	③

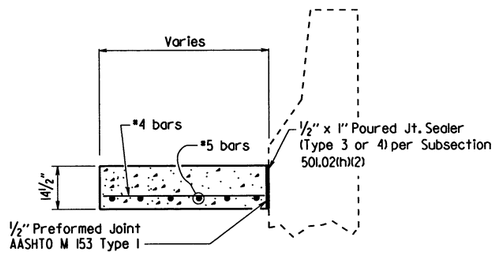
BAR LIST - TYPE I SPECIAL GUTTER (48 FT. LENGTH)

Mark	No. Required for Width "W"		Length
	6'-0"	10'-0"	
G401	25	25	"W" + 10"
G402	1	1	"W" + 3"
G403	7	7	②
G501	1	1	36'-8"
G502	1	1	41'-8"
① G503-G5__	1 each	1 each	③

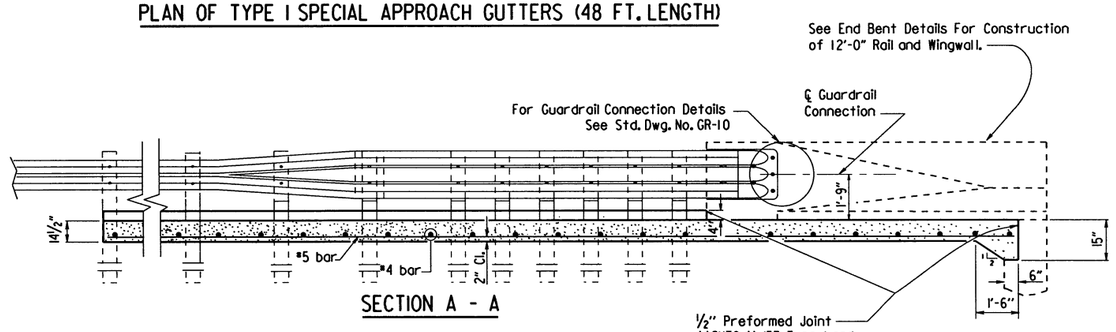
① G514 for "W" = 6'
G522 for "W" = 10'

② Bar Lengths vary due to rail transition. Provide 2" cover at ends.

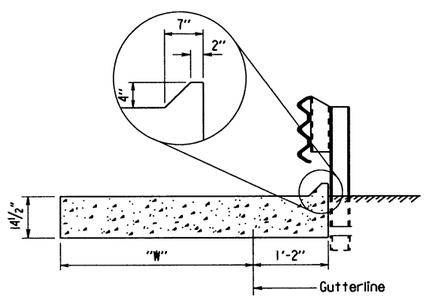
③ Bar Lengths vary due to skew. Provide 2" cover at ends.



SECTION B - B



SECTION A - A



SECTION C - C

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE I SPECIAL APPROACH GUTTERS CR 39 (ARTHUR ROAD)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

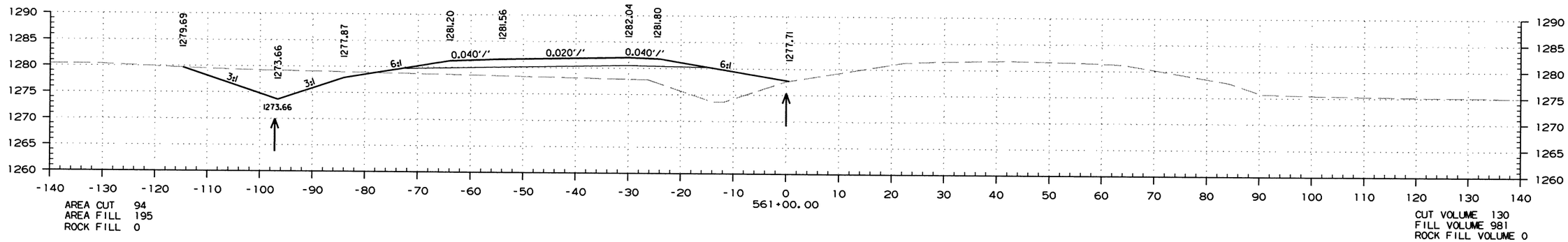
DRAWN BY: JAC DATE: 1-29-2007 FILENAME: b090508al_ag.dgn
CHECKED BY: JHP DATE: 11-2-16 SCALE: No Scale
DESIGNED BY: STD DATE:

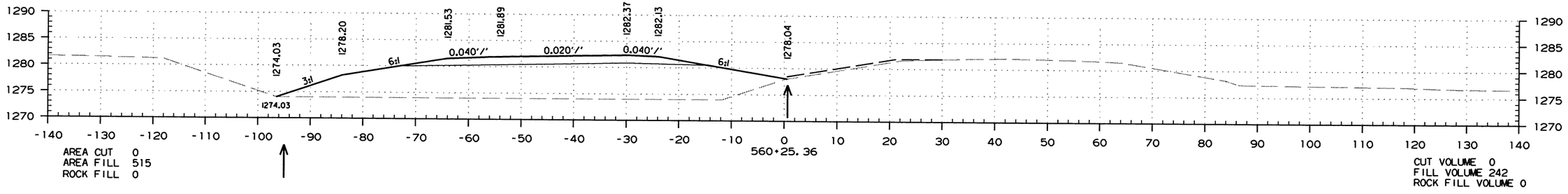
BRIDGE NO. A7276 DRAWING NO. 58026

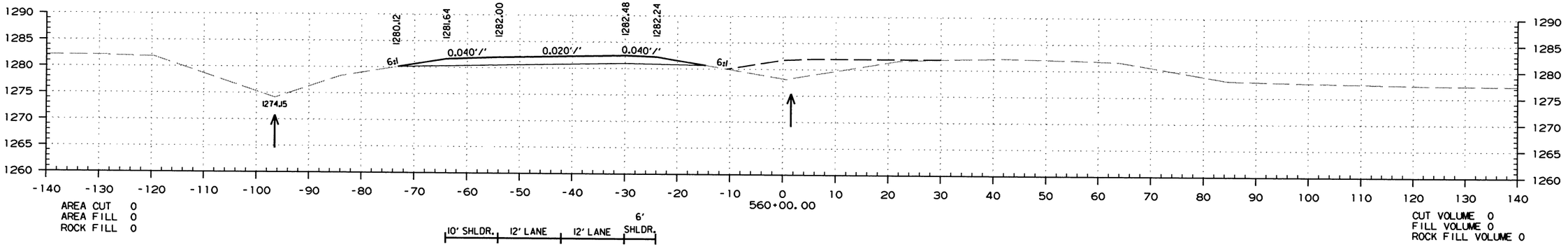
PRINT DATE: 9/20/2017

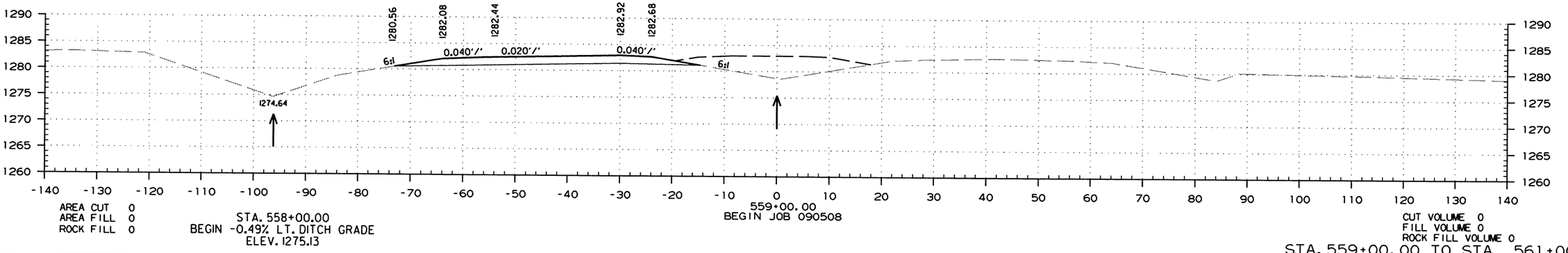
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	191	335

(2) CROSS SECTIONS









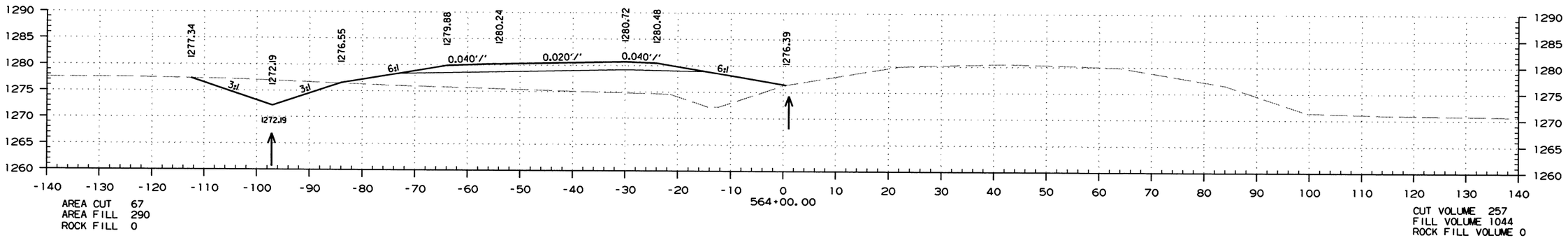
STA. 559+00.00 TO STA. 561+00.00

9/14/2017

R090508.DGN

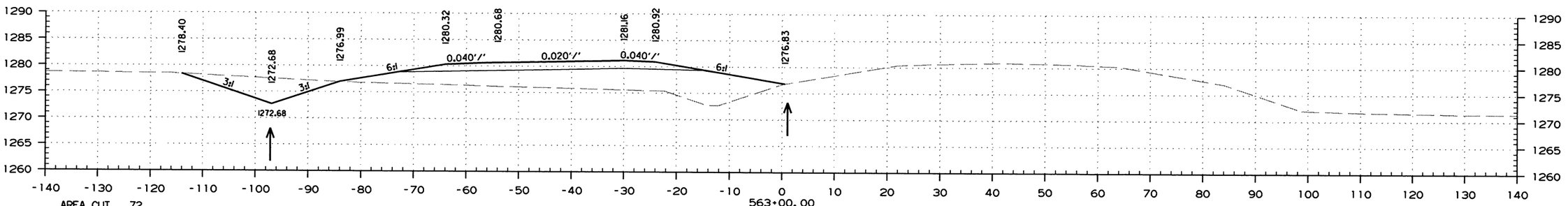
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	192	335

(2) CROSS SECTIONS



AREA CUT 67
AREA FILL 290
ROCK FILL 0

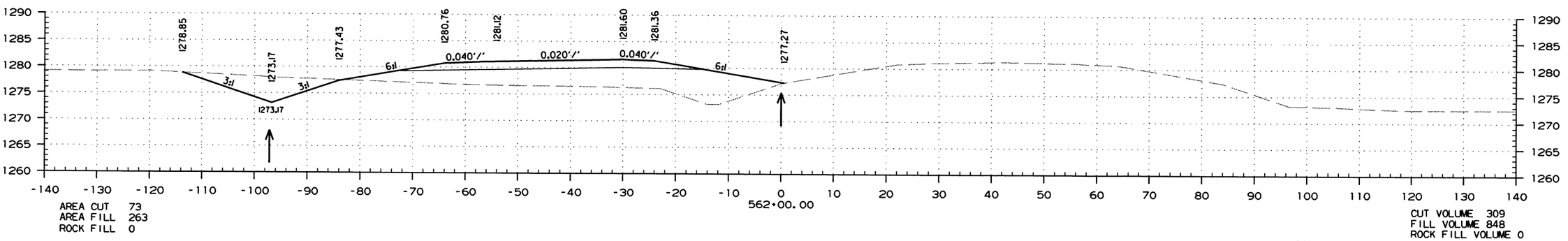
CUT VOLUME 257
FILL VOLUME 1044
ROCK FILL VOLUME 0



AREA CUT 72
AREA FILL 274
ROCK FILL 0

CUT VOLUME 269
FILL VOLUME 994
ROCK FILL VOLUME 0

STA. 563+00 - BEGIN WRSF AND CONC. DITCH PAVING



AREA CUT 73
AREA FILL 263
ROCK FILL 0

CUT VOLUME 309
FILL VOLUME 848
ROCK FILL VOLUME 0

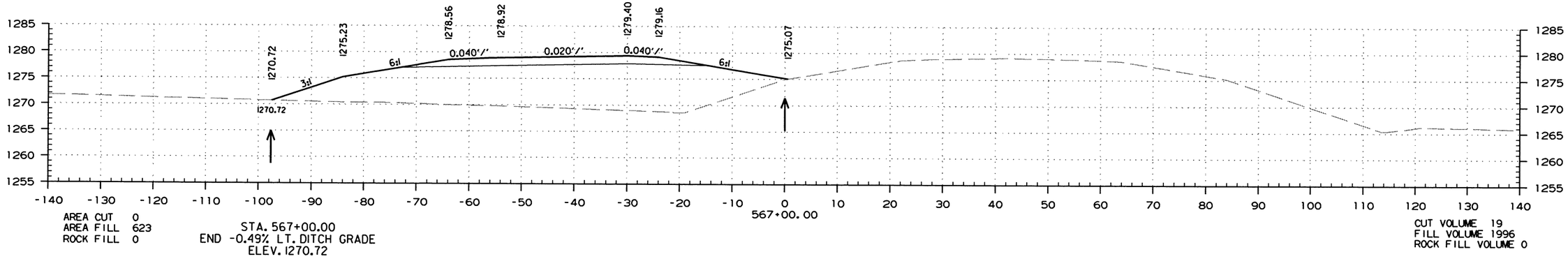
STA. 562+00.00 TO STA. 564+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	193	335

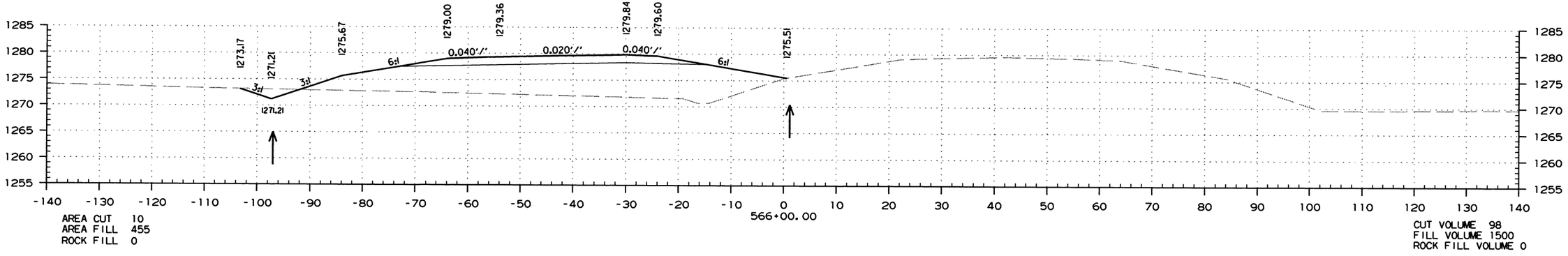
(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 623
ROCK FILL 0

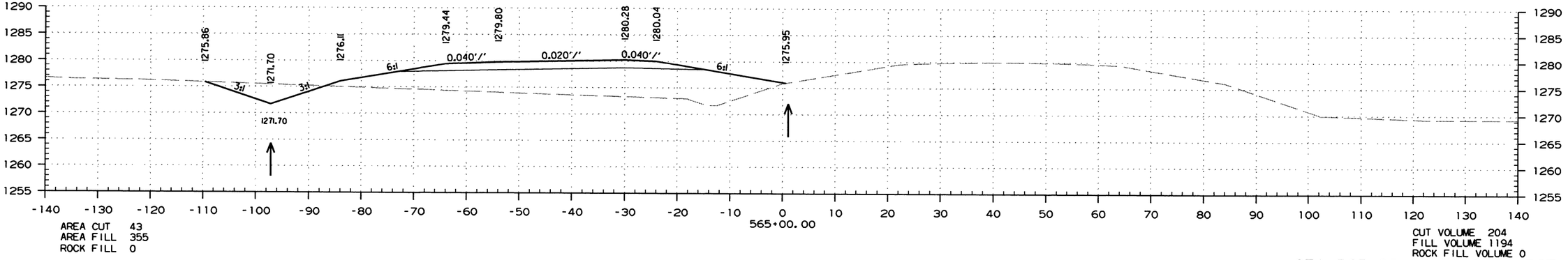
STA. 567+00.00
END -0.49% LT. DITCH GRADE
ELEV. 1270.72

CUT VOLUME 19
FILL VOLUME 1996
ROCK FILL VOLUME 0



AREA CUT 10
AREA FILL 455
ROCK FILL 0

CUT VOLUME 98
FILL VOLUME 1500
ROCK FILL VOLUME 0



AREA CUT 43
AREA FILL 355
ROCK FILL 0

CUT VOLUME 204
FILL VOLUME 1194
ROCK FILL VOLUME 0

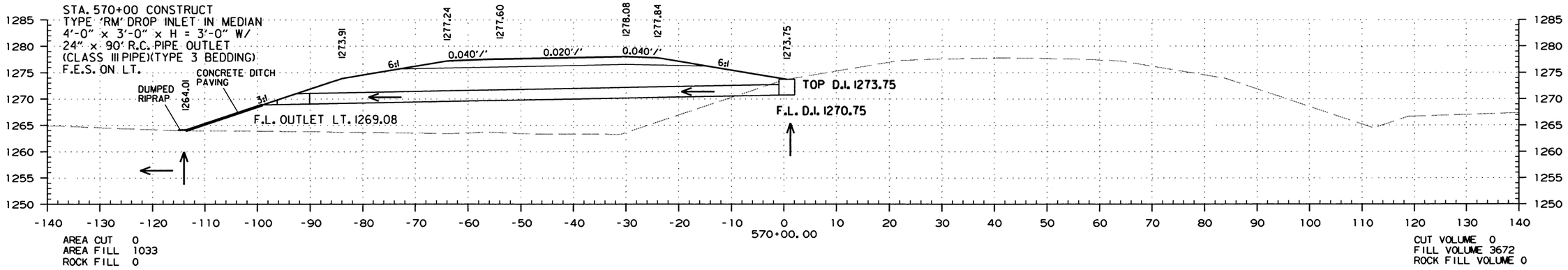
STA. 565+00.00 TO STA. 567+00.00

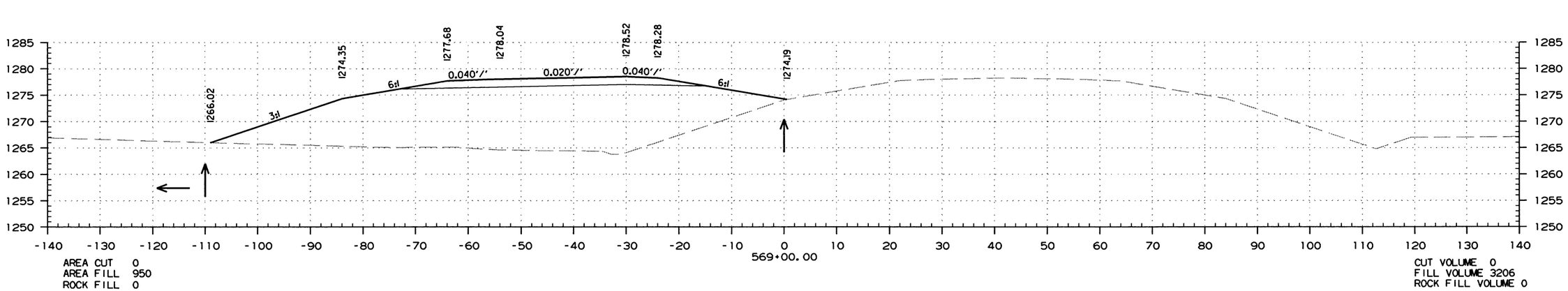
9/14/2017

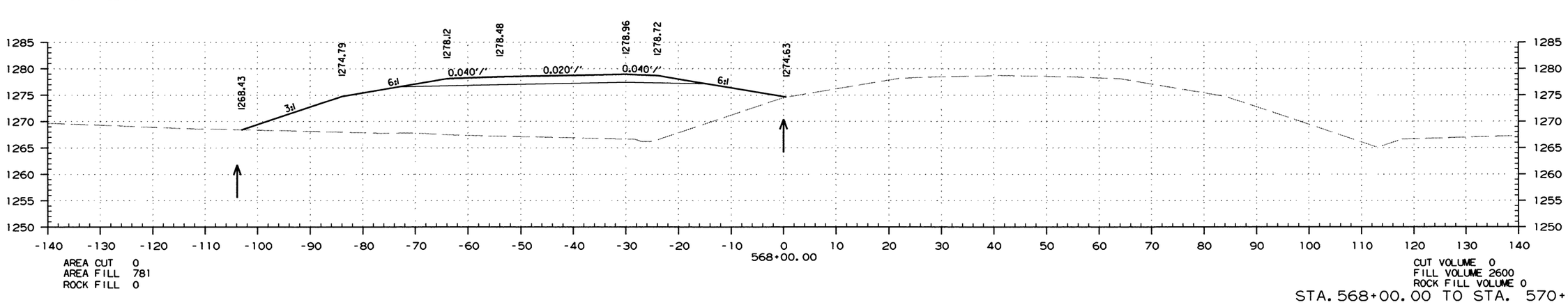
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	194	335

(2) CROSS SECTIONS







STA. 568+00.00 TO STA. 570+00.00

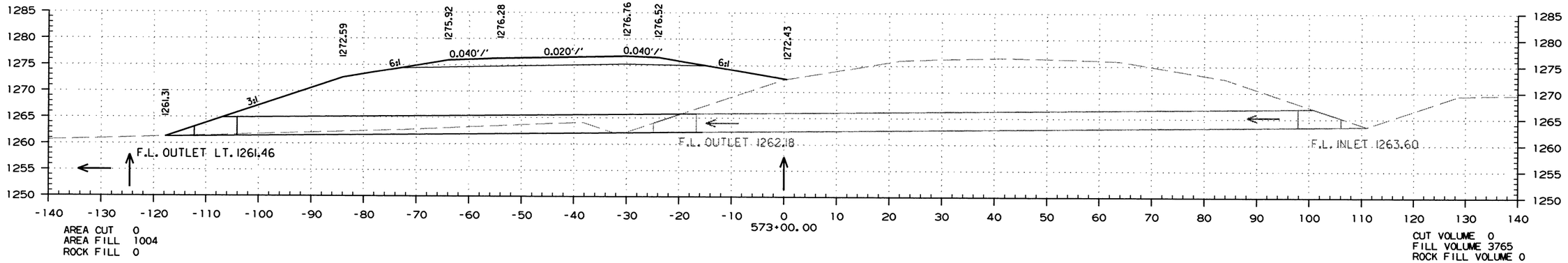
9/14/2017

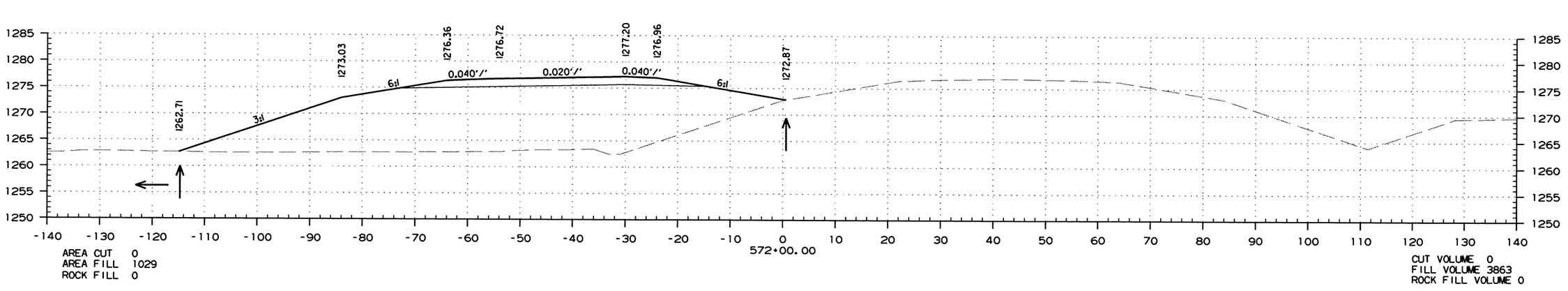
R090508.DGN

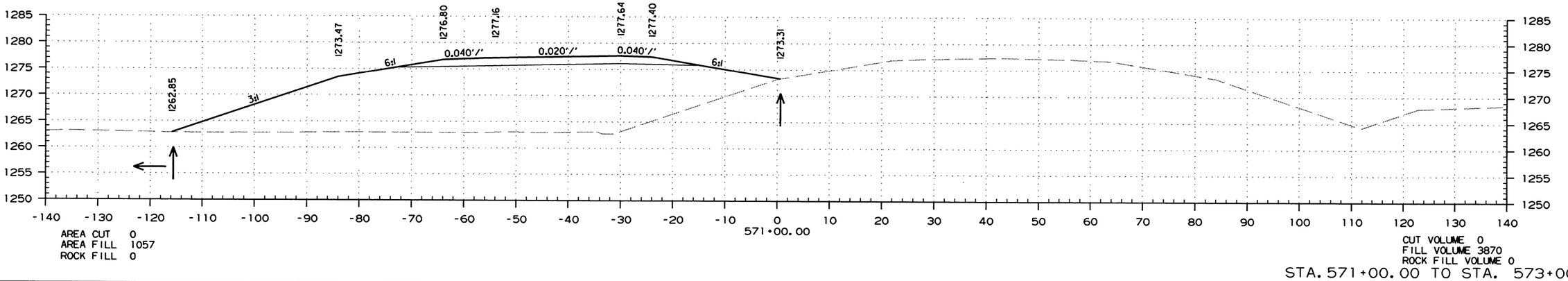
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	195	335

(2) CROSS SECTIONS

STA. 573+00 IN PLACE
42" x 114' R.C. PIPE CULV'T. (CL. III) W/
F.E.S. LT. & RT.
050= 75 C.F.S., D.A.= 17 AC.
REMOVE F.E.S. LT. AND EXTEND 88' LT.
FOR A TOTAL COMPLETED LENGTH 200'
(CLASS III PIPE)(TYPE 3 BEDDING)
42" R.C. PIPE = 92 LIN. FT.
42" FES = 1EACH







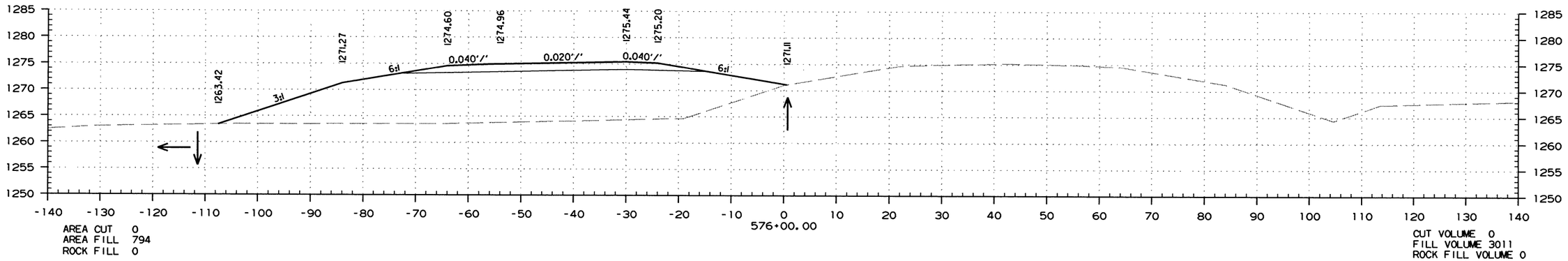
STA. 571+00.00 TO STA. 573+00.00

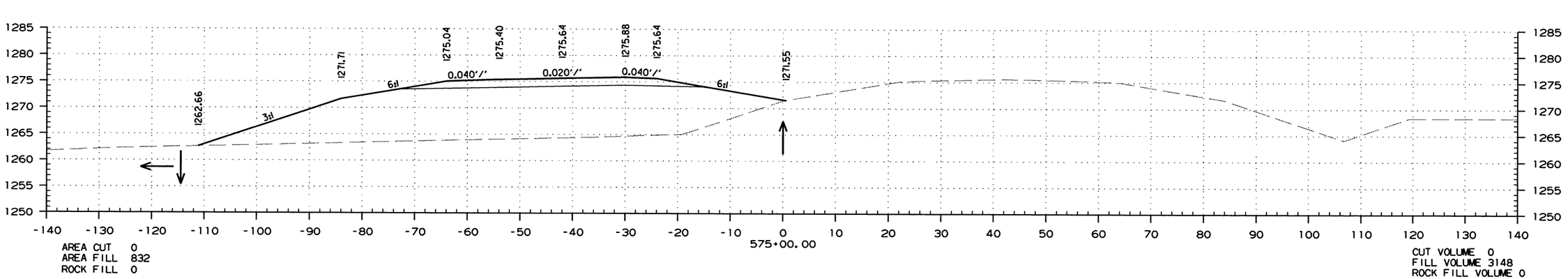
9/14/2017

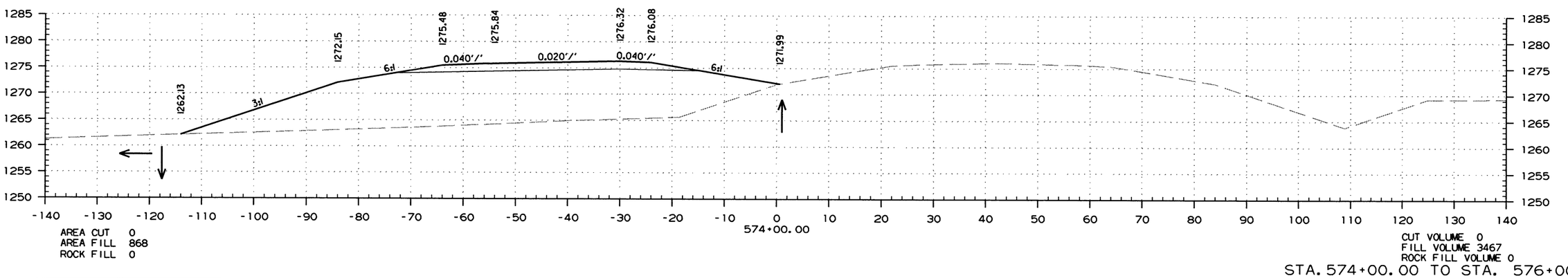
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	196	335

(2) CROSS SECTIONS







STA. 574+00.00 TO STA. 576+00.00

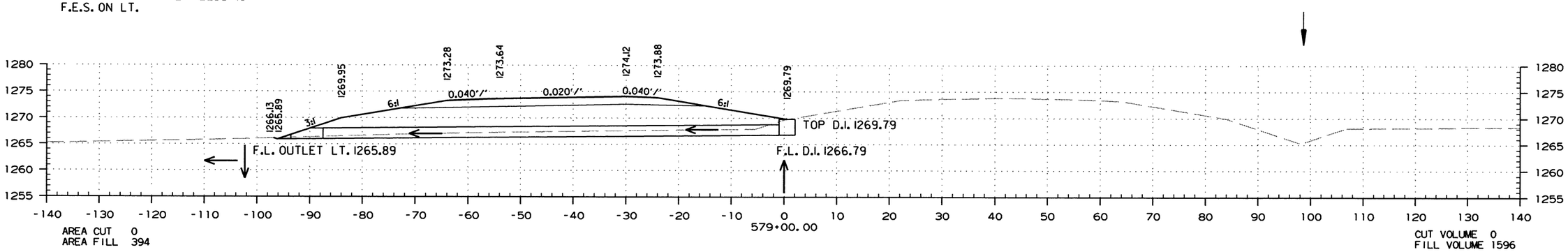
9/14/2017

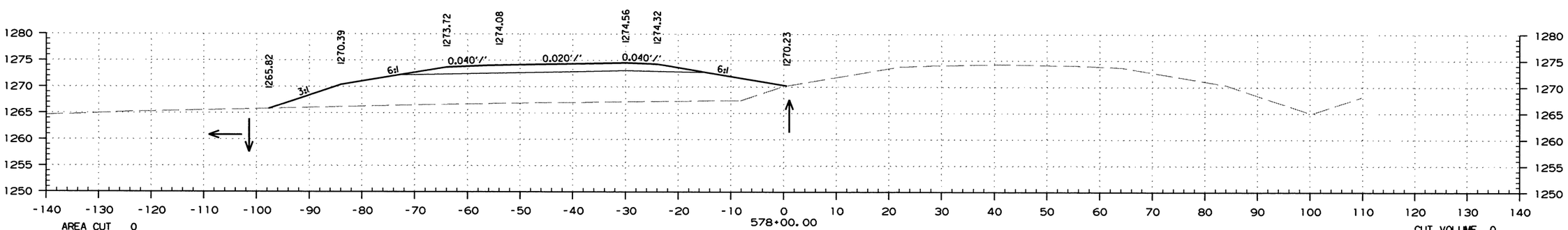
R090508.DGN

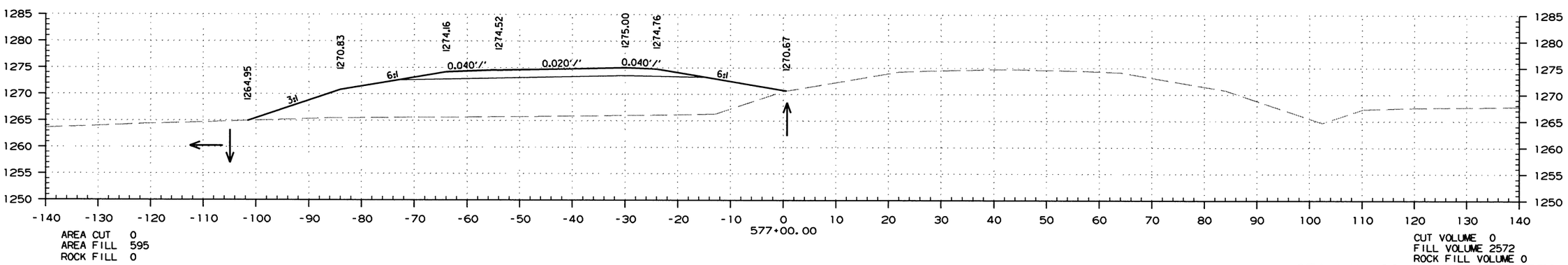
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	197	335

(2) CROSS SECTIONS

STA. 579+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 86' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE III BEDDING)
F.E.S. ON LT.







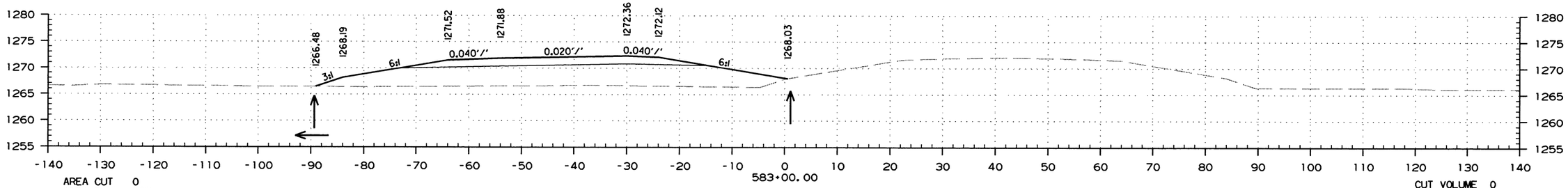
STA. 577+00.00 TO STA. 579+00.00

9/14/2017

R090508.DGN

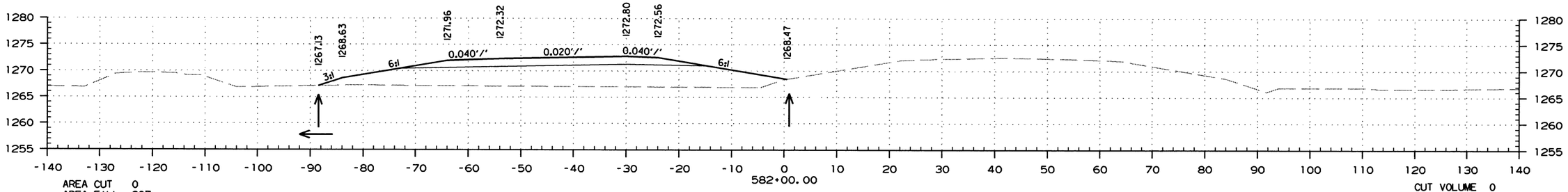
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	198	335

(2) CROSS SECTIONS



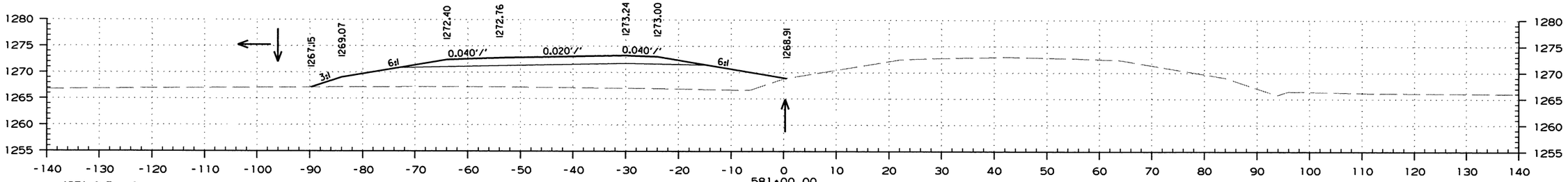
AREA CUT 0
AREA FILL 302
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1109
ROCK FILL VOLUME 0



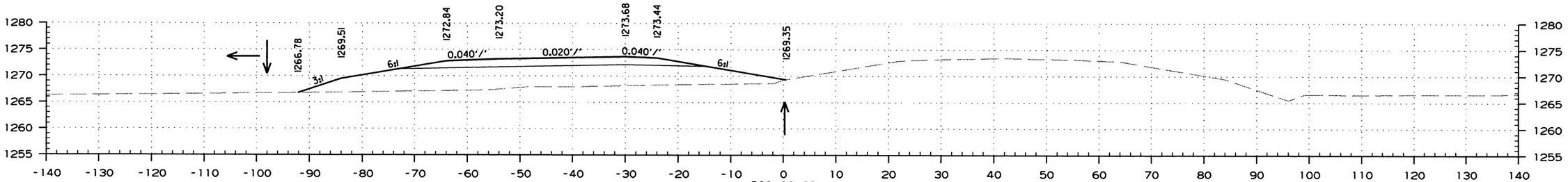
AREA CUT 0
AREA FILL 297
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1163
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 331
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1193
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 313
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1309
ROCK FILL VOLUME 0

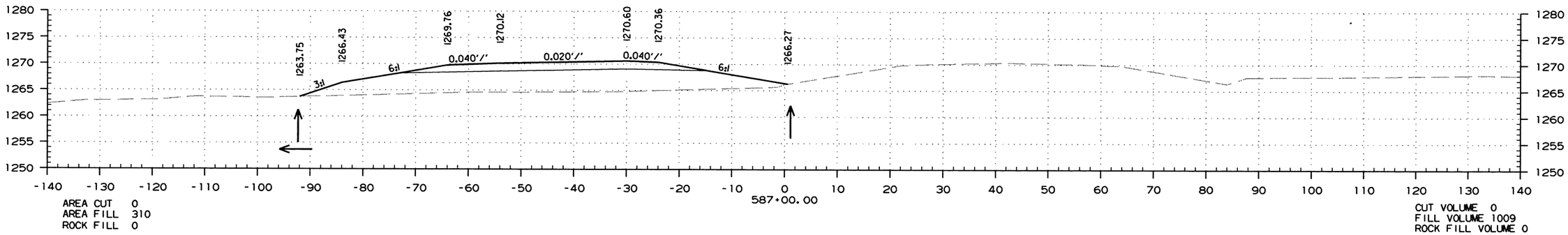
STA. 580+00.00 TO STA. 583+00.00

9/14/2017

R090508.DGN

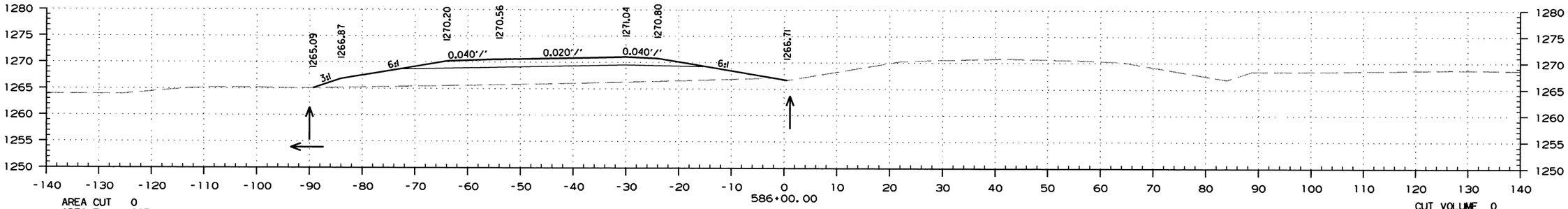
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	199	335

(2) CROSS SECTIONS



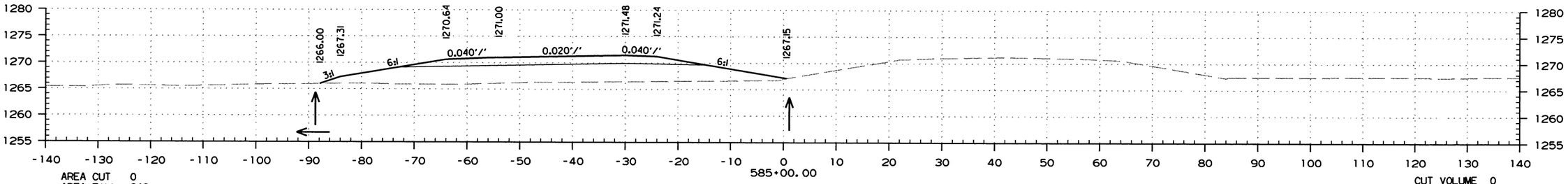
AREA CUT 0
AREA FILL 310
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1009
ROCK FILL VOLUME 0



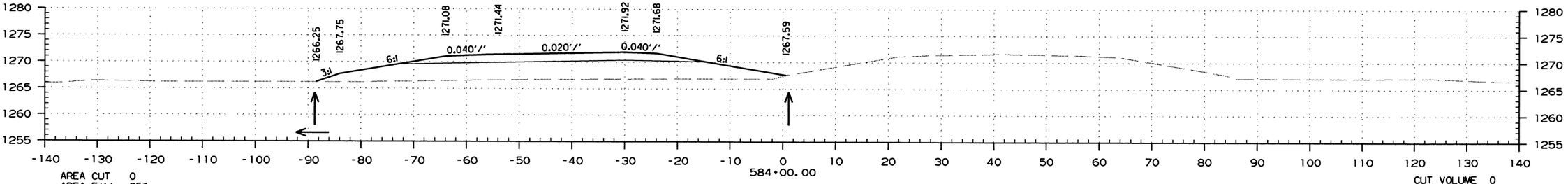
AREA CUT 0
AREA FILL 235
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 894
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 248
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 933
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 256
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1033
ROCK FILL VOLUME 0

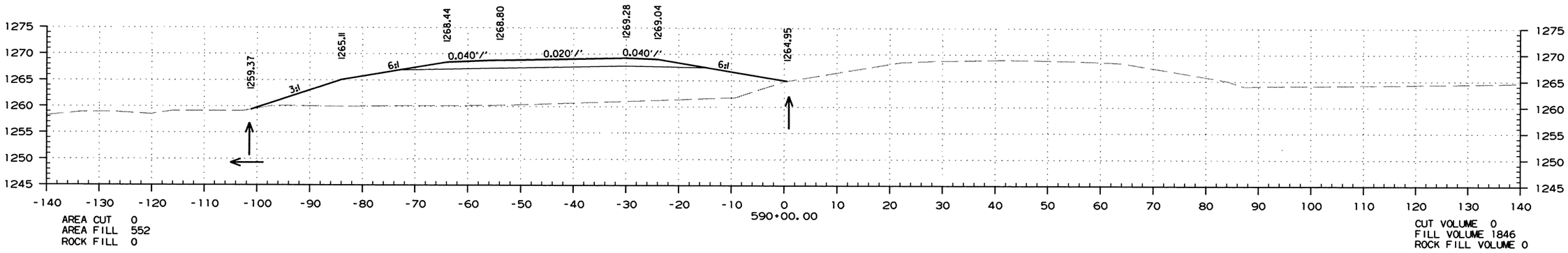
STA. 584+00.00 TO STA. 587+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	200	335

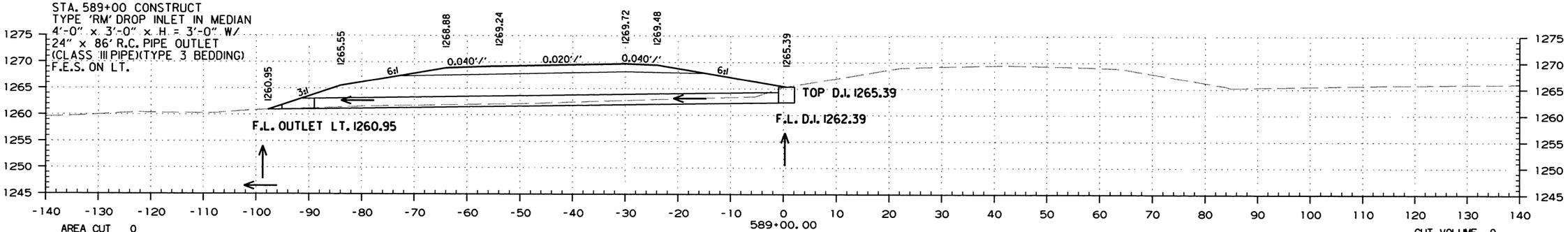
(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 552
ROCK FILL 0

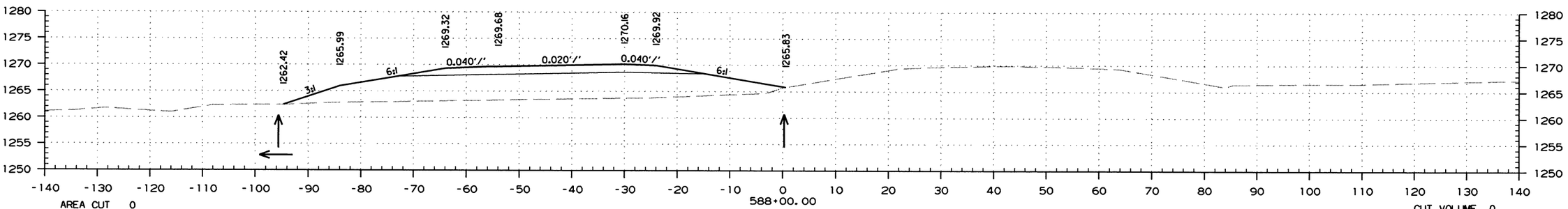
CUT VOLUME 0
FILL VOLUME 1846
ROCK FILL VOLUME 0

STA. 589+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 86' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING)
F.E.S. ON LT.



AREA CUT 0
AREA FILL 445
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1522
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 377
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1272
ROCK FILL VOLUME 0

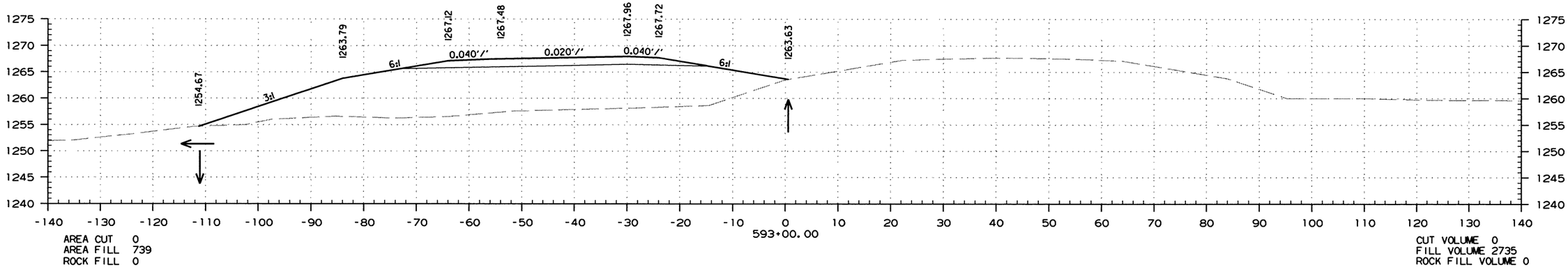
STA. 588+00.00 TO STA. 590+00.00

9/14/2017

R090508.DGN

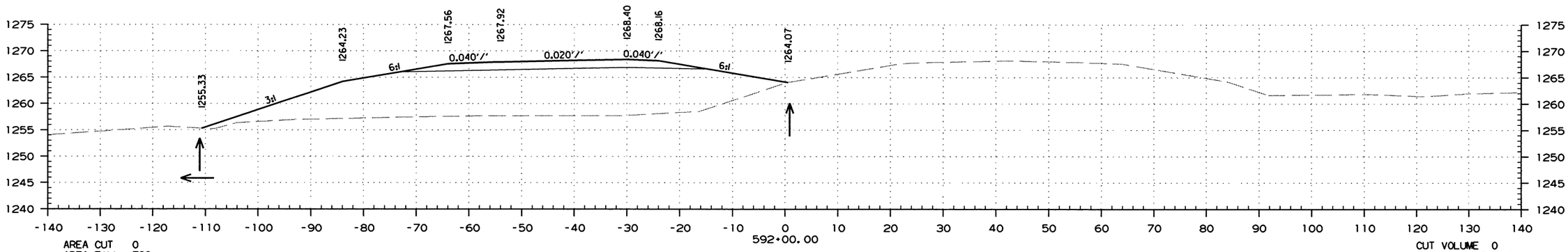
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	201	335

(2) CROSS SECTIONS



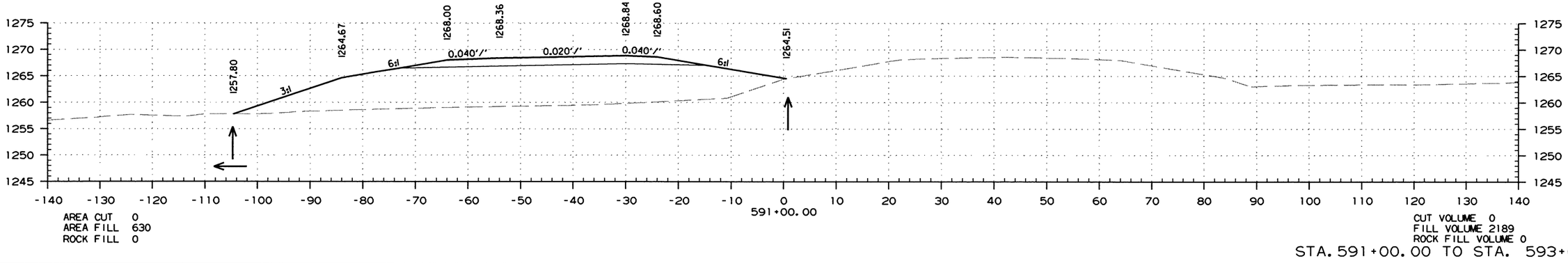
AREA CUT 0
AREA FILL 739
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2735
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 738
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2533
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 630
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2189
ROCK FILL VOLUME 0

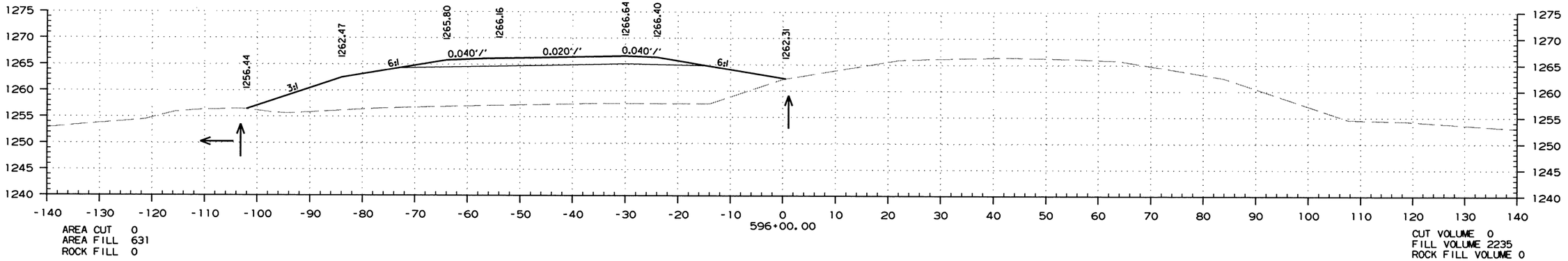
STA. 591+00.00 TO STA. 593+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	202	335

(2) CROSS SECTIONS

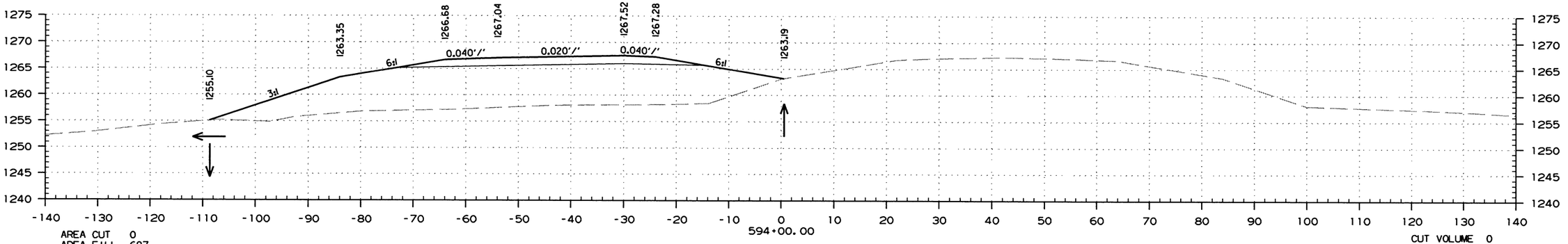


AREA CUT 0
AREA FILL 631
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2235
ROCK FILL VOLUME 0

AREA CUT 0
AREA FILL 576
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2339
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 687
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 2641
ROCK FILL VOLUME 0

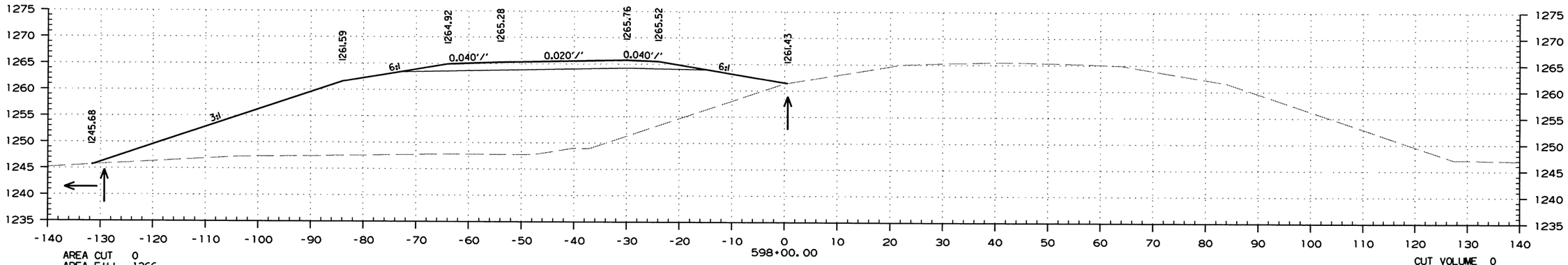
STA. 594+00.00 TO STA. 596+00.00

9/14/2017

R090508.DGN

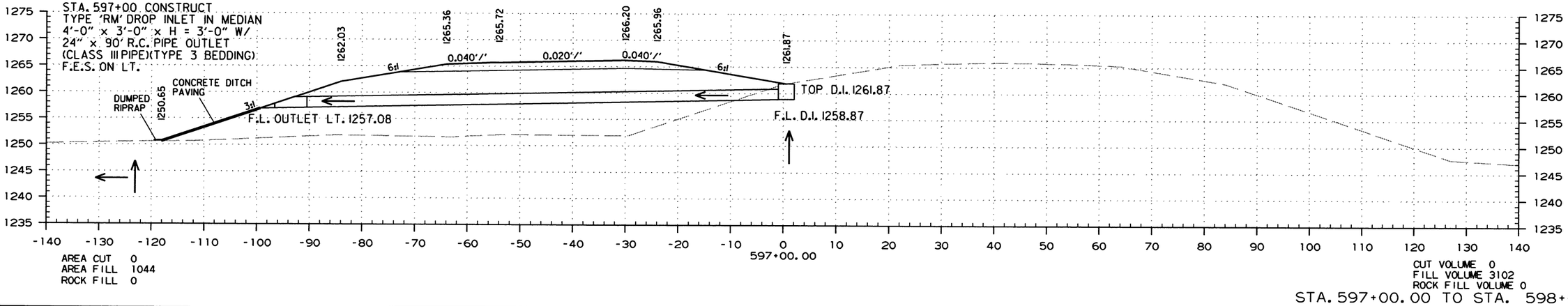
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	203	335

(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 1366
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 4463
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 1044
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 3102
ROCK FILL VOLUME 0

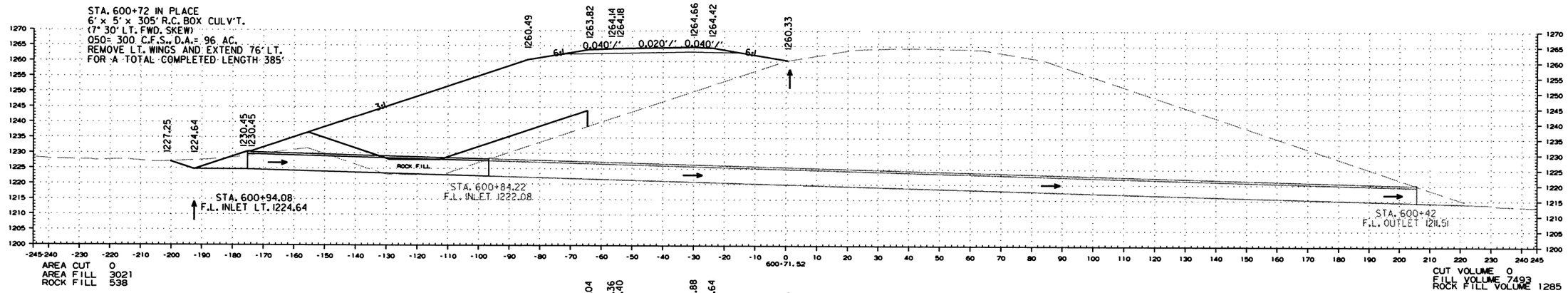
STA. 597+00.00 TO STA. 598+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	204	335

(2) CROSS SECTIONS



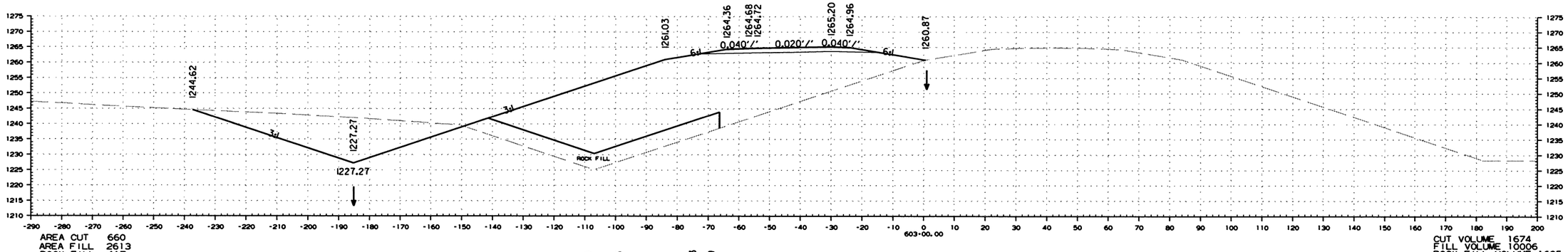
STA. 599+00.00 TO STA. 600+71.52

9/14/2017

R090508.DGN

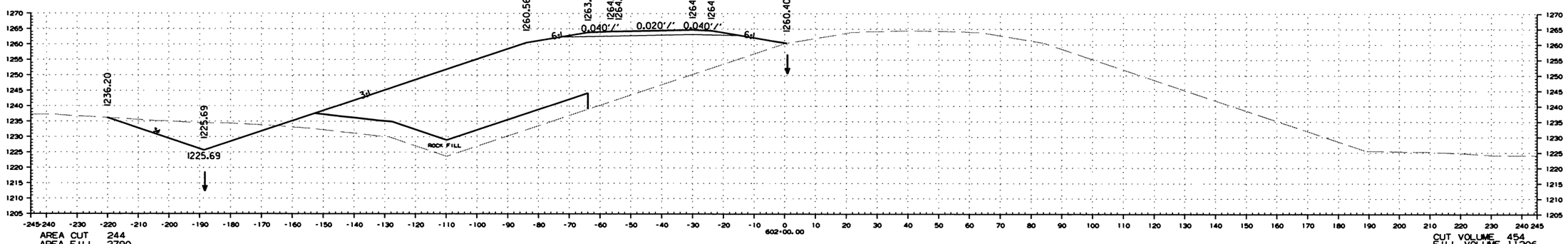
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	205	335

(2) CROSS SECTIONS



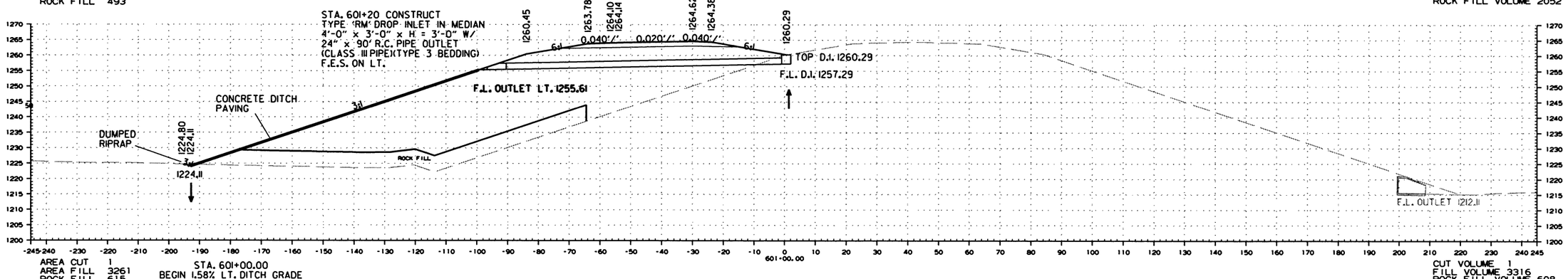
AREA CUT 660
AREA FILL 2613
ROCK FILL 417

CUT VOLUME 1674
FILL VOLUME 10006
ROCK FILL VOLUME 1685



AREA CUT 244
AREA FILL 2790
ROCK FILL 493

CUT VOLUME 454
FILL VOLUME 11206
ROCK FILL VOLUME 2052



AREA CUT 1
AREA FILL 3261
ROCK FILL 615

STA. 601+00.00
BEGIN 1.58% LT. DITCH GRADE
ELEV. 1224.11

CUT VOLUME 1
FILL VOLUME 3316
ROCK FILL VOLUME 608

STA. 601+00.00 TO STA. 603+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	206	335

(2) CROSS SECTIONS

AREA CUT 266
AREA FILL 2782
ROCK FILL 478

CUT VOLUME 1904
FILL VOLUME 10115
ROCK FILL VOLUME 1726

AREA CUT 762
AREA FILL 2680
ROCK FILL 454

CUT VOLUME 3652
FILL VOLUME 9711
ROCK FILL VOLUME 1619

AREA CUT 1210
AREA FILL 2564
ROCK FILL 420

CUT VOLUME 3463
FILL VOLUME 9587
ROCK FILL VOLUME 1550

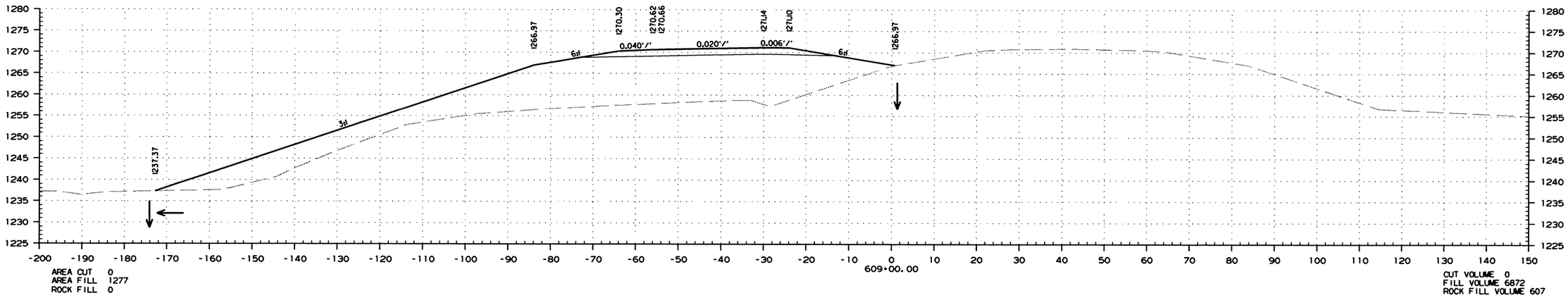
STA. 604+00.00 TO STA. 606+00.00

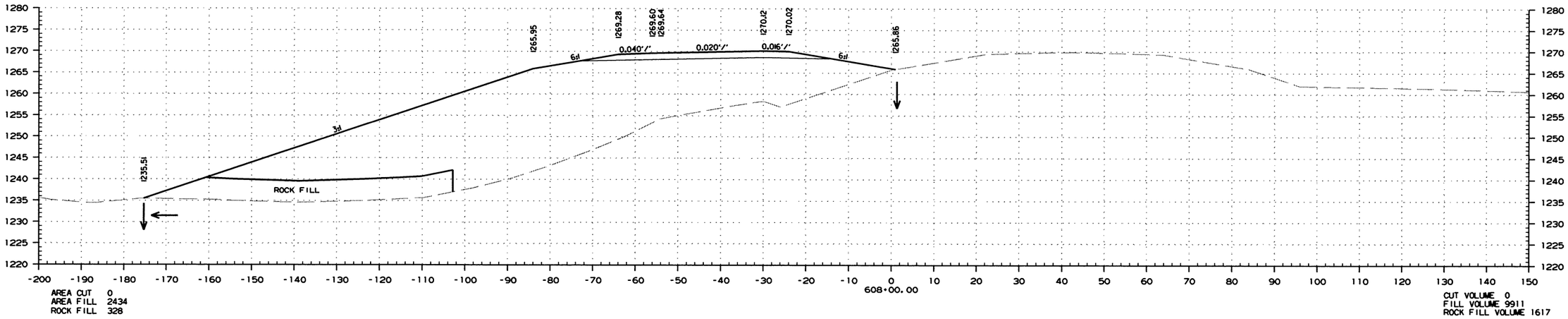
9/14/2017

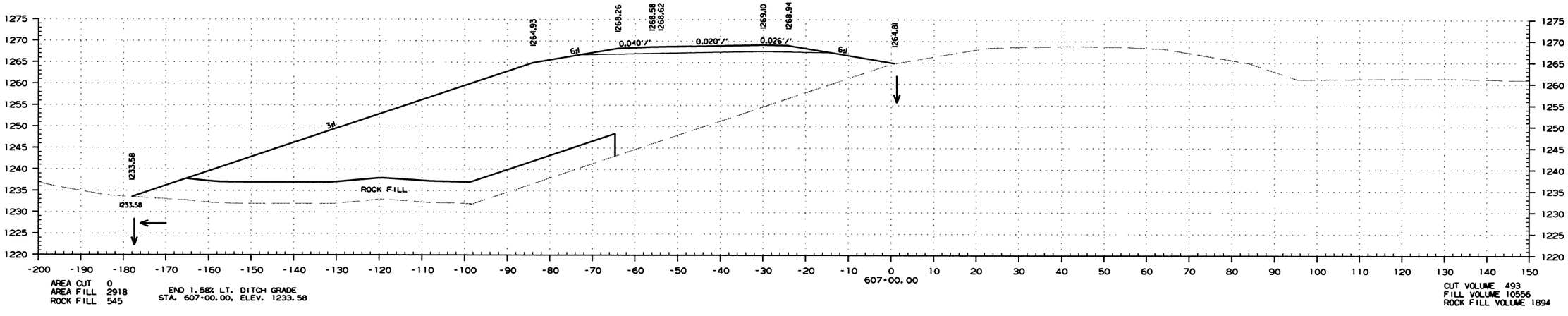
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	207	335

(2) CROSS SECTIONS







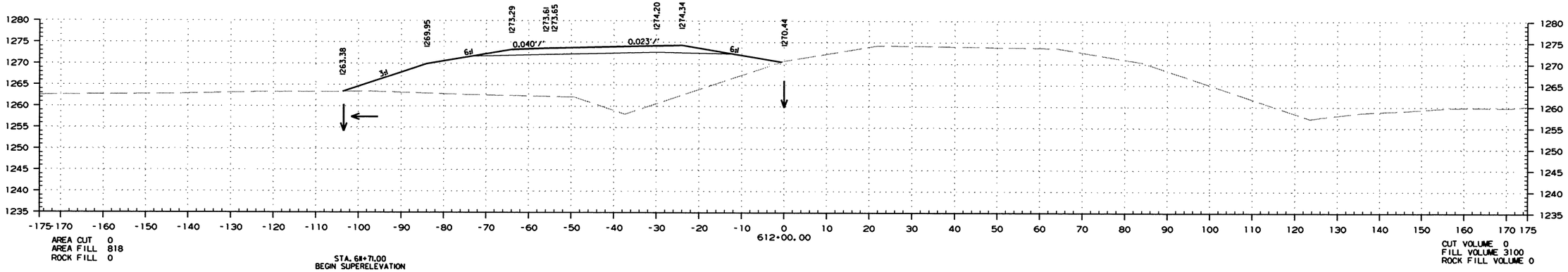
STA. 607+00.00 TO STA. 609+00.00

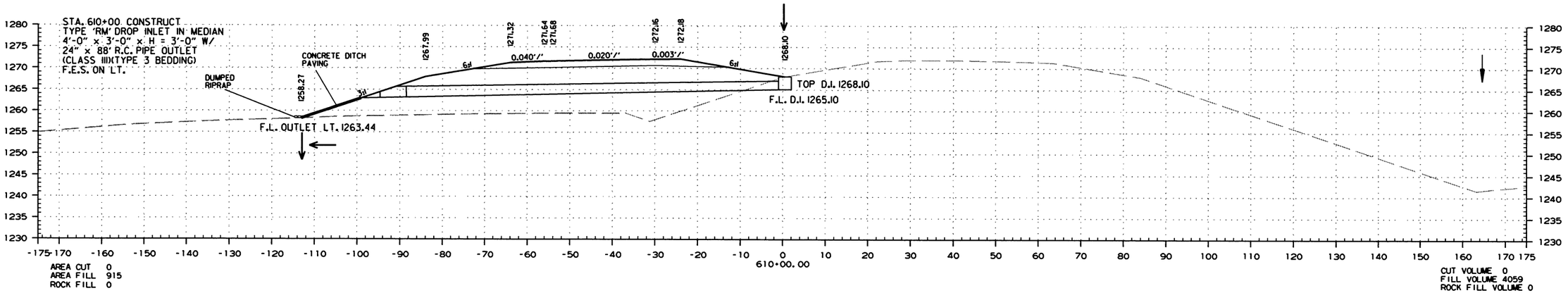
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	208	335

(2) CROSS SECTIONS





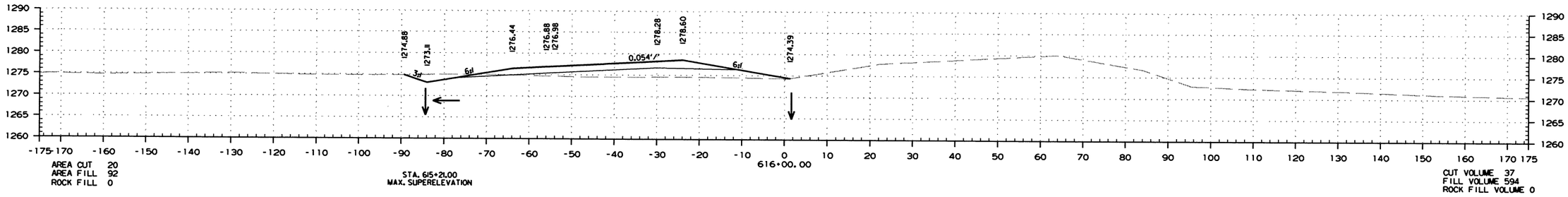
STA. 610+00.00 TO STA. 612+00.00

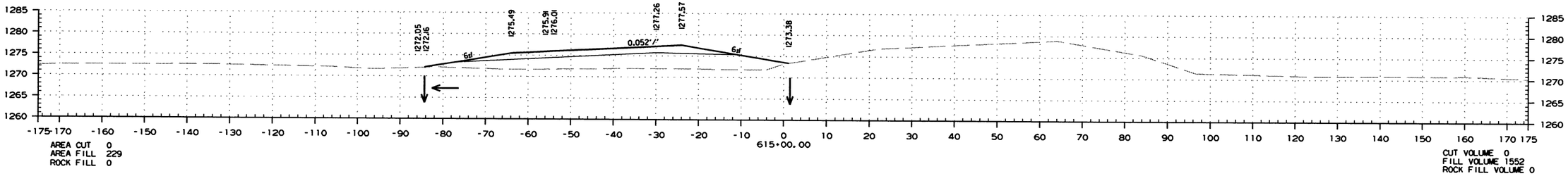
9/14/2017

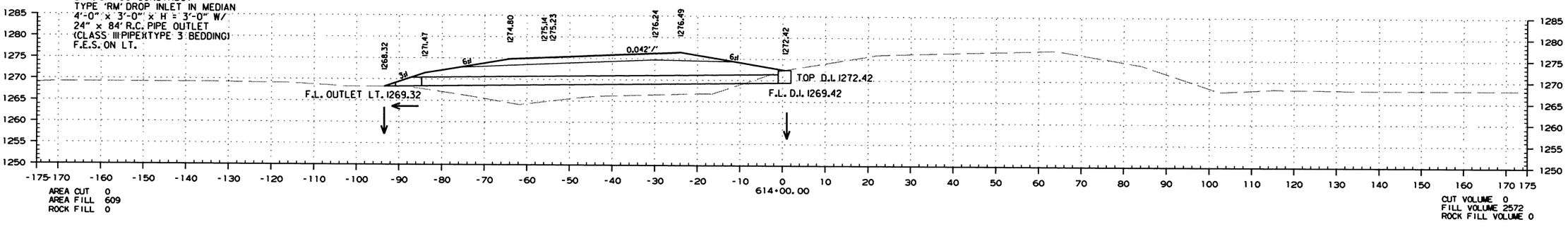
R090508.DGN

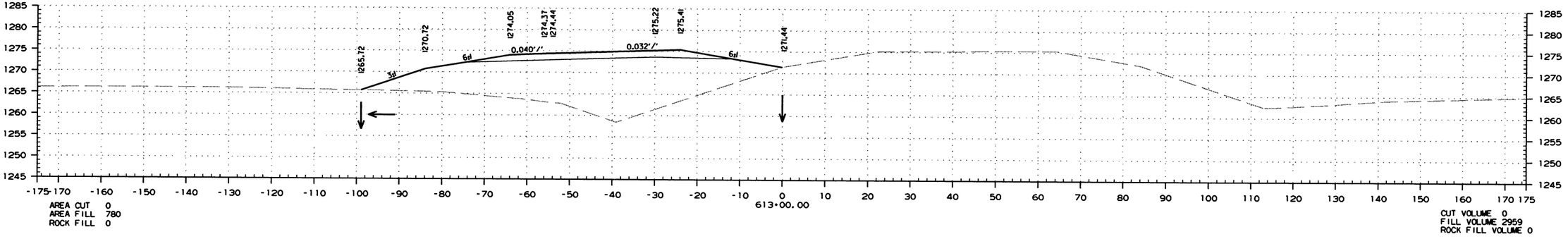
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	209	335

(2) CROSS SECTIONS









STA. 613+00.00 TO STA. 616+00.00

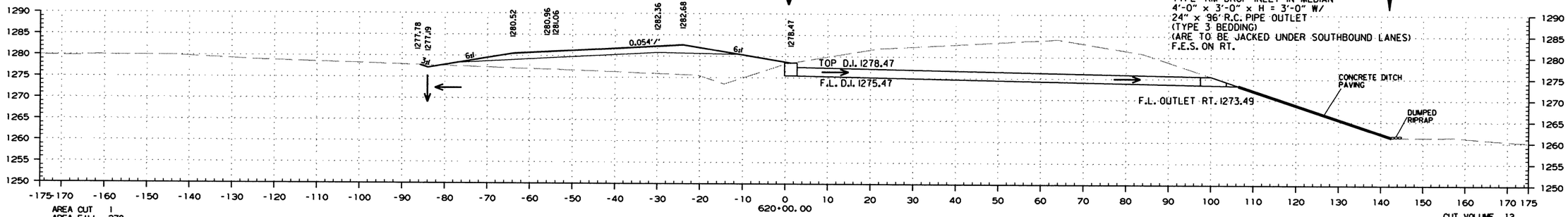
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	210	335

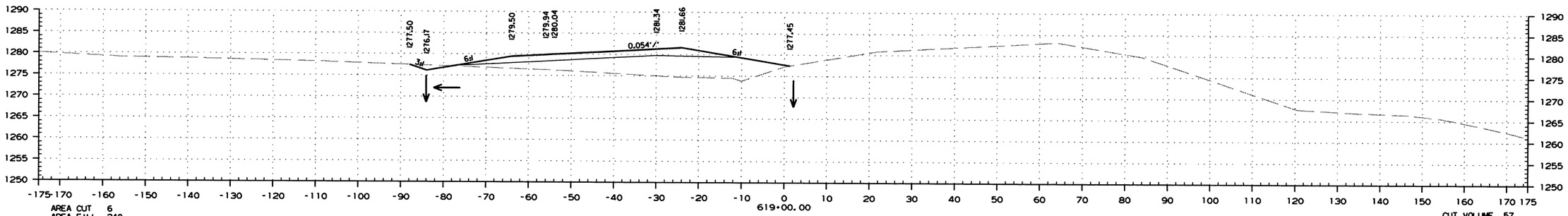
(2) CROSS SECTIONS

STA. 620+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 96' R.C. PIPE OUTLET
(TYPE 3 BEDDING)
(ARE TO BE JACKED UNDER SOUTHBOUND LANES)
F.E.S. ON RT.



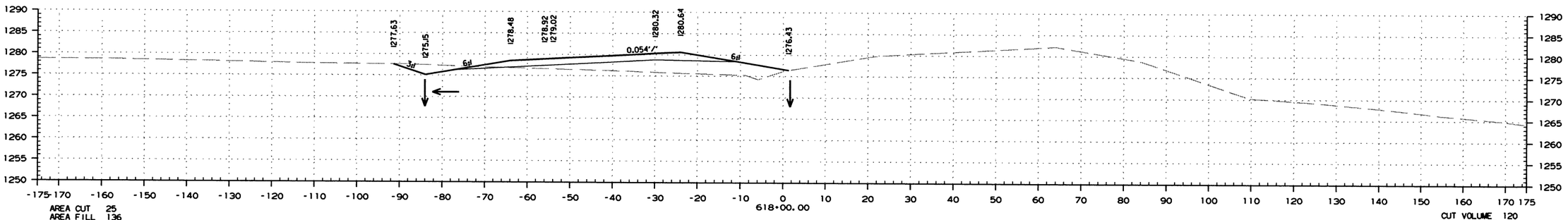
AREA CUT 1
AREA FILL 278
ROCK FILL 0

CUT VOLUME 13
FILL VOLUME 959
ROCK FILL VOLUME 0



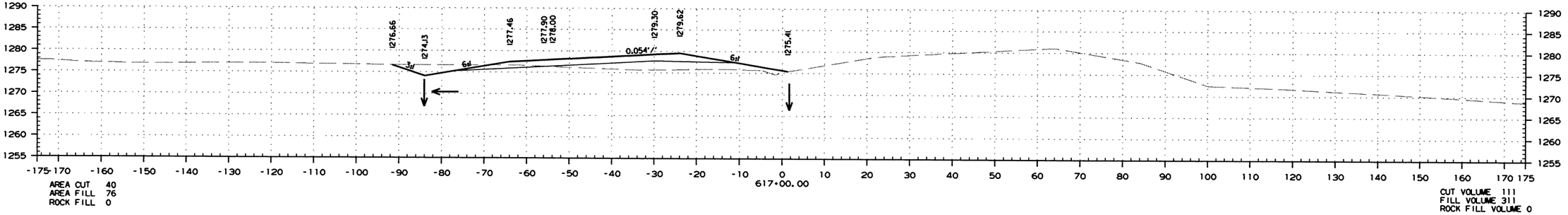
AREA CUT 6
AREA FILL 240
ROCK FILL 0

CUT VOLUME 57
FILL VOLUME 696
ROCK FILL VOLUME 0



AREA CUT 25
AREA FILL 136
ROCK FILL 0

CUT VOLUME 120
FILL VOLUME 393
ROCK FILL VOLUME 0



AREA CUT 40
AREA FILL 76
ROCK FILL 0

CUT VOLUME 111
FILL VOLUME 311
ROCK FILL VOLUME 0

STA. 617+00.00 TO STA. 620+00.00

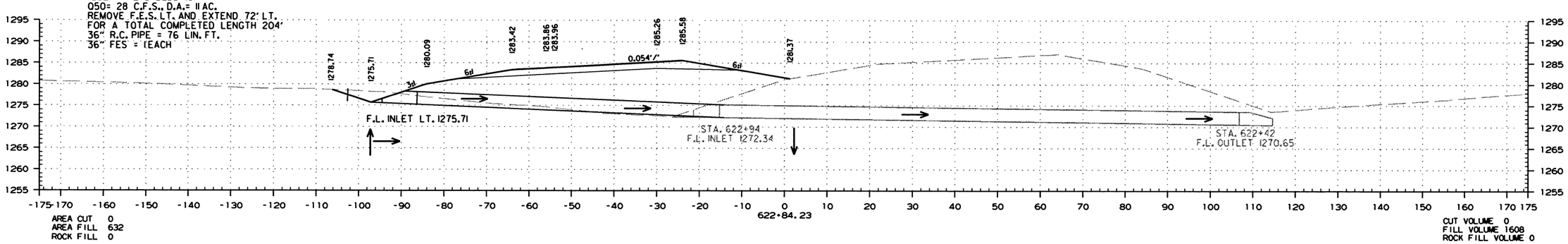
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	211	335

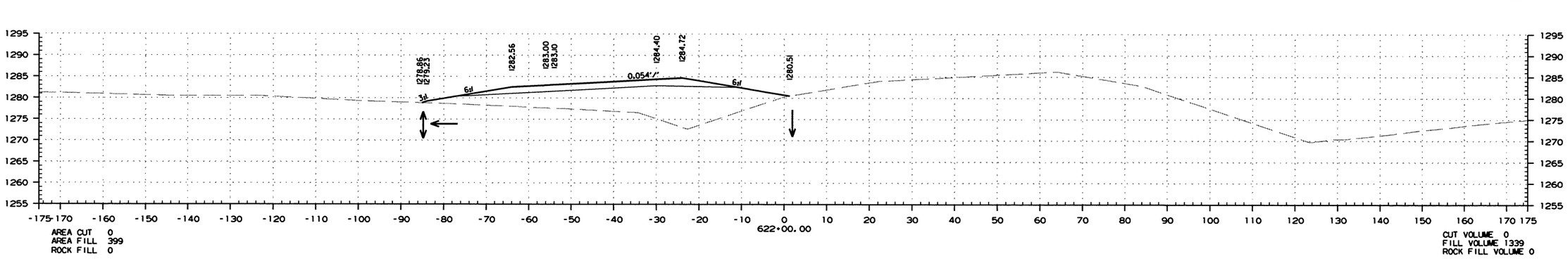
(2) CROSS SECTIONS

STA. 622+84 IN PLACE
36" X 132' R.C. PIPE CULV'T. (CL. III)
(19° 42' LT. FWD. SKEW) W/
F.E.S. LT. & RT.
(USE TYPE 3 BEDDING)
Q50= 28 C.F.S., D.A.= 11 AC.
REMOVE F.E.S. LT. AND EXTEND 72' LT.
FOR A TOTAL COMPLETED LENGTH 204'
36" R.C. PIPE = 76 LIN. FT.
36" FES = 1 EACH



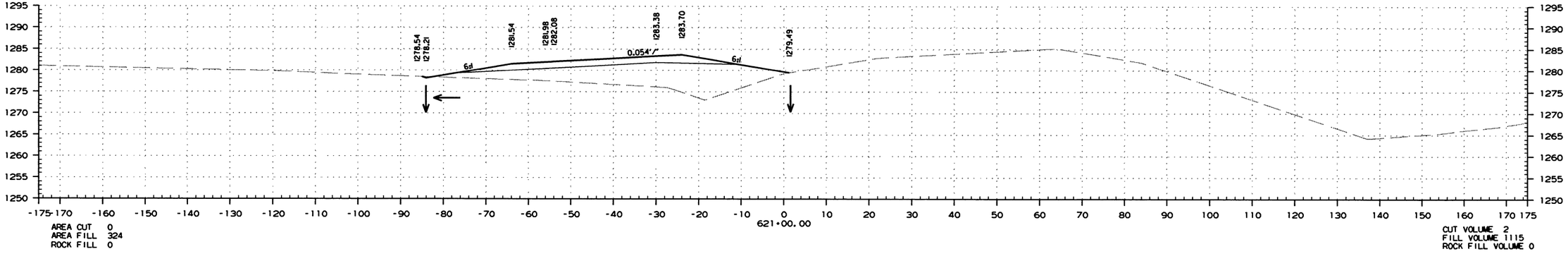
AREA CUT 0
AREA FILL 632
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1608
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 399
ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 1339
ROCK FILL VOLUME 0



AREA CUT 0
AREA FILL 324
ROCK FILL 0

CUT VOLUME 2
FILL VOLUME 1115
ROCK FILL VOLUME 0

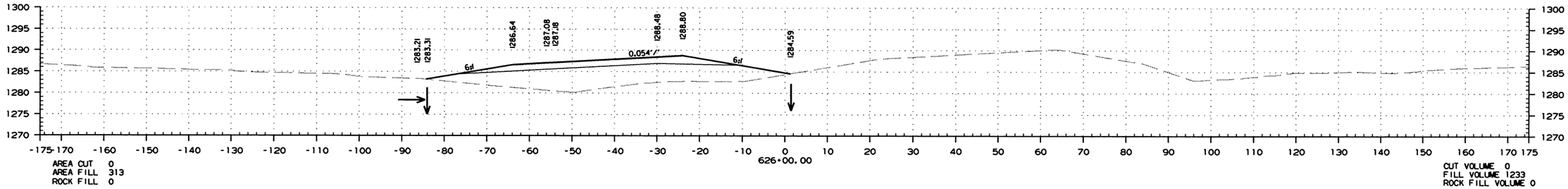
STA. 621+00.00 TO STA. 622+84.23

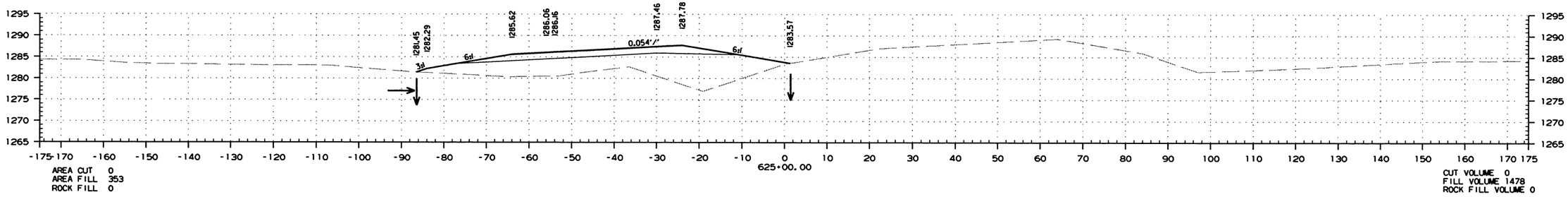
9/14/2017

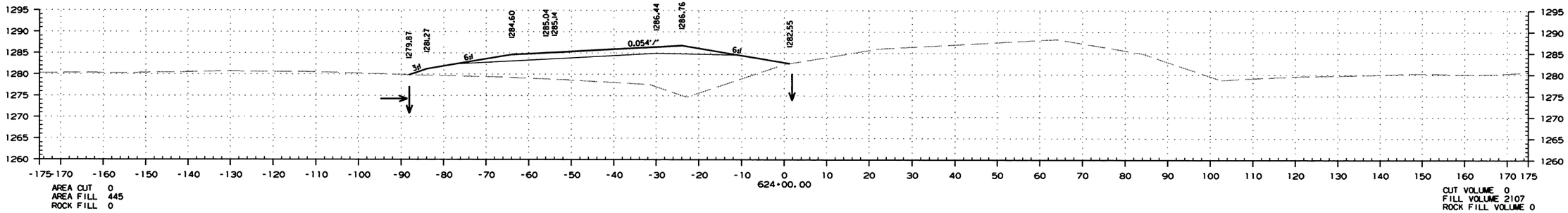
R090508.DGN

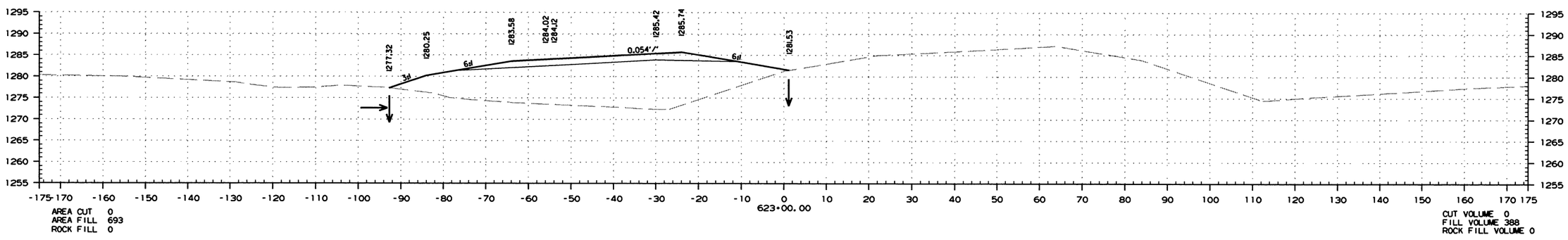
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	212	335

(2) CROSS SECTIONS









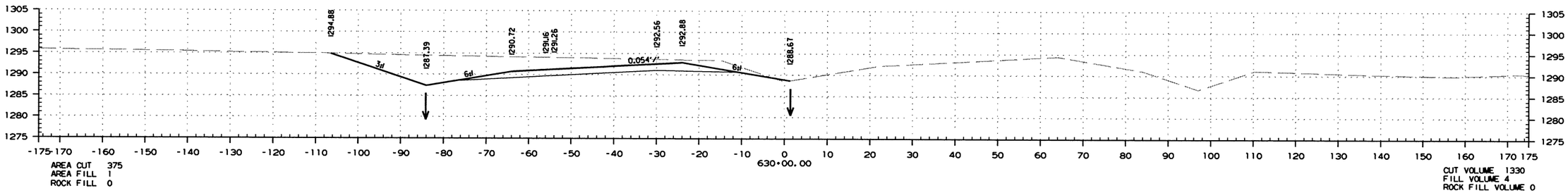
STA. 623+00.00 TO STA. 626+00.00

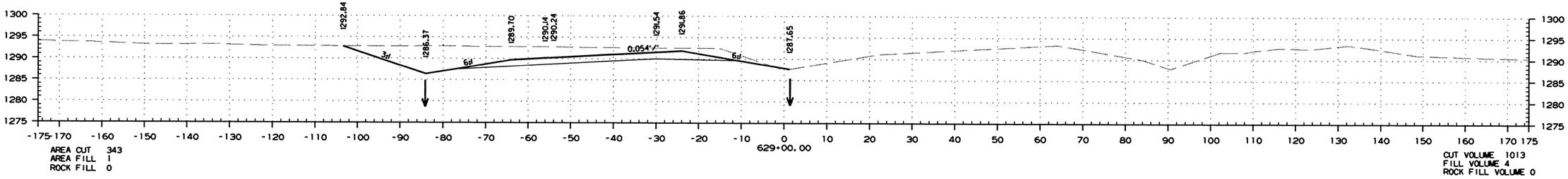
9/14/2017

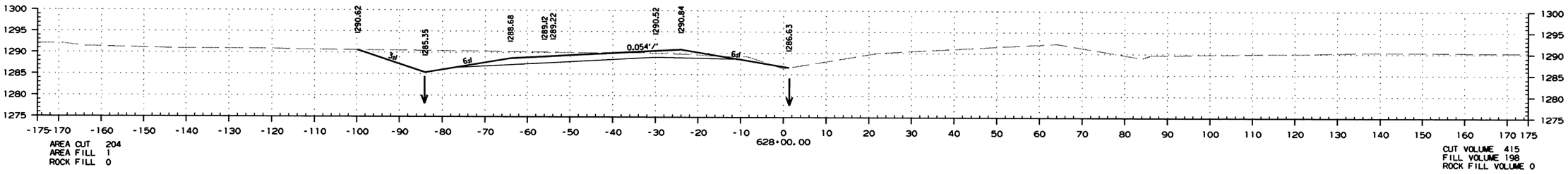
R090508.DGN

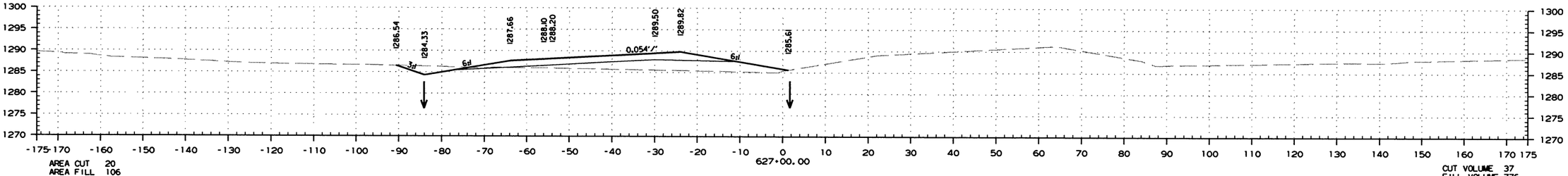
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	213	335

(2) CROSS SECTIONS









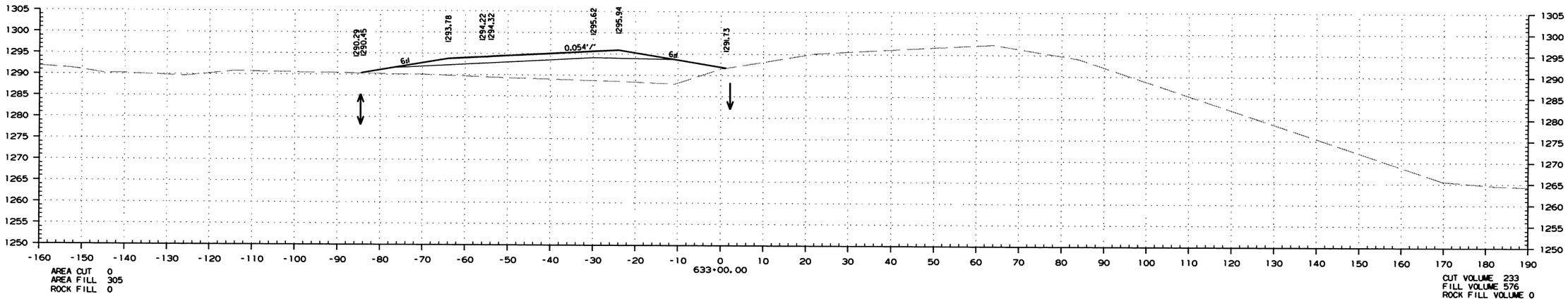
STA. 627+00.00 TO STA. 630+00.00

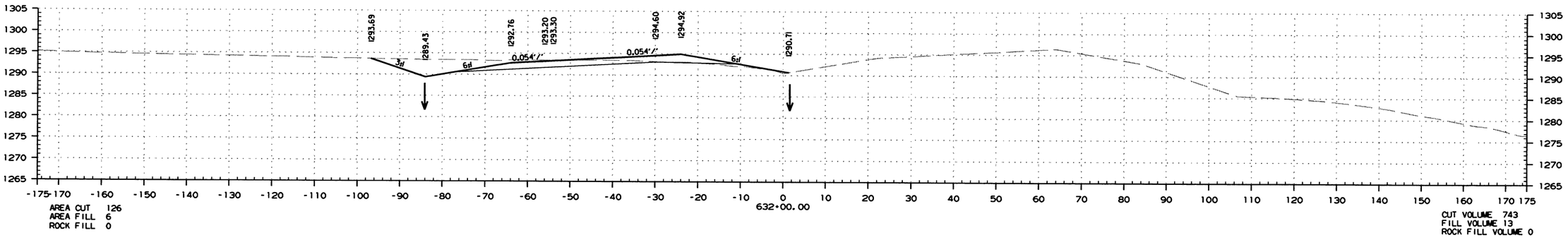
9/14/2017

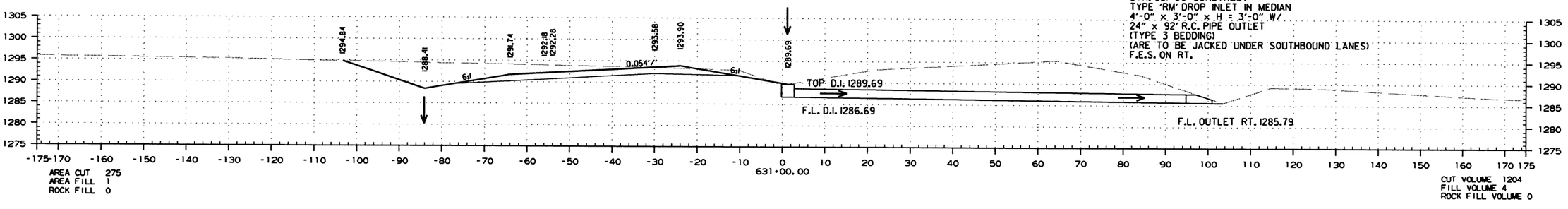
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	214	335

(2) CROSS SECTIONS







STA. 631+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 92' R.C. PIPE OUTLET
(TYPE 3 BEDDING)
(ARE TO BE JACKED UNDER SOUTHBOUND LANES)
F.E.S. ON RT.

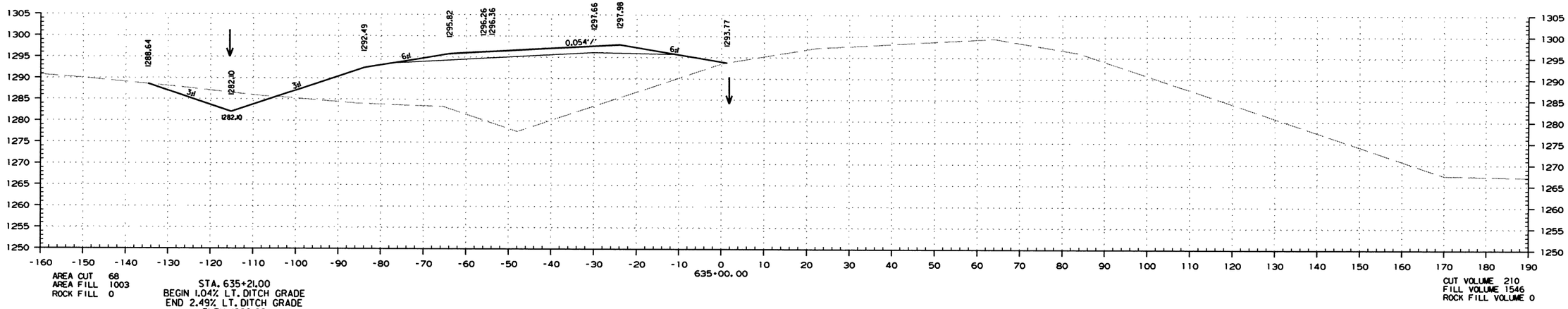
STA. 631+00.00 TO STA. 633+00.00

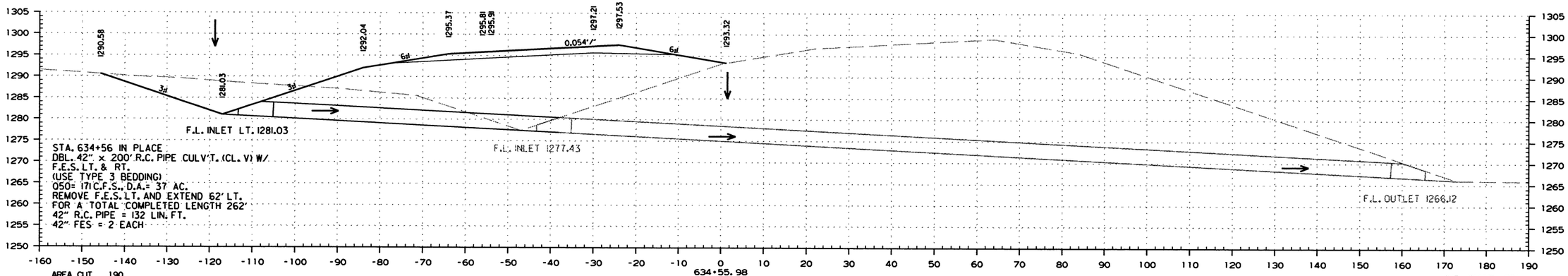
9/14/2017

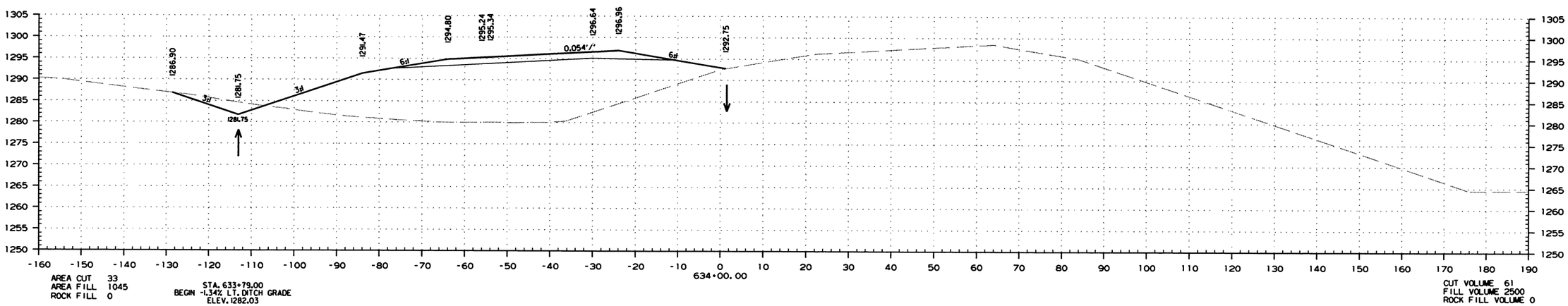
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	215	335

(2) CROSS SECTIONS







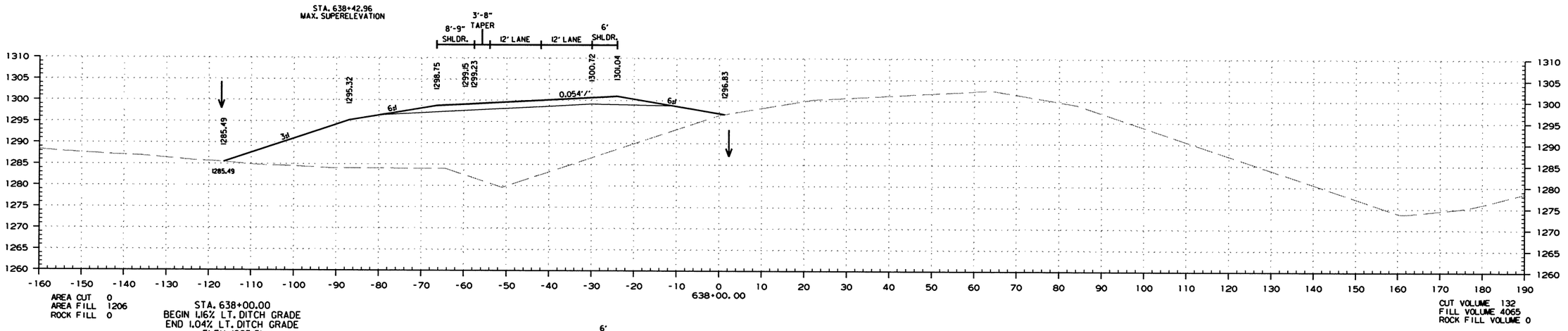
STA. 634+00.00 TO STA. 635+00.00

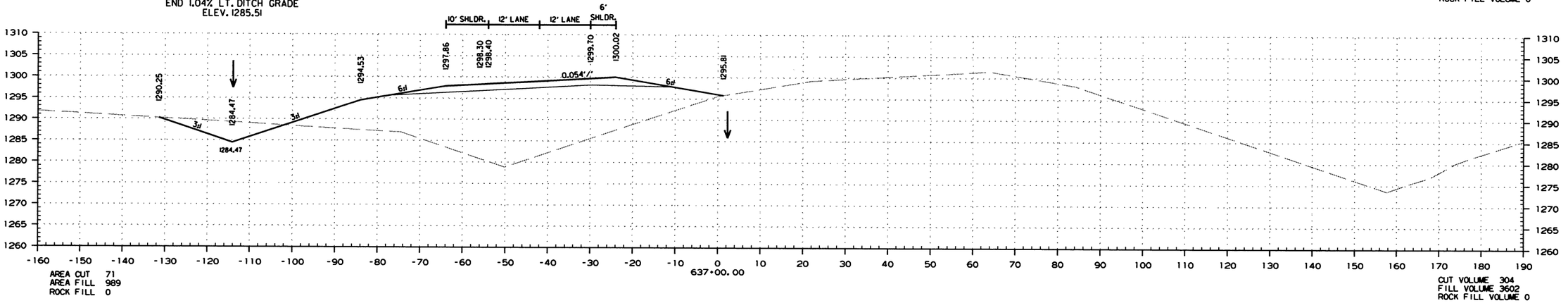
9/14/2017

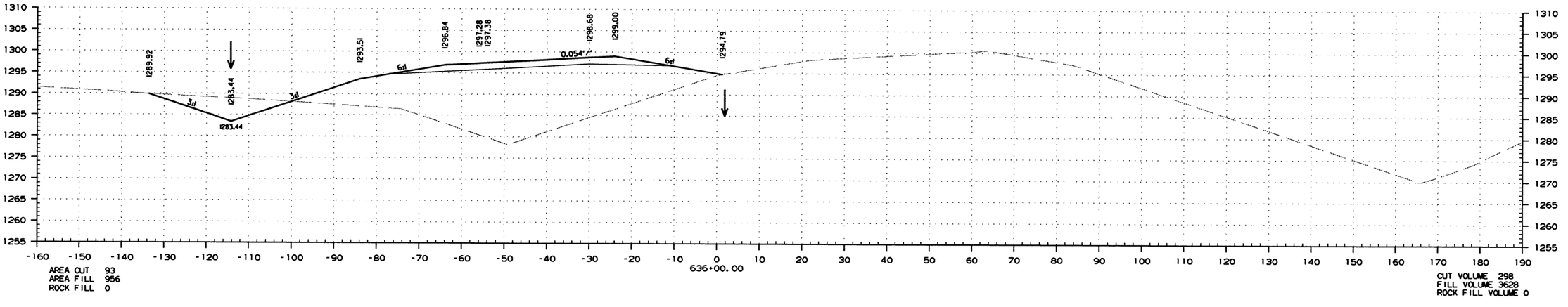
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	216	335

(2) CROSS SECTIONS







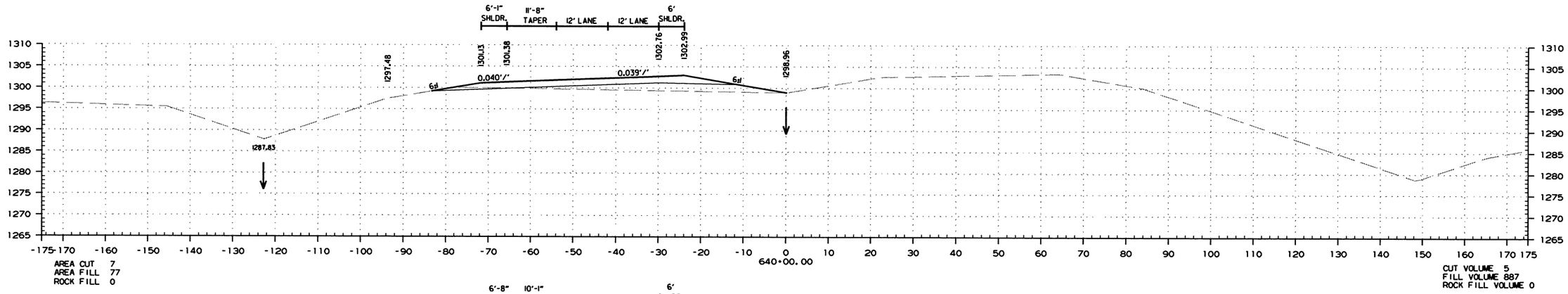
STA. 636+00.00 TO STA. 638+00.00

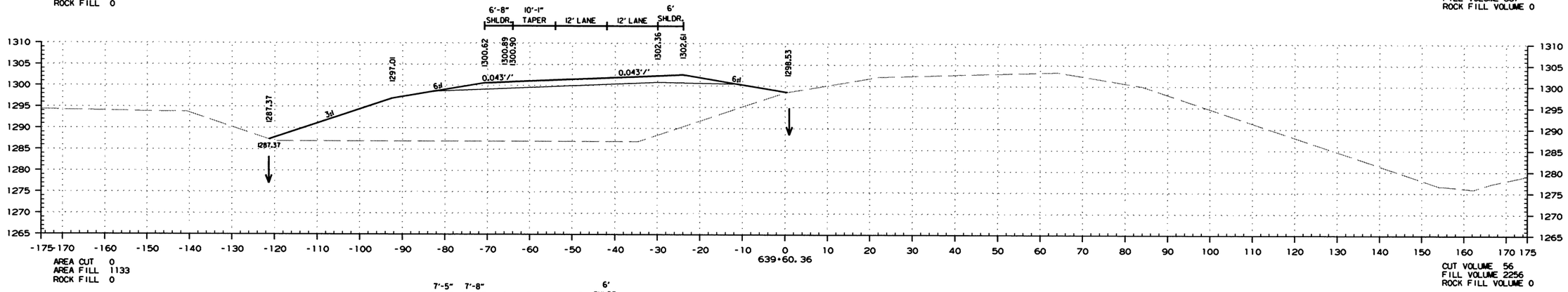
9/14/2017

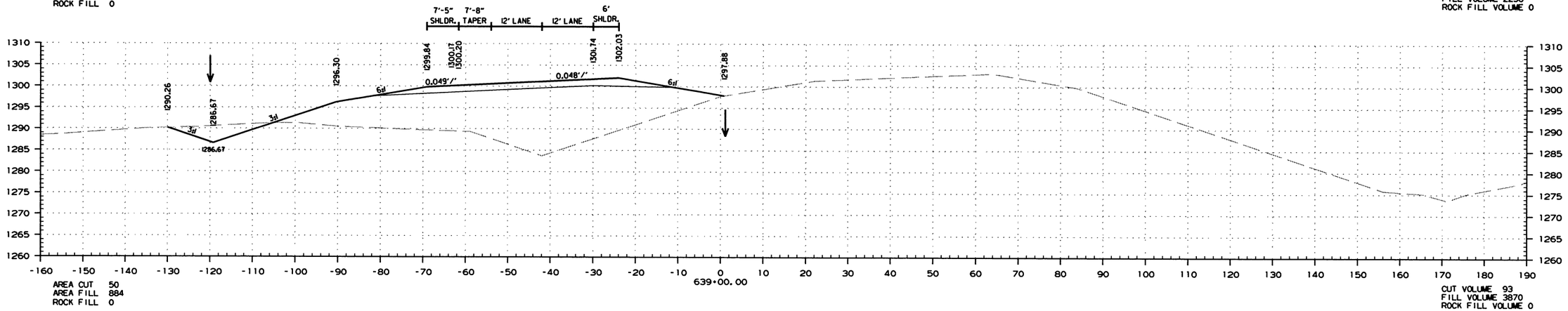
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	217	335

(2) CROSS SECTIONS







STA. 639+00.00 TO STA. 640+00.00

9/14/2017

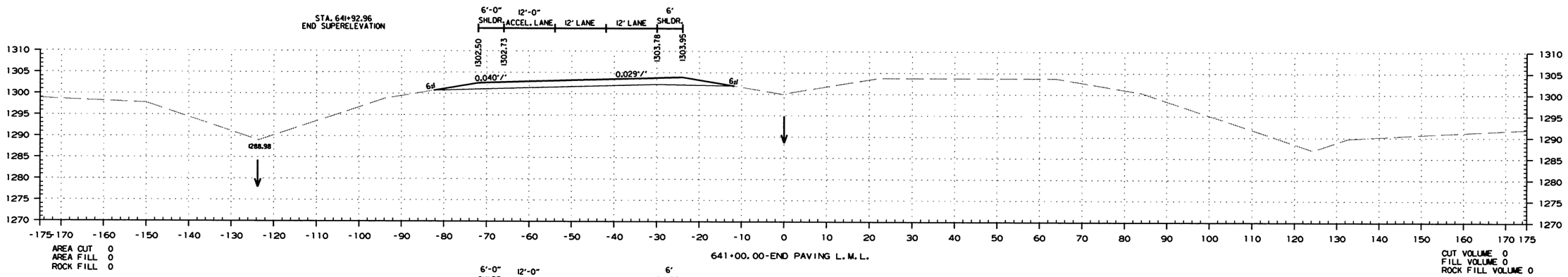
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	218	335

(2) CROSS SECTIONS

STA. 647+08.12
END 1.16% LT. DITCH GRADE
ELEV. 1296.02

STA. 641+92.96
END SUPERELEVATION



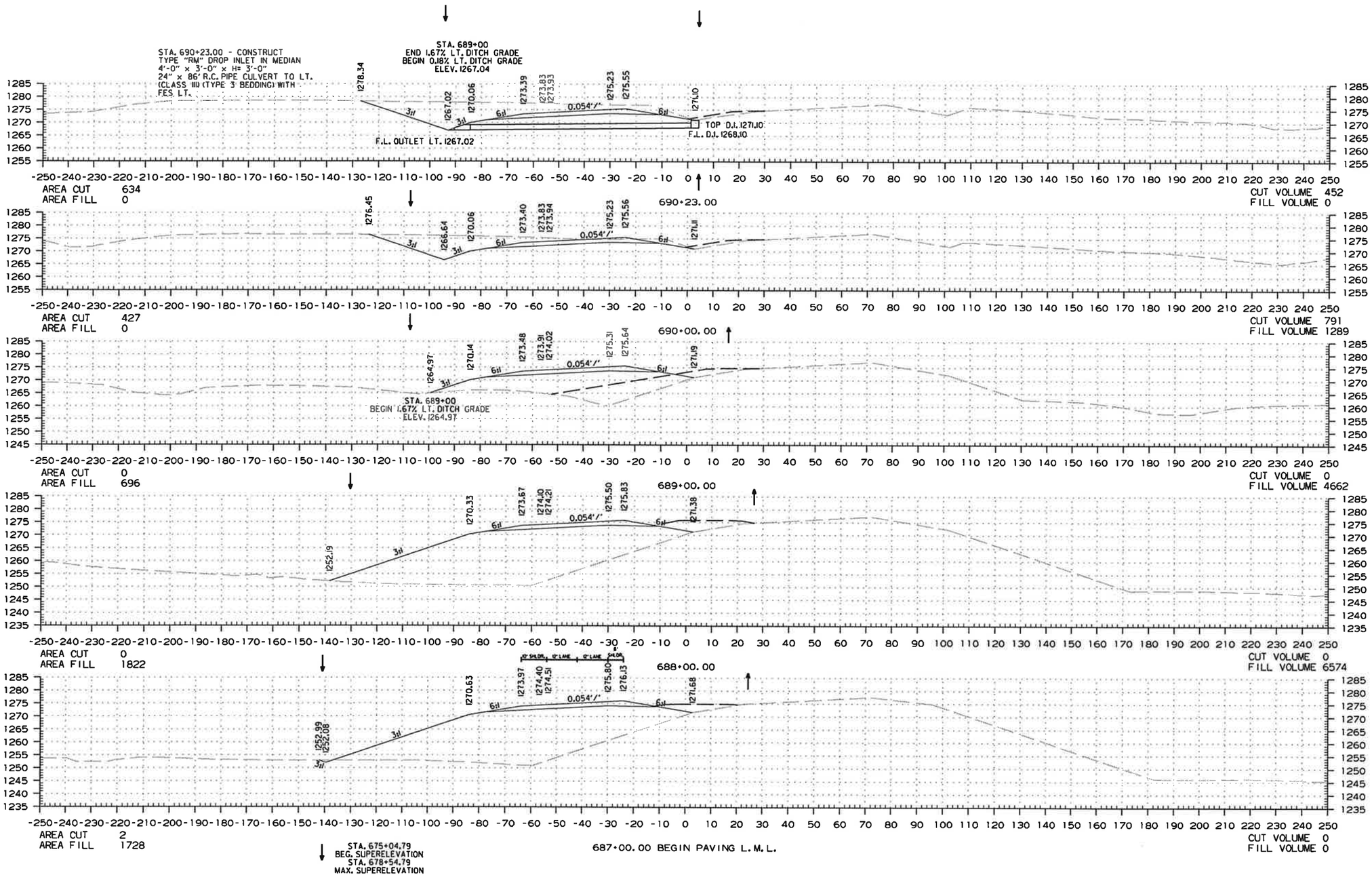
STA. 640+08.12 TO STA. 641+00.00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	219	335

(2) CROSS SECTIONS



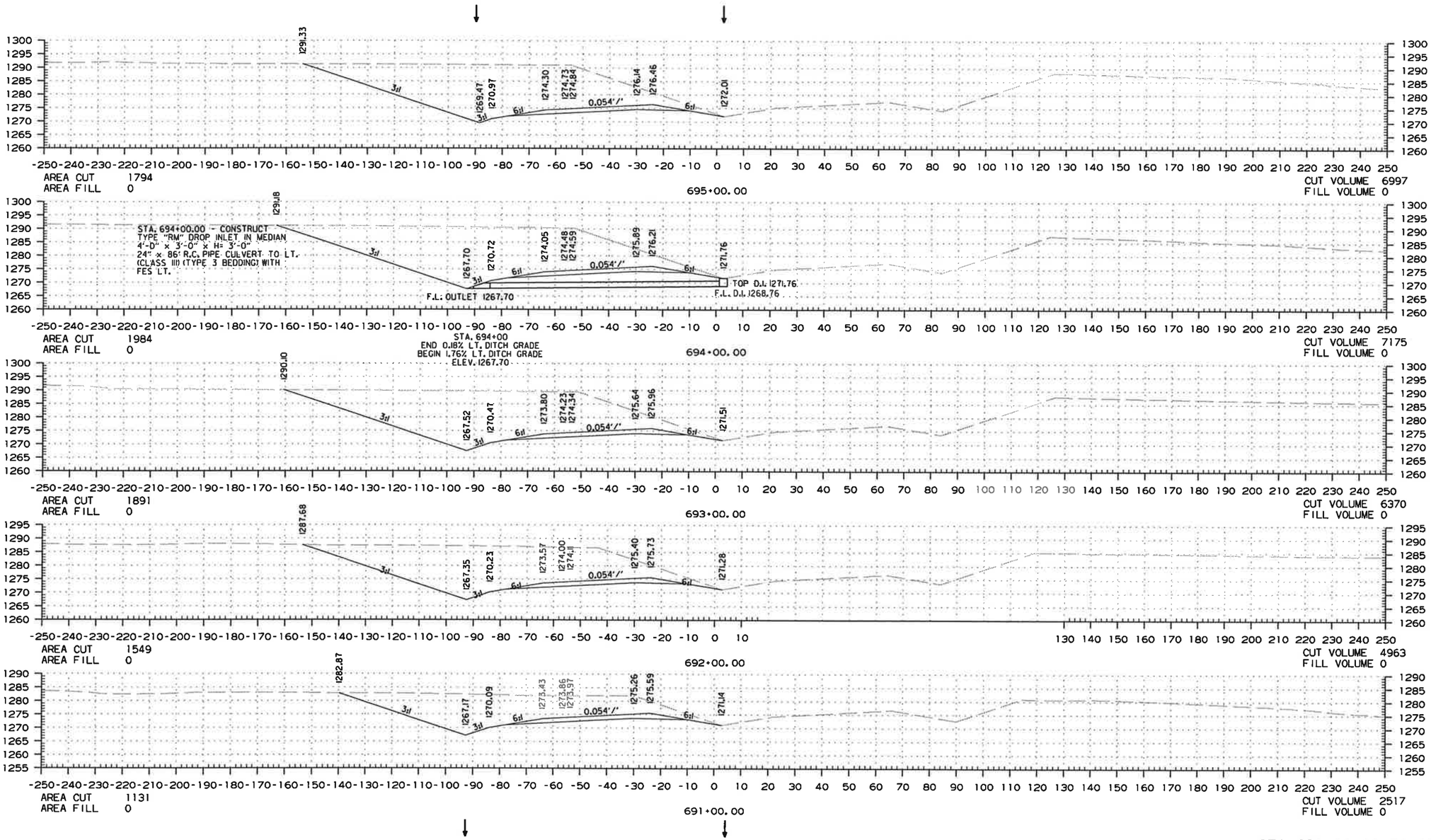
10/3/2017

R090508.DGN

STA. 687+00.00 TO STA. 690+23.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	220	335

(2) CROSS SECTIONS



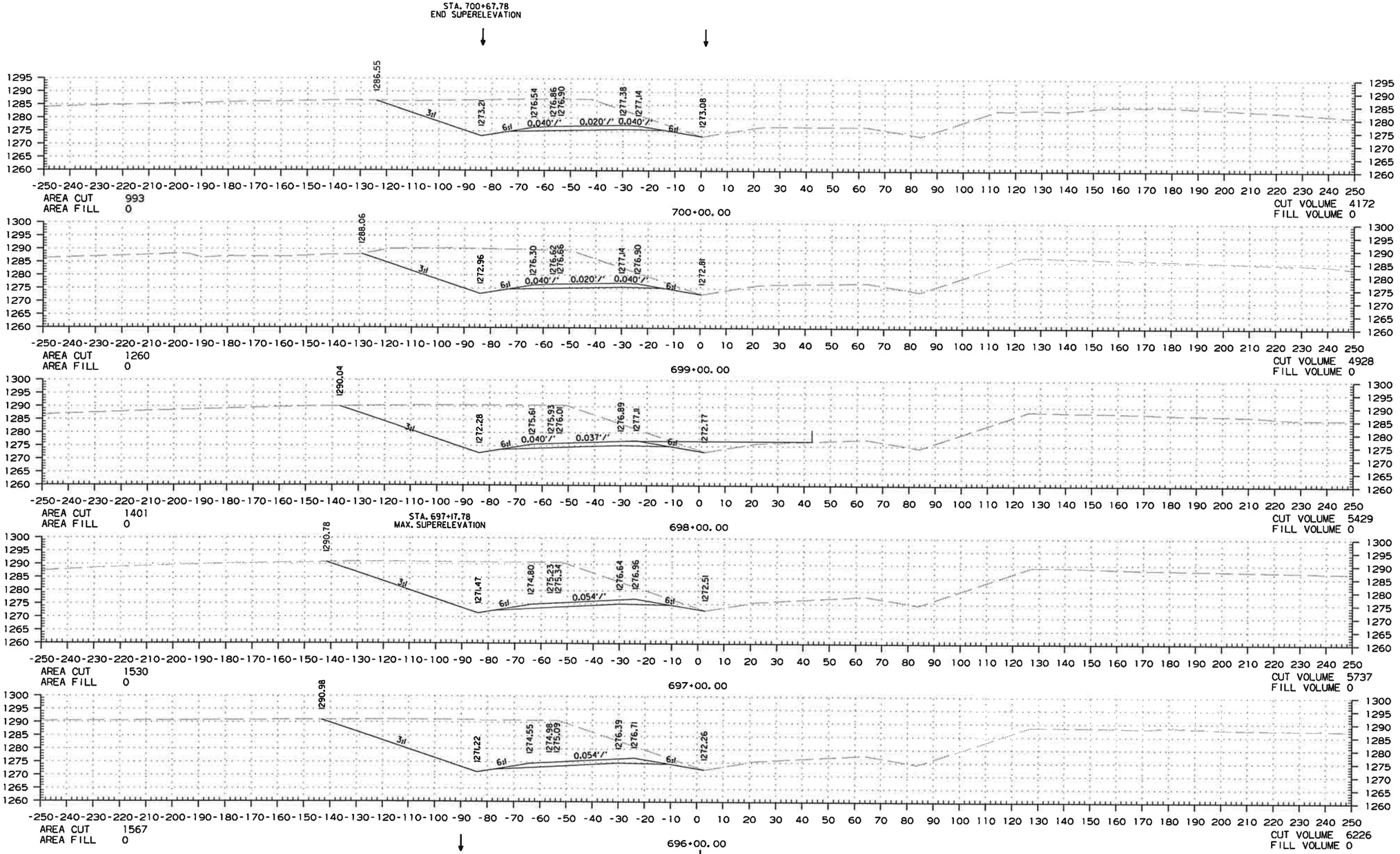
10/3/2017

R090508.DGN

STA. 691+00.00 TO STA. 695+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	221	335

(2) CROSS SECTIONS



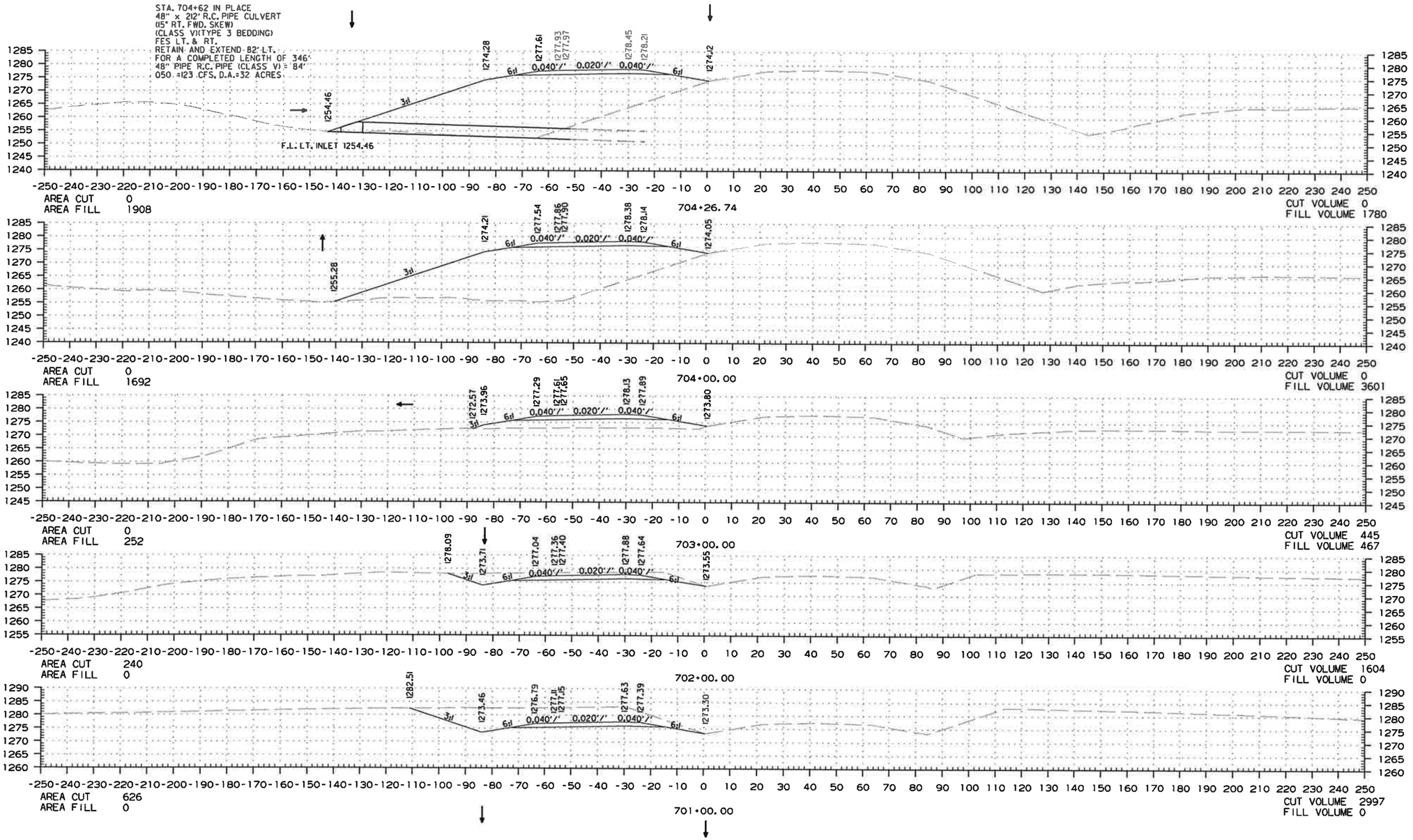
10/3/2017

R090508.DGN

STA. 696+00.00 TO STA. 700+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	222	335

(2) CROSS SECTIONS



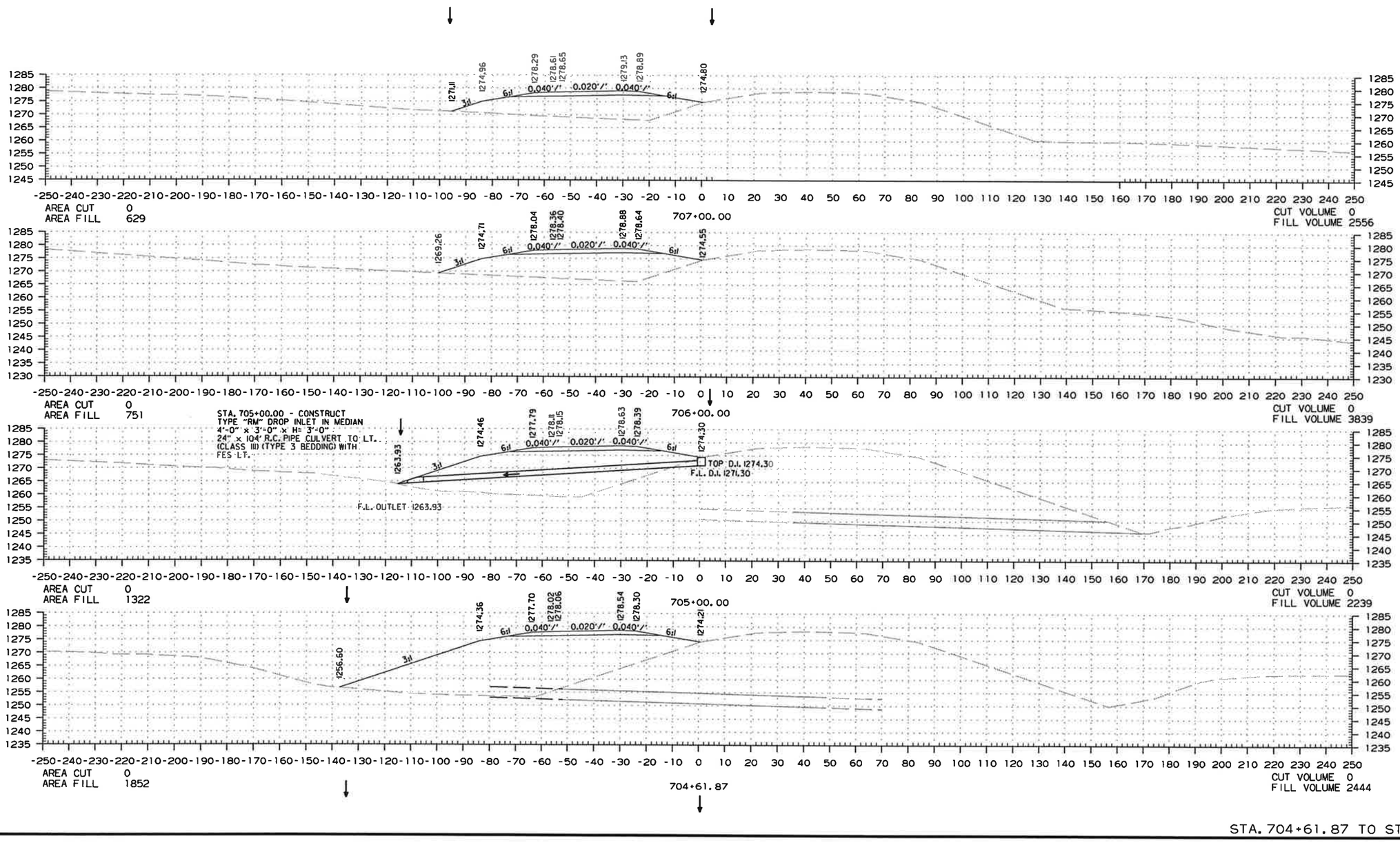
10/3/2017

R090508.DGN

STA. 701+00.00 TO STA. 704+26.74

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	223	335

(2) CROSS SECTIONS



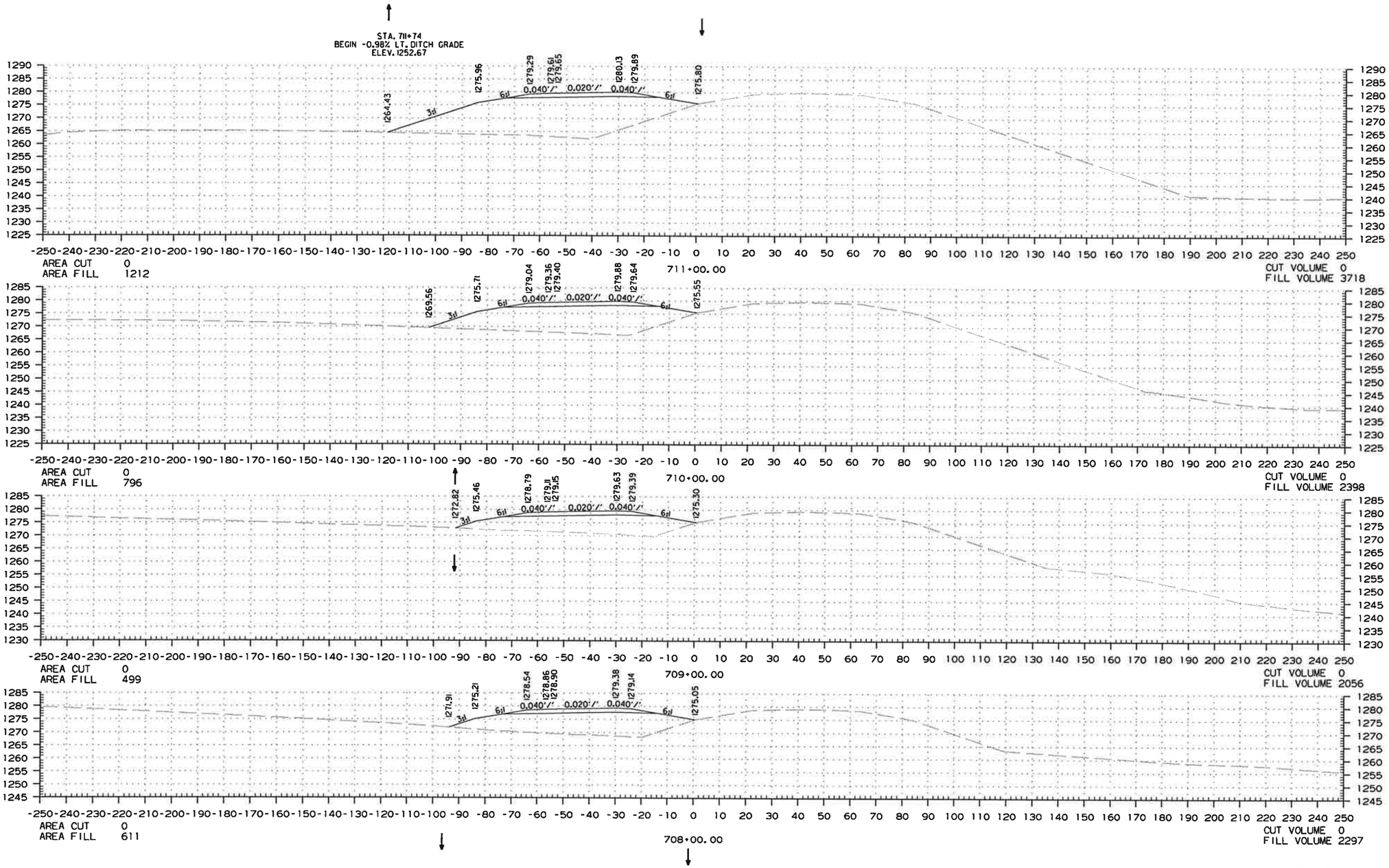
STA. 704+61.87 TO STA. 707+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	224	335

(2) CROSS SECTIONS



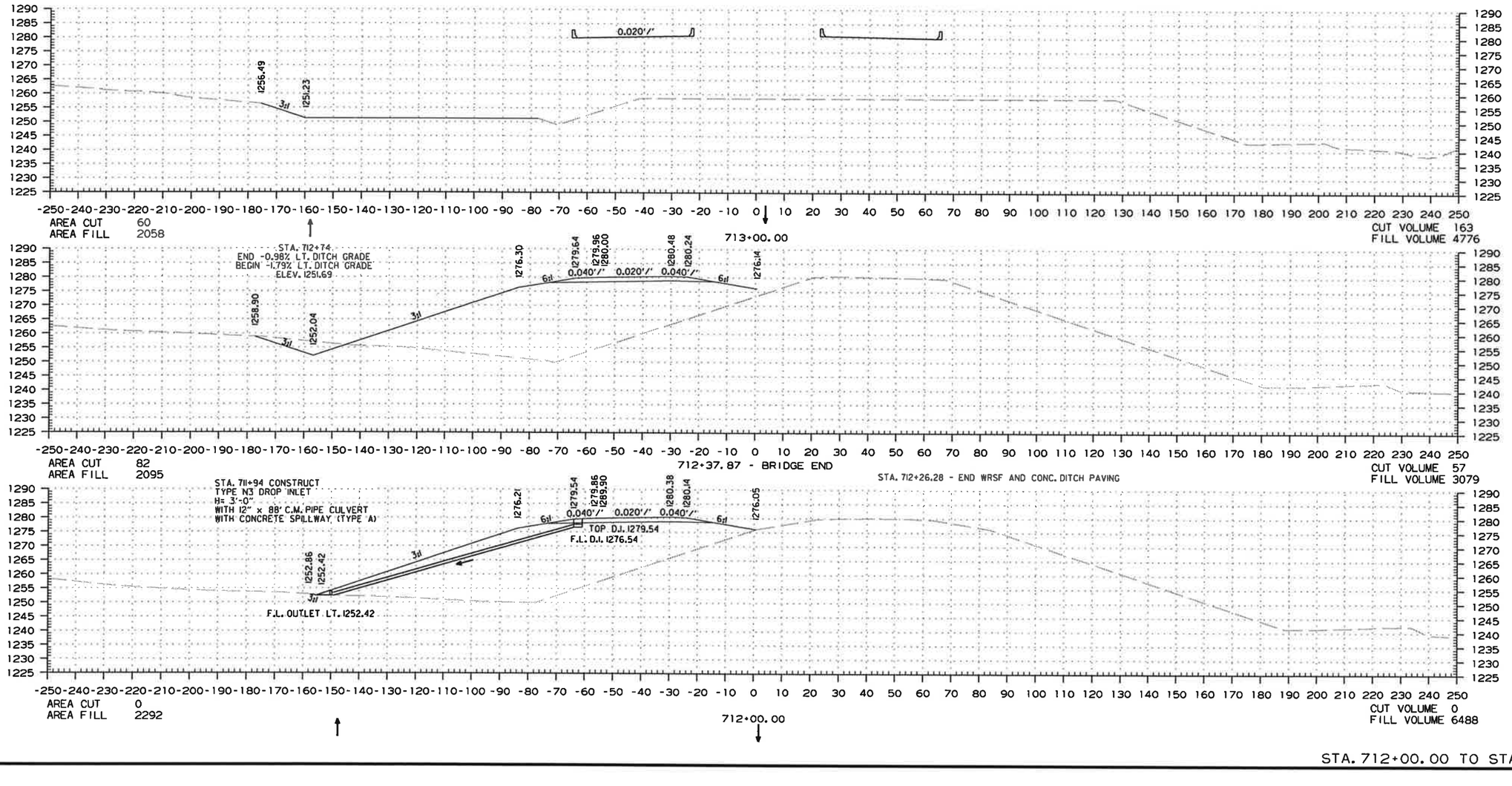
STA. 708+00.00 TO STA. 711+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	225	335

(2) CROSS SECTIONS



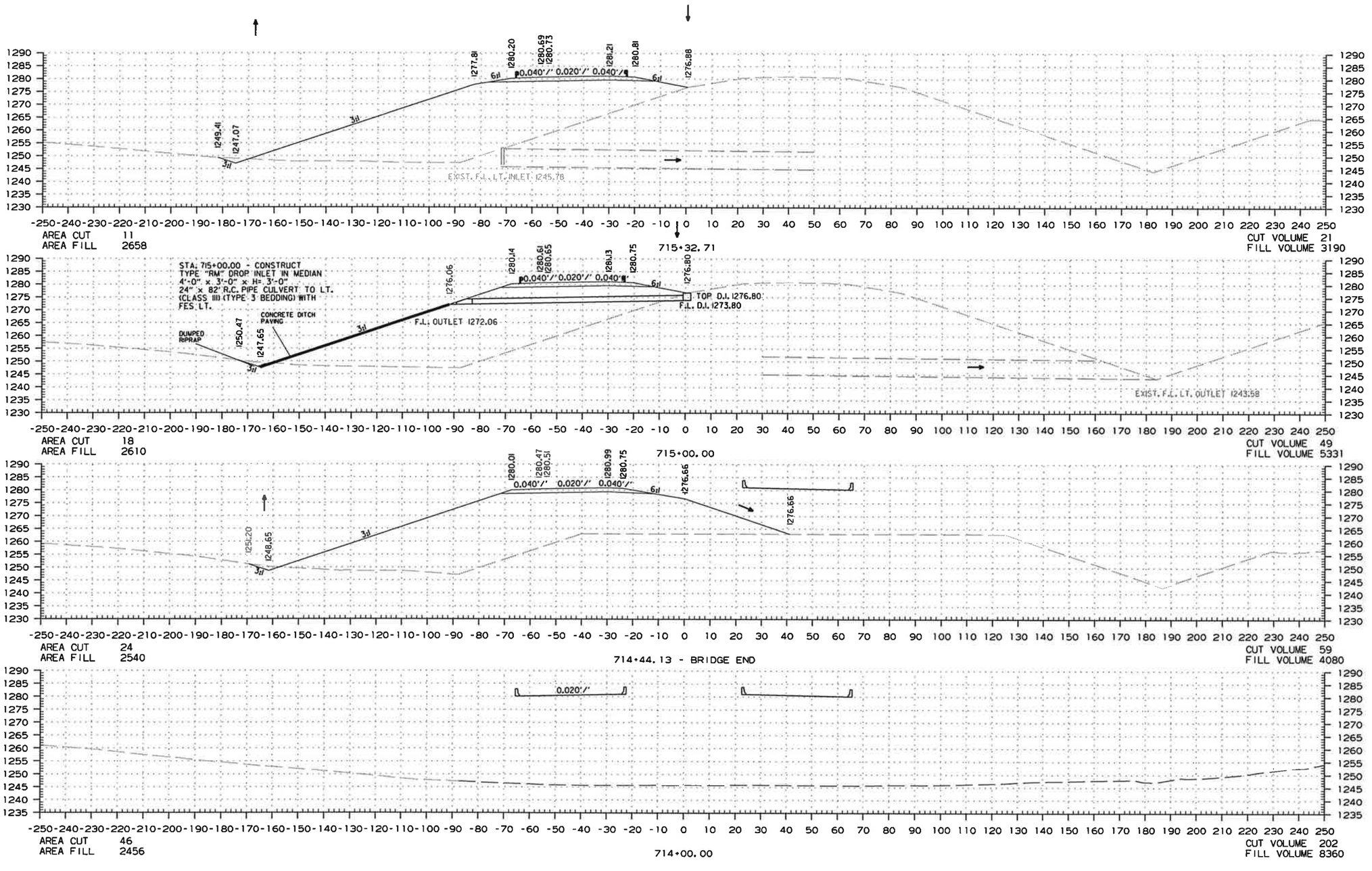
STA. 712+00.00 TO STA. 713+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	226	335

(2) CROSS SECTIONS



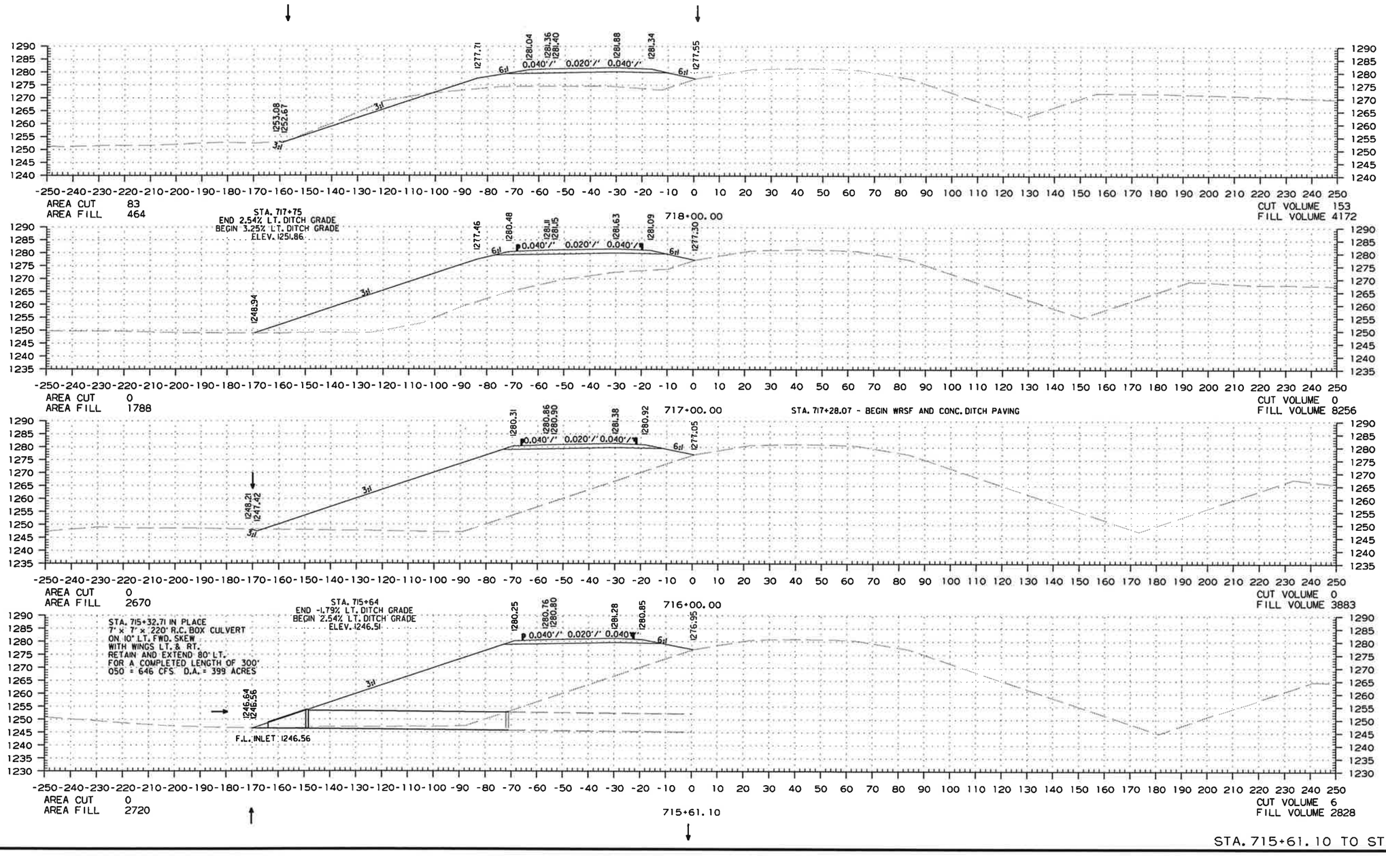
10/3/2017

R090508.DGN

STA. 714+00.00 TO STA. 715+32.71

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	227	335

(2) CROSS SECTIONS



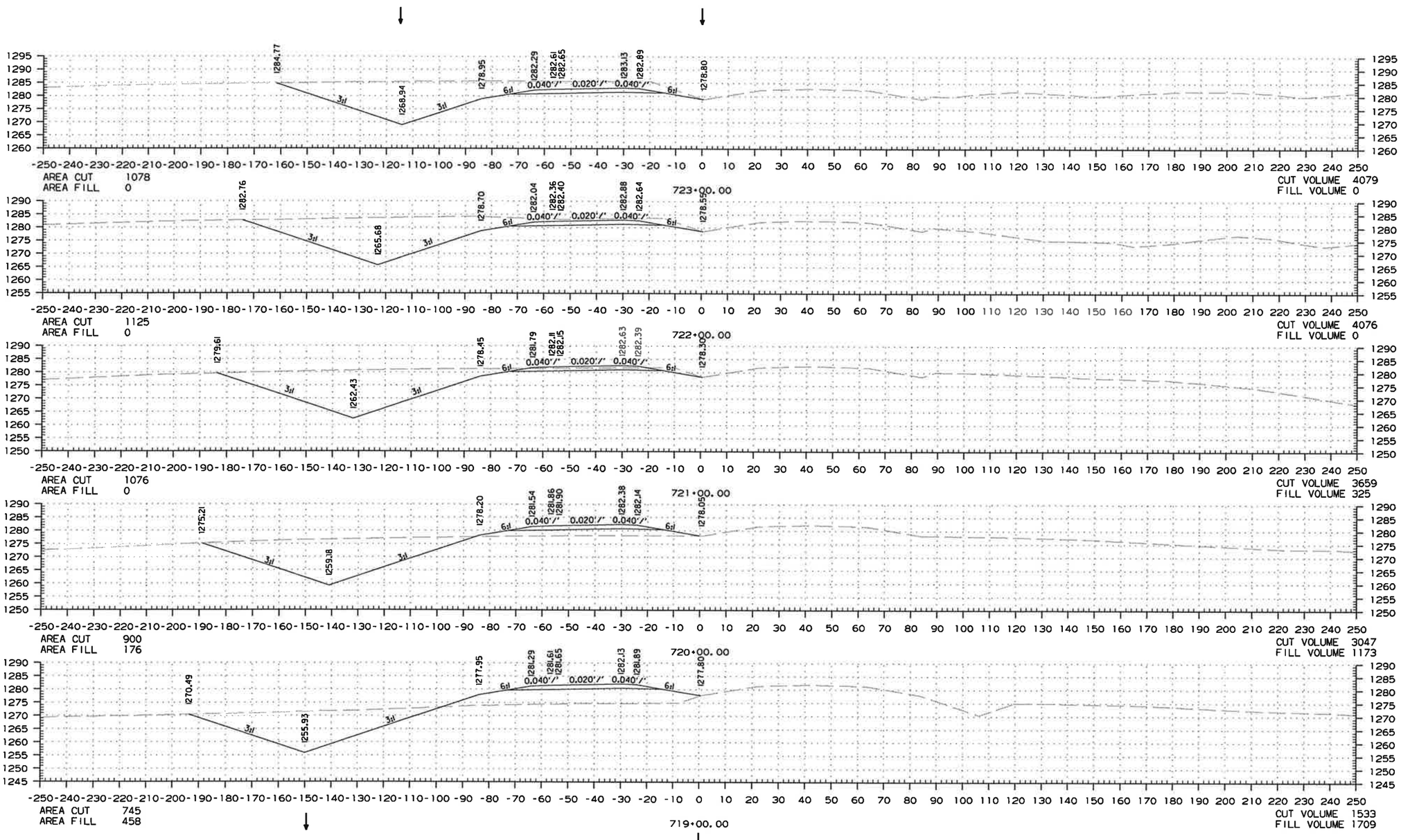
STA. 715+61.10 TO STA. 718+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	228	335

(2) CROSS SECTIONS



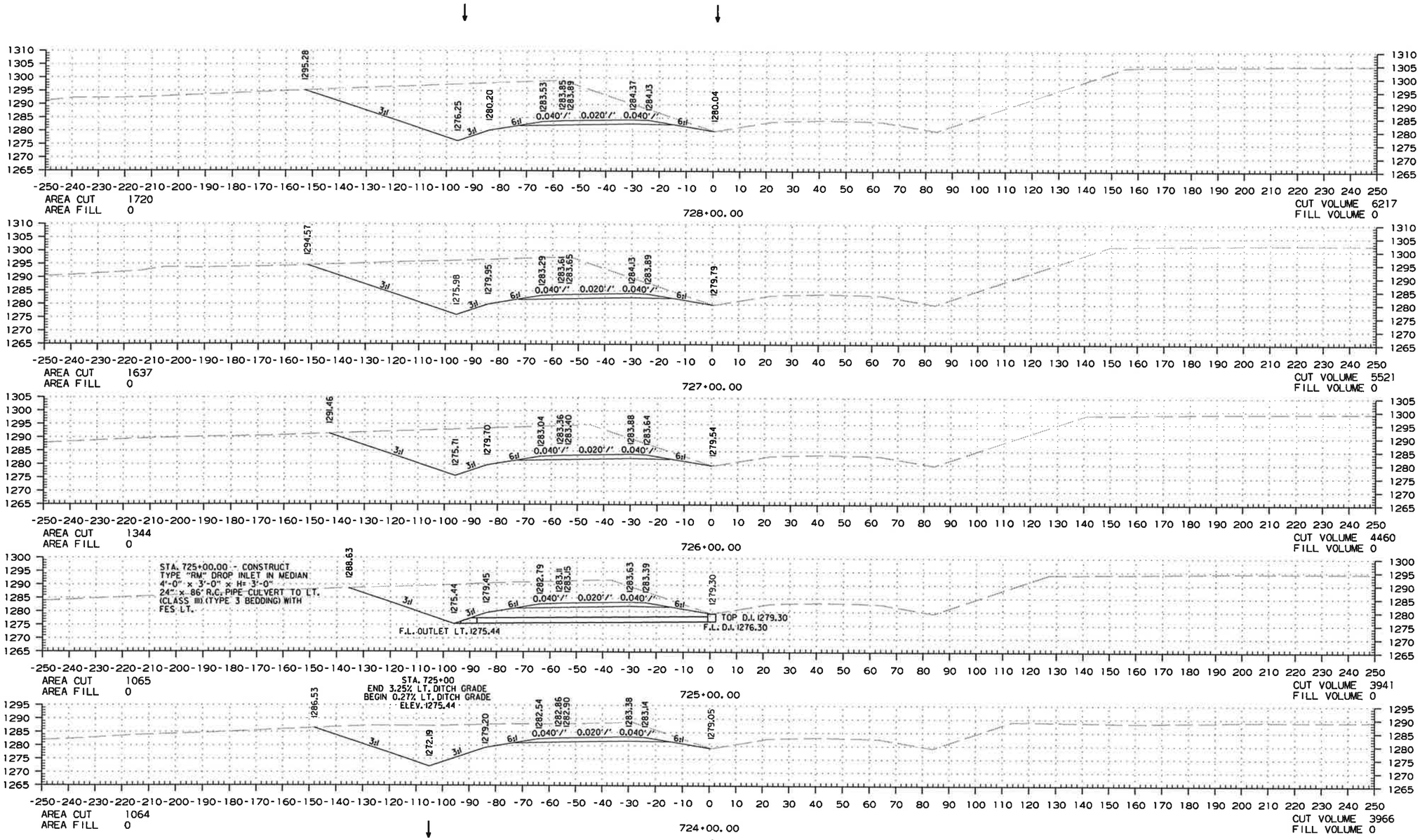
STA. 719+00.00 TO STA. 723+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	229	335

(2) CROSS SECTIONS



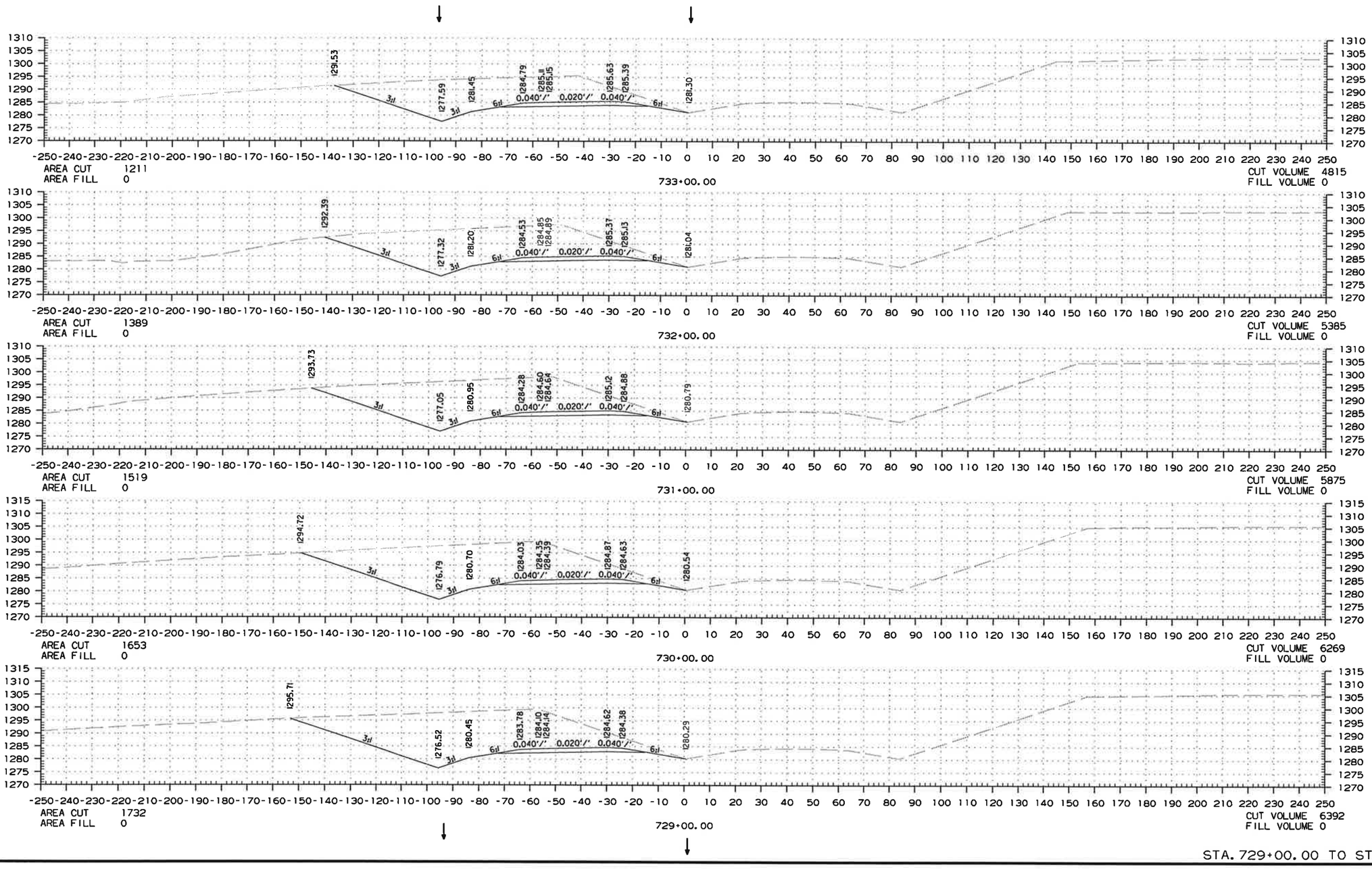
STA. 724+00.00 TO STA. 728+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	230	335

(2) CROSS SECTIONS



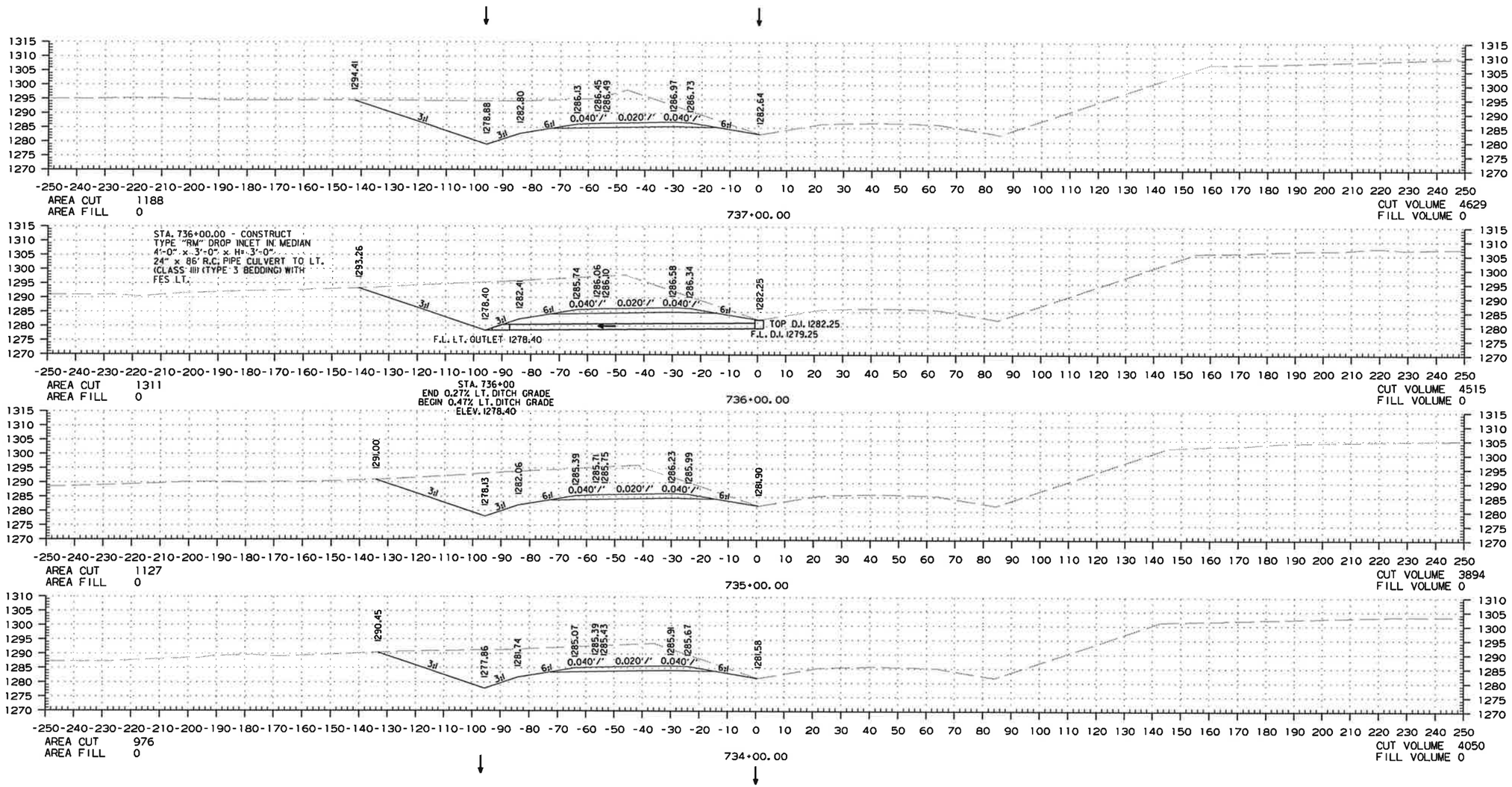
10/3/2017

R090508.DGN

STA. 729+00.00 TO STA. 733+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	231	335

(2) CROSS SECTIONS



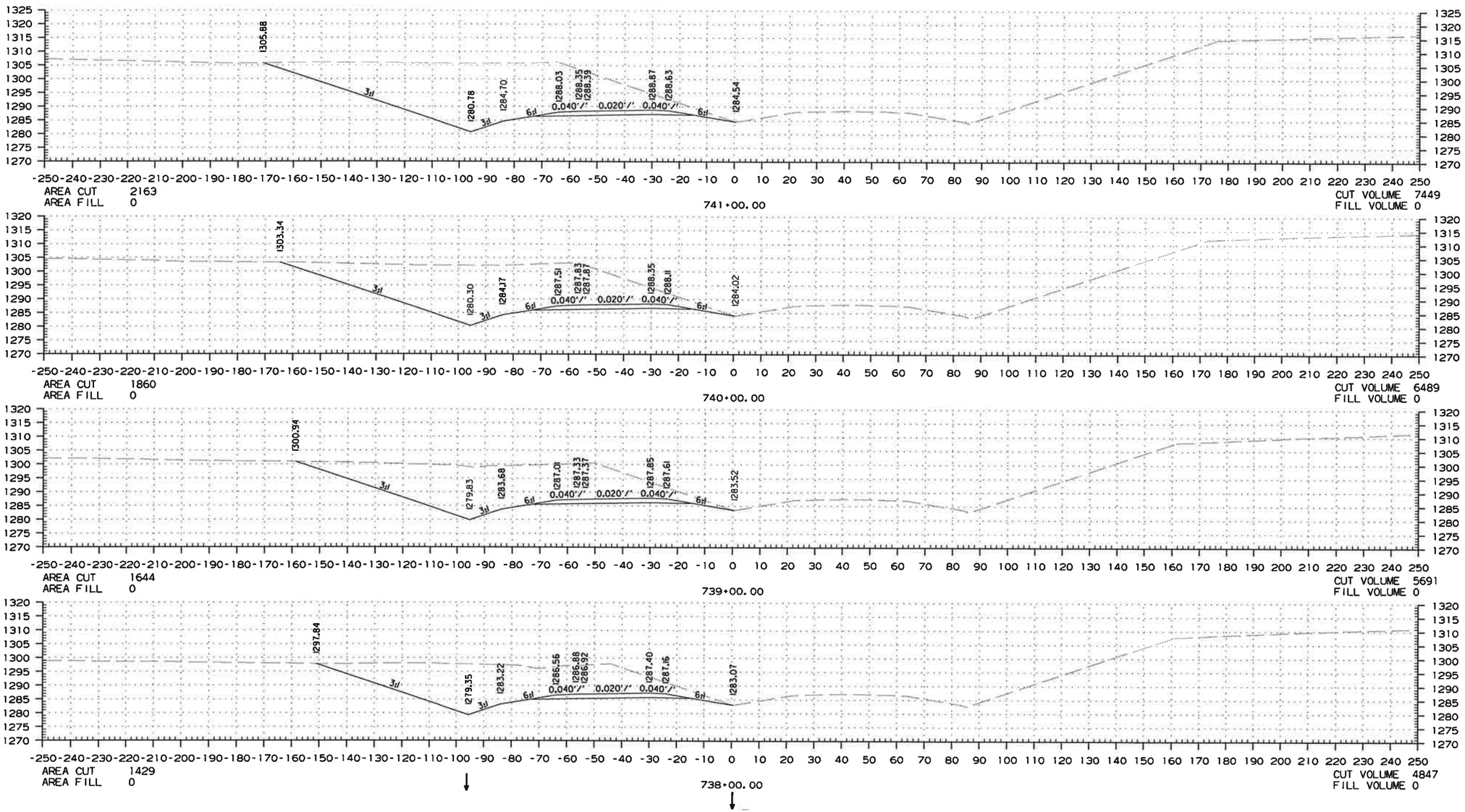
10/3/2017

R090508.DGN

STA. 734+00.00 TO STA. 737+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	232	335

(2) CROSS SECTIONS



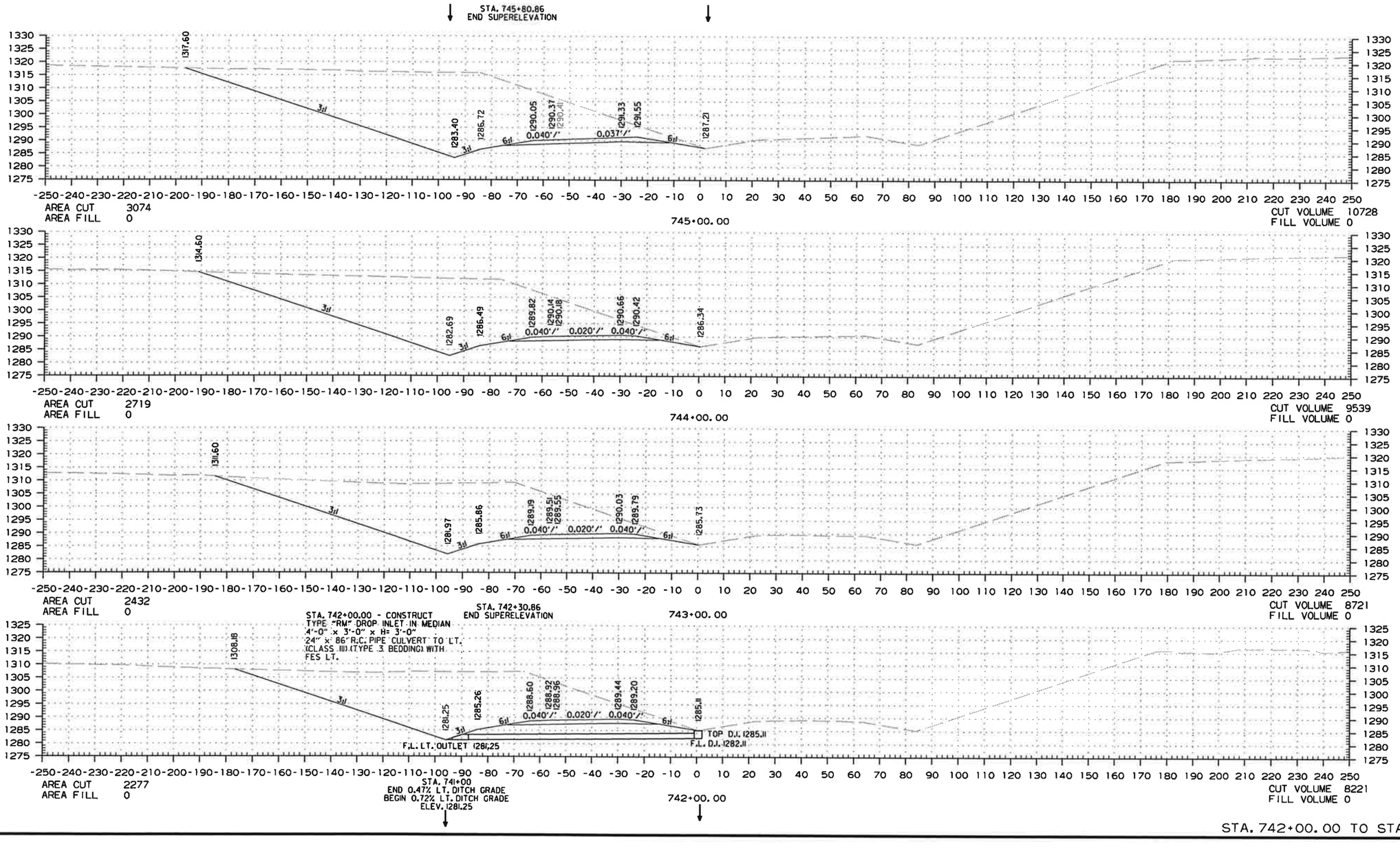
10/3/2017

R090508.DGN

STA. 738+00.00 TO STA. 741+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	233	335

(2) CROSS SECTIONS



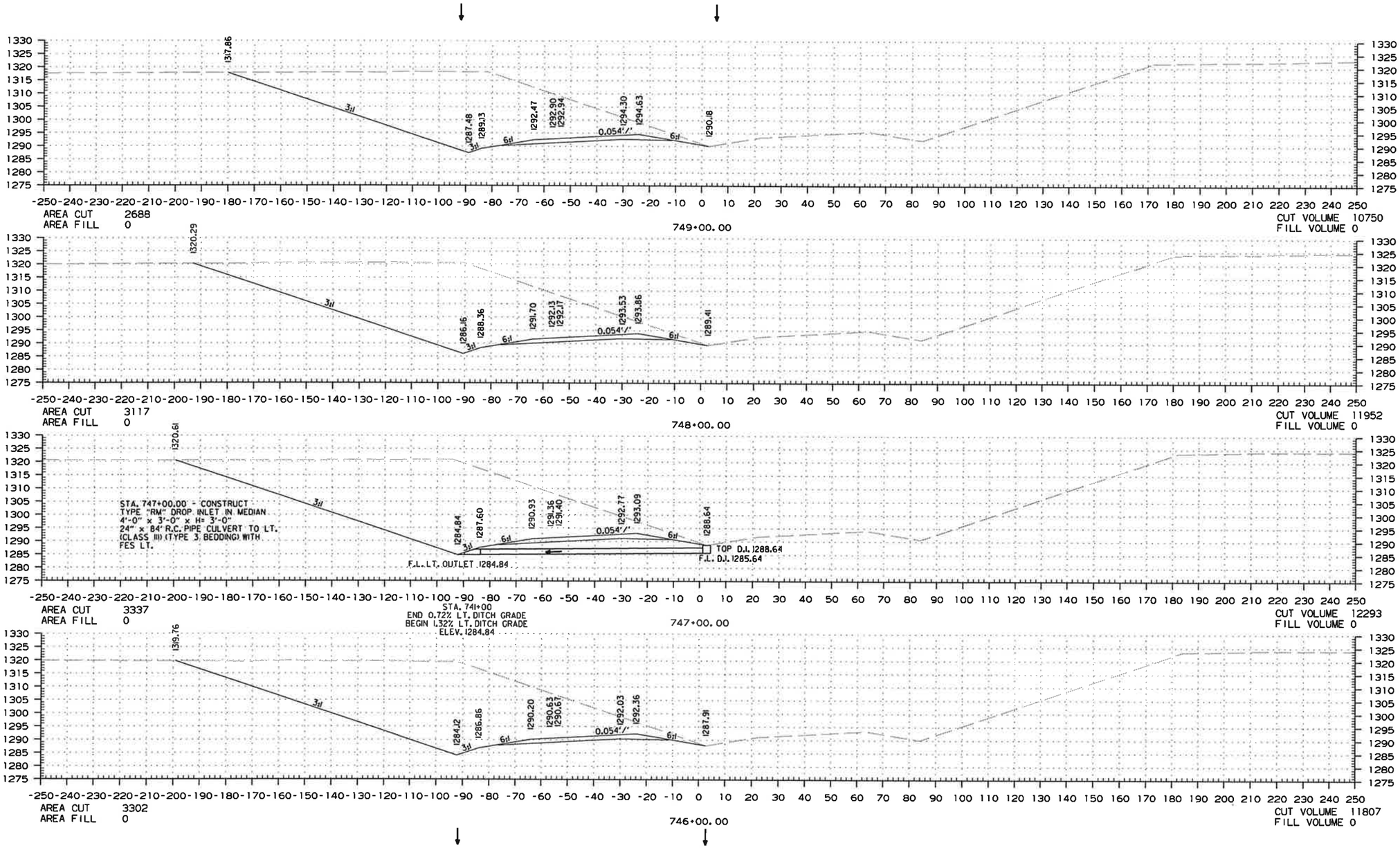
STA. 742+00.00 TO STA. 745+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	234	335

(2) CROSS SECTIONS



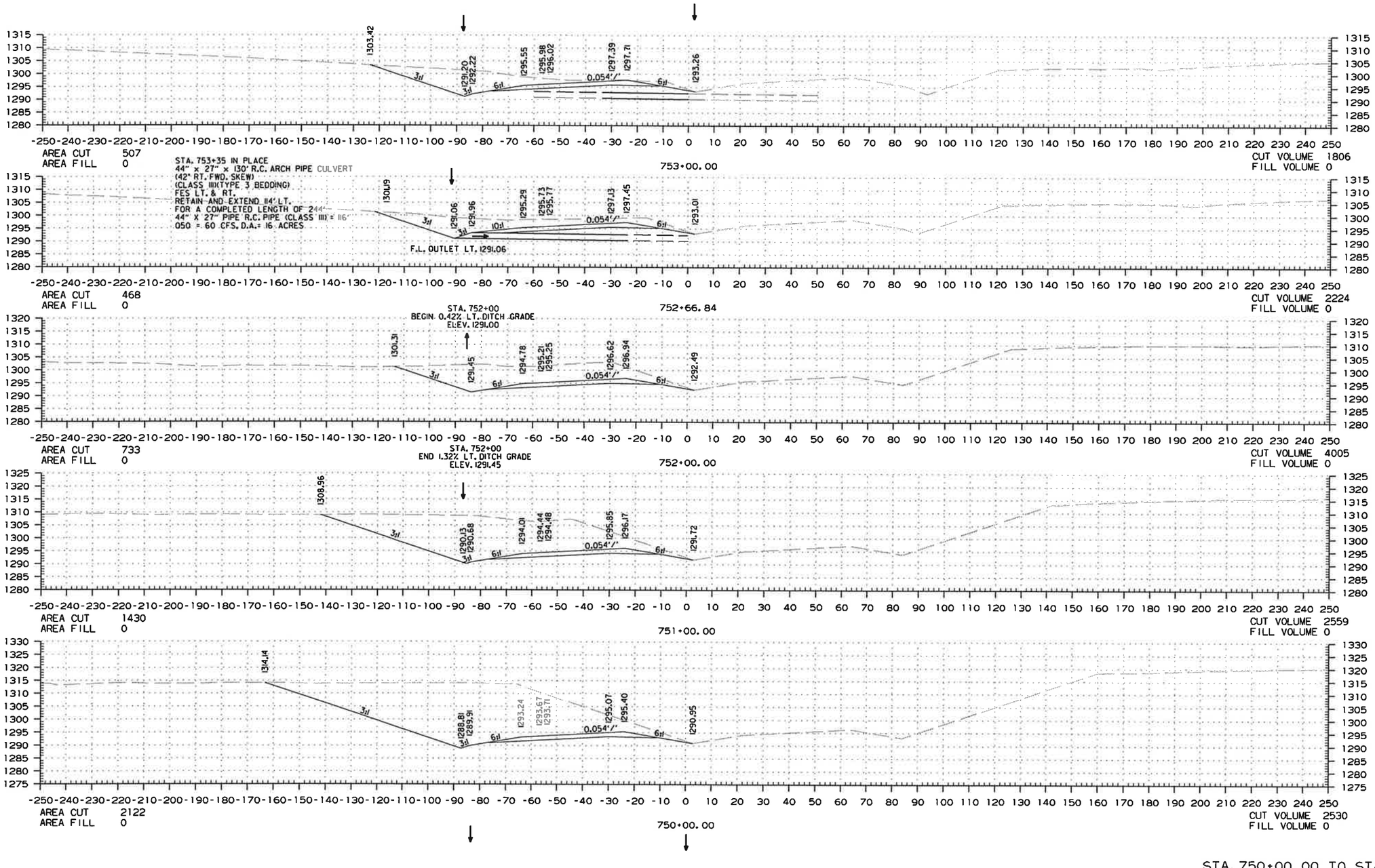
10/3/2017

R090508.DGN

STA. 746+00.00 TO STA. 749+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	235	335

(2) CROSS SECTIONS



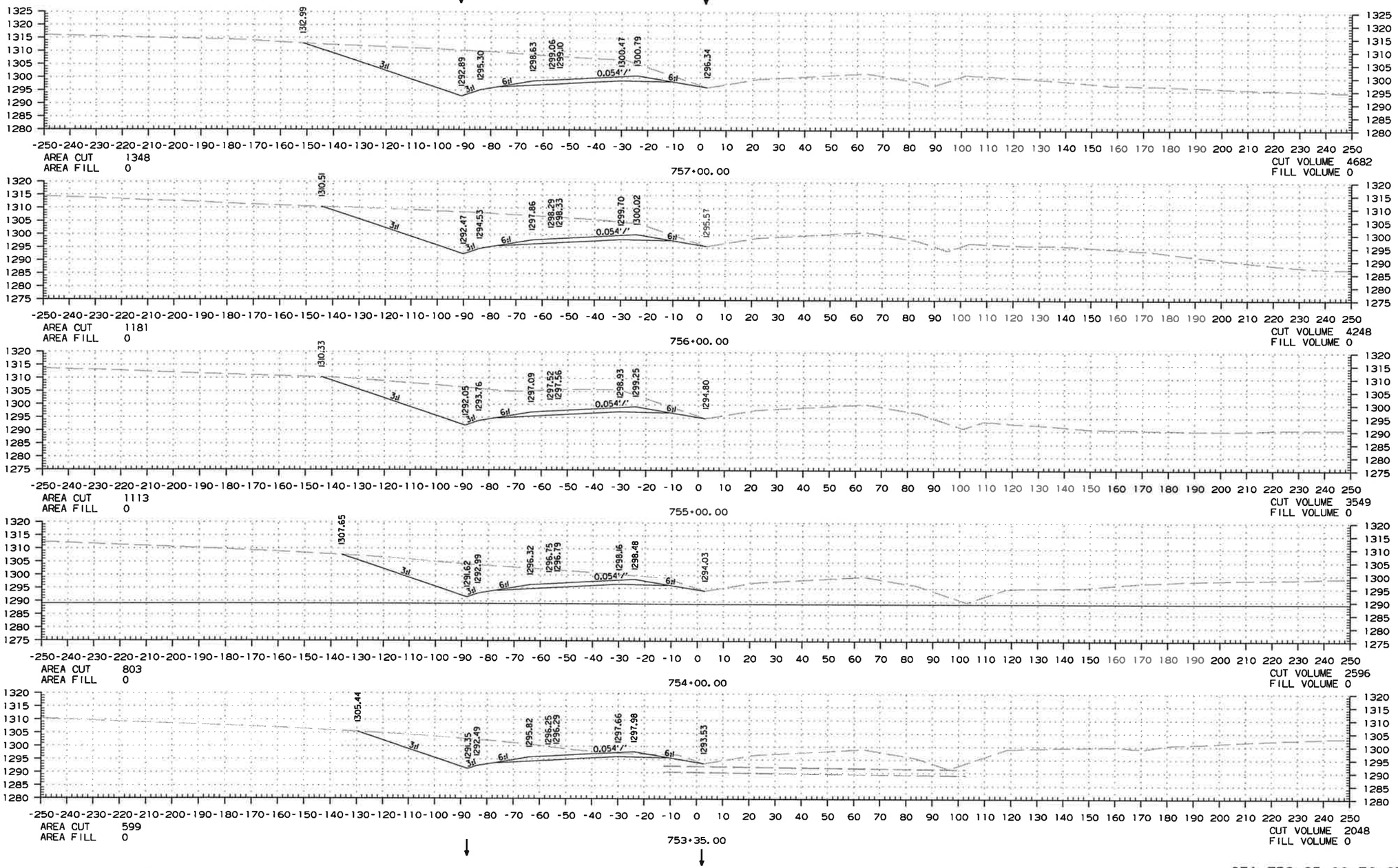
10/3/2017

R090508.DGN

STA. 750+00.00 TO STA. 753+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	236	335

(2) CROSS SECTIONS



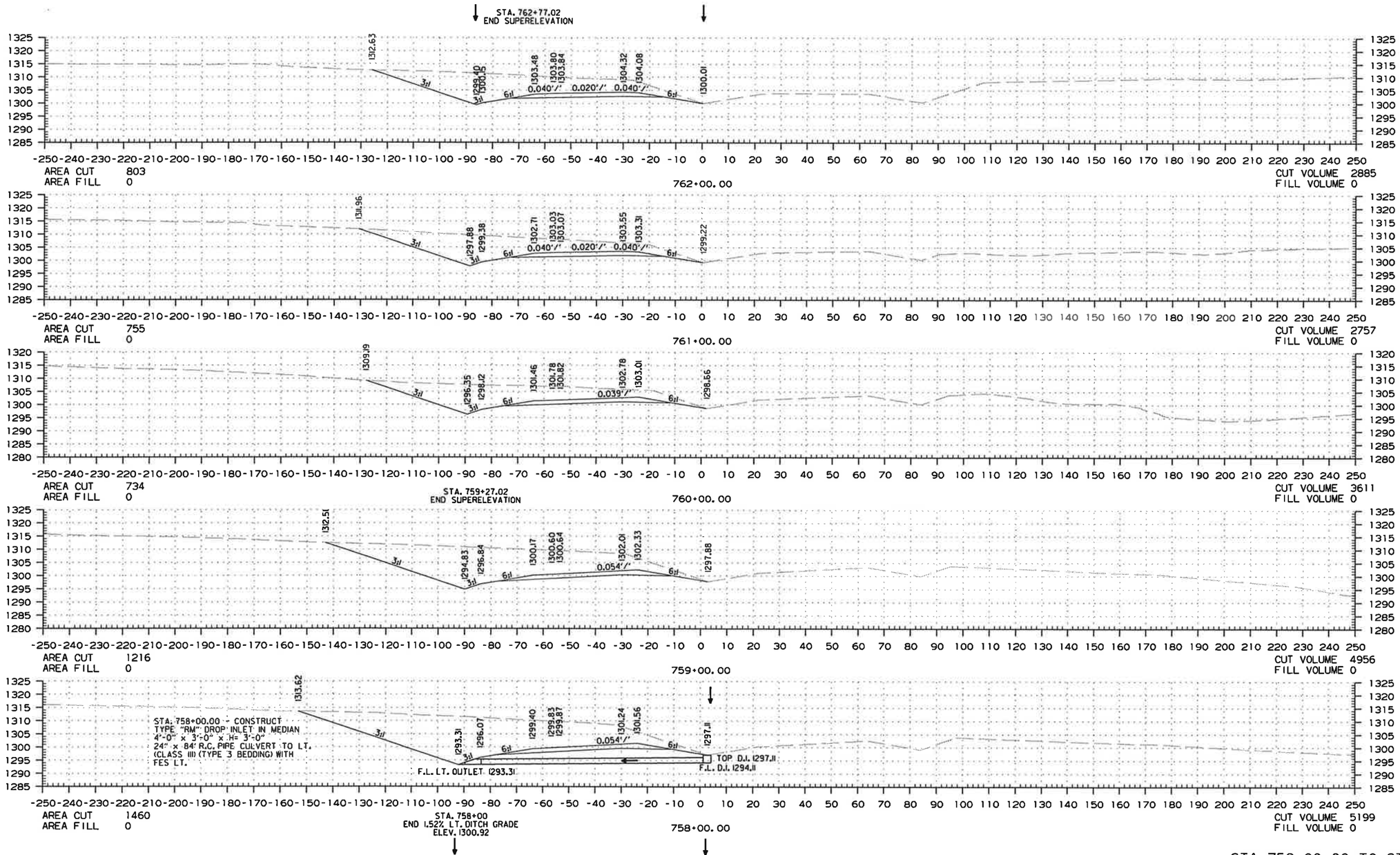
10/3/2017

R090508.DGN

STA. 753+35.00 TO STA. 757+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	237	335

(2) CROSS SECTIONS



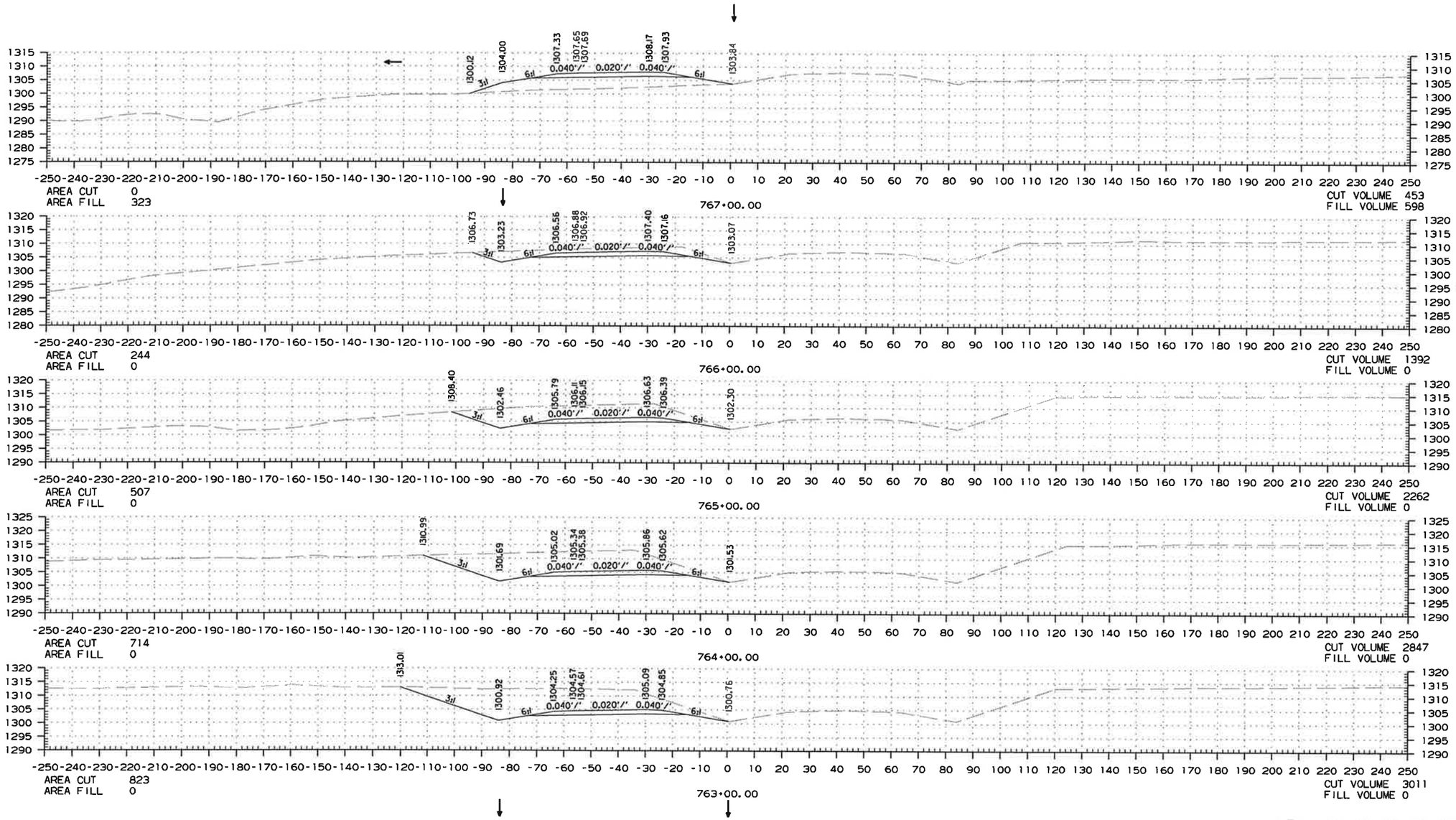
STA. 758+00.00 TO STA. 762+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	238	335

(2) CROSS SECTIONS



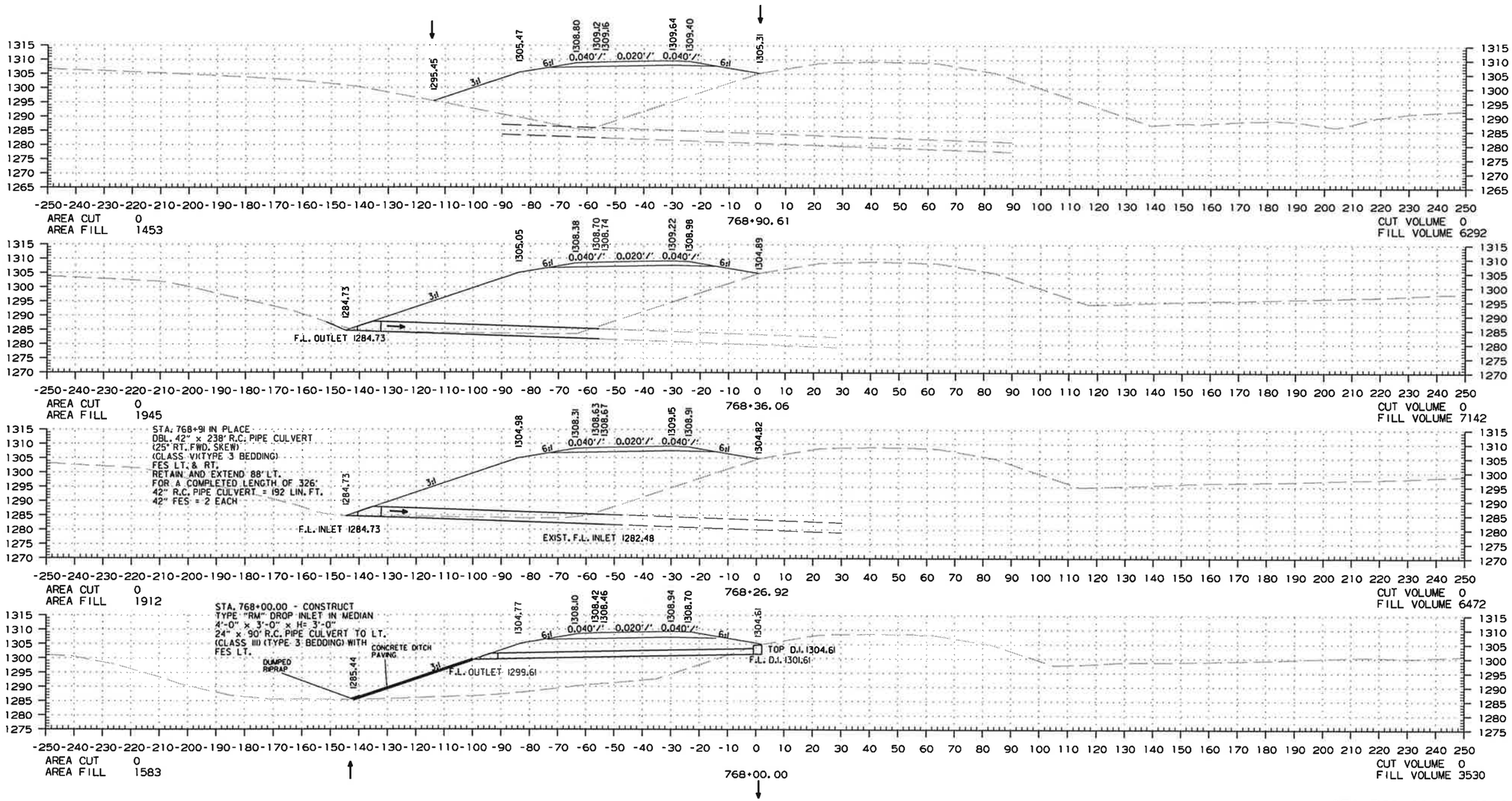
10/3/2017

R090508.DGN

STA. 763+00.00 TO STA. 767+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	239	335

(2) CROSS SECTIONS



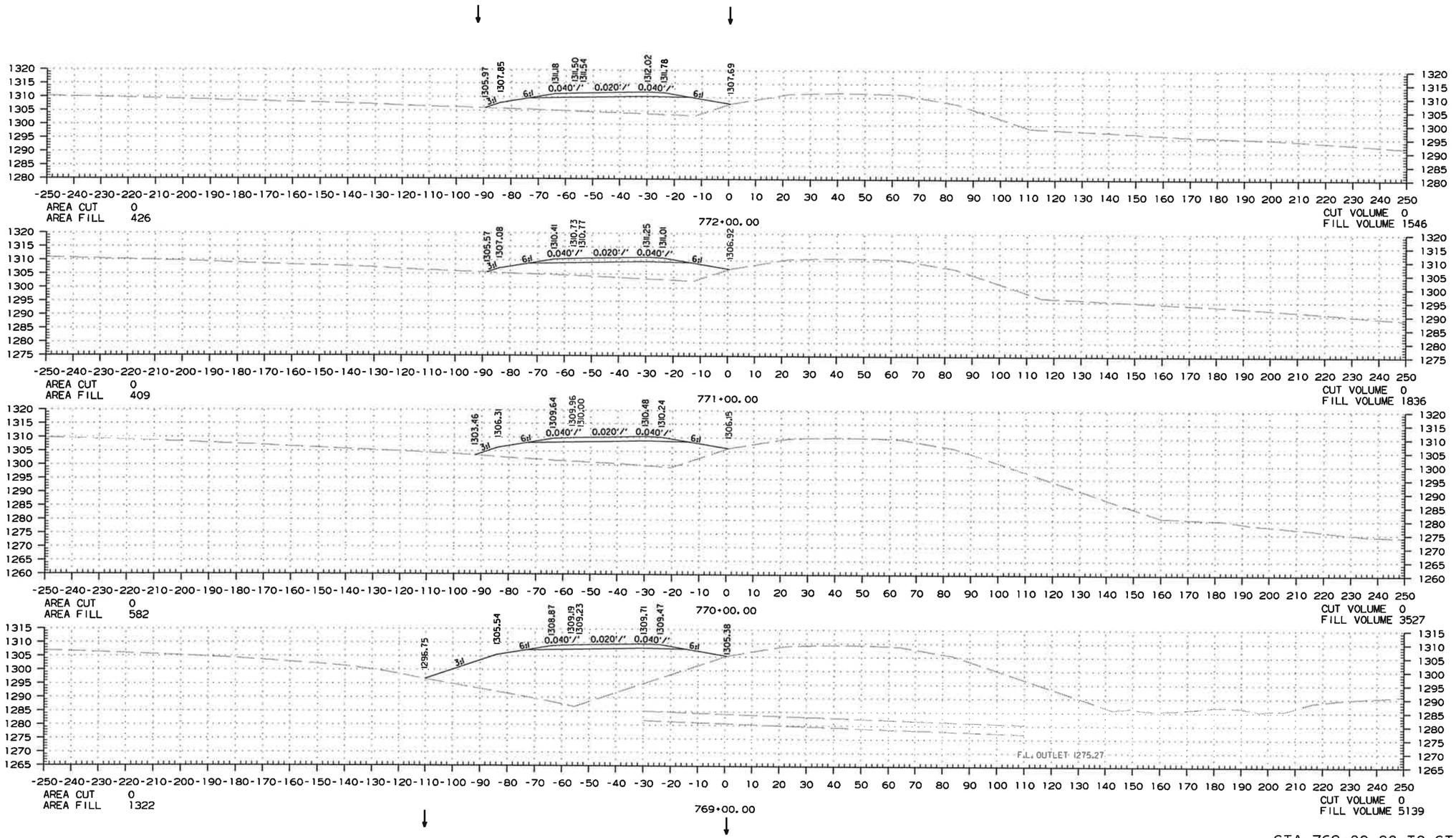
10/3/2017

R090508.DGN

STA. 768+00.00 TO STA. 768+90.61

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	240	335

(2) CROSS SECTIONS



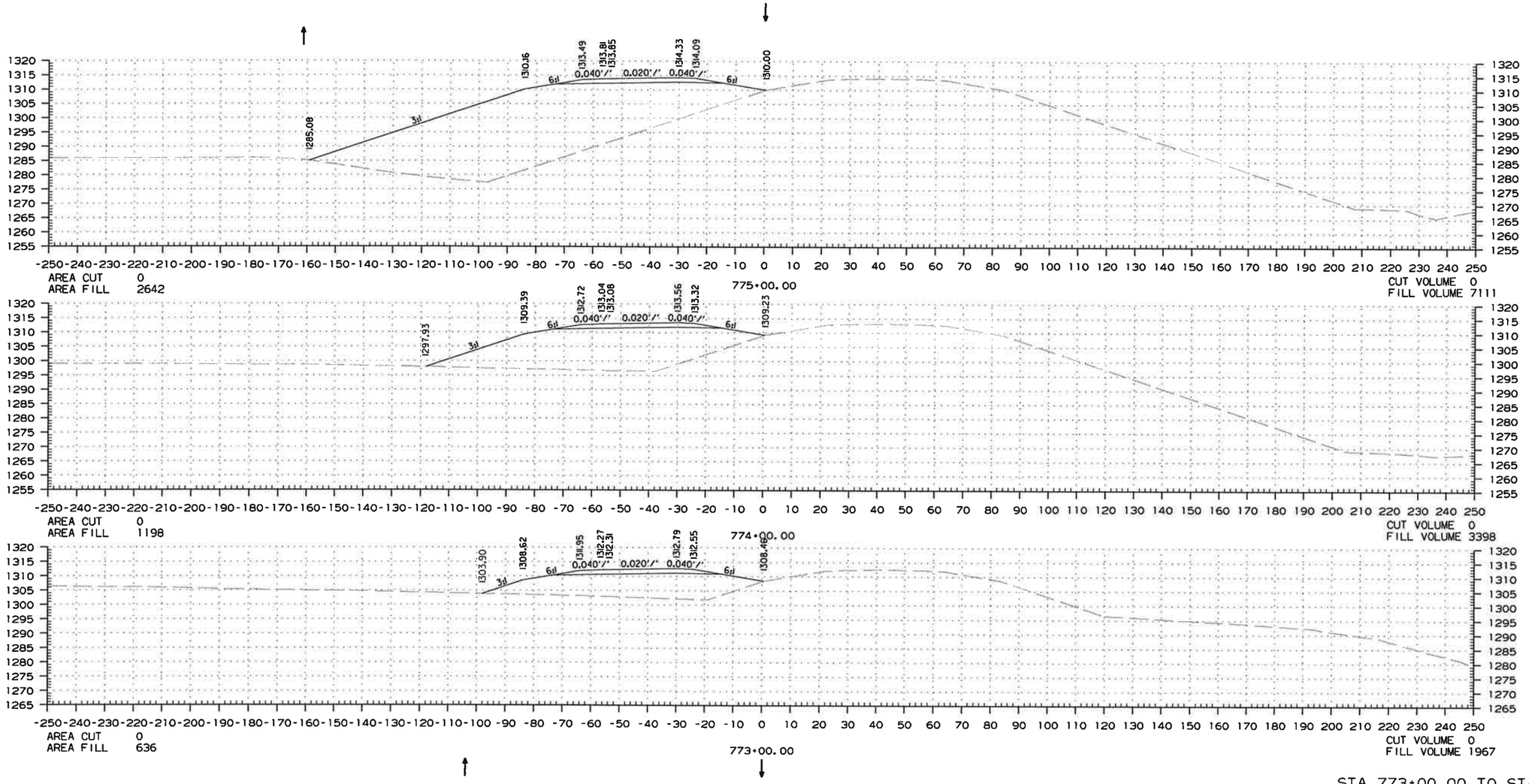
STA. 769+00.00 TO STA. 772+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	241	335

(2) CROSS SECTIONS



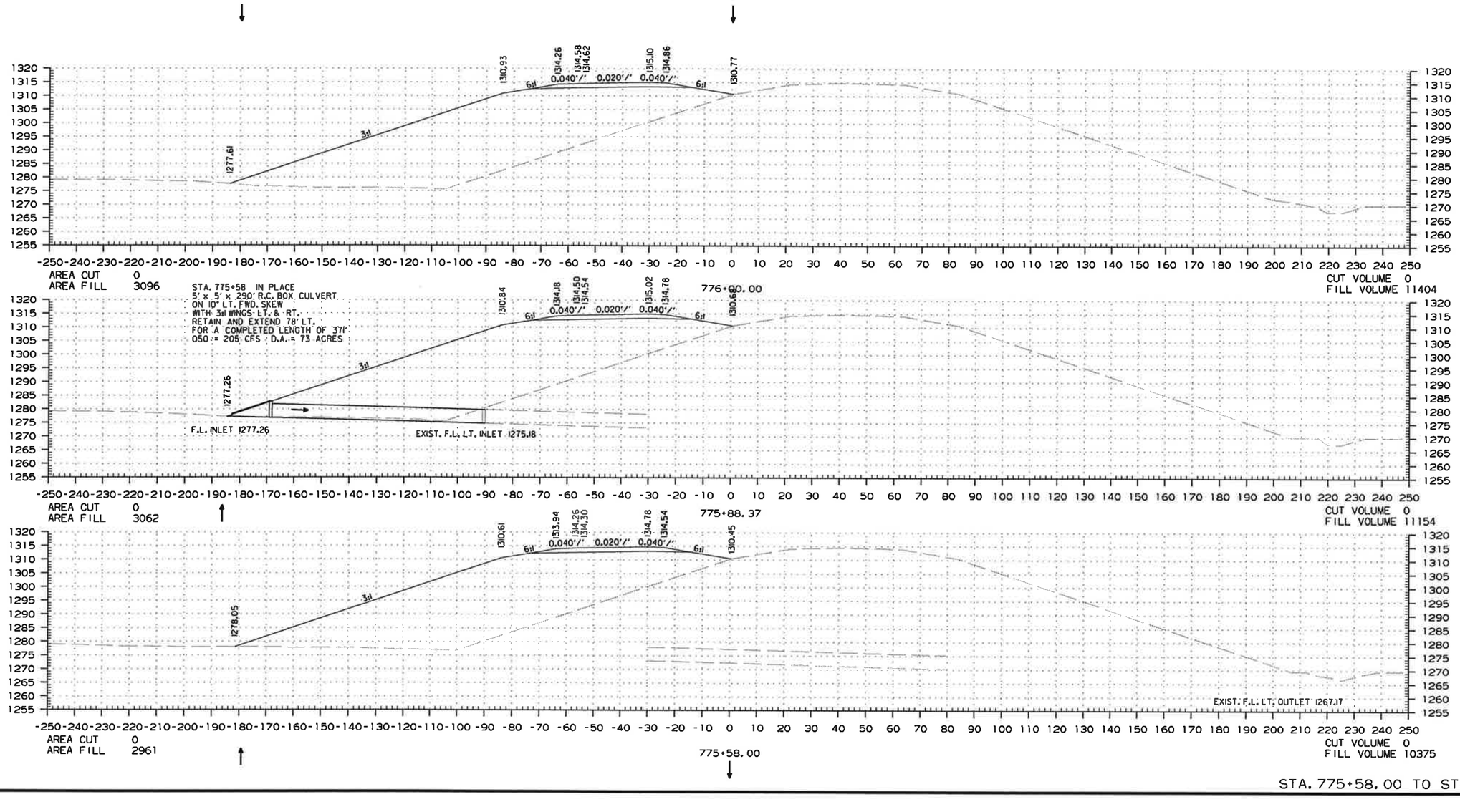
STA. 773+00.00 TO STA. 775+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	242	335

(2) CROSS SECTIONS



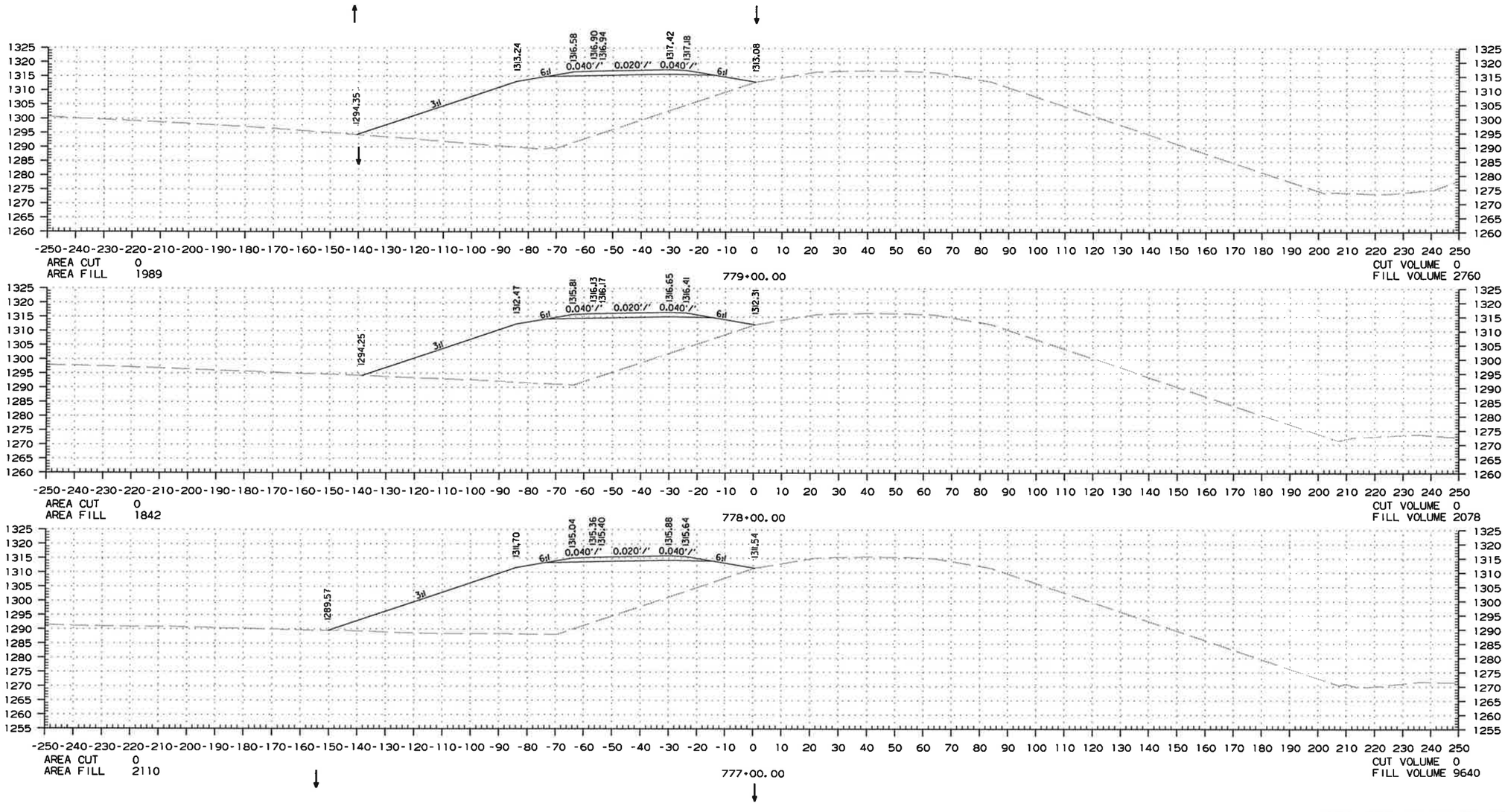
STA. 775+58.00 TO STA. 776+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	243	335

(2) CROSS SECTIONS



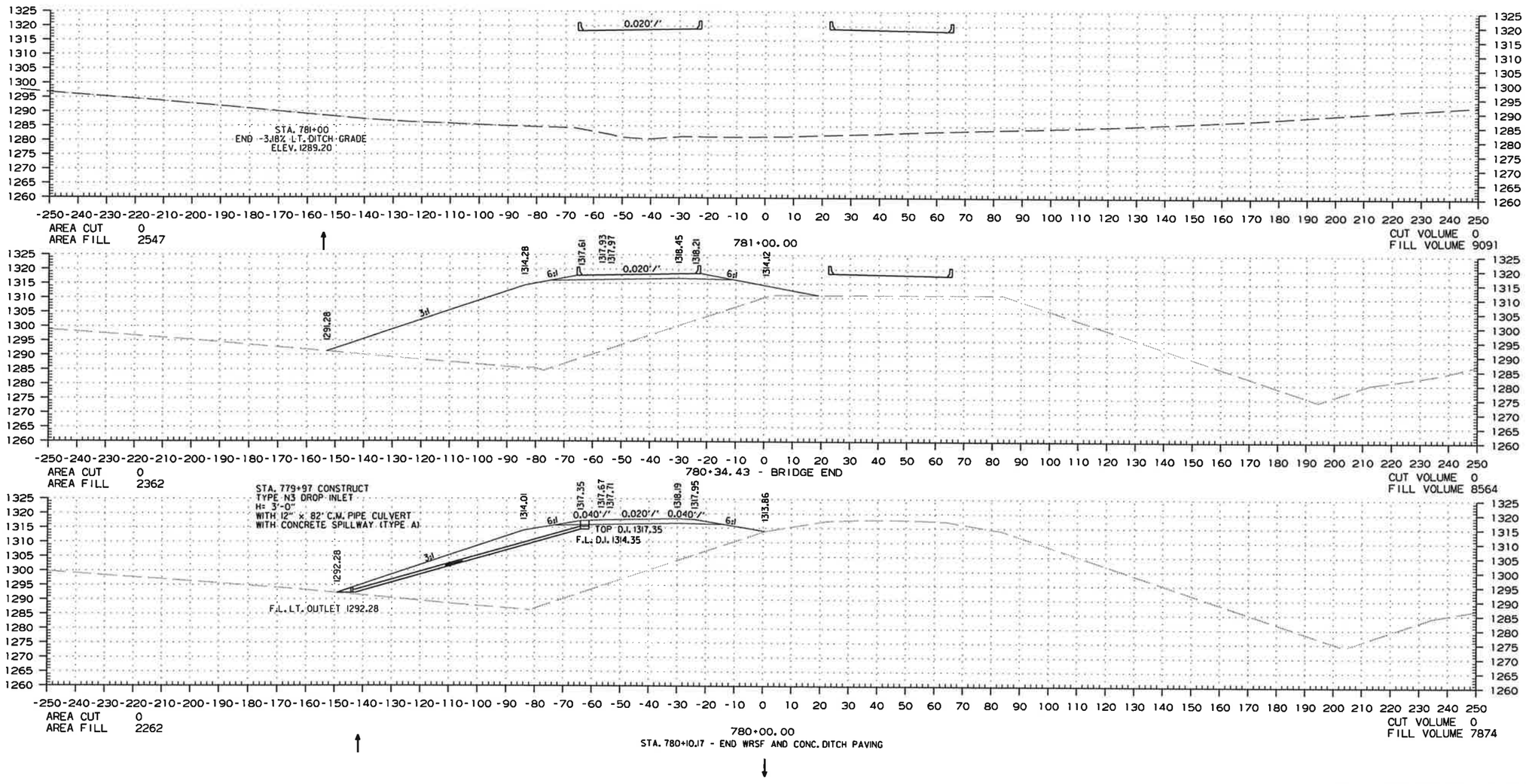
STA. 777+00.00 TO STA. 779+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	244	335

(2) CROSS SECTIONS



10/3/2017

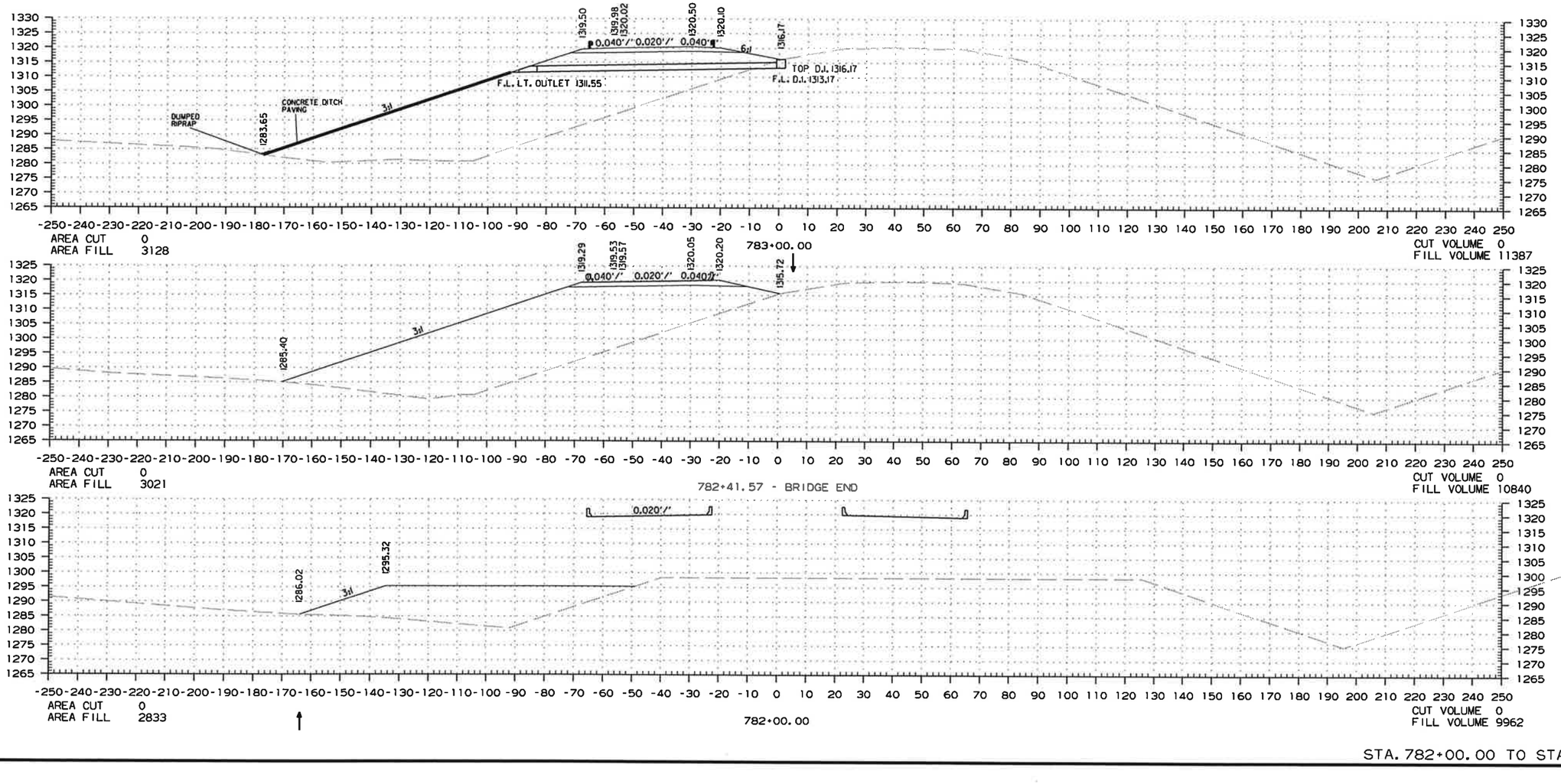
R090508.DGN

STA. 780+00.00 TO STA. 781+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	245	335

(2) CROSS SECTIONS

STA. 783+00.00 - CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H= 3'-0"
24" x 82' R.C. PIPE CULVERT TO LT.
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT.



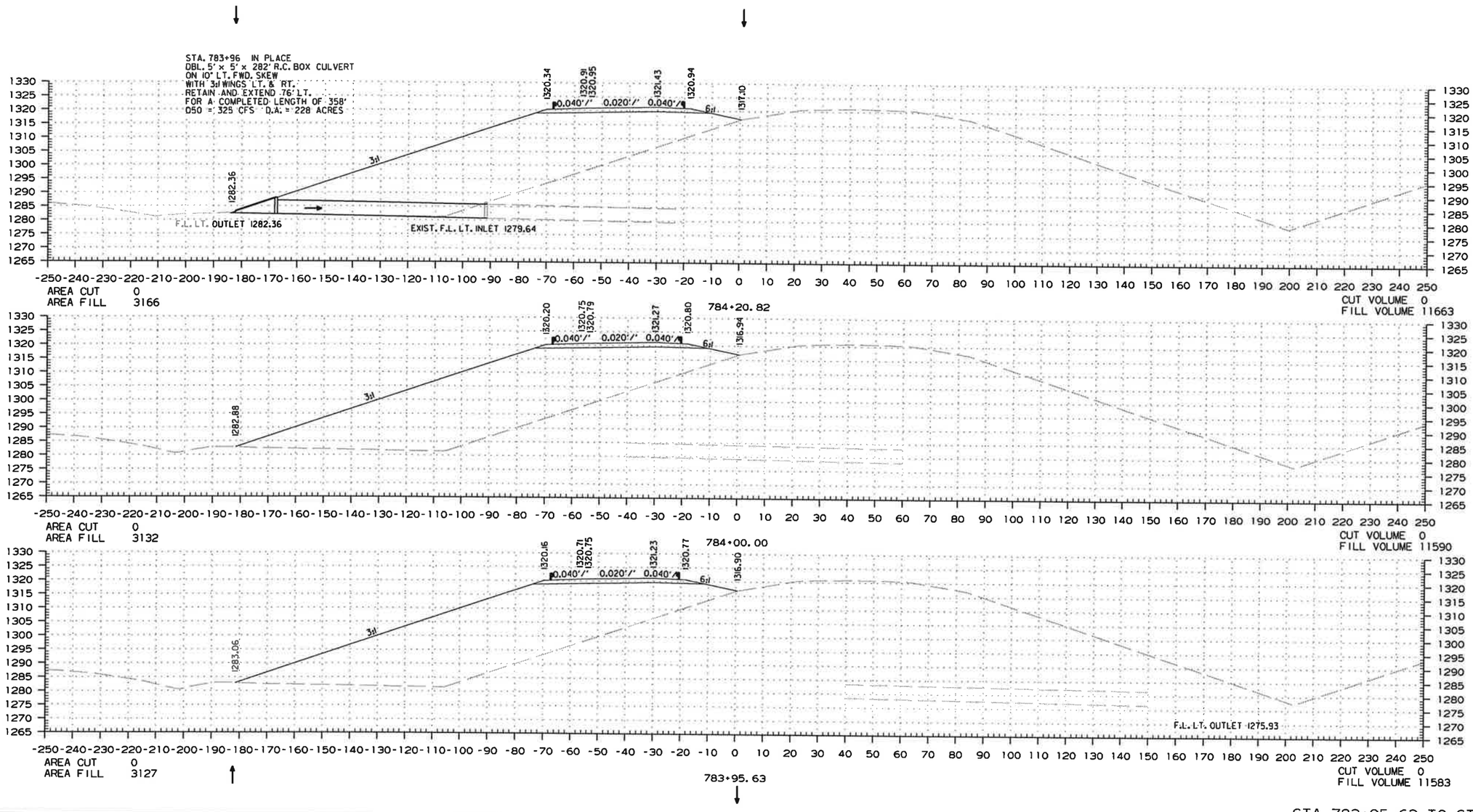
STA. 782+00.00 TO STA. 783+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	246	335

(2) CROSS SECTIONS



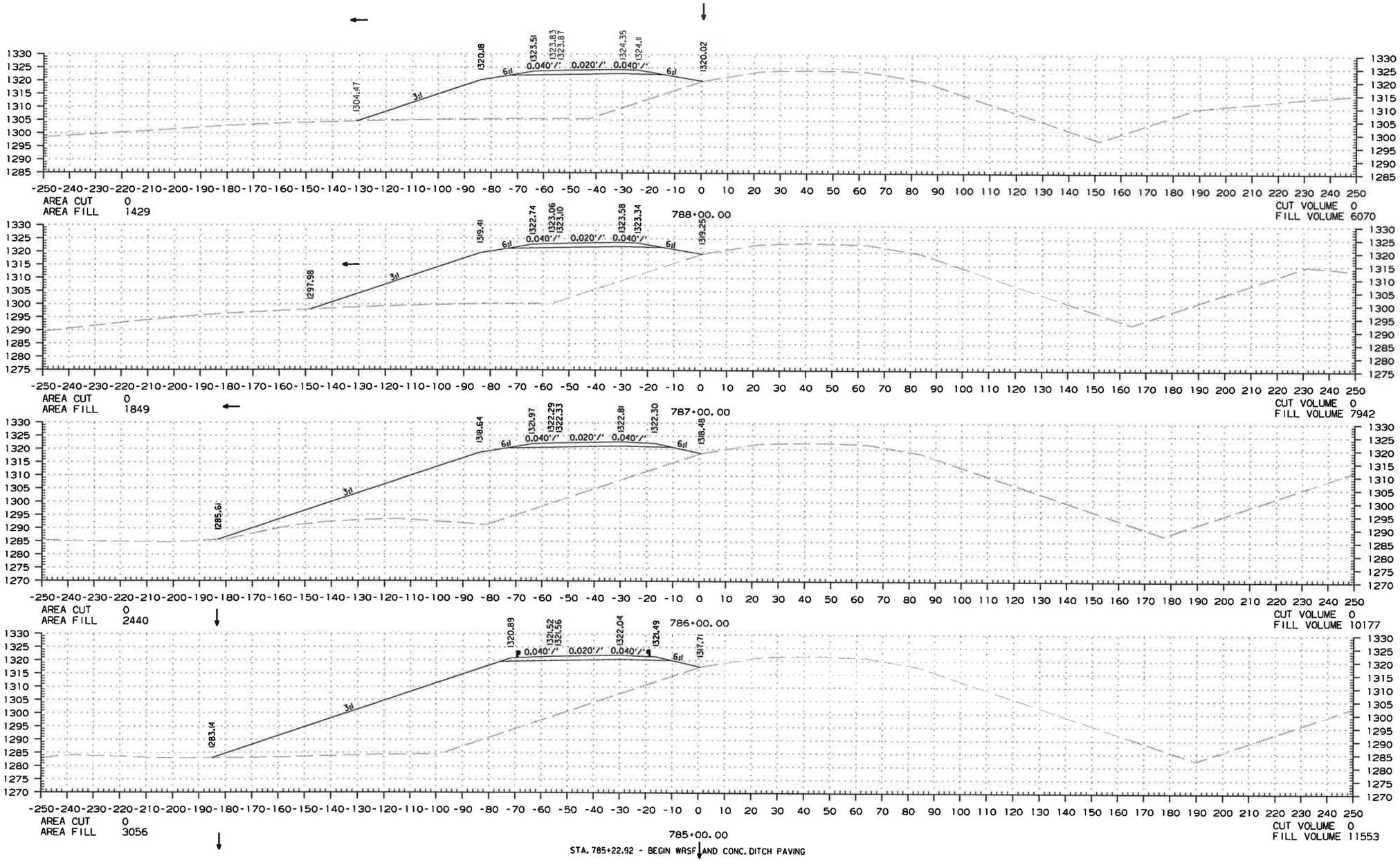
STA. 783+95.63 TO STA. 784+20.82

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	247	335

(2) CROSS SECTIONS



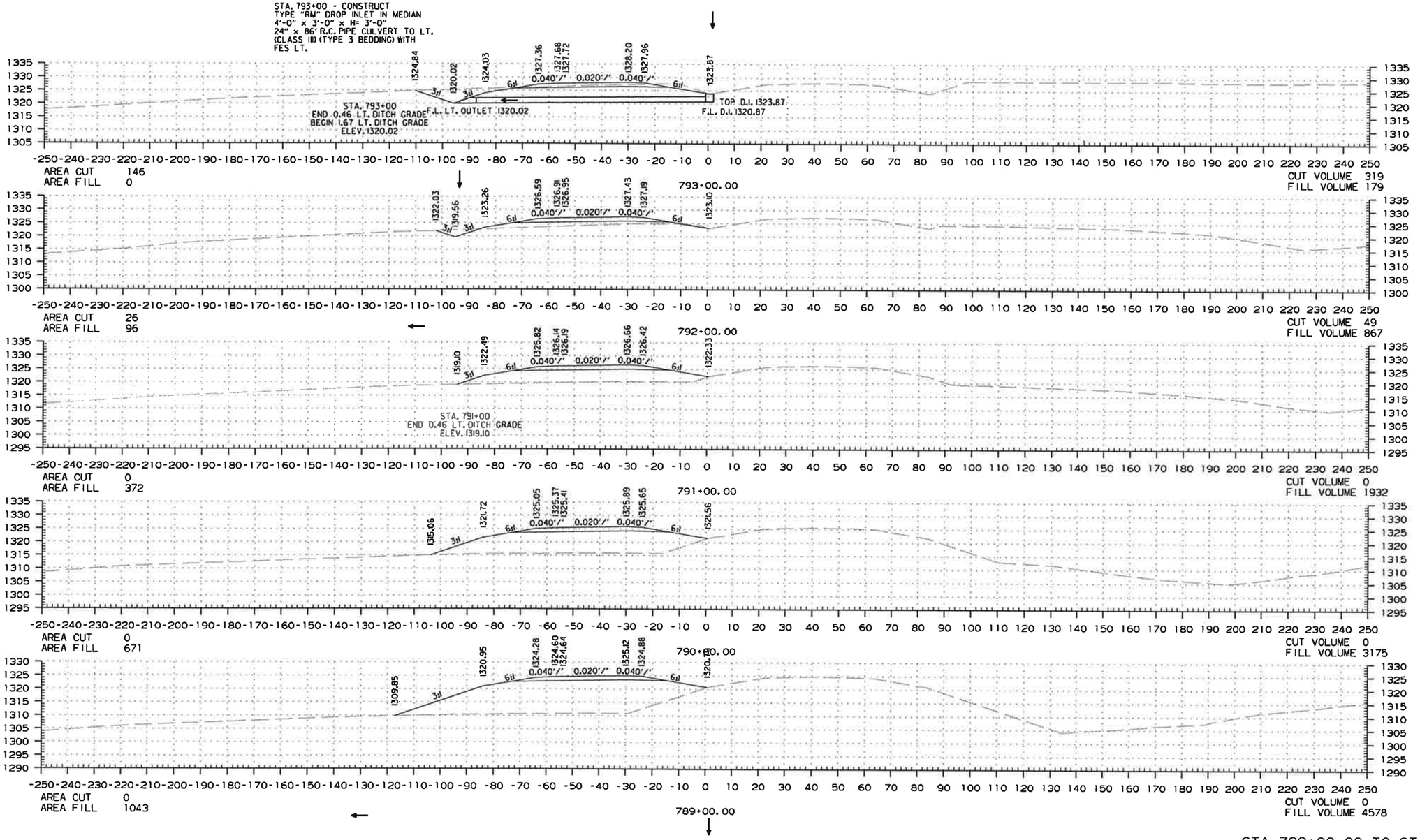
10/3/2017

R090508.DGN

STA. 785+00.00 TO STA. 788+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	248	335

(2) CROSS SECTIONS



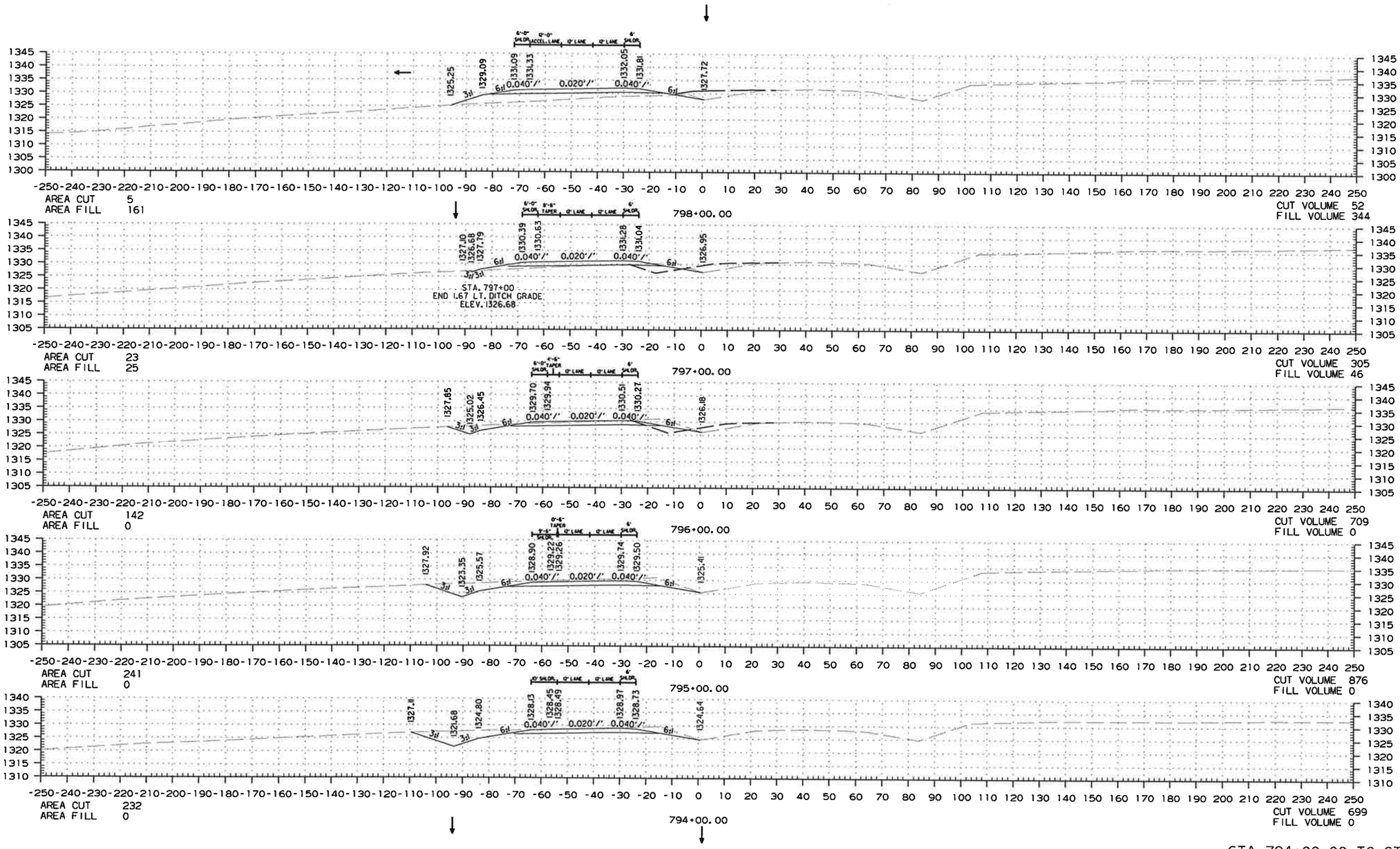
10/3/2017

R090508.DGN

STA. 789+00.00 TO STA. 793+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	249	335

(2) CROSS SECTIONS



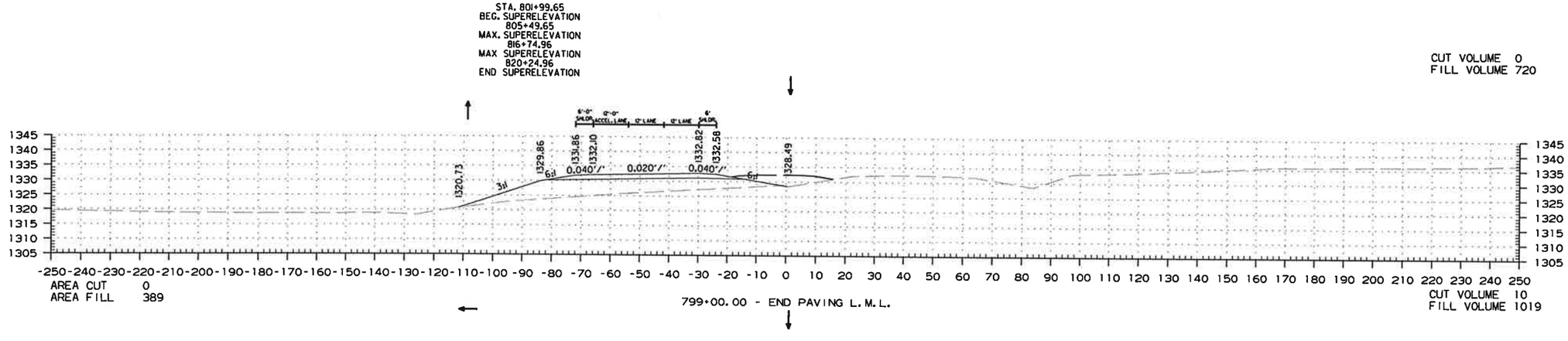
STA. 794+00.00 TO STA. 798+00.00

10/3/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	250	335

(2) CROSS SECTIONS



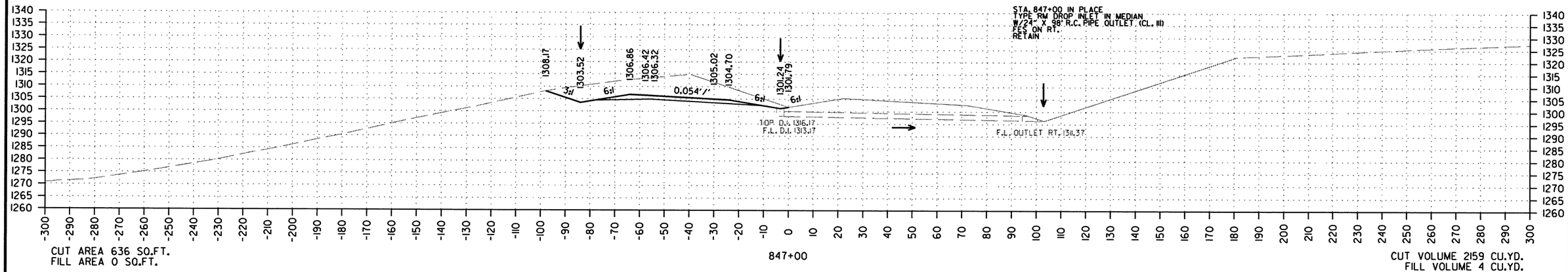
10/3/2017

R090508.DGN

STA. 799+00.00 TO STA. 799+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	251	335

(2) CROSS SECTIONS



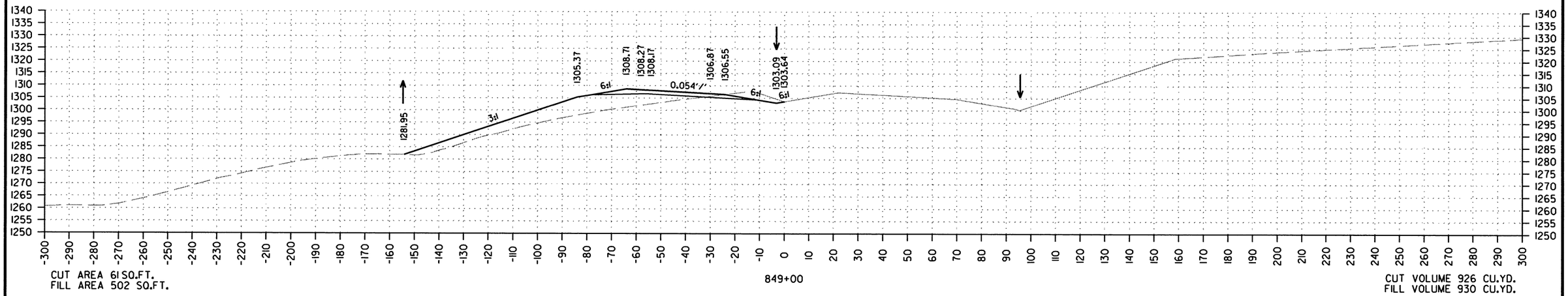
CROSS SECTION STA. 845+00 TO STA. 847+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	252	335

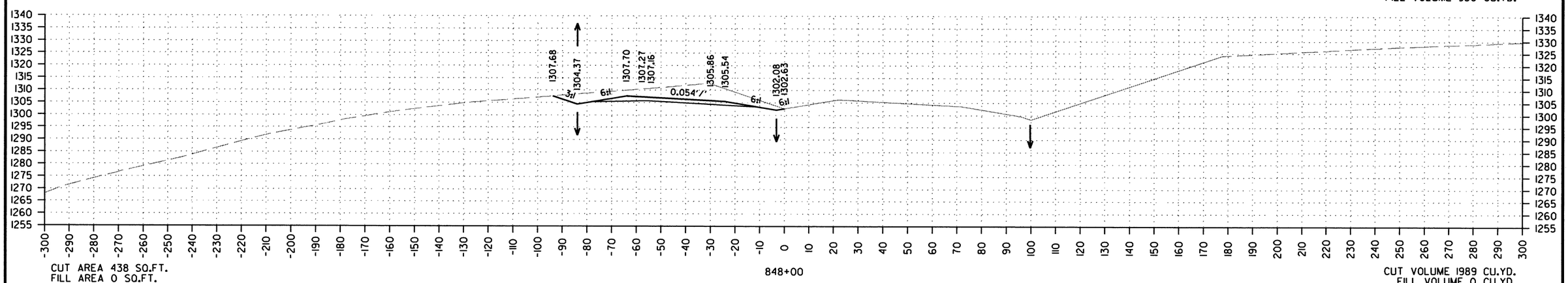
(2) CROSS SECTIONS



CUT AREA 61 SQ.FT.
FILL AREA 502 SQ.FT.

849+00

CUT VOLUME 926 CU.YD.
FILL VOLUME 930 CU.YD.



CUT AREA 438 SQ.FT.
FILL AREA 0 SQ.FT.

848+00

CUT VOLUME 1989 CU.YD.
FILL VOLUME 0 CU.YD.

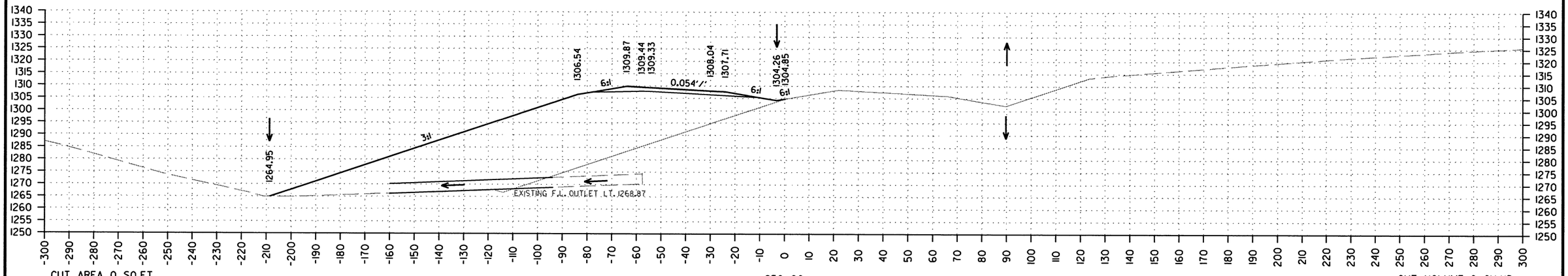
CROSS SECTION STA. 848+00 TO STA. 849+00

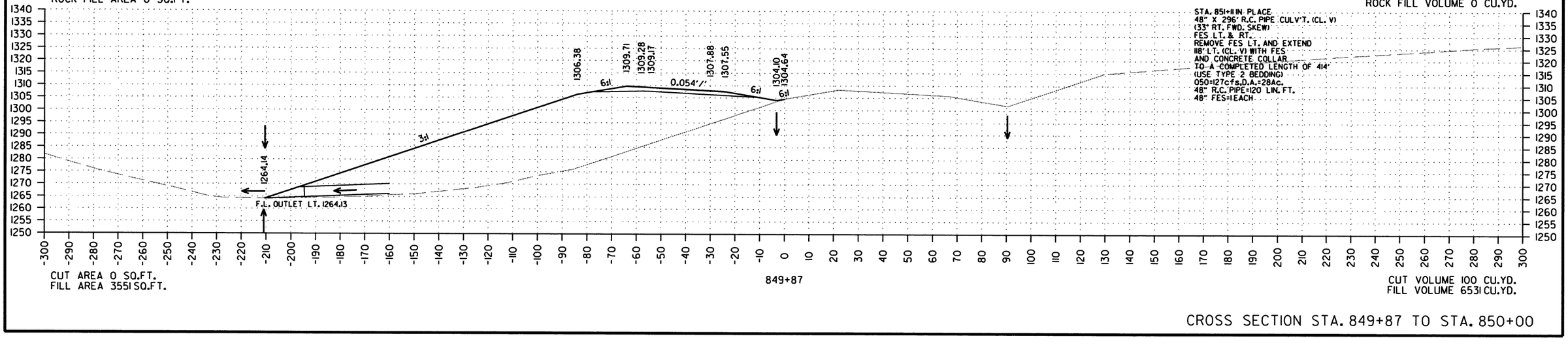
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	253	335

(2) CROSS SECTIONS





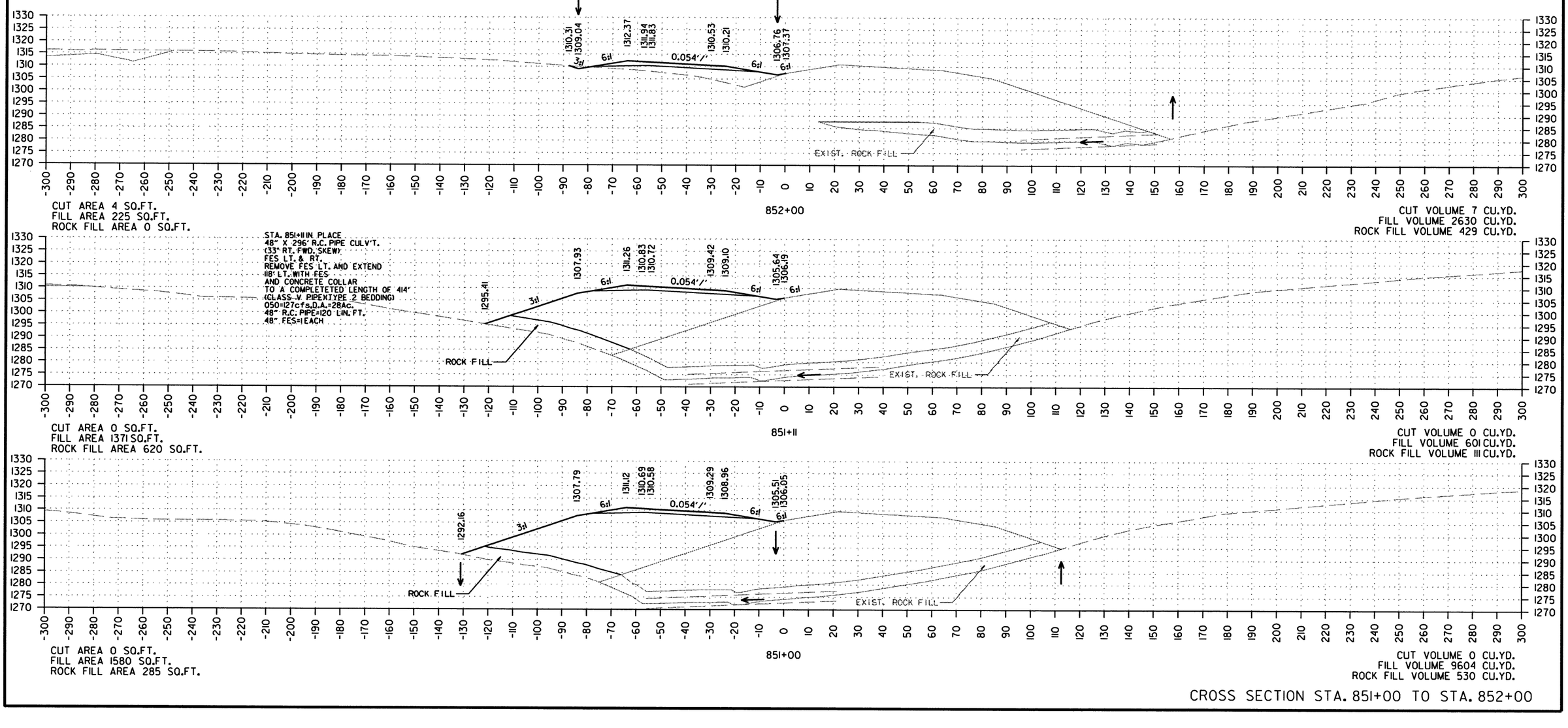
CROSS SECTION STA. 849+87 TO STA. 850+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	254	335

(2) CROSS SECTIONS



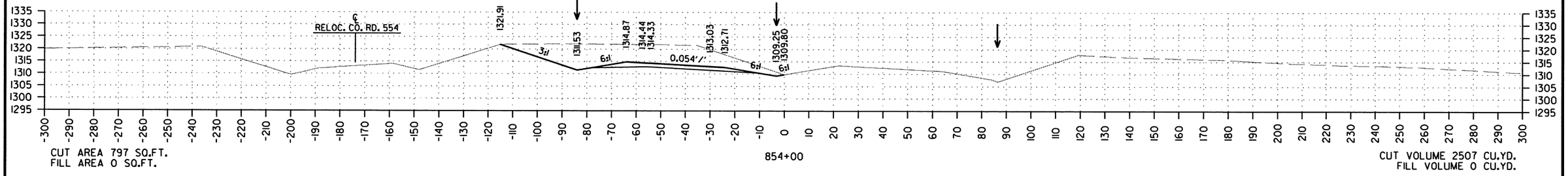
CROSS SECTION STA. 851+00 TO STA. 852+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	255	335

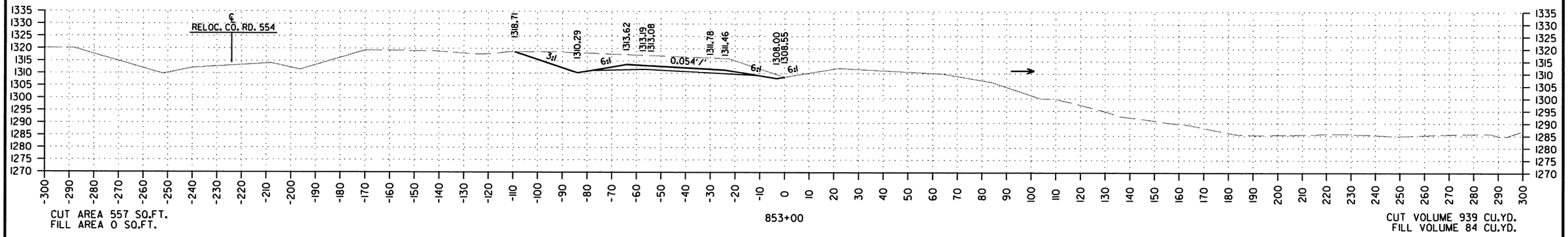
(2) CROSS SECTIONS



CUT AREA 797 SQ.FT.
FILL AREA 0 SQ.FT.

854+00

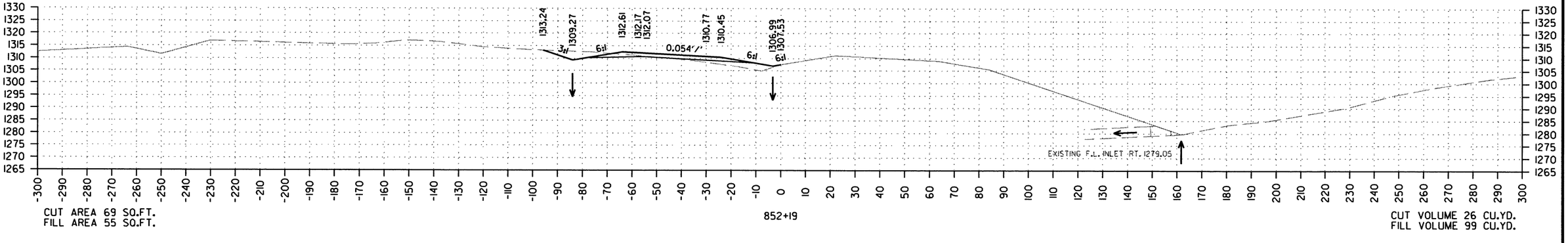
CUT VOLUME 2507 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 557 SQ.FT.
FILL AREA 0 SQ.FT.

853+00

CUT VOLUME 939 CU.YD.
FILL VOLUME 84 CU.YD.



CUT AREA 69 SQ.FT.
FILL AREA 55 SQ.FT.

852+19

CUT VOLUME 26 CU.YD.
FILL VOLUME 99 CU.YD.

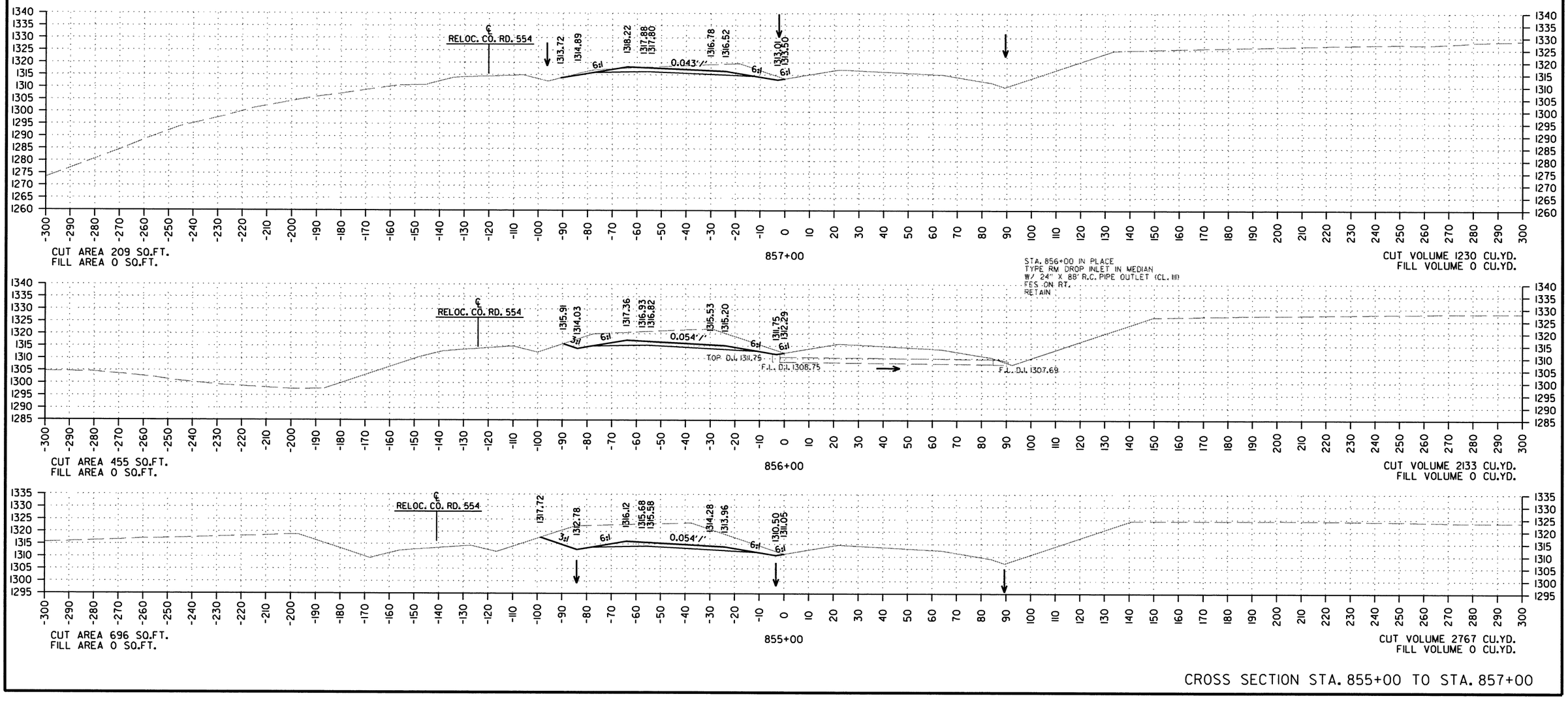
CROSS SECTION STA. 852+19 TO STA. 854+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	256	335

(2) CROSS SECTIONS



CROSS SECTION STA. 855+00 TO STA. 857+00

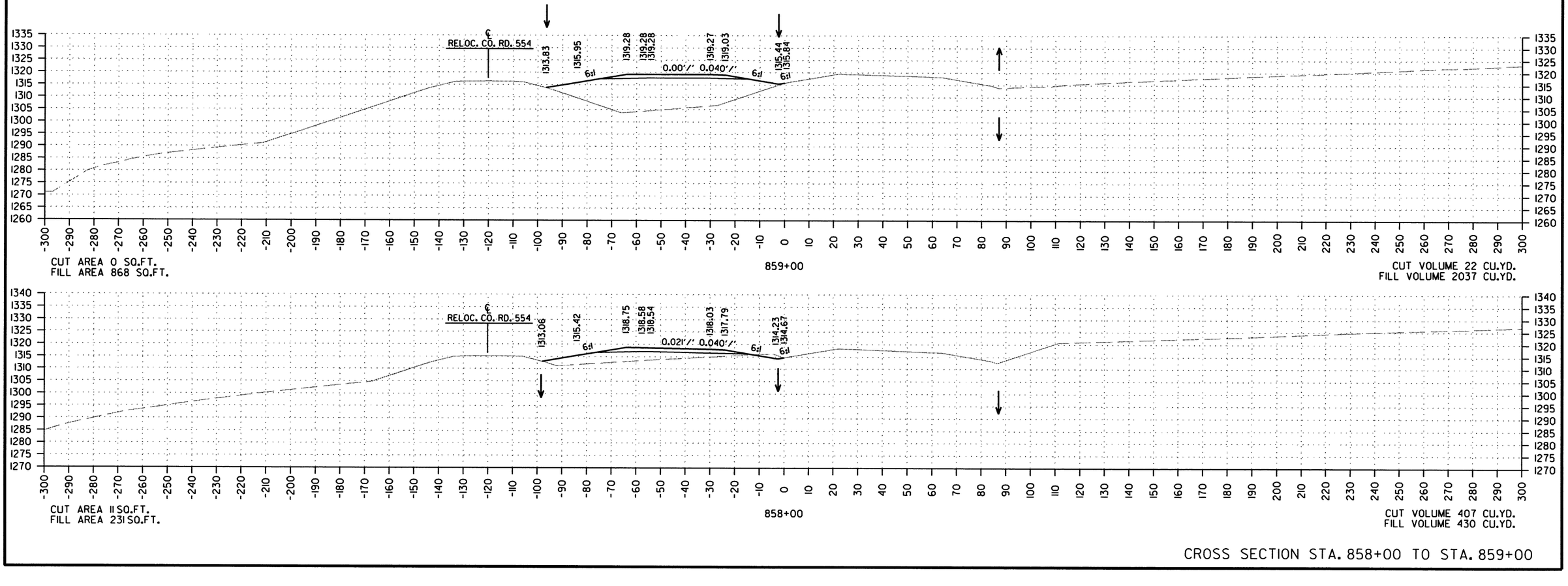
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	257	335

(2) CROSS SECTIONS



CROSS SECTION STA. 858+00 TO STA. 859+00

9/14/2017

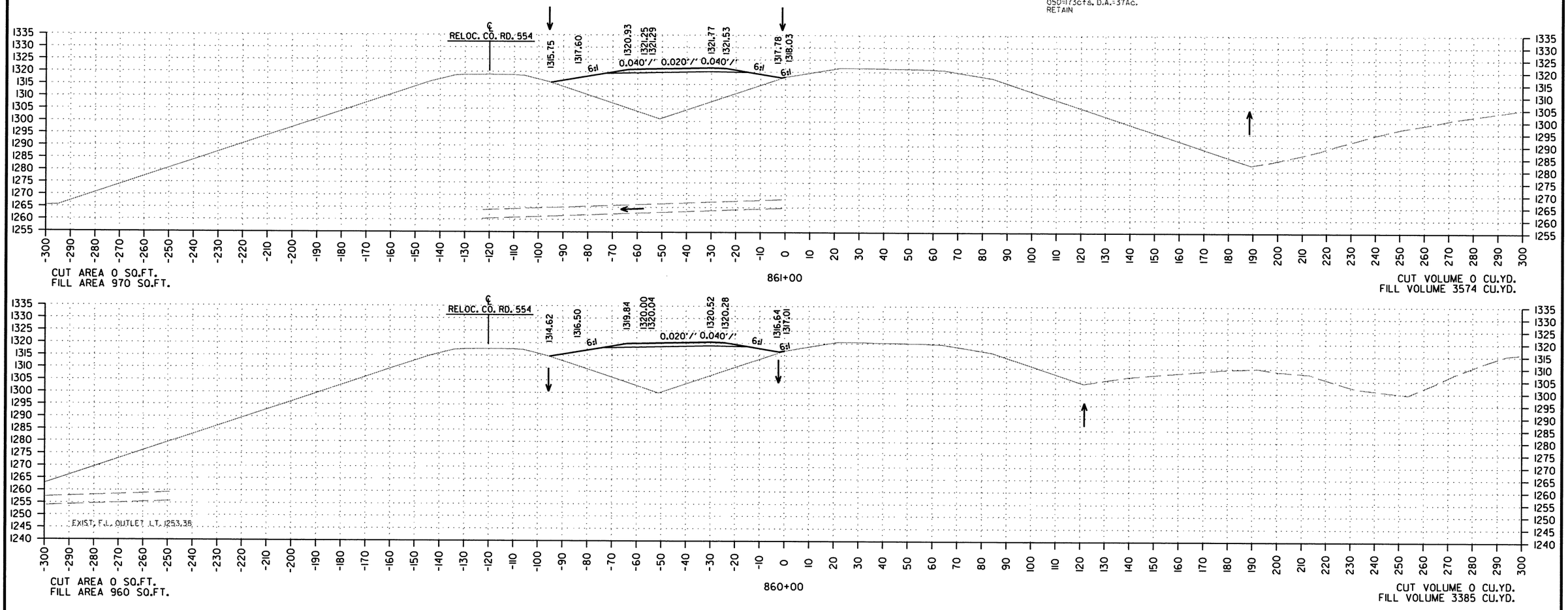
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	258	335

(2) CROSS SECTIONS

STA. 861+30 IN PLACE
DBL. 42" X 56' R.C. PIPE CULV'T.
(CLASS SPECIAL)
(22° RT. FWD. SKEW)
FES LT. & RT.
Q50=173cfs. D.A.=37Ac.
RETAIN



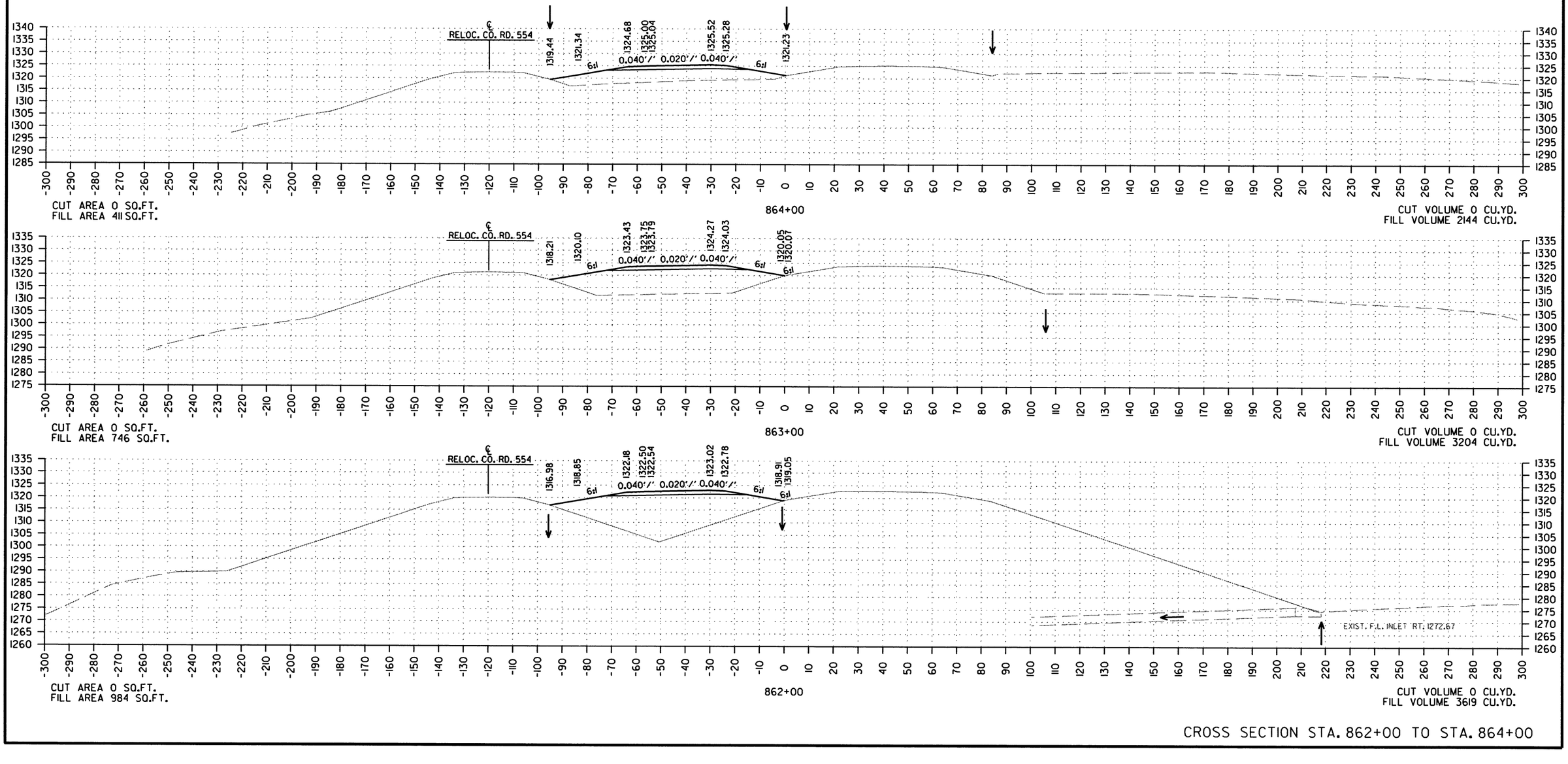
CROSS SECTION STA. 860+00 TO STA. 861+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	259	335

(2) CROSS SECTIONS



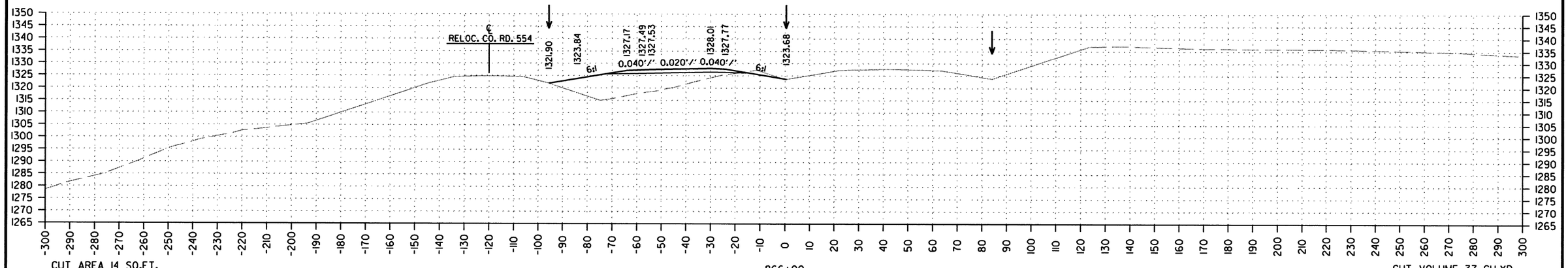
CROSS SECTION STA. 862+00 TO STA. 864+00

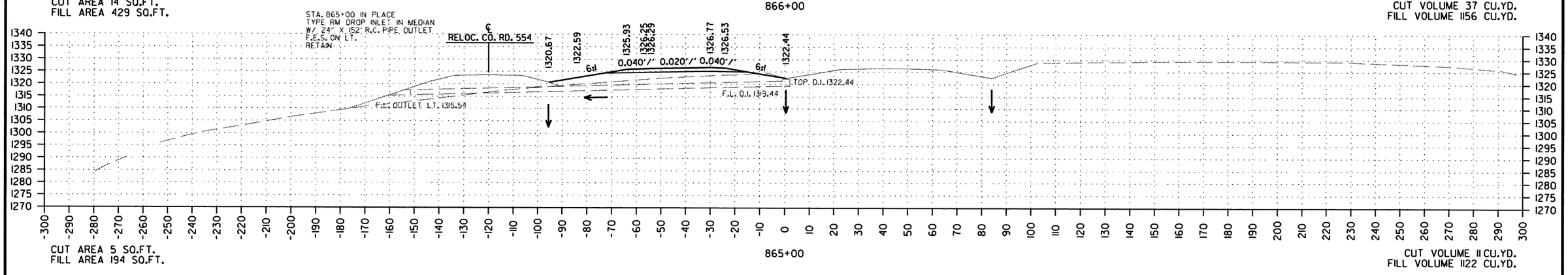
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	260	335

(2) CROSS SECTIONS





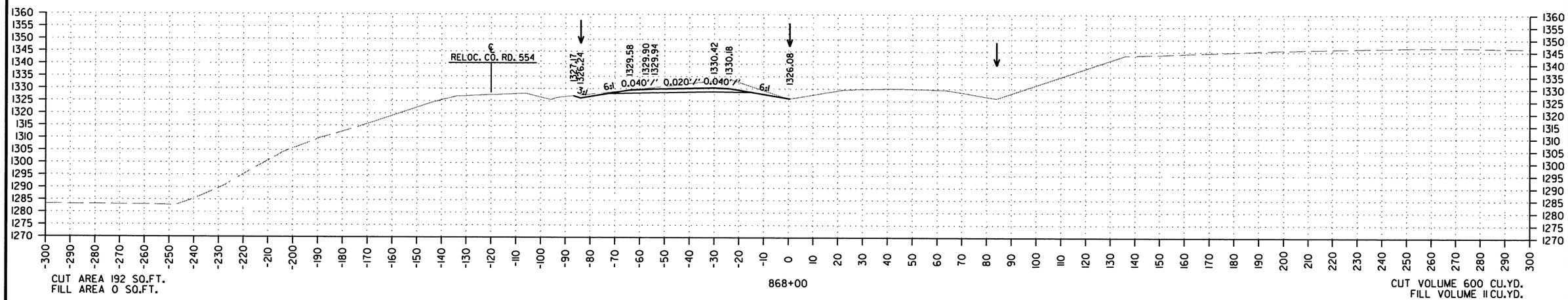
CROSS SECTION STA. 865+00 TO STA. 866+00

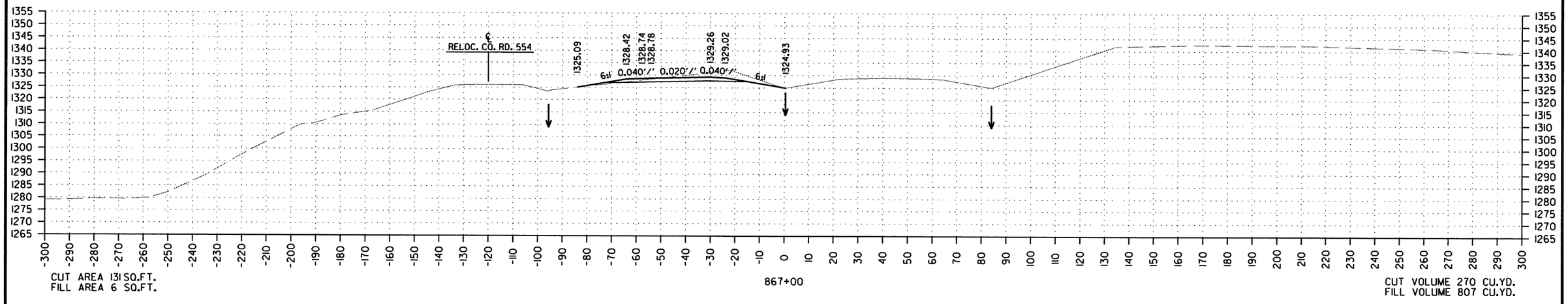
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	261	335

(2) CROSS SECTIONS





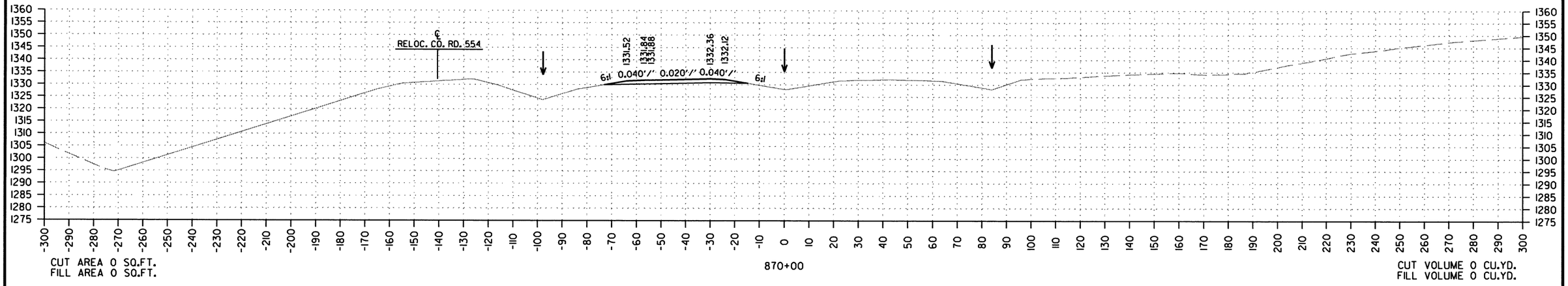
CROSS SECTION STA. 867+00 TO STA. 868+00

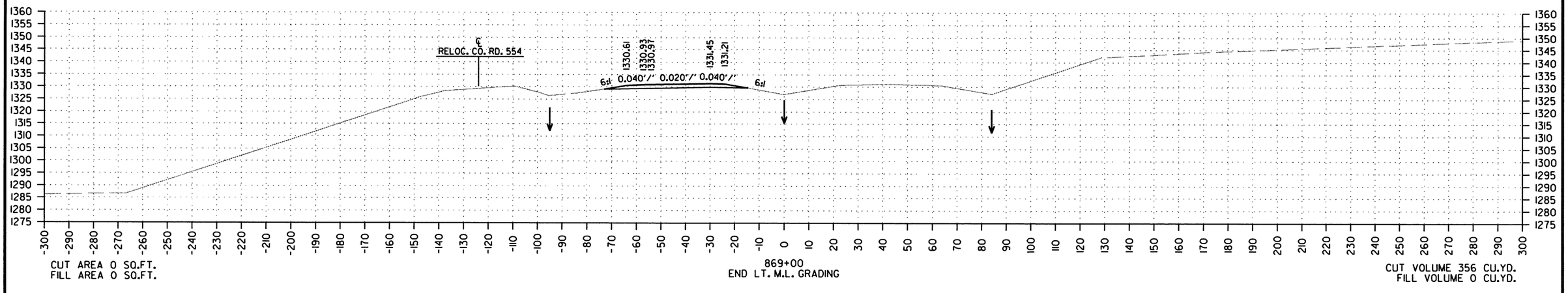
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	262	335

(2) CROSS SECTIONS





CROSS SECTION STA. 869+00 TO STA. 870+00

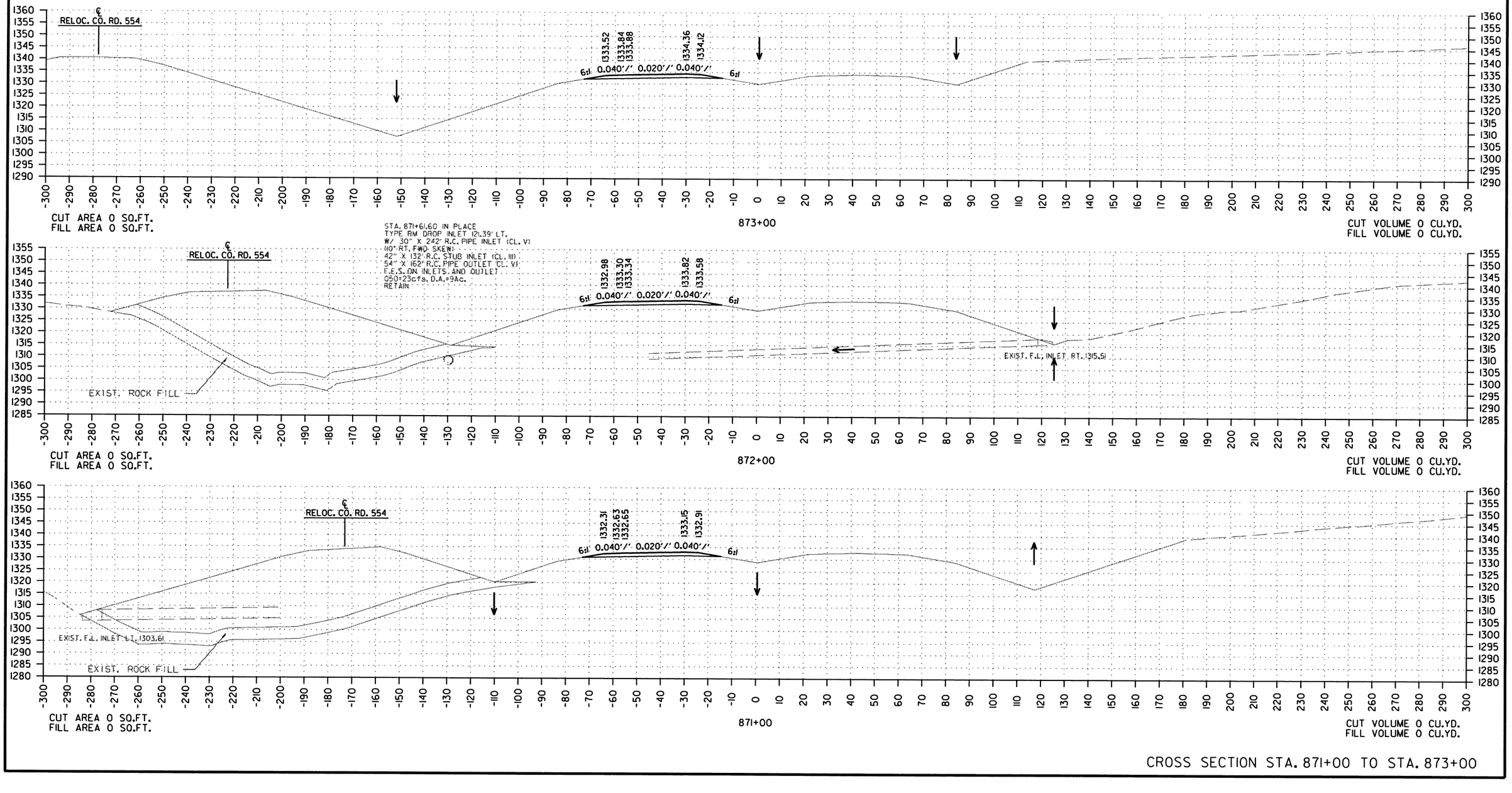
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	263	335

(2) CROSS SECTIONS



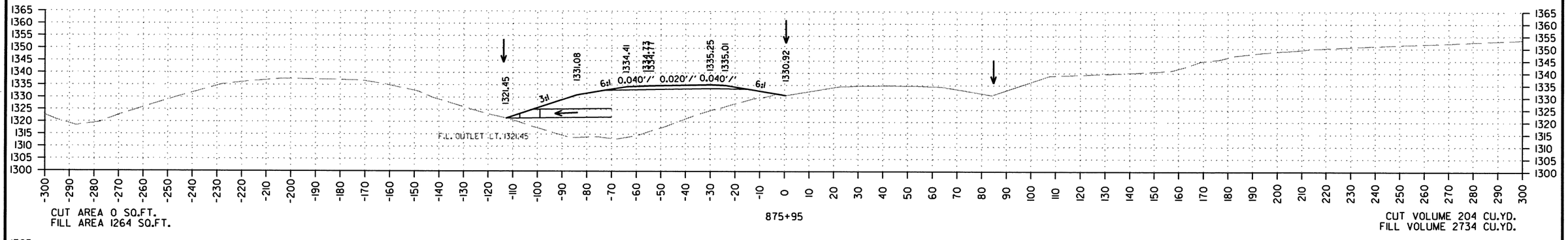
9/14/2017

R090508.DGN

CROSS SECTION STA. 871+00 TO STA. 873+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	264	335

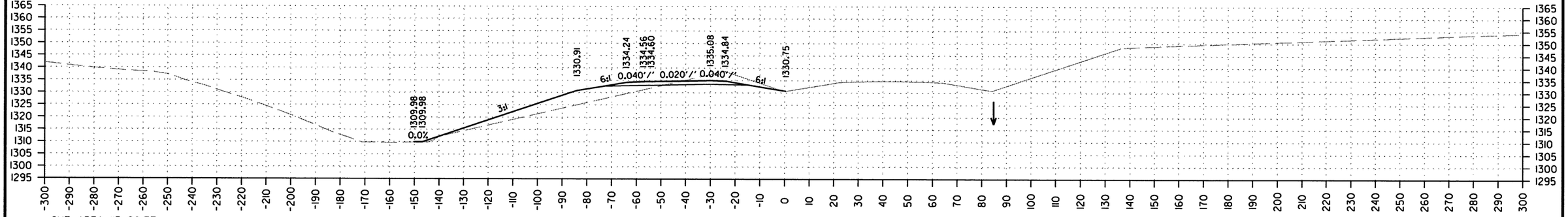
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1264 SQ.FT.

875+95

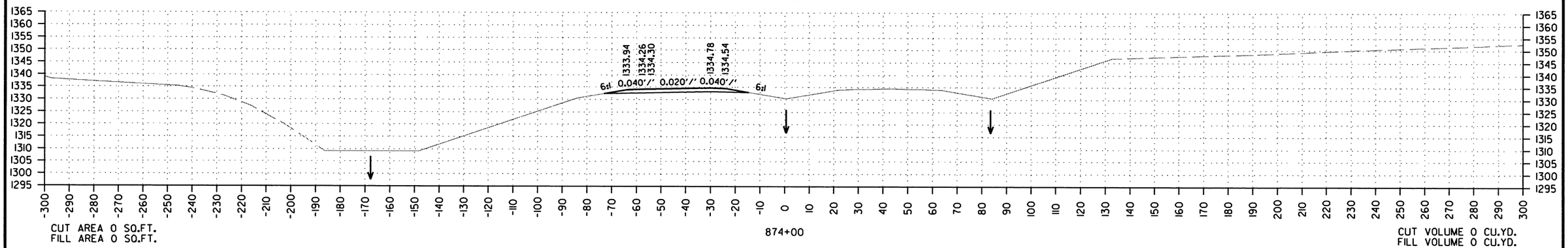
CUT VOLUME 204 CU.YD.
FILL VOLUME 2734 CU.YD.



CUT AREA 115 SQ.FT.
FILL AREA 290 SQ.FT.

875+00
874+99 - BEGIN L.M.L. GRADING

CUT VOLUME 215 CU.YD.
FILL VOLUME 537 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

874+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

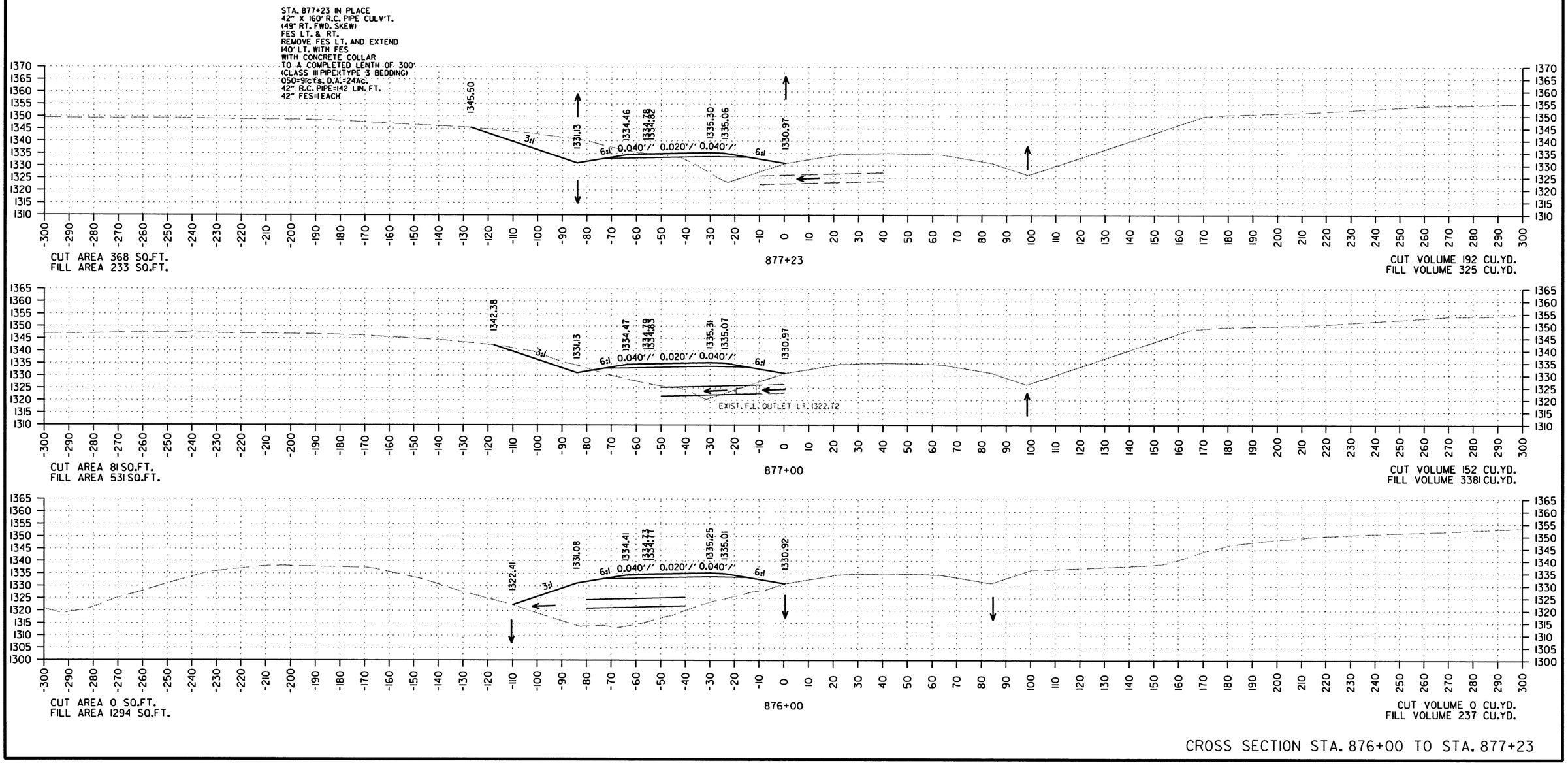
CROSS SECTION STA. 874+00 TO STA. 875+95

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	265	335

(2) CROSS SECTIONS



CROSS SECTION STA. 876+00 TO STA. 877+23

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	266	335

(2) CROSS SECTIONS

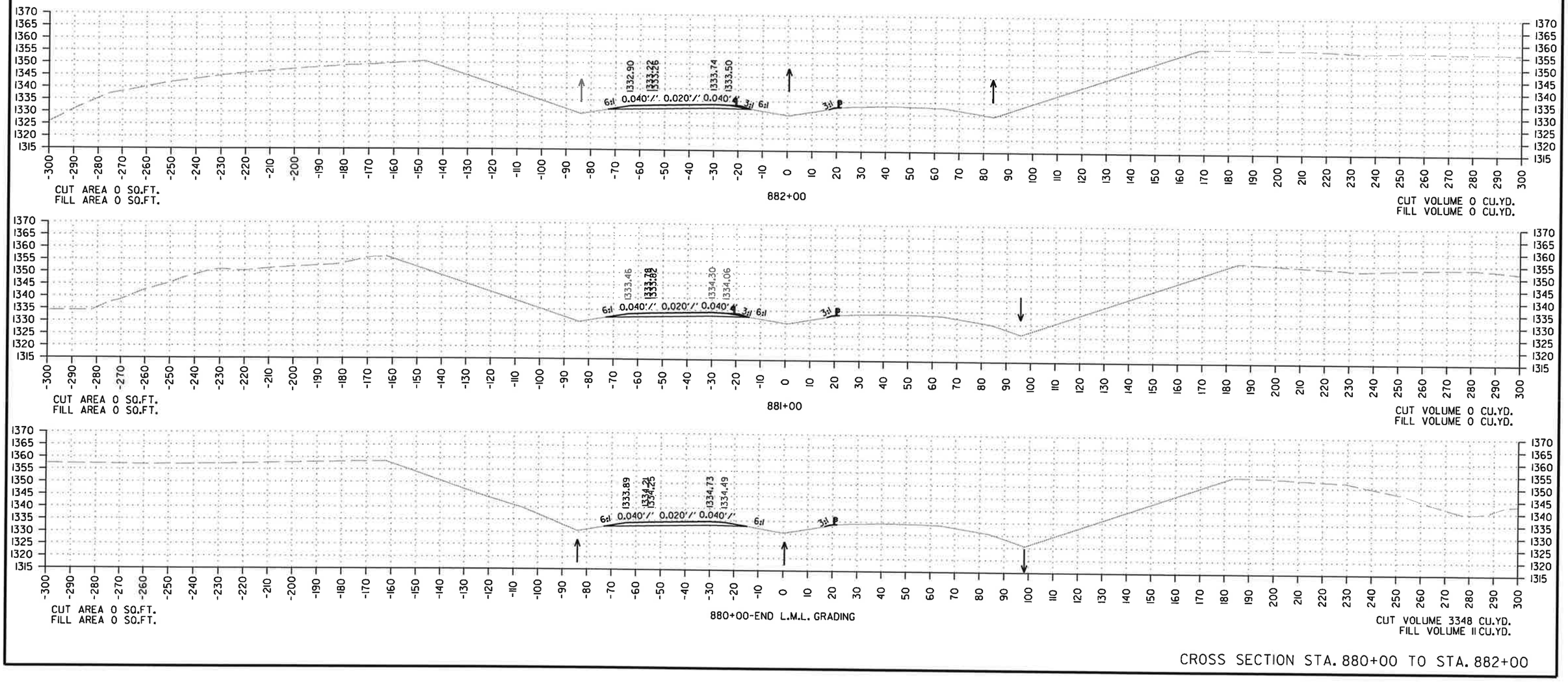
CROSS SECTION STA. 878+00 TO STA. 879+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	267	335

(2) CROSS SECTIONS



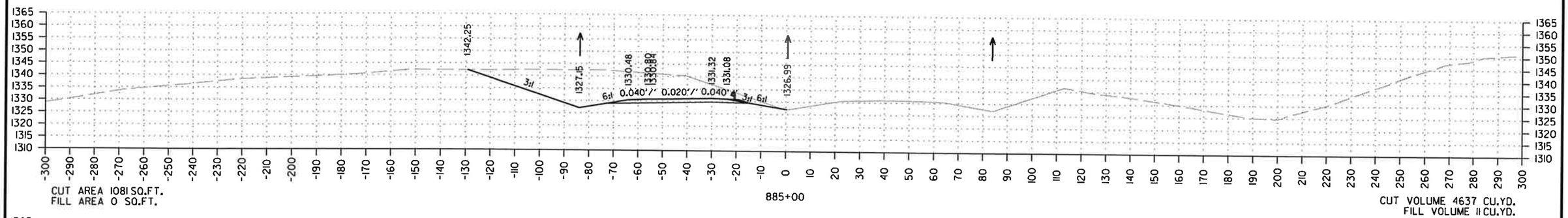
CROSS SECTION STA. 880+00 TO STA. 882+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	268	335

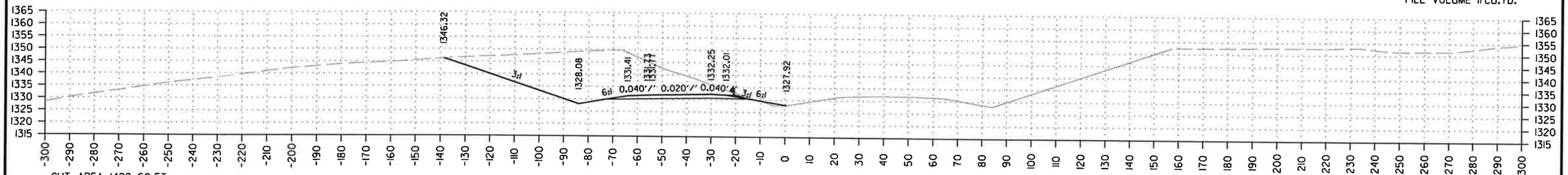
(2) CROSS SECTIONS



CUT AREA 1081 SQ.FT.
FILL AREA 0 SQ.FT.

885+00

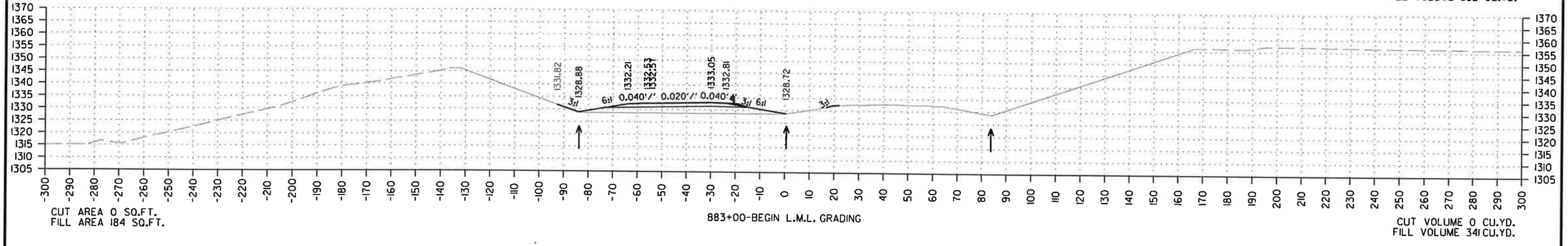
CUT VOLUME 4637 CU.YD.
FILL VOLUME 11 CU.YD.



CUT AREA 1422 SQ.FT.
FILL AREA 5 SQ.FT.

884+00

CUT VOLUME 2633 CU.YD.
FILL VOLUME 352 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 184 SQ.FT.

883+00-BEGIN L.M.L. GRADING

CUT VOLUME 0 CU.YD.
FILL VOLUME 341 CU.YD.

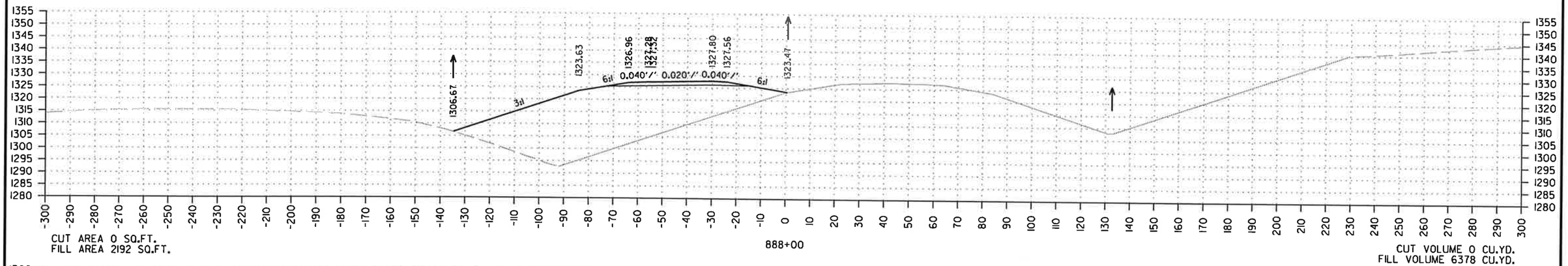
CROSS SECTION STA. 883+00 TO STA. 885+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	269	335

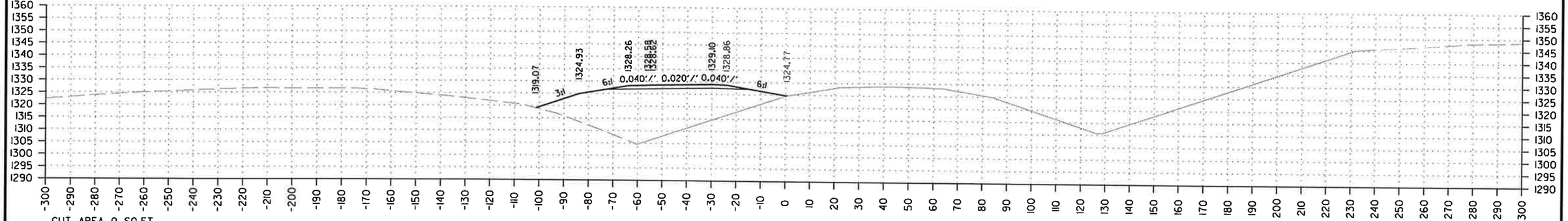
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 2192 SQ.FT.

888+00

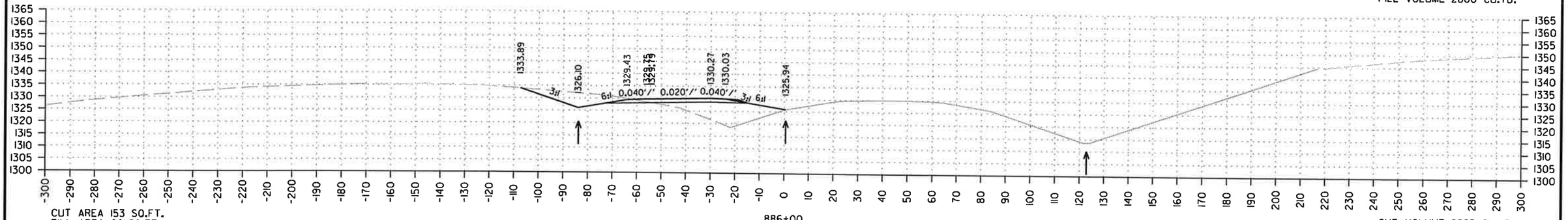
CUT VOLUME 0 CU.YD.
FILL VOLUME 6378 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1251 SQ.FT.

887+00

CUT VOLUME 285 CU.YD.
FILL VOLUME 2800 CU.YD.



CUT AREA 153 SQ.FT.
FILL AREA 261 SQ.FT.

886+00

STA. 885+72.03 - BEGIN CONC. DITCH PAVING
STA. 885+22.03 - BEGIN WRSF

CUT VOLUME 2285 CU.YD.
FILL VOLUME 485 CU.YD.

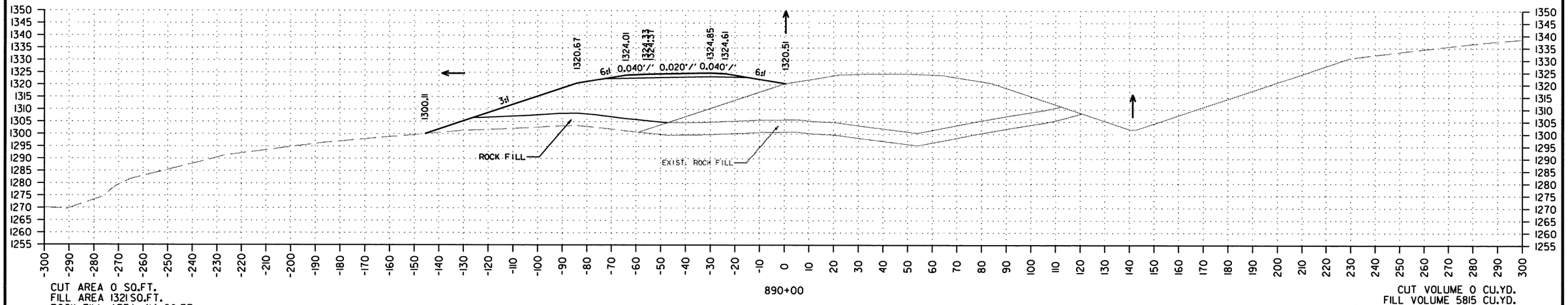
CROSS SECTION STA. 886+00 TO STA. 888+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	270	335

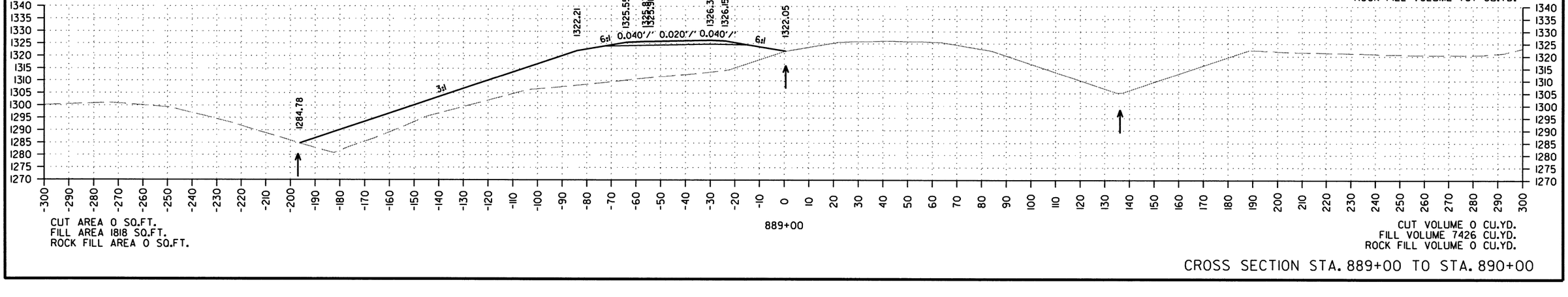
(2) CROSS SECTIONS



890+00

CUT AREA 0 SQ.FT.
FILL AREA 1321 SQ.FT.
ROCK FILL AREA 414 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 5815 CU.YD.
ROCK FILL VOLUME 767 CU.YD.



889+00

CUT AREA 0 SQ.FT.
FILL AREA 1818 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 7426 CU.YD.
ROCK FILL VOLUME 0 CU.YD.

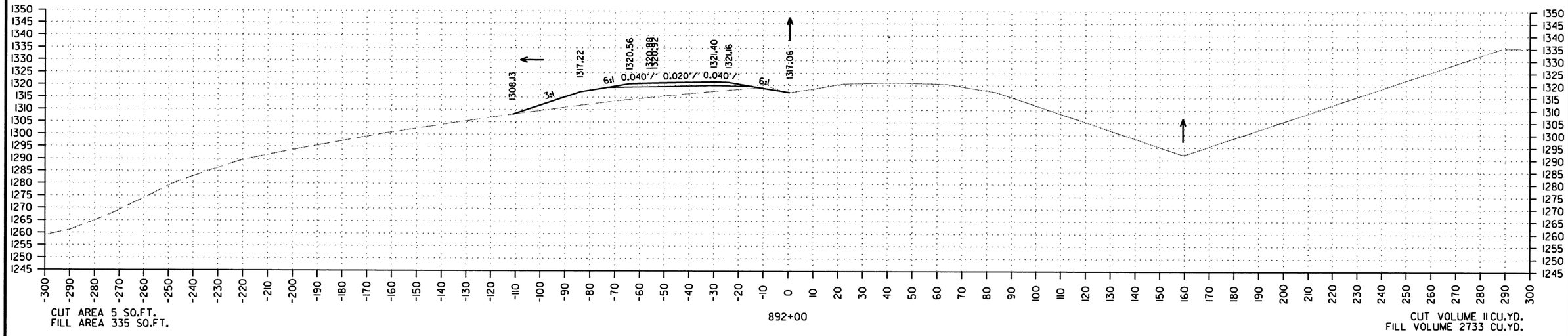
CROSS SECTION STA. 889+00 TO STA. 890+00

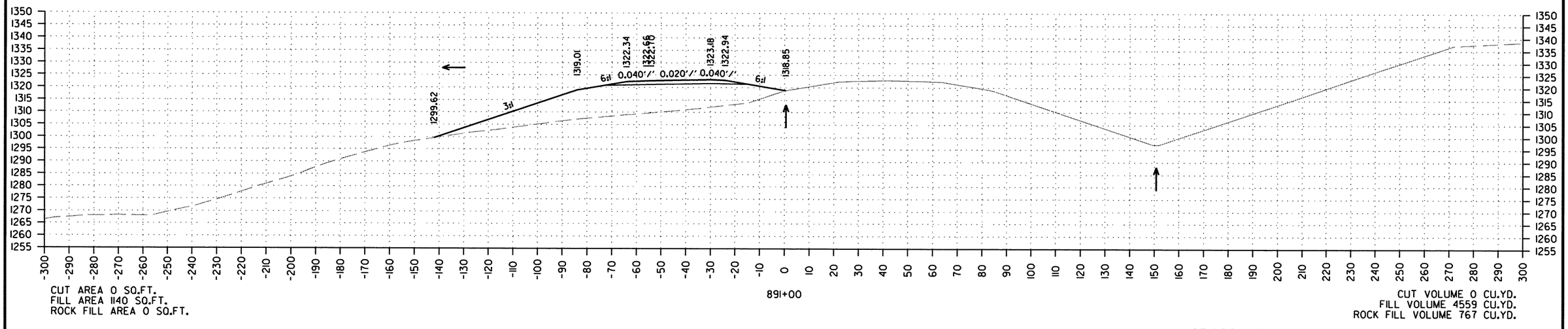
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	271	335

(2) CROSS SECTIONS





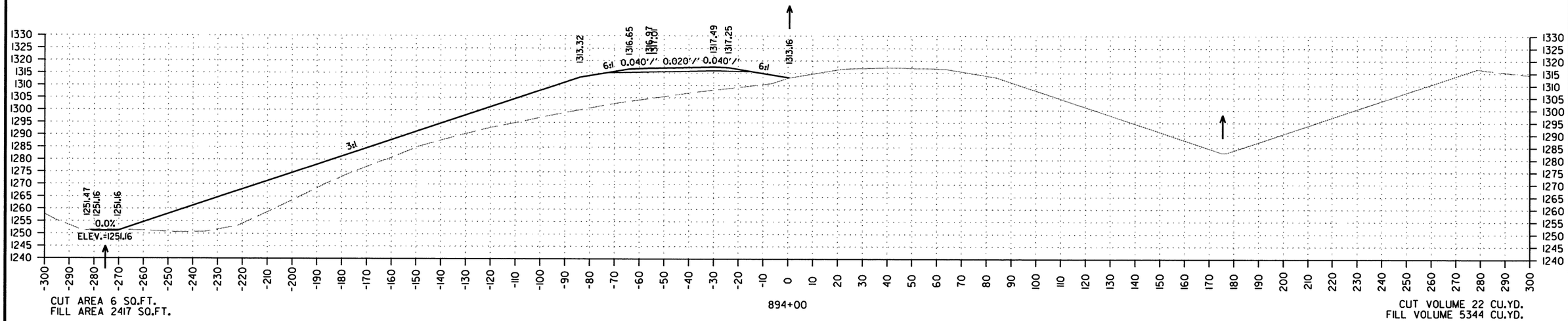
CROSS SECTION STA. 891+00 TO STA. 892+00

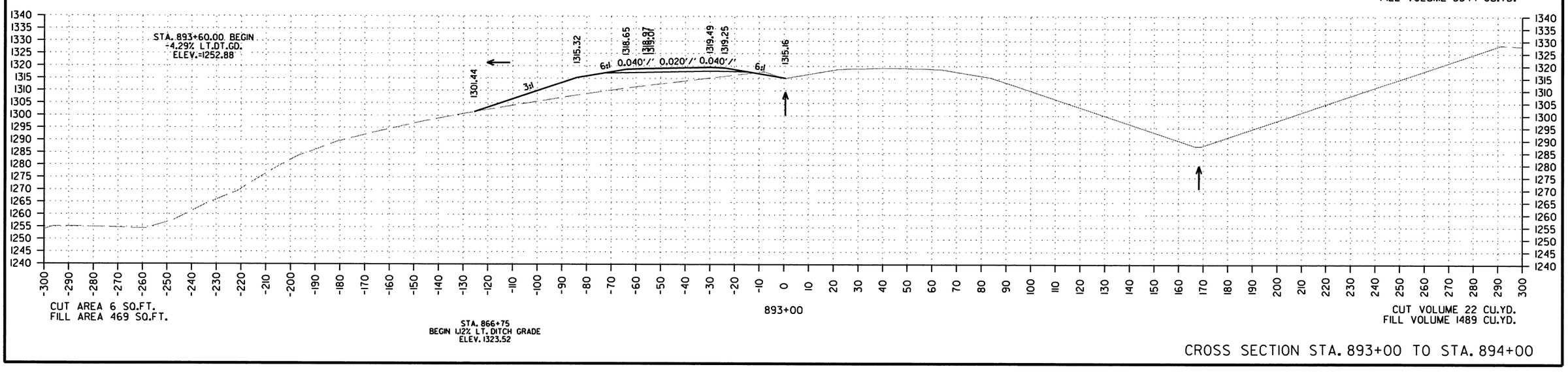
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	272	335

(2) CROSS SECTIONS





CROSS SECTION STA. 893+00 TO STA. 894+00

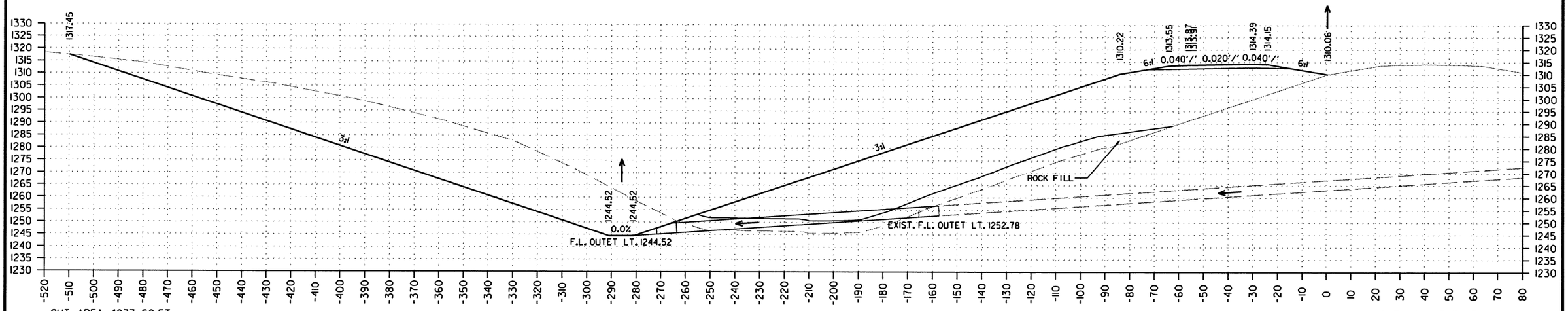
9/14/2017

R090508.DGN

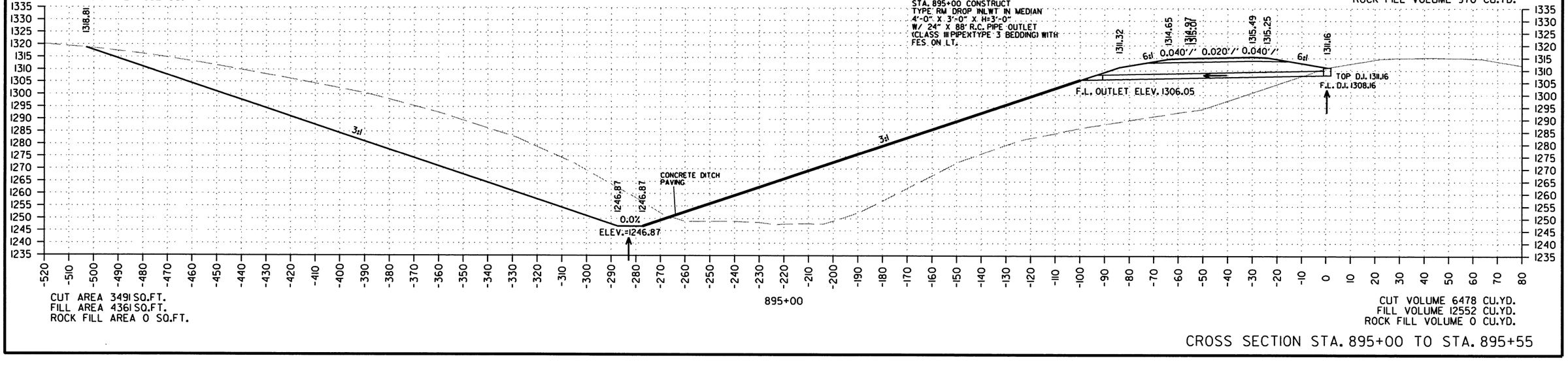
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	273	335

(2) CROSS SECTIONS

STA. 895+55 IN PLACE
48" X 336' R.C. PIPE CULV'T.
FES LT. & RT.
REMOVE FES LT. AND EXTEND 106'
WITH CONCRETE COLLAR
TO A COMPLETED LENGTH OF 442'
(CLASS SPECIAL)(TYPE 1 BEDDING)
Q50=98cfs, D.A.=27Ac.
48" R.C. PIPE=108 LIN. FT.
48" FES=1 EACH



STA. 895+00 CONSTRUCT
TYPE RM DROP INLWT IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/ 24" X 88' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.

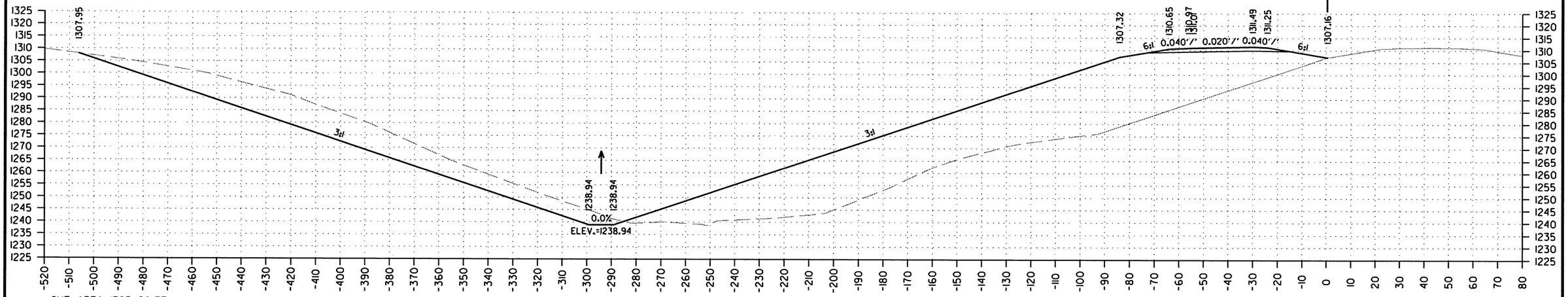


CROSS SECTION STA. 895+00 TO STA. 895+55

9/14/2017

R090508.DGN

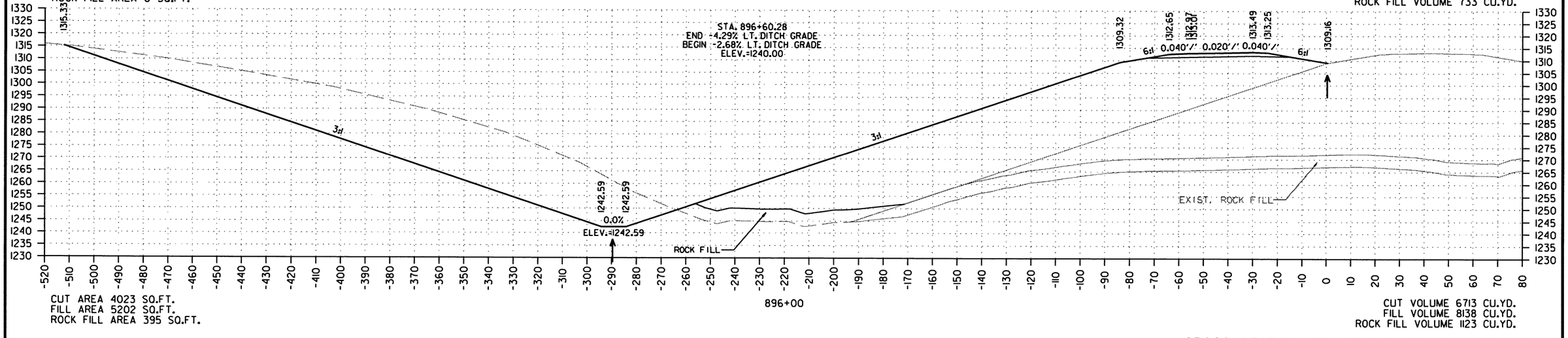
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	274	335
				(2) CROSS SECTIONS				



CUT AREA 1705 SQ.FT.
FILL AREA 5144 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

897+00

CUT VOLUME 10607 CU.YD.
FILL VOLUME 19159 CU.YD.
ROCK FILL VOLUME 733 CU.YD.



CUT AREA 4023 SQ.FT.
FILL AREA 5202 SQ.FT.
ROCK FILL AREA 395 SQ.FT.

896+00

CUT VOLUME 6713 CU.YD.
FILL VOLUME 8138 CU.YD.
ROCK FILL VOLUME 1123 CU.YD.

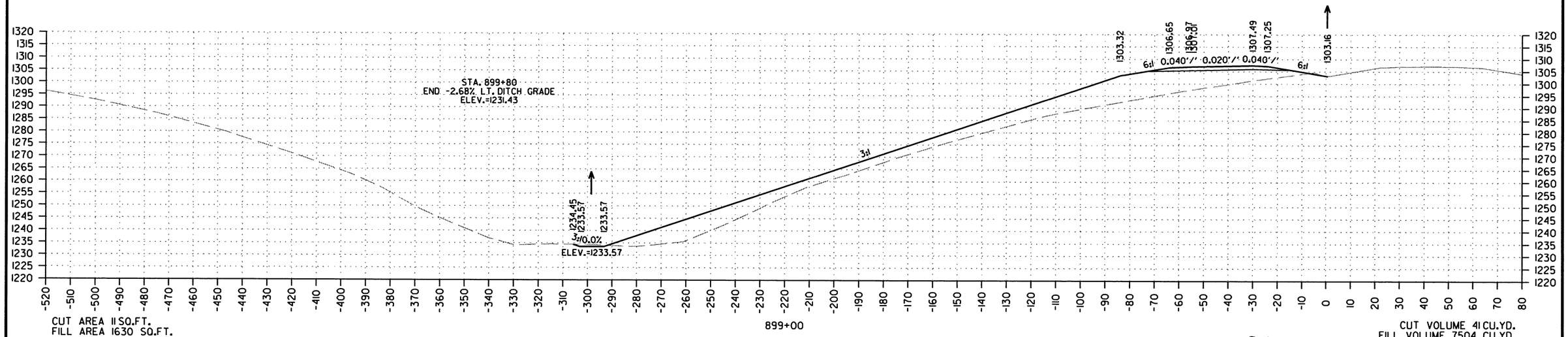
CROSS SECTION STA. 896+00 TO STA. 897+00

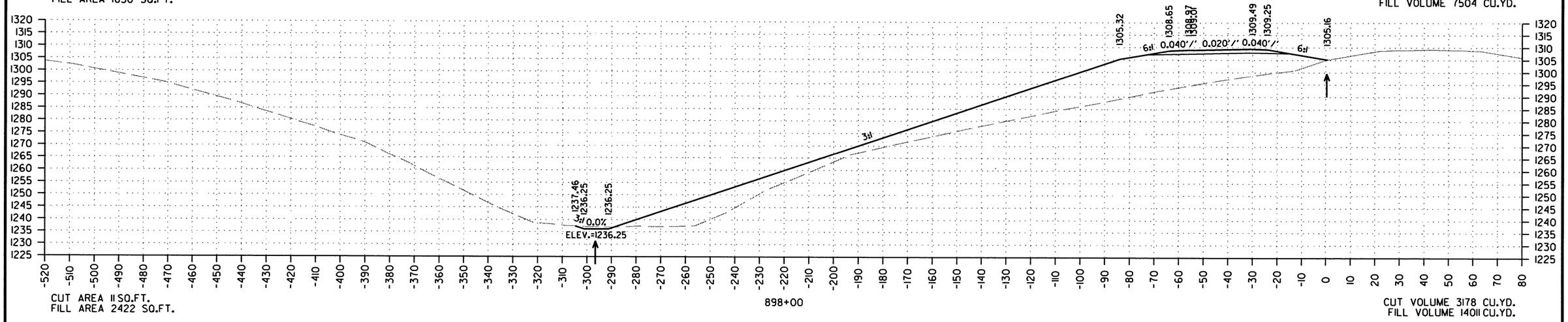
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	275	335

(2) CROSS SECTIONS





CROSS SECTION STA. 898+00 TO STA. 899+00

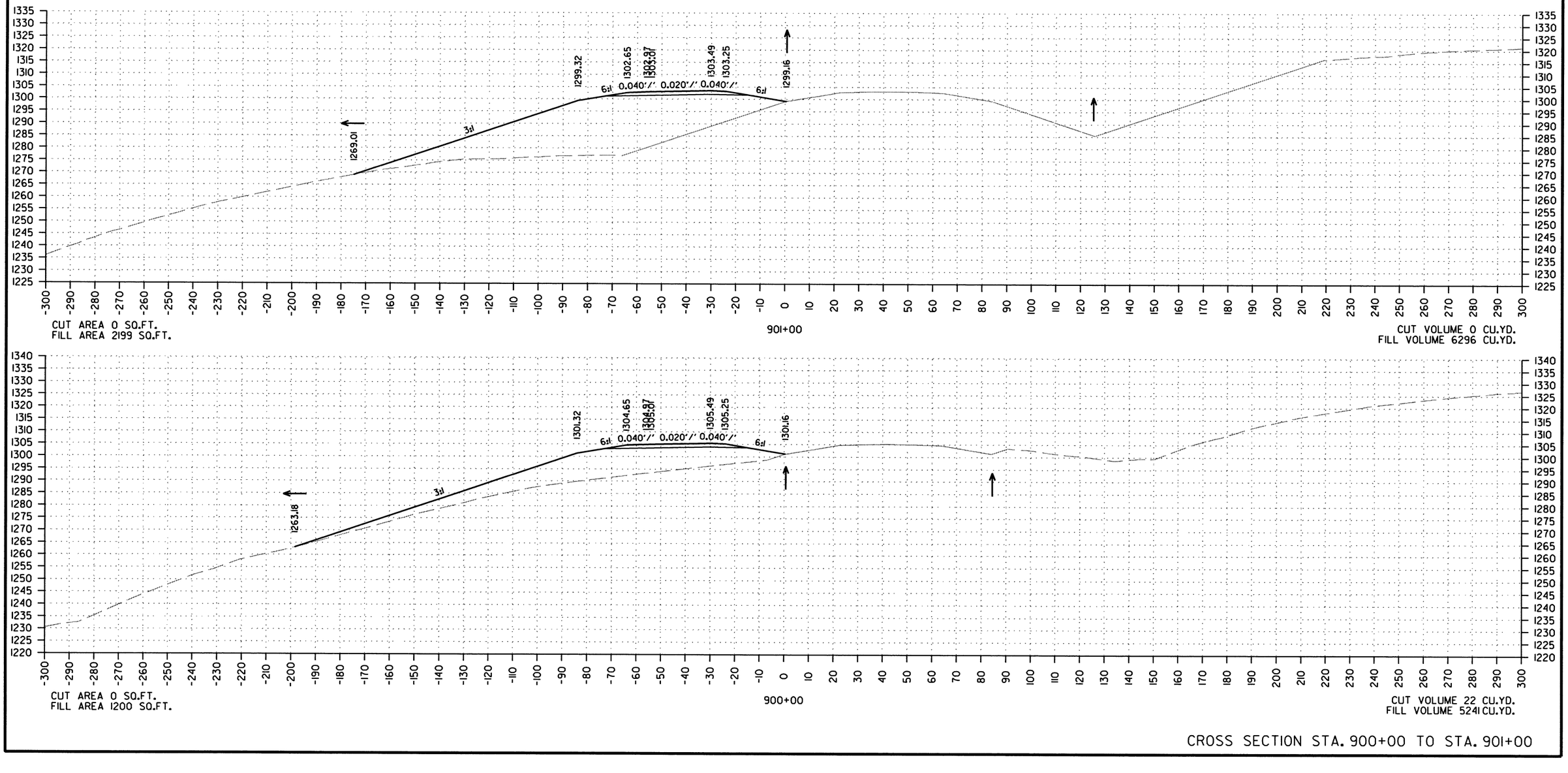
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	276	335

(2) CROSS SECTIONS



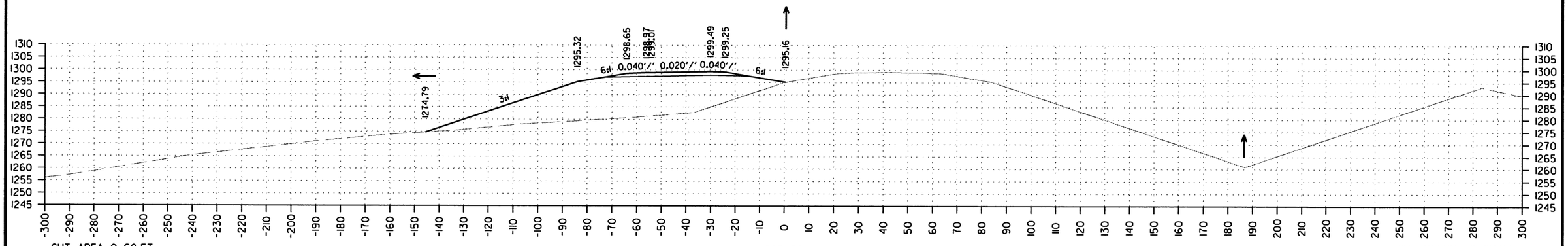
CROSS SECTION STA. 900+00 TO STA. 901+00

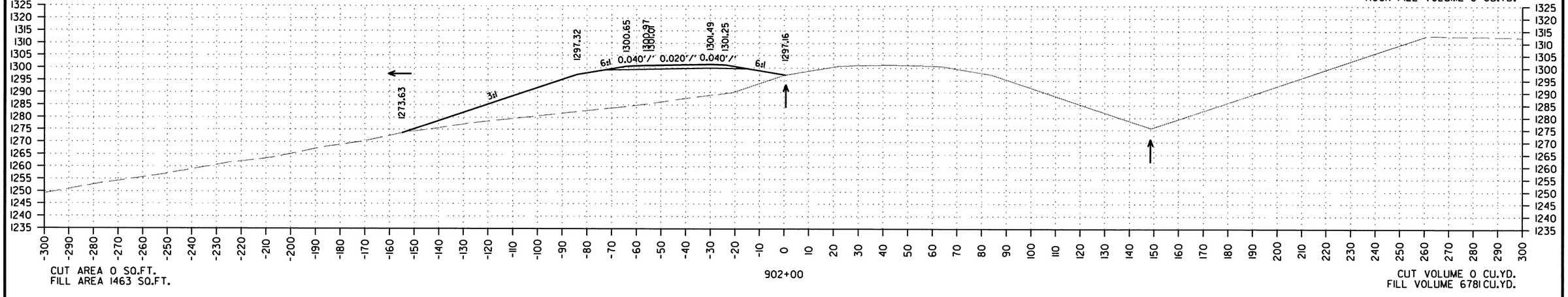
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	277	335

(2) CROSS SECTIONS





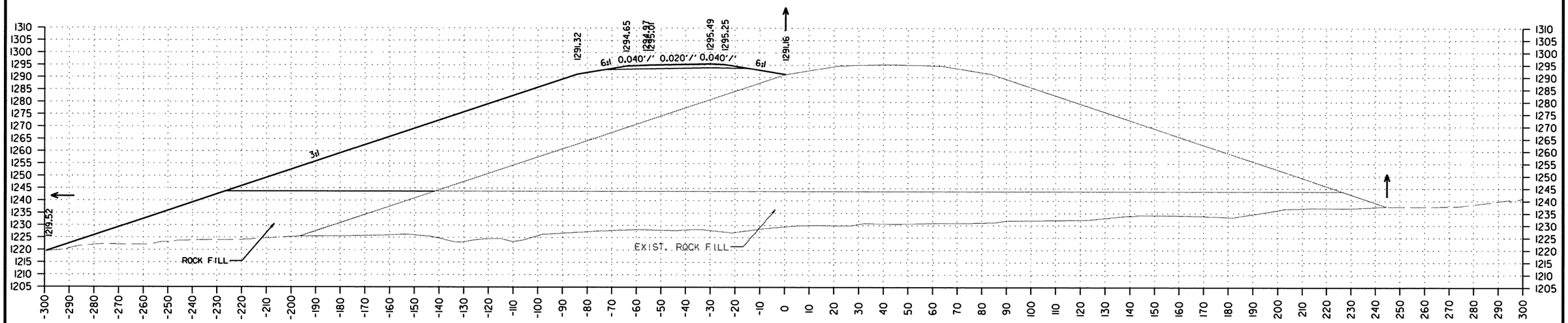
CROSS SECTION STA. 902+00 TO STA. 903+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	278	335

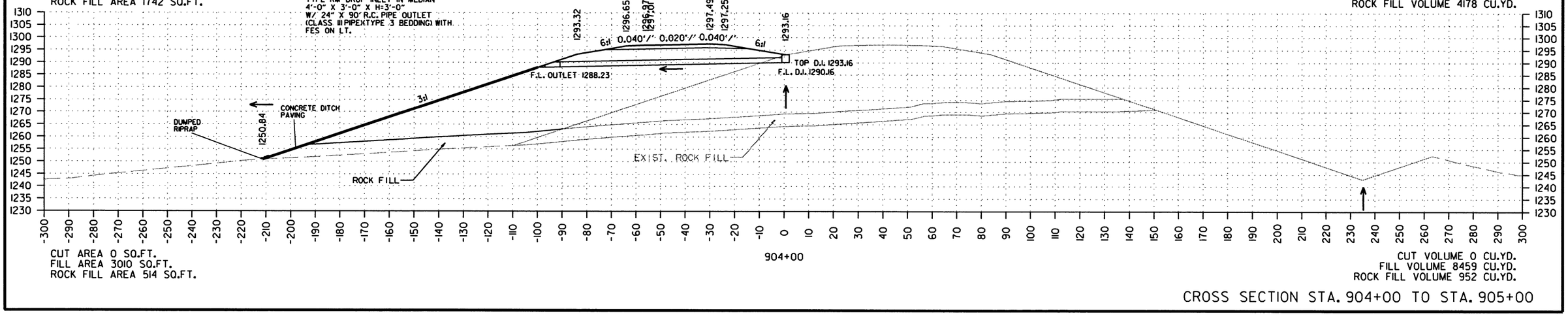
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 4194 SQ.FT.
ROCK FILL AREA 1742 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 13341 CU.YD.
ROCK FILL VOLUME 4178 CU.YD.

STA. 904+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/ 24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE)(TYPE 3 BEDDING) WITH
FES ON LT.



CUT AREA 0 SQ.FT.
FILL AREA 3010 SQ.FT.
ROCK FILL AREA 514 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 8459 CU.YD.
ROCK FILL VOLUME 952 CU.YD.

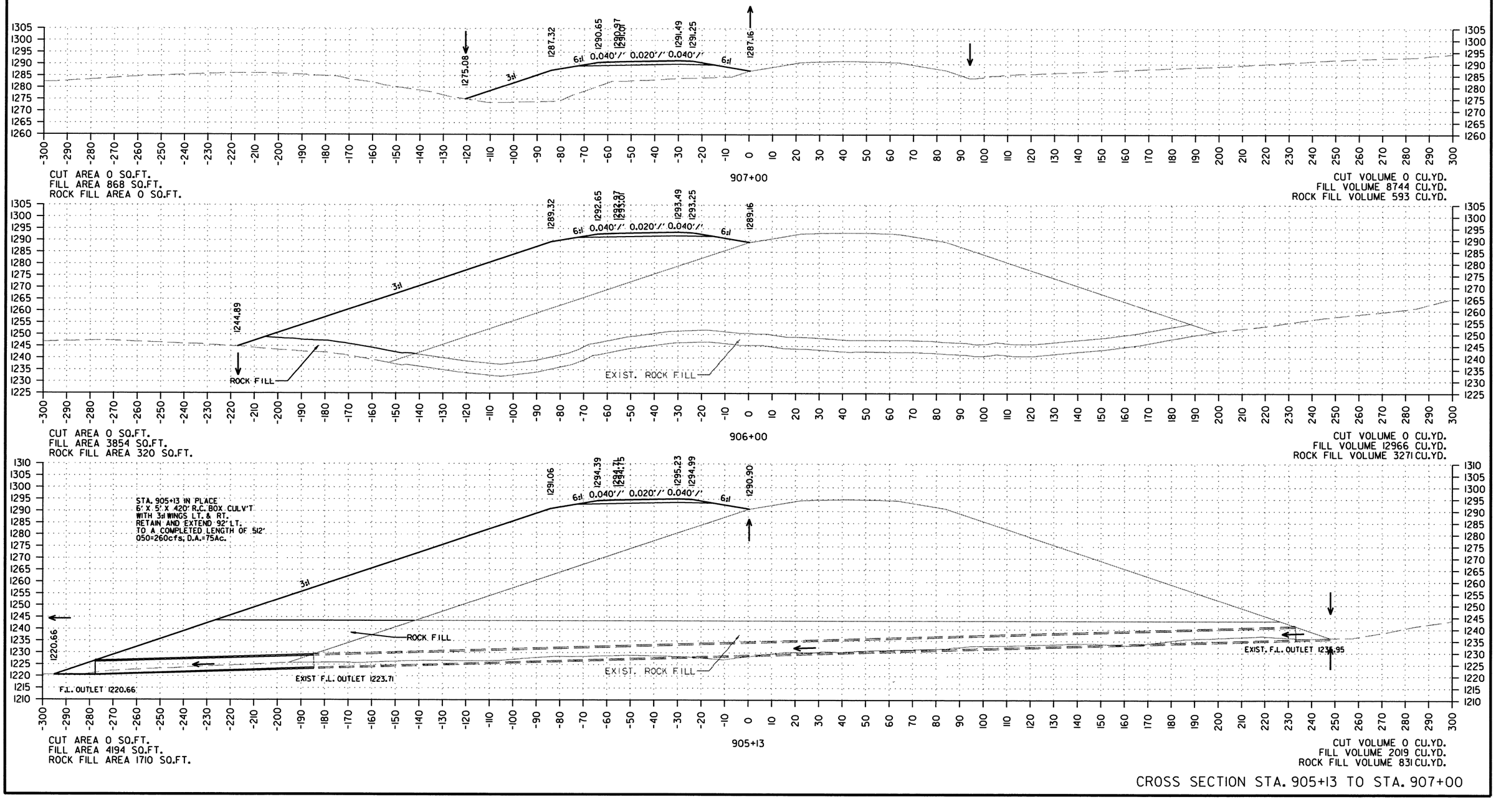
CROSS SECTION STA. 904+00 TO STA. 905+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	279	335

(2) CROSS SECTIONS



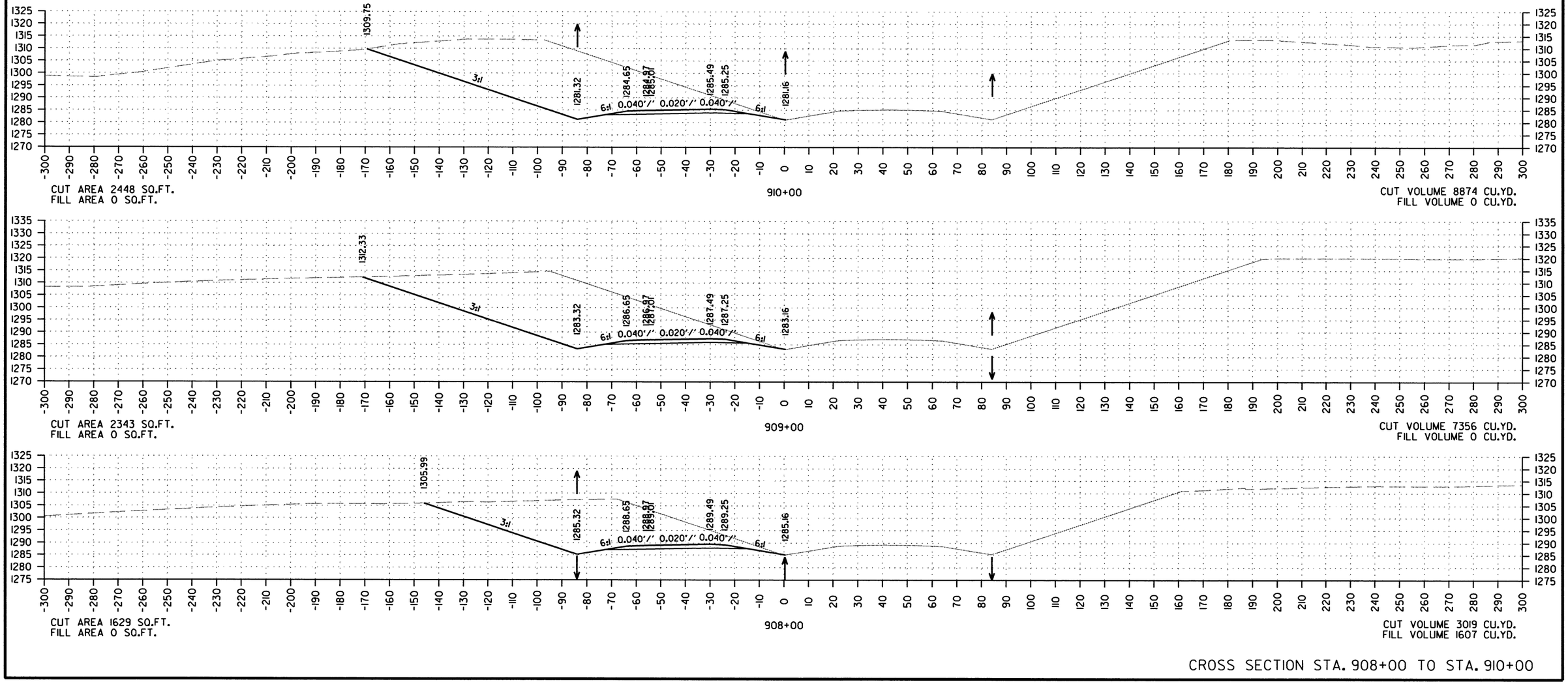
CROSS SECTION STA. 905+13 TO STA. 907+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	280	335

(2) CROSS SECTIONS



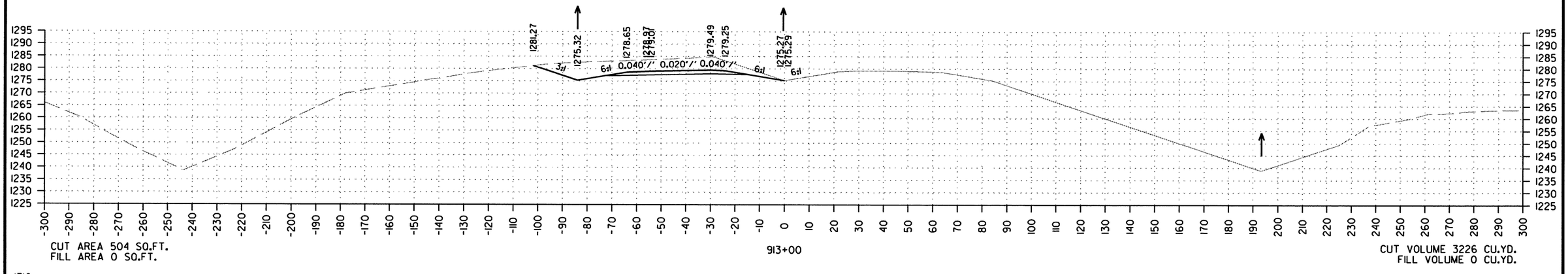
CROSS SECTION STA. 908+00 TO STA. 910+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	281	335

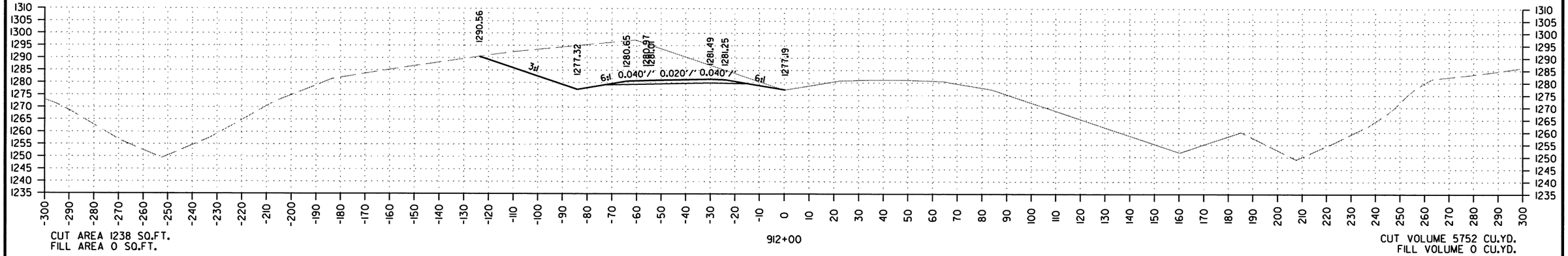
(2) CROSS SECTIONS



CUT AREA 504 SQ.FT.
FILL AREA 0 SQ.FT.

913+00

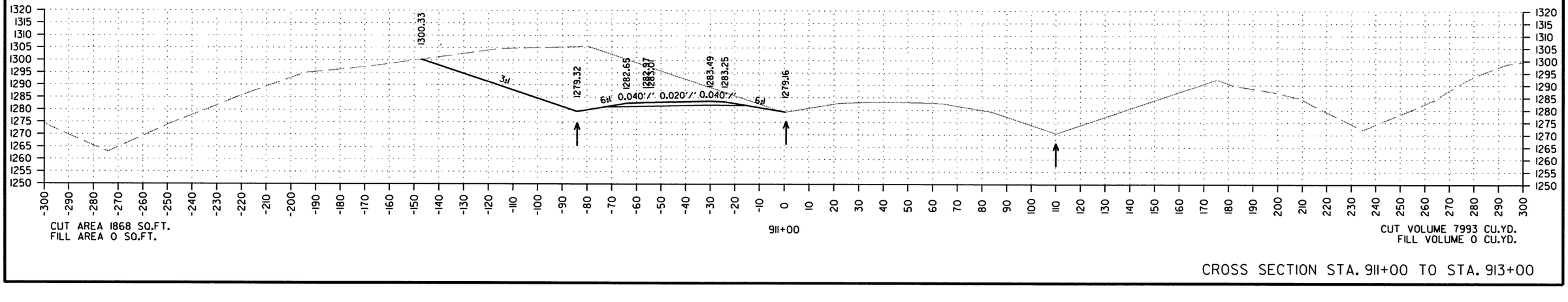
CUT VOLUME 3226 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1238 SQ.FT.
FILL AREA 0 SQ.FT.

912+00

CUT VOLUME 5752 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1868 SQ.FT.
FILL AREA 0 SQ.FT.

911+00

CUT VOLUME 7993 CU.YD.
FILL VOLUME 0 CU.YD.

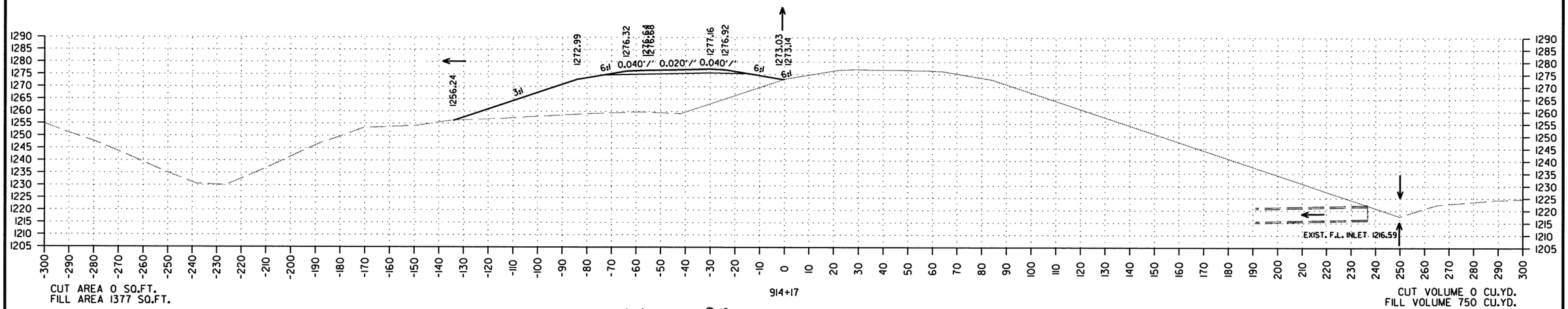
CROSS SECTION STA. 911+00 TO STA. 913+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	282	335

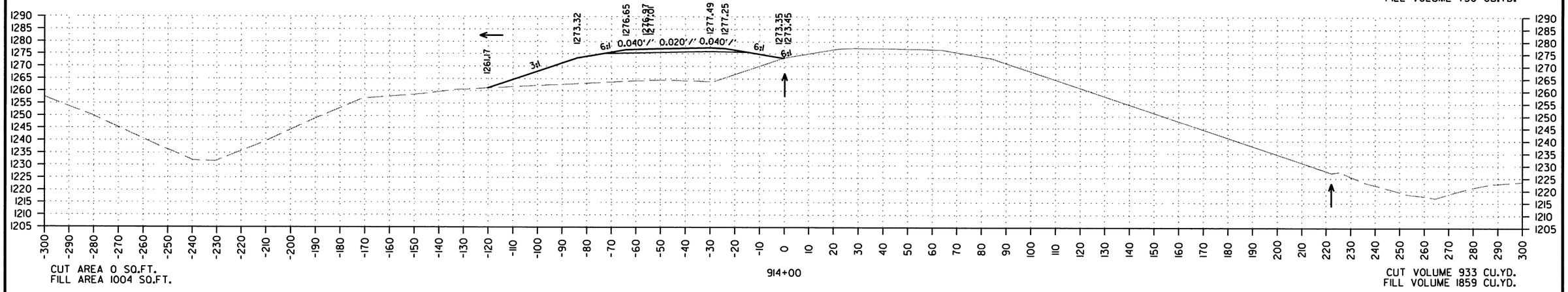
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1377 SQ.FT.

914+17

CUT VOLUME 0 CU.YD.
FILL VOLUME 750 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1004 SQ.FT.

914+00

CUT VOLUME 933 CU.YD.
FILL VOLUME 1859 CU.YD.

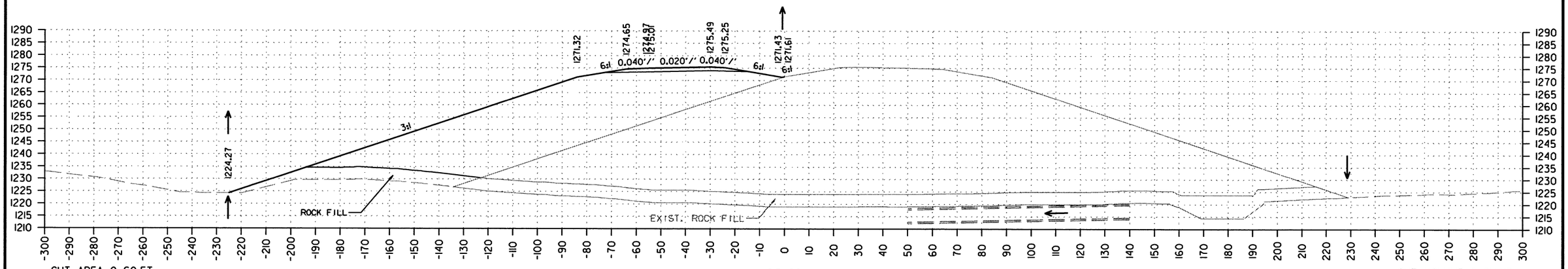
CROSS SECTION STA. 914+00 TO STA. 914+17

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	283	335

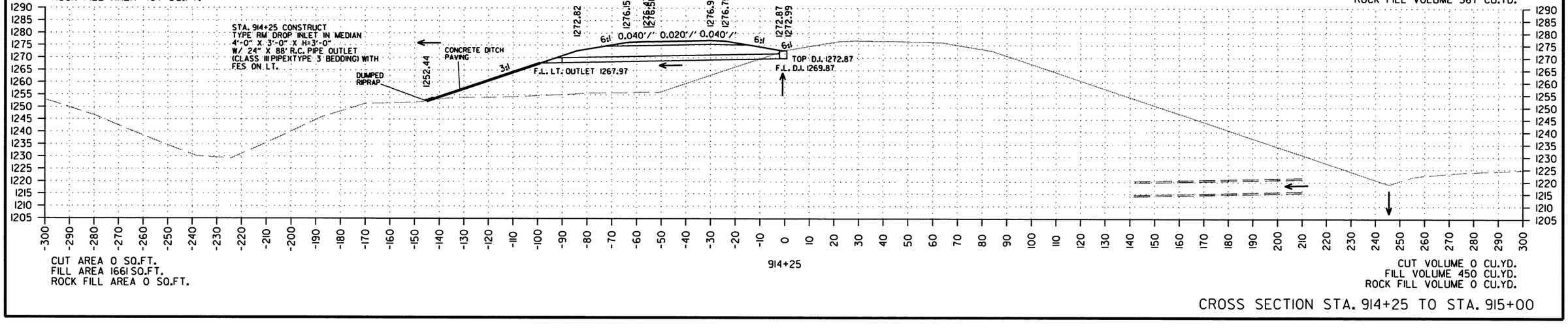
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 3310 SQ.FT.
ROCK FILL AREA 407 SQ.FT.

915+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 6906 CU.YD.
ROCK FILL VOLUME 567 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1661 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

914+25

CUT VOLUME 0 CU.YD.
FILL VOLUME 450 CU.YD.
ROCK FILL VOLUME 0 CU.YD.

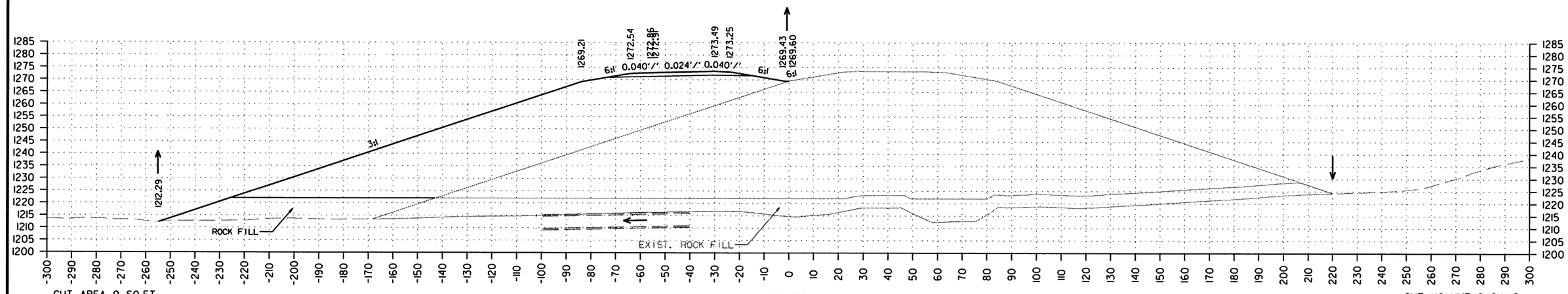
CROSS SECTION STA. 914+25 TO STA. 915+00

9/14/2017

R090508.DGN

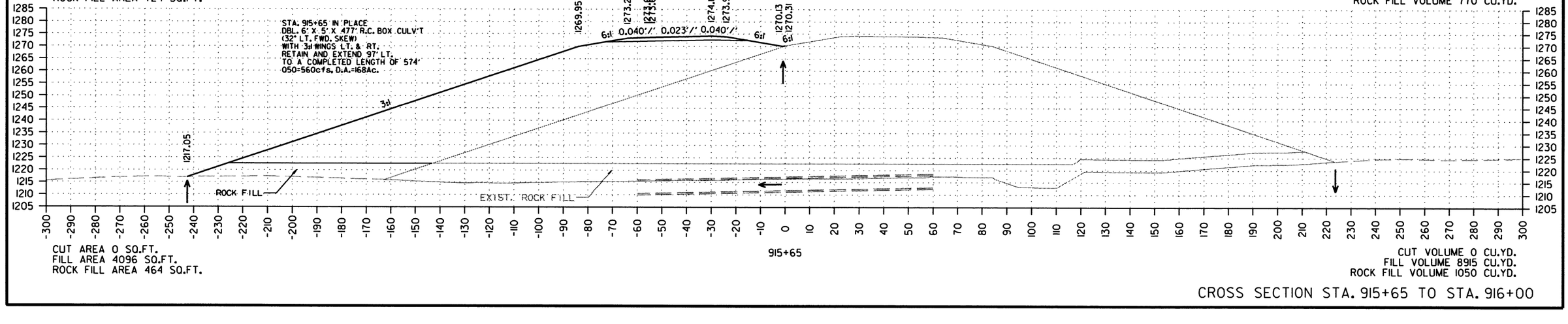
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	284	335

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 4083 SQ.FT.
ROCK FILL AREA 724 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 5302 CU.YD.
ROCK FILL VOLUME 770 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 4096 SQ.FT.
ROCK FILL AREA 464 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 8915 CU.YD.
ROCK FILL VOLUME 1050 CU.YD.

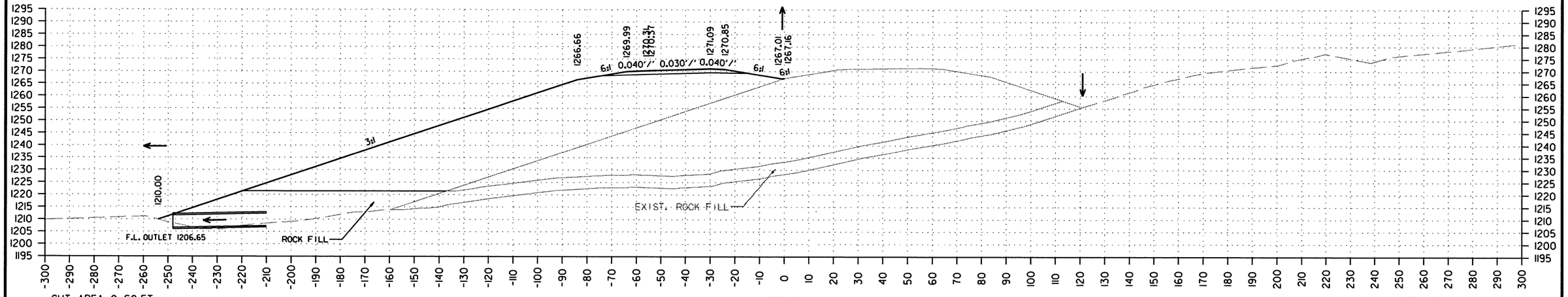
CROSS SECTION STA. 915+65 TO STA. 916+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	285	335

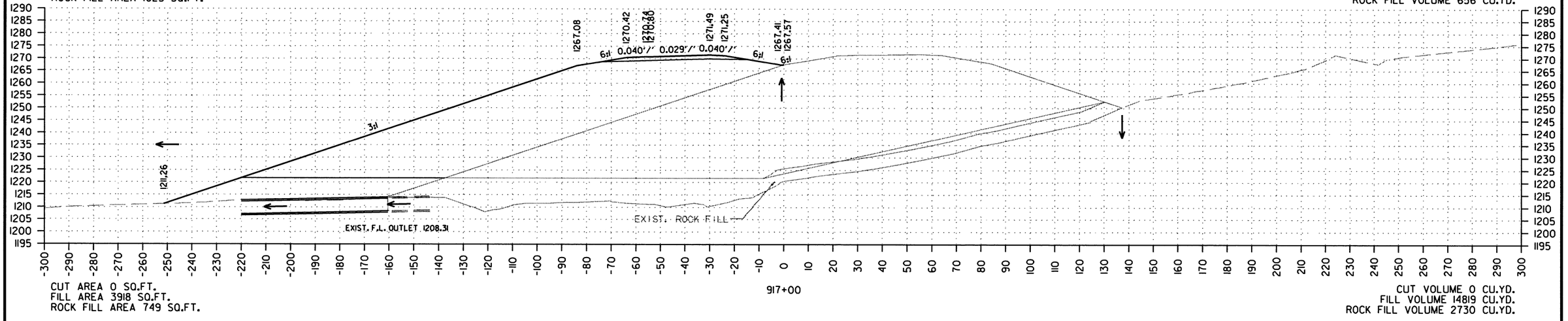
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 3901 SQ.FT.
ROCK FILL AREA 1023 SQ.FT.

917+20

CUT VOLUME 0 CU.YD.
FILL VOLUME 2896 CU.YD.
ROCK FILL VOLUME 656 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 3918 SQ.FT.
ROCK FILL AREA 749 SQ.FT.

917+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 14819 CU.YD.
ROCK FILL VOLUME 2730 CU.YD.

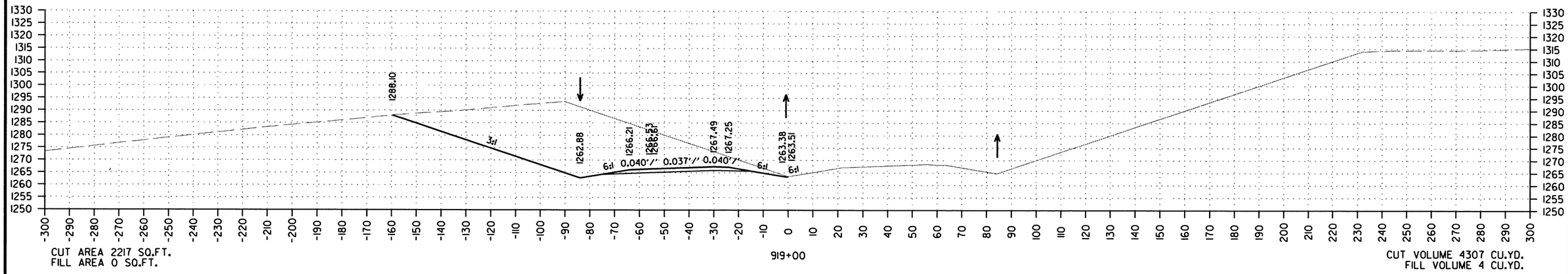
CROSS SECTION STA. 917+00 TO STA. 917+20

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	286	335

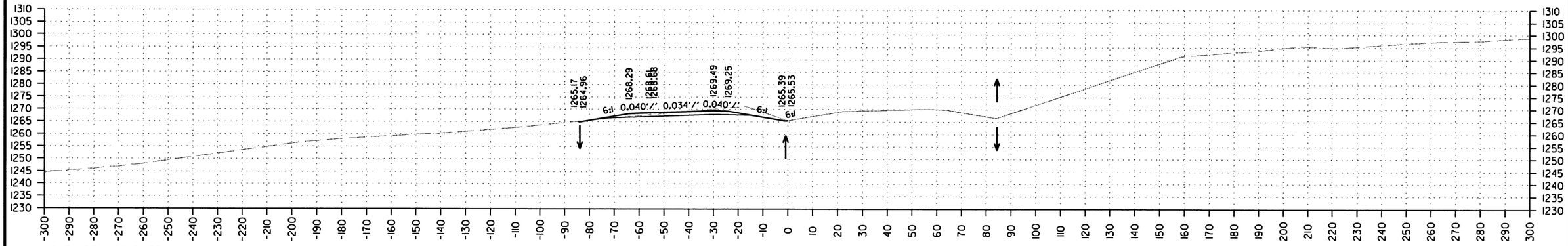
(2) CROSS SECTIONS



CUT AREA 2217 SQ.FT.
FILL AREA 0 SQ.FT.

919+00

CUT VOLUME 4307 CU.YD.
FILL VOLUME 4 CU.YD.



CUT AREA 108 SQ.FT.
FILL AREA 2 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

918+00

CUT VOLUME 160 CU.YD.
FILL VOLUME 5784 CU.YD.
ROCK FILL VOLUME 1517 CU.YD.

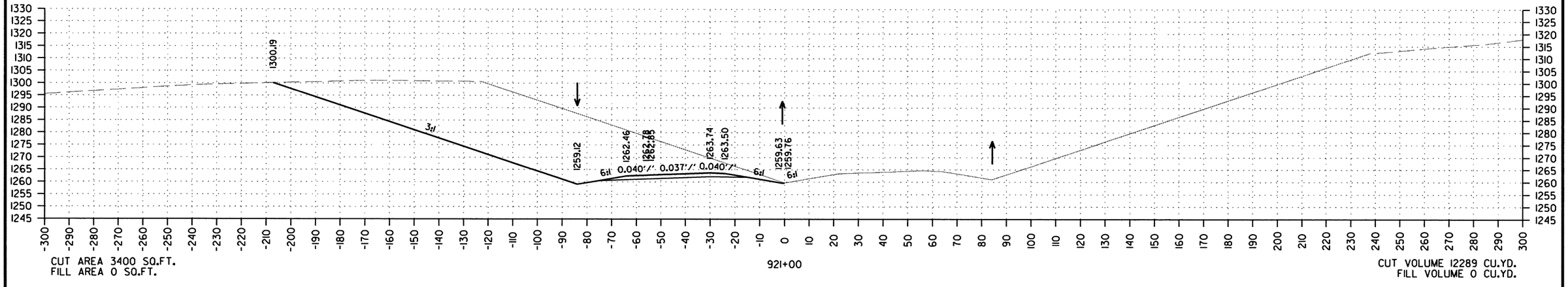
CROSS SECTION STA. 918+00 TO STA. 919+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	287	335

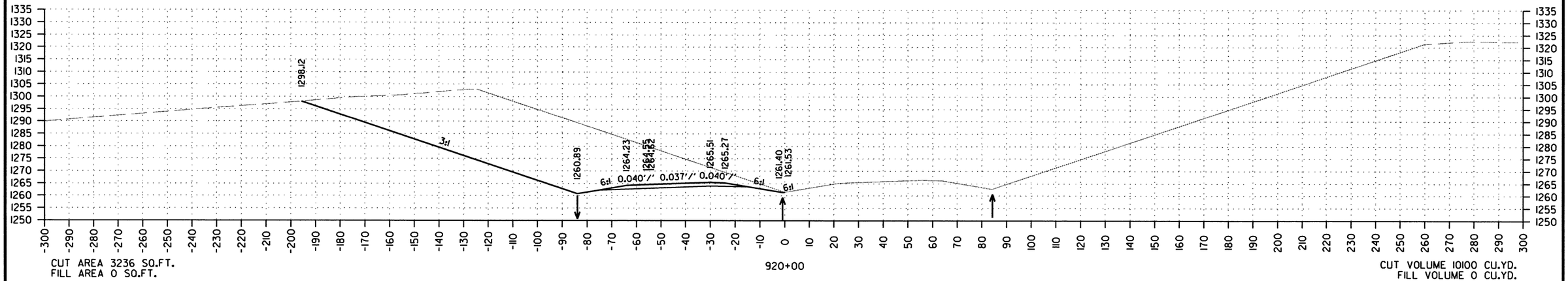
(2) CROSS SECTIONS



CUT AREA 3400 SQ.FT.
FILL AREA 0 SQ.FT.

921+00

CUT VOLUME 12289 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 3236 SQ.FT.
FILL AREA 0 SQ.FT.

920+00

CUT VOLUME 10100 CU.YD.
FILL VOLUME 0 CU.YD.

CROSS SECTION STA. 920+00 TO STA. 921+00

9/14/2017

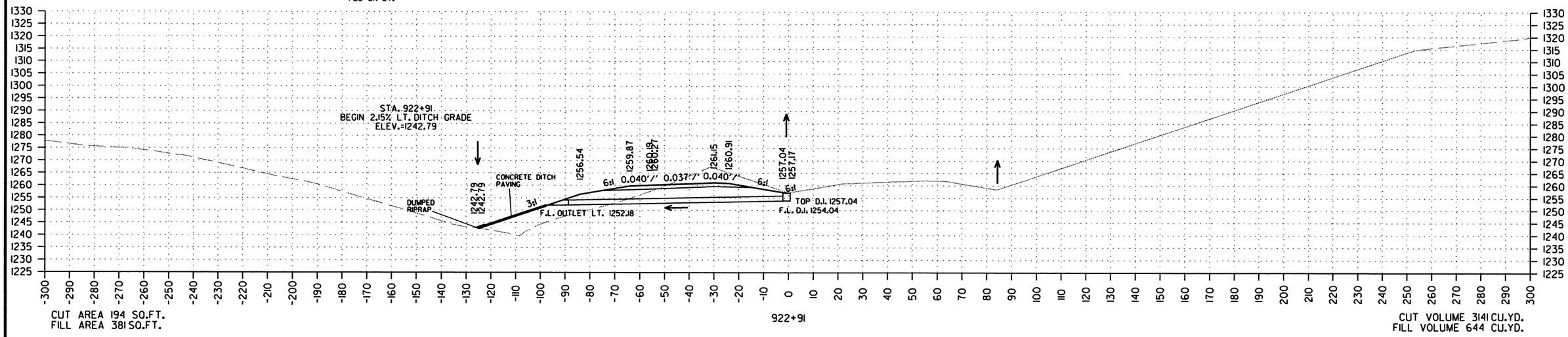
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	288	335

(2) CROSS SECTIONS

STA. 922+91 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/ 24" X 86' R.C. PIPE OUTLET
(CLASS III PIPEXTYPE 3 BEDDING) WITH
FES ON LT.



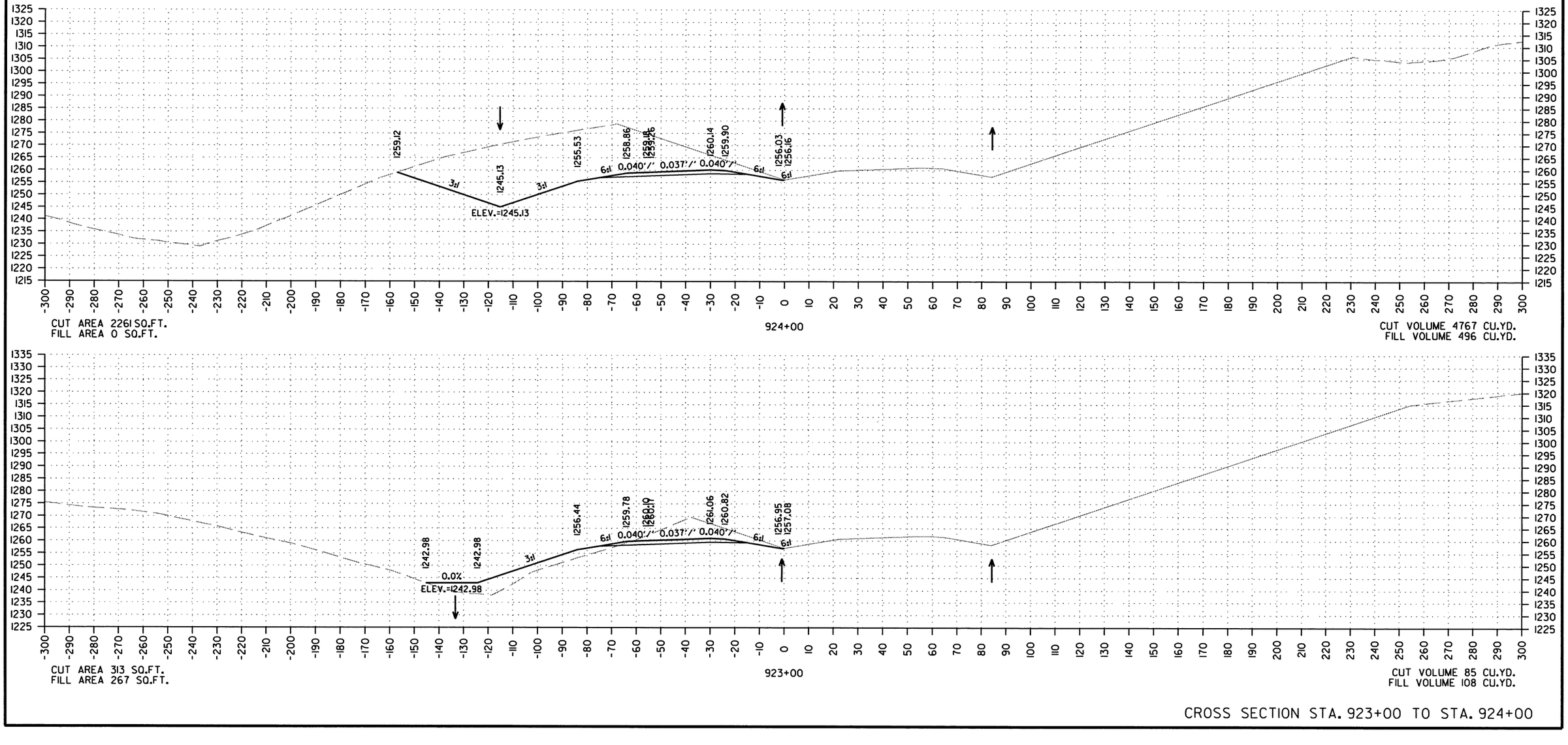
CROSS SECTION STA. 922+00 TO STA. 922+91

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	289	335

(2) CROSS SECTIONS



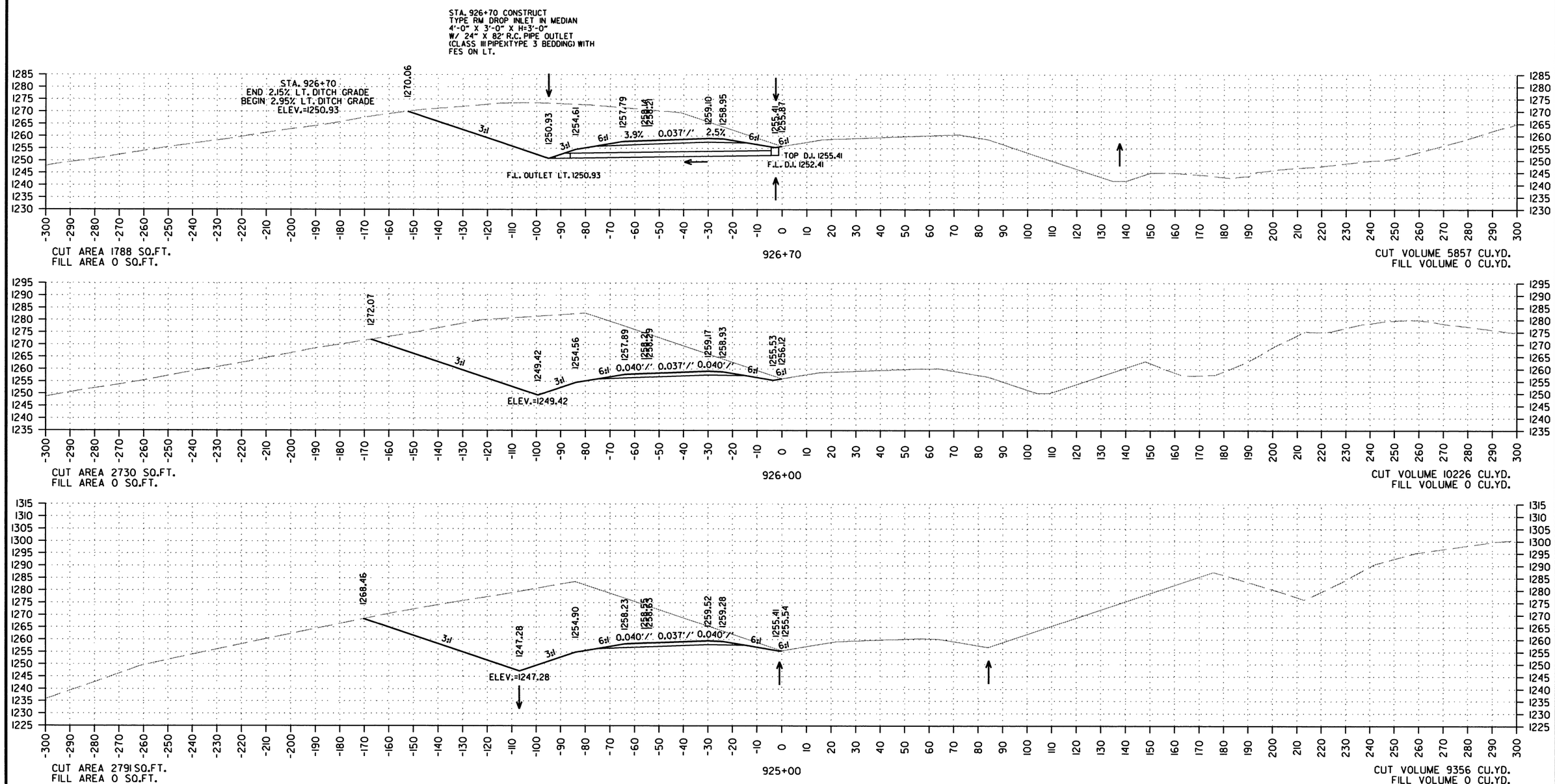
CROSS SECTION STA. 923+00 TO STA. 924+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	290	335

(2) CROSS SECTIONS



CROSS SECTION STA. 925+00 TO STA. 926+70

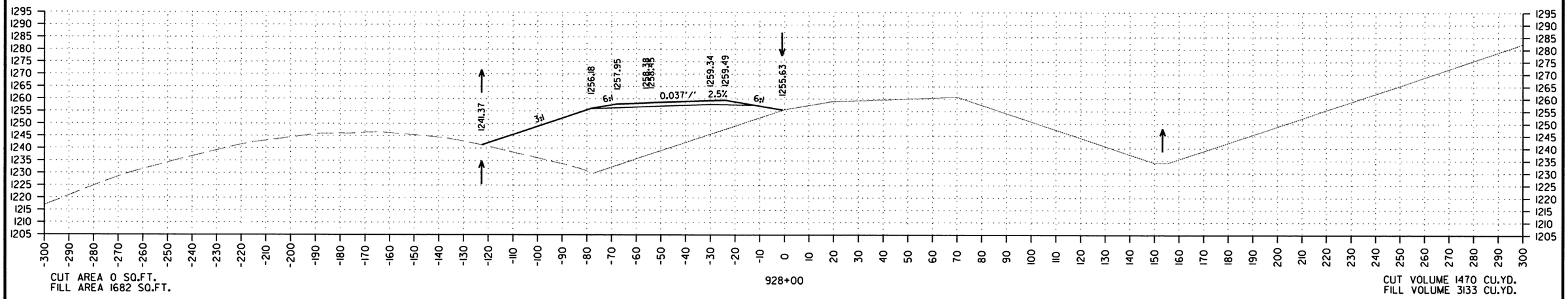
9/14/2017

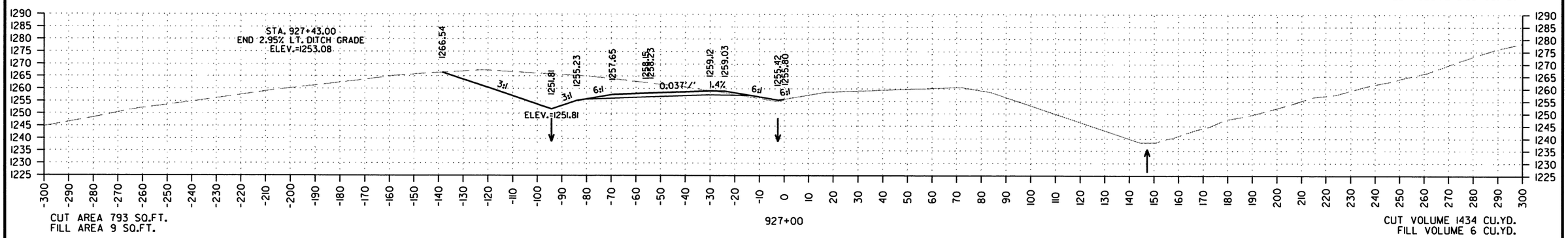
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	291	335

(2) CROSS SECTIONS

928+44-BEGIN APPROACH SLAB





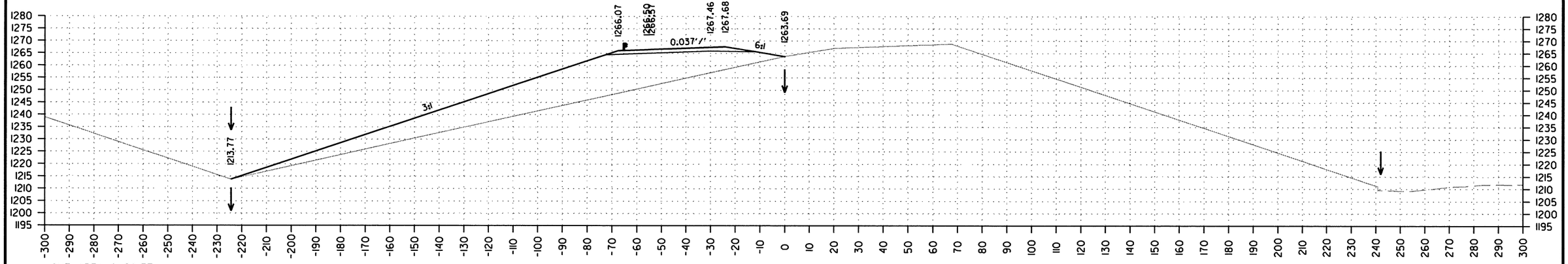
CROSS SECTION STA. 927+00 TO STA. 928+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	292	335

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1950 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

934+36-BRIDGE END

934+47.35
SLOPE INTERCEPT

928+67.65
SLOPE INTERCEPT

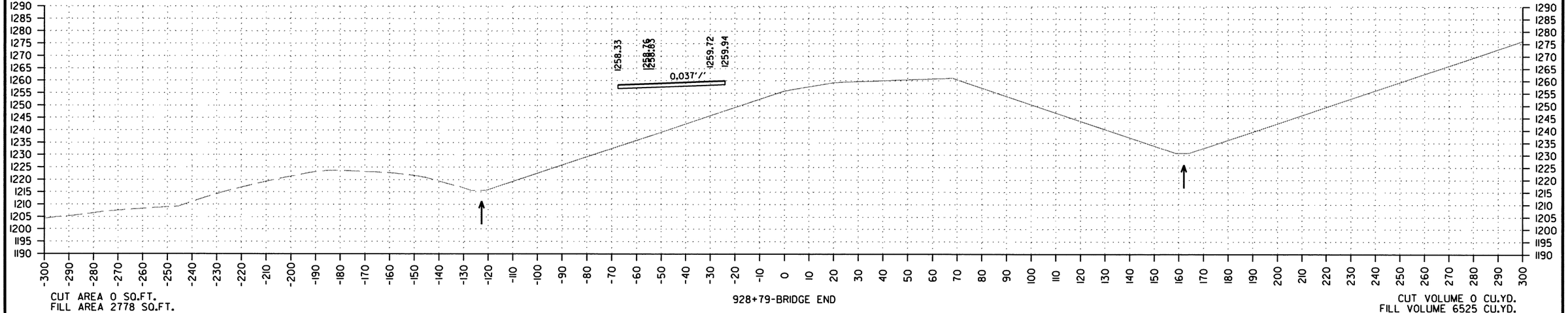
CUT VOLUME 0 CU.YD.
FILL VOLUME 5103 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 2932 CU.YD.

STA. 930+84.05 HWY. 549 C.L. = STA. 16+08.12 BECKET C.L.

STA. 928+84.30 - END WRSF AND CONC. DITCH PAVING



CUT AREA 0 SQ.FT.
FILL AREA 2778 SQ.FT.

928+79-BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 6525 CU.YD.

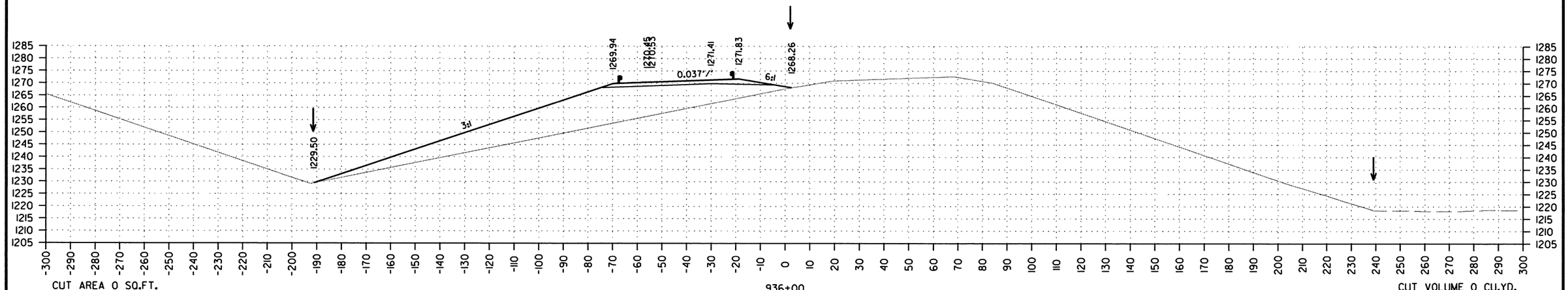
CROSS SECTION STA. 928+79 TO STA. 934+36

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	293	335

(2) CROSS SECTIONS



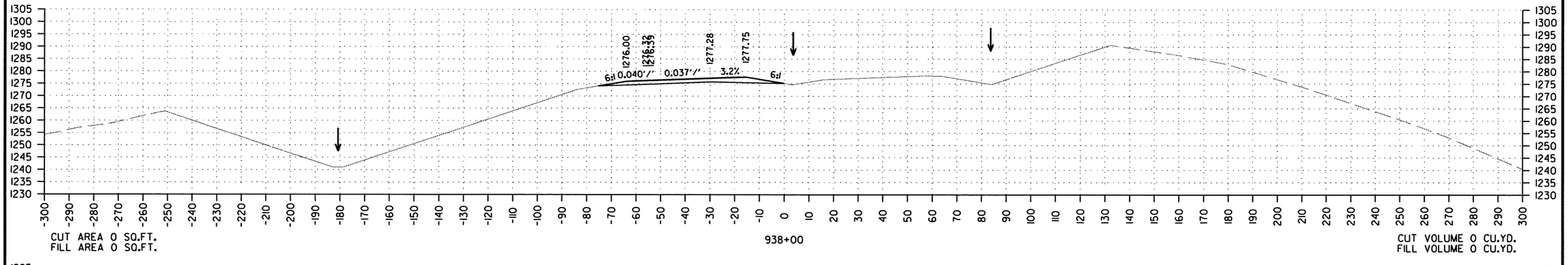
CROSS SECTION STA. 935+00 TO STA. 936+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	294	335

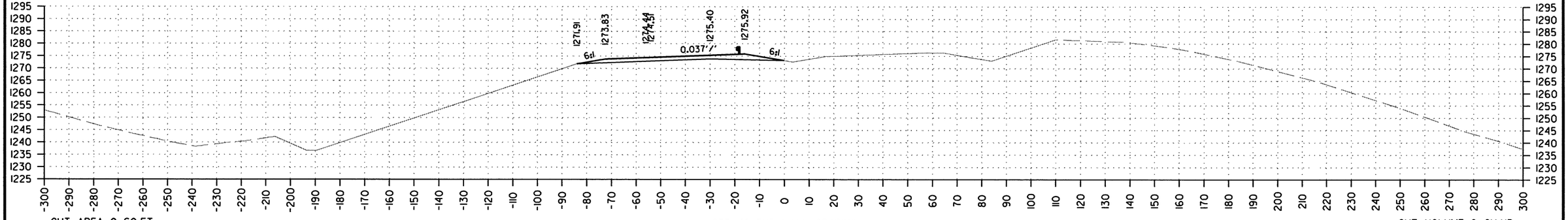
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

938+00

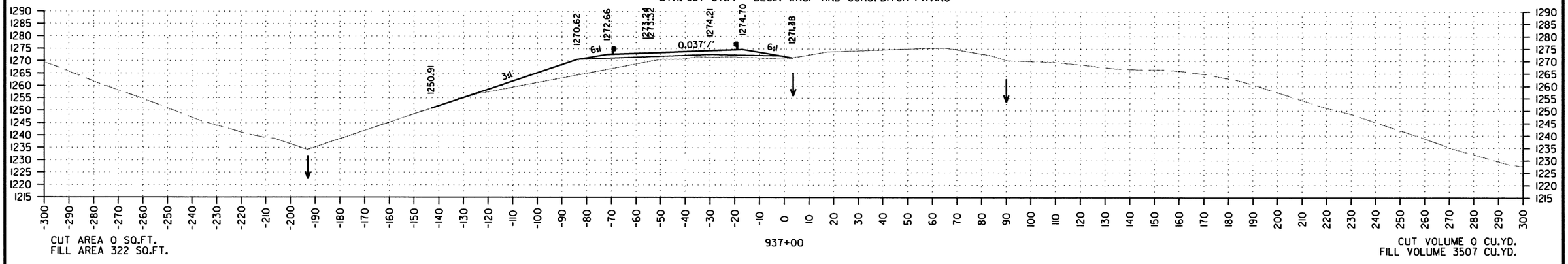
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

937+40-END L.M.L. GRADING
STA. 937+37.14 - BEGIN WRSF AND CONC. DITCH PAVING

CUT VOLUME 0 CU.YD.
FILL VOLUME 239 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 322 SQ.FT.

937+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 3507 CU.YD.

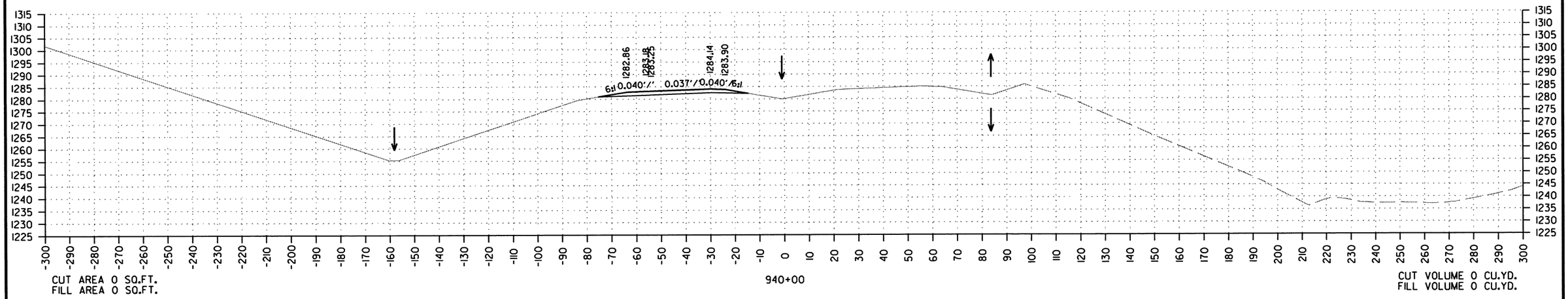
CROSS SECTION STA. 937+00 TO STA. 938+00

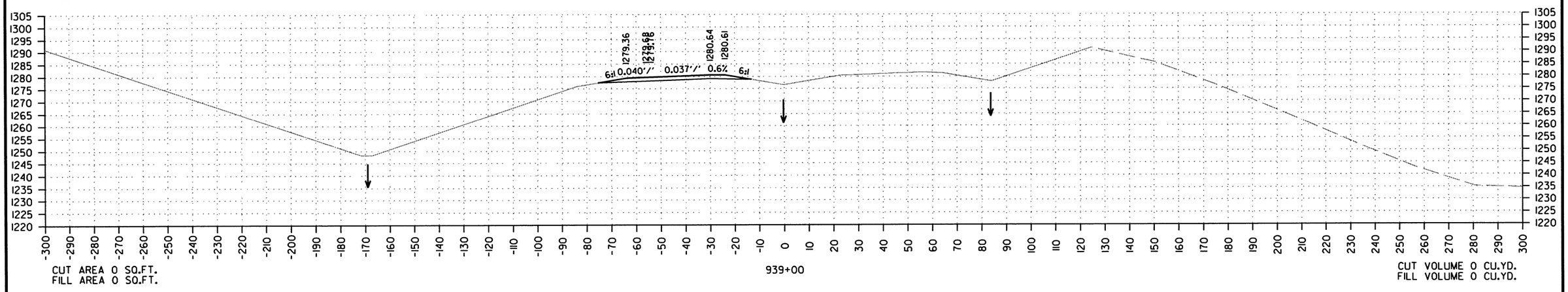
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	295	335

(2) CROSS SECTIONS





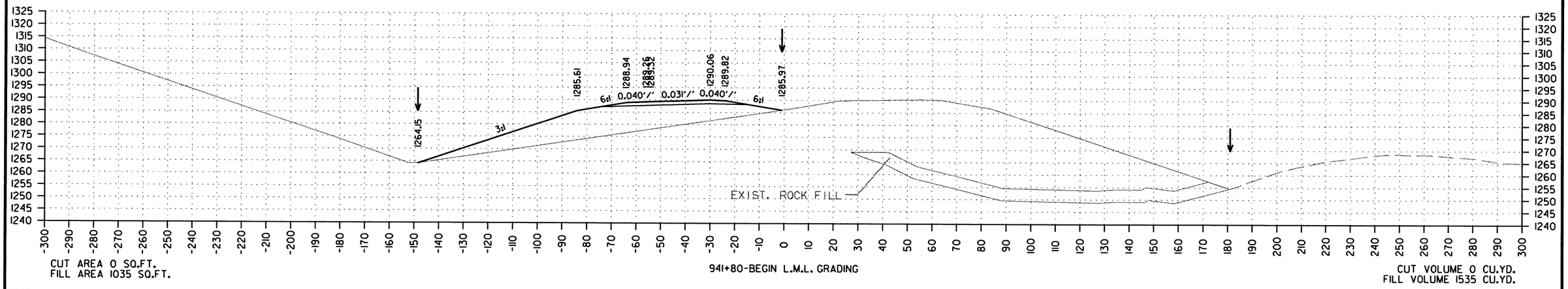
CROSS SECTION STA. 939+00 TO STA. 940+00

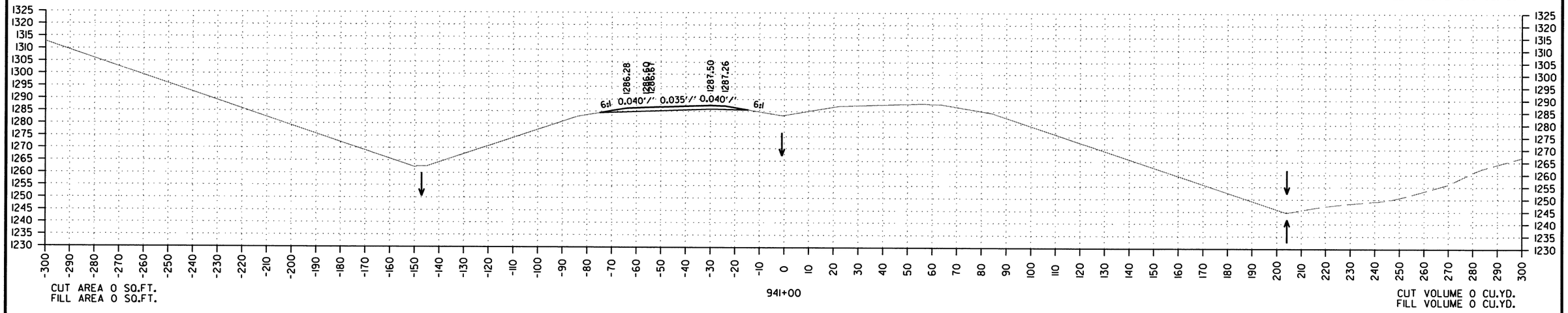
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	296	335

(2) CROSS SECTIONS





CROSS SECTION STA. 941+00 TO STA. 941+80

9/14/2017

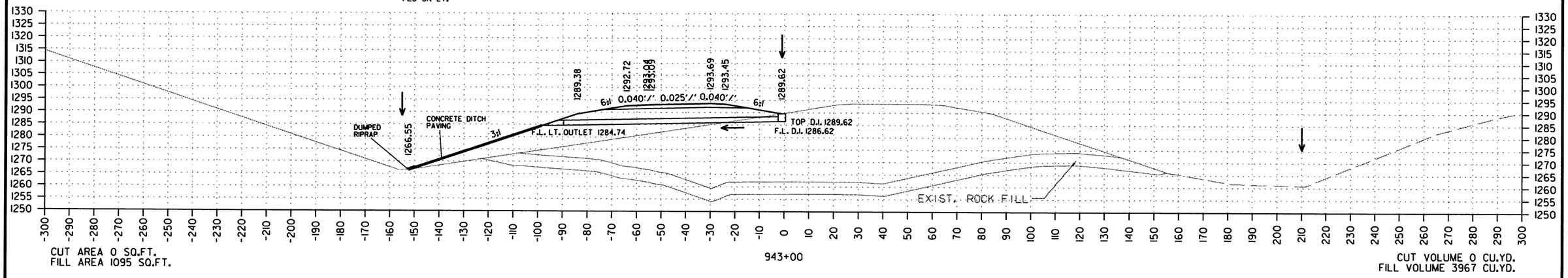
R090508.DGN

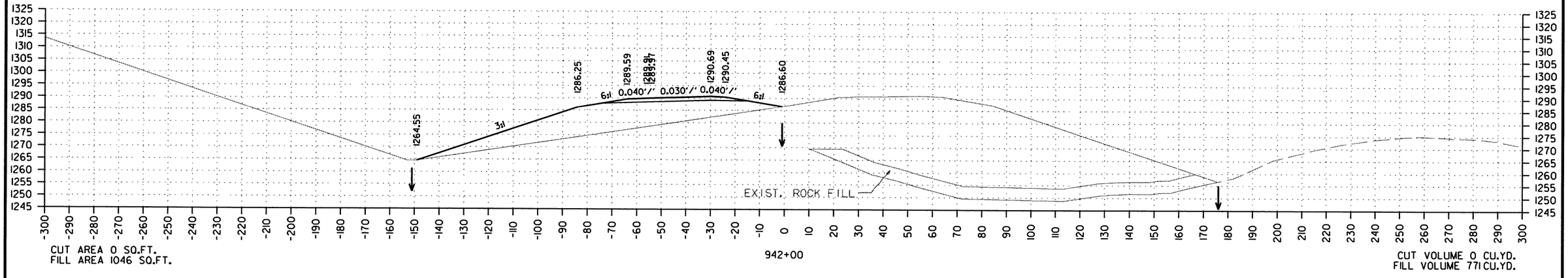
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	297	335

(2) CROSS SECTIONS

STA. 943+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/ 24" X 88' R.C. PIPE OUTLET
(CLASS III PIPEXTYPE 3 BEDDING) WITH
FES ON LT.





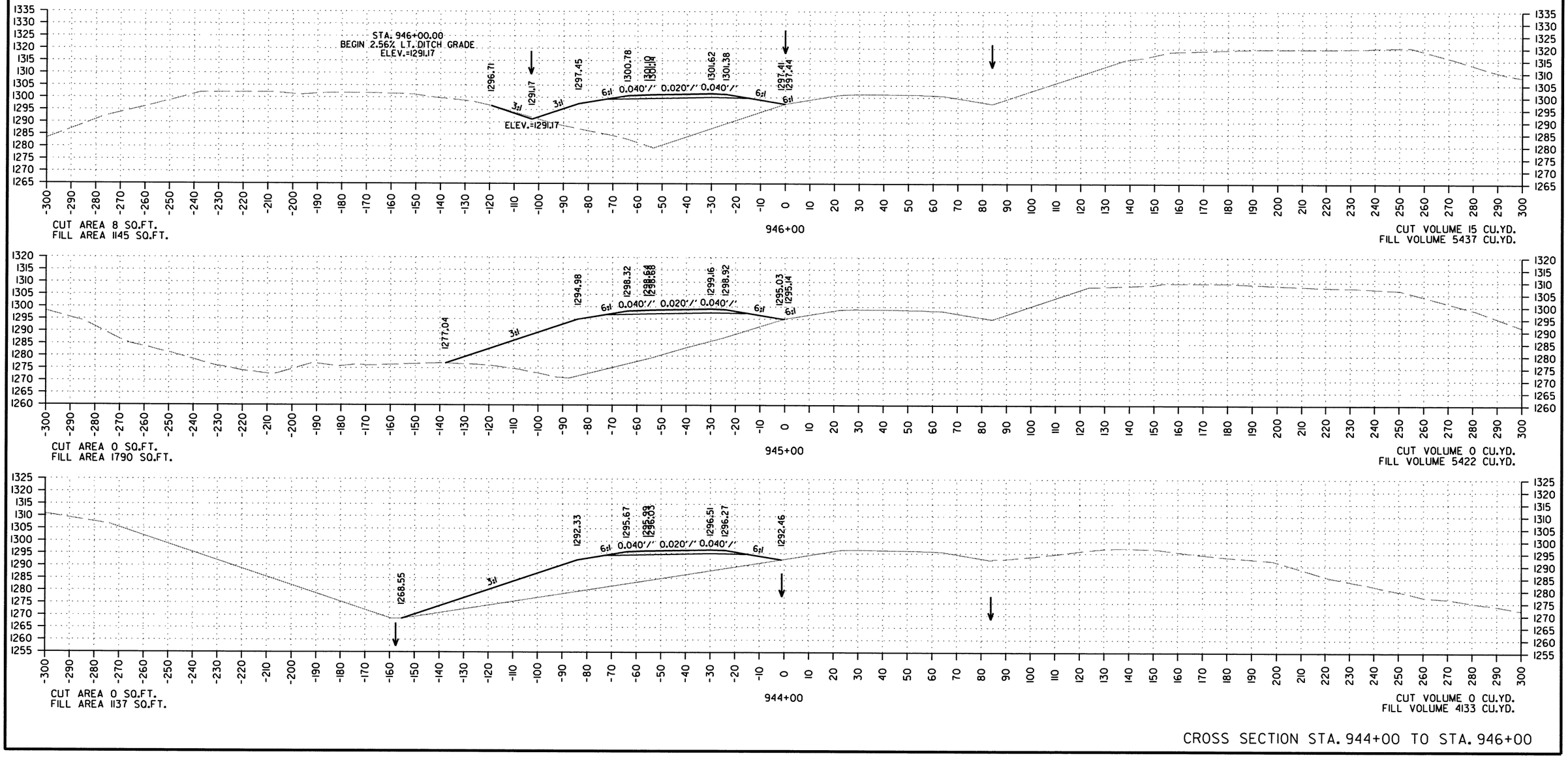
CROSS SECTION STA. 942+00 TO STA. 943+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	298	335

(2) CROSS SECTIONS



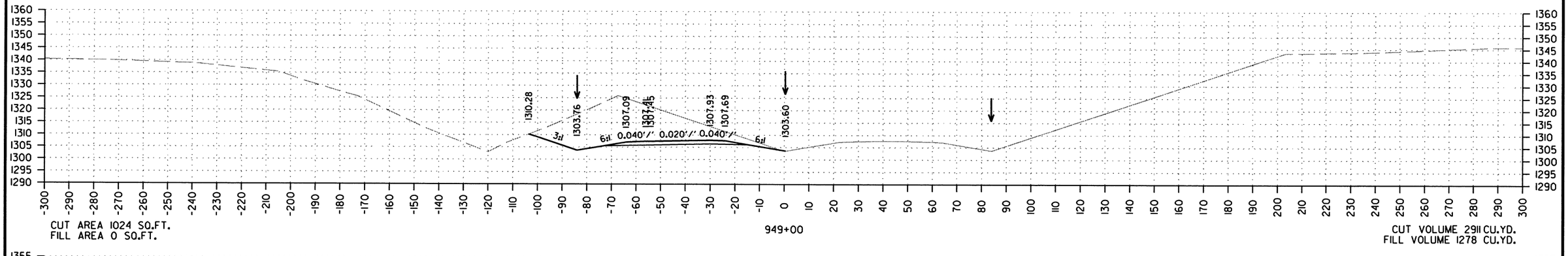
CROSS SECTION STA. 944+00 TO STA. 946+00

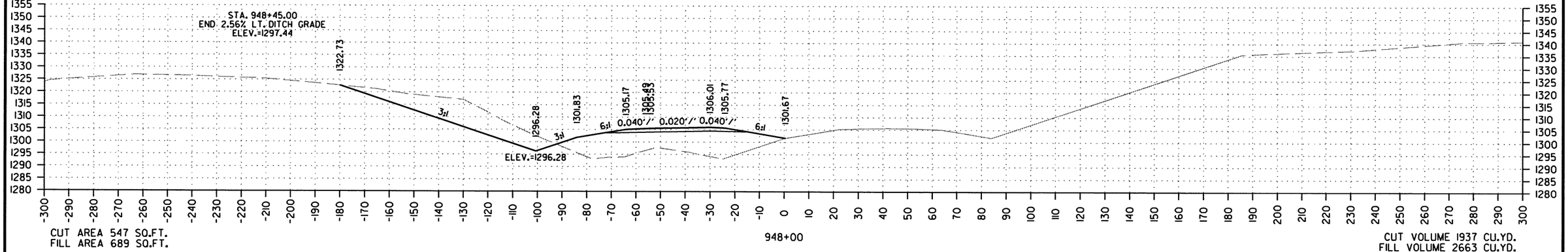
9/14/2017

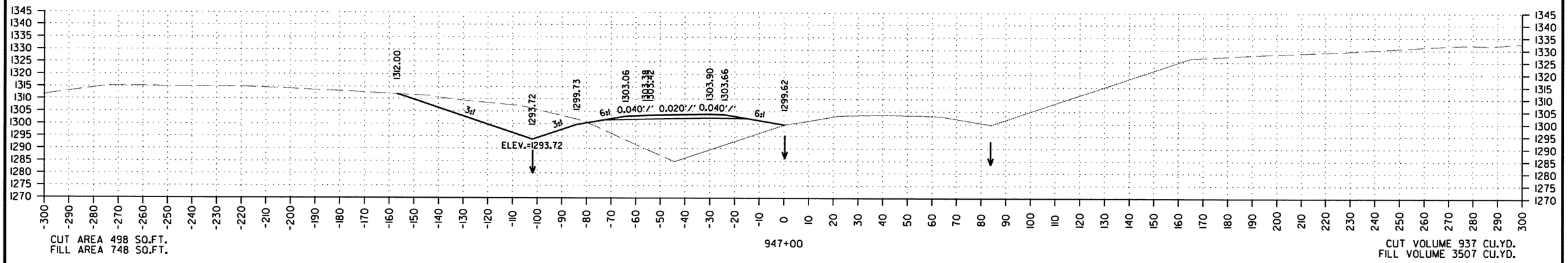
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	299	335

(2) CROSS SECTIONS







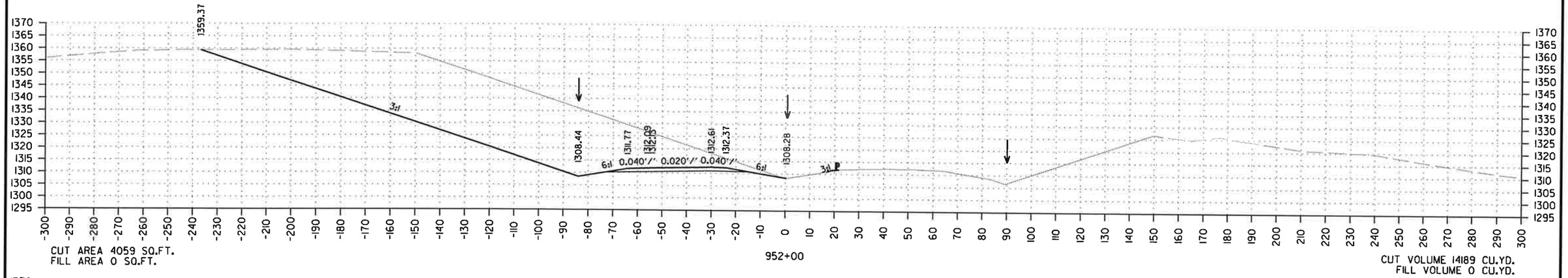
CROSS SECTION STA. 947+00 TO STA. 949+00

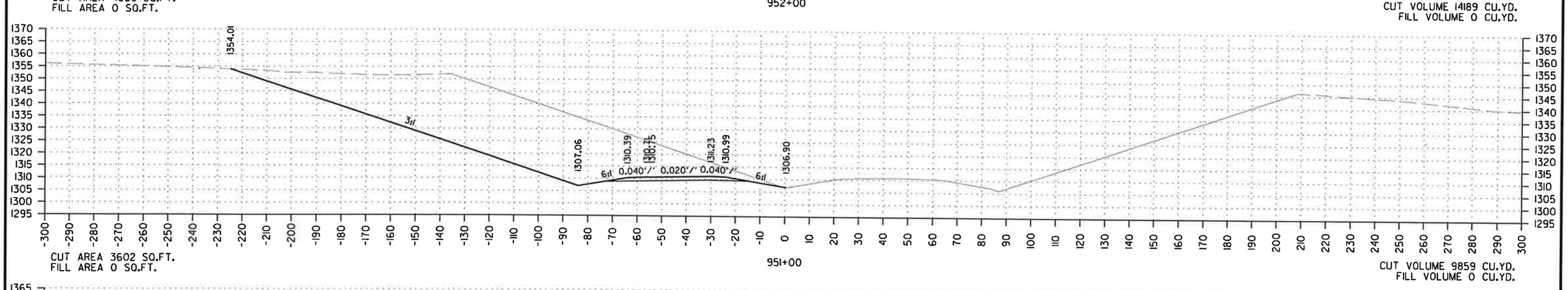
9/14/2017

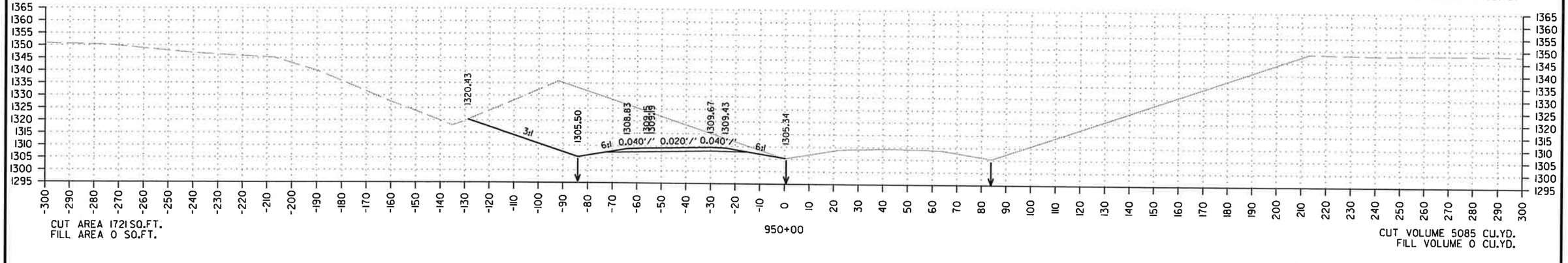
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	300	335

(2) CROSS SECTIONS







CROSS SECTION STA. 950+00 TO STA. 952+00

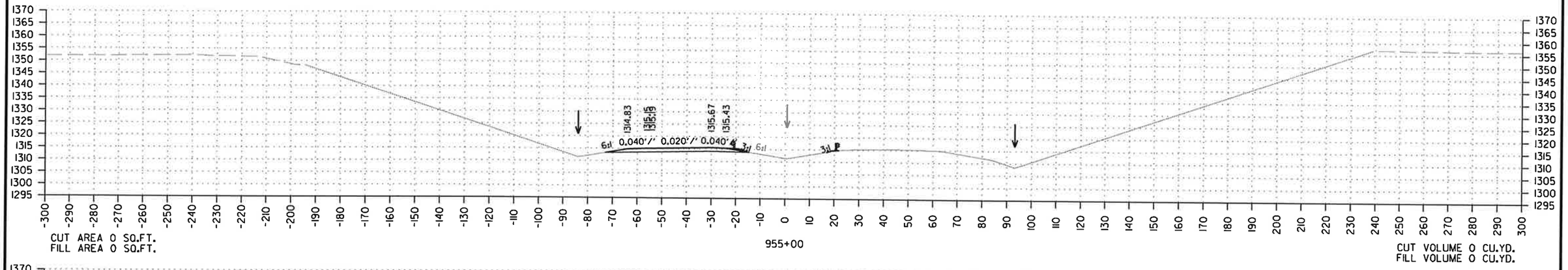
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	301	335

(2) CROSS SECTIONS

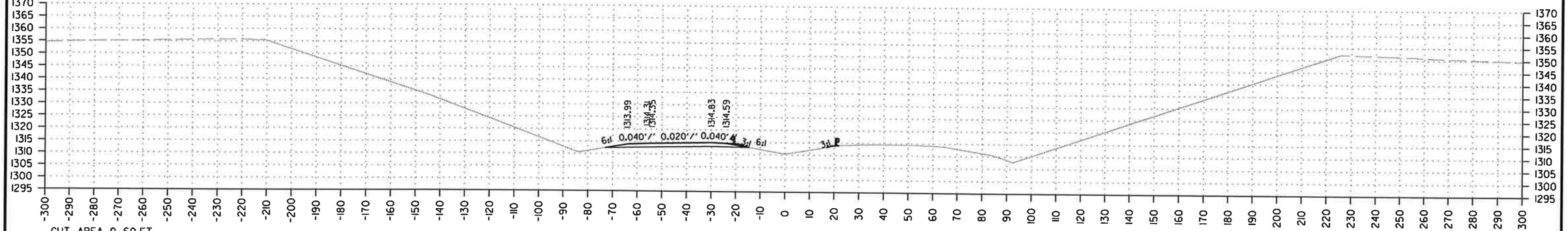
STA. 955+49.01 HWY. 549 C.L. = STA. 18+23.35 CO. RD. 49 C.L.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

955+00

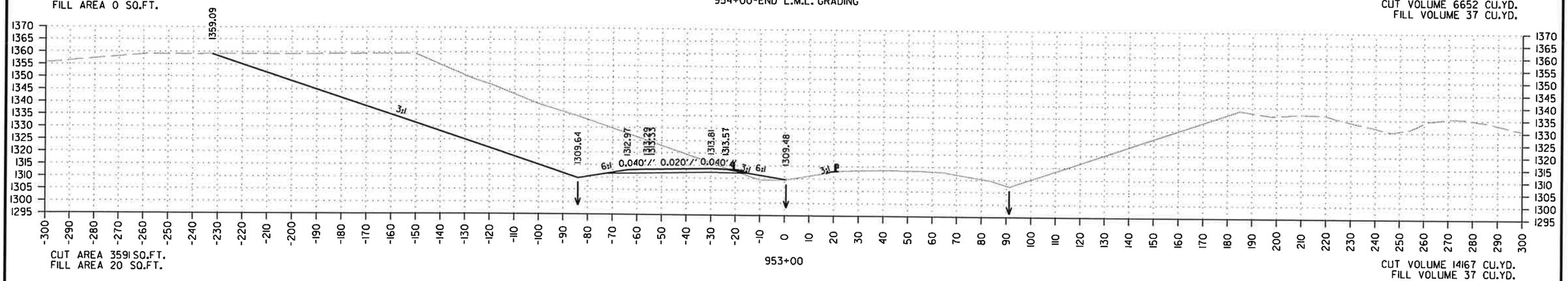
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

954+00-END L.M.L. GRADING

CUT VOLUME 6652 CU.YD.
FILL VOLUME 37 CU.YD.



CUT AREA 3591 SQ.FT.
FILL AREA 20 SQ.FT.

953+00

CUT VOLUME 14167 CU.YD.
FILL VOLUME 37 CU.YD.

CROSS SECTION STA. 953+00 TO STA. 955+00

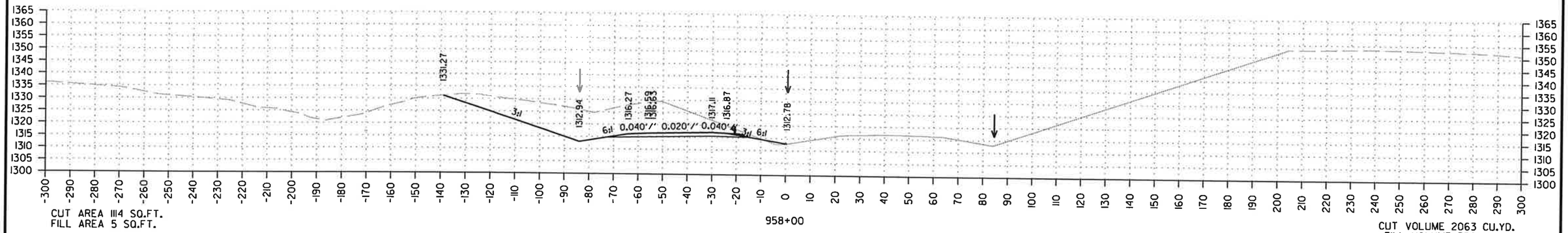
9/14/2017

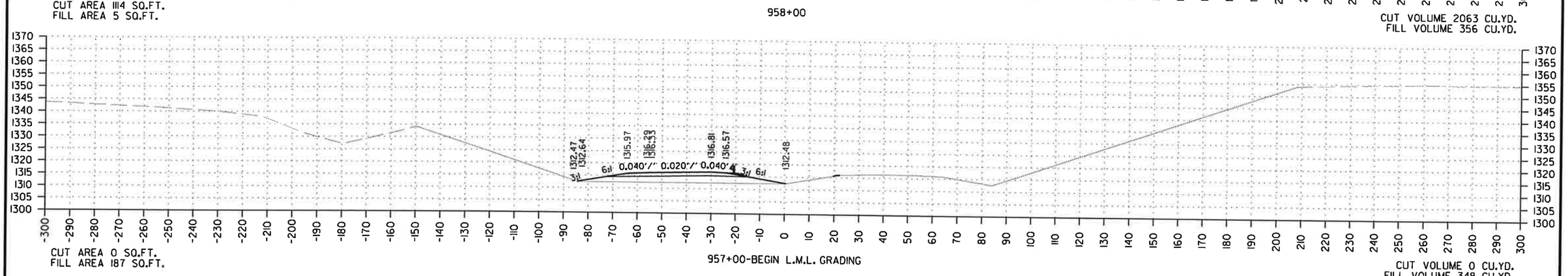
R090508.DGN

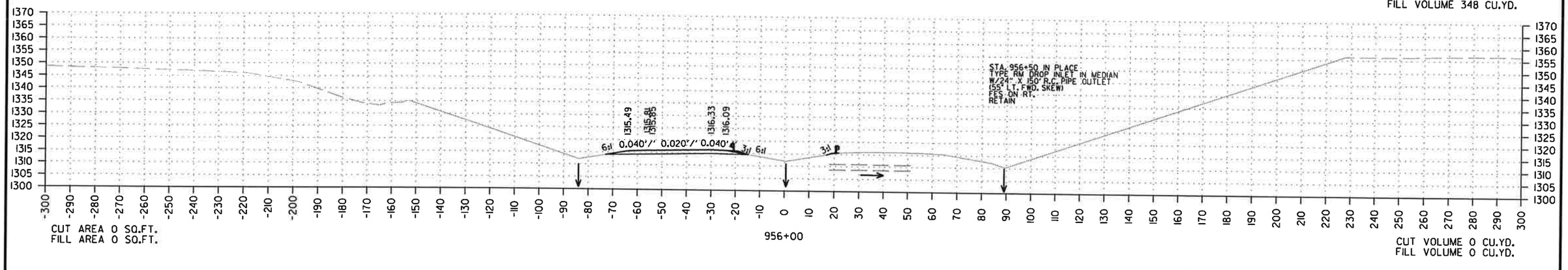
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	302	335

(2) CROSS SECTIONS

STA. 958+82.03 - END CONC. DITCH PAVING







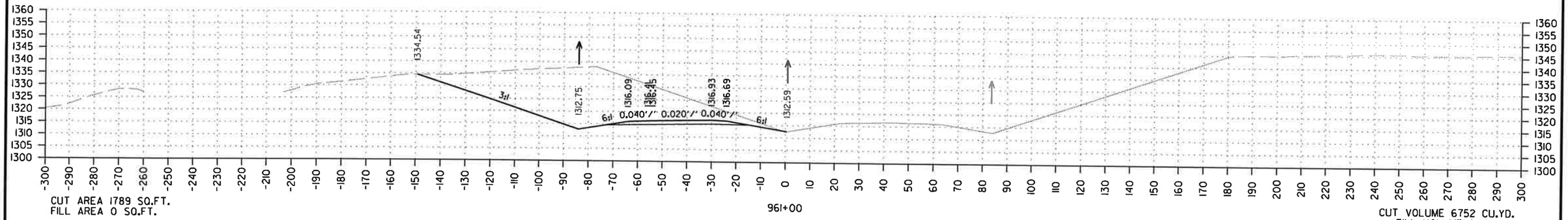
CROSS SECTION STA. 956+00 TO STA. 958+00

9/14/2017

R090508.DGN

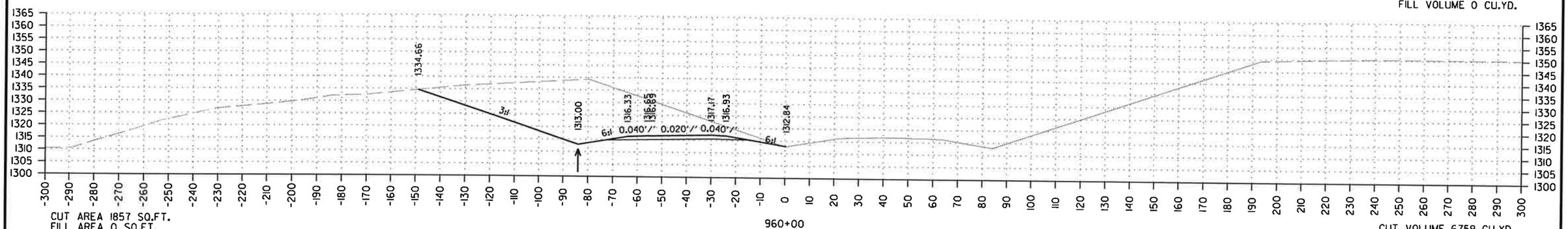
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/03/17				6	ARK.			
				JOB NO.		090508	303	335

(2) CROSS SECTIONS



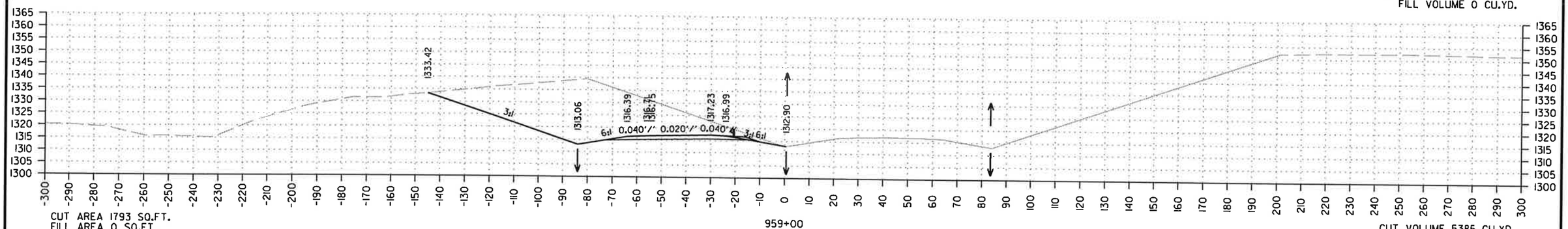
CUT AREA 1789 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 6752 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1857 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 6759 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1793 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 5385 CU.YD.
FILL VOLUME 11 CU.YD.

CROSS SECTION STA. 959+00 TO STA. 961+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	304	335

(2) CROSS SECTIONS

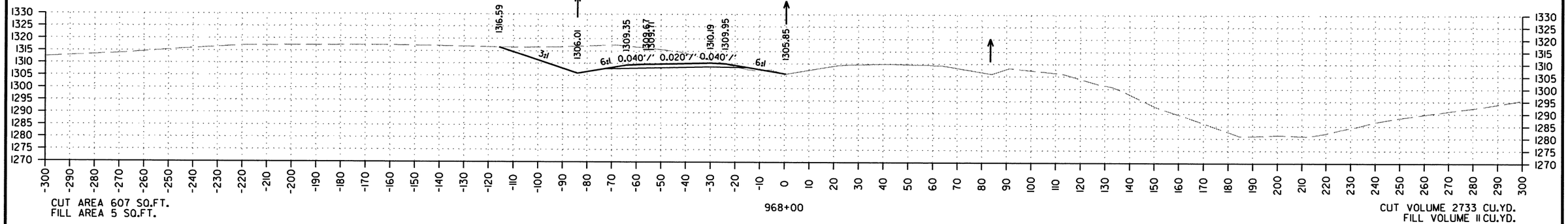
CROSS SECTION STA. 962+00 TO STA. 965+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	305	335

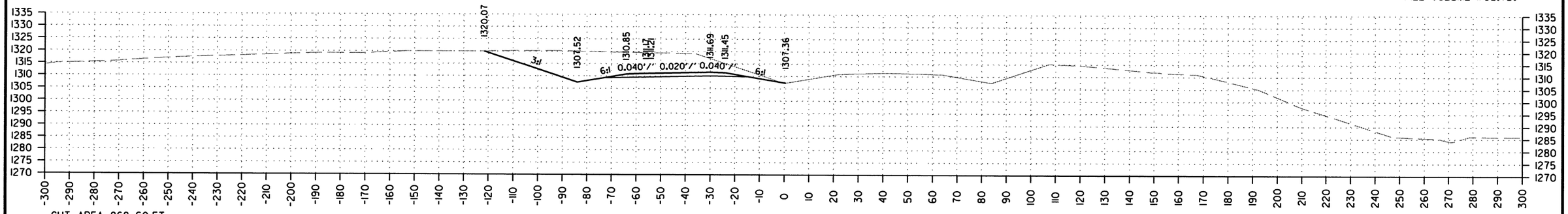
(2) CROSS SECTIONS



CUT AREA 607 SQ.FT.
FILL AREA 5 SQ.FT.

968+00

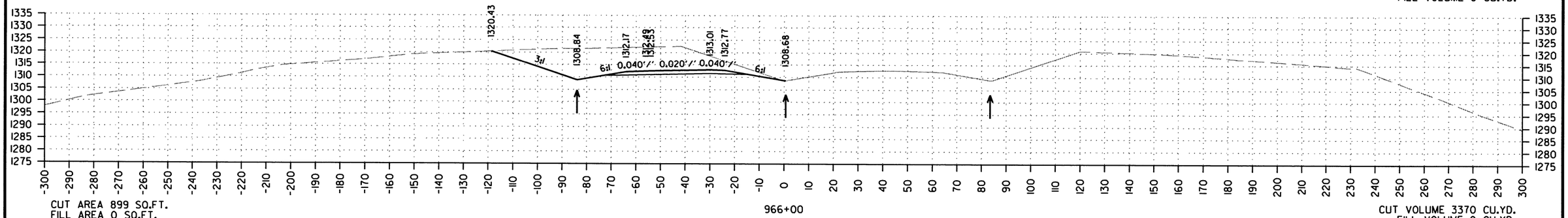
CUT VOLUME 2733 CU.YD.
FILL VOLUME 11 CU.YD.



CUT AREA 868 SQ.FT.
FILL AREA 0 SQ.FT.

967+00

CUT VOLUME 3274 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 899 SQ.FT.
FILL AREA 0 SQ.FT.

966+00

CUT VOLUME 3370 CU.YD.
FILL VOLUME 0 CU.YD.

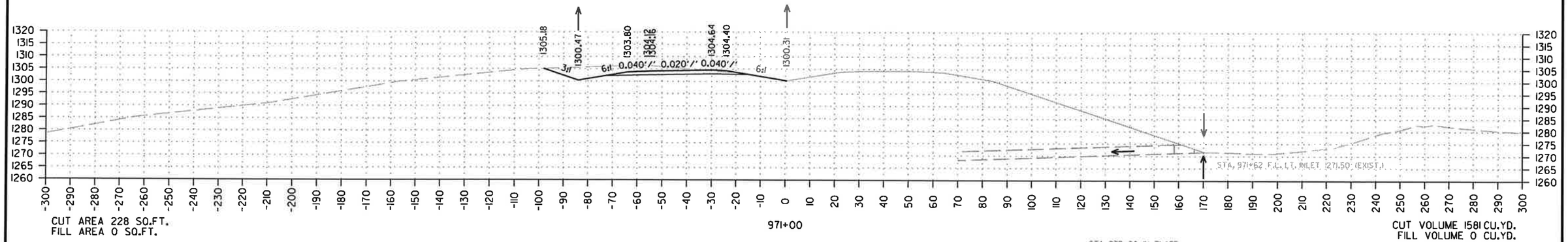
CROSS SECTION STA. 966+00 TO STA. 968+00

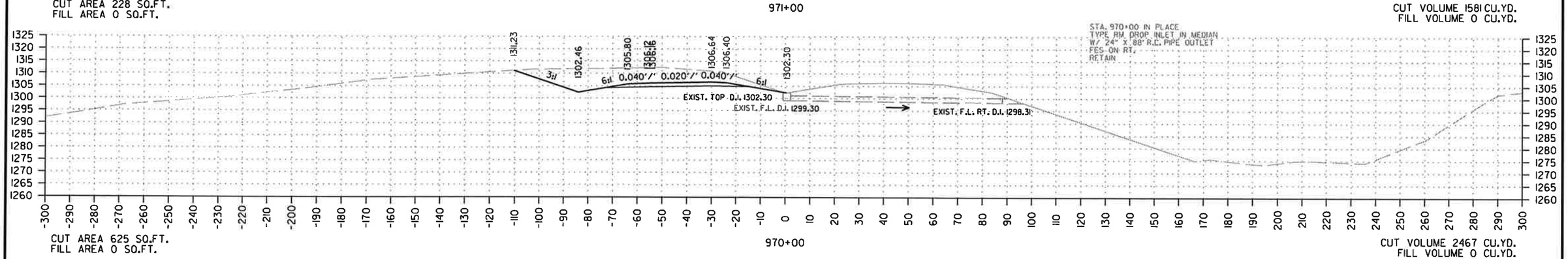
9/14/2017

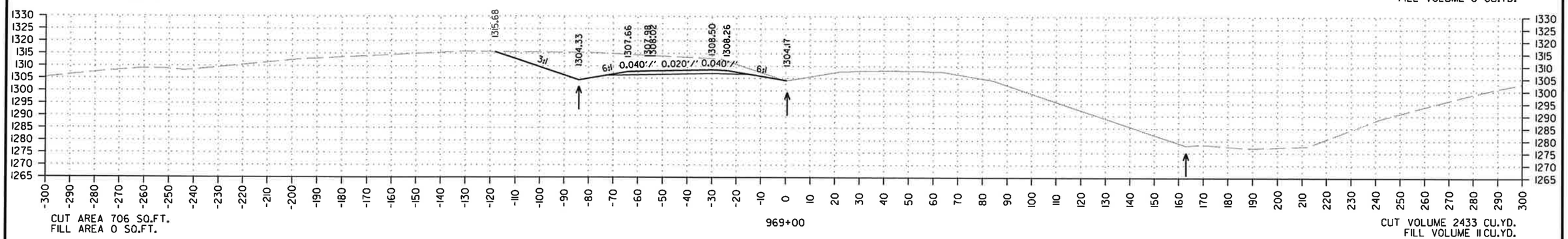
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	306	335

(2) CROSS SECTIONS







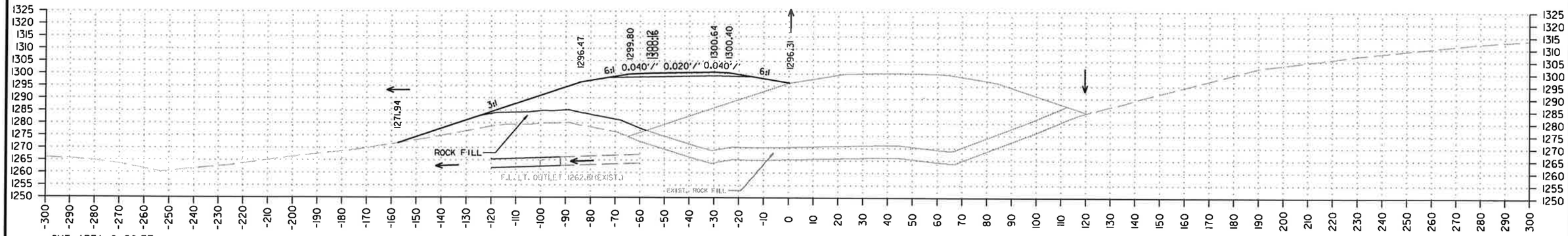
CROSS SECTION STA. 969+00 TO STA. 971+00

11/2/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/01/17				6	ARK.			
				JOB NO.		090508	307	335

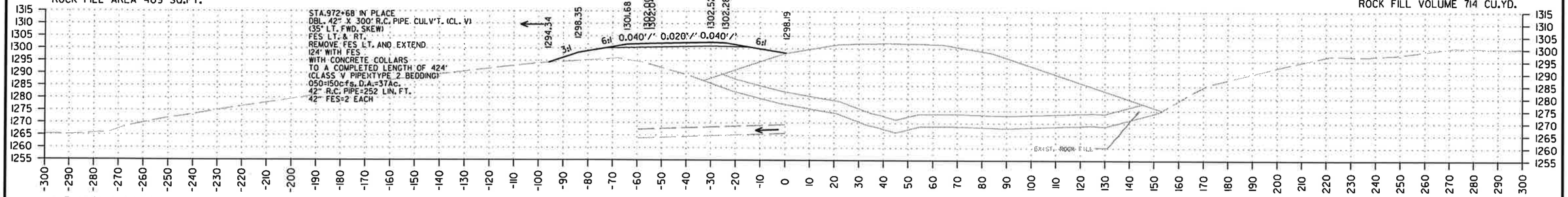
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1344 SQ.FT.
ROCK FILL AREA 409 SQ.FT.

973+00

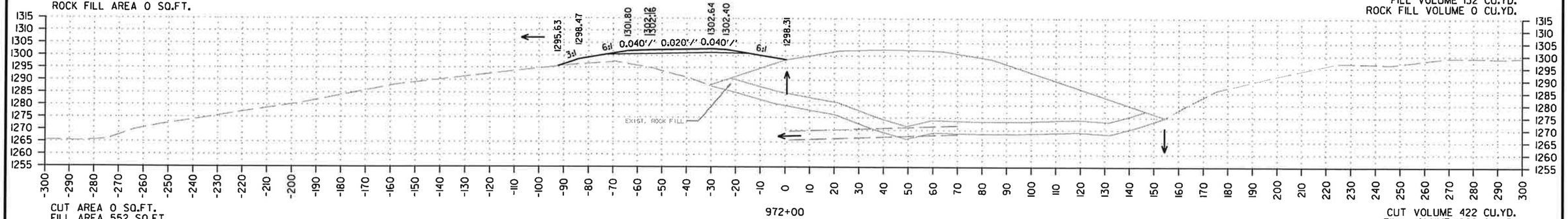
CUT VOLUME 0 CU.YD.
FILL VOLUME 3440 CU.YD.
ROCK FILL VOLUME 714 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 631 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

972+06

CUT VOLUME 0 CU.YD.
FILL VOLUME 132 CU.YD.
ROCK FILL VOLUME 0 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 552 SQ.FT.

972+00

CUT VOLUME 422 CU.YD.
FILL VOLUME 1022 CU.YD.

CROSS SECTION STA. 972+00 TO STA. 973+00

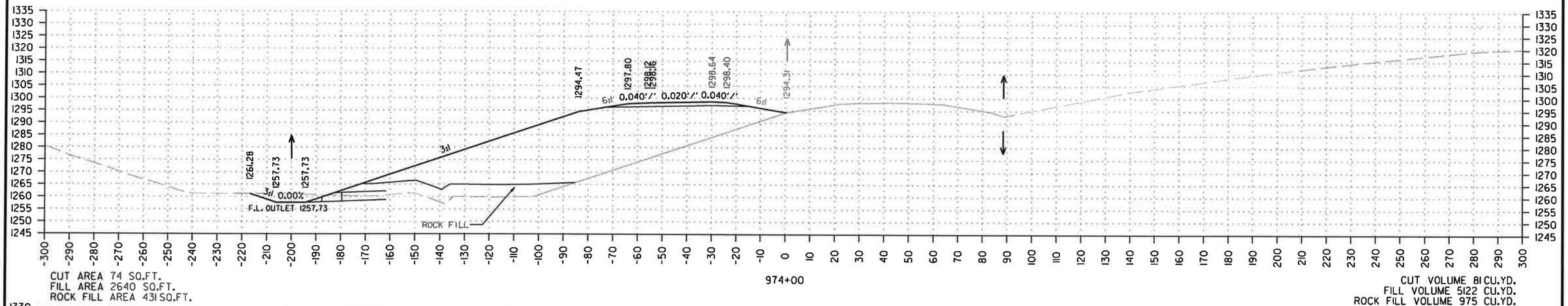
11/2/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11/01/17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	308	335

(2) CROSS SECTIONS



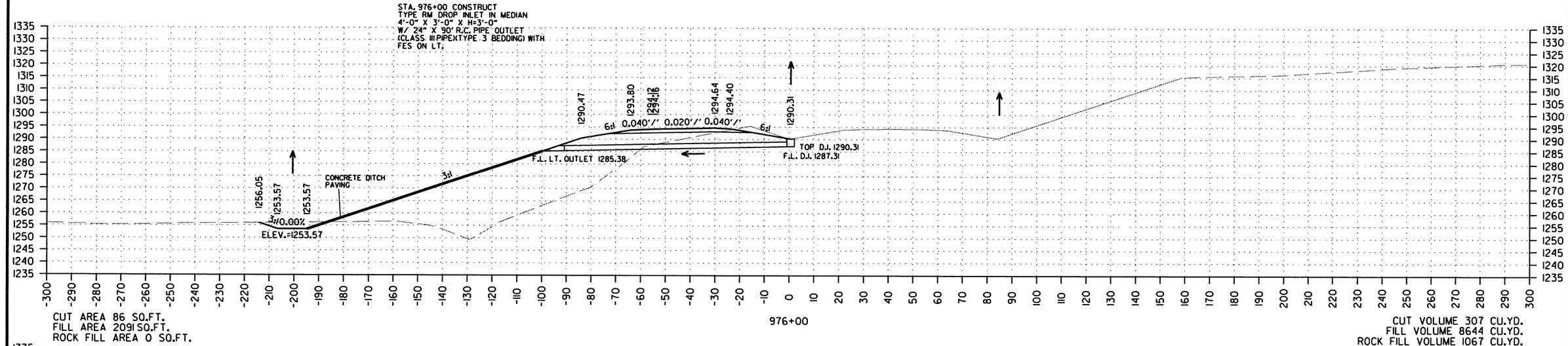
CROSS SECTION STA. 973+41 TO STA. 974+00

11/2/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	309	335

(2) CROSS SECTIONS



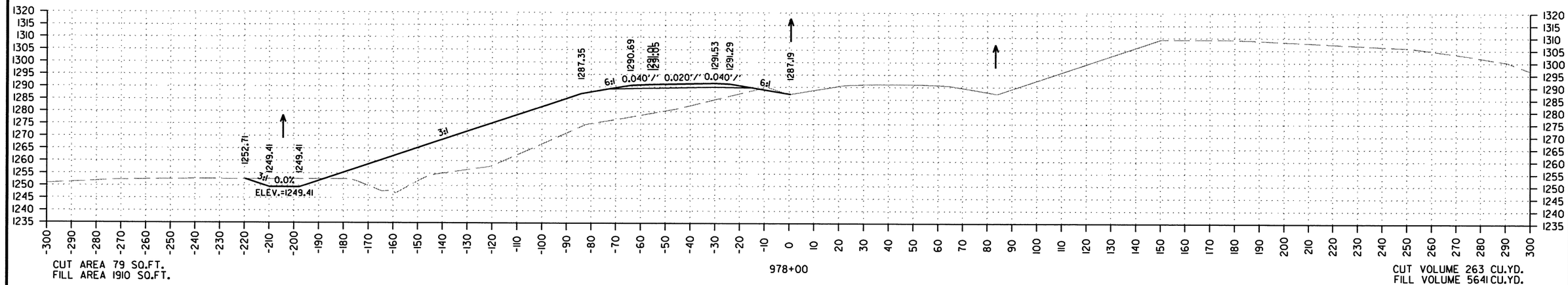
CROSS SECTION STA. 975+00 TO STA. 976+00

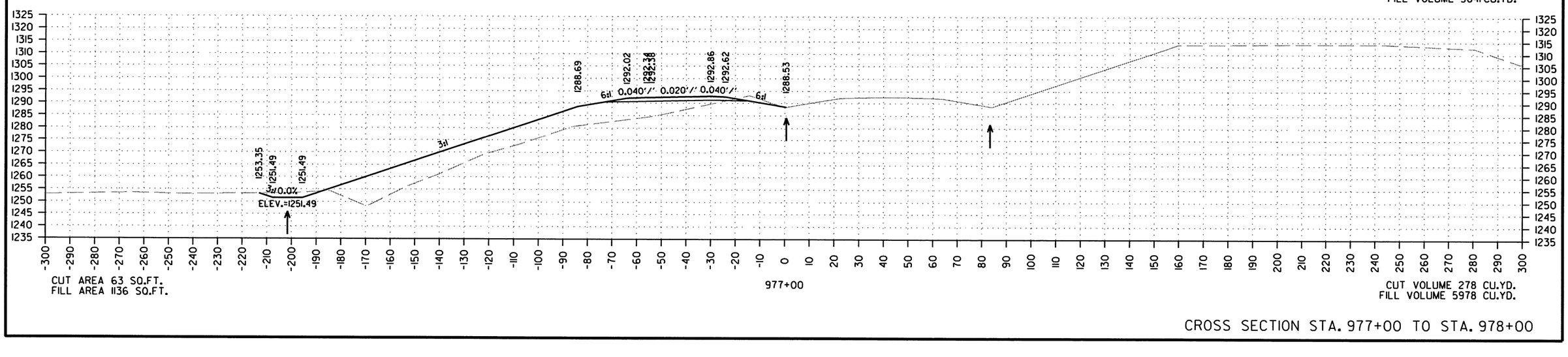
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	310	335

(2) CROSS SECTIONS





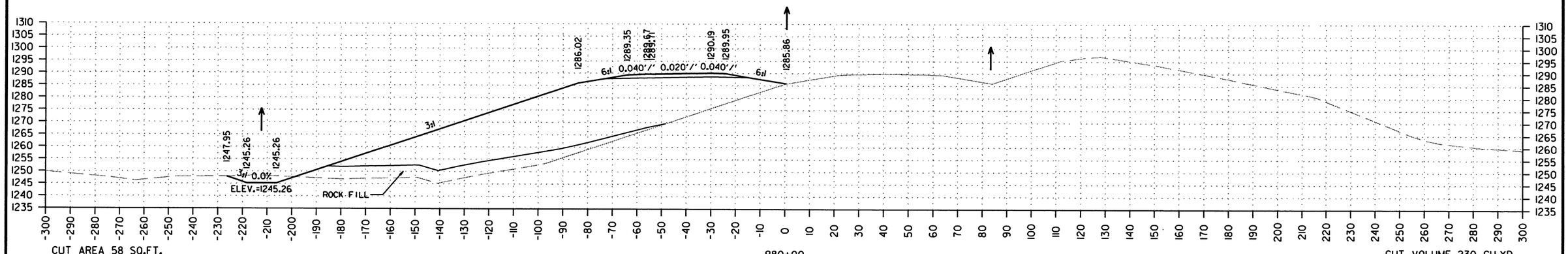
CROSS SECTION STA. 977+00 TO STA. 978+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	311	335

(2) CROSS SECTIONS



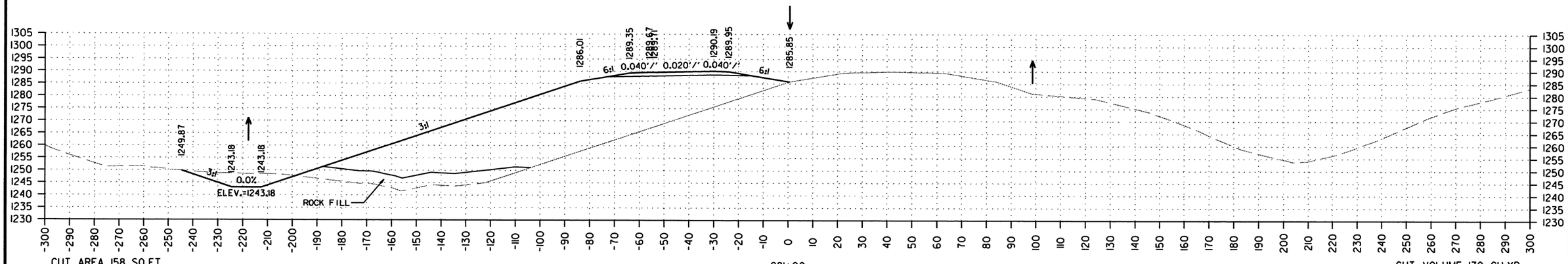
CROSS SECTION STA. 979+00 TO STA. 980+00

9/14/2017

R090508.DGN

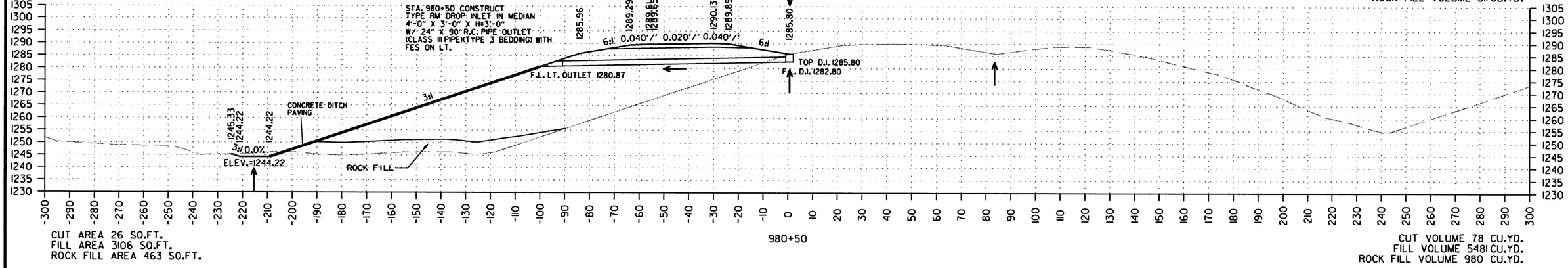
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	312	335

(2) CROSS SECTIONS



CUT AREA 158 SQ.FT.
FILL AREA 3249 SQ.FT.
ROCK FILL AREA 412 SQ.FT.

CUT VOLUME 170 CU.YD.
FILL VOLUME 5885 CU.YD.
ROCK FILL VOLUME 811 CU.YD.



CUT AREA 26 SQ.FT.
FILL AREA 3106 SQ.FT.
ROCK FILL AREA 463 SQ.FT.

CUT VOLUME 78 CU.YD.
FILL VOLUME 5481 CU.YD.
ROCK FILL VOLUME 980 CU.YD.

CROSS SECTION STA. 980+50 TO STA. 981+00

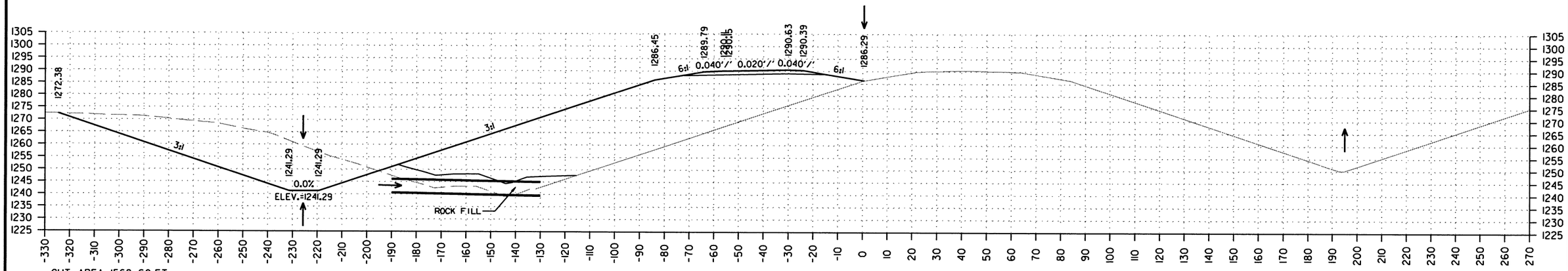
9/14/2017

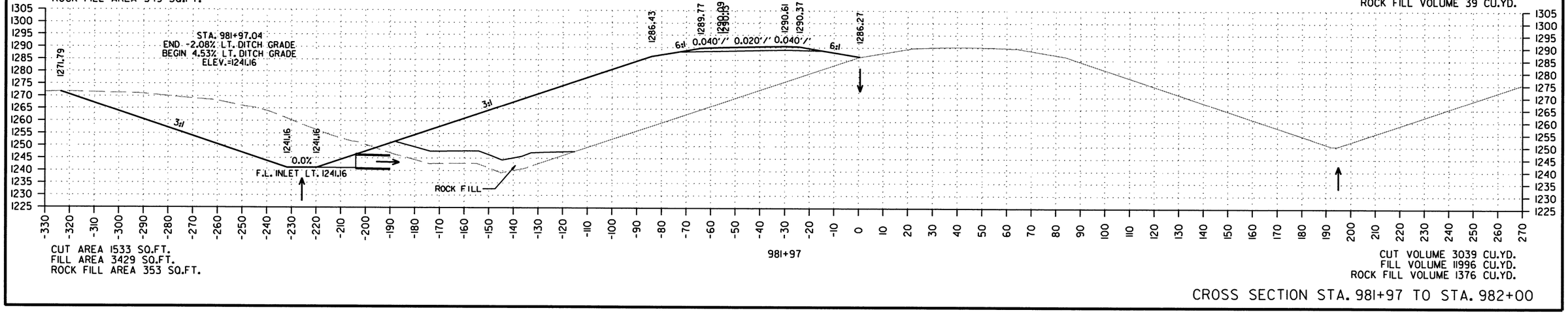
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	313	335

(2) CROSS SECTIONS





CROSS SECTION STA. 981+97 TO STA. 982+00

9/14/2017

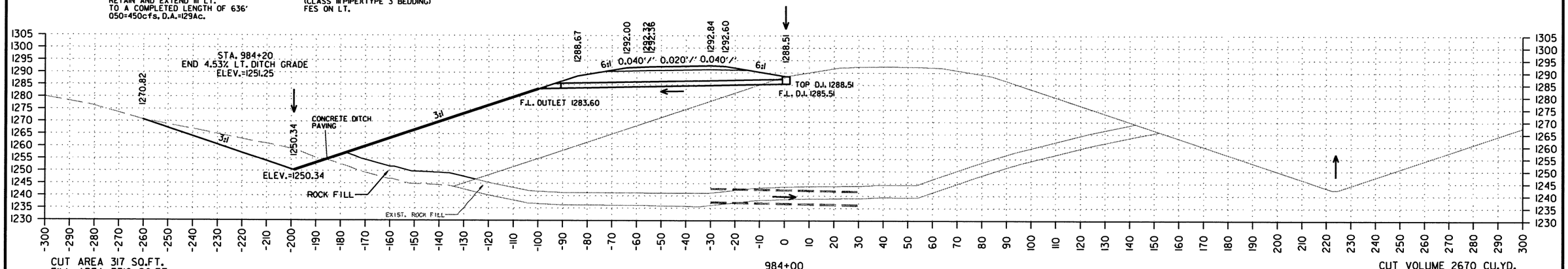
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	314	335

(2) CROSS SECTIONS

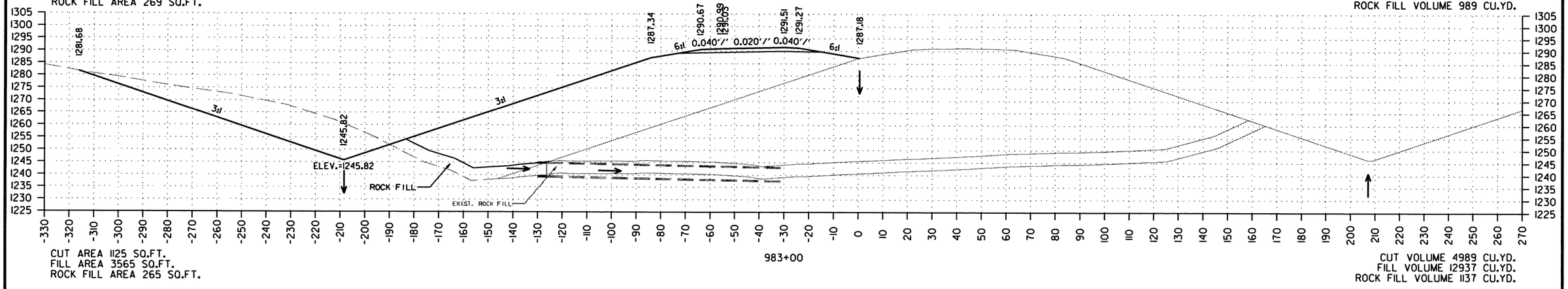
STA. 984+00 IN PLACE
DBL. 5' X 5' X 525' R.C. BOX CULV'T
(45° RT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND III' LT.
TO A COMPLETED LENGTH OF 636'
Q50=450cfs, D.A.=129ac.

STA. 984+00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
4'-0" X 3'-0" X H=3'-0"
W/ 24" X 90' R.C. PIPE OUTLET
(CLASS III PIPE XTYPE 3 BEDDING)
FES ON LT.



CUT AREA 317 SQ.FT.
FILL AREA 3316 SQ.FT.
ROCK FILL AREA 269 SQ.FT.

CUT VOLUME 2670 CU.YD.
FILL VOLUME 12744 CU.YD.
ROCK FILL VOLUME 989 CU.YD.



CUT AREA 1125 SQ.FT.
FILL AREA 3565 SQ.FT.
ROCK FILL AREA 265 SQ.FT.

CUT VOLUME 4989 CU.YD.
FILL VOLUME 12937 CU.YD.
ROCK FILL VOLUME 1137 CU.YD.

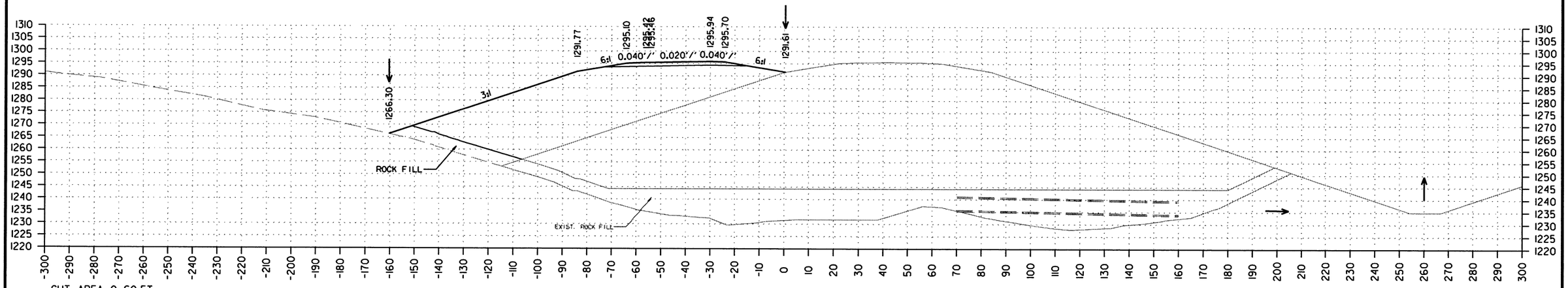
CROSS SECTION STA. 983+00 TO STA. 984+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	315	335

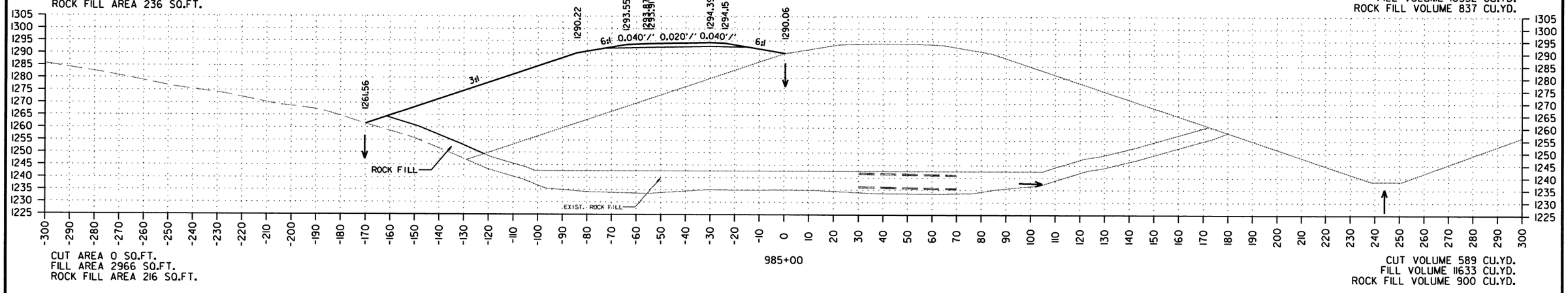
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 2623 SQ.FT.
ROCK FILL AREA 236 SQ.FT.

986+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 10352 CU.YD.
ROCK FILL VOLUME 837 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2966 SQ.FT.
ROCK FILL AREA 216 SQ.FT.

985+00

CUT VOLUME 589 CU.YD.
FILL VOLUME 11633 CU.YD.
ROCK FILL VOLUME 900 CU.YD.

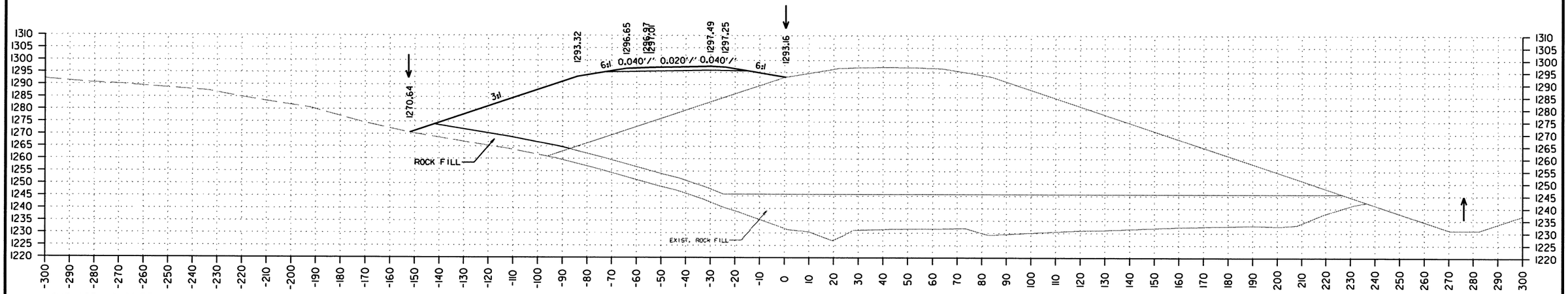
CROSS SECTION STA. 985+00 TO STA. 986+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	316	335

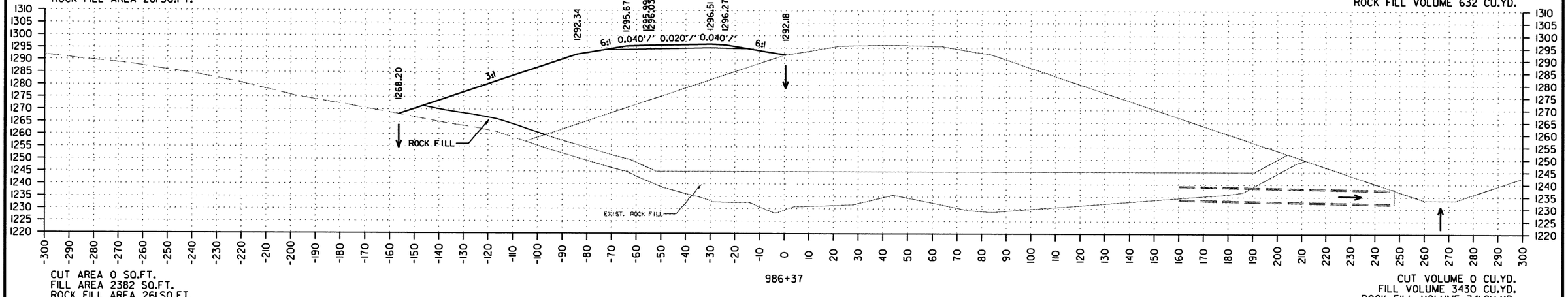
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 2203 SQ.FT.
ROCK FILL AREA 281 SQ.FT.

987+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 5350 CU.YD.
ROCK FILL VOLUME 632 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2382 SQ.FT.
ROCK FILL AREA 261 SQ.FT.

986+37

CUT VOLUME 0 CU.YD.
FILL VOLUME 3430 CU.YD.
ROCK FILL VOLUME 341 CU.YD.

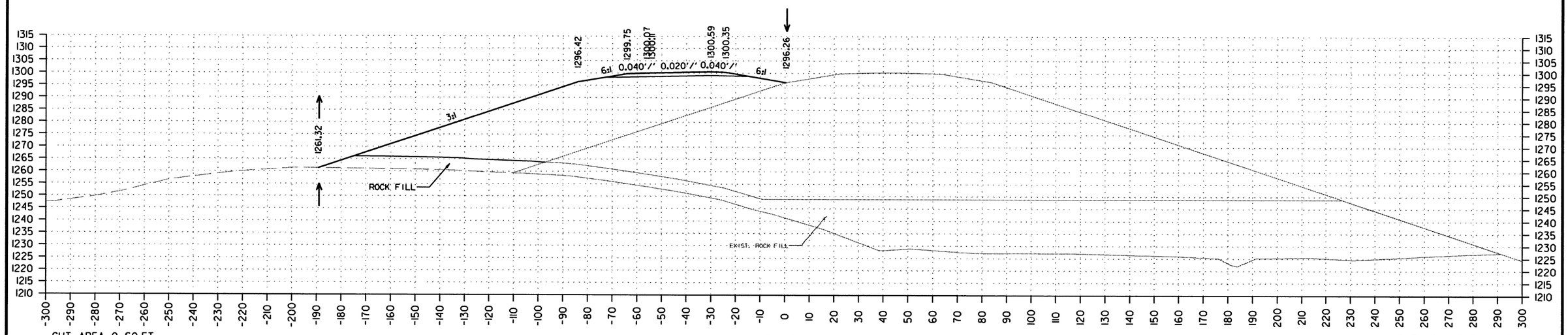
CROSS SECTION STA. 986+37 TO STA. 987+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	317	335

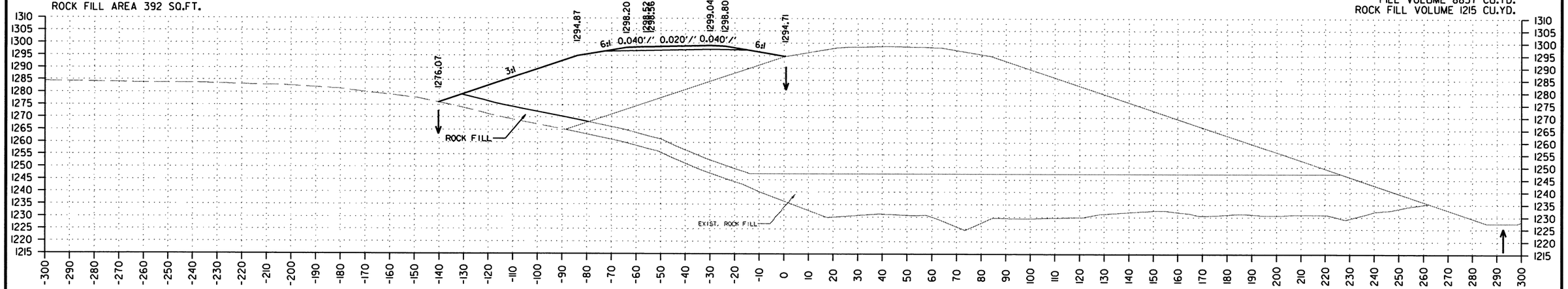
(2) CROSS SECTIONS



989+00

CUT AREA 0 SQ.FT.
FILL AREA 2803 SQ.FT.
ROCK FILL AREA 392 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 8837 CU.YD.
ROCK FILL VOLUME 1215 CU.YD.



988+00

CUT AREA 0 SQ.FT.
FILL AREA 1969 SQ.FT.
ROCK FILL AREA 264 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 7726 CU.YD.
ROCK FILL VOLUME 1011 CU.YD.

CROSS SECTION STA. 988+00 TO STA. 989+00

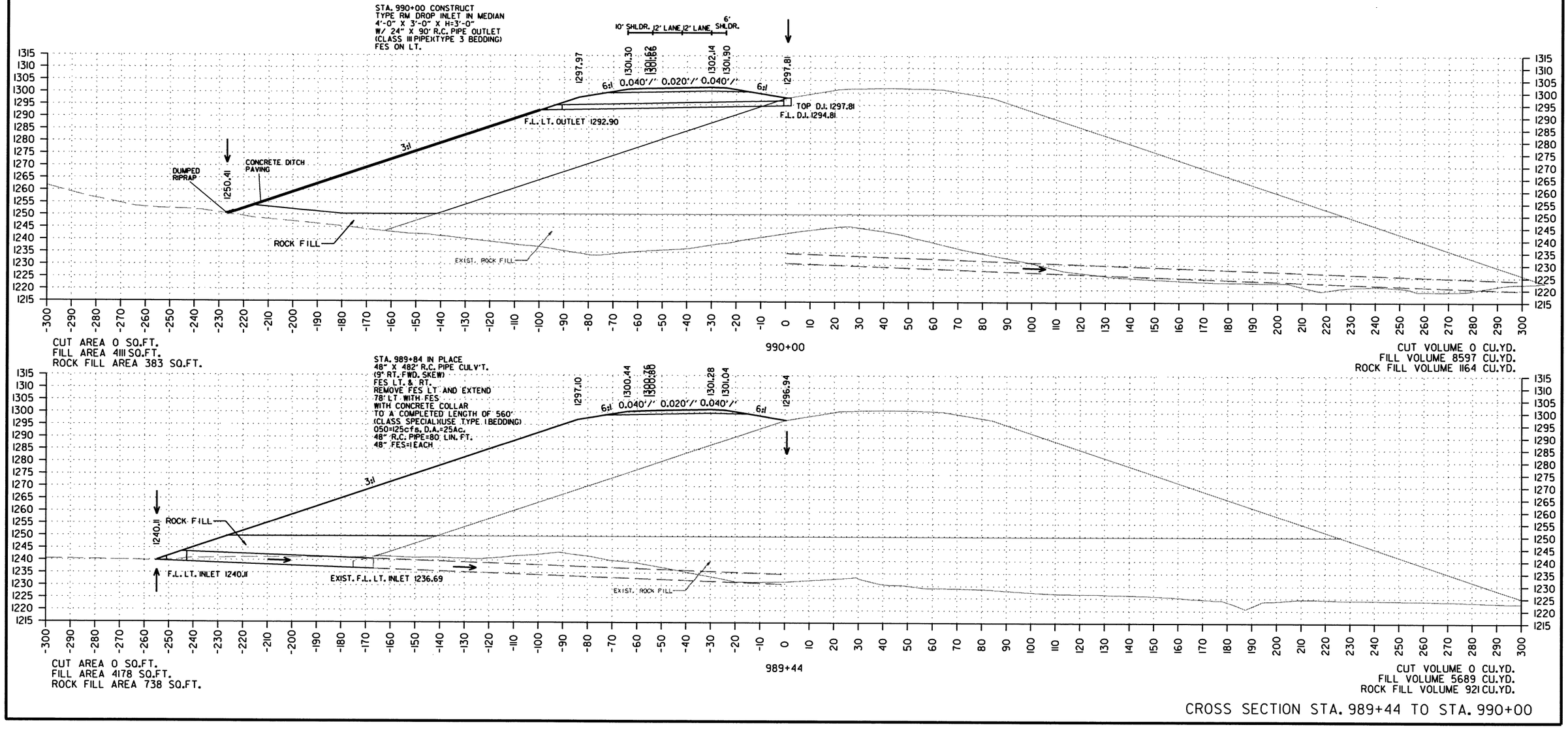
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	318	335

(2) CROSS SECTIONS



CROSS SECTION STA. 989+44 TO STA. 990+00

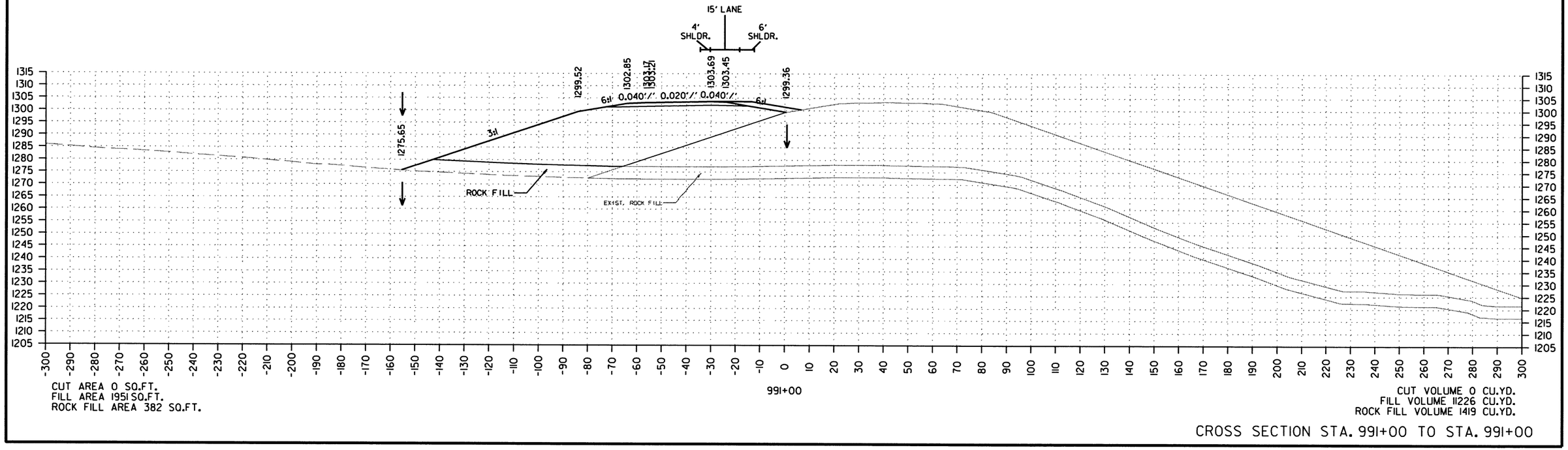
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090508	319	335

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1951 SQ.FT.
ROCK FILL AREA 382 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 11226 CU.YD.
ROCK FILL VOLUME 1419 CU.YD.

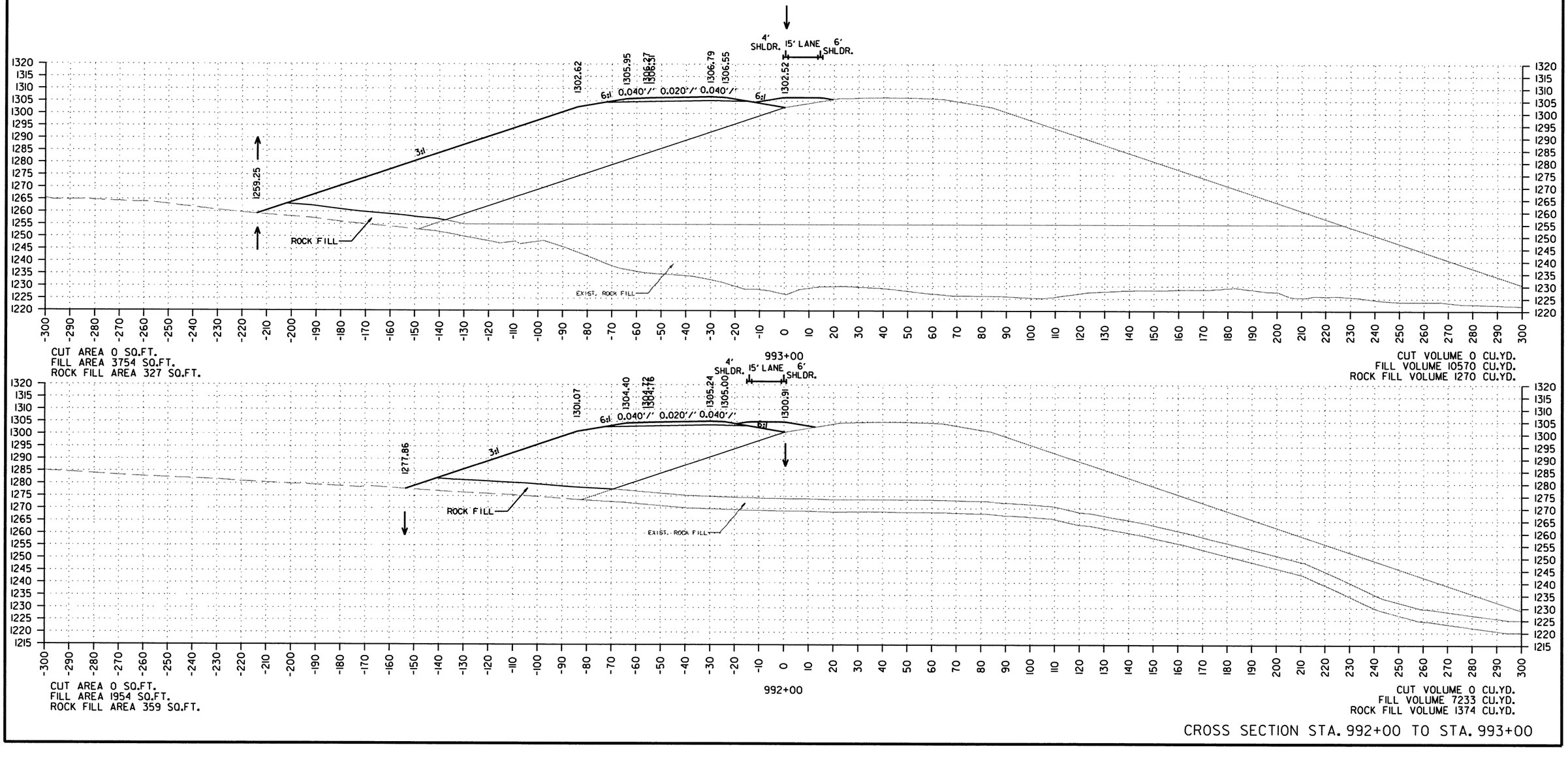
CROSS SECTION STA. 9911+00 TO STA. 9911+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	320	335

(2) CROSS SECTIONS



CROSS SECTION STA. 992+00 TO STA. 993+00

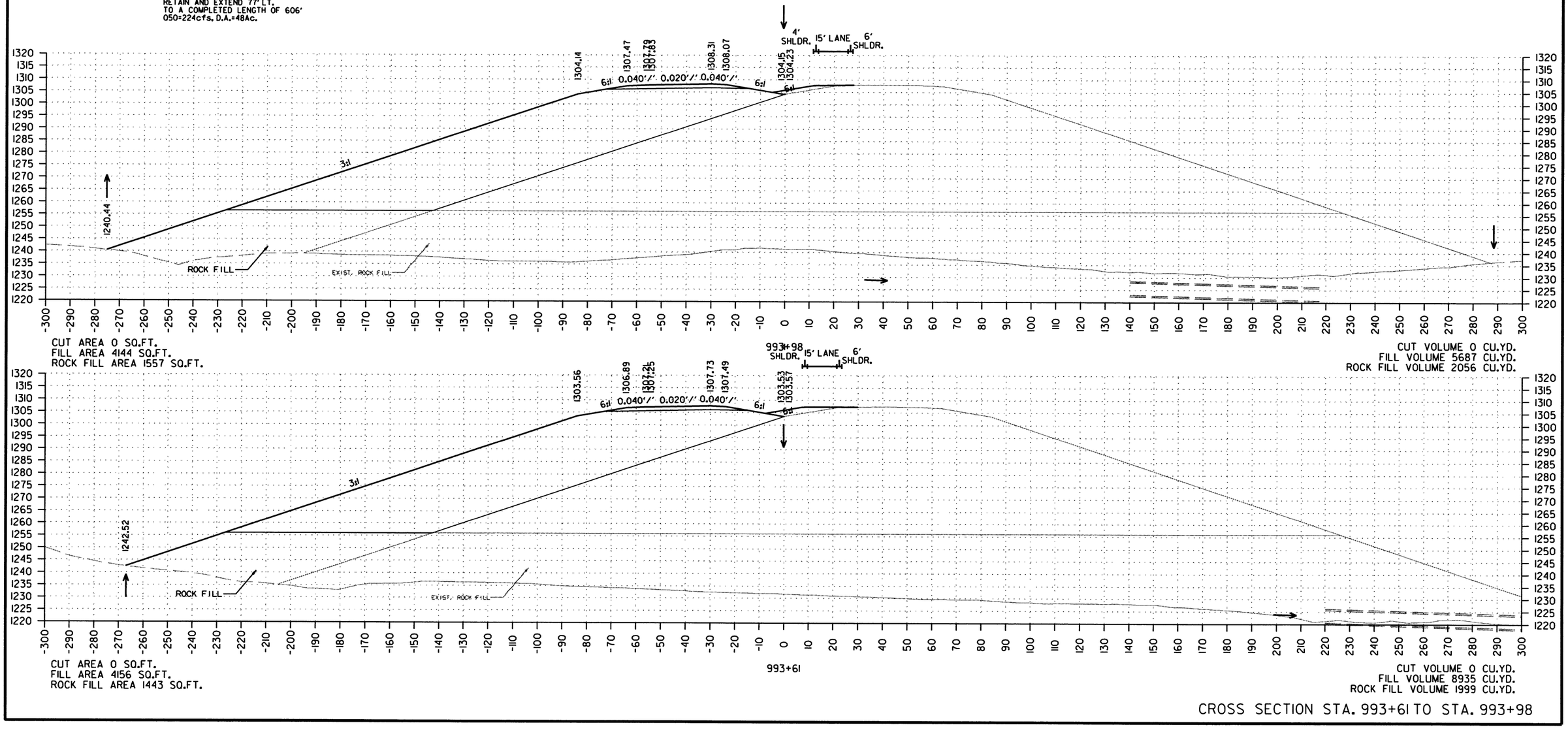
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	321	335

(2) CROSS SECTIONS

STA. 993+98 IN PLACE
5' X 5' X 529' R.C. BOX CULV'T.
(6° 43' LT. FWD. SKEW)
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 77' LT.
TO A COMPLETED LENGTH OF 606'
Q50=224cfs, D.A.=48Ac.



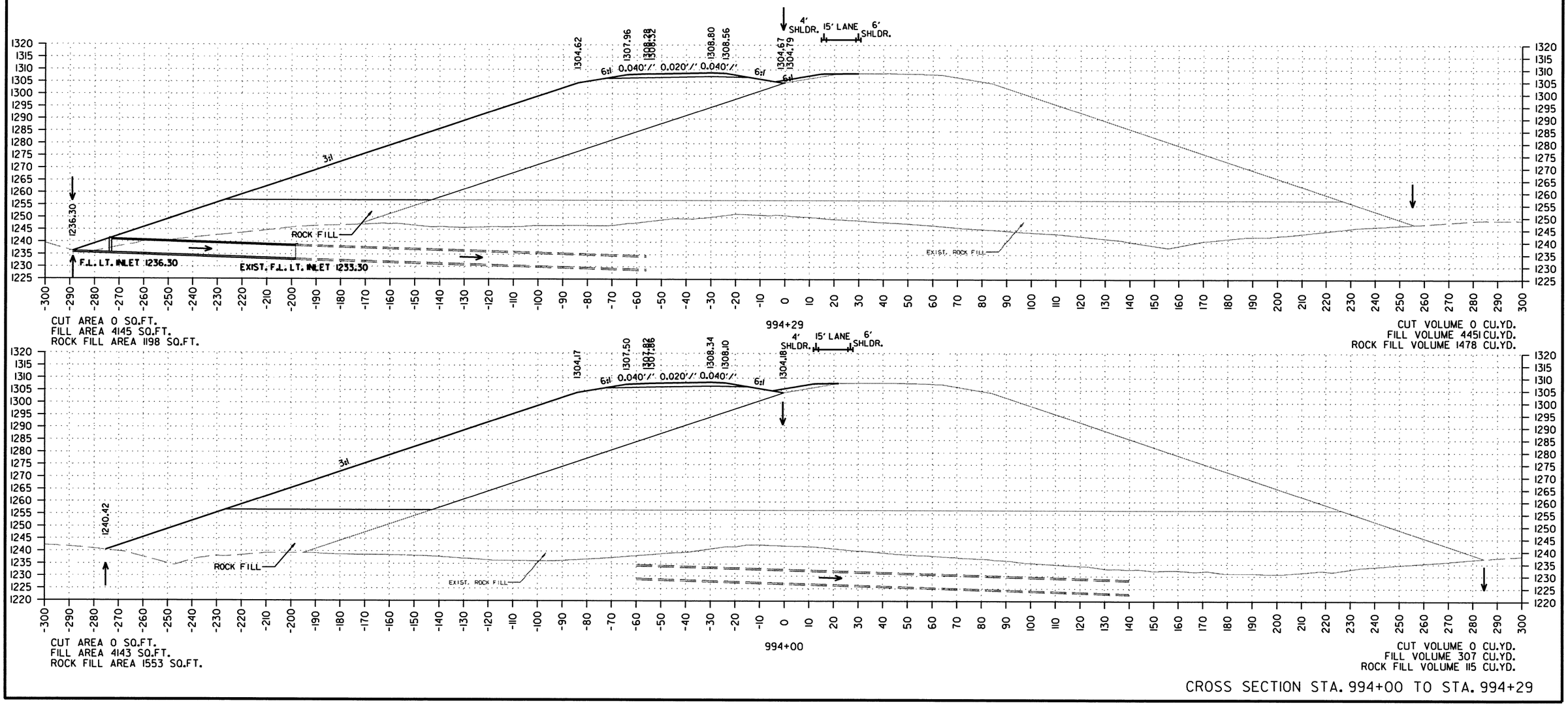
CROSS SECTION STA. 993+61 TO STA. 993+98

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	322	335

(2) CROSS SECTIONS



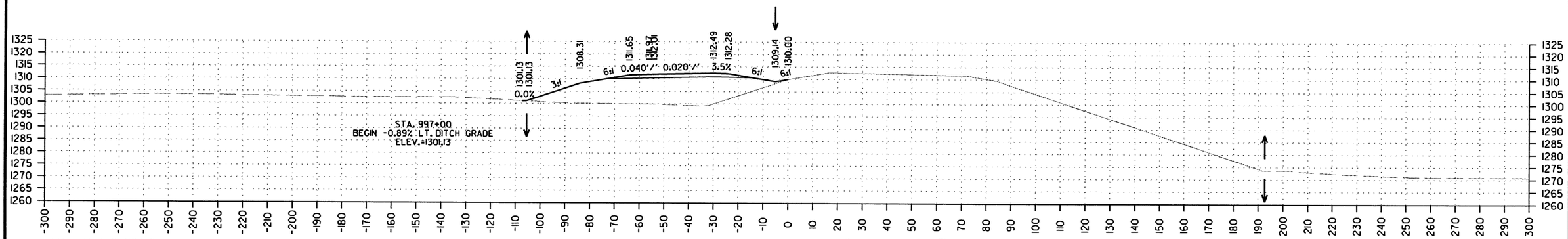
CROSS SECTION STA. 994+00 TO STA. 994+29

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	323	335

(2) CROSS SECTIONS

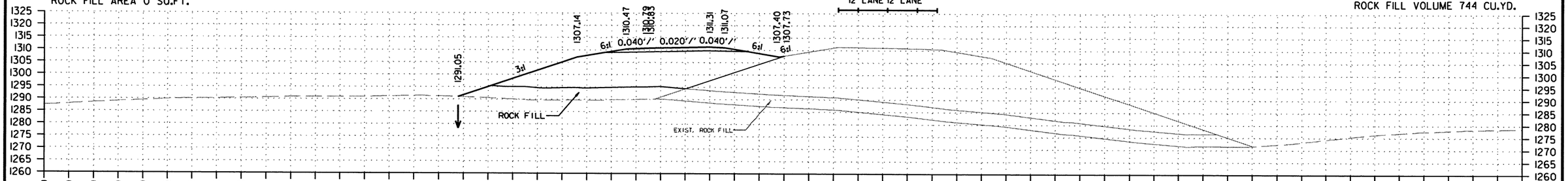


CUT AREA 0 SQ.FT.
FILL AREA 816 SQ.FT.
ROCK FILL AREA 0 SQ.FT.

997+00

8' SHLDR. 12' LANE 12' LANE 8' SHLDR.

CUT VOLUME 0 CU.YD.
FILL VOLUME 3670 CU.YD.
ROCK FILL VOLUME 744 CU.YD.

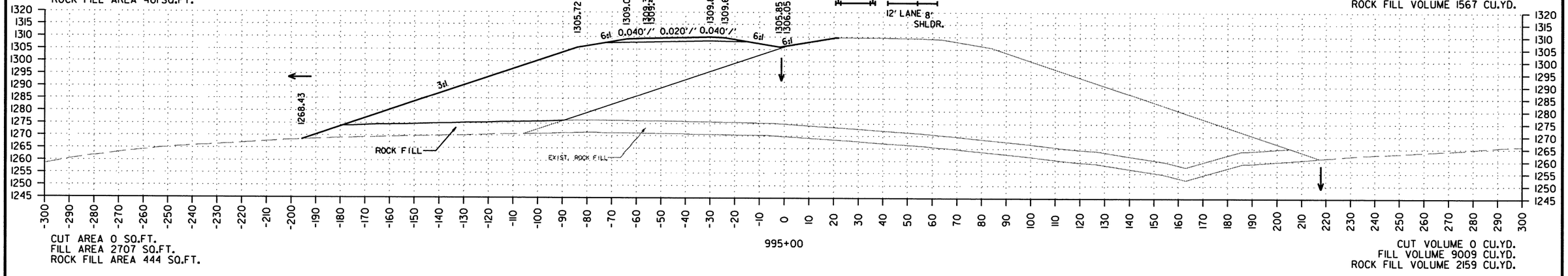


CUT AREA 0 SQ.FT.
FILL AREA 1165 SQ.FT.
ROCK FILL AREA 401 SQ.FT.

996+00

4' SHLDR. 15' LANE 6' SHLDR. 12' LANE 8' SHLDR.

CUT VOLUME 0 CU.YD.
FILL VOLUME 7170 CU.YD.
ROCK FILL VOLUME 1567 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2707 SQ.FT.
ROCK FILL AREA 444 SQ.FT.

995+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 9009 CU.YD.
ROCK FILL VOLUME 2159 CU.YD.

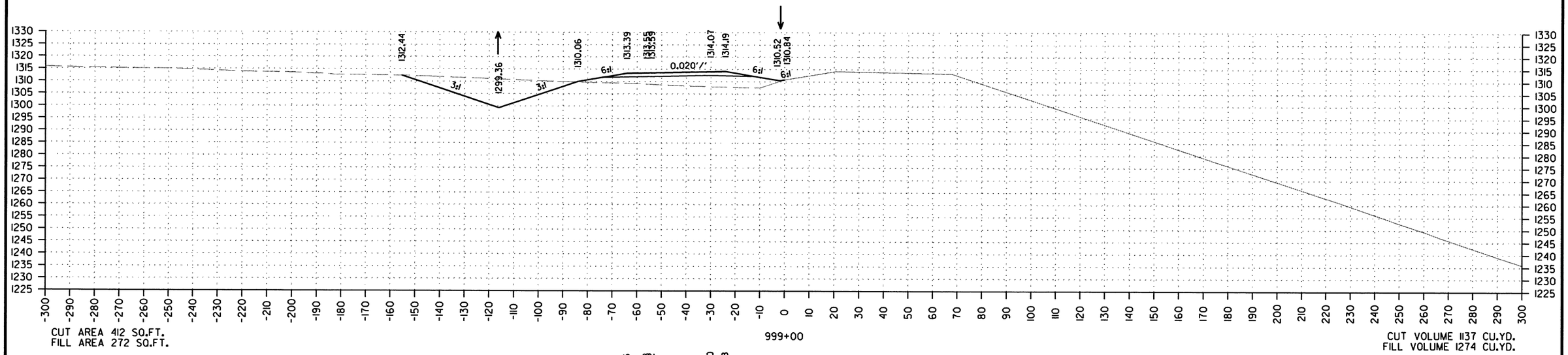
CROSS SECTION STA. 995+00 TO STA. 997+00

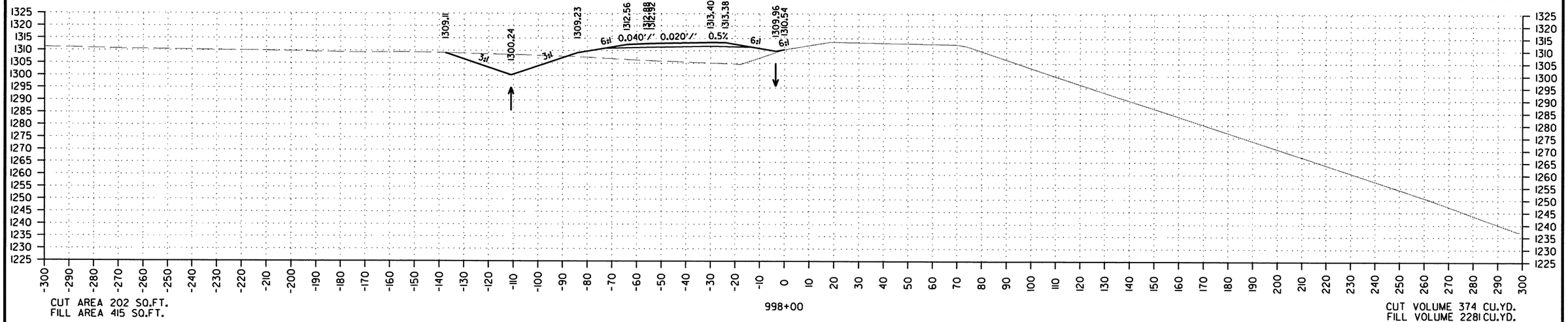
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	324	335

(2) CROSS SECTIONS





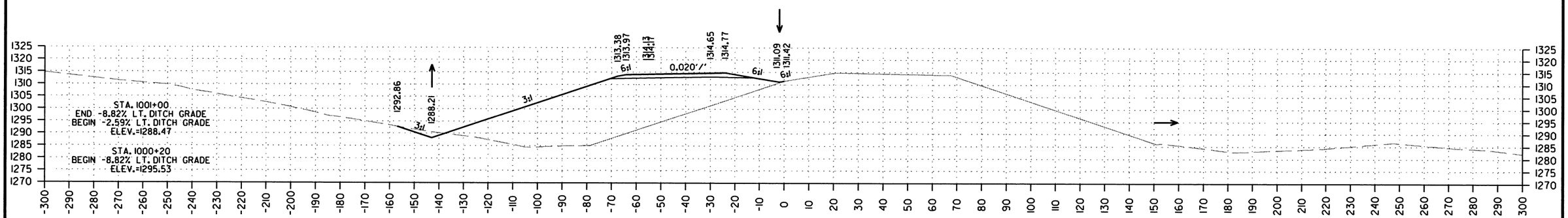
CROSS SECTION STA. 998+00 TO STA. 999+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	325	335

(2) CROSS SECTIONS



CUT AREA 23 SQ.FT.
FILL AREA 1910 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

1001+10

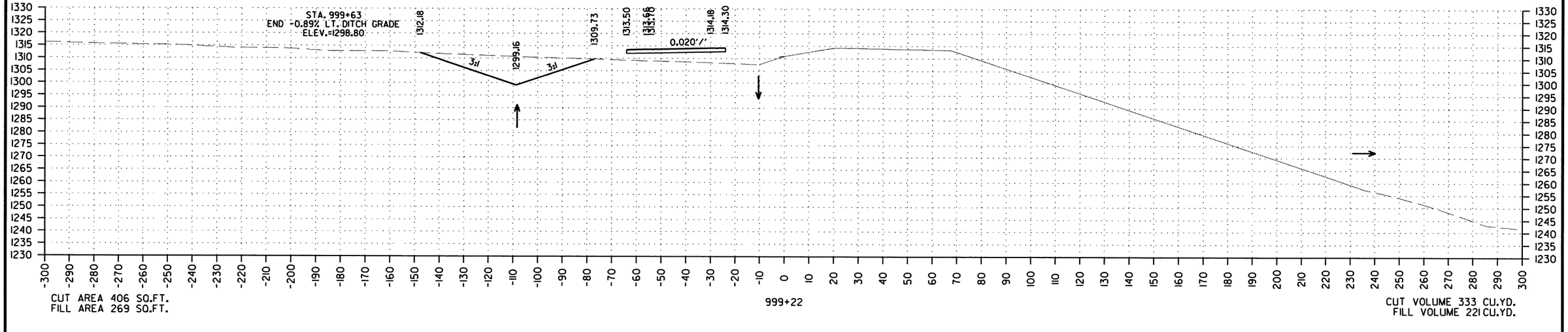
1000+28.83
SLOPE INTERCEPT

999+61.77
SLOPE INTERCEPT

CUT VOLUME 36 CU.YD.
FILL VOLUME 2872 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 299 CU.YD.
FILL VOLUME 199 CU.YD.



CUT AREA 406 SQ.FT.
FILL AREA 269 SQ.FT.

999+22

CUT VOLUME 333 CU.YD.
FILL VOLUME 221 CU.YD.

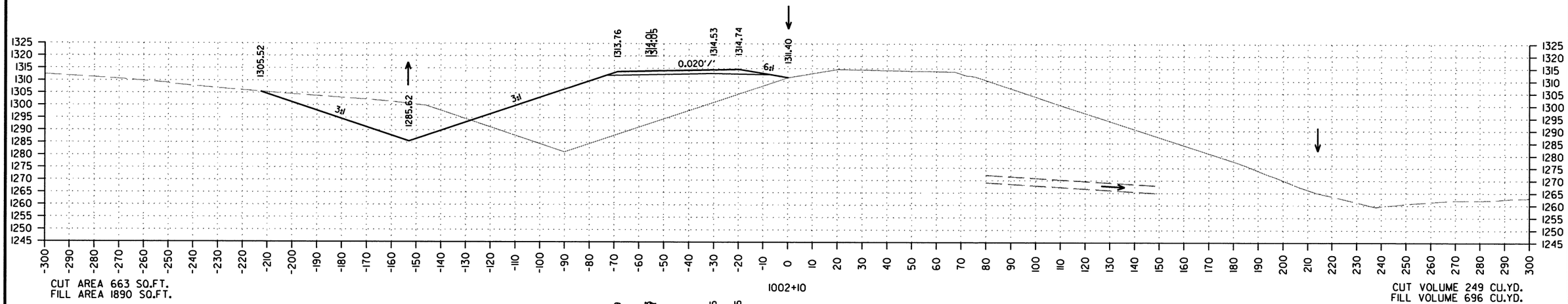
CROSS SECTION STA. 999+22 TO STA. 1001+10

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	326	335

(2) CROSS SECTIONS



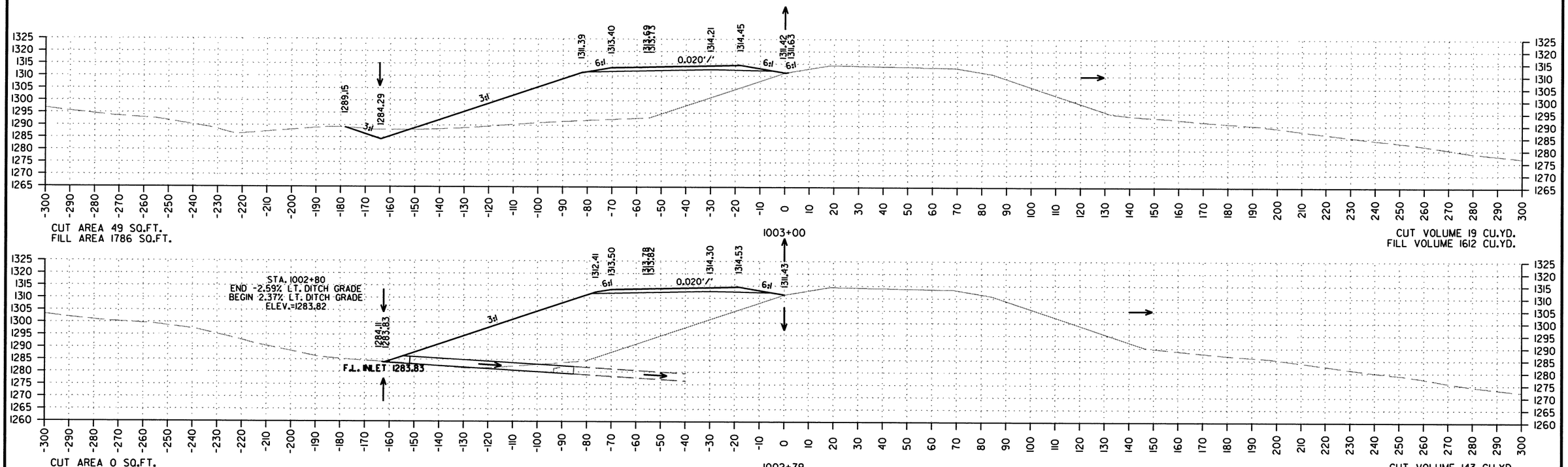
CROSS SECTION STA. 1002+00 TO STA. 1002+10

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	327	335

(2) CROSS SECTIONS



CROSS SECTION STA. 1002+51 TO STA. 1003+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	328	335

(2) CROSS SECTIONS

STA. 1006+00 IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 24" X 90' R.C. PIPE OUTLET
FES ON RT.
RETAIN

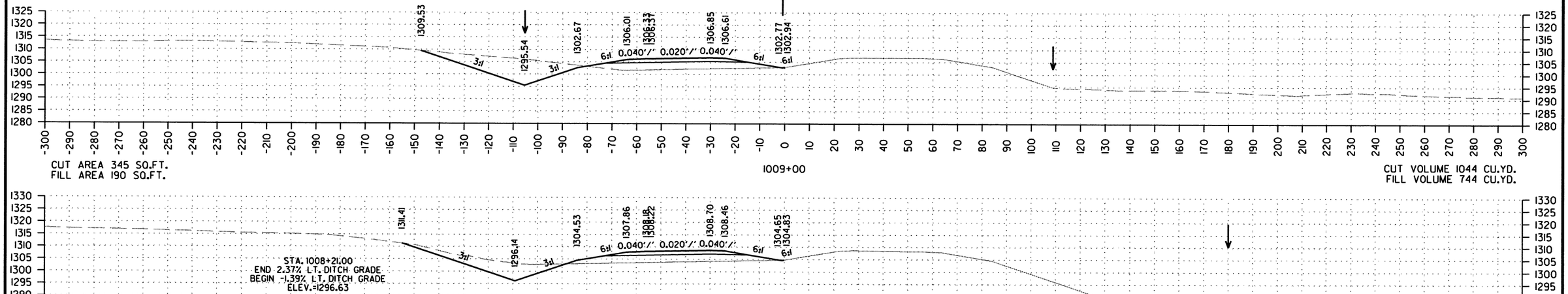
CROSS SECTION STA. 1004+00 TO STA. 1006+00

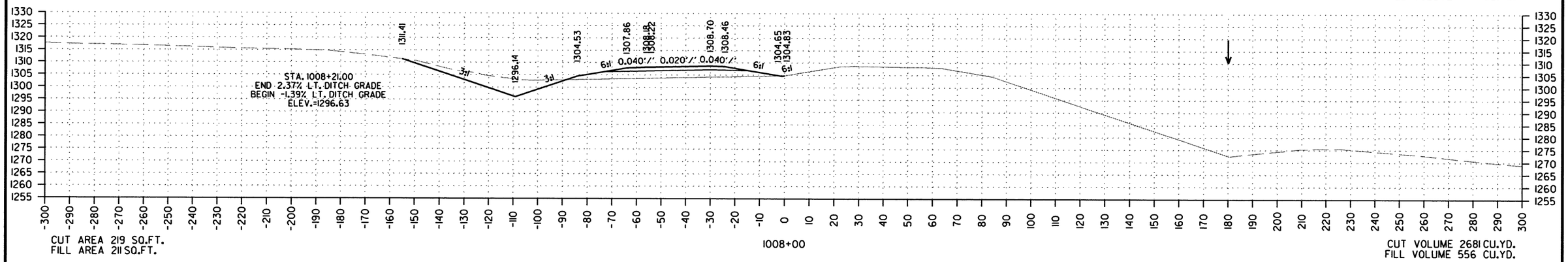
9/14/2017

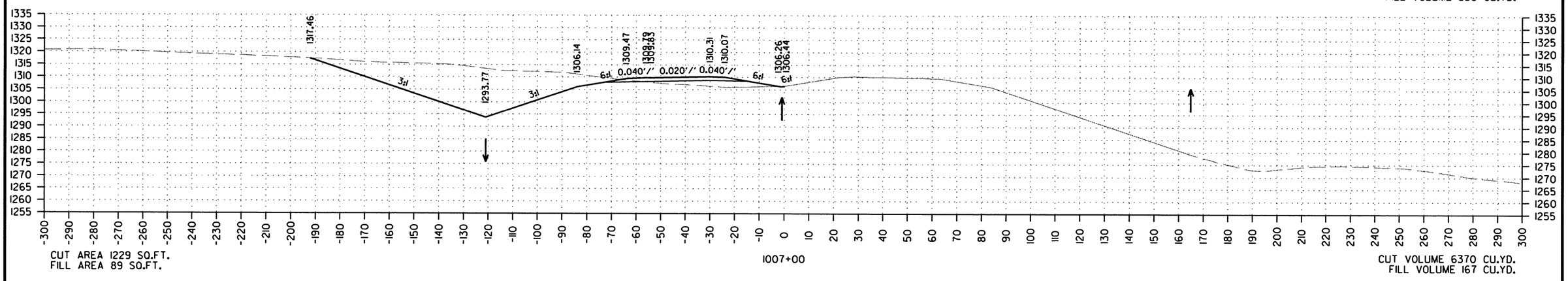
R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	329	335

(2) CROSS SECTIONS







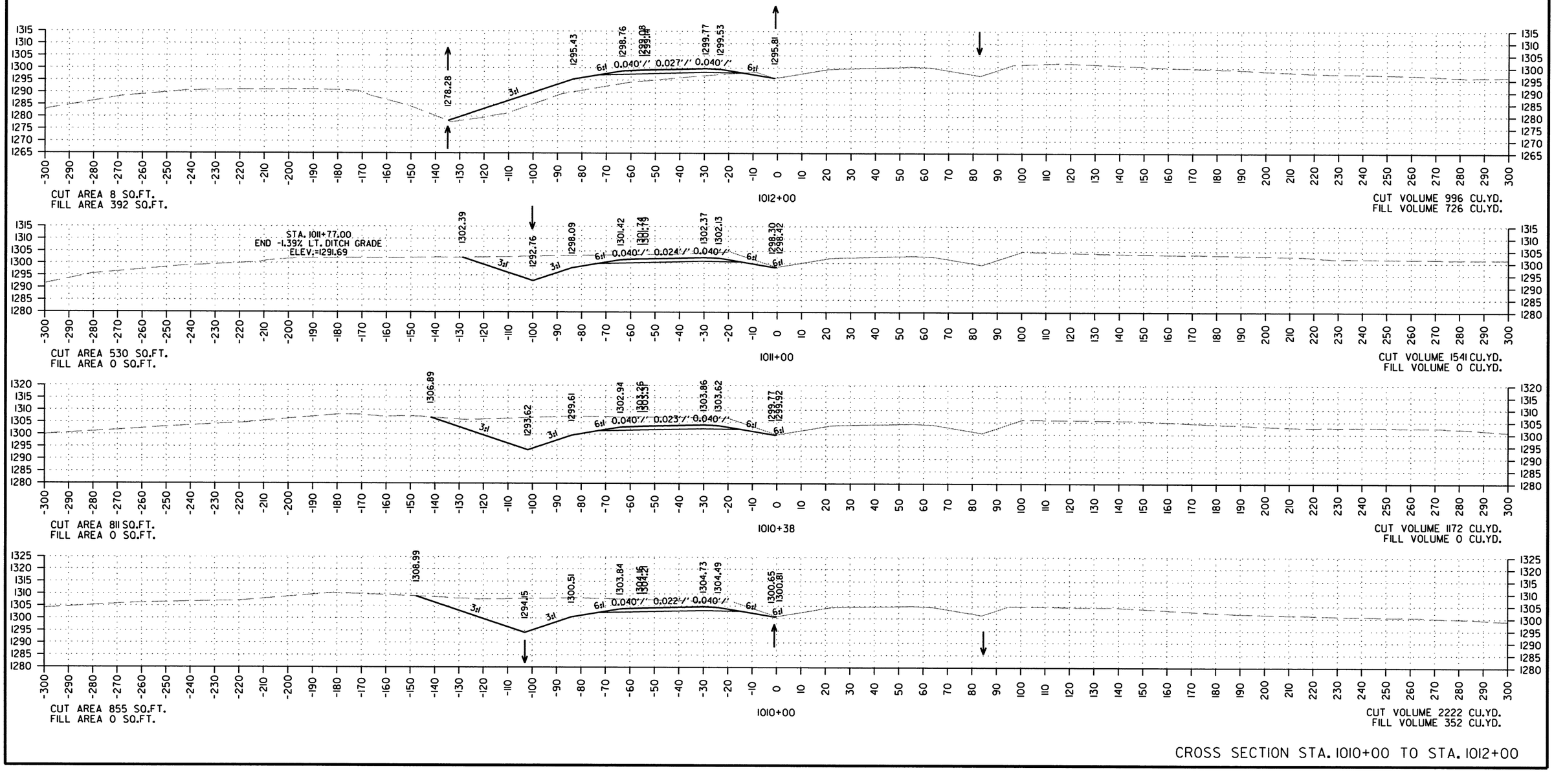
CROSS SECTION STA. 1007+00 TO STA. 1009+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	330	335

(2) CROSS SECTIONS



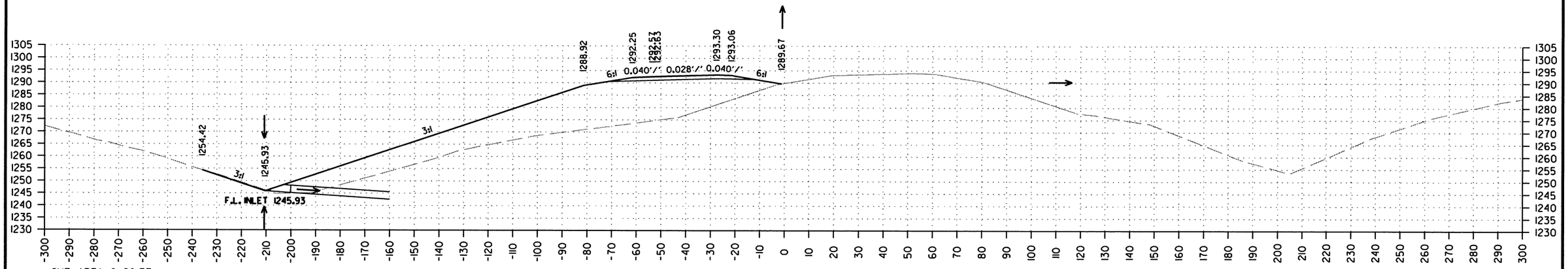
CROSS SECTION STA. 1010+00 TO STA. 1012+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	331	335

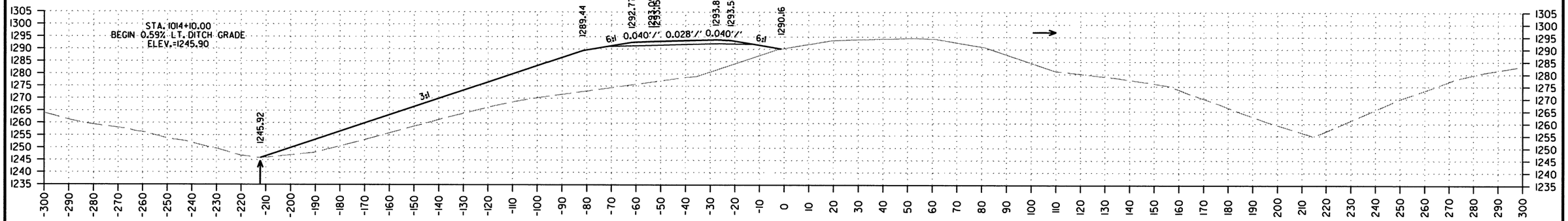
(2) CROSS SECTIONS



CUT AREA 9 SQ.FT.
FILL AREA 2272 SQ.FT.

1014+16

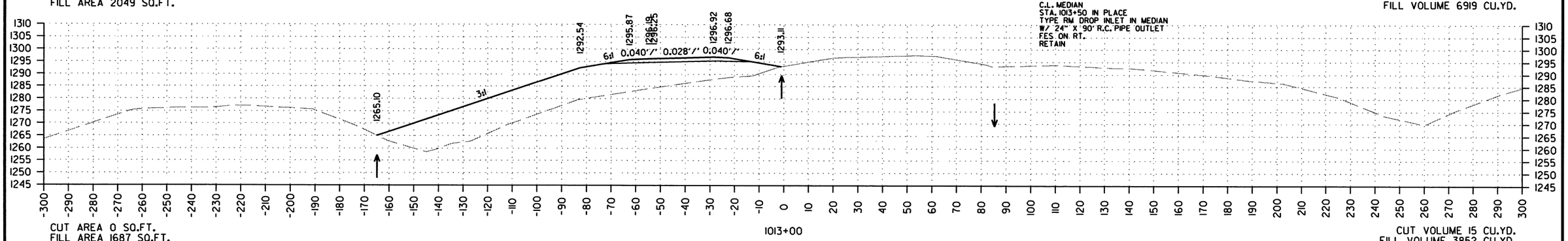
CUT VOLUME 3 CU.YD.
FILL VOLUME 1281 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2049 SQ.FT.

1014+00

CUT VOLUME 0 CU.YD.
FILL VOLUME 6919 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1687 SQ.FT.

1013+00

CUT VOLUME 15 CU.YD.
FILL VOLUME 3852 CU.YD.

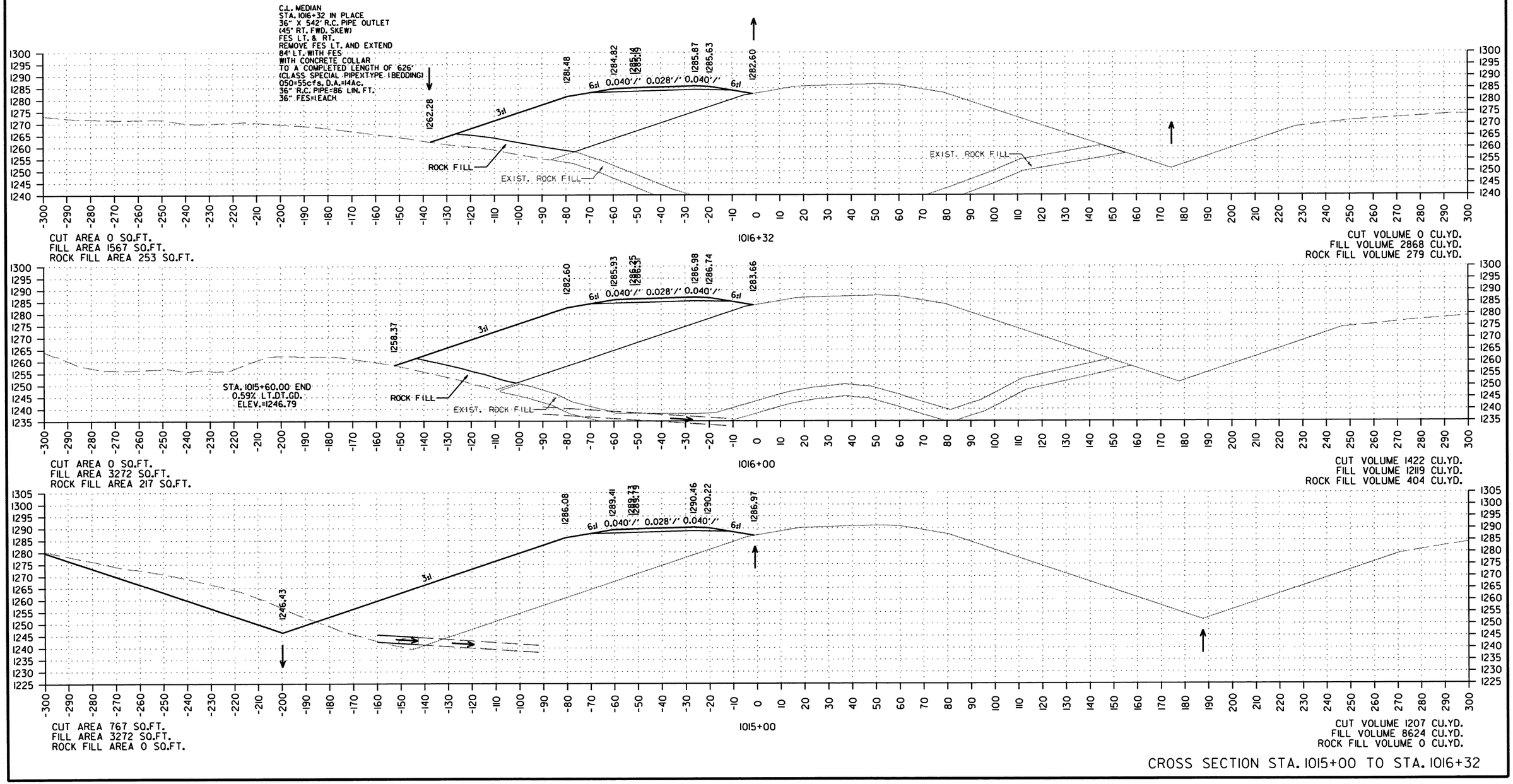
CROSS SECTION STA. 1013+00 TO STA. 1014+16

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	332	335

(2) CROSS SECTIONS



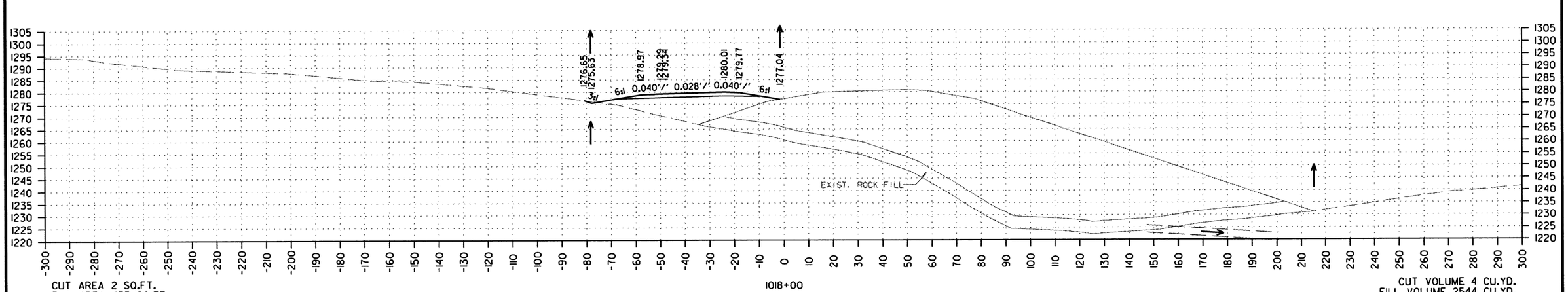
CROSS SECTION STA. 1015+00 TO STA. 1016+32

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	333	335

(2) CROSS SECTIONS



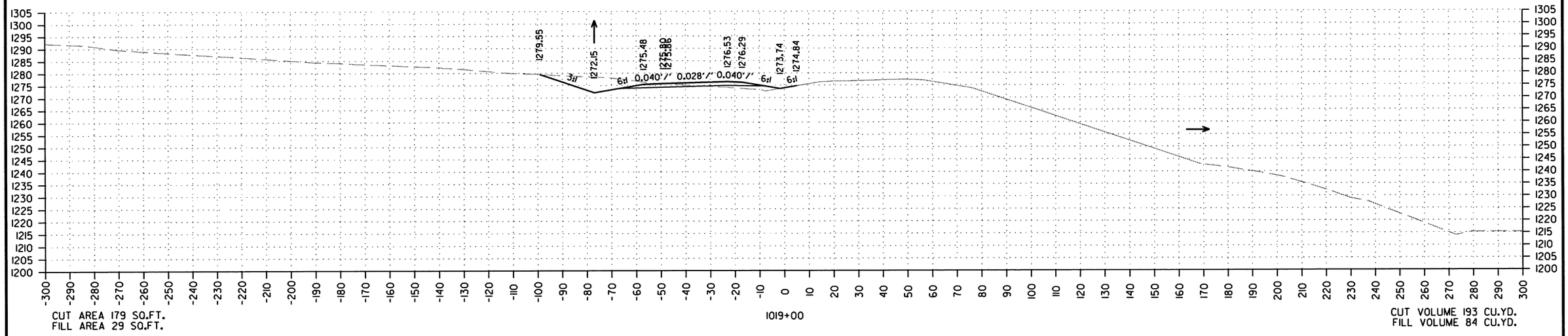
CROSS SECTION STA. 1017+00 TO STA. 1018+00

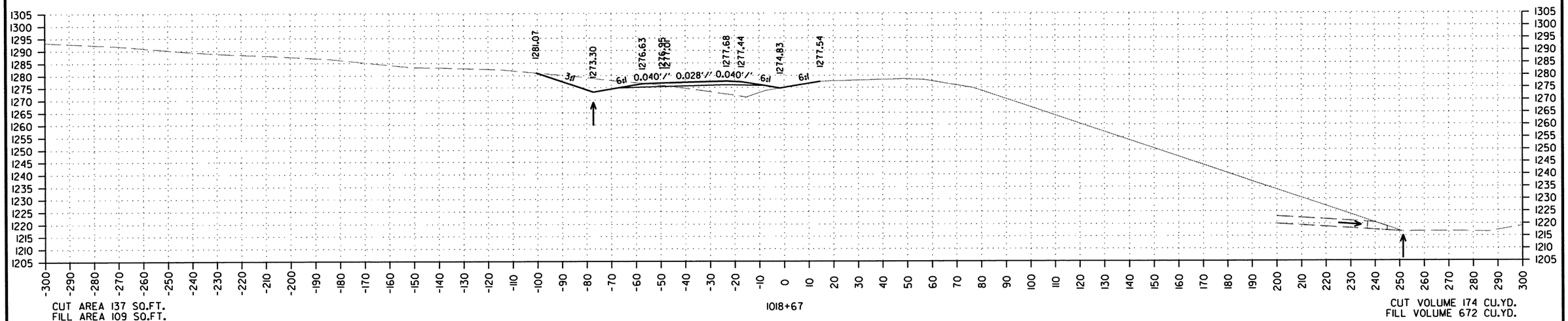
9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	334	335

(2) CROSS SECTIONS





CROSS SECTION STA. 1018+67 TO STA. 1019+00

9/14/2017

R090508.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090508	335	335

(2) CROSS SECTIONS

CUT AREA 27 SQ.FT.
FILL AREA 1534 SQ.FT.

1020+72

CUT VOLUME 37 CU.YD.
FILL VOLUME 2424 CU.YD.

CUT AREA 0 SQ.FT.
FILL AREA 284 SQ.FT.

1020+00

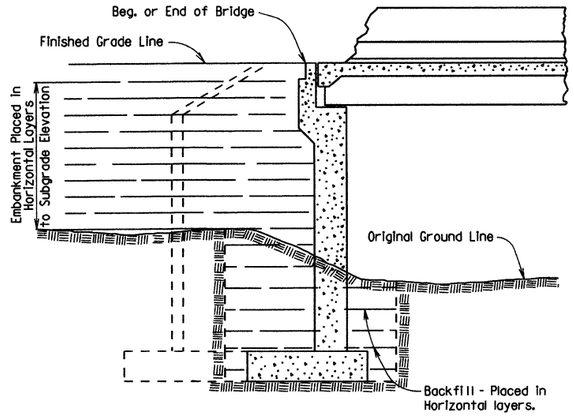
CUT VOLUME 333 CU.YD.
FILL VOLUME 581 CU.YD.

9/14/2017

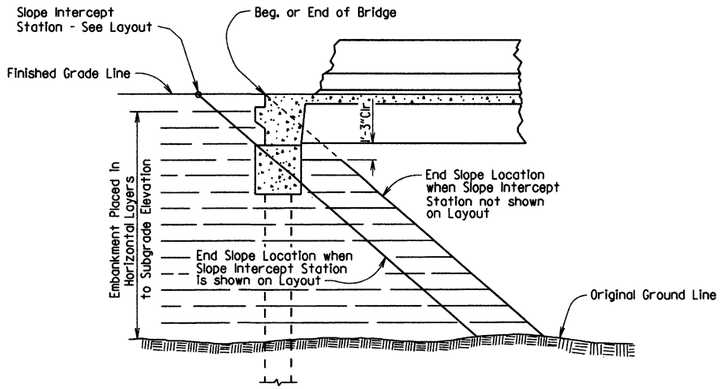
R090508.DGN

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

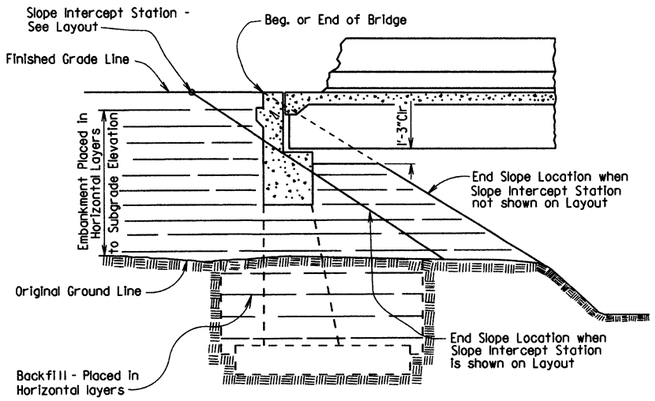
① EMBANKMENT & BACKFILL 55000



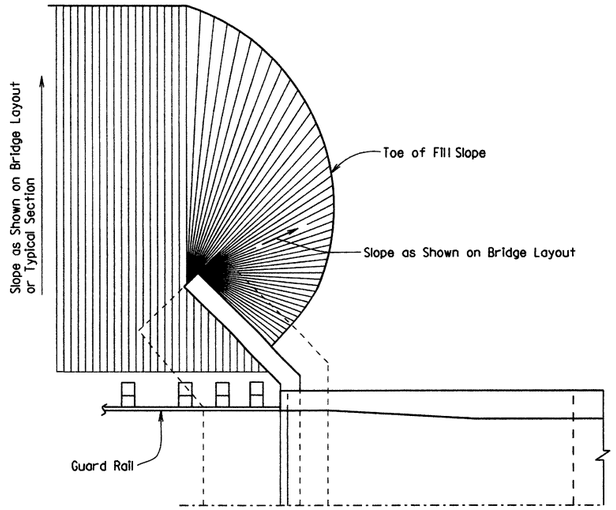
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



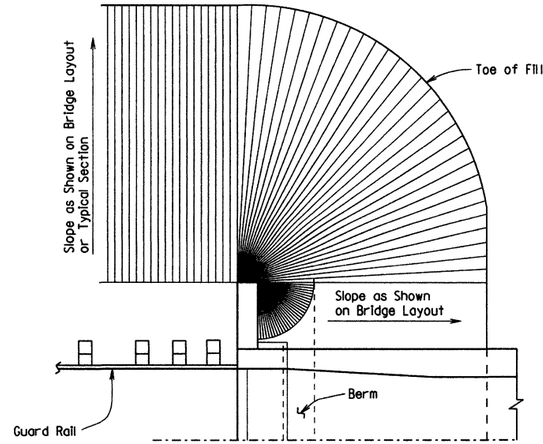
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



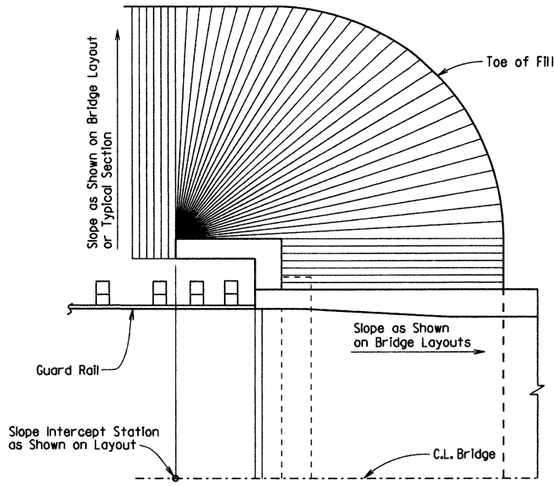
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



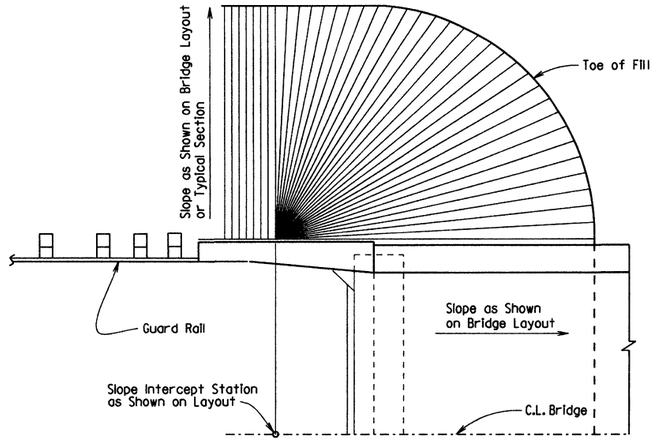
VERTICAL WALL ABUTMENTS



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

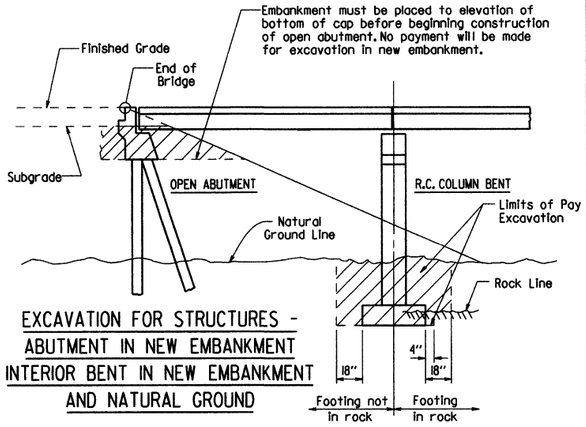
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

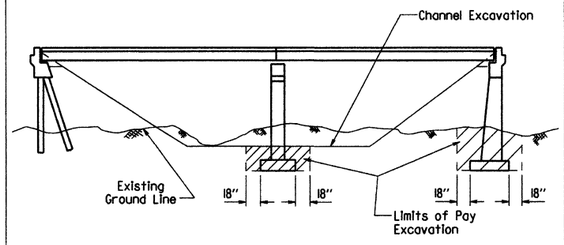
DRAWING NO. 55000

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.				

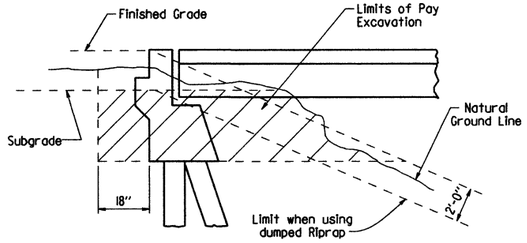
(1) RIPRAP & EXCAV. 55001



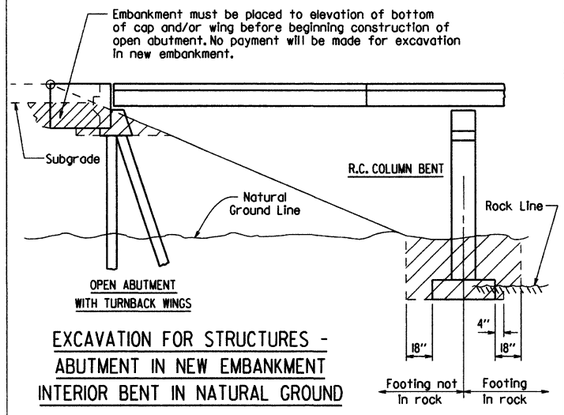
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



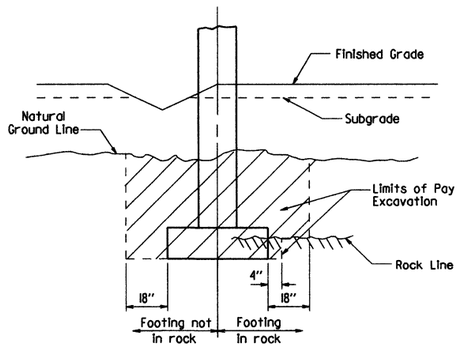
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



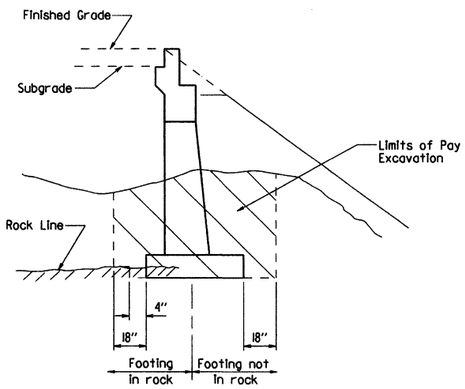
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



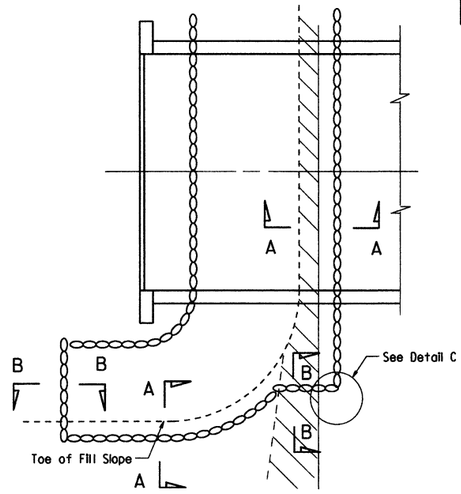
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



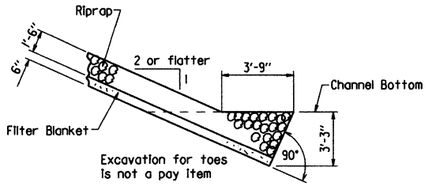
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



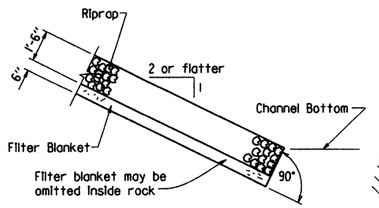
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

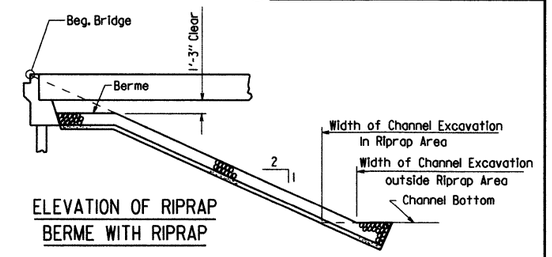


SECTION A-A
(Toe Excavation in Rock)

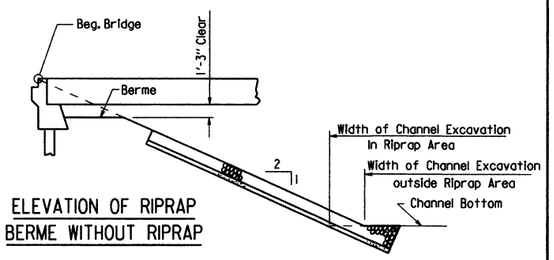
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

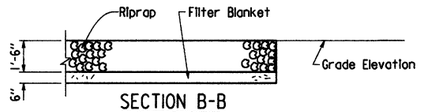
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



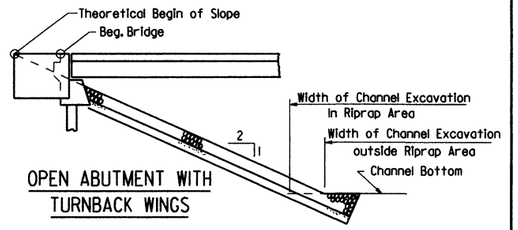
ELEVATION OF RIPRAP BERME WITH RIPRAP



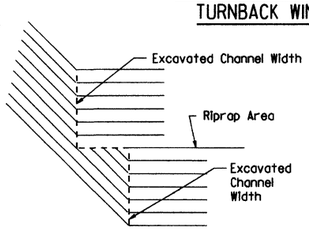
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



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 FILENAME: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

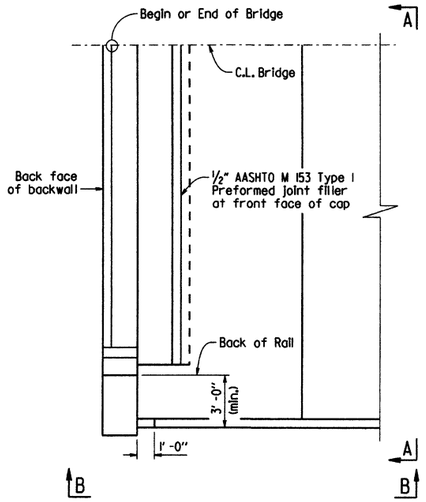
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

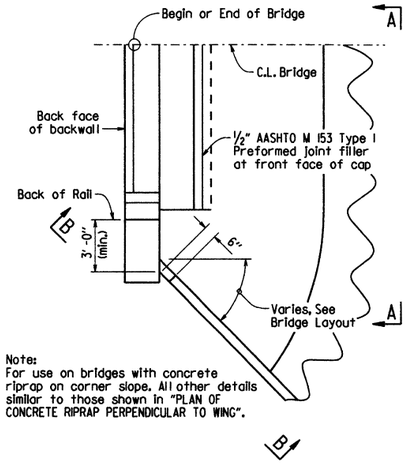
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



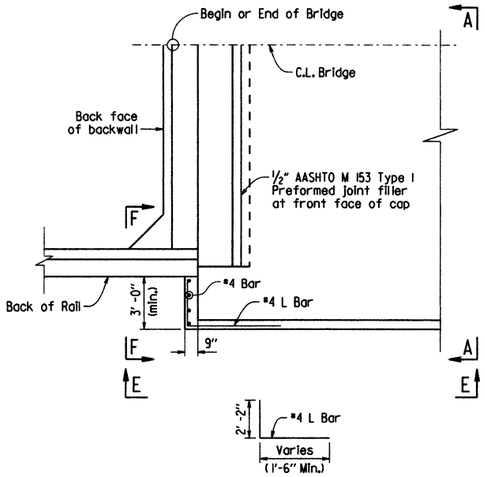
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



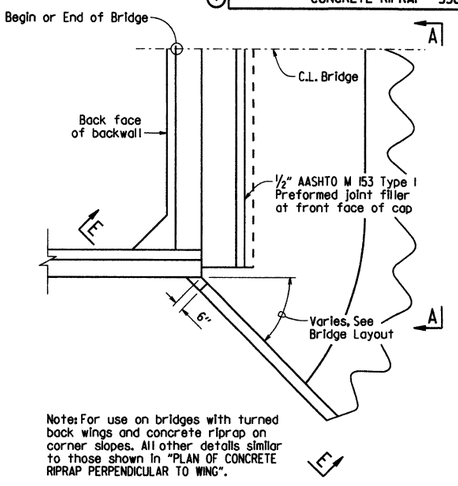
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



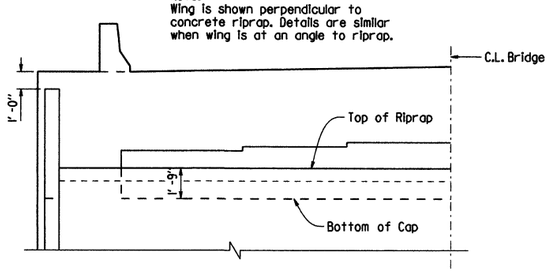
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



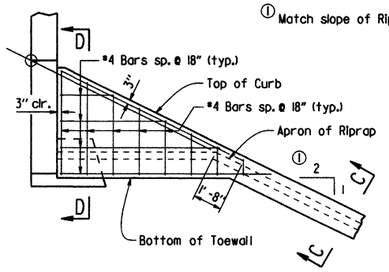
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

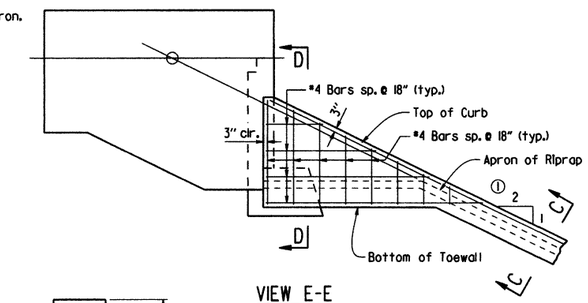
Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.



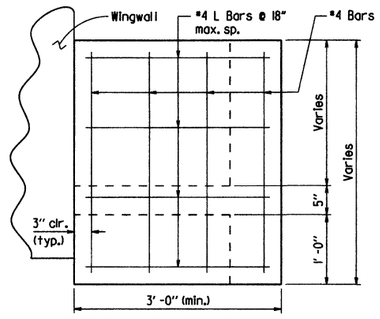
VIEW A-A
¼" = 1'-0"



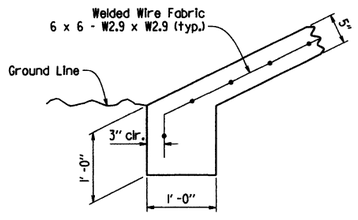
VIEW B-B
¼" = 1'-0"



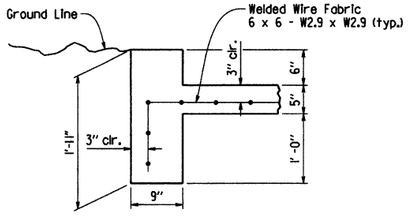
VIEW E-E
¼" = 1'-0"



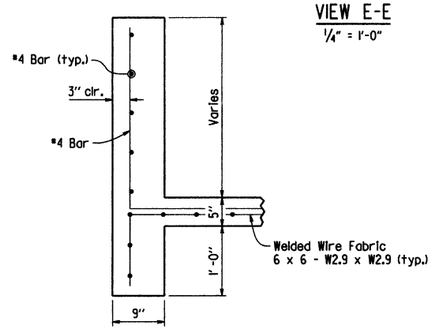
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

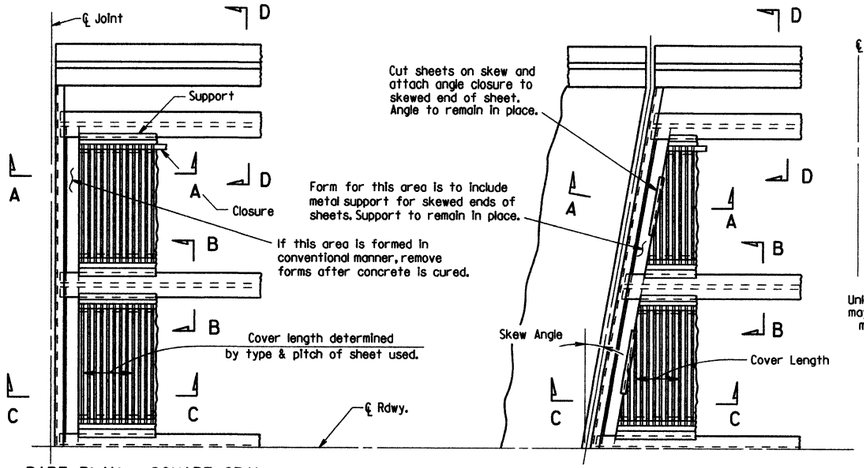
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

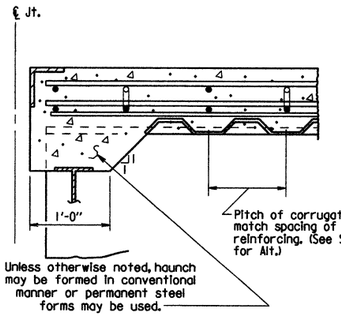


PART PLAN - SQUARE SPAN

⅜" = 1'-0"

PART PLAN - SKEWED SPAN

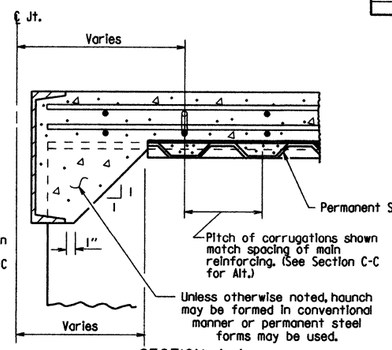
⅜" = 1'-0"



SECTION A-A

N.T.S.

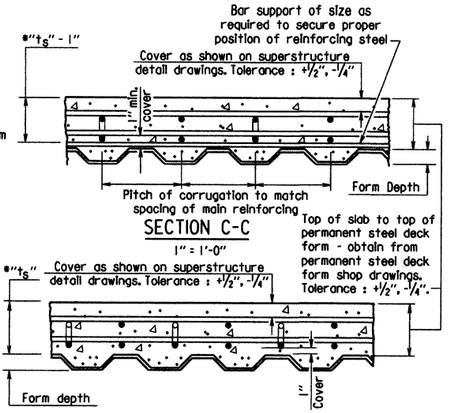
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



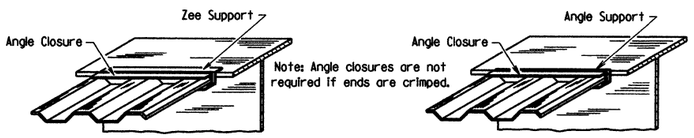
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

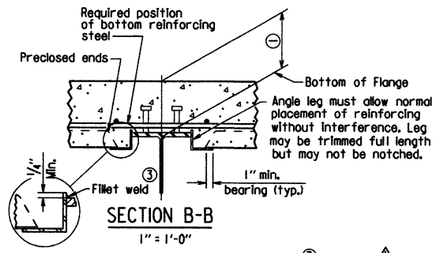
1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

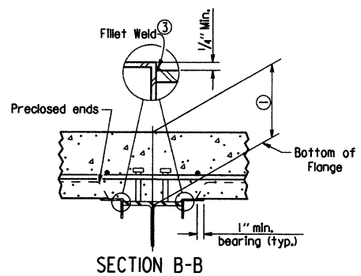
N.T.S.



SECTION B-B

1" = 1'-0"

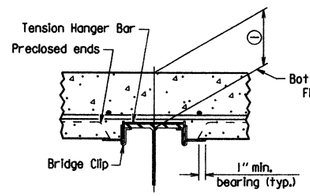
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

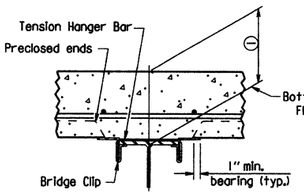
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

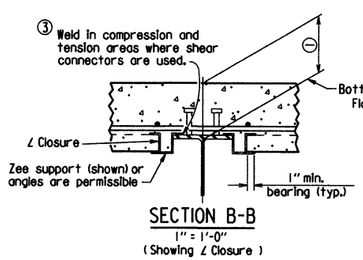
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

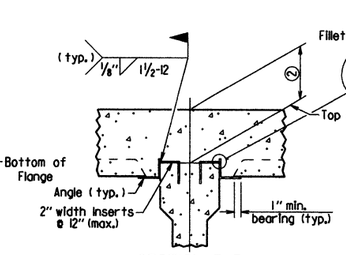
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

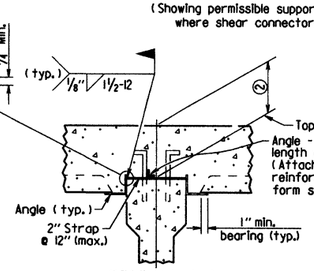


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

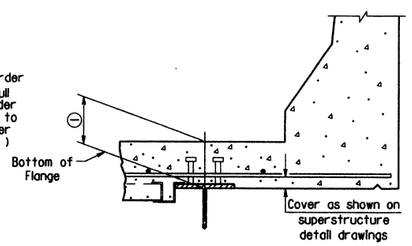


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

③ Minimum weld: ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

*t_S = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

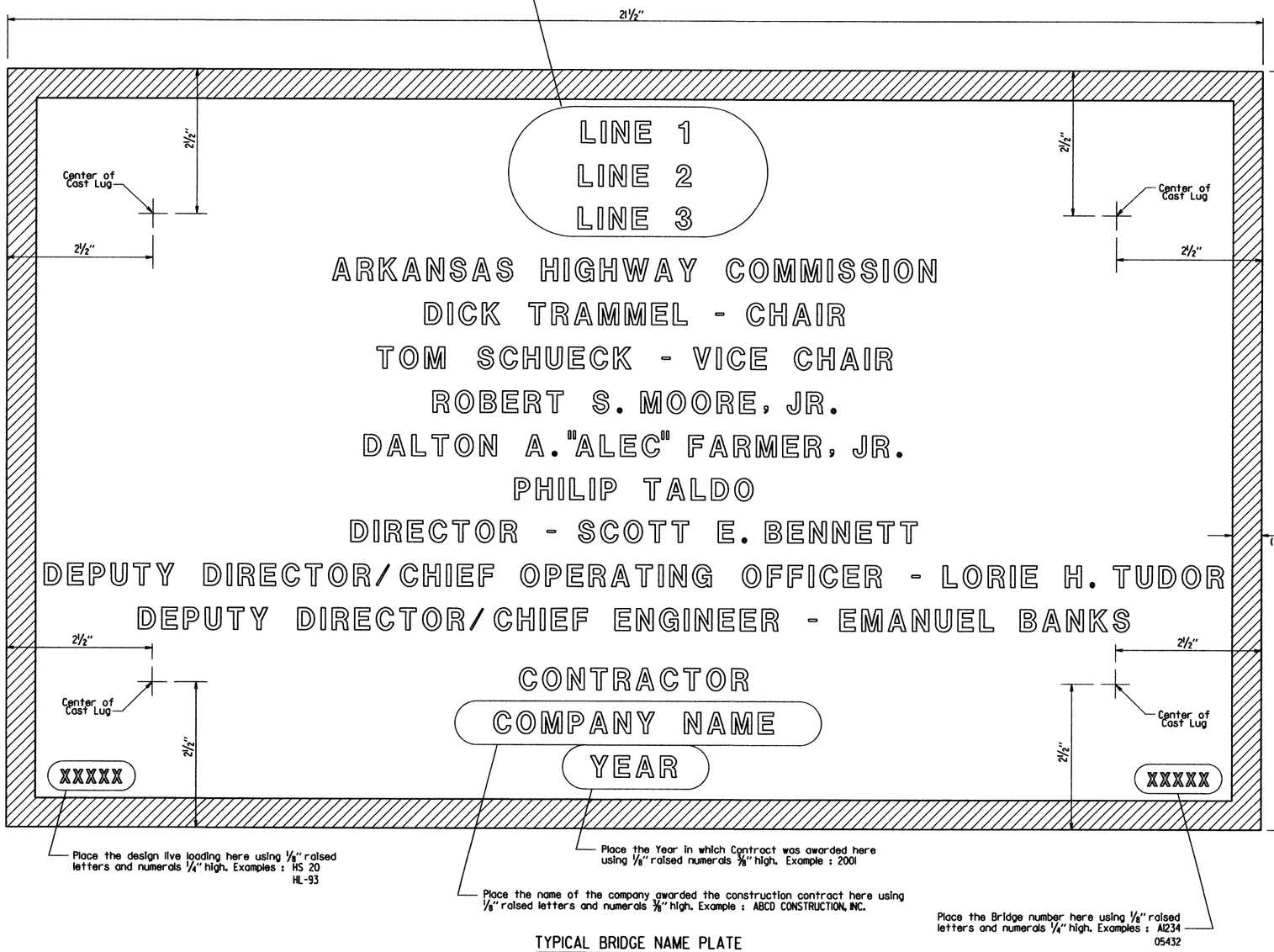
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.			
1-14-15				JOB NO.				
1-17-17								

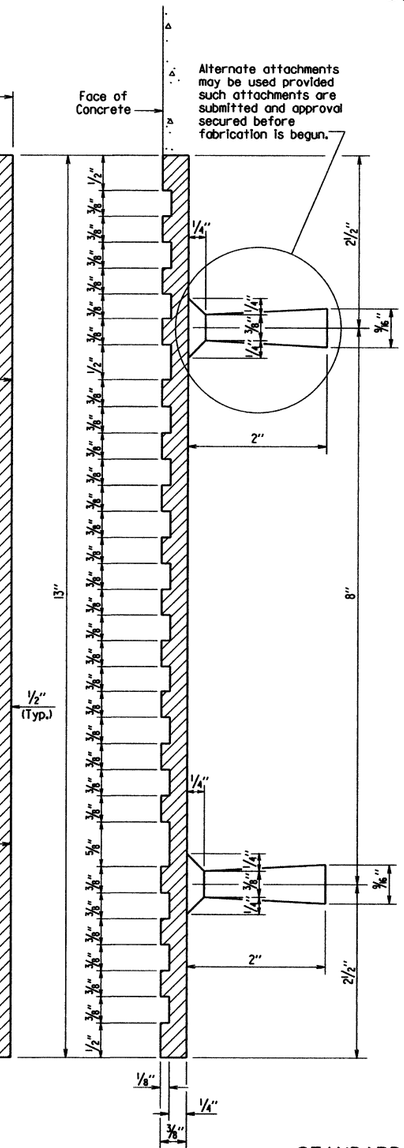
① TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 1/8" 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	



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 3/4" 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

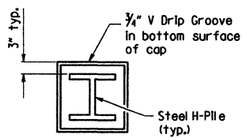
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

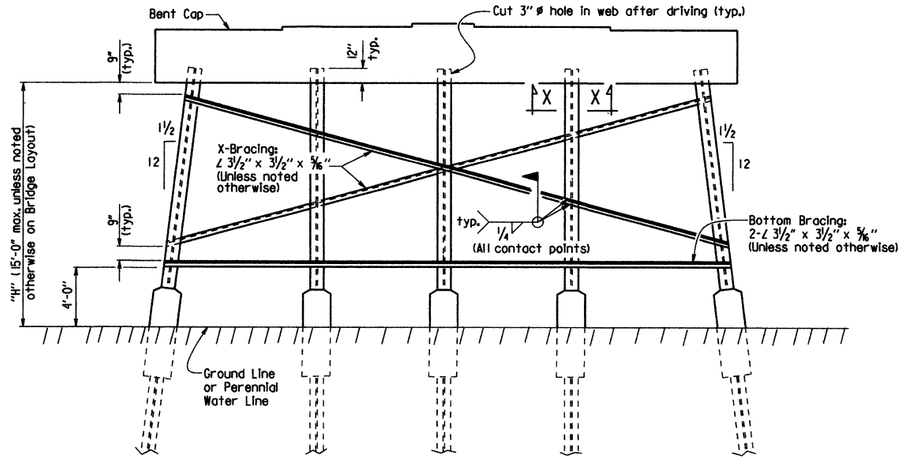
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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.

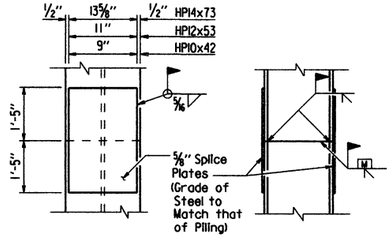
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



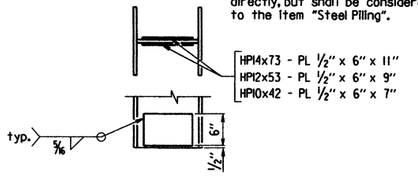
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

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:

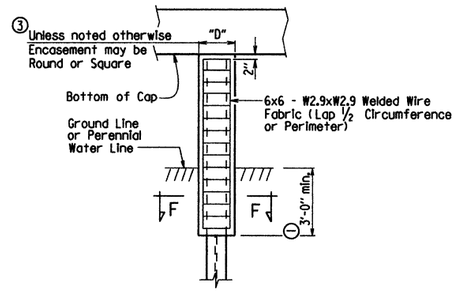
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

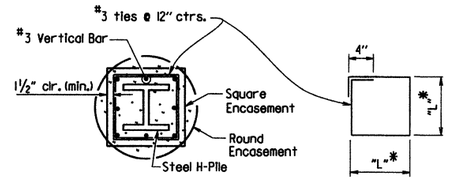
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

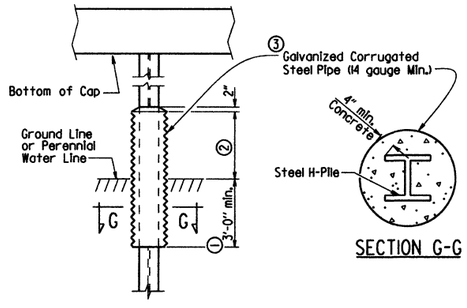


SECTION F-F

*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

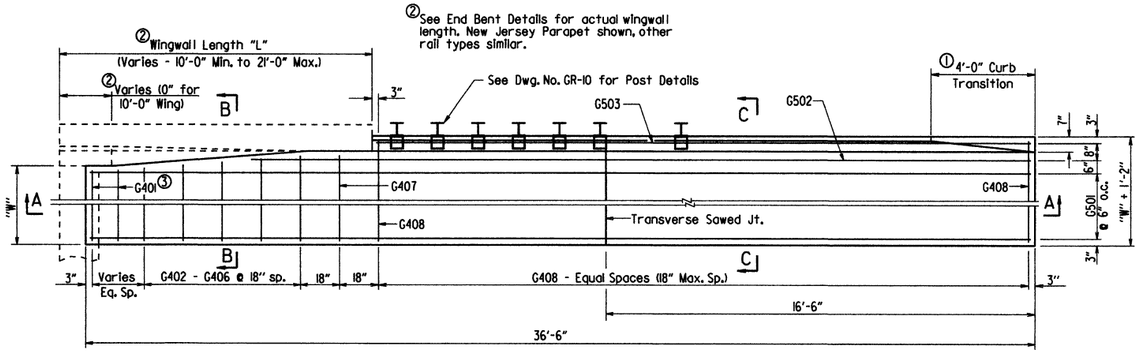
ARKANSAS STATE HIGHWAY COMMISSION

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: —

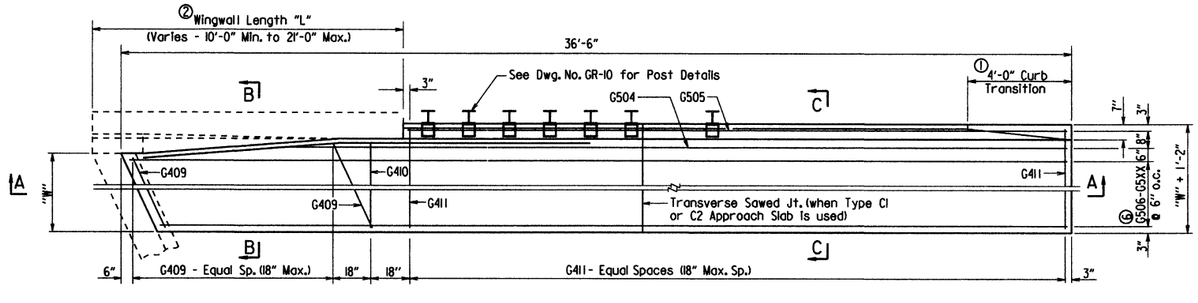
DRAWING NO. 55020

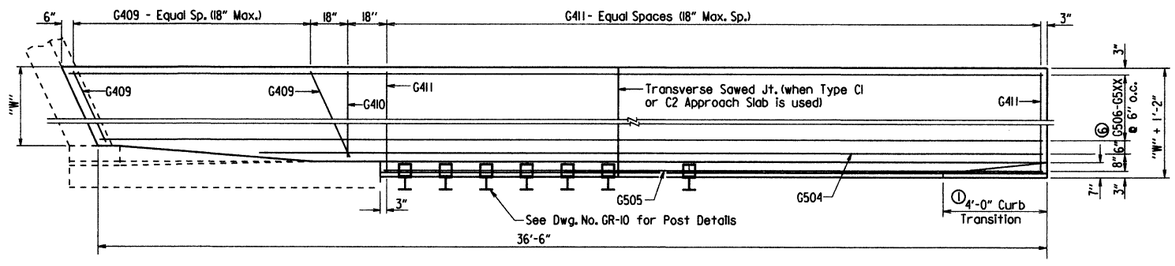
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				① TYPE C GUTTERS			55030C	



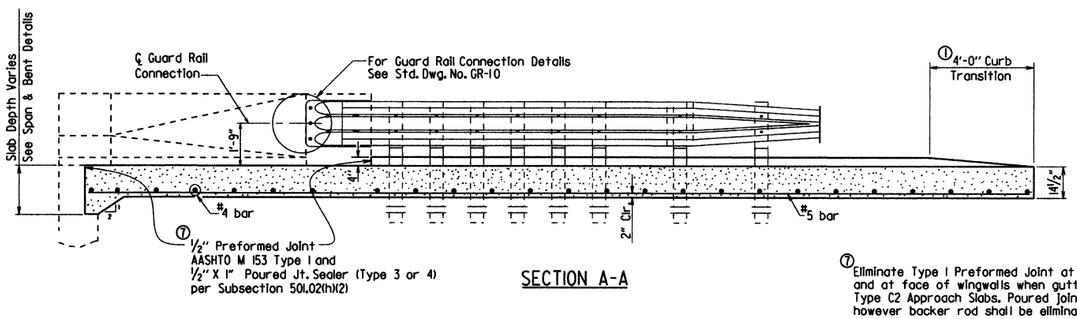
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





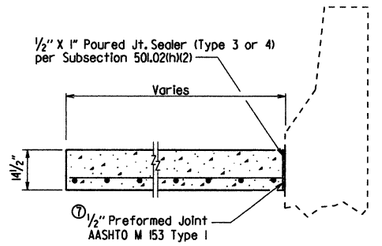
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



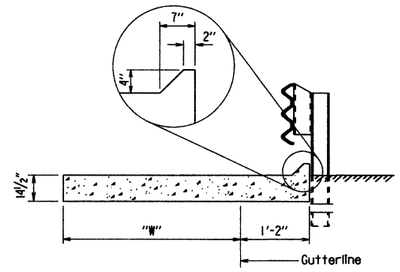
SECTION A-A

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 - G5XX⑥	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.

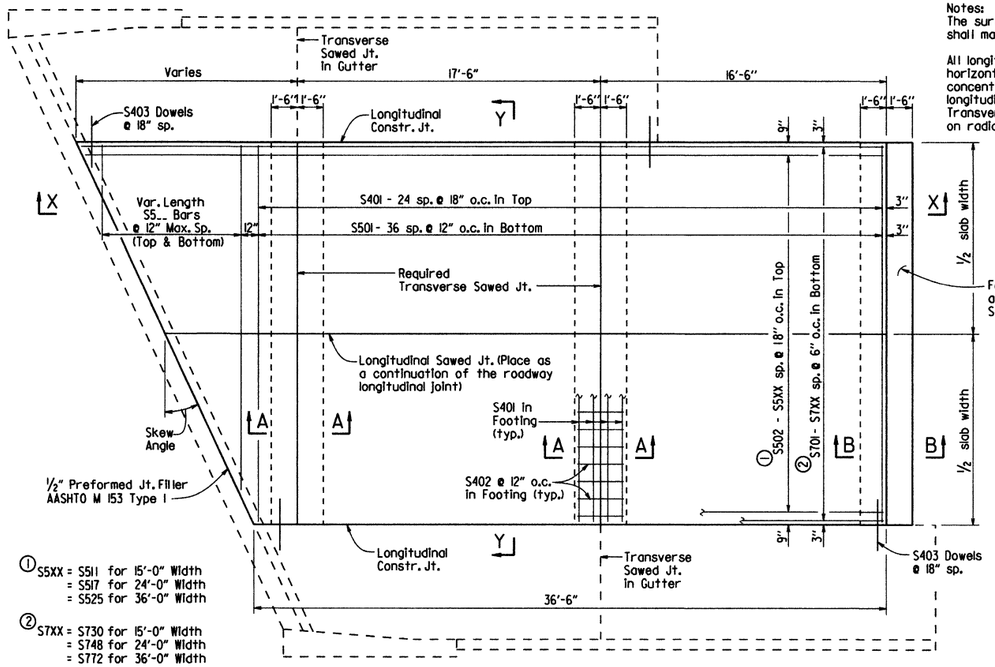
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030C

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.				

TYPE CI APPROACH SLAB 55040CI



① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

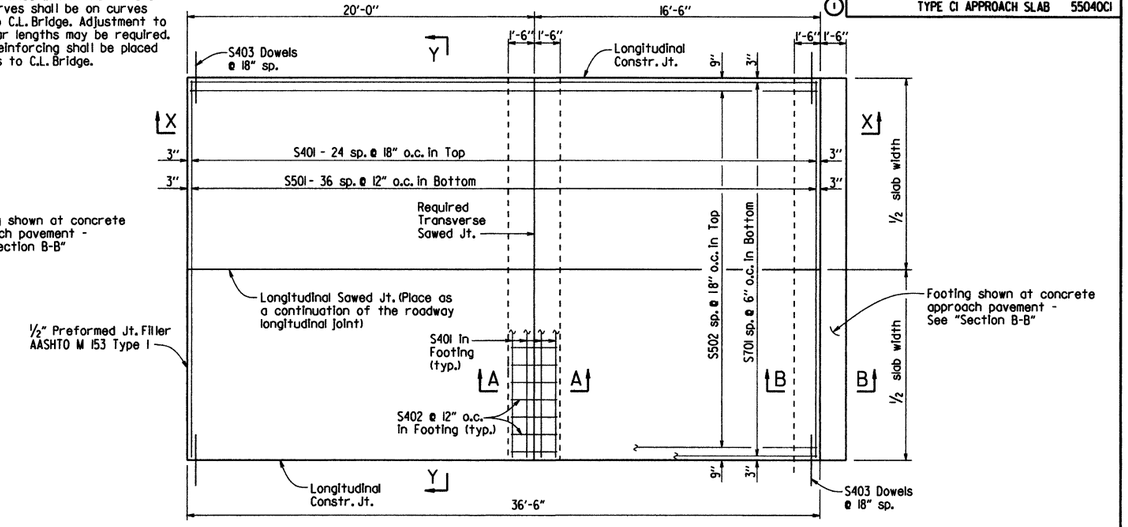
② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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.



PLAN - SQUARE APPROACH SLAB

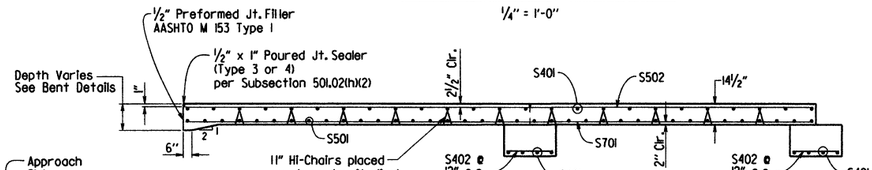
1/4" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

		Square		Skewed	
	Mark	No. Req'd.	Length	No. Req'd.	Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)

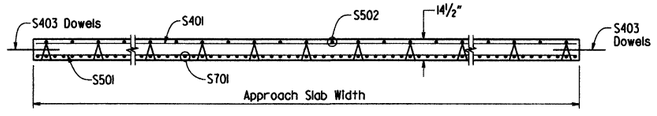
* Varies with skew angle



SECTION X-X

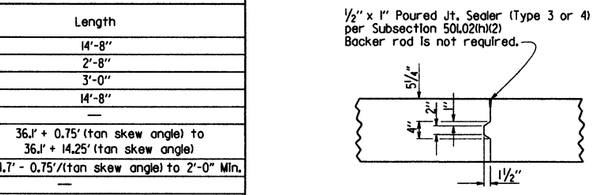
SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



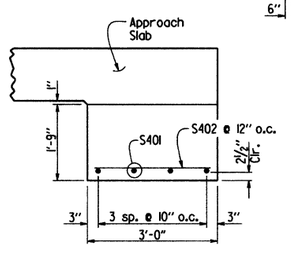
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

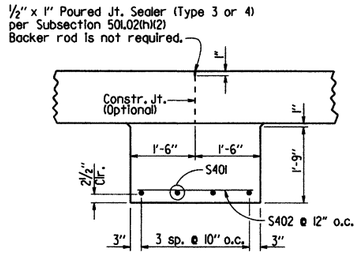
¾" = 1'-0"



SECTION B-B

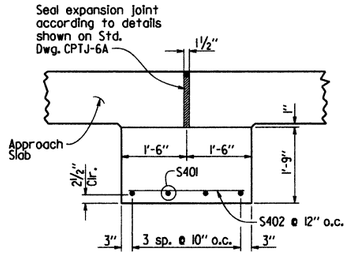
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel	Concrete
	(Lbs.)	(Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi 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 Slabs will be measured and paid for in accordance with Section 504.

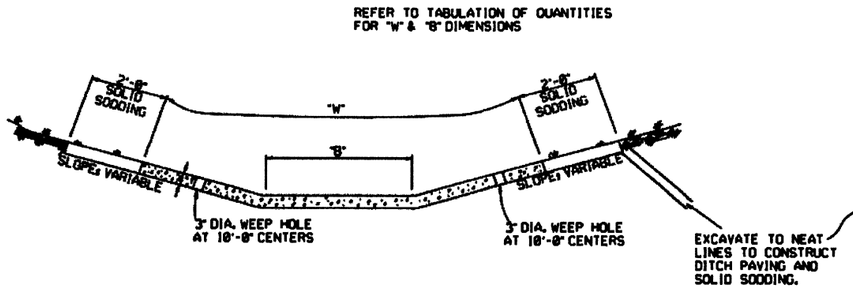
STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

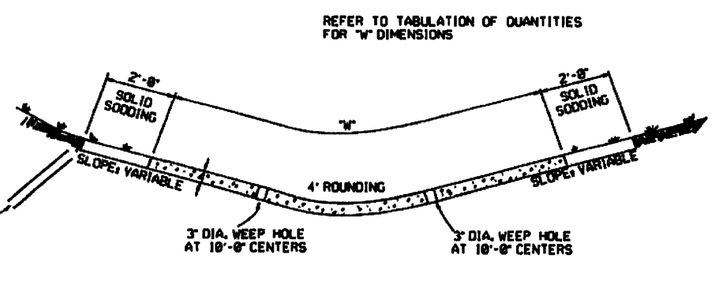
LITTLE ROCK, ARK.

DRAWN BY:	A.M.S.	DATE: 2/27/2014	FILENAME:	b55040ci.dgn	
CHECKED BY:	K.W.Y.	DATE: 2/27/2014	SCALE:	AS SHOWN	
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55040CI



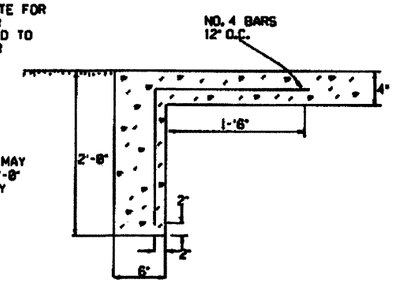
TYPE A



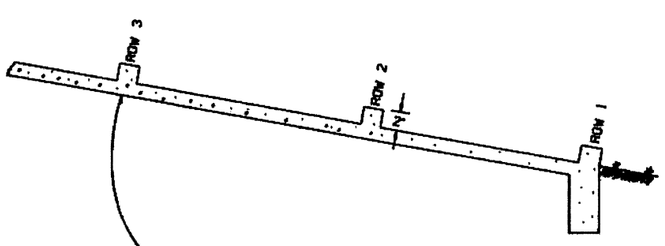
TYPE B

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

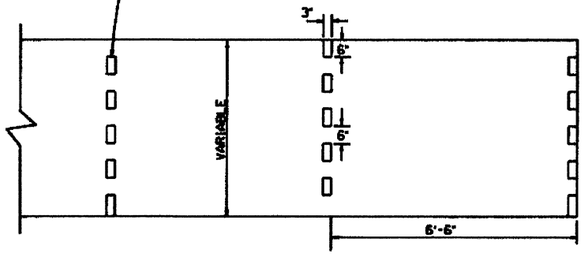
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS 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.

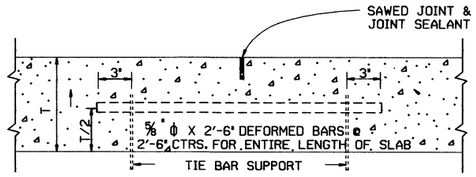
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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	
1-30-89	ELIMINATED MIN. NOS. OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	865X-7-15-88
4-1-87	REVISED ENERGY DISSIPATOR	871-4-1-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	812-1-9-87
11-2-86	ADDED NOTE TO ENERGY DISS.	858-2-1-86
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

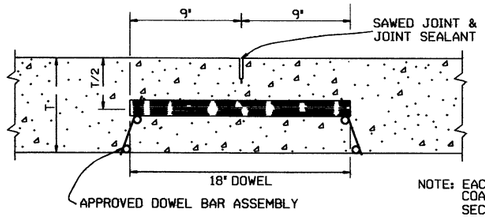
STANDARD DRAWING CDP-1



LONGITUDINAL JOINT

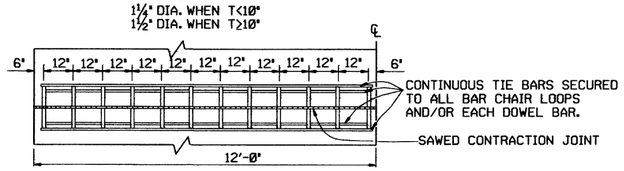
NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED.

TIE BARS SHALL BE 15" FROM TRANSVERSE JOINTS.



NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.

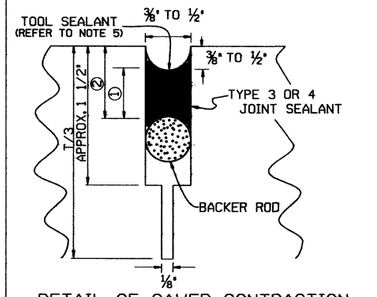
ROUND STEEL BAR DOWEL
1¼" DIA. WHEN T<10"
1½" DIA. WHEN T≥10"



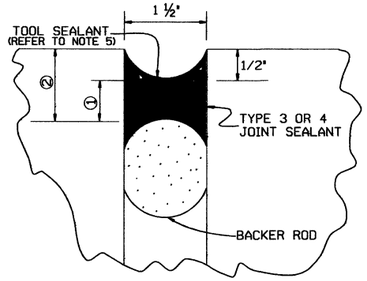
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

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



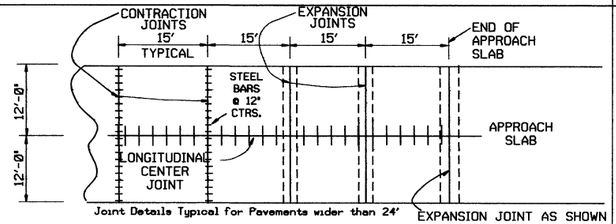
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

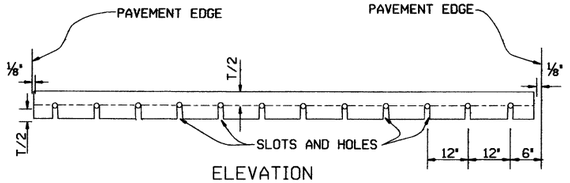
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	⅝	½
½	⅜	⅝	⅜
⅝	⅜	¾	⅜
¾	⅜	⅞	⅞
1 ½	¾	2	1 ¼

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

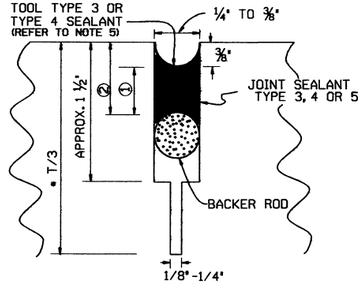


PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS



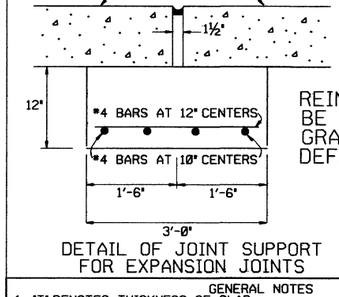
ELEVATION

NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.



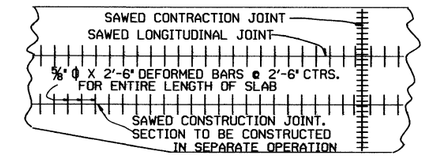
*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

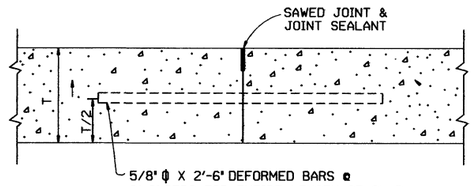
DETAIL OF SAWED LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT



REINFORCING SHALL BE GRADE 40 OR GRADE 60 DEFORMED BARS.

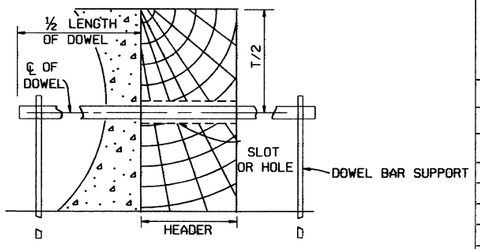
DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS





NOTE: TIE BARS SHALL BE 15" FROM TRANSVERSE JOINTS.

LONGITUDINAL CONSTRUCTION JOINT



SECTION

TRANSVERSE CONSTRUCTION JOINT

GENERAL NOTES

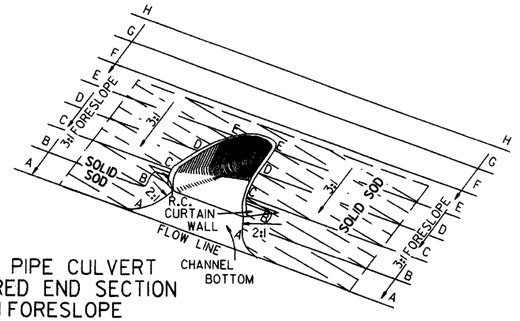
1. "T" DENOTES THICKNESS OF SLAB.
2. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED 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	532-07-15-88

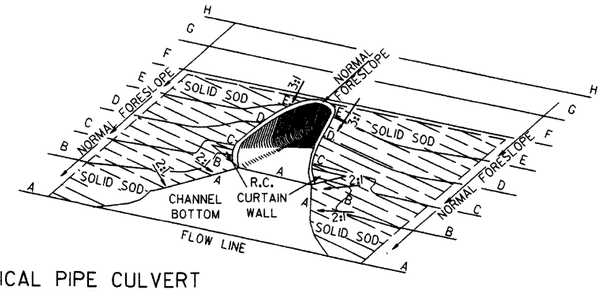
ARKANSAS STATE HIGHWAY COMMISSION

TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)

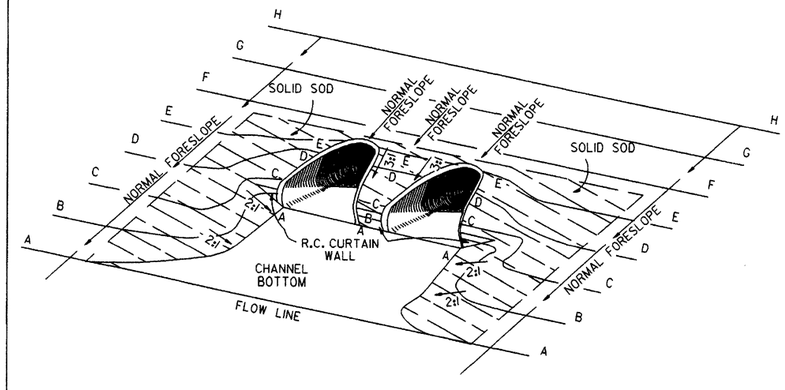
STANDARD DRAWING CPTJ - 6A



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

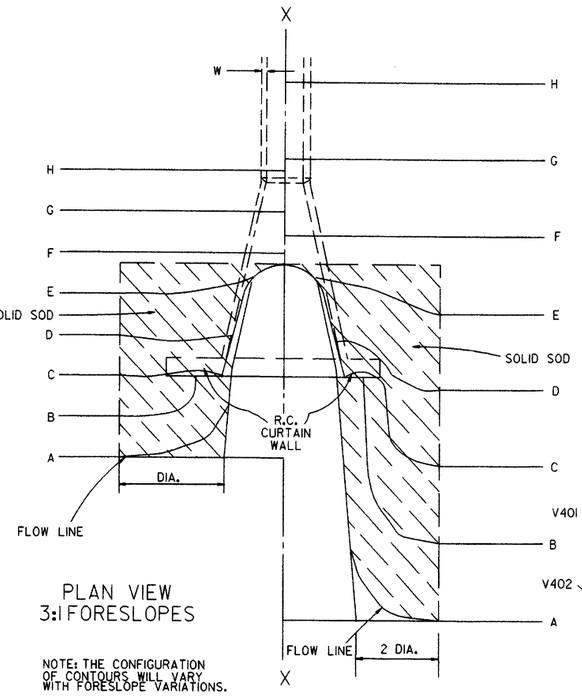
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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 H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 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

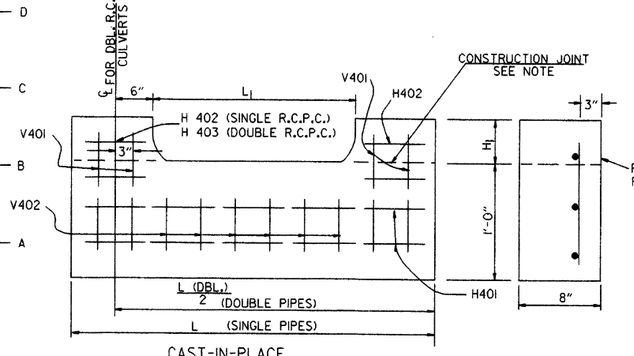
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

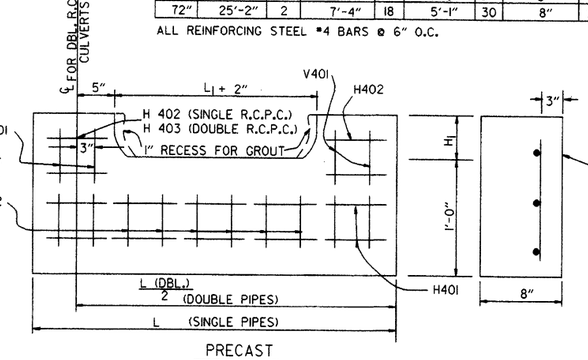
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

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

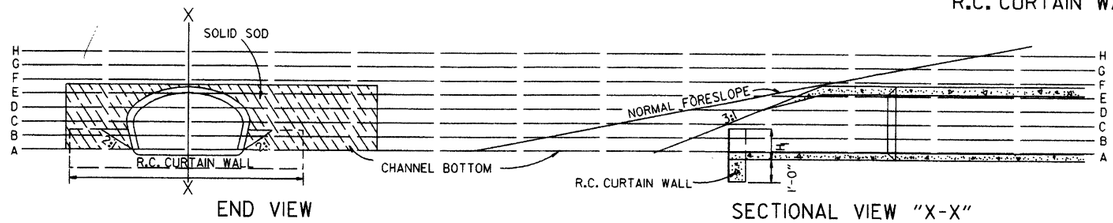
SOLID SODDING

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

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

GENERAL NOTES

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



END VIEW

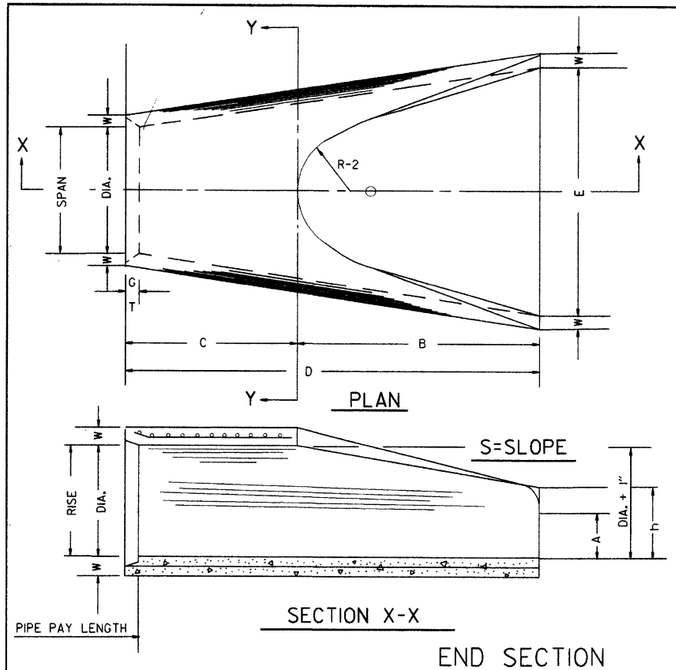
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

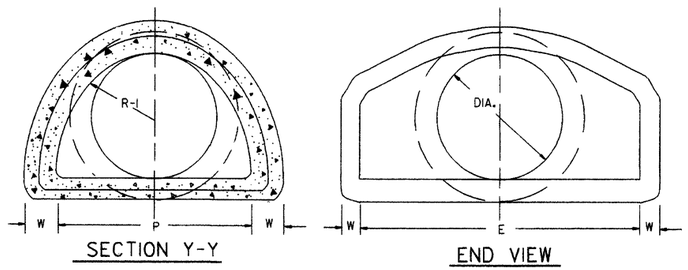
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-I	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"	53⅜"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 11/16"	38 5/16"	24"	5"	13250	4'-6"

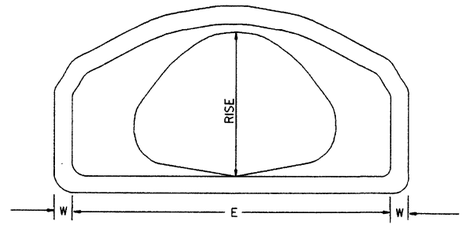


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

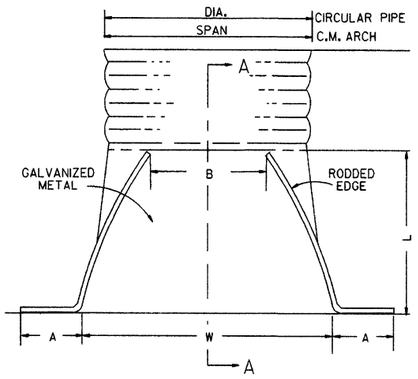
ARCH PIPE

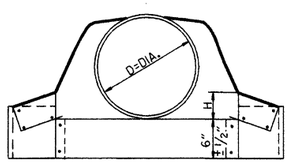
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-01/2"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 11/16"	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.

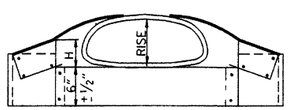


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

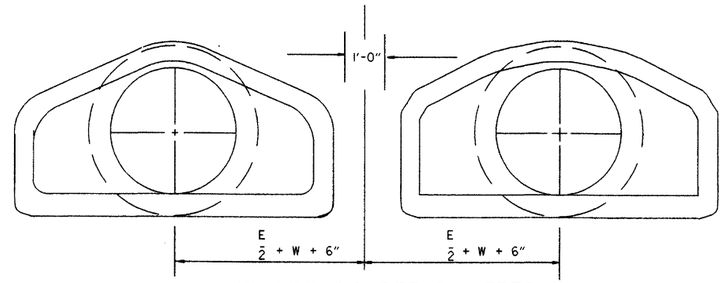
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

C.M. ARCH PIPE

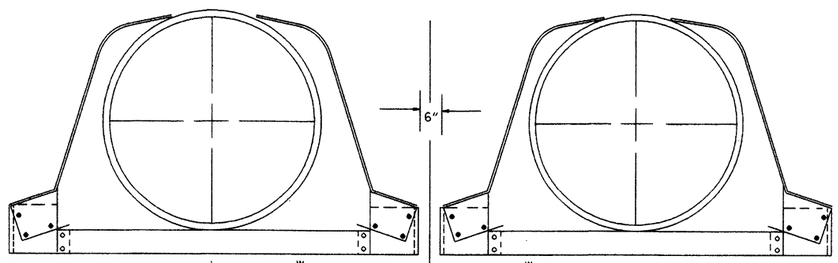
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

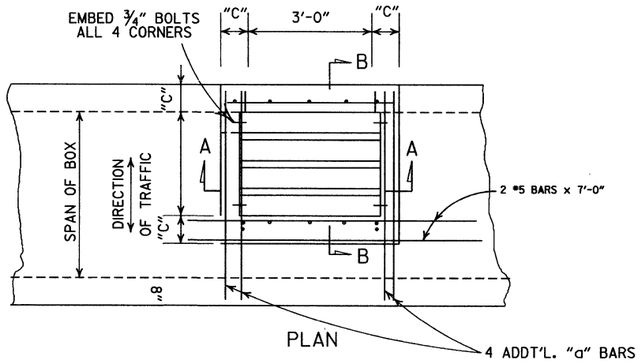
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

ARKANSAS STATE HIGHWAY COMMISION

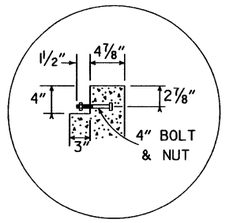
FLARED END SECTION

STANDARD DRAWING FES-2

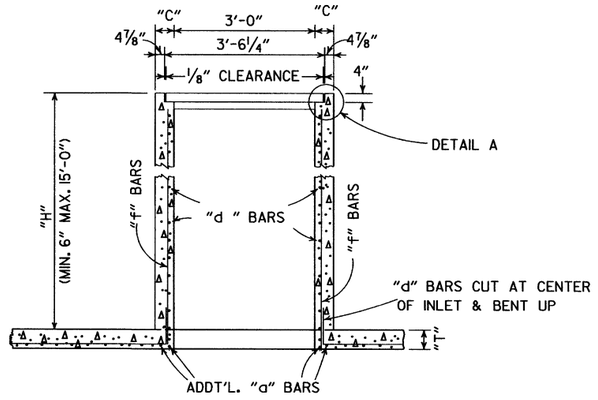
stdfes2.dgn



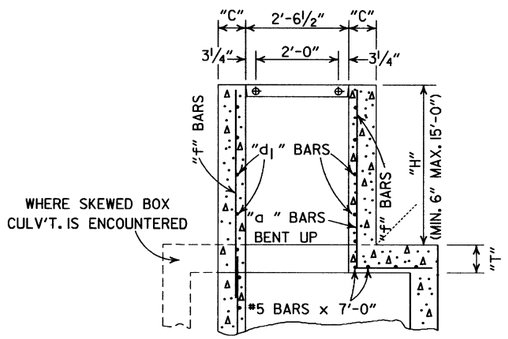
PLAN



DETAIL A



SECTION A-A

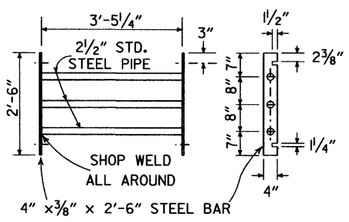


SECTION B-B

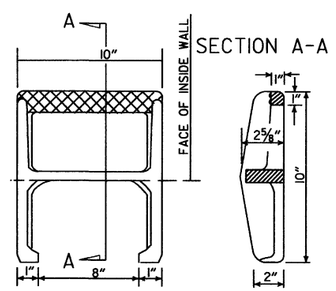
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS



GRATE DETAIL



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

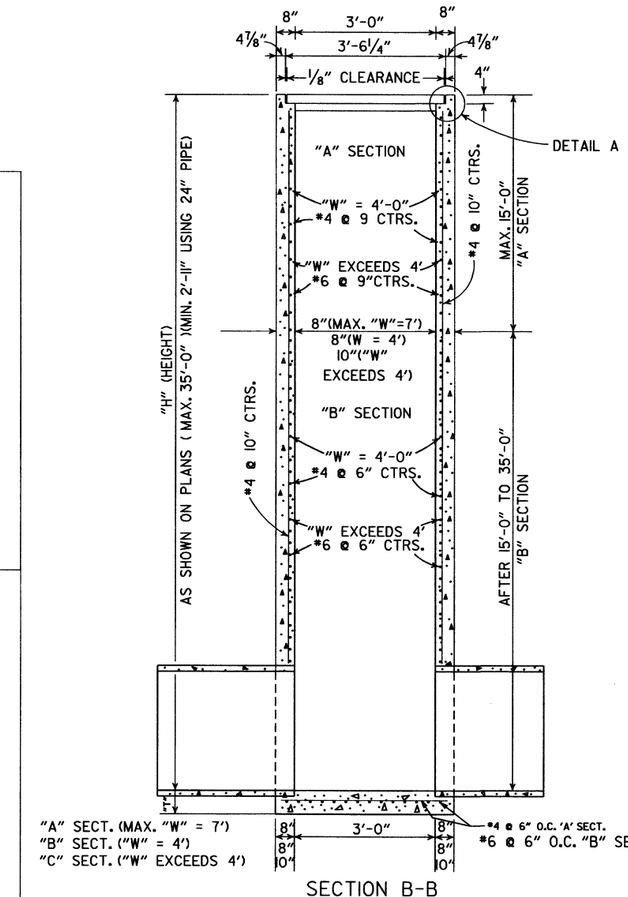
GENERAL NOTES:

1. STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 1 OR 2, ASTM A307 OR AASHTO M 164.
2. STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
3. BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
4. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
5. ALL #4 AND #5 REINFORCING BARS TO HAVE 1½" COVER. LARGER SIZES TO HAVE 2" COVER.
6. THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

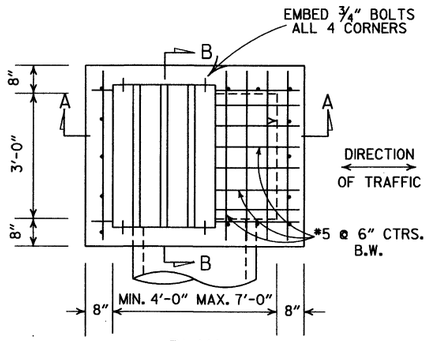
TABLE OF "W" DIMENSIONS

I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
	"W"	"W"	"W"
24"	4'-0"	4'-0"	4'-0"
30"	4'-0"	4'-0"	4'-5"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-11"

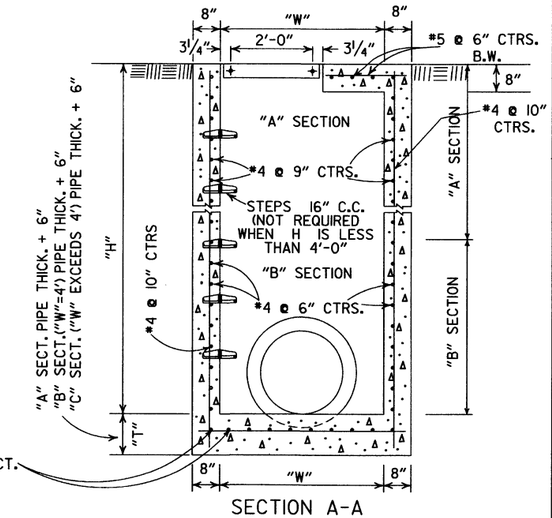
NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



SECTION B-B



PLAN



SECTION A-A

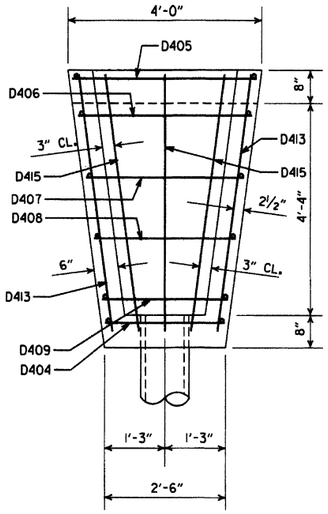
DROP INLET(TYPE RM)

8-22-02	ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00	CORRECTED DIMENSION ON SECTION B-B	
11-06-97	ADDED DIMENSION TO SECTION A-A	
10-18-96	REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92	ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91	ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89	ALTERED DETAIL A	11-30-89
7-15-88	REVISED STEP DETAIL,TM & RM D.I. & GRATE DETAIL	719-7-15-88
10-2-72	REVISED AND REDRAWN	542-10-2-72
REVISED		DATE FILMED

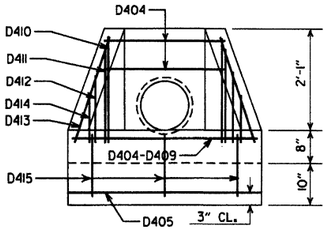
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

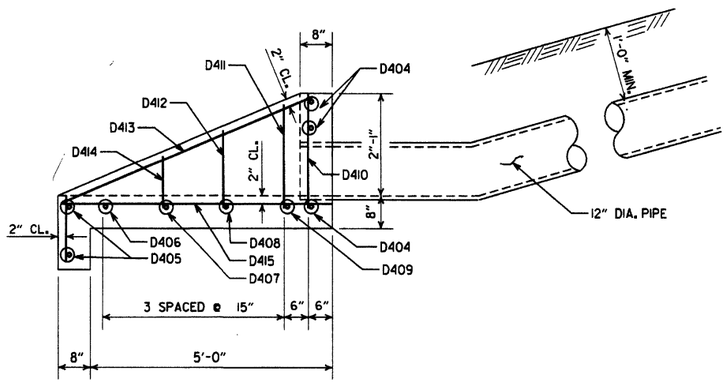
STANDARD DRAWING FPC-9D



PLAN



FRONT ELEVATION

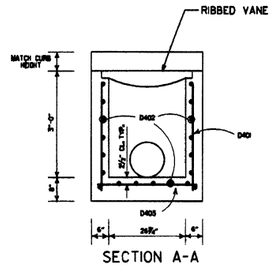


SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

BAR LIST (CONCRETE SPILLWAY)

MARK	NO. REQ'D.	LENGTH	BENDING DIAGRAM
D404	3	2'-2"	5'-4", 2" P.D., 1'-2", D415
D405	2	3'-8"	
D406	1	3'-5"	
D407	1	3'-1"	
D408	1	2'-9"	
D409	1	2'-5"	
D410	2	2'-5"	
D411	2	2'-2"	
D412	2	1'-9"	
D413	2	5'-6"	
D414	2	1'-2"	
D415	3	6'-5"	

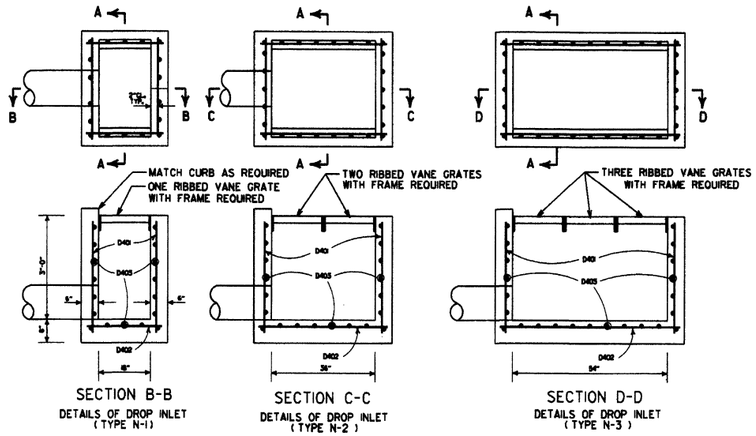


SECTION A-A

BAR LIST (DROP INLET)

MARK	TYPE N-1		TYPE N-2		TYPE N-3	
	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
D401	20	3'-0"	26	3'-0"	32	3'-0"
D402	19	2'-2"	19	3'-8"	19	5'-2"
D403	17	2'-11"	20	2'-11"	23	2'-11"

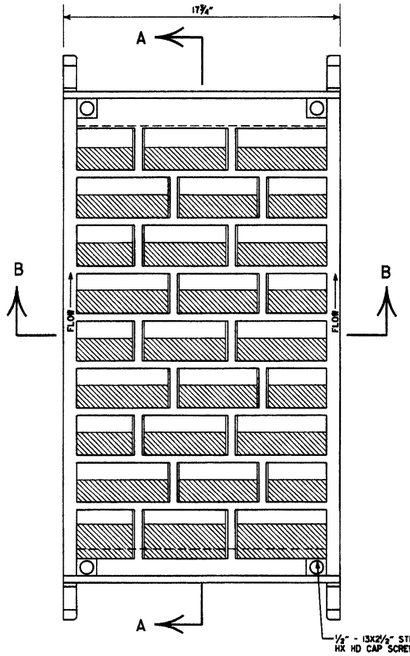
ALL BARS #4 @ 6" SPACING

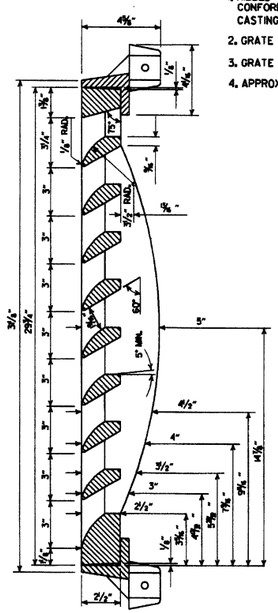


SECTION B-B
DETAILS OF DROP INLET
(TYPE N-1)

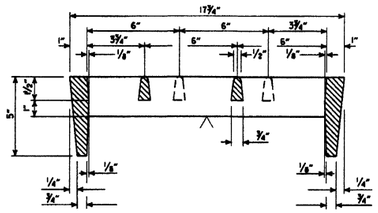
SECTION C-C
DETAILS OF DROP INLET
(TYPE N-2)

SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

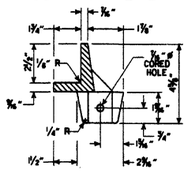




SECTION A-A



SECTION B-B



SECTION THRU FRAME

DETAILS OF DROP INLET

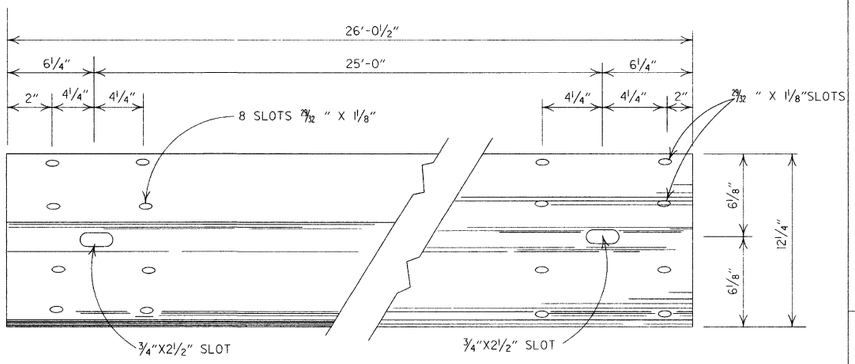
GENERAL NOTES (GRATE & FRAME)

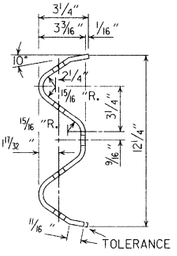
1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.

DETAILS OF RIBBED VANE GRATE AND FRAME

			ARKANSAS STATE HIGHWAY COMMISSION
			DETAILS OF DROP INLETS AND SPILLWAY OUTLET
7-02-98	7-2-98	REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE	
10-18-96		REVISED ASTM REF. TO AASHTO	
8-15-91		ISSUED	
DATE REVISED	DATE FILMED	DESCRIPTION	STANDARD DRAWING FPC-9N

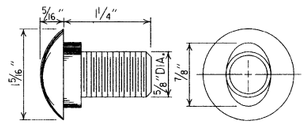
STDfpc9N.DGN



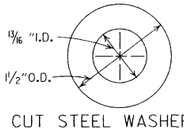


DETAILS OF W-BEAM GUARD RAIL

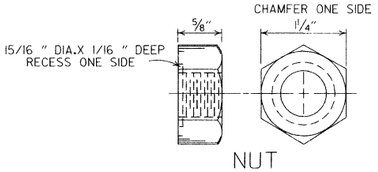
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



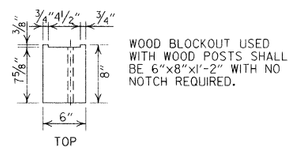
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

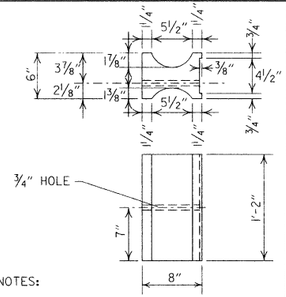


NUT



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

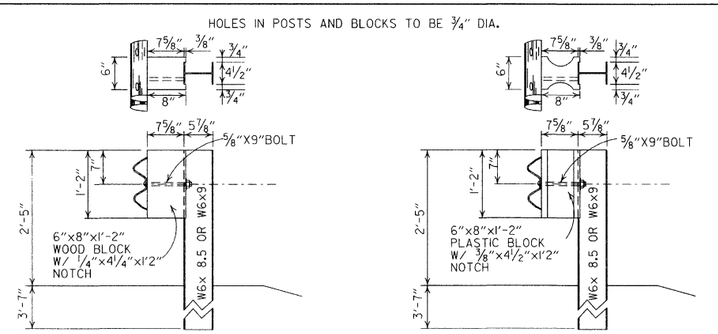
WOOD BLOCKOUT (W-BEAM)



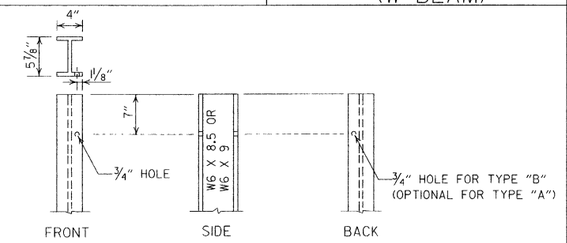
NOTES:

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

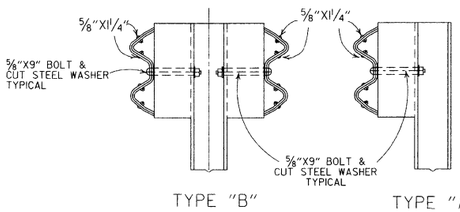
PLASTIC BLOCKOUT (W-BEAM)



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

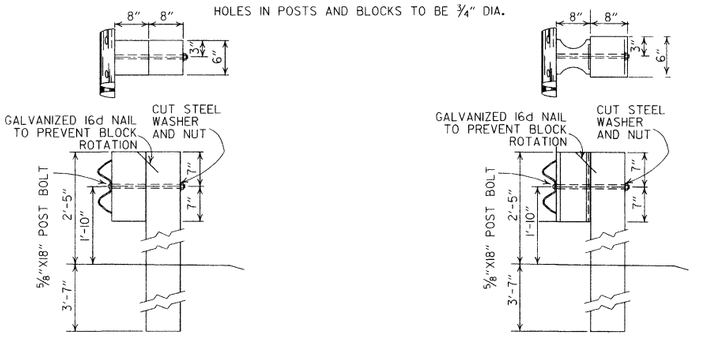
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

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

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

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (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.



DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

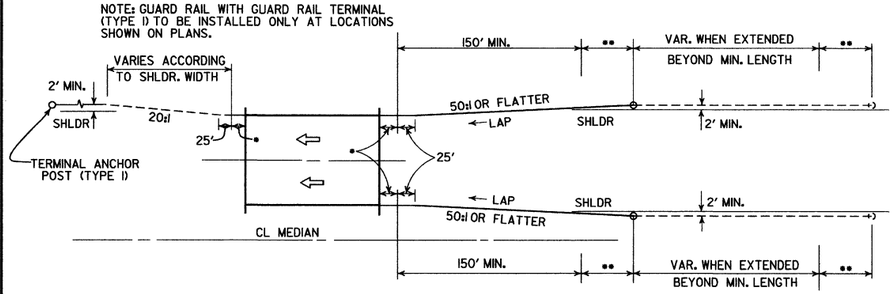
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD 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

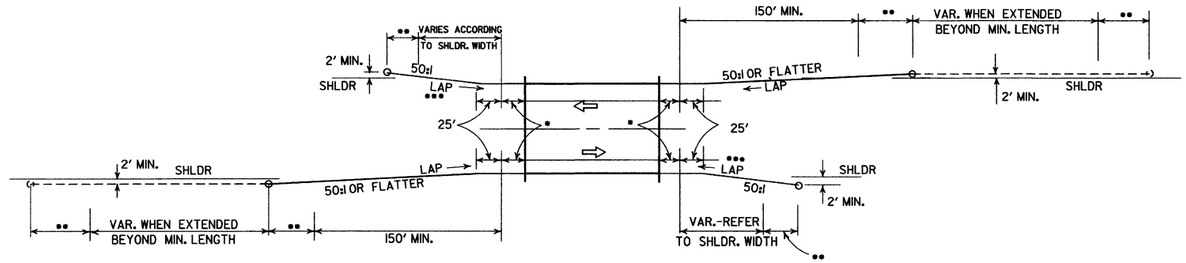
STANDARD DRAWING GR-8

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

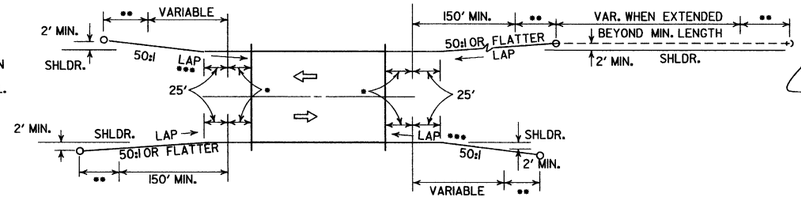
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

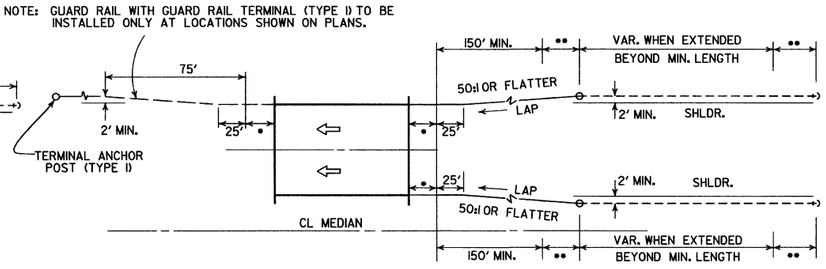
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

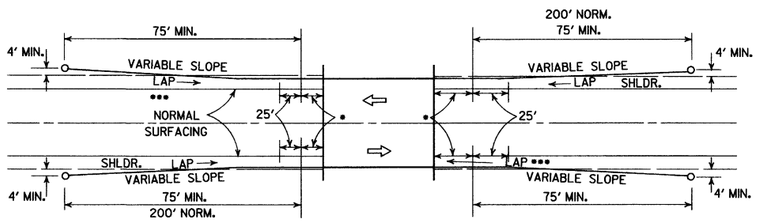
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

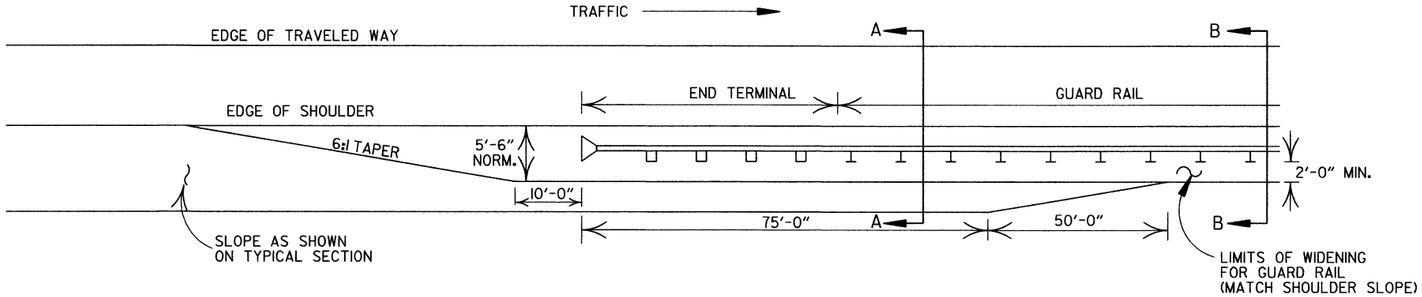
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

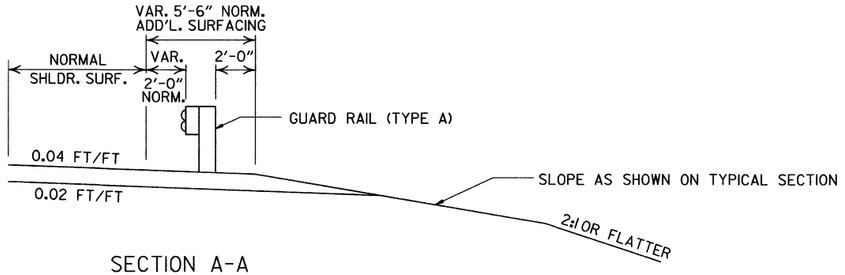
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

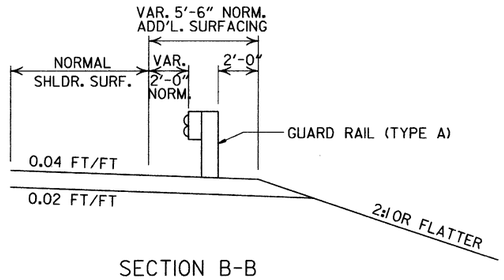
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





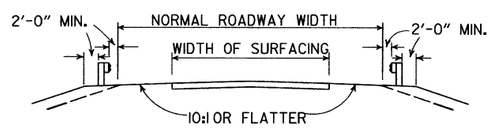
SECTION A-A



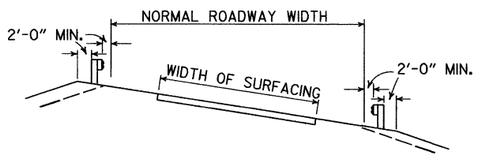
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

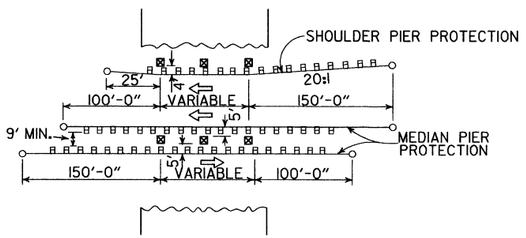


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



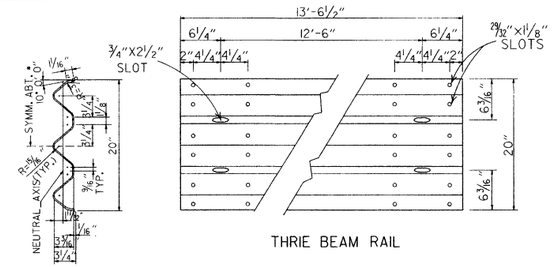
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

ARKANSAS STATE HIGHWAY COMMISSION

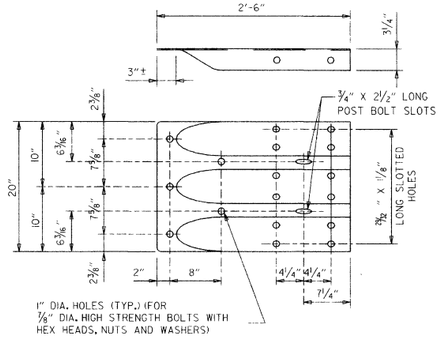
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



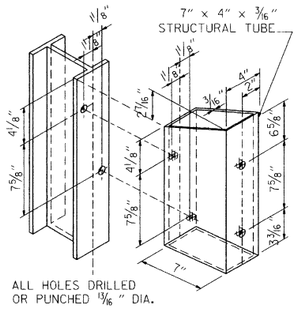
SECTION THRU THRIE BEAM RAIL

THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

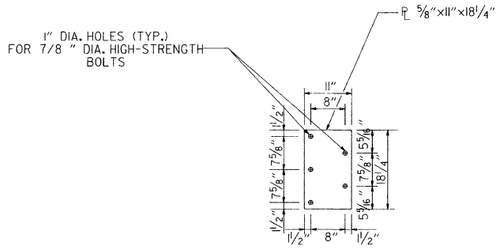
SPECIAL END SHOE



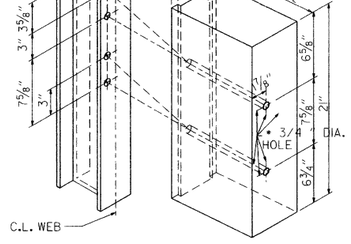
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

ALL HOLES DRILLED OR PUNCHED 13/16" DIA.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

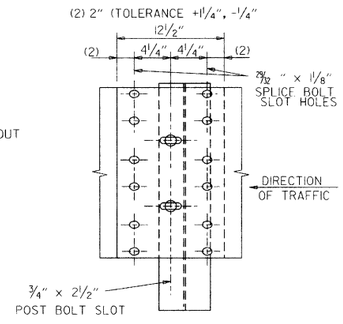


ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

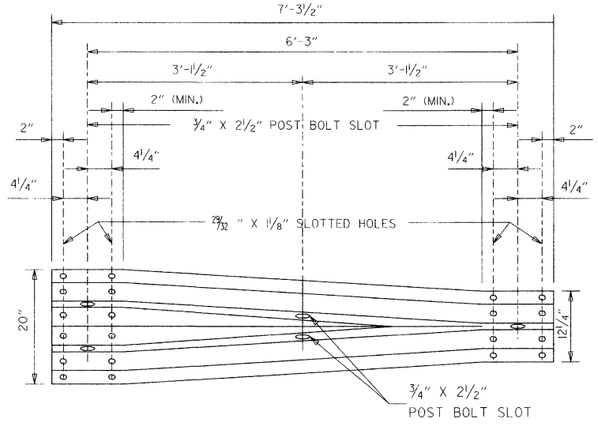
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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

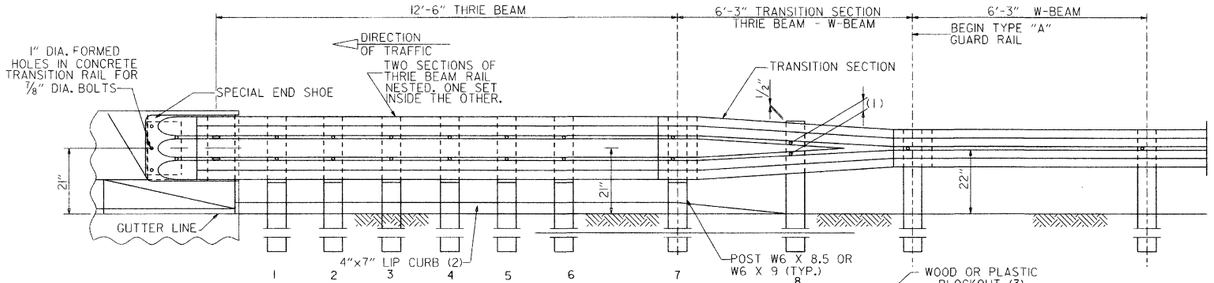
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS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



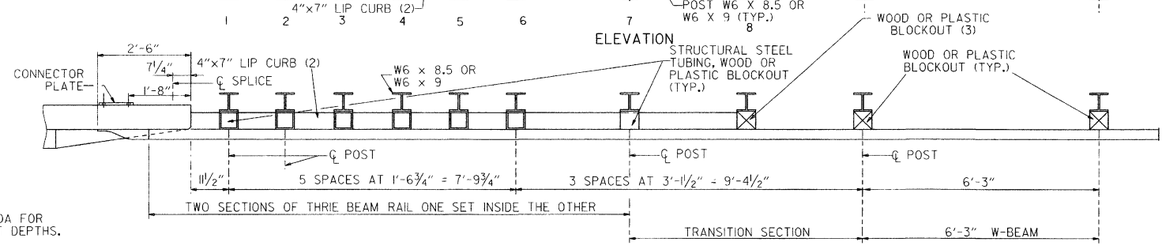
THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

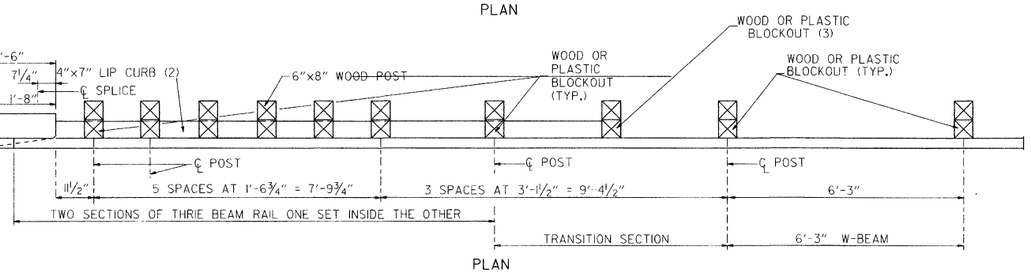


ELEVATION



PLAN

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



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. 1STRUCTURAL 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.

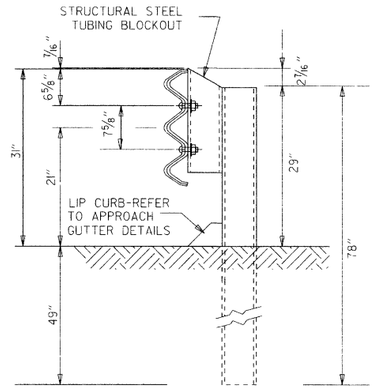
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

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	

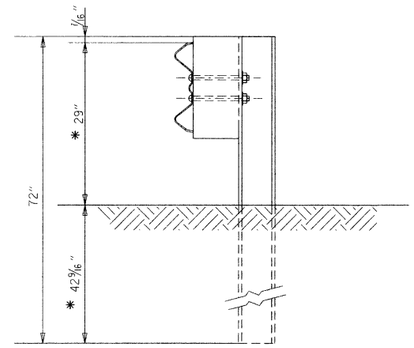
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

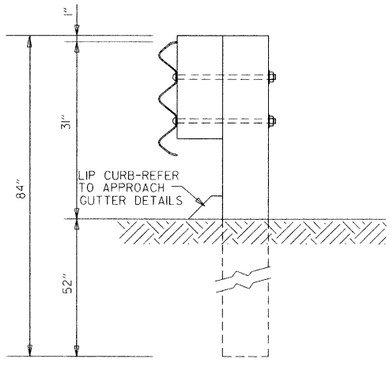


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

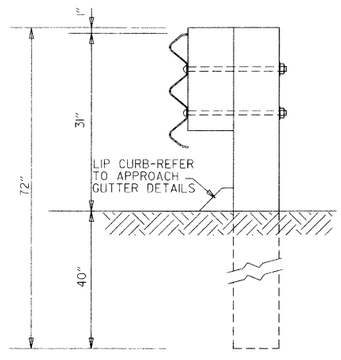


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

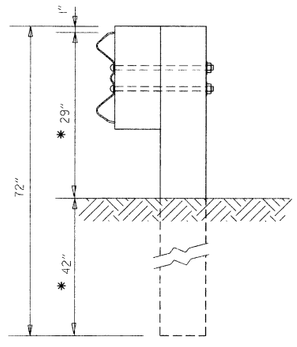
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

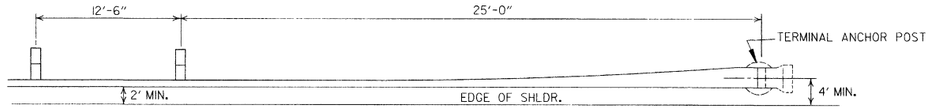
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

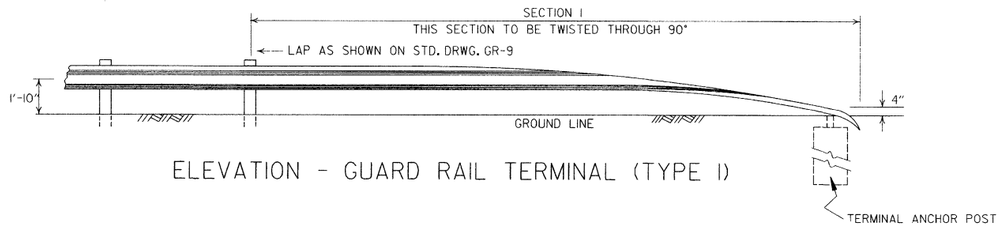
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

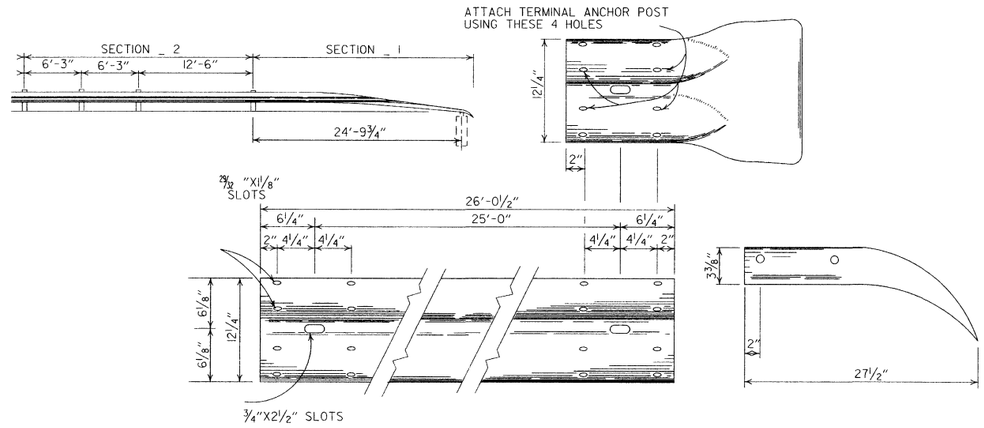


PLAN - GUARD RAIL TERMINAL (TYPE I)



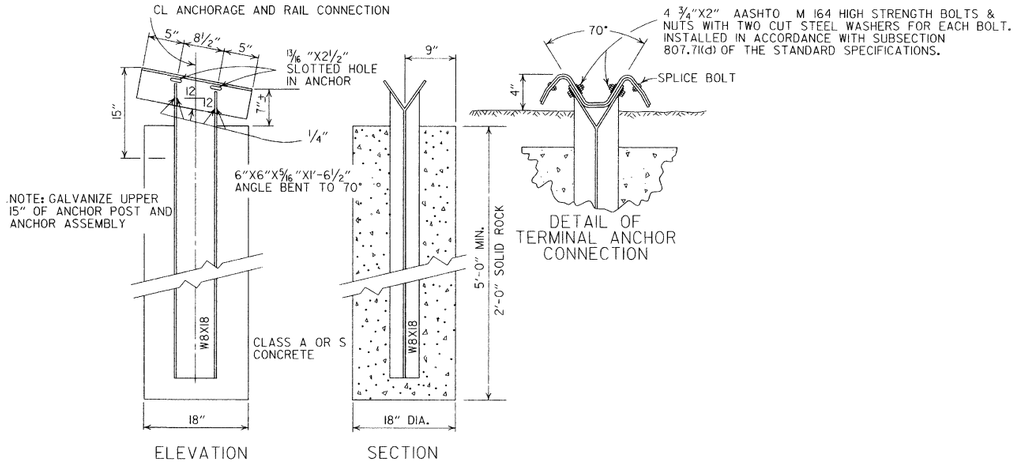
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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



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.

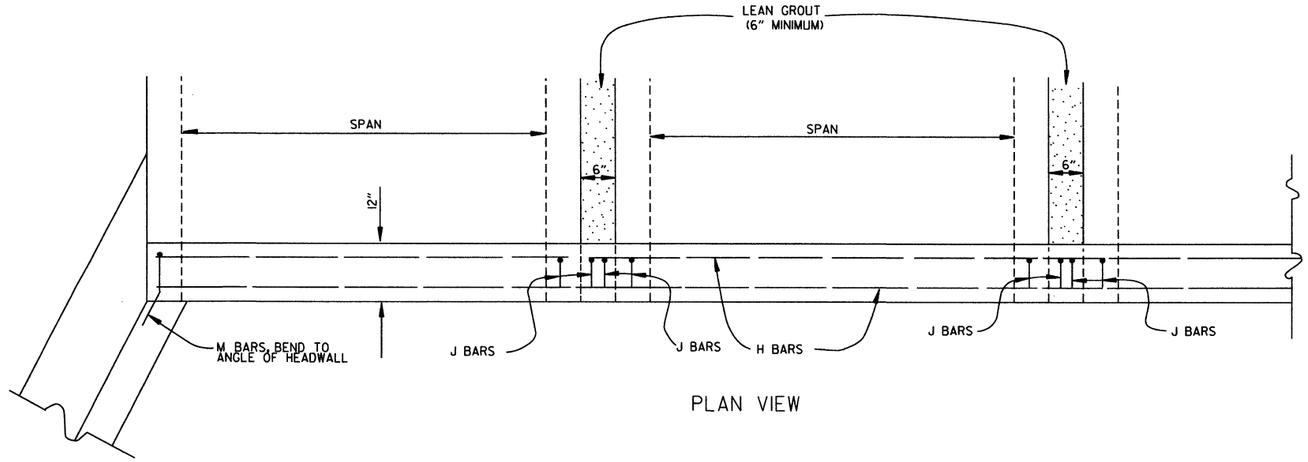
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

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

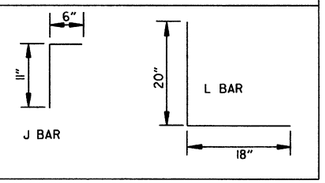
STANDARD DRAWING GRT-1



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.

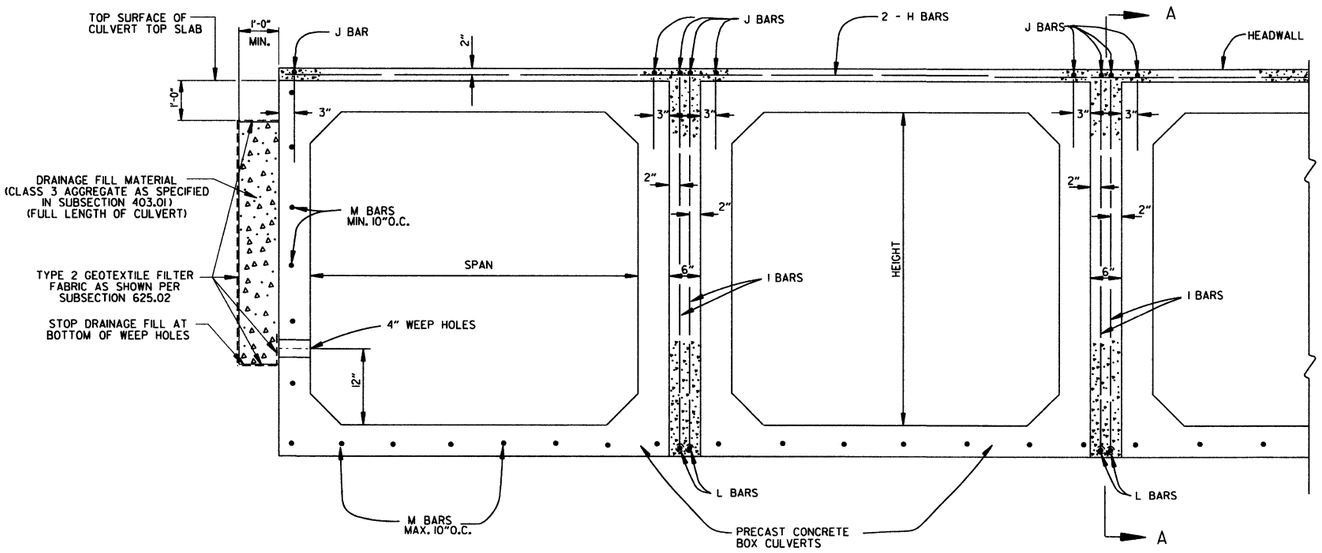
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

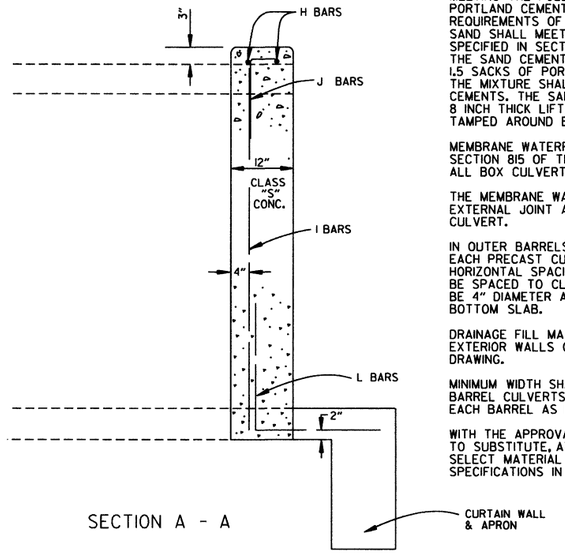
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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.

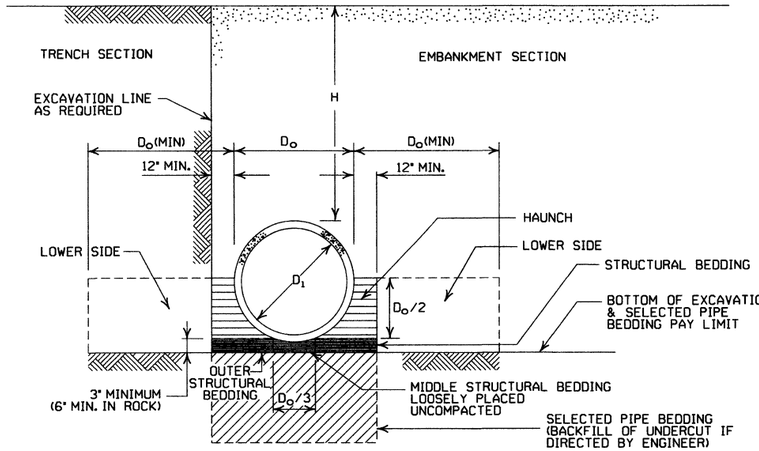
- LEGEND -

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
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

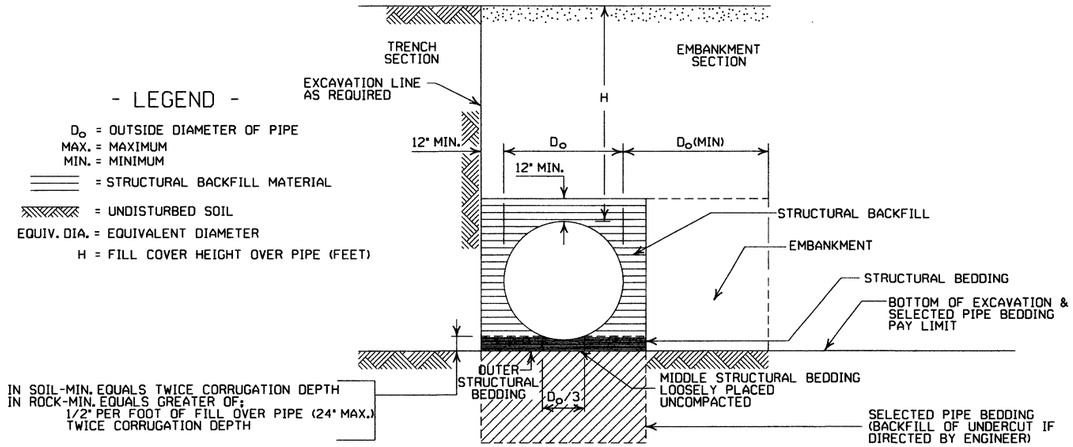
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



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.

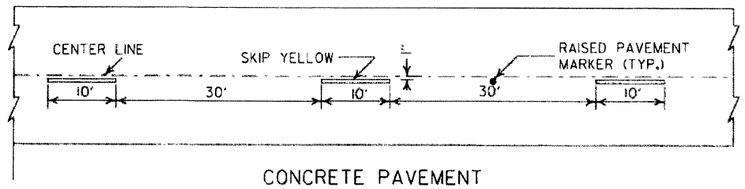
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

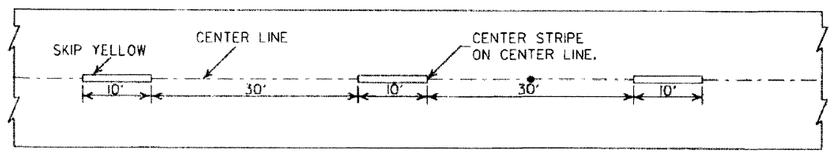
METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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.

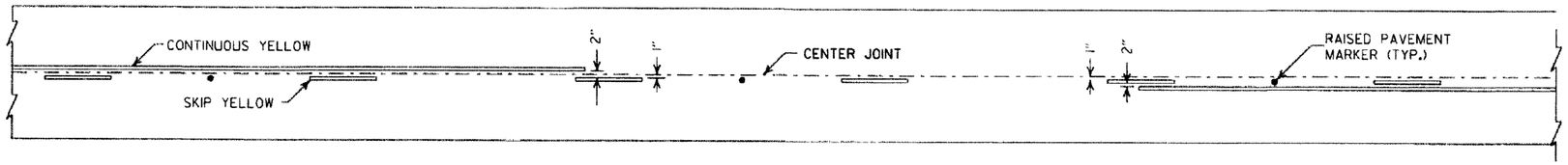


CONCRETE PAVEMENT

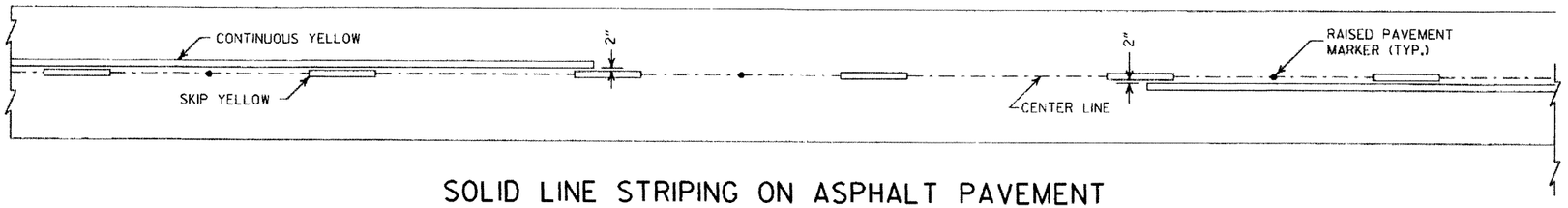


ASPHALT PAVEMENT

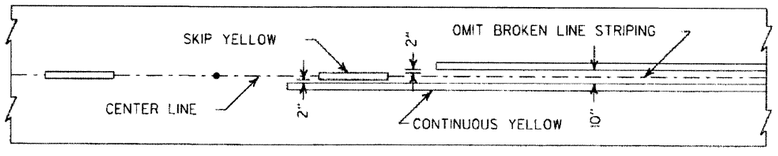
BROKEN LINE STRIPING



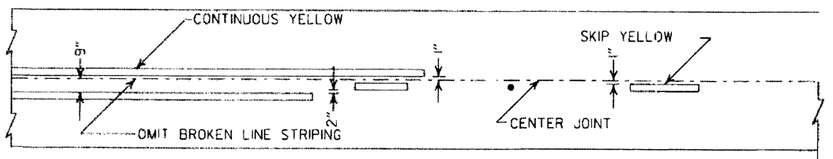
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

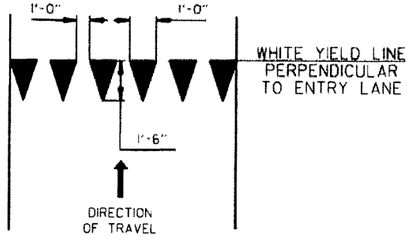


ASPHALT PAVEMENT

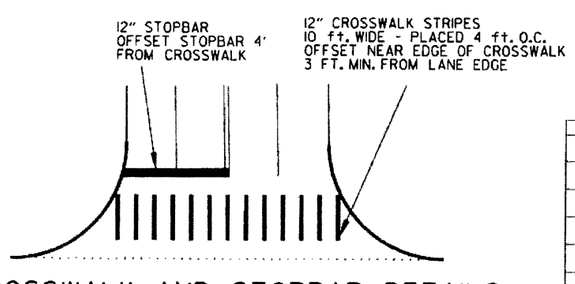


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

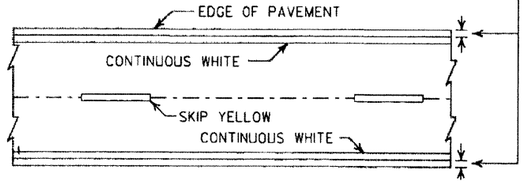


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

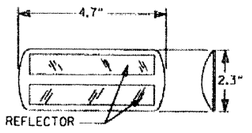
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

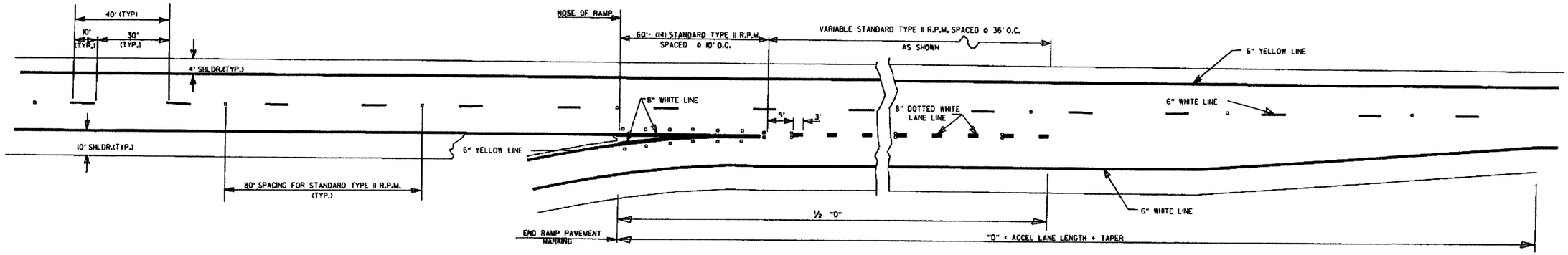
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

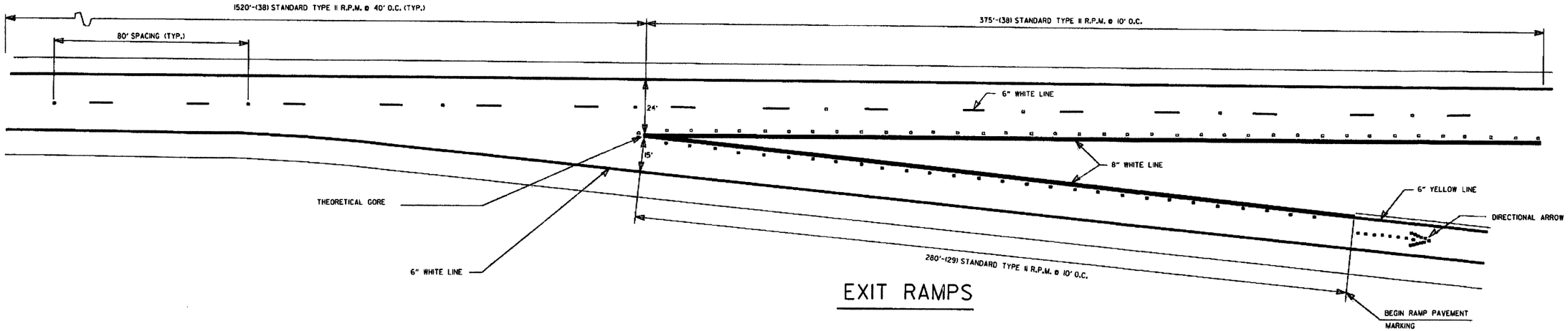
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

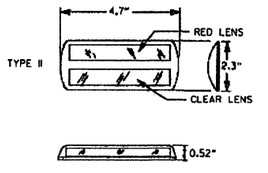
6" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

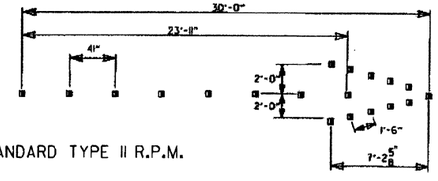


EXIT RAMPS



DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

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



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

GENERAL NOTES:

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

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

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

DATE	REVISION	FILMED
12-8-16	REVISED RAISED PAV'T MARKERS FOR 80' SPACING; REVISED WIDTH OF STRIPING	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

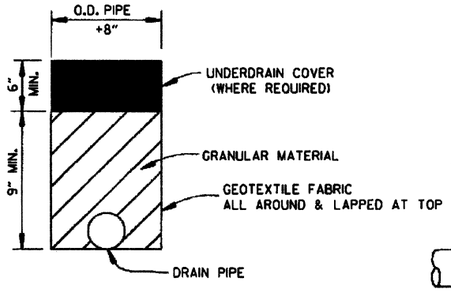
PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

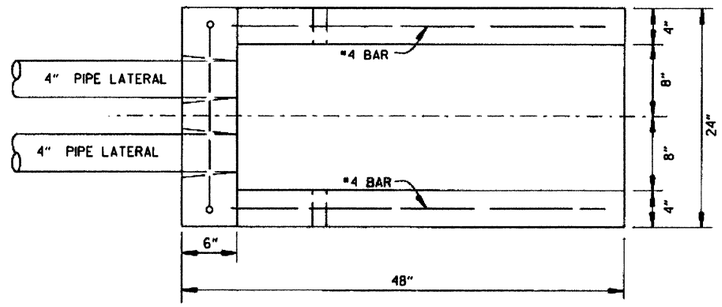
STANDARD DRAWING PM-2

NOTE:

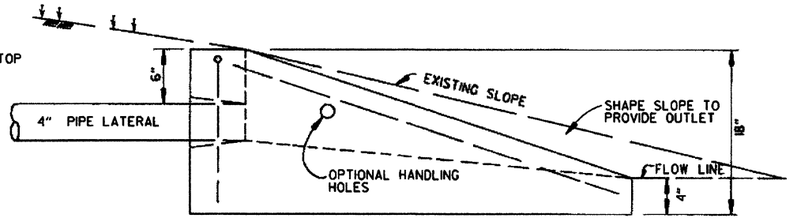
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

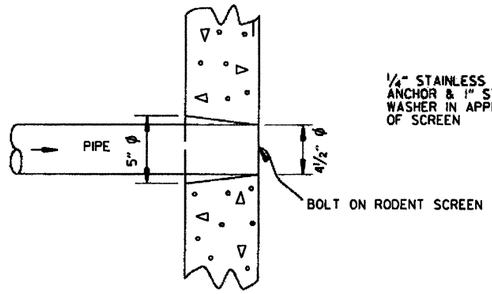




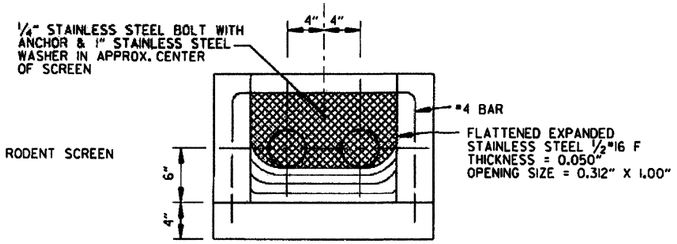
PLAN VIEW



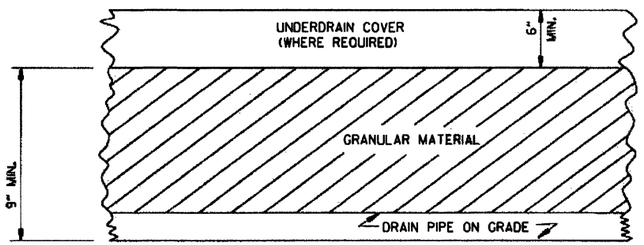
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

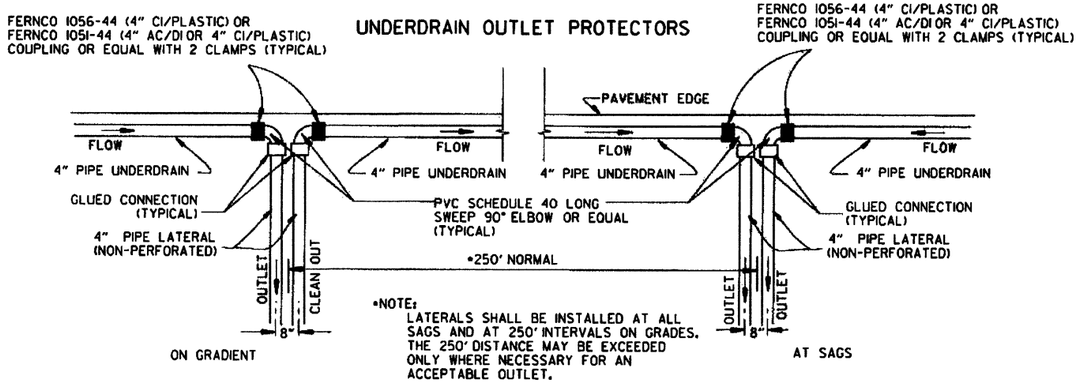
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

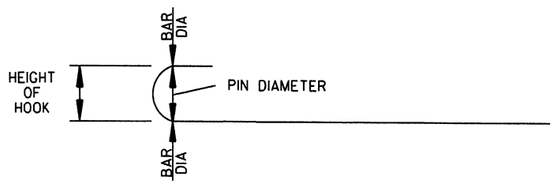
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

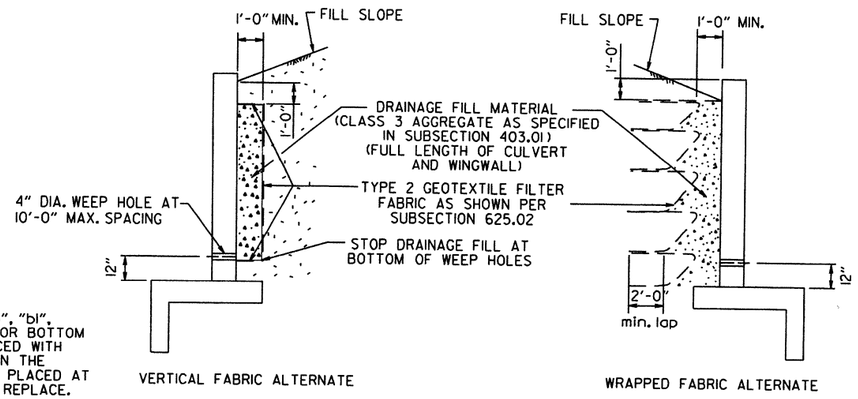
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

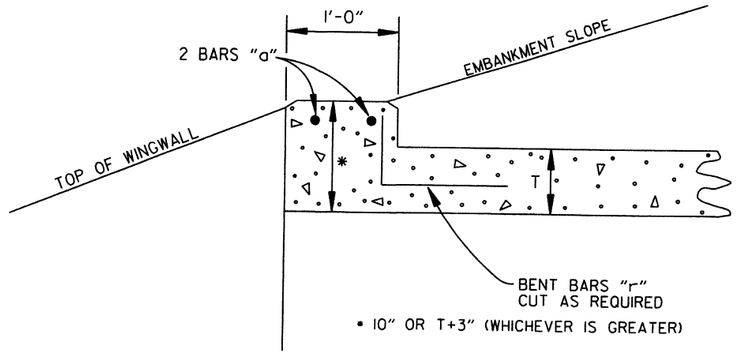
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

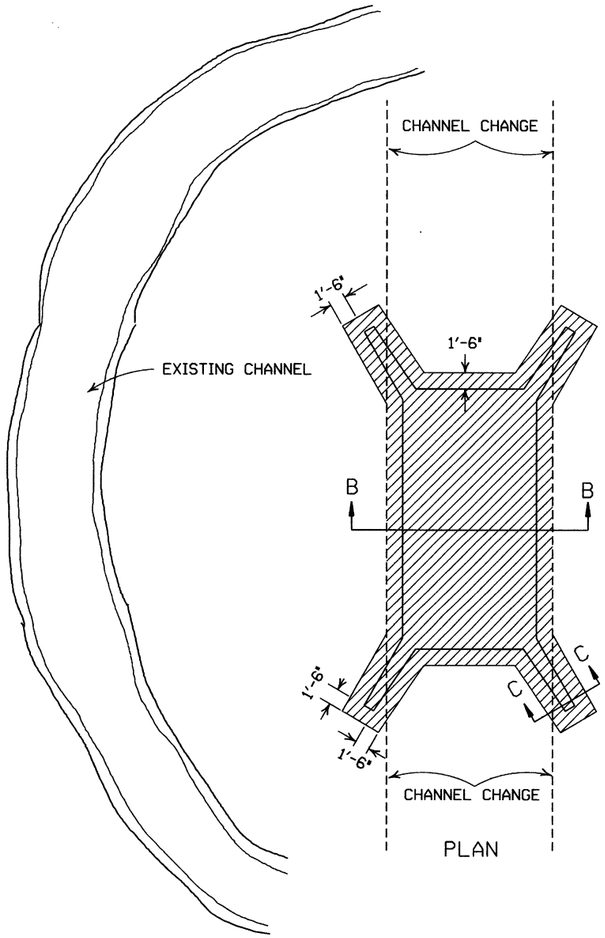
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

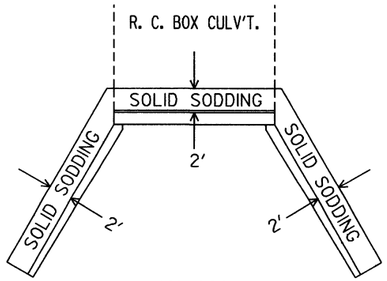
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

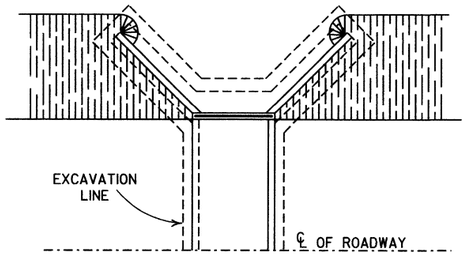
SOLID SODDING



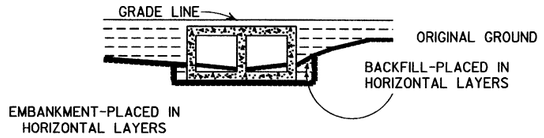
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

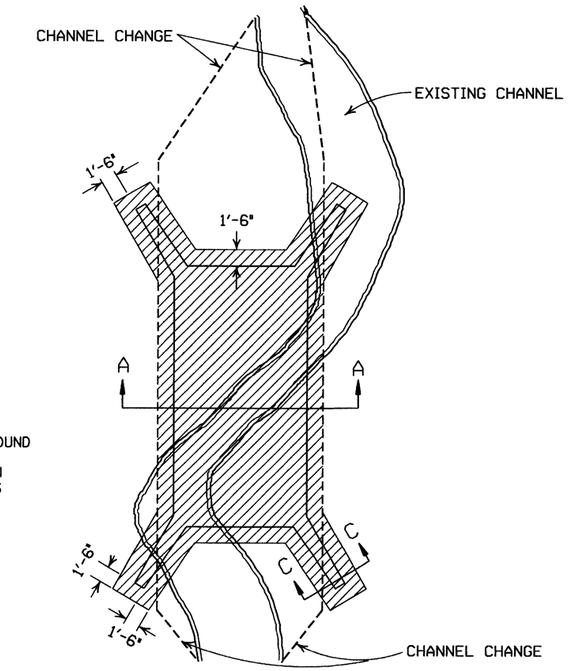


PLAN

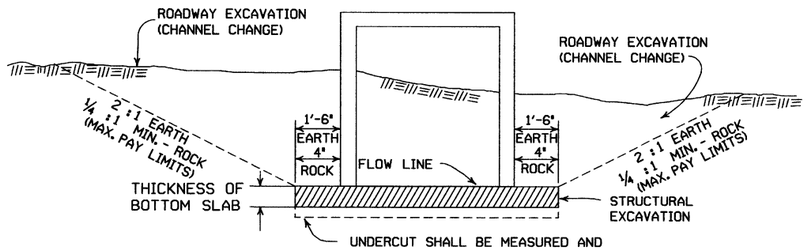


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

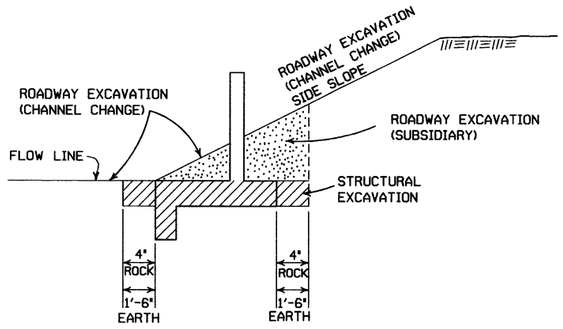


PLAN

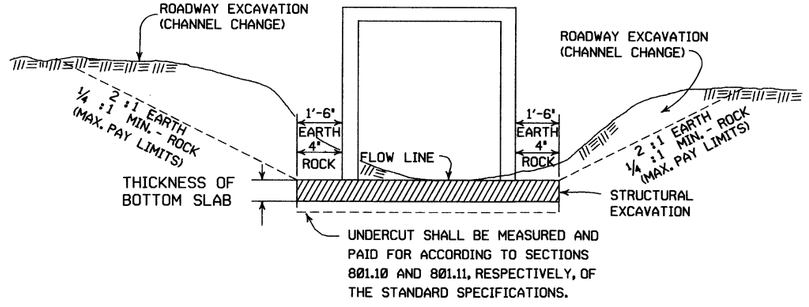


SECTION B-B

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.

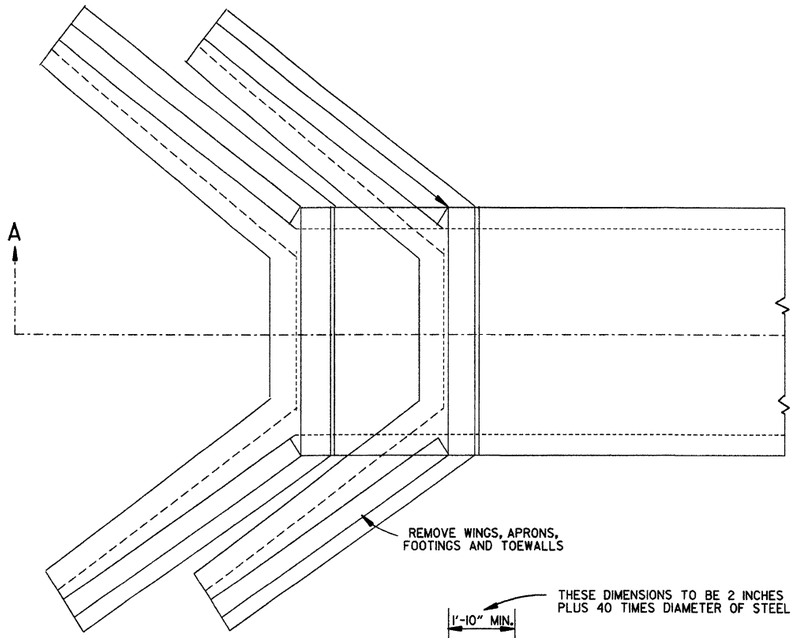
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

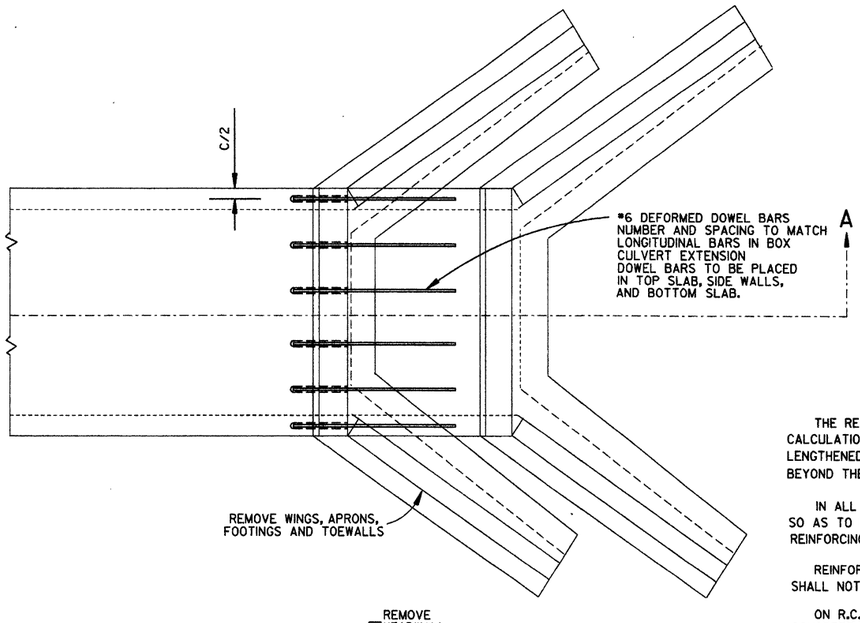
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 2

GENERAL NOTES

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

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

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

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

SUPERELEVATION TABLE FOR ONE - 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	65 MPH e	65 MPH Ls (FT) MINIMUM	65 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.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			RC			0.022			0.023			0.025			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.033	250		0.037	275	350
1° 15′	N.C.			RC			0.026			0.032			0.037			0.041			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.048		350	0.054		
1° 45′	N.C.			0.025			0.036			0.043		350	0.049		350	0.055			0.062		
2° 00′	RC			0.028	175		0.040			0.048			0.055			0.062			0.070		
2° 15′	RC			0.031			0.045			0.053			0.061			0.069	255		0.078	300	
2° 30′	0.021			0.034			0.049			0.058			0.067			0.075	280		0.085	315	400
2° 45′	0.023			0.037			0.053			0.063			0.072			0.081	300		0.091	335	
3° 00′	0.025			0.040			0.057			0.067	230		0.077	260		0.087	315		0.096	350	
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.093	325	400	0.098	360	450
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.095	340		0.100	360	
3° 45′	0.031			0.049			0.069	215		0.080	265		0.090	295	400	0.097	345				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305		0.099	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		0.098	320							
5° 30′	0.043			0.066	185		0.088	260		0.094	300	400									
6° 00′	0.046			0.070	190		0.092	270		0.096	305										
6° 30′	0.050			0.074	200		0.096	280		0.100	315										
7° 00′	0.053			0.078	210		0.098	285	350												
7° 30′	0.056			0.081	215		0.099	290													
8° 00′	0.058			0.084	220	300	0.100	290													
8° 30′	0.061			0.087	225																
9° 00′	0.063			0.089	230																
10° 00′	0.068	160		0.094	235																
11° 00′	0.072	170		0.097	250																
12° 00′	0.076	175		0.099	250																
13° 00′	0.080	180		0.100	250																
14° 00′	0.083	190																			
15° 00′	0.086	195																			
16° 00′	0.089	200																			
17° 00′	0.091	200																			
18° 00′	0.093	205																			
19° 00′	0.095	210																			
20° 00′	0.097	215	300																		
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 = 4° 15′ | D MAX = 3° 30′

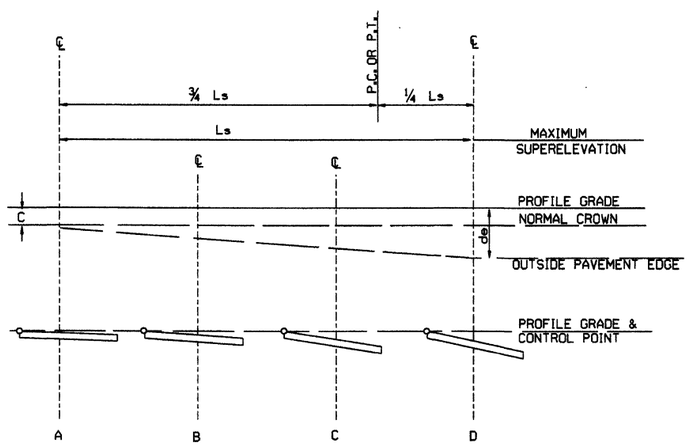
GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%

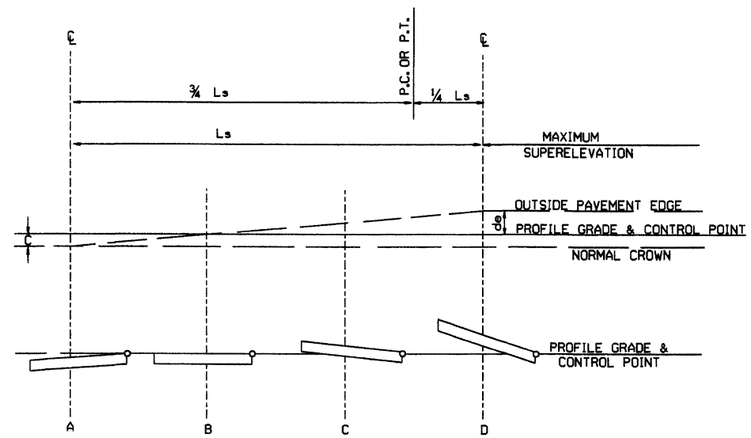
ABBREVIATIONS

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



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

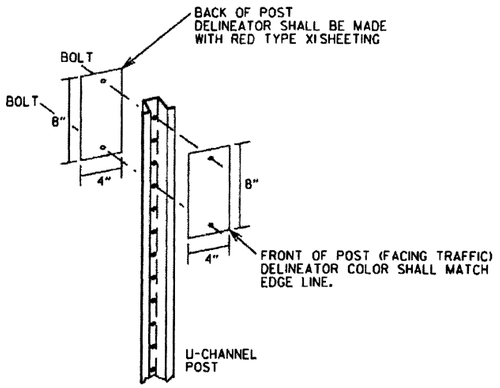
SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

DATE	REVISION	DATE FILMED
01-09-87	ISSUED	578-1-15-87

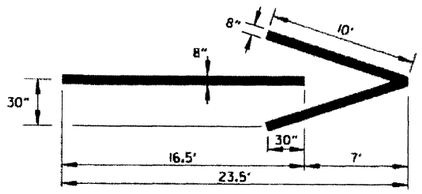
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1



TYPE 2 DELINEATOR DETAILS

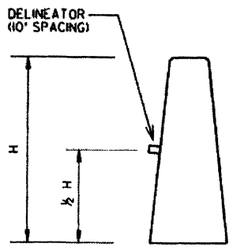


THERMOPLASTIC WRONG-WAY PAVEMENT ARROWS

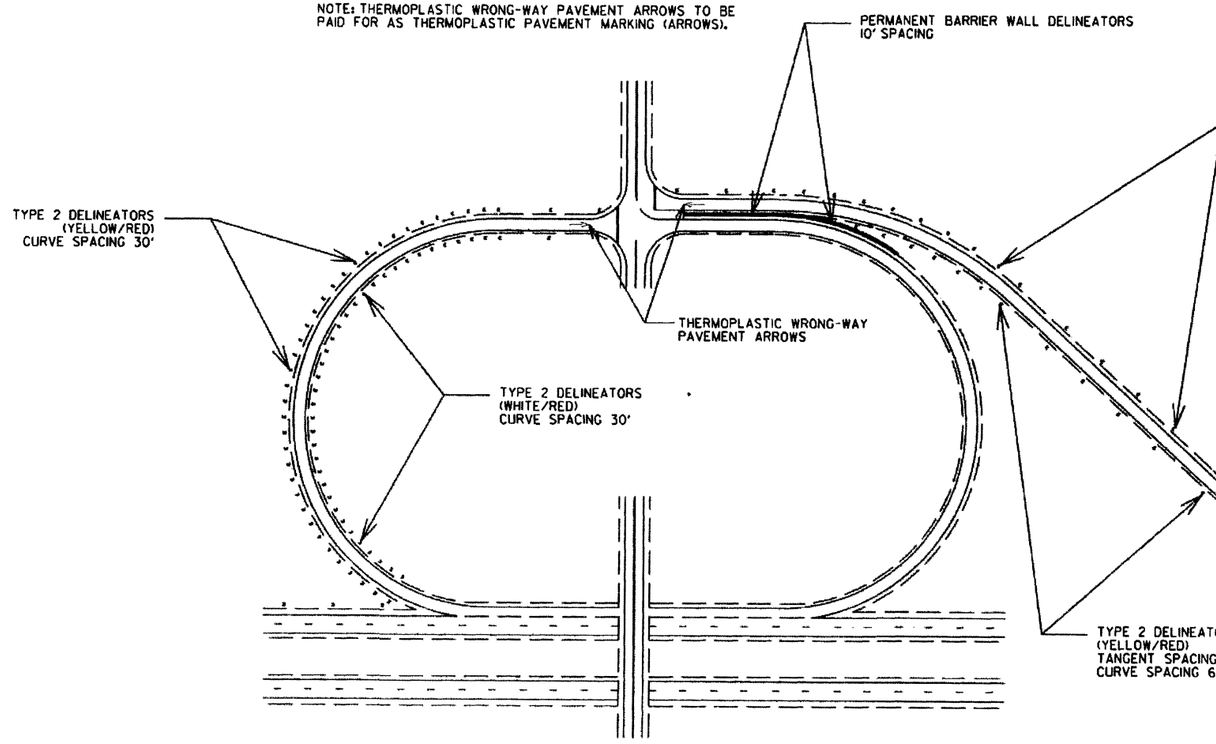
NOTE: THERMOPLASTIC WRONG-WAY PAVEMENT ARROWS TO BE PAID FOR AS THERMOPLASTIC PAVEMENT MARKING (ARROWS).

LEGEND

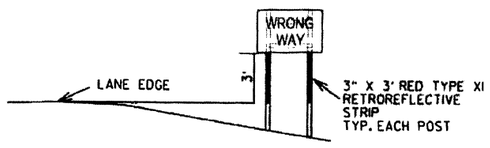
DELINEATOR



PERMANENT BARRIER WALL DELINEATOR DETAIL

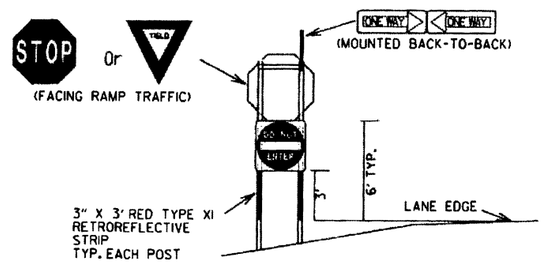


TYPICAL EXIT RAMP DELINEATOR PLACEMENT



WRONG-WAY SIGN ASSEMBLY DETAILS

NOTES
1. WRONG-WAY SIGNS MAY BE MOUNTED ON THE BACK SIDE OF EXISTING SIGN SUPPORTS WHERE POSSIBLE.
2. WRONG-WAY SIGNS ARE NORMALLY GATED, BUT MAY BE OFFSET WHEN BARRIER WALLS ARE PRESENT ON THE INSIDE SHOULDER. IN SUCH CASES, THE SIGN ON THE INSIDE SHOULDER SIDE MAY BE LOCATED PAST THE END OF THE BARRIER WALL. IN RARE CASES WHERE THE BARRIER WALL EXTENDS TO OR NEAR THE MAIN LANES, BOTH SIGNS MAY BE LOCATED ON THE OUTSIDE SHOULDER SIDE OF THE RAMP, WITH APPROXIMATELY 300' SPACING BETWEEN THE SIGNS.



RAMP INTERSECTION SIGN ASSEMBLY DETAILS

THE DELINEATORS SHALL BE PLACED AT A 4' HEIGHT MEASURED FROM THE PAVEMENT EDGE TO THE BOTTOM OF THE DELINEATOR. DELINEATOR POSTS SHALL BE PLACED 2 TO 8 FT. OUTSIDE THE OUTER EDGE OF THE SHOULDER, OR IF APPROPRIATE, IN LINE WITH THE ROADSIDE BARRIER THAT IS 8 FT. OR LESS OUTSIDE THE OUTER EDGE OF THE SHOULDER.

DELINEATOR SPACING IN CURVES SHALL BE REDUCED TO 30' WHEN THE RAMP ADVISORY SPEED IS 30 MPH OR LESS.

IF MULTIPLE LANES EXIST AT THE RAMP TERMINAL, THE THERMOPLASTIC WRONG-WAY ARROW SHALL BE PLACED AS CLOSE TO THE RAMP TERMINAL TURNOUT AS POSSIBLE.

DATE	REVISION	FILMED
6-1-17	RE-DRAWN	
9-12-13	ISSUED AS STANDARD DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

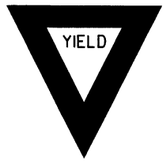
TYPICAL EXIT RAMP SIGN AND DELINEATOR DETAILS

STANDARD DRAWING SHS - 8

R1-1

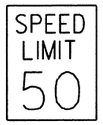
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

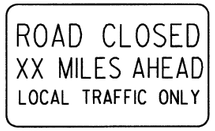
R5-1

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

R11-2

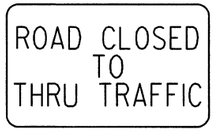
48"X30"

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"

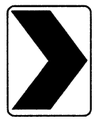
W1-4

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"

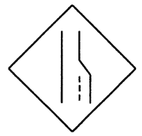
W3-1

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"

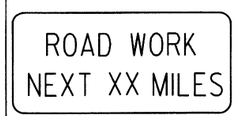
W8-11

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

W8-9

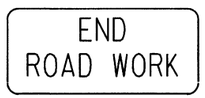
STD. 36"X36"
FWY. 48"X48"

G20-1



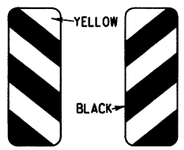
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

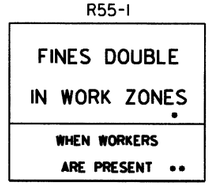
M4-9

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.

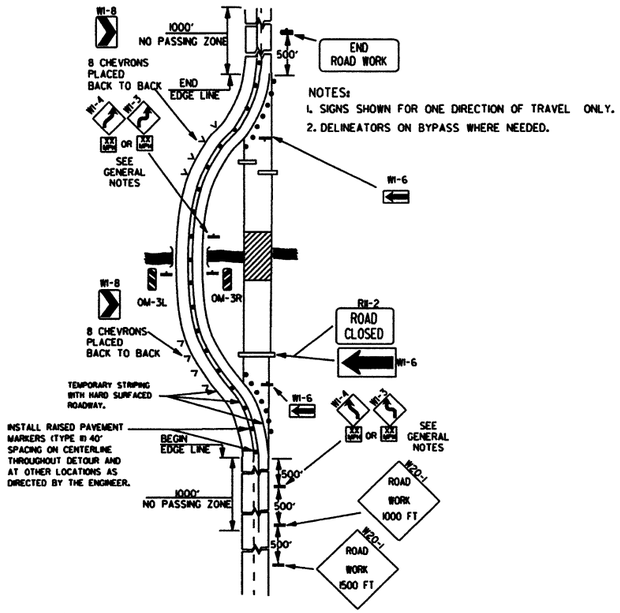
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

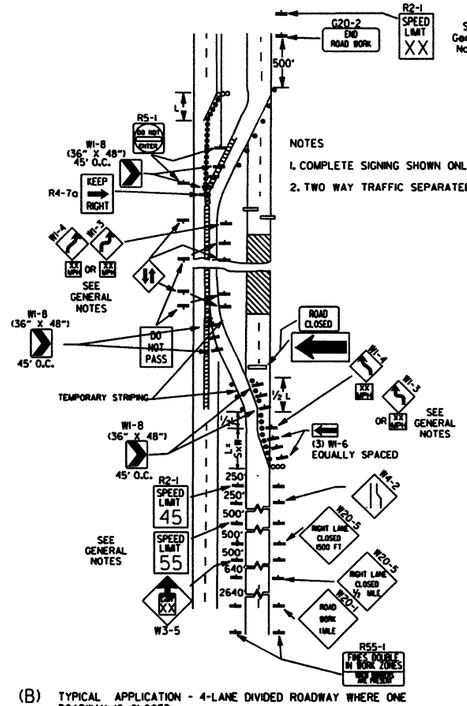
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



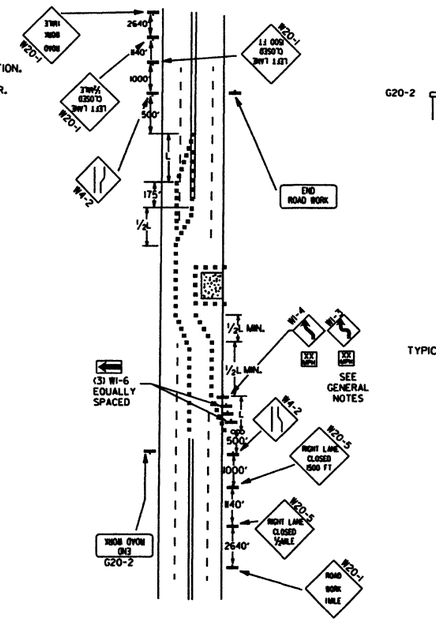
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

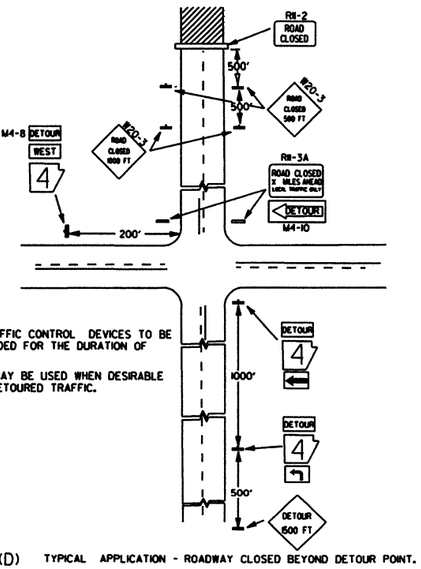


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

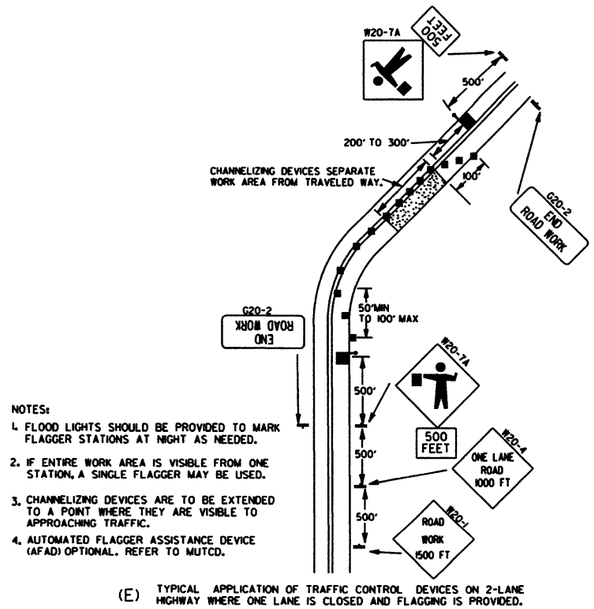


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



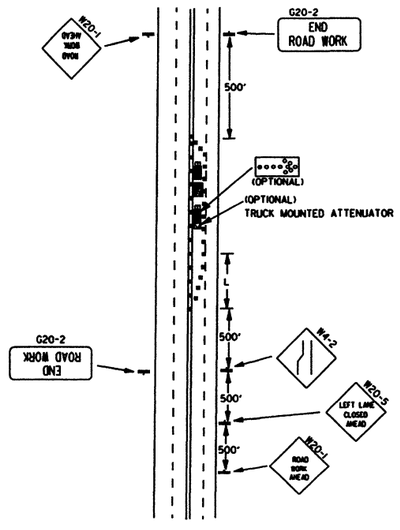
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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

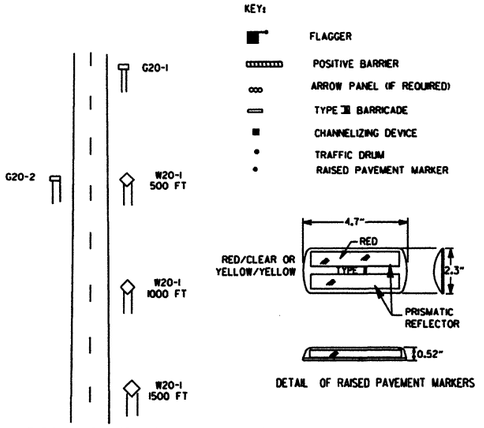


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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



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:

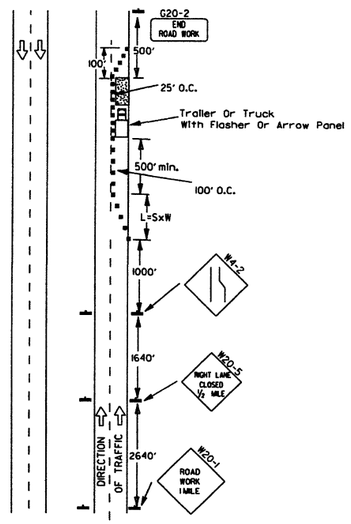
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) 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-K45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) 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)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W-4A	6-8-95
2-2-95	REVISED PER PART VII, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

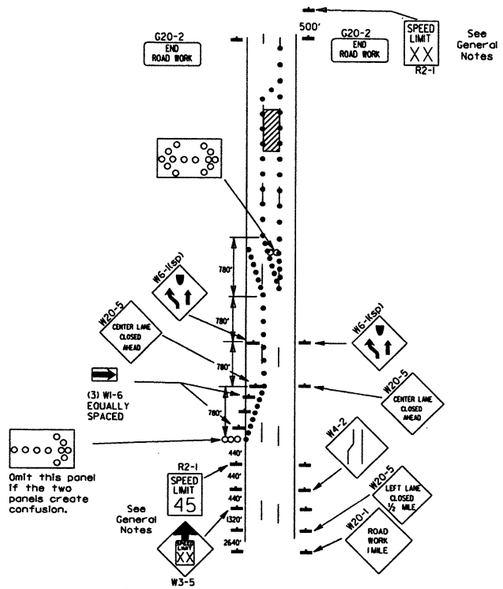
ARKANSAS STATE HIGHWAY COMMISSION

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.

KEY:

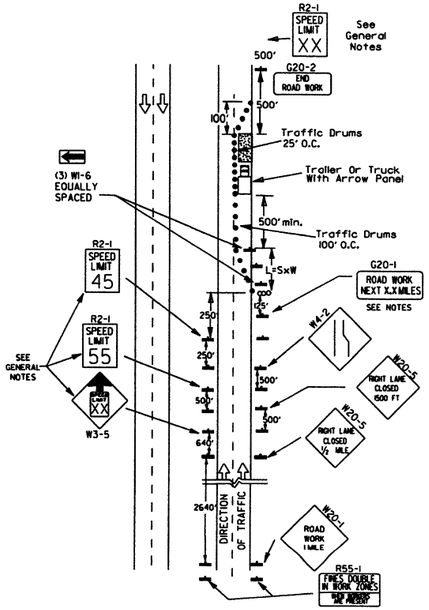
ooo Arrow Panel (If Required)

■ Channelizing Device

● Traffic drum

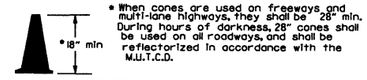
GENERAL NOTES:

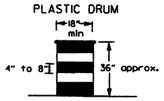
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional 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.

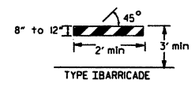


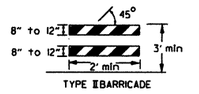
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

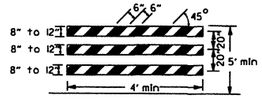
Channelizing devices



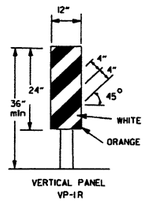








NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

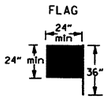


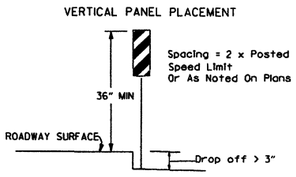
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

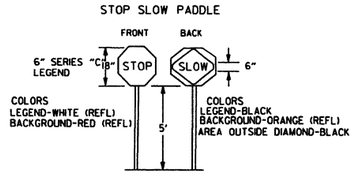
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical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

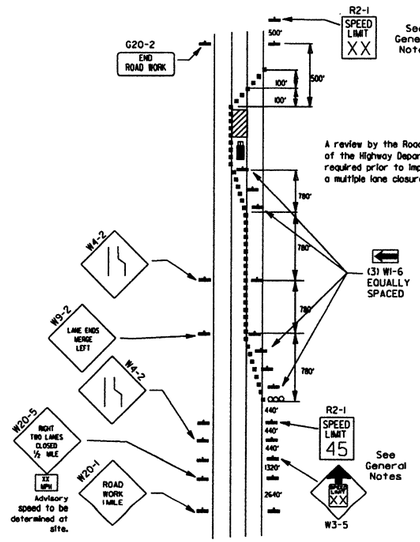
* When shown on the plans concrete barrier will be used.

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.

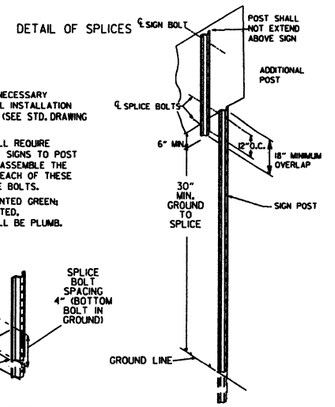








(D) Typical application - closing multiple lanes of a multilane highway.



DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO #6-1 & 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	

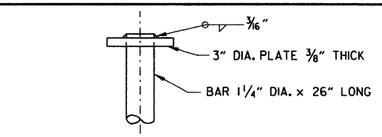
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

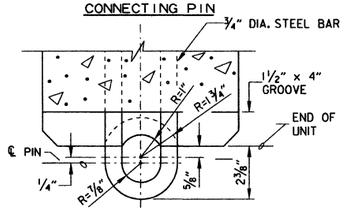
STANDARD DRAWING TC-3

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°, 9 1/2", 2'-1 3/8", 4 3/8"

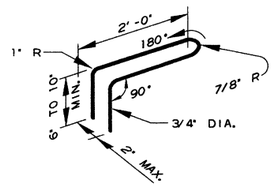


CONNECTING PIN

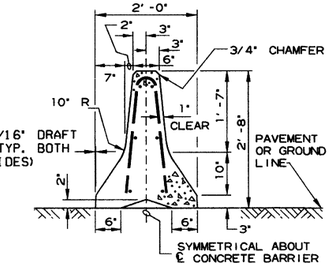


SECTION E-E

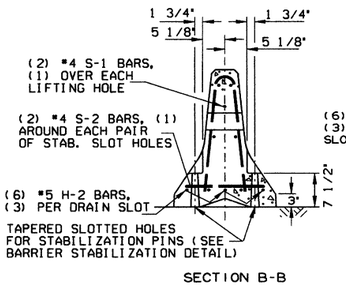
CONNECTION DETAILS



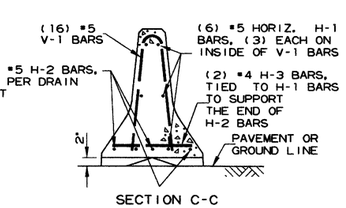
CONNECTION LOOP



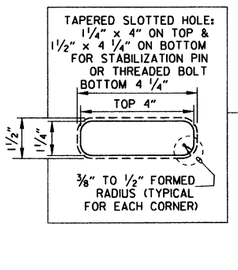
SECTION A-A

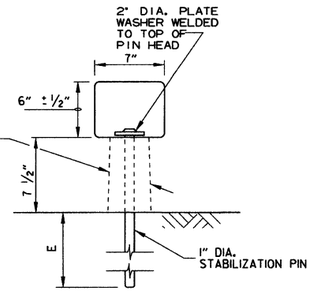


SECTION B-B



SECTION C-C

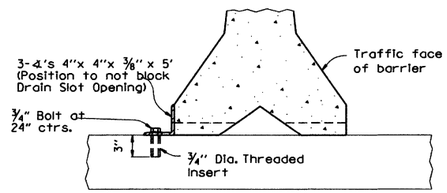




BARRIER STABILIZATION DETAIL

ROADWAY SECTION

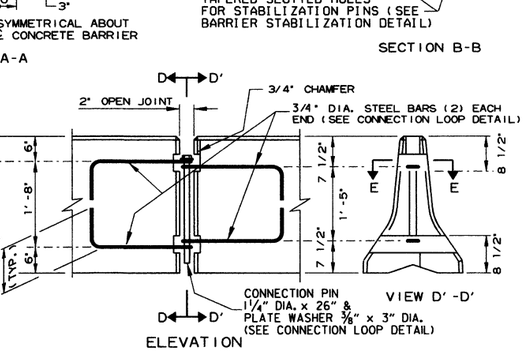
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

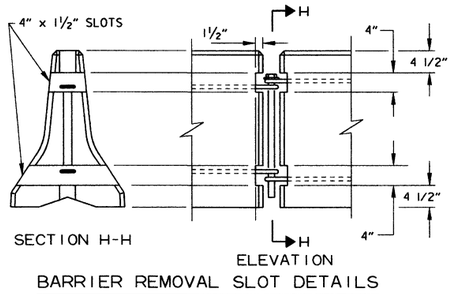
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

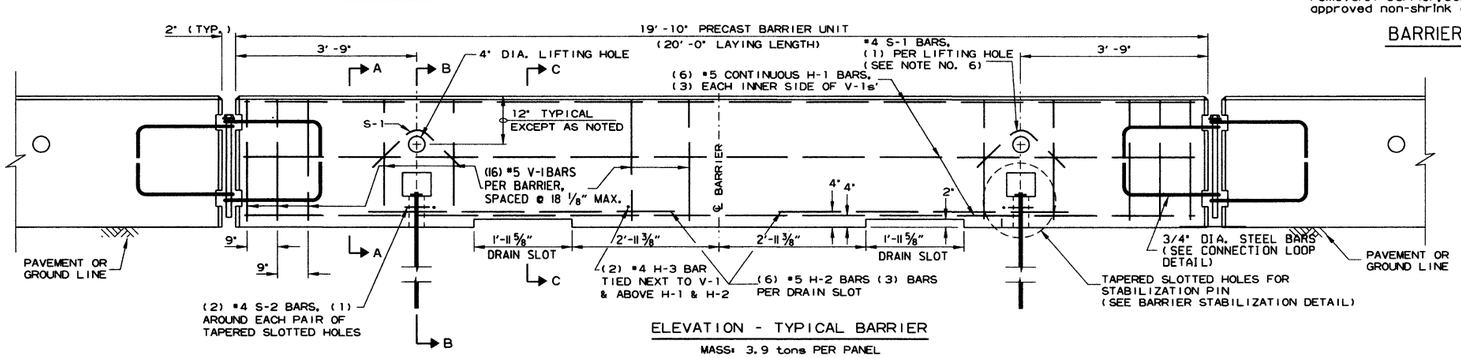
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

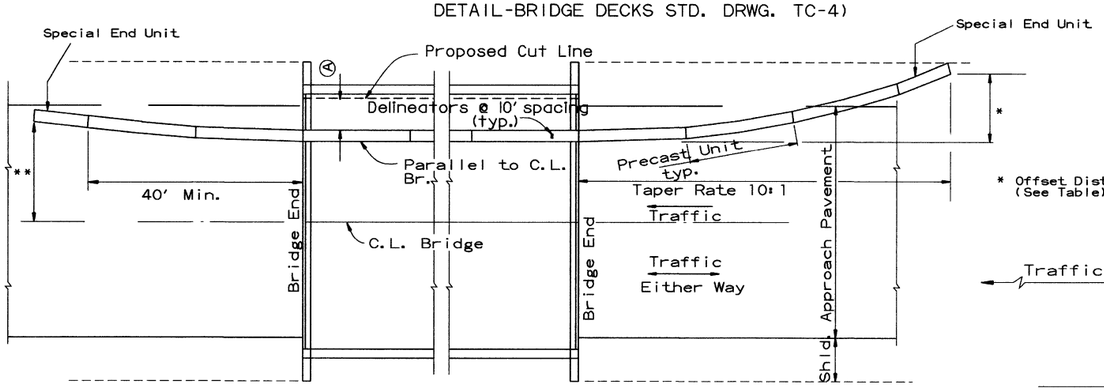
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

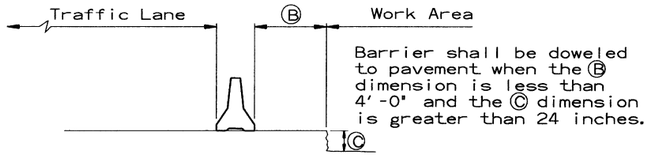


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

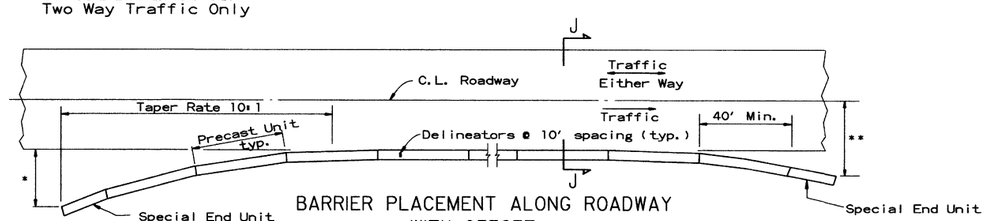
** Offset Distance for Two Way Traffic Only



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

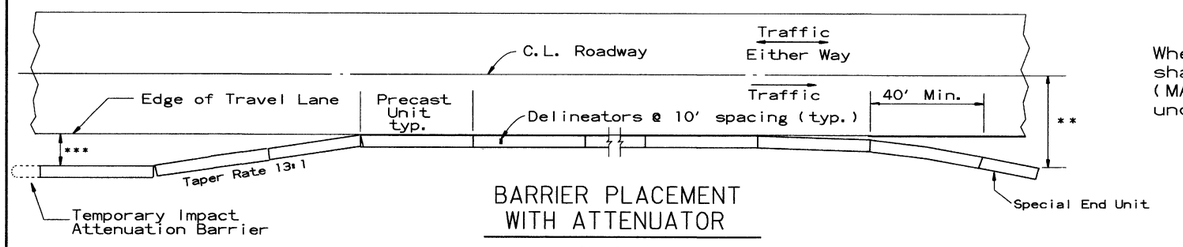
* Offset Distance (See Table)

** 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.

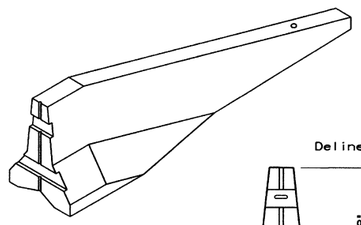


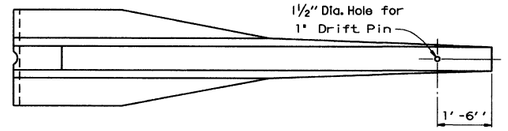
BARRIER PLACEMENT WITH ATTENUATOR

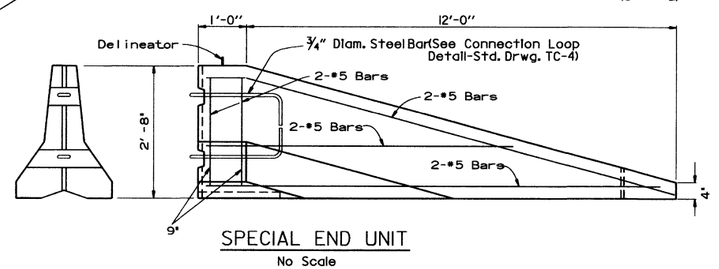
No Scale

***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	

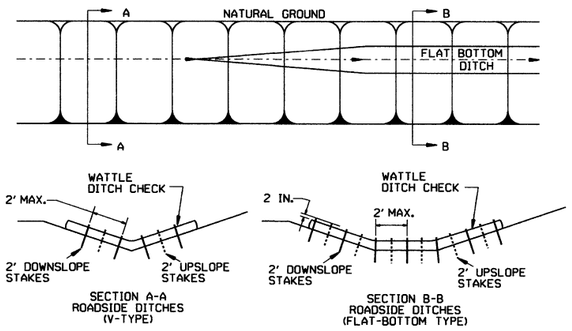
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

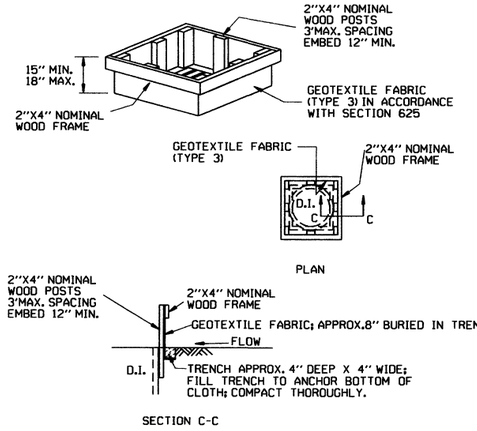
STANDARD DRAWING TC-5

GENERAL NOTES

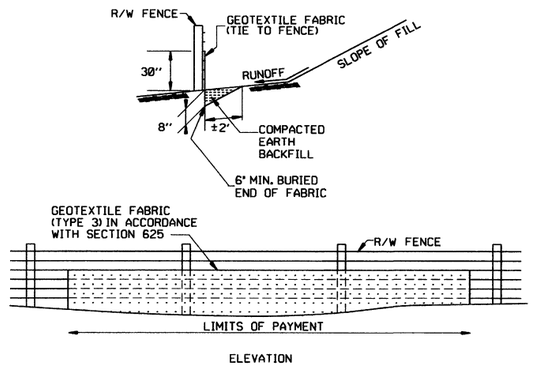
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

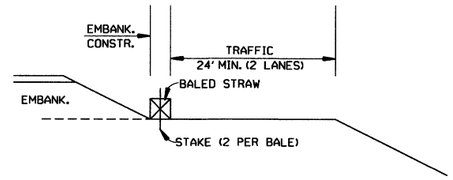
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

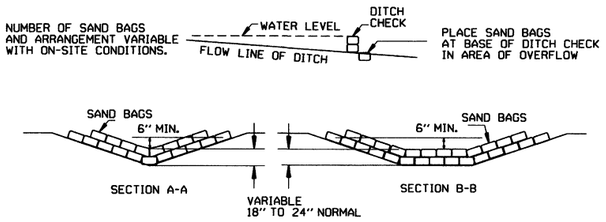
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

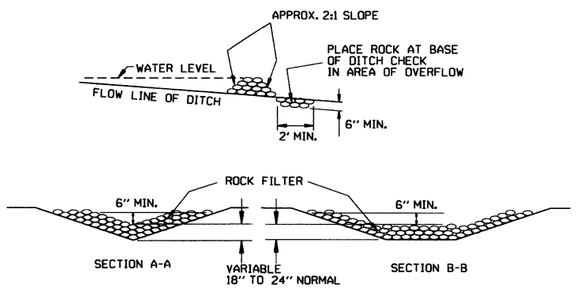
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



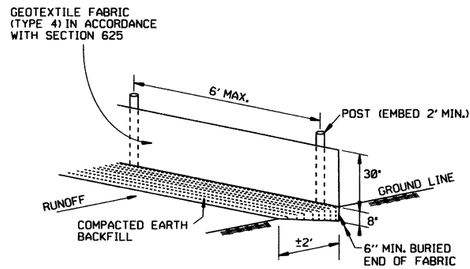
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

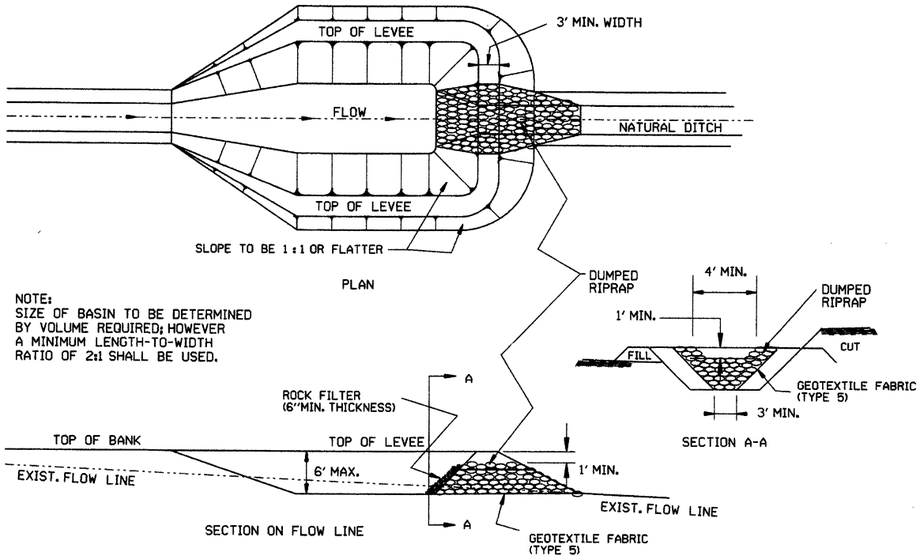
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

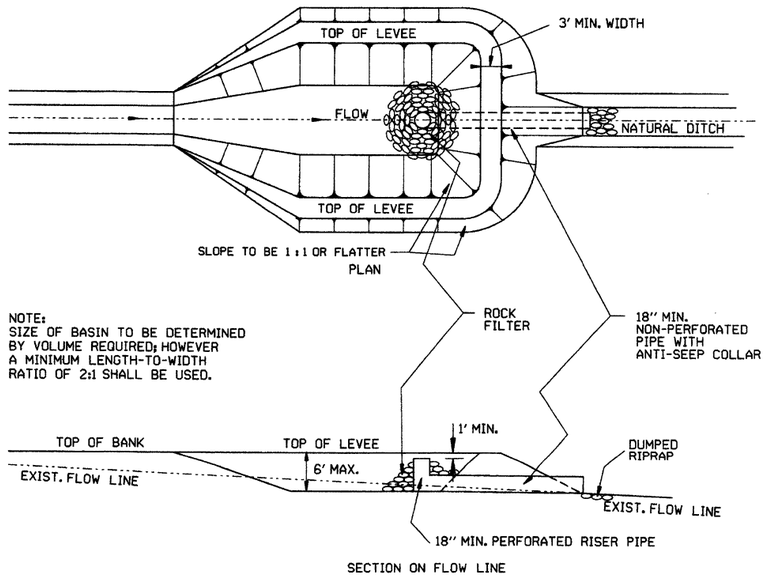
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

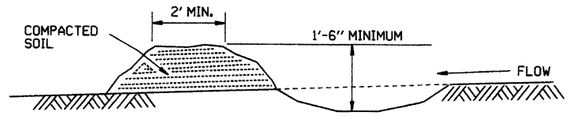
STANDARD DRAWING TEC-1



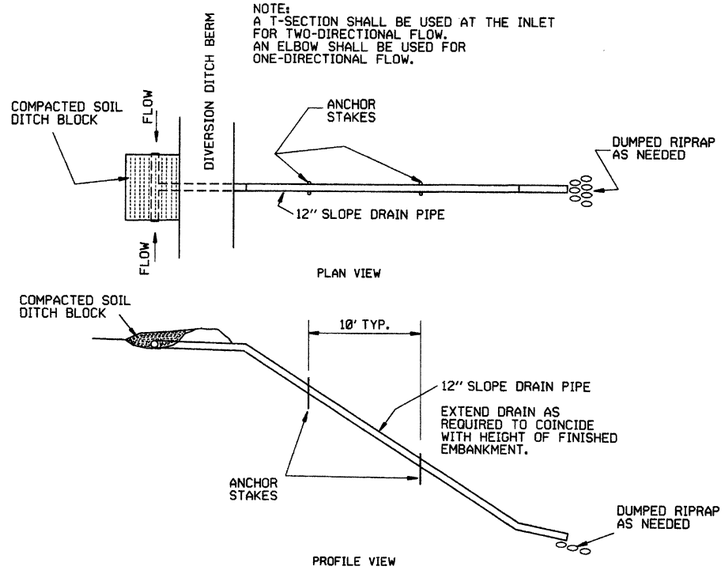
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



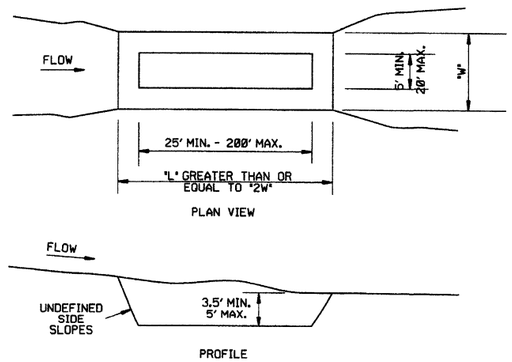
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

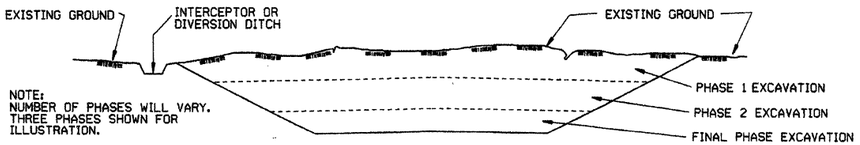
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



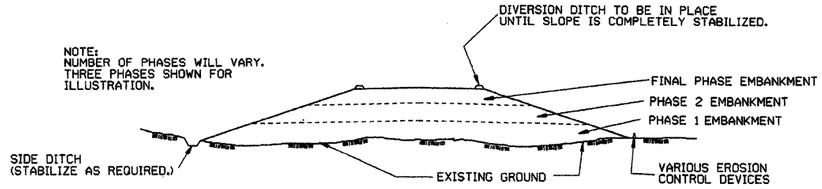
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

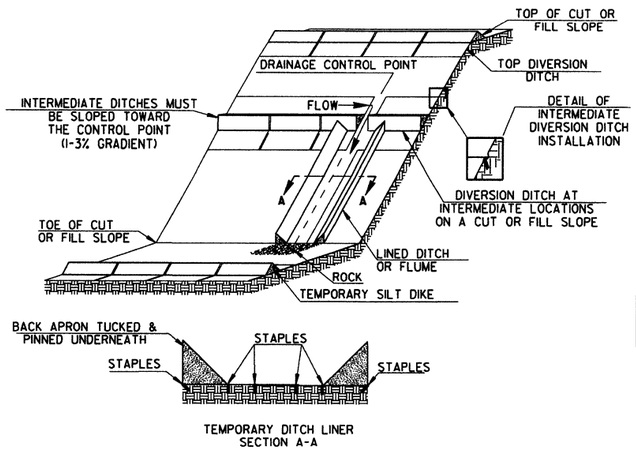
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

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

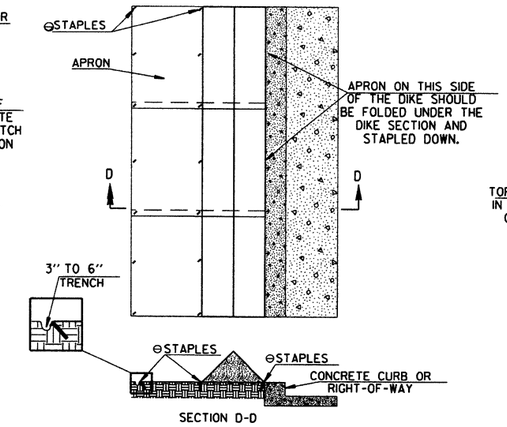
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

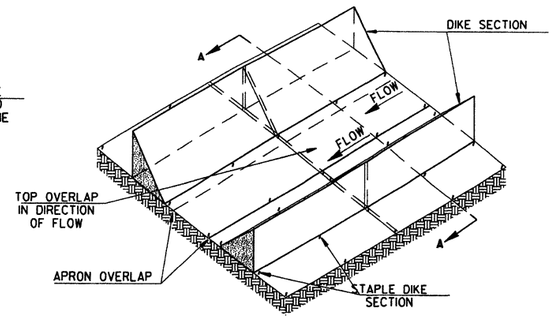
STANDARD DRAWING TEC-3



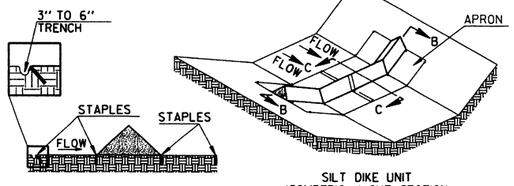
TRIANGULAR SILT DIKE INSTALLATION
FOR
DIVERSION DITCH AND/OR DITCH LINER

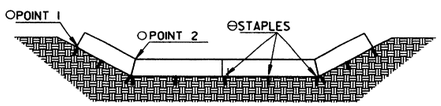


TRIANGULAR SILT DIKE INSTALLATION
FOR
CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION
FOR
TEMPORARY DITCH LINER

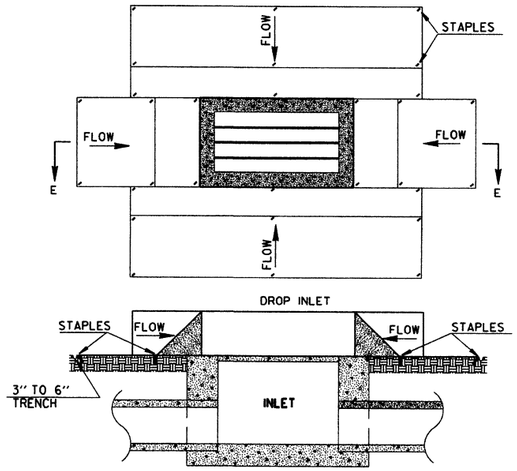




TRIANGULAR SILT DIKE INSTALLATION
FOR
ROADWAY DITCH OR DRAINAGE DITCH

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

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



TRIANGULAR SILT DIKE INSTALLATION
FOR
DROP INLETS

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS

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

GENERAL NOTES

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

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

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

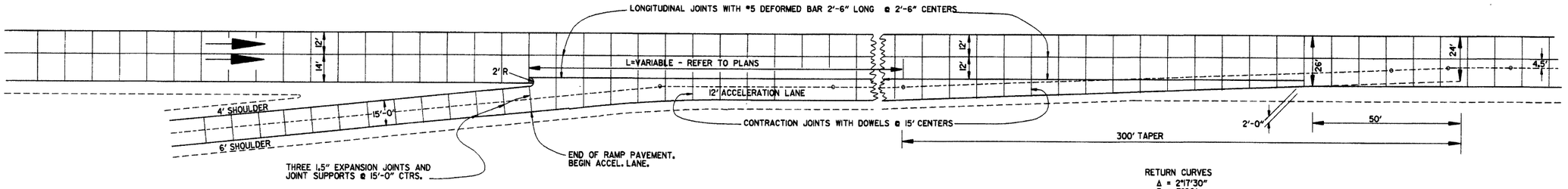
3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

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

ARKANSAS STATE HIGHWAY COMMISSION

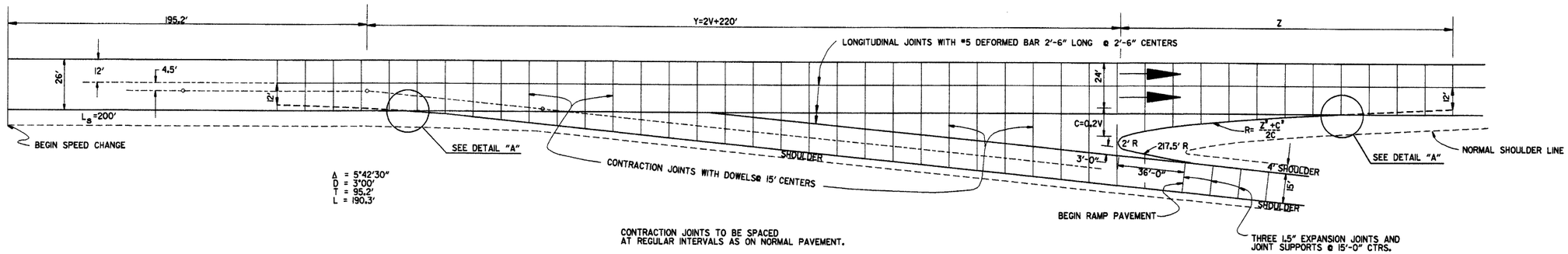
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4



ENTRANCE RAMP

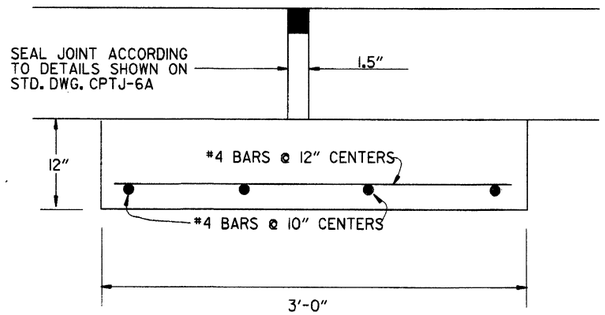
RETURN CURVES
Δ = 2°17'30"
D = 3°00'
T = 38.2'
L = 76.4'



Δ = 5°42'30"
D = 3°00'
T = 95.2'
L = 190.3'

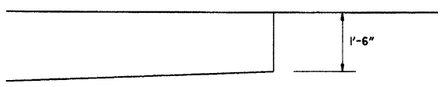
CONTRACTION JOINTS TO BE SPACED AT REGULAR INTERVALS AS ON NORMAL PAVEMENT.

EXIT RAMP



DETAIL OF EXPANSION JOINT & JOINT SUPPORT

NOTE: THE EXPANSION JOINTS SHALL BE MEASURED AND PAID FOR AS P.C.C. PAVEMENT (RAMP THICKNESS).
THE 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 USED. ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE SUBSIDIARY TO THE ABOVE ITEMS.



DETAIL "A"

EXIT RAMP

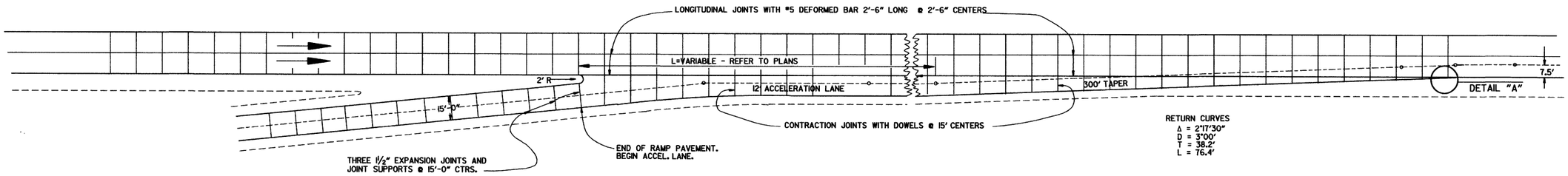
DESIGN SPEED V	Y	NOSE OFFSET C	LENGTH NOSE TAPER Z	RETURN RADIUS R
40	300.0	8.0	96.0	580.0
50	320.0	10.0	120.0	725.0
60	340.0	12.0	168.0	1182.0
70	360.0	14.0	210.0	1582.0

DATE	REVISION	DATE FILM'D
1-12-00	REDRAWN & REISSUED	1-12-00

ARKANSAS STATE HIGHWAY COMMISSION

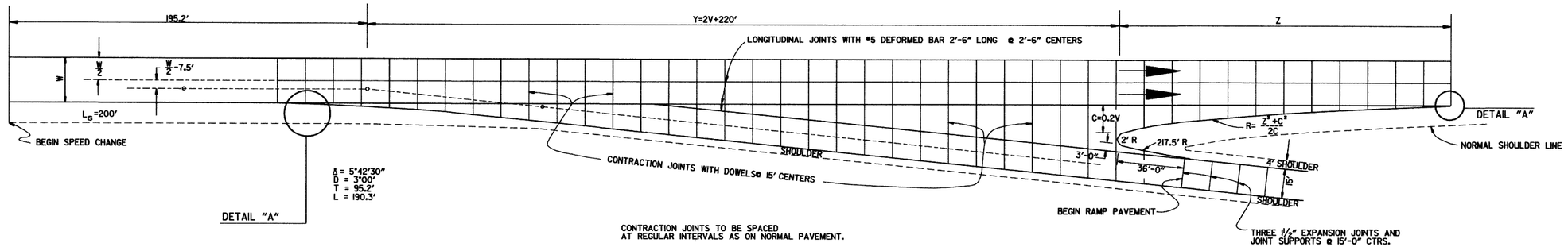
DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMPS

STANDARD DRAWING TR-1



ENTRANCE RAMP

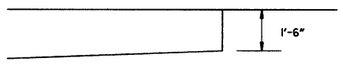
NOTE: JOINT SPACING ON THE MAIN LANES SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO THESE JOINT LAYOUTS. THE MAIN LANE JOINT SPACING MAY BE REDUCED TO A 12' MINIMUM.



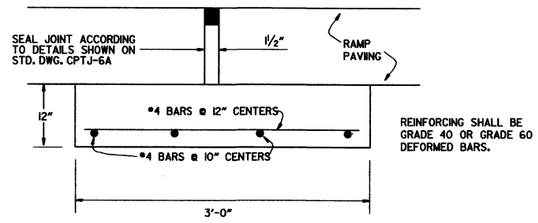
EXIT RAMP

EXIT RAMP

DESIGN SPEED V	Y	NOSE OFFSET C	LENGTH NOSE TAPER Z	RETURN RADIUS R	ADDITIONAL SURFACING SQ. YDS.
40	300.0	8.0	96.0	580.0	602.43
50	320.0	10.0	120.0	725.0	687.29
60	340.0	12.0	168.0	1182.0	790.55
70	360.0	14.0	210.0	1582.0	902.27



DETAIL "A"



DETAIL OF EXPANSION JOINT & JOINT SUPPORT

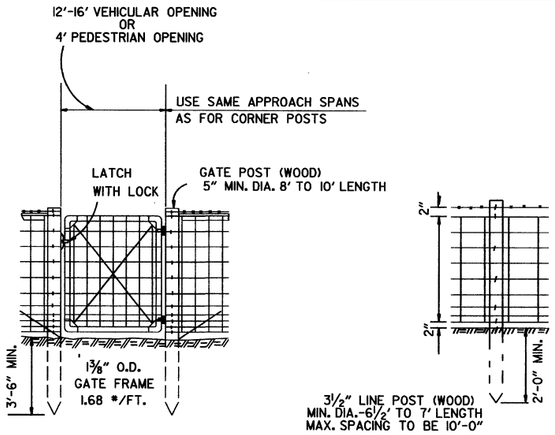
NOTE: THE EXPANSION JOINTS SHALL BE MEASURED AND PAID FOR AS P.C.C. PAVEMENT (RAMP THICKNESS). WHEN RAMP PAVING IS ASPHALT, EXPANSION JOINT IS NOT REQUIRED.
THE JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS "A", "S", OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE USED. ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.

DATE	REVISION	DATE FILM'D
8-22-02	DELETED NOTE	
11-16-01	CORRECTED SPELLING ON ENTRANCE RAMP NOTE	
5-13-99	ADDED, EDITED AND DELETED NOTES	
11-03-94	ADDED NOTE RE: REINF. BARS	
10-1-92	ADDED DETAIL A & OTHER MINOR CHANGES	10-1-92
1-25-90	REVISED EXPANSION JOINT	1-25-90
7-15-88	CONFORM'D TO 1988 SPECIFICATIONS	65C-7-15-88
3-2-81	ISSUED	511-18-2-72

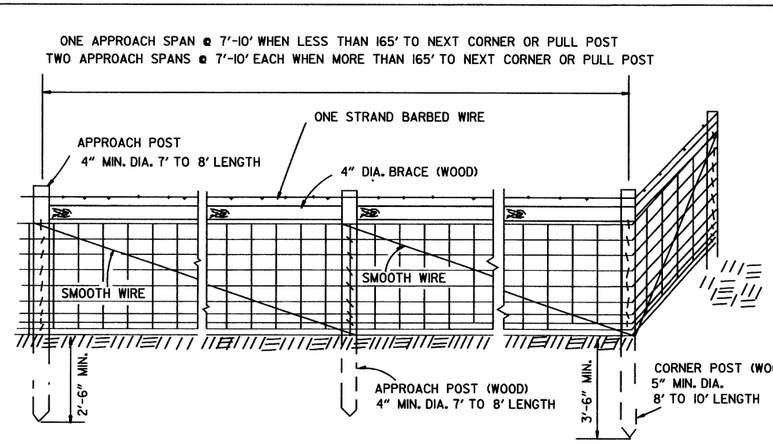
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMPS (NON-REINFORCED)

STANDARD DRAWING TR-1A



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



TYPE A FENCE (WOOD POSTS)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

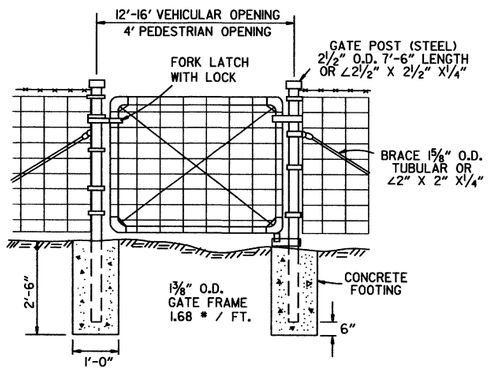
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

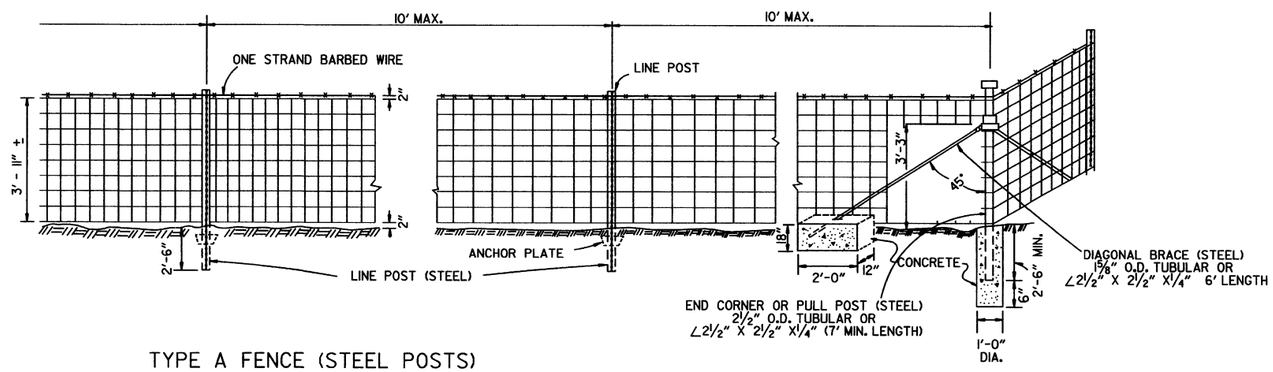
GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE 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 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 SUFFIEICNT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

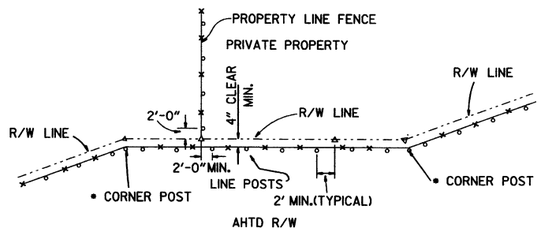
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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 WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.





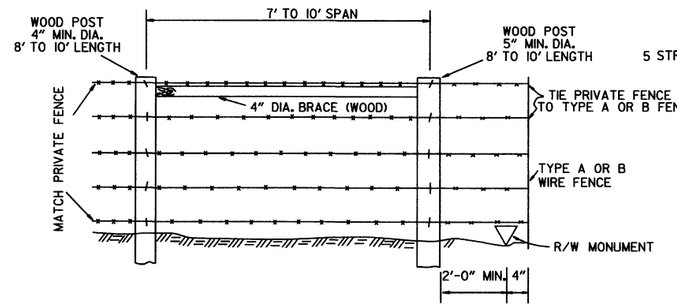
TYPE A FENCE (STEEL POSTS)



•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.

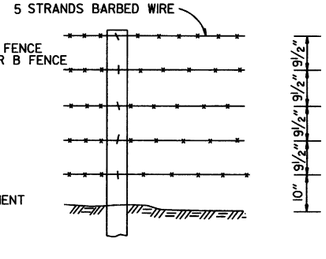
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



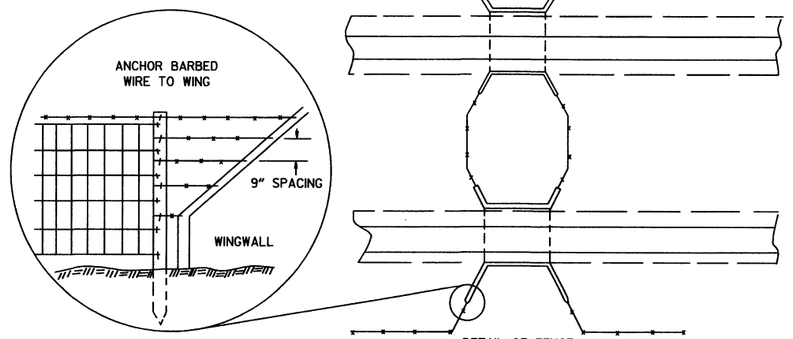
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE



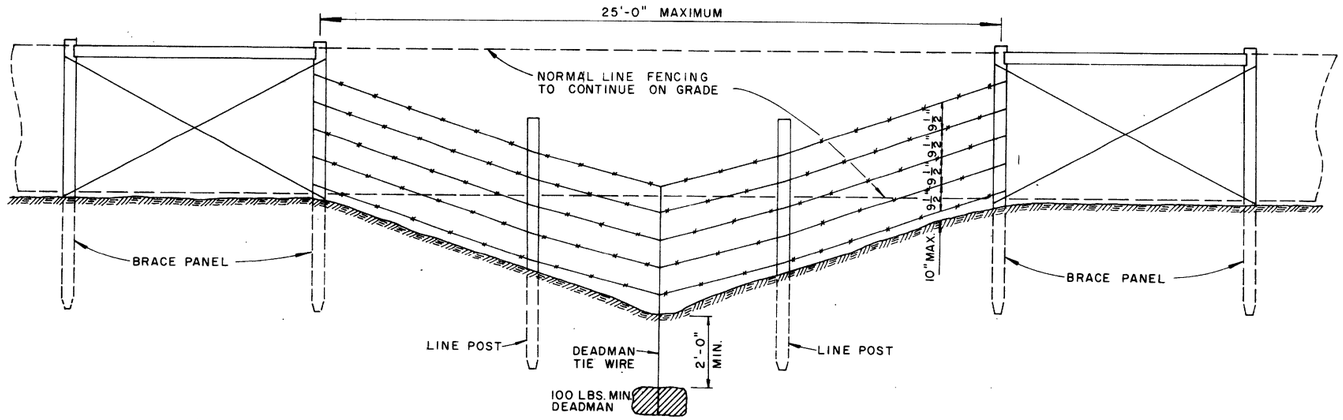
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

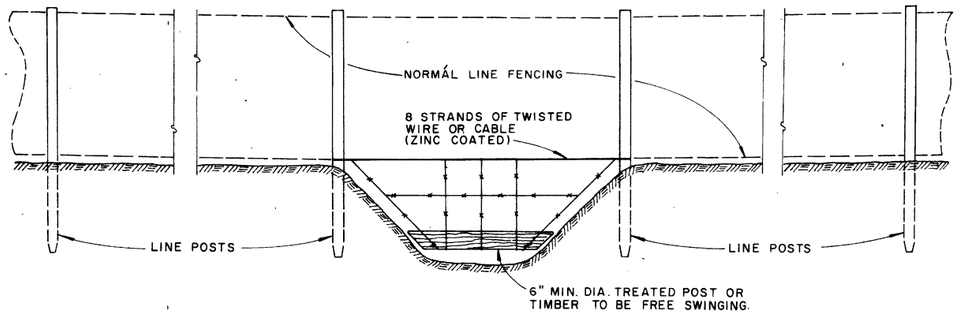
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

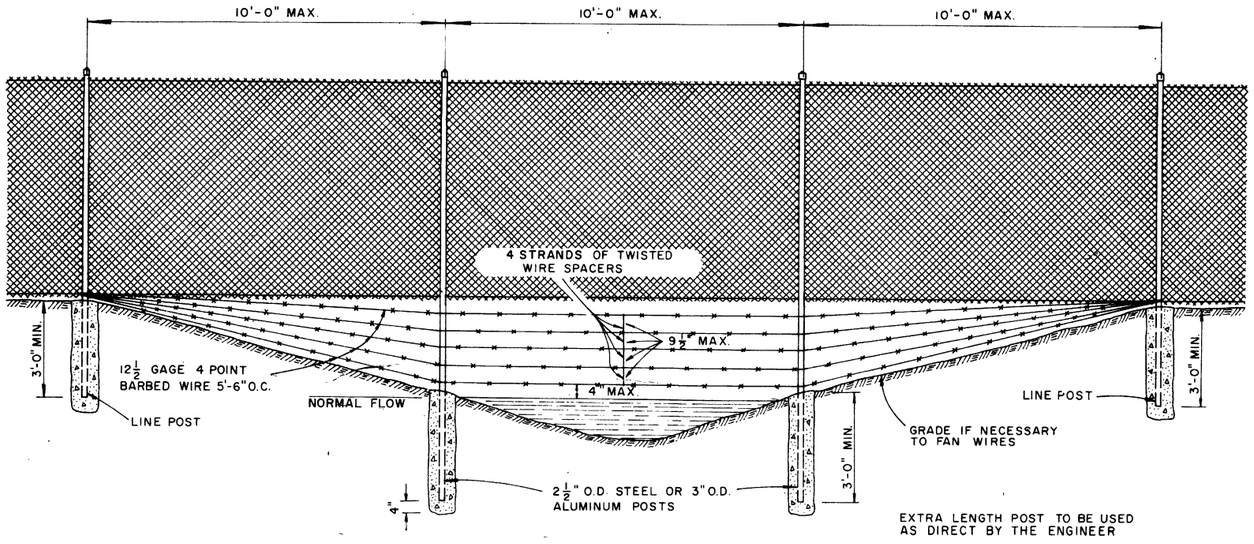
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

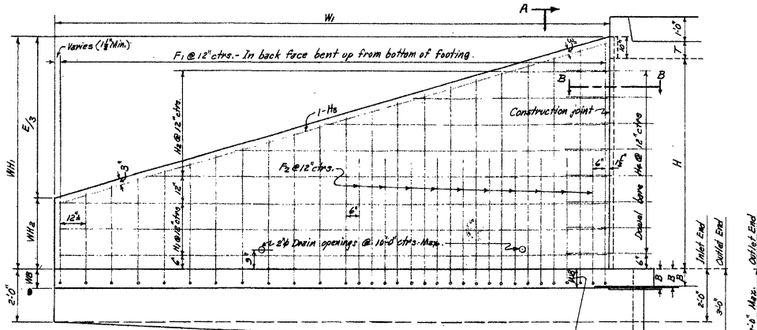
WIRE FENCE WATER GAPS

STANDARD DRAWING

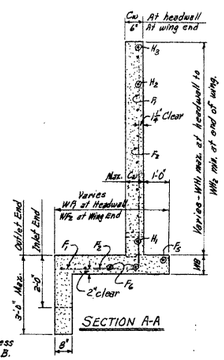
WF-2

1M—11-71—67001—PP&IC

FED. ROAD NO.	STATE	FED. AID PROJECT	SHEET NO.	SHEETS NO.	TOTAL SHEETS
8	ARK.				
JOB NO.					

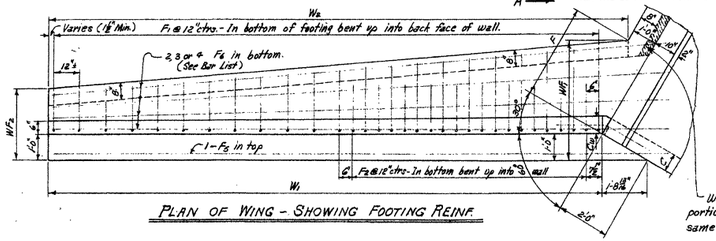


REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

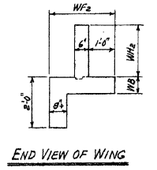


SECTION A-A

WB may be more, equal to, or less than the bottom slab thickness B.

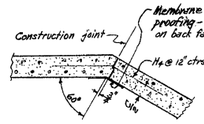


PLAN OF WING - SHOWING FOOTING REINF.

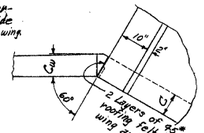


END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM WING TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	C_W	WH_1	WH_2	W_{F1}	W_{F2}	F	E	W_1	W_2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-4⅜"	8'-6"	9'-3⅝"	9'-2⅞"	1.338	1.446
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅝"	12'-1⅝"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-7½"	14'-7½"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5⅝"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.490	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8½"	7½"	7'-10"	2'-8"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅝"	4.505	4.758
		8"	7'-10"	2'-8"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅝"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-5"	18'-6"	21'-6⅝"	22'-1⅝"	5.761	6.049

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

APRON DIMENSION W_3

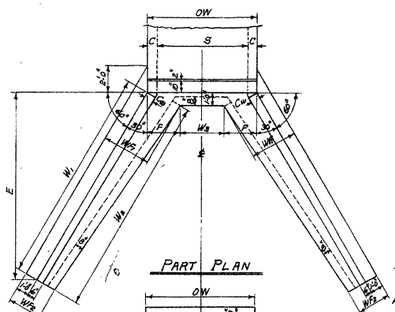
$W_3 = (OW - 2F)$

CLEAR SPAN	CLEAR HEIGHT	F DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W_3	OW	W_3	OW	W_3	OW	W_3	OW	W_3
4'	2'	1'-11⅝"	5'-0"	3'-0⅝"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅝"	9'-8"	5'-4⅝"	14'-4"	10'-0⅝"	19'-0"	14'-8⅝"	23'-8"	19'-9⅝"
	6'	5'-0⅝"	5'-2"	0'-1½"	9'-11"	4'-10⅛"	14'-8"	9'-7⅛"	19'-5"	14'-1⅛"	24'-2"	19'-7⅛"
5'	3'	2'-8⅜"	6'-0"	3'-3⅜"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅝"	11'-8"	7'-4⅝"	17'-4"	13'-0⅝"	23'-0"	18'-8⅝"	28'-8"	24'-9⅝"
	6'	5'-0⅝"	6'-2"	1'-1½"	11'-11"	6'-10⅛"	17'-8"	12'-7⅛"	23'-5"	18'-1⅛"	29'-2"	24'-7⅛"
	7'	6'-2⅝"	6'-3"	0'-0⅝"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-4⅝"	29'-7"	23'-6⅝"
6'	3'	2'-8⅜"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅜"	13'-8"	9'-4⅝"	20'-4"	16'-0⅝"	27'-0"	22'-8⅝"	33'-8"	29'-9⅝"
	6'	5'-0⅝"	7'-2"	2'-1½"	13'-11"	8'-10⅛"	20'-8"	15'-7⅛"	27'-5"	22'-1⅛"	34'-2"	29'-7⅛"
	7'	6'-2⅝"	7'-3"	1'-0⅝"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-9"	21'-4⅝"	34'-7"	28'-6⅝"
	8'	7'-1⅝"	7'-3"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-4"	34'-8"	27'-6"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	3'-8⅜"	15'-8"	11'-4⅝"	23'-4"	19'-0⅝"	31'-0"	26'-8⅝"	38'-8"	34'-9⅝"
	6'	5'-0⅝"	8'-2"	3'-1½"	15'-11"	10'-8⅛"	23'-8"	18'-7⅛"	31'-5"	26'-1⅛"	39'-2"	34'-7⅛"
	7'	6'-2⅝"	8'-3"	2'-0⅝"	16'-1"	9'-8⅝"	23'-11"	17'-8⅝"	31'-9"	25'-4⅝"	39'-7"	33'-6⅝"
	8'	7'-1⅝"	8'-3"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-4"	39'-8"	32'-6"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-2"	26'-4"	22'-10"	35'-6"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-8⅜"	17'-11"	13'-7⅛"	26'-8"	22'-0⅛"	35'-5"	31'-1⅛"	44'-2"	39'-10⅛"
	6'	5'-0⅝"	9'-2"	4'-1½"	17'-11"	12'-10⅛"	26'-8"	21'-2⅛"	35'-5"	30'-4⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅝"	9'-3"	3'-0⅝"	18'-1"	11'-10⅝"	26'-11"	20'-0⅝"	35'-9"	29'-4⅝"	44'-7"	38'-0⅝"
	8'	7'-1⅝"	9'-3"	2'-0"	18'-2"	10'-10"	27'-0"	19'-0"	35'-10"	28'-4"	44'-8"	37'-0"
9'	5'	4'-3⅜"	10'-2"	5'-10⅝"	19'-11"	15'-7⅛"	29'-8"	25'-4⅛"	39'-5"	35'-1⅛"	49'-2"	44'-10⅛"
	6'	5'-0⅝"	10'-3"	5'-2⅝"	20'-1"	15'-0⅛"	29'-11"	24'-6⅛"	39'-9"	34'-3⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅝"	10'-3"	4'-0⅝"	20'-1"	13'-10⅝"	29'-11"	23'-4⅝"	39'-9"	33'-1⅝"	49'-7"	43'-0⅝"
	8'	7'-1⅝"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-5"	39'-10"	32'-1"	49'-8"	42'-0"
10'	5'	4'-3⅜"	11'-2"	6'-10⅝"	21'-11"	17'-7⅛"	32'-8"	28'-4⅛"	43'-5"	39'-1⅛"	54'-2"	49'-10⅛"
	6'	5'-0⅝"	11'-3"	6'-2⅝"	22'-1"	17'-0⅛"	32'-11"	27'-10⅛"	43'-9"	38'-5⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅝"	11'-3"	5'-0⅝"	22'-1"	15'-10⅝"	32'-11"	26'-8⅝"	43'-9"	37'-1⅝"	54'-7"	48'-0⅝"
	8'	7'-1⅝"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-1"	54'-8"	47'-0"
11'	6'	5'-0⅝"	12'-4"	7'-3⅝"	24'-2"	19'-1⅛"	36'-0"	30'-11⅛"	47'-10"	42'-9⅛"		
	7'	6'-2⅝"	12'-4"	6'-1⅝"	24'-2"	17'-11⅝"	36'-0"	29'-5⅝"	47'-10"	41'-2⅝"		
	8'	7'-1⅝"	12'-5"	5'-0"	24'-3"	16'-10"	36'-0"	28'-5"	47'-10"	40'-1"		
12'	6'	5'-0⅝"	13'-0"	8'-3⅝"	26'-5"	21'-1⅛"	39'-0"	33'-11⅛"	51'-10"	46'-9⅛"		
	7'	6'-2⅝"	13'-0"	7'-1⅝"	26'-2"	19'-11⅝"	39'-0"	32'-5⅝"	51'-10"	45'-1⅝"		
	8'	7'-1⅝"	13'-0"	6'-0"	26'-2"	18'-10"	39'-0"	31'-5"	51'-10"	44'-1"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL & TOEWALL	THICKNESS OF WING FOOTING	REINFORCING - STEEL FOR 4 WINGS ⊛	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS AND APRONS					
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT	
S	H	C_W	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
4'	2'	6"	7"	108.0	4.50	5.46	6.42	7.38	8.34	
	3'	6"	7"	164.9	6.26	7.21	8.17	9.13	10.09	
	4'	6"	7"	254.6	8.33	9.28	10.24	11.20	12.16	
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56	
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49	
5'	3'	6"	7"	164.9	6.47	7.63	8.79	9.96	11.12	
	4'	6"	7"	254.6	8.54	9.70	10.87	12.03	13.20	
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59	
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.52	
	7'	7½"	8½"	1139.6	18.94	20.16	21.37	22.59	23.80	
6'	3'	6"	7"	164.9	6.68	8.06	9.42	10.80	12.18	
	4'	6"	7"	254.6	8.75	10.14	11.49	12.87	14.25	
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65	
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59	
	7'	7½"	8½"	1139.6	19.15	20.58	22.00	23.43	24.86	
	8'	8"	9"	1425.6	25.09	25.83	26.96	28.39	29.83	
7'	4'	6"	7"	254.6	8.97	10.58	12.15	13.76	15.35	
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75	
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66	
	7'	7½"	8½"	1139.6	19.38	21.08	22.69	24.28	25.92	
	8'	8"	9"	1425.6	24.82	25.97	27.60	29.25	30.89	
8'	4'	6"	7"	254.6	9.19	11.03	12.82	14.65	16.45	
	5'	7"	7"	357.8	12.08	13.89	15.70	17.55	19.36	
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75	
	7'	7½"	8½"	1139.6	19.59	21.46	23.30	25.16	26.99	
	8'	8"	9"	1425.6	24.54	26.97	28.24	30.11	31.96	
9'	5'	7"	7"	357.8	12.26	14.39	16.37	18.45	20.47	
	6'	7½"	8"	583.1	15.94	18.04	20.09	22.19	24.23	
	7'	7½"	8½"	1139.6	19.81	21.91	23.96	26.06	28.10	
	8'	8"	9"	1425.6	24.76	26.86	28.91	31.00	33.05	
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.26	21.52	
	6'	7½"	8"	583.1	16.17	18.50	20.77	22.99	25.28	
	7'	7½"	8½"	1139.6	20.09	22.37	24.64	26.87	29.15	
	8'	8"	9"	1425.6	24.98	27.31	29.58	31.81	34.10	
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23		
	7'	8"	8½"	1139.6	20.64	23.22	25.71	28.18		
	8'	8"	9"	1425.6	25.19	27.77	30.27	32.74		
12'	6'	8"	8"	583.1	16.92	19.75	22.95	25.18		
	7'	8"	8½"	1139.6	20.87	23.69	26.90	29.13		
	8'	8"	9"	1425.6	25.42	28.25	30.96	33.69		

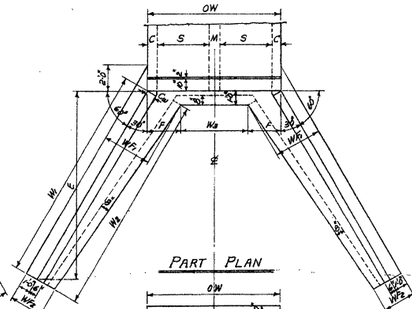
⊛ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

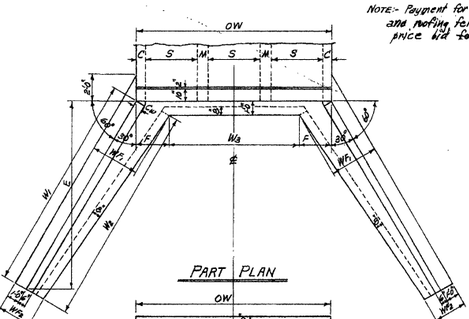
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

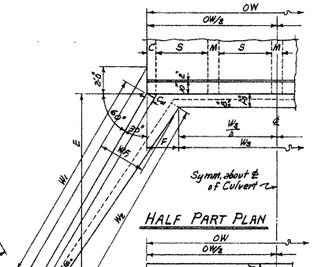


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

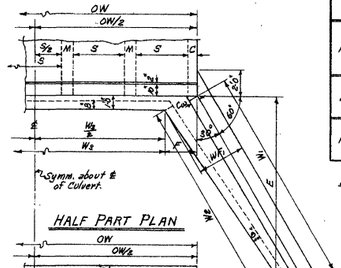
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

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

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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

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

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/4

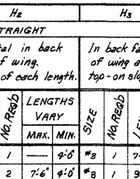
Reinforcing Steel 20,000#/4

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F_1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length.							F_{12} BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars.					F_5 STRAIGHT: Longitudinal in top of wing footing heel.			F_6 STRAIGHT: Longitudinal in bottom of wing footing toe.			H_1 STRAIGHT: Horizontal in back face of wing.			H_2 STRAIGHT: Horizontal in back face of wing. One bar of each length.					H_3 STRAIGHT: In back face of wing at top-on slope.			H_4 BENT: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
H	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.	
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	3'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	——	4'-6"	#3	1	7'-9"	#3	12"	2	2'-8"	1'-9"	27.0	
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	3	13'-6"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	3'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-2"	3'-3"	#3	1	19'-6"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-5"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-8"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4	



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

Designed By:- W.C.H. 8-20-62 Checked By:- RHS:- 1-9-63
Drawn By:- W.C.H. 12-4-62 Checked By:- RHS:- 1-31-63
Quantities By:- W.C.H. 12-14-62 Re-Checked By:- RHS:- 2-23-63

QUANTITIES

⊛ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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

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

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/4

Reinforcing Steel 20,000#/4

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

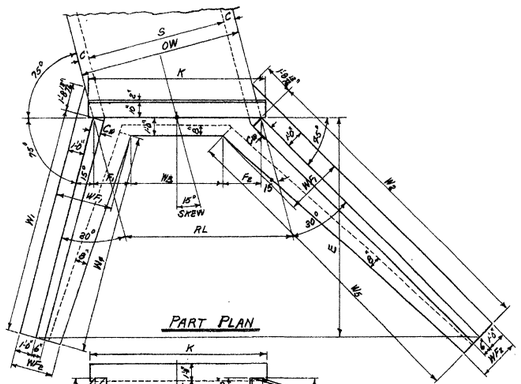
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

Revised 3-5-93

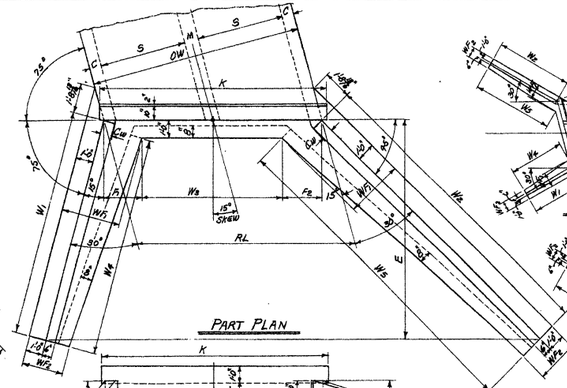
172

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



SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

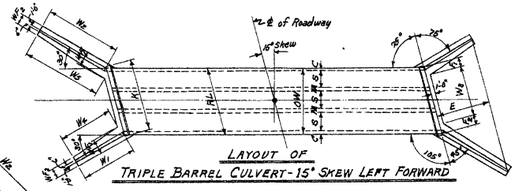
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.



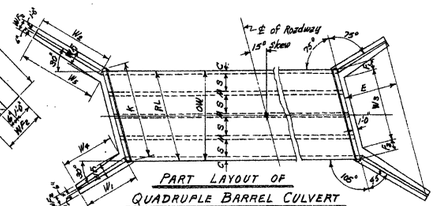
DOUBLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

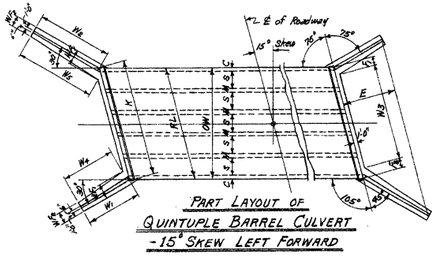
NOTE:- Plans and Elevations are not to scale.



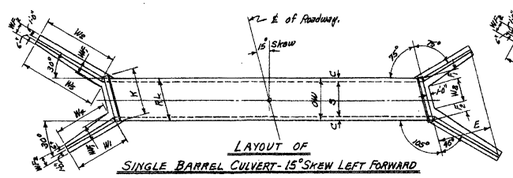
LAYOUT OF TRIPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



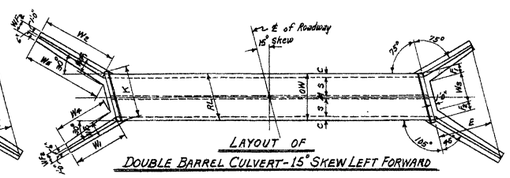
PART LAYOUT OF QUADRUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



PART LAYOUT OF QUINTUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD

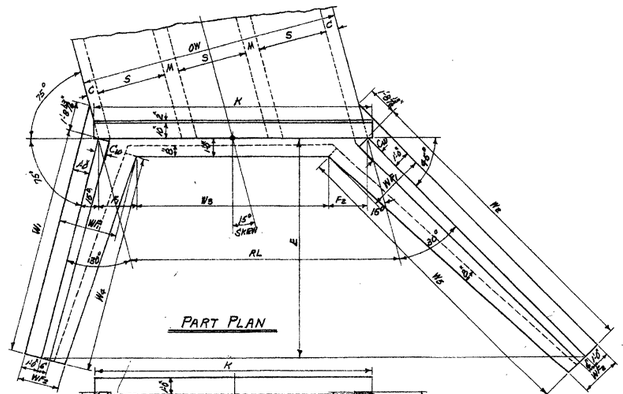


LAYOUT OF SINGLE BARREL CULVERT - 15° SKEW LEFT FORWARD



LAYOUT OF DOUBLE BARREL CULVERT - 15° SKEW LEFT FORWARD

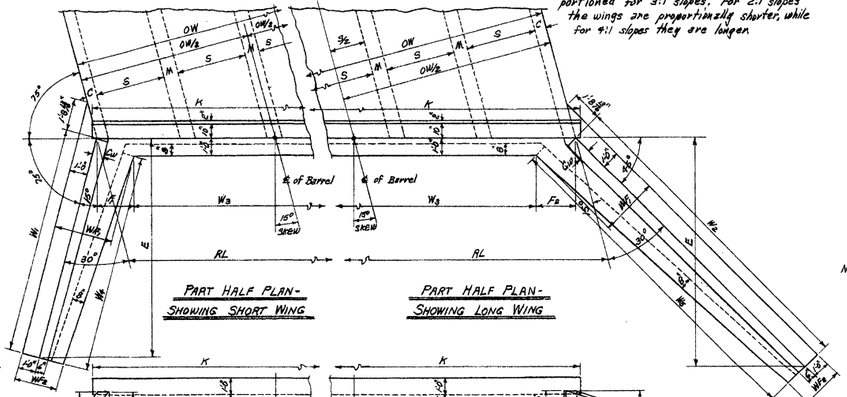
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.

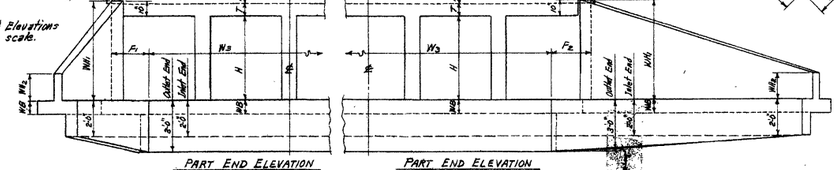


TRIPLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at top center of sheet.

NOTE:- Plans and Elevations are not to scale.





QUADRUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

RL = OW × 1.035276 — K = RL + (6.5 tan 15°) — W_3 = RL − (F_1 + F_2)

USE WITH DRAWING NO.	CLEAR SPAN S	CLEAR RISE H	SUMP OR FOOTING DIMENSIONS F_1 & F_2	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W_3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W_3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W_3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W_3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W_3
W-X152-1, W-X153-1 or W-X154-1. (FOR H = 8'-0" OR LESS)	4'	2'-0"	2'-0"	5'-0"	5'-2⅝"	5'-8⅝"	3'-2⅝"	9'-6"	14'-0"	16'-6⅝"	8'-0"	14'-4"	14'-10"	15'-4½"	12'-10"	19'-0"	19'-6"	20'-2½"	17'-8"	23'-8"	24'-4"	25'-0½"	22'-6"
		2½'	2'-6"	5'-0"	"	"	2'-7⅝"	9'-6"	"	"	7⅝"	14'-4"	"	"	12'-0⅝"	19'-0"	"	"	16'-10⅛"	23'-8"	"	"	20'-10⅝"
		3'	3'-7⅝"	5'-0"	"	"	1'-6⅝"	9'-6"	"	"	6'-4⅝"	14'-4"	"	"	11'-2⅝"	19'-0"	"	"	14'-4⅛"	23'-8"	"	"	20'-10⅝"
		4'	4'-7⅝"	5'-0"	"	"	0'-5⅝"	9'-6"	"	"	5'-4⅝"	14'-4"	"	"	10'-4⅝"	19'-0"	"	"	15'-2⅝"	23'-8"	"	"	20'-0⅝"
		5'	5'-7⅝"	5'-0"	"	"	0'-1"	9'-11"	10'-5⅝"	10'-9⅝"	5'-0"	14'-8"	15'-2⅝"	15'-8⅝"	9'-11"	19'-5"	20'-1⅛"	20'-7⅝"	14'-10"	24'-2"	25'-0⅛"	25'-6½"	19'-9"
	5'	3'	2'-9⅝"	6'-0"	6'-2⅝"	6'-9"	3'-9⅝"	11'-8"	12'-1"	12'-10⅝"	9'-3⅝"	17'-4"	17'-11⅜"	18'-5⅜"	15'-1⅝"	23'-0"	23'-8⅜"	24'-4⅝"	21'-0"	28'-8"	29'-8⅜"	30'-8⅛"	26'-10⅝"
		4'	3'-7⅝"	6'-0"	"	"	2'-7"	11'-8"	"	"	8'-5⅜"	17'-4"	"	"	14'-3⅜"	23'-0"	"	"	20'-2⅛"	28'-8"	"	"	26'-0⅝"
		5'	4'-5⅞"	6'-0"	"	"	1'-9⅝"	11'-8"	"	"	7'-7⅝"	17'-4"	"	"	13'-6"	23'-0"	"	"	19'-4⅛"	28'-8"	"	"	25'-2⅝"
		6'	5'-3⅝"	6'-2"	6'-6⅛"	6'-11⅛"	1'-1⅝"	11'-11"	12'-5"	12'-10⅝"	7'-10⅝"	17'-8"	18'-3½"	18'-10"	13'-10⅝"	23'-5"	24'-0⅜"	24'-7⅝"	18'-4⅝"	28'-8"	30'-2⅜"	30'-8½"	24'-11⅝"
		7'	6'-3⅝"	6'-3⅝"	6'-5⅝"	7'-0⅛"	Ⓐ 0'	12'-1"	12'-6⅝"	13'-0⅛"	6'-0⅛"	17'-11"	18'-6⅝"	19'-1"	18'-0⅝"	23'-8"	24'-3"	25'-1⅛"	18'-11⅛"	28'-7"	30'-7½"	31'-2"	24'-7⅛"
	6'	3'	2'-9⅝"	7'-0"	7'-1⅝"	7'-3½"	4'-3⅝"	13'-8"	14'-1⅞"	14'-8⅝"	11'-4"	20'-4"	21'-0⅝"	21'-7"	18'-2⅝"	27'-0"	27'-8⅜"	28'-5⅛"	25'-1⅜"	33'-8"	34'-4⅛"	35'-4½"	32'-0⅛"
		4'	3'-7⅝"	7'-0"	"	"	3'-7⅝"	13'-8"	"	"	10'-6⅝"	20'-4"	"	"	17'-5"	27'-0"	"	"	24'-3⅜"	33'-8"	"	"	31'-2⅝"
		5'	4'-5⅞"	7'-0"	"	"	2'-9⅝"	13'-8"	"	"	9'-8⅝"	20'-4"	"	"	16'-7⅜"	27'-0"	"	"	23'-4"	33'-8"	"	"	30'-2⅝"
		6'	5'-3⅝"	7'-2"	7'-7⅛"	8'-0⅛"	2'-1⅝"	13'-11"	14'-5"	14'-10⅝"	9'-1⅝"	20'-8"	21'-4⅝"	21'-11⅝"	16'-1⅝"	27'-5"	28'-1⅝"	28'-10"	23'-1⅝"	34'-2"	35'-1⅛"	35'-7"	30'-1⅛"
		7'	6'-3⅝"	7'-3"	7'-8"	8'-0⅝"	1'-0⅝"	14'-1"	14'-7"	15'-1⅝"	8'-1⅛"	20'-11"	21'-7⅛"	22'-3⅝"	15'-2"	27'-9"	28'-5⅝"	29'-3⅜"	22'-3"	34'-7"	35'-6⅜"	36'-0"	29'-3⅝"
		8'	7'-3⅝"	7'-5"	7'-7⅛"	8'-1⅝"	Ⓐ 0'	14'-2"	14'-8"	15'-2⅝"	6'-11⅝"	21'-0"	21'-8⅝"	22'-3⅝"	14'-0⅝"	27'-10"	28'-5⅝"	29'-0⅝"	21'-1⅛"	34'-8"	35'-6⅛"	36'-5"	28'-2"
	8'	4'	3'-7⅝"	9'-0"	8'-3⅝"	8'-9⅝"	4'-7⅝"	15'-8"	16'-2⅜"	16'-9"	12'-7"	23'-0"	24'-1⅜"	24'-9⅜"	20'-6⅛"	31'-0"	32'-1⅛"	32'-7⅝"	28'-5"	38'-6"	40'-0⅜"	40'-6⅝"	36'-9⅛"
		5'	4'-5⅞"	8'-0"	"	"	3'-1⅝"	15'-8"	"	"	11'-3⅛"	23'-1"	"	"	19'-8½"	31'-0"	"	"	27'-1⅞"	38'-6"	"	"	35'-7"
		6'	5'-3⅝"	8'-2"	8'-5⅝"	9'-0"	3'-2⅝"	15'-11"	16'-5⅝"	17'-0⅛"	11'-2⅝"	23'-6"	24'-4"	25'-0⅛"	19'-2⅝"	31'-5"	32'-6⅝"	33'-0⅛"	27'-3"	39'-0"	40'-6"	41'-1"	35'-3⅝"
		7'	6'-3⅝"	8'-3"	8'-6⅝"	9'-1"	2'-1⅝"	16'-1"	16'-7⅛"	17'-2⅝"	10'-1"	23'-11"	24'-9⅜"	25'-5⅜"	18'-3⅛"	31'-10"	32'-11⅝"	33'-6"	25'-9"	39'-5"	40'-11⅝"	41'-7"	35'-0⅝"
		8'	7'-3⅝"	8'-4"	8'-7⅛"	9'-2"	0'-1"	16'-2"	16'-8⅜"	17'-3⅝"	9'-0⅛"	24'-0"	24'-10⅝"	25'-6½"	17'-1⅛"	32'-0"	33'-0⅝"	33'-7⅛"	24'-3"	39'-10"	41'-2⅝"	41'-8"	34'-8⅛"
	9'	4'	3'-7⅝"	9'-0"	9'-3⅝"	9'-10⅝"	5'-0⅝"	17'-8"	18'-2⅝"	18'-10"	14'-0"	26'-0"	27'-0⅜"	27'-8⅜"	23'-7⅛"	35'-0"	36'-0⅜"	36'-8⅛"	32'-7⅛"	43'-8"	45'-2⅝"	45'-9"	41'-3⅛"
		5'	4'-5⅞"	9'-2"	9'-5⅝"	10'-0⅝"	5'-0⅝"	17'-11"	18'-6⅝"	19'-1"	14'-1⅛"	26'-8"	27'-7⅛"	28'-1⅜"	23'-8"	35'-5"	36'-5"	37'-0⅝"	32'-8"	43'-8"	45'-3⅛"	46'-0⅜"	41'-3⅝"
		6'	5'-3⅝"	9'-8"	"	"	4'-2⅝"	17'-11"	"	"	13'-3⅝"	26'-8"	"	"	22'-6"	35'-5"	"	"	31'-5⅛"	43'-8"	"	"	40'-5½"
		7'	6'-3⅝"	9'-9"	9'-11⅝"	10'-4⅝"	3'-1⅝"	18'-1"	18'-8⅜"	19'-3⅝"	12'-2⅝"	26'-11"	27'-10⅜"	28'-5⅝"	21'-5½"	35'-10"	36'-10⅝"	37'-5⅛"	30'-6½"	43'-8"	45'-3⅝"	46'-0⅞"	39'-8⅝"
		8'	7'-3⅝"	9'-9"	9'-10⅝"	10'-5⅛"	2'-1⅝"	18'-2"	18'-9⅝"	19'-4⅝"	11'-1⅝"	27'-0"	27'-11⅝"	28'-5⅝"	20'-3⅝"	35'-10"	37'-0⅛"	37'-7⅛"	29'-7⅝"	43'-8"	45'-4⅜"	46'-2⅛"	38'-6⅝"
	10'	5'	4'-5⅞"	10'-2"	10'-4½"	11'-0⅜"	6'-1"	19'-11"	20'-7½"	21'-2"	16'-0"	29'-8"	30'-8⅝"	31'-2"	26'-3⅝"	39'-8"	40'-9⅜"	41'-4⅝"	36'-4½"	49'-2"	50'-10⅛"	51'-5⅝"	46'-5⅛"
		6'	5'-3⅝"	10'-3"	10'-7⅛"	11'-1⅝"	5'-1⅝"	20'-1"	20'-9⅝"	21'-4"	15'-4⅝"	29'-11"	30'-11⅝"	31'-6"	25'-8⅝"	39'-11"	41'-0⅛"	41'-6"	35'-10⅝"	49'-3"	50'-11⅝"	51'-6⅝"	46'-6⅝"
		7'	6'-3⅝"	10'-5"	"	"	4'-1⅝"	20'-1"	"	"	14'-5⅝"	29'-11"	"	"	24'-8"	39'-11"	"	"	34'-8"	49'-3"	"	"	44'-1⅝"
		8'	7'-3⅝"	10'-6"	10'-8⅝"	11'-2⅝"	3'-1⅝"	20'-2"	20'-8⅝"	21'-5"	13'-6"	30'-0"	31'-0⅝"	31'-7⅛"	23'-9⅝"	39'-10"	41'-0⅝"	41'-7⅝"	33'-6⅛"	49'-3"	51'-0"	51'-7½"	43'-8½"
	11'	5'	4'-5⅞"	10'-11"	11'-1"	11'-7⅜"	6'-1"	20'-8"	21'-4"	21'-10⅝"	16'-8"	30'-5"	31'-5⅜"	32'-0"	26'-10⅝"	40'-5"	41'-6⅛"	42'-1⅝"	36'-11"	50'-0"	51'-8"	52'-3"	47'-2"
		6'	5'-3⅝"	11'-0"	11'-2⅝"	11'-8⅝"	5'-1⅝"	20'-9"	21'-5⅝"	22'-0⅝"	16'-0"	30'-6"	31'-6⅝"	32'-1⅛"	26'-11⅝"	40'-6"	41'-7⅛"	42'-2⅝"	37'-0"	50'-1"	51'-9"	52'-4"	47'-2⅝"
		7'	6'-3⅝"	11'-0"	"	"	4'-1⅝"	21'-0"	"	"	15'-0⅝"	30'-6"	"	"	25'-9⅝"	40'-6"	"	"	35'-9"	50'-1"	"	"	45'-2⅛"
		8'	7'-3⅝"	11'-1"	11'-3⅝"	11'-9"	3'-1⅝"	21'-1"	21'-7⅝"	22'-2⅝"	14'-1⅝"	30'-7"	31'-7⅛"	32'-2⅝"	24'-10⅝"	40'-6"	41'-7⅝"	42'-3⅛"	34'-8"	50'-2"	51'-9"	52'-4"	47'-3⅛"
	12'	6'	5'-3⅝"	11'-9"	11'-11⅝"	12'-5⅝"	5'-1⅝"	21'-8"	22'-3⅝"	22'-10⅛"	16'-4"	31'-0"	32'-0⅝"	32'-7"	27'-0"	41'-0"	42'-1⅛"	42'-8"	37'-0"	50'-8"	52'-3"	52'-10"	47'-8"
		7'	6'-3⅝"	11'-9"	"	"	4'-1⅝"	21'-8"	"	"	15'-0⅝"	31'-0"	"	"	25'-9⅝"	41'-0"	"	"	35'-9"	50'-8"	"	"	45'-8"
		8'	7'-3⅝"	11'-10"	12'-0"	12'-6⅝"	3'-1⅝"	21'-9"	22'-4⅝"	22'-11⅝"	14'-2⅝"	31'-1"	32'-1⅛"	32'-8⅝"	24'-11⅝"	41'-0"	42'-1⅛"	42'-8"	34'-8"	50'-9"	52'-4"	52'-11"	47'-8⅝"
(FOR H = 9'-0" & OVER) W-X152-2, W-X153-2 or W-X154-2.	7'	9'	8'-11⅛"	8'-6"	8'-9⅜"	9'-1⅛"	Ⓐ 0'	16'-5"	17'-1"	17'-7½"	8'-0⅝"	24'-9"	25'-5⅝"	25'-9⅝"	16'-3"	32'-8"	33'-5⅝"	33'-11"	24'-5⅜"	41'-0"	41'-7"	42'-1⅛"	32'-7⅝"
	8'	9'	8'-11⅛"	9'-6"	9'-10"	10'-2⅝"	0'-10⅜"	16'-5"	19'-0⅛"	19'-7⅝"	10'-1⅝"	27'-9"	28'-3⅜"	28'-10"	19'-9⅛"	36'-9"	37'-6⅜"	38'-0⅛"	28'-7"	45'-2"	46'-0⅝"	46'-7⅛"	37'-3⅝"
		10'	10'-2"	9'-8"	10'-0⅝"	10'-5⅝"	Ⓐ 0'	18'-8"	19'-3⅝"	19'-10⅝"	9'-2"	27'-8"	28'-3⅝"	28'-9⅝"	18'-5⅜"	36'-8"	37'-6"	38'-1⅛"	27'-3⅝"	45'-2"	46'-0⅝"	46'-7⅛"	37'-1⅝"
	9'	8'	8'-11⅛"	10'-6"	10'-10⅜"	11'-3"	1'-11⅛"	20'-5"	21'-1⅜"	21'-8⅜"	12'-2⅜"	30'-4"	31'-4⅝"	31'-11⅛"	22'-5½"	40'-3"	41'-4⅛"	42'-2½"	32'-8⅜"	50'-8"	51'-11⅛"	52'-5½"	43'-0"
		10'	10'-2"	10'-8"	11'-0⅜"	11'-5"	0'-10⅜"	20'-8"	21'-4⅜"	21'-11⅜"	11'-2⅜"	30'-8"	31'-8"	32'-3½"	21'-7"	40'-8"	41'-8⅛"	42'-7½"	32'-1⅛"	50'-8"	52'-0⅝"	53'-0"	42'-3½"
		11'	11'-0⅝"	10'-10"	11'-2⅝"	11'-9"	Ⓐ 0'	20'-10"	21'-6⅜"	22'-1⅝"	10'-2⅜"	30'-10"	31'-11"	32'-5⅞"	20'-9⅛"	40'-10"	42'-0⅛"	42'-10⅝"	30'-10⅝"	50'-10"	52'-2⅝"	53'-3"	41'-2⅝"
	10'	9'	8'-11⅛"	11'-6"	11'-10⅜"	12'-2⅝"	2'-11⅝"	22'-5"	23'-1⅜"	23'-8⅜"	14'-3⅜"	33'-0"	34'-1⅛"	35'-0"	25'-4⅝"	44'-0"	45'-2⅝"	46'-0⅛"	34'-10⅝"	55'-2"	57'-1⅜"	58'-2"	46'-2"
		10'	10'-2"	11'-8"	12'-1"	12'-7⅝"	1'-11"	22'-8"	23'-5⅛"	24'-0"	14'-5"	33'-8"	34'-8⅛"	35'-6⅝"	25'-9⅝"	44'-8"	45'-10⅝"	46'-8⅜"	35'-4"	55'-8"	57'-7⅝"	58'-8"	46'-7⅝"
		11'	11'-0⅝"	11'-10"	12'-3"	12'-9⅝"	0'-10⅜"	22'-10"	23'-7⅛"	24'-2"	12'-5"	33'-10"	34'-10⅝"	35'-8⅜"	23'-7⅜"	44'-10"	46'-0⅝"	46'-10⅛"	35'-10⅛"	55'-10"	57'-10⅜"	58'-11"	46'-5"
		12'	10'-7⅜"	12'-0"	12'-5⅛"	12'-11⅝"	Ⓐ 0'	23'-0"	23'-9⅜"	24'-4⅝"	10'-2⅜"	34'-0"	35'-0⅜"	35'-10⅜"	22'-7"	45'-0"	46'-1⅛"	47'-0"	33'-11⅜"	56'-0"	57'-11⅛"	58'-11"	45'-10⅜"
	11'	9'	8'-11⅛"	12'-6"	12'-10⅜"	13'-3⅛"	3'-11⅝"	24'-5"	25'-1⅜"	25'-8⅜"	16'-3"	35'-0"	36'-1⅛"	37'-0"	27'-4⅝"	46'-0"	47'-2⅝"	48'-0⅛"	36'-10⅝"	57'-2"	59'-1⅜"	60'-2"	47'-10⅜"
		10'	10'-2"	12'-8"	13'-1"	13'-7⅝"	2'-11⅝"	24'-8"	25'-5⅛"	26'-0"	15'-5"	35'-2"	36'-2⅝"	37'-1⅝"	26'-6⅝"	46'-0"	47'-2⅝"	48'-0⅛"	36'-4"	57'-2"	59'-1⅜"	60'-2"	47'-5"
		11'	11'-0⅝"	12'-10"	13'-3"	13'-9⅝"	1'-11⅝"	24'-10"	25'-7⅛"	26'-2"	14'-5"	35'-4"	36'-4⅛"	37'-3"	25'-8⅝"	46'-0"	47'-2⅝"	48'-0⅛"	35'-10⅛"	57'-2"	59'-1⅜"	60'-2"	46'-10⅜"
		12'	10'-7⅜"	13'-0"	13'-5⅛"	13'-11⅝"	0'-10⅜"	25'-0"	25'-9⅜"	26'-4⅝"	13'-5⅜"	35'-6"	36'-5⅜"	37'-3⅜"	24'-10⅜"	46'-0"	47'-2⅝"	48'-0⅛"	35'-4"	57'-2"	59'-1⅜"	60'-2"	46'-4"
	12'	9'	8'-11⅛"	13'-6"	13'-10⅜"	14'-3⅛"	5'-0⅝"	26'-5"	27'-1⅜"	27'-8⅜"	18'-5"	38'-0"	39'-0⅝"	39'-9⅝"	31'-9⅝"	52'-8"	54'-1⅛"	55'-0⅝"	43'-5⅛"	65'-4"	67'-3⅜"	68'-4"	55'-4⅝"
		10'	10'-2"	13'-8"	14'-1"	14'-6⅝"	3'-11⅝"	26'-8"	27'-5⅛"	28'-1⅝"	17'-5⅝"	38'-2"	39'-2⅝"	40'-1⅝"	30'-10⅝"	52'-8"	54'-1⅛"	55'-0⅝"	43'-5⅛"	65'-4"	67'-3⅜"	68'-4"	55'-4⅝"
		11'	11'-0⅝"	13'-10"	14'-3"	14'-9⅝"	2'-11⅝"	26'-10"	27'-7⅛"	28'-3⅝"	16'-6⅝"	38'-4"	39'-4⅝"	40'-3⅝"	29'-10⅝"	52'-8"	54'-1⅛"	55'-0⅝"	43'-5⅛"	65'-4"	67'-3⅜"	68'-4"	55'-4⅝"
		12'	10'-7⅜"	14'-0"	14'-5⅛"	14'-11⅝"	1'-11⅝"	27'-0"	27'-9⅜"	28'-4⅝"	15'-6"	38'-6"	39'-6⅜"	40'-5⅜"	28'-10⅜"	52'-8"	54'-1⅛"	55'-0⅝"	43'-5⅛"	65'-4"	67'-3⅜"	68'-4"	55'-4⅝"

Ⓐ Special case for these boxes, See Detail "A" and Table "A" for revised values of F_1, F_2, W_4 and W_5, when apron width is more than 1'-0" and W_3 = 0". For Details "A" and Tables "A" for each slope, see Drawing Nos. W-X152-1, W-X152-2, or W-X153-1, W-X153-2, or W-X154-1, W-X154-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 15° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X152-1 or W-X152-2	W-X153-1 or W-X153-2	W-X154-1 or W-X154-2.

This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 15° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12 SPANS — 2:1, 3:1 & 4:1 SLOPES

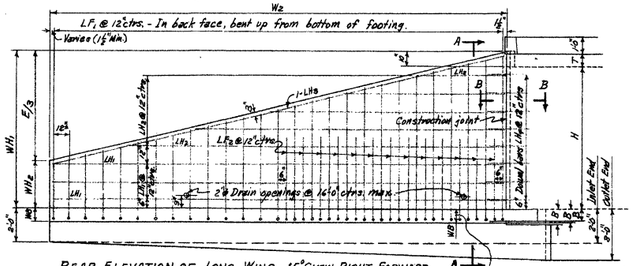
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H = 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12.

STANDARD DRAWING NO. W-X15

Designed by:- W.C.H. 5-22-63 — Checked by:- — Checked by:- J.E.W. 6-20-63
Traced by:- W.C.H. 6-13-63 — Checked by:- — Checked by:-
Quantities by:- — Checked by:- — Checked by:-

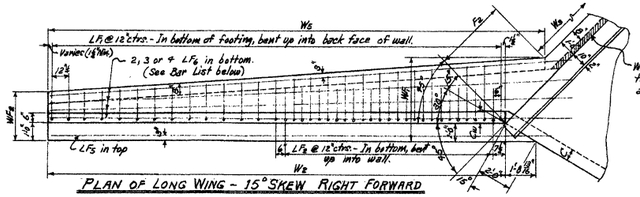
31

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



REAR ELEVATION OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING

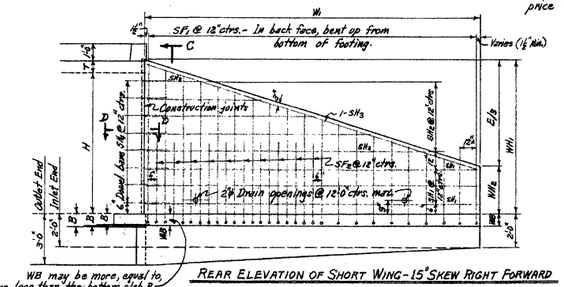
WB may be more, equal to, or less than the bottom slab thickness B.



When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.

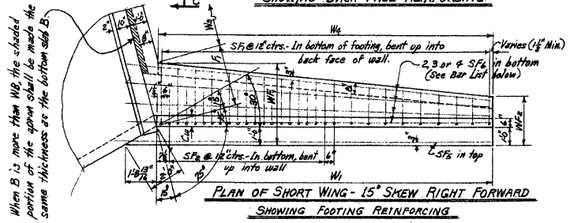
PLAN OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING.

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



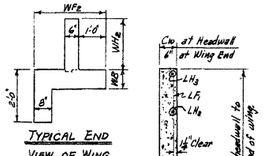
WB may be more, equal to, or less than the bottom slab B.

REAR ELEVATION OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING

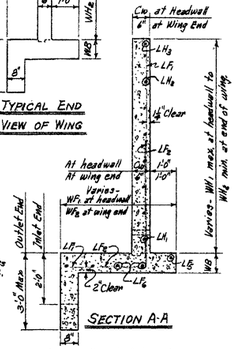


When B is more than WB the shaded portion of the apron shall be made the same thickness as the bottom slab B.

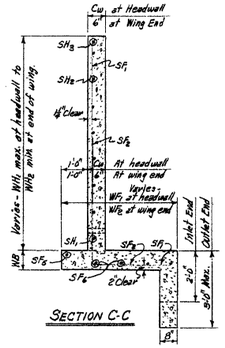
PLAN OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING



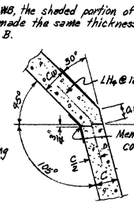
TYPICAL END VIEW OF WING



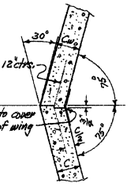
SECTION A-A



SECTION C-C

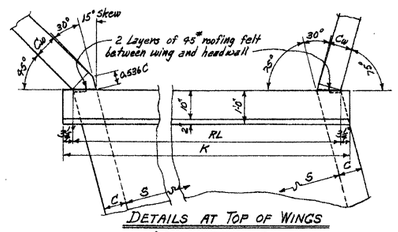


SECTION B-B

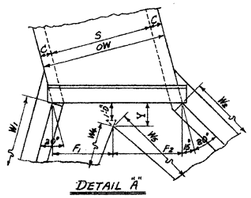


SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

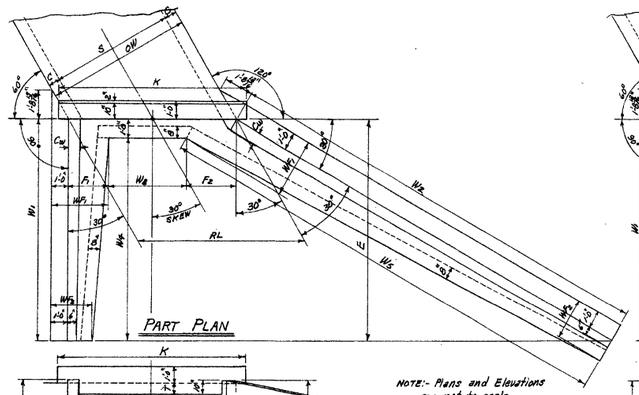


DETAILS AT TOP OF WINGS
15° SKEW RIGHT FORWARD



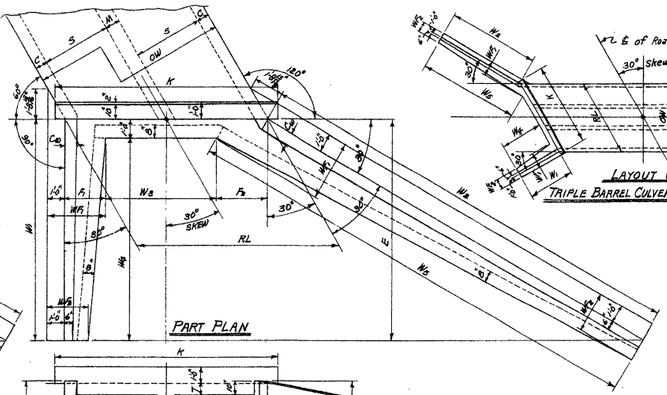
Reshot 3-8-93

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



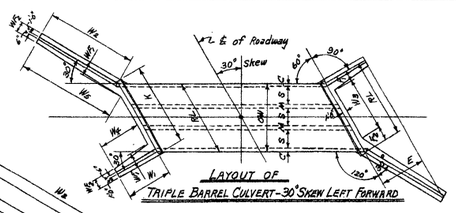
SINGLE BARREL CULVERT-30°SKEW RIGHT FORWARD

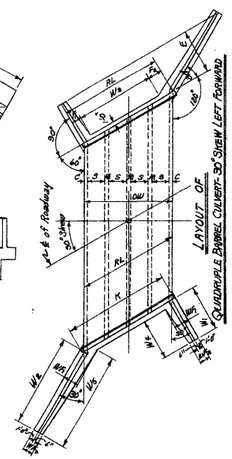
Details of Culvert with 30°Skew Left Forward is reversed, see Layout below.



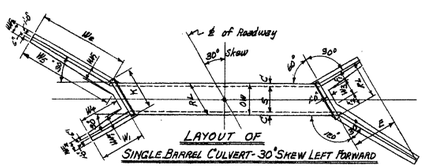
DOUBLE BARREL CULVERT-30°SKEW RIGHT FORWARD

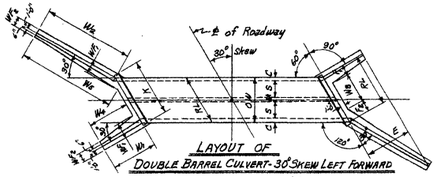
Details of Culvert with 30°Skew Left Forward is reversed, see Layout below.

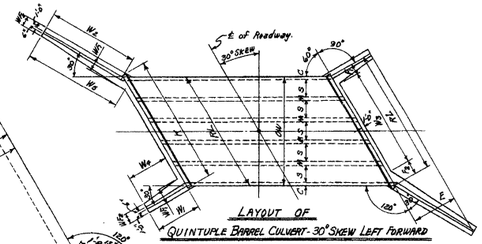


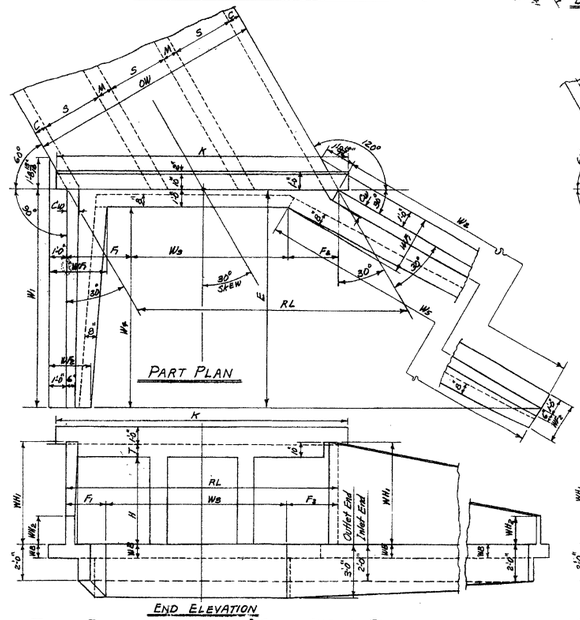


NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



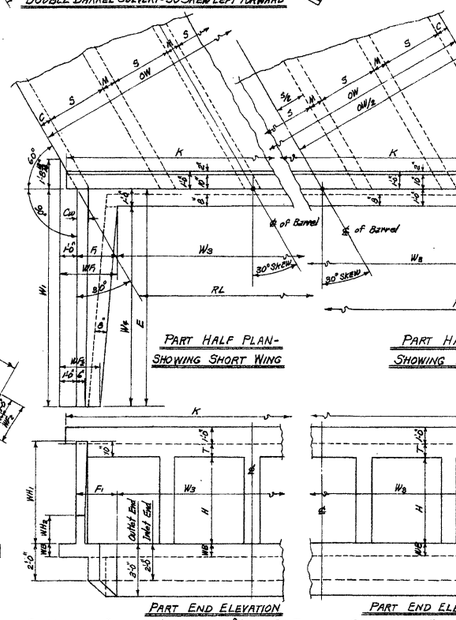






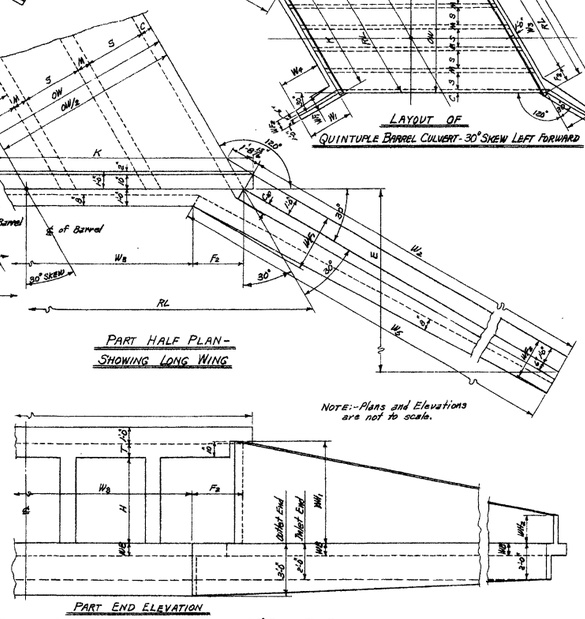
TRIPLE BARREL CULVERT-30°SKEW RIGHT FORWARD

Details of Culvert with 30°Skew Left Forward is reversed, see Layout at top center of sheet.



QUADRUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvert with 30°Skew Left Forward is reversed, see Layout at above center.



QUINTUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvert with 30°Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

$RL = OW \times 1.1547$ — $K = RL + (I' - \frac{I''}{12})$ — $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF FOOTING BOARDS $F_1 \& F_2$	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W_3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W_3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W_3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W_3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W_3
W-X302-1, W-X303-1 or W-X304-1. (FOR H=8'0" OR LESS)	2'	2'-3⅜	5'-0"	5'-3⅛	6'-11⅝	3'-1⅝	9'-8"	11'-2"	12'-3⅜	8'-10⅞	14'-6"	16'-6⅝	17'-8⅝	14'-3⅝	19'-0"	21'-11⅝	23'-1"	19'-8"	23'-8"	27'-4"	28'-5⅜	25'-0⅜
	3'	3'-3⅜	5'-0"	"	"	2'-1⅜	9'-8"	"	"	7'-10⅜	"	"	"	13'-3⅜	"	"	"	18'-8"	23'-8"	"	"	24'-10⅜
	4'	4'-3⅜	5'-0"	"	"	1'-1⅜	9'-8"	"	"	12'-10⅜	"	"	"	17'-11⅜	"	"	"	23'-8"	23'-8"	"	"	23'-10⅜
	5'	5'-3⅜	5'-0"	5'-3⅛	6'-11⅝	0'-1⅜	9'-8"	11'-2"	12'-3⅜	5'-10⅜	14'-6"	16'-6⅝	17'-8⅝	11'-3⅜	19'-0"	21'-11⅝	23'-1"	16'-8"	23'-8"	27'-4"	28'-5⅜	22'-0⅜
	6'	6'-3⅜	5'-2"	5'-1⅝	7'-1⅞	Ⓐ 0°	9'-11"	11'-5⅛	12'-7⅜	5'-2⅜	14'-8"	16'-11⅛	18'-1"	10'-1⅜	19'-5"	22'-5"	23'-7"	16'-3⅜	24'-2"	27'-10⅜	29'-0⅜	21'-7⅜
	3'	3'-3⅜	6'-0"	6'-11⅝	8'-1"	3'-7⅜	11'-8"	13'-5⅜	14'-7⅝	10'-2⅜	17'-4"	20'-0⅛	21'-2"	16'-9"	23'-0"	26'-6⅜	27'-8⅝	23'-3⅜	28'-8"	33'-1⅛	34'-3"	29'-10"
	4'	4'-3⅜	6'-0"	"	"	2'-7⅜	11'-8"	"	"	9'-8⅜	17'-4"	"	"	15'-3"	23'-0"	"	"	28'-8"	"	"	"	28'-10"
	5'	5'-3⅜	6'-0"	6'-11⅝	8'-1"	1'-7⅜	11'-8"	13'-5⅜	14'-7⅝	8'-3⅜	17'-4"	20'-0⅛	21'-2"	14'-9"	23'-0"	26'-6⅜	27'-8⅝	21'-3⅜	28'-8"	33'-1⅛	34'-3"	27'-11⅜
	6'	6'-3⅜	6'-3"	7'-1⅛	8'-8⅜	0'-10⅜	11'-11"	13'-9⅜	14'-11"	7'-5⅜	17'-8"	20'-4⅜	21'-6⅜	14'-1⅝	23'-5"	27'-0⅜	28'-2⅝	20'-9⅜	29'-2"	33'-8⅛	34'-10"	27'-5"
	7'	7'-3⅜	6'-3"	7'-2⅝	8'-4⅝	Ⓐ 0°	12'-1"	13'-11⅝	15'-1⅛	6'-2⅛	17'-11"	20'-8⅜	21'-10"	12'-11"	23'-9"	27'-5⅛	28'-7"	19'-8"	29'-7"	34'-2"	35'-3⅜	26'-9⅜
	3'	3'-3⅜	7'-0"	8'-1"	9'-2⅞	4'-3⅜	13'-8"	15'-3⅜	16'-4⅛	12'-1⅜	20'-0"	23'-1⅝	24'-3⅜	20'-2⅝	27'-0"	31'-2⅝	32'-4"	27'-1"	33'-9"	38'-10⅝	40'-0⅛	35'-0⅝
	4'	4'-3⅜	7'-0"	"	"	3'-3⅜	13'-8"	"	"	11'-4⅝	20'-0"	"	"	19'-2⅝	27'-0"	"	"	26'-1"	33'-8"	"	"	34'-7½"
6'	5'	5'-3⅜	7'-0"	8'-1"	9'-2⅞	2'-3⅜	13'-8"	15'-10⅜	16'-11⅝	10'-6⅜	20'-6"	23'-5⅝	24'-7⅝	18'-5⅜	27'-10"	31'-7⅜	32'-9"	25'-1"	33'-8"	38'-10⅝	40'-0⅛	33'-7½"
	6'	6'-3⅜	7'-8"	8'-7⅜	9'-5⅝	1'-0"	13'-7"	16'-0⅝	17'-2⅝	9'-9⅝	20'-8"	23'-10⅝	25'-0⅝	17'-1⅜	28'-3"	32'-0⅝	33'-2⅝	24'-5"	34'-2"	39'-3⅝	40'-5⅛	33'-2⅛
	7'	7'-3⅜	7'-8"	8'-7⅜	9'-5⅝	0'-1⅜	14'-1"	16'-3⅜	17'-5"	8'-6"	20'-11"	24'-1⅝	25'-3⅜	16'-0⅜	28'-7"	32'-5⅜	33'-8"	23'-9"	34'-7"	39'-8⅜	40'-10⅝	32'-8"
	8'	8'-3⅜	7'-8"	8'-7⅜	9'-7⅞	Ⓐ 0°	14'-2"	16'-7⅛	17'-9⅝	7'-1"	21'-0"	24'-3"	25'-5⅝	14'-10⅜	28'-10"	32'-7⅛	33'-10⅝	22'-10⅜	34'-8"	40'-0⅜	41'-2⅝	30'-9⅜
	4'	4'-3⅜	8'-0"	9'-2⅞	10'-10⅝	4'-1⅜	15'-8"	18'-1⅛	19'-3"	15'-0⅜	23'-4"	26'-10⅝	28'-1⅛	22'-5"	31'-0"	35'-9⅝	36'-11⅛	31'-6"	38'-5"	44'-0⅝	45'-3⅛	40'-4½"
	5'	5'-3⅜	8'-0"	9'-2⅞	10'-10⅝	3'-1⅜	15'-8"	18'-1⅛	19'-3"	12'-9⅜	23'-4"	26'-10⅝	28'-1⅛	21'-8"	31'-0"	35'-9⅝	36'-11⅛	30'-4⅜	38'-5"	44'-0⅝	45'-3⅛	39'-4½"
	6'	6'-3⅜	8'-2"	9'-5⅝	10'-7"	2'-1⅜	15'-11"	18'-3⅛	19'-4⅝	12'-1⅛	23'-8"	27'-1⅛	28'-3⅝	21'-0⅜	31'-3"	35'-11⅝	37'-1⅛	29'-3"	38'-7"	44'-2⅝	45'-5⅛	38'-6½"
7'	7'	7'-3⅜	8'-3"	9'-8⅛	10'-8⅝	1'-0"	16'-1"	18'-5⅛	19'-7⅝	10'-3⅜	23'-11"	27'-3⅛	28'-5⅝	20'-1⅜	31'-5"	36'-1⅛	37'-3⅝	28'-1⅜	38'-9"	44'-4⅛	45'-7⅝	37'-11½"
	8'	8'-3⅜	8'-3"	9'-8⅛	10'-8⅝	0'-0⅜	16'-2"	18'-6"	19'-8⅜	9'-4⅝	24'-0"	27'-5⅛	28'-7⅝	19'-2⅜	31'-7"	36'-3⅛	37'-5⅝	27'-0⅜	38'-10"	44'-5⅛	45'-8⅝	36'-5½"
	4'	4'-3⅜	9'-0"	10'-2⅞	11'-4⅝	4'-1⅜	17'-6"	20'-0⅛	21'-1⅝	16'-1⅜	26'-4"	30'-1⅝	31'-3⅝	24'-1⅜	35'-0"	40'-5"	41'-6⅝	36'-1⅜	43'-8"	50'-5⅝	51'-7"	44'-1⅜
	5'	5'-3⅜	9'-2"	10'-7"	11'-8⅝	3'-1⅜	17'-11"	20'-5⅛	21'-6⅝	13'-5"	26'-8"	30'-5⅛	31'-7⅝	25'-4⅜	35'-5"	40'-10⅝	42'-0⅛	35'-7⅜	44'-2"	51'-0"	52'-1⅜	45'-0⅜
	6'	6'-3⅜	9'-2"	10'-7"	11'-8⅝	2'-1⅜	17'-11"	20'-5⅛	21'-10"	14'-5"	26'-8"	30'-5⅛	31'-11⅝	26'-4⅜	35'-5"	40'-10⅝	42'-0⅛	34'-7⅜	44'-2"	51'-0"	52'-1⅜	44'-10⅜
8'	7'	7'-3⅜	9'-3"	10'-8⅝	11'-10"	1'-1⅜	18'-0"	20'-6⅝	22'-0⅜	13'-1⅝	26'-11"	31'-1"	32'-3⅝	23'-3⅜	35'-7"	41'-3⅛	42'-5⅝	33'-4⅜	44'-7"	51'-5⅛	52'-7⅜	44'-5⅜
	8'	8'-3⅜	9'-4"	10'-9⅛	11'-10"	0'-0⅜	18'-2"	20'-11⅝	22'-4⅛	11'-8⅜	27'-1"	31'-2⅝	32'-4"	21'-11"	35'-10"	41'-7⅛	42'-10⅝	32'-1⅜	44'-8"	51'-7"	52'-10⅜	43'-8⅜
	5'	5'-3⅜	10'-2"	11'-8⅝	12'-10⅜	6'-3⅜	19'-11"	23'-0"	24'-2⅝	17'-0⅜	29'-8"	34'-3⅜	35'-5"	28'-1⅜	39'-5"	45'-4⅝	46'-8"	40'-3"	49'-2"	56'-1⅜	57'-4"	50'-1⅜
	6'	6'-3⅜	10'-3"	11'-10"	13'-0"	5'-2⅜	20'-1"	23'-2⅜	24'-5⅜	16'-1"	29'-11"	34'-6⅜	35'-8⅜	28'-3⅜	39'-7"	45'-6⅛	47'-0⅜	39'-5⅜	49'-7"	56'-6⅛	57'-9"	50'-6⅜
	7'	7'-3⅜	10'-3"	11'-10"	13'-0"	4'-0⅜	20'-1"	23'-2⅜	24'-5⅜	15'-2"	29'-11"	34'-6⅜	35'-8⅜	26'-9⅜	39'-9"	45'-10⅝	47'-0⅜	38'-1⅜	49'-7"	57'-1⅜	58'-5"	49'-5⅜
	8'	8'-3⅜	10'-4"	11'-11⅝	13'-1"	2'-8"	20'-2"	23'-3⅝	24'-5⅝	14'-2⅝	30'-0"	34'-7⅝	35'-9⅝	25'-4⅜	40'-0"	46'-0⅝	47'-1⅛	36'-8⅝	49'-8"	57'-1⅝	58'-4"	48'-1"
	5'	5'-3⅜	11'-2"	12'-10⅜	14'-0⅝	7'-7⅛	21'-10"	25'-3⅜	26'-5⅛	20'-0⅛	32'-8"	37'-6⅝	38'-10⅝	32'-5⅛	43'-5"	50'-1⅜	51'-3⅝	44'-10⅝	54'-2"	62'-4⅛	63'-7⅜	57'-3⅜
	6'	6'-3⅜	11'-3"	12'-11⅝	14'-1⅝	6'-6⅜	22'-1"	25'-4"	26'-7⅜	19'-2⅜	32'-11"	38'-0⅛	39'-2"	31'-0"	43'-9"	50'-6⅛	51'-8"	44'-1⅜	54'-7"	62'-10⅛	64'-0⅜	56'-9"
	7'	7'-3⅜	11'-3"	12'-11⅝	14'-1⅝	5'-5⅜	22'-1"	25'-5⅜	26'-7⅜	17'-10⅜	32'-11"	38'-0⅛	39'-2"	30'-3"	43'-9"	50'-6⅛	51'-8"	42'-9"	54'-7"	63'-0⅛	64'-2⅜	55'-8"
	8'	9'-3⅜	11'-4"	12'-1"	14'-3"	3'-9⅜	22'-2"	25'-7⅛	26'-9"	16'-4"	33'-0"	38'-1⅛	39'-3"	28'-10"	43'-10"	50'-7⅛	51'-9⅜	41'-4⅜	54'-8"	63'-1⅛	64'-3⅜	53'-10⅜
	6'	6'-3⅜	12'-4"	14'-2⅜	15'-6⅜	7'-11⅝	24'-2"	27'-10⅜	29'-0⅜	21'-7⅜	36'-0"	41'-6⅜	42'-8⅜	35'-3⅝	47'-10"	55'-2⅜	56'-4⅝	48'-10⅜	—	—	—	—
	7'	7'-3⅜	12'-5"	"	"	6'-5⅜	24'-3"	"	"	20'-1⅜	36'-0"	"	"	32'-3⅝	47'-10"	"	"	47'-10⅜	—	—	—	—
	8'	9'-3⅜	12'-6"	"	"	4'-11⅝	24'-4"	"	"	18'-10⅜	36'-0"	"	"	32'-3⅝	47'-10"	"	"	45'-10⅜	—	—	—	—
	6'	6'-3⅜	13'-4"	15'-3⅝	16'-6⅛	9'-1⅞	26'-2"	30'-2⅝	31'-4⅝	23'-11⅜	39'-0"	44'-5⅝	45'-8⅛	38'-3⅜	51'-10"	59'-4⅛	60'-6"	53'-0"	—	—	—	—
	7'	7'-3⅜	13'-4"	"	"	7'-7⅜	26'-2"	"	"	22'-5⅜	39'-0"	"	"	37'-3⅜	51'-10"	"	"	50'-0"	—	—	—	—
	8'	9'-3⅜	13'-5"	"	"	6'-1⅞	26'-3"	"	"	20'-11⅜	39'-0"	"	"	35'-9⅜	51'-10"	"	"	50'-0"	—	—	—	—
W-X302-2, W-X303-2 OR W-X304-2. (FOR H=9'0" & OVER)	7'	9'-10⅜	8'-6"	9'-9⅜	10'-11⅜	Ⓐ 0°	16'-5"	18'-11⅛	20'-1⅛	8'-2⅜	26'-0"	28'-7⅛	29'-9"	22'-7⅜	32'-5"	37'-2⅜	38'-4⅝	26'-5⅜	40'-2"	46'-4⅝	47'-6⅜	36'-7⅜
	8'	10'-9⅜	9'-6"	10'-11⅝	12'-1⅝	0'-2⅜	18'-5"	21'-3⅝	22'-5"	10'-6"	27'-9"	31'-4⅝	32'-8⅝	20'-9½	36'-3"	41'-10⅝	43'-0⅛	31'-1"	45'-2"	52'-1⅝	53'-3⅝	41'-9⅝
	10'	12'-3⅜	9'-8"	11'-2"	12'-3⅜	Ⓐ 0°	18'-8"	21'-6⅜	22'-8⅜	9'-3⅜	27'-8"	31'-1⅜	32'-3⅛	19'-8⅜	36'-0"	41'-7⅜	42'-10⅝	30'-0⅜	45'-0"	52'-0⅜	53'-2⅝	40'-5½"
	9'	10'-3⅜	10'-6"	12'-1⅛	13'-3⅜	1'-4⅜	20'-5"	23'-6⅛	24'-8⅛	12'-3⅜	30'-4"	35'-0⅛	36'-2⅛	28'-3"	40'-3"	46'-5⅛	47'-7⅛	35'-8⅜	50'-2"	57'-11⅛	59'-1"	47'-2"
9'	10'	12'-3⅜	10'-8"	12'-3⅛	13'-5⅜	0'-0⅜	20'-6"	23'-7⅛	24'-9⅛	11'-7⅜	30'-5"	35'-1⅛	36'-3⅛	27'-8⅜	40'-4"	46'-6⅛	47'-8⅛	34'-10⅜	50'-3"	58'-0⅛	59'-2⅛	46'-10⅜
	11'	13'-3⅜	10'-10"	12'-4⅝	13'-8"	Ⓐ 0°	20'-10"	24'-0⅝	25'-2⅝	10'-11⅜	30'-10"	35'-7⅛	36'-9"	27'-1⅜	40'-9"	47'-1⅛	48'-3⅝	33'-11⅜	50'-10"	58'-8⅛	59'-10⅝	46'-11⅜
	9'	10'-3⅜	11'-6"	13'-1⅜	14'-5⅜	2'-6⅜	22'-5"	25'-10⅝	27'-0⅝	15'-3⅜	33'-4"	38'-3⅝	39'-7⅝	27'-8⅜	44'-3"	51'-1⅛	52'-3⅝	40'-0⅜	55'-2"	63'-8⅛	64'-10⅝	52'-11⅜
	10'	12'-3⅜	11'-8"	13'-3⅛	14'-7⅝	1'-2⅜	22'-6"	26'-1⅛	27'-3⅛	13'-11⅜	33'-5"	38'-10⅛	40'-0⅛	26'-7⅜	44'-5"	51'-7"	52'-8⅜	39'-3⅜	55'-5"	64'-3⅛	65'-5⅜	52'-10"
10'	11'	13'-3⅜	11'-10"	13'-5"	14'-9⅜	Ⓐ 0°	22'-10"	26'-4⅜	27'-6⅜	12'-7⅜	33'-10"	39'-0⅝	40'-2⅜	25'-5⅜	44'-10"	51'-9⅜	52'-11"	38'-10"	55'-10"	64'-5⅜	65'-7⅝	50'-8½"
	12'	15'-3⅜	12'-0"	13'-10⅜	15'-0⅝	Ⓐ 0°	23'-0"	26'-6⅛	27'-8⅛	11'-3⅜	34'-0"	39'-3⅝	40'-5"	24'-1"	45'-0"	52'-1⅛	53'-3⅝	36'-8½"	56'-0"	64'-8"	65'-10⅜	49'-4⅜"
	9'	10'-3⅜	12'-6"	14'-5⅛	15'-7"	3'-1⅜	24'-5"	28'-2⅜	29'-4⅜	17'-5"	36'-4"	41'-11⅜	43'-1⅜	31'-2⅜	48'-3"	55'-0⅜	56'-2⅝	44'-1⅜	—	—	—	—
	10'	12'-3⅜	12'-8"	14'-7⅞	15'-9⅝	2'-4⅜	24'-6"	28'-3⅝	29'-5⅝	16'-3⅜	36'-5"	42'-0⅝	43'-2⅝	30'-0⅜	48'-4"	55'-1⅛	56'-3⅝	43'-0⅜	—	—	—	—
12'	11'	13'-3⅜	12'-10"	14'-9⅝	15'-11⅝	1'-0⅜	24'-7"	28'-4⅝	29'-6⅝	15'-1"	36'-7"	42'-2⅝	43'-4⅝	28'-10⅜	48'-5"	55'-2⅛	56'-4⅝	41'-11⅜	—	—	—	—
	12'	15'-3⅜	13'-0"	15'-0"	16'-2"	Ⓐ 0°	25'0"	28'-10⅜	30'-0⅜	13'-7⅜	37'-0"	42'-9⅜	43'-11⅜	27'-5⅜	49'-0"	56'-0"	57'-0⅜	41'-3⅜	—	—	—	—
	9'	10'-3⅜	13'-6"	15'-7⅝	16'-9"	4'-9⅜	26'-5"	30'-1⅝	31'-3⅝	19'-0⅜	39'-4"	44'-11⅝	46'-1⅝	34'-7⅜	51'-7"	58'-11⅝	60'-0⅜	47'-5⅜	—	—	—	—
	10'	12'-3⅜	13'-8"	15'-9⅜	16'-11⅜	3'-6⅜	26'-6"	30'-3⅜	31'-5⅜	18'-4⅜	39'-5"	45'-0⅜	46'-2⅜	33'-6⅜	51'-8"	59'-0⅜	60'-1⅜	46'-6⅜	—	—	—	—
12'	11'	13'-3⅜	13'-10"	15'-11⅝	17'-1⅜	2'-2⅜	26'-10"	30'-11⅝	32'-1⅜	17'-2⅜	39'-10"	46'-0"	47'-1⅜	32'-5⅜	52'-1"	61'-0⅛	62'-1⅝	45'-7⅜	—	—	—	—
	12'	15'-3⅜	14'-0"	16'-2"	17'-3⅜	0'-10⅜	27'-0"	31'-2⅝	32'-4⅝	15'-11"	40'-0"	46'-2⅝	47'-4"	30'-11"	53'-0"	61'-2⅝	62'-3⅝	44'-9⅜	—	—	—	—

Ⓐ *Special case for these boxes. See Detail 'A' and Table 'A' for revised values of F_1, F_2, W_2 and W_3, when apron width is more than 1'-0" and W_3=0. For Details 'A' and Tables 'A' for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.*

NOTE:- *This drawing to be used in conjunction with Standard Wing Drawings for 30°Skews for each slope as listed below.*

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X302-1 or W-X302-2	W-X303-1 or W-X303-2	W-X304-1 or W-X304-2.

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

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

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

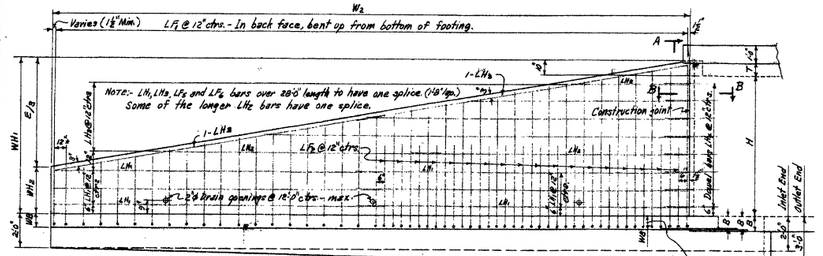
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

STANDARD DRAWING No. W-X30

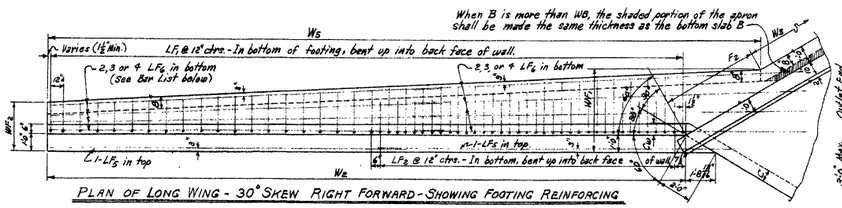
Designed by:- W.C.H. 5-14-63
Drawn by:- W.C.H. 7-15-63
Quantities by:-
Checked by:- TRMS - 8-21-63
Checked by:-
Checked by:-

Reshot 3-8-93

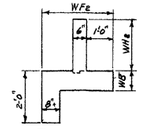
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



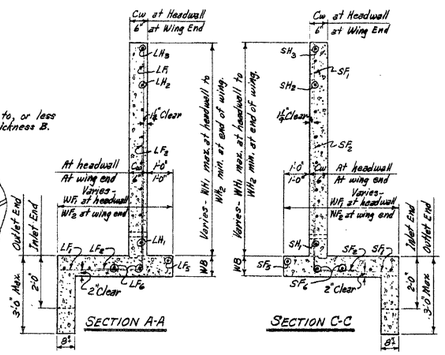
REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

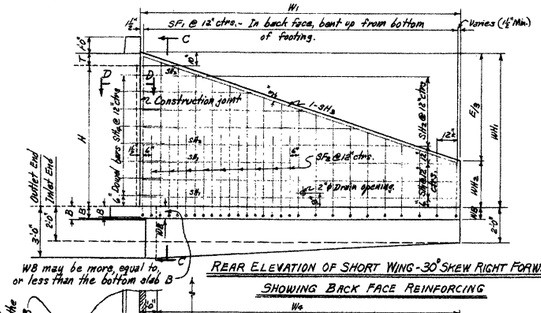


TYPICAL END VIEW OF WING

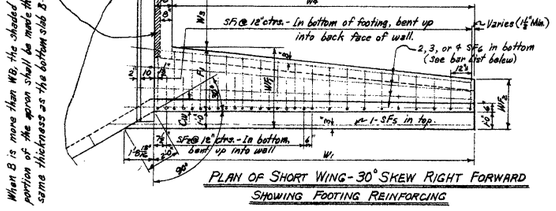


SECTION A-A

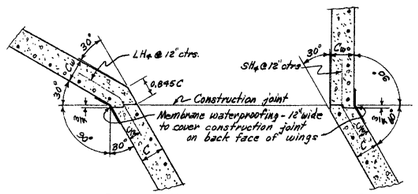
SECTION C-C



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING BACK FACE REINFORCING



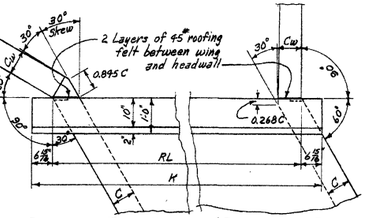
PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



SECTION B-B SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

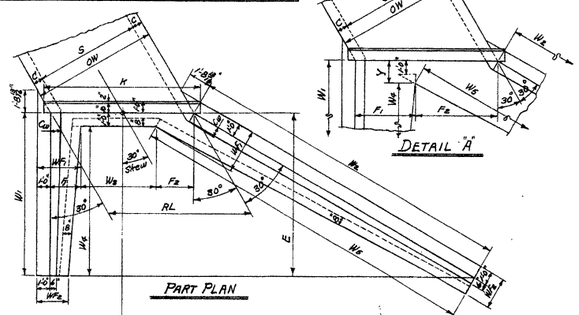
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEAD = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEAD WALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSION SHORT WING	INSIDE FOOTING DIMENSION LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	* QUANTITY PER WING CLASS S CONCRETE INLET END LONG WING	* QUANTITY PER WING CLASS S CONCRETE OUTLET END SHORT WING	* QUANTITY PER WING CLASS S CONCRETE OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	1'-4"	0'-11⅛"	6'-6"	6'-6"	13'-0"	5'-4"	13'-3⅜"	0.752	1.599	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅛"	1'-8"	1'-7⅛"	8'-6"	8'-6"	17'-0"	7'-4"	17'-10⅜"	1.130	2.340	1.239	2.545
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3⅛"	10'-6"	10'-6"	21'-0"	9'-4"	22'-5⅜"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-4"	27'-0⅜"	2.093	4.391	2.252	4.630
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅜"	2.179	4.529	2.337	4.862
* 6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-3⅛"	14'-6"	14'-6"	29'-0"	13'-4"	31'-7⅜"	2.908	6.084	3.092	6.419
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-3⅛"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅜"	2.966	6.197	3.150	6.548
* 7'	8½"	7"	7'-10"	2'-4"	4'-2"	2'-9½"	3'-2"	3'-7⅛"	16'-6"	16'-6"	33'-0"	15'-4"	36'-5⅜"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-4"	4'-2"	2'-7⅛"	3'-2"	4'-7⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.887	8.057	4.095	8.512
* 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7⅛"	18'-6"	18'-6"	37'-0"	17'-4"	41'-4⅜"	4.874	10.097	5.107	10.642

* Quantity per wing does not include headwall or that portion of apron or footwall for the length W_5.
* See Table 'A' for special values of F_1 & F_2 and W_4 & W_5 for Single 4'x6', 5'x7' and 6'x8' Box Culverts.

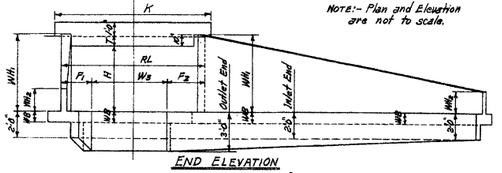
TABLE 'A' - DIMENSIONS FOR DETAIL 'A'

S	H	F1	F2	W3	Y	W4	W5
4'	6'	2'-7⅞"	3'-3⅝"	0"	1'-1⅞"	13'-6⅛"	31'-3⅜"
5'	7'	3'-1⅞"	4'-1"	0"	1'-3⅛"	15'-2⅜"	35'-10⅜"
6'	8'	3'-7⅞"	4'-10⅛"	0"	1'-4⅜"	17'-1⅛"	40'-6"



PART PLAN

DETAIL 'A'



END ELEVATION

NOTE:- Plan and Elevation are not to scale.

SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X.30.

TYPICAL WING DETAILS

NOTE:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X.30. For values of RL, K and W_3 for each box, see above Std. also.

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

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

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	* REINFORCING STEEL FOR 4 WINGS LB.	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS: SINGLE BARREL CULVERT CU.YD.	DOUBLE BARREL CULVERT CU.YD.	TRIPLE BARREL CULVERT CU.YD.	QUADRUPLE BARREL CULVERT CU.YD.	QUINTUPLE BARREL CULVERT CU.YD.
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	141	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.85	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.33	9.67	11.01	12.36	13.70
	4'	6"	7"	327	11.08	12.36	13.71	15.06	16.40
	5'	6"	7"	460	14.14	15.98	16.83	18.17	19.52
	6'	7"	8"	762	19.11	20.90	21.86	23.24	24.62
	7'	7⅛"	8⅛"	1474	24.51	25.94	27.35	28.75	30.16
6'	3'	6"	7"	213	8.77	10.17	11.73	13.33	14.92
	4'	6"	7"	327	11.27	12.84	14.43	16.03	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.15	20.73
	6'	7"	8"	762	19.35	20.98	22.59	24.21	25.83
	7'	7⅛"	8⅛"	1474	24.79	26.64	28.08	29.73	31.38
	8'	8"	9"	1870	31.15	32.87	34.57	36.17	37.88
7'	4'	6"	7"	327	11.52	13.37	15.19	17.06	18.85
	5'	6"	7"	460	14.68	14.99	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.98	23.32	25.20	27.04
	7'	7⅛"	8⅛"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.47	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.46	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.20
	7'	7⅛"	8⅛"	1474	25.80	27.96	29.58	31.78	33.81
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.97	22.87	25.15
	6'	7⅛"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7⅛"	8⅛"	1474	25.55	27.98	30.85	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.42
	6'	7⅛"	8"	762	20.74	23.45	26.07	28.64	31.28
	7'	7⅛"	8⅛"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.54	40.12	42.76
11'	6'	8"	8"	762	21.39	24.38	27.25	30.11	——
	7'	8"	8⅛"	1474	26.55	29.53	32.41	35.27	——
	8'	8"	9"	1870	32.97	35.95	38.83	41.19	——
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	——
	7'	8"	8⅛"	1474	26.81	30.08	33.21	36.36	——
	8'	8"	9"	1870	32.75	35.99	39.13	42.28	——

* For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:- Class S Concrete (n=10) 1200#/s"; Reinforcing Steel 20,000#/s"

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

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

CLEAR HEIGHT	WING LOCATION	SF4 & LF3 BENT: In bottom of Footing, bent up into back face of wing. One bar (or two bars) of each length: SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.
H	SHORT OR LONG									
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-11⅜"	3'-0"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-3"	4'-0"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-0"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	5'-0"
	Long	#3	12"	22	2'-3"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"
6'	Short	#3	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-5"	7'-1"
	Long	#3	12"	30	3'-4"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-3"	2'-10"	2'-9"	8'-1"
	Long	#4	12"	34	3'-9"	10'-8"	1'-3"	2'-8"	2'-7"	8'-1"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"
	Long	#4	12"	38	4'-3"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"

CLEAR HEIGHT	WING LOCATION	SF5 & LF2 BENT: In bottom of Footing, bent up into back face of wing. Alt. with F1 Bars: SIZE	SPACING	NO. REQD	LENGTH	X	Y
H	SHORT OR LONG						
2'	Short	——	——	——	——	——	——
	Long	——	——	——	——	——	——
3'	Short	——	——	——	——	——	——
	Long	——	——	——	——	——	——
4'	Short	——	——	——	——	——	——
	Long	——	——	——	——	——	——
5'	Short	#3	12"	3	3'-6"	1'-1"	2'-6"
	Long	#3	12"	6	3'-6"	1'-1"	2'-6"
6'	Short	#3	12"	3	4'-2"	1'-4"	3'-1"
	Long	#3	12"	6	4'-2"	1'-4"	3'-1"
7'	Short	#3	12"	4	4'-10"	1'-8"	3'-7"
	Long	#3	12"	8	4'-10"	1'-8"	3'-7"
8'	Short	#4	12"	4	5'-6"	1'-10"	4'-1"
	Long	#4	12"	8	5'-6"	1'-10"	4'-1"

CLEAR HEIGHT	WING LOCATION	SF5 & LF4 STRAIGHT: Longitudinal in top of wing footing hdl.: SIZE	NO. REQD	LENGTH	SF6 & LF6 STRAIGHT: Longitudinal in bottom of wing footing toe.: SIZE	NO. REQD	LENGTH
H	SHORT OR LONG						
2'	Short	#3	1	9'-0"	#3	2	8'-0"
	Long	#3	1	13'-6"	#3	2	15'-6"
3'	Short	#3	1	11'-0"	#3	2	10'-6"
	Long	#3	1	19'-6"	#3	2	20'-2"
4'	Short	#3	1	13'-0"	#3	3	12'-0"
	Long	#3	1	23'-6"	#3	3	24'-6"
5'	Short	#3	1	15'-0"	#3	3	14'-0"
	Long	#3	1	27'-6"	#3	3	15'-7"
6'	Short	#3	1	17'-0"	#3	3	16'-0"
	Long	#3	2	16'-8"	#3	6	18'-0"
7'	Short	#4	1	19'-0"	#4	4	18'-0"
	Long	#4	2	18'-8"	#4	8	20'-6"
8'	Short	#4	1	21'-0"	#4	4	20'-0"
	Long	#4	2	20'-8"	#4	8	22'-9"

CLEAR HEIGHT	WING LOCATION	SH1 & LH1 STRAIGHT: Horizontal in back face of wing.: SIZE	SPACING	NO. REQD	LENGTH	SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length.*: SIZE	SPACING	NO. REQD	LENGTH
H	SHORT OR LONG								
2'	Short	#3	12"	1	6'-3"	#3	12"	1	3'-3"
	Long	#3	12"	1	12'-8"	#3	12"	1	——
3'	Short	#3	12"	1	8'-3"	#3	12"	2	6'-1"
	Long	#3	12"	2	20'-2"	#3	12"	2	12'-6"
4'	Short	#3	12"	1	10'-3"	#3	12"	3	9'-8"
	Long	#3	12"	3	20'-6"	#3	12"	3	18'-6"
5'	Short	#3	12"	2	12'-3"	#3	12"	3	9'-3"
	Long	#3	12"	3	24'-6"	#3	12"	3	18'-6"
6'	Short	#3	12"	2	14'-3"	#3	12"	4	12'-3"
	Long	#3	12"	4	15'-2"	#3	12"	4	24'-6"
7'	Short	#4	12"	2	16'-3"	#4	12"	5	15'-3"
	Long	#4	12"	4	17'-2"	#4	12"	5	30'-6"
8'	Short	#4	12"	3	18'-3"	#4	12"	5	18'-3"
	Long	#4	12"	6	19'-2"	#4	12"	5	30'-6"

CLEAR HEIGHT	WING LOCATION	SH3 & LH3 In back face of wing at top - on slope.: SIZE	NO. REQD	LENGTH	SH4 & LH4 Dowels thru construction joint at headwall.: SIZE	SPACING	NO. REQD	LENGTH	X
H	SHORT OR LONG								
2'	Short	#3	1	6'-7"	#3	12"	2	2'-8"	1'-4"
	Long	#3	1	12'-11"	#3	12"	2	"	"
3'	Short	#3	1	8'-8"	#3	12"	3	"	"
	Long	#3	1	14'-11"	#3	12"	3	"	"
4'	Short	#3	1	10'-9"	#3	12"	4	"	"
	Long	#3	1	21'-0"	#3	12"	4	"	"
5'	Short	#3	1	12'-11"	#3	12"	5	"	"
	Long	#3	1	25'-1"	#3	12"	5	"	"
6'	Short	#3	1	15'-0"	#3	12"	6	"	"
	Long	#3	1	29'-2"	#3	12"	6	"	"
7'	Short	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"
	Long	#4	1	33'-4"	#4	12"	7	"	"
8'	Short	#4	1	19'-2"	#4	12"	8	3'-6"	1'-9"
	Long	#4	1	37'-5"	#4	12"	8	"	"

BAR BENDING DIAGRAM: SF1 & SF2, LF1 & LF2 ~3" Pin; SH4 & LH4

NOTE:- Dimensions are to bar centers.

QUANTITY	REINFORCING STEEL PER WING - LBS. SHORT WING	LONG WING
	24.7	45.6
	37.0	69.5
	56.2	102.2
	78.0	152.2
	127.8	253.1
	267.0	493.8
	312.9	622.3

NOTE:- Bars for short wing shall be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'. * Length without splice. Bars over 28'-0 length may be spliced. (1'-8" lap.)

Designed By:- W.C.H. 5-13-63 Checked By:- ——
Drawn By:- W.C.H. 7-26-63 Checked By:- DART 8-13-63
Quantities By:- W.C.H. 1-7-64 Checked By:- —— 7-15-64

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

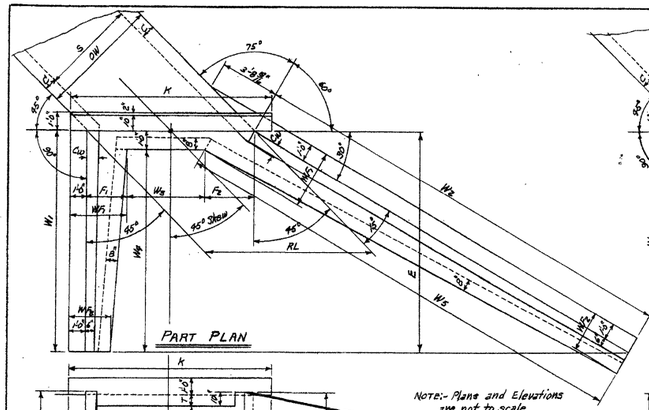
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES.

3:1 SLOPES
ALL DEPTHS OF COVER
FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X303-1

(53)

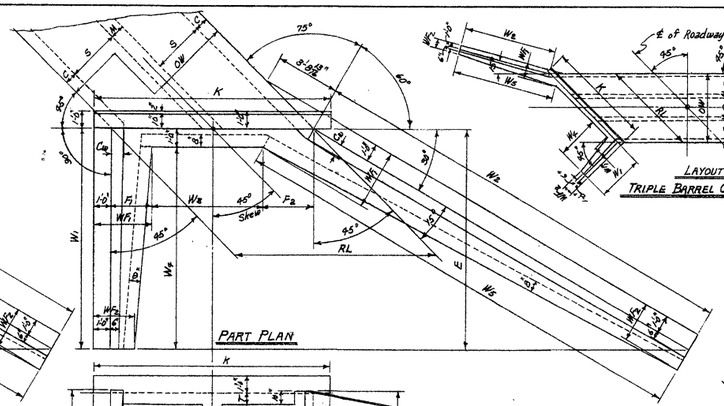
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

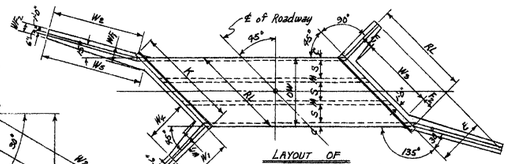
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

Note:- Plans and Elevations are not to scale.

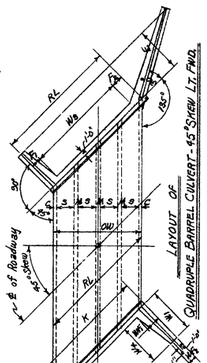


DOUBLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

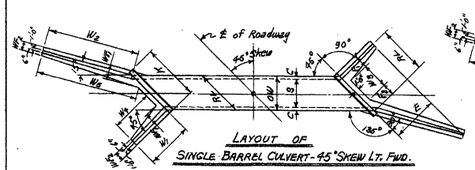
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.



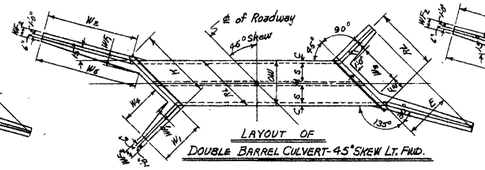
LAYOUT OF TRIPLE BARREL CULVERT - 45° SKEW LT. FWD.



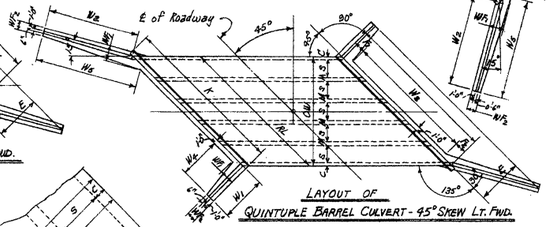
LAYOUT OF QUADRUPLE BARREL CULVERT - 45° SKEW LT. FWD.



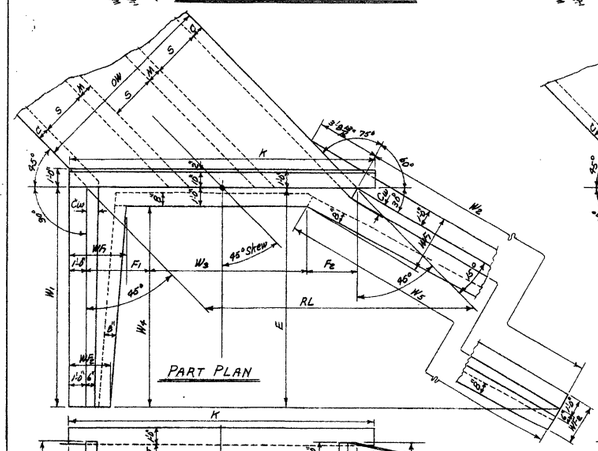
LAYOUT OF SINGLE BARREL CULVERT - 45° SKEW LT. FWD.



LAYOUT OF DOUBLE BARREL CULVERT - 45° SKEW LT. FWD.

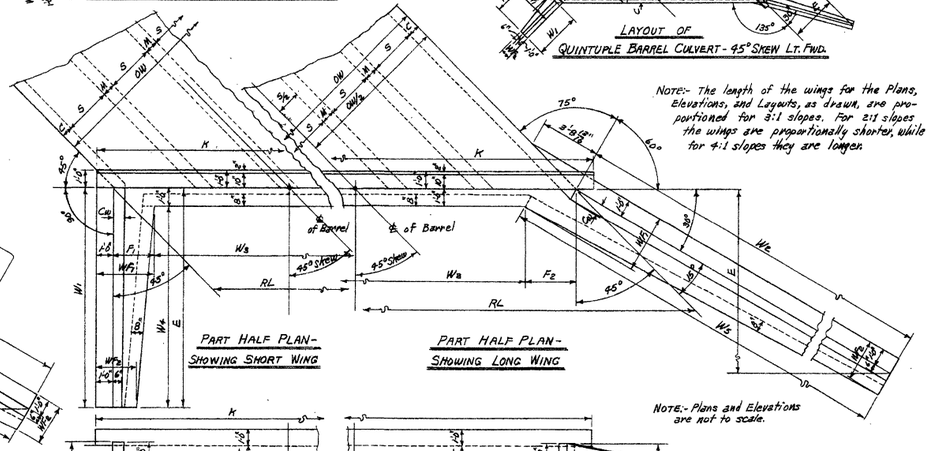


LAYOUT OF QUINTUPLE BARREL CULVERT - 45° SKEW LT. FWD.



TRIPLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at top center of sheet.



Note:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.

Note:- Plans and Elevations are not to scale.

QUADRUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

RL = OW x 1.41421 — K = RL + (2'-0") — W_3 = RL - (F_1 + F_2)

USE WITH DRAWING NO.	CLEAR COVER	CLEAR HEIGHT	SUM OF FOOTING DIMENSIONS	SINGLE BARREL CULVERT				DOUBLE BARREL CULVERT				TRIPLE BARREL CULVERT				QUADRUPLE BARREL CULVERT				QUINTUPLE BARREL CULVERT			
	S	H	F_1+F_2	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3
W-X452-1, W-X453-1 OR W-X454-1. (FOR H=9'-0" OR LESS)	4'	2'-3"	5'-0"	7'-0"	9'-10"	11'-0"	4'-9"	9'-8"	13'-8"	15'-8"	11'-4"	14'-0"	20'-3"	22'-3"	18'-0"	19'-0"	26'-10"	28'-10"	24'-2"	23'-8"	33'-5"	35'-5"	30'-2"
		3'	3'-3"	5'-0"	"	"	3'-9"	9'-8"	"	"	10'-4"	14'-0"	"	"	17'-0"	19'-0"	"	"	23'-2"	23'-8"	"	"	30'-2"
		4'	4'-3"	5'-0"	"	"	2'-9"	9'-8"	"	"	9'-4"	14'-0"	"	"	16'-0"	19'-0"	"	"	22'-2"	23'-8"	"	"	29'-2"
		5'	5'-3"	5'-0"	7'-0"	9'-10"	1'-9"	9'-8"	13'-8"	15'-8"	8'-3"	14'-0"	20'-3"	22'-3"	15'-0"	19'-0"	26'-10"	28'-10"	21'-2"	23'-8"	33'-5"	35'-5"	28'-2"
		6'	6'-3"	5'-2"	7'-3"	9'-13"	1'-0"	9'-11"	14'-0"	16'-0"	7'-0"	14'-3"	20'-8"	22'-8"	14'-3"	18'-5"	27'-5"	29'-5"	20'-2"	23'-8"	34'-2"	36'-2"	27'-10"
	5'	3'	3'-3"	6'-0"	8'-5"	10'-8"	5'-2"	11'-8"	16'-4"	18'-4"	13'-2"	17'-1"	24'-1"	26'-1"	21'-3"	23'-0"	32'-5"	34'-6"	29'-3"	28'-8"	40'-6"	42'-6"	37'-3"
		4'	4'-3"	6'-0"	"	"	4'-2"	11'-8"	"	"	12'-2"	17'-1"	"	"	20'-3"	23'-0"	"	"	28'-3"	28'-8"	"	"	36'-3"
		5'	5'-3"	6'-0"	8'-5"	10'-8"	3'-2"	11'-8"	16'-4"	18'-4"	11'-2"	17'-1"	24'-1"	26'-1"	19'-3"	23'-0"	32'-5"	34'-6"	27'-8"	28'-8"	40'-6"	42'-6"	35'-8"
		6'	6'-3"	6'-2"	8'-8"	10'-11"	2'-2"	11'-10"	16'-10"	18'-10"	10'-1"	17'-8"	25'-0"	27'-0"	18'-8"	23'-5"	33'-0"	35'-0"	26'-10"	29'-2"	41'-3"	43'-3"	34'-11"
		7'	7'-3"	6'-8"	9'-0"	11'-3"	1'-3"	12'-1"	17'-1"	19'-1"	9'-3"	17'-11"	25'-4"	27'-4"	17'-4"	23'-9"	33'-7"	35'-7"	25'-9"	29'-2"	41'-10"	43'-10"	34'-0"
	6'	3'	3'-3"	7'-0"	9'-10"	11'-10"	6'-7"	13'-8"	19'-3"	21'-4"	16'-0"	20'-0"	28'-3"	30'-3"	25'-5"	27'-0"	38'-2"	40'-2"	34'-4"	33'-8"	47'-7"	49'-7"	43'-4"
		4'	4'-3"	7'-0"	"	"	5'-7"	13'-8"	"	"	15'-0"	20'-0"	"	"	24'-5"	27'-0"	"	"	33'-11"	33'-8"	"	"	43'-4"
		5'	5'-3"	7'-0"	9'-10"	11'-10"	4'-7"	13'-8"	19'-3"	21'-4"	14'-0"	20'-0"	28'-3"	30'-3"	23'-5"	27'-0"	38'-2"	40'-2"	32'-11"	33'-8"	47'-7"	49'-7"	42'-4"
		6'	6'-3"	7'-2"	10'-1"	12'-1"	3'-10"	13'-11"	19'-8"	21'-8"	13'-5"	20'-8"	29'-2"	31'-2"	22'-11"	27'-5"	38'-2"	40'-2"	32'-6"	34'-2"	48'-0"	50'-0"	42'-0"
		7'	7'-3"	7'-8"	10'-7"	12'-8"	2'-10"	14'-1"	19'-11"	21'-11"	12'-3"	20'-11"	29'-7"	31'-7"	21'-10"	27'-9"	39'-3"	41'-3"	31'-5"	34'-2"	48'-6"	50'-6"	41'-8"
		8'	8'-3"	7'-8"	10'-7"	12'-8"	1'-7"	14'-2"	20'-0"	22'-0"	10'-9"	21'-0"	29'-8"	31'-8"	20'-5"	27'-9"	39'-3"	41'-3"	30'-7"	34'-2"	48'-6"	50'-6"	39'-9"
	7'	4'	4'-3"	8'-0"	11'-3"	13'-3"	7'-0"	15'-8"	22'-1"	24'-1"	17'-10"	23'-6"	33'-1"	35'-1"	28'-8"	31'-0"	43'-10"	45'-10"	39'-6"	38'-8"	54'-6"	56'-6"	50'-5"
		5'	5'-3"	8'-0"	11'-3"	13'-3"	6'-10"	15'-9"	22'-1"	24'-1"	16'-10"	23'-6"	33'-1"	35'-1"	27'-10"	31'-0"	43'-10"	45'-10"	38'-4"	38'-8"	54'-6"	56'-6"	49'-5"
		6'	6'-3"	8'-2"	11'-6"	13'-6"	5'-3"	15'-11"	22'-4"	24'-4"	16'-2"	23'-8"	33'-5"	35'-5"	27'-2"	31'-5"	44'-5"	46'-5"	38'-2"	39'-2"	55'-2"	57'-2"	49'-11"
		7'	7'-3"	8'-3"	11'-8"	13'-8"	3'-10"	16'-1"	22'-7"	24'-7"	16'-3"	23'-11"	33'-9"	35'-9"	26'-10"	31'-9"	44'-10"	46'-10"	37'-10"	39'-7"	55'-8"	57'-8"	49'-4"
		8'	8'-3"	8'-4"	11'-9"	13'-9"	2'-4"	16'-2"	22'-10"	24'-10"	13'-7"	24'-0"	33'-11"	35'-11"	26'-5"	31'-10"	45'-0"	47'-0"	36'-9"	39'-8"	56'-1"	58'-1"	48'-6"
	8'	4'	4'-3"	9'-0"	12'-8"	14'-8"	8'-5"	17'-8"	24'-11"	26'-11"	20'-8"	26'-9"	37'-8"	39'-8"	32'-11"	35'-0"	49'-6"	51'-6"	43'-9"	43'-9"	61'-9"	63'-9"	54'-6"
		5'	5'-3"	9'-2"	12'-11"	14'-11"	7'-8"	17'-11"	25'-4"	27'-4"	20'-0"	26'-8"	37'-8"	39'-8"	32'-5"	35'-5"	50'-1"	52'-1"	44'-3"	44'-8"	62'-5"	64'-5"	55'-2"
		6'	6'-3"	9'-2"	12'-11"	14'-11"	6'-10"	17'-11"	25'-4"	27'-4"	19'-0"	26'-8"	37'-10"	39'-10"	31'-5"	35'-5"	50'-1"	52'-1"	43'-10"	44'-8"	62'-5"	64'-5"	55'-0"
		7'	7'-3"	9'-3"	13'-1"	15'-1"	5'-11"	18'-1"	25'-6"	27'-7"	17'-11"	26'-11"	38'-0"	40'-0"	30'-8"	35'-5"	50'-6"	52'-6"	42'-8"	44'-7"	62'-6"	64'-6"	54'-7"
		8'	8'-3"	9'-4"	13'-2"	15'-2"	5'-1"	18'-2"	25'-8"	27'-8"	16'-5"	27'-0"	38'-2"	40'-2"	28'-11"	35'-10"	50'-8"	52'-8"	41'-5"	44'-9"	62'-8"	64'-8"	54'-0"
	9'	5'	5'-3"	10'-2"	14'-5"	16'-5"	9'-7"	19'-4"	28'-2"	30'-2"	22'-10"	29'-6"	41'-10"	43'-10"	36'-0"	39'-5"	55'-10"	57'-10"	50'-5"	49'-2"	69'-6"	71'-6"	64'-3"
		6'	6'-3"	10'-8"	14'-6"	16'-6"	8'-8"	20'-1"	28'-9"	30'-9"	22'-1"	29'-11"	42'-3"	44'-3"	34'-10"	39'-9"	56'-3"	58'-3"	48'-10"	49'-7"	70'-1"	72'-1"	63'-10"
		7'	7'-3"	10'-3"	14'-6"	16'-6"	7'-8"	20'-1"	28'-9"	30'-9"	20'-7"	29'-11"	42'-3"	44'-3"	34'-4"	39'-9"	56'-3"	58'-3"	48'-5"	49'-7"	70'-1"	72'-1"	63'-4"
		8'	8'-3"	10'-4"	14'-7"	16'-7"	6'-11"	20'-2"	28'-10"	30'-10"	19'-3"	30'-0"	42'-5"	44'-5"	33'-2"	39'-10"	56'-4"	58'-4"	47'-10"	49'-8"	70'-2"	72'-2"	60'-11"
	10'	5'	5'-3"	11'-2"	15'-9"	17'-9"	10'-6"	21'-4"	31'-0"	33'-0"	25'-10"	32'-8"	46'-3"	48'-3"	39'-6"	43'-5"	61'-6"	63'-6"	55'-2"	54'-7"	76'-7"	78'-7"	71'-4"
		6'	6'-3"	11'-8"	15'-11"	17'-11"	9'-10"	22'-1"	31'-3"	33'-3"	25'-1"	32'-11"	46'-6"	48'-6"	38'-10"	43'-5"	61'-6"	63'-6"	54'-10"	54'-7"	77'-0"	79'-0"	70'-8"
		7'	7'-3"	11'-3"	15'-11"	17'-11"	8'-11"	22'-1"	31'-3"	33'-3"	24'-5"	32'-11"	46'-6"	48'-6"	38'-3"	43'-5"	61'-6"	63'-6"	54'-5"	54'-7"	77'-0"	79'-0"	70'-5"
		8'	8'-3"	11'-4"	16'-0"	18'-0"	8'-0"	22'-2"	31'-4"	33'-4"	23'-7"	33'-0"	46'-8"	48'-8"	37'-11"	43'-10"	61'-11"	63'-11"	53'-8"	54'-8"	77'-1"	79'-1"	69'-10"
	11'	6'	6'-3"	12'-0"	17'-5"	19'-5"	11'-2"	23'-6"	34'-2"	36'-2"	27'-11"	36'-0"	50'-11"	52'-11"	43'-7"	47'-10"	67'-7"	69'-7"	59'-4"	—	—	—	—
		7'	7'-3"	12'-4"	"	"	9'-10"	23'-8"	"	"	26'-5"	36'-0"	"	"	43'-7"	47'-10"	"	"	59'-4"	—	—	—	—
		8'	8'-3"	12'-5"	"	"	8'-11"	23'-10"	"	"	26'-11"	36'-0"	"	"	43'-7"	47'-10"	"	"	58'-10"	—	—	—	—
	12'	6'	6'-3"	12'-4"	17'-10"	19'-10"	11'-7"	24'-2"	35'-0"	37'-0"	28'-8"	37'-0"	52'-3"	54'-3"	44'-9"	49'-2"	69'-3"	71'-3"	60'-10"	—	—	—	—
		7'	7'-3"	12'-9"	"	"	10'-6"	24'-3"	"	"	27'-1"	37'-0"	"	"	44'-9"	49'-2"	"	"	60'-7"	—	—	—	—
		8'	8'-3"	12'-8"	"	"	9'-7"	24'-4"	"	"	27'-8"	37'-0"	"	"	44'-9"	49'-2"	"	"	60'-5"	—	—	—	—
	7'	9'	10'-9"	8'-6"	12'-0"	14'-0"	1'-9"	16'-5"	23'-5"	25'-5"	12'-5"	24'-9"	34'-5"	36'-5"	23'-3"	33'-8"	47'-5"	49'-5"	34'-10"	40'-2"	56'-9"	58'-9"	46'-6"
	8'	9'	10'-9"	9'-6"	13'-5"	15'-5"	2'-8"	18'-5"	26'-0"	28'-0"	15'-2"	27'-6"	38'-7"	40'-8"	27'-10"	36'-5"	51'-3"	53'-3"	40'-6"	45'-2"	63'-10"	65'-10"	53'-7"
		10'	12'-3"	9'-8"	13'-8"	15'-8"	1'-6"	18'-8"	26'-4"	28'-4"	14'-7"	27'-6"	39'-0"	41'-0"	26'-10"	36'-8"	51'-10"	53'-10"	39'-7"	45'-8"	64'-7"	66'-7"	52'-3"
	9'	9'	10'-3"	10'-6"	14'-10"	16'-10"	4'-1"	20'-5"	28'-10"	30'-10"	18'-1"	30'-6"	43'-0"	45'-0"	32'-1"	40'-3"	56'-9"	58'-9"	45'-2"	50'-2"	70'-11"	72'-11"	60'-2"
		10'	12'-3"	10'-8"	15'-1"	17'-1"	2'-9"	20'-8"	29'-2"	31'-2"	19'-6"	30'-8"	43'-2"	45'-2"	32'-3"	40'-5"	57'-1"	59'-1"	45'-4"	50'-9"	71'-7"	73'-7"	59'-9"
		11'	13'-3"	10'-10"	15'-3"	17'-3"	1'-4"	20'-10"	29'-5"	31'-5"	19'-8"	30'-10"	43'-4"	45'-4"	32'-5"	40'-6"	57'-3"	59'-3"	45'-6"	50'-10"	71'-8"	73'-8"	59'-11"
	10'	9'	10'-3"	11'-6"	16'-3"	18'-3"	5'-4"	22'-5"	31'-8"	33'-8"	21'-11"	33'-4"	47'-1"	49'-1"	34'-9"	44'-3"	62'-1"	64'-1"	49'-7"	55'-2"	78'-0"	80'-0"	63'-3"
		10'	12'-3"	11'-8"	16'-6"	18'-6"	4'-2"	22'-8"	32'-0"	34'-0"	19'-3"	33'-8"	47'-7"	49'-7"	35'-1"	44'-8"	62'-7"	64'-7"	49'-10"	55'-8"	78'-10"	80'-10"	63'-7"
		11'	13'-3"	11'-10"	16'-8"	18'-8"	3'-11"	22'-10"	32'-3"	34'-3"	20'-0"	33'-10"	47'-10"	49'-10"	35'-4"	44'-10"	63'-0"	65'-0"	50'-1"	55'-10"	79'-1"	81'-1"	63'-10"
		12'	15'-3"	12'-0"	16'-11"	18'-11"	3'-8"	23'-1"	32'-6"	34'-6"	20'-3"	34'-1"	48'-1"	50'-1"	35'-7"	45'-0"	63'-2"	65'-2"	50'-4"	56'-0"	79'-3"	81'-3"	64'-0"
	11'	9'	10'-3"	12'-6"	17'-8"	19'-8"	6'-10"	24'-5"	34'-6"	36'-6"	23'-8"	34'-10"	49'-3"	51'-3"	36'-6"	45'-10"	64'-9"	66'-9"	51'-8"	56'-8"	80'-2"	82'-2"	64'-11"
		10'	12'-3"	12'-8"	17'-11"	19'-11"	5'-7"	24'-8"	34'-10"	36'-10"	22'-7"	35'-1"	49'-6"	51'-6"	36'-10"	46'-2"	65'-1"	67'-1"	52'-0"	56'-11"	80'-5"	82'-5"	65'-2"
		11'	13'-3"	12'-10"	18'-1"	20'-1"	6'-4"	24'-10"	35'-1"	37'-1"	21'-4"	35'-5"	49'-10"	51'-10"	37'-1"	46'-5"	65'-4"	67'-4"	52'-3"	57'-2"	80'-8"	82'-8"	65'-5"
		12'	15'-3"	13'-0"	18'-4"	20'-4"	7'-1"	25'-0"	35'-3"	37'-3"	20'-1"	35'-7"	50'-2"	52'-2"	37'-5"	46'-8"	65'-7"	67'-7"	52'-6"	57'-5"	81'-0"	83'-0"	65'-8"
	12'	9'	10'-3"	13'-6"	19'-1"	21'-1"	8'-9"	26'-5"	37'-1"	39'-1"	25'-4"	37'-9"	53'-1"	55'-1"	39'-4"	48'-7"	68'-5"	70'-5"	55'-0"	59'-11"	84'-4"	86'-4"	68'-7"
		10'	12'-3"	13'-8"	19'-3"	21'-3"	7'-10"	26'-6"	37'-3"	39'-3"	25'-5"	37'-9"	53'-1"	55'-1"	39'-5"	48'-7"	68'-5"	70'-5"	55'-1"	59'-11"	84'-4"	86'-4"	68'-7"
		11'	13'-3"	13'-10"	19'-5"	21'-5"	7'-11"	26'-7"	37'-5"	39'-5"	25'-6"	37'-9"	53'-1"	55'-1"	39'-6"	48'-7"	68'-5"	70'-5"	55'-2"	59'-11"	84'-4"	86'-4"	68'-7"
		12'	15'-3"	14'-0"	19'-8"	21'-8"	8'-2"	27'-0"	38'-0"	40'-0"	26'-0"	38'-5"	53'-10"	55'-10"	40'-0"	48'-11"	68'-10"	70'-10"	55'-7"	59'-11"	84'-4"	86'-4"	68'-7"

Note:- This drawing to be used in conjunction with Standard Wing Drawings for 45° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X452-1 or W-X452-2	W-X453-1 or W-X453-2	W-X454-1 or W-X454-2.

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, — ALL DEPTHS OF COVER

QUADRUPLES & QUINTUPLES — H = 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

STANDARD DRAWING No. W-X45

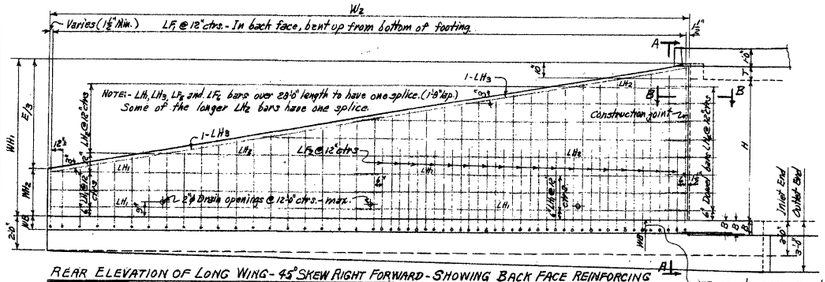
Designed by:- W.C.H. 5-16-64 — Checked by:- JEM. 6-25-64

Drawn by:- W.C.H. 6-15-64 — Checked by:-

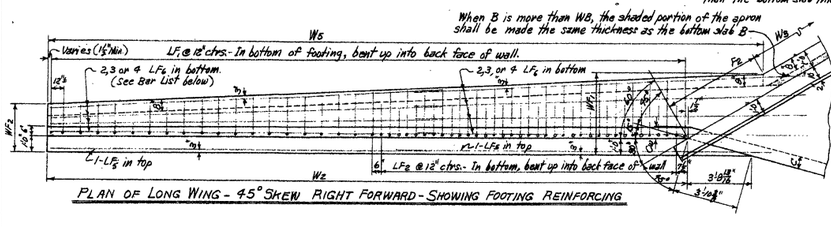
Quantities by:- — Checked by:-

Reshot 3-8-93 352

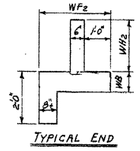
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

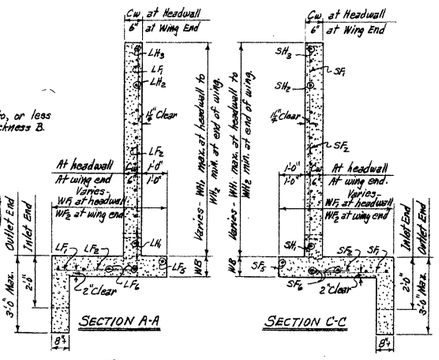


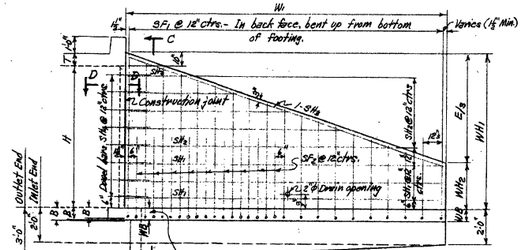
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



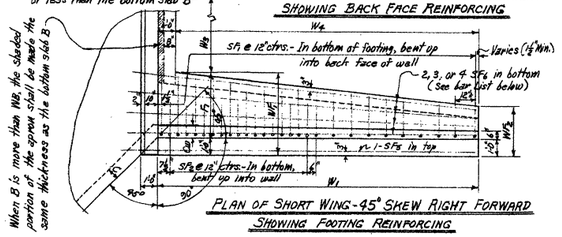
PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



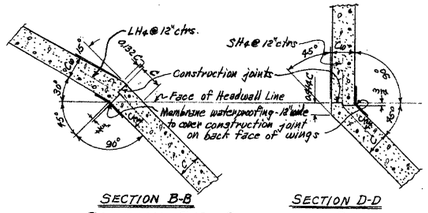




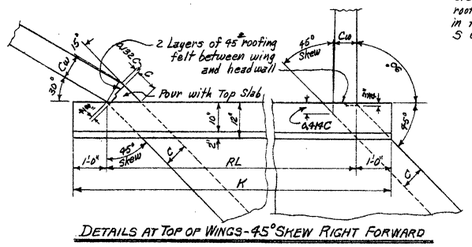
REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING

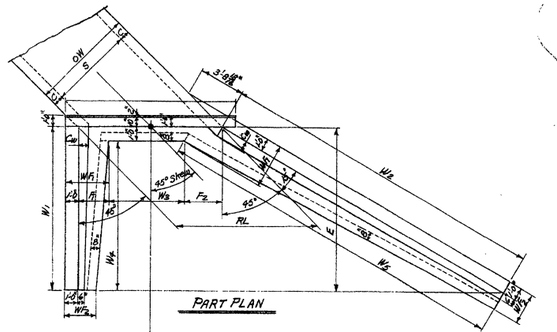


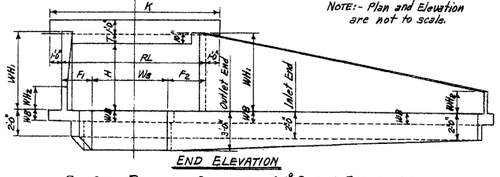
SECTIONS THRU CONSTRUCTION JOINTS



DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.





NOTE:- Plan and Elevation are not to scale.

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HDWL. = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSION SHORT WING	INSIDE FOOTING DIMENSION LONG WING	* QUANTITY PER WING CLASS S CONCRETE IN LET END SHORT WING	IN LET END LONG WING	OUTLET END SHORT WING	OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10	0'-8"	2'-6"	2'-0"	1'-4"	0'-11⅝"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3⅜"	0.743	1.572	0.827	1.741
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-7⅜"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10⅝"	1.120	2.364	1.229	2.590
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3⅛"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5⅝"	1.567	3.295	1.700	3.577
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4⅝"	2'-4"	2'-11⅝"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.082	4.367	2.291	4.705
		7"	5'-10"	1'-8"	3'-4"	2'-4⅝"	2'-4"	2'-11⅝"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.166	4.551	2.325	4.889
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	2.894	6.055	3.078	6.460
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	2.952	6.180	3.135	6.675
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	3.009	6.306	3.192	6.700
7'	8½"	7½"	7'-10"	2'-8"	4'-2"	2'-7½"	3'-2"	4'-3⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.794	7.930	4.003	8.385
		8"	7'-10"	2'-8"	4'-2"	2'-7½"	3'-2"	4'-3⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.870	8.093	4.078	8.598
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7⅛"	18'-6"	18'-6"	37'-0"	17'-6"	41'-9⅛"	4.855	10.186	5.088	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W5.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - WINGS PER 4 WINGS ⊕	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	142	6.15	7.50	8.86	10.22	11.58
	3'	6"	7"	214	8.44	9.79	11.14	12.50	13.86
	4'	6"	7"	328	11.13	12.98	13.98	15.20	16.56
	5'	6"	7"	448	14.25	15.60	16.96	18.32	19.68
	6'	7"	8"	763	19.23	20.62	22.02	23.41	24.81
5'	3'	6"	7"	214	8.74	10.58	12.03	13.67	15.32
	4'	6"	7"	328	11.93	13.07	14.72	16.37	18.02
	5'	6"	7"	448	14.55	16.19	17.84	19.49	21.14
	6'	7"	8"	763	19.53	21.21	22.90	24.59	26.28
	7'	7⅞"	8½"	1975	29.98	26.69	28.41	30.14	31.86
6'	3'	6"	7"	214	9.03	11.99	12.51	19.86	16.79
	4'	6"	7"	328	11.73	13.69	15.60	17.56	19.48
	5'	6"	7"	463	14.85	16.90	18.72	20.68	22.60
	6'	7"	8"	763	18.83	21.82	23.79	25.78	27.76
	7'	7⅞"	8½"	1975	25.28	29.30	29.31	31.35	33.35
	8'	8"	9"	1872	31.70	33.76	35.75	37.79	39.81
7'	4'	6"	7"	328	12.04	14.31	16.59	18.81	21.02
	5'	6"	7"	463	15.15	17.98	18.65	21.93	24.13
	6'	7"	8"	763	20.14	22.99	24.49	26.99	29.29
	7'	7⅞"	8½"	1975	25.59	27.91	30.21	32.53	34.83
	8'	8"	9"	1872	32.02	34.36	36.66	38.99	41.31
8'	4'	6"	7"	328	12.35	14.81	17.99	20.08	22.57
	5'	7"	7"	463	16.05	18.67	21.24	23.86	26.37
	6'	7"	8"	763	21.16	23.07	25.66	28.26	30.77
	7'	7⅞"	8½"	1975	25.90	28.54	31.13	34.82	
	8'	8"	9"	1872	32.33	34.97	37.56	40.21	42.80
9'	5'	7"	7"	463	16.37	19.32	22.18	25.02	27.91
	6'	7⅞"	8"	763	21.16	24.13	27.02	29.89	32.81
	7'	7⅞"	8½"	1975	26.21	29.18	32.08	34.96	37.86
	8'	8"	9"	1872	32.63	35.61	38.51	41.37	44.29
10'	5'	7"	7"	463	16.69	19.86	28.14	26.27	29.97
	6'	7⅞"	8"	763	21.98	24.72	27.99	31.13	34.34
	7'	7⅞"	8½"	1975	26.53	29.82	33.04	36.19	39.42
	8'	8"	9"	1872	32.95	36.25	39.96	42.62	45.85
11'	6'	8"	8"	763	22.18	25.88	29.35	32.96	—
	7'	8"	8½"	1975	27.39	30.99	34.51	38.01	—
	8'	8"	9"	1872	33.86	36.91	40.45	43.93	—
12'	6'	8"	8"	763	22.50	26.51	30.85	34.19	—
	7'	8"	8½"	1975	27.66	31.66	35.49	39.36	—
	8'	8"	9"	1872	33.58	37.58	41.91	45.27	—

⊕ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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

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

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

NOTE:-

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

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

CLEAR HEIGHT	WING LOCATION	SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length. SIZE	SPACING	NO. PERIO	LENGTHS VARY MIN.	MAX.	X MIN.	MAX.	Y MIN.	MAX.	SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars SIZE	SPACING	NO. PERIO	LENGTH	X	Y	SF3 & LF3 STRAIGHT: Longitudinal in top of wing footing heel. SIZE	NO. PERIO	LENGTH	SF4 & LF4 STRAIGHT: Longitudinal in bottom of wing footing toe. SIZE	NO. PERIO	LENGTH	SH1 & LH1 Horizontal in back face of wing. One bar of each length. SIZE	SPACING	NO. PERIO	LENGTH	SH2 & LH2 STRAIGHT: Horizontal in back face of wing One bar of each length. SIZE	SPACING	NO. PERIO	LENGTHS VARY MAX.	MIN.	SH3 & LH3 In back face of wing at top - on slope SIZE	NO. PERIO	LENGTH	SH4 & LH4 BENT: Dowels thru construction joint at headwall. SIZE	SPACING	NO. PERIO	LENGTH	X	BAR BENDING DIAGRAM	QUANTITY REINFORCING STEEL PER WING - LBS. SHORT WING	LONG WING
H	SHORT LONG																																																
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-8"	—	—	—	—	—	—	#3	1	8'-8"	#3	2	6'-0"	#3	12"	1	6'-3"	#3	12"	2	2'-8"	1'-4"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-4"		24.4	46.3
	Long	#3	12"	16	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"							#3	1	17'-6"	#3	2	6'-0"	#3	12"	1	12'-8"	#3	12"	2	"	"	#3	1	12'-8"	#3	12"	2	"	"			
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-0"	4'-0"	—	—	—	—	—	—	#3	1	10'-8"	#3	2	10'-0"	#3	12"	1	6'-8"	#3	12"	2	6'-8"	3'-8"	#3	1	8'-8"	#3	12"	3	"	"		36.8	70.5
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-0"							#3	1	21'-6"	#3	2	26'-2"	#3	12"	1	16'-8"	#3	12"	3	"	"	#3	1	16'-8"	#3	12"	3	"	"			
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-10"	1'-0"	5'-0"	—	—	—	—	—	—	#3	1	12'-8"	#3	3	15'-0"	#3	12"	1	10'-8"	#3	12"	3	9'-8"	3'-8"	#3	1	10'-8"	#3	12"	4	"	"		55.9	107.9
	Long	#3	12"	22	2'-4"	6'-6"	0'-10"	1'-8"	1'-6"	5'-0"							#3	1	25'-6"	#3	3	32'-4"	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"			
5'	Short	#3	12"	13	2'-10"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-9"	2'-6"	#3	1	14'-8"	#3	3	19'-0"	#3	12"	2	12'-8"	#3	12"	3	9'-8"	3'-8"	#3	1	12'-11"	#3	12"	5	"	"		77.7	153.7
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	3'-6"	1'-9"	2'-6"	#3	2	15'-8"	#3	6	15'-7"	#3	12"	2	24'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"			
6'	Short	#3	12"	15	3'-6"	9'-4"	1'-2"	2'-6"	2'-6"	7'-1"	#3	12"	3	4'-6"	1'-6"	3'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	10'-8"	#3	12"	4	12'-3"	3'-8"	#3	1	16'-0"	#3	12"	6	"	"		127.6	253.9
	Long	#4	18"	30	3'-8"	9'-3"	1'-2"	2'-8"	2'-8"	7'-1"	#3	12"	6	4'-6"	1'-6"	3'-8"	#3	2	17'-8"	#3	6	18'-0"	#3	12"	4	28'-8"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-4"						
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-8"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-9"	4'-10"	#4	1	18'-8"	#4	4	18'-0"	#4	12"	2	16'-8"	#4	12"	5	15'-8"	3'-8"	#4	1	17'-11"	#4	12"	7	3'-6"	1'-8"		246.5	491.1
	Long	#4	12"	34	4'-9"	10'-9"	1'-8"	2'-10"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-10"	#4	2	19'-8"	#4	8	20'-8"	#4	12"	4	17'-8"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"						
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-6"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-10"	#4	1	20'-8"	#4	4	20'-0"	#4	12"	3	18'-8"	#4	12"	5	15'-8"	3'-8"	#4	1	19'-5"	#4	12"	8	"	"		312.5	623.6
	Long	#4	12"	38	4'-9"	12'-8"	1'-5"	3'-8"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	21'-8"	#4	8	22'-8"	#4	12"	6	19'-8"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"						

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

* Length without splice. Bars over 28'-0" length may be spliced. (1'-8" lap)

MEMBRANE:- A membrane waterproofing 18" wide, consisting of three mopplings of waterproofing asphalt and two alternate layers of treated cotton fabric, shall be applied to the back face of wing to cover the construction joints in wings.

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

TYPICAL WING DETAILS

NOTE:-

For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X45.

For values of RL, K and W5 for each box, see above Std. also.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X453-1

Designed By:- W.C.H. 6-13-63 Checked By:- J.S.M. 7-21-64

Drawn By:- W.C.H. 6-5-64 Checked By:- J.S.M. 7-21-64

Quantities By:- W.C.H. 7-2-64

RESHOT 3-4-93

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

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. & Add'l in Apron and Headwall-Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	"b" bars BENT- See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	"g" bars Longitudinal in Top Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"j" bars Longitudinal in Sidewalls SIZE	SPACING	No. REQ'D	LENGTH	"d" bars. Longitudinal in Bottom Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"f" bars STRAIGHT Verticle in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"	0' TO 10'-0"	4@ / 6@	3'	#4	12"	48	64	4'-1"	#4	12"	44	64	5'-2"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	44	64	3'-10"
			4'			48	68	4'-1"			44	64	5'-2"	4'-8½"							8				5				44	64	4'-10"
			5'			48	68	4'-1"			44	64	5'-2"	4'-8½"							10				5				44	64	5'-10"
			6'			48	68	4'-1"			44	64	5'-2"	4'-8½"							12				5				44	64	6'-10"
		4@ / 6@	3'	#5	12"	48	68	5'-9"	#5	12"	44	64	6'-1"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	44	64	3'-10"
			4'			48	68	5'-9"			44	64	6'-1"	5'-8½"							8				6				44	64	4'-10"
			5'			48	68	5'-9"			44	64	6'-1"	5'-8½"							10				6				44	64	5'-11"
			6'			48	68	5'-11"			44	64	6'-11"	5'-10½"							12				6				44	64	6'-11"
			7'			48	68	6'-0"			44	64	6'-11"	5'-11½"							14				6				44	64	7'-11"
			8'			48	68	6'-2"			44	64	7'-0"	6'-0½"							16				7				44	64	8'-10"
		4@ / 6@	3'	#4	12"	48	68	4'-9"	#4	12"	44	64	5'-0"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	44	64	3'-10"
			4'			48	68	4'-9"			44	64	5'-0"	4'-8½"							8				5				44	64	4'-10"
			5'			48	68	4'-9"			44	64	5'-0"	4'-8½"							10				5				44	64	5'-10"
			6'			48	68	4'-11"			44	64	5'-2"	4'-10½"							12				5				44	64	6'-10"
		4@ / 6@	3'	#5	12"	48	68	5'-9"	#5	12"	44	64	6'-1"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	44	64	3'-11"
			4'			48	68	5'-9"			44	64	6'-1"	5'-8½"							8				6				44	64	4'-11"
			5'			48	68	5'-9"			44	64	6'-1"	5'-8½"							10				6				44	64	5'-11"
			6'			48	68	5'-11"			44	64	6'-11"	5'-10½"							12				6				44	64	6'-11"
			7'			48	68	6'-0"			44	64	6'-11"	5'-11½"							14				6				44	64	7'-11"
			8'			48	68	6'-2"			44	64	7'-0"	6'-0½"							16				7				44	64	8'-10"
		4@ / 6@	3'	#6	12"	48	68	4'-9"	#6	12"	44	64	5'-0"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	44	64	3'-10"
			4'			48	68	4'-9"			44	64	5'-0"	4'-8½"							8				5				44	64	4'-10"
			5'			48	68	4'-9"			44	64	5'-0"	4'-8½"							10				5				44	64	5'-10"
			6'			48	68	4'-11"			44	64	5'-2"	4'-10½"							12				5				44	64	6'-10"
		4@ / 6@	3'	#6	12"	48	68	5'-9"	#6	12"	44	64	6'-1"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	44	64	3'-11"
			4'			48	68	5'-9"			44	64	6'-1"	5'-8½"							8				6				44	64	4'-11"
			5'			48	68	5'-9"			44	64	6'-1"	5'-8½"							10				6				44	64	5'-11"
			6'			48	68	5'-11"			44	64	6'-11"	5'-10½"							12				6				44	64	6'-11"
			7'			48	68	6'-0"			44	64	6'-11"	5'-11½"							14				6				44	64	7'-11"
			8'			48	68	6'-2"			44	64	7'-0"	6'-0½"							16				7				44	64	8'-10"
SECTION "B" & BAR GROUP "B"	0' TO 15'-0"	4@ / 6@	3'	#4	12"	22	32	4'-9"	#4	12"	22	32	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#5	12"	22	32	3'-10"
			4'			22	32	4'-9"			22	32	5'-8"	4'-8½"							8				5				22	32	4'-10"
			5'			22	32	4'-9"			22	32	5'-8"	4'-8½"							10				5				22	32	5'-10"
			6'			22	32	4'-11"			22	32	5'-10"	4'-10½"							12				5				22	32	6'-10"
		4@ / 6@	3'	#5	12"	22	32	5'-9"	#5	12"	22	32	6'-1"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#5	12"	22	32	3'-11"
			4'			22	32	5'-9"			22	32	6'-1"	5'-8½"							8				6				22	32	4'-11"
			5'			22	32	5'-9"			22	32	6'-1"	5'-8½"							10				6				22	32	5'-11"
			6'			22	32	5'-11"			22	32	7'-1"	5'-10½"							12				6				22	32	6'-11"
			7'			22	32	6'-0"			22	32	7'-1"	5'-11½"							14				6				22	32	7'-11"
		4@ / 6@	3'	#6	12"	22	32	5'-9"	#6	12"	22	32	6'-2"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	22	32	3'-11"
			4'			22	32	5'-9"			22	32	6'-2"	5'-8½"							8				6				22	32	4'-11"
			5'			22	32	5'-9"			22	32	6'-2"	5'-8½"							10				6				22	32	5'-11"
			6'			22	32	5'-11"			22	32	7'-2"	5'-10½"							12				6				22	32	6'-11"
			7'			22	32	6'-0"			22	32	7'-2"	5'-11½"							14				6				22	32	7'-11"
		4@ / 6@	3'	#7	12"	22	32	5'-9"	#7	12"	22	32	6'-3"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	22	32	3'-11"
			4'			22	32	5'-9"			22	32	6'-3"	5'-8½"							8				6				22	32	4'-11"
			5'			22	32	5'-9"			22	32	6'-3"	5'-8½"							10				6				22	32	5'-11"
			6'			22	32	5'-11"			22	32	7'-3"	5'-10½"							12				6				22	32	6'-11"
			7'			22	32	6'-0"			22	32	7'-3"	5'-11½"							14				6				22	32	7'-11"
SECTION "C" & BAR GROUP "C"	0' TO 20'-0"	4@ / 6@	3'	#5	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#5	12"	22	32	3'-10"
			4'			22	32	4'-9"			22	32	5'-8"	4'-8½"							8				5				22	32	4'-10"
			5'			22	32	4'-9"			22	32	5'-8"	4'-8½"							10				5				22	32	5'-10"
			6'			22	32	4'-11"			22	32	5'-10"	4'-10½"							12				5				22	32	6'-10"
		4@ / 6@	3'	#6	12"	24	36	5'-9"	#6	12"	24	36	6'-1"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	24	36	4'-0"
			4'			24	36	5'-9"			24	36	6'-1"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	5'-9"			24	36	6'-1"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	5'-11"			24	36	7'-1"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-0"			24	36	7'-1"	5'-11"							14				6				24	36	8'-0"
		4@ / 6@	3'	#7	12"	24	36	6'-0"	#7	12"	24	36	6'-3"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-3"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-3"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-3"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-3"	5'-11"							14				6				24	36	8'-0"
		4@ / 6@	3'	#8	12"	24	36	6'-0"	#8	12"	24	36	6'-4"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-4"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-4"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-4"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-4"	5'-11"							14				6				24	36	8'-0"
SECTION "D" & BAR GROUP "D"	0' TO 25'-0"	4@ / 6@	3'	#5	11"	24	36	4'-9"	#5	11"	24	36	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#5	11"	24	36	3'-11"
			4'			24	36	4'-9"			24	36	5'-8"	4'-8½"							8				5				24	36	4'-11"
			5'			24	36	4'-9"			24	36	5'-8"	4'-8½"							10				5				24	36	5'-11"
			6'			24	36	4'-11"			24	36	5'-10"	4'-10½"							12				5				24	36	6'-11"
		4@ / 6@	3'	#6	12"	22	32	5'-9"	#6	12"	22	32	6'-1"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	22	32	4'-0"
			4'			22	32	5'-9"			22	32	6'-1"	5'-8"							8				6				22	32	5'-0"
			5'			22	32	5'-9"			22	32	6'-1"	5'-8"							10				6				22	32	6'-0"
			6'			22	32	5'-11"			22	32	7'-1"	5'-10"							12				6				22	32	7'-0"
			7'			22	32	6'-0"			22	32	7'-1"	5'-11"							14				6				22	32	8'-0"
		4@ / 6@	3'	#7	11"	24	36	6'-0"	#7	11"	24	36	6'-4"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-4"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-4"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-4"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-4"	5'-11"							14				6				24	36	8'-0"
		4@ / 6@	3'	#8	11"	24	36	6'-0"	#8	11"	24	36	6'-5"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-5"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-5"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-5"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-5"	5'-11"							14				6				24	36	8'-0"
SECTION "E" & BAR GROUP "E"	0' TO 30'-0"	4@ / 6@	3'	#5	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#5	12"	22	32	3'-10"
			4'			22	32	4'-9"			22	32	5'-8"	4'-8½"							8				5				22	32	4'-10"
			5'			22	32	4'-9"			22	32	5'-9"	4'-9½"							10				5				22	32	5'-10"
			6'			22	32	4'-11"			22	32	5'-10"	4'-10½"							12				5				22	32	6'-10"
		4@ / 6@	3'	#6	12"	22	32	5'-9"	#6	12"	22	32	6'-1"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	12"	22	32	4'-0"
			4'			22	32	5'-9"			22	32	6'-1"	5'-8"							8				6				22	32	5'-0"
			5'			22	32	5'-9"			22	32	6'-1"	5'-8"							10				6				22	32	6'-0"
			6'			22	32	5'-11"			22	32	7'-1"	5'-10"							12				6				22	32	7'-0"
			7'			22	32	6'-0"			22	32	7'-1"	5'-11"							14				6				22	32	8'-0"
		4@ / 6@	3'	#7	11"	24	36	6'-0"	#7	11"	24	36	6'-5"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-5"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-5"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-5"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-5"	5'-11"							14				6				24	36	8'-0"
		4@ / 6@	3'	#8	11"	24	36	6'-0"	#8	11"	24	36	6'-6"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-6"	5'-8"							8				6				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-6"	5'-8"							10				6				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-6"	5'-10"							12				6				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-6"	5'-11"							14				6				24	36	8'-0"
SECTION "F" & BAR GROUP "F"	0' TO 35'-0"	4@ / 6@	3'	#6	12"	20	30	4'-9"	#6	13"	20	30	5'-10"	4'-8"	#4	12"	5		#4	12"	6		#4	12"	5		#6	12"	20	30	4'-0"
			4'			20	30	4'-9"			20	30	5'-10"	4'-8"							8				5				20	30	5'-0"
			5'			20	30	4'-11"			20	30	6'-0"	4'-10"							10				5				20	30	6'-0"
			6'			20	30	5'-1"			20	30	6'-2"	5'-0"							12				5				20	30	7'-0"
		4@ / 6@	3'	#7	12"	22	32	5'-9"	#7	12"	22	32	6'-6"	5'-8"	#4	12"	6	10½"	#4	12"	7		#4	12"	6		#6	12"	22	32	4'-0"
			4'			22	32	5'-9"			22	32	6'-6"	5'-8"							8				7				22	32	5'-0"
			5'			22	32	5'-9"			22	32	6'-6"	5'-8"							10				7				22	32	6'-0"
			6'			22	32	5'-11"			22	32	7'-6"	5'-10"							12				7				22	32	7'-0"
			7'			22	32	6'-0"			22	32	7'-6"	5'-11"							14				7				22	32	8'-0"
		4@ / 6@	3'	#8	11"	24	36	6'-0"	#8	11"	24	36	6'-7"	5'-8"	#4	12"	6	10½"	#4	12"	7		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-7"	5'-8"							8				7				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-7"	5'-8"							10				7				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-7"	5'-10"							12				7				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-7"	5'-11"							14				7				24	36	8'-0"
SECTION "G" & BAR GROUP "G"	0' TO 40'-0"	4@ / 6@	3'	#8	12"	20	30	4'-9"	#8	13"	20	30	5'-10"	4'-8"	#4	12"	5		#4	12"	6		#4	12"	5		#6	12"	20	30	4'-0"
			4'			20	30	4'-9"			20	30	5'-10"	4'-8"							8				5				20	30	5'-0"
			5'			20	30	4'-11"			20	30	6'-0"	4'-10"							10				5				20	30	6'-0"
			6'			20	30	5'-1"			20	30	6'-2"	5'-0"							12				5				20	30	7'-0"
		4@ / 6@	3'	#9	12"	22	32	5'-9"	#9	12"	22	32	6'-6"	5'-8"	#4	12"	6	10½"	#4	12"	7		#4	12"	6		#6	12"	22	32	4'-0"
			4'			22	32	5'-9"			22	32	6'-6"	5'-8"							8				7				22	32	5'-0"
			5'			22	32	5'-9"			22	32	6'-6"	5'-8"							10				7				22	32	6'-0"
			6'			22	32	5'-11"			22	32	7'-6"	5'-10"							12				7				22	32	7'-0"
			7'			22	32	6'-0"			22	32	7'-6"	5'-11"							14				7				22	32	8'-0"
		4@ / 6@	3'	#9	11"	24	36	6'-0"	#9	11"	24	36	6'-7"	5'-8"	#4	12"	6	10½"	#4	12"	7		#4	12"	6		#6	11"	24	36	4'-0"
			4'			24	36	6'-0"			24	36	6'-7"	5'-8"							8				7				24	36	5'-0"
			5'			24	36	6'-0"			24	36	6'-7"	5'-8"							10				7				24	36	6'-0"
			6'			24	36	6'-2"			24	36	7'-7"	5'-10"							12				7				24	36	7'-0"
			7'			24	36	6'-3"			24	36	7'-7"	5'-11"							14				7				24	36	8'-0"

NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section "B" the bars should be marked Ba, Bb, Bc, Bd, Be and Bf.

Designed By:- W.C.H. 9-5-62 Checked By:- J.S.M. 11-8-62
Drawn By:- W.C.H. 10-10-62 Checked By:- J.S.M. 11-12-62
Quantities By:- W.C.H. 11-7-62 Checked By:- J.S.M. 11-16-62

DIMENSIONS

MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	BARREL DIMENSIONS CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH
SECTION "A" - 10'-0"	4@ / 6@	3'	12	5'-0"	6½"	6"	6½"	4'-1"
		4'	16	5'-0"		6"		5'-1"
		5'	20	5'-0"		6"		6'-1"
		6'	24	5'-2"		7"		7'-1"
SECTION "B" - 15'-0"	4@ / 6@	3'	15	6'-0"	6½"	6"	6½"	4'-1"
		4'	20	6'-0"		6"		5'-1"
		5'	25	6'-0"		6"		6'-1"
		6'	30	6'-2"		7"		7'-1"
		7'	35	6'-3"		7½"		8'-1"
SECTION "C" - 20'-0"	4@ / 6@	3'	12	5'-0"	6½"	6"	6½"	4'-1"
		4'	16	5'-0"		6"		5'-1"
		5'	20	5'-0"		6"		6'-1"
		6'	24	5'-2"		7"		7'-1"
SECTION "D" - 25'-0"	4@ / 6@	3'	15	6'-0"	7½"	6"	7½"	4'-1"
		4'	20	6'-0"		6"		5'-1"
		5'	25	6'-0"		6"		6'-1"
		6'	30	6'-2"		7"		7'-1"
		7'	35	6'-3"		7½"		8'-1"
SECTION "E" - 30'-0"	4@ / 6@	3'	12	5'-0"	6½"	6"	6½"	4'-1"
		4'	16	5'-0"		6"		5'-1"
		5'	20	5'-1"		6½"		6'-0"
		6'	24	5'-3"		7½"		7'-0"
SECTION "F" - 35'-0"	4@ / 6@	3'	15	6'-0"	7½"	6"	7½"	4'-1"
		4'	20	6'-0"		6"		5'-1"
		5'	25	6'-0"		6"		6'-1"
		6'	30	6'-2"		7"		7'-1"
		7'	35	6'-3"		7½"		8'-1"
SECTION "G" - 40'-0"	4@ / 6@	3'	12	5'-0"	6½"	6"	6½"	4'-1"
		4'	16	5'-0"		6"		5'-1"
		5'	20	5'-1"		6½"		6'-0"
		6'	24	5'-3"		7½"		7'-0"

QUANTITIES

UNIT QUANTITIES REINFORCING STEEL CLASS 'S' CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	REINFORCING STEEL ADDITIONAL PER LAP LB.	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS LB.
0.312	29.62	13.96	51.44
0.349	32.29	15.03	51.44
0.386	34.96	16.70	51.44
0.467	38.08	18.37	52.33
0.370	43.16	15.03	79.37
0.407	45.83	16.70	79.37
0.444	48.50	18.37	79.37
0.526	51.87	20.04	80.77
0.594	57.00	21.71	81.96
0.472	38.99	18.37	93.29
0.509	61.66	20.04	93.29
0.591	65.18	21.71	94.68
0.660	70.41	23.38	95.37
0.735	73.83	25.05	96.07
0.312	33.98	13.36	
0.349	36.65	15.03	
0.386	39.32	16.70	
0.467	44.39	18.37	
0.370	49.78	15.03	
0.407	52.45	16.70	
0.444	55.12	18.37	
0.526	59.98	20.04	
0.594	67.68	21.71	
0.499	65.30	18.37	
0.536	66.63

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

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION "A" & BAR GROUP "A" — 4:1 = 32'-0" — 3:1 = 22'-0" — 0' TO 10'-0"

CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	"b" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	X	"c" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d" bars. STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH
1 @ 7	5'			48	68	7'-9"			44	64	8'-10"	7'-8"			8										#4	12"	44	64	6'-7"
	6'			48	68	7'-11"			44	64	9'-0"	7'-10"			8												44	64	7'-11"
	7'	#5	12"	48	68	8'-1"	#6	12"	44	64	9'-1"	7'-11"	#4	12"	8												44	64	9'-1"
	8'			48	68	8'-1"			44	64	9'-2"	8'-0"			8										#5	12"	44	64	9'-11"
	9'			48	68	8'-3"			44	64	9'-4"	8'-2"			8											11"	48	70	10'-1"
1 @ 8	6'			48	68	8'-11"			44	64	10'-0"	8'-10"			9										#4	12"	44	64	7'-3"
	7'			48	68	9'-0"			44	64	10'-1"	8'-11"			9												44	64	8'-3"
	8'	#6	12"	48	68	9'-1"	#6	12"	44	64	10'-2"	9'-0"	#4	12"	9											12"	44	64	9'-3"
	9'			48	68	9'-3"			44	64	10'-4"	9'-2"			9										#5	11"	48	70	10'-3"
	10'			48	68	9'-5"			44	64	10'-5"	9'-4"			9											11"	48	70	11'-3"
1 @ 9	7'			52	74	10'-0"			48	70	11'-3"	9'-11"			10										#4	12"	44	64	8'-5"
	8'			52	74	10'-1"			48	70	11'-4"	10'-0"			10												48	70	9'-5"
	9'	#6	11"	52	74	10'-3"	#7	11"	48	70	11'-6"	10'-2"	#4	12"	10										#5	11"	48	70	10'-5"
	10'			52	74	10'-5"			48	70	11'-8"	10'-4"			10												48	70	11'-5"
	11'			52	74	10'-7"			48	70	11'-10"	10'-6"			10										#6	12"	44	64	12'-5"
1 @ 10	8'			48	68	11'-1"			44	64	12'-8"	11'-5"			11										#5	12"	44	64	9'-7"
	9'			48	68	11'-3"			44	64	12'-6"	11'-3"			11												44	64	10'-7"
	10'	#7	12"	48	68	11'-5"	#7	12"	44	64	12'-8"	11'-5"	#4	12"	11											10"	52	78	11'-7"
	11'			48	68	11'-7"			44	64	12'-10"	11'-7"			11										#6	12"	44	64	12'-7"
1 @ 10	12'			48	68	11'-9"			44	64	13'-0"	11'-9"			11											11"	48	70	13'-7"

SECTION "B" & BAR GROUP "B" — 4:1 = 16'-0" — 3:1 = 11'-0" — 10'-0" TO 15'-0"

CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	"b" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	X	"c" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d" bars. STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH
1 @ 7	5'			24	36	7'-9"			24	34	8'-10"	7'-8"			8										#4	12"	22	32	6'-9"
	6'			24	36	7'-11"			24	34	9'-0"	7'-10"			8												22	32	7'-9"
	7'	#6	11"	24	36	8'-0"	#6	11"	24	34	9'-1"	7'-11"	#4	12"	8										#5	12"	22	32	8'-9"
	8'			24	36	8'-1"			24	34	9'-2"	8'-1"			8												22	32	9'-3"
	9'			24	36	8'-3"			24	34	9'-4"	8'-2"			8										#6	12"	22	32	10'-8"
1 @ 8	6'			22	32	8'-11"			22	32	10'-0"	8'-10"			9										#4	12"	22	32	7'-5"
	7'			22	32	9'-0"			22	32	10'-1"	8'-11"			9												22	32	8'-5"
	8'	#7	12"	22	32	9'-1"	#6	12"	22	32	10'-2"	9'-0"	#4	12"	9										#5	12"	22	32	9'-5"
	9'			22	32	9'-3"			22	32	10'-4"	9'-2"			9											10"	26	40	9'-5"
	10'			22	32	9'-5"			22	32	10'-6"	9'-4"			9										#6	12"	22	32	10'-5"
1 @ 9	7'			22	32	10'-0"			22	32	11'-3"	9'-11"			10												22	32	8'-7"
	8'			22	32	10'-1"			22	32	11'-4"	10'-0"			10										#5	12"	22	32	8'-10"
	9'	#7	12"	22	32	10'-3"	#7	12"	22	32	11'-6"	10'-2"	#4	12"	10												22	32	9'-0"
	10'			22	32	10'-5"			22	32	11'-8"	10'-4"			10										#6	12"	22	32	10'-7"
	11'			22	32	10'-7"			22	32	11'-10"	10'-6"			10												22	32	12'-7"
1 @ 10	8'			22	32	11'-1"			22	32	12'-0"	11'-0"			12										#5	10"	28	40	9'-9"
	9'			22	32	11'-3"			22	32	12'-6"	11'-2"			12											12"	22	32	10'-9"
	10'	#8	12"	22	32	11'-5"	#7	12"	22	32	12'-8"	11'-4"	#4	11"	12										#6	12"	22	32	12'-9"
	11'			22	32	11'-7"			22	32	12'-10"	11'-6"			12												22	32	12'-9"
	12'			22	32	11'-9"			22	32	13'-0"	11'-8"			12										#7	12"	22	32	13'-9"

SECTION "C" & BAR GROUP "C" — 4:1 = 16'-0" — 3:1 = 11'-0" — 15'-0" TO 20'-0"

CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	"b" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	X	"c" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d" bars. STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH
1 @ 7	5'			20	30	7'-9"			20	30	9'-0"	7'-8"			8										#4	12"	22	32	6'-5"
	6'			20	30	7'-11"			20	30	9'-2"	7'-10"			8												22	32	7'-5"
	7'	#7	13"	20	30	8'-0"	#7	13"	20	30	9'-3"	7'-11"	#4	12"	8										#5	12"	22	32	8'-5"
	8'			20	30	8'-1"			20	30	9'-4"	8'-0"			8												22	32	9'-5"
	9'			20	30	8'-3"			20	30	9'-6"	8'-2"			8										#6	12"	22	32	10'-5"
1 @ 8	6'			22	32	8'-11"			22	32	10'-2"	8'-10"			10										#4	12"	22	32	7'-3"
	7'			22	32	9'-0"			22	32	10'-3"	8'-11"			10												22	32	8'-3"
	8'	#8	12"	22	32	9'-1"	#7	12"	22	32	10'-5"	9'-1"	#4	11"	10										#5	12"	22	32	9'-3"
	9'			22	32	9'-3"			22	32	10'-6"	9'-2"			10											10"	28	40	10'-3"
	10'			22	32	9'-5"			22	32	10'-8"	9'-4"			10										#6	12"	22	32	11'-3"
1 @ 9	7'			22	32	10'-2"			22	32	11'-1"	10'-0"			11										#4	12"	22	32	8'-1"
	8'			22	32	10'-3"			22	32	11'-2"	10'-1"			11												22	32	9'-1"
	9'	#8	12"	22	32	10'-4"	#8	12"	22	32	11'-4"	10'-3"	#4	12"	11										#5	12"	22	32	9'-11"
	10'			22	32	10'-5"			22	32	11'-5"	10'-4"			11												22	32	10'-9"
	11'			22	32	10'-7"			22	32	11'-7"	10'-6"			11										#6	12"	22	32	12'-7"
1 @ 10	8'			22	32	11'-2"			22	32	12'-1"	11'-1"			12										#4	12"	22	32	8'-9"
	9'			22	32	11'-4"			22	32	12'-3"	11'-3"			12												22	32	9'-9"
	10'	#8	12"	22	32	11'-5"	#8	12"	22	32	12'-5"	11'-4"	#4	11"	12										#5	12"	22	32	10'-9"
	11'			22	32	11'-7"			22	32	12'-7"	11'-6"			12												22	32	11'-9"
	12'			22	32	11'-9"			22	32	12'-9"	11'-8"			12										#6	12"	22	32	12'-9"

SECTION "D" & BAR GROUP "D" — 4:1 = 16'-0" — 3:1 = 11'-0" — 20'-0" TO 25'-0"

CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	"b" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	X	"c" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d" bars. STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH
1 @ 7	5'			22	32	7'-10"			22	32	9'-7"	7'-5"			9										#4	12"	22	32	6'-7"
	6'			22	32	8'-0"			22	32	9'-9"	7'-7"			9												22	32	7'-7"
	7'	#7	12"	22	32	8'-1"	#7	12"	22	32	9'-10"	7'-8"	#4	12"	9										#5	12"	22	32	8'-7"
	8'			22	32	8'-3"			22	32	9'-11"	8'-0"			9												22	32	9'-7"
	9'			22	32	8'-4"			22	32	10'-1"	8'-1"			9										#6	12"	22	32	10'-7"
1 @ 8	6'			22	32	9'-0"			22	32	10'-3"	8'-11"			11										#4	12"	22	32	7'-5"
	7'			22	32	9'-1"			22	32	10'-4"	9'-0"			11												22	32	8'-5"
	8'	#8	12"	22	32	9'-3"	#7	12"	22	32	10'-6"	9'-2"	#4	10"	11										#5	12"	22	32	9'-5"
	9'			22	32	9'-5"			22	32	10'-8"	9'-4"			11											10"	26	40	10'-3"
	10'			22	32	9'-7"			22	32	10'-10"	9'-6"			11										#6	12"	22	32	11'-3"
1 @ 9	7'			22	32	10'-2"			22	32	11'-3"	10'-1"			12										#4	12"	22	32	8'-1"
	8'			22	32	10'-4"			22	32	11'-5"	10'-3"			12												22	32	9'-1"
	9'	#8	12"	22	32	10'-5"	#8	12"	22	32	11'-7"	10'-5"	#4	10"	12										#5	12"	22	32	9'-11"
	10'			22	32	10'-7"			22	32	11'-9"	10'-6"			12												22	32	10'-9"
	11'			22	32	10'-9"			22	32	12'-1"	10'-8"			12										#6	12"	22	32	12'-7"
1 @ 10	8'			22	32	11'-4"			22	32	12'-5"	11'-3"			14										#4	12"	22	32	8'-9"
	9'			22	32	11'-6"			22	32	12'-7"	11'-5"			14												22	32	9'-9"
	10'	#8	12"	22	32	11'-7"	#8	12"	22	32	12'-9"	11'-7"	#4	9½"	14										#5	12"	22	32	10'-9"
	11'			22	32	11'-9"			22	32	13'-0"	11'-10"			14												22	32	12'-9"
	12'			22	32	11'-11"			22	32	13'-2"	12'-0"			14										#6	12"	22	32	13'-9"

NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bc, Bd, Be, and Bf.

SECTION "E" & BAR GROUP "E" — 4:1 = 16'-0" — 3:1 = 11'-0" — 25'-0" TO 30'-0"

CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	"b" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH	X	"c" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d" bars. STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	4:1	LENGTH
1 @ 7	5'																											
	6'																											
	7'	#7	11"				#7	11"					#4	12"															
	8'																											
	9'																											
1 @ 8	6'																											
	7'																											
	8'	#8	11"				#8	11"					#4	12"															
	9'																											
	10'																											
1 @ 9	7'																											
	8'																											
	9'	#8	11"				#8	11"					#4	12"															
	10'																											
	11'																											

Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel / Varies with Length of Barrel

34'-3" for 33'-0" Section / 34'-3" for 33'-0" Section / 34'-3" for 33'-0" Section / 34'-3" for 33'-0" Section / 34'-3" for 33'-0" Section / 34'-3" for 33'-0" Section

Designed By: W.C.H. 7-18-62. Checked By:- EMS 7-25-62.
Drawn By: W.C.H. 8-3-62. Checked By:- EMS 8-10-62.
Quantities By: W.C.H. 8-1-62. Checked By:- EMS 8-10-62.

DIMENSIONS AND QUANTITIES

MARK. DESIGN DEPTH OF COVER		BARREL DIMENSIONS: CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES: CLASS S CONC. PER LIN. FT OF BARREL	REINFORCING STEEL: PER LIN. FT. OF BARREL	ADDITIONAL: PER LAP	ADDITIONAL: TWO HEADWALLS & APRONS
		D	S	H	A	OW	T	C	B	OH	CU. YD.	LB.	LB.	LB
SECTION "A" - 10'-0"	1 @ 7	5'	35	8'-0"	8"	6"	8½"	6'-4½"	0.593	68.20	21.71	107.42
		6'	42	8'-2"		7"		7'-4½"	0.675	71.72	23.38	108.81
		7'	49	8'-3"		7½"		8'-4½"	0.744	75.80	25.05	109.50
	8'	8'	56	8'-4"		8"		9'-4½"	0.819	84.72	26.72	110.20
		9'	63	8'-6"		9"		10'-4½"	0.933	90.91	28.39	111.59
	1 @ 8	6'	48	9'-2"	8½"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
		7'	56	9'-3"		7½"		8'-6"	0.838	89.72	26.72	158.02
		8'	64	9'-4"		8"		9'-6"	0.914	99.84	28.39	159.02
	8'	9'	72	9'-6"		9"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	9'-8"		10"		11'-6"	1.154	113.38	31.73	163.03
	1 @ 9	7'	63	10'-3"	9½"	7½"	10½"	8'-8"	0.957	116.90	28.39	179.61
		8'	72	10'-4"		8"		9'-8"	1.033	127.28	30.06	178.61
		9'	81	10'-6"		8½"		10'-8"	1.148	138.97	31.73	180.61
	9'	10'	90	10'-8"		9"		11'-8"	1.276	141.94	33.40	182.62
		11'	99	10'-10"		11"		12'-8"	1.416	152.81	35.07	184.62
	1 @ 10	8'	80	11'-0"	10½"	8"	11½"	9'-10"	1.165	141.10	31.73	249.37
		9'	90	11'-2"		8½"		10'-10"	1.281	145.89	33.40	252.10
		10'	100	11'-4"		9"		11'-10"	1.409	155.50	35.07	254.82
	10'	11'	110	11'-10"		11"		12'-10"	1.550	162.01	36.74	257.55
		12'	120	12'-0"		12"		13'-0"	1.704	176.92	38.41	260.27
SECTION "B" - 15'-0"	1 @ 7	5'	35	8'-0"	8½"	6"	9½"	6'-6"	0.680	80.06	21.71	
		6'	42	8'-2"		7"		7'-6"	0.713	83.88	28.38	
		7'	49	8'-3"		7½"		8'-6"	0.782	93.23	25.05	
	7'	8'	56	8'-4"		8"		9'-6"	0.858	105.69	26.72	
		9'	63	8'-6"		9"		10'-6"	0.972	111.13	28.39	
	1 @ 8	6'	48	9'-2"	9½"	7"	10½"	7'-8½"	0.839	96.94	25.05	
		7'	56	9'-3"		7½"		8'-8½"	0.909	106.02	26.72	
		8'	64	9'-4"		8"		9'-8½"	0.986	113.96	28.39	
	8'	9'	72	9'-6"		9"		10'-8½"	1.101	129.20	30.06	
		10'	80	9'-8"		10"		11'-8½"	1.229	136.58	31.73	
	1 @ 9	7'	63	10'-3"	10½"	7½"	11½"	8'-10½"	1.086	127.49	28.39	
		8'	72	10'-4"		8"		9'-10½"	1.118	135.59	30.06	
		9'	81	10'-6"		9"		10'-10½"	1.229	146.09	31.73	
	9'	10'	90	10'-8"		10"		11'-10½"	1.358	158.75	33.40	
		11'	99	10'-10"		11"		12'-10½"	1.499	171.19	35.07	
	1 @ 10	8'	80	11'-0"	11½"	8"	12½"	10'-0½"	1.252	160.73	33.40	
		9'	90	11'-2"		9"		11'-0½"	1.370	171.52	35.07	
		10'	100	11'-4"		10"		12'-0½"	1.499	180.66	36.74	
	10'	11'	110	11'-10"		11"		13'-0½"	1.642	197.17	38.41	
		12'	120	12'-0"		12"		14'-0½"	1.796	203.27	40.08	
SECTION "C" - 20'-0"	1 @ 7	5'	35	8'-0"	9½"	6"	10½"	6'-6"	0.679	89.15	21.71	
		6'	42	8'-2"		7"		7'-6"	0.763	98.69	23.38	
		7'	49	8'-3"		7½"		8'-8"	0.833	106.20	25.05	
	7'	8'	56	8'-4½"		8"		9'-8"	0.924	117.96	26.72	
		9'	63	8'-6½"		9"		10'-8"	1.041	132.28	28.39	
	1 @ 8	6'	48	9'-2"	10½"	7"	11½"	7'-10½"	0.896	111.55	26.72	
		7'	56	9'-3"		7½"		8'-10½"	0.966	122.89	28.39	
		8'	64	9'-4½"		8"		9'-10½"	1.074	132.89	30.06	
	8'	9'	72	9'-6½"		9"		10'-10½"	1.177	144.27	31.73	
		10'	80	9'-8½"		10"		11'-10½"	1.307	156.17	33.40	
	1 @ 9	7'	63	10'-4"	11"	8"	12"	9'-1"	1.143	142.65	30.06	
		8'	72	10'-5"		8½"		10'-1"	1.224	155.88	31.73	
		9'	81	10'-6½"		9½"		11'-1"	1.327	167.52	33.40	
	9'	10'	90	10'-8½"		10½"		12'-1"	1.459	179.75	35.07	
		11'	99	10'-10½"		11½"		13'-1"	1.603	197.26	36.74	
	1 @ 10	8'	80	11'-0½"	11½"	8½"	12½"	10'-3"	1.405	173.91	35.07	
		9'	90	11'-2½"		9½"		11'-3"	1.511	194.05	36.74	
		10'	100	11'-4½"		10½"		12'-3"	1.626	209.20	38.41	
	10'	11'	110	11'-10½"		11½"		13'-3"	1.772	221.31	40.08	
		12'	120	12'-0½"		12½"		14'-3"	1.929	241.22	41.75	
SECTION "D" - 25'-0"	1 @ 7	5'	35	8'-1"	10"	6½"	11½"	6'-10"	0.749	96.65	23.38	
		6'	42	8'-3"		7½"		7'-10"	0.838	106.38	25.05	
		7'	49	8'-4½"		8½"		8'-10"	0.925	114.06	26.72	
	7'	8'	56	8'-6"		9"		9'-10"	1.022	126.68	28.39	
		9'	63	8'-8"		10"		10'-10"	1.149	141.24	30.06	
	1 @ 8	6'	48	9'-3"	10½"	7½"	11½"	8'-0½"	0.977	128.84	28.39	
		7'	56	9'-4½"		8½"		9'-0½"	1.065	136.70	30.06	
		8'	64	9'-6"	12"	9½"	12½"	10'-0½"	1.178	144.99	31.73	
	8'	9'	72	9'-8"		10½"		11'-0½"	1.304	153.36	33.40	
		10'	80	9'-10"		11½"		12'-0½"	1.441	172.92	35.07	
	1 @ 9	7'	63	10'-5"	11½"	8½"	13½"	9'-2½"	1.251	160.30	31.73	
		8'	72	10'-7"		9½"		10'-2½"	1.367	174.69	33.40	
		9'	81	10'-8½"		10½"		11'-2½"	1.478	186.52	35.07	
	9'	10'	90	10'-10½"	13½"	11½"	14½"	12'-2½"	1.617	199.94	36.74	
		11'	99	11'-0½"		12½"		13'-2½"	1.769	216.88	38.41	
	1 @ 10	8'	80	11'-3"	14½"	9½"	15½"	10'-6"	1.582	200.20	36.74	
		9'	90	11'-5"		10½"		11'-6"	1.671	214.77	38.41	
		10'	100	11'-8½"		11½"		12'-6"	1.784	230.33	40.08	
	10'	11'	110	12'-0½"		12½"		13'-6"	1.947	246.61	41.75	
		12'	120	12'-2½"		13½"		14'-6"	2.112	268.06	43.42	
SECTION "E" - 30'-0"	1 @ 7	5'	35	8'-2"	11½"	7"

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	"b" bars BENT - See Diagram at Right In top and Bottom Slabs of Barrel - Hooked. Alternate with "a" bars. SIZE	"j" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	"j'" bars STRAIGHT Longitudinal in Sidewalls. SIZE	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	"f" bars STRAIGHT Verticals in Sidewalls SIZE
		D	S	H	SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH	SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH / X	SPACING / HALF-REQ'D / LENGTH	SPACING / HALF-REQ'D / LENGTH	SPACING / HALF-REQ'D / LENGTH	SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH
"A"	2'-0" TO 10'-0"	0' TO 10'-0"	1@ 4'	2'	#4 12" 28 98 68 4'-9"	#4 12 24 44 64 5'-7"	#4 12" 5	#4 12" 4	#4 12" 5	#4 12" 5
			6'	3'	#5 12" 28 98 68 6'-3"	#6 12 24 44 64 7'-10"	#4 12" 7	#4 12" 6	#4 12" 7	#4 12" 7
			7'	4'	#6 12" 28 98 68 7'-5"	#6 12 24 44 64 8'-10"	#4 12" 8	#4 12" 8	#4 12" 8	#5 12" 9
			8'	5'	#6 12" 28 98 68 8'-9"	#6 12" 24 44 64 9'-10"	#4 12" 9	#4 12" 8	#4 12" 9	#5 12" 11
			9'	5'	#7 11" 30 52 74 9'-11"	#7 11" 24 98 70 11'-2"	#4 12" 10	#4 12" 10	#4 12" 10	#5 12" 12
				6'	30 52 74 10'-6"	26 98 70 11'-8"				
			10'	5'	28 98 68 10'-11"	24 44 64 12'-3"	#4 12" 11	#4 12" 11	#4 12" 11	#5 12" 14
				6'	12" 28 98 68 11'-0"	24 44 64 12'-3"				
				7'	28 98 68 11'-0"	24 44 64 12'-3"				
"B"	2'-0" TO 15'-0"	0' TO 10'-0"	4'	2'	#5 12" 12 22 32 4'-9"	#5 12" 12 22 32 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#4 12" 5
			6'	3'	#6 12" 12 22 32 6'-3"	#7 12" 12 22 32 8'-0"	#4 12" 7	#4 12" 6	#5 12" 7	#4 12" 7
			7'	4'	#6 11" 14 24 34 7'-9"	#6 11" 12 24 34 9'-2"	#4 12" 8	#4 12" 8	#4 12" 8	#4 12" 8
			8'	5'	#7 12" 12 22 32 8'-3"	#7 12" 12 22 32 10'-0"	#4 12" 9	#4 12" 8	#4 12" 9	#4 12" 9
			9'	5'	#7 12" 12 22 32 9'-11"	#7 12" 12 22 32 11'-3"	#4 12" 10	#4 12" 10	#4 12" 10	#4 12" 10
				6'	12 22 32 10'-0"	12 22 32 12'-3"				
			10'	5'	12 22 32 10'-11"	12 22 32 12'-2"	#4 12" 11	#4 12" 11	#4 12" 11	#4 12" 11
				6'	#8 12" 12 22 32 11'-0"	#7 12" 12 22 32 13'-3"				
				7'	12 22 32 11'-0"	12 22 32 13'-3"				
"C"	15'-0" TO 20'-0"	10'-0" TO 20'-0"	4'	2'	#5 12" 12 22 32 4'-9"	#5 12" 12 22 32 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#5 12" 5
			6'	3'	#6 11" 14 24 36 6'-9"	#6 11" 12 24 36 8'-0"	#4 12" 7	#4 12" 6	#4 12" 7	#5 12" 7
			7'	4'	#7 13" 12 20 30 7'-9"	#7 13" 10 20 30 9'-0"	#4 12" 8	#4 12" 8	#4 12" 8	#5 12" 8
			8'	5'	#7 12" 12 22 32 8'-9"	#7 12" 12 22 32 10'-0"	#4 11" 10	#4 12" 8	#4 11" 10	#5 11" 10
			9'	5'	#7 12" 12 22 32 9'-11"	#7 12" 12 22 32 11'-2"	#4 11" 11	#4 12" 10	#4 11" 11	#5 11" 11
				6'	12 22 32 10'-0"	12 22 32 11'-8"				
			10'	5'	12 22 32 10'-11"	12 22 32 12'-4"	13	#4 12" 10	13	#5 11" 13
				6'	#8 12" 12 22 32 11'-0"	#8 12" 12 22 32 12'-5"	#4 10" 13	#4 12" 12	#4 10" 13	#5 11" 13
				7'	12 22 32 11'-0"	12 22 32 12'-5"	13	#4 12" 14	13	#5 12" 14
"D"	20'-0" TO 25'-0"	20'-0" TO 30'-0"	4'	2'	#5 11" 14 24 36 4'-9"	#5 11" 12 24 34 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#5 12" 5
			6'	3'	#7 12" 12 22 32 6'-9"	#7 12" 12 22 32 8'-0"	#4 11" 9	#4 12" 6	#4 12" 7	#5 12" 7
			7'	4'	#7 11" 14 24 36 7'-9"	#7 11" 12 24 34 9'-0"	#4 11" 9	#4 12" 8	#4 11" 9	#5 11" 9
			8'	5'	#8 11" 14 24 36 8'-11"	#7 11" 12 24 34 10'-2"	#4 10" 11	#4 12" 8	#4 10" 11	#5 11" 11
			9'	5'	#8 12" 12 22 32 10'-0"	#8 12" 12 22 32 11'-5"	#4 10" 12	#4 12" 10	#4 10" 12	#5 11" 12
				6'	12 22 32 10'-11"	12 22 32 12'-4"				
			10'	5'	12 22 32 10'-11"	12 22 32 12'-5"	#4 9½" 14	#4 12" 12	#4 9½" 14	#5 12" 14
				6'	#8 12" 12 22 32 11'-0"	#8 12" 12 22 32 12'-7"				
				7'	12 22 32 11'-0"	12 22 32 12'-7"				
"E"	25'-0" TO 30'-0"	25'-0" TO 30'-0"	4'	2'	#5 12" 12 22 32 4'-9"	#5 12" 12 22 32 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#5 12" 5
			6'	3'	#6 12" 12 22 32 6'-9"	#7 12" 12 22 32 8'-0"	#4 11" 8	#4 12" 6	#4 11" 8	#5 12" 8
			7'	4'	#7 11" 14 24 36 7'-9"	#7 11" 12 24 34 9'-0"	#4 11" 9	#4 12" 8	#4 11" 9	#5 12" 9
			8'	5'	#8 11" 14 24 36 8'-11"	#7 11" 12 24 34 10'-2"	#4 10" 11	#4 12" 8	#4 10" 11	#5 12" 11
			9'	5'	#8 11" 14 24 36 10'-0"	#8 11" 12 24 34 11'-5"	#4 9" 13	#4 12" 10	#4 9" 13	#5 12" 12
				6'	#8 11" 14 24 36 10'-1"	#8 11" 12 24 34 11'-6"				
			10'	5'	14 24 36 10'-11"	12 22 32 12'-5"	13	#4 12" 12	13	#5 12" 14
				6'	Varies with Length of Barrel.	Varies with Length of Barrel.	#4 8½" 14		#4 8½" 14	
				7'						
				8'						
				9'						
				10'						
"F"	30'-0" TO 35'-0"	30'-0" TO 35'-0"	4'	2'	#6 12" 12 22 32 4'-9"	#6 12" 12 22 32 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#6 12" 5
			6'	3'	#7 12" 12 22 32 6'-9"	#7 12" 12 22 32 8'-0"	#4 9½" 9	#4 12" 6	#4 9½" 9	#6 12" 9
			7'	4'	#8 11" 14 24 36 7'-9"	#7 11" 12 24 34 9'-0"	#4 9½" 10	#4 12" 8	#4 9½" 10	#6 12" 10
			8'	5'	#8 11" 14 24 36 8'-11"	#7 11" 12 24 34 10'-2"	#4 9½" 11	#4 12" 8	#4 9½" 11	#6 12" 11
			9'	5'	#8 11" 14 24 36 10'-0"	#8 11" 12 24 34 11'-5"	#4 9½" 13	#4 12" 10	#4 9½" 13	#6 12" 12
				6'	#8 11" 14 24 36 10'-1"	#8 11" 12 24 34 11'-6"				
			10'	5'	14 24 36 10'-11"	12 22 32 12'-5"	13	#4 12" 12	13	#6 12" 14
				6'	Varies with Length of Barrel.	Varies with Length of Barrel.	#4 8½" 14		#4 8½" 14	
				7'						
				8'						
				9'						
				10'						
"G"	35'-0" TO 40'-0"	Varies	4'	2'	#6 12" 12 22 32 4'-9"	#6 12" 12 22 32 5'-8"	#4 12" 5	#4 12" 4	#4 12" 5	#6 12" 5
			6'	3'	#7 12" 12 22 32 6'-9"	#7 12" 12 22 32 8'-0"	#4 9½" 9	#4 12" 6	#4 9½" 9	#6 12" 9
			7'	4'	#8 11" 14 24 36 7'-9"	#7 11" 12 24 34 9'-0"	#4 9½" 10	#4 12" 8	#4 9½" 10	#6 12" 10
			8'	5'	#8 11" 14 24 36 8'-11"	#7 11" 12 24 34 10'-2"	#4 9½" 11	#4 12" 8	#4 9½" 11	#6 12" 11
			9'	5'	#8 11" 14 24 36 10'-0"	#8 11" 12 24 34 11'-5"	#4 9½" 13	#4 12" 10	#4 9½" 13	#6 12" 12
				6'	#8 11" 14 24 36 10'-1"	#8 11" 12 24 34 11'-6"				
			10'	5'	14 24 36 10'-11"	12 22 32 12'-5"	13	#4 12" 12	13	#6 12" 14
				6'	Varies with Length of Barrel.	Varies with Length of Barrel.	#4 8½" 14		#4 8½" 14	
				7'						
				8'						
				9'						
				10'						

NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section B, the bars should be marked B1, B2, B3, B4, B5, B6 and B7.

Designed By:- W.C.H. 12-9-64 Checked By:-
Drawn By:- W.C.H. 12-11-64 Checked By:-
Quantities By:- W.C.H. 12-17-64 Checked By:-

DIMENSIONS AND QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES CLASS 'S' CONC. PER LIN. FT OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL. ADDITIONAL PER LAP	ADDITIONAL TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
SECTION "A" - 10'-0"	1@ 4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	0.275	26.94	11.69	51.93
	6'	3'	18	7'-0"	7½"	6"	7½"	4'-3"	0.435	56.32	16.70	93.29
	7'	4'	28	8'-0"	8"	6"	8½"	5'-4½"	0.586	66.53	20.04	107.98
	8'	5'	32	9'-0"	8½"	6"	7"	5'-6"	0.698	80.81	21.71	154.99
		5'	40	9'-2"		6"	7"	6'-6"	0.725	83.86	23.38	156.95
	9'	5'	45	10'-2"	9½"	7"	10½"	6'-8"	0.844	110.91	25.05	176.61
		6'	54	10'-5"		7½"		7'-8"	0.911	119.23	26.72	179.61
	10'	5'	50	11'-2"	10½"	7½"	11½"	6'-10"	0.974	129.54	26.72	269.97
		6'	60	11'-5"		7½"		7'-10"	1.042	138.22	28.39	265.96
		7'	70	11'-8"		8"		8'-10"	1.088	130.56	30.06	245.84
SECTION "B" - 15'-0"	4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	0.275	31.80	11.69	51.93
	6'	3'	18	7'-0"	7½"	6"	8½"	4'-4½"	0.462	62.62	16.70	118.07
	7'	4'	28	8'-0"	8½"	6"	9½"	5'-6"	0.593	77.39	20.04	135.58
	8'	5'	32	9'-0"	9½"	6"	7"	5'-8½"	0.718	89.91	21.71	192.88
		5'	40	9'-2"		6"	7"	6'-8½"	0.736	93.77	23.38	195.61
	9'	5'	45	10'-2"	10½"	7"	11½"	6'-10½"	0.922	115.02	25.05	219.61
		6'	54	10'-5"		7½"		7'-10½"	0.990	118.38	26.72	220.37
	10'	5'	50	11'-2"	11½"	7"	12½"	7'-0½"	1.060	139.74	28.39	298.64
		6'	60	11'-5"		7½"		8'-0½"	1.128	149.22	30.06	300.92
		7'	70	11'-8"		8"		9'-0½"	1.175	152.95	31.73	300.92
SECTION "C" - 20'-0"	4'	2'	8	5'-0"	6½"	6"	6½"	3'-1½"	0.279	34.87	11.69		
	6'	3'	18	7'-0"	8½"	6"	9"	4'-5½"	0.483	66.72	16.70		
	7'	4'	28	8'-0"	9½"	6"	10½"	5'-6"	0.692	86.98	20.04		
	8'	5'	32	9'-0"	11"	6"	11½"	5'-10½"	0.773	102.81	23.38		
		5'	40	9'-2"		6"	7"	6'-10½"	0.853	106.85	25.05		
	9'	5'	45	10'-2"	12"	7"	13"	7'-1"	1.001	129.11	26.72		
		6'	54	10'-5"		7½"		8'-1"	1.069	139.66	28.39		
	10'	5'	50	11'-2"	13½"	7"	14½"	7'-3½"	1.164	157.56	30.06		
		6'	60	11'-5"		7½"		8'-3½"	1.233	168.24	31.73		
		7'	70	11'-8½"		7¾"		9'-3½"	1.293	170.85	33.40		
SECTION "D" - 25'-0"	4'	2'	8	5'-0"	6½"	6"	7½"	3'-2"	0.290	36.95	11.69		
	6'	3'	18	7'-0"	9½"	6"	9¾"	4'-7"	0.522	70.27	16.70		
	7'	4'	28	8'-0"	10½"	6"	11¼"	5'-10"	0.691	93.30	21.71		
	8'	5'	32	9'-0"	12"	6"	12½"	6'-0½"	0.889	115.39	26.05		
		5'	40	9'-2"		6"		7'-0½"	0.909	119.57	26.72		
	9'	5'	45	10'-2"	13½"	7"	14½"	7'-3½"	1.079	145.58	28.39		
		6'	54	10'-5"		7½"		8'-3½"	1.148	155.10	30.06		
	10'	5'	50	11'-2"	14½"	7"	15½"	7'-5"	1.250	175.16	31.73		
		6'	60	11'-5"		7½"		8'-5"	1.339	181.05	33.40		
		7'	70	11'-8½"		7¾"		9'-5"	1.483	190.98	35.07		
SECTION "E" - 30'-0"	4'	2'	8	5'-0"	7½"	6"	8½"	3'-3"	0.306	39.95	11.69		
	6'	3'	18	7'-0"	10½"	6"	10½"	4'-8½"	0.536	76.37	16.37		
	7'	4'	28	8'-0"	11½"	6"	12"	5'-11½"	0.728	99.69	21.71		
	8'	5'	32	9'-1"	13"	6"	13½"	6'-2½"	0.903	124.37	25.05		
		5'	40	9'-2½"		7½"		7'-2½"	0.977	128.74	26.72		
	9'	5'	45	10'-3"	14½"	7½"	15½"	7'-5½"	1.165	160.50	30.06		
		6'	54	10'-5½"		8½"		8'-5½"	1.250	168.15	31.73		
	10'	5'	50	11'-3"	15½"	7½"	16½"	7'-9½"	1.360	195.95	55.63		
		6'	60	11'-5"		8½"		8'-9½"	1.460	208.10	59.10		
		7'	70	11'-7"	15½"	9½"	16½"	9'-9½"	1.572	210.29	62.58		
		8'	80	11'-9"		10½"		10'-9½"	1.697	220.26	66.06		
		9'	90	11'-11"		11½"		11'-9½"	1.894	232.03	69.58		
		10'	100	12'-0"		12½"		12'-9½"	1.964	250.93	73.01		
SECTION "F" - 35'-0"	4'	2'	8	5'-0"	7½"	6"	8½"	3'-3"	0.321	42.82	11.69		
	6'	3'	18	7'-0"	10½"	6"	11½"	4'-10"	0.586	82.45	20.04		
	7'	4'	28	8'-1"	12½"	6"	13½"	6'-1"	0.803	116.80	23.38		
		4'	28	8'-2"		7"		6'-1"	0.868	115.79	25.05		
		5'	35	8'-3"		7½"		7'-1"	0.868	115.79	25.05		
	8'	6'	42	8'-5"	12½"	8"	12½"	8'-1"	0.969	123.56	26.72		
		7'	49	8'-7"		9½"		9'-1"	1.079	131.96	28.39		
		8'	56	8'-9"		10½"		10'-1"	1.194	145.80	30.06		
		9'	63	8'-11"		11½"		11'-1"	1.327	160.83	31.73		
		4'	32	9'-1"		6½"		6'-4½"	0.962	195.57	26.72		
		5'	40	9'-3"		7½"		7'-4½"	1.049	192.02	28.39		
	8'	6'	48	9'-5"	13½"	8½"	13½"	8'-4½"	1.169	150.95	30.06		
		7'	56	9'-7"		9½"		9'-4½"	1.261	157.78	31.73		
		8'	64	9'-9"		10½"		10'-4½"	1.395	179.62	33.40		
		9'	72	9'-11"		11½"		11'-4½"	1.521	183.51	35.07		
		10'	80	10'-1"		12½"		12'-4½"	1.670	200.66	36.74		
		4'	32	9'-1"		8"		7'-7½"	1.044	177.60	52.15		
		5'	40	9'-3"		9"		8'-7½"	1.396	196.70	55.63		
	9'	6'	54	10'-4"	15½"	10"	16"	9'-7½"	1.461	194.08	59.10		
		7'	63	10'-8"		11"		10'-7½"	1.588	200.30	62.58		
		8'	72	10'-10"		11"		10'-7½"	1.588	200.30	62.58		
		9'	81	11'-0"		12"		11'-7½"	1.728	220.59	66.06		
SECTION "G" - 40'-0"	4'	2'	8	5'-0"	8½"	6"	8½"	3'-3"	0.336	45.38	11.69		
		3'	18	7'-0"		6"		4'-7"	0.419	88.05	28.04		
		4'	24	7'-2"		7"		5'-11"	0.498	92.21	21.71		
	6'	5'	30	7'-4"	11½"	8"	12"	6'-11"	0.779	98.15	23.38		
		6'	36	7'-6"		9"		7'-11"	0.877	106.27	25.05		
		7'	42	7'-8"		10"		8'-11"	0.988	119.19	26.72		
		8'	48	7'-10"		11"		9'-11"	1.111	130.77	28.39		
		4'	28	8'-8"		7½"		6'-6½"	0.860	115.80	25.05		
		5'	35	8'-8½"		8½"		7'-6½"	0.990	121.18	26.72		
	7'	6'	42	8'-8½"	12"	9½"	13½"	8'-6½"	1.041	129.46	28.39		
		7'	49	8'-8½"		10½"		9'-6½"	1.155	138.51	30.06		
		8'	56	8'-8½"		11½"		10'-6½"	1.281	151.76	31.73		
		9'	63	9'-0"		12½"		11'-6½"	1.420	166.92	33.40		
		4'	32	9'-3"		7½"		6'-6½"	1.089	149.17	28.39		
		5'	40	9'-5"		8½"		7'-6½"	1.182	152.91	30.06		
		6'	48	9'-7"	12½"	9½"	13½"	8'-6½"	1.267	159.53	31.73		
	8'	7'	56	9'-9"		10½"		9'-6½"	1.349	168.81	33.40		
		8'	64	9'-11"		11½"		10'-6½"	1.498	178.73	35.07		
		9'	72	10'-1"		12½"		11'-6½"	1.636	192.77	36.74		
		10'	80	10'-3½"		13½"		12'-6½"	1.810	210.12	38.41		

DOWEL BARS FOR TWO HEADWALLS

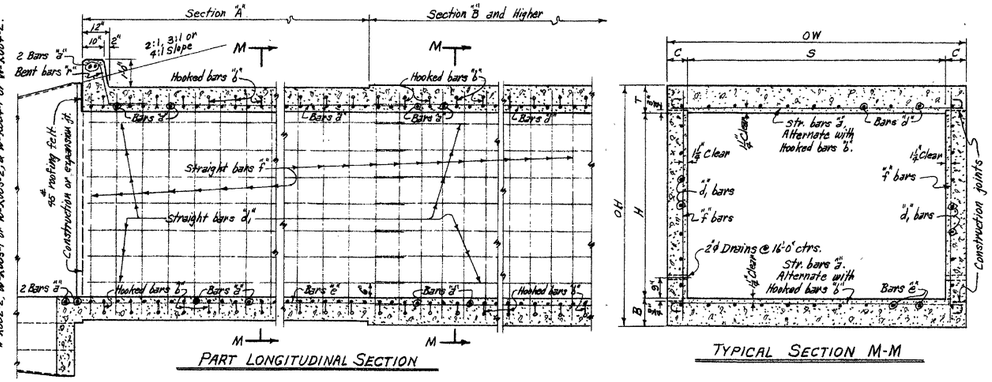
SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X
4'	#4	11½	12	2'-5"	1'-2½"
6'	#4	12½	16	2'-7"	1'-3½"
7'	#4	12½	18	2'-8"	1'-4"
8'	#4	12½	20	2'-10"	1'-5"
9'	#5	12½	22	3'-0"	1'-6"
10'	#4	12½	24	3'-2"	1'-7"

Bars "f" Dowel bars in Headwalls

NOTE:- Dimensions are to centers of bars.

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#4	2"	4"	0'-10½"
#5	2½"	4½"	0'-11½"
#6	3"	5"	1'-2"
#7	3½"	5⅝"	1'-4"
#8	4"	6½"	1'-6"

Bars "b"


Section "A"
Section "B" and Higher
2 Bars "f"
Bent bars "f"
2:1, 3:1 or 4:1 Slope
Hooked bars "b"
Bars "a"
Bars "j"
Straight bars "j'"
Construction or expansion jt.
2 Bars "e"
Bars "e"
Bars "f"
Bars "j'"
Bars "e"
Bars "b"
Bars "b"
Bars "j'

RESHOT 3-5-93 420 ~~450~~

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall - Each.				"b" bars BENT - See Diagram at Right. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.						"b2" bars BENT - See Diagram at Right. In Top of Bottom Slab, bent down under Division Wall - hooked. Alternate with "a" and "c" bars.						"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.				"d" bars STRAIGHT Longitudinal in Top Slab of Barrel			"d1" bars STRAIGHT Longitudinal in Sidewalls and Division Walls			"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel			"f" bars STRAIGHT Vertical in Sidewalls and Division Walls		
					SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	SIZE	SPACING	NUMBER REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"	SECTION "A" = 4'-1" x 2'-6" 3:1 = 22'-6" 4:1 = 16'-0"	0'	70	10'-0"																																					
		2'	4'	3'-0"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	3'-9"
		2 @ 2'-6"	4'	3'-6"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-3"
			5'	4'-0"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-5"
			6'		#6	18"	46	64	9'-6"	#6	18"	20	29	10'-8"	0'-2⅝"	2'-2"	3'-6"	#6	18"	20	29	10'-8"	0'-2⅝"	2'-2"	3'-6"	#5	18"	42	60	4'-9"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-8"
			3'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-0"
		2 @ 2'-6"	4'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-3"
			5'	4'-6"	#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-5"
			6'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-8"	0'-3"	2'-6"	4'-3"	#6	18"	24	35	12'-8"	0'-3"	2'-6"	4'-3"	#5	18"	48	70	5'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-8"
			7'		#6	18"	52	74	11'-10"	#6	18"	24	35	12'-11"	0'-3"	2'-6"	4'-3"	#6	18"	24	35	12'-11"	0'-3"	2'-6"	4'-3"	#5	18"	48	70	5'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-0"
			8'		#6	18"	52	74	11'-10"	#6	18"	24	35	13'-1"	0'-3"	2'-7"	4'-4"	#6	18"	24	35	13'-1"	0'-3"	2'-7"	4'-4"	#5	18"	48	70	5'-11"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-3"
			9'		#6	18"	52	74	12'-0"	#6	18"	24	35	13'-3"	0'-3"	2'-7"	4'-4"	#6	18"	24	35	13'-3"	0'-3"	2'-7"	4'-4"	#5	18"	48	70	6'-0"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-6"
			10'		#6	18"	52	74	12'-1"	#6	18"	24	35	13'-5"	0'-3"	2'-8"	4'-5"	#6	18"	24	35	13'-5"	0'-3"	2'-8"	4'-5"	#5	18"	48	70	6'-1"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-9"
			11'		#6	18"	52	74	12'-2"	#6	18"	24	35	13'-7"	0'-3"	2'-8"	4'-5"	#6	18"	24	35	13'-7"	0'-3"	2'-8"	4'-5"	#5	18"	48	70	6'-2"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-0"
			12'		#6	18"	52	74	12'-3"	#6	18"	24	35	13'-9"	0'-3"	2'-8"	4'-6"	#6	18"	24	35	13'-9"	0'-3"	2'-8"	4'-6"	#5	18"	48	70	6'-3"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-3"
			13'		#6	18"	52	74	12'-4"	#6	18"	24	35	13'-11"	0'-3"	2'-9"	4'-6"	#6	18"	24	35	13'-11"	0'-3"	2'-9"	4'-6"	#5	18"	48	70	6'-4"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-6"
			14'		#6	18"	52	74	12'-5"	#6	18"	24	35	14'-1"	0'-3"	2'-9"	4'-7"	#6	18"	24	35	14'-1"	0'-3"	2'-9"	4'-7"	#5	18"	48	70	6'-5"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-9"
			15'		#6	18"	52	74	12'-6"	#6	18"	24	35	14'-3"	0'-3"	2'-9"	4'-7"	#6	18"	24	35	14'-3"	0'-3"	2'-9"	4'-7"	#5	18"	48	70	6'-6"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-0"
			16'		#6	18"	52	74	12'-7"	#6	18"	24	35	14'-5"	0'-3"	2'-10"	4'-8"	#6	18"	24	35	14'-5"	0'-3"	2'-10"	4'-8"	#5	18"	48	70	6'-7"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-3"
			17'		#6	18"	52	74	12'-8"	#6	18"	24	35	14'-7"	0'-3"	2'-10"	4'-8"	#6	18"	24	35	14'-7"	0'-3"	2'-10"	4'-8"	#5	18"	48	70	6'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-6"
			18'		#6	18"	52	74	12'-9"	#6	18"	24	35	14'-9"	0'-3"	2'-10"	4'-9"	#6	18"	24	35	14'-9"	0'-3"	2'-10"	4'-9"	#5	18"	48	70	6'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-9"
			19'		#6	18"	52	74	12'-10"	#6	18"	24	35	14'-11"	0'-3"	2'-11"	4'-9"	#6	18"	24	35	14'-11"	0'-3"	2'-11"	4'-9"	#5	18"	48	70	6'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-0"
			20'		#6	18"	52	74	12'-11"	#6	18"	24	35	15'-1"	0'-3"	2'-11"	4'-10"	#6	18"	24	35	15'-1"	0'-3"	2'-11"	4'-10"	#5	18"	48	70	6'-11"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-3"
SECTION "B" & BAR GROUP "B"	SECTION "B" = 4'-1" x 2'-6" 3:1 = 22'-6" 4:1 = 16'-0"	0'	70	10'-0"																																					
		2'	4'	3'-0"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	3'-9"
		2 @ 2'-6"	4'	3'-6"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-3"
			5'	4'-0"	#6	18"	46	64	9'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#6	18"	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	18"	42	60	4'-8"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-5"
			6'		#6	18"	46	64	9'-6"	#6	18"	20	29	10'-8"	0'-2⅝"	2'-2"	3'-6"	#6	18"	20	29	10'-8"	0'-2⅝"	2'-2"	3'-6"	#5	18"	42	60	4'-9"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-8"
			3'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-0"
		2 @ 2'-6"	4'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-3"
			5'	4'-6"	#6	18"	52	74	11'-5"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#6	18"	24	35	12'-6"	0'-3"	2'-6"	4'-2"	#5	18"	48	70	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-5"
			6'		#6	18"	52	74	11'-5"	#6	18"	24	35	12'-8"	0'-3"	2'-6"	4'-3"	#6	18"	24	35	12'-8"	0'-3"	2'-6"	4'-3"	#5	18"	48	70	5'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-8"
			7'		#6	18"	52	74	11'-10"	#6	18"	24	35	12'-11"	0'-3"	2'-6"	4'-3"	#6	18"	24	35	12'-11"	0'-3"	2'-6"	4'-3"	#5	18"	48	70	5'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-0"
			8'		#6	18"	52	74	11'-10"	#6	18"	24	35	13'-1"	0'-3"	2'-7"	4'-4"	#6	18"	24	35	13'-1"	0'-3"	2'-7"	4'-4"	#5	18"	48	70	5'-11"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-3"
			9'		#6	18"	52	74	12'-0"	#6	18"	24	35	13'-3"	0'-3"	2'-7"	4'-4"	#6	18"	24	35	13'-3"	0'-3"	2'-7"	4'-4"	#5	18"	48	70	6'-0"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-6"
			10'		#6	18"	52	74	12'-1"	#6	18"	24	35	13'-5"	0'-3"	2'-8"	4'-5"	#6	18"	24	35	13'-5"	0'-3"	2'-8"	4'-5"	#5	18"	48	70	6'-1"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-9"
			11'		#6	18"	52	74	12'-2"	#6	18"	24	35	13'-7"	0'-3"	2'-8"	4'-5"	#6	18"	24	35	13'-7"	0'-3"	2'-8"	4'-5"	#5	18"	48	70	6'-2"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-0"
			12'		#6	18"	52	74	12'-3"	#6	18"	24	35	13'-9"	0'-3"	2'-8"	4'-6"	#6	18"	24	35	13'-9"	0'-3"	2'-8"	4'-6"	#5	18"	48	70	6'-3"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-3"
			13'		#6	18"	52	74	12'-4"	#6	18"	24	35	13'-11"	0'-3"	2'-9"	4'-6"	#6	18"	24	35	13'-11"	0'-3"	2'-9"	4'-6"	#5	18"	48	70	6'-4"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-6"
			14'		#6	18"	52	74	12'-5"	#6	18"	24	35	14'-1"	0'-3"	2'-9"	4'-7"	#6	18"	24	35	14'-1"	0'-3"	2'-9"	4'-7"	#5	18"	48	70	6'-5"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-9"
			15'		#6	18"	52	74	12'-6"	#6	18"	24	35	14'-3"	0'-3"	2'-9"	4'-7"	#6	18"	24	35	14'-3"	0'-3"	2'-9"	4'-7"	#5	18"	48	70	6'-6"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-0"
			16'		#6	18"	52	74	12'-7"	#6	18"	24	35	14'-5"	0'-3"	2'-10"	4'-8"	#6	18"	24	35	14'-5"	0'-3"	2'-10"	4'-8"	#5	18"	48	70	6'-7"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-3"
			17'		#6	18"	52	74	12'-8"	#6	18"	24	35	14'-7"	0'-3"	2'-10"	4'-8"	#6	18"	24	35	14'-7"	0'-3"	2'-10"	4'-8"	#5	18"	48	70	6'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-6"
			18'		#6	18"	52	74	12'-9"	#6	18"	24	35	14'-9"	0'-3"	2'-10"	4'-9"	#6	18"	24	35	14'-9"	0'-3"	2'-10"	4'-9"	#5	18"	48	70	6'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-9"
			19'		#6	18"	52	74	12'-10"	#6	18"	24	35	14'-11"	0'-3"	2'-11"	4'-9"	#6	18"	24	35	14'-11"	0'-3"	2'-11"	4'-9"	#5	18"	48	70	6'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-0"
			20'		#6	18"	52	74	12'-11"	#6	18"	24	35	15'-1"	0'-3"	2'-11"	4'-10"	#6	18"	24	35	15'-1"	0'-3"	2'-11"	4'-10"	#5	18"	48	70	6'-11"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-3"
SECTION "C" & BAR GROUP "C"	SECTION "C" = 4'-1" x 16'-0" 3:1 = 11'-0" 4:1 = 16'-0"	0'	70	20'-0"																																					
		2'	4'	3'-0"	#6	18"	26	40	9'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#5	18"	26	40	4'-5"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	3'-10"
		2 @ 2'-6"	4'	3'-6"	#6	18"	26	40	9'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#5	18"	26	40	4'-5"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-0"
			5'	4'-6"	#6	18"	26	40	9'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#6	18"	14	19	10'-5"	0'-3⅜"	2'-10"	3'-5"	#5	18"	26	40	4'-5"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-5"
			6'		#6	18"	26	40	9'-6"	#6	18"	14	19	10'-8"	0'-3⅜"	2'-11"	3'-6"	#6	18"	14	19	10'-8"	0'-3⅜"	2'-11"	3'-6"	#5	18"	26	40	4'-6"	#4	12"	14	12	#4	12"	16	12	#4	12"	14	12	#4	12"	88	128	4'-8"
			3'		#6	18"	28	38	11'-5"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#5	18"	32	48	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-0"
		2 @ 2'-6"	4'		#6	18"	28	38	11'-5"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#5	18"	32	48	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-3"
			5'	4'-6"	#6	18"	28	38	11'-5"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#6	18"	18	18	12'-7"	0'-4⅛"	2'-4"	4'-2"	#5	18"	32	48	5'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-5"
			6'		#6	18"	28	38	11'-8"	#6	18"	18	18	12'-8"	0'-4⅛"	2'-4"	4'-2"	#6	18"	18	18	12'-8"	0'-4⅛"	2'-4"	4'-2"	#5	18"	32	48	5'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	5'-8"
			7'		#6	18"	28	38	11'-11"	#6	18"	18	18	12'-11"	0'-4⅛"	2'-4"	4'-3"	#6	18"	18	18	12'-11"	0'-4⅛"	2'-4"	4'-3"	#5	18"	32	48	5'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-0"
			8'		#6	18"	28	38	11'-11"	#6	18"	18	18	13'-2"	0'-4⅛"	2'-5"	4'-3"	#6	18"	18	18	13'-2"	0'-4⅛"	2'-5"	4'-3"	#5	18"	32	48	5'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-3"
			9'		#6	18"	28	38	12'-0"	#6	18"	18	18	13'-4"	0'-4⅛"	2'-5"	4'-4"	#6	18"	18	18	13'-4"	0'-4⅛"	2'-5"	4'-4"	#5	18"	32	48	5'-11"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-6"
			10'		#6	18"	28	38	12'-1"	#6	18"	18	18	13'-6"	0'-4⅛"	2'-6"	4'-4"	#6	18"	18	18	13'-6"	0'-4⅛"	2'-6"	4'-4"	#5	18"	32	48	6'-0"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	6'-9"
			11'		#6	18"	28	38	12'-2"	#6	18"	18	18	13'-8"	0'-4⅛"	2'-6"	4'-5"	#6	18"	18	18	13'-8"	0'-4⅛"	2'-6"	4'-5"	#5	18"	32	48	6'-1"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-0"
			12'		#6	18"	28	38	12'-3"	#6	18"	18	18	13'-10"	0'-4⅛"	2'-6"	4'-5"	#6	18"	18	18	13'-10"	0'-4⅛"	2'-6"	4'-5"	#5	18"	32	48	6'-2"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-3"
			13'		#6	18"	28	38	12'-4"	#6	18"	18	18	14'-0"	0'-4⅛"	2'-7"	4'-6"	#6	18"	18	18	14'-0"	0'-4⅛"	2'-7"	4'-6"	#5	18"	32	48	6'-3"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-6"
			14'		#6	18"	28	38	12'-5"	#6	18"	18	18	14'-2"	0'-4⅛"	2'-7"	4'-6"	#6	18"	18	18	14'-2"	0'-4⅛"	2'-7"	4'-6"	#5	18"	32	48	6'-4"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	7'-9"
			15'		#6	18"	28	38	12'-6"	#6	18"	18	18	14'-4"	0'-4⅛"	2'-8"	4'-7"	#6	18"	18	18	14'-4"	0'-4⅛"	2'-8"	4'-7"	#5	18"	32	48	6'-5"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-0"
			16'		#6	18"	28	38	12'-7"	#6	18"	18	18	14'-6"	0'-4⅛"	2'-8"	4'-7"	#6	18"	18	18	14'-6"	0'-4⅛"	2'-8"	4'-7"	#5	18"	32	48	6'-6"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-3"
			17'		#6	18"	28	38	12'-8"	#6	18"	18	18	14'-8"	0'-4⅛"	2'-8"	4'-8"	#6	18"	18	18	14'-8"	0'-4⅛"	2'-8"	4'-8"	#5	18"	32	48	6'-7"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-6"
			18'		#6	18"	28	38	12'-9"	#6	18"	18	18	14'-10"	0'-4⅛"	2'-9"	4'-8"	#6	18"	18	18	14'-10"	0'-4⅛"	2'-9"	4'-8"	#5	18"	32	48	6'-8"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	8'-9"
			19'		#6	18"	28	38	12'-10"	#6	18"	18	18	15'-0"	0'-4⅛"	2'-9"	4'-9"	#6	18"	18	18	15'-0"	0'-4⅛"	2'-9"	4'-9"	#5	18"	32	48	6'-9"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-0"
			20'		#6	18"	28	38	12'-11"	#6	18"	18	18	15'-2"	0'-4⅛"	2'-9"	4'-9"	#6	18"	18	18	15'-2"	0'-4⅛"	2'-9"	4'-9"	#5	18"	32	48	6'-10"	#4	12"	16	12	#4	12"	20	12	#4	12"	16	12	#4	12"	88	128	9'-3"
SECTION "D" & BAR GROUP "D"	SECTION "D" = 4'-1" x 16'-0" 3:1 = 11'-0" 4:1 = 16'-0"	0'	70	25'-0"																																					
		2'	4'	3'-0"	#6	18"	20	28	9'-5"	#6	18"	10	15	10'-5"	0'-3⅜"	2'-1"	3'-5"	#6	18"	10	15	10'-7"	0'-3⅜"	2'-1"	3'-

RESHOT 3-5-93 410 ~~161~~

BAR LIST FOR VARIOUS SECTIONS OF BARREL

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

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X
4'	#4	12"	20	2'-4"	1'-2"
6'	#4	12"	28	2'-6"	1'-3"
7'	#4	12"	32	2'-8"	1'-4"
8'	#4	12"	36	3'-0"	1'-6"
9'	#4	12"	40	3'-2"	1'-6"
10'	#4	12"	44	3'-2"	1'-7"

Bars "r" Dowel bars in Headwalls

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	2:1 SLOPES SECTIONS A	2:1 SLOPES SECTIONS B,C,D, & E or F	3:1 SLOPES SECTIONS A	3:1 SLOPES SECTIONS B,C,D, & E or F	4:1 SLOPES SECTIONS A	4:1 SLOPES SECTIONS B,C,D, & E or F
0°	1.0	12.0'	6.0'	22.0'	11.0'	32.0'	16.0'
15°	1.0353	12.424	6.212'	22.774'	11.388'	33.129'	16.564'
30°	1.1547	13.856	6.928'	25.408'	12.702'	36.950'	18.475'
45°	1.4142	16.970	8.485'	31.113'	15.556'	45.255'	22.627'

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS CU.YD.	ADD FOR 2 HOOKS LB.	ADD FOR 2 HOOKS LB.
#4	2	4"	0.018		
#5	2½	4½"	0.028		
#6	3	5"	0.040		
#7	3½	5½"	0.054		
#8	4"	6"	0.071		

BENDING DIAGRAM FOR BARS "S" and "bz".

NOTE:- Dimensions are to centers of bars (6 & 6z).

2:1 Slope 20'-8" 16'-0" 16'-0" 10'-0" 16'-0" 16'-0" 16'-0"
3:1 Slope 30'-0" 15'-0" 16'-0" 15'-0" 15'-0" 15'-0"
4:1 Slope 40'-0" 24'-0" 20'-0" 20'-0" 20'-0" 20'-0" 20'-0"

Finished Grades; 2:1, 3:1, or 4:1 Slopes; 24"ø Reinforced Concrete Pipe; 30"ø Reinforced Concrete Pipe; 36"ø Reinforced Concrete Pipe; 42"ø Reinforced Concrete Pipe; 48"ø Reinforced Concrete Pipe; 54"ø Reinforced Concrete Pipe; 60"ø Reinforced Concrete Pipe; 66"ø Reinforced Concrete Pipe; 72"ø Reinforced Concrete Pipe; 78"ø Reinforced Concrete Pipe; 84"ø Reinforced Concrete Pipe; 90"ø Reinforced Concrete Pipe; 96"ø Reinforced Concrete Pipe

2:1 Slope = SECTIONS Bar Group: A=12'-0" B=6'-8" C=6'-0" D=6'-0" E=6'-8" F=6'-8" MID-SECTION G-Varies
3:1 Slope = SECTIONS Bar Group: A=22'-0" B=11'-8" C=11'-0" D=11'-0" E=11'-8" F=11'-8" MID-SECTION G-Varies
4:1 Slope = SECTIONS Bar Group: A=32'-0" B=16'-0" C=16'-0" D=16'-0" E=16'-0" F=16'-0" MID-SECTION G-Varies

TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A	B					B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A	B					B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

SECTION "A" SECTION B and Higher

PART LONGITUDINAL SECTION TYPICAL SECTION M-M

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961 AND SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/"
Reinforcing Steel 20000#/"

NOTE:- This drawing to be used in conjunction with Std. Wing Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, & W-X004-1 or W-X004-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

ADD'L 4',6',7',8',9' & 10' SPANS DOUBLES
2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-200X-X4

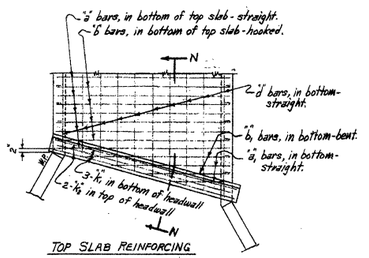
Designed by:- W.C.H. 12-31-64. Checked by:-
Drawn by:- W.C.H. 1-8-65. Checked by:-
Quantities by:- W.C.H. 1-19-65. Checked by:-

(19)

RESHOT 3-8-93

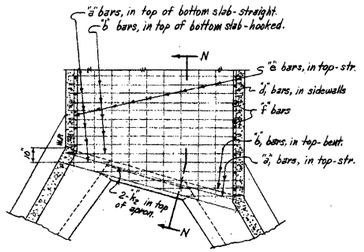
180

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



TOP SLAB REINFORCING

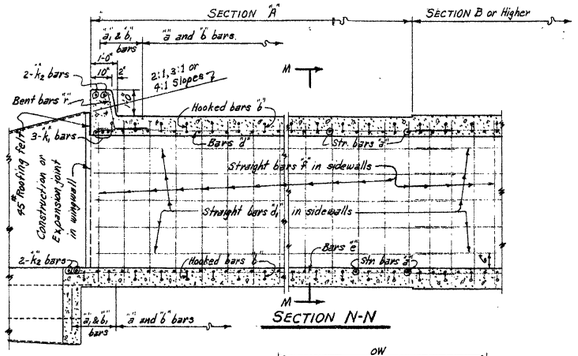
PART PLAN AT END OF CULVERT

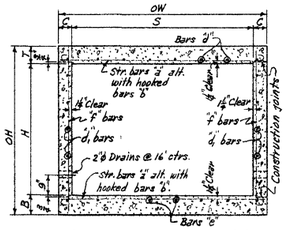


BOTTOM SLAB REINFORCING

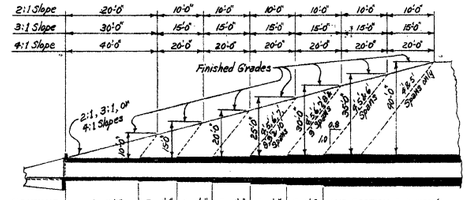
PART PLAN AT END OF CULVERT

NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-9" into SECTION B.





TYPICAL SECTION M-M

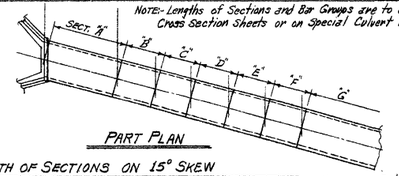


2:1 Slope = Sections	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	Mid-Section G-Varies			
Bar Group	A	B	C	D	E	F	G			
3:1 Slope = Sections	A=22'-0"	B=8'-0"	C=8'-0"	D=11'-0"	E=11'-6"	F=11'-0"	Mid-Section G-Varies			
Bar Group	A	B	C	D	E	F	G			
4:1 Slope = Sections	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	Mid-Section G-Varies			
Bar Group	A	B	C	D	E	F	G			

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

LENGTH OF SECTIONS ON 15° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	12'-5"	6'-2½"	22'-3½"	11'-4⅝"	33'-1½"	16'-6⅜"

NOTE:- For Details and Bar Lists for Sections B thru G, see Barrel Drawing Nos. R-100X-X.1 or R-100X-X.2.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0 to 19.5	A	B					C
20.0 to 24.5	A	2@C					D
25.0 to 29.5	A	B	2@D				E
30.0 to 34.5	A	2@C		2@E			F
35.0 to 40.0	A	B	2@D		2@F		G

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b"
#4	2"	4"	0'-10⅝"	K, Pin diam., X
#5	2½"	5"	0'-11½"	
#6	3"	5"	1'-2"	
#7	3½"	5⅝"	1'-4"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1"
#4	2"	4"	0'-5⅜"	K, Pin diam., X
#5	2½"	5"	0'-5⅞"	
#6	3"	5"	0'-7"	
#7	3½"	5⅝"	0'-8"	

Note:- Dimensions are to centers of bars ("b" and "b1").

DOWEL BARS FOR ONE HEADWALL

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "k" in One Headwall.
4'	#4	12"	6	2'-5"	1'-2½"	k, 12, X
5'	#4	12"	7	2'-6"	1'-3"	
6'	#4	12"	8	2'-7"	1'-3½"	
7'	#4	12"	9	2'-8"	1'-4"	
8'	#4	12"	10	2'-10"	1'-5"	
9'	#4	12"	11	3'-0"	1'-6"	
10'	#4	12"	12	3'-2"	1'-7"	

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/in²

Reinforcing Steel 20,000#/in²

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X152-1 or W-X152-2, W-X153-1 or W-X153-2, and W-X154-1 or W-X154-2. Also W-X15.
For Barrels of 4', 5' & 6' Spans, See Drawing No. R-100X-X.1.
For Barrels of 7', 8', 9' & 10' Spans, See Drawing No. R-100X-X.2.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

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

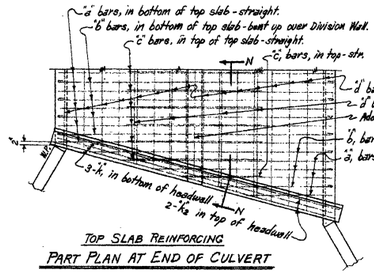
BAR LIST FOR SECTION "A" ON 15° SKEW - ONE END ONLY.

| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPANS | CLEAR HEIGHT | "a" bars STRAIGHT In Top and Bottom Slabs of Barrel. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "a1" bars STRAIGHT In Top and Bottom Slab of Barrel - hooked. (Two of each Length.) SIZE | SPACING | NO. REQ'D | LENGTH | "b" bars BENT - See Diagrams at Right. In Top and Bottom Slabs of Barrel - one end hooked. Alternate with "a" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | X MAX. | MIN. | In Top and Bottom Slabs of Barrel - one and hooked. (Two of each Length.) Alternate with "a1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | X MAX. | MIN. | "d" bars STRAIGHT Longitudinal In Top Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "d1" bars STRAIGHT Longitudinal in Sidewalls SIZE | SPACING | NO. REQ'D | LENGTH | "e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "f" bars STRAIGHT Verticals in Sidewalls. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "k" bars STRAIGHT In Bottom of Headwall. SIZE | NO. REQ'D | LENGTH | "k2" bars STRAIGHT In Top of Headwall and Apron. (2 Each) SIZE | NO. REQ'D | LENGTH |
|---|---|---|---|---|---|---|---|---|---|---

RESHOT 3-8-93

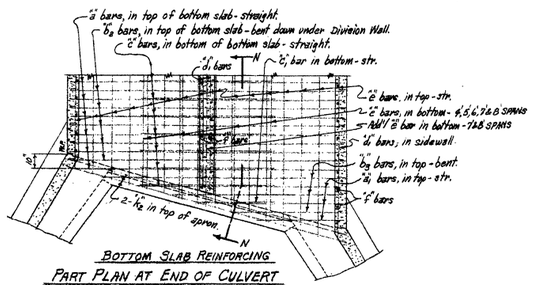
411 182

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



TOP SLAB REINFORCING

PART PLAN AT END OF CULVERT

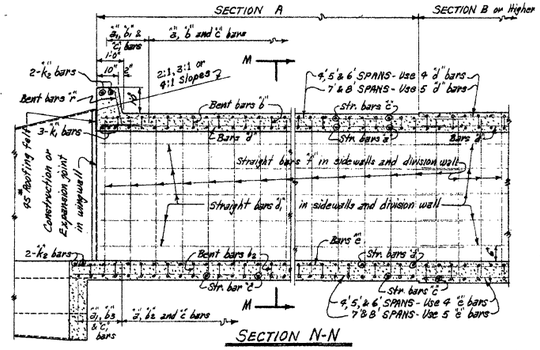


BOTTOM SLAB REINFORCING

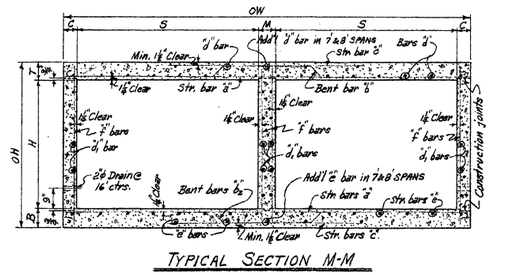
PART PLAN AT END OF CULVERT

NOTE:- The "a", "a1" and "a2" bars vary in length. They should extend 1'-9" into SECTION B.

NOTE:- For Details of Standard Wings and Bar lists, see Drawing No. W-X152-1 or W-X152-2; W-X153-1 or W-X153-2, and W-X154-1 or W-X154-2. Also W-X15.

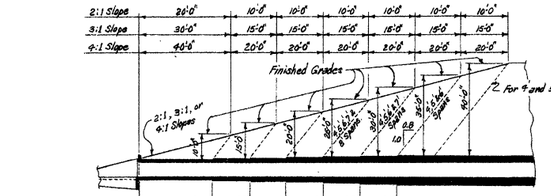


SECTION N-N



TYPICAL SECTION M-M

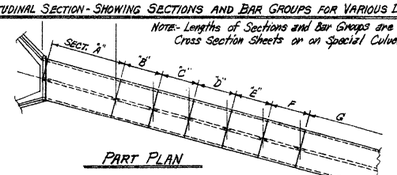
	2:1 Slope	3:1 Slope	4:1 Slope
	26'-0"	36'-0"	46'-0"
	10'-0"	15'-0"	20'-0"
	10'-0"	15'-0"	20'-0"
	10'-0"	15'-0"	20'-0"
	10'-0"	15'-0"	20'-0"
	10'-0"	15'-0"	20'-0"
	16'-0"	15'-0"	20'-0"



		A	B	C	D	E	F	G	
2:1 Slope =	Sections	A=12'-0"	B=6'-6"	C=6'-6"	D=6'-6"	E=6'-6"	F=6'-6"	MID-SECTION G-Varies	These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.
	Bar Group	A	B	C	D	E	F	G	
3:1 Slope =	Sections	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	MID-SECTION G-Varies	
	Bar Group	A	B	C	D	E	F	G	
4:1 Slope =	Sections	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	MID-SECTION G-Varies	
	Bar Group	A	B	C	D	E	F	G	

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

LENGTH OF SECTIONS ON 15° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E, F	A	B, C, D, E, F	A	B, C, D, E, F
LENGTHS	12'-5"	6'-2⅝"	22'-3½"	11'-0⅝"	33'-1⅞"	16'-4⅝"

NOTE:- For Details and Bar Lists for SECTIONS B thru G, see Barrel Drawing Nos. R-200X-X.1, R-200X-X2, or R-200X-X3.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0 to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0 to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0 to 24.5'	A	B	2@C				D
25.0' to 29.5'	A	B	2@D				E
30.0 to 34.5'	A	2@C		2@E			F
35.0 to 40.0'	A	B	2@D		2@F		G

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	BARREL DIMENSIONS: SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALL & DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	* QUANTITIES - ONE SECTION "A": CLASS S CONCRETE, BARREL ONLY 2:1	3:1	4:1	REINFORCING STEEL, BARREL, APRON AND HEADWALL. 2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
SECTION "A" = 10'-0"	2@4'-0"	2'	16	9'-8"	6"	8"		6"	3'-0"	10'-0"	10'-6½"	5.97	10.95	15.93	967	1629	2303
		3'	24	9'-8"		8"			4'-0"	"	"	6.74	12.36	17.99	1039	1756	2485
		4'	32	9'-8"		8"			5'-0"	"	"	7.51	13.78	20.04	1112	1882	2668
		5'	40	9'-8"		8"			6'-0"	"	"	8.28	15.19	22.09	1184	2009	2850
		6'	48	9'-11"		9"			7'-0"	10'-3½"	10'-9⅝"	9.85	18.06	26.27	1270	2157	3062
	2@5'-0"	3'	30	11'-8"	6½"	8"		6½"	4'-1"	12'-1⅝"	12'-7⅛"	8.11	14.87	21.63	1396	2386	3409
		4'	40	11'-8"		8"			5'-1"	"	"	8.88	16.28	23.68	1468	2513	3592
		5'	50	11'-8"		8"			6'-1"	"	"	9.65	17.69	25.74	1541	2640	3775
		6'	60	11'-11"		9"			7'-1"	12'-4"	12'-10½"	11.22	20.58	29.94	1630	2795	3997
		7'	70	12'-1"		10"			8'-1"	12'-4½"	13'-0½"	12.73	23.34	33.95	1868	3213	4602
	2@6'-0"	3'	36	13'-8"	7¼"	8"		7¾"	4'-3"	14'-1⅝"	14'-8⅛"	10.16	18.63	27.10	1580	2782	3898
		4'	48	13'-8"		8"			5'-3"	"	"	10.95	20.04	29.15	1658	2859	4080
		5'	60	13'-8"		8"			6'-3"	"	"	11.68	21.93	31.17	1726	2986	4263
		6'	72	13'-11"		9"			7'-3"	14'-5"	14'-11⅝"	13.29	24.36	35.44	1815	3142	4484
		7'	84	14'-1"		10"			8'-3"	14'-7"	15'-1⅝"	14.80	27.14	39.48	2056	3565	5100
		8'	96	14'-5"		10"			9'-3"	14'-8"	15'-2⅝"	16.12	29.56	43.00	2190	3772	5381
	2@7'-0"	4'	56	15'-8"	8¼"	8"		8¾"	5'-5"	16'-2⅝"	16'-9"	13.27	24.34	33.41	2186	3667	5154
		5'	70	15'-8"		8"			6'-5"	"	"	14.04	25.75	37.46	2269	3794	5337
		6'	84	15'-11"		9"			7'-5"	16'-5⅝"	17'-0⅛"	15.66	28.71	41.77	2302	3956	5568
		7'	98	16'-1"		10"			8'-5"	16'-7⅝"	17'-2⅝"	17.18	31.51	45.84	2549	4330	6096
		8'	112	16'-5"		10"			9'-5"	16'-8⅝"	17'-3⅝"	18.50	33.93	49.36	2686	4638	6538
		9'	126	16'-5"		11"			10'-5"	17'-0"	17'-6⅝"	20.70	37.96	55.22	2846	4950	7000
	2@8'-0"	4'	64	17'-8"	9¼"	8"		9¾"	5'-7"	18'-3⅝"	18'-10"	16.93	29.21	42.50	2384	4168	5973
		5'	80	17'-11"		9"			6'-7"	18'-4⅝"	19'-1"	17.96	32.02	46.57	2640	4493	6349
		6'	96	17'-11"		9"			7'-7"	"	"	18.39	32.63	44.93	2712	4620	6552	*
		7'	112	18'-1"		10"			8'-7"	18'-6⅝"	19'-3"	19.88	35.96	53.03	2847	4875	6919
		8'	128	18'-2"		10"			9'-7"	18'-7⅝"	19'-4⅝"	21.20	38.87	56.54	3064	5235	7441
		9'	144	18'-5"		11"			10'-7"	19'-0⅛"	19'-7⅝"	23.42	42.95	62.47	3224	5523	7846
		10'	160	18'-8"		12"			11'-7"	19'-3⅛"	19'-10⅝"	25.85	47.41	68.97	3568	6116	8714

* For remainder of quantities see Std. Wing and Barrel Drawings listed below.

BAR LIST FOR SECTION "A" ON 15° SKEW - ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars: STRAIGHT, In Top and Bottom Slab of Barrel. Size	Spacing	Number Reqd 2:1	3:1	4:1	Length	"a1" bars: STRAIGHT, In Top and Bottom Slab of Barrel - (Two of each Length.) Size	Spacing	No. Reqd	Length
A	2:1 = 12'-5"	D	S	H										
	3:1 = 22'-3½"	0'-0" TO 10'-0" MAXIMUM.	2@4'-0"	3'	#4	18"	29	41	61	9'-5"	#4	18"	2	5'-5"
				4'			29	41	61	"			2	"
				5'			29	41	61	"			2	"
				6'			29	41	61	9'-8"			2	5'-8"
			2@5'-0"	3'	#4	11"	25	47	71	11'-5"	#4	11"	4	8'-0"
				4'			25	47	71	"			4	"
				5'			25	47	71	"			4	"
				6'			25	47	71	11'-8"			4	8'-3"
				7'			25	47	71	11'-8"			4	8'-5"
			2@6'-0"	3'	#4	12"	23	39	65	13'-5"	#4	12"	4	9'-8"
				4'			23	39	65	"			4	"
				5'			23	39	65	"			4	"
				6'			23	39	65	13'-8"			4	9'-11"
				7'			23	39	65	13'-8"			4	10'-2"
				8'			23	39	65	13'-11"			4	10'-4"
			2@7'-0"	4'	#4	12"	21	39	59	15'-5"	#4	12"	6	10'-5"
				5'			21	39	59	"			6	"
				6'			21	39	59	15'-8"			6	10'-8"
				7'			21	39	59	15'-11"			6	10'-11"
				8'			21	39	59	16'-1"			6	11'-1"
				9'			21	39	59	16'-5"			6	11'-4"
			2@8'-0"	4'	#4	12"	21	39	59	17'-5"	#4	12"	6	11'-8"
				5'			21	39	59	17'-8"			6	11'-11"
				6'			21	39	59	"			6	"
				7'			21	39	59	17'-11"			6	12'-1"
				8'			21	39	59	17'-11"			6	12'-2"
				9'			21	39	59	18'-2"			6	12'-5"
				10'			21	39	59	18'-5"			6	12'-8"

SECTION & BAR GROUP	"b" bars: BENT - See Diagrams below. Size	Spacing	Number Reqd 2:1	3:1	4:1	Length	X	Y	Z	"b1" bars: BENT - See Diagrams below. Size	Spacing	No. Reqd	Length Max.	Length Min.	L Max.	L Min.
A																
	#5	13"	10	20	29	10'-5"	0'-2⅝"	2'-1"	3'-5"	#5	13"	2	8'-0"	3'-10"	7'-5"	3'-5"
			10	20	29	"	"	"	"			2	"	"	"	"
			10	20	29	"	"	"	"			2	"	"	"	"
			10	20	29	"	"	"	"			2	"	"	"	"
			10	20	29	10'-8"	0'-2⅝"	2'-2"	3'-6"			2	8'-3"	4'-1"	7'-8"	3'-8"
	#5	11"	12	23	34	12'-6"	0'-3"	2'-6½"	4'-2"	#5	11"	2	10'-4"	6'-10"	9'-8"	6'-5"
			12	23	34	"	"	"	"			2	"	"	"	"
			12	23	34	"	"	"	"			2	"	"	"	"
			12	23	34	12'-9"	0'-3"	2'-7½"	4'-3"			2	10'-7"	7'-1"	9'-11"	6'-6"
			12	23	34	12'-11"	0'-3"	2'-8½"	4'-3½"			2	10'-9"	7'-4"	10'-1"	6'-8"
	#5	11"	13	24	35	12'-6"	0'-3"	2'-8½"	4'-4"	#5	11"	2	10'-9"	7'-6"	10'-1"	6'-8"
			13	24	35	"	"	"	"			2	"	"	"	"
			13	24	35	"	"	"	"			2	"	"	"	"
			13	24	35	12'-9"	0'-3"	2'-9½"	4'-5"			2	10'-11"	7'-8"	10'-3"	6'-9"
			13	24	35	13'-1"	0'-3"	2'-10½"	4'-5½"			2	11'-0"	7'-9"	10'-4"	6'-10"
	#5	11"	14	25	36	12'-6"	0'-3"	2'-10½"	4'-6"	#5	11"	2	11'-0"	7'-10"	10'-4"	6'-10"
			14	25	36	"	"	"	"			2	"	"	"	"
			14	25	36	"	"	"	"			2	"	"	"	"
			14	25	36	12'-9"	0'-3"	2'-11½"	4'-7"			2	11'-2"	7'-11"	10'-5"	6'-11"
			14	25	36	13'-1"	0'-3"	3'-0½"	4'-7½"			2	11'-3"	8'-0"	10'-6"	7'-0"
	#5	11"	15	26	37	12'-6"	0'-3"	3'-0½"	4'-8"	#5	11"	2	11'-3"	8'-0"	10'-6"	7'-0"
			15	26	37	"	"	"	"			2	"	"	"	"
			15	26	37	"	"	"	"			2	"	"	"	"
			15	26	37	12'-9"	0'-3"	3'-1½"	4'-9"			2	11'-5"	8'-1"	10'-7"	7'-1"
			15	26	37	13'-1"	0'-3"	3'-2½"	4'-9½"			2	11'-6"	8'-2"	10'-8"	7'-2"

SECTION & BAR GROUP	"b2" bars: BENT - See Diagrams below. Size	Spacing	Number Reqd 2:1	3:1	4:1	Length	X	Y	Z	"b3" bars: BENT - See Diagrams below. Size	Spacing	No. Reqd	Length Max.	Length Min.	L Max.	L Min.
A																
	#5	13"	11	21	30	10'-5"	0'-2⅝"	2'-1"	3'-5"							
			11	21	30	"	"	"	"							
			11	21	30	"	"	"	"							
			11	21	30	10'-8"	0'-2⅝"	2'-2"	3'-6"							
	#5	11"	13	24	35	12'-6"	0'-3"	2'-5½"	4'-2"							
			13	24	35	"	"	"	"							
			13	24	35	"	"	"	"							
			13	24	35	12'-9"	0'-3"	2'-7½"	4'-3"							
			13	24	35	13'-1"	0'-3"	2'-8½"	4'-3½"							
	#5	11"	14	25	36	12'-6"	0'-3"	2'-8½"	4'-4"							
			14	25	36	"	"	"	"							
			14	25	36	"	"	"	"							
			14	25	36	12'-9"	0'-3"	2'-9½"	4'-5"							
			14	25	36	13'-1"	0'-3"	2'-10½"	4'-5½"							
	#5	11"	15	26	37	12'-6"	0'-3"	2'-10½"	4'-6"							
			15	26	37	"	"	"	"							
			15	26	37	"	"	"	"							
			15	26	37	12'-9"	0'-3"	2'-11½"	4'-7"							
			15	26	37	13'-1"	0'-3"	3'-0½"	4'-7½"							
	#5	11"	16	27	38	12'-6"	0'-3"	3'-0½"	4'-8"							
			16	27	38	"	"	"	"							
			16	27	38	"	"	"	"							
			16	27	38	12'-9"	0'-3"	3'-1½"	4'-9"							
			16	27	38	13'-1"	0'-3"	3'-2½"	4'-9½"							

SECTION & BAR GROUP	"c" bars: STRAIGHT, In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. Size	Spacing	Number Reqd 2:1	3:1	4:1	Length	"c1" bars: STRAIGHT, In Top and Bottom Slab of Barrel. Alt. with "b", "b2" & "b3" bars. (Two of each Length) Size	Spacing	No. Reqd	Length	"d" bars: STRAIGHT, Longitudinal in Top Slab of Barrel. Size	Spacing	No. Reqd	"d1" bars: STRAIGHT, Longitudinal in Sidewalls and Division Wall. Size	Spacing	No. Reqd	Length	"e" bars: STRAIGHT, Longitudinal in Bottom Slab of Barrel. Size	Spacing	No. Reqd
A																				
	#5	13"	23	41	61	6'-8"			2	3'-1"	—			#5	13"	8	#4	18"	8	
			23	41	61	"			2	"						12			12	
			23	41	61	"			2	"						16			16	
			23	41	61	"			2	"						20			16	
			23	41	61	6'-9"			2	3'-2"						24			16	
	#5	13"	24	47	71	8'-8"			2	5'-1"	—			#5	12"	12	#4	12"	16	
			25	47	71	"			2	"						16			16	
			25	47	71	"			2	"						20			16	
			25	47	71	8'-9"			2	5'-2"	—					24			16	
			25	47	71	8'-10"			2	5'-3"	—					28			16	
	#5	13"	25	47	71	8'-10"			2	5'-3"	—			#5	12"	16	#4	12"	16	
			25	47	71	"			2	"						20			16	
			25	47	71	"			2	"						24			16	
			25	47	71	8'-11"			2	5'-4"	—					28			16	
			25	47	71	9'-0"			2	5'-5"	—					32			16	
	#5	13"	25	47	71	9'-0"			2	5'-5"	—			#5	12"	20	#4	12"	16	
			25	47	71	"			2	"						24			16	
			25	47	71	"			2	"						28			16	
			25	47	71	9'-1"			2	5'-6"	—					32			16	
			25	47	71	9'-2"			2	5'-7"	—					36			16	
	#5	13"	25	47	71	9'-2"			2	5'-7"	—			#5	12"	24	#4	12"	16	
			25	47	71	"			2	"						28			16	
			25	47	71	"			2	"						32			16	
			25	47	71	9'-3"			2	5'-8"	—					36			16	
			25	47	71	9'-4"			2	5'-9"	—					40			16	

SECTION & BAR GROUP	"f" bars: STRAIGHT, Verticals in Sidewalls and Division Wall. Size	Spacing	Number Reqd 2:1	3:1	4:1	Length	"k" bars: STRAIGHT, In Bottom of Headwall. Size	No. Reqd	Length	"k2" bars. STRAIGHT, In Top of Headwall and Apron. (2 Each) Size	No. Reqd	Length
A												
	#4	12"	52	92	136	2'-9"	#5	3	9'-9"	#4	4	10'-3"
			52	92	136	3'-2"		3	"		4	"
			52	92	136	3'-5"		3	"		4	"
			52	92	136	3'-8"		3	"		4	"
			52	92	136	3'-9"		3	10'-6"		4	10'-6"
	#4	12"	52	92	136	3'-10"		3	11'-10"		4	12'-4"
			52	92	136	4'-1"		3	"		4	"
			52	92	136	4'-4"		3	"		4	"
			52	92	136	4'-5"		3	12'-1"		4	12'-7"
			52	92	136	4'-6"		3	12'-8"		4	12'-9"
	#4	12"	52	92	136	4'-7"		3	13'-6"		4	14'-5"
			52	92	136	5'-0"		3	"		4	"
			52	92	136	5'-1"		3	"		4	"
			52	92	136	5'-2"		3	14'-2"		4	14'-8"
			52	92	136	5'-3"		3	14'-5"		4	14'-10"
	#4	12"	52	92	136	5'-4"		3	15'-1"		4	15'-6"
			52	92	136	5'-5"		3	"		4	"
			52	92	136	5'-6"		3	15'-4"		4	15'-9"
			52	92	136	5'-7"		3	15'-7"		4	16'-1"
			52	92	136	5'-8"		3	16'-0"		4	16'-5"
	#4	12"	52	92	136	6'-0"		3	16'-5"		4	17'-0"
			52	92	136	6'-1"		3	16'-8"		4	17'-3"
			52	92	136	6'-2"		3	16'-11"		4	17'-6"
			52	92	136	6'-3"		3	17'-2"		4	17'-10"
			52	92	136	6'-4"		3	17'-5"		4	18'-1"
	#4	12"	52	92	136	6'-5"		3	17'-8"		4	18'-4"
			52	92	136	6'-6"		3	17'-11"		4	18'-8"
			52	92	136	6'-7"		3	18'-2"		4	18'-11"
			52	92	136	6'-8"		3	18'-5"		4	19'-2"
			52	92	136	6'-9"		3	18'-8"		4	19'-5"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "a" AND "a1"
#4	2"	4"	0'-10⅝"	Pin diam.
#5	2½"	4½"	0'-11⅝"	
#6	3"	5"	1'-2"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b", AND "b2"
#4	2"	4"	0'-5½"	Pin diameter; Min. 1½" Clear; Less than Z; 3X Max.
#5	2½"	4½"	0'-6⅝"	
#6	3"	5"	0'-7"	

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

SPAN	SIZE	SPACING	No. REQD	LENGTH	X	Dowel bars "r" in One Headwall.
4'	#4	12"ø	10	2'-4"	1'-0"	
5'	#4	12"ø	12	2'-5"	1'-2½"	
6'	#4	12"ø	14	2'-6"	1'-3"	
7'	#4	12"ø	16	2'-8"	1'-4"	
8'	#4	12"ø	18	2'-9"	1'-5"	

These bars are in the skewed portion of barrel only. The length of "a1" and "c1" bars and overall length L of "b" and "b2" bars vary by 4'-0" for 18" spacing, 3'-9" for 12" spacing, and 3'-5" for 11" spacing.

Designed by:- W.C.H. 9-17-62
Drawn by:- W.C.H. 10-3-62
Quantities by:- W.C.H. 12-6-62
Checked by:- R.H.S. 11-12-62
Checked by:-
Checked by:-

General Notes

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X152-1 or W-X152-2, W-X153-1 or W-X153-2, and W-X154-1 or W-X154-2. Also W-X15.
For Barrels of 4', 5', & 6' Spans, see Drawing No. R-200X-X.1, of 7' Spans Drawing No. R-200X-X3, and of 8' Spans Drawing No. R-200X-X2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
15° SKEW - SECTIONS "A" ONLY
4', 5', 6', 7' AND 8' SPANS 2:1, 3:1 OR 4:1 SLOPES
DOUBLES OVER 5'-0" COVER

STANDARD DRAWING NO. R-215X-1

41

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

"a" bars, in bottom of top slab-straight.
"b" bars, in bottom of top slab-bent up over Division Wall.
"c" bars, in top of top slab-straight.
"c" bars, in top-str.
"d" bars, in bottom-str.
4-"d" bars, in top-4,5,6,7,&8' SPANS.
Add'l "d" bar in top-7 & 8' SPANS.
"b_1" bars, in bottom-bent.
"a_1" bars, in bottom-str.
2-"k_2" bars
3-"k" bars
3'-"k" in bottom of headwall
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

"a" bars, in top of bottom slab-straight.
"b_2" bars, in top of bottom slab-bent down under Division Wall.
"c" bars, in bottom of bottom slab-straight.
"d" bars
"c" bars, in bottom-str.
"c" bars, in top-str.
4-"c" bars, in bottom-4,5,6,7,& 8' SPANS
Add'l "d" bar in bottom-7 & 8' SPANS
"d_1" bars, in sidewall.
"b_3" bars, in top-bent.
"a_1" bars, in top-str.
"f" bars.
2-"k_2" in top of apron.
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

NOTE:- The "a_1" and "a_2" bars vary in length. They should extend 1'-9" min. into SECTION B.

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

SECTION A | SECTION B or Higher
"a_1", "b_1" & "c_1" bars. | "a_2" & "c_2" bars
2-"k_2" bars
Bent bars "f"
3-"k" bars
2:1, 3:1 or 4:1 slopes
4,5 & 6' SPANS- Use "d" bars
7 & 8' SPANS- Use 5 "d" bars
Bent bars "b_2", "b_3"
Str. bars "c"
Straight bars "f" in sidewalls and division walls
Straight bars "d_1" in sidewalls and division walls
Bars "a"
Bars "c"
Bent bars "b_2" & "b_3"
Str. bars "a"
Str. bar "c"
Str. bars "c"
4,5,6 & 7 SPANS- Use 4 "a" bars
7 & 8' SPANS- Use 5 "a" bars
"a_1", "b_1" & "c_1" bars
"a_2" & "c_2" bars
4" Roofing felt
Construction or Expansion joint in wing wall
SECTION N-N

OW
S | M | S
"d" bar
Add'l "d" bar in 7 & 8' SPANS
Bars "d"
Min. 1" Clear
Str. bars "a"
Str. bars "c"
Bent bars "b"
1½" Clear
"f" bars
"d_1" bars
"d_1" bars
2" Drain @ 16" ctrs.
Add'l "a" bar in 7 & 8' SPANS
Bent bars "b_2"
Str. bars "a"
Str. bars "c"
Min. ½" Clear
Construction joints
SECTION M-M

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1			3:1			4:1		
SECTIONS	A	B,C,D, E & F		A	B,C,D, E & F		A	B,C,D, E & F	
LENGTHS	13'-10⅛"	6'-11⅝"		25'-4⅜"	12'-8⅜"		36'-11⅝"	18'-5⅞"	
2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"		
4:1 Slope	40'-8"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"		

NOTE:- Minimum ℄ Length of SECTION "A" on 30° Skew = (0.288675 DW+2').

Finished Grades
2:1, 3:1, or 4:1 Slopes
2. For 4 and 5 spans only.
SECTION "A"
SECTION "B"
SECTION "C"
SECTION "D"
SECTION "E"
SECTION "F"
SECTION "G"
Bar Group A
Bar Group B
Bar Group C
Bar Group D
Bar Group E
Bar Group F
Bar Group G
Bar Group A
Bar Group B
Bar Group C
Bar Group D
Bar Group E
Bar Group F
Bar Group G
Bar Group A
Bar Group B
Bar Group C
Bar Group D
Bar Group E
Bar Group F
Bar Group G

		A	B	C	D	E	F	G
2:1 Slope =	SECTIONS	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	MID-SECTION G-Varies
	Bar Group	A	B	C	D	E	F	G
3:1 Slope =	SECTIONS	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	MID-SECTION G-Varies
	Bar Group	A	B	C	D	E	F	G
4:1 Slope =	SECTIONS	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	MID-SECTION G-Varies
	Bar Group	A	B	C	D	E	F	G

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths above.

TYPICAL LONGITUDINAL SECTION- SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

SECT "A"
SECT "B"
SECT "C"
SECT "D"
SECT "E"
SECT "F"
SECT "G"
PART PLAN

NOTE:- For Details and Bar Lists for Sections B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2, or R-200X-X3.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0 to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0 to 24.5'	A	B	C				D
25.0 to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0 to 14.5'	A						B
15.0 to 19.5'	A	B					C
20.0 to 24.5'	A	2@C					D
25.0 to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0 to 40.0'	A	B	2@D		2@F		G

BARREL DIMENSIONS

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS OR DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL
D	S	H	A	OW	T	C	M	B	OH	RL	K
SECTION "A" = 10'-0"	4@2	2'	16	9'-8"	6"	8"	6"	6"	3'-0"	11'-8"	12'-3⅜"
		3'	24	9'-8"		8"			4'-0"	"	"
		4'	32	9'-8"		8"			5'-0"	"	"
		5'	40	9'-8"		8"			6'-0"	"	"
		6'	48	9'-11"		9"			7'-0"	11'-5⅝"	12'-7⅛"
	5@2	3'	30	11'-8"	6"	8"	6"	6"	4'-1"	13'-9⅛"	14'-7½"
		4'	40	11'-8"		8"			5'-1"	"	"
		5'	50	11'-8"		8"			6'-1"	"	"
		6'	60	11'-11"		9"			7'-1"	13'-9⅝"	14'-11"
		7'	70	12'-1"		10"			8'-1"	13'-11⅝"	15'-1⅛"
	6@2	3'	36	13'-5"	6½"	8"	6½"	6½"	4'-3"	15'-5⅜"	16'-1⅛"
		4'	48	13'-5"		8"			5'-3"	"	"
		5'	60	13'-5"		8"			6'-3"	"	"
		6'	72	13'-8"		9"			7'-3"	12'-0⅝"	17'-2⅝"
		7'	84	14'-1"		10"			8'-3"	16'-3⅜"	17'-5"
	7@2	4'	56	15'-8"	7"	8"	7"	7"	5'-5"	18'-1⅛"	19'-2"
		5'	70	15'-8"		8"			6'-5"	"	"
		6'	84	15'-11"		9"			7'-5"	18'-4⅝"	19'-6"
		7'	98	16'-1"		10"			8'-5"	18'-6⅝"	19'-8½"
		8'	112	16'-4"		10"			9'-5"	19'-8"	19'-10½"
	8@2	4'	64	17'-8"	7½"	8"	8"	8"	5'-7"	20'-4⅝"	21'-6⅜"
		5'	80	17'-11"		9"			6'-7"	20'-8⅝"	21'-10"
		6'	96	17'-11"		9"			7'-7"	"	"
		7'	112	18'-1"		10"			8'-7"	20'-10⅝"	22'-0⅝"
		8'	128	18'-3"		10"			9'-7"	20'-11⅝"	22'-1⅝"
	9@2	9	144	18'-5"	8"	11"	9"	9"	10'-7"	21'-3⅛"	22'-5"
		10'	160	18'-8"		12"			11'-7"	21'-6⅛"	22'-10⅛"

QUANTITIES - ONE SECTION "A"*

CLASS S CONCRETE BARREL ONLY			REINFORCING STEEL BARREL, APRON AND HEADWALL.		
2:1	3:1	4:1	2:1	3:1	4:1
CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
6.66	12.22	17.77	1063	1903	2580
7.52	13.79	20.06	1162	1943	2784
8.38	15.36	22.35	1221	2084	2991
9.24	16.94	24.64	1300	2234	3197
10.09	20.18	29.29	1393	2397	3438
9.05	16.58	24.12	1539	2635	3821
9.91	18.16	26.41	1618	2774	4027
10.76	19.73	28.70	1697	2914	4232
12.52	22.96	33.39	1796	3090	4484
14.28	26.08	37.86	2053	3552	5157
11.33	20.77	30.21	1765	3089	4356
12.19	22.35	32.50	1834	3180	4662
13.04	23.90	34.76	1918	3320	4767
14.82	27.17	39.52	2012	3494	5018
16.51	30.27	44.03	2278	3965	5702
17.98	32.96	47.96	2445	4256	4116
15.67	28.72	41.78	2430	4186	5987
17.97	32.02	46.58	2544	4378	6259
19.17	35.15	51.12	2813	4860	6958
20.37	37.84	55.04	2979	5147	7370
21.57	40.33	58.67	3175	5505	7872
17.27	32.58	47.39	2745	4822	6874
18.48	35.71	51.93	2874	5010	7144
20.94	39.51	58.54	2953	5151	7350
22.18	40.46	58.14	3148	5426	7807
23.65	43.35	63.05	3341	5783	8398
25.13	47.90	69.66	3635	6116	8824
26.61	50.79	74.90	3893	6466	9370

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an additional lap for 4:1 slopes.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/in²
Reinforcing Steel 20,000 #/in²

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.
For Barrels of 4', 5' & 6' Spans, see Drawing No. R-200X-X1, of 7' Spans Drawing No. R-200X-X3, and of 8' Spans Drawing No. R-200X-X2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
30° SKEW — SECTIONS "A" ONLY

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

STANDARD DRAWING No. R-230X-1

Designed by:- W.C.H. 9-17-62. Checked by:- R.W.S. 11-12-62
Drawn by:- W.C.H. 1-28-64. Checked by:-
Quantities by:- W.C.H 4-23-64. Checked by:-

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
SECTION "A" & BAR GROUP "A"	4:1 = 36'-11⅝"	D	S	H						
	3:1 = 25'-4⅜"									
	2:1 = 13'-10⅛"	0'-0" TO 10'-0" MAXIMUM.	4@2	2'	#4	11"	23	43	65	9'-5"
				3'			23	43	65	"
				4'			23	43	65	"
				5'			23	43	65	"
				6'			23	43	65	9'-8"
			5@2	3'	#4	11"	25	49	75	11'-5"
				4'			25	49	75	"
				5'			25	49	75	"
				6'			25	99	75	11'-8"
				7'			25	99	75	11'-10"
			6@2	3'	#4	12"	21	45	67	13'-5"
				4'			21	45	67	"
				5'			21	45	67	"
				6'			21	45	67	13'-8"
				7'			21	45	67	13'-10"
				8'			21	45	67	13'-11"
			7@2	4'	#4	12"	21	93	67	15'-5"
				5'			21	93	67	"
				6'			21	93	67	15'-8"
				7'			21	93	67	15'-10"
				8'			21	93	67	16'-0"
				9'			21	93	67	16'-2"
			8@2	4'	#5	12"	17	39	61	17'-5"
				5'			17	39	61	"
				6'			17	39	61	"
				7'			17	39	61	17'-8"
				8'			17	39	61	17'-10"
				9'			17	39	61	18'-0"
				10'			17	39	61	18'-2"
			9@2	9	#5	12"	17	39	61	18'-5"
				10'			17	39	61	18'-7"

SECTION & BAR GROUP	"a₁" bars STRAIGHT In Top and Bottom Slab of Barrel (Two of each Length) SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
SECTION "A" & BAR GROUP "A"						
	#4	13"	6	7'-6"	3'-8"	
			6	"	"	
			6	"	"	
			6	"	"	
			6	7'-9"	3'-11"	
	#4	11"	10	9'-10"	3'-6"	
			10	"	"	
			10	10'-1"	3'-9"	
			10	10'-3"	3'-11"	
			10	10'-5"	4'-1"	
	#4	12"	12	11'-0"	2'-11"	
			12	"	"	
			12	11'-11"	3'-2"	
			12	12'-1"	3'-5"	
			12	12'-3"	3'-8"	
	#4	12"	14	13'-0"	3'-2"	
			14	"	"	
			14	13'-10"	3'-5"	
			14	14'-1"	3'-7"	
			14	14'-3"	3'-10"	
	#5	12"	16	15'-1"	4'-0"	
			16	15'-4"	4'-3"	
			16	15'-7"	4'-5"	
			16	16'-1"	2'-6"	
			16	16'-4"	2'-7"	
			16	16'-7"	2'-9"	
			16	16'-10"	3'-1"	

SECTION & BAR GROUP	"b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall- hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"									
	#4	13"	10	21	31	10'-5"	0'-2⅜"	2'-1"	3'-5"
			10	21	31	"	"	"	"
			10	21	31	"	"	"	"
			10	21	31	"	"	"	"
			10	21	31	10'-8"	0'-2⅜"	2'-2"	3'-6"
	#4	11"	11	23	34	12'-6"	0'-3"	2'-4½"	4'-2"
			11	23	34	"	"	"	"
			11	23	36	"	"	"	"
			11	23	36	12'-9"	"	2'-7½"	4'-3"
			11	23	36	12'-11"	0'-3"	2'-8½"	4'-3½"
	#4	12"	12	23	33	14'-7"	0'-4½"	2'-10"	4'-11"
			10	21	33	"	"	"	"
			10	21	33	"	"	"	"
			10	21	33	14'-10"	"	3'-0"	5'-0"
			10	21	33	15'-0"	"	3'-1"	5'-0½"
			10	21	33	15'-1"	0'-3½"	3'-1"	5'-1"
	#5	12"	14	29	42	16'-10"	0'-4½"	3'-5"	5'-7"
			9	21	32	"	"	"	"
			9	21	32	17'-1"	"	3'-5½"	5'-8"
			9	21	32	17'-3"	"	3'-6"	5'-8½"
			9	21	32	17'-4"	"	3'-6½"	5'-9"
			9	21	32	17'-6"	0'-4½"	3'-7"	5'-10"
	#5	12"	16	29	40	18'-10"	0'-5⅜"	3'-7"	6'-5"
			8	19	29	"	"	"	"
			8	19	29	19'-1"	"	3'-8"	6'-6"
			8	19	29	"	"	"	"
			8	18	29	19'-3"	"	3'-9"	6'-6½"
			8	18	29	19'-5"	"	3'-9⅜"	6'-7"
			8	18	29	19'-7"	"	3'-10"	6'-7"
			8	18	29	19'-9"	0'-5⅜"	3'-10"	6'-7½"

SECTION & BAR GROUP	"b_1" bars BENT - See Diagrams below. In Bottom of Top Slab- some are bent up over Division Walls-one end hooked. Alternate with "a_1" and "c_1" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	L
SECTION "A" & BAR GROUP "A"							
	#4	13"	4	9'-0"	8'-1"	8'-5"	2'-8"
			4	"	"	"	"
			4	"	"	"	"
			4	"	"	"	"
			4	9'-3"	8'-4"	8'-8"	2'-11"
	#4	11"	6	11'-3"	9'-2"	10'-7"	2'-8"
			6	"	"	"	"
			6	"	"	"	"
			6	11'-6"	9'-5"	10'-10"	2'-11"
			6	11'-8"	9'-7"	11'-0"	3'-1"
	#4	12"	6	13'-8"	11'-3"	12'-8"	3'-9"
			6	"	"	"	"
			6	"	"	"	"
			6	13'-11"	11'-6"	12'-11"	3'-11"
			6	14'-1"	11'-8"	13'-1"	4'-1"
	#4	12"	6	15'-6"	12'-9"	14'-3"	4'-3"
			6	"	"	"	"
			6	15'-9"	13'-0"	14'-6"	4'-6"
			6	16'-0"	13'-2"	14'-8"	4'-8"
			6	16'-2"	13'-4"	14'-10"	4'-10"
	#5	12"	7	17'-5"	14'-4"	16'-0"	5'-0"
			7	"	"	"	"
			7	17'-8"	14'-7"	16'-3"	5'-3"
			7	17'-10"	14'-9"	16'-5"	5'-5"
			7	18'-0"	14'-11"	16'-7"	5'-7"
	#5	12"	8	19'-4"	15'-11"	17'-8"	5'-8"
			8	"	"	"	"
			8	19'-7"	16'-2"	17'-11"	5'-11"
			8	19'-10"	16'-5"	18'-2"	6'-2"
			8	20'-0"	16'-7"	18'-4"	6'-4"

SECTION & BAR GROUP	"b_2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall- hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"									
	#4	13"	11	22	32	10'-5"	0'-2⅜"	2'-1"	3'-5"
			11	22	32	"	"	"	"
			11	22	32	"	"	"	"
			11	22	32	"	"	"	"
			11	22	32	10'-8"	0'-2⅜"	2'-2"	3'-6"
	#4	11"	12	24	37	12'-6"	0'-3"	2'-4½"	4'-2"
			12	24	37	"	"	"	"
			12	24	37	"	"	"	"
			12	24	37	12'-9"	"	2'-7½"	4'-3"
			12	24	37	12'-11"	0'-3"	2'-8½"	4'-3½"
	#4	12"	13	22	34	14'-7"	0'-4½"	2'-10"	4'-11"
			11	22	34	"	"	"	"
			11	22	34	"	"	"	"
			11	22	34	14'-10"	"	2'-11"	5'-0"
			11	22	34	15'-0"	"	3'-0"	5'-0½"
			11	22	34	15'-1"	0'-3½"	3'-0"	5'-1"
	#5	12"	15	33	46	16'-10"	0'-4½"	3'-3½"	5'-7"
			10	22	33	"	"	"	"
			10	22	33	17'-1"	"	3'-3½"	5'-8"
			10	22	33	17'-3"	"	3'-4"	5'-8½"
			10	22	33	17'-4"	"	3'-4½"	5'-9"
			10	22	33	17'-7"	0'-4½"	3'-4½"	5'-10"
	#5	12"	17	36	50	18'-10"	0'-4½"	3'-6"	6'-5"
			9	20	30	"	"	"	"
			9	20	30	19'-1"	"	3'-7"	6'-6"
			9	20	30	"	"	"	"
			9	19	30	19'-3"	"	3'-7½"	6'-6½"
			9	19	30	19'-5"	"	3'-8"	6'-7"
			9	19	30	19'-7"	"	3'-8½"	6'-7"
			9	19	30	19'-9"	0'-4½"	3'-8½"	6'-7½"

SECTION & BAR GROUP	"b_3" bars. In Top of Bottom Slab- some are bent down under Division Walls-one end hooked. Alternate with "a_1" and "c" or "c_1" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	L
SECTION "A" & BAR GROUP "A"							
	#4	13"	4	9'-0"	8'-1"	8'-5"	2'-8"
			4	"	"	"	"
			4	"	"	"	"
			4	"	"	"	"
			4	9'-3"	8'-4"	8'-8"	2'-11"
	#4	11"	6	11'-3"	9'-2"	10'-7"	2'-8"
			6	"	"	"	"
			6	"	"	"	"
			6	11'-6"	9'-5"	10'-10"	2'-11"
			6	11'-8"	9'-7"	11'-0"	3'-1"
	#4	12"	6	13'-8"	11'-3"	12'-8"	3'-9"
			6	"	"	"	"
			6	"	"	"	"
			6	13'-11"	11'-6"	12'-11"	3'-11"
			6	14'-1"	11'-8"	13'-1"	4'-1"
	#4	12"	6	15'-6"	12'-9"	14'-3"	4'-3"
			6	"	"	"	"
			6	15'-9"	13'-0"	14'-6"	4'-6"
			6	16'-0"	13'-2"	14'-8"	4'-8"
			6	16'-2"	13'-4"	14'-10"	4'-10"
	#5	12"	7	17'-5"	14'-4"	16'-0"	5'-0"
			7	"	"	"	"
			7	17'-8"	14'-7"	16'-3"	5'-3"
			7	17'-10"	14'-9"	16'-5"	5'-5"
			7	18'-0"	14'-11"	16'-7"	5'-7"
	#5	12"	8	19'-4"	15'-11"	17'-8"	5'-8"
			8	"	"	"	"
			8	19'-7"	16'-2"	17'-11"	5'-11"
			8	19'-10"	16'-5"	18'-2"	6'-2"
			8	20'-0"	16'-7"	18'-4"	6'-4"

SECTION & BAR GROUP	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b_2" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
SECTION "A" & BAR GROUP "A"						
	#4	13"	25	45	67	4'-8"
			25	45	67	"
			25	45	67	"
			25	45	67	4'-9"
	#4	11"	27	51	77	5'-8"
			27	51	77	"
			27	51	77	"
			27	51	77	5'-10"
	#4	12"	25	45	67	4'-8"
			25	45	67	"
			25	45	67	"
			25	45	67	4'-9"
	#5	12"	27	51	77	5'-8"
			27	51	77	"
			27	51	77	"
			27	51	77	5'-10"
	#5	12"	28	47	69	6'-8"
			28	47	69	"
			28	47	69	"
			28	47	69	6'-9"
	#5	12"	25	47	71	7'-8"
			25	47	71	"
			25	47	71	7'-9"
			25	47	71	7'-10"
			25	47	71	7'-11"
	#5	12"	21	49	65	8'-8"
			21	49	65	8'-9"
			21	49	65	8'-9"
			21	49	65	8'-10"
			21	49	65	8'-11"

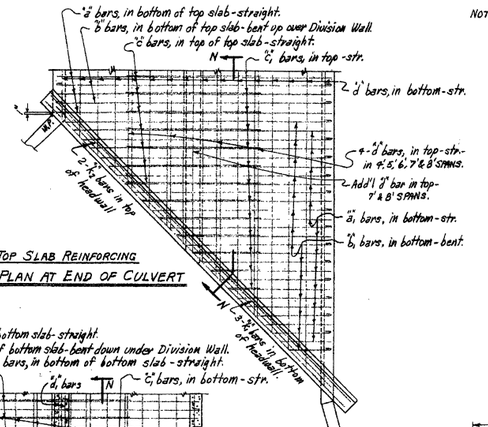
SECTION & BAR GROUP	"c_1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "a_1", "a_2" bars. (Two of each Length) SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
SECTION "A" & BAR GROUP "A"						
	#4	13"	2	3'-9"	—	
			2	"	—	
			2	"	—	
			2	3'-6"	—	
	#4	11"	4	5'-5"	3'-10"	
			4	"	"	
			4	"	"	
			4	5'-8"	4'-1"	
	#4	12"	4	6'-7"	3'-11"	
			4	"	"	
			4	"	"	
			4	6'-10"	4'-2"	
	#4	12"	4	8'-0"	4'-0"	
			4	"	"	
			4	"	"	
			4	8'-3"	4'-3"	
	#5	12"	4	9'-2"	4'-2"	
			4	"	"	
			4	"	"	
			4	9'-5"	4'-5"	
	#5	12"	4	10'-4"	4'-4"	
			4	"	"	
			4	"	"	
			4	10'-7"	4'-7"	
	#5	12"	4	11'-6"	4'-6"	
			4	"	"	
			4	"	"	
			4	11'-9"	4'-9"	

SECTION & BAR GROUP	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"				
	#4	13"	14	
			14	
			14	
			14	
	#4	11"	16	
			16	
			16	
			16	
	#4	12"	16	
			16	
			16	
			16	
	#4	12"	18	
			18	
			18	
			18	
	#5	12"	21	
			21	
			21	
			21	
	#5	12"	21	
			21	
			21	
			21	
	#5	12"	23	
			23	
			23	
			23	

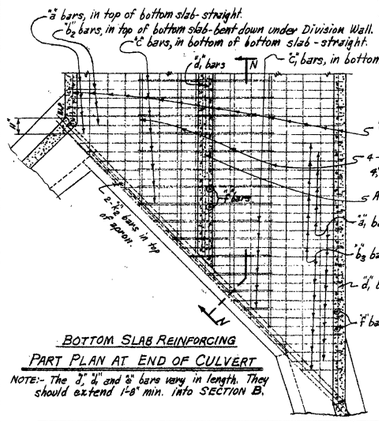
SECTION & BAR GROUP	"d_1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"				
	#4	12"	8	
			12	
			16	
			20	
			24	

REDHOT 3-9-93 408 [redacted]

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



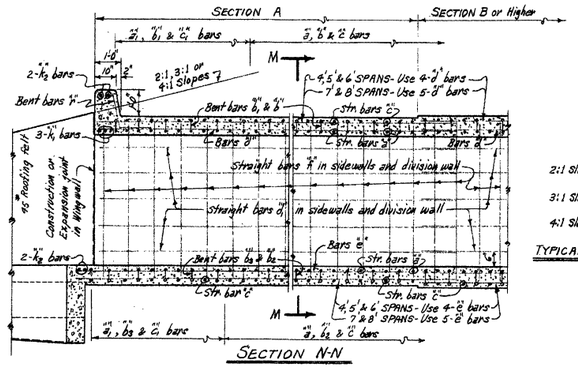
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT



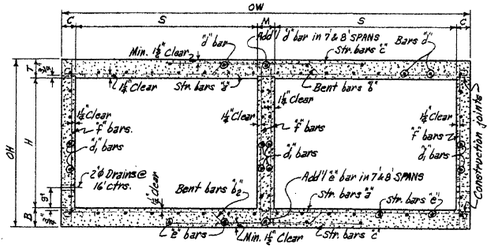
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-8" min. into SECTION B.

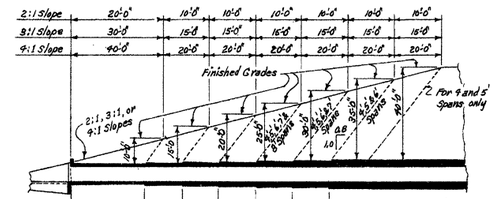
NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.



SECTION N-N



TYPICAL SECTION M-M

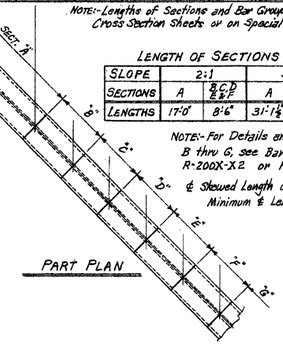


TYPICAL LONGITUDINAL SECTION- SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

LENGTH OF SECTIONS ON 45° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B,C,D,E,F	A	B,C,D,E,F	A	B,C,D,E,F
LENGTHS	17'-0"	8'-6"	31'-1½"	15'-6⅝"	45'-3"	22'-7½"



PART PLAN

NOTE:- For Details and Bar Lists for SECTION B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2 or R-200X-X3.

℄ Skewed Length of A = 1.41421 A. Minimum ℄ Length on skews = (0.50W+1').

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

SECTION "A" = 10'-0"

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS											* QUANTITIES - ONE SECTION "A"					
	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF STRAIGHT WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	CLASS S CONCRETE		REINFORCING STEEL			
												BARREL ONLY		BARREL, APRON AND HEADWALL.			
												2:1	3:1	4:1	2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
2 @ 4'-0"	4'	2'	16	9'-8"	6"	8"			3'-0"	13'-8"	15'-8"	8.18	14.97	21.77	1288	2203	3147
		3'	24	9'-8"		8"			4'-0"	"	"	9.23	16.90	24.57	1384	2374	3397
		4'	32	9'-8"		8"			5'-0"	"	"	10.28	18.83	27.38	1479	2545	3647
		5'	40	9'-8"		8"			6'-0"	"	"	11.34	20.76	30.18	1575	2716	3897
		6'	48	9'-11"		9"			7'-0"	14'-0½"	16'-0½"	13.98	24.68	35.88	1789	3059	4387
2 @ 5'-0"	5'	3'	30	11'-8"	6½"	8"			4'-1"	13'-6"	15'-6"	11.10	20.33	29.55	1935	3292	4712
		4'	40	11'-8"		8"			5'-1"	"	"	12.16	22.25	32.35	2080	3543	4962
		5'	50	11'-8"		8"			6'-1"	"	"	13.21	24.18	35.16	2124	3694	5212
		6'	60	11'-11"		9"			7'-1"	13'-10½"	15'-10½"	15.37	28.14	40.91	2229	3855	5528
		7'	70	12'-1"		9½"			8'-1"	14'-1"	16'-1"	17.42	31.90	46.38	2547	4408	6329
2 @ 6'-0"	6'	3'	36	13'-8"	7½"	8"			4'-3"	13'-3½"	15'-4"	13.91	25.46	37.01	2216	3777	5378
		4'	48	13'-8"		8"			5'-3"	"	"	14.96	27.39	39.82	2312	3968	5628
		5'	60	13'-8"		8"			6'-3"	"	"	16.00	29.29	42.58	2907	4119	5878
		6'	72	13'-11"		9"			7'-3"	13'-8½"	15'-8½"	18.13	33.20	48.92	2894	4837	6192
		7'	84	14'-1"		9"			8'-3"	14'-1"	16'-1"	20.26	37.10	53.94	2821	4899	7033
		8'	96	14'-2"		10"			9'-3"	20'-0½"	22'-0½"	22.07	40.90	58.78	3017	5232	7536
2 @ 7'-0"	7'	4'	56	15'-8"	8½"	8"			5'-5"	22'-1⅝"	24'-1⅝"	18.17	33.27	48.37	2952	5018	7123
		5'	70	15'-8"		8"			6'-5"	"	"	19.28	35.20	51.18	3048	5184	7373
		6'	84	15'-11"		9"			7'-5"	22'-4⅝"	24'-4"	21.44	39.25	57.06	3125	5909	7696
		7'	98	16'-1"		9½"			8'-5"	22'-9"	24'-9"	23.59	43.28	62.83	3947	5957	8655
		8'	112	16'-2"		10"			9'-5"	22'-10⅝"	24'-10⅝"	25.33	46.38	67.42	3666	6296	9066
		9'	126	16'-5"		10"			10'-5"	23'-2⅝"	25'-2⅝"	28.84	51.88	75.93	3914	6798	9632
2 @ 8'-0"	8'	4'	64	17'-8"	9½"	8"			5'-7"	24'-4⅝"	26'-4⅝"	21.81	38.93	58.06	3915	5871	8461
		5'	80	17'-8"		9"			6'-7"	25'-4"	27'-4"	23.90	42.74	63.68	3586	6237	8945
		6'	96	17'-11"		9"			7'-7"	"	"	25.11	44.97	66.83	3480	6908	9095
		7'	112	18'-1"		9½"			8'-7"	25'-4⅝"	27'-5"	27.22	49.89	72.94	3882	6667	9505
		8'	128	18'-2"		10"			9'-7"	25'-5⅝"	27'-10⅝"	29.02	52.13	77.24	4159	7149	10,215
		9'	144	18'-5"		9"			10'-7"	26'-0⅝"	28'-10⅝"	32.06	58.70	85.34	4401	7657	10,819
		10'	160	18'-8"		10"			11'-7"	26'-4⅝"	28'-4⅝"	36.39	64.80	94.21	4847	8568	11,973

* For remainder of quantities see Std. Wing and Barrel Drawings listed below.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 39.5'	A	B	C	D	E		F
35.0' to 44.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	2@C				D
25.0' to 29.5'	A	B	2@D				E
30.0' to 39.5'	A	2@C	2@E				F
35.0' to 44.0'	A	B	2@D	2@F			G

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPANS | CLEAR HEIGHT | "a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "a1" bars STRAIGHT In Top and Bottom Slab of Barrel. (Two of each Length) SIZE | SPACING | NO. REQ'D | LENGTH | "b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b1" bars BENT - See Diagrams below. In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alternate with "b" and "c" or "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | LENGTH MIN. | L MAX. | L MIN. | "b2" bars. BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b3" bars. In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alternate with "b2" and "c" or "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | LENGTH MIN. | L MAX. | L MIN. | "c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "c1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b1 & b3" bars. (Two of each Length) SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "d1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE | SPACING | NO. REQ'D | LENGTH | "e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "f" bars STRAIGHT Verticals in Sidewalls and Division Wall. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "k1" bars STRAIGHT In Bottom of Headwall. SIZE | NO. REQ'D | LENGTH | "k2" bars STRAIGHT In Top of Headwall and Apron. (2 Each) SIZE | NO. REQ'D | LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---