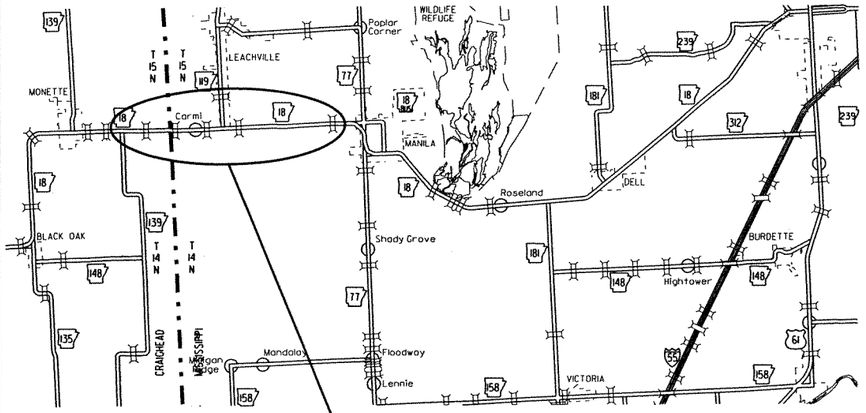
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	1	335
				(2)	MONETTE BYPASS-MANILA (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY



MONETTE BYPASS-MANILA (S)

CRAIGHEAD & MISSISSIPPI COUNTIES

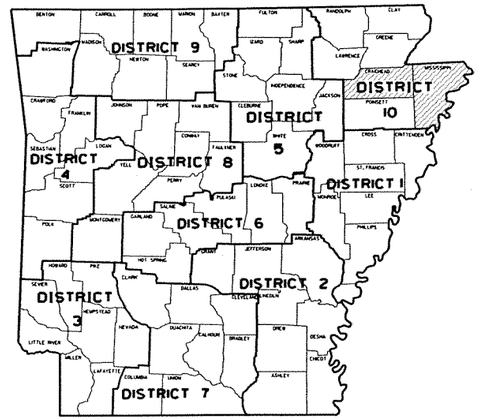
ROUTE 18 SECTIONS 4 & 5

JOB 100653

FED. AID PROJ. EBE-1847(2)

0 2 4 MILE

BAR SCALE



ARK. HWY. DIST. NO. 10

VICINITY MAP

STRUCTURES OVER 20'-0" SPAN

(1) STA. 682+09 CONSTRUCT
QUAD. 10' X 6' X 121' R.C. BOX CULVERT
W/ 31 WINGS LT. & RT.
D.A. = 2.1 SQ. MI., 050 = 500 C.F.S.
SPAN = 43' - 0"

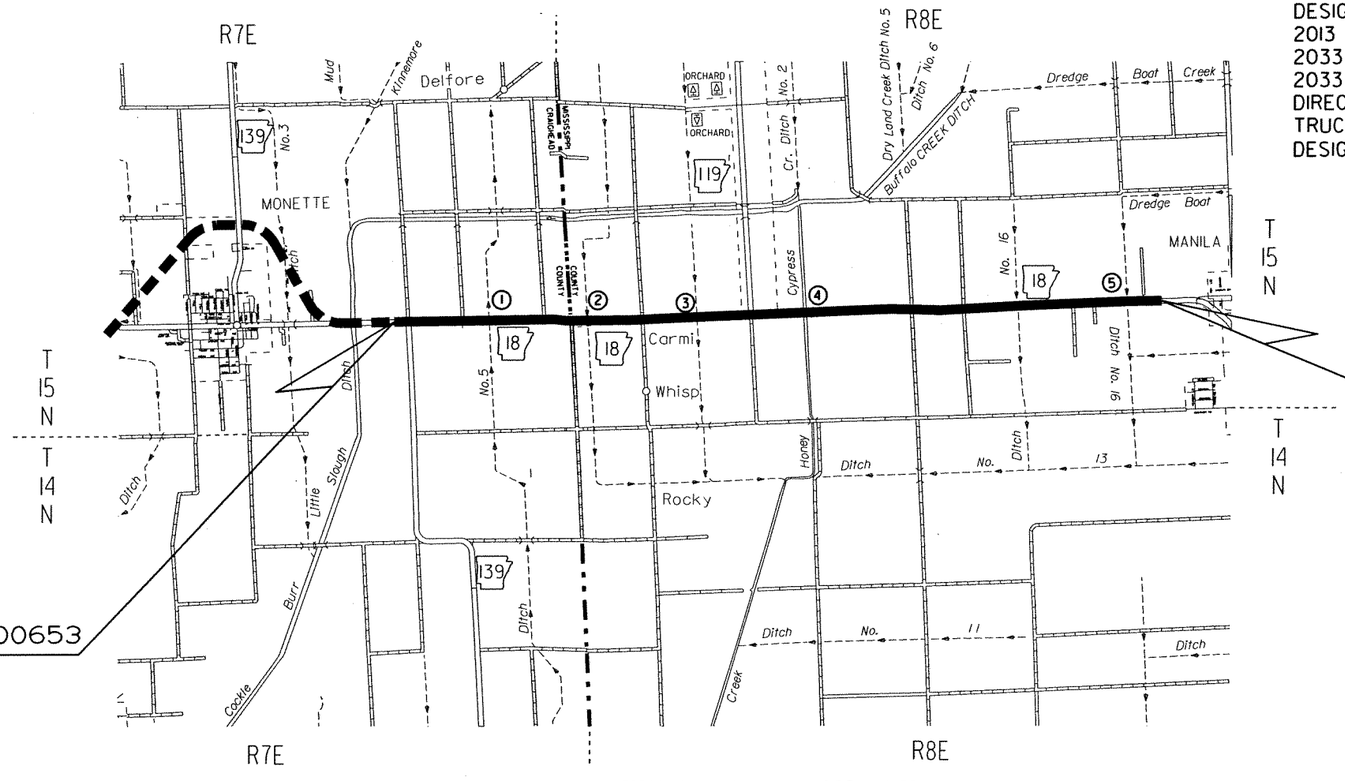
(2) STA. 730+43 CONSTRUCT
QUINT. 10' X 8' X 121' R.C. BOX CULVERT
W/ 31 WINGS LT. & RT.
D.A. = 5.5 SQ. MI., 050 = 340 C.F.S.
SPAN = 53' - 9"

(3) STA. 783+61 CONSTRUCT
QUAD. 12' X 9' X 121' R.C. BOX CULVERT
W/ 31 WINGS LT. & RT.
D.A. = 6.2 SQ. MI., 050 = 450 C.F.S.
SPAN = 51' - 2"

(5) STA. 994+92 CONSTRUCT
QUAD. 10' X 8' X 121' R.C. BOX CULVERT
W/ 31 WINGS LT. & RT.
D.A. = 3.8 SQ. MI., 050 = 310 C.F.S.
SPAN = 43' - 1"

BRIDGE DATA

(4) STA. 835+85.50 BR. END
134'-0" INTEGRAL W-BEAM UNIT (41',52',41')
75'-0" CLEAR ROADWAY
BR. NO. 07252
STA. 837+20.50 BR. END



STA. 640+00.00 BEGIN JOB 100653

LOG MILE 26.89

STA. 1005+00.00

END JOB 100653

N

	LATITUDE	LONGITUDE
BEGIN JOB	N 35° 53' 23.1"	W 90° 18' 54.1"
MID POINT	N 35° 53' 18.1"	W 90° 15' 12.4"
END JOB	N 35° 53' 15.4"	W 90° 11' 30.7"

GROSS LENGTH OF PROJECT	36500.00	FEET	OR	6.913	MILES
NET " " ROADWAY	36174.00	"	"	6.851	"
NET " " BRIDGES	326.00	"	"	0.062	"
NET " " PROJECT	36500.00	"	"	6.913	"

P.E. 100653
NON-PART.

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2033
2013 ADT	6200
2033 ADT	8000
2033 DHV	880
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	12%
DESIGN SPEED	60 MPH

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3917
FRANK VOZEL

4/9/13

DEPUTY DIRECTOR AND CHIEF ENGINEER

4/5/2013 r100653 tit.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	2	335

(2) INDEX OF SHEETS

INDEX OF SHEETS

SHEET NO.		TITLE	BRIDGE NO.	DRWG.NO.	DATE
1	_____	TITLE SHEET			
2	_____	INDEX OF SHEETS			
3	_____	GOVERNING SPECIFICATIONS AND GENERAL NOTES			
4 - 8	_____	TYPICAL SECTIONS OF IMPROVEMENT			
9 - 24	_____	SPECIAL DETAILS			
25 - 53	_____	TEMPORARY EROSION CONTROL DETAILS			
54 - 72	_____	MAINTENANCE OF TRAFFIC DETAILS			
73	_____	PERMANENT PAVEMENT MARKING DETAILS			
74 - 82	_____	QUANTITY SHEETS			
83	_____	SCHEDULE OF BRIDGE QUANTITIES	07252	52581	
84	_____	SUMMARY OF QUANTITIES AND REVISIONS			
85 - 105	_____	SURVEY CONTROL DETAILS			
106 - 130	_____	PLAN AND PROFILE SHEETS			
131	_____	LAYOUT OF BRIDGE OVER BUFFALO CREEK DITCH	07252	52582	
132	_____	SOIL BORINGS	07252	52583	
133	_____	DETAILS OF STAGE CONSTRUCTION	07252	52584	
134	_____	DETAILS OF BENT 1	07252	52585	
135	_____	DETAILS OF BENTS 2 & 3	07252	52586	
136	_____	DETAILS OF BENT 4	07252	52587	
137	_____	DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07252	52588	
138	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 1 OF 8)	07252	52589	
139	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 2 OF 8)	07252	52590	
140	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 3 OF 8)	07252	52591	
141	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 4 OF 8)	07252	52592	
142	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 5 OF 8)	07252	52593	
143	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 6 OF 8)	07252	52594	
144	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 7 OF 8)	07252	52595	
145	_____	DETAILS OF 134' INTEGRAL W-BEAM UNIT (SHEET 8 OF 8)	07252	52596	
146	_____	DETAILS OF TYPE SPECIAL APPROACH SLAB	07252	52597	
147	_____	DETAILS OF TYPE SPECIAL APPROACH GUTTERS	07252	52598	
148	_____	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	1888A		4-10-03
149	_____	DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES	1891F		4-10-03
150	_____	DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES	2387		1-10-13
151	_____	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	14991		4-10-03
152	_____	DETAILS OF DRIVEWAYS & ISLANDS	DR-1		11-29-07
153	_____	FLARED END SECTION	FES-1		10-18-96
154	_____	FLARED END SECTION	FES-2		10-18-96
155	_____	GUARD RAIL DETAILS	GR-8		7-14-10
156	_____	GUARD RAIL DETAILS	GR-9		4-17-08
157	_____	GUARD RAIL DETAILS	GR-9A		4-17-08
158	_____	GUARD RAIL DETAILS	GR-10		7-14-10
159	_____	GUARD RAIL DETAILS	GR-10A		7-14-10
160	_____	GUARD RAIL DETAILS	GRT-1		7-14-10
161	_____	MAILBOX DETAILS	MB-1		11-18-04
162	_____	PRECAST CONCRETE BOX CULVERTS	PBC-1		12-15-11
163	_____	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1		12-15-11
164	_____	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1		12-15-11
165	_____	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1		12-15-11
166	_____	PLASTIC PIPE CULVERT (PVC F949)	PCP-2		12-15-11
167	_____	PAVEMENT MARKING DETAILS	PM-1		11-17-10
168	_____	DETAILS OF PIPE UNDERDRAIN	PU-1		4-10-03
169	_____	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1		7-26-12
170	_____	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2		11-20-03
171	_____	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2		10-18-96
172	_____	DETAILS OF SPECIAL ITEMS	SI-1		7-26-12
173	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1		12-15-11
174	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2		3-11-10
175	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3		10-15-09
176	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4		10-15-09
177	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5		10-15-09
178	_____	TEMPORARY EROSION CONTROL DEVICES	TEC-1		12-15-11
179	_____	TEMPORARY EROSION CONTROL DEVICES	TEC-2		6-02-94
180	_____	TEMPORARY EROSION CONTROL DEVICES	TEC-3		11-03-94
181 - 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
3-26-13

r100653.dgn 5/2/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	3	335

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-24-13

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB 100653
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-2_____	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1_____	BIDDING REQUIREMENTS AND CONDITIONS
103-1_____	DETERMINATION OF DBE PARTICIPATION
105-1_____	CONSTRUCTION CONTROL MARKINGS
105-2_____	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3_____	CONTROL OF WORK
107-1_____	WORKER VISIBILITY
108-1_____	LIQUIDATED DAMAGES
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
303-1_____	AGGREGATE BASE COURSE
404-1_____	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
404-2_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
409-1_____	MINERAL AGGREGATES
410-3_____	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1_____	ASPHALT CONCRETE COLD PLANT MIX
600-1_____	WATER FOR VEGETATION
603-1_____	MAINTENANCE OF TRAFFIC
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2_____	INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
606-2_____	PIPE CULVERTS
718-2_____	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2_____	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1_____	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 100653__	AIRPORT CLEARANCE REQUIREMENTS
JOB 100653__	ASPHALT CONCRETE HOT MIX SURFACE COURSE SURFACE TOLERANCE AND INCENTIVE PAYMENTS
JOB 100653__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100653__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100653__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100653__	DELAY IN RIGHT-OF-WAY OCCUPANCY
JOB 100653__	DRIVEN STEEL PILING BY METHOD B
JOB 100653__	EXTENSION FOR PIPE CULVERTS
JOB 100653__	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB 100653__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100653__	HIGH PERFORMANCE PAVEMENT MARKING
JOB 100653__	INTERNET BIDDING
JOB 100653__	LRFD PRECAST REINFORCED CONCRETE BOX CULVERTS
JOB 100653__	NESTING SITES OF MIGRATORY BIRDS
JOB 100653__	PARTNERING REQUIREMENTS
JOB 100653__	PLASTIC PIPE
JOB 100653__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 100653__	SHORING
JOB 100653__	SOIL STABILIZATION
JOB 100653__	STEEL SHELL PILES
JOB 100653__	STORM WATER POLLUTION PREVENTION PLAN
JOB 100653__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100653__	UTILITY ADJUSTMENTS
JOB 100653__	VALUE ENGINEERING
JOB 100653__	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. 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.
9. 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.

r100653.dgn 04-24-2013

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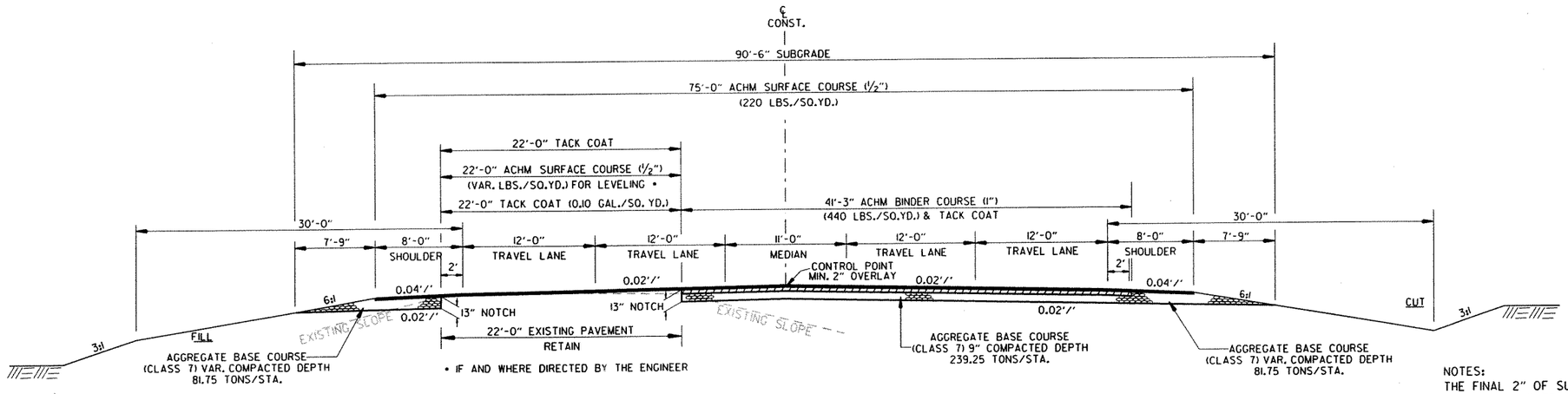
				6	ARK.			
				JOB NO.		100653	4	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



HWY. 18
NOTCH & WIDEN RIGHT W/2" SURFACING
STA. 640+00.00 - STA. 655+45.00

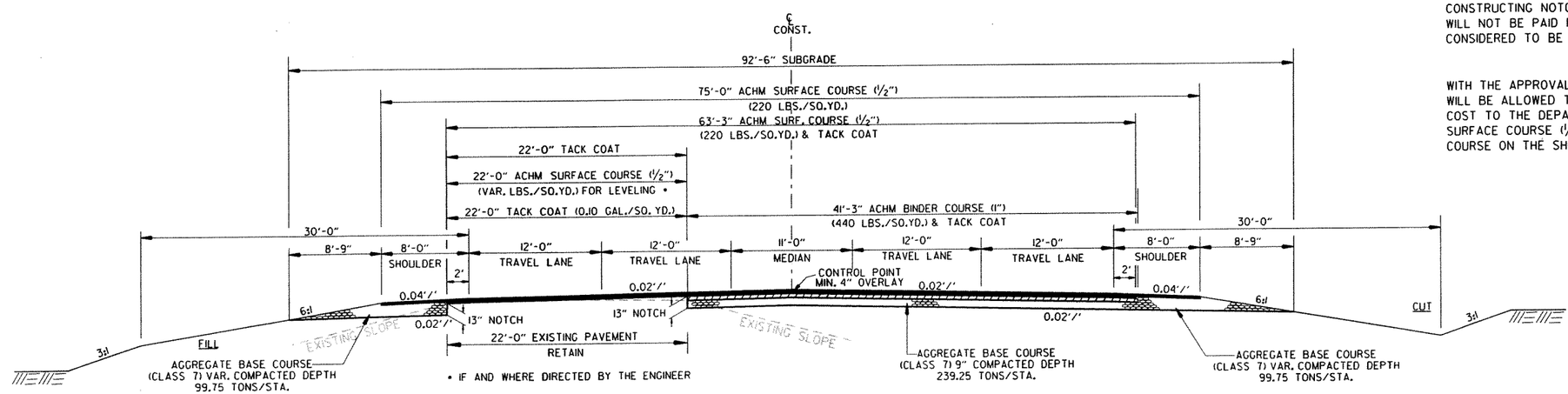
NOTES:
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

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

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

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

WITH THE APPROVAL OF THE ENGINEER. THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



HWY. 18
NOTCH & WIDEN RIGHT
STA. 655+45.00 - STA. 661+61.67

TYPICAL SECTIONS OF IMPROVEMENT

r100653.dgn 5/2/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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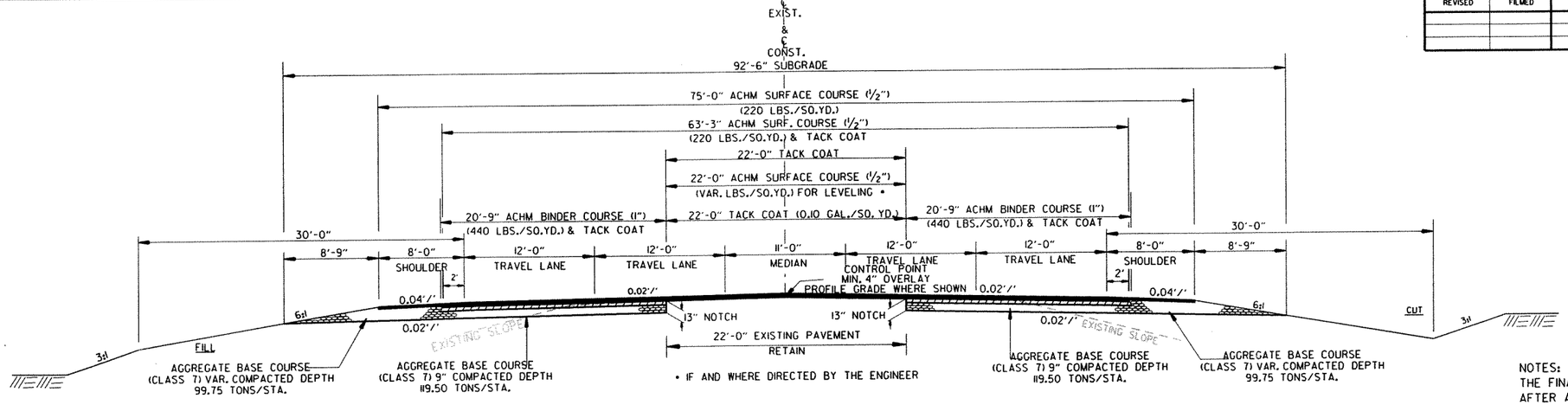
				JOB NO.		100653	5	335

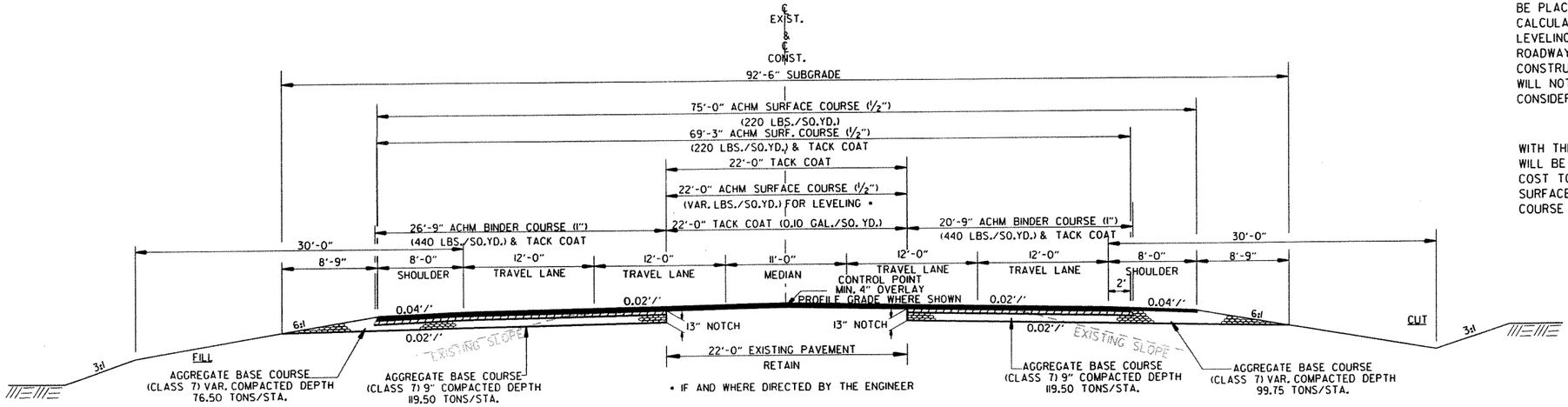
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



HWY. 18
NOTCH & WIDEN

STA. 661+61.67 - STA. 678+91.21
STA. 685+08.79 - STA. 728+22.32
STA. 732+92.22 - STA. 780+92.29
STA. 786+08.79 - STA. 833+52.64
STA. 839+46.18 - STA. 884+62.02
STA. 895+88.93 - STA. 908+48.32
STA. 921+66.94 - STA. 989+55.00



HWY. 18
NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT

STA. 678+91.21 - STA. 681+71.52
STA. 682+46.57 - STA. 685+08.79
STA. 728+22.32 - STA. 730+05.90
STA. 730+80.91 - STA. 732+92.22
STA. 780+92.29 - STA. 783+16.30
STA. 784+06.47 - STA. 786+08.79

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

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

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

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

WITH THE APPROVAL OF THE ENGINEER. THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

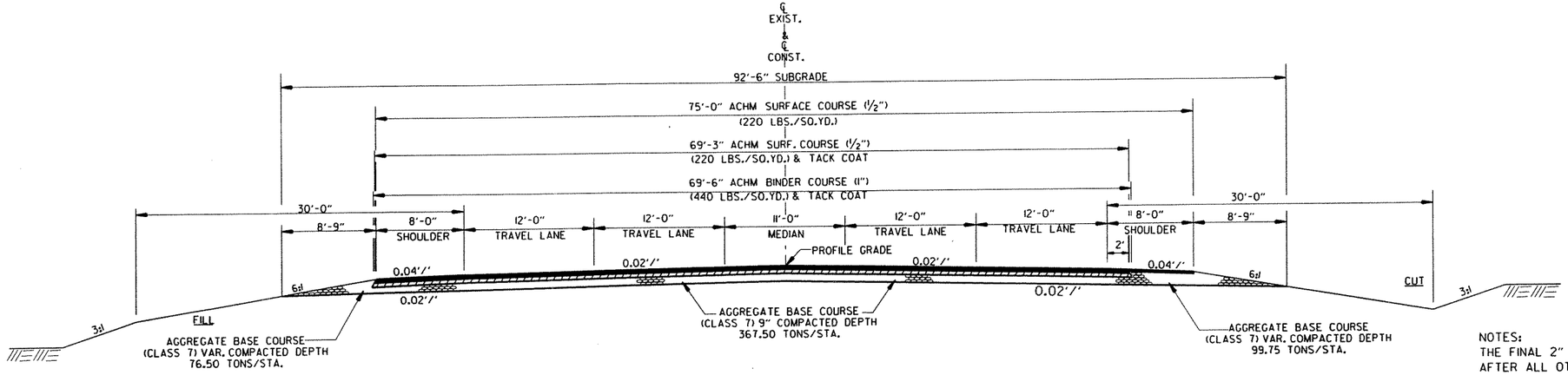
r100653.dgn 5/2/2012

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	6	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



HWY. 18
FULL DEPTH W/FULL DEPTH SHOULDER LEFT
STA. 681+71.52 - STA. 682+46.57
STA. 730+05.90 - STA. 730+80.91
STA. 783+16.30 - STA. 784+06.47

HWY. 18
FULL DEPTH W/FULL DEPTH SHOULDER RIGHT
STA. 834+85.00 - STA. 835+85.50
STA. 837+20.50 - STA. 838+20.00

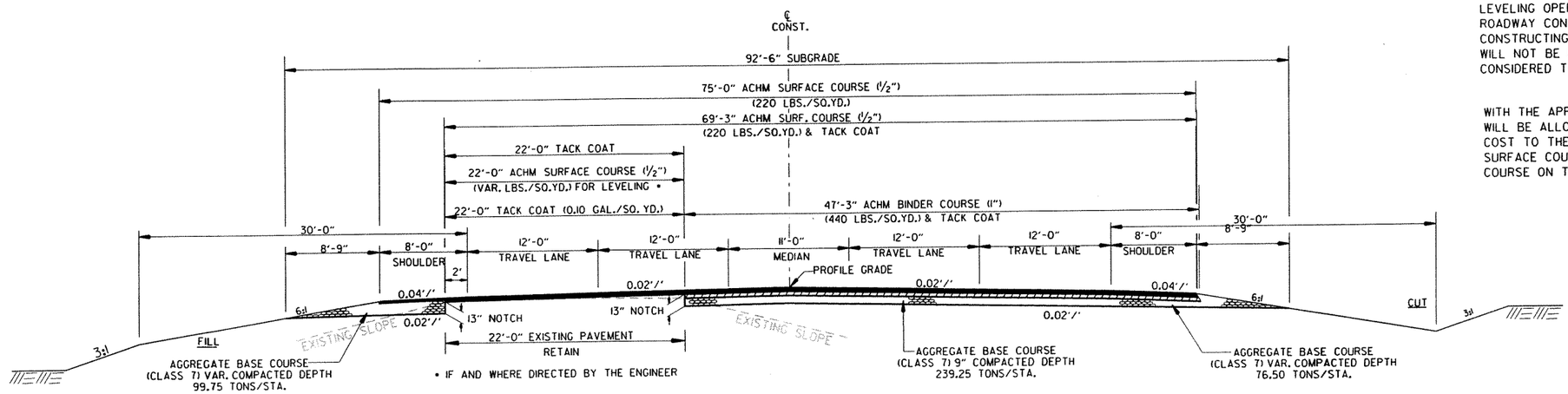
NOTES:
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

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

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

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

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



HWY. 18
NOTCH & WIDEN W/FULL DEPTH SHOULDER RIGHT
STA. 833+52.64 - STA. 834+85.00
STA. 838+20.00 - STA. 839+46.18

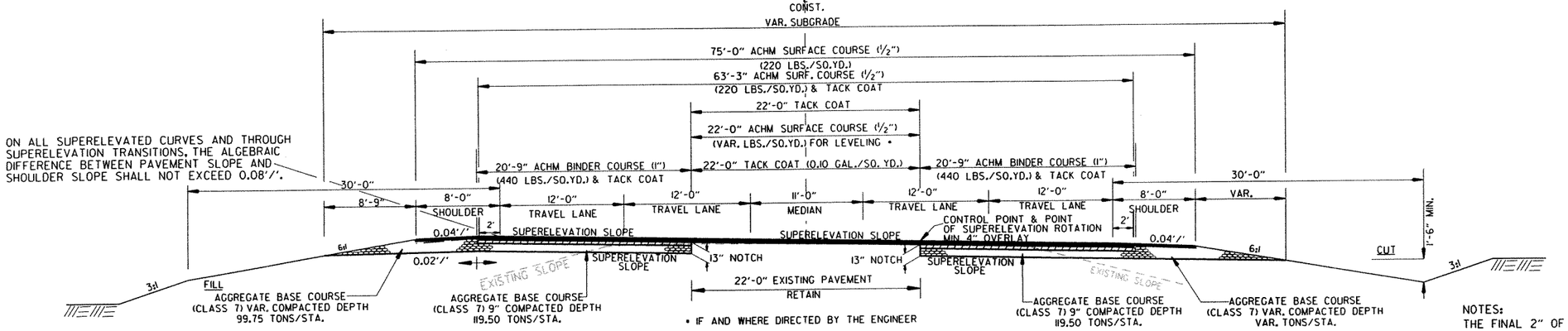
TYPICAL SECTIONS OF IMPROVEMENT

r100653.dgn 5/2/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	7	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



HWY. 18
NOTCH & WIDEN

STA. 884+62.02 - STA. 895+88.93
STA. 908+48.32 - STA. 921+66.94

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

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

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

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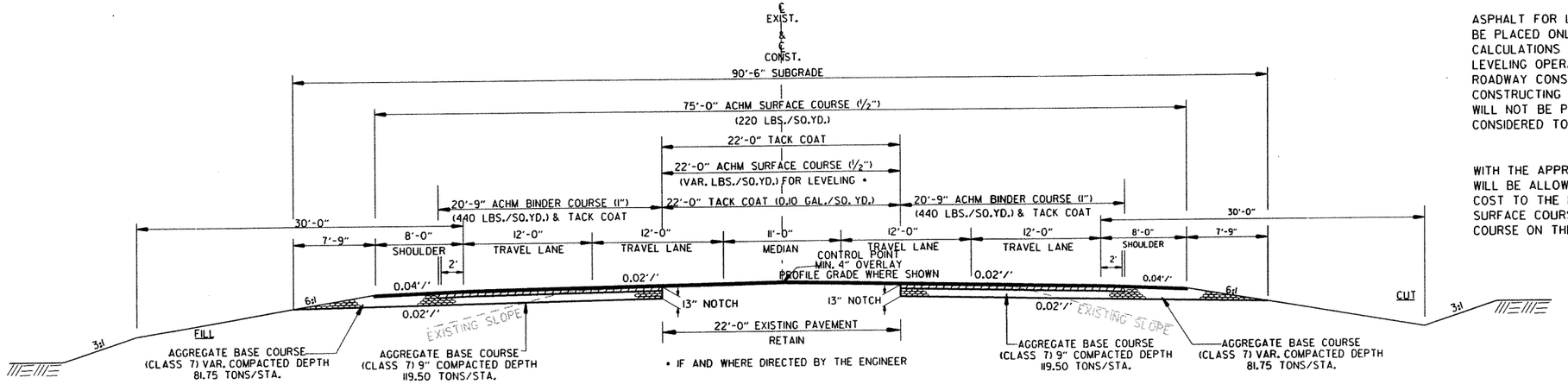


HWY. 18
NOTCH & WIDEN W/2" SURFACING

STA. 989+55.00 - STA. 992+87.83
STA. 997+13.65 - STA. 1005+00.00

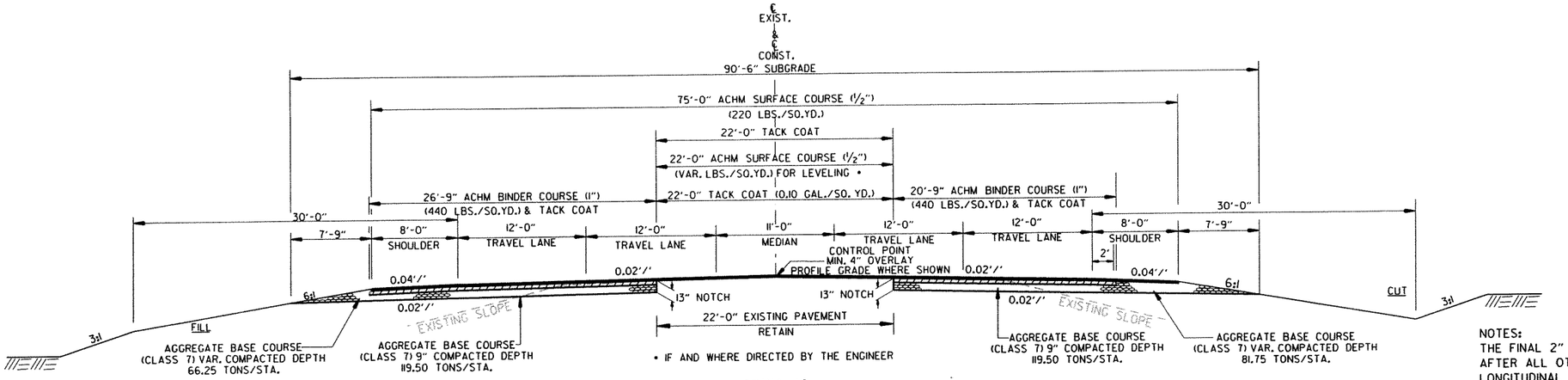
r100653.dgn 5/2/2012

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	8	335

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



• IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 18
NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT W/2" SURFACING
STA. 992+87.83 - STA. 994+67.64
STA. 995+17.63 - STA. 997+13.65

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

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

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

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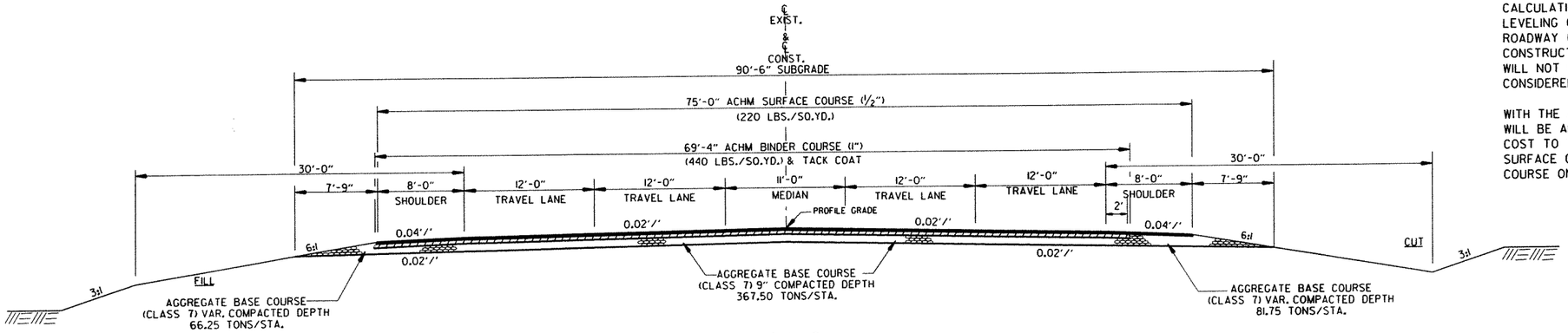
WITH THE APPROVAL OF THE ENGINEER. THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



HWY. 18
FULL DEPTH W/FULL DEPTH SHOULDER LEFT W/2" SURFACING
STA. 994+67.64 - STA. 995+17.63

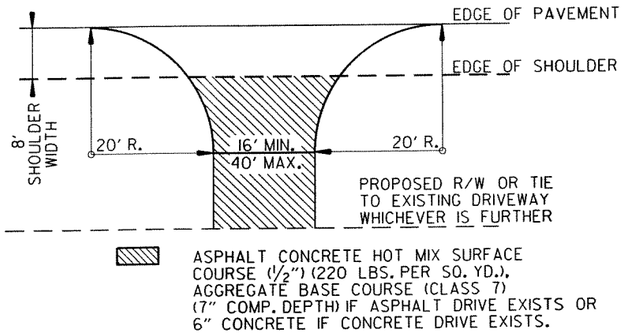
r100653.dgn 5/2/2012

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	9	335

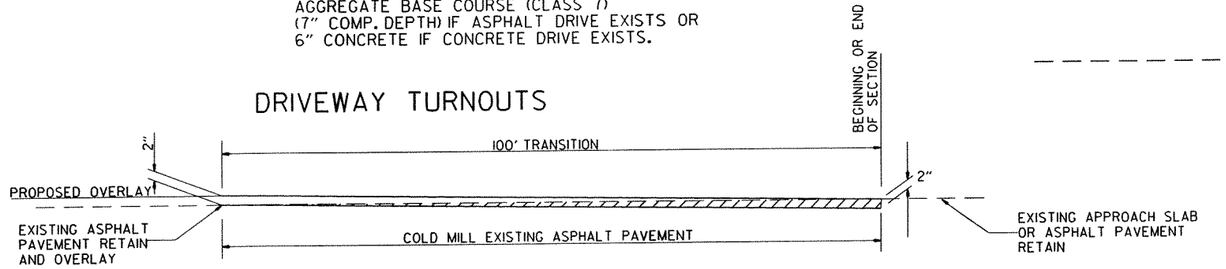
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

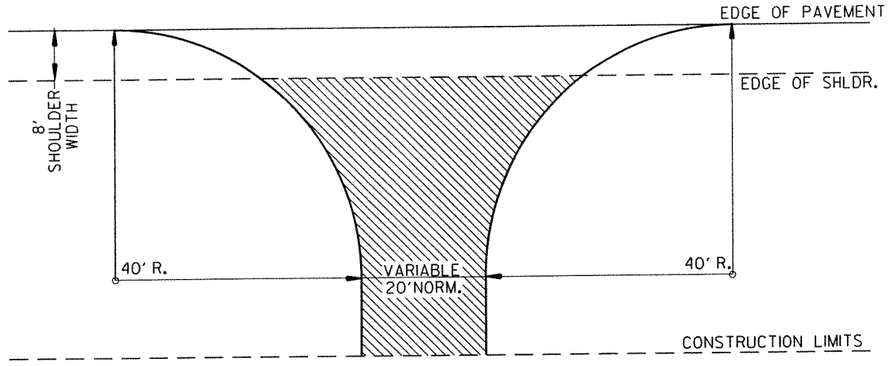


ASPHALT CONCRETE HOT MIX SURFACE COURSE (½") (220 LBS. PER SQ. YD.), AGGREGATE BASE COURSE (CLASS 7) (7" COMP. DEPTH) IF ASPHALT DRIVE EXISTS OR 6" CONCRETE IF CONCRETE DRIVE EXISTS.

DRIVEWAY TURNOUTS



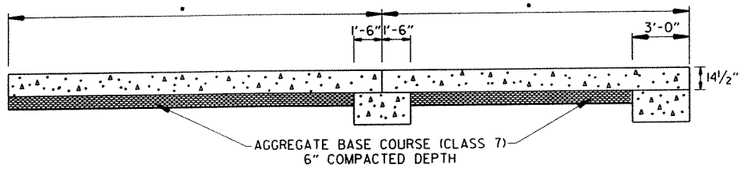
DETAIL FOR TRANSITIONS



ASPHALT CONCRETE HOT MIX SURFACE COURSE (½") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH

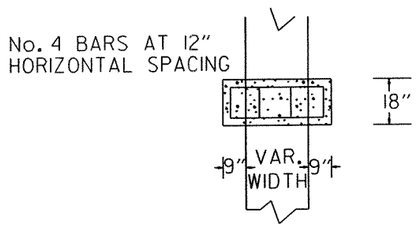
NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

COUNTY ROAD TURNOUTS

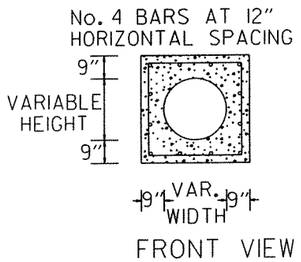


SPECIAL DETAIL OF APPROACH SLAB

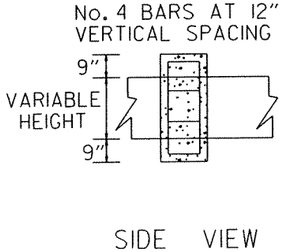
• REFER TO BRIDGE DRAWINGS



TOP VIEW



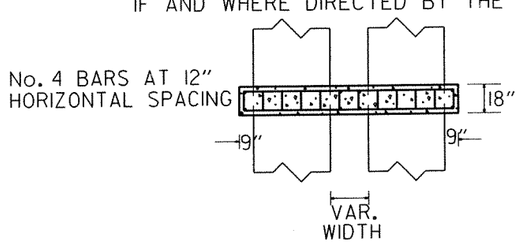
FRONT VIEW



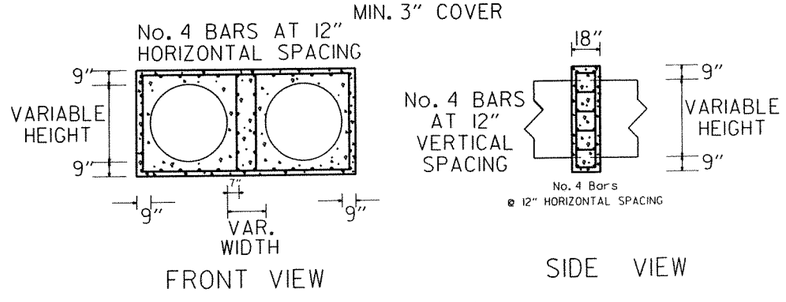
SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

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



TOP VIEW



FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

1/16/2013

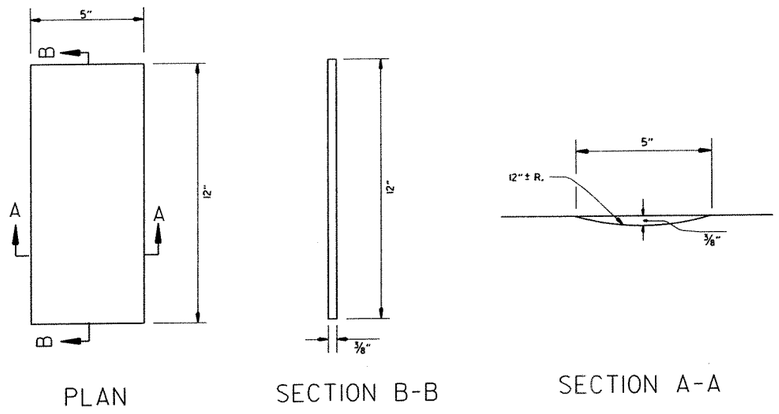
R100653.DGN

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.		100653	10	335

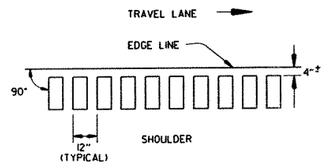
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

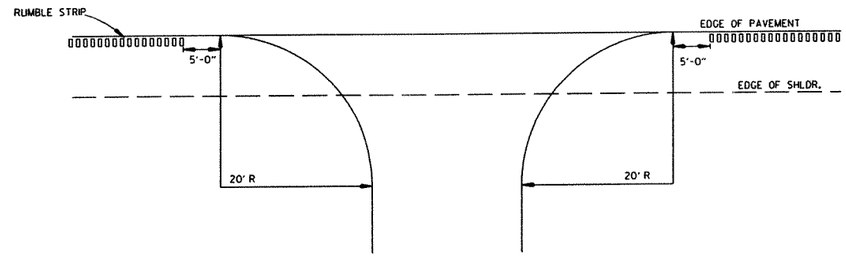


PLAN SECTION B-B SECTION A-A

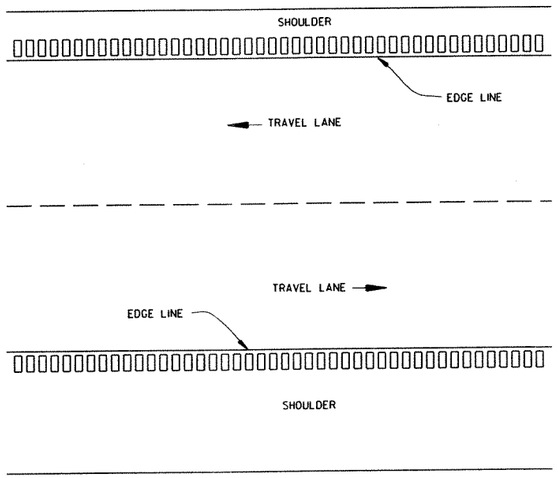
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



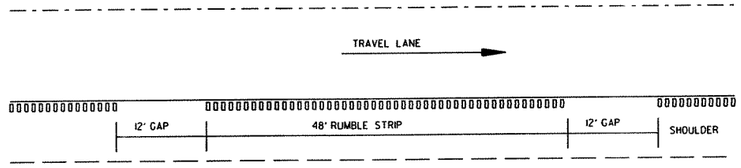
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



DETAIL FOR GAP PATTERN RUMBLE STRIP

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

SPECIAL DETAILS

1/16/2013

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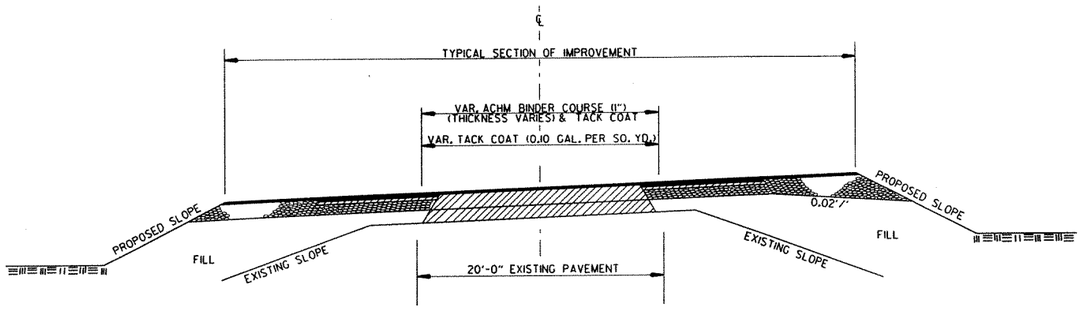
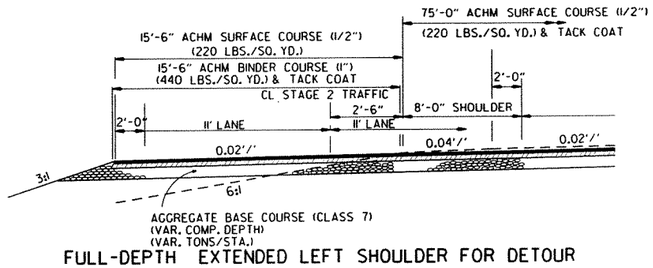
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	11	335

(2) SPECIAL DETAILS



DETAIL OF METHOD OF RAISING GRADE

NOTES:
(1) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003.

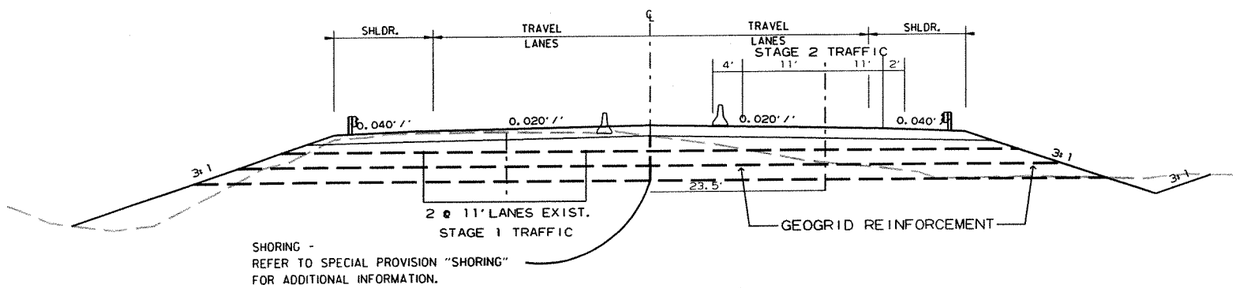


FULL-DEPTH EXTENDED LEFT SHOULDER FOR DETOUR

TO BE USED FOR STAGE 2 TRAFFIC
STA. 679+21.21 - STA. 684+78.79
STA. 728+56.32 - STA. 732+51.97
STA. 781+23.72 - STA. 785+78.79
STA. 993+16.72 - STA. 996+85.21

NOTE: REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" FOR ADDITIONAL INFORMATION.

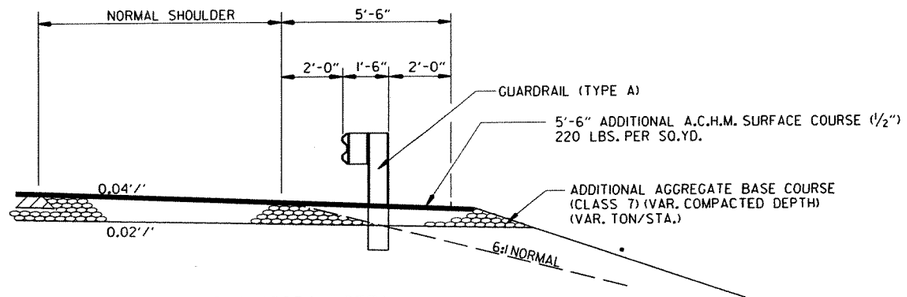
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION HWY. 18

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.



WIDENING FOR GUARDRAIL DETAIL

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

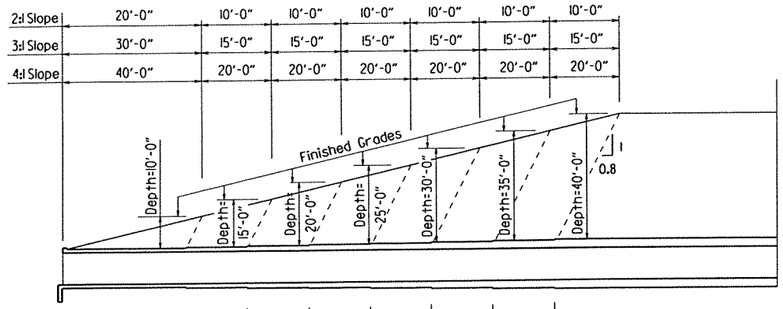
1/16/2013

R100653.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	12	335

① SPECIAL DETAILS



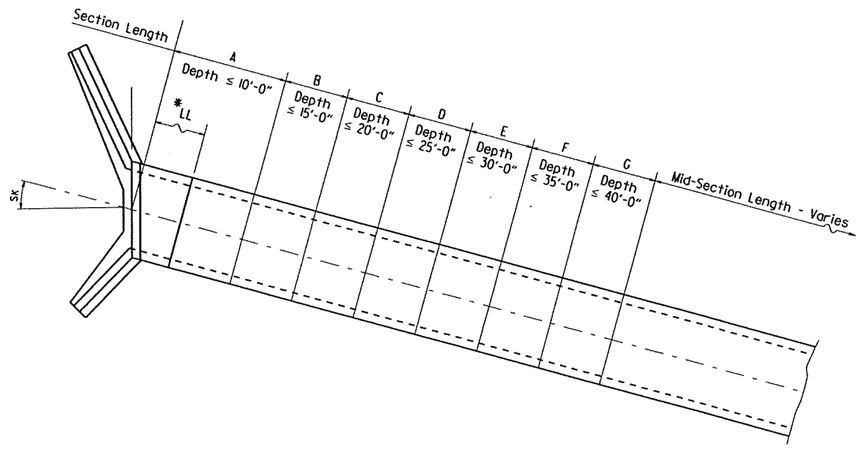
Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 5'

Lengths for Non-Skewed Boxes

Note: For fill depths 5' and under, use Mid-Section full length of box culvert.

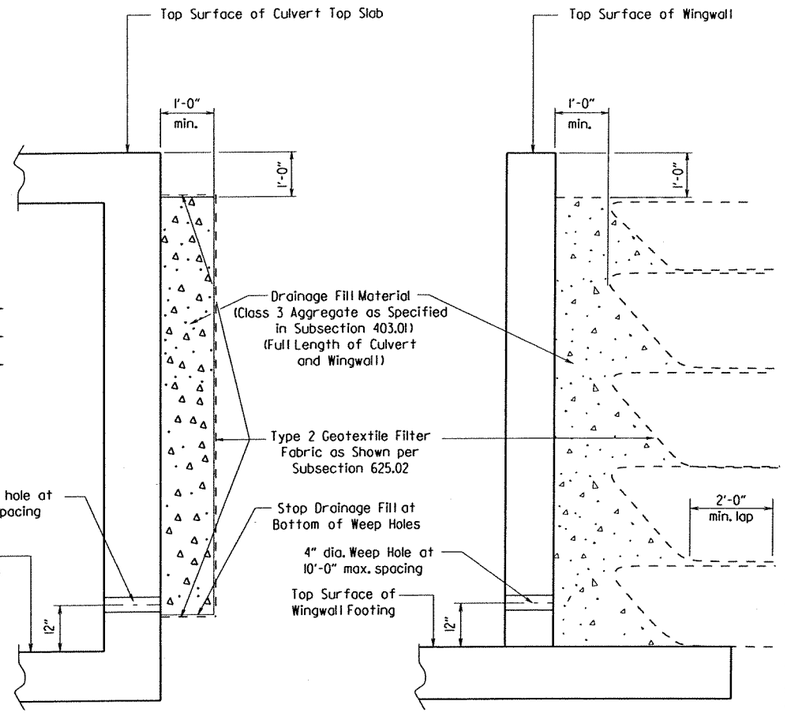
* LL = Skewed End Section Length - See "Skewed End Section Details"



SLOPE		2:1		3:1		4:1	
SECTION		A	B, C, D, E, F, G	A	B, C, D, E, F, G	A	B, C, D, E, F, G
SKEW ANGLE (SK)	15	12'-5 1/8"	6'-2 1/2"	22'-9 3/8"	11'-4 5/8"	33'-1 1/2"	16'-6 3/4"
	30	13'-10 1/4"	6'-11 1/8"	25'-4 7/8"	12'-8 3/8"	36'-11 3/8"	18'-5 3/4"
	45	16'-11 5/8"	8'-5 7/8"	31'-1 3/8"	15'-6 5/8"	45'-3"	22'-7 1/2"

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTH OVER 5'

Lengths for Skewed Boxes



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

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

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

WINGWALL & CULVERT DRAINAGE DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL L. FUSELIER
1/31/12

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

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

LIVE LOADING: HL-93

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

Reinforcing Steel shall be AASHTO M 31 or M 53, Grade 60.

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

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

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

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

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

Construction Joints between footings and walls shall be made only where shown on the Plans. The maximum length of culvert for which a continuous pour will be permitted is 75 ft. For longer culvert construction, joints shall be provided in slabs and walls at intervals not greater than 50 ft. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise.

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

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Special Provision "LRFD Precast Reinforced Concrete Box Culverts".

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

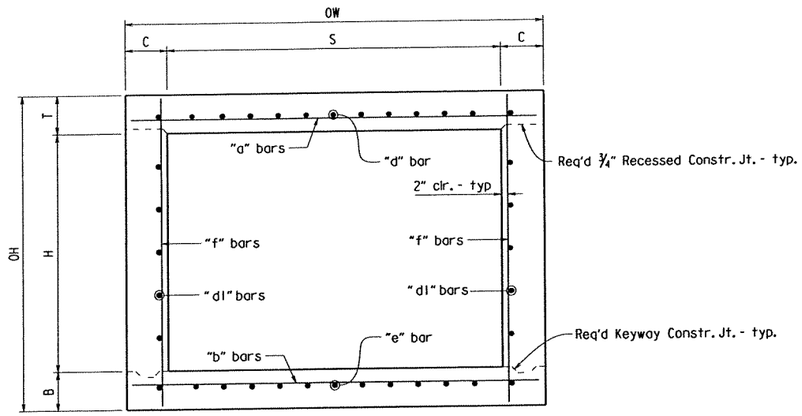
LRFD

b100653_culvert.dgn

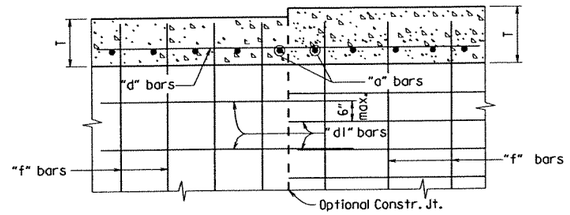
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	13	335

(1) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

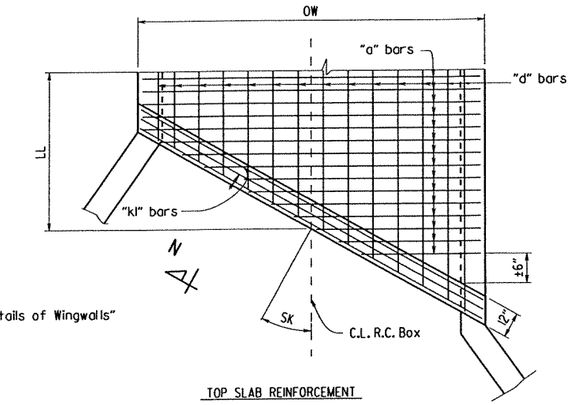


TYPICAL SECTION M-M

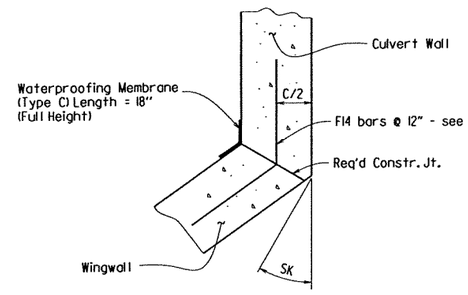


LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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

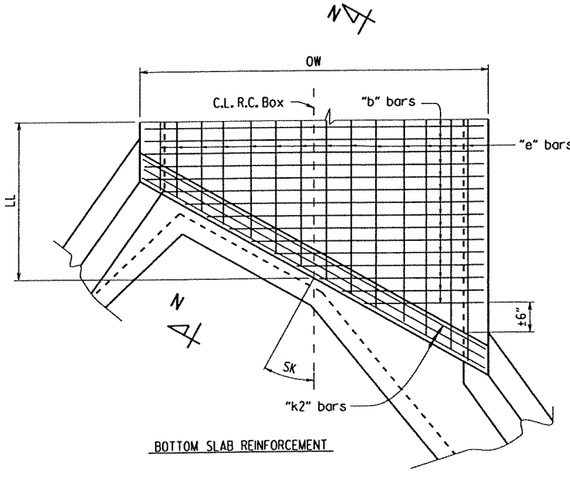


TOP SLAB REINFORCEMENT



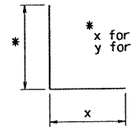
WINGWALL ATTACHMENT

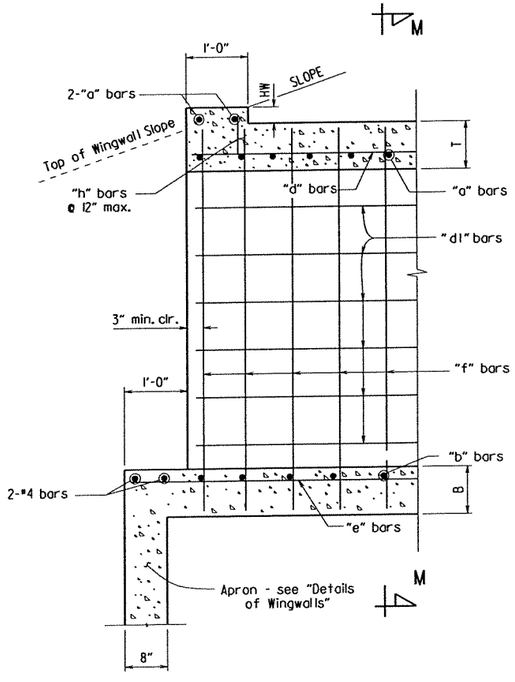
See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT

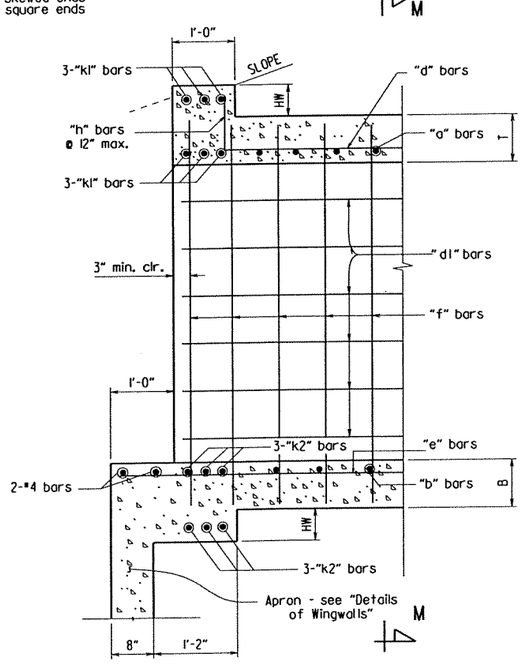
SKEWED END SECTION DETAILS





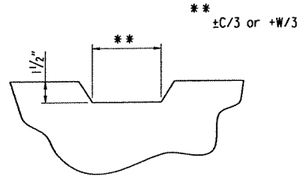
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

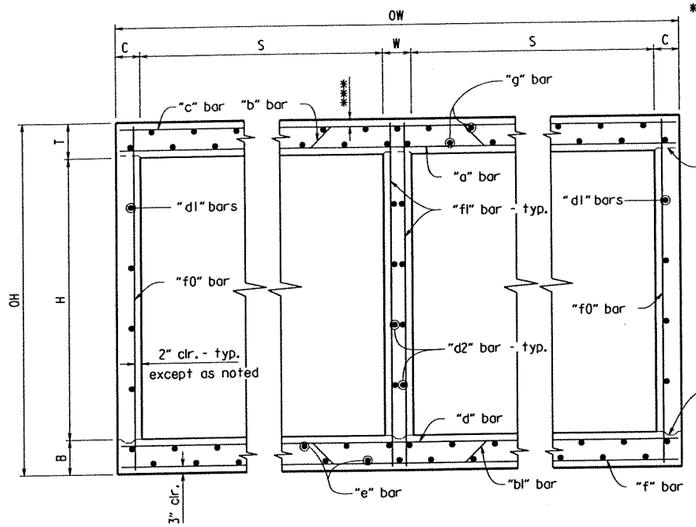
DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

LRFD

bi00653_culvert.dgn

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	14	335
				1		SPECIAL DETAILS		

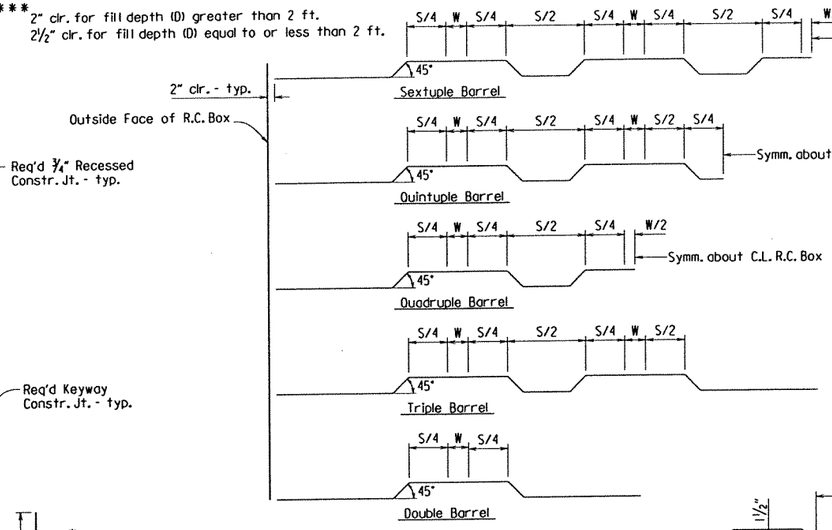


TYPICAL SECTION

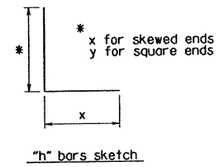
Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

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

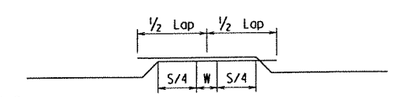
*** 2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.



Bent "b" bars or Bent "bl" bars sketch

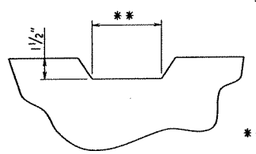


"h" bars sketch



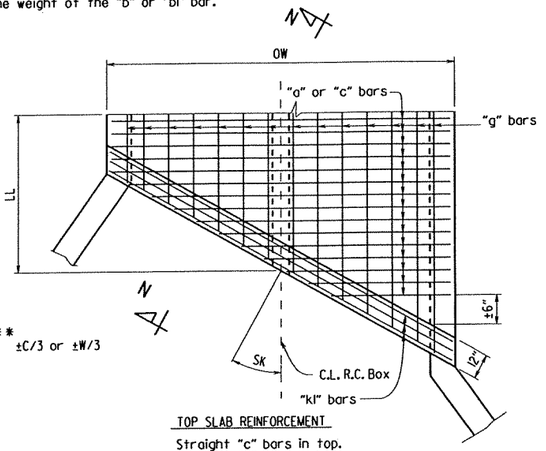
Optional Lap Detail
For Bent "b" bars and Bent "bl" bars

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

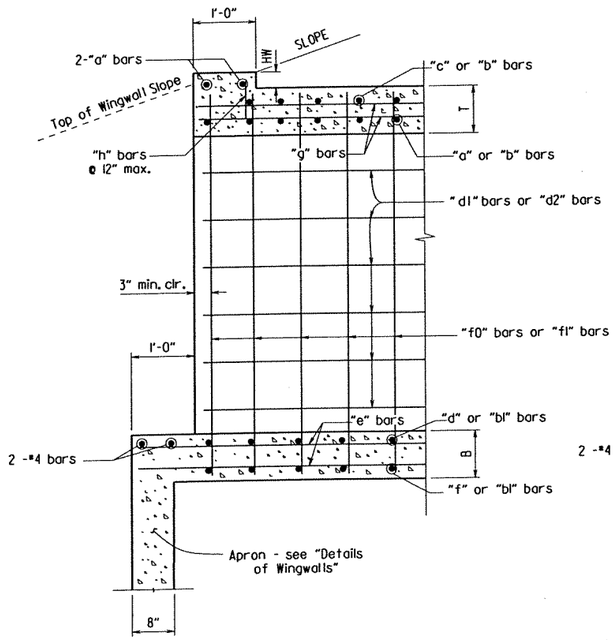


** ±C/3 or ±W/3

TYPICAL KEYWAY DETAIL

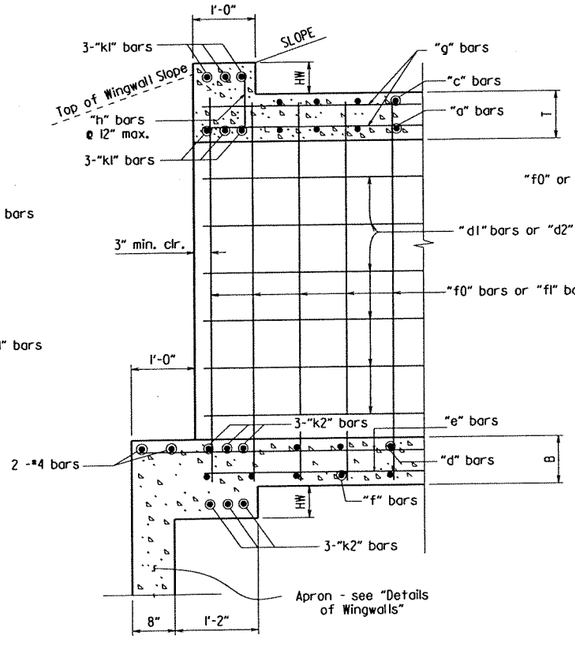


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



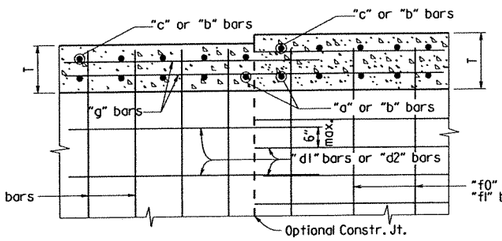
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



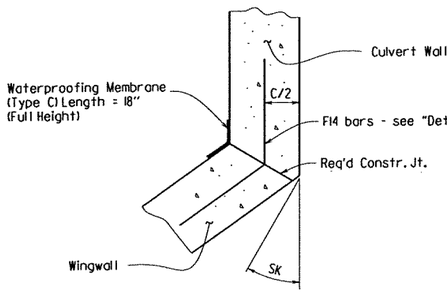
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



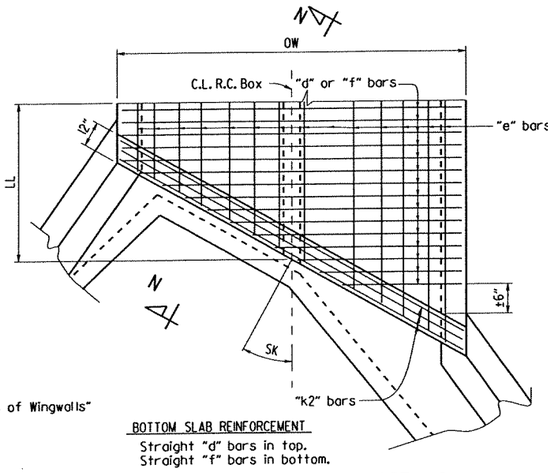
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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



WINGWALL ATTACHMENT

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



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

SKEWED END SECTION DETAILS

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

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

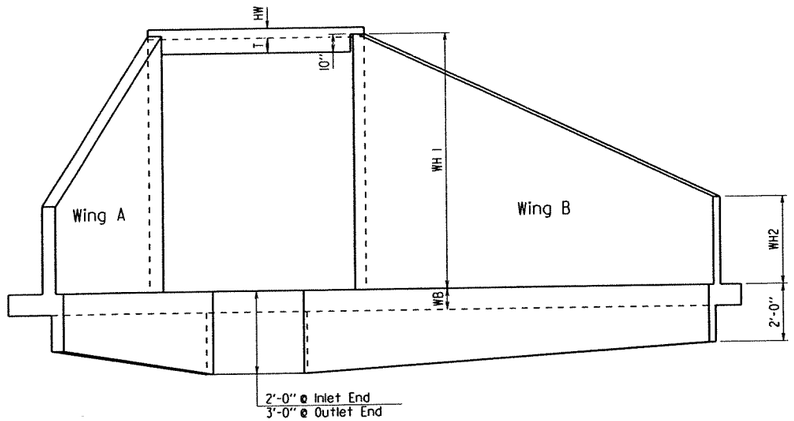
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
6/15/23

bl00653_culvert.dgn

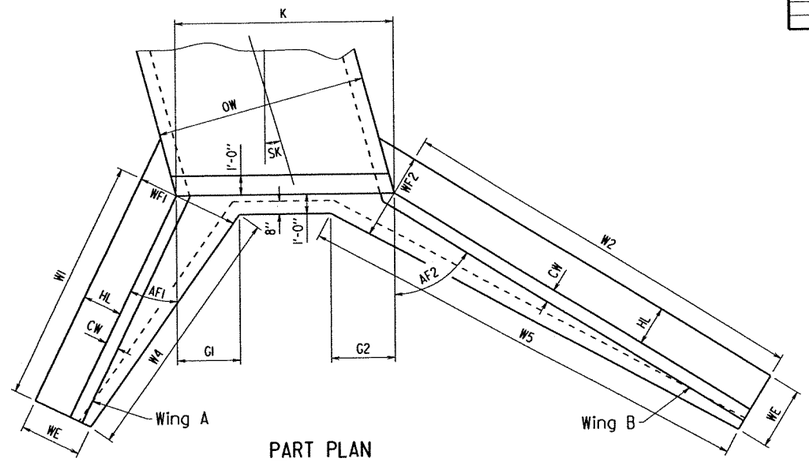
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	15	335

(1) SPECIAL DETAILS

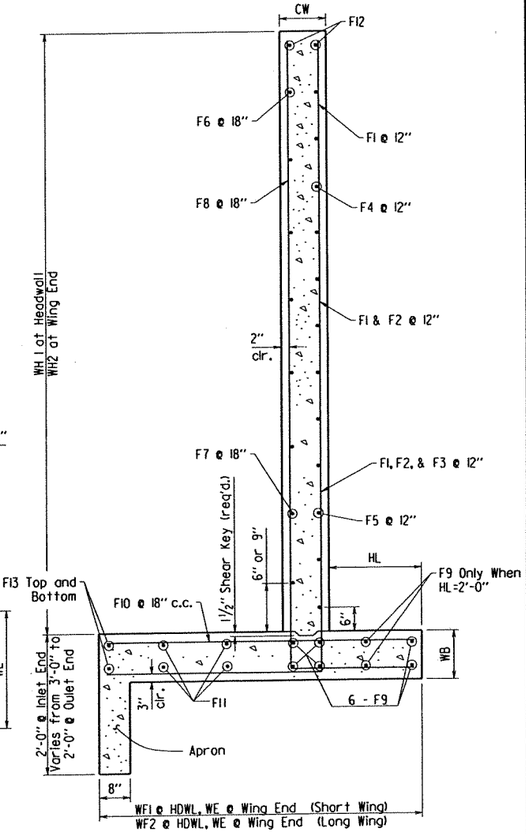
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL L. FUSELIER



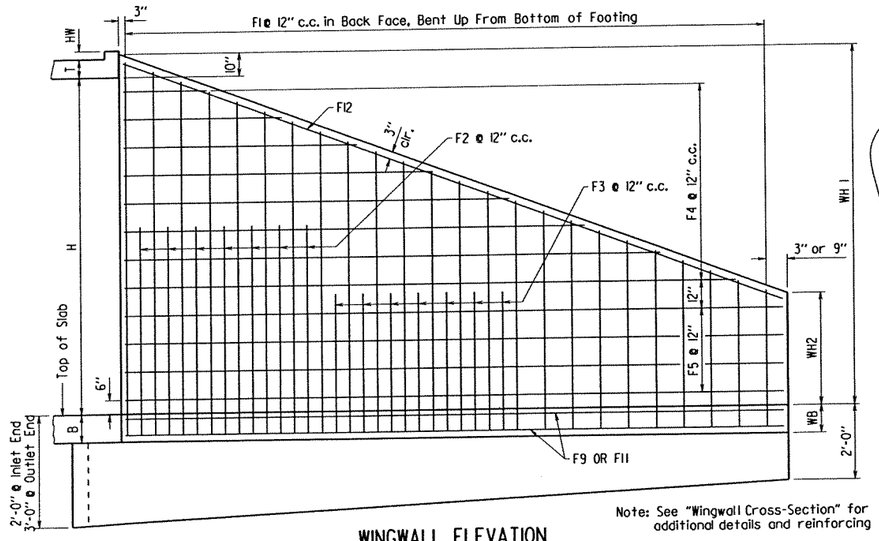
END ELEVATION



PART PLAN

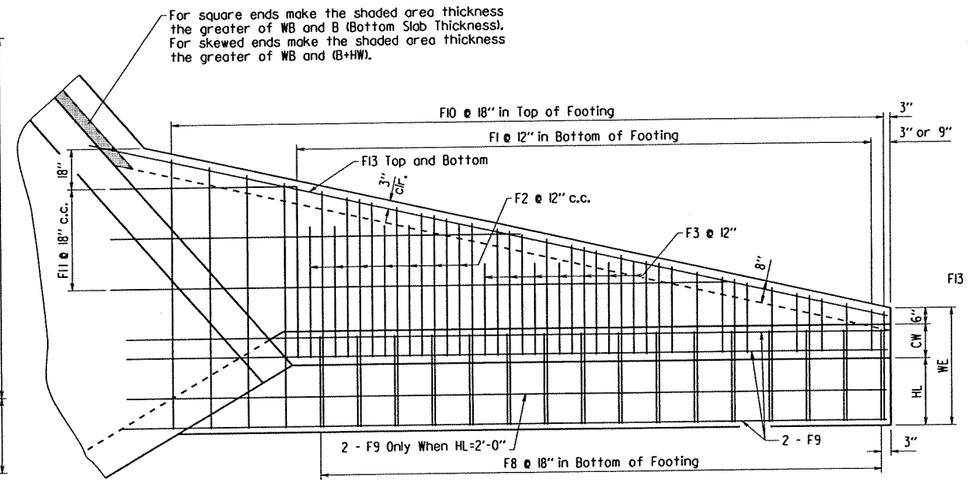


WINGWALL CROSS SECTION

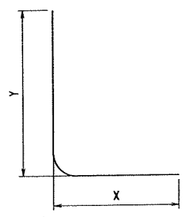


WINGWALL ELEVATION
Showing Back Face Reinforcement

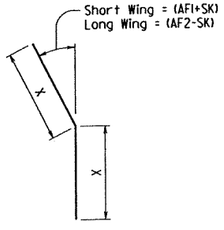
Note: See "Wingwall Cross-Section" for additional details and reinforcing



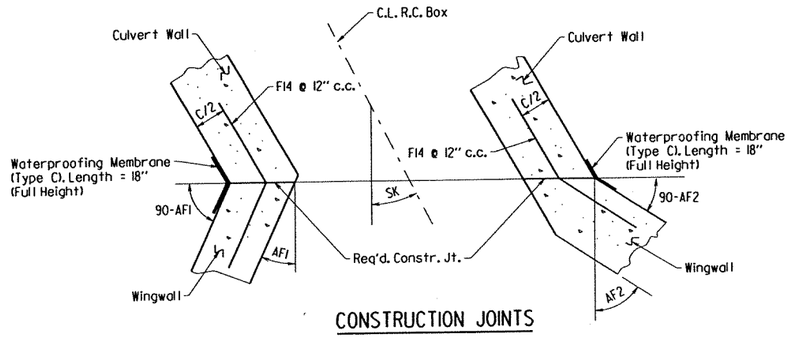
WINGWALL PLAN



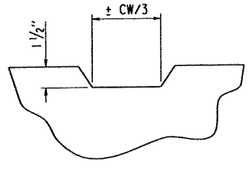
F1, F2, F3, & F8 SKETCH



F14 SKETCH



CONSTRUCTION JOINTS



TYPICAL KEYWAY DETAIL

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

LRFD

bl00653_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	16	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
43'-0"	6'-0"	0'-9"	0'-8"	0	3:1	43'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-5"	3'-5"	1'-0 5/8"	1'-0 5/8"	16'-6"	16'-6"	16'-2"	16'-2"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
10.22	900

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min 3'-0" / Max 6'-11"	-	-	-	L -	-	-	-	L -	4	12	4	Min / 3'-10" / Max / 14'-1"	4	12	2	16'-2"	4	18	3	Min / 3'-10" / Max / 14'-1"	4	18	1	16'-2"	4	18	11	L Min 4'-10" / Max 9'-3"; X Min 2'-4" / Max 2'-4"; Y Min 2'-7" / Max 7'-0"	4	8	20'-10"	4	18	11	Min / 2'-8" / Max / 2'-11"	-	-	-	Min / - / Max / -	4	2	16'-9"	4	2	17'-9"	6	12	6	L 3'-4"; X 1'-8"	450
				X	Min 0'-9" / Max 0'-0"				X				X																																											
				Y	Min 2'-4" / Max 7'-0"				Y				Y																																										
WING B	4	12	17	L	Min 3'-0" / Max 6'-11"	-	-	-	L -	-	-	-	L -	4	12	4	Min / 3'-10" / Max / 14'-1"	4	12	2	16'-2"	4	18	3	Min / 3'-10" / Max / 14'-1"	4	18	1	16'-2"	4	18	11	L Min 4'-10" / Max 9'-3"; X Min 2'-4" / Max 2'-4"; Y Min 2'-7" / Max 7'-0"	4	8	20'-10"	4	18	11	Min / 2'-8" / Max / 2'-11"	-	-	-	Min / - / Max / -	4	2	16'-9"	4	2	17'-9"	6	12	6	L 3'-4"; X 1'-8"	450
				X	Min 0'-9" / Max 0'-0"				X				X																																										
				Y	Min 2'-4" / Max 7'-0"				Y				Y																																										

③ MID-SECTION BAR LAP TABLE

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

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

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

STATE OF ARKANSAS — No. 7510 — REGISTERED PROFESSIONAL ENGINEER — CARL J. FUSELIER — 6/15/12

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: mc3 DATE: 6/15

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

INLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH			Max / Min				Max / Min				Max / Min																		Max / Min				Max / Min						LONG / SHORT			LONG / MID / SHORT	
					0'-0"																																																	

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

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

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION D	DESIGN FILL DEPTH (feet) S	CLEAR SPAN (feet) H	CLEAR HEIGHT (feet) T	TOP SLAB THK. B	BOTTOM SLAB THK. C	SIDE WALL THK. W	INTERIOR WALL THK. OW	OVER ALL WIDTH OH	OVER ALL HEIGHT SL	SECTION LENGTH (feet) TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
	2	10	6																																																	

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
3"	57	4	1'-0"	1'-0"	2'-0"	44

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.
				0.40	116

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (feet) D	CLEAR SPAN (feet) S	CLEAR HEIGHT (feet) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (feet) ℓ2	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	2	10	6	13	13	6	8	43'-0"	8'-2"	121	4	42'-8"	8	43'-10"	6	42'-8"	9	161	4	42'-8"	4	43'-10"	4	42'-8"	16	90	4	7.5	386	7'-10"	4	12	726	7'-10"	4	8.5	127	4	8.5	127	4	12	12	4	12	36

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.
4.12	594	353	26

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 682+09

SPECIAL DETAILS

b100653_cl.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	17	335

① SPECIAL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. PUSELER

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: MCB DATE: 6/12

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
43'-0"	6'-0"	0'-9"	0'-8"	0	3:1	43'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-5"	3'-5"	1'-0 5/8"	1'-0 5/8"	16'-6"	16'-6"	16'-2"	16'-2"

CLASS "S" CONCRETE (Includes apron) OUTLET	REINFORCING STEEL (Includes apron and laps if required) OUTLET
CU.YD	LBS.
11.63	900

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	
WING A	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-
					Max	6'-11"										
				X	Min	0'-9"				X	-				X	-
					Max	0'-0"										
				Y	Min	2'-4"				Y	-				Y	-
					Max	7'-0"										
WING B	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-
					Max	6'-11"										
				X	Min	0'-9"				X	-				X	-
					Max	0'-0"										
				Y	Min	2'-4"				Y	-				Y	-
					Max	7'-0"										

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS
WING A	4	12	4	Min 3'-10" / Max 14'-1"	4	12	2	16'-2"	4	18	3	Min 3'-10" / Max 14'-1"	4	18	1	16'-2"
WING B	4	12	4	Min 3'-10" / Max 14'-1"	4	12	2	16'-2"	4	18	3	Min 3'-10" / Max 14'-1"	4	18	1	16'-2"

WING	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		
WING A	4	18	11	L	Min	4'-10"
					Max	9'-3"
				X	Min	2'-4"
					Max	2'-4"
				Y	Min	2'-7"
					Max	7'-0"
WING B	4	18	11	L	Min	4'-10"
					Max	9'-3"
				X	Min	2'-4"
					Max	2'-4"
				Y	Min	2'-7"
					Max	7'-0"

WING	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	8	20'-10"	4	18	11	Min 2'-8" / Max 2'-11"	-	-	-	Min - / Max -	4	2	16'-9"	4	2	17'-9"	6	12	6	L 3'-4" / X 1'-8"	450
WING B	4	8	20'-10"	4	18	11	Min 2'-8" / Max 2'-11"	-	-	-	Min - / Max -	4	2	16'-9"	4	2	17'-9"	6	12	6	L 3'-4" / X 1'-8"	450

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

OUTLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH
					0'-0"							

TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D
		Max				Max				Max				Max	
		Min				Min				Min				Min	

SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
											Max				Max				LONG				LONG
											Min				Min				SHORT				MID
																							SHORT

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

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)
	D	S	H	T	B	C	W	OW	OH	SL
	2	10	6							

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

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

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	57	4	1'-0"	1'-0"	2'-0"	44

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.40	116

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

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

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

The required number of bars shown is for estimating purpose only. The actual number required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

QUADRUPLE BARREL BOX CULVERT
Sta. 682+09

SPECIAL DETAILS

LRFD

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	18	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
53'-9"	8'-0"	0'-9"	0'-8"	0	3:1	53'-9"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-4"	4'-4"	2'-1 1/2"	2'-1 1/2"	21'-0"	21'-0"	21'-2 3/4"	21'-2 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
14.82	1438

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	
WING A	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"	-	-	-	L	-
					Max	10'-10"										
				X	Min	0'-9"				X	1'-6"				X	-
					Max	1'-11"										
				Y	Min	3'-2"				Y	3'-6"				Y	-
					Max	9'-0"										
WING B	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"	-	-	-	L	-
					Max	10'-10"										
				X	Min	0'-9"				X	1'-6"				X	-
					Max	1'-11"										
				Y	Min	3'-2"				Y	3'-6"				Y	-
					Max	9'-0"										

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS
WING A	4	12	5	Min 3'-10"	4	12	3	20'-8"	4	18	4	Min 3'-10"	4	18	2	20'-8"
				Max 17'-5"								Max 19'-2"				
WING B	4	12	5	Min 3'-10"	4	12	3	20'-8"	4	18	4	Min 3'-10"	4	18	2	20'-8"
				Max 17'-5"								Max 19'-2"				

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

WING	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	8	25'-4"	4	18	15	Min 2'-8"	4	18	2	Min 28'-9"	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	719
							Max 3'-10"				Max 28'-9"										X	1'-8"	
WING B	4	8	25'-4"	4	18	15	Min 2'-8"	4	18	2	Min 28'-9"	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	719
							Max 3'-10"				Max 28'-9"										X	1'-8"	

③ MID-SECTION BAR LAP TABLE

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

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

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

Carl J. Fuselier
No. 7510
6/13/12

TABULAR DATA BY: CJR DATE: 06/15/12
CHECKED BY: MCB DATE: 6/15/12

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

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

INLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVERALL WIDTH	OVERALL HEIGHT
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH

TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D
		Max				Max				Max				Max	
		Min				Min				Min				Min	

SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
											Max				Max				LONG				LONG
											Min				Min				SHORT				MID
																							SHORT

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

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

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)
	D	S	H	T	B	C	W	OW	OH	SL
	2	10	8							

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

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

HDWL. THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	71	4	1'-0"	0'-11"	1'-11"	55

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.50	142

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)
	D	S	H	T	B	C	W	OW	OH	SL
A	2	10	8	11.5	11.5	6.5	8	53'-9"	9'-11"	121

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D
4	53'-5"	8	54'-9"	7	53'-5"	17	85	4	53'-5"	4	54'-7"	4	53'-5"	16	90

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
5	7	414	9'-7"	4	12	968	9'-7"	4	9	149	4	9	149	4	12	16	4	12	64

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	③ ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.
4.93	624	442	17

SHEET 1 OF 2

DETAILS OF R.C. BOX CULVERT

QUINTUPLE BARREL BOX CULVERT

Sta. 730+43

SPECIAL DETAILS

b100653_c2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	19	335

① SPECIAL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER

Carl J. Fuselier 6/15/12

TABULAR DATA BY: CJR DATE: 06/15/12
CHECKED BY: MCB DATE: 6/15/12

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
53'-9"	8'-0"	0'-9"	0'-8"	0	3:1	53'-9"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-4"	4'-4"	2'-1 1/2"	2'-1 1/2"	21'-0"	21'-0"	21'-2 3/4"	21'-2 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
16.56	1438

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	21	L Min 3'-10" L Max 10'-10" X Min 0'-9" X Max 1'-11" Y Min 3'-2" Y Max 9'-0"	4	12	7	L 4'-11" X 1'-6" Y 3'-6"	-	-	-	L - X - Y -	4	12	5	Min 3'-10" Max 17'-5"	4	12	3	20'-8"
WING B	4	12	21	L Min 3'-10" L Max 10'-10" X Min 0'-9" X Max 1'-11" Y Min 3'-2" Y Max 9'-0"	4	12	7	L 4'-11" X 1'-6" Y 3'-6"	-	-	-	L - X - Y -	4	12	5	Min 3'-10" Max 17'-5"	4	12	3	20'-8"

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY
WING A	4	18	4	Min 3'-10" Max 19'-2"	4	18	2	20'-8"	4	18	14	L Min 5'-6" L Max 11'-3" X Min 2'-4" X Max 2'-4" Y Min 3'-3" Y Max 9'-0"	4	8	25'-4"	4	18	15	Min 2'-8" Max 3'-10"
WING B	4	18	4	Min 3'-10" Max 19'-2"	4	18	2	20'-8"	4	18	14	L Min 5'-6" L Max 11'-3" X Min 2'-4" X Max 2'-4" Y Min 3'-3" Y Max 9'-0"	4	8	25'-4"	4	18	15	Min 2'-8" Max 3'-10"

WING	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	Min 28'-9" Max 28'-9"	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4" X 1'-8"	719
WING B	4	18	2	Min 28'-9" Max 28'-9"	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4" X 1'-8"	719

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

OUTLET SKEWED END SECTION

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

BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
		Max Min				Max Min													Max Min				Max Min				LONG SHORT				LONG MID SHORT

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

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																
	2	10	8																							

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

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	71	4	1'-0"	0'-11"	1'-11"	55

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.50	142

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

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

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

The required number of bars shown is for estimating purpose only. The actual number required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

QUINTUPLE BARREL BOX CULVERT
Sta. 730+43

SPECIAL DETAILS

LRFD

b100653_c2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	20	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
51'-2"	9'-0"	0'-10"	0'-9"	0	3:1	51'-2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	2'-8 3/4"	2'-8 3/4"	23'-6"	23'-6"	24'-0 5/8"	24'-0 5/8"

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	
WING A	4	12	24	L	Min	4'-2"	4	12	11	L	6'-3"	-	-	-	L	-
					Max	12'-5"										
				X	Min	0'-10"				X	1'-9"				X	-
					Max	2'-5"										
				Y	Min	3'-5"				Y	4'-7"				Y	-
					Max	10'-1"										
WING B	4	12	24	L	Min	4'-2"	4	12	11	L	6'-3"	-	-	-	L	-
					Max	12'-5"										
				X	Min	0'-10"				X	1'-9"				X	-
					Max	2'-5"										
				Y	Min	3'-5"				Y	4'-7"				Y	-
					Max	10'-1"										

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY		F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS
WING A	4	12	6	Min	3'-10"	4	12	3	23'-2"	4	18	4	Min	3'-10"	4	18	2	23'-2"
				Max	21'-0"								Max	19'-4"				
WING B	4	12	6	Min	3'-10"	4	12	3	23'-2"	4	18	4	Min	3'-10"	4	18	2	23'-2"
				Max	21'-0"								Max	19'-4"				

WING	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		
WING A	4	18	16	L	Min	5'-11"
					Max	12'-5"
				X	Min	2'-5"
					Max	2'-5"
				Y	Min	3'-7"
					Max	10'-1"
WING B	4	18	16	L	Min	5'-11"
					Max	12'-5"
				X	Min	2'-5"
					Max	2'-5"
				Y	Min	3'-7"
					Max	10'-1"

WING	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY		F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS		F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	8	27'-10"	4	18	17	Min	2'-9"	4	18	2	Min	24'-0"	4	2	23'-0"	4	2	25'-8"	6	12	9	L	3'-4"	837
							Max	4'-5"				Max	24'-0"										X	1'-8"	
WING B	4	8	27'-10"	4	18	17	Min	2'-9"	4	18	2	Min	24'-0"	4	2	23'-0"	4	2	25'-8"	6	12	9	L	3'-4"	837
							Max	4'-5"				Max	24'-0"										X	1'-8"	

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
18.70	1674

③ MID-SECTION BAR LAP TABLE

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

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

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

No. 7510
CARL J. FUSELIER
Carl J. Fuselier

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: mcB DATE: 6/15/12

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

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

INLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL								SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINFORCING STEEL				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL				SIDE WALL DISTRIBUTION REINFORCING STEEL				INTERIOR WALL DISTRIBUTION REINFORCING STEEL			
													a				c				d				f				f0				f1				g				e				d1				d2			
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
					0'-0"										Max Min				Max Min				Max Min				Max Min													Max Min				Max Min				LONG SHORT				LONG MID SHORT

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

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

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL		
											a		Bent b		c		SPACING	NO. REQ'D	d		Bent b1		f		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L																						
	2	12	9																																											

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS				
HW	LBS.	SIZE	X	Y	LENGTH	NO. REQ'D
3"	68	4	1'-0"	1'-2"	2'-2"	53

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.47	145

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL		
											a		Bent b		c		SPACING	NO. REQ'D	d		Bent b1		f		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L																						
A	2	12	9	15	15	7	8	51'-2"	11'-6"	121	4	50'-10"	8	52'-4"	8	50'-10"	17	85	4	50'-10"	4	52'-3"	4	50'-10"	14	103	6	7.5	386	11'-2"	4	12	726	11'-2"	5	11	119	5	11	119	4	12	18	4	12	54

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	③ ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP
CU. YDS. PER LIN. FT.	LBS PER LIN. FT.	LBS.	LBS. PER LIN. FT.
5.79	701	622	21

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 783+61
SPECIAL DETAILS

b100653_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	21	335

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 751
CARL J. FUSELIER

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: MCB DATE: 6/15/12

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
51'-2"	9'-0"	0'-10"	0'-9"	0	3:1	51'-2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	2'-8 3/4"	2'-8 3/4"	23'-6"	23'-6"	24'-0 5/8"	24'-0 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
20.42	1674

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS
WING A	4	12	24	L Min 4'-2" L Max 12'-5" X Min 0'-10" X Max 2'-5" Y Min 3'-5" Y Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	12	6	Min 3'-10" Max 21'-0"	4	12	3	23'-2"	4	18	4	Min 3'-10" Max 19'-4"	4	18	2	23'-2"
WING B	4	12	24	L Min 4'-2" L Max 12'-5" X Min 0'-10" X Max 2'-5" Y Min 3'-5" Y Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	12	6	Min 3'-10" Max 21'-0"	4	12	3	23'-2"	4	18	4	Min 3'-10" Max 19'-4"	4	18	2	23'-2"

WING	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	16	L Min 5'-11" L Max 12'-5" X Min 2'-5" X Max 2'-5" Y Min 3'-7" Y Max 10'-1"	4	8	27'-10"	4	18	17	Min 2'-9" Max 4'-5"	4	18	2	Min 24'-0" Max 24'-0"	4	2	23'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	837
WING B	4	18	16	L Min 5'-11" L Max 12'-5" X Min 2'-5" X Max 2'-5" Y Min 3'-7" Y Max 10'-1"	4	8	27'-10"	4	18	17	Min 2'-9" Max 4'-5"	4	18	2	Min 24'-0" Max 24'-0"	4	2	23'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	837

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

OUTLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH																																										
					0'-0"										Max Min				Max Min				Max Min				Max Min													Max Min				Max Min				LONG SHORT				LONG MID SHORT

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

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																				
	2	12	9																																											

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	68	4	1'-0"	1'-2"	2'-2"	53

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.47	145

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

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

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

The required number of bars shown is for estimating purpose only. The actual number required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

QUADRUPLE BARREL BOX CULVERT
Sta. 783+61

SPECIAL DETAILS

LRFD

b100653_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	22	335

(1) SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
43'-1"	8'-0"	0'-9"	0'-8"	0	3:1	43'-1"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-4"	4'-4"	2'-1 1/2"	2'-1 1/2"	21'-0"	21'-0"	21'-2 3/4"	21'-2 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
14.19	1410

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY			F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"	-	-	-	L	-	4	12	5	Min	4	12	3	20'-8"	4	18	4	Min	4	18	2	20'-8"	4	18	14	L	Min	5'-6"	4	8	25'-4"	4	18	15	Min	4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	705
					Max	10'-10"														3'-10"							3'-10"										Max	2'-8"						Max	28'-9"												X	1'-8"	
				X	Min	0'-9"				X	1'-6"				X	-				Max							Max										Min	2'-4"																							
					Max	1'-11"														17'-5"							19'-2"										Max	2'-4"																							
				Y	Min	3'-2"				Y	3'-6"				Y	-				X	4	12	3	20'-8"	4	18	4	X	4	18	2	20'-8"	4	18	14	Y	Min	5'-6"	4	8	25'-4"	4	18	15	X	4	18	2	X	4	2	21'-5"	4	2	22'-10"	6	12	8			705
					Max	9'-0"																															Y	Min	3'-3"																							
WING B	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"	-	-	-	L	-	4	12	5	Min	4	12	3	20'-8"	4	18	4	Min	4	18	2	20'-8"	4	18	14	L	Min	5'-6"	4	8	25'-4"	4	18	15	Min	4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	705
					Max	10'-10"														3'-10"							3'-10"										Max	2'-8"						Max	28'-9"												X	1'-8"	
				X	Min	0'-9"				X	1'-6"				X	-				Max							Max										Min	2'-4"																							
					Max	1'-11"														17'-5"							19'-2"										Max	2'-4"																							
				Y	Min	3'-2"				Y	3'-6"				Y	-				X	4	12	3	20'-8"	4	18	4	X	4	18	2	20'-8"	4	18	14	Y	Min	5'-6"	4	8	25'-4"	4	18	15	X	4	18	2	X	4	2	21'-5"	4	2	22'-10"	6	12	8			705
					Max	9'-0"																															Y	Min	3'-3"																							
																																					Max	9'-0"																							

③ MID-SECTION

BAR LAP TABLE

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

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

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

STATE OF ARKANSAS CARL J. FUSELIER 7510 REGISTERED PROFESSIONAL ENGINEER

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: MCB DATE: 6/15/12

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

INLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
					0'-0"										Max				Max				Max																Max				Max				LONG				LONG		
																							Min				Min												Min							SHORT				MID		
															Min				Min																																			SHORT		

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																														
2	10	8																																																			

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	57	4	1'-0"	1'-0"	2'-0"	44

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.
				0.40	116

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																													
A	2	10	8	13	13	6.5	8	43'-1"	10'-2"	121	4	42'-9"	8	43'-11"	6	42'-9"	9	161	4	42'-9"	4	43'-11"	4	42'-9"	16	90	5	7	414	9'-10"	4	12	726	9'-10"	4	8.5	127	4	8.5	127	4	12	16	4	12	48

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.
4.37	632	372	26

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

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

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 994+92

SPECIAL DETAILS

LRFD

b100653_c4.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	23	335

① SPECIAL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER

TABULAR DATA BY: CJR DATE: 06/15/2012
CHECKED BY: MCB DATE: 6/15/12

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (deg.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (deg.) WING A	WINGWALL ANGLE (deg.) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	INSIDE FOOTING DIMENSIONS WING A	INSIDE FOOTING DIMENSIONS WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W4	W5
43'-1"	8'-0"	0'-9"	0'-8"	0	3:1	43'-1"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-4"	4'-4"	2'-1 1/2"	2'-1 1/2"	21'-0"	21'-0"	21'-2 3/4"	21'-2 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
15.67	1410

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS
WING A	4	12	21	L Min 3'-10", Max 10'-10"; X Min 0'-9", Max 1'-11"; Y Min 3'-2", Max 9'-0"	4	12	7	L 4'-11"; X 1'-6"; Y 3'-6"	-	-	-	L -; X -; Y -
WING B	4	12	21	L Min 3'-10", Max 10'-10"; X Min 0'-9", Max 1'-11"; Y Min 3'-2", Max 9'-0"	4	12	7	L 4'-11"; X 1'-6"; Y 3'-6"	-	-	-	L -; X -; Y -

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTHS
WING A	4	12	5	Min 3'-10"; Max 17'-5"	4	12	3	20'-8"	4	18	4	Min 3'-10"; Max 19'-2"	4	18	2	20'-8"
WING B	4	12	5	Min 3'-10"; Max 17'-5"	4	12	3	20'-8"	4	18	4	Min 3'-10"; Max 19'-2"	4	18	2	20'-8"

WING	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 SPACING	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 SPACING	F11 NO. REQ'D	F11 LENGTHS
WING A	4	18	14	L Min 5'-6", Max 11'-3"; X Min 2'-4", Max 2'-4"; Y Min 3'-3", Max 9'-0"	4	8	25'-4"	4	18	15	Min 2'-8"; Max 3'-10"	4	18	2	Min 28'-9"; Max 28'-9"
WING B	4	18	14	L Min 5'-6", Max 11'-3"; X Min 2'-4", Max 2'-4"; Y Min 3'-3", Max 9'-0"	4	8	25'-4"	4	18	15	Min 2'-8"; Max 3'-10"	4	18	2	Min 28'-9"; Max 28'-9"

WING	F12 BAR SIZE	F12 NO. REQ'D	F12 LENGTHS	F13 BAR SIZE	F13 NO. REQ'D	F13 LENGTHS	F14 BAR SIZE	F14 SPACING	F14 NO. REQ'D	F14 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4"; X 1'-8"	705
WING B	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4"; X 1'-8"	705

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

OUTLET SKEWED END SECTION

SKEW (degree)	SLOPE	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH
					0'-0"							

TOP SLAB REINFORCING STEEL a: SIZE	SPACING	LENGTHS VARY	NO. REQ'D	c: SIZE	SPACING	LENGTHS VARY	NO. REQ'D
		Max; Min				Max; Min	

BOTTOM SLAB REINFORCING STEEL d: SIZE	SPACING	LENGTHS VARY	NO. REQ'D	f: SIZE	SPACING	LENGTHS VARY	NO. REQ'D
		Max; Min				Max; Min	

SIDE WALL REINFORCING STEEL f0: SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL f1: SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL g: SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e: SIZE	SPACING	NO. REQ'D	LENGTHS VARY
			Max; Min				Max; Min

SIDE WALL DISTRIBUTION REINFORCING STEEL d1: SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2: SIZE	SPACING	NO. REQ'D	LENGTH
			LONG; SHORT				LONG; MID; SHORT

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

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

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (feet)	CLEAR SPAN (feet)	CLEAR HEIGHT (feet)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (feet)
	D	S	H	T	B	C	W	OW	OH	SL
	2	10	8							

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

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

SIDE WALL REINFORCING STEEL "f0" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" (LENGTH = SL) SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" (LENGTH = SL) SIZE	SPACING	NO. REQ'D

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	X	Y	LENGTH	NO. REQ'D
HW	LBS.					
3"	57	4	1'-0"	1'-0"	2'-0"	44

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.
				0.40	116

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

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

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

The required number of bars shown is for estimating purpose only. The actual number required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

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

QUADRUPLE BARREL BOX CULVERT
Sta. 994+92

SPECIAL DETAILS

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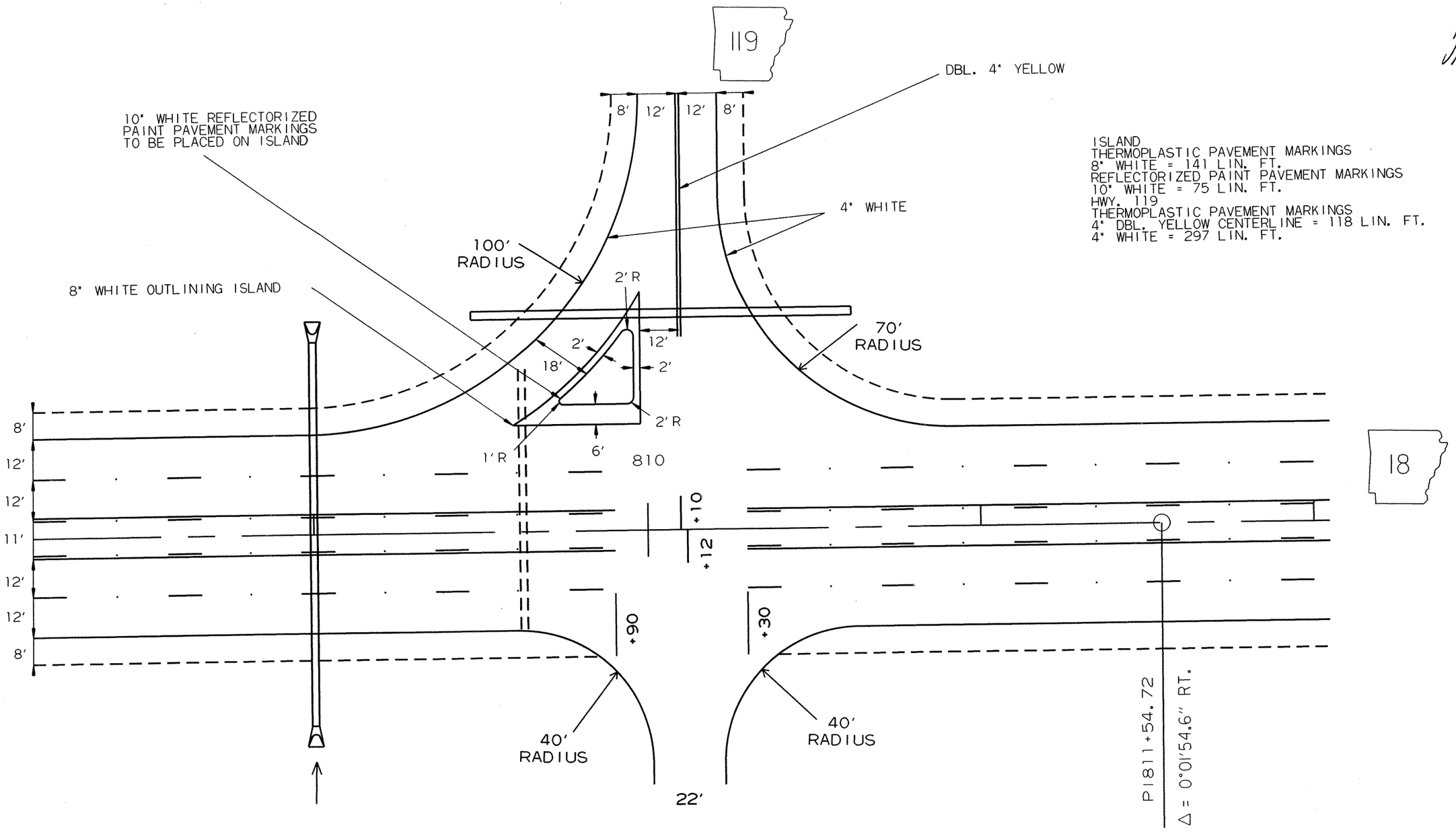
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	24	335

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



ISLAND
THERMOPLASTIC PAVEMENT MARKINGS
8" WHITE = 141 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKINGS
10" WHITE = 75 LIN. FT.
HWY. 119
THERMOPLASTIC PAVEMENT MARKINGS
4" DBL. YELLOW CENTERLINE = 118 LIN. FT.
4" WHITE = 297 LIN. FT.

STA. 809+84 CONSTRUCT CONCRETE ISLAND W/ TYPE B CURB FACE = 31 SQ. YD.

SCALE 1" = 30'

HWY. 18 / HWY. 119 LAYOUT AND STRIPING DETAIL

SPECIAL DETAILS

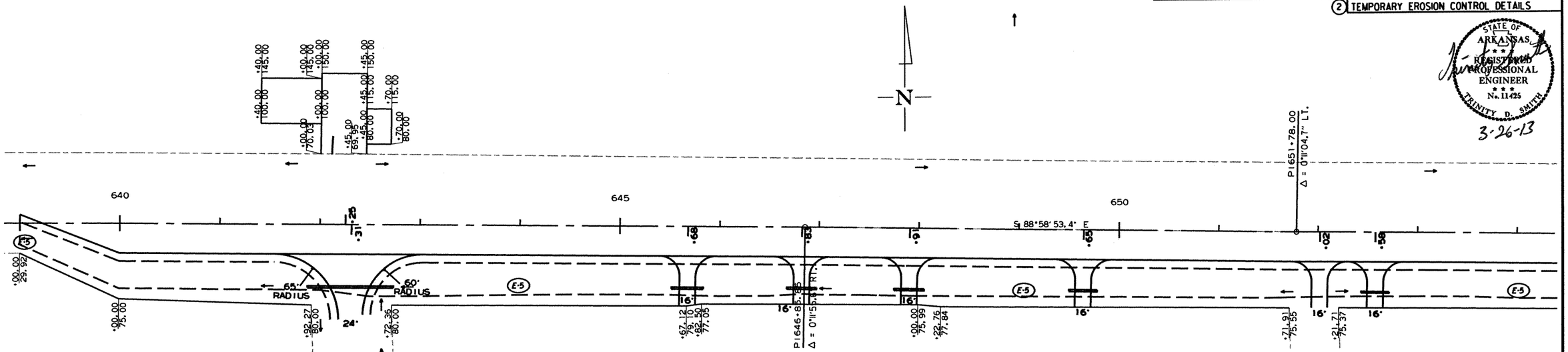
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	25	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



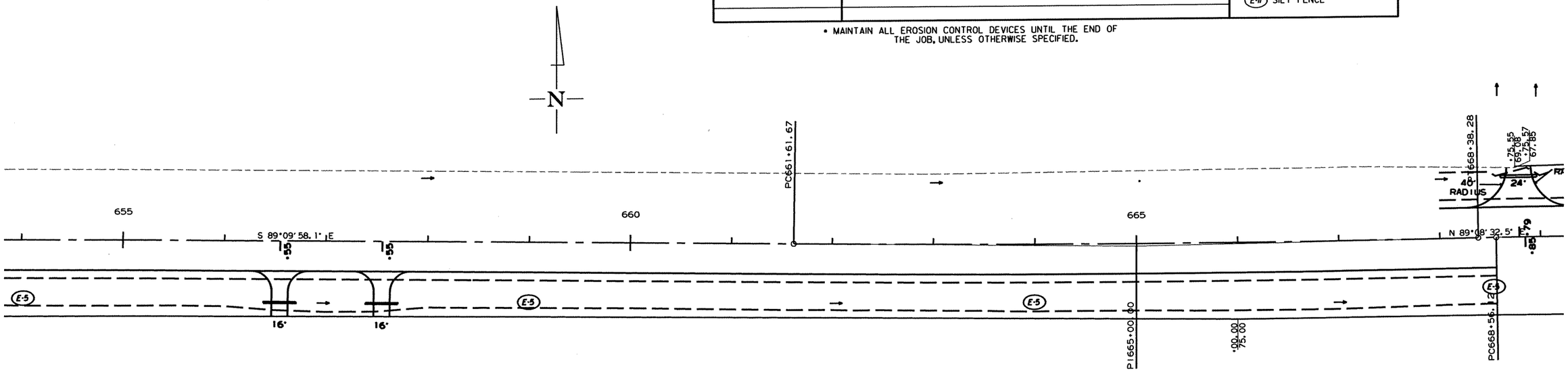
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

1/16/2013

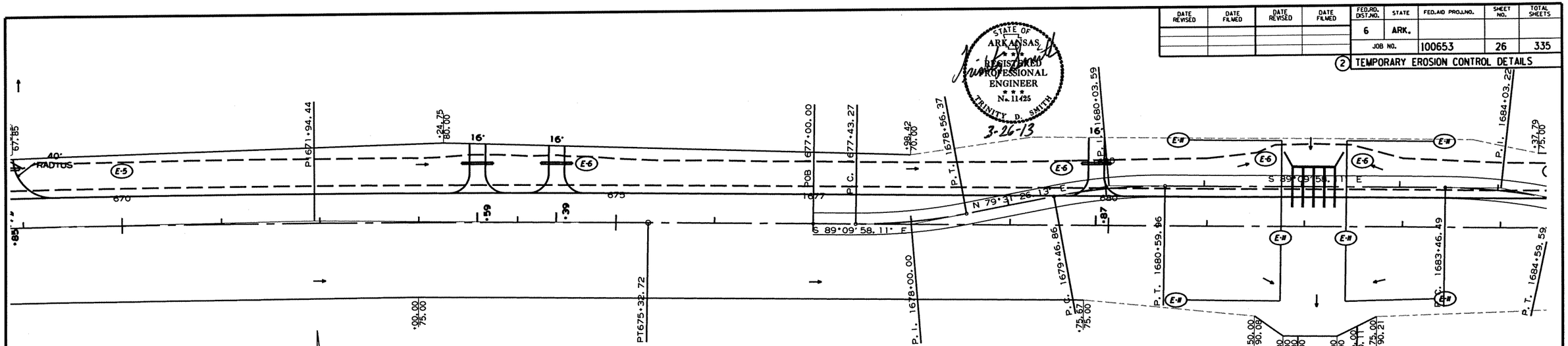
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	100653		26	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



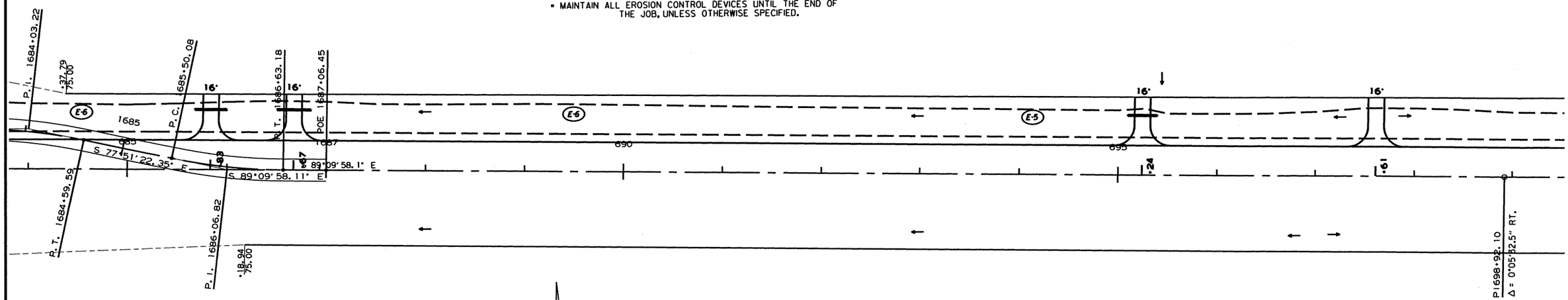
REVISION BOX

DATE	REVISION

LEGEND

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

* MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



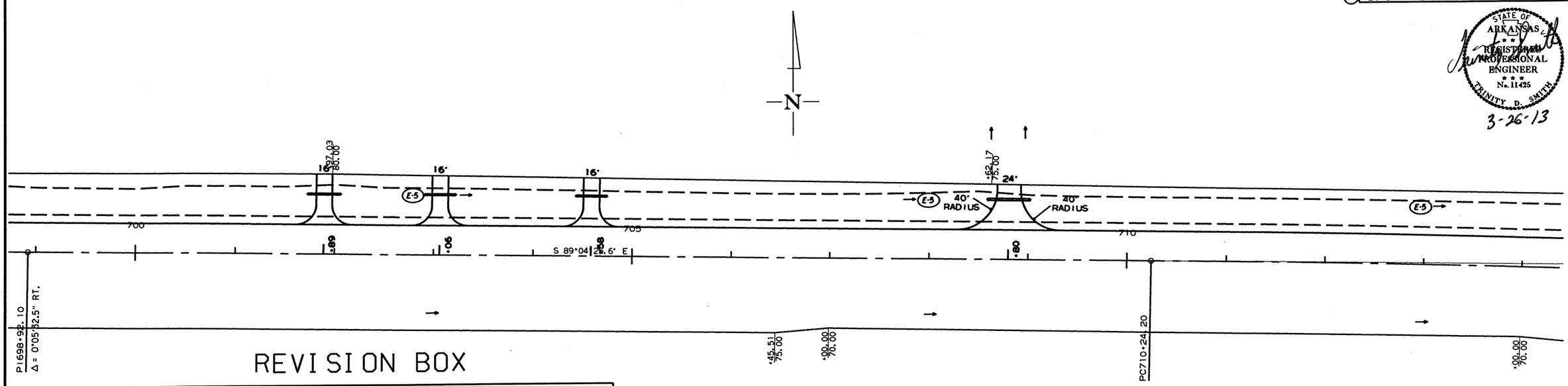
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R100653.DGN 1/16/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	27	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



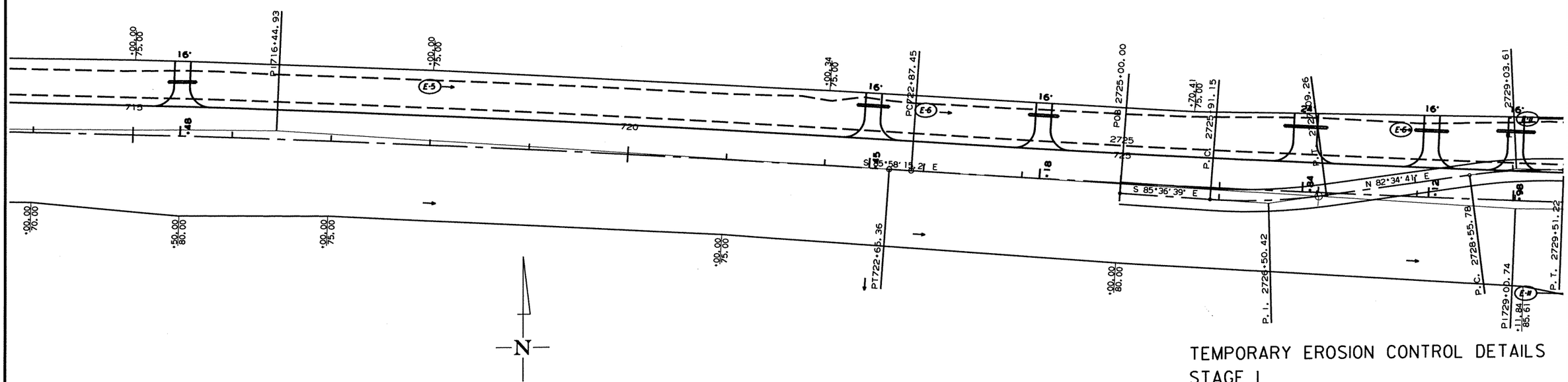
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

1/16/2013

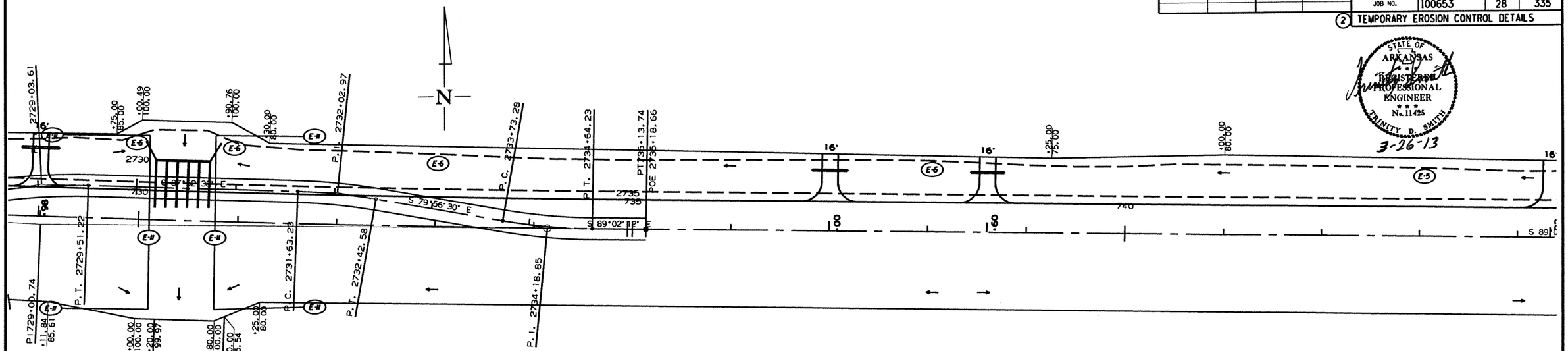
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	28	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



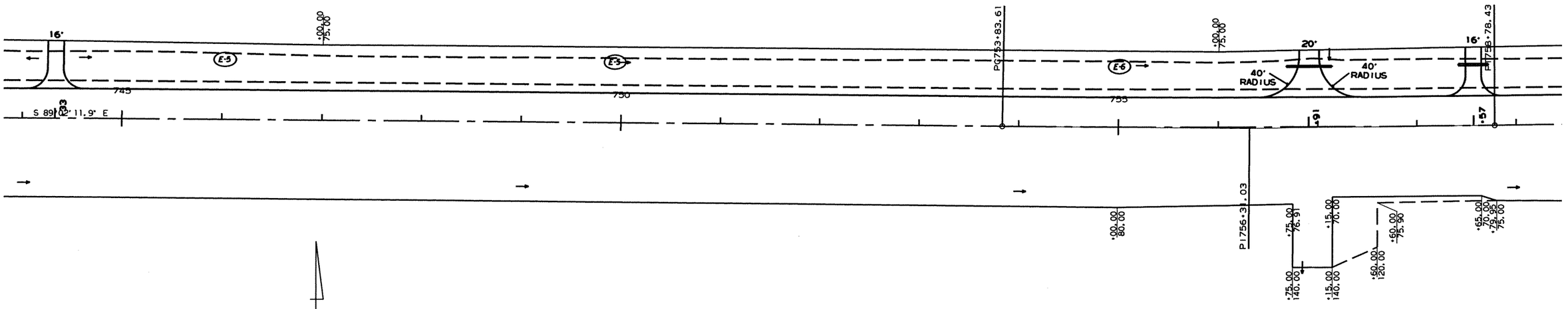
REVISION BOX

DATE	REVISION

LEGEND

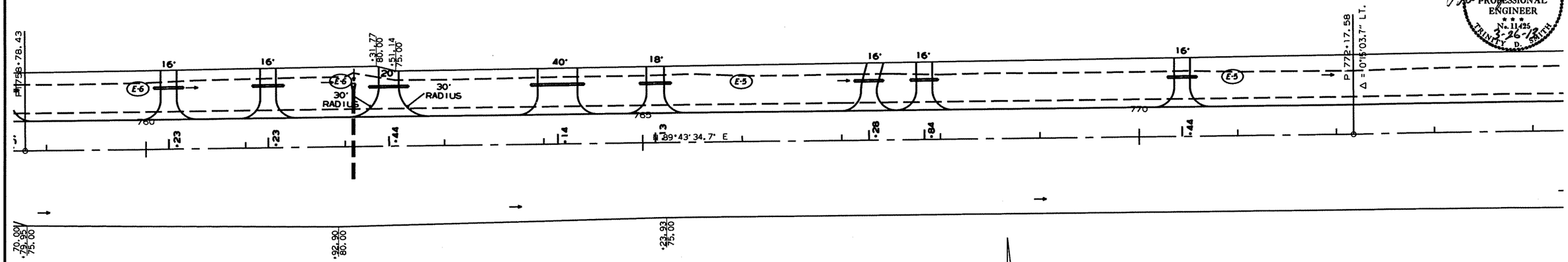
- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE

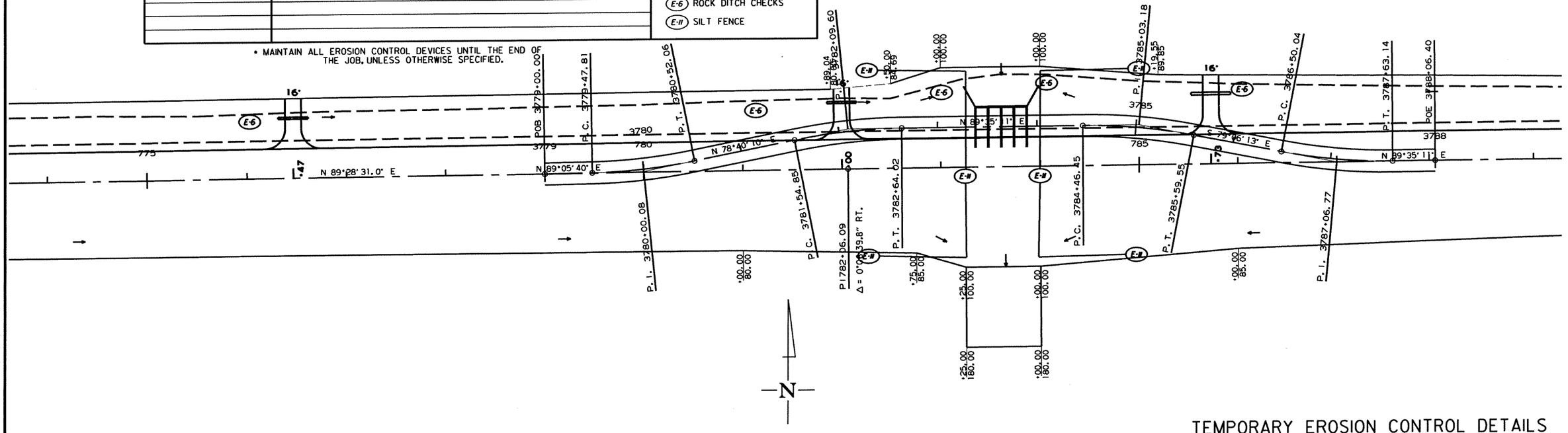
• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

R100653.DGN 1/16/2013





DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	29	335

② TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-26-13

REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE I

1/16/2013

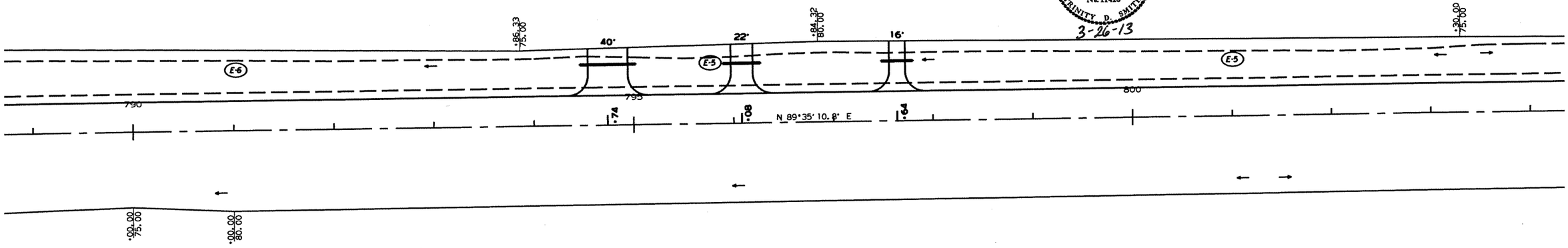
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	30	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



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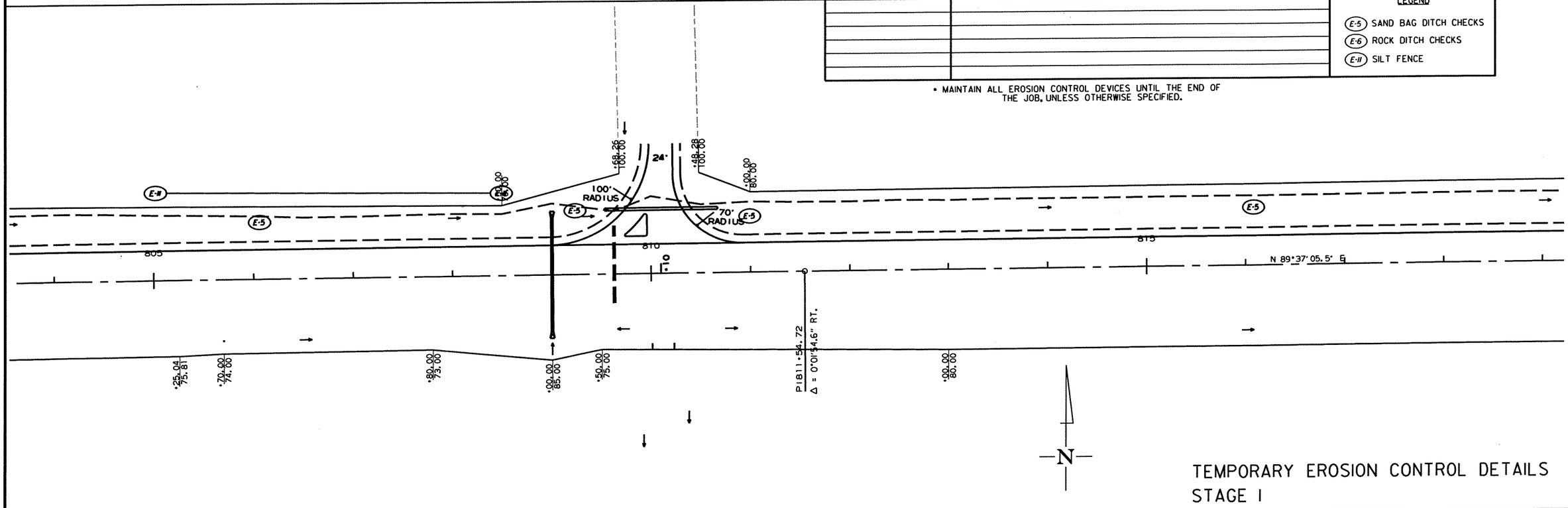
REVISION BOX

DATE	REVISION

LEGEND

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

* MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



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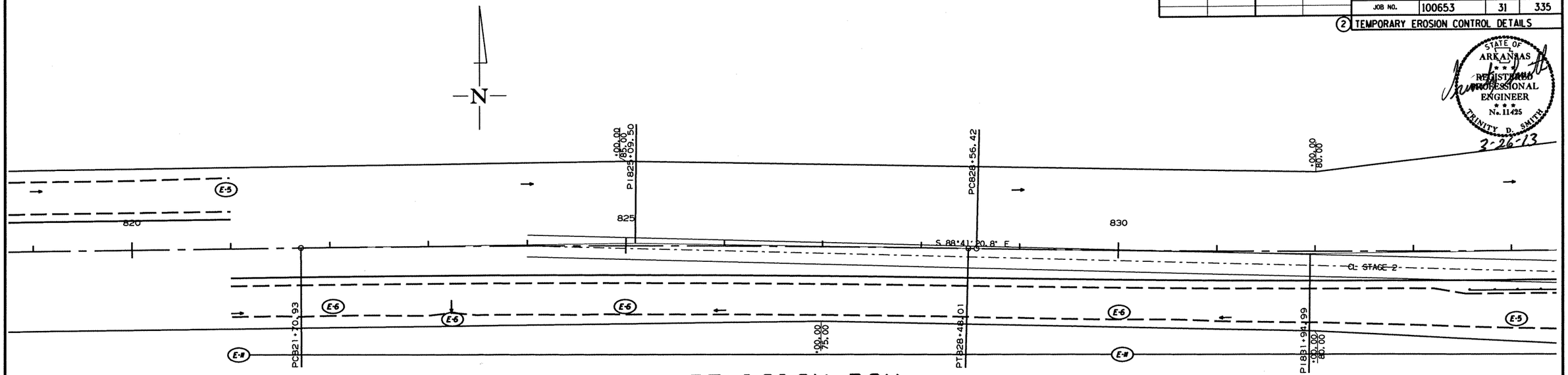
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R100653.DGN 1/16/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	31	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



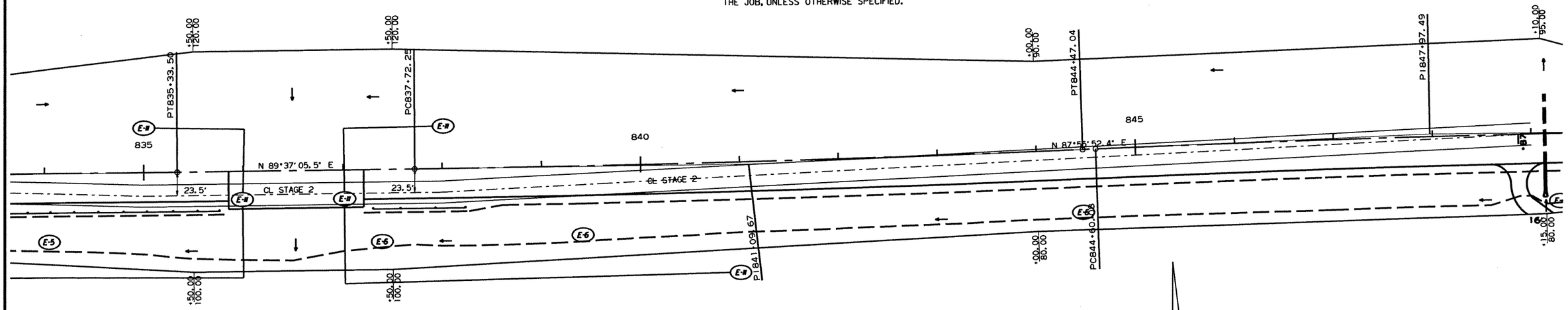
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



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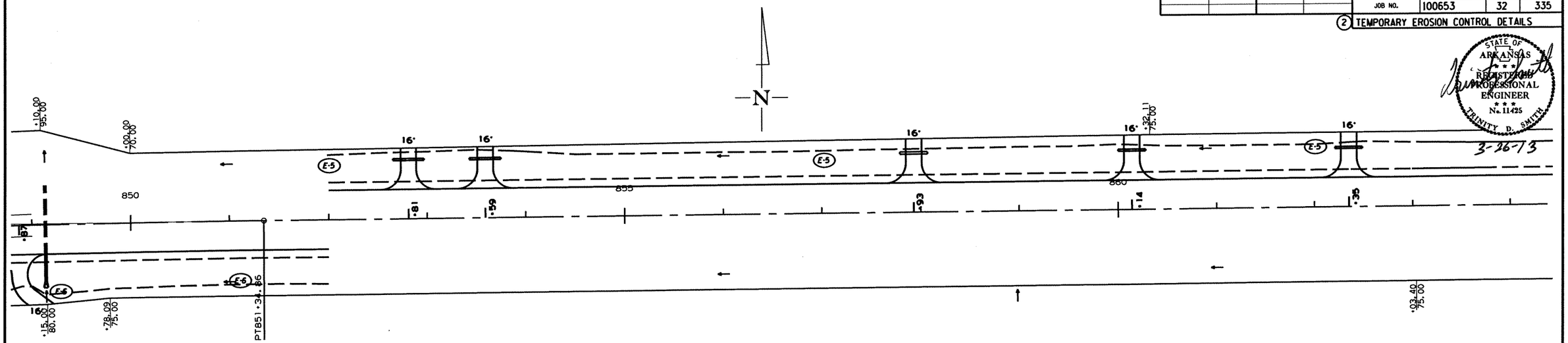
TEMPORARY EROSION CONTROL DETAILS
STAGE I

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	32	335

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

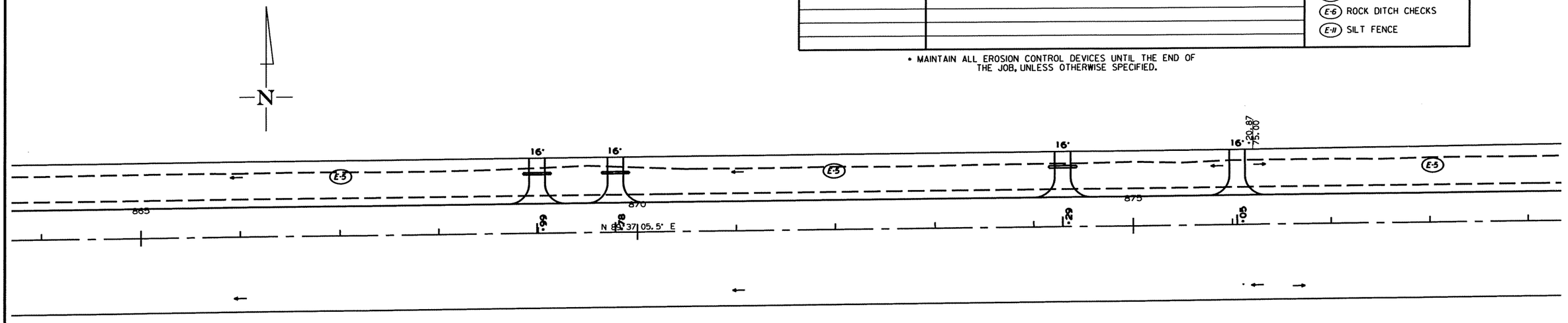
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

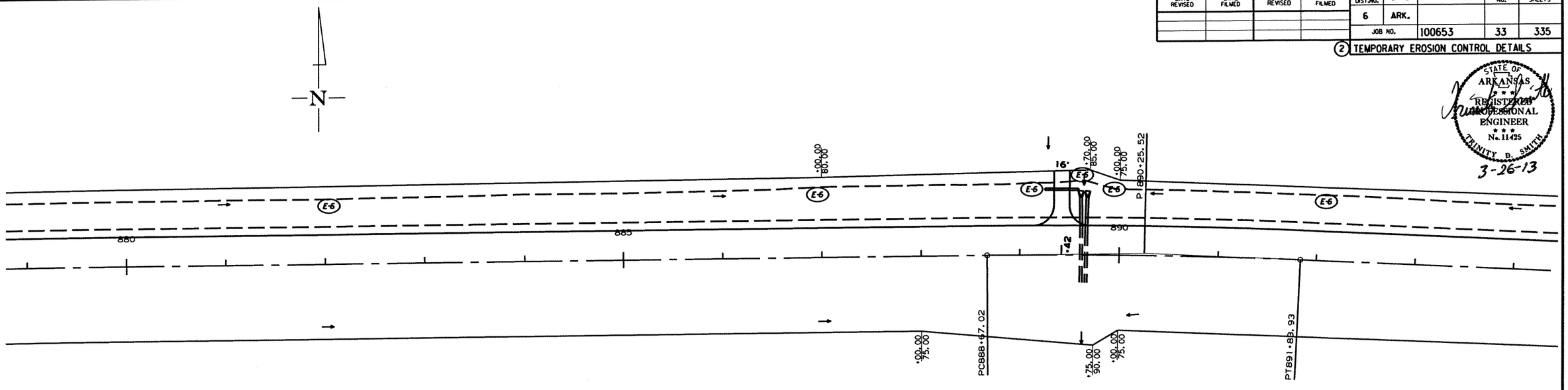
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	33	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



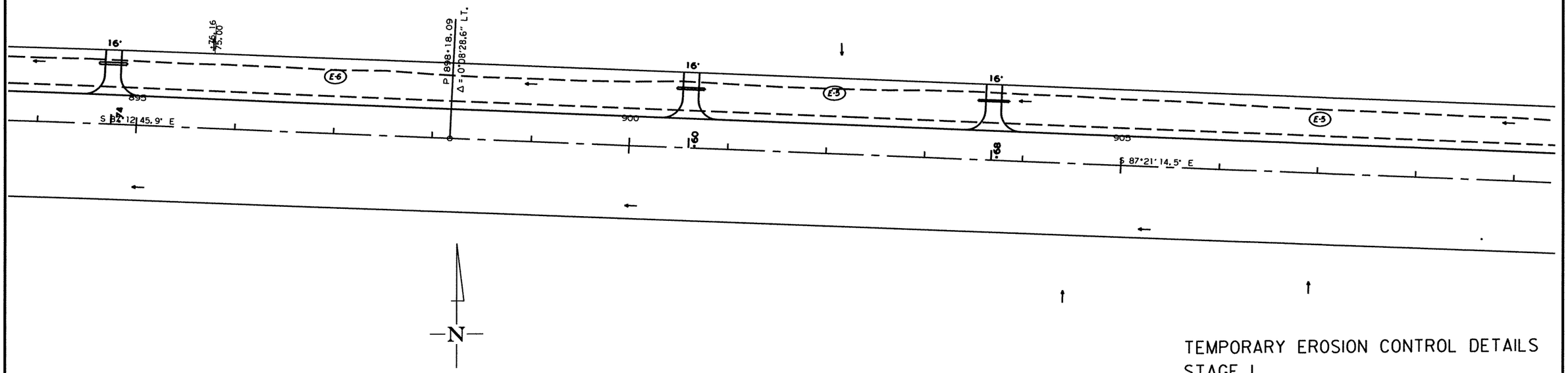
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

1/16/2013

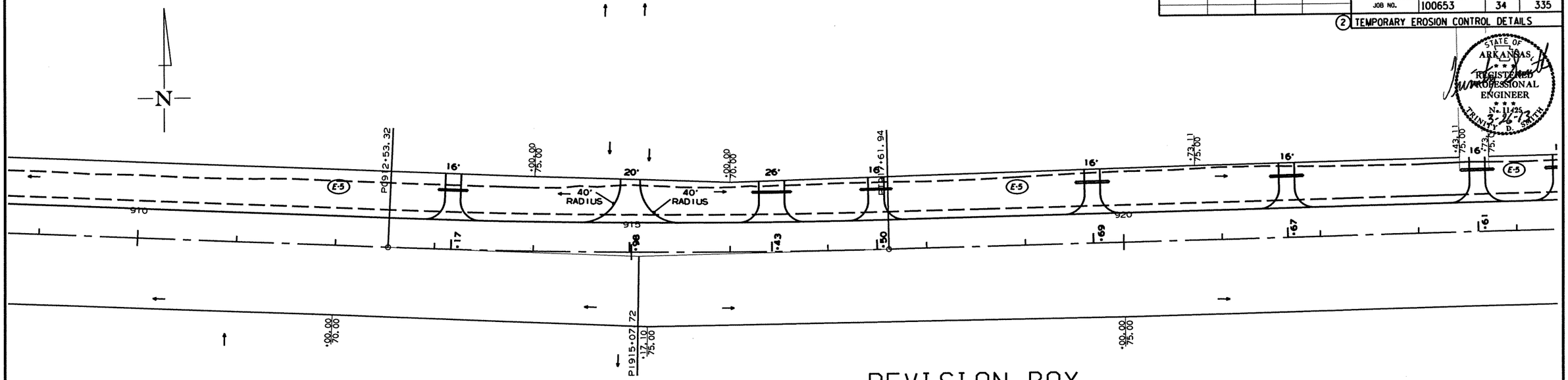
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	34	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
TRINITY D. SMITH



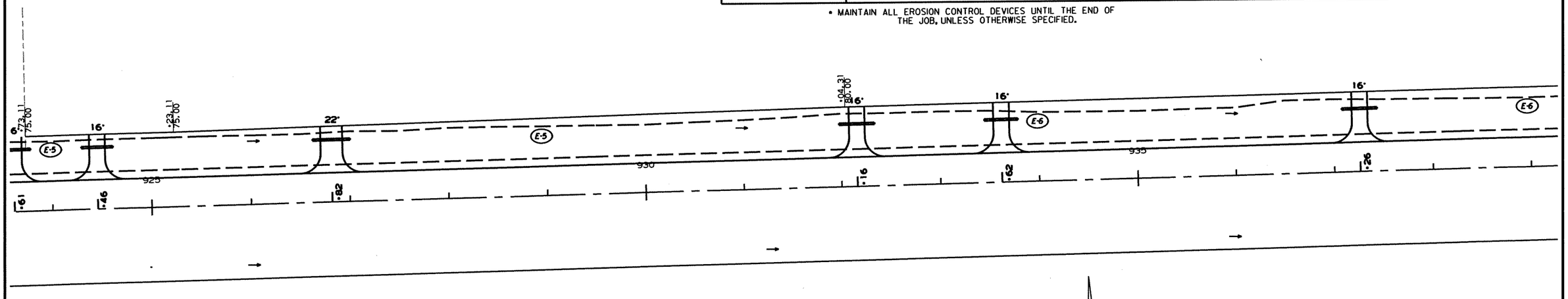
REVISION BOX

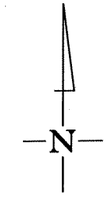
DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.





TEMPORARY EROSION CONTROL DETAILS
STAGE I

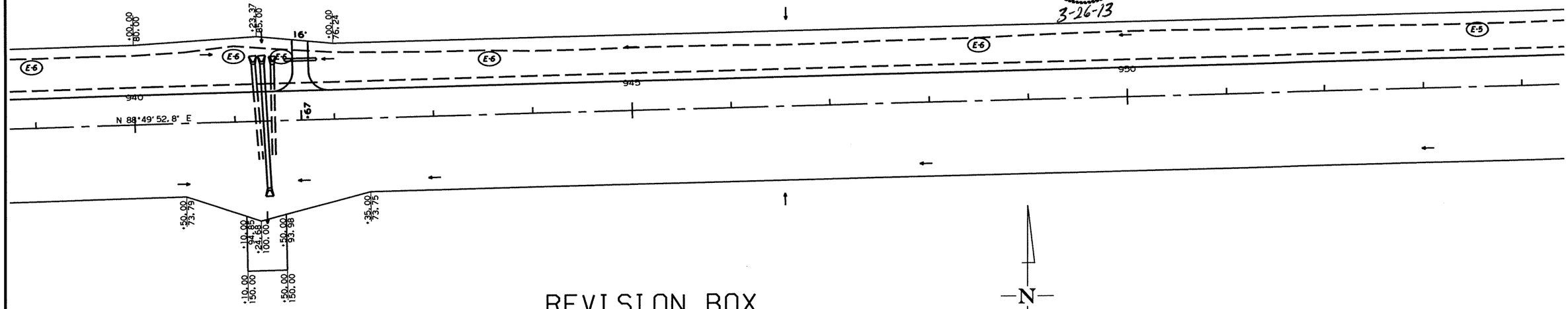
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	35	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



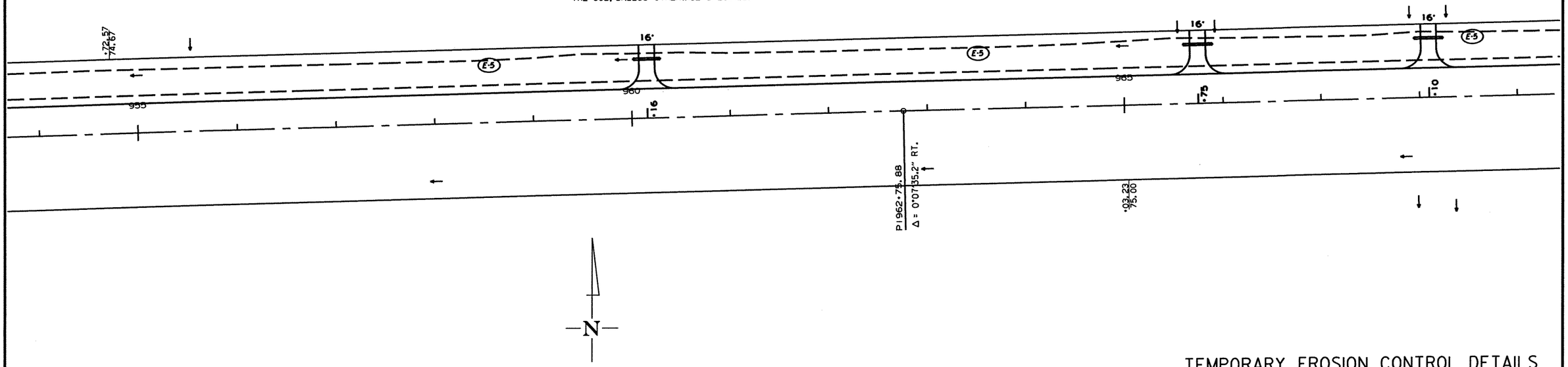
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



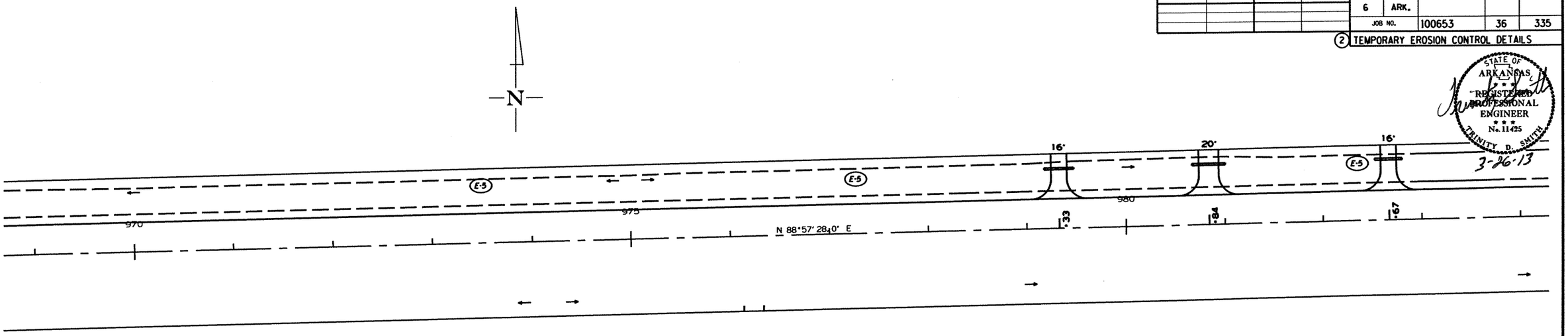
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R100653.DGN 1/16/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	36	335

② TEMPORARY EROSION CONTROL DETAILS

No. 11425
TRINITY D. SMITH
3-26-13



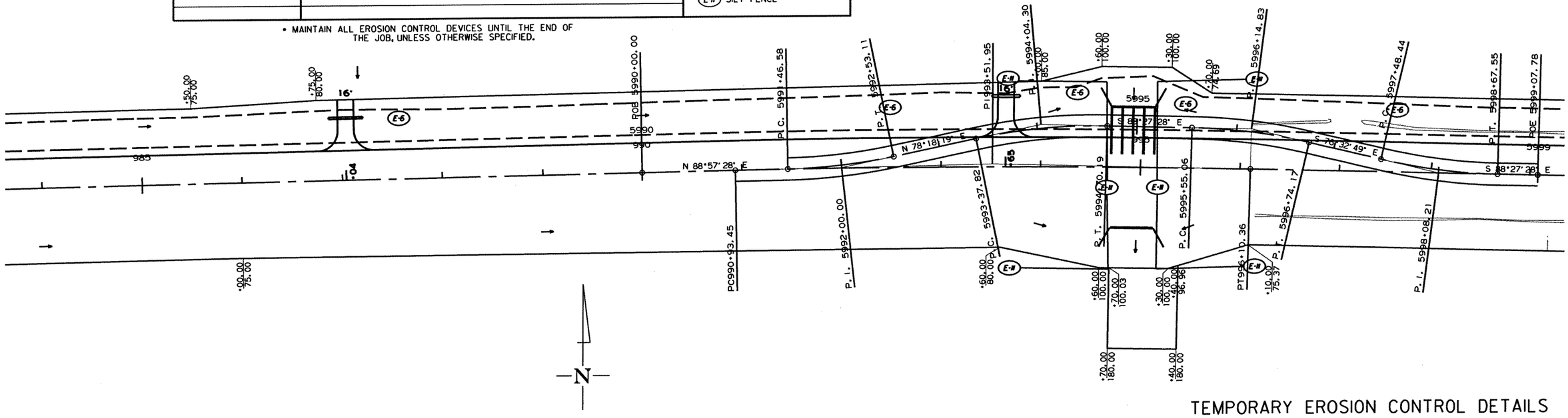
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE I

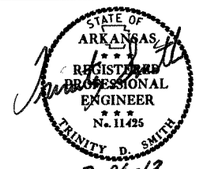
1/16/2013

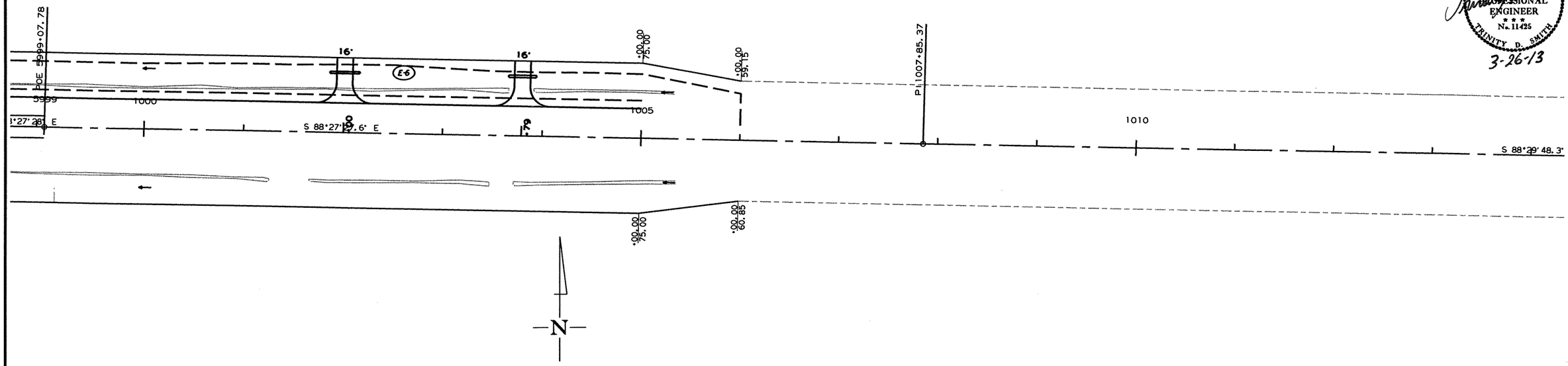
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	37	335

(2) TEMPORARY EROSION CONTROL DETAILS





REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE I

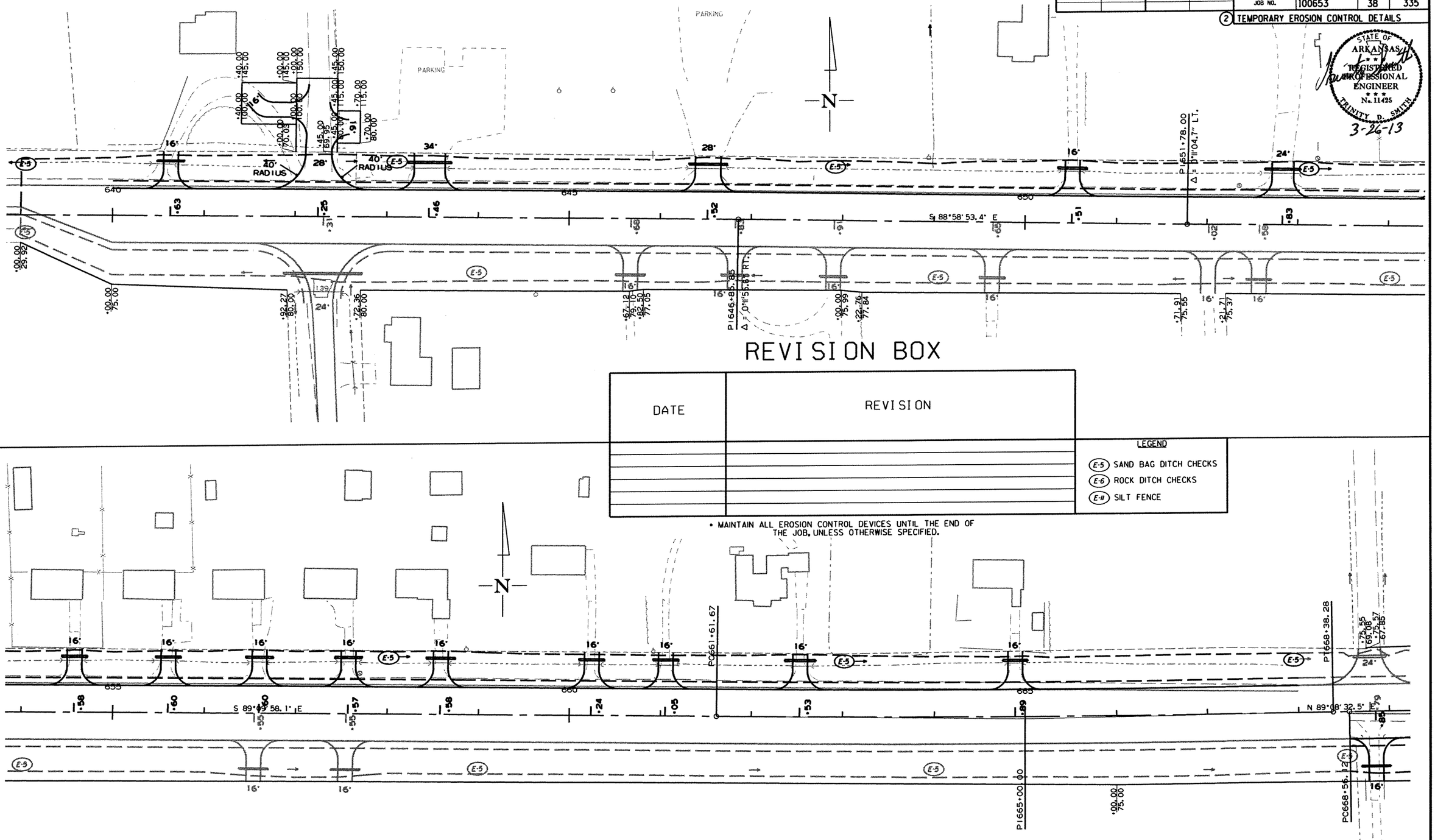
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	38	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-24-13



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

1/16/2013

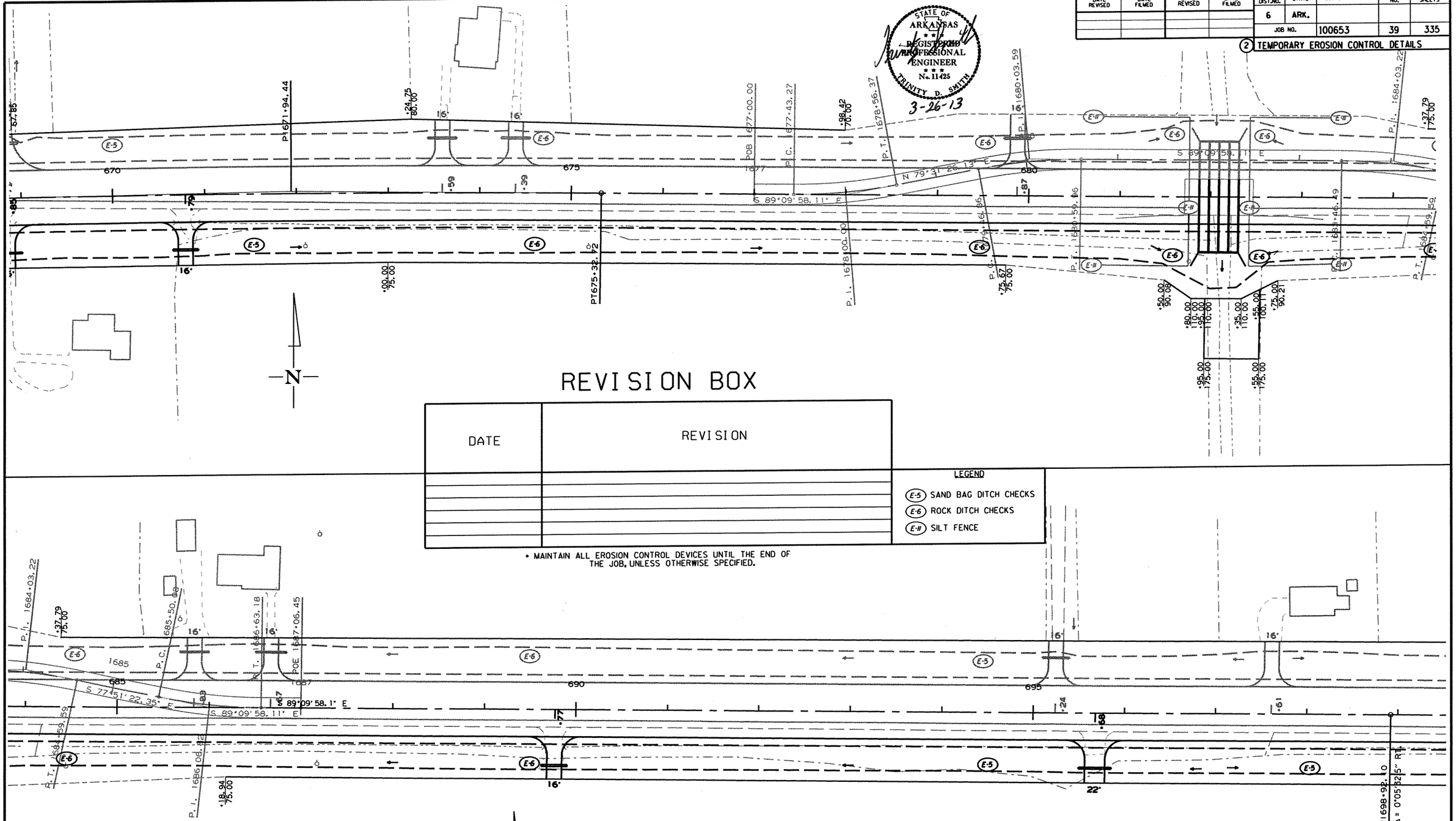
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	39	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

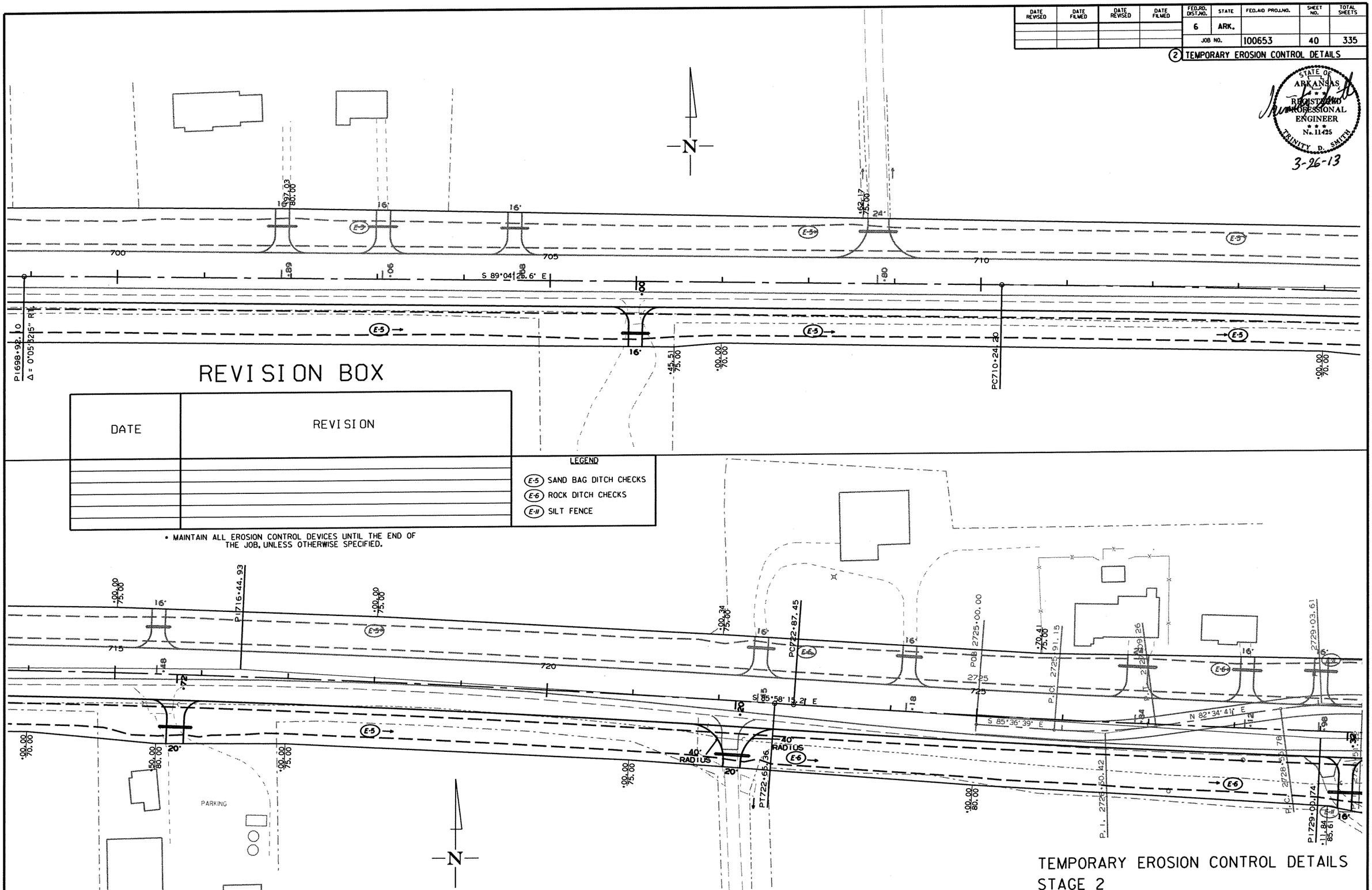
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

R100653.DGN 1/16/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	40	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

1/16/2013

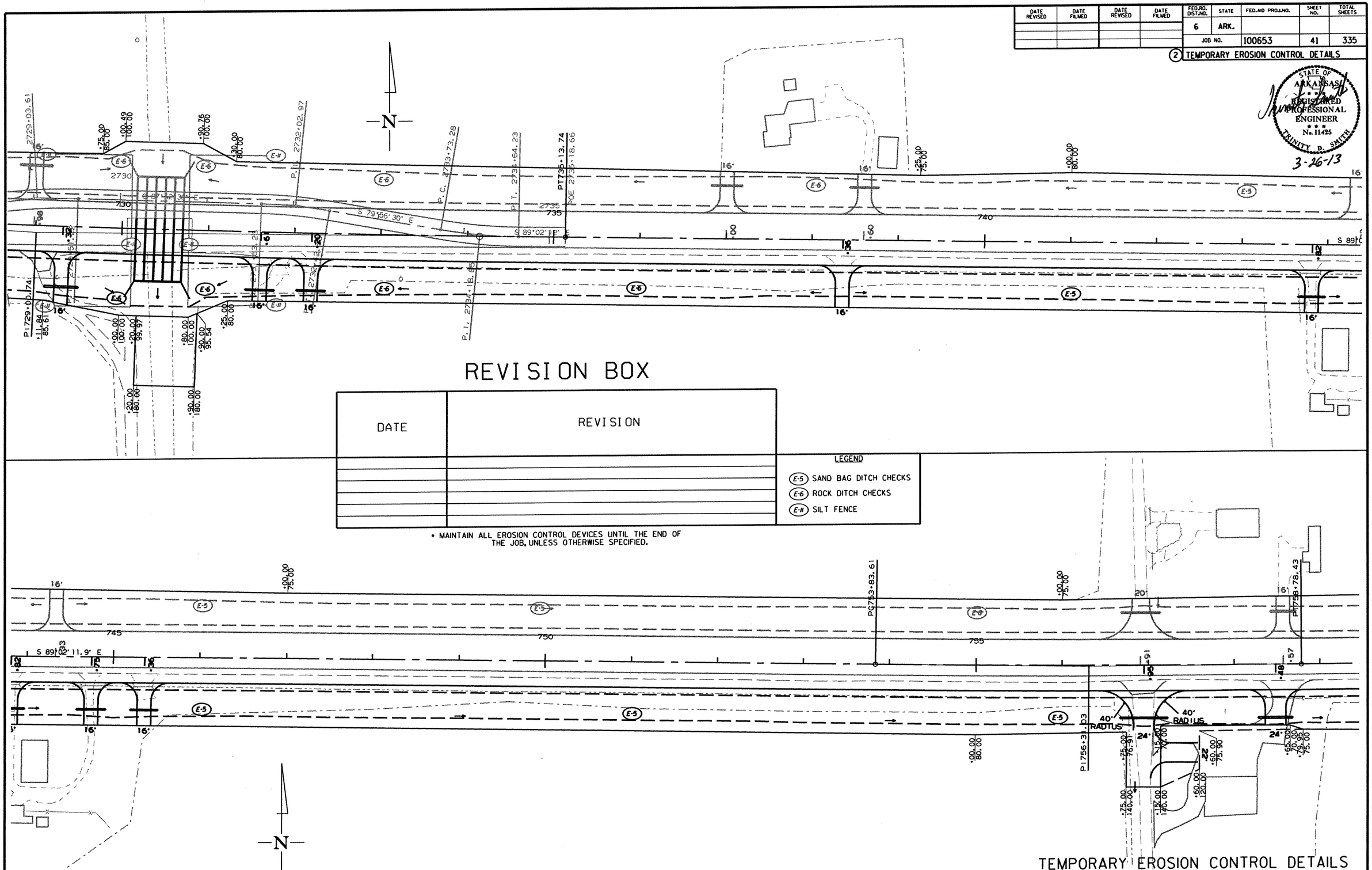
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	100653		41	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	42	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
3-26-13
TRINITY D. SMITH

REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

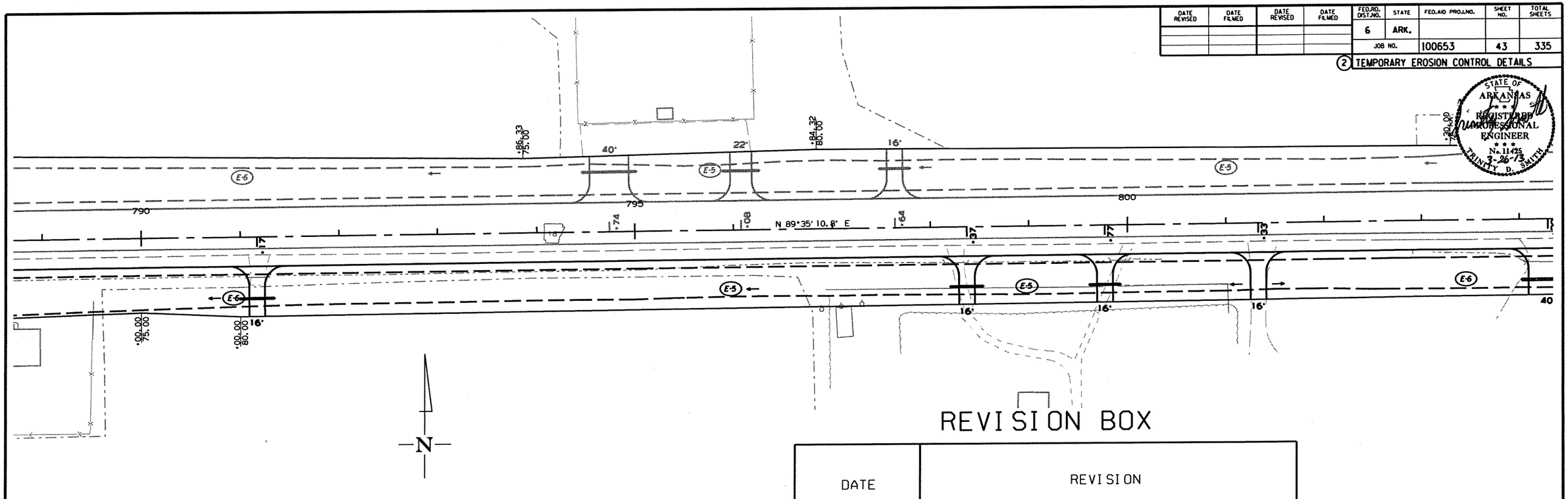
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	43	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
3-26-13
TRINITY D. SMITH



N

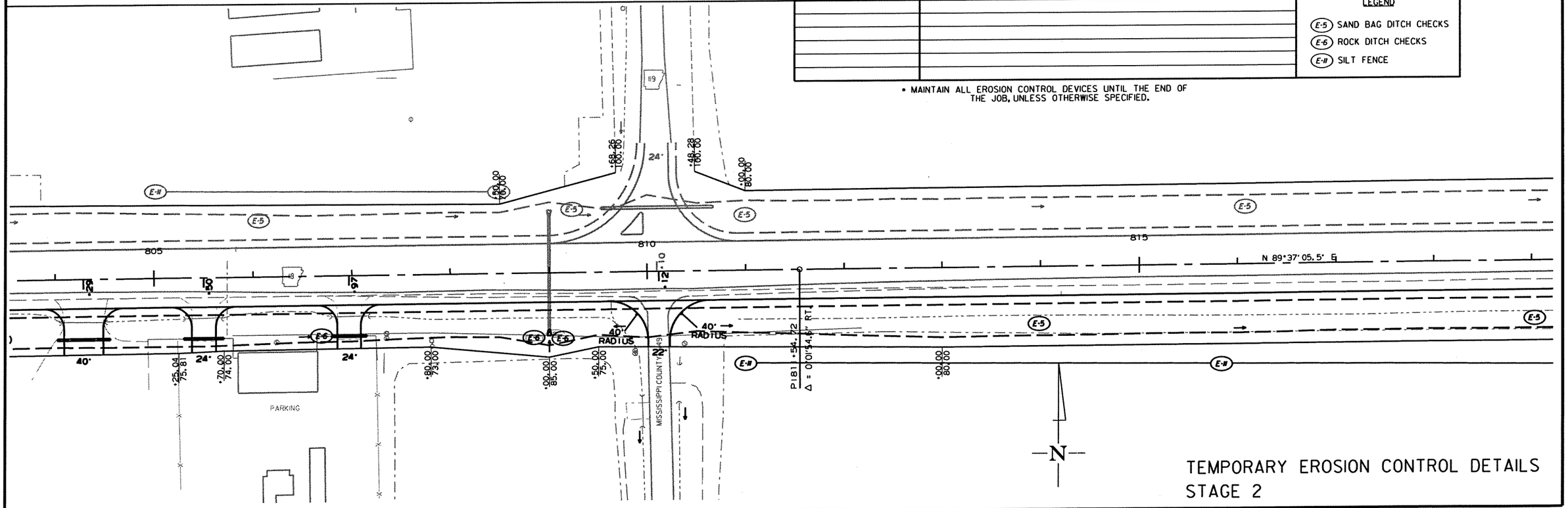
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



N

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

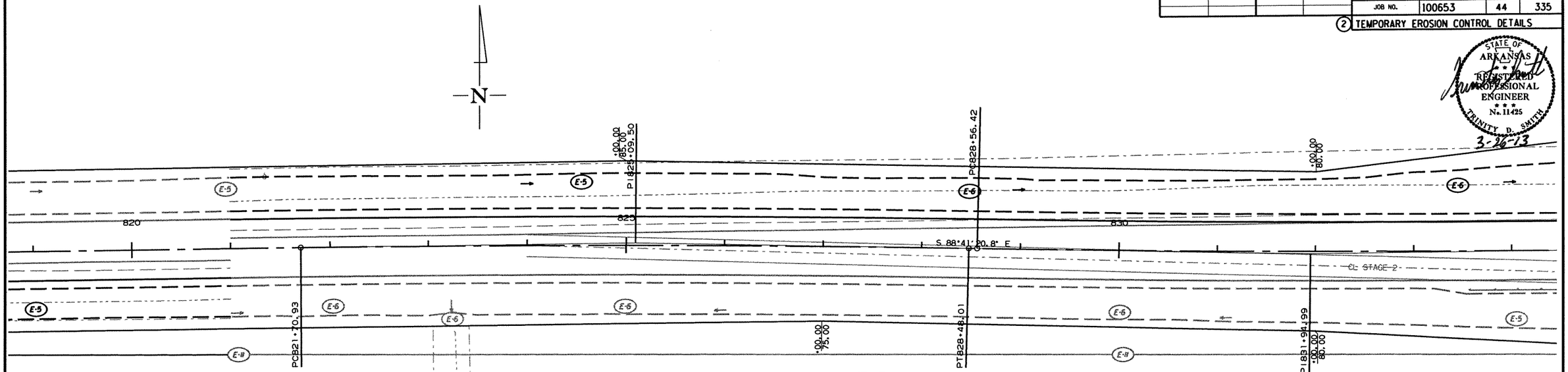
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	44	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



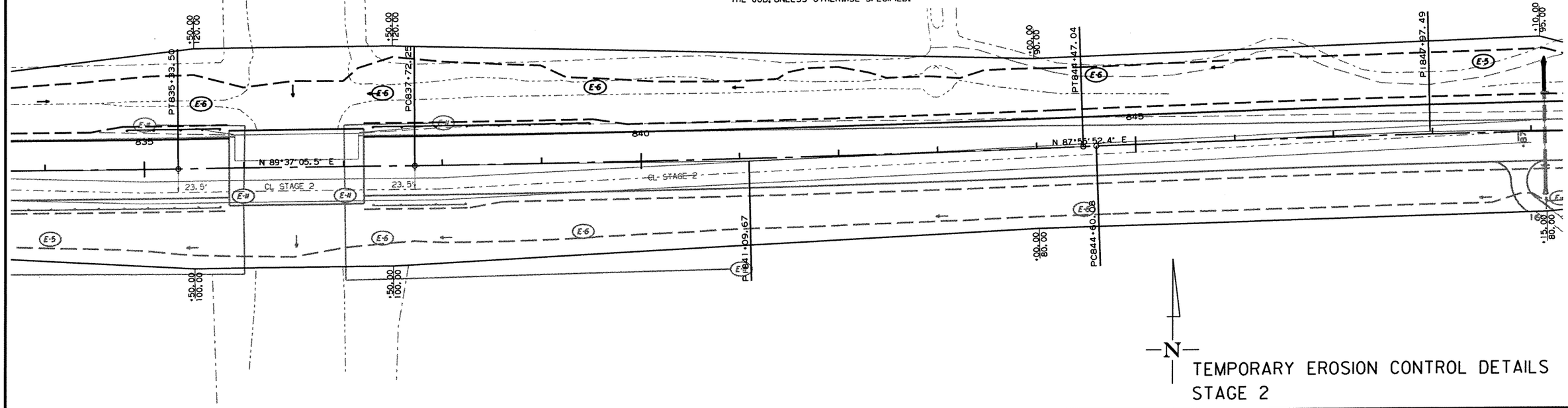
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



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TEMPORARY EROSION CONTROL DETAILS
STAGE 2

1/16/2013

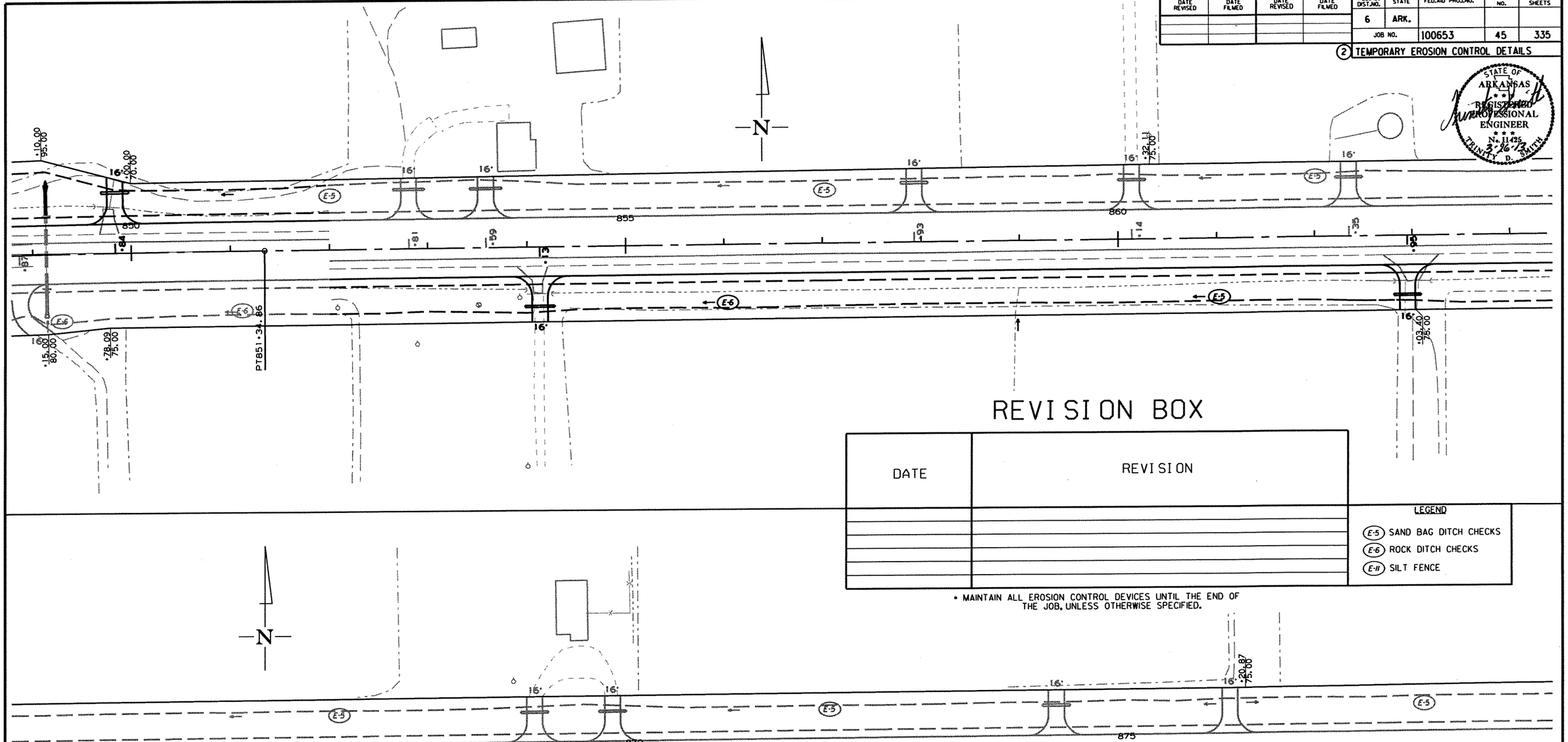
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	45	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
3-16-13
TRINITY D. SMITH



REVISION BOX

DATE	REVISION

LEGEND

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

* MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	46	335

② TEMPORARY EROSION CONTROL DETAILS

No. 11425
TRINITY D. SMITH
3-26-13

REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

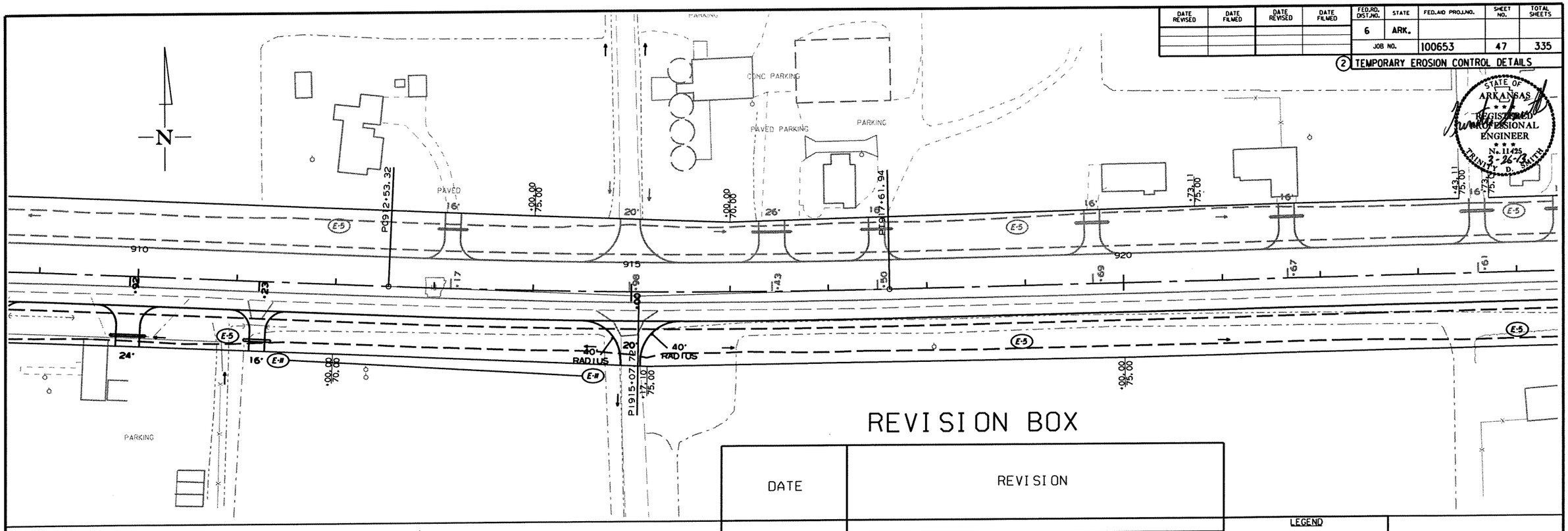
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	47	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
TRINITY D. SMITH



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

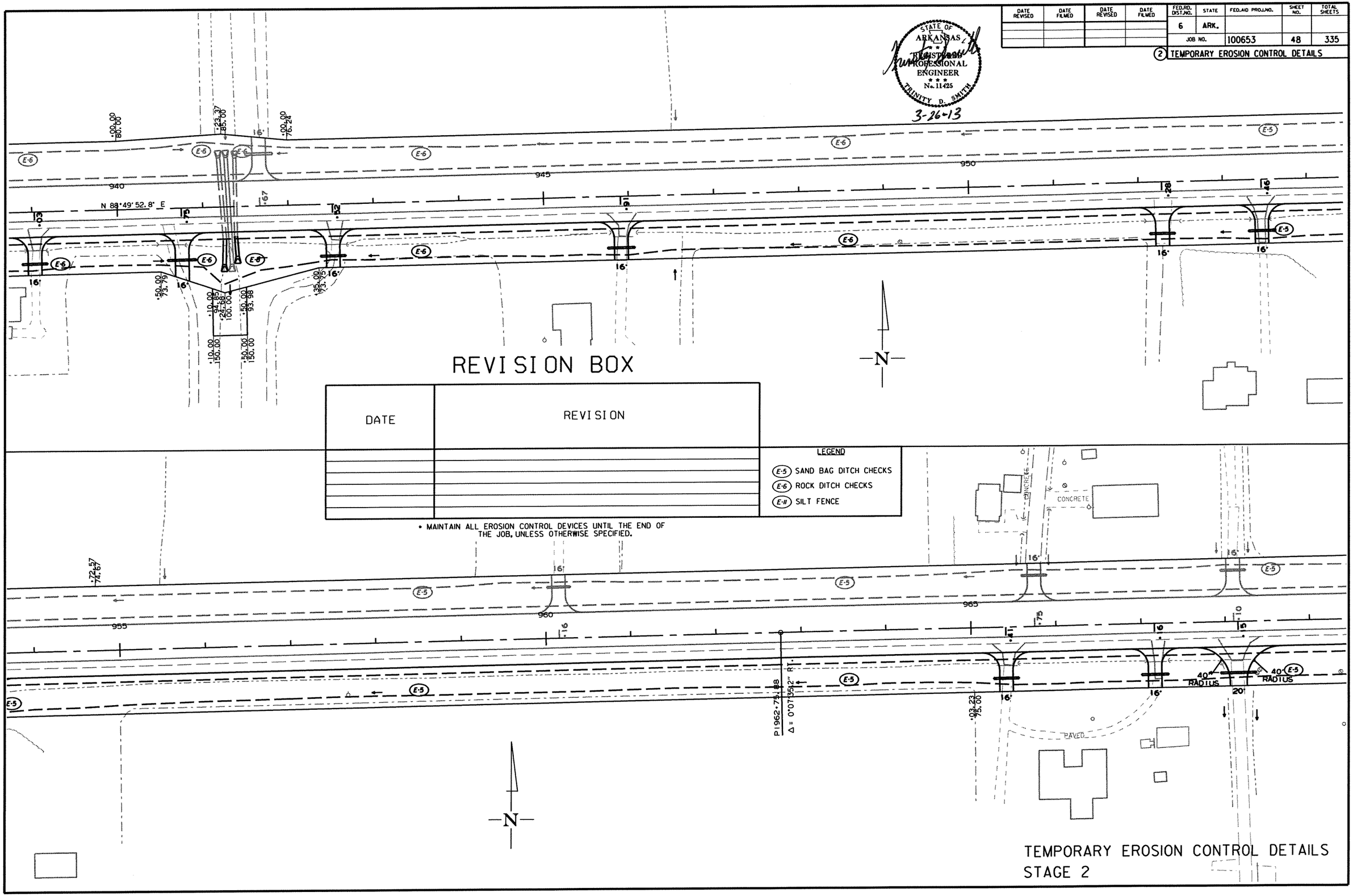
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	48	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

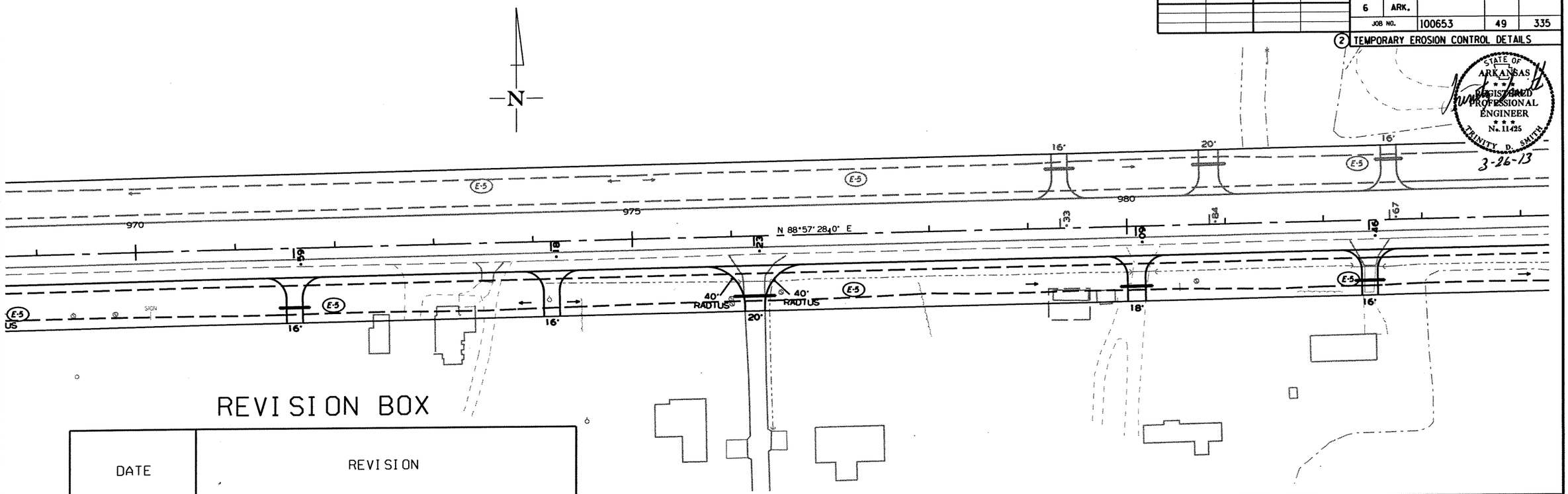
R100653.DGN 1/16/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	49	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



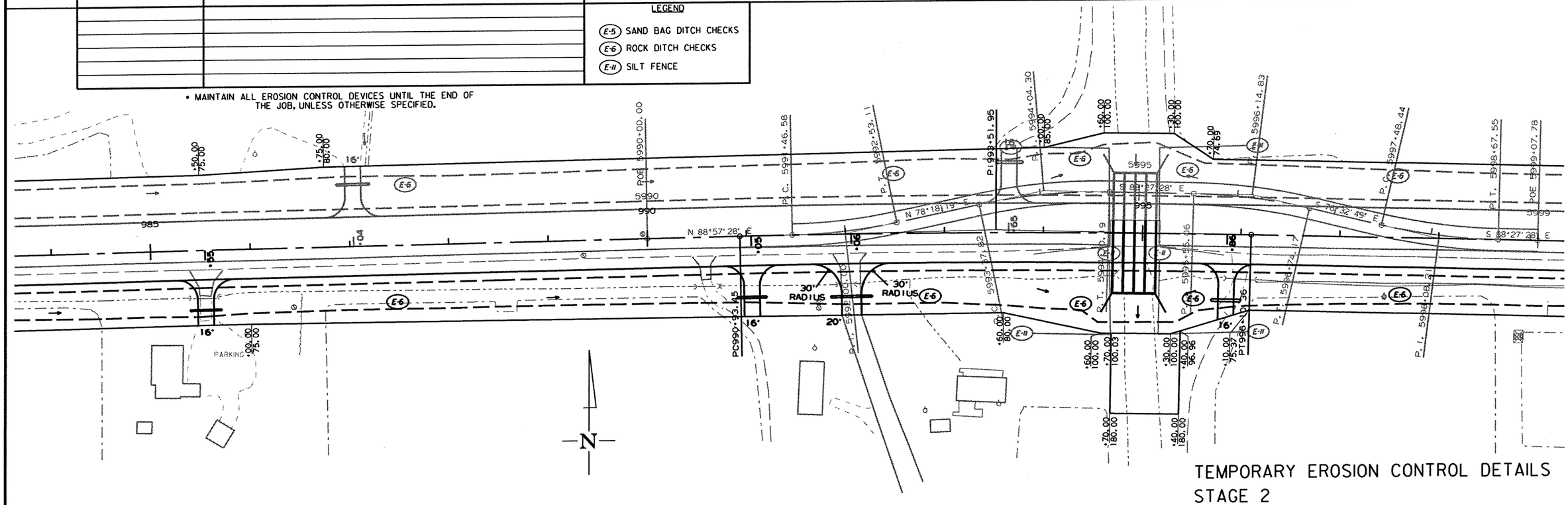
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE 2

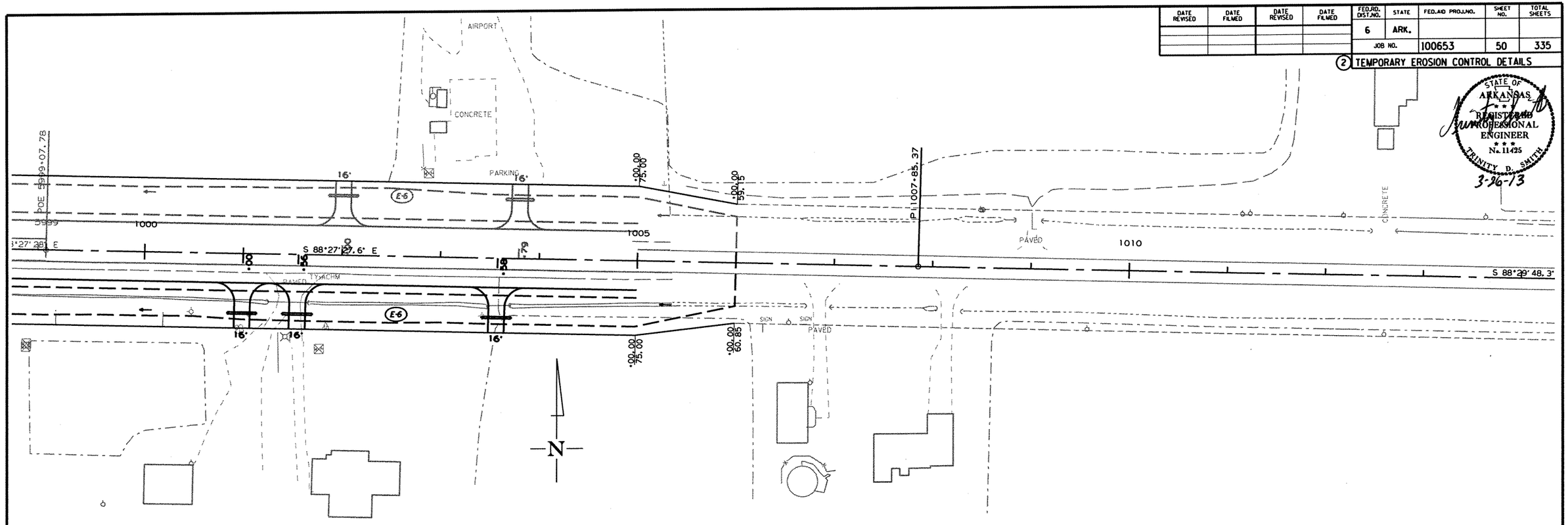
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	50	335

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

1/16/2013

R100653.DGN

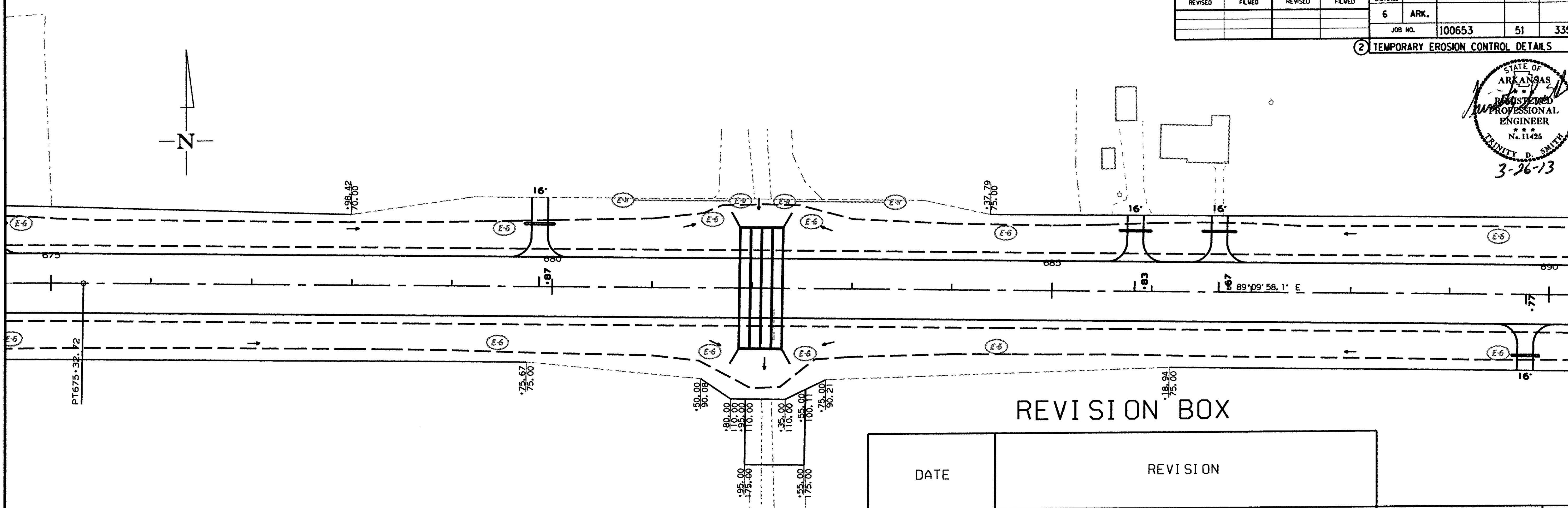
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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.		100653	51	335

(2) TEMPORARY EROSION CONTROL DETAILS

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

3-26-13



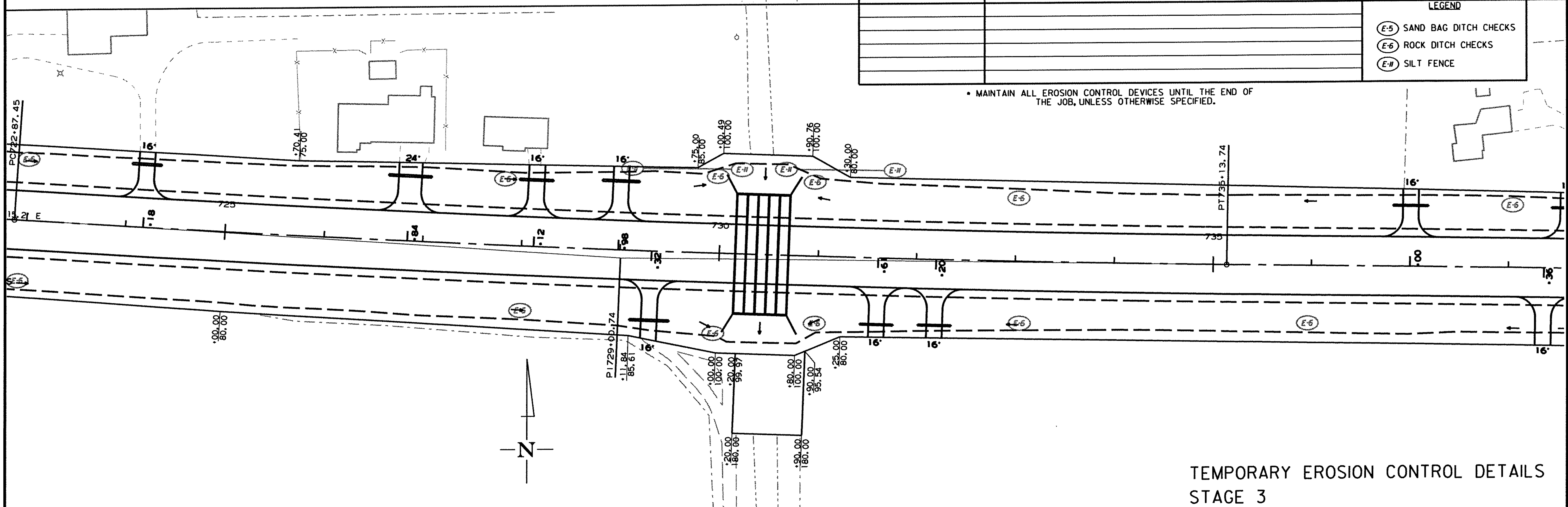
REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TEMPORARY EROSION CONTROL DETAILS
STAGE 3

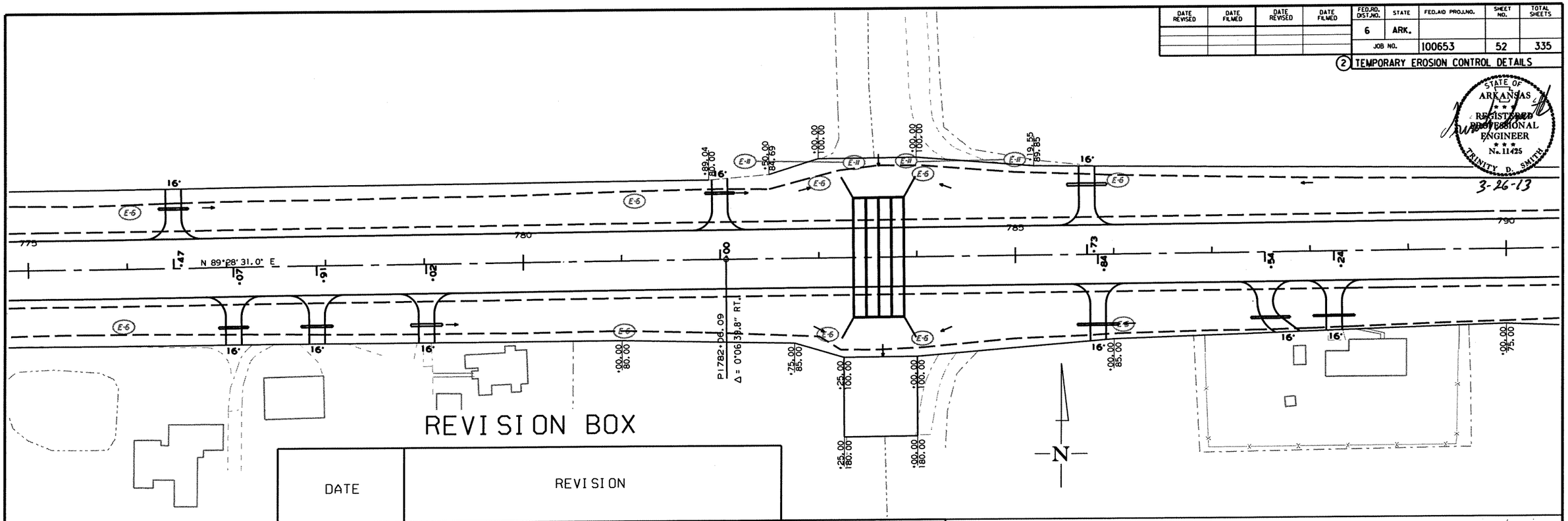
1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	52	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



TEMPORARY EROSION CONTROL DETAILS
STAGE 3

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	53	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

REVISION BOX

DATE	REVISION

LEGEND

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

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

PC837+72.25 · PT841+09.67 · PC844+60.08 · PT841+47.04 · P1847+97.49 · PT851+34.86 · PI993+51.95 · PC990+93.45 · PT996+01.36

N 89°37'05.5" E · N 87°56'52.4" E

PARKING

N

1/16/2013

R100653.DGN

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	54	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

(1) W20-1 (48" x 48") ROAD WORK AHEAD

END ROAD WORK (1) G20-2 (48" x 24")

(1) G20-2 (48" x 24") END ROAD WORK

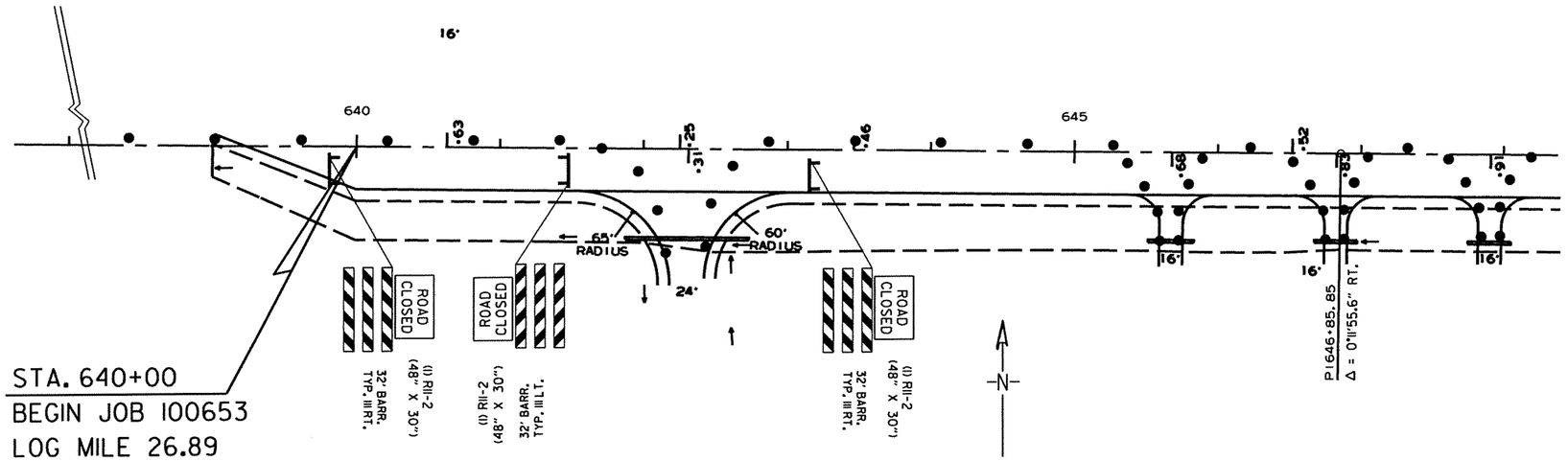
NOTE:
ADVANCE SIGNS AT ALL LOCATIONS ARE TO BE RETAINED THROUGH ALL STAGES OF CONSTRUCTION.

ROAD WORK 500 FT. (1) W20-1 (48" x 48")

ROAD WORK 500 FT. (1) W20-1 (48" x 48")

ROAD WORK 500 FT. (1) W20-1 (48" x 48")

ROAD WORK NEXT 7 MILES (1) G20-1 (60" X 24")



STA. 640+00
BEGIN JOB 100653
LOG MILE 26.89

SHOULDER CLOSED (16) RSP-1 (48" X 30")
IF AND WHERE DIRECTED BY THE ENGINEER.
RETAIN THROUGH ALL STAGES.

DO NOT PASS (28) R4-1 (24" X 30")
AT SAME LOCATIONS AS G20-1 AND AT HALF-MILE INTERVALS THROUGH LENGTH OF JOB.
RETAIN THROUGH ALL STAGES.

(1) G20-2 (48" x 24") END ROAD WORK

(1) W20-1 (48" x 48") ROAD WORK AHEAD

VERTICAL PANELS RT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 11 EACH

TRAFFIC DRUMS RT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 32 EACH

CONSTRUCTION PAVEMENT MARKINGS
LT. & RT. EDGE LINES + DBL. CENTERLINE
OVER ACHM FOR LEVELING ENTIRE JOB = 146,000 LIN.FT.

STAGE I SEQUENCE OF CONSTRUCTION
MAINTAIN TRAFFIC ON EXISTING ALIGNMENT
EXTEND R.C. PIPE CULVERTS BOTH DIRECTIONS
PARTIALLY CONSTRUCT BOX CULVERTS LEFT OF EXISTING
NOTCH & WIDEN LEFT OF EXISTING FOR MOST OF JOB
INCLUDING EXTRA SHOULDER WIDTH WHERE SHOWN AT BOX CULVERTS
PARTIALLY CONSTRUCT NEW BRIDGE AT HONEY CYPRESS CREEK
STA. 821+00 - STA. 852+00 NOTCH AND WIDEN RIGHT OF EXISTING
FOR APPROACHES TO BRIDGE
THE FIRST 2" LIFT OF ACHM SURFACE WILL COVER THE EXISTING LANES
AS WELL AS THE NOTCHED & WIDENED WIDTH

NOTE:
THE TOTAL LENGTH OF THE WORK AREA ON THE ENTIRE PROJECT HAVING VERTICAL DIFFERENCES GREATER THAN 4" SHALL BE LIMITED TO ONE MILE.

MAINTENANCE OF TRAFFIC DETAILS STAGE I

1/18/2013

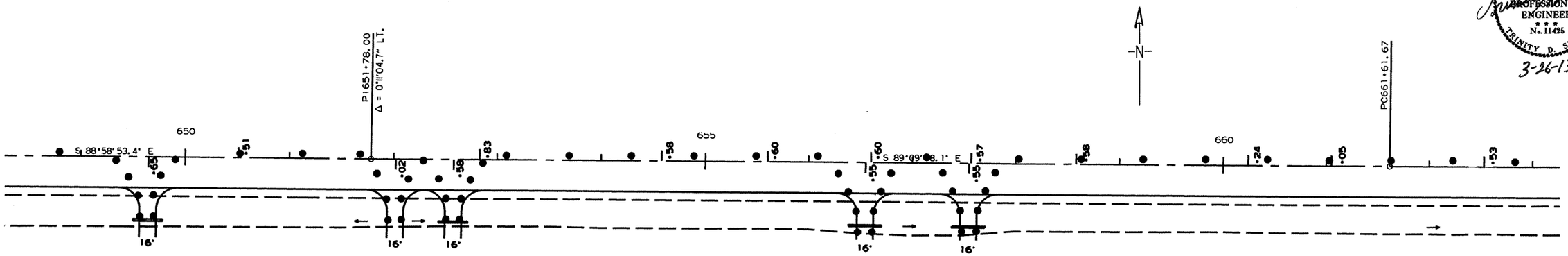
R100653.DGN

mot 1-1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	55	335

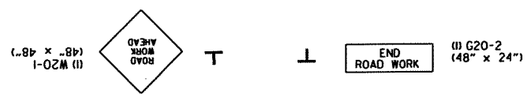
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



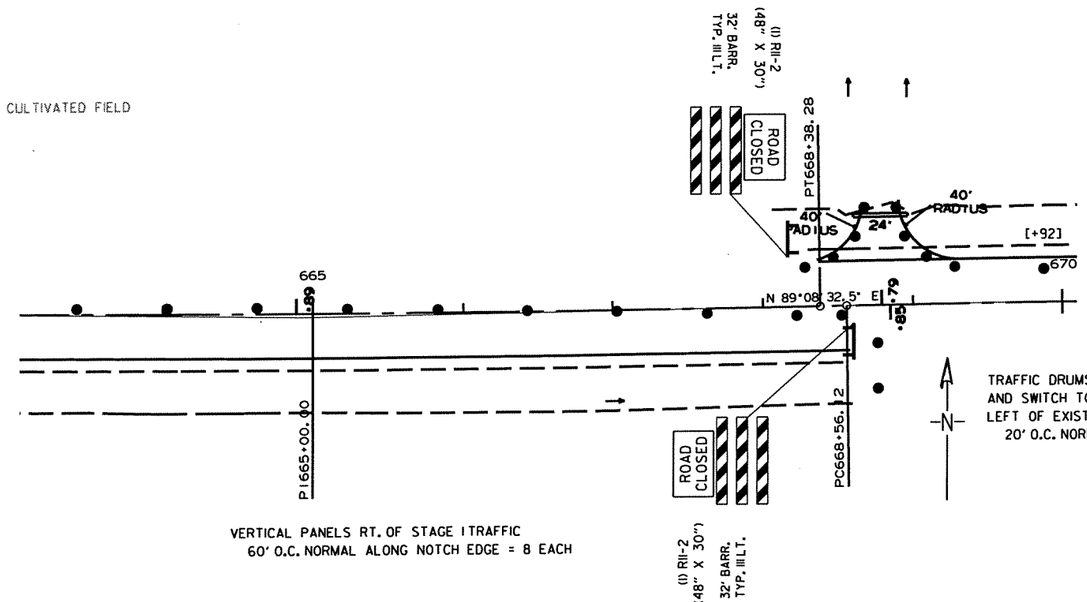
VERTICAL PANELS RT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 23 EACH

TRAFFIC DRUMS RT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 34 EACH



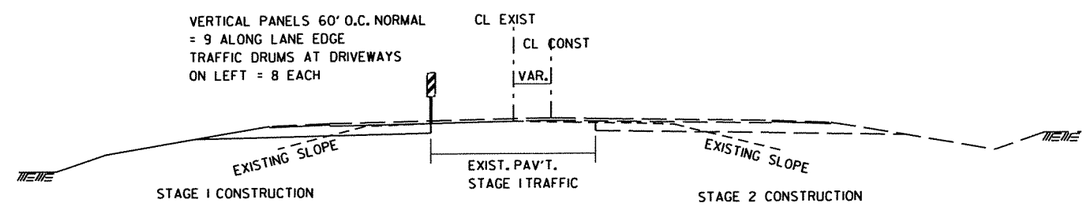
ADVANCE SIGNS NEEDED AT OTHER SIDE ROADS
[NOT ILLUSTRATED IN THESE DETAILS]
MISS. CR N-165 STA. 976+25 RT.
MISS. CR N-159 STA. 968+15 RT.
UNIDENTIFIED RD STA. 975+00 RT. & LT.
MISS. CR N-103 STA. 879+08 RT.
MISS. CR N-49 STA. 810+12 RT.
AR HWY. 119 STA. 810+10 LT.
UNIDENTIFIED RD STA. 756+93 RT. & LT.
ROAD AT COUNTY LINE STA. 722+20 RT.
CRAIGHEAD CR 585 STA. 708+80 LT.

NOTE:
ADVANCE SIGNS AT ALL LOCATIONS
ARE TO BE RETAINED THROUGH
ALL STAGES OF CONSTRUCTION.



TRAFFIC DRUMS AT INTERSECTION
AND SWITCH TO CONSTRUCTION
LEFT OF EXISTING
20' O.C. NORMAL = 12 EACH

VERTICAL PANELS RT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 8 EACH



VERTICAL PANELS STA. 669+92 - STA. 675+30

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

1/18/2013

R100653.DGN

mot 1-2

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.		100653	56	335

(2) MAINTENANCE OF TRAFFIC DETAILS

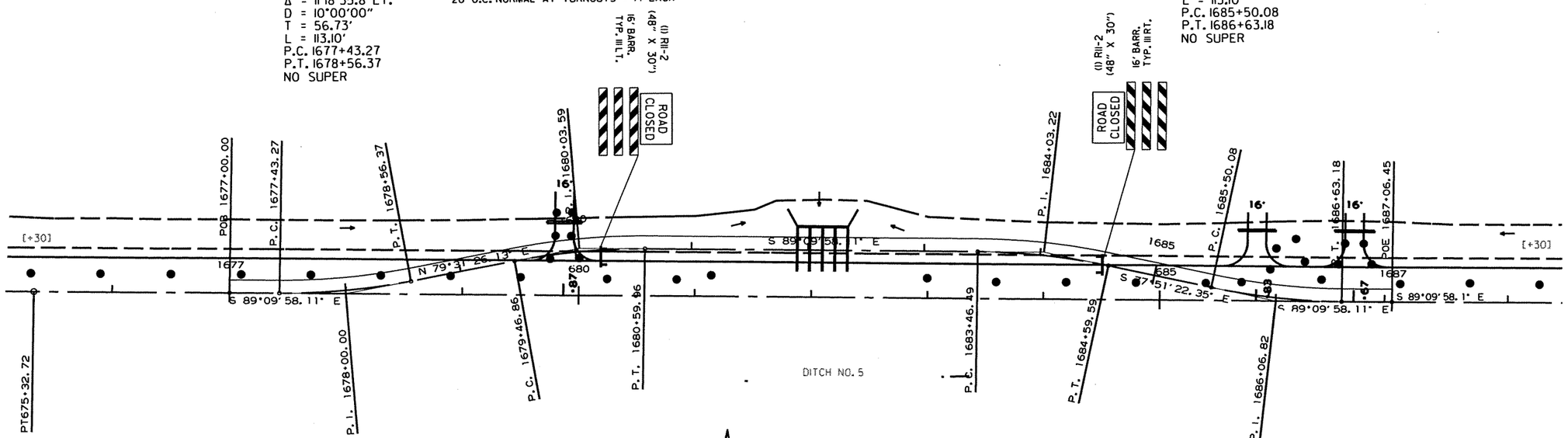
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

VERTICAL PANELS LT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 19 EACH

TRAFFIC DRUMS LT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 14 EACH

CL DETOUR
P.I. 1678+00
Δ = 11°18'35.8"LT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 1677+43.27
P.T. 1678+56.37
NO SUPER

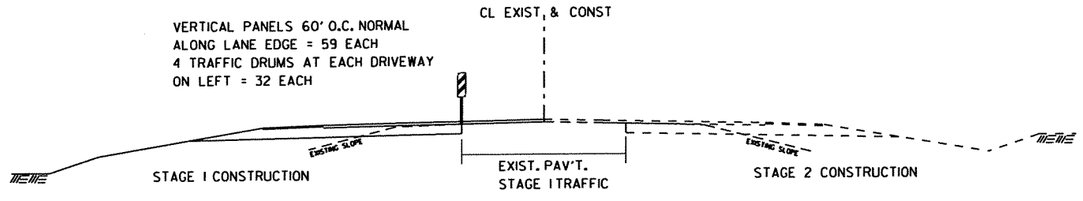
CL DETOUR
P.I. 1686+06.82
Δ = 11°18'35.8"LT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 1685+50.08
P.T. 1686+63.18
NO SUPER



CL DETOUR
P.I. 1680+03.59
Δ = 11°18'35.8"RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 1679+46.86
P.T. 1680+59.96
NO SUPER

-N-

CL DETOUR
P.I. 1684+03.22
Δ = 11°18'35.8"RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 1683+46.49
P.T. 1684+59.59
NO SUPER



VERTICAL PANELS STA. 688+30 - STA. 723+70

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

1/18/2013

R100653.DGN

mot 1-3

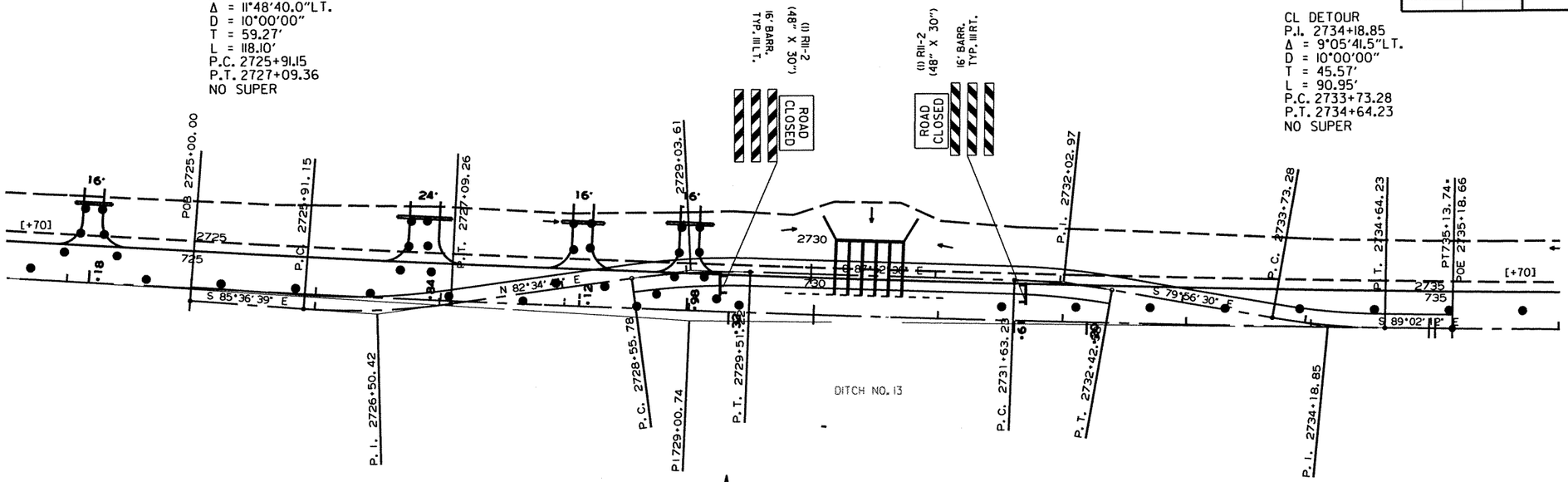
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	57	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CL DETOUR
P.I. 2726+50.42
Δ = 11°48'40.0"LT.
D = 10°00'00"
T = 59.27'
L = 118.10'
P.C. 2725+91.15
P.T. 2727+09.36
NO SUPER

CL DETOUR
P.I. 2734+18.85
Δ = 9°05'41.5"LT.
D = 10°00'00"
T = 45.57'
L = 90.95'
P.C. 2733+73.28
P.T. 2734+64.23
NO SUPER

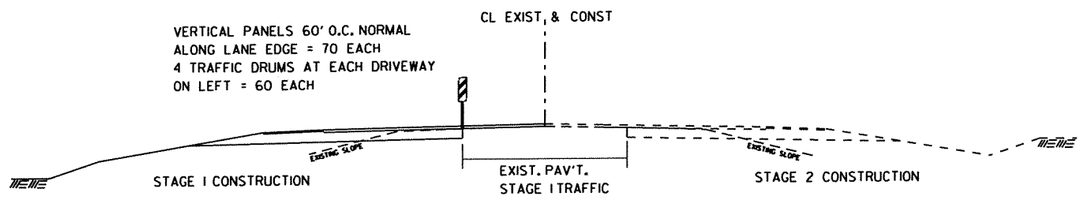


CL DETOUR
P.I. 2729+03.61
Δ = 9°32'40.4"RT.
D = 10°00'00"
T = 47.83'
L = 95.45'
P.C. 2728+55.78
P.T. 2729+51.22
NO SUPER

CL DETOUR
P.I. 27326+02.97
Δ =7°56'307.8"RT.
D = 10°00'00"
T = 39.74'
L = 79.35'
P.C. 2731+63.23
P.T. 2732+42.58
NO SUPER

VERTICAL PANELS LT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 16 EACH

TRAFFIC DRUMS LT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 26 EACH



VERTICAL PANELS STA. 735+70 - STA. 777+70

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

1/18/2013
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	58	335

(2) MAINTENANCE OF TRAFFIC DETAILS

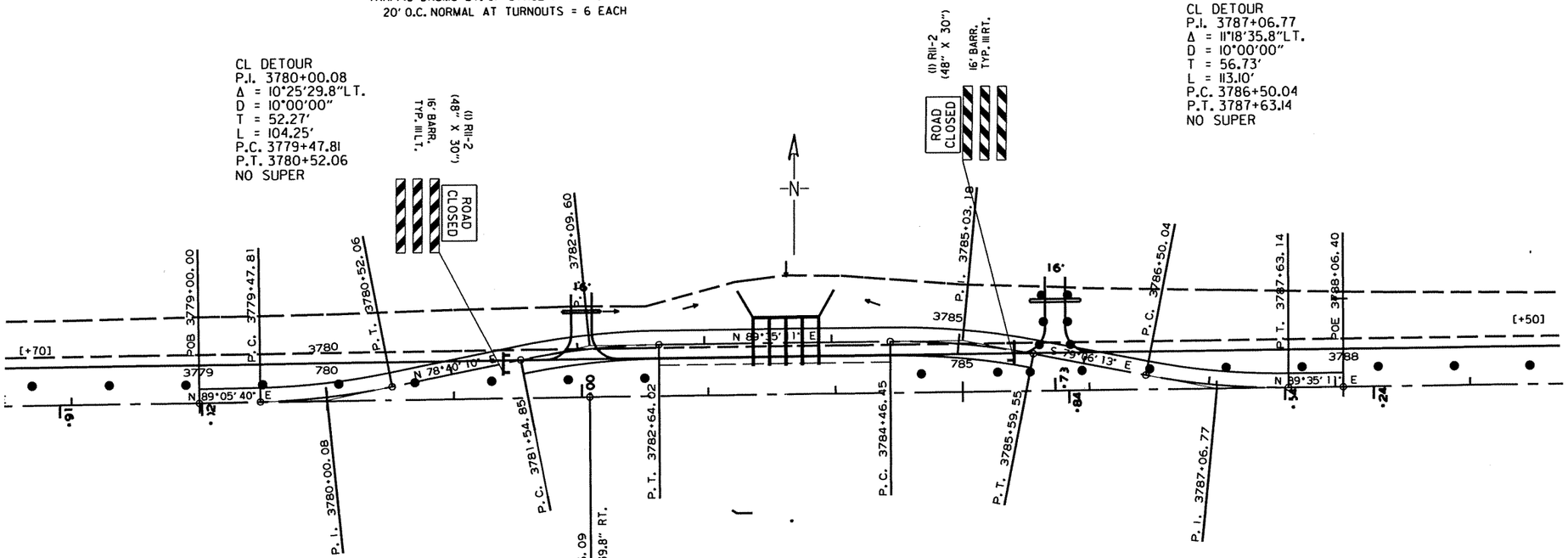
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

VERTICAL PANELS LT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 19 EACH

TRAFFIC DRUMS LT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 6 EACH

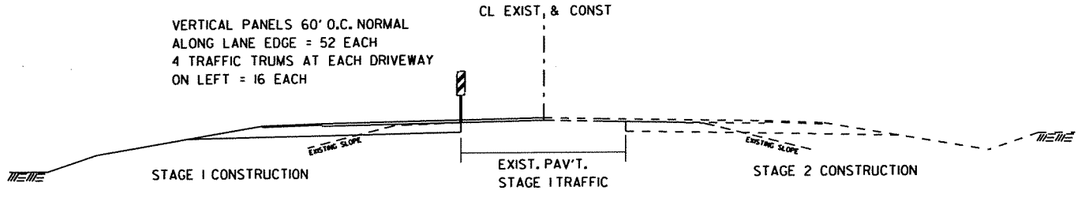
CL DETOUR
P.I. 3780+00.08
Δ = 10°25'29.8"LT.
D = 10°00'00"
T = 52.27'
L = 104.25'
P.C. 3779+47.81
P.T. 3780+52.06
NO SUPER

CL DETOUR
P.I. 3787+06.77
Δ = 11°18'35.8"LT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 3786+50.04
P.T. 3787+63.14
NO SUPER

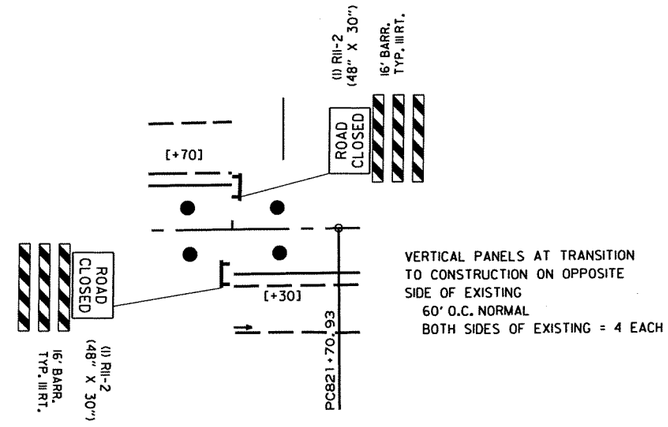


CL DETOUR
P.I. 3782+09.60
Δ = 10°55'00.6"RT.
D = 10°00'00"
T = 54.75'
L = 109.17'
P.C. 3781+54.85
P.T. 3782+64.02
NO SUPER

CL DETOUR
P.I. 3785+03.18
Δ = 11°18'35.8"RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
P.C. 3784+46.45
P.T. 3785+59.55
NO SUPER



VERTICAL PANELS STA. 789+50 - STA. 820+70



DETAIL OF TRANSITION STA.821+00
BUILD-LEFT TO BUILD-RIGHT

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

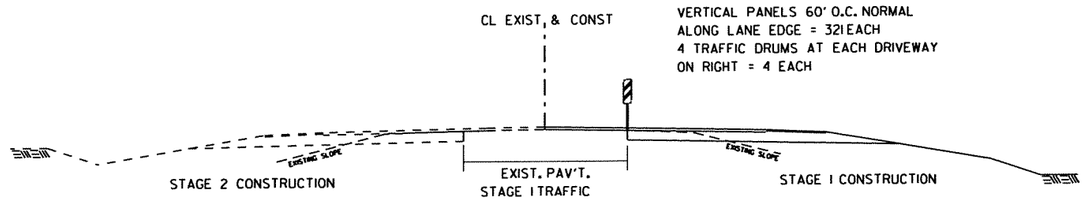
1/18/2013
R100653.DGN

mot I-5

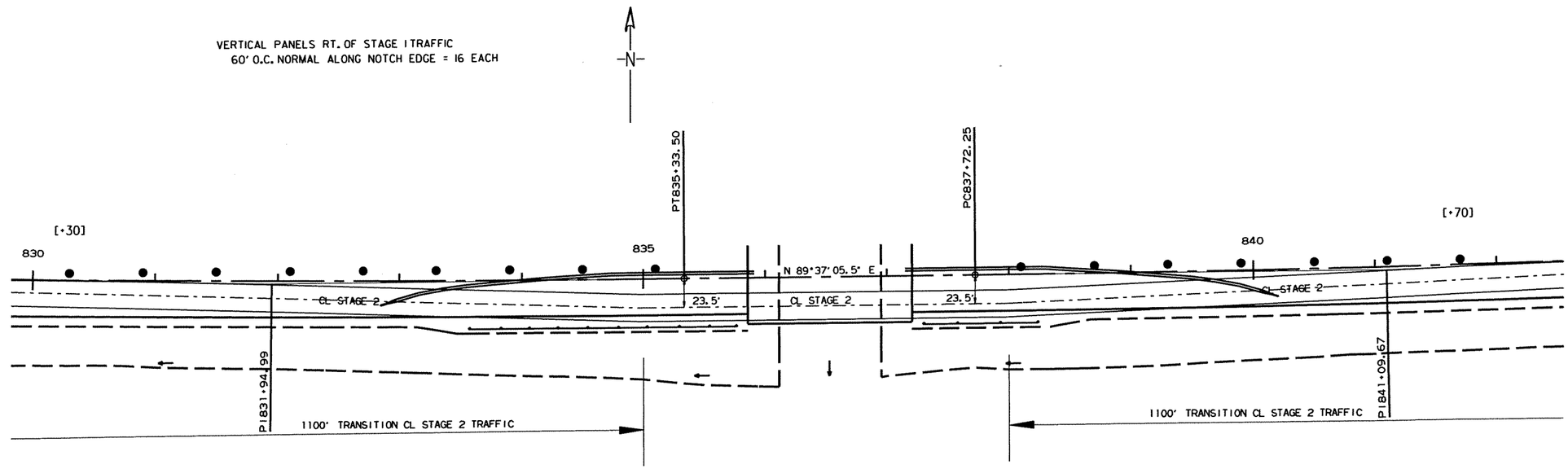
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	59	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



VERTICAL PANELS STA. 821+30 - STA. 830+30 & STA. 841+70 - STA. 851+90



FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
RT. OF EXISTING TRAFFIC = 626 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

MAINTENANCE OF TRAFFIC DETAILS STAGE I

1/18/2013

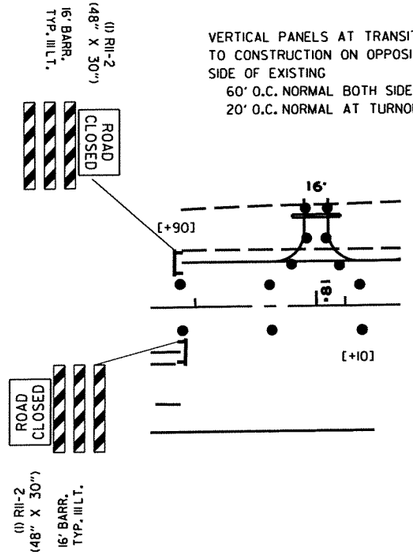
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	60	335

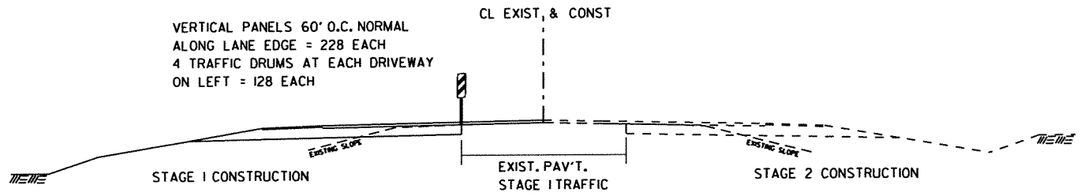
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

VERTICAL PANELS AT TRANSITION
TO CONSTRUCTION ON OPPOSITE
SIDE OF EXISTING
60' O.C. NORMAL BOTH SIDES OF EXISTING = 6 EACH
20' O.C. NORMAL AT TURNOUT = 6 EACH



VERTICAL PANELS 60' O.C. NORMAL
ALONG LANE EDGE = 228 EACH
4 TRAFFIC DRUMS AT EACH DRIVEWAY
ON LEFT = 128 EACH



VERTICAL PANELS STA. 852+10 - STA. 988+90

VERTICAL PANELS LT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 22 EACH

TRAFFIC DRUMS LT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 10 EACH

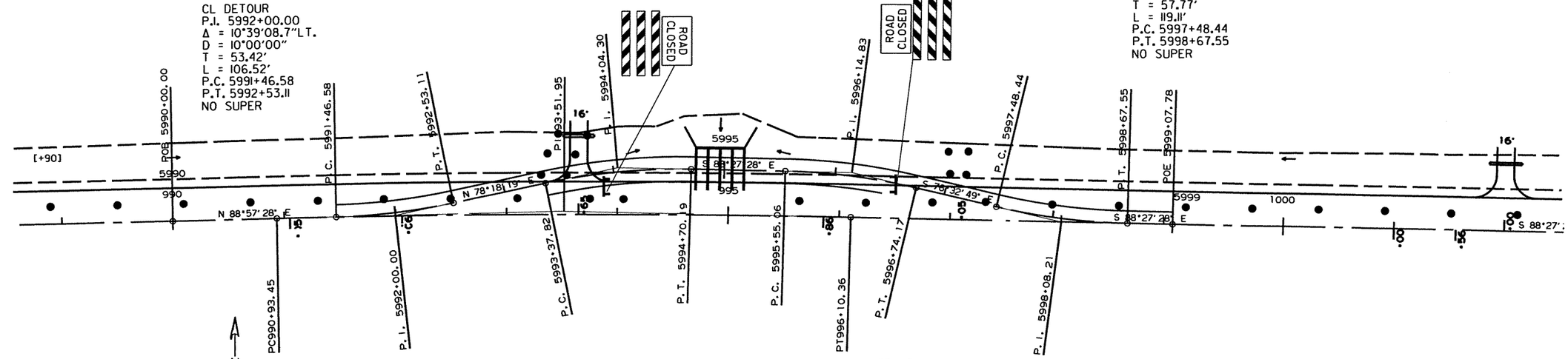
DETAIL OF TRANSITION STA.852+00
BUILD-RIGHT TO BUILD-LEFT

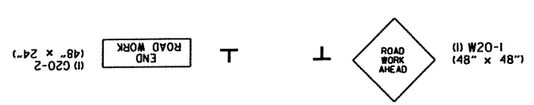
CL DETOUR
P.I. 5992+00.00
Δ = 10°39'08.7"LT.
D = 10°00'00"
T = 53.42'
L = 106.52'
P.C. 5991+46.58
P.T. 5992+53.11
NO SUPER

CL DETOUR
P.I. 5994+04.30
Δ = 13°14'13.1"RT.
D = 10°00'00"
T = 66.48'
L = 132.37'
P.C. 5993+37.82
P.T. 5994+70.19
NO SUPER

CL DETOUR
P.I. 5996+14.83
Δ = 11°54'38.3"RT.
D = 10°00'00"
T = 59.77'
L = 119.11'
P.C. 5995+55.06
P.T. 5996+74.17
NO SUPER

CL DETOUR
P.I. 5998+08.21
Δ = 11°54'38.3"RT.
D = 10°00'00"
T = 57.77'
L = 119.11'
P.C. 5997+48.44
P.T. 5998+67.55
NO SUPER





MAINTENANCE OF TRAFFIC DETAILS
STAGE I

1/18/2013

R100653.DGN

mot I-7

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	61	335

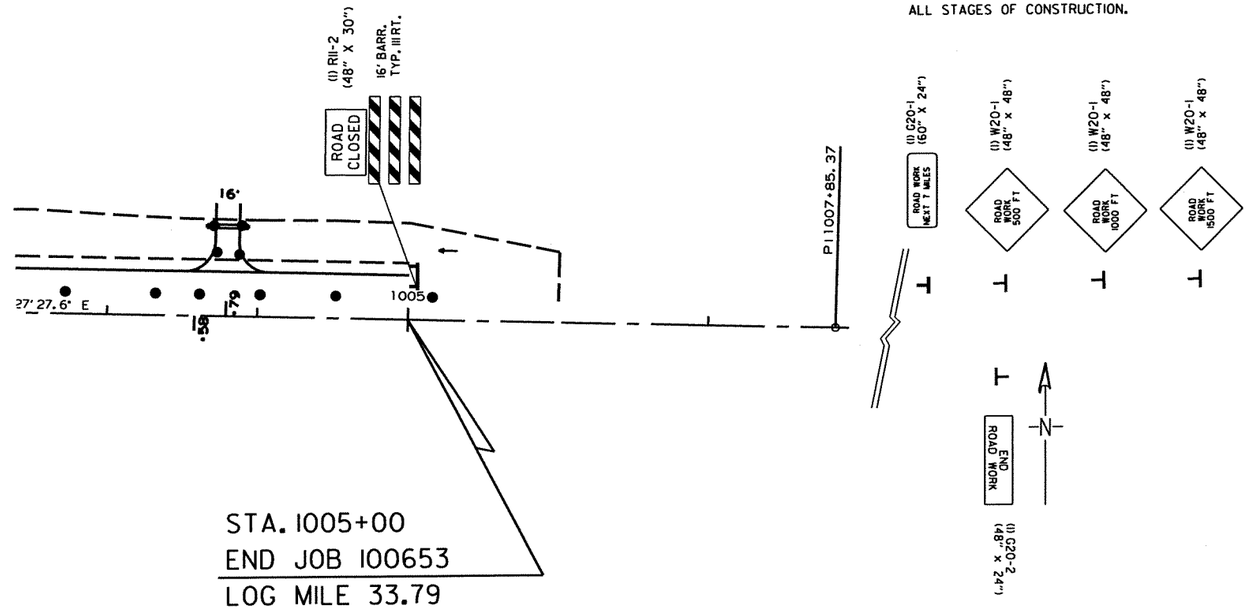
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

VERTICAL PANELS LT. OF STAGE I TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 6 EACH

TRAFFIC DRUMS LT. OF STAGE I TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 4 EACH

NOTE:
ADVANCE SIGNS AT ALL LOCATIONS
ARE TO BE RETAINED THROUGH
ALL STAGES OF CONSTRUCTION.



STA. 1005+00
END JOB 100653
LOG MILE 33.79

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

1/18/2013
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	62	335

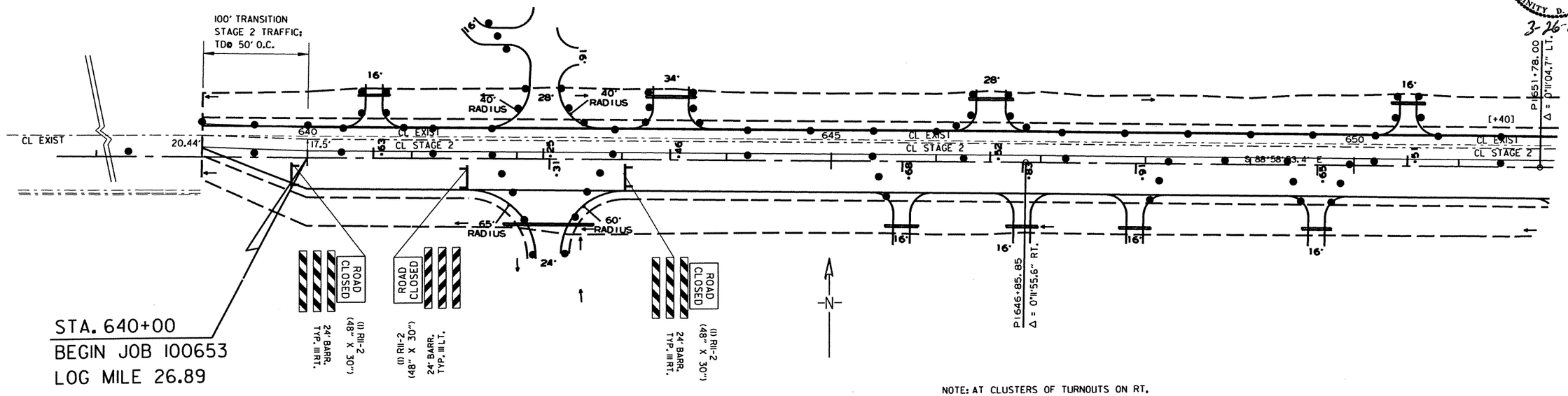
(2) MAINTENANCE OF TRAFFIC DETAILS

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

3-26-13

VERTICAL PANELS LT. OF STAGE 2 TRAFFIC
60' O.C. NORMAL ALONG NOTCH EDGE = 18 EACH

TRAFFIC DRUMS LT. OF STAGE 1 TRAFFIC
20' O.C. NORMAL AT TURNOUTS = 30 EACH



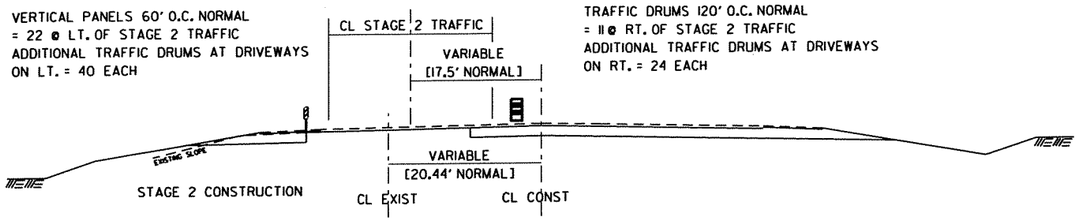
STA. 640+00
BEGIN JOB 100653
LOG MILE 26.89

NOTE: AT CLUSTERS OF TURNOUTS ON RT, TRAFFIC DRUMS MAY BE OMITTED BETWEEN TURNOUTS

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
120' O.C. NORMAL ALONG RT. LANE EDGE = 10 EACH
20' O.C. NORMAL AT TURNOUTS = 22 EACH

DO NOT PASS

(28) R4-1
(24" X 30")
AT SAME LOCATIONS AS G20-1
AND AT HALF-MILE INTERVALS
THROUGH LENGTH OF JOB.
RETAIN THROUGH ALL STAGES.



STA. 651+40 - STA. 665+00

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 639+00 - STA. 677+40 = 15360 LIN.FT.

STAGE 2 SEQUENCE OF CONSTRUCTION
SHIFT TRAFFIC ONTO DETOURS AT BRIDGE AND BOX CULVERTS AS CONSTRUCTION REACHES EACH LOCATION
NOTCH AND WIDEN RIGHT OR LEFT AS-NEEDED TO FINISH WIDENING TO 5-LANE SECTION THROUGHOUT THE JOB
PLACE FIRST LIFT OF ACHM SURFACE TO BRING SURFACE UP-TO LEVEL OF ACHM PLACED IN STAGE 1

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

1/18/2013

R100653.DGN

mot 2-1

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				6	ARK.			
				JOB NO.		100653	63	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

VERTICAL PANELS LT. OF STAGE 2 TRAFFIC
THRU C.R.575 INTERSECTION
60' O.C. NORMAL ALONG LT. LANE EDGE = 7 EACH
TRAFFIC DRUMS
20' O.C. NORMAL AT TURNOUTS = 6 EACH

CL STAGE 2 REJOINS CL EXIST.
APPX STA. 665+24

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
C.R.575 TO POB DETOUR
120' O.C. NORMAL ALONG LT. LANE EDGE = 7 EACH
20' O.C. NORMAL AT TURNOUTS = 10 EACH

VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
C.R. 575 THRU POB DETOUR
60' O.C. NORMAL ALONG RT. LANE EDGE = 12 EACH
TRAFFIC DRUMS
20' O.C. NORMAL AT TURNOUTS = 4 EACH

NOTES:
[1] STAGE 2 CONSTRUCTION AT LOCATIONS WHERE BOX CULVERTS ARE REPLACING BRIDGES MAY BE DONE IN ANY SEQUENCE. QUANTITY OF PRECAST CONCRETE BARRER GIVEN IS SUFFICIENT TO WORK ON THE BRIDGE AT HONEY CYPRESS CREEK PLUS ANY TWO BOX CULVERT SITES AT THE SAME TIME.

[2] WHEN BOX CULVERT CONSTRUCTION IS FINISHED, SHIFT TRAFFIC OFF DETOUR ALIGNMENT TO CL CONSTRUCTION AND RELOCATE THE PCCB TO ANOTHER LOCATION.

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
THRU C.R.575 INTERSECTION
120' O.C. NORMAL ALONG RT. LANE EDGE = 4 EACH
20' O.C. NORMAL AT TURNOUTS = 4 EACH

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
RT. OF DETOUR TRAFFIC = 586 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

STAGE 2A TRAFFIC ON DETOUR

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE ON DETOUR
CL. DETOUR STA. 1677+40 - STA. 1688+00 = 3840 LIN.FT.

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
30' O.C. ON DETOUR CURVES = 10 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
END OF PCCB - STA. 688+60
120' O.C. NORMAL ALONG LT. LANE EDGE = 4 EACH
20' O.C. NORMAL AT TURNOUTS = 7 EACH

STAGE 2B TRAFFIC ON CL EXIST AFTER COMPLETION OF BOX CULVERT CONSTRUCTION

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINES + CENTERLINE ON DETOUR
STA. 1677+43 - STA. 1679+25 = 546 LIN.FT.
STA. 1684+90 - STA. 1687+00 = 630 LIN.FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
CL.CONST STA. 677+40 - STA. 687+93.5 = 4214 LIN.FT.

TRAFFIC DRUMS LT & RT. OF STAGE 2B TRAFFIC
120' O.C. ON LANE EDGES = 18 EACH

VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
POE DETOUR - STA. 688+60
60' O.C. NORMAL ALONG RT. LANE EDGE = 4 EACH

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

1/18/2013

R100653.DGN

mot 2-2

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.		100653	64	335

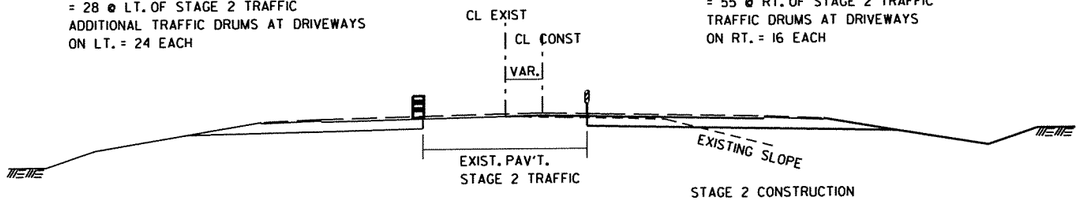
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 687+93.5 - STA. 725+91 = 151960 LIN.FT.

TRAFFIC DRUMS 120' O.C. NORMAL
= 28 @ LT. OF STAGE 2 TRAFFIC
ADDITIONAL TRAFFIC DRUMS AT DRIVEWAYS
ON LT. = 24 EACH

VERTICAL PANELS 60' O.C. NORMAL
= 55 @ RT. OF STAGE 2 TRAFFIC
TRAFFIC DRUMS AT DRIVEWAYS
ON RT. = 16 EACH



STA. 688+60 - STA. 721+00

NOTES:
[1] STAGE 2 CONSTRUCTION AT LOCATIONS WHERE BOX CULVERTS ARE REPLACING BRIDGES MAY BE DONE IN ANY SEQUENCE. QUANTITY OF PRECAST CONCRETE BARRER GIVEN IS SUFFICIENT TO WORK ON THE BRIDGE AT HONEY CYPRESS CREEK PLUS ANY TWO BOX CULVERT SITES AT THE SAME TIME.

[2] WHEN BOX CULVERT CONSTRUCTION IS FINISHED, SHIFT TRAFFIC OFF DETOUR ALIGNMENT TO CL CONSTRUCTION AND RELOCATE THE PCCB TO ANOTHER LOCATION.

STAGE 2B TRAFFIC ON CL EXIST AFTER
COMPLETION OF BOX CULVERT CONSTRUCTION

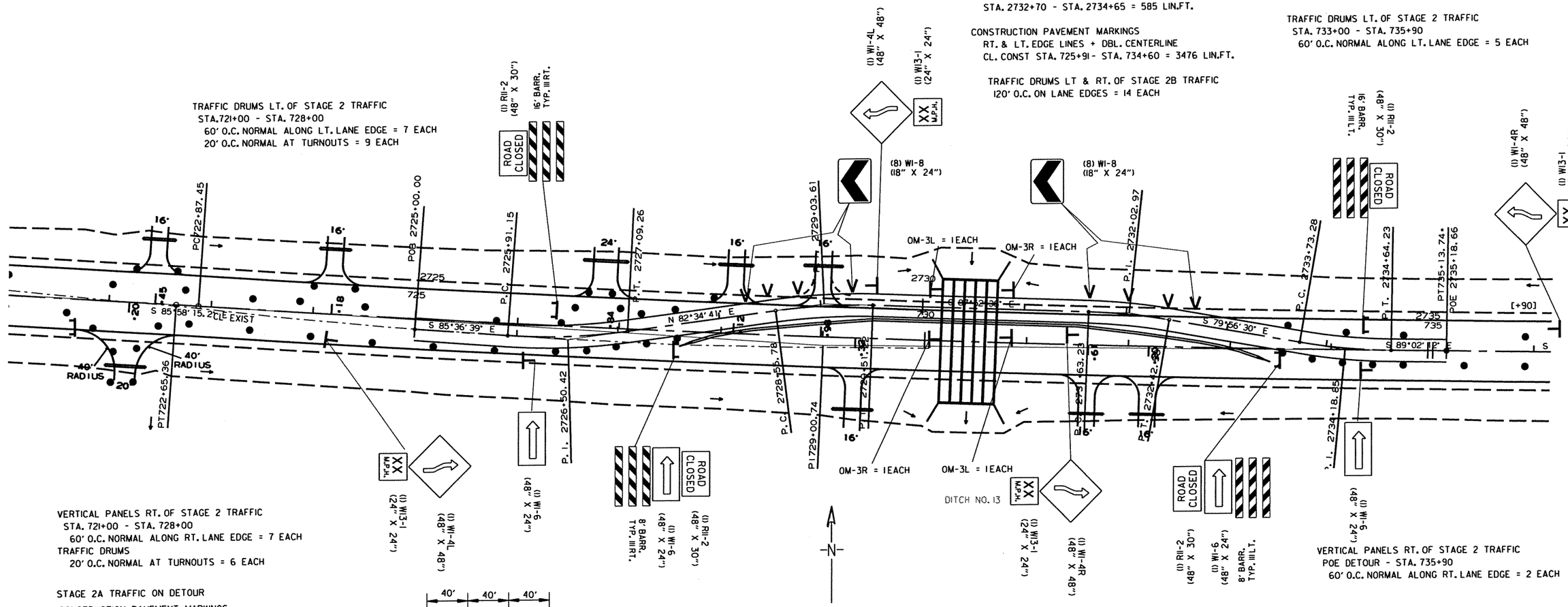
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINES + CENTERLINE ON DETOUR
STA. 2725+91 - STA. 2727+70 = 537 LIN.FT.
STA. 2732+70 - STA. 2734+65 = 585 LIN.FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
CL. CONST STA. 725+91 - STA. 734+60 = 3476 LIN.FT.

TRAFFIC DRUMS LT & RT. OF STAGE 2B TRAFFIC
120' O.C. ON LANE EDGES = 14 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 733+00 - STA. 735+90
60' O.C. NORMAL ALONG LT. LANE EDGE = 5 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA.721+00 - STA. 728+00
60' O.C. NORMAL ALONG LT. LANE EDGE = 7 EACH
20' O.C. NORMAL AT TURNOUTS = 9 EACH

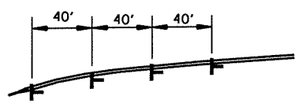


VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
STA. 721+00 - STA. 728+00
60' O.C. NORMAL ALONG RT. LANE EDGE = 7 EACH
TRAFFIC DRUMS
20' O.C. NORMAL AT TURNOUTS = 6 EACH

STAGE 2A TRAFFIC ON DETOUR

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE ON DETOUR
CL. DETOUR STA. 2725+91 - STA. 2734+65 = 3496 LIN.FT.

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
30' O.C. ON DETOUR CURVES = 10 EACH



DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
RT. OF DETOUR TRAFFIC = 586 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

ACCESS AT TURNOUTS BLOCKED BY PCCB
TO BE COORDINATED AS-NEEDED
WITH PROPERTY OWNERS

VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
POE DETOUR - STA. 735+90
60' O.C. NORMAL ALONG RT. LANE EDGE = 2 EACH

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

1/18/2013
R100653.DGN

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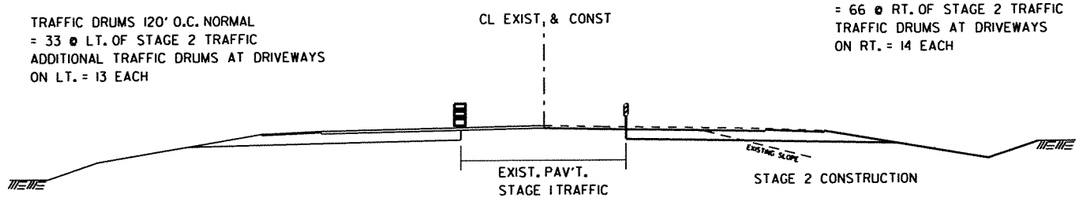
				6	ARK.			
				JOB NO.		100653	65	335

(2) MAINTENANCE OF TRAFFIC DETAILS

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 734+60 - STA. 779+48 = 17952 LIN.FT.

TRAFFIC DRUMS 120' O.C. NORMAL
= 33 @ LT. OF STAGE 2 TRAFFIC
ADDITIONAL TRAFFIC DRUMS AT DRIVEWAYS
ON LT. = 13 EACH

VERTICAL PANELS 60' O.C. NORMAL
= 66 @ RT. OF STAGE 2 TRAFFIC
TRAFFIC DRUMS AT DRIVEWAYS
ON RT. = 14 EACH



STA. 735+90 - STA. 775+50

NOTES:
[1] STAGE 2 CONSTRUCTION AT LOCATIONS WHERE BOX CULVERTS ARE REPLACING BRIDGES MAY BE DONE IN ANY SEQUENCE. QUANTITY OF PRECAST CONCRETE BARRER GIVEN IS SUFFICIENT TO WORK ON THE BRIDGE AT HONEY CYPRESS CREEK PLUS ANY TWO BOX CULVERT SITES AT THE SAME TIME.

[2] WHEN BOX CULVERT CONSTRUCTION IS FINISHED, SHIFT TRAFFIC OFF DETOUR ALIGNMENT TO CL CONSTRUCTION AND RELOCATE THE PCCB TO ANOTHER LOCATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STAGE 2B TRAFFIC ON CL EXIST AFTER COMPLETION OF BOX CULVERT CONSTRUCTION

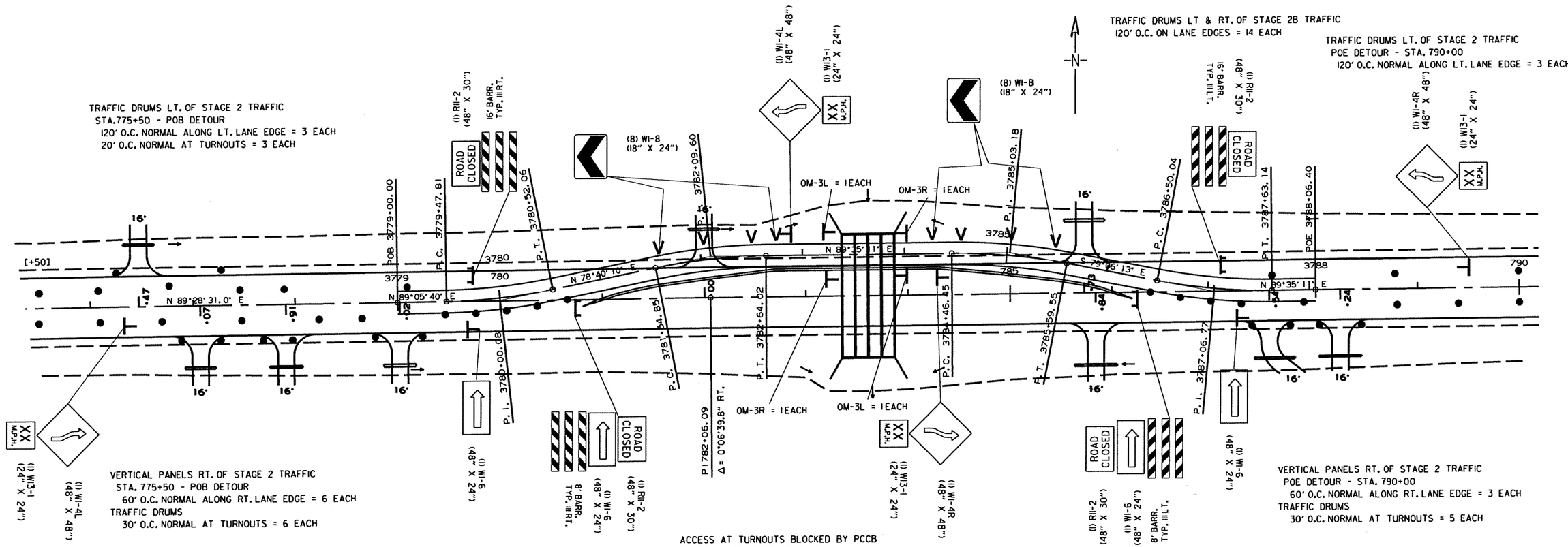
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINES + CENTERLINE ON DETOUR
STA. 3779+48 - STA. 3781+15 = 501 LIN.FT.
STA. 3785+80 - STA. 3787+63 = 549 LIN.FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
CL. CONST STA. 779+48 - STA. 787+57 = 3236 LIN.FT.

TRAFFIC DRUMS LT & RT. OF STAGE 2B TRAFFIC
120' O.C. ON LANE EDGES = 14 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
POE DETOUR - STA. 790+00
120' O.C. NORMAL ALONG LT. LANE EDGE = 3 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 775+50 - POB DETOUR
120' O.C. NORMAL ALONG LT. LANE EDGE = 3 EACH
20' O.C. NORMAL AT TURNOUTS = 3 EACH



VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
STA. 775+50 - POB DETOUR
60' O.C. NORMAL ALONG RT. LANE EDGE = 6 EACH
TRAFFIC DRUMS
30' O.C. NORMAL AT TURNOUTS = 6 EACH

VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
POE DETOUR - STA. 790+00
60' O.C. NORMAL ALONG RT. LANE EDGE = 3 EACH
TRAFFIC DRUMS
30' O.C. NORMAL AT TURNOUTS = 5 EACH

ACCESS AT TURNOUTS BLOCKED BY PCCB TO BE COORDINATED AS-NEEDED WITH PROPERTY OWNERS

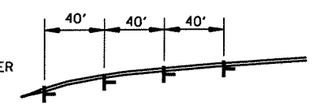
STAGE 2A TRAFFIC ON DETOUR

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE ON DETOUR
CL. DETOUR STA. 3779+48 - STA. 3787+64 = 3264 LIN.FT.

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
30' O.C. ON DETOUR CURVES = 9 EACH

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
RT. OF DETOUR TRAFFIC = 586 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH



DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

MAINTENANCE OF TRAFFIC DETAILS STAGE 2

1/18/2013
R100653.DGN

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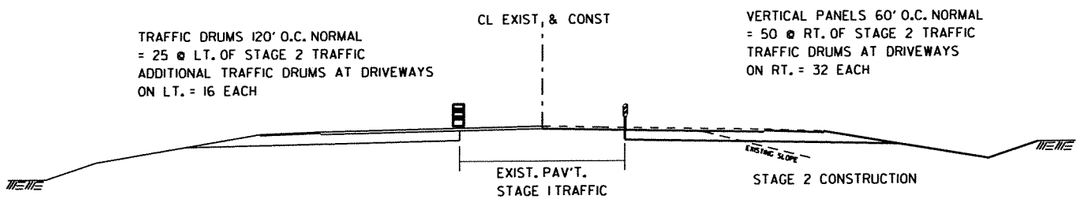
				6	ARK.			
				JOB NO.		100653	66	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 787+57 - STA. 824+00 = 1457.2 LIN.FT.



STA. 790+00 - STA. 820+00

STAGE 2A TRAFFIC ON DETOUR

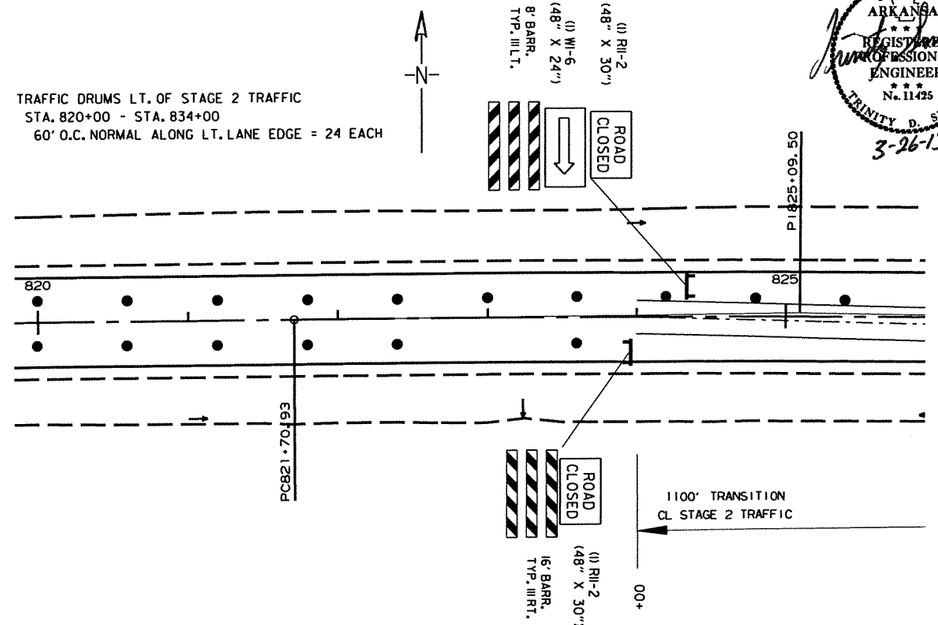
CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
CL. STAGE 2 STA. 824+00 - STA. 835+85.5 = 4764 LIN.FT.
CL. STAGE 2 STA. 837+20.5 - STA. 848+00 = 4340 LIN.FT.

REMOVABLE CPM ON NEW BRIDGE DECK
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 835+85.5 - STA. 837+20.50 = 540 LIN.FT.

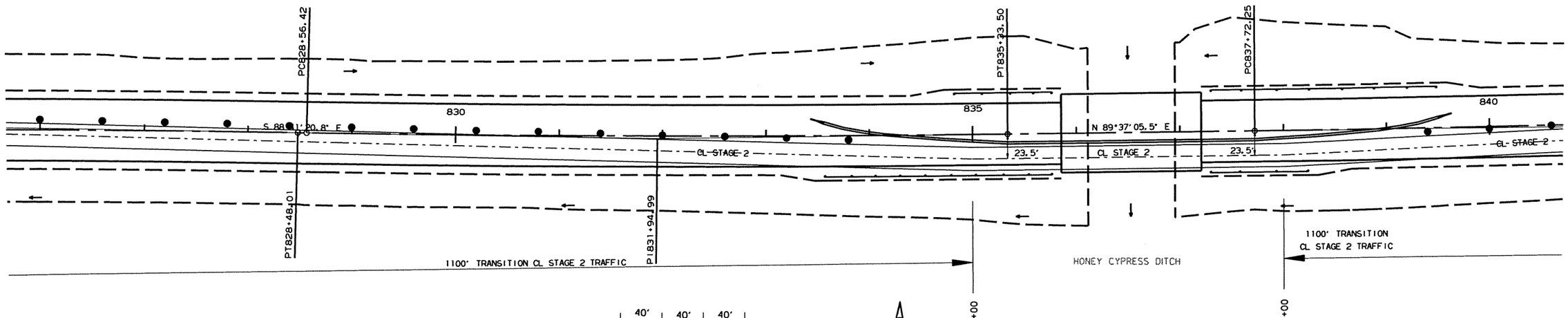
NOTES:
[1] STAGE 2 CONSTRUCTION AT LOCATIONS WHERE BOX CULVERTS ARE REPLACING BRIDGES MAY BE DONE IN ANY SEQUENCE. QUANTITY OF PRECAST CONCRETE BARRIER GIVEN IS SUFFICIENT TO WORK ON THE BRIDGE AT HONEY CYPRESS CREEK PLUS ANY TWO BOX CULVERT SITES AT THE SAME TIME.

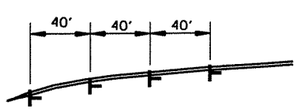
[2] WHEN BOX CULVERT CONSTRUCTION IS FINISHED, SHIFT TRAFFIC OFF DETOUR ALIGNMENT TO CL CONSTRUCTION AND RELOCATE THE PCCB TO ANOTHER LOCATION.

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 820+00 - STA. 834+00
60' O.C. NORMAL ALONG LT. LANE EDGE = 24 EACH



TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
STA. 820+00 - STA. 834+00
60' O.C. NORMAL ALONG RT. LANE EDGE = 7 EACH





DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

-N-

RELOCATE PRECAST CONCRETE BARRIER
RT. OF DETOUR TRAFFIC = 626 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

MAINTENANCE OF TRAFFIC DETAILS STAGE 2

1/18/2013

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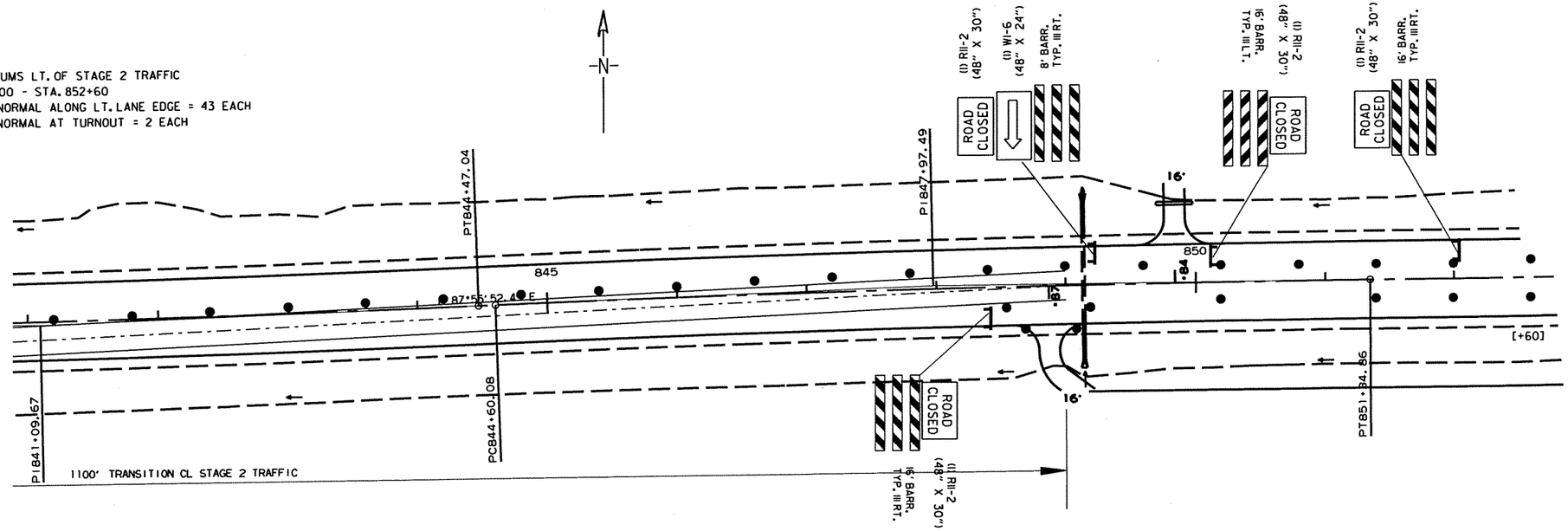
JOB NO.		100653	67	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 839+00 - STA. 852+60
60' O.C. NORMAL ALONG LT. LANE EDGE = 43 EACH
20' O.C. NORMAL AT TURNOUT = 2 EACH

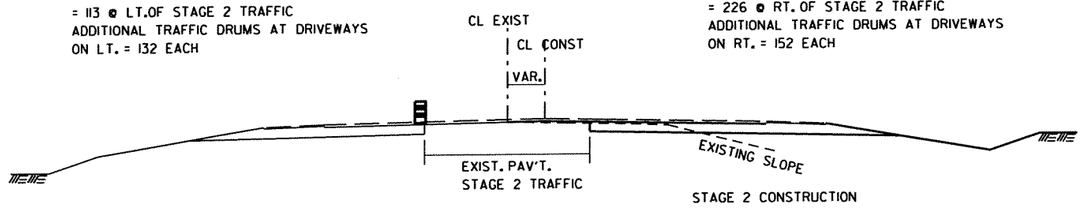


VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
STA. 847+00 - STA. 852+60
60' O.C. NORMAL ALONG RT. LANE EDGE = 5 EACH
TRAFFIC DRUMS
20' O.C. NORMAL AT TURNOUT = 4 EACH

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 848+00 - STA. 991+46 = 57384 LIN.FT.

TRAFFIC DRUMS 120' O.C. NORMAL
= 113 @ LT. OF STAGE 2 TRAFFIC
ADDITIONAL TRAFFIC DRUMS AT DRIVEWAYS
ON LT. = 132 EACH

TRAFFIC DRUMS 60' O.C. NORMAL
= 226 @ RT. OF STAGE 2 TRAFFIC
ADDITIONAL TRAFFIC DRUMS AT DRIVEWAYS
ON RT. = 152 EACH



TRAFFIC DRUMS STA. 852+60 - STA. 988+20

1/18/2013

R100653.DGN

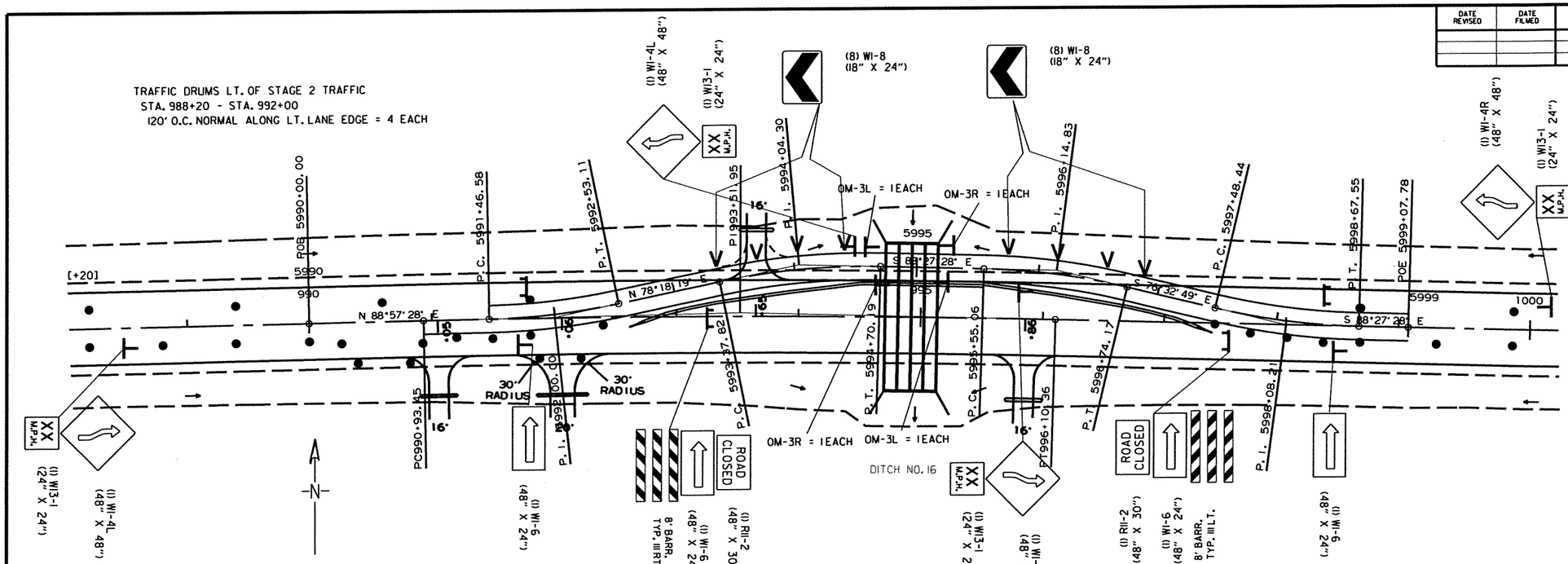
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

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.		100653	68	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-26-13

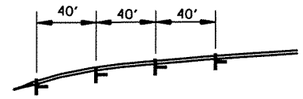
TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 988+20 - STA. 992+00
120' O.C. NORMAL ALONG LT. LANE EDGE = 4 EACH



VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
STA. 988+20 - STA. 991+00
60' O.C. NORMAL ALONG RT. LANE EDGE = 4 EACH
TRAFFIC DRUMS
20' O.C. NORMAL AT TURNOUT = 4 EACH

TRAFFIC DRUMS LT. OF STAGE 2 TRAFFIC
STA. 998+00 - STA. 1005+00
120' O.C. NORMAL ALONG LT. LANE EDGE = 5 EACH
30' O.C. NORMAL AT TURNOUT = 2 EACH

VERTICAL PANELS RT. OF STAGE 2 TRAFFIC
STA. 998+00 - STA. 1005+00
60' O.C. NORMAL ALONG RT. LANE EDGE = 10 EACH
TRAFFIC DRUMS
30' O.C. NORMAL AT TURNOUTS = 18 EACH



DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
RT. OF DETOUR TRAFFIC = 486 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

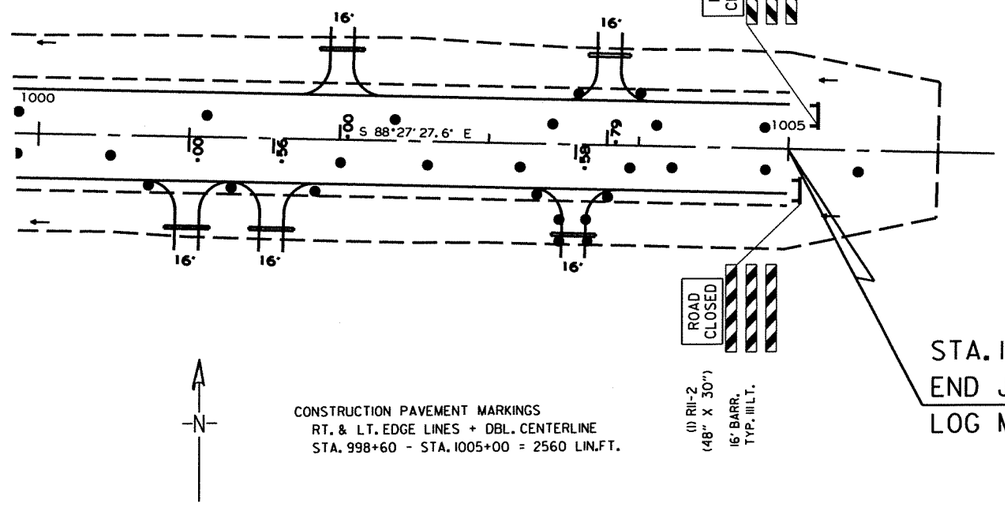
OM-3R = 4 EACH
OM-3L = 4 EACH

ACCESS AT TURNOUTS BLOCKED BY PCCB
TO BE COORDINATED AS-NEEDED
WITH PROPERTY OWNERS

STAGE 2A TRAFFIC ON DETOUR

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE ON DETOUR
CL.DETOUR STA. 5991+46 - STA. 5998+68 = 2888 LIN.FT.

TRAFFIC DRUMS RT. OF STAGE 2 TRAFFIC
30' O.C. ON DETOUR CURVES 7 RT. TURNOUT = 11 EACH



CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
STA. 998+60 - STA. 1005+00 = 2560 LIN.FT.

STA. 1005+00
END JOB 100653
LOG MILE 33.79

STAGE 2B TRAFFIC ON CL EXIST AFTER
COMPLETION OF BOX CULVERT CONSTRUCTION

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINES + CENTERLINE ON DETOUR
STA. 5991+46 - STA. 5993+15 = 507 LIN.FT.
STA. 5997+00 - STA. 5998+60 = 480 LIN.FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE
CL. CONST STA. 991+46 - STA. 998+60 = 2856 LIN.FT.

NOTES:
[1] STAGE 2 CONSTRUCTION AT LOCATIONS WHERE BOX CULVERTS ARE REPLACING BRIDGES MAY BE DONE IN ANY SEQUENCE. QUANTITY OF PRECAST CONCRETE BARRER GIVEN IS SUFFICIENT TO WORK ON THE BRIDGE AT HONEY CYPRESS CREEK PLUS ANY TWO BOX CULVERT SITES AT THE SAME TIME.

[2] WHEN BOX CULVERT CONSTRUCTION IS FINISHED, SHIFT TRAFFIC OFF DETOUR ALIGNMENT TO CL CONSTRUCTION AND RELOCATE THE PCCB TO ANOTHER LOCATION.

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

1/18/2013

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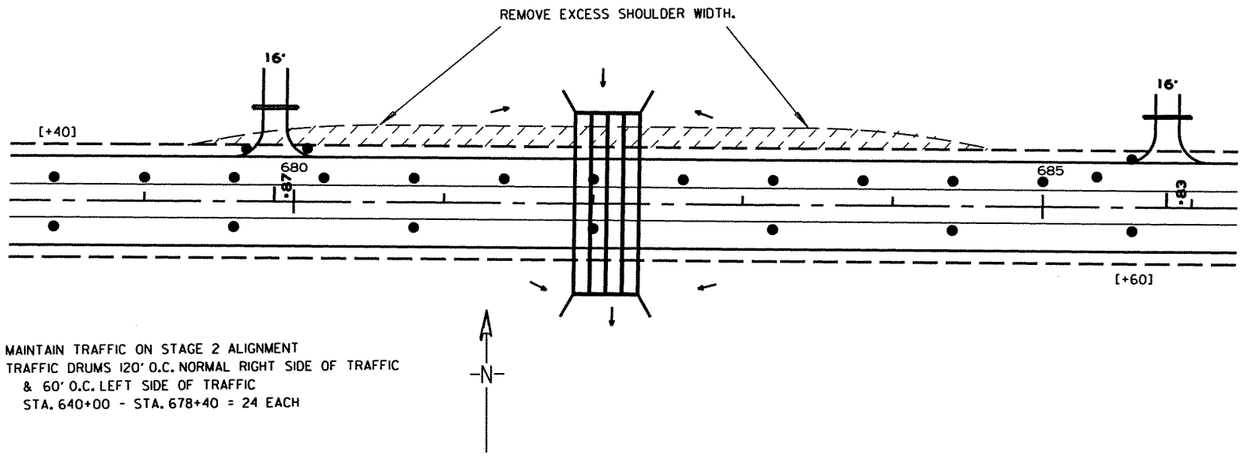
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	69	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

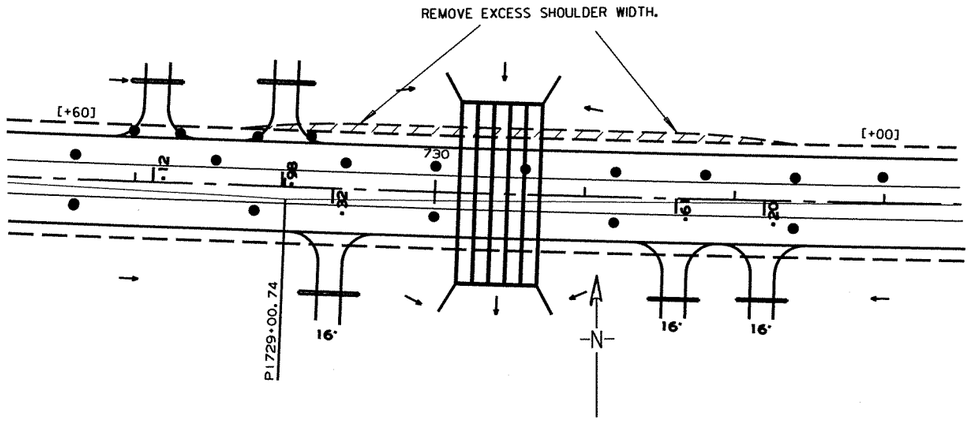
MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL
BOTH SIDES OF TRAFFIC
STA. 640+00 - STA. 678+40 = 64 EACH



MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL RIGHT SIDE OF TRAFFIC
& 60' O.C. LEFT SIDE OF TRAFFIC
STA. 640+00 - STA. 678+40 = 24 EACH

DETAIL STA.679+00 - STA.686+00

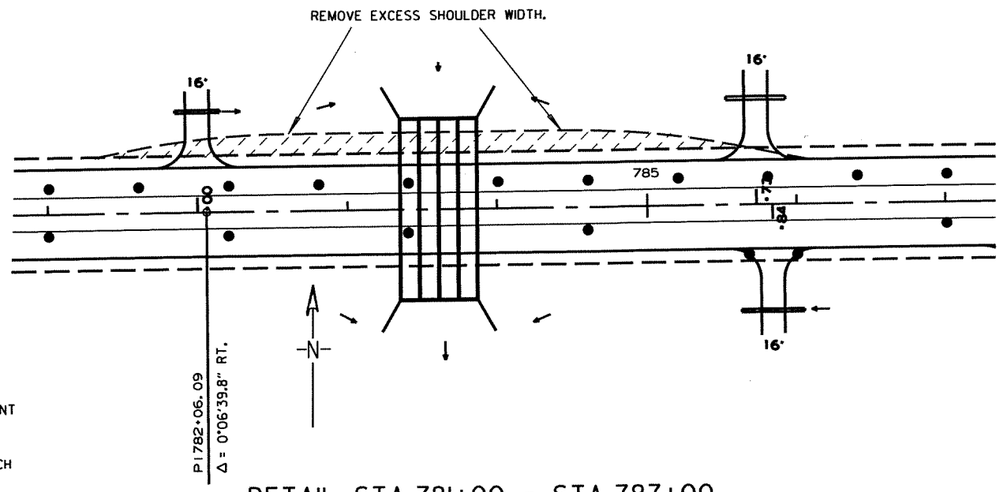
MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL
BOTH SIDES OF TRAFFIC
STA. 685+60 - STA. 727+60 = 70 EACH



DETAIL STA.727+60 - STA.733+00

MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL RIGHT SIDE OF TRAFFIC
& 60' O.C. LEFT SIDE OF TRAFFIC
STA. 727+60 - STA. 733+00 = 18 EACH

MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL
BOTH SIDES OF TRAFFIC
STA. 733+00 - STA. 781+00 = 80 EACH



DETAIL STA.781+00 - STA.787+00

MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL RIGHT SIDE OF TRAFFIC
& 60' O.C. LEFT SIDE OF TRAFFIC
STA. 781+00 - STA. 787+00 = 18 EACH

STAGE 3A SEQUENCE OF CONSTRUCTION
MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
REMOVE EXCESS SHOULDER WIDTH WHERE SHOWN ON PLANS

MAINTENANCE OF TRAFFIC DETAILS STAGE 3A

1/18/2013

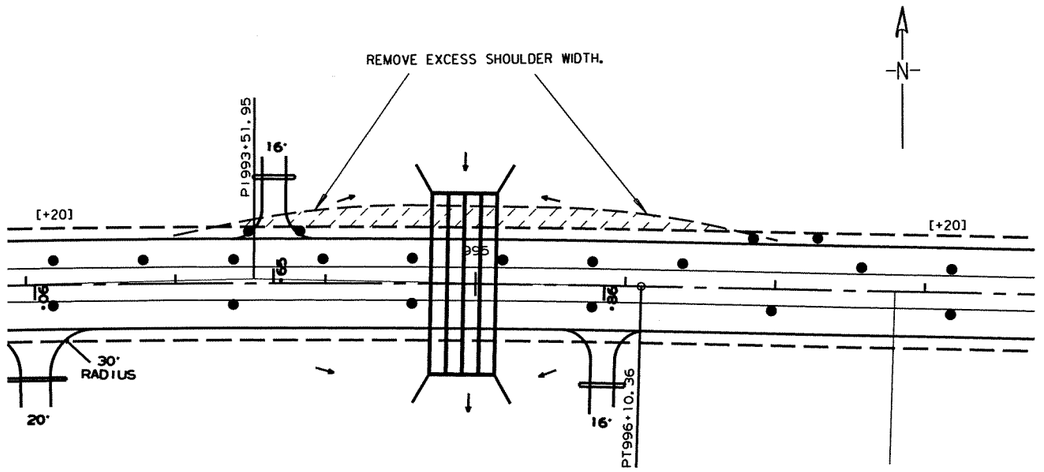
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	70	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL
BOTH SIDES OF TRAFFIC
STA. 787+00 - STA. 991+00 = 340 EACH



MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL
BOTH SIDES OF TRAFFIC
STA. 998+20 - STA. 1005+40 = 12 EACH

DETAIL STA.992+20 - STA.998+20

MAINTAIN TRAFFIC ON STAGE 2 ALIGNMENT
TRAFFIC DRUMS 120' O.C. NORMAL RIGHT SIDE OF TRAFFIC
& 60' O.C. LEFT SIDE OF TRAFFIC
STA. 992+20 - STA. 998+20 = 20 EACH

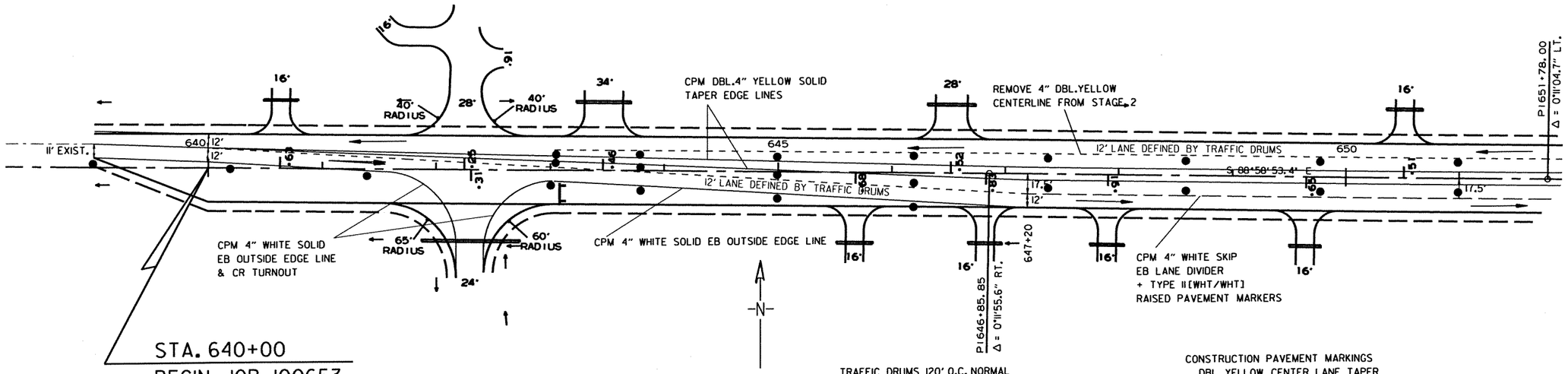
MAINTENANCE OF TRAFFIC DETAILS
STAGE 3A

R100653.DGN 1/18/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	71	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



STA. 640+00
BEGIN JOB 100653
LOG MILE 26.89

TRAFFIC DRUMS 120' O.C. NORMAL
STA. 639+00 - STA. 655+45
SEPARATING EB & WB LANES = 28 EACH

CONSTRUCTION PAVEMENT MARKINGS
DBL. YELLOW CENTER LANE TAPER
STA. 640+00 - STA. 647+20 = 2880 LIN.FT.
WHITE OUTSIDE EDGE LINE EB LANES INCL. TURNOUT FOR CR 565
STA. 640+00 - STA. 647+20 = 847 LIN.FT.
YELLOW CONTINUOUS LEFT TURN LANE, WHITE RT LANE SKIPLINE, AND LT. & RT. WHITE OUTSIDE EDGE LINES
STA. 647+20 - STA. 655+45 = 3919 LIN.FT.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINE + DBL. CENTERLINE ON ACHM THROUGH STAGE 2 TRANSITION AT BRIDGE
STA. 824+00 - STA. 849+00 = 7128 LIN.FT.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. EDGE LINE + DBL. CENTERLINE FROM STAGE 2 TRAFFIC
STA. 640+00 - STA. 655+45 = 4635 LIN.FT.

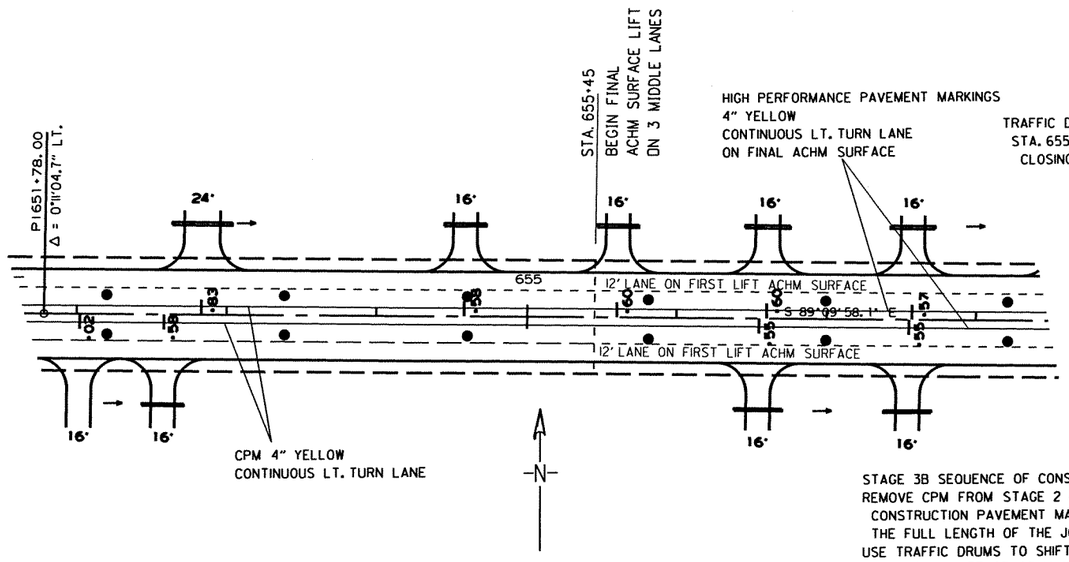
CONSTRUCTION PAVEMENT MARKINGS
OUTSIDE EDGE LINES ENTIRE JOB
STA. 639+00 - STA. 1006+00 = 73400 LIN.FT.

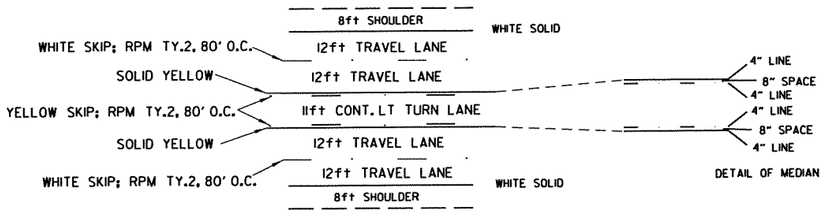
PERMANENT STRIPING ON FINAL ACHM SURFACE
STA. 655+45 - STA. 989+55
THERMOPLASTIC PAVEMENT MARKINGS
CONTINUOUS LT. TURN LANE = 83218 LIN. FT. 4" YELLOW

HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS
CONTINUOUS LT. TURN LANE ON BRIDGE DECK = 338 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS
TYPE II (YEL/YEL) 80' O.C. ON CONT. LT. TURN LN. = 834 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 655+45 - STA. 989+55
RT. & LT. EDGE LINES ON SURFACE FROM STAGE 2 = 66820 LIN.FT.





5 LANE STRIPING
OPEN SHOULDER
CONTINUOUS LT. TURN LANE
LINE WIDTHS 4"

STAGE 3B SEQUENCE OF CONSTRUCTION
REMOVE CPM FROM STAGE 2 AS-NEEDED AND PLACE CONSTRUCTION PAVEMENT MARKINGS OUTSIDE EDGE LINES THE FULL LENGTH OF THE JOB
USE TRAFFIC DRUMS TO SHIFT TRAFFIC TO OUTSIDE LANES BOTH DIRECTIONS
PLACE FINAL LIFT OF ACHM SURFACE ON THREE MIDDLE LANES
STA. 655+45 - STA. 989+55
PLACE PERMANENT PAVEMENT MARKINGS FOR CONTINUOUS LT. TURN LANE ON FINAL SURFACE LIFT

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3B

1/18/2013
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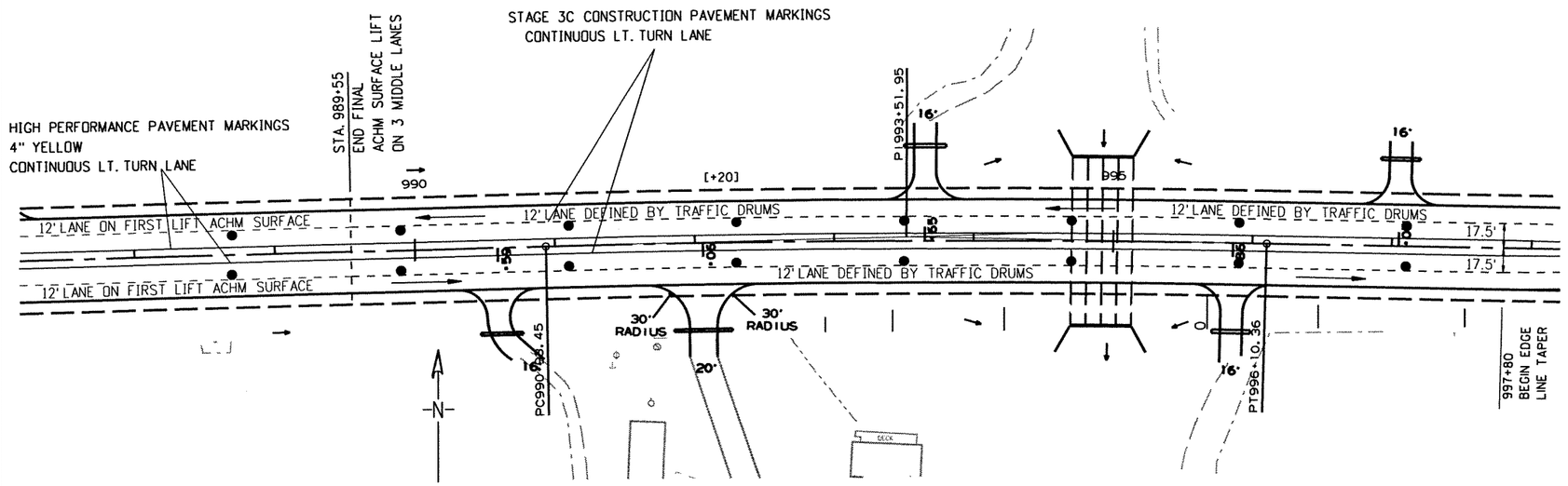
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	72	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

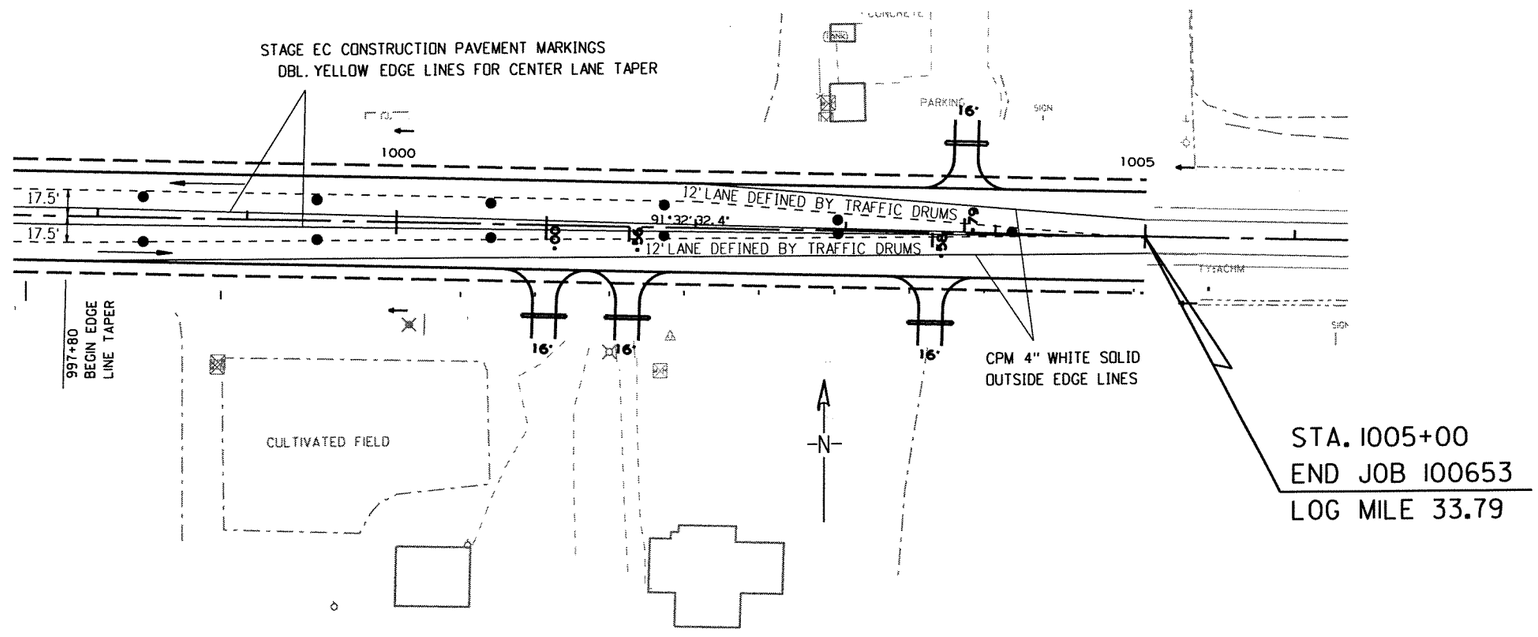


TRAFFIC DRUMS 120' O.C. NORMAL
STA. 989+55 - STA. 1005+00
SEPARATING EB & WB LANES = 25 EACH

STAGE 3B
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL. CENTERLINE FROM STAGE 2 TRAFFIC
STA. 989+55 - STA. 1005+00 = 6180 LIN.FT.

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
STA. 989+55 - STA. 1005+00
LT. & RT. OUTSIDE EDGE LINES = 3090 LIN.FT.

STAGE 3C
CONSTRUCTION PAVEMENT MARKINGS
STA. 989+55 - STA. 1005+00
CONT. LT TURN LANE & CENTER LANE TAPER = 4943 LIN.FT.



STAGE 3C SEQUENCE OF CONSTRUCTION
REMOVE REMAINING CPM FROM STAGE 2 ALIGNMENT
PLACE CONSTRUCTION PAVEMENT MARKINGS ON TRANSITION
FROM 5 LANES BACK TO 2 LANES STA. 989+55 - STA. 1005+00

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3C

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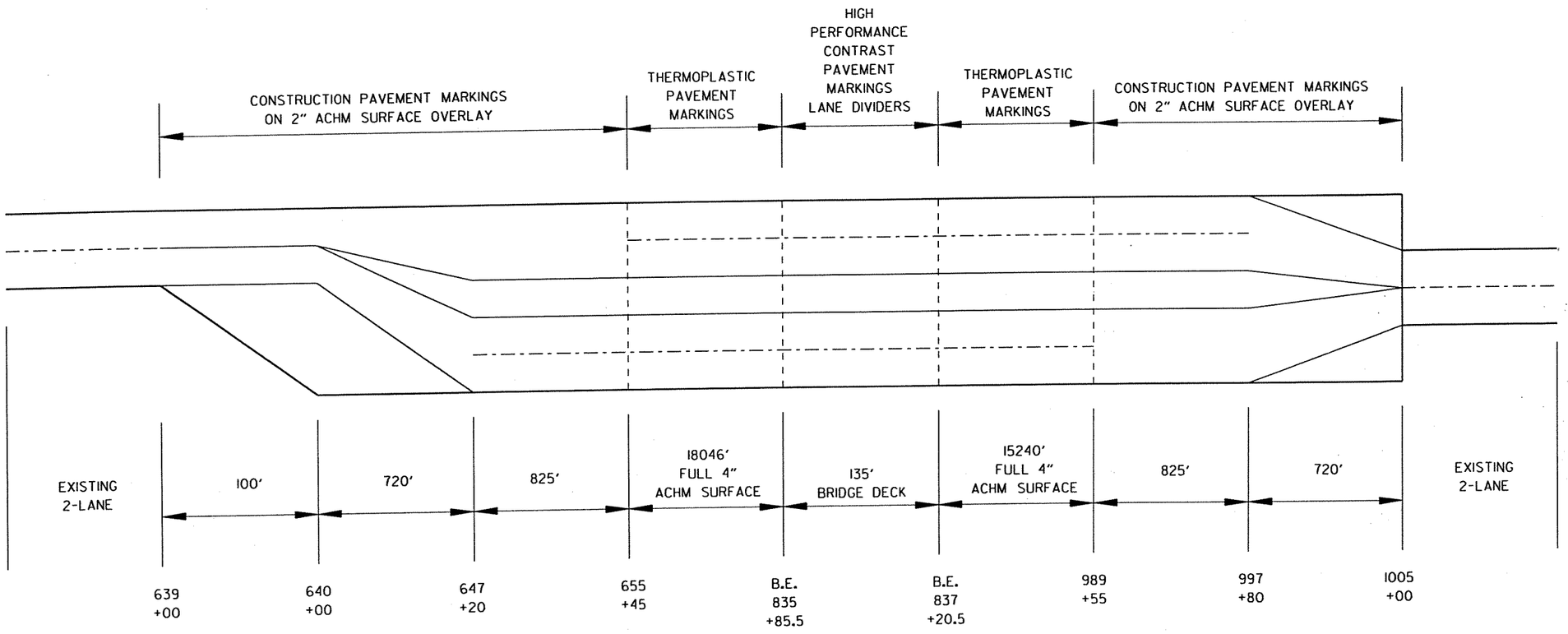
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	73	335

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



SCHEMATIC OF FINAL STRIPING

NOT TO SCALE

TRAFFIC DRUMS 120' O.C. NORMAL
ENTIRE LENGTH OF JOB
CLOSING OUTSIDE LANES = 584 EACH

PERMANENT STRIPING OUTSIDE LANES
STA. 655+45 - STA. 989+55

THERMOPLASTIC PAVEMENT MARKINGS
LT & RT LANES SKIP LINES ON ACHM = 16643 LIN.FT. 4" WHITE
LT & RT LANES OUTSIDE EDGE LINES = 66820 LIN.FT. 4" WHITE

HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
LT & RT LANES SKIP LINES ON BRIDGE DECK STA. 835+85.5 - STA. 837+20.5 = 68 LIN.FT. (WHITE)

RAISED PAVEMENT MARKERS
TYPE II (WHITE/WHITE) 80' O.C. ON SKIP LANE DIVIDERS BOTH DIRECTIONS = 835 EACH

END OF JOB SEQUENCE OF CONSTRUCTION
SHIFT TRAFFIC TO INSIDE LANES
PLACE FINAL SURFACE ON OUTSIDE LANES & SHOULDERS
STA. 655+45 - STA. 989+55
PLACE PERMANENT PAVEMENT MARKINGS OUTSIDE EDGE LINES AND SKIP LANE DIVIDERS ON FINAL SURFACE

PERMANENT PAVEMENT MARKING DETAILS

1/18/2013

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	74	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CONSTRUCTION PAVEMENT MARKINGS

DESCRIPTION	STAGES					END OF JOB	MAXIMUM NUMBER REQUIRED	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
	STAGE 1	STAGE 2	STAGE 3A	STAGE 3B	STAGE 3C					
	SQ. FT.-LIN.FT.-EACH							LIN.FT.		
CONSTRUCTION PAVEMENT MARKINGS	146000	296162		147866	8033		598061	598061		
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		4875		11763	6180		22818		22818	
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		540					540			540
TOTALS:								598061	22818	540

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGES					END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	VERTICAL PANELS	BARRICADES (TYPE III)		FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	RELOCATING PRECAST CONCRETE BARRIER
			STAGE 1	STAGE 2	STAGE 3A	STAGE 3B	STAGE 3C							RIGHT	LEFT		
			SQ. FT.-LIN.FT.-EACH							NO.	SQ. FT.	EACH		EACH		LIN.FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2		2	32.0						
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2		2	32.0						
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2		2	32.0						
W20-1	ROAD WORK AHEAD	48"x48"	15	15	15	15	15	15		15	240.0						
G20-2	END ROAD WORK	48"x24"	17	17	17	17	17	17		17	136.0						
G20-1	ROAD WORK NEXT 7 MILES	60"x24"	2	2	2	2	2	2		2	20.0						
RSP-1	SHOULDER CLOSED	48"x30"	16	16	16	16	16	16		16	160.0						
W1-4R	REVERSE CURVE RT.	48"x48"		4						4	64.0						
W1-4L	REVERSE CURVE LT.	48"x48"		4						4	64.0						
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		8						8	32.0						
W1-6	LARGE ARROW	48"x24"		10						10	80.0						
W1-8	CHEVRONS	18"x24"		32						32	96.0						
R4-1	DO NOT PASS	24"x30"	28	28	28	28	28			28	140.0						
OM-3R	OBJECT MARKER	12"x36"	4	16						16	48.0						
OM-3L	OBJECT MARKER	12"x36"	4	16						16	48.0						
R11-2	ROAD CLOSED	48"x30"	18	22						22	220.0						
	TRAFFIC DRUMS		1281	1382	646	584	25	584	1382			1382					
	VERTICAL PANELS		176	176					176				176				
	TYPE III BARRICADE-RT. (8')			3					3					24			
	TYPE III BARRICADE-LT. (8')			3					3						24		
	TYPE III BARRICADE-RT. (16')		7	7					7					112			
	TYPE III BARRICADE-LT. (16')		6	6					6						96		
	TYPE III BARRICADE-RT. (24')			2					2					48			
	TYPE III BARRICADE-LT. (24')			1					1						24		
	TYPE III BARRICADE-RT. (32')		2						2					64			
	TYPE III BARRICADE-LT. (32')		3						3						96		
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		626	1172					1798							1798	
	RELOCATING PRECAST CONCRETE BARRIER			1698					1698								1698
TOTALS:											1444.0	1382	176	248	240	1798	1698

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

PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGES				END OF JOB	MAXIMUM NUMBER REQUIRED	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKINGS			HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS (4")		REFLECTORIZED PAINT PAVEMENT MARKINGS (10")
	STAGE 1	STAGE 2	STAGE 3A	STAGE 3B			TYPE II (WHT/WHT)	TYPE II (YEL/YEL)	(4") WHITE	(4") YELLOW	(8") WHITE	WHITE	YELLOW	WHITE
	SQ. FT.-LIN.FT.-EACH						EACH		LIN.FT.					
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/WHITE)					835	835	835							
RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW)				834		834		834						
THERMOPLASTIC PAVEMENT MARKINGS-WHITE(4")					73760	73760			73760					
THERMOPLASTIC PAVEMENT MARKINGS-YELLOW(4")				83336		83336				83336				
THERMOPLASTIC PAVEMENT MARKINGS-WHITE(8")					141	141					141			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS-WHITE(4")					68	68						68		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS-YELLOW(4")				338		338							338	
REFLECTORIZED PAINT PAVEMENT MARKINGS-WHITE(10")					75	75								75
TOTALS:							835	834	73760	83336	141	68	338	75

1/16/2013

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SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
641+00	35	53	23.10	90	18	52.80	5' RT.	0-5	20	4	A-4(0)	BROWN
641+00	35	53	23.10	90	18	52.70	16' RT.	0-5	17	1	A-4(0)	BROWN
641+00	35	53	23.00	90	18	52.70	30' RT.	0-5	21	3	A-4(0)	BROWN
649+00	35	53	23.00	90	18	45.20	5' LT.	0-5	18	4	A-4(0)	GRAY
649+00	35	53	23.20	90	18	43.00	15' LT.	0-5	ND	NP	A-4(0)	GRAY
649+00	35	53	23.30	90	18	43.00	32' LT.	0-5	ND	NP	A-4(0)	GRAY
649+00	35	53	23.30	90	18	43.00	32' LT.	0-5	22	4	A-4(0)	GRAY
657+00	35	53	22.80	90	18	40.80	5' RT.	0-5	22	4	A-4(1)	BROWN
657+00	35	53	22.60	90	18	33.30	15' RT.	0-5	19	2	A-4(0)	BROWN
657+00	35	53	22.50	90	18	33.30	30' RT.	0-5	20	4	A-4(0)	BROWN
665+00	35	53	22.50	90	18	25.50	5' LT.	0-5	ND	NP	A-4(0)	BROWN
665+00	35	53	22.70	90	18	23.70	15' LT.	0-5	ND	NP	A-2-4(0)	BROWN
665+00	35	53	22.80	90	18	23.70	37' LT.	0-5	19	2	A-4(0)	BROWN
673+00	35	53	22.10	90	18	15.70	5' RT.	0-5	20	4	A-4(0)	GR/BR
673+00	35	53	22.10	90	18	13.80	17' RT.	0-5	16	1	A-4(0)	GR/BR
673+00	35	53	22.00	90	18	13.80	32' RT.	0-5	23	8	A-4(2)	GRAY
680+00	35	53	22.20	90	18	5.50	5' LT.	0-5	ND	NP	A-4(0)	BROWN
680+00	35	53	22.20	90	18	5.20	15' LT.	0-5	18	2	A-4(0)	BROWN
680+00	35	53	2.30	90	18	5.20	32' LT.	0-5	ND	NP	A-4(0)	BROWN
689+00	35	53	21.80	90	18	3.60	5' RT.	0-5	21	5	A-4(1)	GRAY
689+00	35	53	21.60	90	17	54.30	16' RT.	0-5	18	2	A-4(0)	BROWN
689+00	35	53	21.40	90	17	54.30	33' RT.	0-5	20	5	A-4(0)	BROWN
697+00	35	53	21.60	90	17	45.40	5' LT.	0-5	17	2	A-4(0)	BR/GR
697+00	35	53	21.60	90	17	44.50	15' LT.	0-5	16	1	A-4(0)	BR/GR
697+00	35	53	21.80	90	17	44.50	35' LT.	0-5	18	4	A-4(0)	BR/GR
705+00	35	53	21.10	90	17	35.70	5' RT.	0-5	ND	NP	A-4(0)	BROWN
705+00	35	53	21.10	90	17	34.80	15' RT.	0-5	17	1	A-4(0)	BROWN
705+00	35	53	21.00	90	17	34.80	32' RT.	0-5	21	3	A-4(0)	BROWN
713+00	35	53	20.90	90	17	25.70	5' LT.	0-5	17	2	A-4(0)	BROWN
713+00	35	53	21.10	90	17	25.10	15' LT.	0-5	17	3	A-4(0)	BROWN
713+00	35	53	21.20	90	17	25.10	30' LT.	0-5	21	4	A-4(0)	BR/GR
721+00	35	53	20.20	90	17	15.30	33' RT.	0-5	19	2	A-4(0)	BROWN
729+00	35	53	19.70	90	17	6.10	5' LT.	0-5	18	1	A-4(0)	BROWN
729+00	35	53	19.90	90	17	5.60	15' LT.	0-5	18	2	A-4(0)	BROWN
729+00	35	53	20.00	90	17	5.70	31' LT.	0-5	20	3	A-2-4(0)	BROWN
737+00	35	53	19.40	90	16	59.20	5' RT.	0-5	ND	NP	A-4(0)	BROWN
737+00	35	53	19.30	90	16	55.90	16' RT.	0-5	ND	NP	A-4(0)	BROWN
737+00	35	53	19.30	90	16	55.90	32' RT.	0-5	ND	NP	A-4(0)	BROWN
745+00	35	53	19.30	90	16	47.40	5' LT.	0-5	ND	NP	A-4(0)	BROWN
745+00	35	53	19.40	90	16	46.20	16' LT.	0-5	ND	NP	A-4(0)	BROWN
745+00	35	53	19.50	90	16	46.20	33' LT.	0-5	ND	NP	A-2-4(0)	BROWN
753+00	35	53	18.80	90	16	37.00	5' RT.	0-5	16	3	A-4(0)	BROWN
753+00	35	53	18.80	90	16	36.60	17' RT.	0-5	17	4	A-4(0)	BROWN
753+00	35	53	18.70	90	16	36.60	33' RT.	0-5	ND	NP	A-4(0)	BROWN
761+00	35	53	18.80	90	16	30.30	5' LT.	0-5	ND	NP	A-4(0)	BROWN
761+00	35	53	18.90	90	16	26.90	14' LT.	0-5	18	2	A-4(0)	BROWN
761+00	35	53	19.10	90	16	26.90	37' LT.	0-5	ND	NP	A-4(0)	BROWN
769+00	35	53	18.50	90	16	18.00	5' RT.	0-5	18	2	A-4(0)	BROWN
769+00	35	53	18.50	90	16	17.30	17' RT.	0-5	16	1	A-4(0)	BROWN
769+00	35	53	18.40	90	16	17.20	32' RT.	0-5	19	4	A-4(0)	BROWN
777+00	35	53	18.50	90	16	8.70	5' LT.	0-5	ND	NP	A-4(0)	BROWN
777+00	35	53	18.80	90	16	7.50	16' LT.	0-5	20	3	A-4(0)	BROWN
777+00	35	53	18.90	90	16	7.50	32' LT.	0-5	18	4	A-4(0)	BROWN
785+00	35	53	18.40	90	15	59.50	5' RT.	0-5	19	3	A-4(0)	BROWN
785+00	35	53	18.40	90	15	57.90	16' RT.	0-5	ND	NP	A-2-4(0)	BROWN
785+00	35	53	18.20	90	15	57.90	36' RT.	0-5	21	3	A-4(0)	BROWN
793+00	35	53	18.30	90	15	49.40	5' LT.	0-5	17	1	A-4(0)	BROWN
793+00	35	53	18.60	90	15	48.30	15' LT.	0-5	ND	NP	A-4(0)	BROWN
793+00	35	53	18.80	90	15	48.30	31' LT.	0-5	21	3	A-2-4(0)	BROWN
801+00	35	53	18.30	90	15	39.90	6' RT.	0-5	22	5	A-4(1)	GRAY
801+00	35	53	18.10	90	15	38.60	16' RT.	0-5	ND	NP	A-4(0)	BROWN
801+00	35	53	18.10	90	15	38.60	35' RT.	0-5	ND	NP	A-4(0)	BROWN
809+00	35	53	18.30	90	15	29.70	10' LT.	0-5	17	4	A-4(0)	BROWN
809+00	35	53	18.60	90	15	29.50	21' LT.	0-5	16	2	A-4(0)	BROWN
809+00	35	53	18.60	90	15	29.50	38' LT.	0-5	ND	NP	A-4(0)	BROWN
809+00	35	53	18.60	90	15	29.50	38' LT.	0-5	21	3	A-4(0)	BROWN
817+00	35	53	18.00	90	15	21.90	5' RT.	0-5	26	4	A-2-4(0)	GRAY
817+00	35	53	18.00	90	15	19.90	18' RT.	0-5	ND	NP	A-2-4(0)	GRAY
817+00	35	53	18.00	90	15	19.90	33' RT.	0-5	ND	NP	A-2-4(0)	BROWN
825+00	35	53	18.10	90	15	10.10	5' LT.	0-5	23	9	A-2-4(0)	BROWN
825+00	35	53	18.30	90	15	10.10	15' LT.	0-5	19	3	A-2-4(0)	GR/BR
825+00	35	53	18.30	90	15	10.10	30' LT.	0-5	ND	NP	A-2-4(0)	BROWN
833+00	35	53	18.20	90	15	0.50	5' LT.	0-5	ND	NP	A-2-4(0)	GRAY
833+00	35	53	18.20	90	14	60.00	15' LT.	0-5	ND	NP	A-4(0)	GR/BR
833+00	35	53	18.30	90	14	59.90	30' LT.	0-5	ND	NP	A-2-4(0)	BROWN
841+00	35	53	17.80	90	14	50.40	5' RT.	0-5	25	9	A-4(0)	GRAY
841+00	35	53	17.80	90	14	50.30	16' RT.	0-5	ND	NP	A-2-4(0)	GRAY
841+00	35	53	17.70	90	14	50.30	35' RT.	0-5	25	4	A-4(0)	BROWN
841+00	35	53	17.70	90	14	50.30	35' RT.	0-5	26	10	A-4(1)	BROWN
849+00	35	53	17.40	90	14	40.00	7' LT.	0-5	28	12	A-6(2)	BROWN
849+00	35	53	18.00	90	14	39.90	15' LT.	0-5	29	13	A-6(1)	BROWN
849+00	35	53	18.00	90	14	39.90	30' LT.	0-5	28	13	A-6(3)	BROWN
857+00	35	53	17.70	90	14	32.40	5' RT.	0-5	30	15	A-6(3)	GRAY
857+00	35	53	17.60	90	14	30.20	15' RT.	0-5	28	16	A-6(3)	GRAY
857+00	35	53	17.60	90	14	30.10	32' RT.	0-5	37	22	A-6(10)	BROWN
865+00	35	53	17.80	90	14	20.70	6' LT.	0-5	25	8	A-4(1)	BROWN
865+00	35	53	17.80	90	14	20.40	16' LT.	0-5	ND	NP	A-2-4(0)	BROWN
865+00	35	53	18.00	90	14	20.40	34' LT.	0-5	ND	NP	A-4(0)	BROWN
873+00	35	53	17.40	90	14	15.00	5' RT.	0-5	20	6	A-4(0)	GRAY
873+00	35	53	17.40	90	14	10.70	15' RT.	0-5	20	7	A-4(0)	GRAY
873+00	35	53	17.40	90	14	10.70	34' RT.	0-5	ND	NP	A-2-4(0)	BROWN
881+00	35	53	17.70	90	14	1.70	5' LT.	0-5	21	7	A-4(0)	BROWN
881+00	35	53	17.60	90	14	1.10	15' LT.	0-5	16	3	A-2-4(0)	GR/BR
881+00	35	53	17.70	90	14	1.10	36' LT.	0-5	ND	NP	A-2-4(0)	BROWN
889+00	35	53	17.30	90	13	53.70	5' RT.	0-5	27	12	A-6(2)	GRAY
889+00	35	53	17.20	90	13	51.50	16' RT.	0-5	ND	NP	A-4(0)	GRAY
895+00	35	53	17.20	90	13	44.60	6' LT.	0-5	20	4	A-4(0)	BROWN
895+00	35	53	17.20	90	13	44.10	16' LT.	0-5	ND	NP	A-2-4(0)	BROWN
895+00	35	53	17.30	90	13	44.10	35' LT.	0-5	ND	NP	A-3(1)	BROWN
905+00	35	53	16.30	90	13	32.60	5' RT.	0-5	17	2	A-4(0)	GRAY
905+00	35	53	16.30	90	13	32.10	16' RT.	0-5	ND	NP	A-4(0)	GRAY
905+00	35	53	16.20	90	13	32.10	30' RT.	0-5	ND	NP	A-4(0)	GRAY
913+00	35	53	16.00	90	13	24.60	6' LT.	0-5	ND	NP	A-2-4(0)	BROWN
913+00	35	53	16.10	90	13	22.40	16' LT.	0-5	ND	NP	A-2-4(0)	BROWN
913+00	35	53	16.30	90	13	22.40	36' LT.	0-5	ND	NP	A-3(1)	BROWN
921+00	35	53	15.70	90	13	14.90	5' RT.	0-5	20	4	A-4(0)	BROWN
921+00	35	53	15.70	90	13	12.70	15' RT.	0-5	19	5	A-4(0)	BROWN
921+00	35	53	15.50	90	13	12.70	33' RT.	0-5	ND	NP	A-4(0)	BROWN
929+00	35	53	15.90	90	13	5.10	5' LT.	0-5	ND	NP	A-2-4(0)	GR/BR
929+00	35	53	16.00	90	13	3.10	15' LT.	0-5	23	6	A-4(0)	GR/BR
929+00	35	53	16.20	90	13	3.10	37' LT.	0-5	23	3	A-4(0)	BROWN
929+00	35	53	16.20	90	13	3.10	37' LT.	0-5	25	10	A-4(3)	BROWN
937+00	35	53	15.60	90	12	53.60	5' RT.	0-5	ND	NP	A-4(0)	BROWN
937+00	35	53	15.70	90	12	53.10	16' RT.	0-5	16	2	A-4(0)	BROWN
937+00	35	53	15.50	90	12	53.10	35' RT.	0-5	ND	NP	A-2-4(0)	BROWN
945+00	35	53	16.00	90	12	44.30	6' LT.	0-5	25	11	A-6(4)	BROWN
945+00	35	53	16.00	90	12	43.60	17' LT.	0-5	23	9	A-4(3)	BROWN
945+00	35	53	16.10	90	12	43.60	36' LT.	0-5	21	4	A-4(0)	BROWN
953+00	35	53	15.60	90	12	33.90	5' RT.	0-5	19	6	A-4(1)	BROWN
953+00	35	53	15.70	90	12	33.70	16' RT.	0-5	21	6	A-4(0)	BROWN
953+00	35	53	15.70	90	12	33.60	42' RT.	0-5	ND	NP	A-2-4(0)	BROWN

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

Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
642+00	650+00	HWY. 18	8	8
652+00	653+00	HWY. 18	1	1
656+00	657+00	HWY. 18	1	1
665+00	666+00	HWY. 18	1	1
669+00	671+00	HWY. 18	2	2
673+00	675+00	HWY. 18	2	2
681+00	683+00	HWY. 18	2	2
697+00	699+00	HWY. 18	2	2
700+00	701+00	HWY. 18	1	1
702+00	704+00	HWY. 18	2	2
715+00	716+00	HWY. 18	1	1
722+00	724+00	HWY. 18	2	2
725+00	728+00	HWY. 18	3	3
729+00	731+00	HWY. 18	2	2
737+00	739+00	HWY. 18	2	2
743+00	746+00	HWY. 18	3	3
756+00	777+00	HWY. 18	21	21
778+00	779+00	HWY. 18	1	1
780+00	787+00	HWY. 18	7	7
796+00	802+00	HWY. 18	6	6
835+00	841+00	HWY. 18	6	6
843+00	844+00	HWY. 18	1	1
853+00	854+00	HWY. 18	1	1
866+00	867+00	HWY. 18	1	1
868+00	870+00	HWY. 18	2	2
876+00	877+00	HWY. 18	1	1
885+00	886+00	HWY. 18	1	1
902+00	908+00	HWY. 18	6	6
911+00	915+00	HWY. 18	4	4
919+00	922+00	HWY. 18	3	3
923+00	926+00	HWY. 18	3	3
928+00	929+00	HWY. 18	1	1
933+00	934+00	HWY. 18	1	1
939+00	940+00	HWY. 18	1	1
945+00	947+00	HWY. 18	2	2
952+00	953+00	HWY. 18	1	1
954+00	955+00	HWY. 18	1	1
959+00	960+00	HWY. 18	1	1
965+00	968+00	HWY. 18	3	3
971+00	972+00	HWY. 18	1	1
973+00	975+00	HWY. 18	2	2
977+00	978+00	HWY. 18	1	1
981+00	983+00	HWY. 18	2	2
985+00	987+00	HWY. 18	2	2
992+00	996+00	HWY. 18	4	4
1000+00	1001+00	HWY. 18	1	1
1003+00	1004+00	HWY. 18	1	1
TOTALS:			124	124

(2) QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		75	335
				JOB NO. 100653				

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11435 TIMOTHY D. SMITH
3-26-13

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	76	335

(2) QUANTITIES

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

3-26-13

REMOVAL AND DISPOSAL OF ITEMS (BOX 1 OF 2)

STATION	STATION	LOCATION	WALLS	LUMINAIRE POLE AND FOUNDATION	RISER	ELECTRIC METER AND POLE	FLAG POLE	CONCRETE WALKS	WHEEL	CONCRETE DRIVEWAYS	POSTS	DECORATIVE LIGHT POLE	SIGN FOUNDATIONS	GUARDRAIL	BUILDINGS	APPROACH SLAB AND GUTTERS	SIGNS	PLANTERS
			LIN.FT.	EACH				SQ. YD.	EACH	SQ. YD.		EACH		LIN. FT.		EACH		
641+89		HWY. 18 RT.											1				1	
641+89		HWY. 18 RT.															1	
645+91		HWY. 18 LT.															1	
647+67		HWY. 18 LT.										1						
651+81		HWY. 18 RT.										1						
652+18		HWY. 18 RT.															1	
660+06		HWY. 18 RT.															1	
668+58		HWY. 18 RT.												77				
680+94	681+72	HWY. 18 LT.												76				
680+95	681+72	HWY. 18 RT.														1		
681+43	681+72	HWY. 18														1		
682+47	682+82	HWY. 18												77				
682+47	683+24	HWY. 18 LT.												77				
682+47	683+24	HWY. 18 RT.								25								
686+67		HWY. 18 LT.															1	
724+31		HWY. 18 RT.												77				
729+29	730+06	HWY. 18 LT.												77				
729+30	730+06	HWY. 18 RT.														1		
729+70	730+06	HWY. 18														1		
730+81	731+16	HWY. 18												78				
730+81	731+59	HWY. 18 LT.												78				
730+81	731+59	HWY. 18 RT.																
730+97		HWY. 18 LT.				1												
743+98		HWY. 18 RT.										1						
744+59		HWY. 18 RT.										1						
756+61		HWY. 18 RT.															1	
757+74		HWY. 18 RT.		1														
757+85		HWY. 18 RT.															1	
757+89		HWY. 18 RT.															1	
757+89		HWY. 18 RT.											1					
758+34		HWY. 18 RT.															1	
762+05		HWY. 18 LT.										1						
762+20		HWY. 18 LT.															1	
762+20		HWY. 18 LT.											1					
762+28		HWY. 18 LT.					1										1	
762+42		HWY. 18 RT.																
762+42		HWY. 18 RT.											1				1	
762+57		HWY. 18 LT.																
762+57		HWY. 18 LT.											1					
763+72		HWY. 18 LT.													1			
773+03		HWY. 18 RT.								75								
774+03		HWY. 18 RT.								94								
776+78		HWY. 18 LT.			1													
779+10	779+90	HWY. 18 RT.						30						78				
782+39	783+16	HWY. 18 RT.												75				
782+42	783+16	HWY. 18 LT.														1		
782+81	783+16	HWY. 18														1		
784+06	784+42	HWY. 18												76				
784+06	784+82	HWY. 18 LT.												77				
784+06	784+83	HWY. 18 RT.																
788+35	788+56	HWY. 18 RT.						5										
788+70		HWY. 18 RT.					1											
798+40		HWY. 18 RT.									1							
799+80		HWY. 18 RT.									1							
805+31		HWY. 18 RT.		1														
805+50		HWY. 18 RT.								129								
806+97		HWY. 18 RT.								125								
807+17		HWY. 18 RT.		1													1	
807+35		HWY. 18 RT.																
807+75		HWY. 18 RT.				1												
808+80		HWY. 18 RT.											1				1	
809+44		HWY. 18 LT.																
809+44		HWY. 18 LT.											1					
810+57		HWY. 18 LT.											1					
835+13	835+91	HWY. 18 RT.												78				
835+51	835+91	HWY. 18 LT.												41				
837+15	837+93	HWY. 18 RT.												78				
837+15	837+93	HWY. 18 LT.												78				
849+46		HWY. 18 RT.				1												
860+14		HWY. 18 LT.								92								
875+54		HWY. 18 RT.																1
875+91		HWY. 18 RT.	5															
876+17		HWY. 18 RT.	8														1	
881+18		HWY. 18 RT.											1					
888+92		HWY. 18 RT.															1	
904+42		HWY. 18 RT.																
907+84	908+37	HWY. 18 RT.	53														1	
924+44		HWY. 18 LT.															1	
924+63		HWY. 18 LT.																
924+70		HWY. 18 RT.							1									
924+87		HWY. 18 RT.							1									
926+82		HWY. 18 LT.								99								
SUBTOTALS:			66	3	1	3	2	35	2	639	2	5	9	1198	1	6	19	1

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	77	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-24-13

REMOVAL AND DISPOSAL OF ITEMS (BOX 2 OF 2)

STATION	STATION	LOCATION	WALLS	LUMINAIRE POLE AND FOUNDATION	RISER	ELECTRIC METER AND POLE	FLAG POLE	CONCRETE WALKS	WHEEL	CONCRETE DRIVEWAYS	POSTS	DECORATIVE LIGHT POLE	SIGN FOUNDATIONS	GUARDRAIL	BUILDINGS	APPROACH SLAB AND GUTTERS	SIGNS	PLANTERS
			LIN.FT.	EACH				SQ. YD.	EACH	SQ. YD.	EACH			LIN. FT.		EACH		
927+50		HWY. 18 LT.								50							1	
932+16		HWY. 18 LT.																
938+43		HWY. 18 RT.		1														
940+94		HWY. 18 RT.				1												
945+91		HWY. 18 RT.								33								
953+61		HWY. 18 RT.									1						1	
970+14		HWY. 18 RT.													1			
972+46		HWY. 18 RT.													1			
973+19		HWY. 18 RT.															1	
976+00		HWY. 18 RT.																1
976+54		HWY. 18 RT.															1	
978+36		HWY. 18 RT.													1			
979+40		HWY. 18 RT.													1			
979+79		HWY. 18 RT.															1	
980+54		HWY. 18 RT.															1	
986+51		HWY. 18 LT.															1	
986+87		HWY. 18 LT.												78				
993+90	994+68	HWY. 18 RT.												77				
933+91	994+68	HWY. 18 LT.												65				
995+18	995+83	HWY. 18 RT.												78				
995+18	995+95	HWY. 18 LT.															1	
1000+20		HWY. 18 RT.											1					
1000+20		HWY. 18 RT.													1			
1002+98		HWY. 18 LT.															1	
1004+29		HWY. 18 LT.																
SUBTOTALS - BOX 1:			66	3	1	3	2	35	2	639	2	5	9	1198	1	6	19	1
TOTALS:			66	4	1	4	2	35	2	722	3	5	10	1496	6	6	28	2

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
725+72		HWY. 18 LT.	18
727+18		HWY. 18 LT.	23
738+44	738+52	HWY. 18 LT.	8
738+63	738+71	HWY. 18 LT.	8
786+92		HWY. 18 RT.	22
789+53		HWY. 18 RT.	14
804+94	805+79	HWY. 18 RT.	128
806+64	807+24	HWY. 18 RT.	86
1002+81		HWY. 18 LT.	6
TOTAL:			313

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
809+84	HWY. 119 LT. OF MAIN LANES	B	31
TOTAL:			31

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN.FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			2000	10
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			2000	10

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
			LIN.FT.	EACH		
834+82.35	835+76.10	LT. SIDE	75	1		1
833+57.35	835+76.10	RT. SIDE	150	1	1	
837+29.90	839+48.65	LT. SIDE	150	1	1	
837+29.90	838+23.65	RT. SIDE	75	1		1
TOTALS:			450	4	2	2

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	53	45	4
TOTALS:	53	45	4

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	** GEOGRID REINFORCEMENT	* SOIL STABILIZATION ADDITIVE	* SOIL STABILIZATION
			CU. YD.			SQ. YD.	TON	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	34403	61929	2556	4391		
ENTIRE	PROJECT	STAGE 2-MAIN LANES	39071	48824	2921	4415		
ENTIRE	PROJECT	STAGE 3-MAIN LANES	982					
ENTIRE	PROJECT	APPROACHES		12205				
682+09		CHANNEL CHANGE	1600					
730+43		CHANNEL CHANGE	2200					
783+61		CHANNEL CHANGE	2800					
835+76.50	837+29.50	BRIDGE EXCAVATION	446					
994+92		CHANNEL CHANGE	2800					
* ENTIRE	PROJECT	TO BE USED IF AND WHERE					1500	4500
		DIRECTED BY THE ENGINEER						
TOTALS:			84302	122958	5477	8806	1500	4500

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
** QUANTITY ESTIMATED FOR BIDDING PURPOSES ONLY, NOT FOR PAYMENT.
SEE SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION".

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER TYPE SPECIAL	APPROACH SLABS	REINFORCING STEEL RDWY. (GR 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
835+49.00	835+85.50	LT. SIDE	14.70		2230	
835+49.00	835+85.50	LANES		120.48	14255	70.0
835+49.00	835+85.50	RT. SIDE	14.70		2230	
837+20.50	837+57.00	LT. SIDE	14.70		2230	
837+20.50	837+57.00	LANES		120.48	14255	70.0
837+20.50	837+57.00	RT. SIDE	14.70		2230	
TOTALS:			58.80	240.96	37430	140.0

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

4/24/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	78	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP (GROUTED)	FILTER BLANKET
		CU. YDS.	SQ. YDS.
762+08	OUTLET OF PIPE CULVERT	13	25
809+00	OUTLET OF PIPE CULVERT	9	17
849+14	OUTLET OF PIPE CULVERT	13	25
	TO BE USED IF AND WHERE	20	40
	DIRECTED BY THE ENGINEER		
TOTALS:		55	107

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
682+09	LT. HEADWALL OF BOX CULVERT	1
730+43	RT. HEADWALL OF BOX CULVERT	1
783+61	LT. HEADWALL OF BOX CULVERT	1
835+92	BRIDGE END	1
994+92	RT. HEADWALL OF BOX CULVERT	1
TOTAL:		5

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	250
AND WHERE DIRECTED BY THE	
ENGINEER	
TOTAL:	250

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	175	350
DIRECTED BY THE ENGINEER		
TOTALS:	175	350

BASIS OF ESTIMATE:
PATCHING: 25 TONS PER MILE; TACK COAT: 50 GAL. PER MILE.
QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN.FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	17.42	34.84	17.42	1776.8	17.42	0.27	0.27	5.5	990	147	5740			307
ENTIRE	PROJECT	STAGE 2	18.15	36.30	18.15	1851.3	18.15				990	138	1300			139
ENTIRE	PROJECT	STAGE 3	0.45	0.90	0.45	45.9	0.45									
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								36.00	36.00	734.4	440	60	3000	3600	3600	3711
TOTALS:			36.02	72.04	36.02	3674.0	36.02	36.27	36.27	739.9	2420	345	10040	3600	3600	4157

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.
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 ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	(CLASS IV) 30"	(CLASS IV) 42"	(CLASS IV) 48"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	30"	42"	48"	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				LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
762+08	EXTEND R.C. PIPE CULVERT 28' LT. & 28' RT. W/FES LT. & RT. **	56				2										16	0.20	FES-1, FES-2, PCC-1
809+00	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT. **	114				2										16	0.20	FES-1, FES-2, PCC-1
849+14	EXTEND R.C. PIPE CULVERT 22' LT. & 24' RT. W/FES LT. & RT.	54				2										16	0.20	FES-1, FES-2, PCC-1
889+65	EXTEND DBL. R.C. PIPE CULVERTS 34' LT. & 32' RT. W/FES LT. & RT.		148				4									28	0.35	FES-1, FES-2, PCC-1
941+23	EXTEND R.C. PIPE CULVERT 24' LT. & 22' RT. W/FES LT. & RT.				59				2							58	0.73	FES-1, FES-2, PCC-1
941+31	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT.				126				2							58	0.73	FES-1, FES-2, PCC-1
941+39	EXTEND R.C. PIPE CULVERT 30' LT. & 26' RT. W/FES LT. & RT.			58				2								46	0.58	FES-1, FES-2, PCC-1
SUBTOTALS:		224	148	58	185	6	4	2	4							238	2.99	
	STRUCTURES OVER 20' - 0" SPAN																	
682+09	CONSTRUCT QUAD. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.									10	6	121	521.17	78111	249	35	0.44	RCB-1, 2, SPECIAL DETAILS
730+43	CONSTRUCT QUINT. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.									10	8	121	628.91	82047	276	43	0.54	RCB-1, 2, SPECIAL DETAILS
783+61	CONSTRUCT QUAD. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.									12	9	121	740.65	92866	341	44	0.55	RCB-1, 2, SPECIAL DETAILS
994+92	CONSTRUCT QUAD. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.									10	8	121	559.43	83786	253	39	0.49	RCB-1, 2, SPECIAL DETAILS
SUBTOTALS:													2450.16	336810	1119	161	2.02	
TOTALS:		224	148	58	185	6	4	2	4				2450.16	336810	1119	399	5.01	

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.

** TYPE 2 BEDDING

1/16/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	79	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

REMOVAL AND DISPOSAL OF CULVERTS (BOX 1 OF 2)

STATION	DESCRIPTION	PIPE CULVERTS EACH
640+54	18"X24' C.M. PIPE CULVERT ON LT.	1
642+28	18"X105' C.M. PIPE CULVERT ON RT.	1
643+47	24"X38' C.M. PIPE CULVERT ON LT.	1
645+68	18"X26' C.M. PIPE CULVERT ON RT.	1
646+51	18"X42' C.M. PIPE CULVERT ON LT.	1
646+82	18"X26' C.M. PIPE CULVERT ON RT.	1
647+81	18"X24' C.M. PIPE CULVERT ON RT.	1
650+50	24"X24' C.M. PIPE CULVERT ON LT.	1
652+82	24"X40' C.M. PIPE CULVERT ON LT.	1
654+57	18"X24' R.C. PIPE CULVERT ON LT.	1
655+56	18"X25' R.C. PIPE CULVERT ON LT.	1
656+58	18"X19' R.C. PIPE CULVERT ON LT.	1
657+45	18"X48' C.M. PIPE CULVERT ON RT.	1
657+56	18"X25' C.M. PIPE CULVERT ON LT.	1
658+57	18"X20' C.M. PIPE CULVERT ON LT.	1
660+23	18"X24' C.M. PIPE CULVERT ON LT.	1
661+05	18"X24' C.M. PIPE CULVERT ON LT.	1
662+54	18"X24' C.M. PIPE CULVERT ON LT.	1
664+88	18"X20' C.M. PIPE CULVERT ON LT.	1
668+79	18"X44' C.M. PIPE CULVERT ON LT.	1
668+82	18"X24' C.M. PIPE CULVERT ON RT.	1
670+79	24"X24' C.M. PIPE CULVERT ON RT.	1
673+58	18"X23' C.M. PIPE CULVERT ON LT.	1
674+36	18"X24' C.M. PIPE CULVERT ON LT.	1
679+87	PIPE CULVERT ON LT.	1
686+11	18"X24' C.M. PIPE CULVERT ON LT.	1
686+67	18"X24' C.M. PIPE CULVERT ON LT.	1
689+77	PIPE CULVERT ON RT.	1
695+27	18"X30' C.P. PIPE CULVERT ON LT.	1
695+68	24"X30' C.M. PIPE CULVERT ON RT.	1
701+95	18"X24' C.M. PIPE CULVERT ON LT.	1
703+05	18"X24' C.M. PIPE CULVERT ON LT.	1
704+57	18"X24' C.M. PIPE CULVERT ON LT.	1
705+96	24"X24' C.M. PIPE CULVERT ON RT.	1
708+79	24"X44' C.M. PIPE CULVERT ON LT.	1
715+47	24"X24' C.M. PIPE CULVERT ON LT.	1
715+54	24"X42' C.M. PIPE CULVERT ON RT.	1
722+16	24"X30' C.M. PIPE CULVERT ON RT.	1
722+52	24"X24' C.M. PIPE CULVERT ON LT.	1
724+21	24"X24' C.M. PIPE CULVERT ON LT.	1
726+76	24"X36' C.M. PIPE CULVERT ON LT.	1
728+13	24"X34' C.M. PIPE CULVERT ON LT.	1
728+95	24"X32' C.M. PIPE CULVERT ON LT.	1
729+13	24"X30' C.M. PIPE CULVERT ON RT.	1
731+82	18"X24' C.M. PIPE CULVERT ON RT.	1
732+20	18"X24' C.M. PIPE CULVERT ON RT.	1
737+03	18"X24' C.M. PIPE CULVERT ON LT.	1
738+57	18"X24' C.M. PIPE CULVERT ON LT.	1
743+81	18"X24' C.M. PIPE CULVERT ON RT.	1
744+75	18"X30' C.M. PIPE CULVERT ON RT.	1
745+35	18"X24' C.M. PIPE CULVERT ON RT.	1
745+43	PIPE CULVERT ON LT.	1
756+94	18"X40' C.M. PIPE CULVERT ON RT.	1
758+58	24"X24' C.M. PIPE CULVERT ON LT.	1
758+58	24"X44' C.M. PIPE CULVERT ON RT.	1
760+24	18"X24' C.M. PIPE CULVERT ON LT.	1
761+35	24"X24' C.M. PIPE CULVERT ON LT.	1
762+53	24"X35' R.C. PIPE CULVERT ON RT.	1
762+56	24"X65' R.C. PIPE CULVERT ON LT.	1
763+24	24"X23' C.M. PIPE CULVERT ON RT.	1
763+88	18"X96' C.M. PIPE CULVERT ON LT.	1
763+99	24"X40' C.M. PIPE CULVERT ON RT.	1
764+71	24"X24' C.M. PIPE CULVERT ON RT.	1
765+22	24"X24' C.M. PIPE CULVERT ON RT.	1
765+37	24"X36' C.M. PIPE CULVERT ON LT.	1
767+31	24"X30' C.M. PIPE CULVERT ON LT.	1
767+85	24"X24' C.M. PIPE CULVERT ON LT.	1
770+31	24"X24' C.M. PIPE CULVERT ON LT.	1
770+89	24"X24' C.M. PIPE CULVERT ON RT.	1
771+49	24"X24' C.M. PIPE CULVERT ON RT.	1
773+01	24"X24' C.M. PIPE CULVERT ON RT.	1
774+05	24"X24' C.M. PIPE CULVERT ON RT.	1
776+47	PIPE CULVERT ON LT.	1
777+06	PIPE CULVERT ON LT.	1
777+80	18"X28' C.M. PIPE CULVERT ON RT.	1
779+04	30"X30' C.M. PIPE CULVERT ON RT.	1
785+71	30"X40' C.M. PIPE CULVERT ON LT.	1
785+86	24"X27' C.M. PIPE CULVERT ON RT.	1
787+56	24"X24' C.M. PIPE CULVERT ON RT.	1
788+27	18"X30' C.M. PIPE CULVERT ON RT.	1
791+05	PIPE CULVERT ON LT.	1
791+17	18"X24' C.M. PIPE CULVERT ON RT.	1
794+75	18"X57' STEEL PIPE CULVERT ON LT.	1
796+09	18"X32' C.M. PIPE CULVERT ON LT.	1
797+65	18"X24' C.M. PIPE CULVERT ON LT.	1
798+26	18"X24' C.M. PIPE CULVERT ON RT.	1
799+92	18"X20' C.M. PIPE CULVERT ON RT.	1
SUBTOTAL:		87

REMOVAL AND DISPOSAL OF CULVERTS (BOX 2 OF 2)

STATION	DESCRIPTION	PIPE CULVERTS EACH
804+28	24"X48' C.M. PIPE CULVERT ON RT.	1
805+50	18"X36' C.M. PIPE CULVERT ON RT.	1
806+97	18"X36' C.M. PIPE CULVERT ON RT.	1
809+63	24"X78' R.C. PIPE CULVERT	1
810+06	30"X76' R.C. PIPE CULVERT ON LT.	1
837+19	18"X30' C.M. PIPE CULVERT ON RT.	1
849+77	24"X24' C.M. PIPE CULVERT ON LT.	1
852+83	24"X20' C.M. PIPE CULVERT ON LT.	1
853+40	24"X40' C.M. PIPE CULVERT ON LT.	1
854+10	12"X21' C.M. PIPE CULVERT ON RT.	1
857+92	24"X24' C.M. PIPE CULVERT ON LT.	1
860+14	18"X24' C.M. PIPE CULVERT ON LT.	1
862+32	24"X22' C.M. PIPE CULVERT ON LT.	1
863+01	24"X38' C.M. PIPE CULVERT ON RT.	1
867+42	24"X24' C.M. PIPE CULVERT ON RT.	1
868+84	24"X24' C.M. PIPE CULVERT ON LT.	1
869+77	18"X25' R.C. PIPE CULVERT ON LT.	1
874+29	24"X20' C.M. PIPE CULVERT ON LT.	1
874+92	18"X25' R.C. PIPE CULVERT ON RT.	1
885+15	24"X36' C.M. PIPE CULVERT ON RT.	1
886+69	18"X24' C.M. PIPE CULVERT ON RT.	1
889+07	12"X40' C.M. PIPE CULVERT ON RT.	1
889+39	24"X40' C.M. PIPE CULVERT ON LT.	1
892+05	24"X24' C.M. PIPE CULVERT ON RT.	1
894+75	24"X25' C.M. PIPE CULVERT ON LT.	1
896+31	24"X24' C.M. PIPE CULVERT ON RT.	1
900+55	24"X25' C.M. PIPE CULVERT ON RT.	1
900+58	24"X25' C.M. PIPE CULVERT ON LT.	1
903+09	18"X24' C.M. PIPE CULVERT ON RT.	1
903+62	18"X25' C.M. PIPE CULVERT ON LT.	1
904+95	18"X111' R.C. PIPE CULVERT ON RT.	1
906+82	12"X26' C.M. PIPE CULVERT ON RT.	1
907+45	24"X83' C.M. PIPE CULVERT ON RT.	1
908+54	24"X34' C.M. PIPE CULVERT ON RT.	1
911+22	24"X24' C.M. PIPE CULVERT ON RT.	1
913+20	18"X24' C.M. PIPE CULVERT ON LT.	1
917+49	18"X24' C.M. PIPE CULVERT ON LT.	1
919+66	24"X24' C.M. PIPE CULVERT ON LT.	1
921+61	18"X24' C.M. PIPE CULVERT ON LT.	1
923+70	18"X34' C.M. PIPE CULVERT ON LT.	1
924+74	18"X53' R.C. PIPE CULVERT ON RT.	1
926+80	18"X40' C.M. PIPE CULVERT ON LT.	1
928+22	18"X20' C.M. PIPE CULVERT ON RT.	1
931+03	PIPE CULVERT ON RT.	1
931+32	12"X24' C.M. PIPE CULVERT ON LT.	1
932+15	24"X24' C.M. PIPE CULVERT ON LT.	1
933+62	24"X24' C.M. PIPE CULVERT ON LT.	1
935+74	12"X24' C.M. PIPE CULVERT ON LT.	1
937+27	18"X25' C.M. PIPE CULVERT ON LT.	1
939+05	24"X24' C.M. PIPE CULVERT ON RT.	1
940+15	12"X24' C.M. PIPE CULVERT ON LT.	1
940+63	24"X30' C.M. PIPE CULVERT ON RT.	1
941+66	30"X25' C.M. PIPE CULVERT ON LT.	1
942+56	24"X24' C.M. PIPE CULVERT ON RT.	1
943+32	PIPE CULVERT ON LT.	1
945+93	24"X24' C.M. PIPE CULVERT ON RT.	1
952+27	24"X40' C.M. PIPE CULVERT ON RT.	1
953+45	24"X24' C.M. PIPE CULVERT ON RT.	1
960+19	24"X30' C.M. PIPE CULVERT ON LT.	1
965+43	18"X24' C.M. PIPE CULVERT ON RT.	1
965+71	18"X24' C.M. PIPE CULVERT ON LT.	1
967+18	24"X25' C.M. PIPE CULVERT ON RT.	1
968+09	24"X22' C.M. PIPE CULVERT ON LT.	1
968+14	24"X24' C.M. PIPE CULVERT ON RT.	1
976+23	18"X30' C.M. PIPE CULVERT ON RT.	1
979+33	PIPE CULVERT ON LT.	1
980+16	18"X24' C.M. PIPE CULVERT ON RT.	1
980+82	24"X30' C.M. PIPE CULVERT ON LT.	1
982+44	18"X30' C.M. PIPE CULVERT ON RT.	1
982+67	18"X24' C.M. PIPE CULVERT ON LT.	1
985+54	18"X24' C.M. PIPE CULVERT ON RT.	1
987+00	24"X30' C.M. PIPE CULVERT ON LT.	1
990+59	24"X18' C.M. PIPE CULVERT ON RT.	1
992+05	24"X30' C.M. PIPE CULVERT ON RT.	1
993+41	30"X24' C.M. PIPE CULVERT ON LT.	1
996+00	30"X30' C.M. PIPE CULVERT ON RT.	1
997+06	24"X30' C.M. PIPE CULVERT ON LT.	1
1001+47	16"X40' R.C. PIPE CULVERT ON RT.	1
1003+60	24"X24' C.M. PIPE CULVERT ON RT.	1
1003+78	24"X24' C.M. PIPE CULVERT ON LT.	1
SUBTOTAL - BOX 1:		87
TOTAL:		167

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS LIN. FT.
640+00	835+85.50	LT. SHOULDER	12438
640+00	835+85.50	RT. SHOULDER	13006
837+20.50	1005+00	LT. SHOULDER	11419
837+20.50	1005+00	RT. SHOULDER	10798
TOTAL:			47661

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

1/16/2013

R100653.DGN

DRIVEWAYS & TURNOUTS (BOX 1 OF 2)

STATION	SIDE	DESCRIPTION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			
								18"	24"	30"	28"X20"
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.			
640+63	LT.	DRIVEWAY	16		61.1	6.7	24.9	30			
642+25	LT.	COUNTY ROAD 565	28		365.2	40.2	149.1				
	LT.	DRIVEWAY ON CR 565	16		127.5	14.0	52.1				
	RT.	DRIVEWAY ON CR 565	16		37.0	4.1	15.1				
642+31	RT.	HIGHWAY 139	24						86		
643+46	LT.	DRIVEWAY	34		123.1	13.5	50.3		48		
645+68	RT.	DRIVEWAY	16		76.3	8.4	31.2		32		
646+52	LT.	DRIVEWAY	28		99.8	11.0	40.8		42		
646+83	RT.	DRIVEWAY	16		73.1	8.0	29.8		30		
647+91	RT.	DRIVEWAY	16		71.8	7.9	29.3		30		
649+65	RT.	DRIVEWAY	16		73.8	8.1	30.1		28		
650+51	LT.	DRIVEWAY	16		58.1	6.4	23.7		32		
652+02	RT.	DRIVEWAY	16		70.9	7.8	29.0				
652+58	RT.	DRIVEWAY	16		70.6	7.8	28.8	28			
652+83	LT.	DRIVEWAY	24		86.9	9.6	35.5		40		
654+58	LT.	DRIVEWAY	16		59.4	6.5	24.3		28		
655+60	LT.	DRIVEWAY	16		59.4	6.5	24.3		28		
656+55	RT.	DRIVEWAY	16		68.3	7.5	27.9	32			
656+60	LT.	DRIVEWAY	16		59.2	6.5	24.2		30		
657+55	RT.	DRIVEWAY	16		67.7	7.4	27.6	32			
657+57	LT.	DRIVEWAY	16		59.4	6.5	24.3		30		
658+58	LT.	DRIVEWAY	16		59.0	6.5	24.1		32		
660+24	LT.	DRIVEWAY	16		59.2	6.5	24.2		28		
661+05	LT.	DRIVEWAY	16		59.2	6.5	24.2		28		
662+53	LT.	DRIVEWAY	16		58.8	6.5	24.0		34		
664+89	LT.	DRIVEWAY	16		62.9	6.9	25.7		28		
668+79	LT.	COUNTY ROAD 575	24		119.5	13.1	48.8				36
668+85	RT.	DRIVEWAY	16		71.5	7.9	29.2	32			
670+79	RT.	DRIVEWAY	16		72.9	8.0	29.8		28		
673+59	LT.	DRIVEWAY	16		78.0	8.6	31.9		32		
674+39	LT.	DRIVEWAY	16		73.9	8.1	30.2		32		
679+87	LT.	DRIVEWAY	16		93.9	10.3	38.3		30		
685+83	LT.	DRIVEWAY	16		70.4	7.7	28.7	32			
686+67	LT.	DRIVEWAY	16	70.90				34			
689+77	RT.	DRIVEWAY	16		70.4	7.7	28.7		28		
695+24	LT.	DRIVEWAY	16		75.0	8.3	30.6	30			
695+68	RT.	DRIVEWAY	22		96.3	10.6	39.3		36		
697+61	LT.	DRIVEWAY	16		75.9	8.3	31.0				
701+89	LT.	DRIVEWAY	16		78.6	8.6	32.1	34			
703+06	LT.	DRIVEWAY	16		77.5	8.5	31.6	32			
704+58	LT.	DRIVEWAY	16		75.0	8.3	30.6	32			
706+00	RT.	DRIVEWAY	16		70.3	7.7	28.7		32		
708+80	LT.	COUNTY ROAD 585	24		132.8	14.6	54.2		44		
715+48	LT.	DRIVEWAY	16		68.8	7.6	28.1		28		
715+72	RT.	DRIVEWAY	20		96.5	10.6	39.4		38		
722+20	RT.	COUNTY ROAD N1	20		120.9	13.3	49.4		40		
722+45	LT.	DRIVEWAY	16		70.0	7.7	28.6		32		
724+18	LT.	DRIVEWAY	16		70.7	7.8	28.9		30		
726+84	LT.	DRIVEWAY	24		111.7	12.3	45.6		44		
728+12	LT.	DRIVEWAY	16		81.4	9.0	33.2		34		
728+98	LT.	DRIVEWAY	16		85.1	9.4	34.7		38		
729+32	RT.	DRIVEWAY	16		94.7	10.4	38.7		40		
731+61	RT.	DRIVEWAY	16		77.7	8.5	31.7	34			
732+20	RT.	DRIVEWAY	16		76.3	8.4	31.2	34			
737+00	LT.	DRIVEWAY	16		74.1	8.2	30.3	36			
738+36	RT.	DRIVEWAY	16		74.5	8.2	30.4				
738+60	LT.	DRIVEWAY	16		71.3	7.8	29.1	34			
743+82	RT.	DRIVEWAY	16		76.3	8.4	31.2	32			
744+33	LT.	DRIVEWAY	16		73.8	8.1	30.1				
744+75	RT.	DRIVEWAY	16		76.1	8.4	31.1	34			
745+36	RT.	DRIVEWAY	16		76.3	8.4	31.2	32			
756+91	LT.	COUNTY ROAD N17	20		120.0	13.2	49.0	46			
756+95	RT.	COUNTY ROAD N17	24		134.4	14.8	54.9	56			
	RT.	DRIVEWAY ON CR N17	22		130.6	14.4	53.3				
758+48	RT.	DRIVEWAY	24		90.1	9.9	36.8		40		
758+57	LT.	DRIVEWAY	16		75.4	8.3	30.8		30		
760+23	LT.	DRIVEWAY	16		77.1	8.5	31.5		30		
761+23	LT.	DRIVEWAY	16		77.9	8.6	31.8		32		
762+44	LT.	LOIS LANE	20		102.6	11.3	41.9		40		
762+53	RT.	DRIVEWAY	16		77.7	8.5	31.7		36		
763+24	RT.	DRIVEWAY	16		75.5	8.3	30.8		32		
763+99	RT.	DRIVEWAY	16		73.4	8.1	30.0		34		
764+14	LT.	DRIVEWAY	40		173.6	19.1	70.9		54		
764+65	RT.	DRIVEWAY	16		71.5	7.9	29.2		32		
765+13	LT.	DRIVEWAY	18		80.8	8.9	33.0		32		
767+28	LT.	DRIVEWAY	16		75.0	8.3	30.6		30		
767+84	LT.	DRIVEWAY	16		74.3	8.2	30.3		28		
770+44	LT.	DRIVEWAY	16		76.8	8.4	31.4		30		
771+48	RT.	DRIVEWAY	24		104.5	11.5	42.7		38		
773+03	RT.	DRIVEWAY	16	71.60					30		
774+03	RT.	DRIVEWAY	16	78.60					30		
776+47	LT.	DRIVEWAY	16		78.7	8.7	32.1		30		
777+07	RT.	DRIVEWAY	16		75.2	8.3	30.7		30		
777+91	RT.	DRIVEWAY	16		76.3	8.4	31.2		32		
779+02	RT.	DRIVEWAY	16		77.0	8.5	31.4			32	
782+00	LT.	DRIVEWAY	16		80.3	8.8	32.8		30		
785+73	LT.	DRIVEWAY	16		94.7	10.4	38.7			40	
785+84	RT.	DRIVEWAY	16		89.9	9.9	36.7		42		
787+54	RT.	DRIVEWAY	16		93.5	10.3	38.2		40		
788+24	RT.	DRIVEWAY	16		78.4	8.6	32.0	42			
SUBTOTALS:				221.10	7311.00	804.2	2985.5	728	2002	72	36

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11485 TIMOTHY D. SMITH
3-26-13

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 100653			80	335

(2) QUANTITIES

DRIVEWAYS & TURNOUTS (BOX 2 OF 2)

STATION	SIDE	DESCRIPTION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			
								18"	24"	30"	28"X20"
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.			
791+17	RT.	DRIVEWAY	16		78.9	8.7	32.2	36			
794+74	LT.	DRIVEWAY	40		176.7	19.4	72.2	56			
796+08	LT.	DRIVEWAY	22		103.8	11.4	42.4	38			
797+64	LT.	DRIVEWAY	16		77.7	8.5	31.7	32			
798+37	RT.	DRIVEWAY	16		75.0	8.3	30.6	34			
799+77	RT.	DRIVEWAY	16		74.7	8.2	30.5	32			
801+33	RT.	DRIVEWAY	16		73.6	8.1	30.1				
804+29	RT.	DRIVEWAY	40		174.9	19.2	71.4		54		
805+50	RT.	DRIVEWAY	24	102.90					40		
806+97	RT.	DRIVEWAY	24	99.10					36		
810+10	LT.	HIGHWAY 119	78							114	
810+12	RT.	COUNTY ROAD N49	22		127.8	14.1	52.2				
848+87	RT.	DRIVEWAY	16		91.0	10.0	37.2				
849+84	LT.	DRIVEWAY	16		69.0	7.6	28.2				28
852+81	LT.	DRIVEWAY	16		62.9	6.9	25.7		32		
853+59	LT.	DRIVEWAY	16		63.6	7.0	26.0		32		
854+13	RT.	DRIVEWAY	16		70.6	7.8	28.8		30		
857+93	LT.	DRIVEWAY	16		67.9	7.5	27.7				28
860+14	LT.	DRIVEWAY	16	69.90					28		
862+35	LT.	DRIVEWAY	16		70.0	7.7	28.6		28		
862+95	RT.	DRIVEWAY	16		70.0	7.7	28.6		28		
867+50	RT.	DRIVEWAY	16		70.0	7.7	28.6		30		
868+99	LT.	DRIVEWAY	16		70.0	7.7	28.6		28		
869+78	LT.	DRIVEWAY	16		70.0	7.7	28.6		28		
874+29	LT.	DRIVEWAY	16		70.0	7.7	28.6				28
874+95	RT.	DRIVEWAY	16		70.0	7.7	28.6	32			
875+95	RT.	DRIVEWAY	16		70.0	7.7	28.6	32			
876+05	LT.	DRIVEWAY	16		70.0	7.7	28.6				
876+51	RT.	DRIVEWAY	16		74.8	8.2	30.5				
877+32	RT.	DRIVEWAY	16		70.0	7.7	28.6	30			
885+22	RT.	DRIVEWAY	16		70.0	7.7	28.6		30		
886+70	RT.	DRIVEWAY	16		70.0	7.7	28.6		30		
889+08	RT.	COUNTY ROAD N103	20		140.9	15.5	57.5		46		
889+42	LT.	DRIVEWAY	16		86.0	9.5	35.1		34		
892+07	RT.	DRIVEWAY	16		73.4	8.1	30.0		32		
894+74	LT.	DRIVEWAY	16		69.1	7.6	28.2				28
896+29	RT.	DRIVEWAY	16		69.7	7.7	28.5		32		
900+54	RT.	DRIVEWAY	16		66.3	7.3	27.1		28		
900+60	LT.	DRIVEWAY	16		71.6	7.9	29.2		28		
903+10	RT.	DRIVEWAY	16		65.6	7.2	26.8		30		
903+68	LT.	DRIVEWAY	16		71.5	7.9	29.2	32			
904+89	RT.	DRIVEWAY	16		64.5	7.1	26.3		32		
906+79	RT.	DRIVEWAY	16		63.6	7.0	26.0		28		
907+51	RT.	DRIVEWAY	40		153.6	16.9	62.7		54		
908+51	RT.	DRIVEWAY	24		92.5	10.2	37.8		38		
909+92	RT.	DRIVEWAY	24		91.7	10.1	37.4		36		
911+23	RT.	DRIVEWAY	16		61.7	6.8	25.2				28
913+17	LT.	DRIVEWAY	16		72.3	8.0	29.5	30			
914+98	LT.	COUNTY ROAD N121	20		114.0	12.5	46.6				
915+00	RT.	COUNTY ROAD N121	20		115.7	12.7	47.2				
916+43	LT.	DRIVEWAY	26		100.4	11.0	41.0	40			
917+50	LT.	DRIVEWAY	16		66.1	7.3	27.0	32			
919+69	LT.	DRIVEWAY	16		68.8	7.6	28.1		34		
921+67	LT.	DRIVEWAY	16		70.0	7.7	28.6		34		
922+23	LT.	DRIVEWAY	16		70.0	7.7	28.6		34		
923+61	LT.	DRIVEWAY	16		70.0	7.7	28.6		34		
924+80	RT.	DRIVEWAY	20		86.1	9.5	35.2	36			
926+82	LT.	DRIVEWAY	22	98.00					38		
928+34	RT.	DRIVEWAY	16		69.1	7.6	28.2	28			
931+03	RT.	DRIVEWAY	16		68.8	7.6	28.1	30			
932+16	LT.	DRIVEWAY	16	78.90					36		
933+62	LT.	DRIVEWAY	16		78.9	8.7	32.2		34		
937+26	LT.	DRIVEWAY	16		78.9	8.7	32.2		36		
939+03	RT.	DRIVEWAY	16		68.1	7.5	27.8		30		
940+75	RT.	DRIVEWAY	16		83.4	9.2	34.1		34		
941+67	LT.	DRIVEWAY	16		78.6	8.6	32.1			32	
942+52	RT.	DRIVEWAY	16		67.7	7.4	27.6		30		
945+91	RT.	DRIVEWAY	16	68.10					32		
952+28	RT.	DRIVEWAY	16		69.0	7.6	28.2		30		
953+46	RT.	DRIVEWAY	16		69.1	7.6	28.2		32		
960+16	LT.	DRIVEWAY	16		67.9	7.5	27.7		28		
965+41	RT.	DRIVEWAY	16		70.0	7.7	28.6		30		
965+75	LT.	DRIVEWAY	16		67.5	7.4	27.6		30		
967+16	RT.	DRIVEWAY	16		70.0	7.7	28.6		32		
968+10	LT.	DRIVEWAY	16		67.9	7.5	27.7		30		
968+15	RT.	COUNTY ROAD N159	20		117.5	12.9	48.0		42		
971+59	RT.	DRIVEWAY	16		70.0	7.7	28.6	30			
974+18	RT.	DRIVEWAY	16		70.0	7.7	28.6				
976+23	RT.	COUNTY ROAD N165	20		117.5	12.9	48.0	42			
979+33	LT.	DRIVEWAY	16		69.3	7.6	28.3		30		
980+09	RT.	DRIVEWAY	18		78.4	8.6	32.0	32			
980+84	LT.	DRIVEWAY	20		86.1	9.5	35.2		34		
982+46	RT.	DRIVEWAY	16		70.0	7.7	28.6	30			
982+67	LT.	DRIVEWAY	16		69.7	7.7	28.5		28		
985+55	RT.	DRIVEWAY	16		70.0	7.7	28.6	32			
987+04	LT.	DRIVEWAY	16		78.9	8.7	32.2		34		
991+05	RT.	DRIVEWAY	16		79.6	8.8	32.5		30		
992+06	RT.	RAINHART LANE	20		110.6	12.2	45.2		42		
993+65	LT.	DRIVEWAY	16		86.2	9.5	35.2			28	
995+86	RT.	DRIVEWAY	16		84.3	9.3	34.4			30	
1001+00	RT.	DRIVEWAY	16		70.7	7.8	28.9		30		
1001+56	RT.	DRIVEWAY	16		70.6	7.8	28.8		30		
1002+00	LT.	DRIVEWAY	16		69.9	7.7	28.5		30		
1003+58	RT.	DRIVEWAY	16		70.2	7.7	28.7		30		
1003+79	LT.	DRIVEWAY	16		69.9	7.7	28.5				28
* ENTIRE PROJECT TEMPORARY DRIVES							1000.0				
SUBTOTALS - BOX 1:				**221.10**	**7311.00**	**804.2**	**2985.5**	**728**	**2002**	**72**	**36**
TOTALS:				**738.00**	**14373.30**	**1581.5**	**6869.7**	**1444**	**3852**	**276**	**204**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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.

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

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 CURTIS D. SMITH
3-26-13

2 QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		81	335

JOB NO. 100653

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
5/20/2013				6	ARK.			
5/29/2013				JOB NO.		100653	82	335

(2) QUANTITIES

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
642+31	HWY. 139 RT. OF MAIN LANES	8.50	25	7.9
809+00	HWY. 18	8.50	35	11.0
809+63	HWY. 18	8.50	62	19.5
810+06	HWY. 119 LT. OF MAIN LANES	9.08	65	21.9
810+10	HWY. 119 LT. OF MAIN LANES	9.08	56	18.8
941+31	HWY. 18	10.83	22	8.8
TOTAL:				87.9

AVG. DEPTH = 1'-0"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
639+00	640+00	MAIN LANES	22	244.44
642+31		HWY. 139	24	266.67
810+10		HWY. 119	24	266.67
1005+00	1006+00	MAIN LANES	22	244.44
TOTAL:				1022.22

NOTE: AVERAGE MILLING DEPTH 1".

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	350
TOTAL:	350

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
941+31	HWY. 18 - CROSS DRAIN	41
TOTAL:		41

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-29-13

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET				FEET			TON	FEET			TON
MAIN LANES																	
639+00	640+00	HWY. 18 TRANSITION W/2" SURFACING	100.0	283.25	283.3	42.8	475.6	0.03	14.3	20.8	231.1	440.0	50.8	56.5	627.8	220.0	69.1
640+00	655+45	HWY. 18 NOTCH & WIDEN RIGHT W/2" SURFACING	1545.0	402.75	6222.5	63.3	10866.5	0.03	326.0	41.3	7089.8	440.0	1559.8	75.0	12875.0	220.0	1416.3
655+45	661+61.67	HWY. 18 NOTCH & WIDEN RIGHT	616.7	438.75	2705.8	126.5	8668.1	0.03	260.0	41.3	2830.0	440.0	622.6	138.3	9476.6	220.0	1042.4
661+61.67	678+91.21	HWY. 18 NOTCH & WIDEN	1729.5	438.50	7583.9	132.8	25519.7	0.03	765.6	41.5	7974.9	440.0	1754.5	138.3	26576.7	220.0	2923.4
678+91.21	681+71.52	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	280.3	415.25	1163.9	138.8	4322.8	0.03	129.7	47.5	1479.4	440.0	325.5	144.3	4494.1	220.0	494.4
681+71.52	682+46.57	HWY. 18 FULL DEPTH W/FULL DEPTH SHOULDER LEFT	75.1	543.75	408.4	138.8	1158.2	0.03	34.7	69.5	579.9	440.0	127.6	144.3	1204.1	220.0	132.5
682+46.57	685+08.79	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	262.2	415.25	1088.8	138.8	4043.7	0.03	121.3	47.5	1383.8	440.0	304.4	144.3	4203.9	220.0	462.4
685+08.79	728+22.32	HWY. 18 NOTCH & WIDEN	4313.5	438.50	18914.7	132.8	63648.1	0.03	1909.4	41.5	19890.0	440.0	4375.8	138.3	66284.1	220.0	7291.3
728+22.32	730+05.90	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	183.6	415.25	762.4	138.8	2831.5	0.03	84.9	47.5	969.0	440.0	213.2	144.3	2943.7	220.0	323.8
730+05.90	730+80.91	HWY. 18FULL DEPTH W/FULL DEPTH SHOULDER LEFT	75.0	543.75	407.8	138.8	1156.7	0.03	34.7	69.5	579.2	440.0	127.4	144.3	1202.5	220.0	132.3
730+80.91	732+92.22	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	211.3	415.25	877.4	138.8	3258.7	0.03	97.8	47.5	1115.2	440.0	245.3	144.3	3387.8	220.0	372.7
732+92.22	780+92.29	HWY. 18 NOTCH & WIDEN	4800.1	438.50	21048.4	132.8	70828.1	0.03	2124.8	41.5	22133.8	440.0	4869.4	138.3	73761.5	220.0	8113.8
780+92.29	783+16.30	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	224.0	415.25	930.2	138.8	3454.6	0.03	103.6	47.5	1182.2	440.0	260.1	144.3	3591.5	220.0	395.1
783+16.30	784+06.47	HWY. 18FULL DEPTH W/FULL DEPTH SHOULDER LEFT	90.2	543.75	490.5	138.8	1391.1	0.03	41.7	69.5	696.5	440.0	153.2	144.3	1446.2	220.0	159.1
784+06.47	786+08.79	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT	202.3	415.25	840.1	138.8	3119.9	0.03	93.6	47.5	1067.7	440.0	234.9	144.3	3243.5	220.0	356.8
786+08.79	833+52.64	HWY. 18 NOTCH & WIDEN	4743.9	438.50	20802.0	132.8	69998.9	0.03	2100.0	41.5	21874.7	440.0	4812.4	138.3	72897.9	220.0	8018.8
833+52.64	834+85.00	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER RIGHT	132.4	415.50	550.1	138.5	2037.5	0.03	61.1	47.3	695.8	440.0	153.1	144.3	2122.8	220.0	233.5
834+85.00	835+85.50	HWY. 18 FULL DEPTH W/FULL DEPTH SHOULDER RIGHT	100.5	543.75	546.5	138.8	1549.9	0.03	46.5	69.5	776.1	440.0	170.7	144.3	1611.4	220.0	177.3
837+20.50	838+20.00	WHY. 18 FULL DEPTH W/FULL DEPTH SHOULDER RIGHT	99.5	543.75	541.0	138.8	1534.5	0.03	46.0	69.5	768.4	440.0	169.0	144.3	1595.3	220.0	175.5
838+20.00	839+46.18	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER RIGHT	126.2	415.50	524.4	138.5	1942.1	0.03	58.3	47.3	663.3	440.0	145.9	144.3	2023.4	220.0	222.6
839+46.18	989+55.00	HWY. 18 NOTCH & WIDEN	15008.8	438.50	65813.6	132.8	221463.2	0.03	6643.9	41.5	69207.2	440.0	15225.6	138.3	230635.2	220.0	25369.9
989+55.00	992+87.83	HWY. 18 NOTCH & WIDEN W/2" SURFACING	332.8	402.50	1339.5	63.5	2348.1	0.03	70.4	41.5	1534.6	440.0	337.6	75.0	2773.3	220.0	305.1
992+87.83	994+67.64	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT W/2" SURFACING	179.8	387.00	695.8	69.5	1388.5	0.03	41.7	47.5	948.9	440.0	208.8	75.0	1498.3	220.0	164.8
994+67.64	995+17.63	HWY. 18 FULL DEPTH W/FULL DEPTH SHOULDER LEFT W/2" SURFACING	50.0	515.50	257.8	69.3	385.0	0.03	11.6	69.3	385.0	440.0	84.7	75.0	416.7	220.0	45.8
995+17.63	997+13.65	HWY. 18 NOTCH & WIDEN W/FULL DEPTH SHOULDER LEFT W/2" SURFACING	196.0	387.00	758.5	69.5	1513.6	0.03	45.4	47.5	1034.4	440.0	227.6	75.0	1633.3	220.0	179.7
997+13.65	1005+00.00	HWY. 18 NOTCH & WIDEN W/2" SURFACING	786.4	402.50	3165.3	63.5	5548.5	0.03	166.5	41.5	3626.2	440.0	797.8	75.0	6553.3	220.0	720.9
1005+00.00	1006+00.00	HWY. 18 TRANSITION W/2" SURFACING	100.0	283.00	283.0	42.8	475.6	0.03	14.3	20.8	231.1	440.0	50.8	56.5	627.8	220.0	69.1
642+31.00		HWY. 139		VAR.	212.8	VAR.	858.3	0.03	25.7	VAR.	343.0	440.0	75.5	VAR.	853.7	220.0	93.9
810+10.00		HWY. 119		VAR.	215.1	VAR.	1186.2	0.03	35.6	VAR.	309.3	440.0	68.0	VAR.	1180.4	220.0	129.8
679+21.21	684+78.79	HWY. 18 ADD. DETOUR LEFT	557.6	VAR.	438.5	VAR.	814.4	0.03	24.4	VAR.	814.4	440.0	179.2	VAR.	804.0	220.0	88.4
728+56.32	732+51.97	HWY. 18 ADD. DETOUR LEFT	395.6	VAR.	184.3	VAR.	288.3	0.03	8.6	VAR.	288.3	440.0	63.4	VAR.	281.0	220.0	30.9
781+23.72	785+78.79	HWY. 18 ADD. DETOUR LEFT	455.1	VAR.	346.2	VAR.	637.7	0.03	19.1	VAR.	637.7	440.0	140.3	VAR.	629.2	220.0	69.2
993+16.72	996+85.21	HWY. 18 ADD. DETOUR LEFT	368.5	VAR.	277.9	VAR.	510.2	0.03	15.3	VAR.	510.2	440.0	112.2	VAR.	503.3	220.0	55.4
ADDITIONAL FOR LEVELING																	
639+00	678+50.00	HWY. 18	3950.0			22.0	9655.6	0.10	965.6					22.0	9655.6	VAR.	654.9
685+50.00	727+00.00	HWY. 18	4150.0			22.0	10144.4	0.10	1014.4					22.0	10144.4	VAR.	494.4
734+50.00	779+50.00	HWY. 18	4500.0			22.0	11000.0	0.10	1100.0					22.0	11000.0	VAR.	225.2
787+50.00	831+50.00	HWY. 18	4400.0			22.0	10755.6	0.10	1075.6					22.0	10755.6	VAR.	296.7
841+00.00	991+00.00	HWY. 18	15000.0			22.0	36666.7	0.10	3666.7					22.0	36666.7	VAR.	1070.6
998+50.00	1006+00.00	HWY. 18	750.0			22.0	1833.3	0.10	183.3					22.0	1833.3	VAR.	80.1
ADDITIONAL FOR GRADE RAISE																	
678+50.00	681+71.52	HWY. 18	321.5			22.0	785.9	0.10	78.6	22.0	785.9	VAR.	271.9				
682+46.57	685+50.00	HWY. 18	303.4			22.0	741.6	0.10	74.2	22.0	741.6	VAR.	308.7				
727+00.00	730+05.90	HWY. 18	305.9			22.0	747.8	0.10	74.8	22.0	747.8	VAR.	348.9				
730+80.91	734+50.00	HWY. 18	369.1			22.0	902.2	0.10	90.2	22.0	902.2	VAR.	435.0				
779+50.00	783+16.30	HWY. 18	366.3			22.0	895.4	0.10	89.5	22.0	895.4	VAR.	309.5				
784+06.47	787+50.00	HWY. 18	343.5			22.0	839.7	0.10	84.0	22.0	839.7	VAR.	352.1				
831+50.00	834+85.00	HWY. 18	335.0			22.0	818.9	0.10	81.9	22.0	818.9	VAR.	346.4				
838+20.00	841+00.00	HWY. 18	280.0			22.0	684.4	0.10	68.4	22.0	684.4	VAR.	314.9				
991+00.00	994+67.64	HWY. 18	367.6			22.0	898.6	0.10	89.9	22.0	898.6	VAR.	345.5				
995+17.63	998+50.00	HWY. 18	332.4			22.0	812.5	0.10	81.3	22.0	812.5	VAR.	394.1				
ADDITIONAL FOR GUARDRAIL																	
833+14.35	835+85.50	HWY. 18 RIGHT SIDE	271.1	VAR.	73.5									VAR.	155.6	220.0	17.1
834+39.35	835+85.50	HWY. 18 LEFT SIDE	146.1	VAR.	34.9									VAR.	79.2	220.0	8.7
837+20.50	838+66.65	HWY. 18 RIGHT SIDE	146.1	VAR.	34.9									VAR.	79.2	220.0	8.7
837+20.50	839+91.65	HWY. 18 LEFT SIDE	271.1	VAR.	73.5									VAR.	155.6	220.0	17.1
ADDITIONAL FOR SUPERELEVATION																	
884+62.02	890+02.02	HWY. 18 SUPER TRANSITION	540.0	5.00	27.0												
890+02.02	890+48.93	HWY. 18 MAX SUPER	46.9	10.00	4.7												
890+48.93	895+88.93	HWY. 18 SUPER TRANSITION	540.0	5.00	27.0												
908+48.32	913+88.32	HWY. 18 SUPER TRANSITION	540.0	1.75	9.5												
913+88.32	916+26.94	HWY. 18 MAX SUPER	238.6	3.50	8.4												
916+26.94	921+66.94	HWY. 18 SUPER TRANSITION	540.0	1.75	9.5												
TOTALS:					160983.3		607406.4		24394.9		181978.1		41674.1		624484.5		62709.5

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

5/29/2013

R100653.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.		100653	83	335
① 07252 - QUANTITIES - 52581				

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100653

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	SS & 804	SS & 804	SP & 805	SP & 805	805	805	807	812	816	816	SP JOB 100653
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL SHELL PILING (18'' DIA.)	① STEEL SHELL PILING (24'' DIA.)	① PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SHORING
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	EACH	SQ. YD.	CU. YD.	LUMP SUM
07252 / X071 / BUFFALO CREEK DITCH	BENT NO. 1			5	30.50			2,910	431	590			100			245	138	
	BENT NO. 2				33.80			3,795	376		590	90						
	BENT NO. 3				33.80			3,795	376		590	92						
	BENT NO. 4			5	30.50			2,910	431	590			100			212	121	
	134'-0'' INTEGRAL W-BEAM UNIT					364.80	24.9		77,956					159,930	1			
EXIST. BR. NO. 02997 (SITE NO. 4)			1															
EXIST. BR. NO. 03964 (SITE NO. 1)		②	1															
EXIST. BR. NO. 03965 (SITE NO. 2)		③	1															
EXIST. BR. NO. 03966 (SITE NO. 3)		④	1															
EXIST. BR. NO. 02998 (SITE NO. 5)		⑤	1															
TOTALS FOR JOB NO. 100653				10	128.60	364.80	24.9	13,410	79,570	1,180	1,180	182	200	159,930	1	457	259	1

① PILES AND PILE ENCASEMENT SHALL CONFORM TO DWG. NO. 52588.

② Existing Bridge No. 03964 (Site No. 1) is 42' wide and 75' long and consists of three concrete slab spans supported by concrete trestle pile bents. After Stage 1 Construction of new roadway is open to traffic, the existing bridge shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

③ Existing Bridge No. 03965 (Site No. 2) is 42.2' wide and 75' long and consists of three concrete slab spans supported by concrete trestle pile bents. After Stage 1 Construction of new roadway is open to traffic, the existing bridge shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

④ Existing Bridge No. 03966 (Site No. 3) is 42.1' wide and 90' long and consists of three concrete slab spans supported by concrete trestle pile bents. After Stage 1 Construction of new roadway is open to traffic, the existing bridge shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

⑤ Existing Bridge No. 02998 (Site No. 5) is 29.6' wide and 50' long and consists of two concrete slab spans supported by concrete trestle pile bents. After Stage 1 Construction of new roadway is open to traffic, the existing bridge shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

BRYAN FREELING
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
7/13/12
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
MONETTE BYPASS - MANILA (S)
CRAIGHEAD & MISSISSIPPI COUNTIES

ROUTE 18 SEC. 4 & 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-23-12 FILENAME: b100653_ql.dgn
CHECKED BY: DEF DATE: 7/12/12 SCALE: NONE
DESIGNED BY: -- DATE:

BRIDGE NO. 07252 DRAWING NO. 52581

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		124	STATION
201	GRUBBING		124	STATION
202	REMOVAL AND DISPOSAL OF FENCE		313	LIN. FT.
202	REMOVAL AND DISPOSAL OF POSTS		3	EACH
202	REMOVAL AND DISPOSAL OF WALLS		66	LIN. FT.
202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS		6	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		722	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		10	EACH
202	REMOVAL AND DISPOSAL OF RISER		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		167	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE WALKS		35	SQ. YD.
202	REMOVAL AND DISPOSAL OF ELECTRIC METER AND POLE		4	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		1496	LIN. FT.
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		4	EACH
202	REMOVAL AND DISPOSAL OF DECORATIVE LIGHT POLE		5	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		6	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		28	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS		2	EACH
202	REMOVAL AND DISPOSAL OF FLAG POLE		2	EACH
202	REMOVAL AND DISPOSAL OF WHEEL		2	EACH
206	FLOWABLE SELECT MATERIAL		41	CU. YD.
210	UNCLASSIFIED EXCAVATION		84302	CU. YD.
210	COMPACTED EMBANKMENT		122958	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)		5477	CU. YD.
SP & 210	SOIL STABILIZATION		4500	TON
SP & 210	SOIL STABILIZATION ADDITIVE		1500	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		167993	TON
401	TACK COAT		24745	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		39965	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		1709	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		60948	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		3343	TON
412	COLD MILLING ASPHALT PAVEMENT		1022	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		175	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		350	TON
504	APPROACH SLABS		240.96	CU. YD.
504	APPROACH GUTTERS (TYPE SPECIAL)		58.80	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY		738.00	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		1444	SQ. FT.
SS & 604	BARRICADES		488	LIN. FT.
SS & 604	TRAFFIC DRUMS		1382	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1798	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER		1698	LIN. FT.
SS & 604	CONSTRUCTION PAVEMENT MARKINGS		598061	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		540	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		22818	LIN. FT.
SS & 604	VERTICAL PANELS		176	EACH
SP, SS, & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		224	LIN. FT.
SP, SS, & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		148	LIN. FT.
SP, SS, & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		58	LIN. FT.
SP, SS, & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		185	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		1444	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		3852	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN		276	LIN. FT.
SS & 606	28" X 20" SIDE DRAIN		204	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		6	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		4	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		4	EACH
606	SELECTED PIPE BEDDING		250	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS		10	EACH
611	4" PIPE UNDERDRAINS		2000	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		87.9	CU. YD.
SS & 617	GUARDRAIL (TYPE A)		450	LIN. FT.
SS & 617	TERMINAL ANCHOR POSTS (TYPE 1)		2	EACH
SS & 617	GUARDRAIL TERMINAL (TYPE 2)		2	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
620	LIME		72	TON
620	SEEDING		36.02	ACRE
620	MULCH COVER		72.29	ACRE
SS & 620	WATER		4418.9	M.GAL.
621	TEMPORARY SEEDING		36.27	ACRE
621	SILT FENCE		10040	LIN. FT.
621	SAND BAG DITCH CHECKS		2420	BAG
621	SEDIMENT BASIN		3600	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		3600	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		4157	CU. YD.
621	ROCK DITCH CHECKS		345	CU. YD.
623	SECOND SEEDING APPLICATION		36.02	ACRE
624	SOLID SODDING		399	SQ. YD.
632	CONCRETE ISLAND		31	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		53	EACH
637	MAILBOX SUPPORTS (SINGLE)		45	EACH
637	MAILBOX SUPPORTS (DOUBLE)		4	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		47661	LIN. FT.
SS & 718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")		75	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		73760	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")		141	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		83336	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	68	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	68	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	338	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	338	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		1669	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		37430	POUND
816	FILTER BLANKET		107	SQ. YD.
816	DUMPED RIPRAP (GROUTED)		55	CU. YD.
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 5)		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		10	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		1119	CU. YD.
802	CLASS S CONCRETE-ROADWAY		2450.16	CU. YD.
802	CLASS S CONCRETE-BRIDGE		128.60	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		364.80	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		24.9	GAL.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		336810	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		13410	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)		79570	POUND
SP & 805	STEEL SHELL PILING (18" DIAMETER)		1180	LIN. FT.
SP & 805	STEEL SHELL PILING (24" DIAMETER)		1180	LIN. FT.
805	PREBORING		200	LIN. FT.
805	PILE ENCASEMENT		182	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		159930	POUND
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
816	FILTER BLANKET		457	SQ. YD.
816	DUMPED RIPRAP		259	CU. YD.
SP	SHORING		1.00	LUMP SUM

*ALTERNATE BID ITEMS

REVISIONS

DATE	REVISION	SHEET NUMBER
5/20/2013	REVISED NOTE TO NMAX = 115 & PG 64-22.	82, 84
5/29/2013	REVISED QUANTITY OF PAVEMENT REPAIR OVER CULVERTS (CONCRETE).	82, 84
5/29/2013	ADDED FLOWABLE SELECT MATERIAL.	82, 84

STATE OF ARKANSAS
PROFESSIONAL ENGINEER
No. 11428
TIMOTHY D. SMITH
5-29-13

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
5/20/2013			
5/29/2013			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	100653	84	335
JOB NO.				

SURVEY CONTROL COORDINATES

Project Name: s100653
Date: 10/26/2010
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	570036.3831	1851390.8839	237.413	CTL	5/8" Rebar with 2" Aluminum Cap
2	569505.5757	1851966.6921	236.216	CTL	5/8" Rebar with 2" Aluminum Cap
3	568975.2359	1852325.1939	238.120	CTL	5/8" Rebar with 2" Aluminum Cap
77	570554.9916	1850736.5521	238.867	CTL	5/8" Rebar with 2" Aluminum Cap
78	570668.5695	1849857.1422	235.718	CTL	5/8" Rebar with 2" Aluminum Cap
79	570647.8776	1848358.8050	236.507	CTL	5/8" Rebar with 2" Aluminum Cap
80	570714.8570	1845766.8181	235.622	CTL	5/8" Rebar with 2" Aluminum Cap
81	570694.8589	1844736.3419	235.640	CTL	5/8" Rebar with 2" Aluminum Cap
82	570678.8281	1843834.1688	234.552	CTL	5/8" Rebar with 2" Aluminum Cap
83	570661.9927	1843057.0566	234.592	CTL	5/8" Rebar with 2" Aluminum Cap
84	570643.7247	1842149.6912	234.666	CTL	5/8" Rebar with 2" Aluminum Cap
85	570624.3567	1841287.3882	234.807	CTL	5/8" Rebar with 2" Aluminum Cap
86	570602.9207	1840251.0832	234.886	CTL	5/8" Rebar with 2" Aluminum Cap
87	570585.4939	1839377.4531	234.441	CTL	5/8" Rebar with 2" Aluminum Cap
88	570597.2026	1838616.1281	233.777	CTL	5/8" Rebar with 2" Aluminum Cap
89	570639.7636	1837672.7506	233.499	CTL	5/8" Rebar with 2" Aluminum Cap
90	570692.9537	1836602.6089	233.102	CTL	5/8" Rebar with 2" Aluminum Cap
91	570689.7231	1835624.1316	232.485	CTL	5/8" Rebar with 2" Aluminum Cap
92	570682.4271	1834692.8852	232.454	CTL	5/8" Rebar with 2" Aluminum Cap
93	570675.4297	1833697.8910	231.582	CTL	5/8" Rebar with 2" Aluminum Cap
94	570674.8299	1832827.9821	231.127	CTL	5/8" Rebar with 2" Aluminum Cap
95	570662.6598	1831782.3446	231.648	CTL	5/8" Rebar with 2" Aluminum Cap
96	570618.9732	1831024.0362	233.650	CTL	5/8" Rebar with 2" Aluminum Cap
97	570653.7489	1830193.6551	230.840	CTL	5/8" Rebar with 2" Aluminum Cap
98	570645.9005	1829242.3944	231.070	CTL	5/8" Rebar with 2" Aluminum Cap
99	570639.9854	1827618.8947	232.933	CTL	5/8" Rebar with 2" Aluminum Cap
120	570621.6518	1826074.7165	236.122	CTL	5/8" Rebar with 2" Aluminum Cap
121	570616.8393	1825343.9712	234.891	CTL	5/8" Rebar with 2" Aluminum Cap
122	570612.1450	1824707.8204	234.627	CTL	5/8" Rebar with 2" Aluminum Cap
123	570607.7579	1823810.9060	236.133	CTL	5/8" Rebar with 2" Aluminum Cap
124	570607.9015	1822991.3364	235.483	CTL	5/8" Rebar with 2" Aluminum Cap
125	570625.3460	1822065.7196	235.427	CTL	5/8" Rebar with 2" Aluminum Cap
126	570638.2100	1821128.5588	235.793	CTL	5/8" Rebar with 2" Aluminum Cap
127	570658.0517	1820405.6915	235.718	CTL	5/8" Rebar with 2" Aluminum Cap
128	570701.2432	1819714.4948	235.213	CTL	5/8" Rebar with 2" Aluminum Cap
129	570740.7243	1819057.2953	234.433	CTL	5/8" Rebar with 2" Aluminum Cap
130	570755.1587	1818243.1954	234.599	CTL	5/8" Rebar with 2" Aluminum Cap
131	570765.8152	1817457.9933	235.102	CTL	5/8" Rebar with 2" Aluminum Cap
132	570777.8072	1816655.0876	234.770	CTL	5/8" Rebar with 2" Aluminum Cap
133	570788.0871	1815849.4134	235.260	CTL	5/8" Rebar with 2" Aluminum Cap
134	570798.7088	1815125.6586	234.623	CTL	5/8" Rebar with 2" Aluminum Cap
135	570811.5959	1814230.3952	236.001	CTL	5/8" Rebar with 2" Aluminum Cap
136	570819.0740	1813704.1972	235.868	CTL	*" Rebar with 2" Aluminum Cap
137	570831.2357	1812889.4538	235.820	CTL	5/8" Rebar with 2" Aluminum Cap
138	570851.7196	1811769.3864	235.329	CTL	5/8" Rebar with 2" Aluminum Cap
139	570866.0936	1810788.7830	235.112	CTL	5/8" Rebar with 2" Aluminum Cap
140	570832.6592	1809926.7140	235.699	CTL	5/8" Rebar with 2" Aluminum Cap
141	570909.2018	1807490.0796	235.182	CTL	5/8" Rebar with 2" Aluminum Cap
142	570889.3468	1805034.3549	233.930	CTL	5/8" Rebar with 2" Aluminum Cap

Note - Rebar and Cap - Standard -" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999411667 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 s100653G1.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: 470007-470007A
CONVERGENCE ANGLE: 0-56-58.3 LEFT AT LT: 35-52-18.08 LG: 090-22-05.7
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
CHRISTOPHER D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11485
3-26-13

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

(2) SURVEY CONTROL DETAILS
JOB NO. 100653

CONST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8079	PI	646+85.85	570803.4967	1812203.4565
8080	PI	651+78.00	570794.7486	1812695.5280
8081	PC	661+61.67	570780.4331	1813679.0949
8083	PT	668+38.28	570780.5735	1814355.6750
8084	PC	668+56.12	570780.8405	1814373.5122
8086	PT	675+32.72	570780.9810	1815050.0904
8021	PI	698+92.10	570746.6448	1817409.2181
8087	PC	710+24.20	570728.3447	1818541.1738
8089	PT	722+65.36	570674.6961	1819781.0223
8090	PC	722+87.45	570673.1443	1819803.0534
8092	PT	735+13.74	570619.7408	1821028.0382
8029	PC	753+83.61	570588.3024	1822897.6382
8031	PT	758+78.43	570585.3243	1823392.4431
8032	PI	772+17.58	570591.7210	1824731.5782
8033	PI	782+06.09	570600.7738	1825720.0458
8034	PI	811+54.72	570622.0619	1828668.6027
8093	PC	821+70.93	570628.8338	1829684.7920
8095	PT	828+48.01	570623.3446	1830361.8235
8096	PC	828+56.42	570623.1521	1830370.2322
8098	PT	835+33.50	570617.6629	1831047.2637
8099	PC	837+72.25	570619.2539	1831286.0107
8101	PT	844+47.04	570633.6828	1831960.6143
8102	PC	844+60.08	570634.1535	1831973.6453
8104	PT	851+34.86	570648.5824	1832648.2489
8035	PC	888+67.02	570673.4530	1836380.3303
8037	PT	891+83.93	570666.8021	1836697.1266
8038	PI	898+18.09	570635.9646	1837330.5328
8039	PC	912+53.32	570569.7079	1838764.2368
8041	PT	917+61.94	570563.1522	1839272.7172
8042	PI	962+75.88	570655.2164	1843785.7240
8105	PC	990+93.45	570706.4658	1846602.8279
8107	PT	996+10.36	570704.2101	1847119.6879

DETOUR 1677

POINT NO.	TYPE	STATION	NORTHING	EASTING
8200	POB	1677+00.00	570778.5466	1815217.3528
8201	PC	1677+43.27	570777.9169	1815260.6142
8203	PT	1678+56.37	570787.4069	1815373.1305
8204	PC	1679+46.86	570803.8608	1815462.1149
8206	PT	1680+59.96	570813.3508	1815574.6312
8207	PC	1683+46.49	570809.1808	1815861.1328
8209	PT	1684+59.59	570796.4203	1815973.3253
8210	PC	1685+50.08	570777.3837	1816061.7931
8212	PT	1686+63.18	570764.6231	1816173.9855
8213	POE	1687+06.45	570763.9935	1816217.2469

DETOUR 2725

POINT NO.	TYPE	STATION	NORTHING	EASTING
8300	POB	2725+00.00	570648.9957	1820014.5240
8301	PC	2725+91.15	570642.0198	1820105.4074
8303	PT	2727+09.26	570645.1396	1820223.2681
8304	PC	2728+55.78	570664.0656	1820368.5566
8306	PT	2729+51.22	570668.4726	1820463.7900
8307	PC	2731+63.23	570660.6200	1820675.6490
8309	PT	2732+42.58	570652.2072	1820754.4930
8310	PC	2733+73.28	570629.3809	1820883.1828
8312	PT	2734+64.23	570620.6560	1820973.6159
8092	POE	2735+18.66	570619.7408	1821028.0382

DETOUR 3779

POINT NO.	TYPE	STATION	NORTHING	EASTING
8400	POB	3779+00.00	570597.9706	1825413.9698
8401	PC	3779+47.81	570598.7263	1825461.7764
8403	PT	3780+52.06	570609.8215	1825565.2892
8404	PC	3781+54.85	570630.0162	1825666.0742
8406	PT	3782+64.02	570641.1680	1825774.5056
8407	PC	3784+46.45	570642.4851	1825956.9280
8409	PT	3785+59.55	570632.1702	1826069.3717
8410	PC	3786+50.04	570615.0642	1826158.2329
8412	PT	3787+63.14	570604.7493	1826270.6766
8413	POE	3788+06.40	570605.0616	1826313.9415

DETOUR 5990

POINT NO.	TYPE	STATION	NORTHING	EASTING
8500	POB	5990+00.00	570704.7660	1846509.3912
8501	PC	5991+46.58	570707.4322	1846655.9494
8503	PT	5992+53.11	570719.2310	1846761.6638
8504	PC	5993+37.82	570736.4026	1846844.6213
8506	PT	5994+70.19	570748.0886	1846976.1788
8507	PC	5995+55.06	570745.8043	1847061.0176
8509	PT	5996+74.17	570730.2906	1847178.8931
8510	PC	5997+48.44	570713.0109	1847251.1297
8512	PT	5998+67.55	570697.4972	1847369.0052
8513	POE	5999+07.78	570696.4143	1847409.2221

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		86	335
				JOB NO.		100653		

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
KELLEY D. SMITH
3-6-13

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	87	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 640+00.00
BEGIN JOB 100653
LOG MILE 26.89

N

640 — 645 — 650

SURVEY BASELINE

138
PN: 138
PD: REB/CAP

S 88°57'08" E
1120.25'

CL CONST

8079

S88°58'53"E
492.15'

P1646+85.85
Δ = 0°11'55.6" RT.

650 — 655 — 660

P1651+78.00
Δ = 0°11'04.7" LT.

137
PN: 137
PD: REB/CAP

SURVEY BASELINE

S 89°08'41" E
814.83'

CL CONST

8080

S89°09'58"E
983.67'

N

SURVEY CONTROL DETAILS

3/5/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	88	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

C.L. CONSTRUCT
PI = 665+00.00
Δ = 1° 41' 29.4" LT.
D = 0°15'00"
T = 338.33'
L = 676.60'
PC = 661+61.67
PT = 668+38.28
NO SUPER

PC661+61.67
PT668+38.28
SURVEY BASELINE
S 89°11'09" E
526.25'
665
660
670
136
PN: 136
PD: T-136 RBR/CAP
135
PN: 135
PD: T-135 RBR/CAP
S89°09'58" E
338.33'
8081
CL CONST
N89°08'32" E
338.33'
8083
8084
P1665+00.00

C.L. CONSTRUCT
PI = 671+94.44
Δ = 1° 41' 29.4" RT.
D = 0°15'00"
T = 338.33'
L = 676.60'
PC = 668+56.12
PT = 675+32.72
NO SUPER

PC668+56.12

P1671+94.44
SURVEY BASELINE
S 89°10'31" E
895.36'
670
675
134
PN: 134
PD: REB/CAP
S89°09'58" E
338.33'
8086
PT675+32.72

POB1677+00.00
PC1677+43.27
PT1678+56.37
P11680+03.59
1677
1680
8200
8201
8203
8204
S89°09'58" E
43.27'
N79°31'26" E
90.49'

DETOUR 1677
PI = 1678+00.00
Δ = 11° 18' 35.8" LT.
D = 10°00'00"
T = 56.73'
L = 113.10'
PC = 1677+43.27
PT = 1678+56.37
NO SUPER

P11678+00.00

DETOUR 1677
PI = 1680+03.59
Δ = 11° 18' 35.8" RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
PC = 1679+46.86
PT = 1680+59.96
NO SUPER

PC1679+46.86

SURVEY CONTROL DETAILS

3/5/2013
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	89	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

DETOUR 1677
PI = 1680+03.59
Δ = 11° 18' 35.8" RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
PC = 1679+46.86
PT = 1680+59.96
NO SUPER

DETOUR 1677
PI = 1684+03.22
Δ = 11° 18' 35.8" RT.
D = 10°00'00"
T = 56.73'
L = 113.10'
PC = 1683+46.49
PT = 1684+59.59
NO SUPER

DETOUR 1677
PI = 1686+06.82
Δ = 11° 18' 35.8" LT.
D = 10°00'00"
T = 56.73'
L = 113.10'
PC = 1685+50.08
PT = 1686+63.18
NO SUPER

P.I. 1680+03.59
1680
680
DETOUR 1677 S89°09'58"E 286.53'
8206
SURVEY BASELINE S 89°09'33" E 723.83'
CL CONST
PT 1680+59.96
8207
133 PN: 133 PD: T-133 RBR/CAP
PC 1683+46.49
P.I. 1684+03.22
PT 1684+59.59
8209 S77°51'22"E 90.49'
1685
685
8210
PC 1685+50.08
S89°09'58"E 43.27'
8212
PT 1686+63.18
P.I. 1686+06.82
1687
8213
POE 1687+06.45
S89°09'58"E 2359.38'
SURVEY BASELINE S 89°16'08" E 805.74'
690

N

690
132 PN: 132 PD: T-132 RBR/CAP
CL CONST
695
SURVEY BASELINE S 89°08'40" E 803.00'
700
PN: 131 131 PD: T-131 RBR/CAP
8021
P.I. 1698+92.10
Δ = 0°05'32.5" RT.

N

SURVEY CONTROL DETAILS

3/5/2013

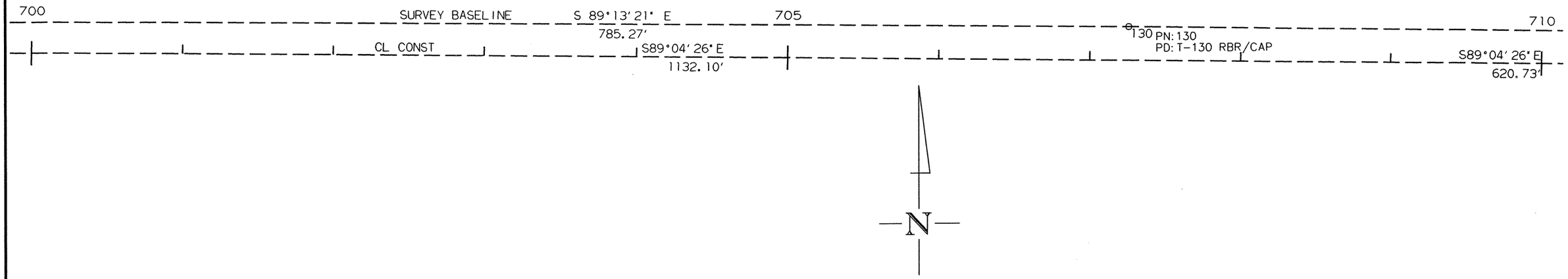
R100653.DGN

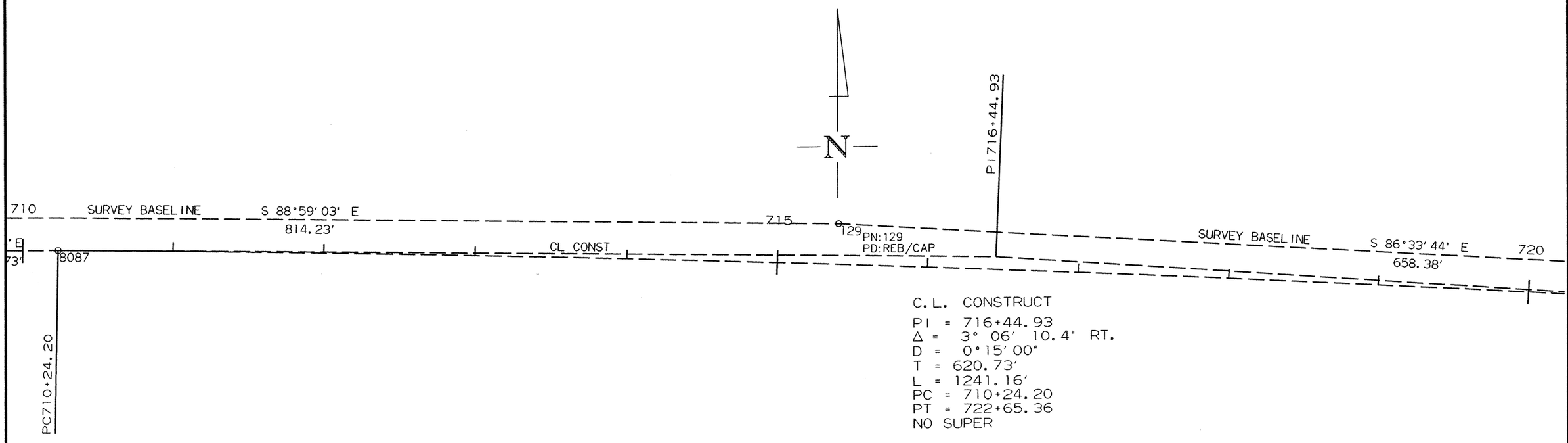
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	90	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13





C. L. CONSTRUCT

PI = 716+44.93
Δ = 3° 06' 10.4" RT.
D = 0°15'00"
T = 620.73'
L = 1241.16'
PC = 710+24.20
PT = 722+65.36
NO SUPER

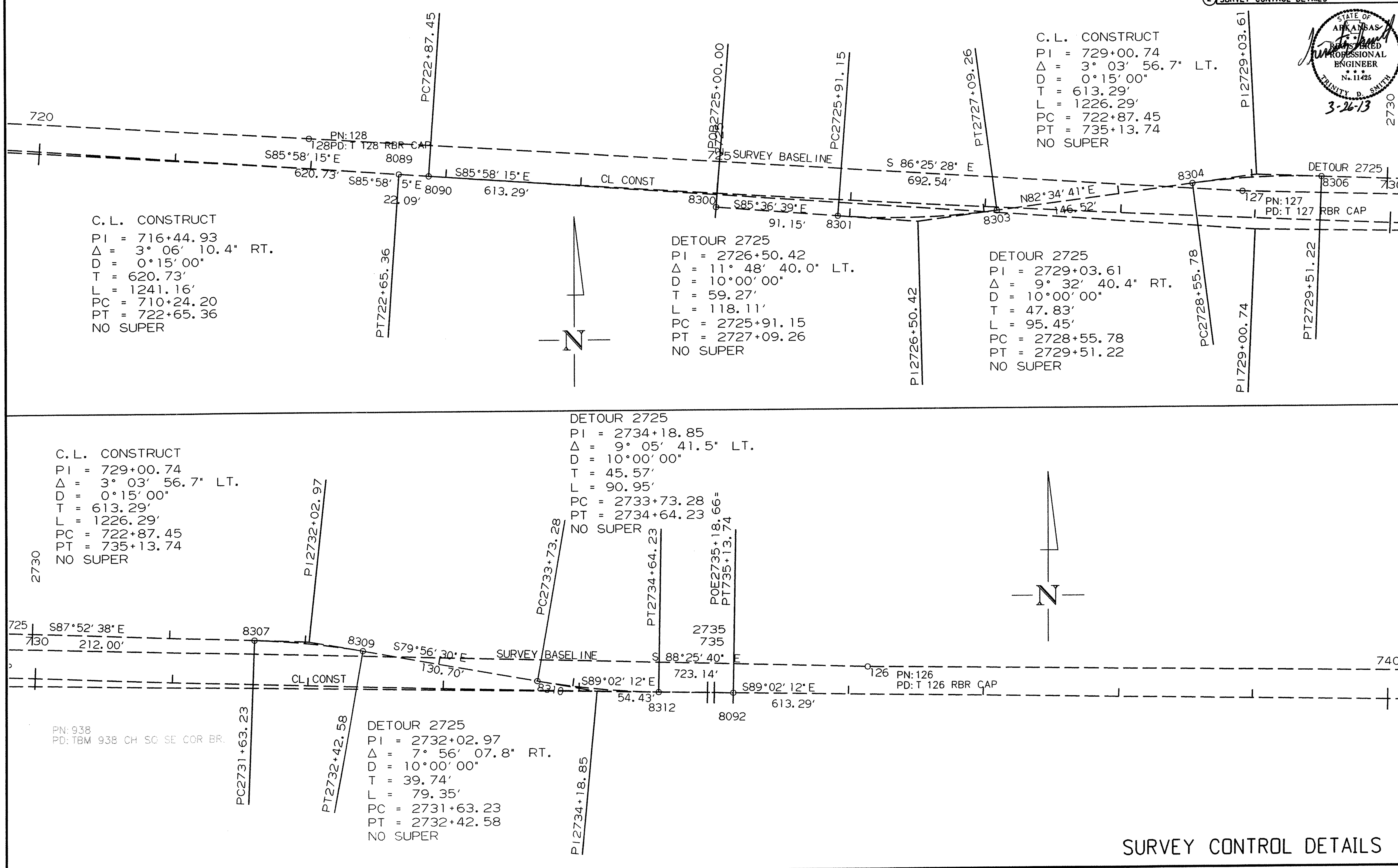
SURVEY CONTROL DETAILS

3/5/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	91	335

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
3-26-13
C.L. CONSTRUCT
PI = 716+44.93
Δ = 3° 06' 10.4" RT.
D = 0°15'00"
T = 620.73'
L = 1241.16'
PC = 710+24.20
PT = 722+65.36
NO SUPER
C.L. CONSTRUCT
PI = 729+00.74
Δ = 3° 03' 56.7" LT.
D = 0°15'00"
T = 613.29'
L = 1226.29'
PC = 722+87.45
PT = 735+13.74
NO SUPER
DETOUR 2725
PI = 2726+50.42
Δ = 11° 48' 40.0" LT.
D = 10°00'00"
T = 59.27'
L = 118.11'
PC = 2725+91.15
PT = 2727+09.26
NO SUPER
DETOUR 2725
PI = 2729+03.61
Δ = 9° 32' 40.4" RT.
D = 10°00'00"
T = 47.83'
L = 95.45'
PC = 2728+55.78
PT = 2729+51.22
NO SUPER
DETOUR 2725
PI = 2734+18.85
Δ = 9° 05' 41.5" LT.
D = 10°00'00"
T = 45.57'
L = 90.95'
PC = 2733+73.28
PT = 2734+64.23
NO SUPER
DETOUR 2725
PI = 2732+02.97
Δ = 7° 56' 07.8" RT.
D = 10°00'00"
T = 39.74'
L = 79.35'
PC = 2731+63.23
PT = 2732+42.58
NO SUPER
720
PN:128
PD: T 128 RBR CAP
S85°58' 15" E
620.73'
8089
8090
22.09'
613.29'
CL CONST
SURVEY BASELINE
POB2725+00.00
8300
S85°36' 39" E
91.15'
8301
S 86°25' 28" E
692.54'
N82°34' 41" E
146.52'
8303
8304
DETOUR 2725
8306
PN: 127
PD: T 127 RBR CAP
730
2730
PC722+87.45
PT722+65.36
PC2725+91.15
PT2727+09.26
PI2726+50.42
PI729+03.61
PC2728+55.78
PI729+00.74
PT2729+51.22
N
725
S87°52' 38" E
730
212.00'
8307
PI2732+02.97
8309
S79°56' 30" E
130.70'
SURVEY BASELINE
8310
S89°02' 12" E
54.43'
8312
723.14'
S 88°25' 40" E
2735
735
8092
S89°02' 12" E
613.29'
PN:126
PD: T 126 RBR CAP
740
PN: 938
PD: TBM 938 CH SQ SE COR BR.
PC2731+63.23
PT2732+42.58
PC2733+73.28
PT2734+64.23
PI2734+18.85
POE2735+18.66=
PT735+13.74

SURVEY CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	92	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

740 SURVEY BASELINE S 89°12'49" E 937.25' 745 125 750

PN: 125
PD: T 125 RBR CAP

CL CONST S89°02'12"E 1869.86'

N

C. L. CONSTRUCT
PI = 756+31.03
Δ = 1° 14' 13.4" LT.
D = 0°15'00"
T = 247.42'
L = 494.82'
PC = 753+83.61
PT = 758+78.43
NO SUPER

PC753+83.61

PT758+78.43

750 SURVEY BASELINE S 88°55'13" E 925.78' 755 124 760

PN: 124
PD: T 124 RBR CAP

CL CONST S89°02'12"E 247.42' 8029

SURVEY BASELINE S 89°59'24" E 819.57'

N89°43'35"E 247.42' 8031

PI 756+31.03

SURVEY CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	93	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

760 — 123 PN:123 PD:T 123 REBAR CAP — 765 — SURVEY BASELINE — N 89°43' 11" E 896.93' — 770

N89°43' 35"E 1339.15'

CL CONST

N

DETOUR 3779
PI = 3780+00.08
Δ = 10° 25' 29.8" LT.
D = 10°00' 00"
T = 52.27'
L = 104.25'
PC = 3779+47.81
PT = 3780+52.06
NO SUPER

POB3779+00.00

PC3779+47.81

PI772+17.58
Δ = 0°15'03.7" LT.

N

770 — 122 PN:122 PD:T 122 REBAR CAP 8032 — 775 SURVEY BASELINE — N 89°34' 38" E 636.17' — N89°28' 31"E 988.51' — PN:121 PD:T 121 REBAR CAP 121 — N89°05' 40" E 47.81' 8400 — 8401 — 780

PI3780+00.08

SURVEY CONTROL DETAILS

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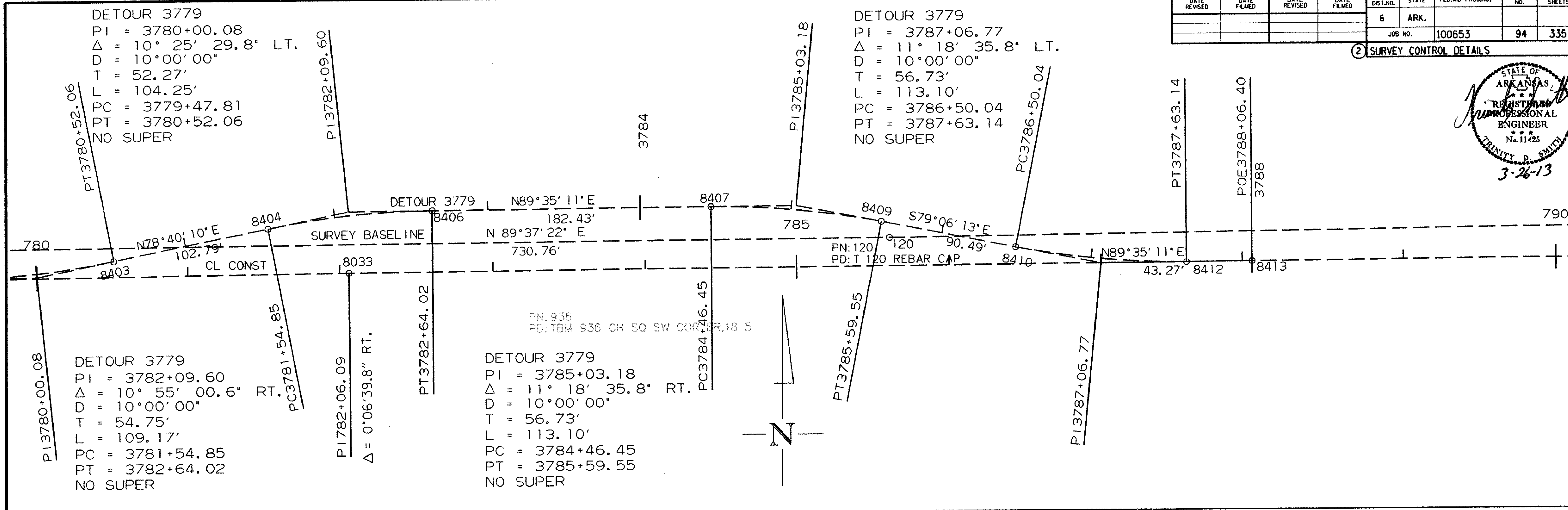
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	94	335

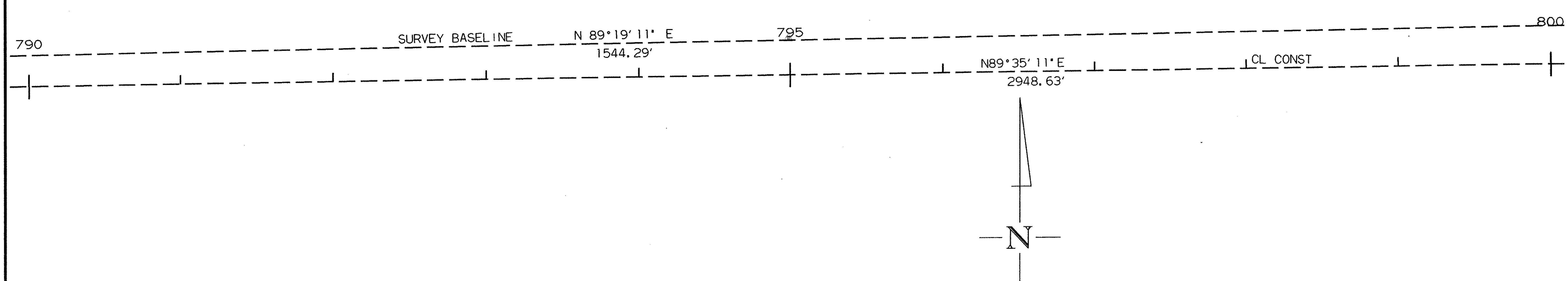
(2) SURVEY CONTROL DETAILS

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

3-26-13



DETOUR 3779
PI = 3780+00.08
Δ = 10° 25′ 29.8" LT.
D = 10°00′00"
T = 52.27′
L = 104.25′
PC = 3779+47.81
PT = 3780+52.06
NO SUPER
DETOUR 3779
PI = 3787+06.77
Δ = 11° 18′ 35.8" LT.
D = 10°00′00"
T = 56.73′
L = 113.10′
PC = 3786+50.04
PT = 3787+63.14
NO SUPER
DETOUR 3779
PI = 3782+09.60
Δ = 10° 55′ 00.6" RT.
D = 10°00′00"
T = 54.75′
L = 109.17′
PC = 3781+54.85
PT = 3782+64.02
NO SUPER
DETOUR 3779
PI = 3785+03.18
Δ = 11° 18′ 35.8" RT.
D = 10°00′00"
T = 56.73′
L = 113.10′
PC = 3784+46.45
PT = 3785+59.55
NO SUPER
PT3780+52.06
PI3782+09.60
3784
PI3785+03.18
PC3786+50.04
PT3787+63.14
POE3788+06.40
3788
DETOUR 3779
N89°35′11"E
182.43′
8407
8409
S79°06′13"E
90.49′
790
780
N78°40′10"E
102.79′
8404
SURVEY BASELINE
8406
N 89°37′22" E
730.76′
785
PN: 120
PD: T 120 REBAR CAP
120
8410
N89°35′11"E
43.27′
8412
8413
8403
CL CONST
8033
PN: 936
PD: TBM 936 CH SQ SW COR BR,18 5
PI3780+00.08
PC3781+54.85
PI782+06.09
Δ = 0°06′39.8" RT.
PT3782+64.02
PC3784+46.45
PT3785+59.55
PI3787+06.77
N



SURVEY CONTROL DETAILS

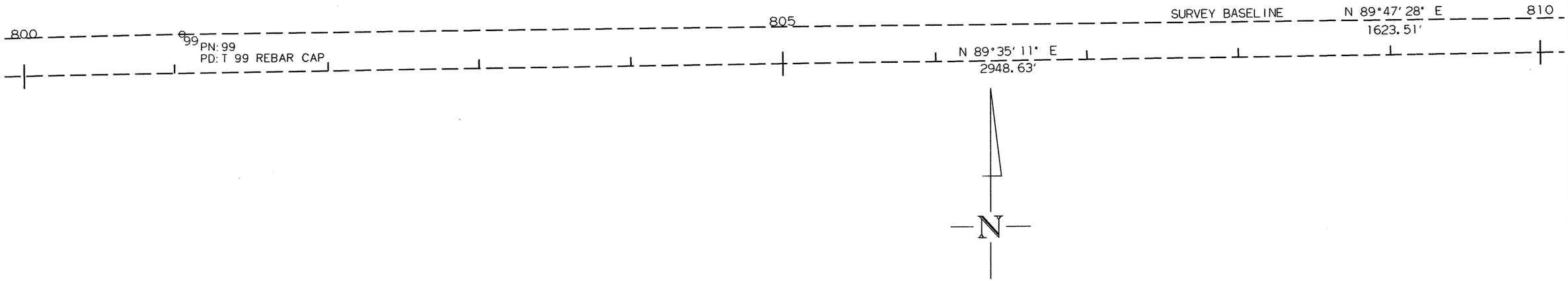
R10653.DGN

3/5/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	95	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



SURVEY CONTROL DETAILS

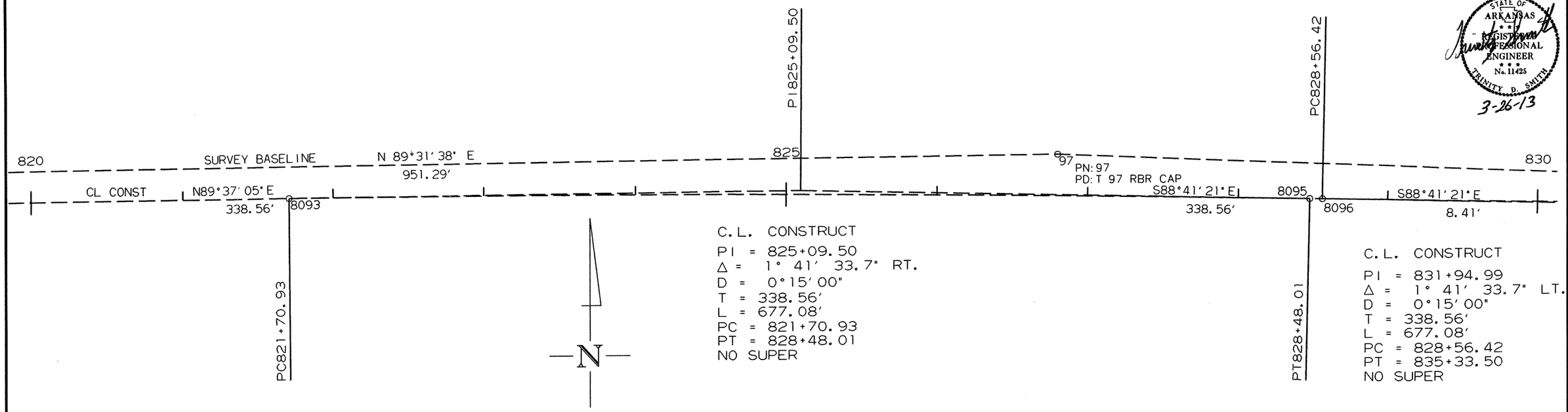
3/5/2013

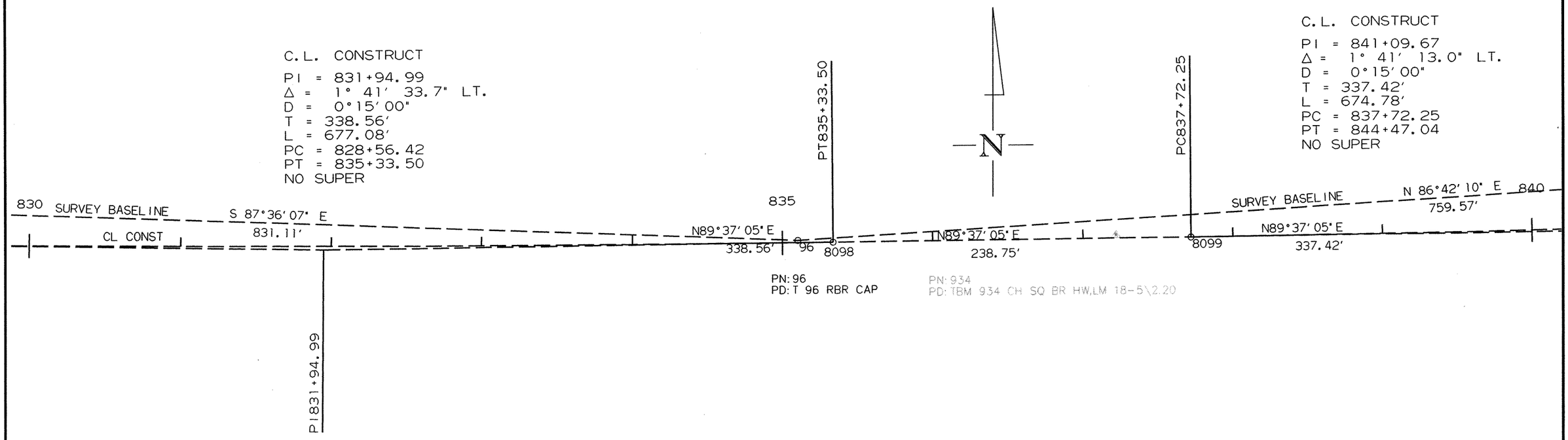
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	96	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13





SURVEY CONTROL DETAILS

3/5/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	97	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

C. L. CONSTRUCT
PI = 841+09.67
Δ = 1° 41' 13.0" LT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 837+72.25
PT = 844+47.04
NO SUPER

PT844+47.04

P1847+97.49

SURVEY BASELINE

N 89°19'59" E
1045.71'

840 — 845 — 850

95
PN: 95
PD: T 95 RBR CAP

N87°55'52"E
337.42'

8101 — 8102

N87°55'52"E CL CONST
13.04'

P1841+09.67

PC844+60.08

N

C. L. CONSTRUCT
PI = 847+97.49
Δ = 1° 41' 13.0" RT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 844+60.08
PT = 851+34.86
NO SUPER

N

850 — 855 — 860

SURVEY BASELINE

N 89°57'38" E
869.91'

94
PN: 94
PD: T 94 RBR CAP

CL CONST

N89°37'05"E
337.42'

8104

C. L. CONSTRUCT
PI = 847+97.49
Δ = 1° 41' 13.0" RT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 844+60.08
PT = 851+34.86
NO SUPER

PT851+34.86

SURVEY CONTROL DETAILS

3/5/2013

R100653.DGN

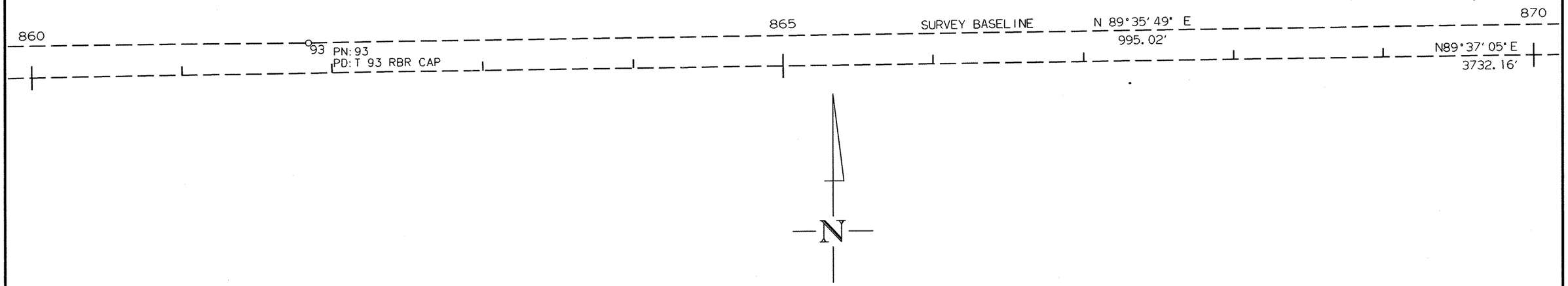
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

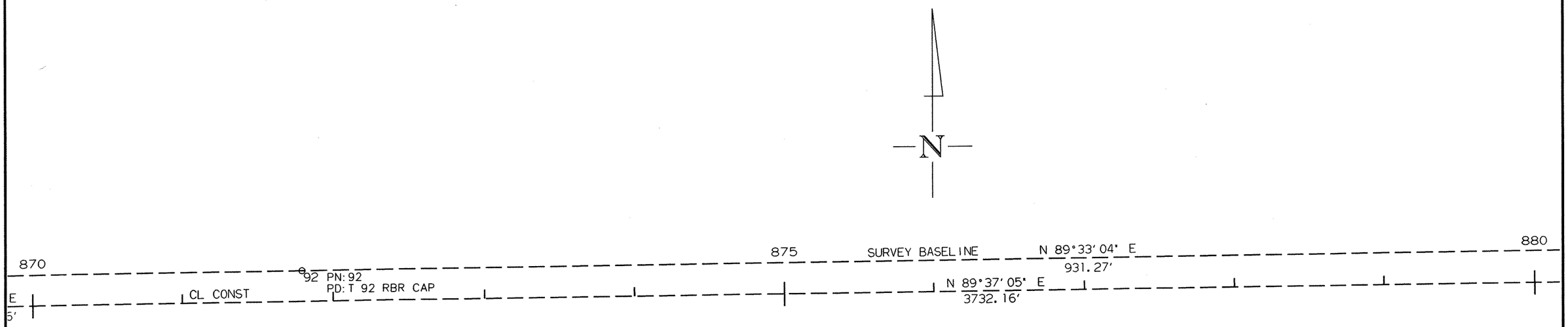
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	98	335

(2) SURVEY CONTROL DETAILS

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

3-26-13





SURVEY CONTROL DETAILS

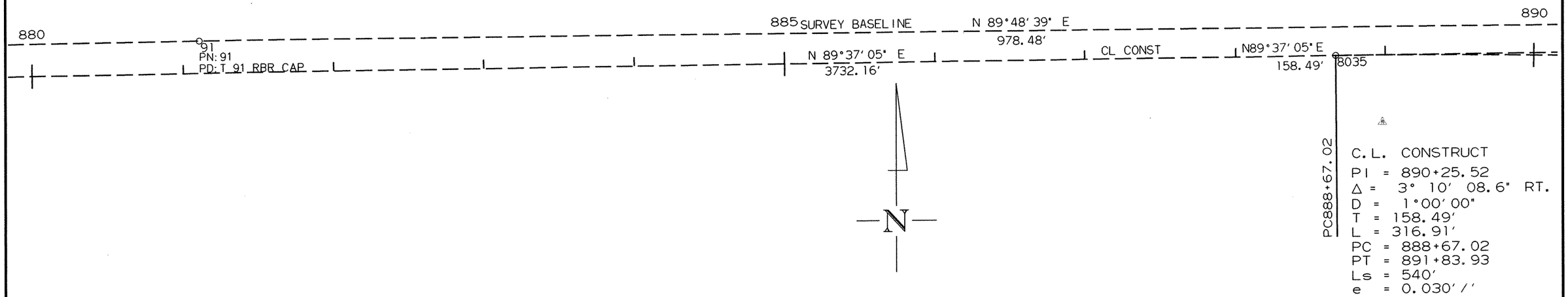
3/5/2013

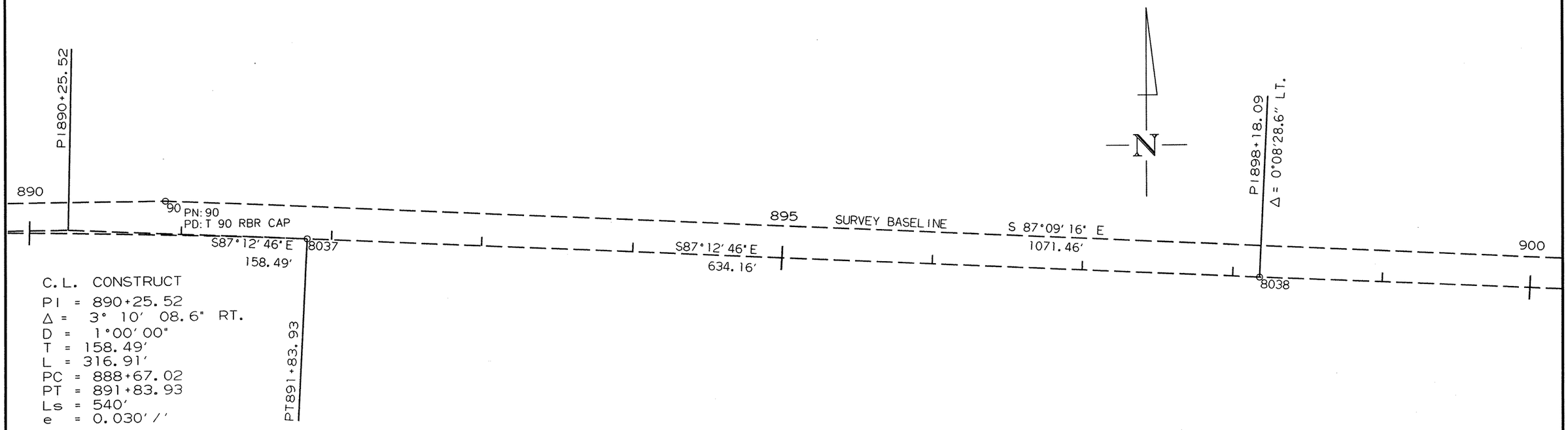
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	99	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13





SURVEY CONTROL DETAILS

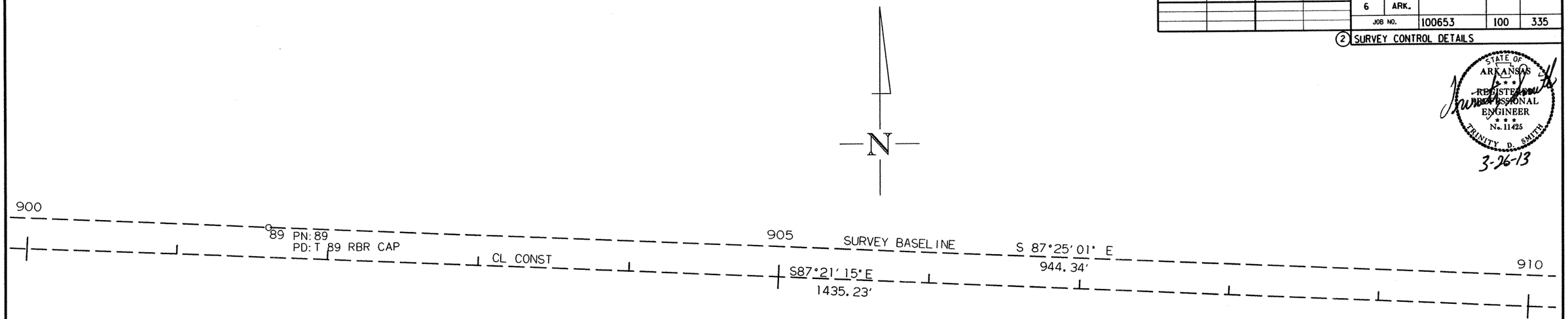
3/5/2013

R100653.DGN

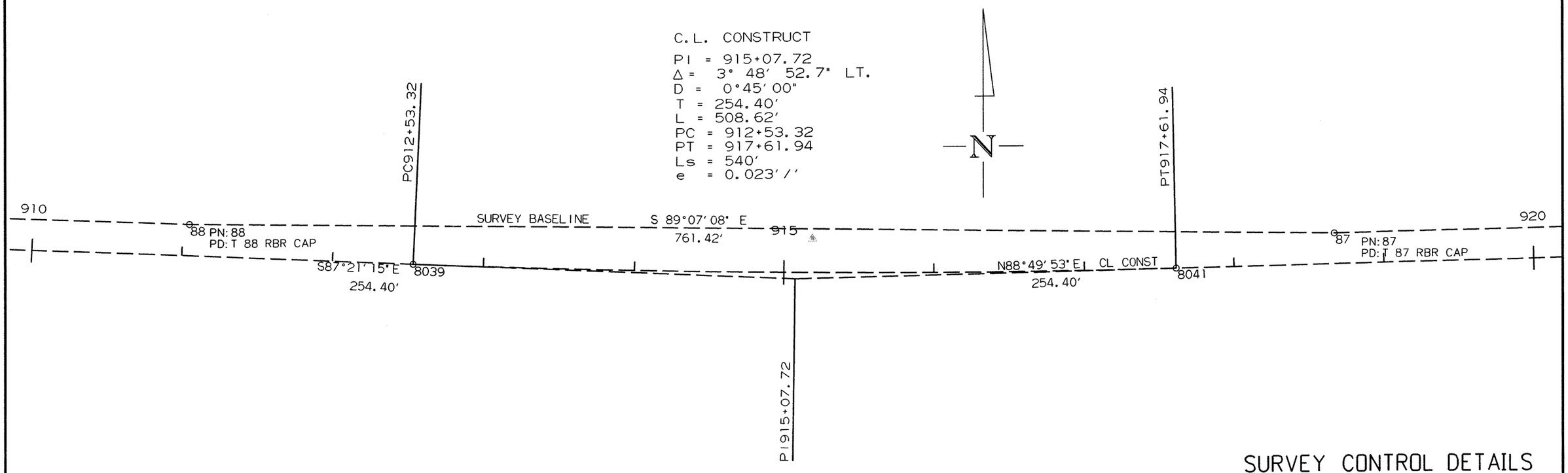
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	100	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



C.L. CONSTRUCT
PI = 915+07.72
Δ = 3° 48' 52.7" LT.
D = 0°45'00"
T = 254.40'
L = 508.62'
PC = 912+53.32
PT = 917+61.94
Ls = 540'
e = 0.023'/'



SURVEY CONTROL DETAILS

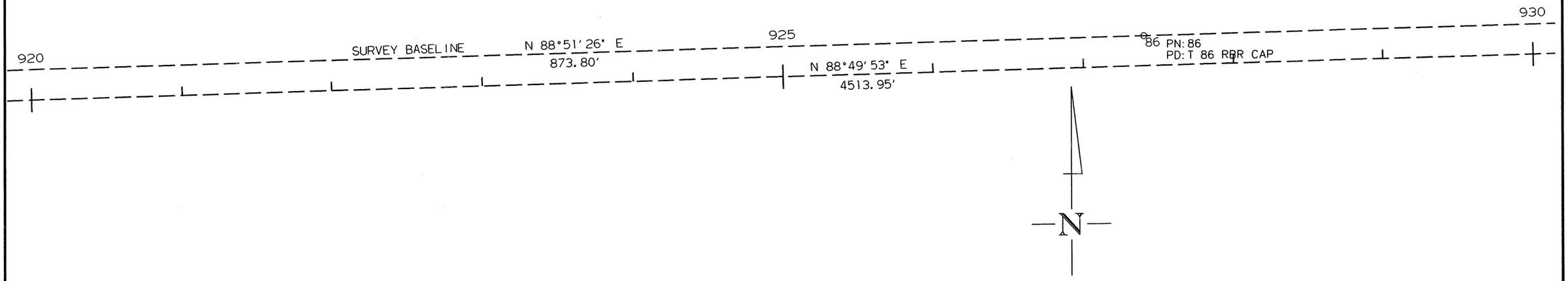
3/5/2013

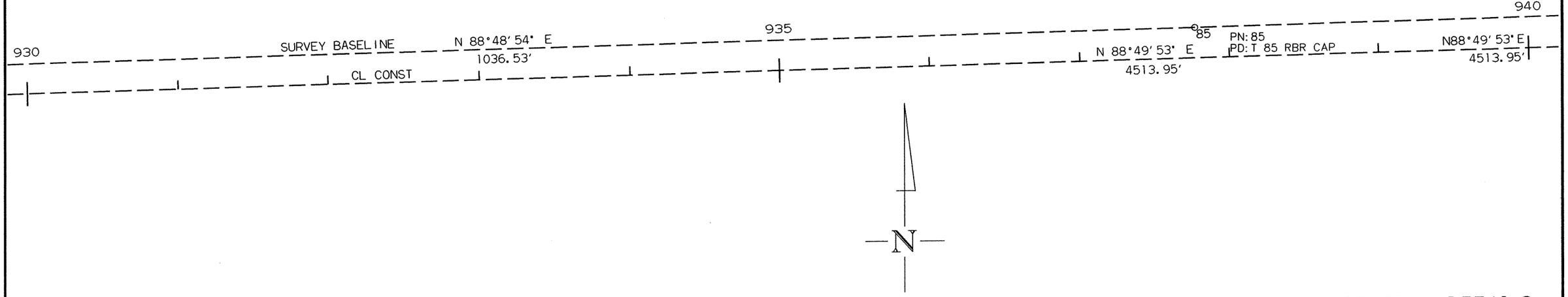
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	101	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13





SURVEY CONTROL DETAILS

3/5/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	102	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

940 SURVEY BASELINE N 88°42'48" E 862.52' 945 84 PN: 84 PD: T 84 RBR CAP 950

E 95'

CL CONST

N

950 SURVEY BASELINE N 88°50'48" E 907.55' N 88°49'53" E 4513.95' 955 83 PN: 83 PD: T 83 RBR CAP SURVEY BASELINE N 88°45'32" E 777.29' 960

N

3/5/2013

R100653.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.		100653	103	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

960 — CL CONST — 8042 — P1962+75.88 — Δ = 0°07'35.2" RT. — 82 PN: 82 PD: T 82 RBR CAP — 965 — SURVEY BASELINE — N 88°58'55" E 902.32' — 970

N

970 — 81 PN: 81 PD: T 81 RBR CAP — CL CONST — 975 — SURVEY BASELINE — N88°57'28"E 2817.57' — N 88°53'18" E 1030.67' — 980

N

3/5/2013

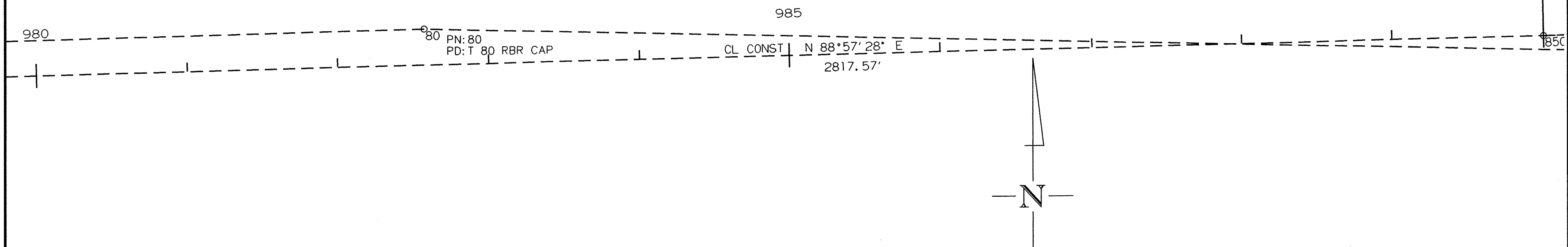
R100653.DGN

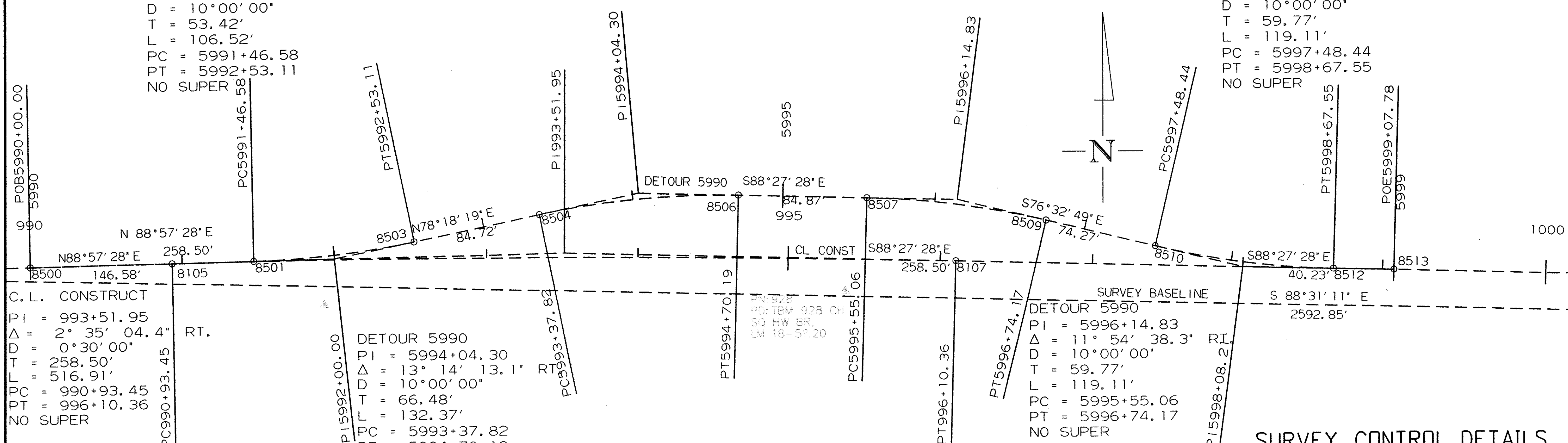
SURVEY CONTROL DETAILS

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.		100653	104	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
3-26-13





DETOUR 5990
PI = 5992+00.00
Δ = 10° 39′ 08.7" LT.
D = 10°00′00"
T = 53.42′
L = 106.52′
PC = 5991+46.58
PT = 5992+53.11
NO SUPER

DETOUR 5990
PI = 5998+08.21
Δ = 11° 54′ 38.3" LT.
D = 10°00′00"
T = 59.77′
L = 119.11′
PC = 5997+48.44
PT = 5998+67.55
NO SUPER

C.L. CONSTRUCT
PI = 993+51.95
Δ = 2° 35′ 04.4" RT.
D = 0°30′00"
T = 258.50′
L = 516.91′
PC = 990+93.45
PT = 996+10.36
NO SUPER

DETOUR 5990
PI = 5994+04.30
Δ = 13° 14′ 13.1" RT.
D = 10°00′00"
T = 66.48′
L = 132.37′
PC = 5993+37.82
PT = 5994+70.19
NO SUPER

DETOUR 5990
PI = 5996+14.83
Δ = 11° 54′ 38.3" RT.
D = 10°00′00"
T = 59.77′
L = 119.11′
PC = 5995+55.06
PT = 5996+74.17
NO SUPER

SURVEY CONTROL DETAILS

3/5/2013
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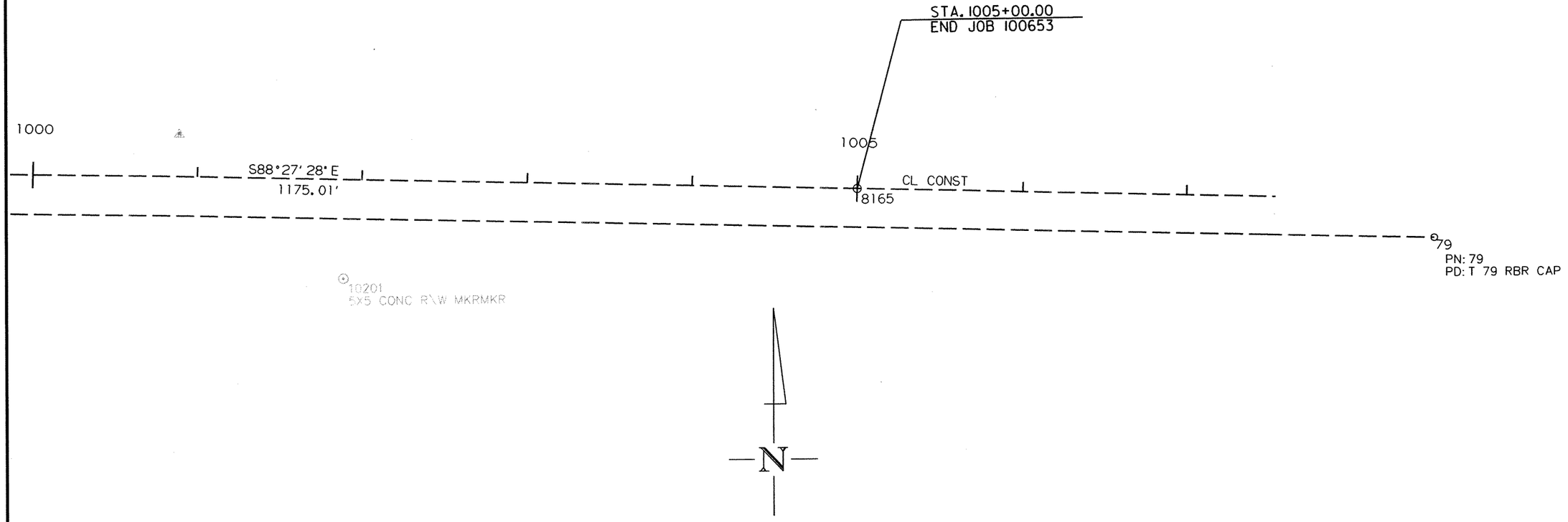
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	105	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13



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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	106	335

(2) PLAN AND PROFILE STA. 640+00-STA. 650+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY P. SMITH
3-26-13

STA. 640+54 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +63
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

DRIVE ON CR 565 CONSTRUCT
APPR. ON LT. = 40 CU. YDS.

DRIVE ON CR 565 CONSTRUCT
APPR. ON RT. = 40 CU. YDS.

STA. 642+25 CONSTRUCT
APPR. ON LT. = 145 CU. YDS.

STA. 643+47 IN PLACE
24" X 38' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +46
24" X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 85 CU. YDS.

STA. 646+51 IN PLACE
18" X 42' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +52
24" X 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 75 CU. YDS.

N

CULTIVATED FIELD

100' TRANSITION

TCE

PROPOSED R/W

PARKING

EXIST. R/W

CONST. LIMITS

EXIST. R/W

CONST. LIMITS

635 640 645 650

LOWEST LINE

S 88°58'53.4" E

40' RADIUS

60' RADIUS

65' RADIUS

CONST. LIMITS
PROPOSED R/W

CULTIVATED FIELD

STA. 642+28 IN PLACE
18" X 105' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +31
24" X 86' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 135 CU. YDS.

STA. 645+68 IN PLACE
18" X 26' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 646+82 IN PLACE
18" X 26' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +83
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 647+81 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +91
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 649+65 INSTALL
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

P.I. 646+85.85
Δ = 0°11'55.6" RT.

CONCRETE

STA. 640+00.00 - BEGIN
JOB 100653
LOG MILE 26.89

LT. DITCH
GRADE 0.07%

RT. DITCH GRADE 0.05%

LT. DITCH GRADE -0.01%

LT. DITCH GRADE -0.01%

640+00.00
231.59 RT.
232.25 LT.

641+00.00
232.32 LT.

645+00.00
232.44 LT.

646+75.00
232.42 LT.

647+00.00
232.40 LT.

649+00.00
232.38 LT.

255 250 245 240 235 230 225 220 215 210

635+00 636+00 637+00 638+00 639+00 640+00 641+00 642+00 643+00 644+00 645+00 646+00 647+00 648+00 649+00 650+00

3/6/2013

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				6	ARK.			
				JOB NO.		100653	107	335

(2) PLAN AND PROFILE SHEETS

STA. 650+50 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +51
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

STA. 652+82 IN PLACE
24" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +83
24" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 75 CU. YDS.

STA. 654+57 IN PLACE
18" X 24' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +58
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 655+56 IN PLACE
18" X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +60
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 656+58 IN PLACE
18" X 19' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +60
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 657+56 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +57
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 658+57 IN PLACE
18" X 20' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +58
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 660+23 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +24
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 661+05 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 662+54 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +53
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

C.L. CONSTRUCT
PI = 665+00.00
Δ = 1°41'29.4" LT.
D = 0°15'00"
T = 338.33'
L = 676.60'
PC = 661+61.67
PT = 668+38.28
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
3-26-13

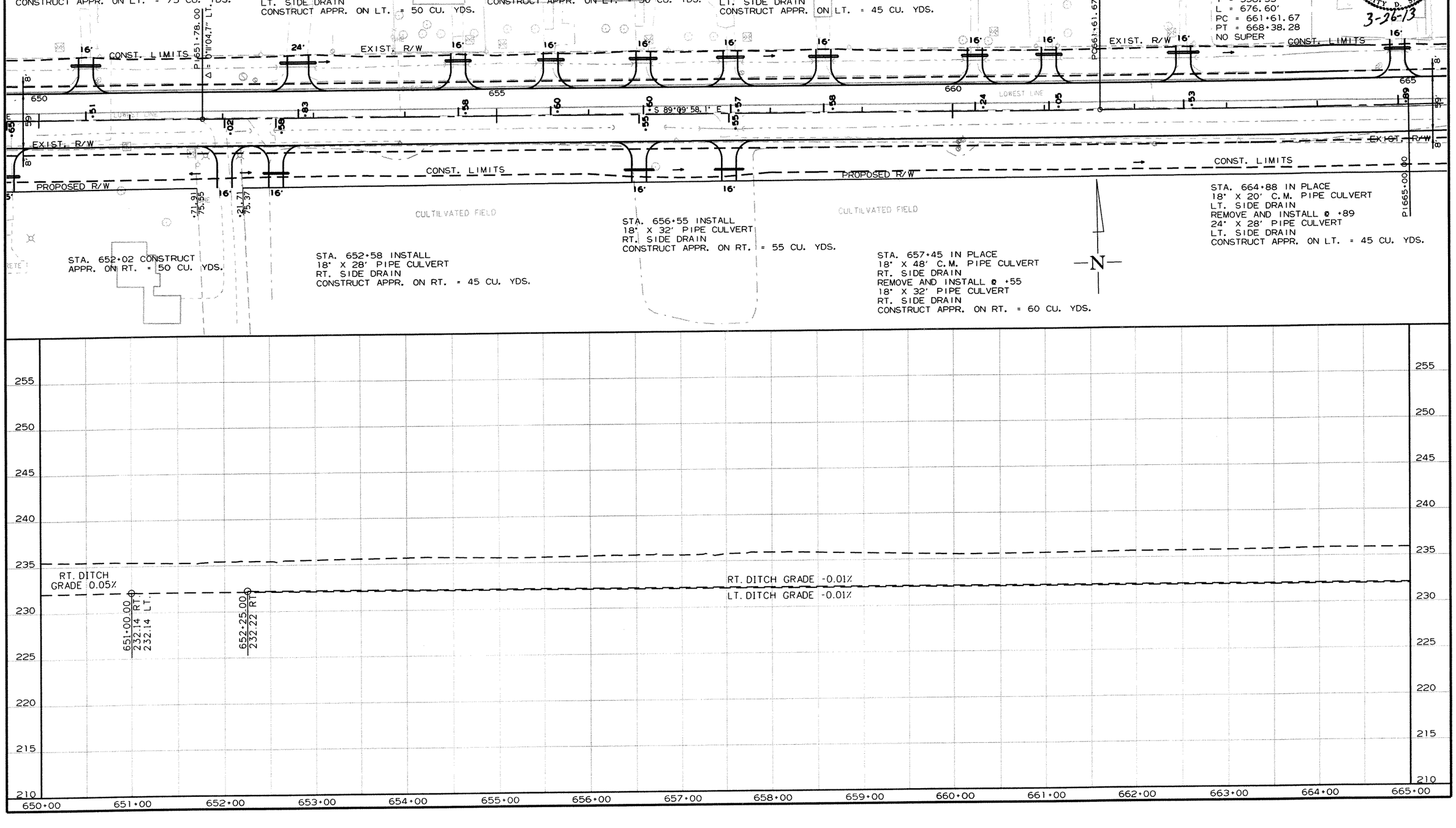
STA. 664+88 IN PLACE
18" X 20' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +89
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 652+02 CONSTRUCT
APPR. ON RT. = 50 CU. YDS.

STA. 652+58 INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 45 CU. YDS.

STA. 656+55 INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 657+45 IN PLACE
18" X 48' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +55
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	108	335

(2) PLAN AND PROFILE SHEETS

C.L. CONSTRUCT
PI = 665+00.00
Δ = 1° 41' 29.4" LT.
D = 0°15'00"
T = 338.33'
L = 676.60'
PC = 661+61.67
PT = 668+38.28
NO SUPER

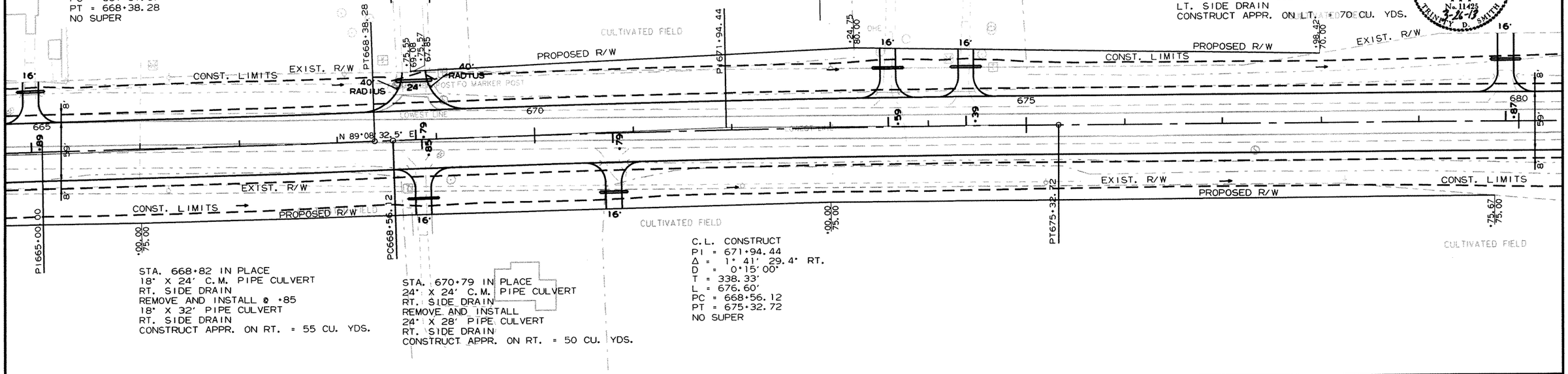
STA. 668+79 IN PLACE
18" X 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 36' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 673+58 IN PLACE
18" X 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +59
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

STA. 674+36 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +39
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

STA. 679+87 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

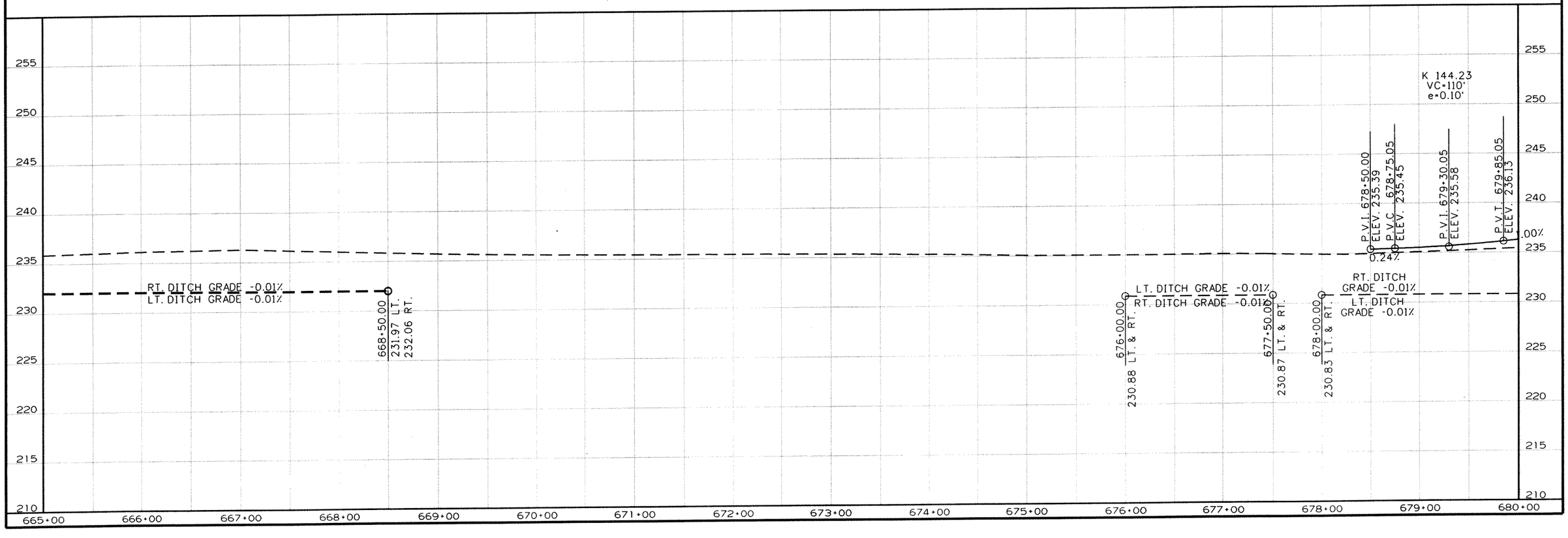
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
2-26-13
TRINITY D. SMITH



STA. 668+82 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +85
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 670+79 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

C.L. CONSTRUCT
PI = 671+94.44
Δ = 1° 41' 29.4" RT.
D = 0°15'00"
T = 338.33'
L = 676.60'
PC = 668+56.12
PT = 675+32.72
NO SUPER



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	109	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
TRINITY D. SMITH

STA. 682+09 CONSTRUCT
QUAD. 10' X 6' X 121' R.C. BOX CULVERT
W/ 3:1 WINGS LT. & RT.
CHANNEL CHANGE = 1600 CU. YDS.
D.A. = 2.1 SQ. MI., Q50 = 500 C.F.S.

STA. 686+11 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ 685+83
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

STA. 686+67 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

N

DITCH NO. 5

EXIST. R/W
CONST. LIMITS
PROPOSED R/W
FO MARKER POST
CULTIVATED FIELD
CONCRETE
S 89°09'58.1" E
16'
680
685
690
695
59.87
59.83
59.67
59.77
59.24
75.37
75.00
75.67
75.00
75.00
75.00
18.94
75.00
50.00
90.08
80.00
110.00
95.00
110.00
35.00
110.00
55.00
100.11
75.00
90.21
95.00
175.00
55.00
175.00

STA. 681+71.52 TO STA. 682+46.57 - IN PLACE
39' X 75' CONCRETE DECK W/CONCRETE PIERS,
BRIDGE NO. 03964
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

STA. 689+77 IN PLACE
PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 232.0 FT.

K 160.00
VC=160'
e=-0.20'

K 160.00
VC=160'
e=-0.20'

K 136.00
VC=140'
e=0.18'

P.V.C. 680+20.00
ELEV. 236.48
P.V.I. 681+00.00
ELEV. 237.28
P.V.T. 681+80.00
ELEV. 237.28
P.V.C. 682+40.00
ELEV. 237.28
P.V.I. 683+20.00
ELEV. 237.28
P.V.T. 684+00.00
ELEV. 236.48
P.V.C. 684+01.83
ELEV. 236.46
P.V.I. 684+71.95
ELEV. 235.76
P.V.T. 685+42.07
ELEV. 235.78
P.V.I. 685+50.00
ELEV. 235.78

1.00%
0.00%
1.00%
0.03%

+09
DESIGN HW
Q50 = 233.5

RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.01%

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

681+87.00
230.79 LT. & RT.
682+31.00
231.10 LT. & RT.
693+00.00
231.21 LT. & RT.

F.L. INLET LT.= 227.49
F.L. OUTLET RT.= 227.48

255 250 245 240 235 230 225 220 215 210

680+00 681+00 682+00 683+00 684+00 685+00 686+00 687+00 688+00 689+00 690+00 691+00 692+00 693+00 694+00 695+00

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				6	ARK.			
				JOB NO.		100653	110	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 695+27 IN PLACE
18" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +24
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 697+61 CONSTRUCT
APPR. ON LT. = 60 CU. YDS.

STA. 701+95 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +89
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 703+05 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +06
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

STA. 704+57 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +58
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 708+79 IN PLACE
24" X 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +80
24" X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 80 CU. YDS.

CULTIVATED FIELD
CONST. LIMITS
PROPOSED R/W
EXIST. R/W
LOWEST LINE
MARKER POST
40' RADIUS
S 89°04'25.6" E
P1698+92.10
Δ = 0°05'32.5" RT.
RC710+24.20

STA. 695+68 IN PLACE
24" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 705+96 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 706+00
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

N

255 250 245 240 235 230 225 220 215 210

700+00.00 231.56 LT. & RT.

LT. DITCH GRADE -0.01%
RT. DITCH GRADE -0.01%

706+50.00 231.50 LT. & RT.

707+00.00 231.39 LT. & RT.

RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.01%

695+00 696+00 697+00 698+00 699+00 700+00 701+00 702+00 703+00 704+00 705+00 706+00 707+00 708+00 709+00 710+00

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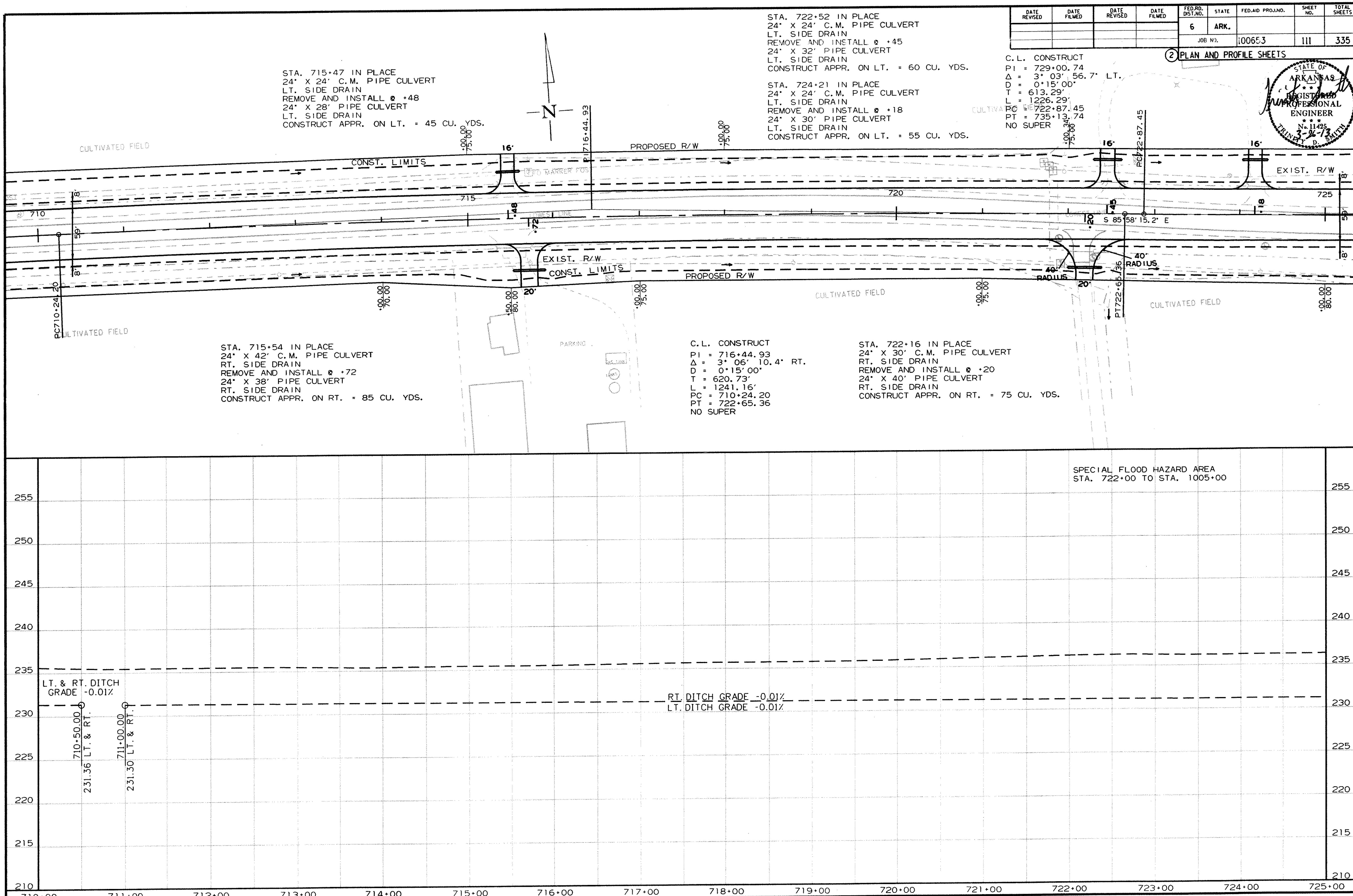
				6	ARK.			
				JOB NO.		100653	111	335

(2) PLAN AND PROFILE SHEETS



STA. 715+47 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +48
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.
STA. 722+52 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +45
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.
STA. 724+21 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +18
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.
C.L. CONSTRUCT
PI = 729+00.74
Δ = 3° 03' 56.7" LT.
D = 0°15'00"
T = 613.29'
L = 1226.29'
PC = 722+87.45
PT = 735+13.74
NO SUPER
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-6-13
N
CULTIVATED FIELD
CONST. LIMITS
PROPOSED R/W
EXIST. R/W
PI716+44.93
PC722+87.45
PC710+24.20
PT722+65.36
S 85°58'15.2" E
40' RADIUS
16'
20'
710
715
720
725
STA. 715+54 IN PLACE
24" X 42' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +72
24" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 85 CU. YDS.
C.L. CONSTRUCT
PI = 716+44.93
Δ = 3° 06' 10.4" RT.
D = 0°15'00"
T = 620.73'
L = 1241.16'
PC = 710+24.20
PT = 722+65.36
NO SUPER
STA. 722+16 IN PLACE
24" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +20
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.
PARKING
SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00
LT. & RT. DITCH GRADE -0.01%
RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.01%
710+50.00 LT. & RT. 231.36
711+00.00 LT. & RT. 231.30
255
250
245
240
235
230
225
220
215
210
710+00
711+00
712+00
713+00
714+00
715+00
716+00
717+00
718+00
719+00
720+00
721+00
722+00
723+00
724+00
725+00

R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	112	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-26-13

STA. 726+76 IN PLACE
24" X 36' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +84
24" X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 110 CU. YDS.

STA. 728+13 IN PLACE
24" X 34' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +12
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 80 CU. YDS.

STA. 728+95 IN PLACE
24" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +98
24" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 105 CU. YDS.

C.L. CONSTRUCT
PI = 729+00.74
Δ = 3° 03' 56.7" LT.
D = 0°15'00"
T = 613.29'
L = 1226.29'
PC = 722+87.45
PT = 735+13.74
NO SUPER

STA. 730+43 CONSTRUCT
QUINT. 10' X 8' X 121' R.C. BOX CULVERT
W/ 3:1 WINGS LT. & RT.
CHANNEL CHANGE = 2200 CU. YDS.
D.A. = 5.5 SQ. MI., Q50 = 340 C.F.S.

STA. 737+03 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +00
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 738+57 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +60
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

DITCH NO. 13

PROPOSED R/W
CONST. LIMITS
EXIST. R/W
CULTIVATED FIELD
PI 735+13.74
S 89°02'11.9" E

STA. 729+13 IN PLACE
24" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +32
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 120 CU. YDS.

PI 729+00.74

STA. 731+82 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +61
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 738+36 CONSTRUCT
APPR. ON RT. = 50 CU. YDS.

STA. 730+06.05 TO STA. 730+81.03 - IN PLACE
39' 1" X 75' CONCRETE DECK W/CONCRETE PIERS,
BRIDGE NO. 03965
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

TCE

STA. 732+20 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

N

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 233.0 FT.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

K 161.94
VC-60'
e-0.03'

K 162.50
VC-130'
e--0.13'

K 160.00
VC-160'
e--0.20'

K 150.56
VC-110'
e-0.10'

P.V.I. 727+00.00 ELEV. 237.56
P.V.C. 727+55.91 ELEV. 237.80
P.V.I. 727+85.91 ELEV. 237.93
P.V.T. 728+15.91 ELEV. 238.17
P.V.C. 728+75.00 ELEV. 238.64
P.V.I. 729+40.00 ELEV. 239.16
P.V.T. 730+05.00 ELEV. 239.16
P.V.C. 730+80.00 ELEV. 239.16
P.V.I. 731+60.00 ELEV. 239.16
P.V.T. 732+40.00 ELEV. 238.36
P.V.C. 733+11.53 ELEV. 237.64
P.V.I. 733+66.53 ELEV. 237.09
P.V.T. 734+21.53 ELEV. 236.95
P.V.I. 734+50.00 ELEV. 236.87

0.43% 0.80% 0.00% -1.00% -0.27%

+43
730+71.00 231.98 RT.
730+15.00 231.11 LT. & RT.
730+71.00 231.72 LT.

DESIGN HW
Q50 = 232.9

F.L. INLET LT.= 227.37
F.L. OUTLET RT.= 227.36

LT. DITCH GRADE -0.01%
RT. DITCH GRADE -0.01%

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

738+20.00 232.05 RT.
739+00.00 232.02 RT.

RT. DITCH GRADE -0.01%

BM: 938 TBM 938 CH SO SE COR BR.
27.3 IRT. OF STA. 730+06.78
ELEVATION = 237.96

255 250 245 240 235 230 225 220 215 210

725+00 726+00 727+00 728+00 729+00 730+00 731+00 732+00 733+00 734+00 735+00 736+00 737+00 738+00 739+00 740+00

R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	100653		113	335

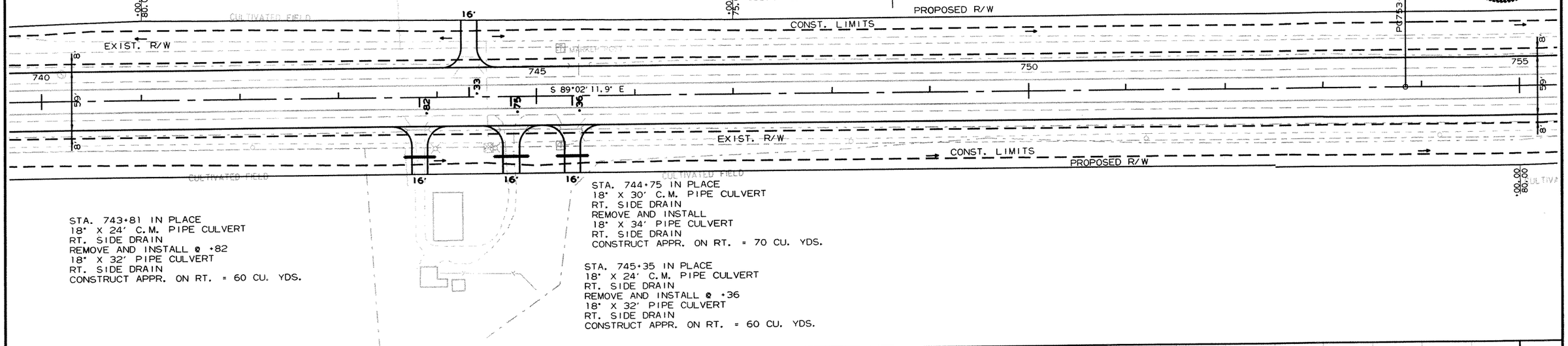
(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 745+43 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 744+33 CONSTRUCT
APPR. ON LT. = 55 CU. YDS.

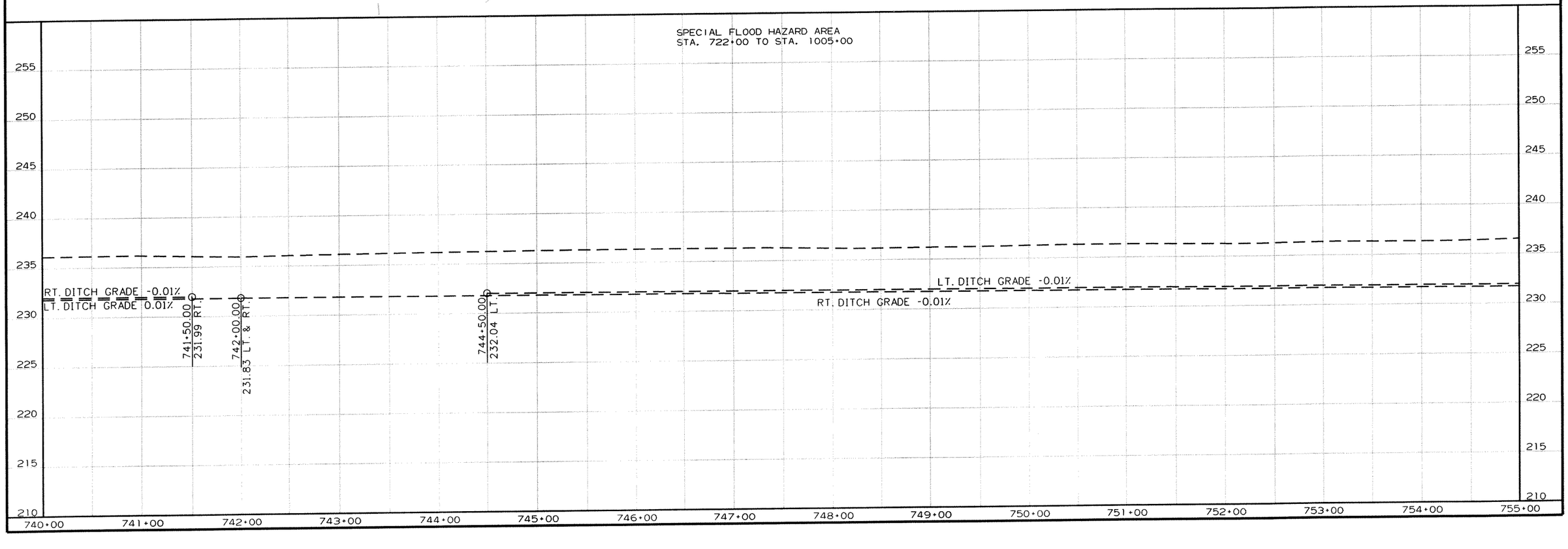
C.L. CONSTRUCT
PI = 756+31.03
Δ = 1° 14' 13.4" LT.
D = 0°15'00"
T = 247.42'
L = 494.82'
PC = 753+83.61
PT = 758+78.43
NO SUPER



STA. 743+81 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +82
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 744+75 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 745+35 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +36
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.



3/6/2013
R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	114	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINA D. SMITH
2-26-13

STA. 756+91 INSTALL
18" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 80 CU. YDS.

STA. 760+24 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +23
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 761+35 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +23
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 762+56 IN PLACE
24" X 65' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +44
24" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 765+37 IN PLACE
24" X 36' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +13
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

C.L. CONSTRUCT
PI = 756+31.03
Δ = 1° 14' 13.4" LT.
D = 0°15'00"
T = 247.42'
L = 494.82'
PC = 753+83.61
PT = 758+78.43
NO SUPER

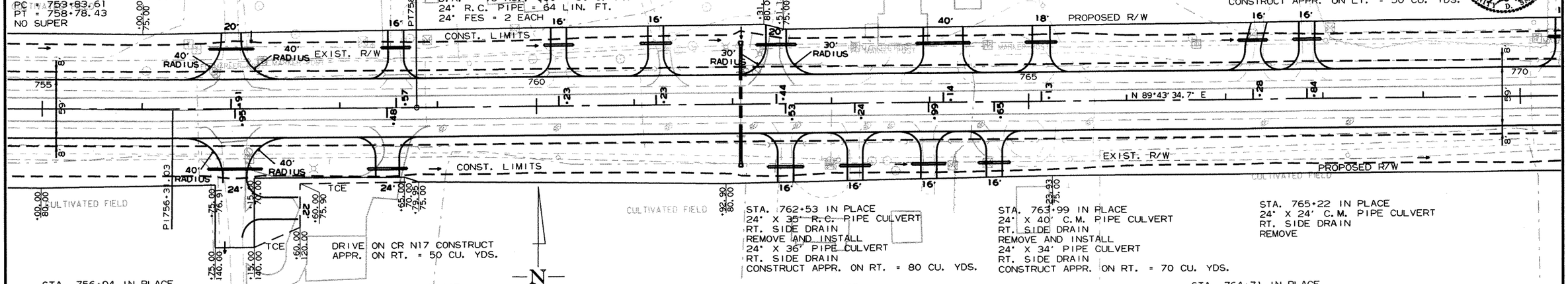
STA. 758+58 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +57
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 762+08 IN PLACE
24" X 66' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
24' LT. & 24' RT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
D.A. = 15 AC., Q50 = 30 C.F.S.
24" R.C. PIPE = 64 LIN. FT.
24" FES = 2 EACH

STA. 763+88 IN PLACE
18" X 96' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ 764+14
24" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 105 CU. YDS.

STA. 767+31 IN PLACE
24" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +28
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 767+85 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +84
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.



STA. 756+94 IN PLACE
18" X 40' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +95
18" X 56' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 155 CU. YDS.

DRIVE ON CR N17 CONSTRUCT
APPR. ON RT. = 50 CU. YDS.

STA. 758+58 IN PLACE
24" X 44' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +48
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 762+53 IN PLACE
24" X 35' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 80 CU. YDS.

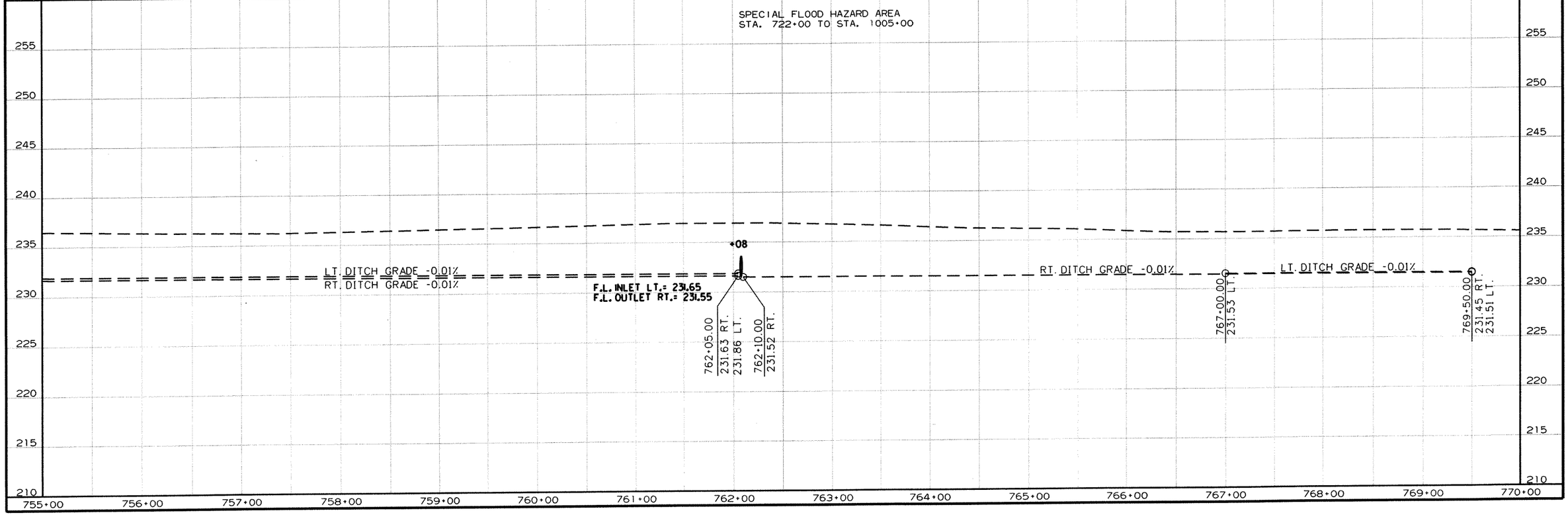
STA. 763+24 IN PLACE
24" X 23' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

STA. 763+99 IN PLACE
24" X 40' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 765+22 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 764+71 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +65
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00



3/6/2013

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	115	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 2-26-13

STA. 770+31 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +44
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 776+47 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 777+06 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ 782+00
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 783+61 CONSTRUCT
QUAD. 12' X 9' X 121' R.C. BOX CULVERT
W/ 3:1 WINGS LT. & RT.
CHANNEL CHANGE = 2800 CU. YDS.
D.A. = 6.2 SQ. MI., Q50 = 450 C.F.S.

CULTIVATED FIELD

P.I. 772+17.58
Δ = 01°03.7" LT.

16' PROPOSED R/W
CONST. LIMITS
EXIST. R/W

770 775 780 785

L 1.44 L 1.49 L 1.03 L 1.03 L 1.47 N 89°28'31.0" E L 1.15 L 1.19 L 1.20 L 1.00

24' 16' 16' 16' 16' 16' 16'

CONST. LIMITS
PROPOSED R/W

STA. 770+89 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 773+01 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +03
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 777+07 INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

POND

STA. 779+04 IN PLACE
30" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +02
30" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 771+49 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +48
24" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 774+05 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +03
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 777+80 IN PLACE
18" X 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +91
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

CULTIVATED FIELD

P.I. 782+06.09
Δ = 0°06'39.8" RT.

STA. 783+16.30 TO STA. 784+06.47 - IN PLACE
39' 1" X 90' CONCRETE DECK W/CONCRETE PIERS,
BRIDGE NO. 03966
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 3) = 1.00 LUMP SUM

CULTIVATED FIELD

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 232.0 FT.

K 141.91
VC=100'
e=0.09'

K 160.00
VC=160'
e=-0.20'

K 160.00
VC=160'
e=-0.20'

P.V.I. 779+50.00 ELEV. 236.15
P.V.C. 779+99.65 ELEV. 236.30
P.V.I. 780+49.65 ELEV. 236.45
P.V.T. 780+99.65 ELEV. 236.95
P.V.C. 781+65.00 ELEV. 237.60
P.V.I. 782+45.00 ELEV. 238.40
P.V.T. 783+25.00 ELEV. 238.40
P.V.C. 784+00.00 ELEV. 238.40
P.V.I. 784+80.00 ELEV. 238.40

0.30% 1.00% 0.00%

+61

DESIGN HW
Q50 = 232.1

RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.01%

LT. DITCH GRADE -0.01%
RT. DITCH GRADE -0.01%

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

771+00.00 231.09 LT. & RT.
774+50.00 231.06 LT. & RT.
775+00.00 231.02 LT. & RT.
782+50.00 230.95 LT.
783+34.00 230.94 RT.
783+88.00 229.30 LT. & RT.

F.L. INLET LT.= 225.50
F.L. OUTLET RT.= 225.46

BM: 936 TBM 936 CH SO SW COR BR.18 5
20.14 RT. OF STA. 783+16.99
ELEVATION = 237.36

255 250 245 240 235 230 225 220 215 210

770+00 771+00 772+00 773+00 774+00 775+00 776+00 777+00 778+00 779+00 780+00 781+00 782+00 783+00 784+00 785+00

3/6/2013

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				6	ARK.			
				JOB NO.		100653	116	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 785+71 IN PLACE
30" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +73
30" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 135 CU. YDS.

STA. 791+05 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 794+75 IN PLACE
18" X 57' STEEL PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +74
18" X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 100 CU. YDS.

STA. 796+09 IN PLACE
18" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +08
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 797+65 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +64
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

CULTIVATED FIELD

CONST. LIMITS

40' PROPOSED R/W

22' EXIST. R/W

16'

785 790 795 800

N 89°35' 10.8" E

EXIST. R/W

CONST. LIMITS

PROPOSED R/W

TRANSMISSION LINE

STA. 785+86 IN PLACE
24" X 27' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +84
24" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 125 CU. YDS.

STA. 787+56 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +54
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 110 CU. YDS.

STA. 788+27 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +24
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 110 CU. YDS.

STA. 791+17 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 798+26 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +37
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 799+92 IN PLACE
18" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +77
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

K 160.00
VC=160'
e=-0.20'

K 170.09
VC=80'
e=0.05'

P.V.T. 785+60.00
ELEV. 237.60

-1.00%

P.V.C. 786+62.54
ELEV. 236.57

P.V.I. 787+02.54
ELEV. 236.17

P.V.T. 787+42.54
ELEV. 235.96

P.V.I. 787+50.00
ELEV. 235.92

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

796+00.00
229.42 LT. & RT.

797+25.00
229.50 LT. & RT.

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

255 250 245 240 235 230 225 220 215 210

785+00 786+00 787+00 788+00 789+00 790+00 791+00 792+00 793+00 794+00 795+00 796+00 797+00 798+00 799+00 800+00

3/6/2013

R100653.DGN

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				6	ARK.			
				JOB NO.		100653	117	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
TRINITY D. SMITH

N

STA. 809+63 IN PLACE
24" X 78' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
PLUG AND ABANDON

STA. 809+00 CONSTRUCT
24" X 114' R.C. PIPE CULVERT
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
D.A. = 1.52 AC., Q50 = 1.81 C.F.S.
24" R.C. PIPE = 114 LIN. FT.
24" FES = 2 EACH

STA. 810+06 IN PLACE
30" X 76' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +10
30" X 114' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 495 CU. YDS.

STA. 809+84 CONSTRUCT
CONCRETE ISLAND W/TYPE
B CURB FACE = 31 SQ. YDS.

PROPOSED R/W
CONST. LIMITS
EXIST. R/W
100' RADIUS
70' RADIUS
40' RADIUS
40' RADIUS
800
805
810
815
N 89°37'05.5" E
CONCRETE
CONCRETE
CHAIN LINK FENCE
GRAVEL PARKING
CULTIVATED FIELD
P.I. 811+54.72 RT.
Δ = 0°01'54.6"

STA. 801+33 CONSTRUCT
APPR. ON RT. = 60 CU. YDS.

STA. 804+28 IN PLACE
24" X 48' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +29
24" X 54' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 105 CU. YDS.

STA. 805+50 IN PLACE
18" X 36' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 806+97 IN PLACE
18" X 36' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

STA. 810+12 CONSTRUCT
APPR. ON RT. = 75 CU. YDS.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%
801+00.00 229.54 LT. & RT.
801+50.00 229.57 RT.
LT. DITCH GRADE -0.01%
RT. DITCH GRADE -0.01%
804+00.00 229.94 LT.
806+50.00 229.91 LT.
RT. DITCH GRADE 0.16%
+00 +63
808+95.00 229.50 RT.
809+05.00 228.39 RT.
809+63.00 227.85 LT.
809+75.00 228.50 RT.
LT. DITCH GRADE -1.35%
811+00.00 226.00 LT.
RT. DITCH GRADE -1.00%
811+00.00 228.00 RT.
813+00.00 226.00 RT.
RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.05%

F.L. INLET RT.= 228.38
F.L. OUTLET LT.= 228.12
EXIST. F.L. INLET RT.= 228.38
EXIST. F.L. OUTLET LT.= 227.89

255 250 245 240 235 230 225 220 215 210

800+00 801+00 802+00 803+00 804+00 805+00 806+00 807+00 808+00 809+00 810+00 811+00 812+00 813+00 814+00 815+00

3/6/2013

RI00653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	118	335

(2) PLAN AND PROFILE SHEETS

C. L. CONSTRUCT
PI = 831+94.99
Δ = 1° 41' 33.7" LT.
D = 0°15'00"
T = 338.56'
L = 677.08'
PC = 828+56.42
PT = 835+33.50
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CULTIVATED FIELD

PROPOSED R/W
CONST. LIMITS
EXIST. R/W

N 89°37'05.5" E

PC821+70.93

PI 825+09.50

PC828+56.42

S 88°41'20.8" E

PT828+48.01

EXIST. R/W
PROPOSED R/W
CONST. LIMITS

CULTIVATED FIELD

C. L. CONSTRUCT
PI = 825+09.50
Δ = 1° 41' 33.7" RT.
D = 0°15'00"
T = 338.56'
L = 677.08'
PC = 821+70.93
PT = 828+48.01
NO SUPER

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

RT. DITCH GRADE -0.01%
LT. DITCH GRADE -0.05%
RT. DITCH GRADE 0.01%

823+25.00
225.90 RT.

823+30.00
225.90 RT.

829+00.00
225.10 LT.

255 250 245 240 235 230 225 220 215 210

815+00 816+00 817+00 818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00

R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	119	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

C.L. CONSTRUCT
PI = 831+94.99
Δ = 1° 41' 33.7" LT.
D = 0°15'00"
T = 338.56'
L = 677.08'
PC = 828+56.42
PT = 835+33.50
NO SUPER

STATION	STATION	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH	TERMINAL ANCHOR POST EACH
834+82.35	835+76.10	LT.	75			
833+57.35	835+76.10	RT.	150			
837+29.90	839+48.65	LT.	150			
837+29.90	838+23.65	RT.	75			

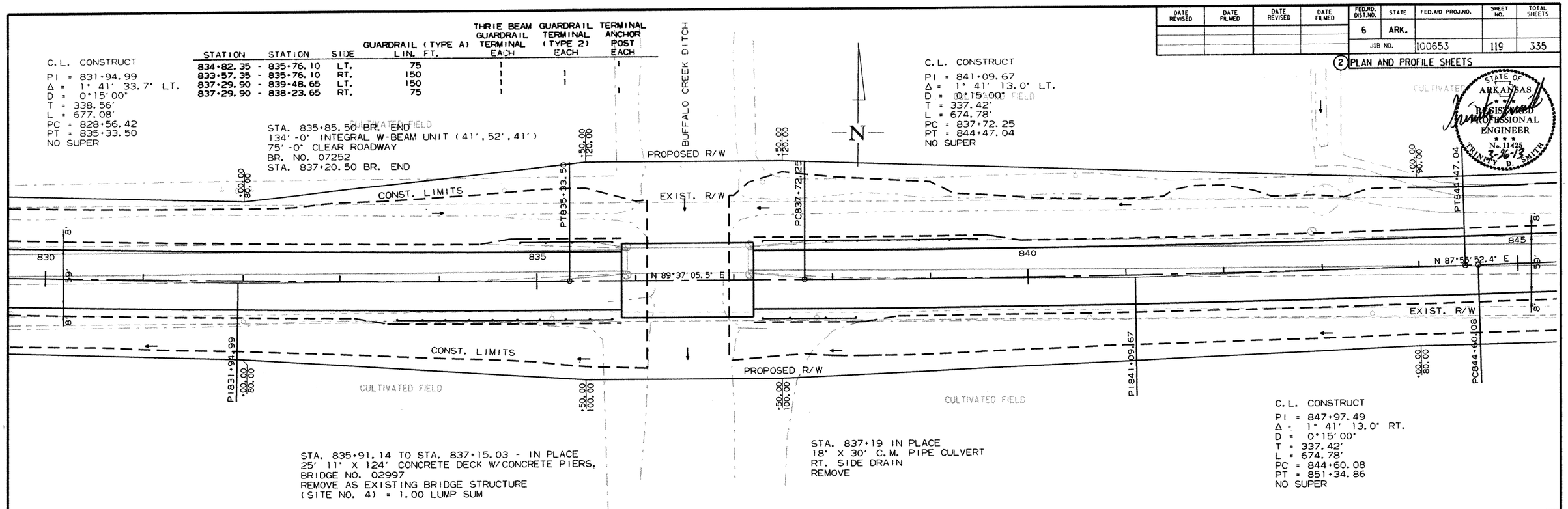
STA. 835+85.50 BR. END
134'-0" INTEGRAL W-BEAM UNIT (41',52',41')
75'-0" CLEAR ROADWAY
BR. NO. 07252
STA. 837+20.50 BR. END

STA. 835+91.14 TO STA. 837+15.03 - IN PLACE
25' 11" X 124' CONCRETE DECK W/CONCRETE PIERS,
BRIDGE NO. 02997
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 4) = 1.00 LUMP SUM

C.L. CONSTRUCT
PI = 841+09.67
Δ = 1° 41' 13.0" LT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 837+72.25
PT = 844+47.04
NO SUPER

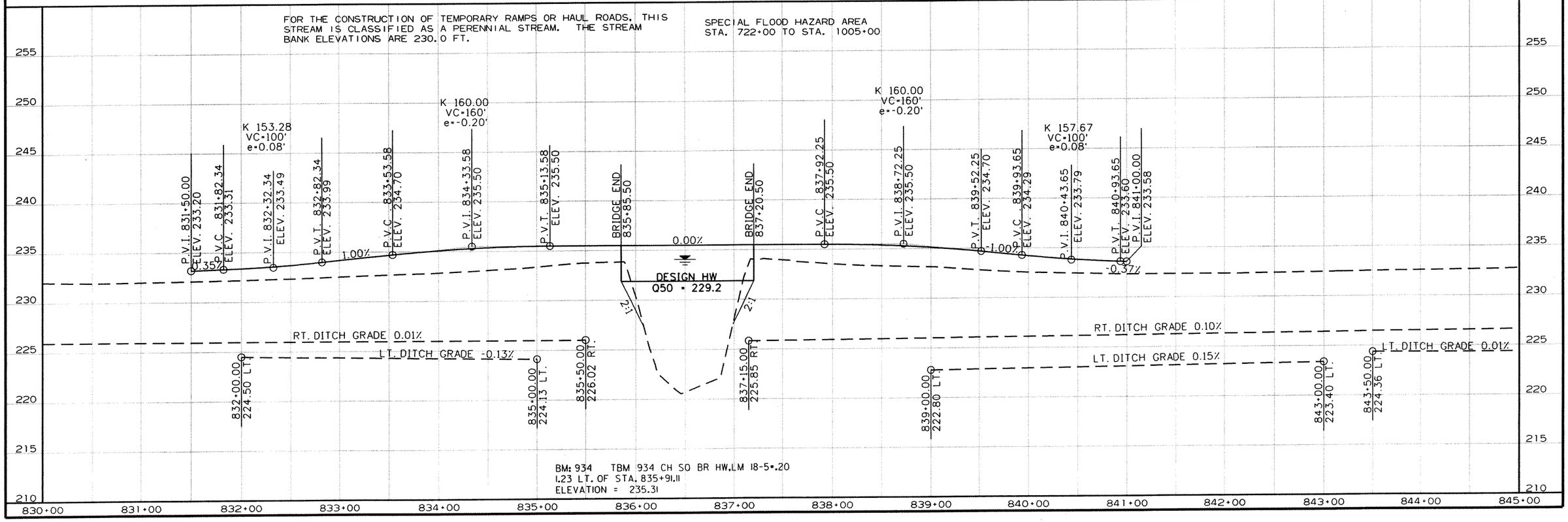
STA. 837+19 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

C.L. CONSTRUCT
PI = 847+97.49
Δ = 1° 41' 13.0" RT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 844+60.08
PT = 851+34.86
NO SUPER



FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 230.0 FT.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00



BM: 934 TBM 934 CH SO BR HW, LM 18-5=.20
1.23 LT. OF STA. 835+91.11
ELEVATION = 235.31

R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	120	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
JAMES D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
JAMES D. SMITH

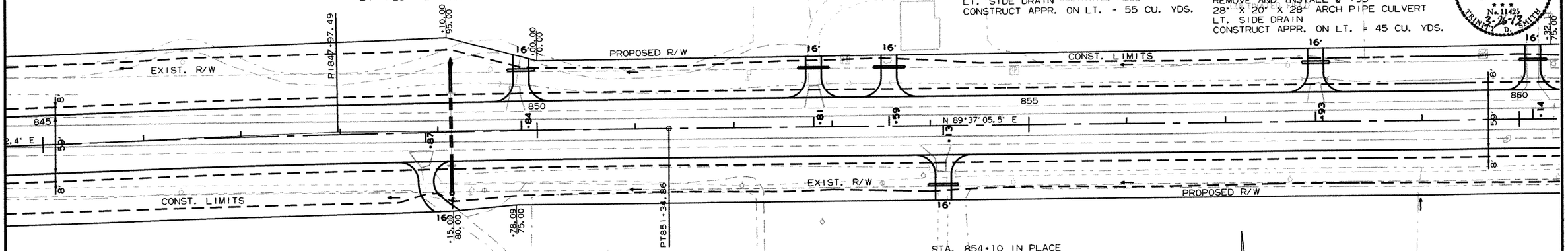
STA. 849+77 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +84
28" X 20" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 35 CU. YDS.

STA. 849+14 IN PLACE
24" X 75' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
24' LT. & 22' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 4.81 AC., Q50 = 4.33 C.F.S.
24" R.C. PIPE = 54 LIN. FT.
24" FES = 2 EACH

STA. 852+83 IN PLACE
24" X 20' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +81
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 853+40 IN PLACE
24" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +59
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 857+92 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +93
28" X 20" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.



C.L. CONSTRUCT
PI = 847+97.49
Δ = 1° 41' 13.0" RT.
D = 0°15'00"
T = 337.42'
L = 674.78'
PC = 844+60.08
PT = 851+34.86
NO SUPER

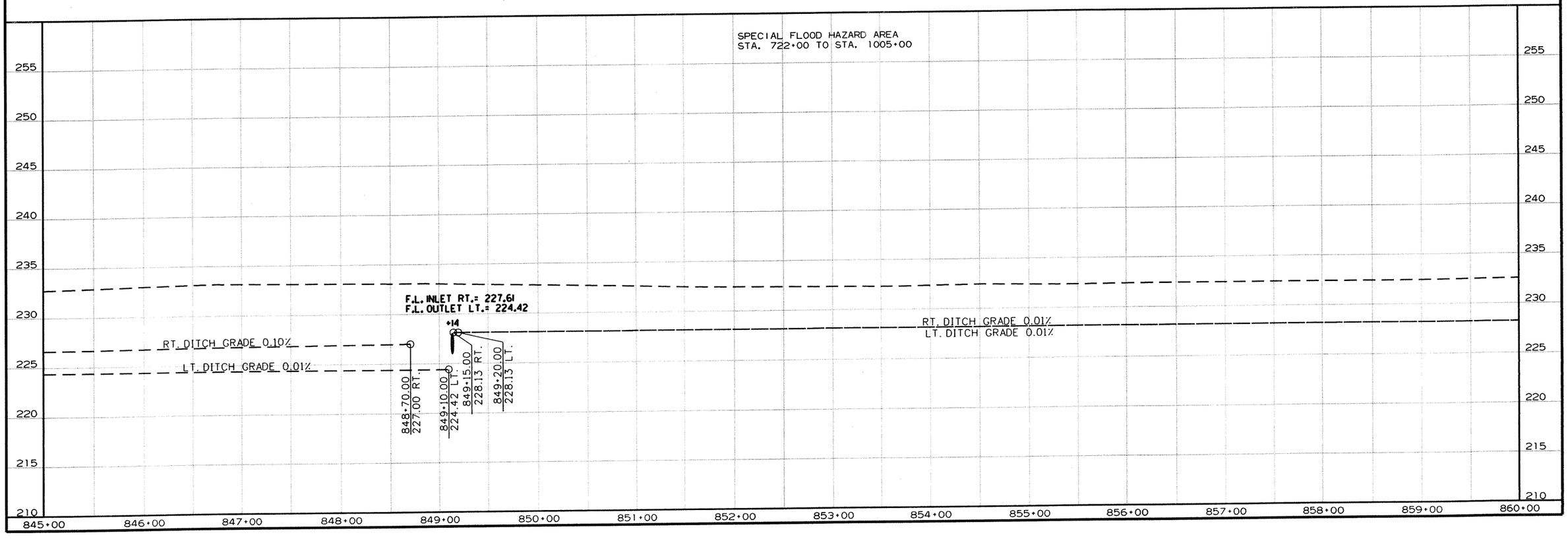
STA. 848+87 CONSTRUCT
APPR. ON RT. = 45 CU. YDS.

STA. 854+10 IN PLACE
12" X 21' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +13
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

CULTIVATED FIELD

N

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00



R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	121	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-26-13
TRINITY D. SMITH

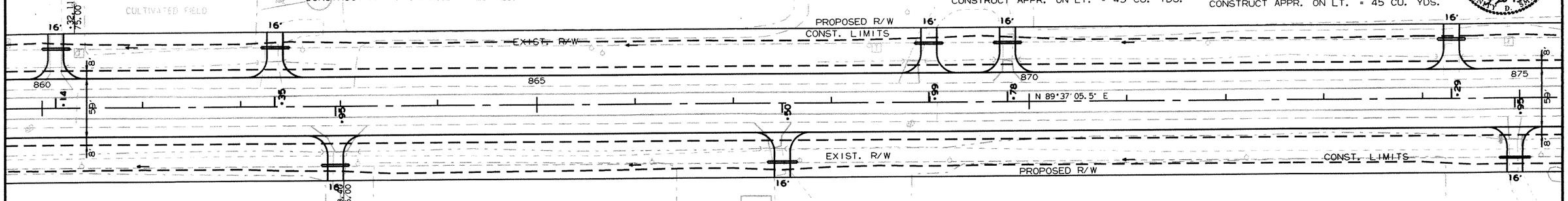
STA. 860+14 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 862+32 IN PLACE
24" X 22' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +35
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 863+84 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +99
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 869+77 IN PLACE
18" X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +78
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 874+29 IN PLACE
24" X 20' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
28" X 20" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

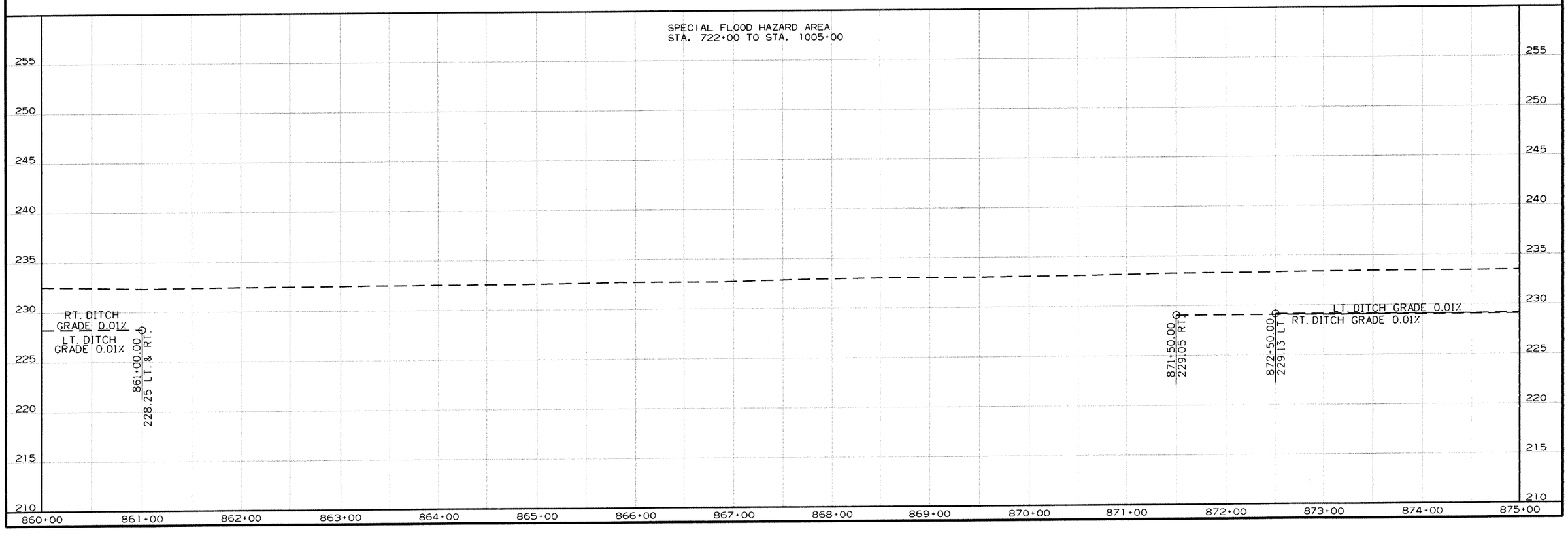


STA. 863+01 IN PLACE
24" X 38' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 862+95
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 45 CU. YDS.

STA. 867+42 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +50
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 874+92 IN PLACE
18" X 25' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +95
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

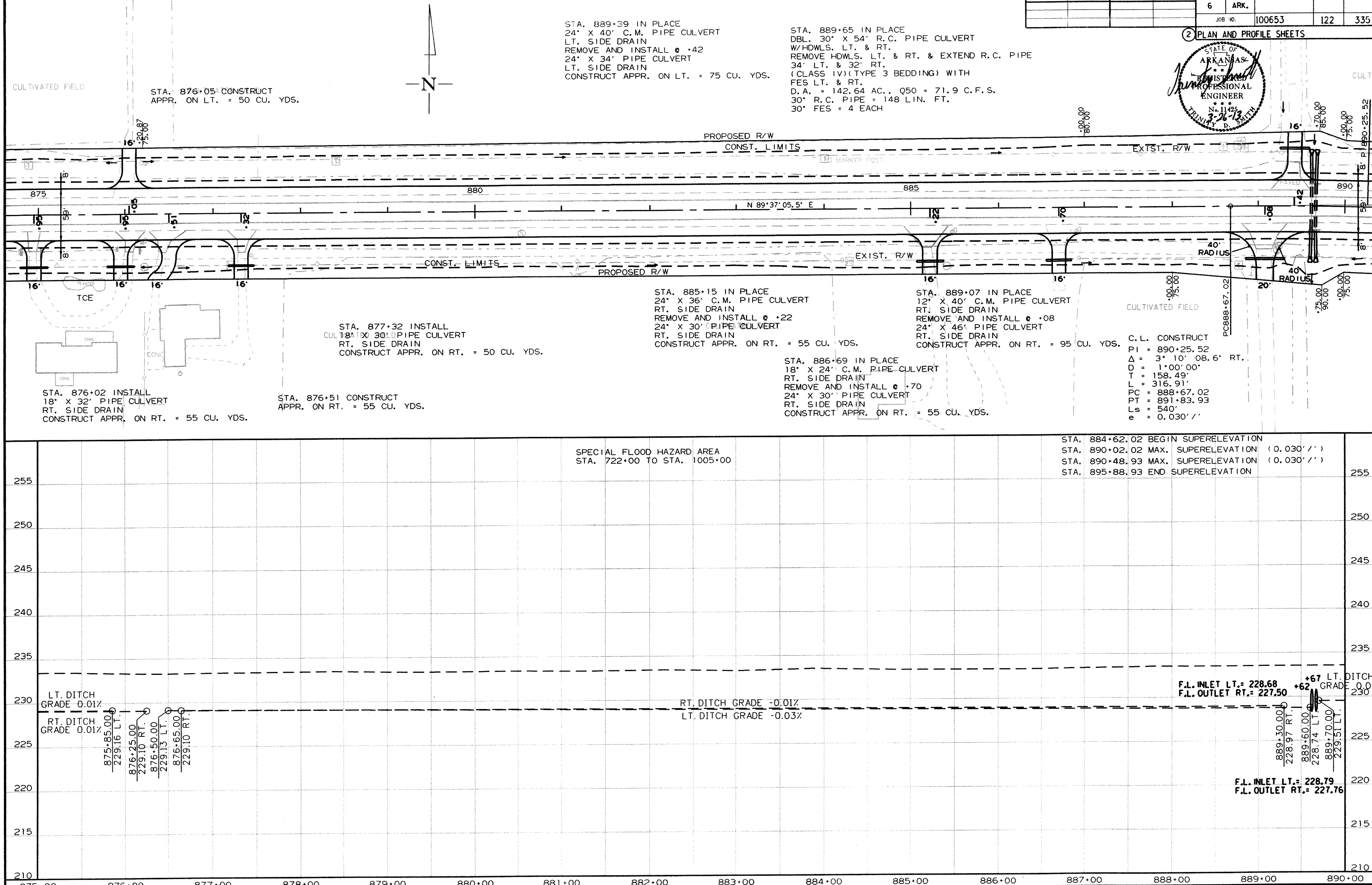
SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00



R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	100653	122	335

(2) PLAN AND PROFILE SHEETS



3/6/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	123	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-6-13

STA. 894+75 IN PLACE
24" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +74
28" X 20" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 40 CU. YDS.

STA. 900+58 IN PLACE
24" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +60
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 903+62 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +68
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

CULTIVATED FIELD

CULTIVATED FIELD

CULTIVATED FIELD

CULTIVATED FIELD

N

PI 890+25.52

PI 898+18.09
Δ = 0°08'28.6" LT.

CONST. LIMITS

PROPOSED R/W

EXIST. R/W

EXIST. R/W

PROPOSED R/W

CONST. LIMITS

16'

890

895

900

905

S 87°12'45.9" E

S 87°21'14.5" E

74.16

54.60

59'

PT 891+83.93

STA. 892+05 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +07
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 896+31 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +29
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 900+55 IN PLACE
24" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +54
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 45 CU. YDS.

STA. 903+09 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +10
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 904+95 IN PLACE
18" X 111' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +89
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

C.L. CONSTRUCT
PI = 890+25.52
Δ = 3° 10' 08.6" RT.
D = 1°00'00"
T = 158.49'
L = 316.91'
PC = 888+67.02
PT = 891+83.93
Ls = 540'
e = 0.030'/'

STA. 884+62.02 BEGIN SUPERELEVATION
STA. 890+02.02 MAX. SUPERELEVATION (0.030'/')
STA. 890+48.93 MAX. SUPERELEVATION (0.030'/')
STA. 895+88.93 END SUPERELEVATION

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

LT. DITCH GRADE 0.01%

894+25.00 229.51 RT.
895+00.00 229.52 RT.
RT. DITCH GRADE 0.01%
896+00.00 229.57 LT.

LT. DITCH GRADE 0.01%
RT. DITCH GRADE 0.01%
904+50.00 230.17 LT. & RT.

255 250 245 240 235 230 225 220 215 210

890+00 891+00 892+00 893+00 894+00 895+00 896+00 897+00 898+00 899+00 900+00 901+00 902+00 903+00 904+00 905+00

3/6/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	124	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 913+20 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +17
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 914+98 CONSTRUCT
APPR. ON LT. = 75 CU. YDS.

STA. 916+43 INSTALL
18" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 917+49 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +50
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

C.L. CONSTRUCT
PI = 915+07.72
Δ = 3° 48' 52.7" LT.
D = 0°45'00"
T = 254.40'
L = 508.62'
PC = 912+53.32
PT = 917+61.94
Ls = 540'
e = 0.023'/'

STA. 919+66 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +69
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 75 CU. YDS.

STA. 906+82 IN PLACE
12" X 26' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +79
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

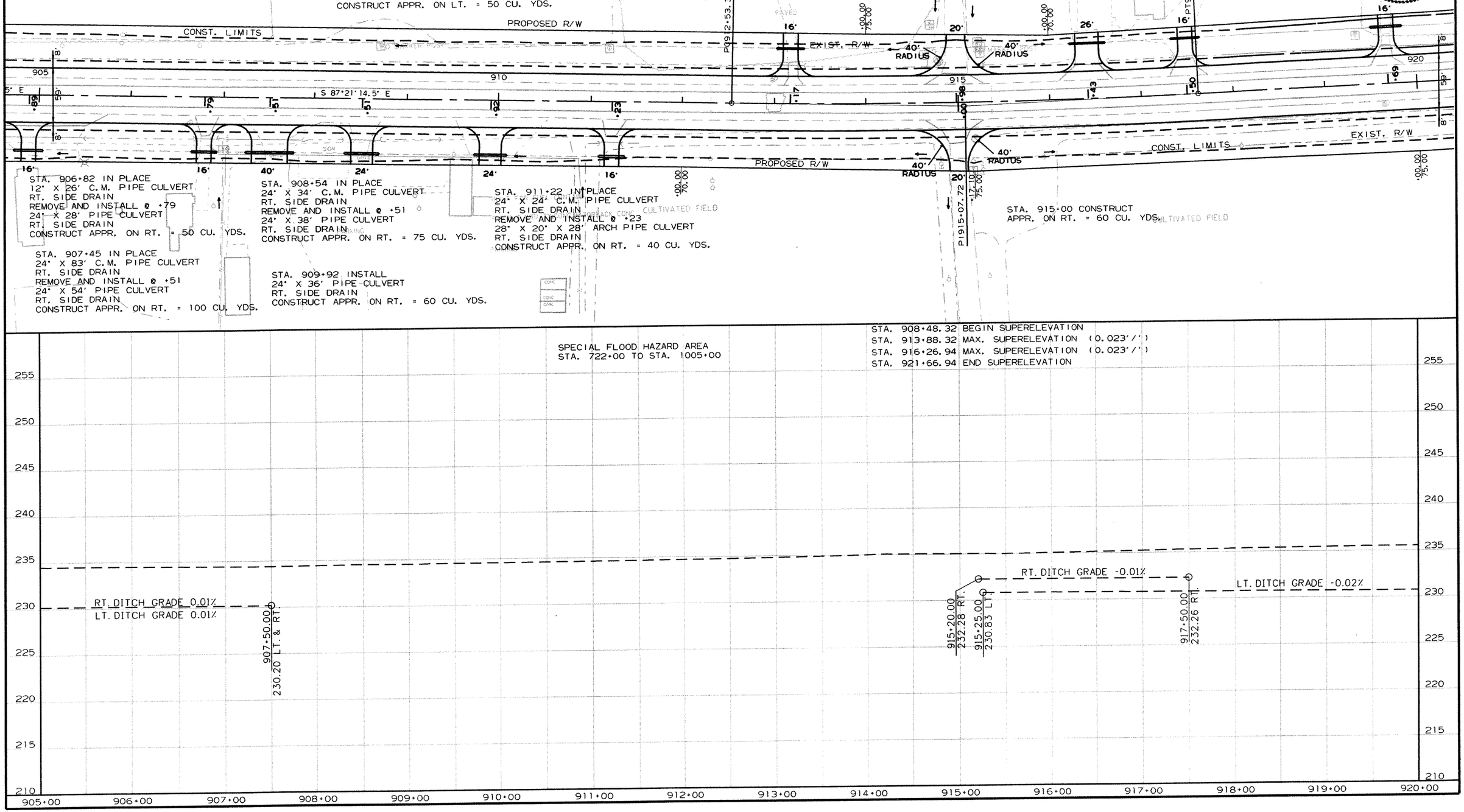
STA. 907+45 IN PLACE
24" X 83' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +51
24" X 54' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 100 CU. YDS.

STA. 908+54 IN PLACE
24" X 34' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +51
24" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 909+92 INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 911+22 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +23
28" X 20" X 28' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 40 CU. YDS.

STA. 915+00 CONSTRUCT
APPR. ON RT. = 60 CU. YDS.



R100653.DGN 3/6/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	125	335

② PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 921+61 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +67
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 923+70 IN PLACE
18" X 34' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +61
24" X 34" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 75 CU. YDS.

STA. 922+23 INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 926+80 IN PLACE
18" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +82
24" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 80 CU. YDS.

STA. 932+15 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +16
24" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 85 CU. YDS.

STA. 931+32 IN PLACE
12" X 24' C.M. PIPE CULVERT
LT. FIELD DRAIN
REMOVE

STA. 933+62 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 924+74 IN PLACE
18" X 53' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +80
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

STA. 928+22 IN PLACE
18" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +34
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 40 CU. YDS.

STA. 931+03 IN PLACE
PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 908+48.32 BEGIN SUPERELEVATION
STA. 913+88.32 MAX. SUPERELEVATION (0.023'/')
STA. 916+26.94 MAX. SUPERELEVATION (0.023'/')
STA. 921+66.94 END SUPERELEVATION

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

3/6/2013

R100653.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	126	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 935+74 IN PLACE
12" X 24' C.M. PIPE CULVERT
LT. FIELD DRAIN
REMOVE

STA. 937+27 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +26
24" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 80 CU. YDS.

STA. 941+23 IN PLACE
48" X 75' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
22' LT. & 29' RT.
(CLASS IV)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 1.76 SQ. MI., Q50 = 301 C.F.S.
48" R.C. PIPE = 59 LIN. FT.
48" FES = 2 EACH

STA. 940+15 IN PLACE
12" X 24' C.M. PIPE CULVERT
LT. FIELD DRAIN
REMOVE

STA. 941+31 CONSTRUCT
48" X 126' R.C. PIPE CULVERT
(CLASS IV)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 1.76 SQ. MI., Q50 = 301 C.F.S.
48" R.C. PIPE = 126 LIN. FT.
48" FES = 2 EACH

STA. 941+66 IN PLACE
30" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +67
30" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 941+39 IN PLACE
42" X 65' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
26' LT. & 24' RT.
(CLASS IV)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 1.76 SQ. MI., Q50 = 301 C.F.S.
42" R.C. PIPE = 58 LIN. FT.
42" FES = 2 EACH

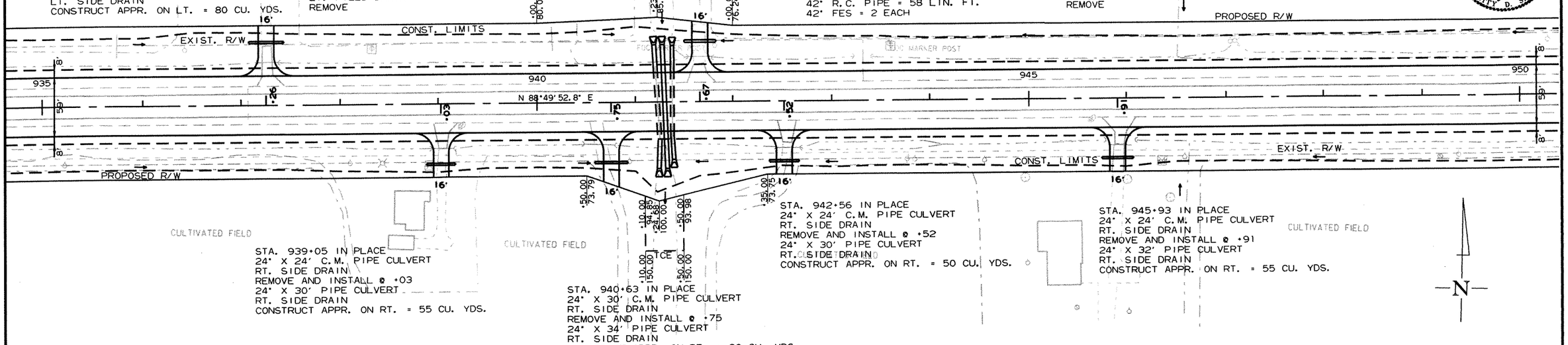
STA. 943+32 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE

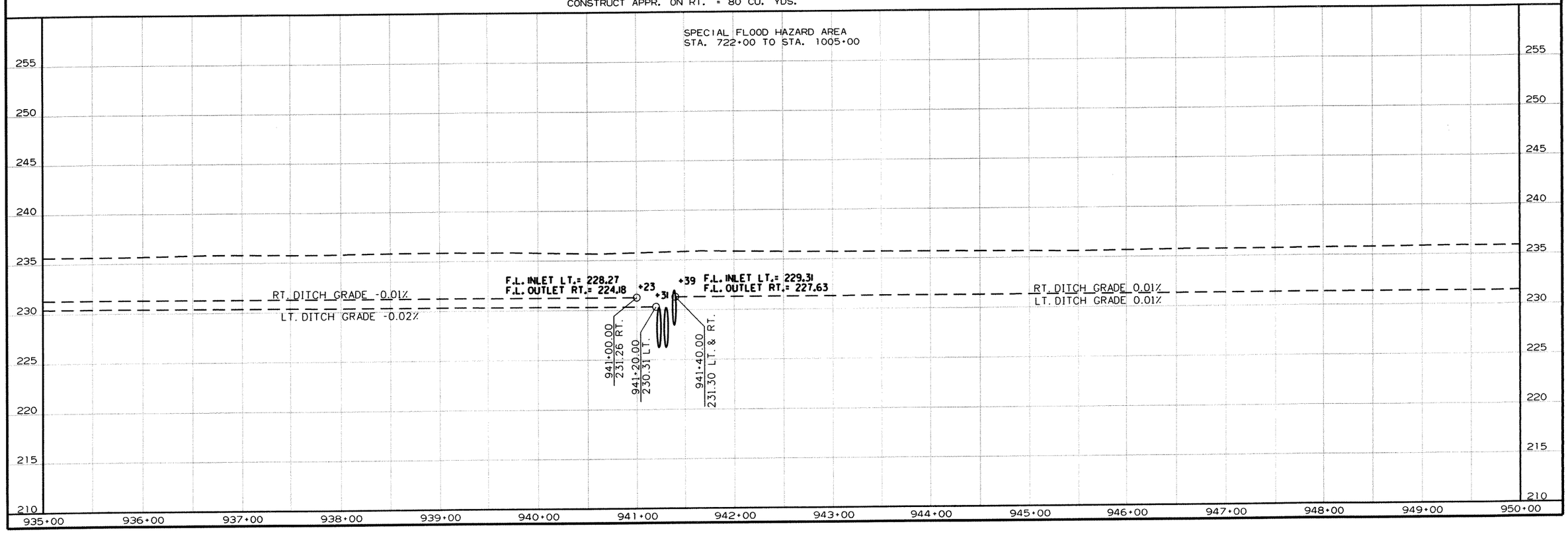
STA. 939+05 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +03
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 940+63 IN PLACE
24" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +75
24" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 80 CU. YDS.

STA. 942+56 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +52
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 945+93 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +91
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.





3/6/2013

R100653.DGN

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				6	ARK.			
				JOB NO.		100653	127	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

CULTIVATED FIELD

N

STA. 960+19 IN PLACE
24' X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +16
24' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

+72.57
74.67

PROPOSED R/W
EXIST. R/W
CONST. LIMITS
DE MARKER POST
16'
950
955
960
965
N 88°49' 52.8" E
N 88°57' 28.0" E
59'
+28
+46
+16
EXIST. R/W
PROPOSED R/W
P.I. 962+75.88
Δ = 0°07'35.2" RT.
+93.22
75.00

STA. 952+27 IN PLACE
24' X 40' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +28
24' X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 953+45 IN PLACE
24' X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +46
24' X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

CULTIVATED FIELD
CULTIVATED FIELD
CULTIVATED FIELD

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

956+00.00
231.45 LT. & RT.

255 250 245 240 235 230 225 220 215 210

950+00 951+00 952+00 953+00 954+00 955+00 956+00 957+00 958+00 959+00 960+00 961+00 962+00 963+00 964+00 965+00

R100653.DGN 3/6/2013

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				JOB NO.		100653	128	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-6-13

STA. 965+71 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +75
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 968+09 IN PLACE
24" X 22' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +10
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 979+33 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

PROPOSED R/W
CONST. LIMITS
EXIST. R/W
CULTIVATED FIELD
DOC MARKER POST
965
970
975
980
N 88°57'28" E
40' RADIUS
03.23
95.00

STA. 965+43 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +41
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 967+18 IN PLACE
24" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +16
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 968+14 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +15
24" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

STA. 971+59 INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 974+18 CONSTRUCT
APPR. ON RT. = 55 CU. YDS.

STA. 976+23 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 70 CU. YDS.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

966-50.00
232.13 LT. & RT.

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

969+00.00
232.16 LT. & RT.

974+30.00
232.55 RT.

975+00.00
232.69 LT.

LT. DITCH GRADE -0.01%

976-50.00
232.68 LT.

RT. DITCH GRADE -0.01%

979+00.00
232.60 LT.

LT. DITCH
GRADE -0.10%

260 255 250 245 240 235 230 225 220 215 210

965+00 966+00 967+00 968+00 969+00 970+00 971+00 972+00 973+00 974+00 975+00 976+00 977+00 978+00 979+00 980+00

3/6/2013

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				6	ARK.			
				JOB NO.	100653		129	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-26-13

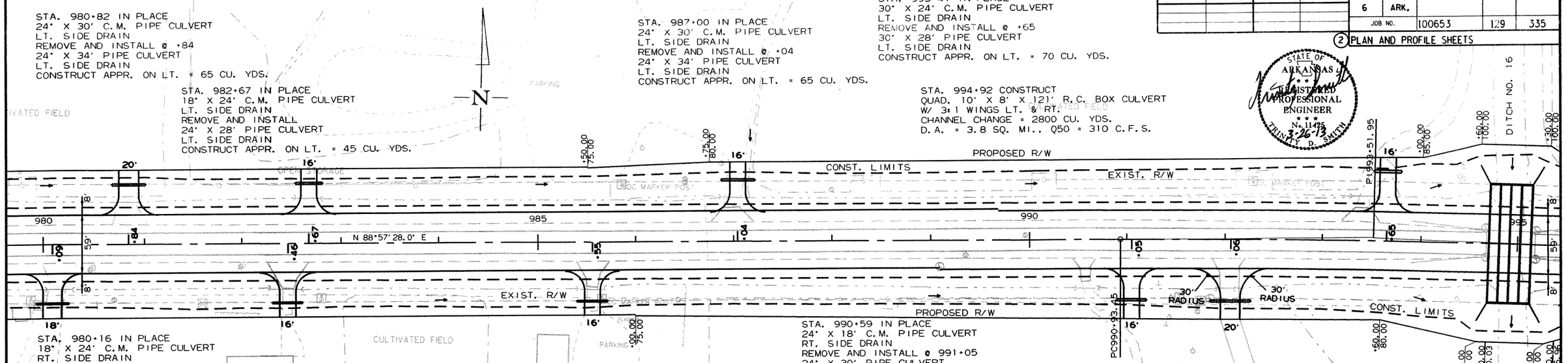
STA. 980+82 IN PLACE
24" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +84
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 982+67 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 987+00 IN PLACE
24" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +04
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 65 CU. YDS.

STA. 993+41 IN PLACE
30" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +65
30" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 70 CU. YDS.

STA. 994+92 CONSTRUCT
QUAD. 10' X 8' X 121' R.C. BOX CULVERT
W/ 3:1 WINGS LT. & RT.
CHANNEL CHANGE = 2800 CU. YDS.
D. A. = 3.8 SQ. MI.. Q50 = 310 C.F.S.



STA. 980+16 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +09
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 982+44 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +46
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 985+54 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +55
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 990+59 IN PLACE
24" X 18' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 991+05
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

STA. 994+67.64 TO STA. 995+17.63 - IN PLACE
26' X 50' CONCRETE DECK W/CONCRETE PIERS.
BRIDGE NO. 02998
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 5) = 1.00 LUMP SUM

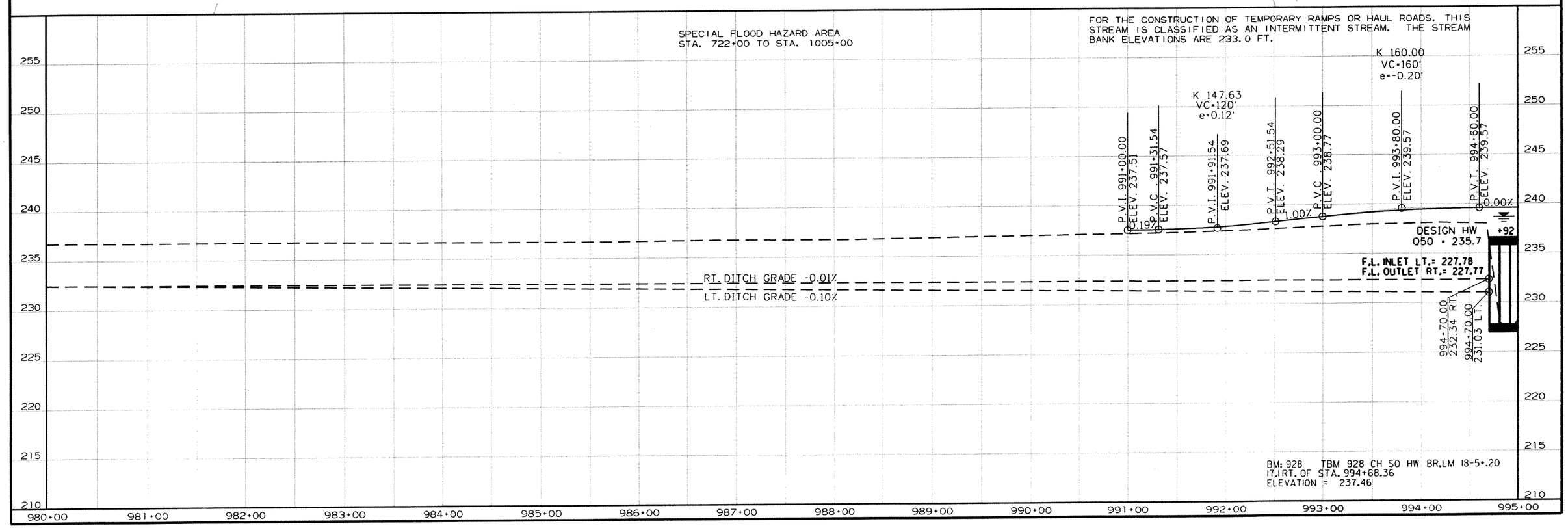
STA. 992+05 IN PLACE
24" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +06
24" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 90 CU. YDS.

C.L. CONSTRUCT
PI = 993+51.95
Δ = 2° 35' 04.4" RT.
D = 0°30'00"
T = 258.50'
L = 516.91'
PC = 990+93.45
PT = 996+10.36
NO SUPER

TCE

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 233.0 FT.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00



BM: 928 TBM 928 CH SO HW BR.LM 18-5=.20
17.IRT. OF STA. 994+68.36
ELEVATION = 237.46

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				6	ARK.			
				JOB NO.		100653	130	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-13

STA. 997+06 IN PLACE
24" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ 1002+00
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 1003+78 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +79
28" X 20" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

100' TRANSITION

STA. 996+00 IN PLACE
30" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 995+86
30" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

STA. 1001+00 INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 1001+47 IN PLACE
16" X 40' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +56
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

STA. 1003+60 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +58
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

C.L. CONSTRUCT
PI = 993+51.95
Δ = 2° 35' 04.4" RT.
D = 0°30' 00"
T = 258.50'
L = 516.91'
PC = 990+93.45
PT = 996+10.36
NO SUPER

STA. 1005+00.00 - END
JOB 100653

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 233.0 FT.

SPECIAL FLOOD HAZARD AREA
STA. 722+00 TO STA. 1005+00

K 160.00
VC=160'
e=-0.20'

K 153.42
VC=130'
e=0.14'

P.V.C. 995+25.00 ELEV. 239.57
P.V.I. 996+05.00 ELEV. 239.57
P.V.T. 996+85.00 ELEV. 238.77
P.V.C. 997+09.98 ELEV. 238.52
P.V.I. 997+74.98 ELEV. 237.87
P.V.T. 998+39.98 ELEV. 237.77
P.V.I. 998+50.00 ELEV. 237.76

0.00%
1.00%
-0.15%

+92 DESIGN HW
Q50 = 235.7

995+14.00 232.73' LT.
995+20.00 232.73' RT.

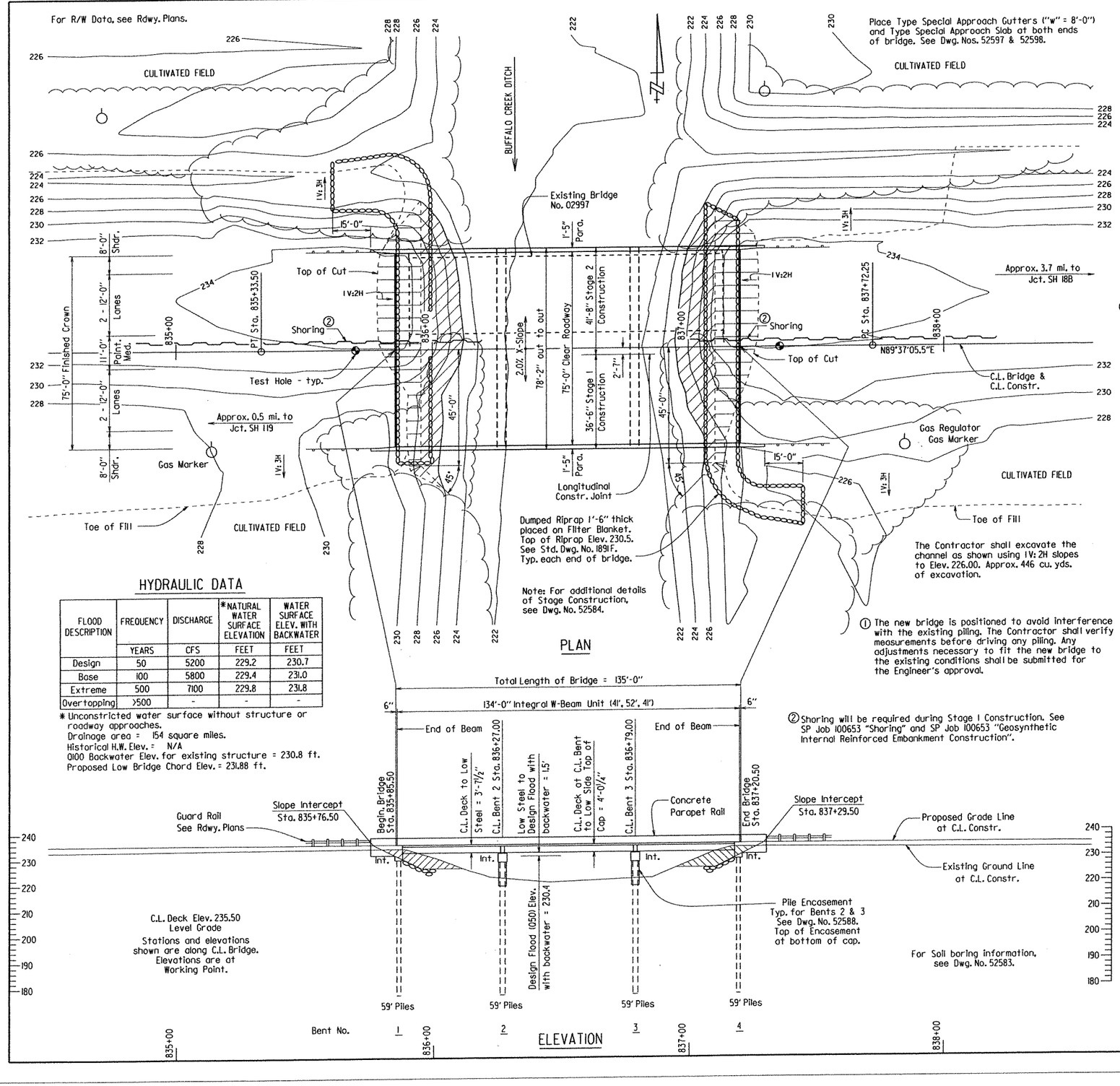
F.L. INLET LT.= 227.78
F.L. OUTLET RT.= 227.77

RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.01%

1004+00.00 ℄ 232.82 LT. & RT.

3/6/2013
R100653.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.		100653	131	335
				① 07252 -		LAYOUT		- 52582



HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	5200	229.2	230.7
Base	100	5800	229.4	231.0
Extreme	500	7100	229.8	231.8
Overtopping	>500	-	-	-

* Unconstricted water surface without structure or roadway approaches.
Drainage area = 154 square miles.
Historical H.W. Elev. = N/A
0100 Backwater Elev. for existing structure = 230.8 ft.
Proposed Low Bridge Chord Elev. = 231.88 ft.

GENERAL NOTES

BENCH MARK: CH. SO. Bridge Headwall, 1.23 ft. Left of C.L. Sta. 835+91.11, Elev. 235.31.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specification unless otherwise noted in the Plans.

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

LIVE LOADING: HL-93 SEISMIC ZONE: 4

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

① STEEL SHELL PILING: Piling for Bents 1 & 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 170 tons per pile and to a tip elevation of 171.00 or lower. Piling for Bents 2 & 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 300 tons per pile and to a tip elevation of 171.00 or lower. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place.

Length of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. No payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles will be paid for as test piles.

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 30,000 ft. lbs. per blow will be required to obtain the ultimate bearing capacity at Bent Nos. 1 & 4. It is estimated that a minimum rated hammer energy of 55,000 ft. lbs. per blow will be required to obtain the ultimate bearing capacity at Bent Nos. 2 & 3.

PREBORING: Preboring is required for Bents 1 & 4 to a depth of 10' below bottom of cap. Prebored holes shall be 6" greater than the diameter of the pile cross-section and shall be backfilled with sand or pea gravel after piles are in place. This required preboring will be paid for at the unit price bid for "Preboring". The Contractor shall be responsible for keeping holes free of debris prior to backfilling, which may require the use of temporary casings or other methods. Temporary casings, if required, shall not be paid for directly but shall be considered subsidiary to Preboring.

Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum pile penetration. Any cost associated with achieving the minimum pile penetration shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASEMENTS: Pile encasements are required for Bents 2 and 3. See Dwg. No. 52588.

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.

PIPE UNDERDRAIN: One pipe underdrain with outlet protectors shall be installed behind each bridge end in accordance with Section 611. Pipe underdrains and outlet protectors will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

DETAIL DRAWINGS:	DRAWING NO.
End Bents	52585 & 52587
Int. Bents	52586
134' Integral W-Beam Unit	52589 - 52596
Concrete Filled Steel Shell Piles & Pile Encasements	52588
Type Special Approach Slab	52597
Type Special Approach Gutter	52598

EXISTING BRIDGE: Existing Bridge No. 02997 (Site No. 4) (log mile 2.2) is 29' wide and 124' long and consists of five spans composed of four - 21' R.C. slab spans and one - 40' I-Beam span supported by concrete trestle pile bents. The existing bridge occupies the same location as the proposed new bridge.

REMOVAL AND SALVAGE: After Stage 1 Construction of the new bridge is opened to traffic, the Existing Bridge No. 02997 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Carl T. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7310
CARL T. FUSELIER
BRIDGE ENGINEER

LAYOUT OF BRIDGE OVER BUFFALO CREEK DITCH MONETTE BYPASS - MANILA (S) MISSISSIPPI COUNTY

ROUTE 18 SEC. 5

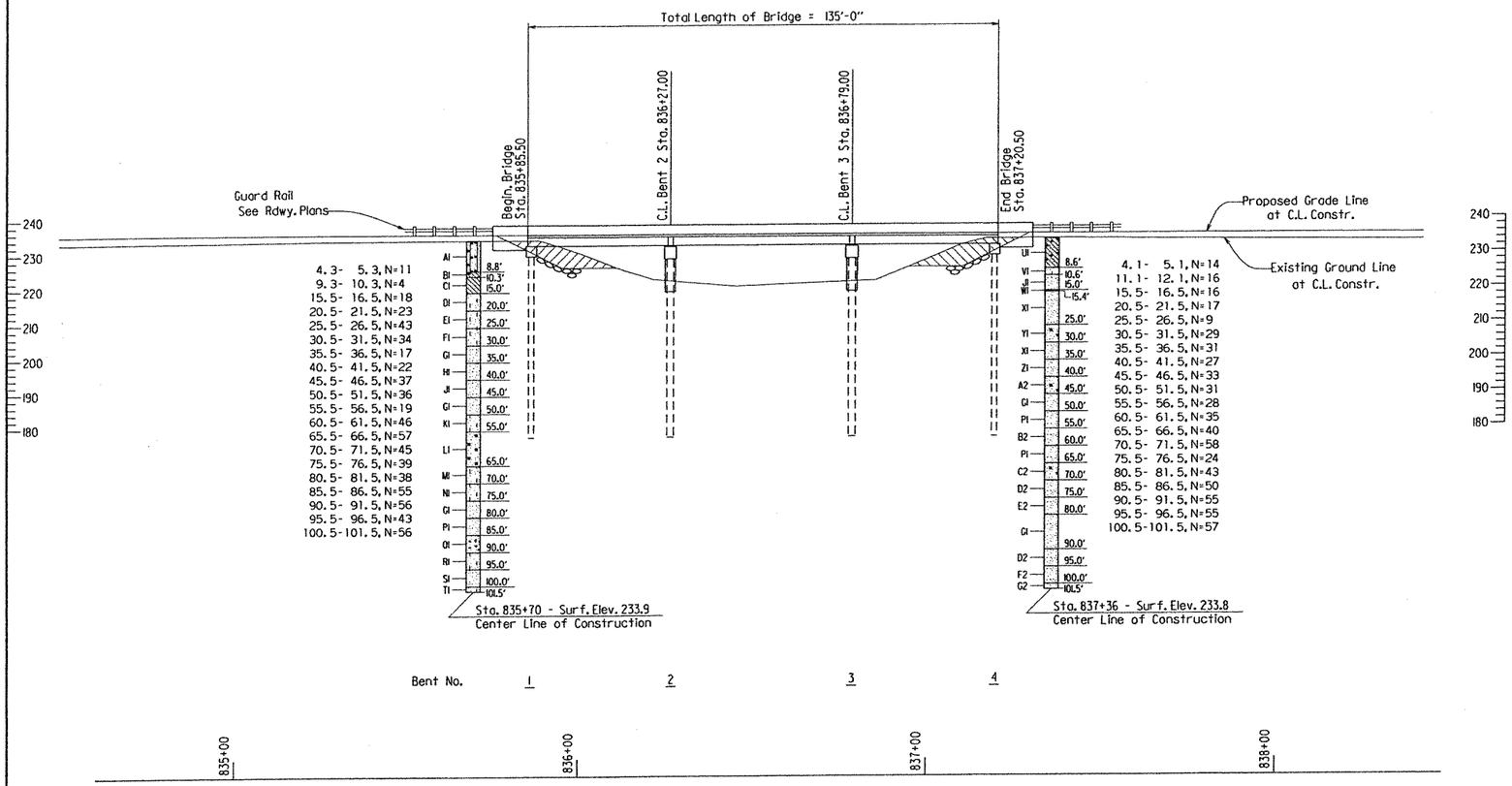
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 06/15/11 FILENAME: b100653_11.dgn
CHECKED BY: BEF DATE: 7/13/12 SCALE: 1" = 20'
DESIGNED BY: MCB DATE: 6/10

BRIDGE NO. 07252 DRAWING NO. 52582

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.		100653	132	335
				(1) 07252 -		SOIL BORINGS	- 52583	



SOIL BORING ELEVATION

BORING LEGEND

A1-Moist, Medium Dense, Brown and Gray Silt with Sand and Organic Matter (Wood)
B1-Moist, Soft, Brown and Gray Sandy Clay with Organic Matter (Wood)
C1-Moist, Soft, Brown and Gray Sandy Clay
D1-Wet, Medium Dense, Gray Sand with Silt
E1-Wet, Medium Dense, Gray Silty Sand with Trace of Gravel
F1-Wet, Dense, Gray Sand with Silt
G1-Wet, Dense, Gray Sand
H1-Wet, Medium Dense, Gray Sand with occasional Gravel
J1-Wet, Medium Dense, Gray Sand with Trace of Organic Matter
K1-Wet, Dense, Gray Sand with Silt and occasional Gravel
L1-Wet, Medium Dense to Dense, Gray Sand with Organic Matter
M1-Wet, Very Dense, Gray Sand with Silt and Trace of Gravel and Organic Matter
N1-Wet, Dense, Gray Sand with Silt and Trace of Gravel
P1-Wet, Dense, Gray Sand with Trace of Gravel
Q1-Wet, Very Dense, Gray Sand with Gravel
R1-Wet, Very Dense, Gray Sand with Silt and occasional Gravel
S1-Wet, Dense, Brown Sand with occasional Gravel
T1-Wet, Very Dense, Brown Sand with Silt and Trace of Gravel
U1-Moist, Stiff, Gray Sandy Clay with Organic Matter (Wood)
V1-Moist, Medium Dense, Gray Silty Sand
W1-Wet, Stiff, Gray Sandy Clay
X1-Wet, Medium Dense, Gray Sand
Y1-Wet, Loose, Gray Sand with Organic Matter and Trace of Gravel
Z1-Wet, Dense, Gray Sand with Trace of Organic Matter
A2-Wet, Medium Dense, Gray Sand with Organic Matter
B2-Wet, Medium Dense, Gray Sand with some Organic Matter
C2-Wet, Dense, Gray Sand with Organic Matter and Trace of Gravel
D2-Wet, Very Dense, Gray Sand with Trace of Gravel
E2-Wet, Medium Dense, Gray Sand with Trace of Gravel
F2-Wet, Very Dense, Brown and Gray Sand
G2-Wet, Very Dense, Brown Sand

STATE OF ARKANSAS
Carl J. Pfeiffer
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/18/12
CARL J. PFEIFFER

BRIDGE ENGINEER

SOIL BORINGS
BRIDGE OVER
BUFFALO CREEK DITCH

ROUTE 18 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

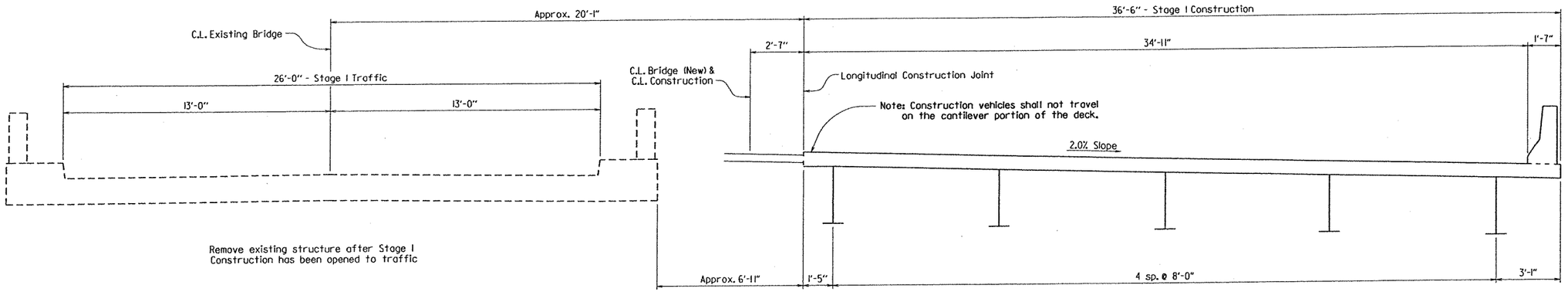
DRAWN BY: KDH DATE: 3-16-12 FILENAME: b100653_11.dgn
CHECKED BY: MLB DATE: 7/12 SCALE: 1" = 20'
DESIGNED BY: MLB DATE: 6/12

BRIDGE NO. 07252 DRAWING NO. 52583

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

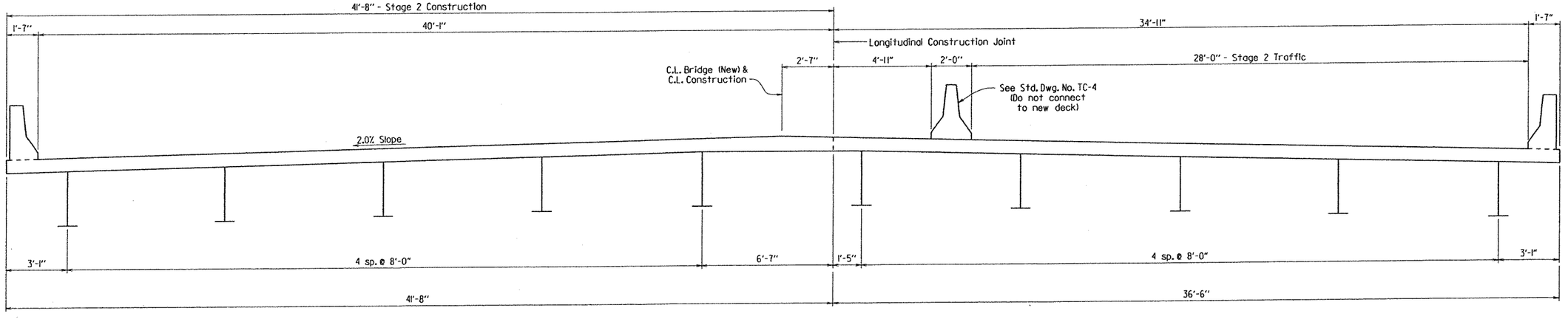
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100653	133	335

(1) 07252 - STAGE CONSTRUCTION - 52584



Beam No. 6 7 8 9 10

STAGE 1
Looking Ahead
Scale: 3/8" = 1'-0"



Beam No. 1 2 3 4 5 6 7 8 9 10

STAGE 2
Looking Ahead
Scale: 3/8" = 1'-0"

Note: Details which relate to maintenance of traffic are shown on the bridge plans for information only. See Roadway Plans for Maintenance of Traffic.

For Details of Temporary Barrier, see std. dwg. TC - 4.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/19/12
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF STAGE CONSTRUCTION
BUFFALO CREEK DITCH

ROUTE SEC.

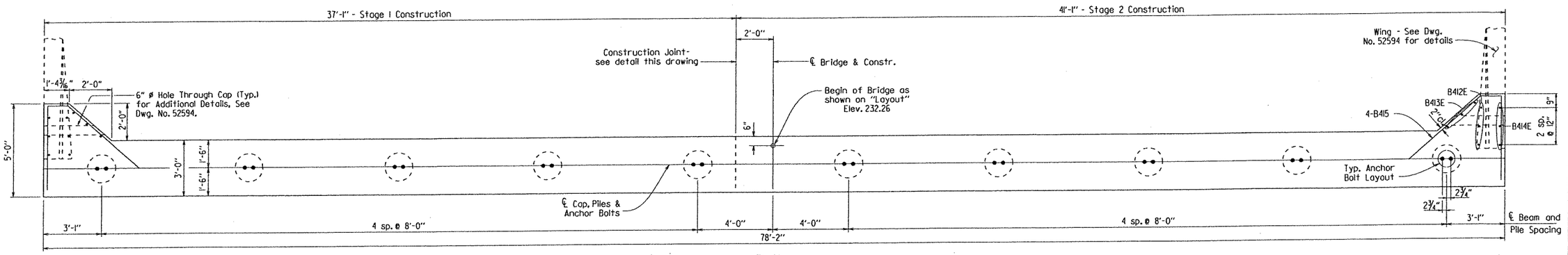
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 06/10/11 FILENAME: bl00653_sc.dgn
CHECKED BY: BEF DATE: 7/12/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 6/12

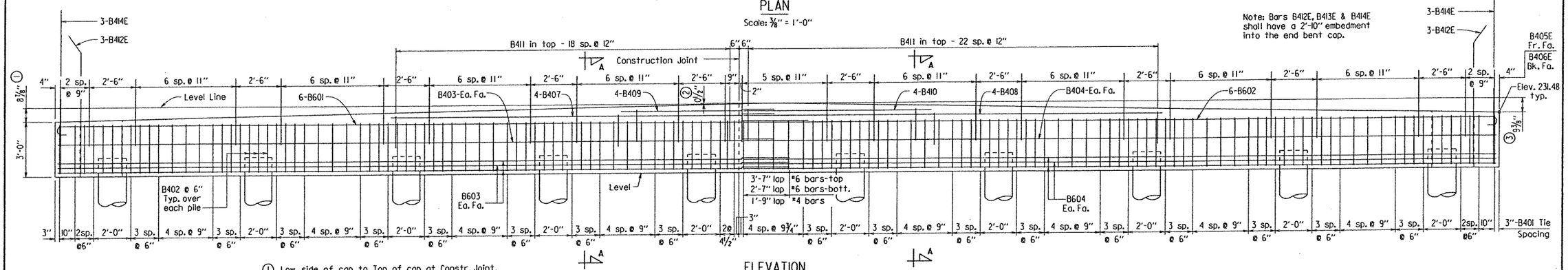
BRIDGE NO. 07252 DRAWING NO. 52584

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.		100653	134	335
				① 07252 -		END BENT		- 52585



PLAN

Scale: 3/8" = 1'-0"



① Low side of cap to Top of cap at Constr. Joint.

② Top of cap at Constr. Joint to Top of cap at ℄ Bridge.

③ Low side of cap to Top of cap at ℄ Bridge.

ELEVATION

Looking Back
Scale: 3/8" = 1'-0"

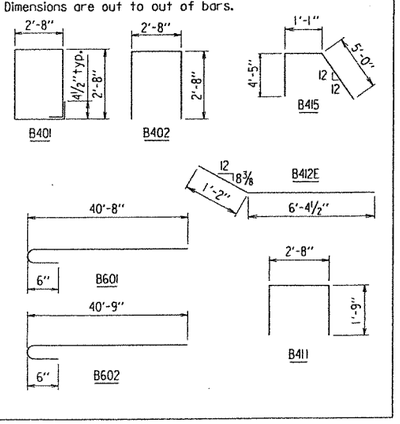
Note: Bars B412E, B413E & B414E shall have a 2'-10" embedment into the end bent cap.

BAR LIST

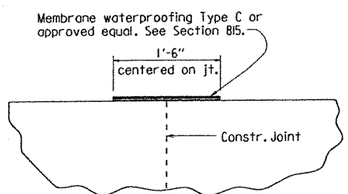
MARK	NO. REQ'D.	LENGTH	P.D.
B401	107	11'-0"	2"
B402	30	7'-10"	2"
B403	2	38'-10"	Str.
B404	2	40'-9"	Str.
B405E	70	4'-1"	Str.
B406E	70	3'-4"	Str.
B407	4	20'-9"	Str.
B408	4	22'-8"	Str.
B409	4	8'-3"	Str.
B410	4	10'-2"	Str.
B411	42	6'-0"	2"
B412E	6	7'-7"	2"
B413E	6	4'-8"	Str.
B414E	6	8'-8"	Str.
B415	8	10'-5"	2"
B601	6	41'-4"	4½"
B602	6	41'-5"	4½"
B603	6	39'-8"	Str.
B604	6	40'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



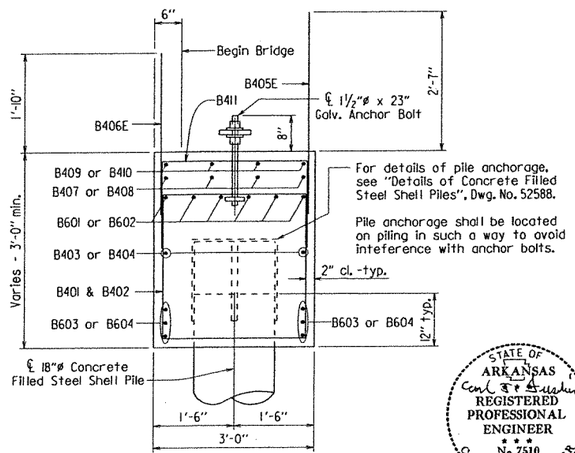
Note: Bars with an "E" Suffix to be Epoxy Coated.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

No Scale



SECTION A-A

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
Carl E. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL E. FUSSELIER
BRIDGE ENGINEER

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 conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Granular backfill and pipe underdrain required behind cap. See Dwg. No. 52592.

For details of steel shell piles, see Dwg. No. 52588.

For details of anchor bolts, see Dwg. No. 52591.

For additional information, see Layout.

DETAILS OF BENT 1
BUFFALO CREEK DITCH

ROUTE SEC.

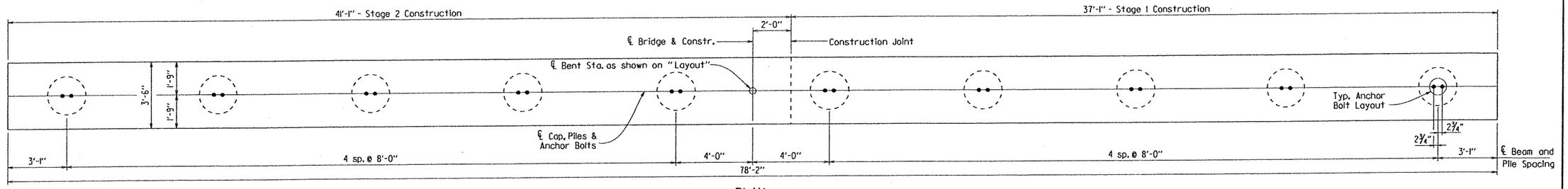
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-13-11 FILENAME: b100653_b1.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DCM DATE: 10/11

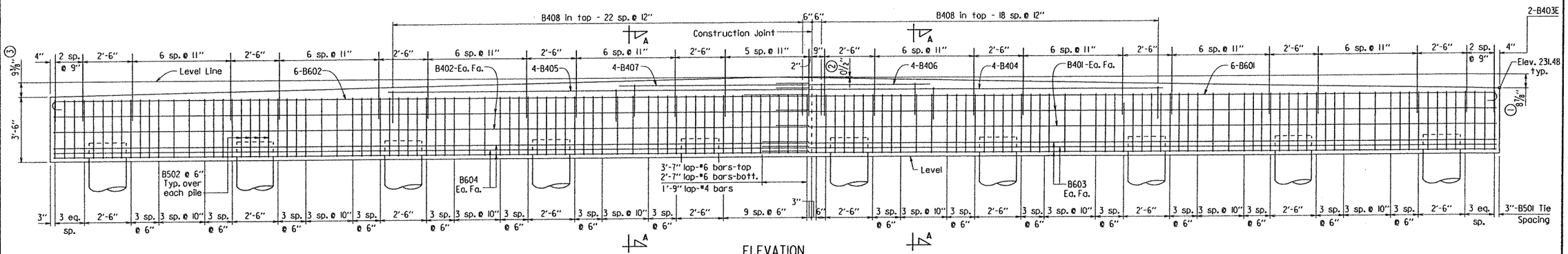
BRIDGE NO. 07252 DRAWING NO. 52585

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.		100653	135	335
				(1) 07252 -		INT. BENTS	- 52586	



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

Looking Ahead

Scale: ⅜" = 1'-0"

① Low side of cap to Top of cap at Constr. Joint.

② Top of cap at Contr. Joint to Top of cap at ℄ Bridge.

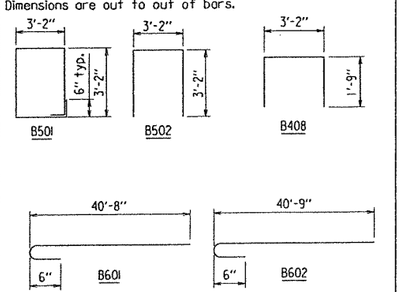
③ Low side of cap to Top of cap at ℄ Bridge.

BAR LIST - PER BENT

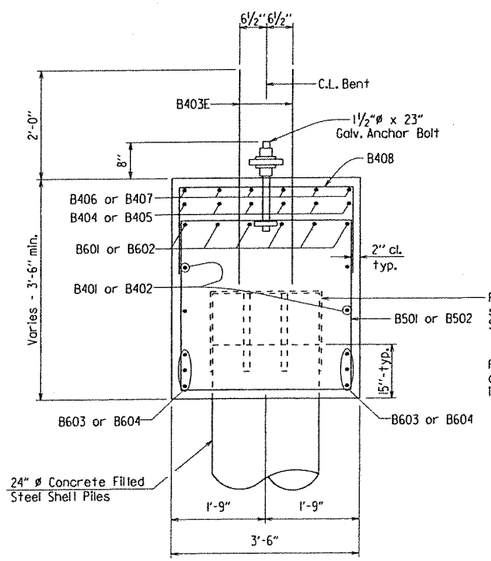
MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	38'-10"	Str.
B402	4	40'-9"	Str.
B403E	138	4'-1"	Str.
B404	4	20'-9"	Str.
B405	4	22'-8"	Str.
B406	4	8'-3"	Str.
B407	4	10'-2"	Str.
B408	42	6'-6"	2"
B501	100	13'-2"	2½"
B502	40	9'-4"	2½"
B601	6	41'-4"	4½"
B602	6	41'-5"	4½"
B603	6	39'-8"	Str.
B604	6	40'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars with an "E" Suffix to be Epoxy Coated.



SECTION A-A

Scale: ¾" = 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 conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

For details of steel shell piles and pile encasement, see Dwg. No. 52588.

For details of anchor bolts, see Dwg. No. 52591.

For additional information, see Layout.

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/9/12
CARL L. FUSELIER

BRIDGE ENGINEER

DETAILS OF BENTS 2 & 3 BUFFALO CREEK DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

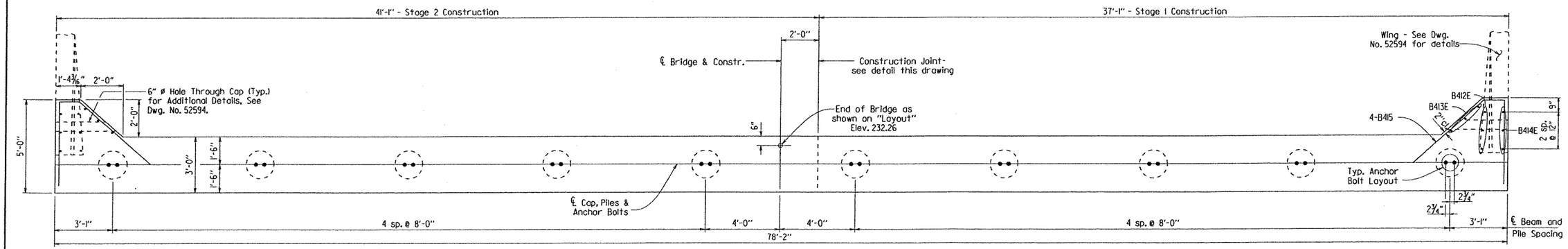
LITTLE ROCK, ARK.

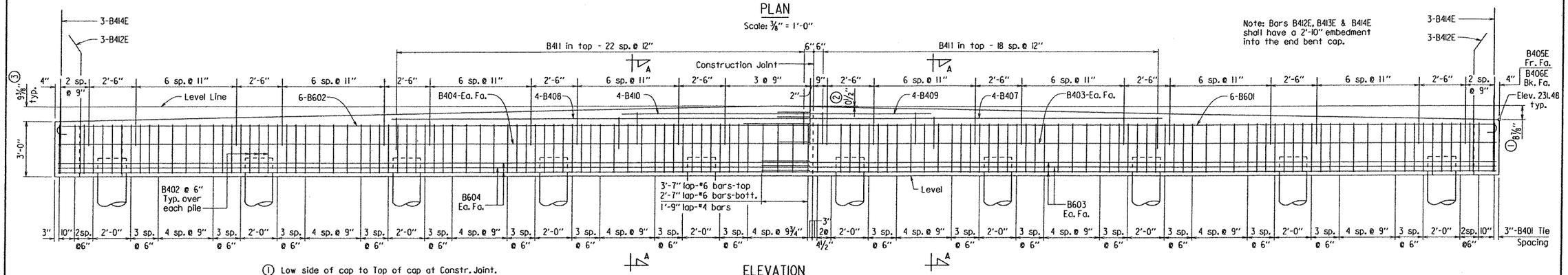
DRAWN BY: KDH DATE: 9-13-11 FILENAME: b100653_b2.dgn

CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED

DESIGNED BY: DEM DATE: 10/11

BRIDGE NO. 07252 DRAWING NO. 52586





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.		100653	136	335

① 07252 - END BENT - 52587

PLAN

Scale: 3/8" = 1'-0"

Note: Bars B412E, B413E & B414E shall have a 2'-10" embedment into the end bent cap.

ELEVATION

Looking Ahead
Scale: 3/8" = 1'-0"

① Low side of cap to Top of cap at Constr. Joint.

② Top of cap at Constr. Joint to Top of cap at ℄ Bridge.

③ Low side of cap to Top of cap at ℄ Bridge.

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	107	11'-0"	2"
B402	30	7'-10"	2"
B403	2	38'-10"	Str.
B404	2	40'-9"	Str.
B405E	70	4'-1"	Str.
B406E	70	3'-4"	Str.
B407	4	20'-9"	Str.
B408	4	22'-8"	Str.
B409	4	8'-3"	Str.
B410	4	10'-2"	Str.
B411	42	6'-0"	2"
B412E	6	7'-7"	2"
B413E	6	4'-8"	Str.
B414E	6	8'-8"	Str.
B415	8	10'-5"	2"
B601	6	41'-4"	4 1/2"
B602	6	41'-5"	4 1/2"
B603	6	39'-8"	Str.
B604	6	40'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.

Note: Bars with an "E" Suffix to be Epoxy Coated.

Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

No Scale

SECTION A-A

Scale: 3/4" = 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 conform to AASHTO M31 or M53. Grade 60 (fy = 60,000 psi).

Granular backfill and pipe underdrain required behind cap. See Dwg. No. 52592.

For details of steel shell piles, see Dwg. No. 52588.

For details of anchor bolts, see Dwg. No. 52591.

For additional information, see Layout.

Carl J. Fuselier
No. 7510
7/18/12

BRIDGE ENGINEER

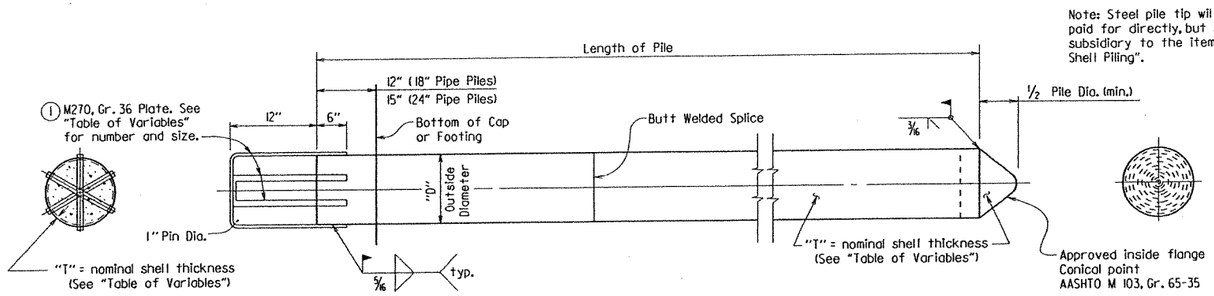
DETAILS OF BENT 4
BUFFALO CREEK DITCH

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-13-11 FILENAME: b100653_b4.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DCM DATE: 10/11
BRIDGE NO. 07252 DRAWING NO. 52587

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.		100653	137	335

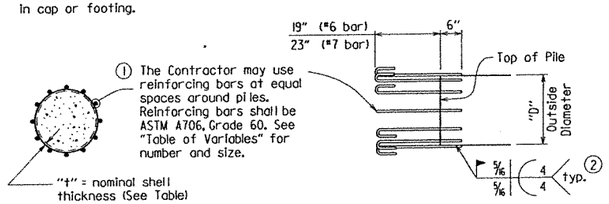
(1) 07252 - STEEL SHELL PILES - 52588



Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

CONCRETE FILLED STEEL SHELL PILE

(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.



(2) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.).

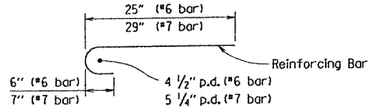
Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for additional driving information.

Concrete, structural steel, reinforcing steel (including welding), and painting will not be paid for separately, but will be considered subsidiary to the item "Steel Shell Piling".

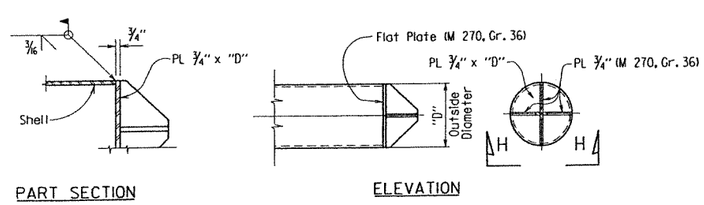
ALTERNATE PILE ANCHORAGE DETAIL



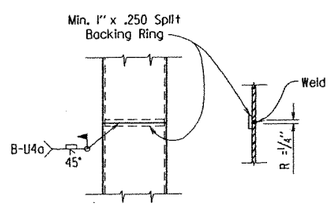
HOOKED BAR DETAIL

TABLE OF VARIABLES

BRIDGE NUMBER	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	PLATE THICKNESS "X"	PILE STRAPS	
				PLATE	REINFORCING
	18"	0.50"	1 1/4"	2 @ 1/2" x 1 3/8"	6 - #6
	24"	0.50"	1 3/4"	3 @ 1/2" x 1 5/8"	8 - #7



ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS

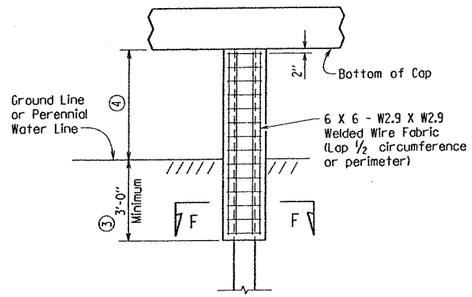
GENERAL NOTES FOR PILE ENCASEMENTS:

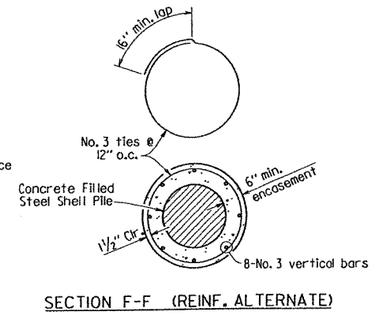
See Bridge Layout for required location of pile encasements. Only interior trestle pile bents shall have pile encasements.

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 conform to AASHTO M 31 or M 53, Grade 60.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe will not be paid for separately, but will be considered included in the unit price bid for "Pile Encasement".





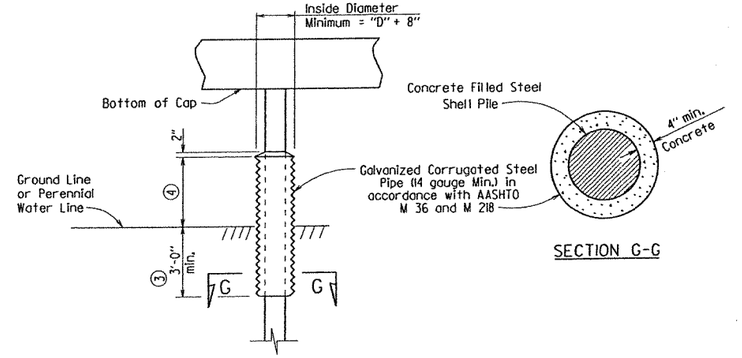
SECTION F-F (REINF. ALTERNATE)

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES (Shown with Encasement to Bottom of Cap) (5)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES (Shown with Partial Height Encasement)

STATE OF ARKANSAS
CARL T. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL T. FUSELIER
BRIDGE ENGINEER

DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS BUFFALO CREEK DITCH

ROUTE SEC.

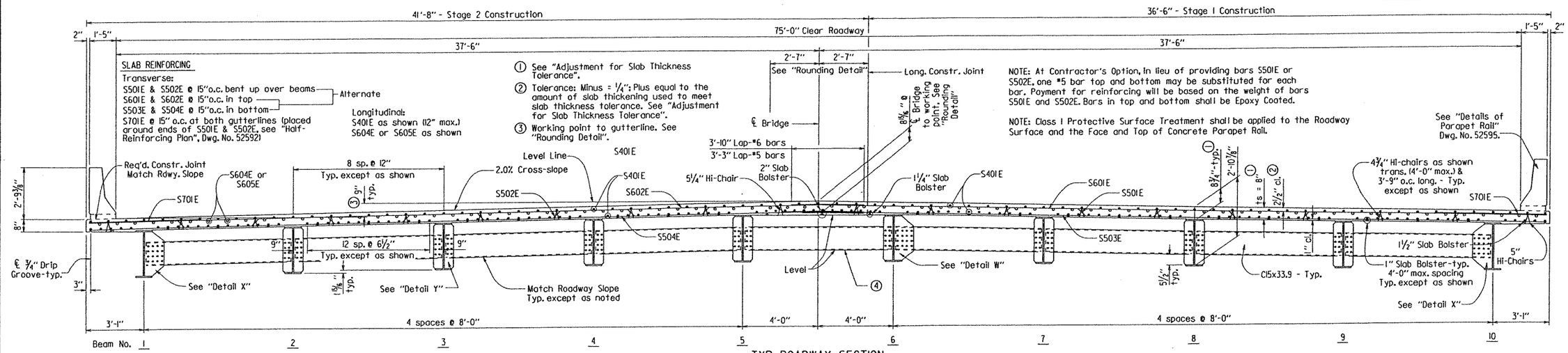
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-14-11 FILENAME: bl00653_ssp.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: NONE
DESIGNED BY: DCM DATE: 10/11

BRIDGE NO. 07252 DRAWING NO. 52588

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.		100653	13%	335
				①	07252 -	134 FT. UNIT	- 52589	



SLAB REINFORCING

Transverse:

S501E & S502E @ 15"o.c. bent up over beams — Alternate
S601E & S602E @ 15"o.c. in top
S503E & S504E @ 15"o.c. in bottom

S701E @ 15" o.c. at both gutterlines (placed around ends of S501E & S502E, see "Half-Reinforcing Plan", Dwg. No. 52592)

Longitudinal:
S401E as shown (12" max.)
S604E or S605E as shown

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 Working point to gutterline. See "Rounding Detail".

NOTE: At Contractor's Option, in lieu of providing bars S501E or S502E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be Epoxy Coated.

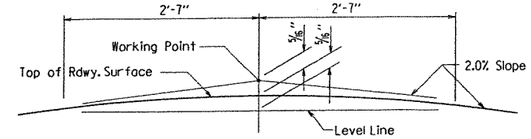
NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

TYP. ROADWAY SECTION

Looking Ahead
Scale: ⅜" = 1'-0"

④ In this bay, connection plate widths and cross-frame lengths shall be fabricated, as necessary, to facilitate installation of cross-frames between adjacent girders with significant differential deflections. Hole diameters of 15/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the cross-frames in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 1 overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

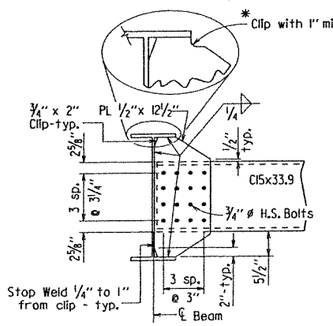


NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

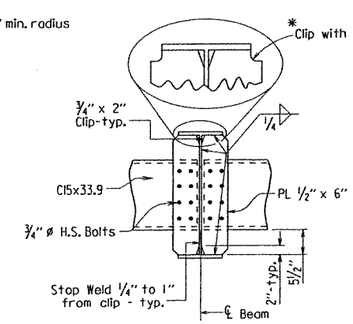
No Scale

*If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



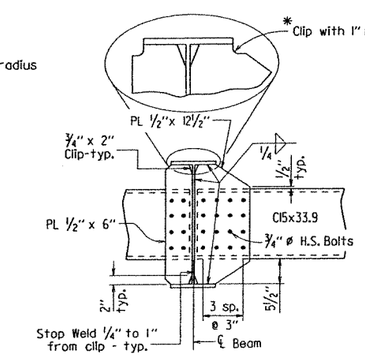
DETAIL X

No Scale



DETAIL Y

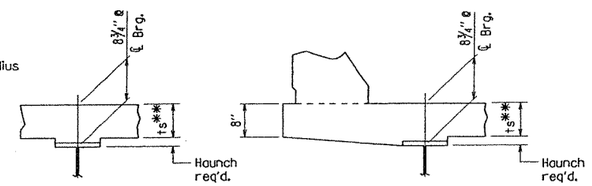
No Scale



DETAIL W

No Scale

Note: Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.71.



** Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note : ts = slab thickness as shown in "Typ. 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. 1499I 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

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

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SHEET 1 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH

ROUTE SEC.

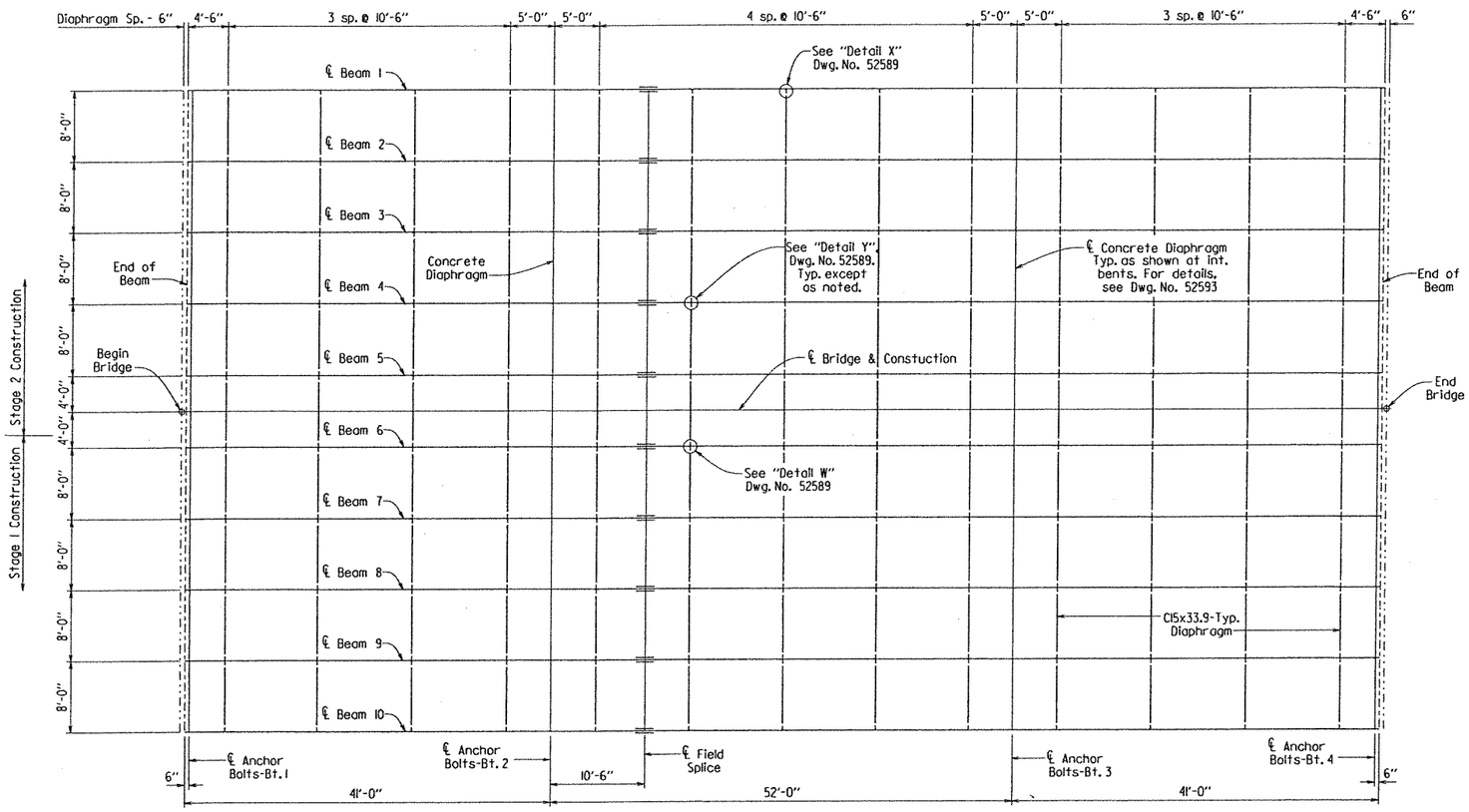
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-29-11 FILENAME: bl00653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DCM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52589

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.		100653	139	335
				(1) 07252 - 134 FT UNIT - 52590				

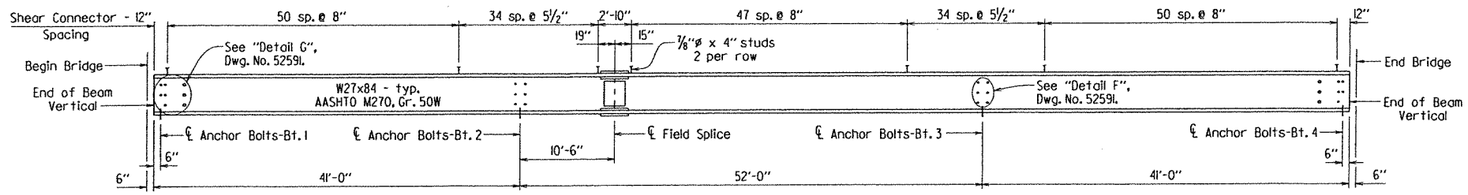


Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

FRAMING PLAN

Scale: 1/8" = 1'-0"

Note: For "Field Splice Detail", see Dwg. No. 52591.



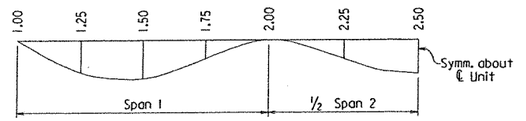
TYP. BEAM ELEVATION

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

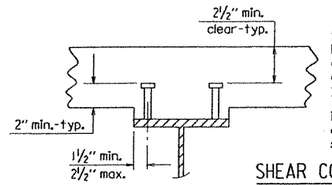
Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Str. Steel + Slab + Parapet
1	1.00	0	0	0
	1.25	0.026	0.211	0.218
	1.50	0.030	0.248	0.256
	1.75	0.013	0.106	0.110
½ Span 2	2.00	0	0	0
	2.25	0.030	0.242	0.250
	2.50	0.051	0.418	0.432 ← ℄ Unit

NOTE: This table is symmetrical about the ℄ of Unit.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerance. Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ½"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale

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SHEET 2 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH

ROUTE SEC.

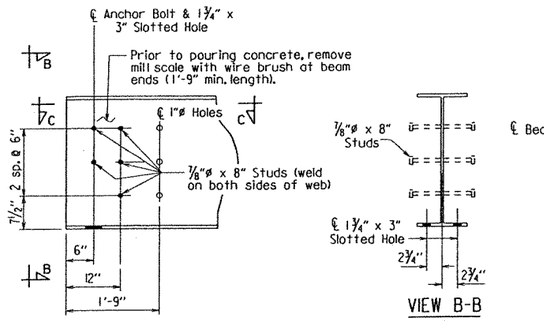
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-29-11 FILENAME: b100653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DCM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52590

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.		100653	140	335
				(1) 07252 -		134 FT. UNIT	- 52591	

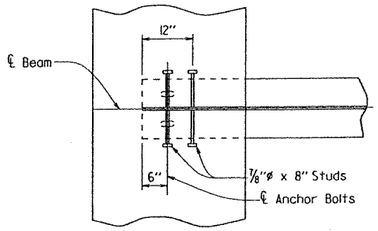


DETAIL G

No Scale

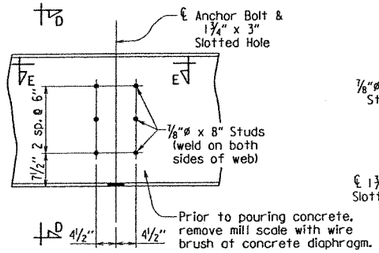
VIEW B-B

No Scale



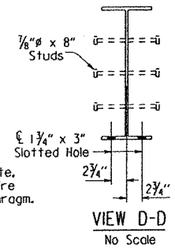
SECTION C-C

No Scale



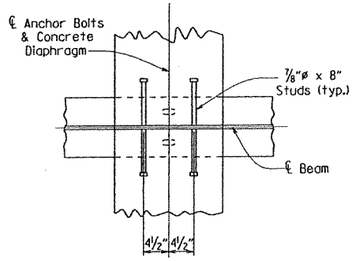
DETAIL F

No Scale



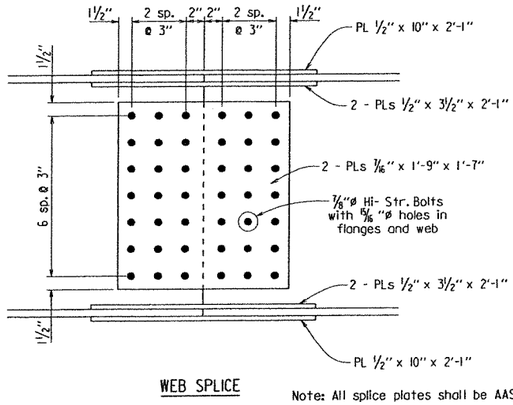
VIEW D-D

No Scale

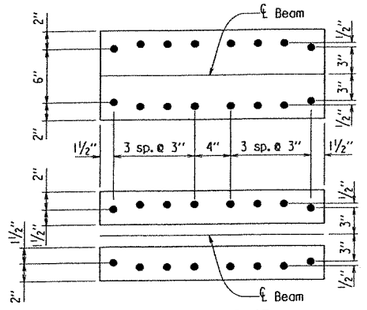


SECTION E-E

No Scale



WEB SPLICE

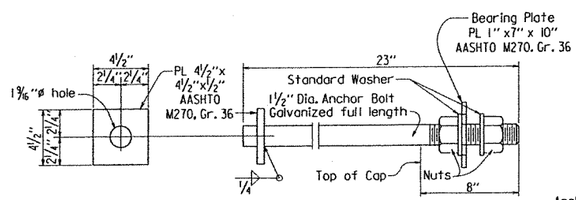


FLANGE SPLICE

Note: All splice plates shall be AASHTO M270, Gr. 50W

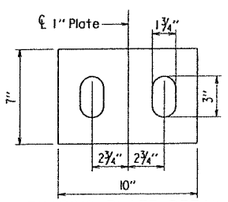
FIELD SPLICE DETAIL

Scale: 1½" = 1'-0"



ANCHOR BOLT DETAIL

No Scale



BEARING PLATE DETAIL

No Scale

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

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SHEET 3 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH

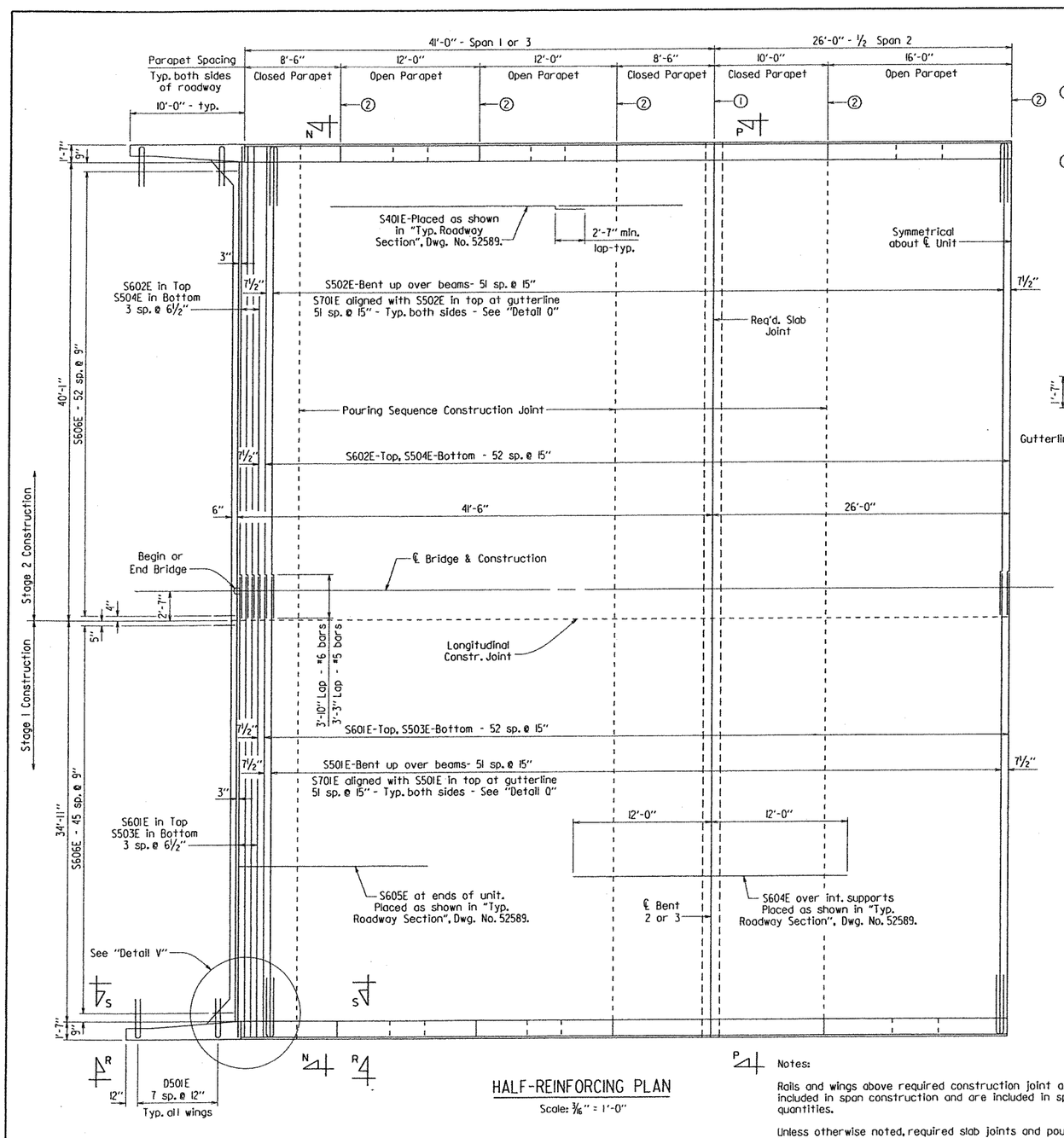
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-19-11 FILENAME: b100653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DBM DATE: 9/11

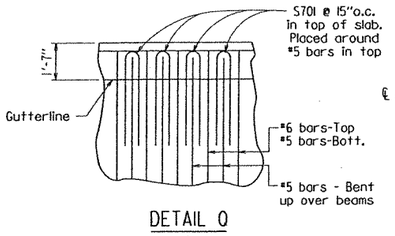
BRIDGE NO. 07252 DRAWING NO. 52591

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.		100653	141	335
				① 07252 -		134 FT. UNIT	- 52592	



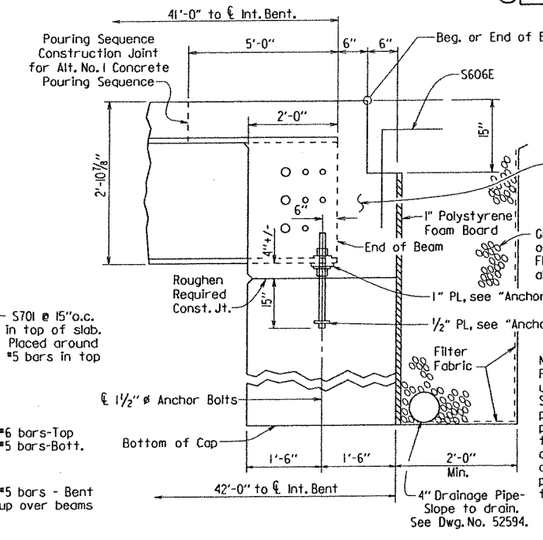
HALF-REINFORCING PLAN

Scale: 3/16" = 1'-0"



DETAIL O

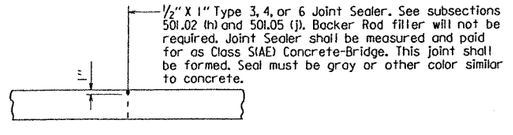
No Scale



Note:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains, outlet protectors, granular materials, drain pipe, filter fabric and polystyrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation for Structures-Bridge".

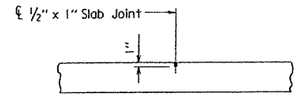
SECTION AT END BENT

No Scale



LONGITUDINAL CONSTRUCTION JOINT

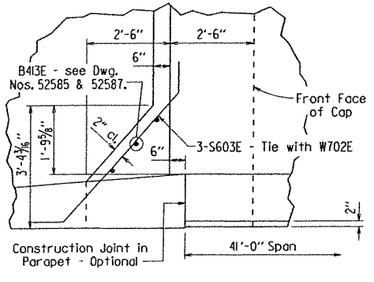
No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline).



DETAIL V

No Scale

Notes:

Rails and wings above required construction joint are included in span construction and are included in span quantities.

Unless otherwise noted, required slab joints and pouring sequence contruction joints shall align with parapet open joints at the gutterline.

For "VIEW N-N" and "VIEW P-P", see Dwg. No. 52593.

For "VIEW R-R" and "SECTION S-S", see Dwg. No. 52594.

Construction joints shown are based on Alternate No. 1 Pouring Sequence, see Dwg. No. 52596.

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SHEET 4 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT BUFFALO CREEK DITCH

ROUTE SEC.

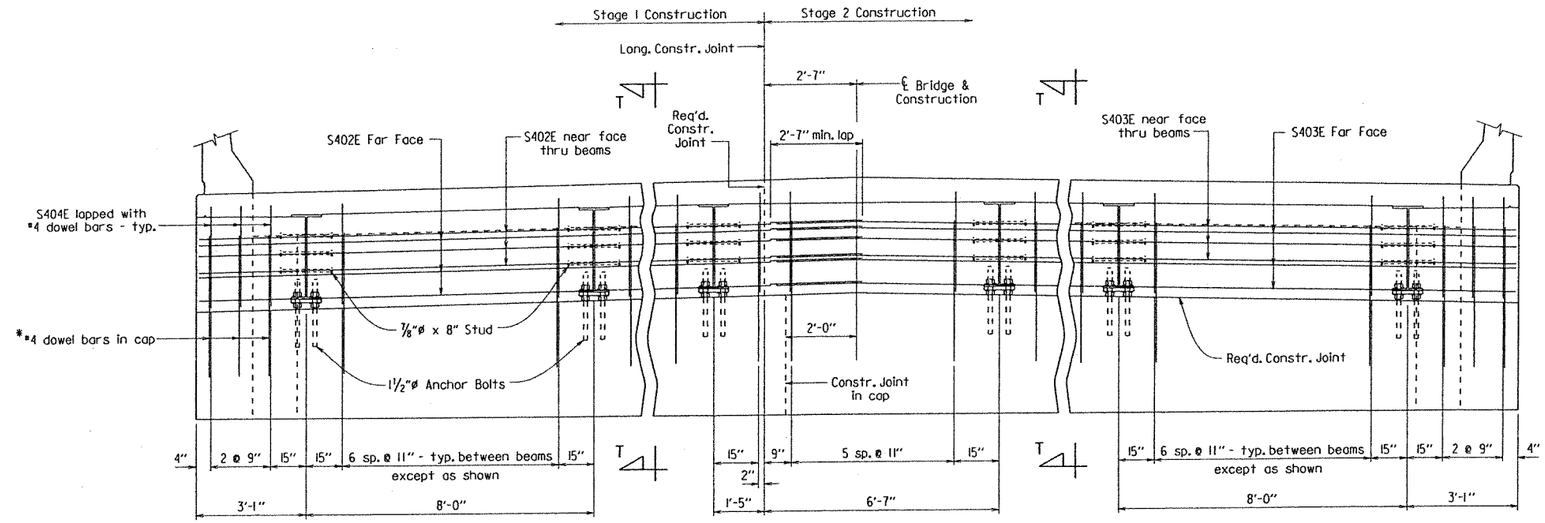
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-20-11 FILENAME: b100653_s1.dgn
CHECKED BY: REF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DCM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52592

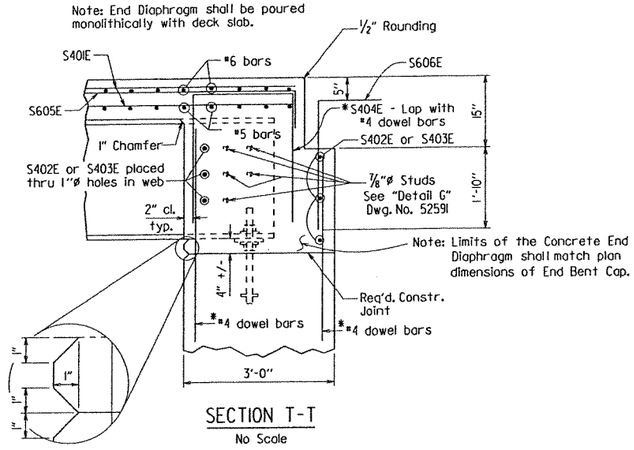
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	142	335
				1	07252 -	134 FT. UNIT	-	52593



*See Dwg. Nos. 52585 & 52587 for reinforcing details and placement.

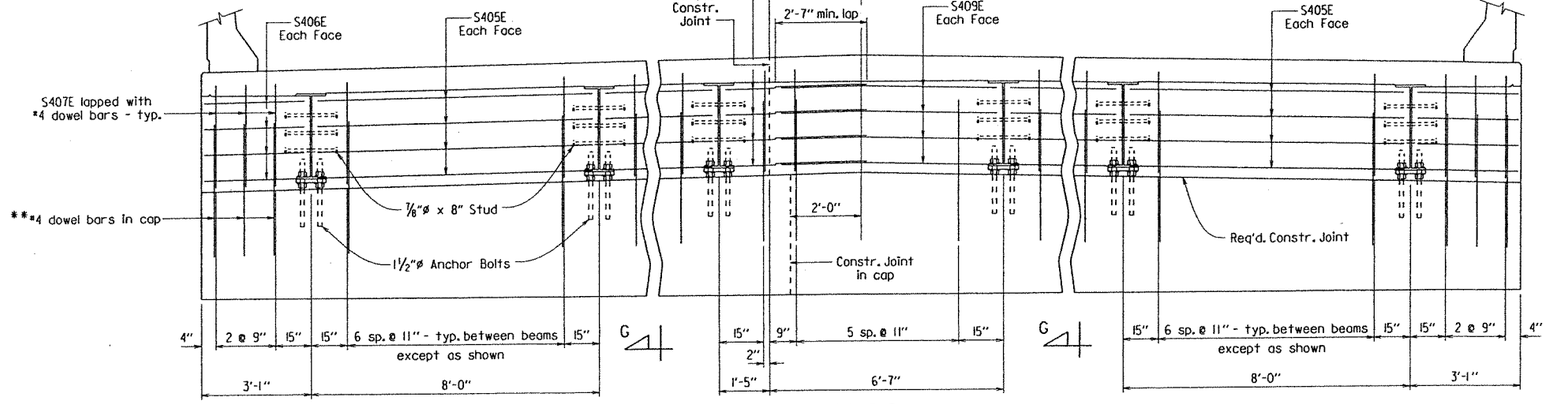
VIEW N-N

Looking Back - Bent 1
Bent 4 Similar
No Scale



SECTION T-T

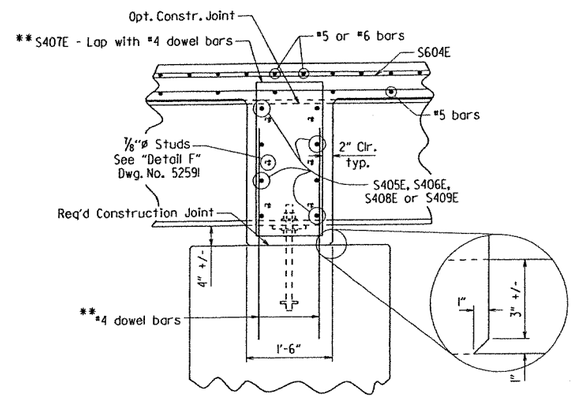
No Scale



**See Dwg. No. 52586 for reinforcing details and placement.

VIEW P-P

Looking Back at Bents 2 & 3
No Scale



SECTION G-G

No Scale

STATE OF ARKANSAS
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7/18/12

BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-30-11 FILENAME: b100653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DGM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52593

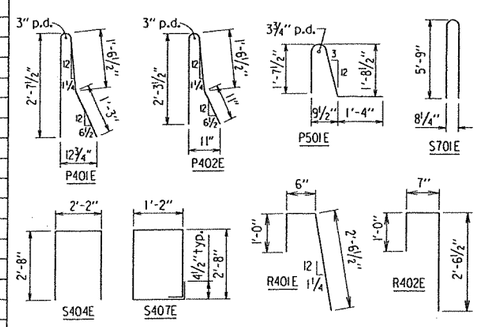
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	143	335

BAR LIST

(1) 07252 - 134 FT. UNIT - 52594

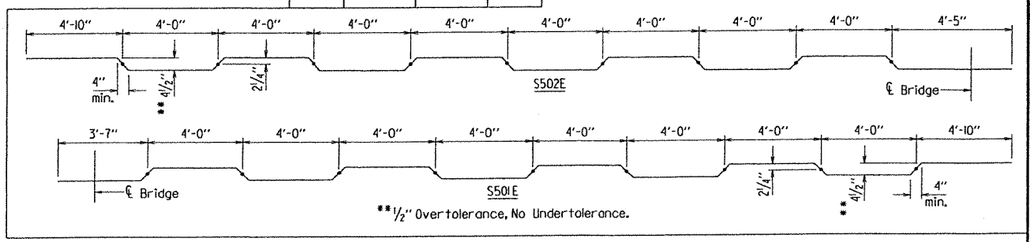
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	824	35'-8"	Str.
S402E	12	39'-1"	Str.
S403E	12	41'-4"	Str.
S404E	138	7'-4"	2"
S405E	128	7'-8"	Str.
S406E	32	2'-9"	Str.
S407E	138	8'-0"	2"
S408E	16	4'-0"	Str.
S409E	16	6'-3"	Str.
P401E	456	5'-6"	3"
P402E	80	4'-10"	3"
P403E	72	4'-5"	Str.
P404E	56	8'-2"	Str.
P405E	28	9'-8"	Str.
P406E	56	11'-8"	Str.
P407E	28	15'-8"	Str.
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	4'-5"	Str.
W401E	20	4'-7"	2"
W402E	20	5'-8"	Str.
S501E	104	41'-4"	3"
S502E	104	42'-2"	3"
S503E	113	39'-9"	Str.
S504E	113	41'-4"	Str.
P501E	456	4'-9"	3¾"
D501E	32	6'-2"	3¾"
S601E	113	40'-4"	Str.
S602E	113	41'-4"	Str.
S603E	12	7'-3"	4½"
S604E	156	24'-0"	Str.
S605E	156	13'-5"	4½"
S606E	198	4'-4"	4½"
R601E	32	5'-8"	Str.
R602E	12	5'-0"	Str.
S701E	208	11'-10"	6½"
W701E	12	12'-1"	Str.
W702E	32	12'-8"	5¼"

BENDING DIAGRAMS

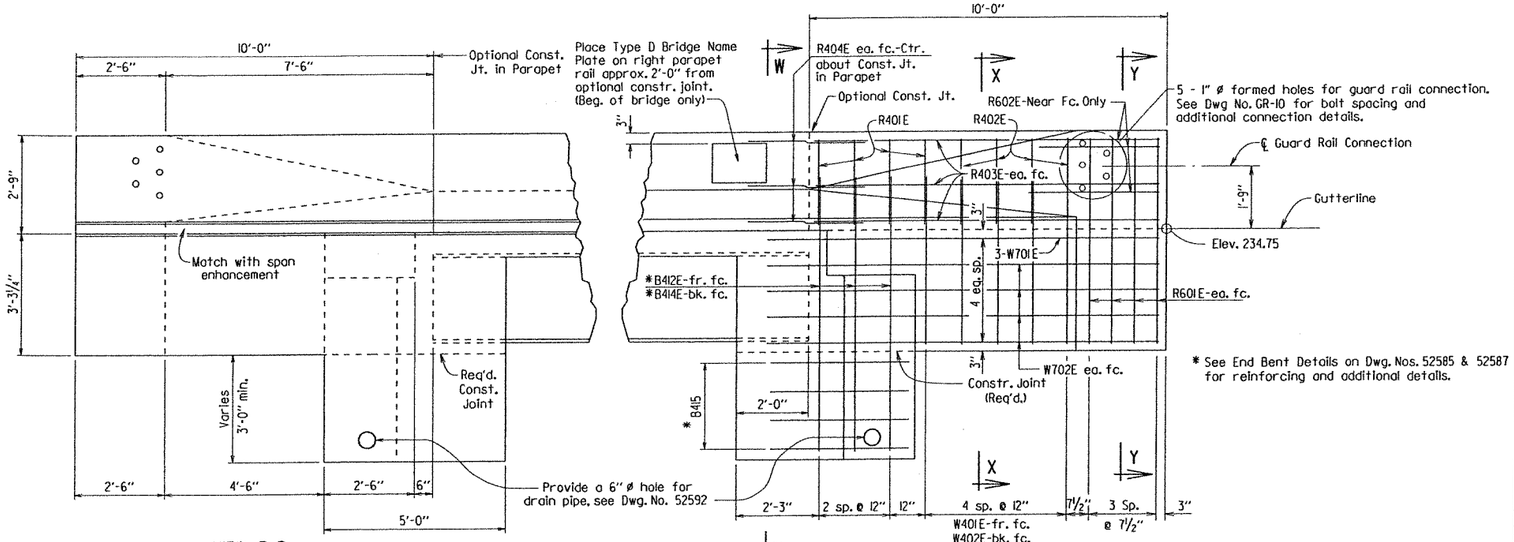


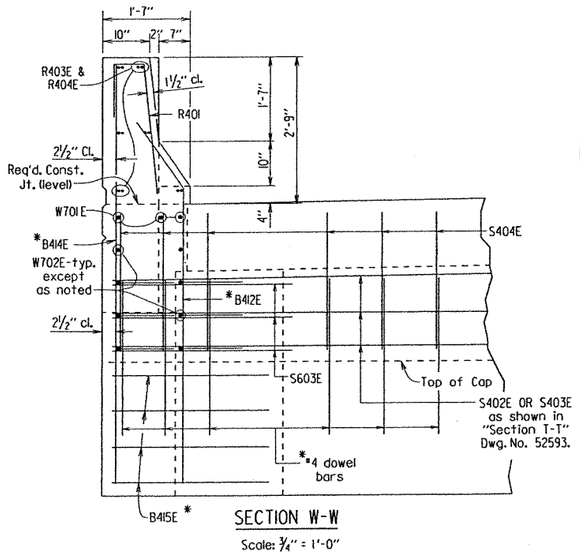
Dimensions are out to out of bars.

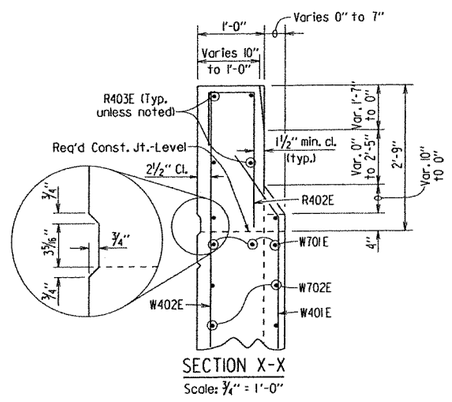
Note: Bars with an "E" suffix are to be epoxy coated.

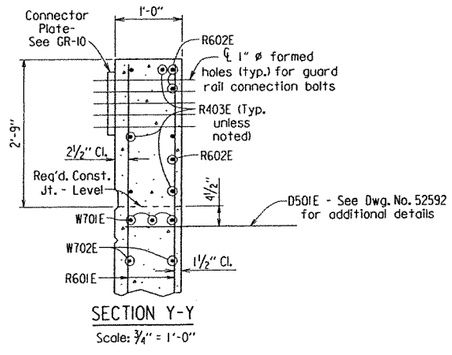


** ½" Overtolerance, No Undertolerance.









STATE OF ARKANSAS
Carl J. Fussellier
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No. 7510
7/18/12
CARL J. FUSSELLIER

BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT BUFFALO CREEK DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

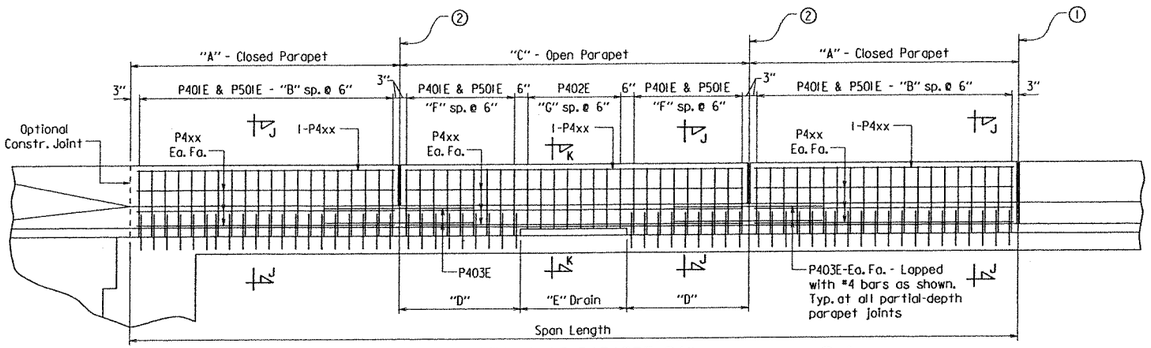
DRAWN BY: KDH DATE: 8-31-11 FILENAME: bl00653_sl.dgn

CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED

DESIGNED BY: DGM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52594

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.		100653	144	335
				①	07252 - 134 FT. UNIT - 52595			

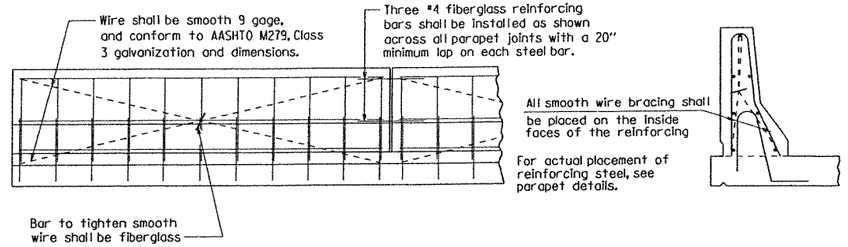


① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 52592. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

Scale: ⅜" = 1'-0"

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 52592. Stop 1'-2" from top of slab.



All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

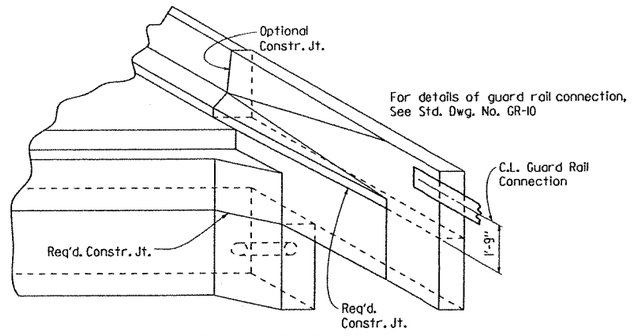
No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
8'-6"	16	P404E
10'-0"	19	P405E

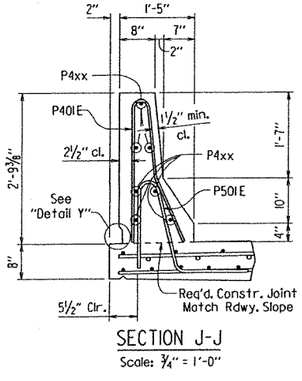
"C" Open Parapet	"D"	"E"	"F"	"G"	P4xx Bar
12'-0"	4'-6"	3'-0"	8	5	P406E
16'-0"	6'-0"	4'-0"	11	7	P407E

Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan", Dwg. No. 52592.



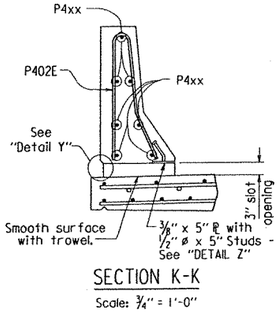
THREE DIMENSIONAL VIEW OF INTEGRAL BENT

No Scale



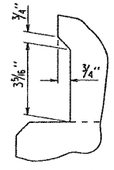
SECTION J-J

Scale: ¾" = 1'-0"



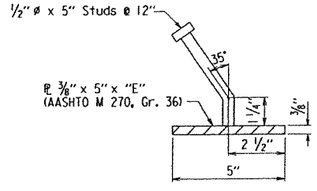
SECTION K-K

Scale: ¾" = 1'-0"



DETAIL Y

No Scale



DETAIL Z

No Scale

Note:
The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

STATE OF ARKANSAS
Carl E. Puseller
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No. 7510
CARL E. PUSELLER 7/18/12

BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-1-11 FILENAME: bl00653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DEM DATE: 9/11

BRIDGE NO. 07252 DRAWING NO. 52595

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.		100653	145	335
				(1)	07252 -	134 FT. UNIT	- 52596	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions.

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

MATERIALS AND STRENGTHS

Class S(AE) Concrete	f'c = 4,000 psi.
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)	fy = 60,000 psi.
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi.
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 14991 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 for each stage of construction.

Removable forms shall be used for concrete diaphragms.

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. 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: Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36 or Gr. 50 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.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with webs horizontal in groups as specified in subsection 807.54(b)(2). The camber, length of sections, and distance between bearings 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.

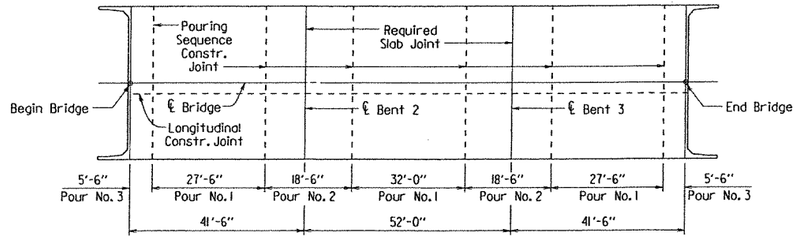
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

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.

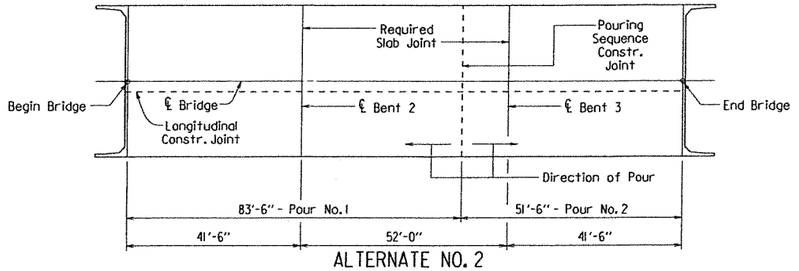
Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Open holes shall be 15/16 "ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be 15/16 " ø diameter if a washer is supplied for use under both the nut and head of the bolt.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck.

All stud shear connectors shall be granular flux filled, solid fluxed or equal and shall be automatically end welded in accordance the recommendations of the manufacturer.



ALTERNATE NO. 1



ALTERNATE NO. 2

CONCRETE POURING SEQUENCE

No Scale

Note: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3) 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 the end of a pour and the start of an adjacent pour. 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 deviation from the pouring sequences shown.

If concrete diaphragms at intermediate bents are poured separately, a minimum of 48 hours shall elapse between the diaphragm pour and the slab pour. Concrete diaphragms at end bents shall be poured monolithically with the slab.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/19/12
CARL E. PUSELLER

BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 134' INTEGRAL W-BEAM UNIT
BUFFALO CREEK DITCH

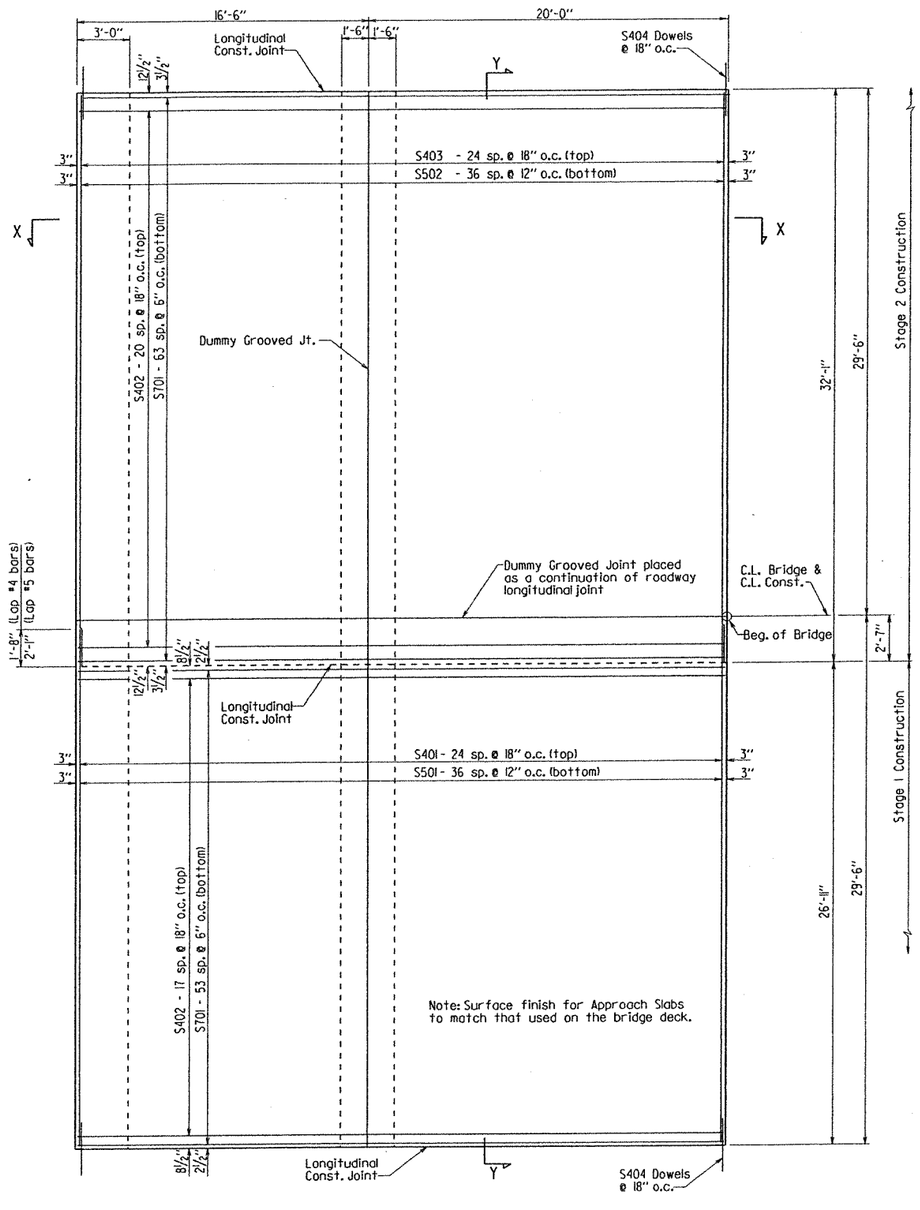
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-1-11 FILENAME: bl00653_sl.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: DEM DATE: 9/11

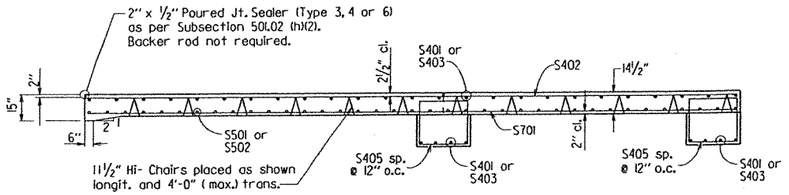
BRIDGE NO. 07252 DRAWING NO. 52596

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.		100653	146	335
				(1) 07252 - APPROACH SLAB - 52597				

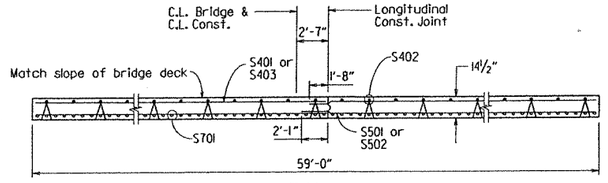


PLAN-APPROACH SLAB
Scale: ¼" = 1'-0"

Note: Approach Slab Shown for Beg. of Bridge. End of Bridge similar.



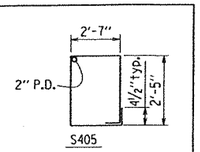
SECTION X-X
No Scale

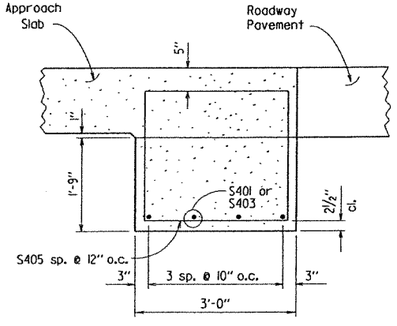


SECTION Y-Y
No Scale

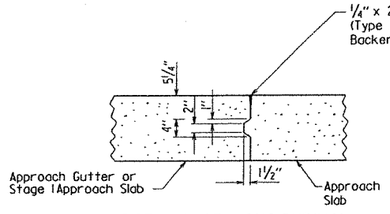
BAR LIST

Mark	No. Req'd.	Length
S401	33	28'-5"
S402	39	36'-2"
S403	33	31'-11"
S404	50	3'-0"
S405	118	10'-4"
S501	37	28'-10"
S502	37	31'-11"
S701	118	36'-2"

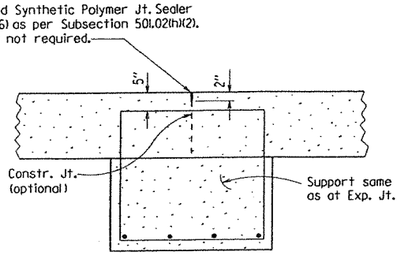




DETAILS OF SUPPORT AT EXPANSION JOINT
Scale: ¾" = 1'-0"



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
Scale: ¾" = 1'-0"



DETAILS OF DUMMY GROOVED JOINT
Scale: ¾" = 1'-0"

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

Reinforcing Steel (lb.)	Concrete (Cu. Yds.)
14255	120.48

GENERAL NOTES

Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504.

Joint sealer included in the pay item "Approach Slab".

STATE OF ARKANSAS
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DETAILS OF TYPE SPECIAL APPROACH SLAB BUFFALO CREEK DITCH

ROUTE SEC.

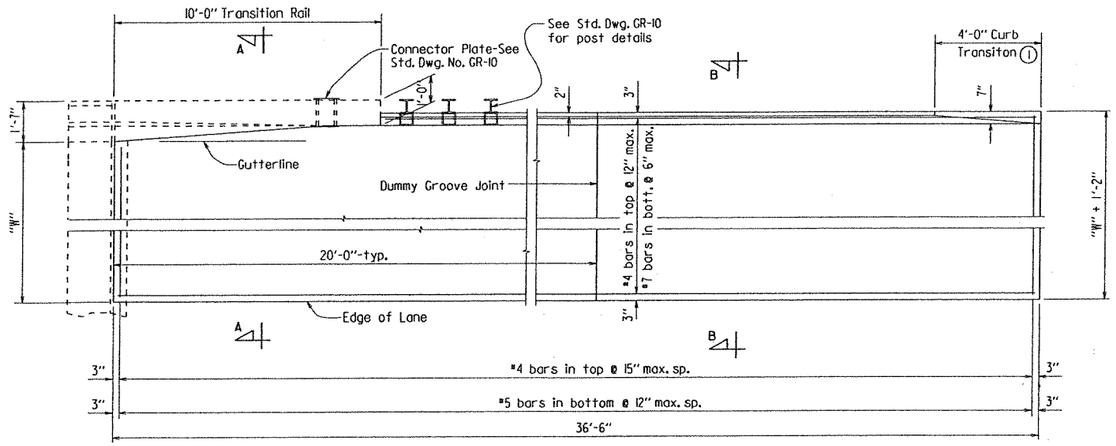
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ADN DATE: 02-16-12 FILENAME: bl00653.as.dgn
CHECKED BY: BEF DATE: 7/9/12 SCALE: AS NOTED
DESIGNED BY: STD DATE: —

BRIDGE NO. 07252 DRAWING NO. 52597

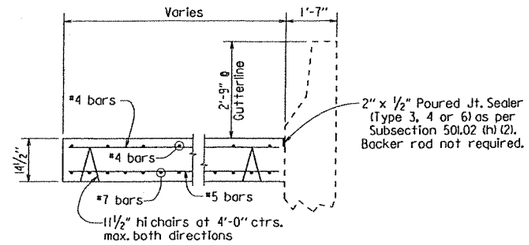
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100653	147	335

① 07252 - APPPROACH GUTTER - 52598



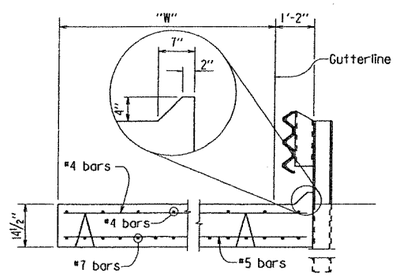
PLAN

Scale: 3/8" = 1'-0"



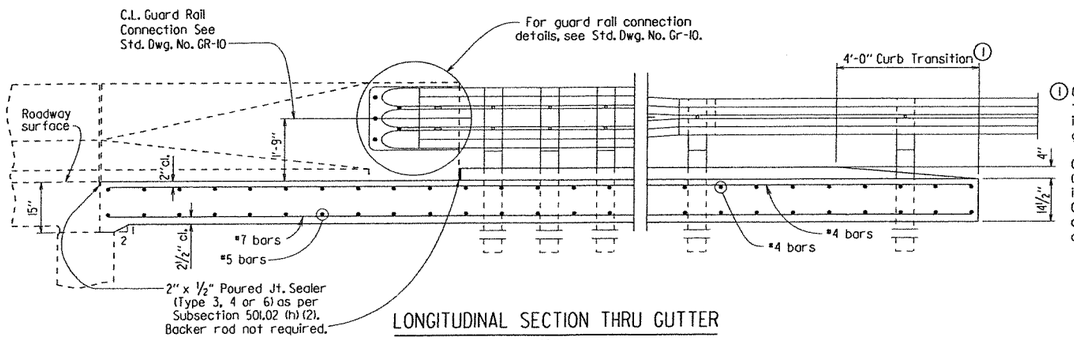
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"



LONGITUDINAL SECTION THRU GUTTER

Scale: ½" = 1'-0"

① Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

GENERAL NOTES

Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi.) Fabricate bar lengths to provide 2" minumum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W"	Concrete	Reinforcing Steel
8'-0"	14.70 cu.yd.	2230 lb.

STATE OF ARKANSAS
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No. 7510
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DETAILS OF TYPE SPECIAL APPROACH GUTTERS BUFFALO CREEK DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 7-11-12 FILENAME: bl00653_gl.dgn

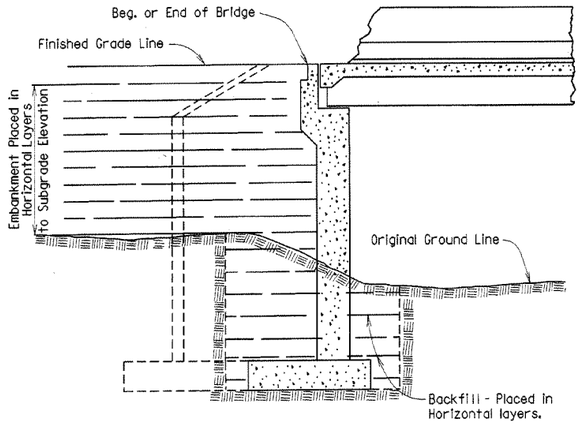
CHECKED BY: BEF DATE: 7/16/12 SCALE: AS NOTED

DESIGNED BY: Std. DATE: —

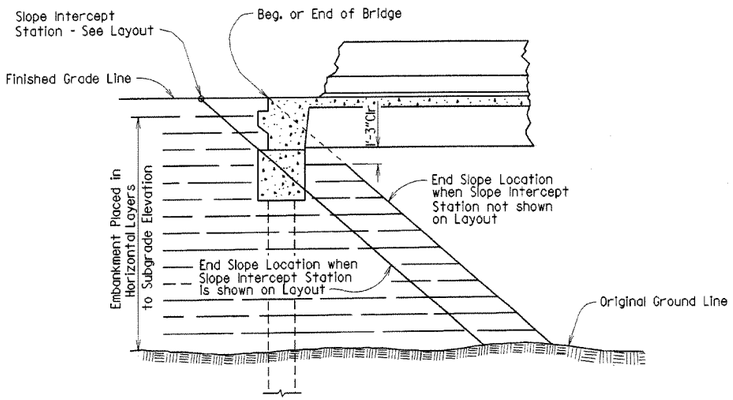
BRIDGE NO. 07252 DRAWING NO. 52598

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		148	
				JOB NO.				

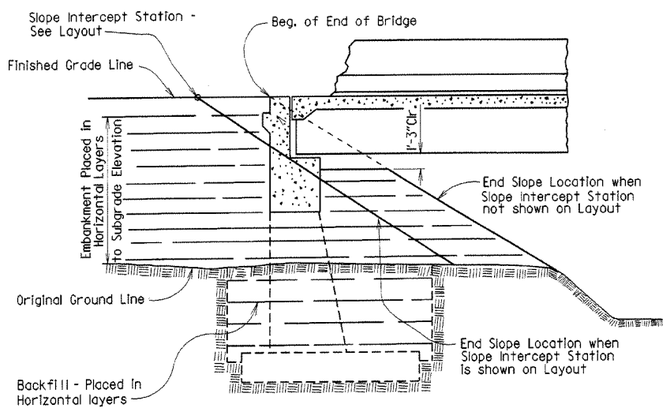
① EMBANKMENT & BACKFILL 1888A



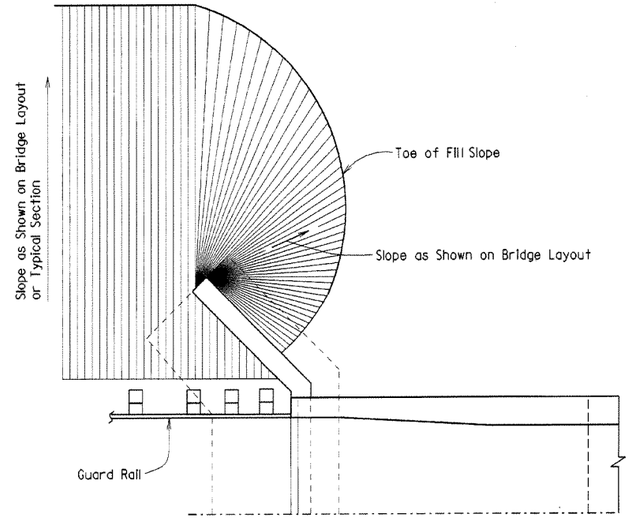
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



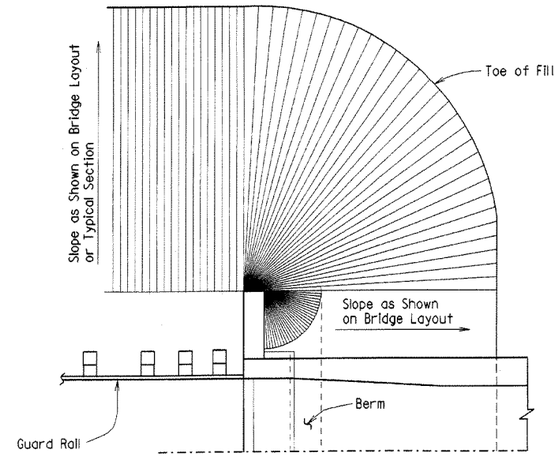
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



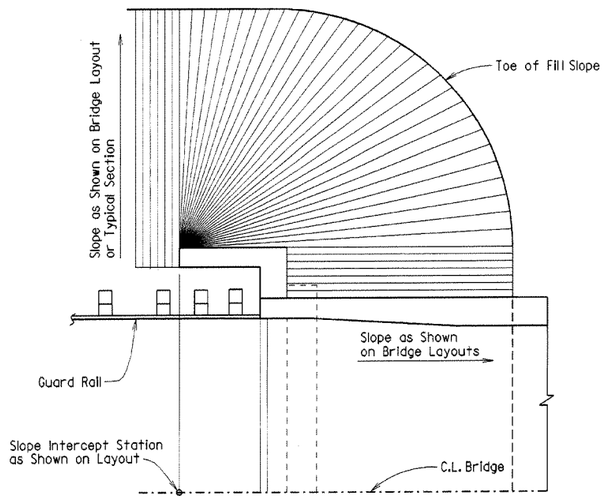
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



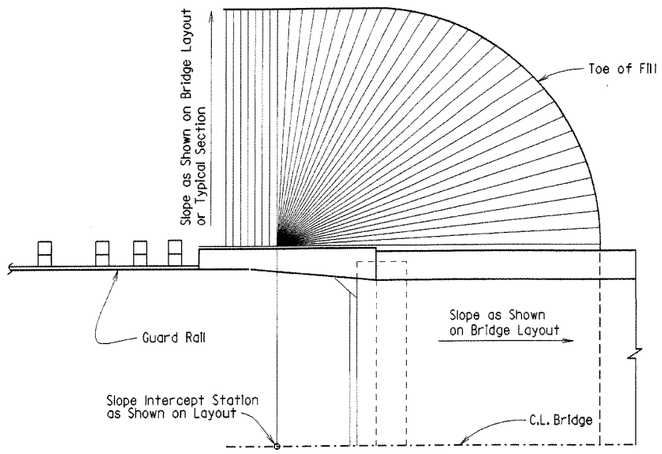
VERTICAL WALL ABUTMENTS



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 4 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 of the Specifications for construction requirements.

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

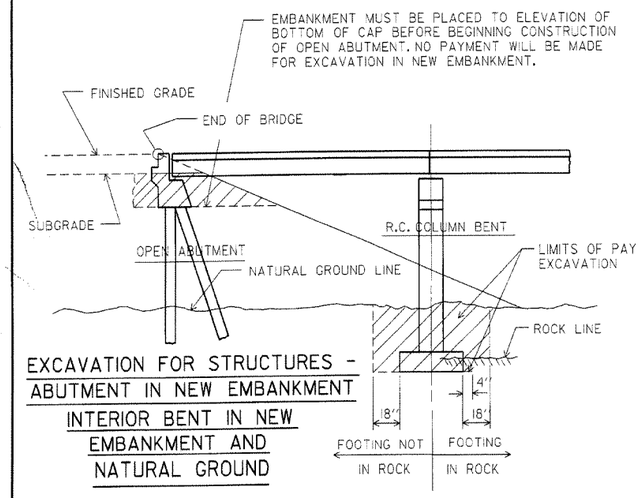
DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI888A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ——

BRIDGE NO. DRAWING NO. 1888A

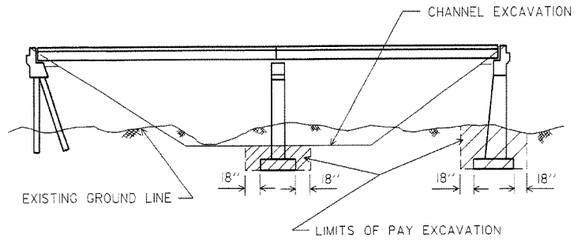
BI888A.STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		149	
				JOB NO.				

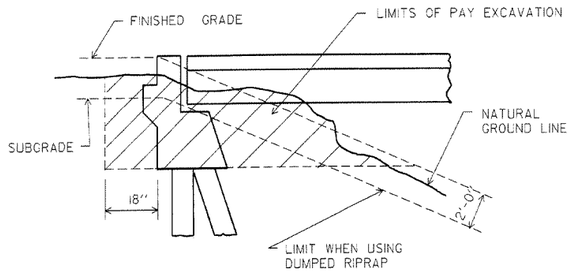
1 RIP. & EXCAV. 1891F



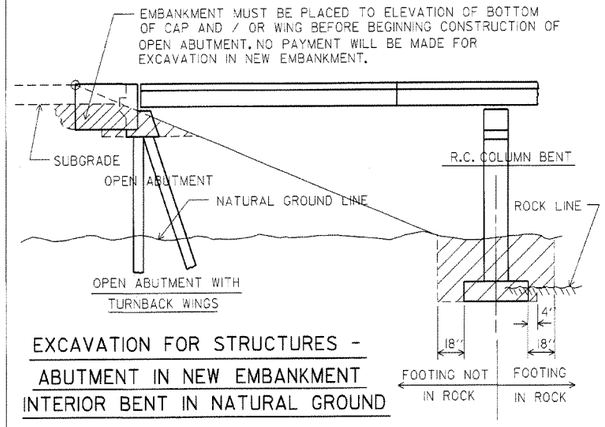
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



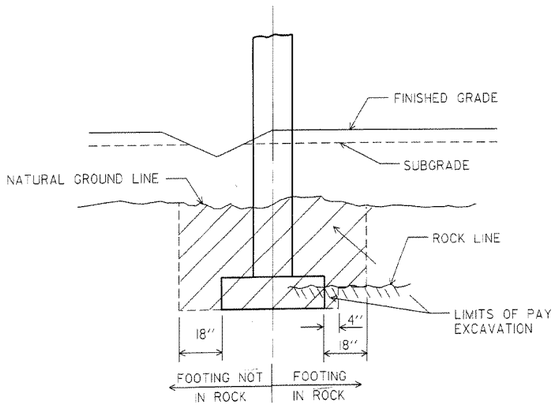
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



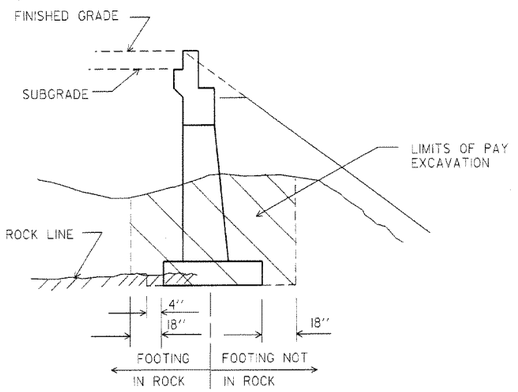
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



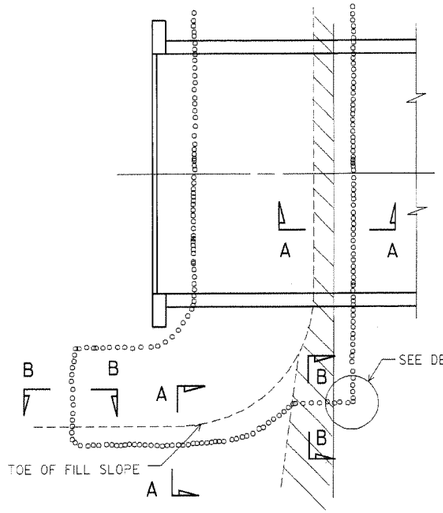
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



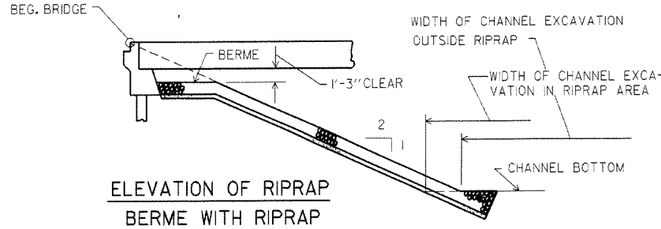
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



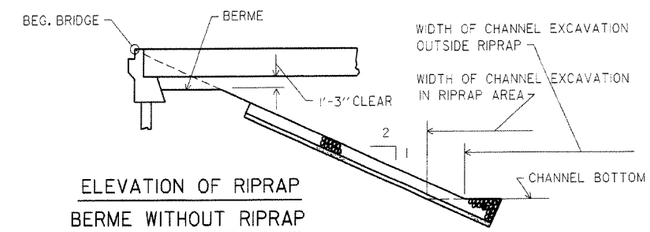
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



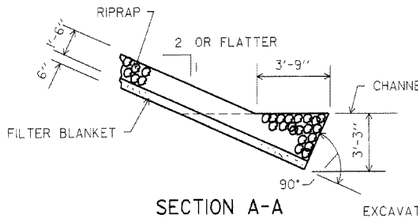
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP



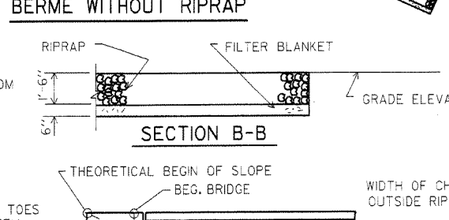
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



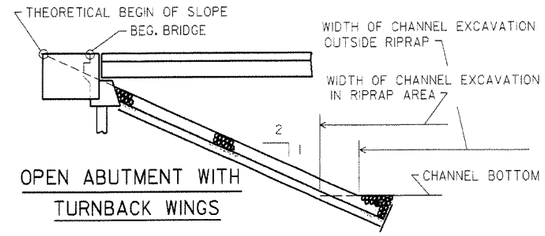
SECTION A-A

(TOE EXCAVATION IN SOIL)

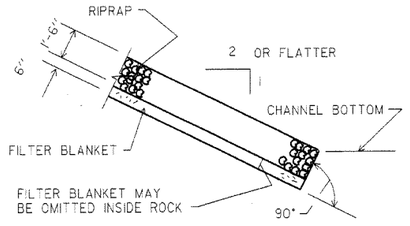
EXCAVATION FOR TOES IS NOT A PAY ITEM



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



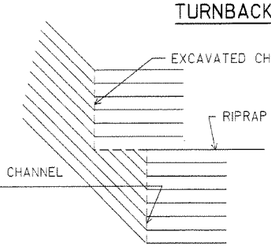
SECTION A-A

(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.



DETAIL C

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4937
CHARLES P. BRAND

BRIDGE ENGINEER

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1891F.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 1891F

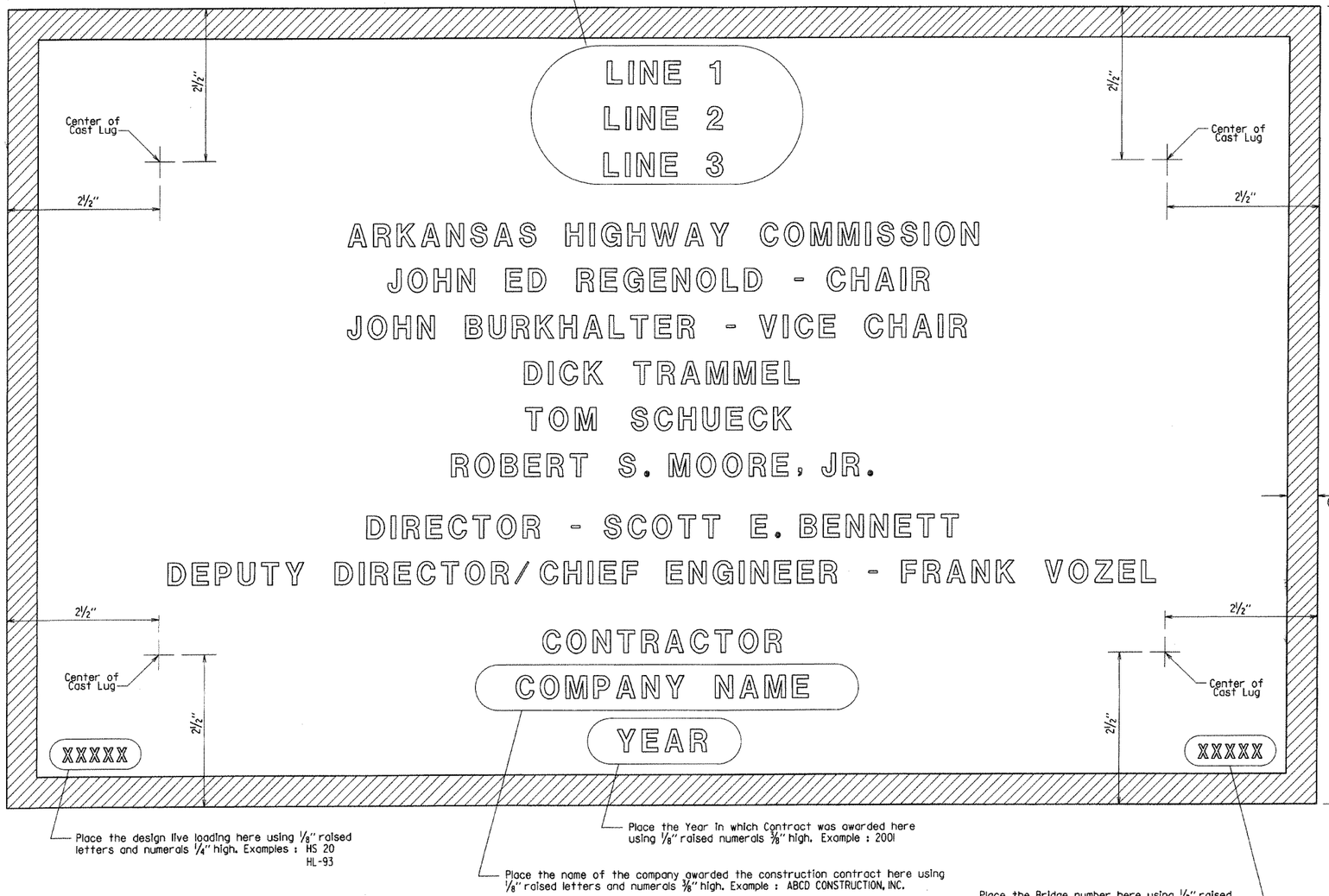
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
9-8-11			
1-3-13			
1-10-13			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		150	
JOB NO.				

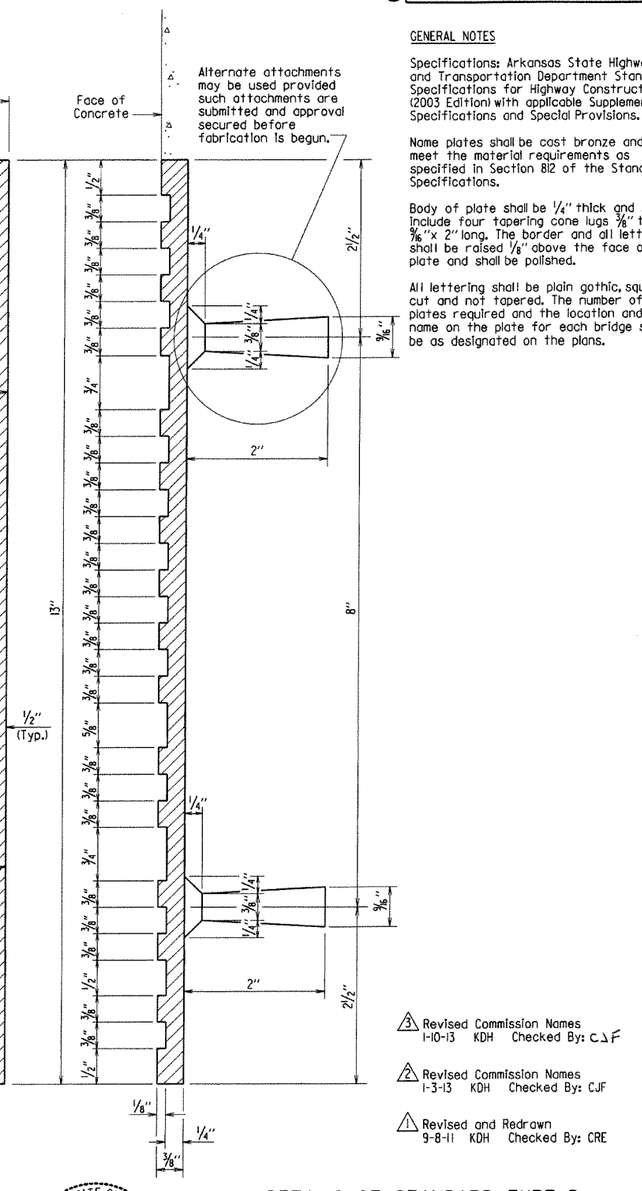
NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 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 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

3 Revised Commission Names 1-10-13 KDH Checked By: CJF

2 Revised Commission Names 1-3-13 KDH Checked By: CJF

1 Revised and Redrawn 9-8-11 KDH Checked By: CRE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER

BRIDGE ENGINEER

DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

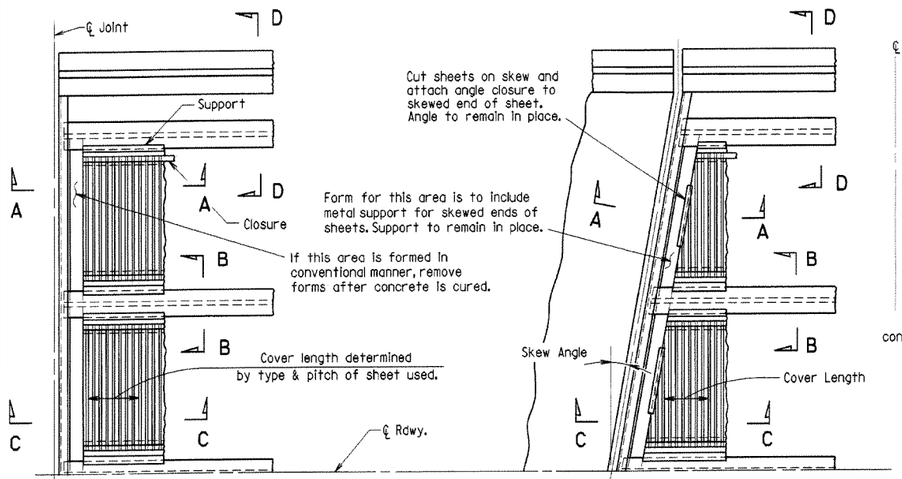
LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	9-8-11	FILENAME:	b2387_std.dgn
CHECKED BY:	CRE	DATE:	9-8-11	SCALE:	1'-0" = 1'-0" OR AS NOTED
DESIGNED BY:	STD.	DATE:	—		

BRIDGE NO. DRAWING NO. 2387

PRINT DATE: 1/18/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		151	
04-10-2003						JOB NO.				
						①	BR. DECK FORMS 14991			

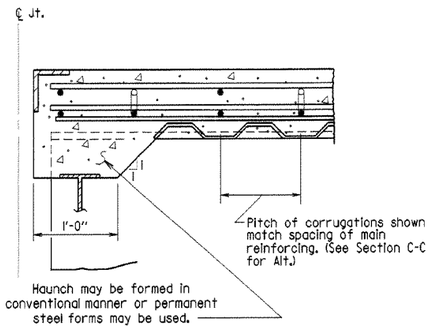


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

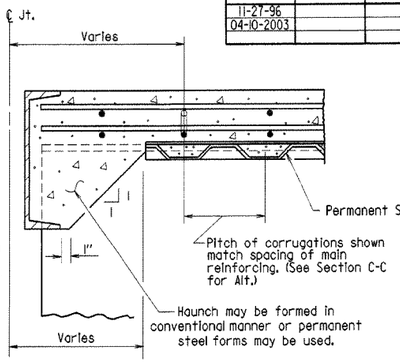
3/8" = 1'-0"



SECTION A-A

N.T.S.

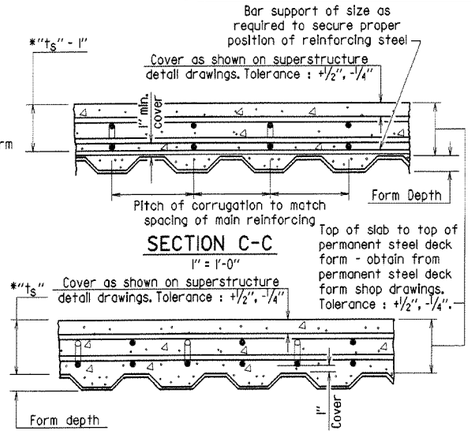
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



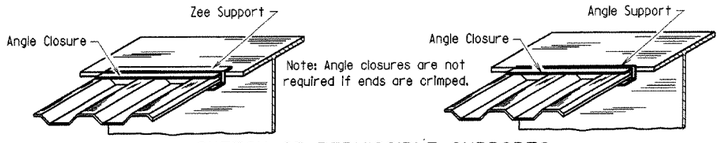
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

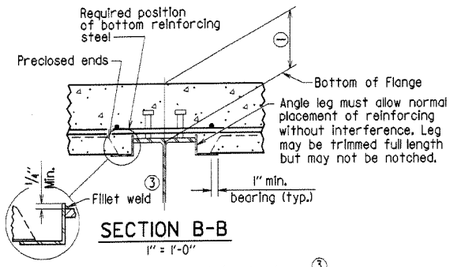
1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

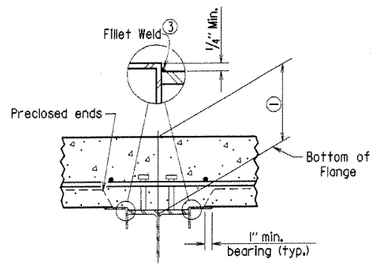


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

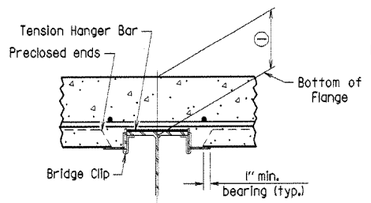
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

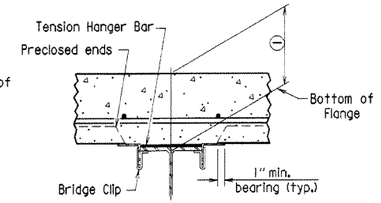
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



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)

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) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge 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 Bridge Engineer.

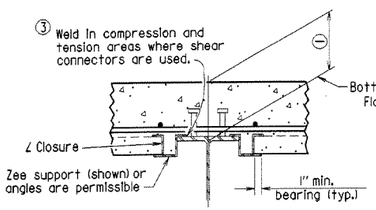
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

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.

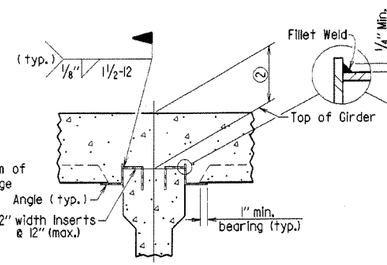
⚠2 Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition), with applicable supplemental specifications and special provisions.



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

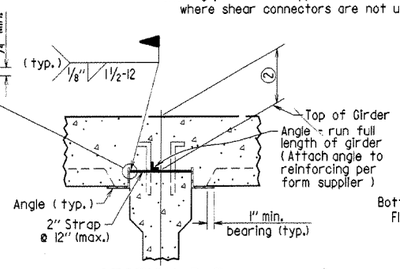


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

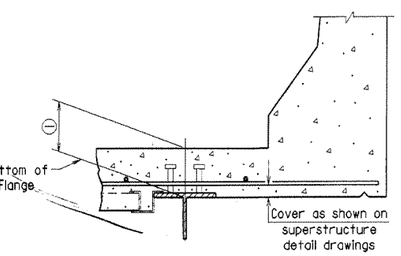


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠2 Revised for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

⚠1 Redrawn and revised 11/27/96; MJT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7537
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.

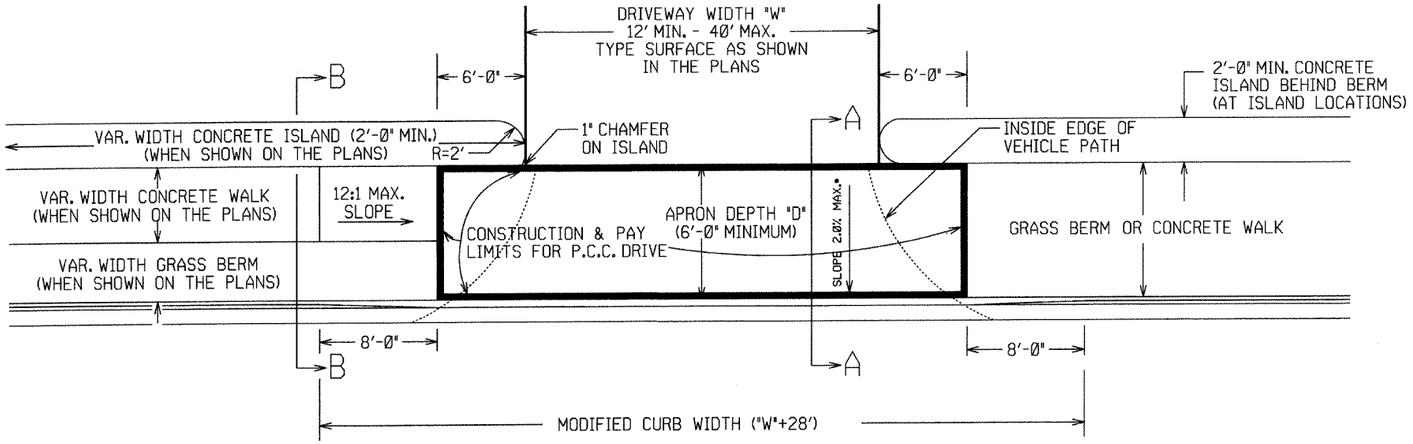
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

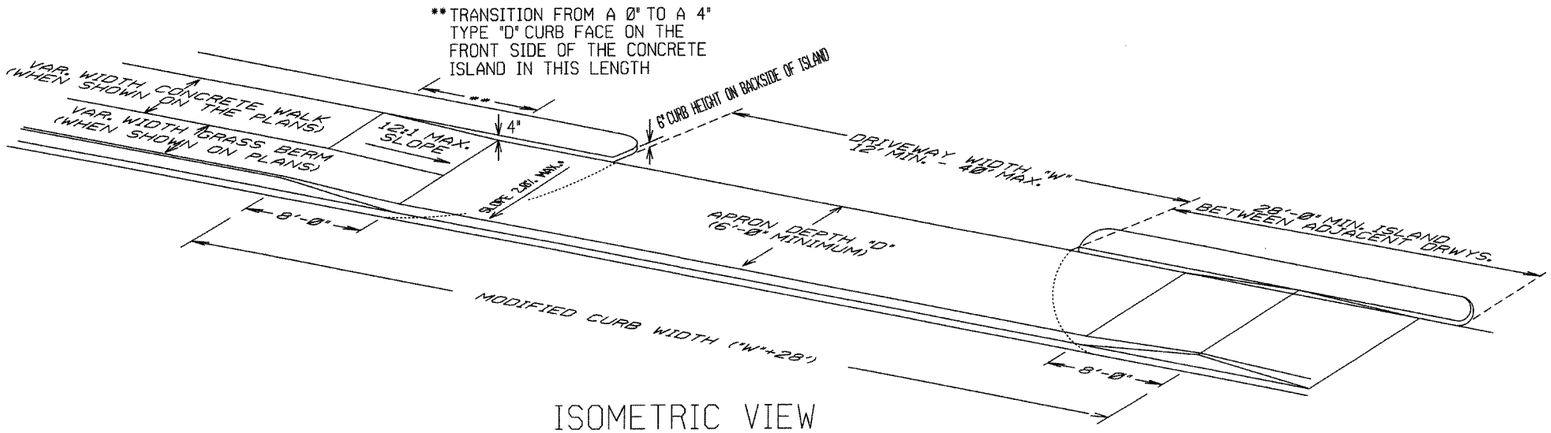
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96 SCALE: as noted
DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 14991

B14991.STD

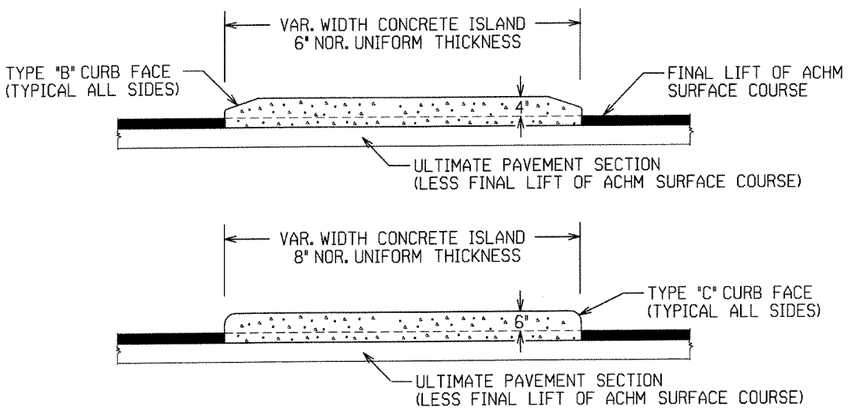


PLAN VIEW

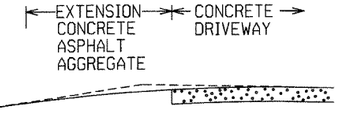


ISOMETRIC VIEW

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

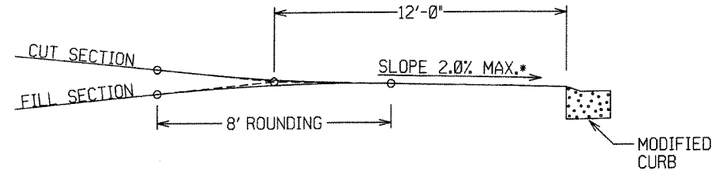
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

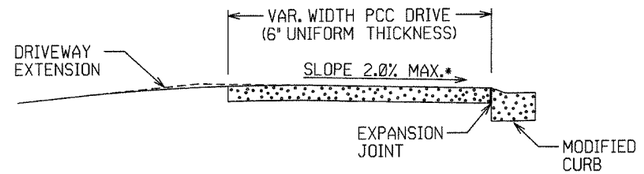
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

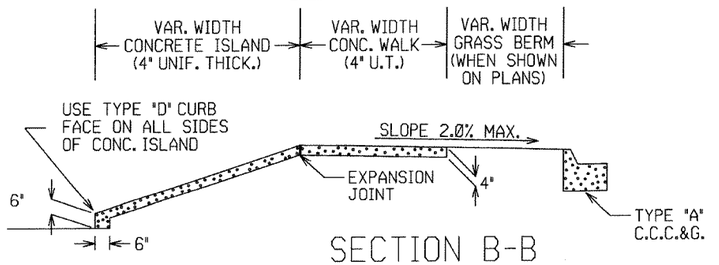


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



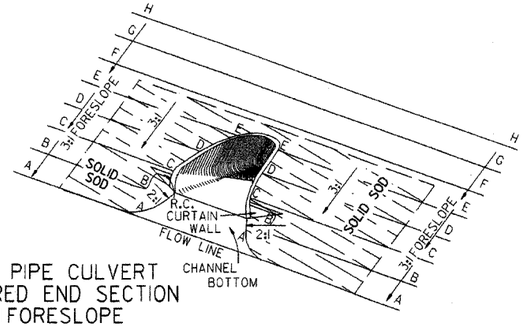
SECTION A-A



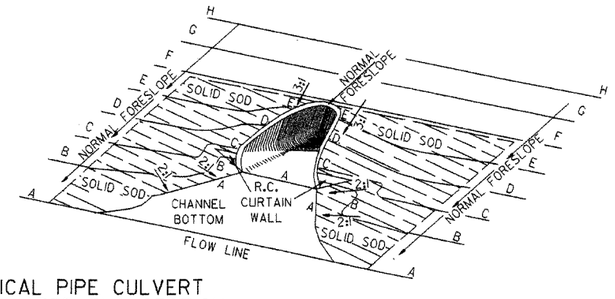
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

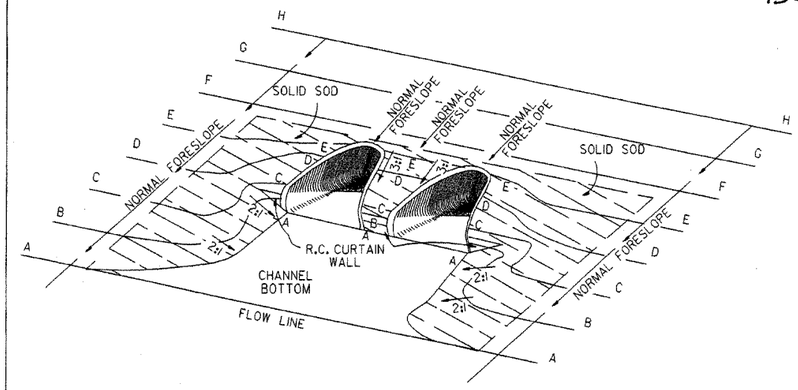
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

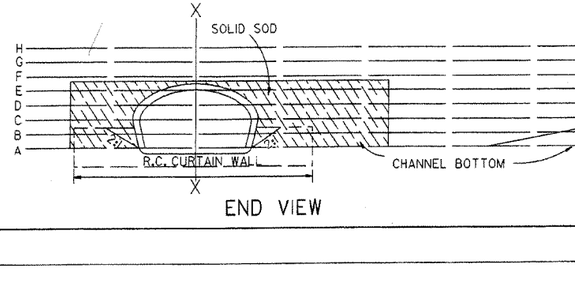
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"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

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

REINFORCING STEEL SCHEDULE

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

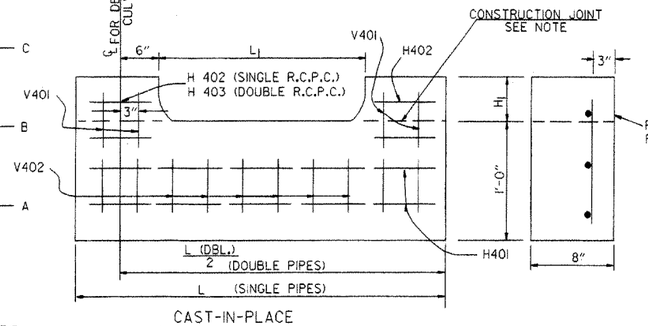
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

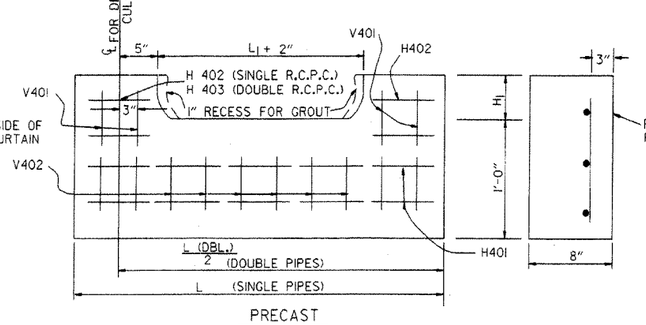
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	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

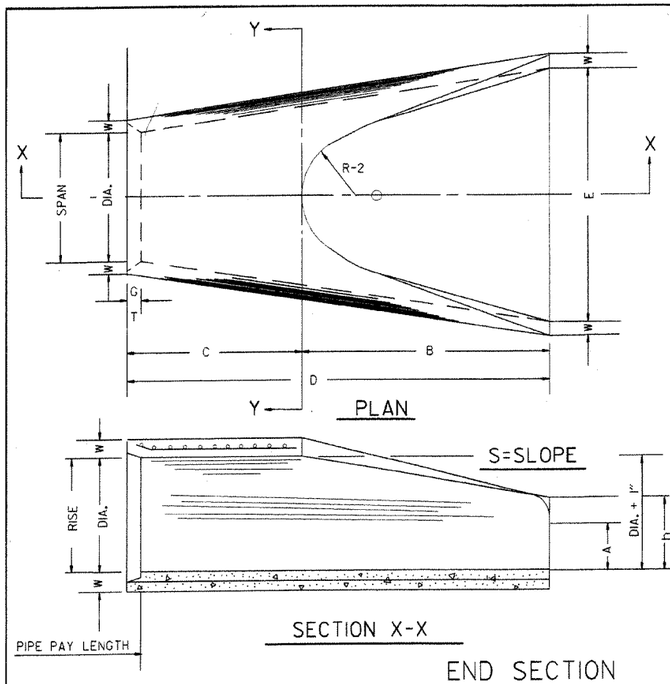
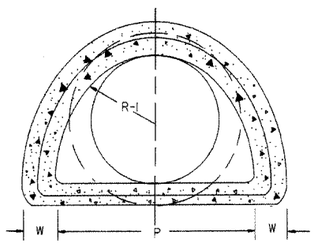


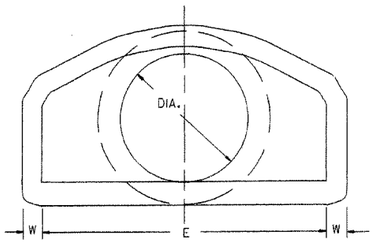
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
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"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS



SECTION Y-Y



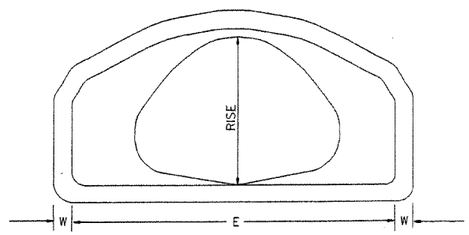
END VIEW

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

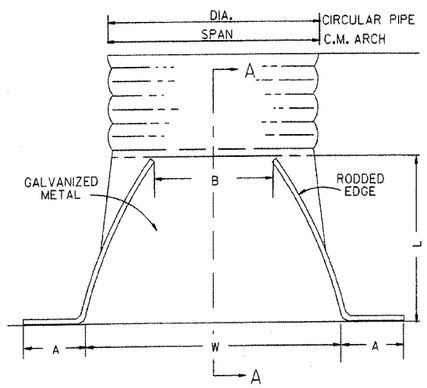
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 9/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2½:1

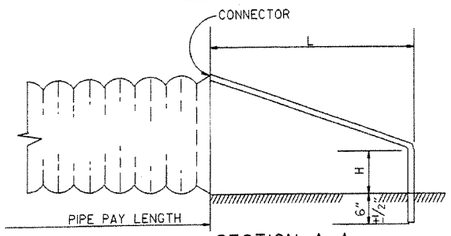
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE

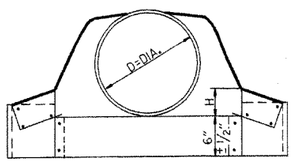


PLAN

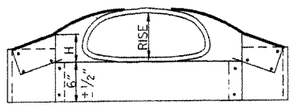


SECTION A-A

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



CIRCULAR PIPE



C.M. ARCH PIPE

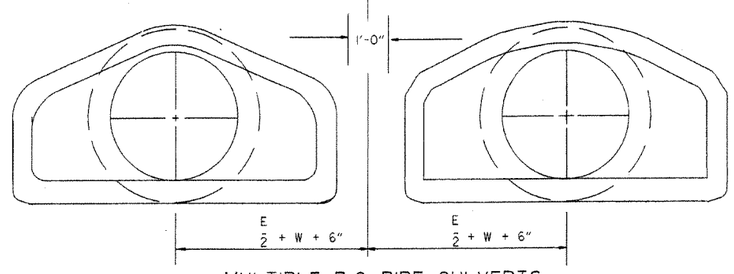
CIRCULAR PIPE

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

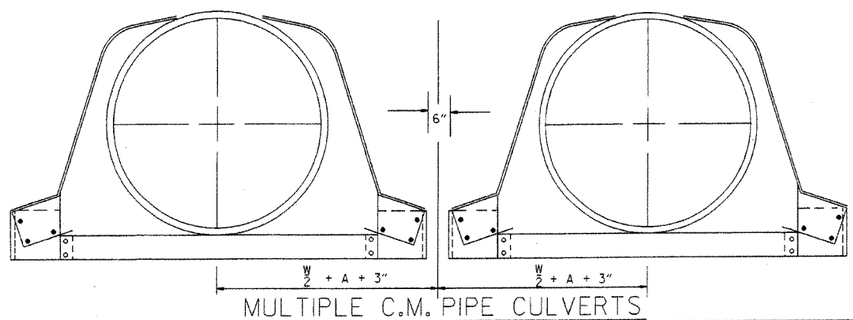
C.M. ARCH PIPE

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



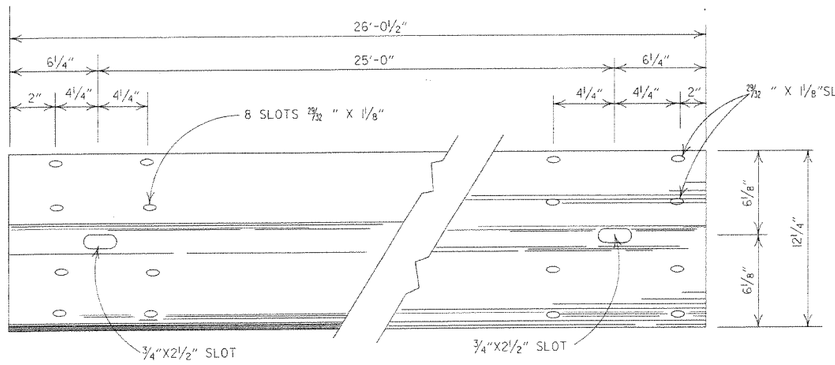
MULTIPLE R.C. PIPE CULVERTS

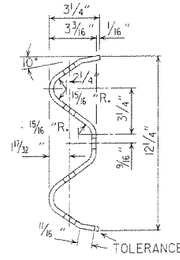


MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	BY	APPROVED
10-18-96	REVISED ASTM REF. TO AASHTO	16-18-96	ARKANSAS STATE HIGHWAY COMMISION
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	FLARED END SECTION
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	STANDARD DRAWING FES-2
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	

stdfes2.dgn

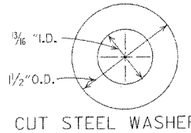




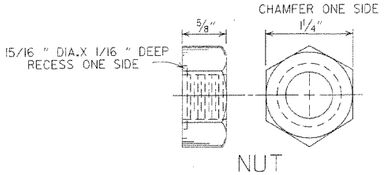
DETAILS OF W-BEAM GUARD RAIL

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

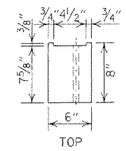
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

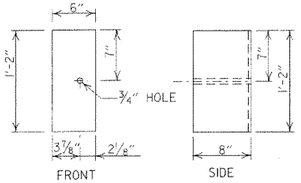


NUT



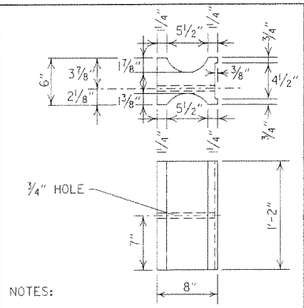
TOP

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



FRONT SIDE

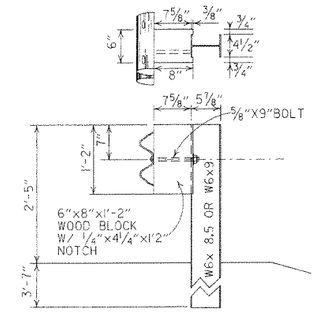
WOOD BLOCKOUT (W-BEAM)



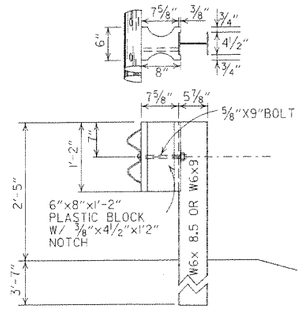
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

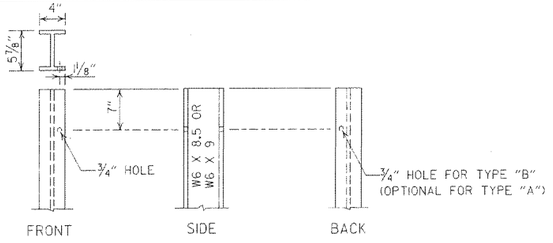


WOOD BLOCKOUT CONNECTIONS

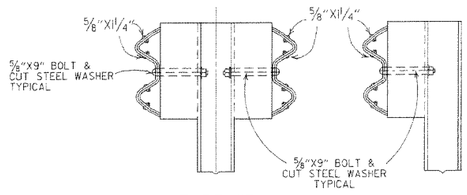


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



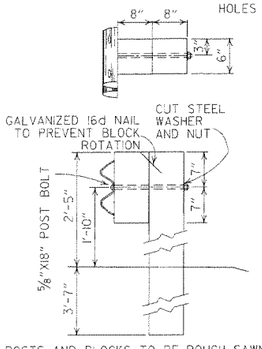
STEEL POST



TYPE "B" TYPE "A"

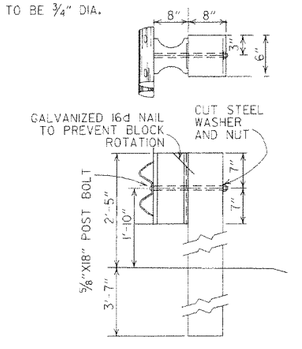
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



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

WOOD BLOCKOUT CONNECTIONS



PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

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

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

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

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

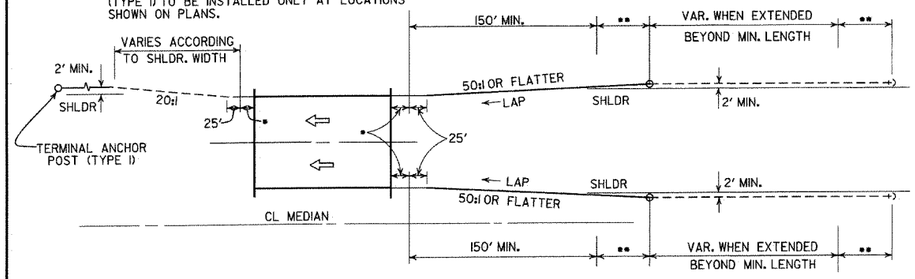
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-16-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD 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

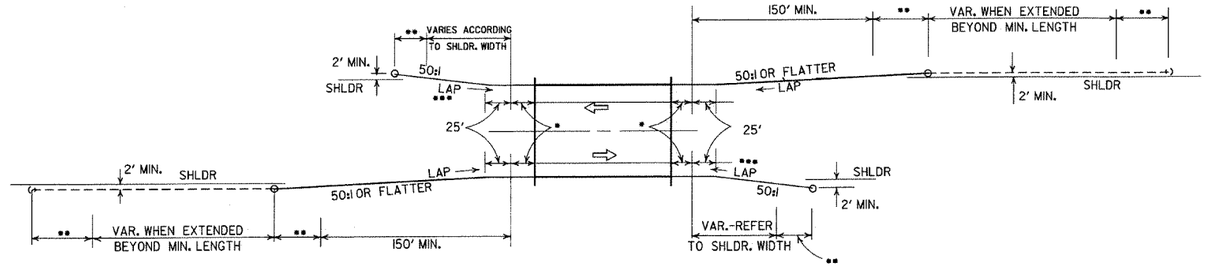
STANDARD DRAWING GR-8

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

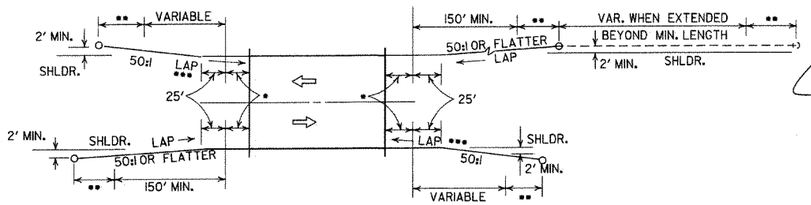
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

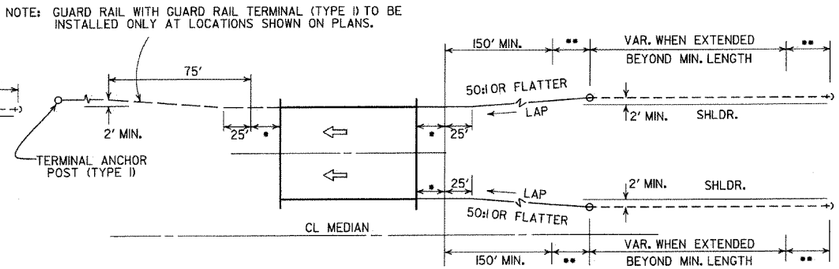
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• 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

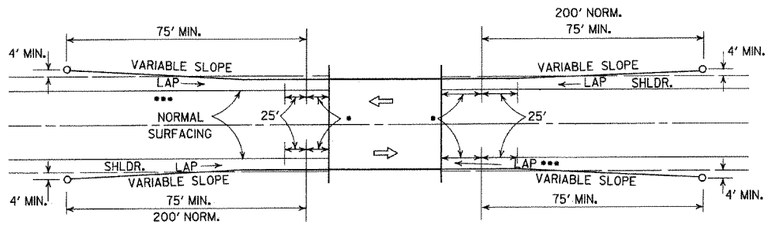
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



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

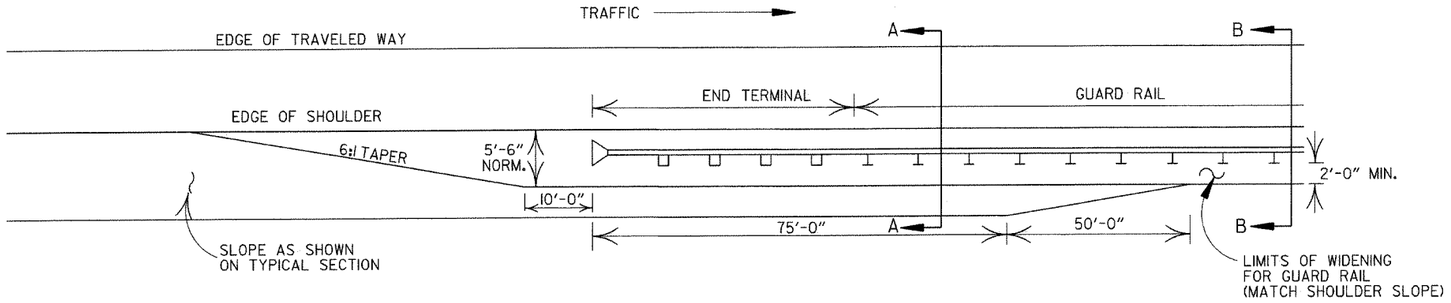
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

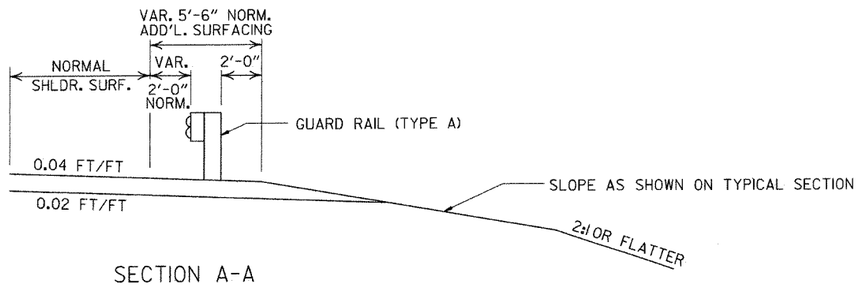
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

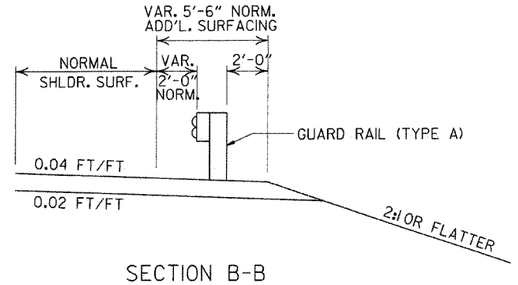
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





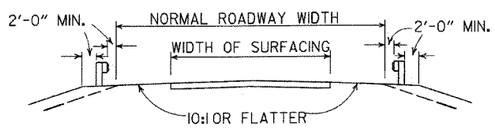
SECTION A-A



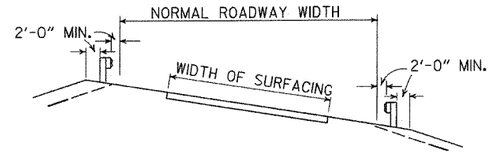
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

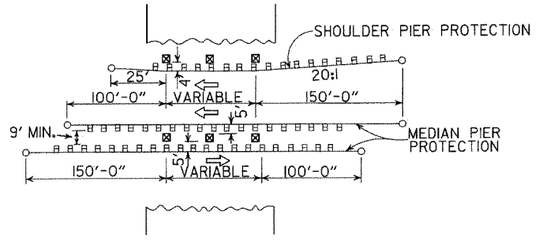


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



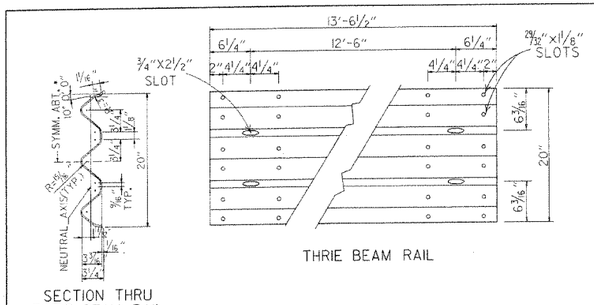
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

ARKANSAS STATE HIGHWAY COMMISSION

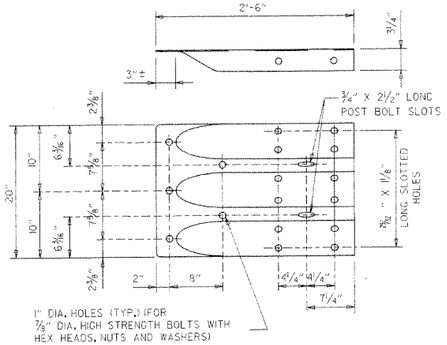
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



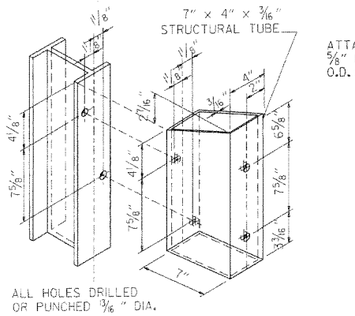
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

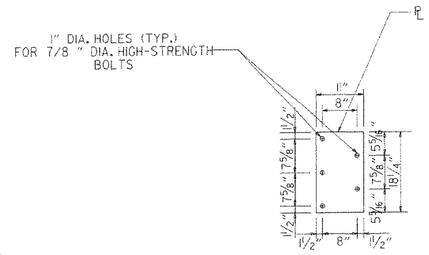
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

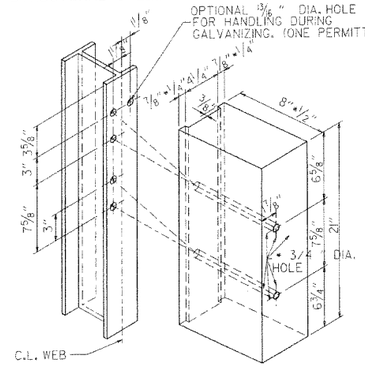
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

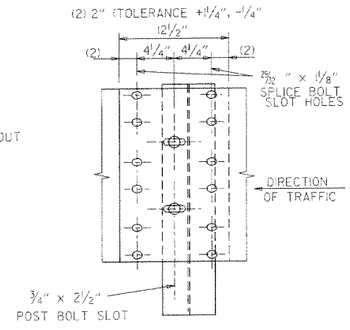
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS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



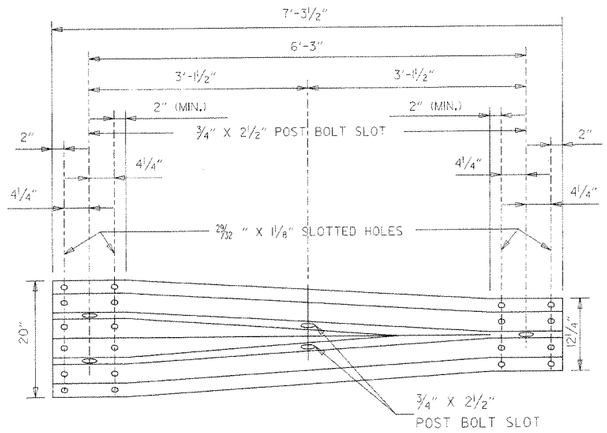
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

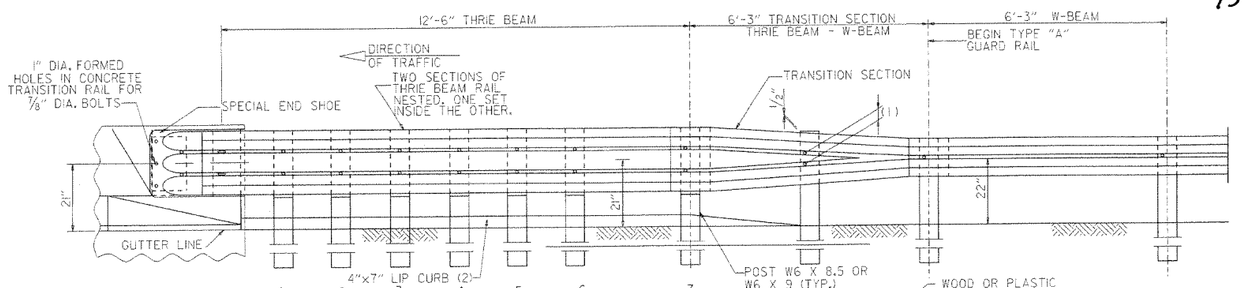
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



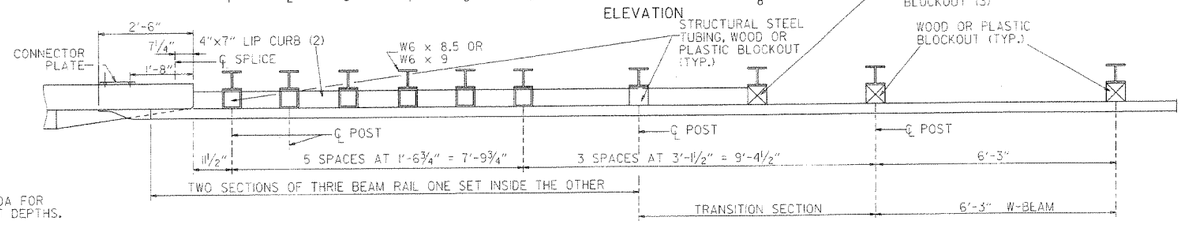
THRIE BEAM RAIL SPLICE AT POST



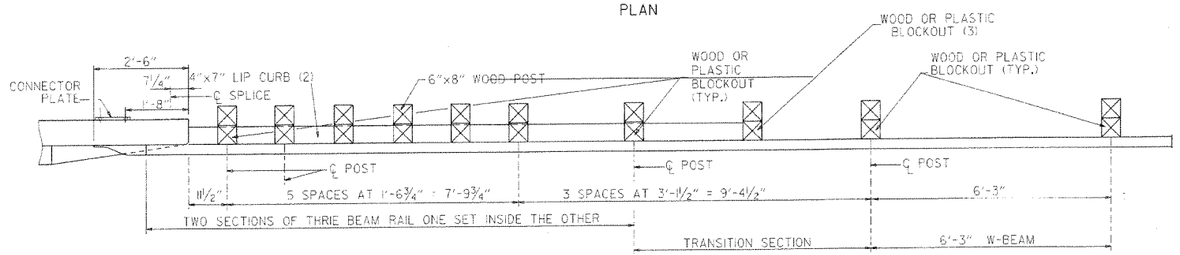
TRANSITION SECTION



ELEVATION



PLAN



PLAN

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

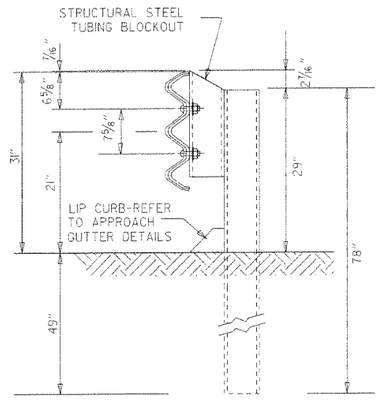
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

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

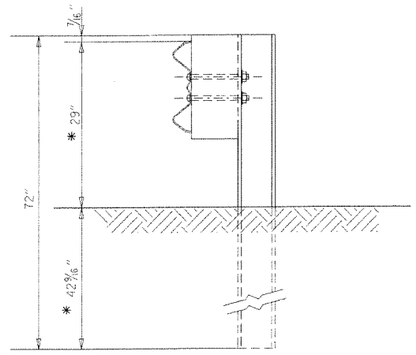
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

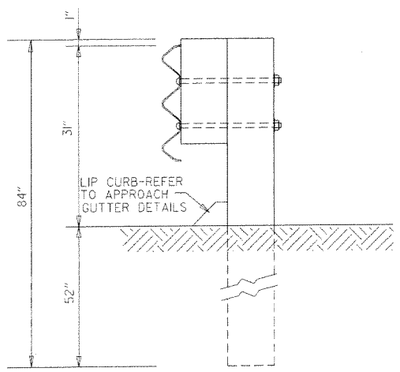


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

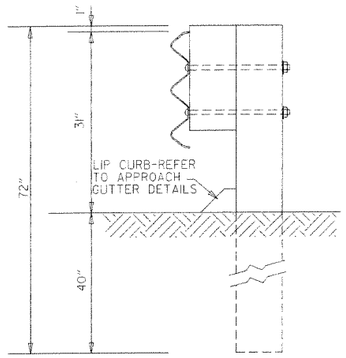


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

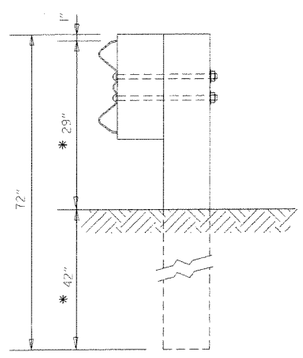
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

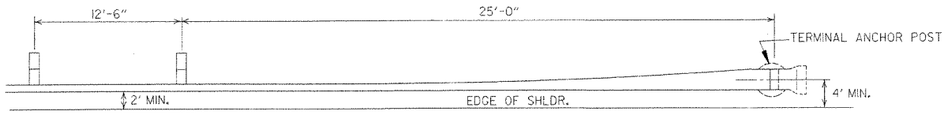
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

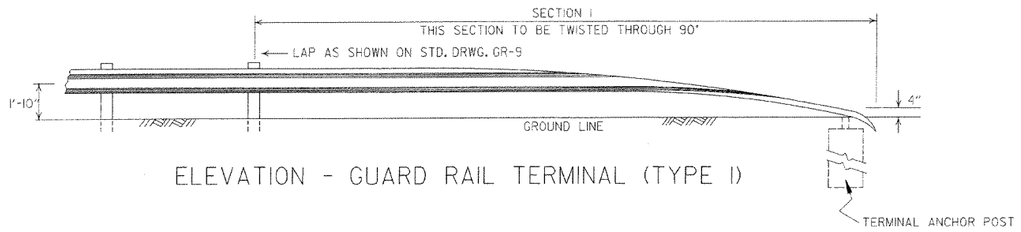
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

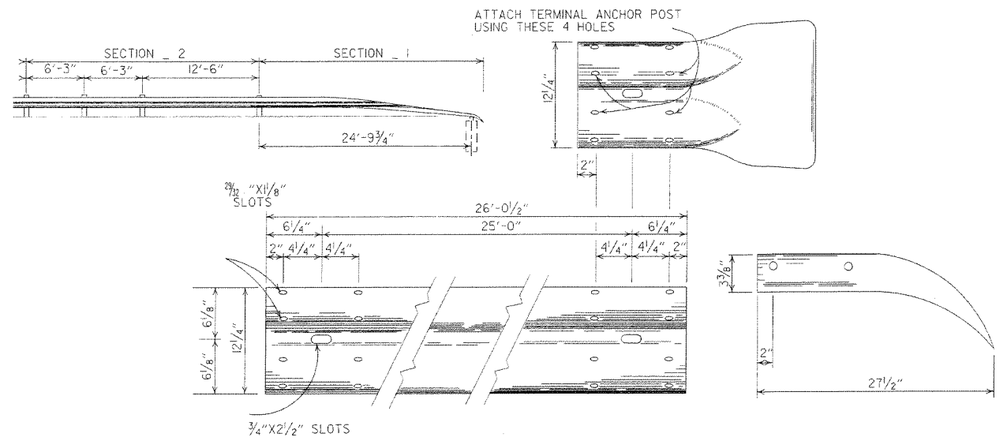


PLAN - GUARD RAIL TERMINAL (TYPE I)



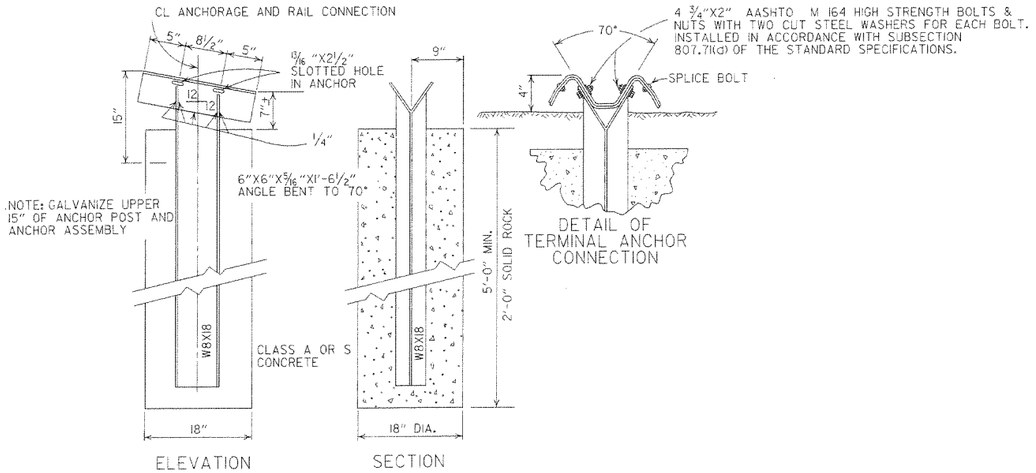
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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



SECTION 1

TERMINAL SECTION



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

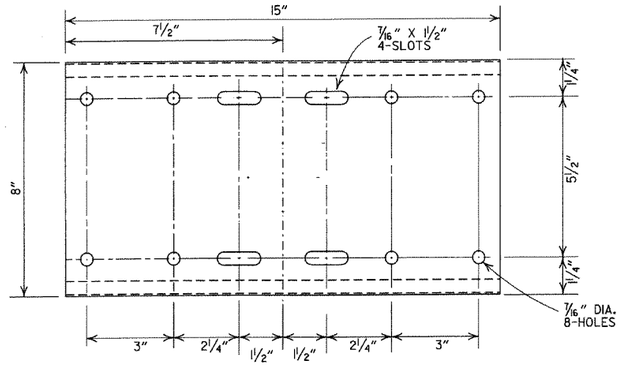
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

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

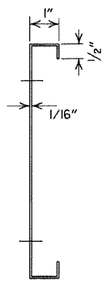
ARKANSAS STATE HIGHWAY COMMISSION

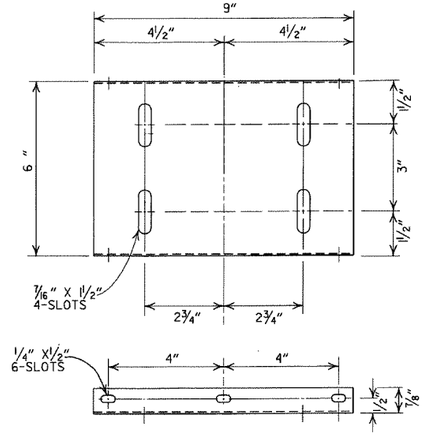
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

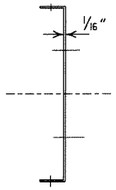


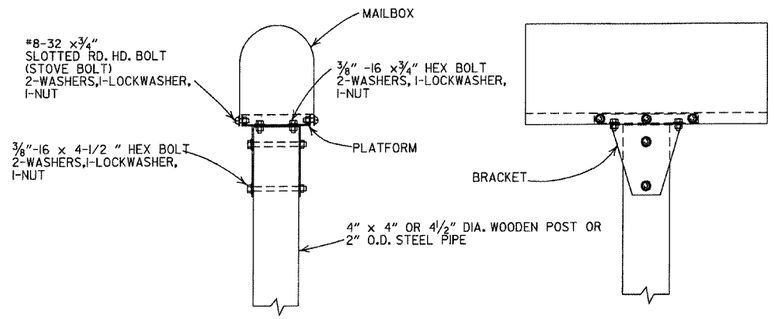
SHELF



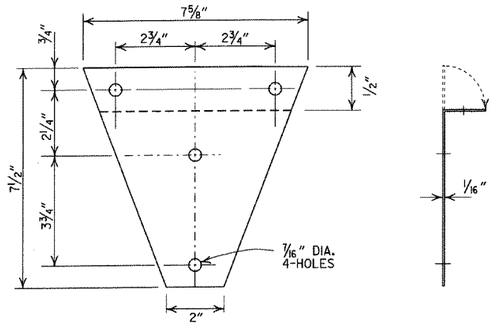


PLATFORM





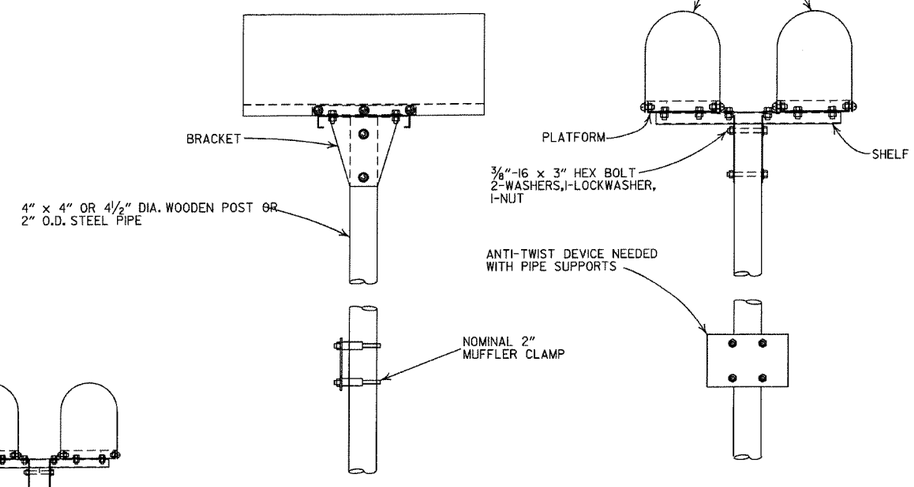
SINGLE INSTALLATION



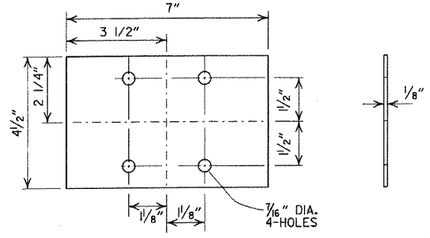
BRACKET

GENERAL NOTES

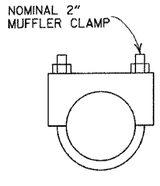
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



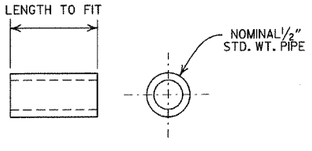
DOUBLE INSTALLATION



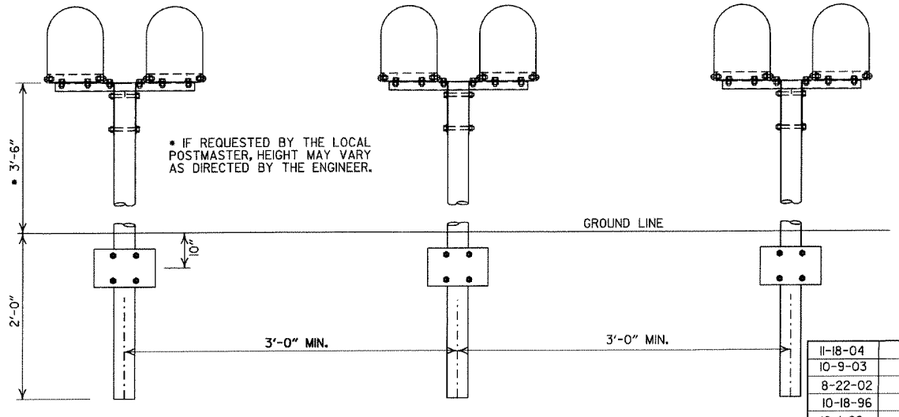
ANTI-TWIST PLATE



CLAMP



SPACER



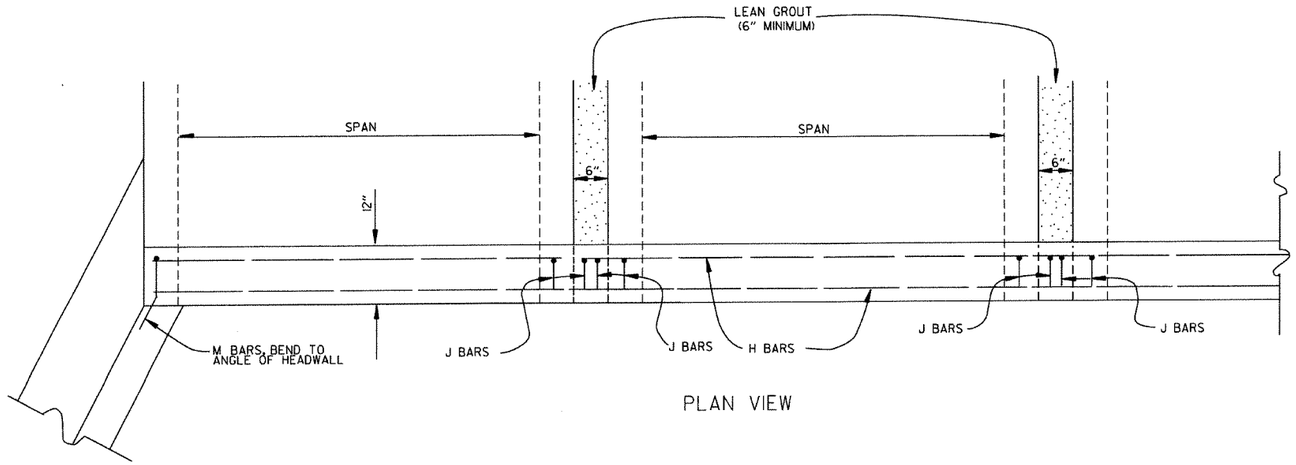
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

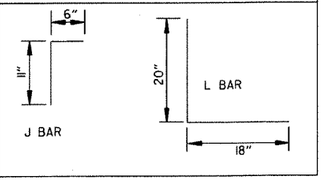
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

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



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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

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

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

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

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

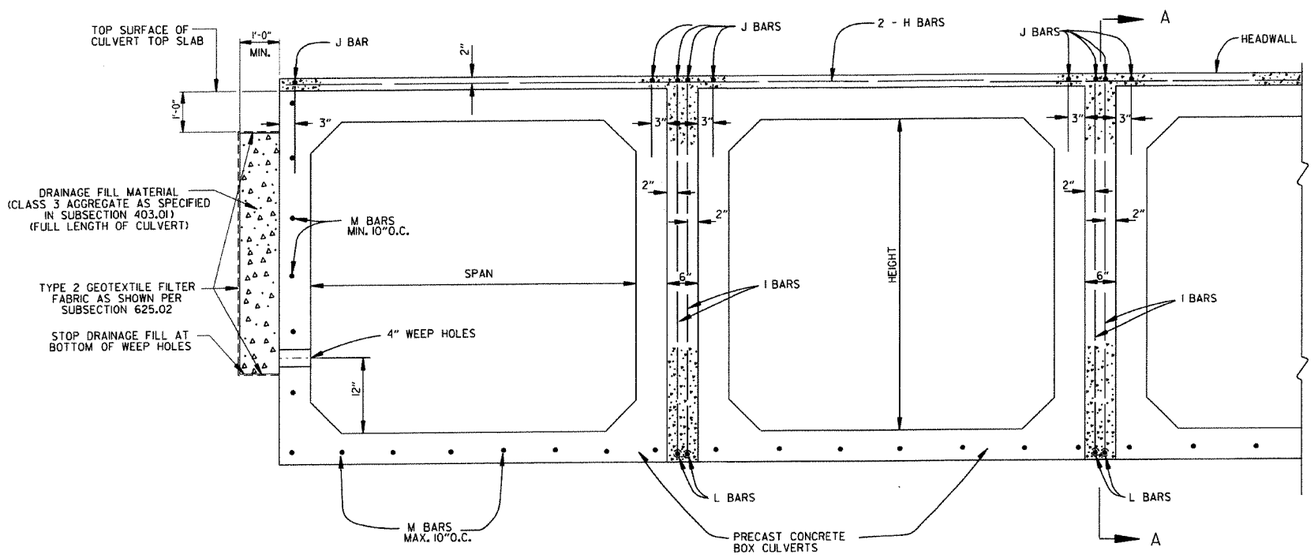
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

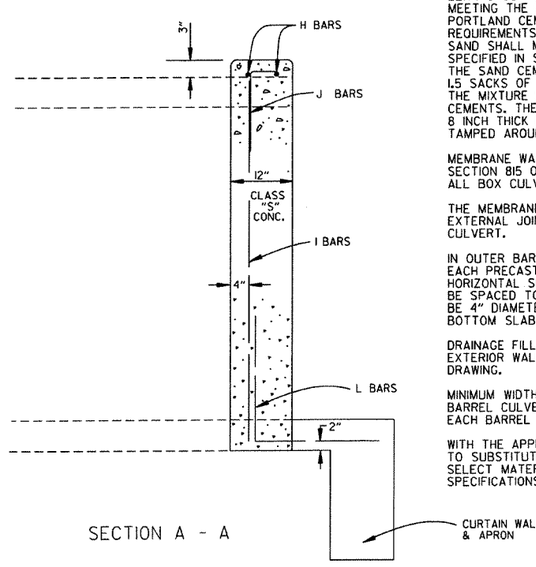
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

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

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



END VIEW



SECTION A - A

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

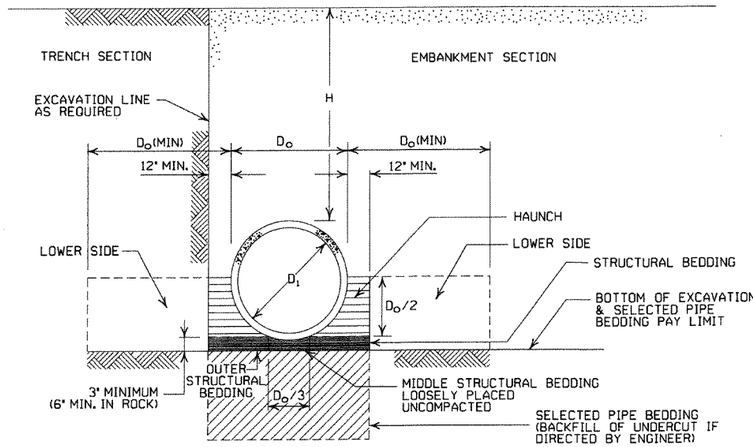
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

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.

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			

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

CONSTRUCTION SEQUENCE

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

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

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

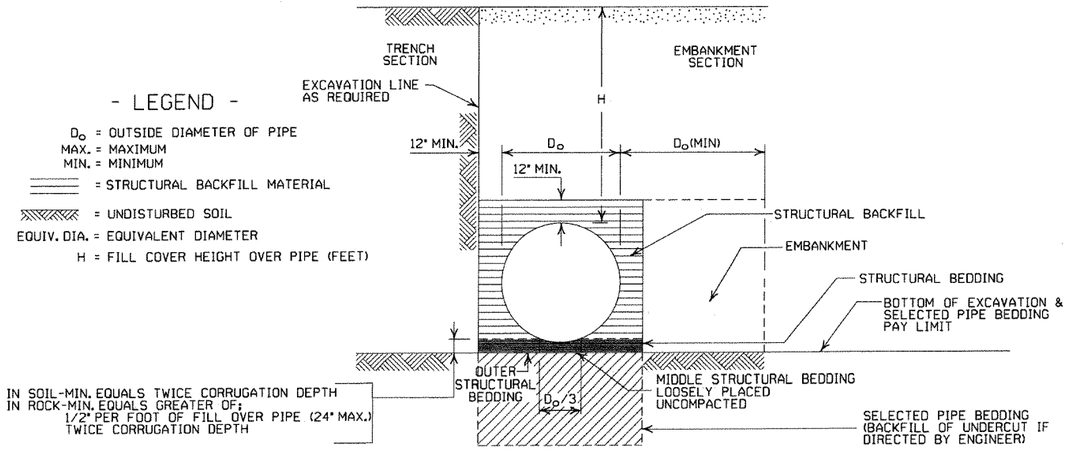
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

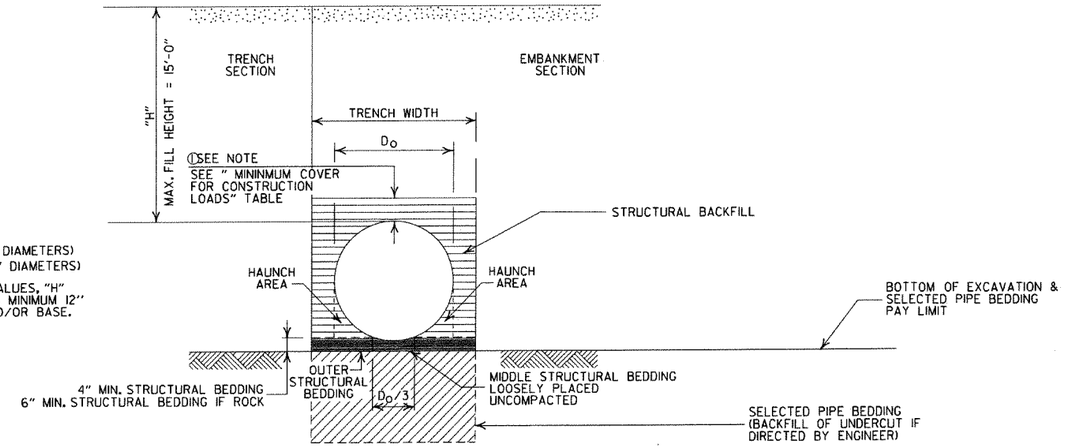
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

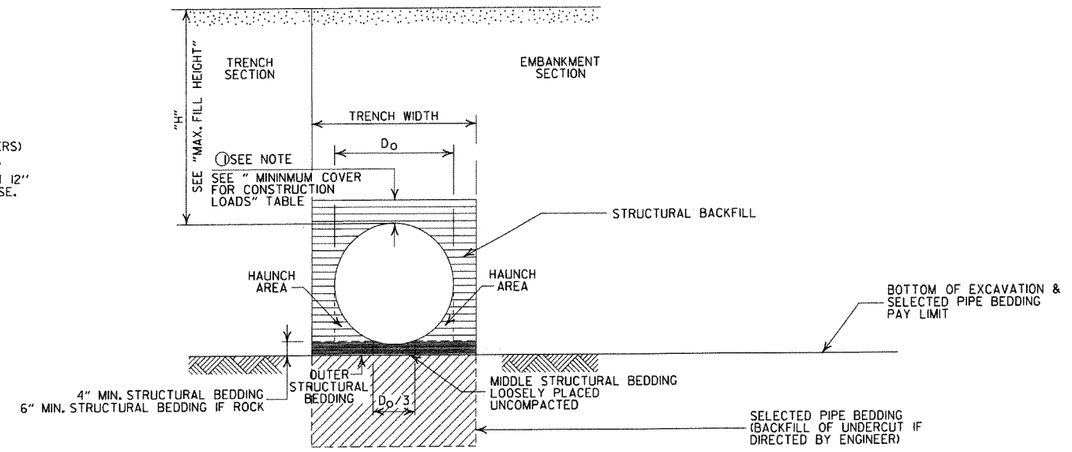
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

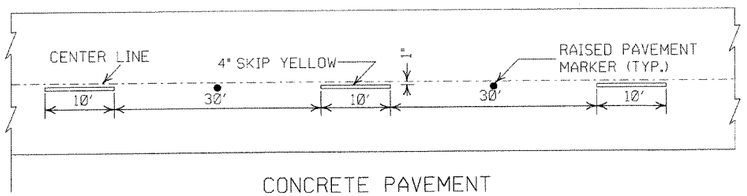
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

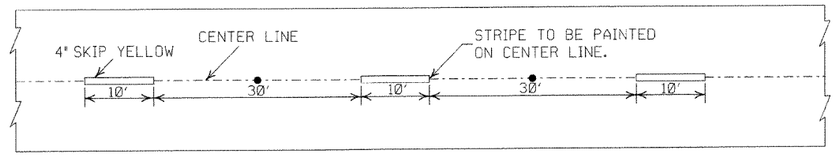
STANDARD DRAWING PCP-2

NOTES:

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

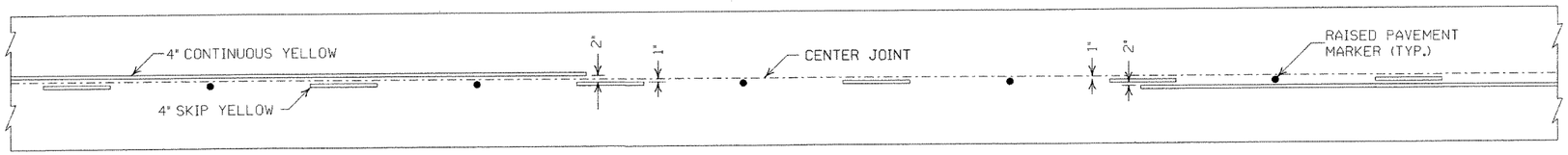


CONCRETE PAVEMENT

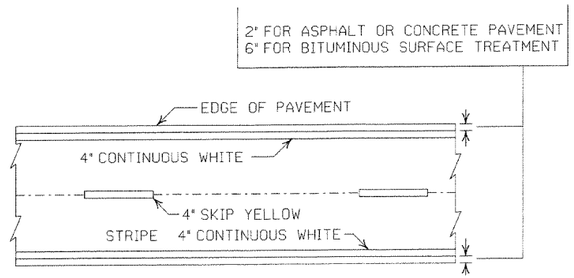


ASPHALT PAVEMENT

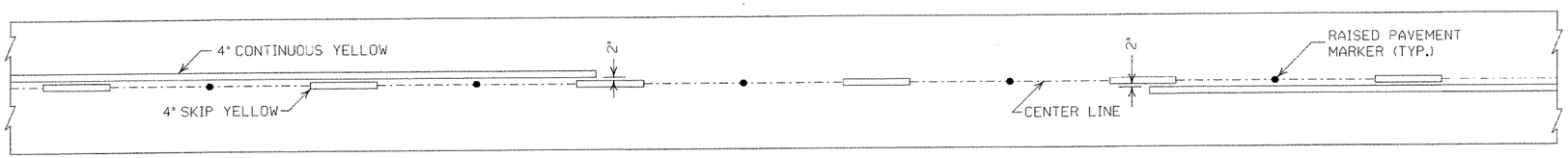
BROKEN LINE STRIPING



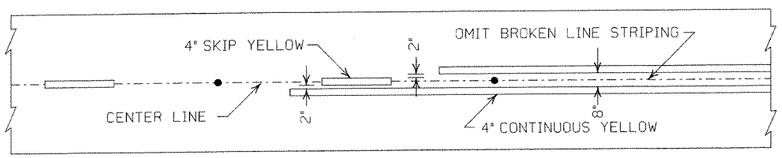
SOLID LINE STRIPING ON CONCRETE PAVEMENT



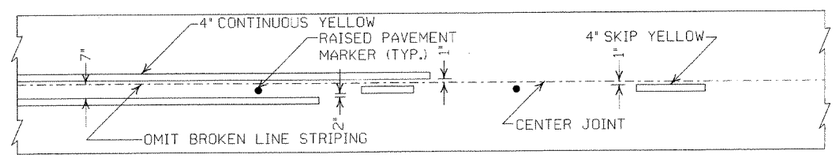
PAVEMENT EDGE LINE MARKING



SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

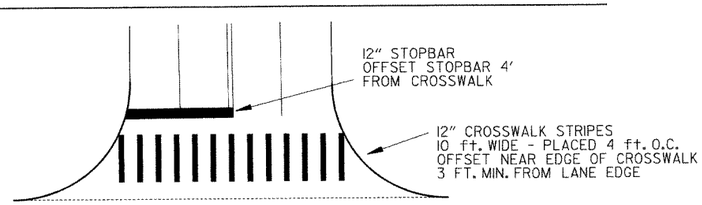
GENERAL NOTES:

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

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

NOTE:

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



CROSSWALK AND STOPBAR DETAILS

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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

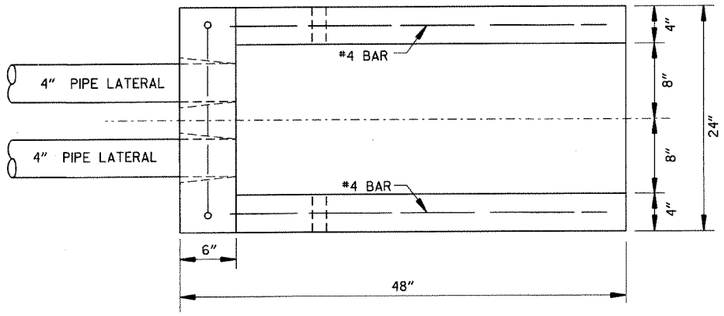
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

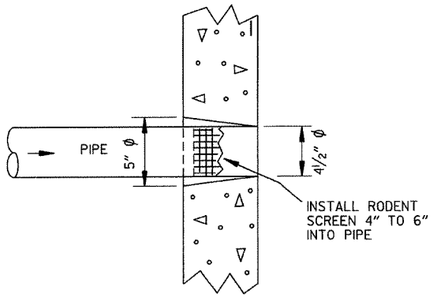
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

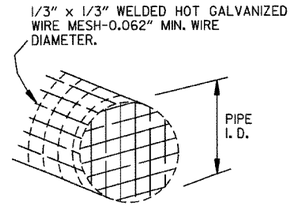
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



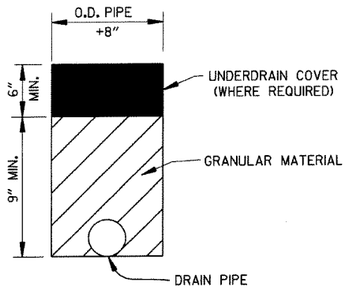
PLAN VIEW

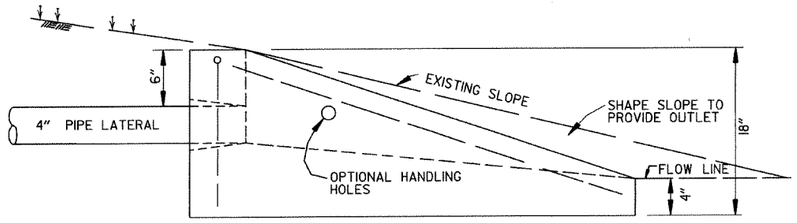


DETAIL OF HOLE FOR 4" PIPE

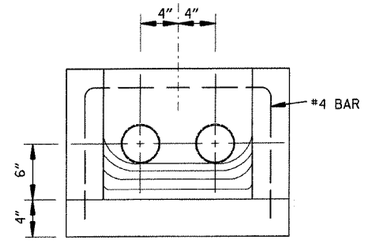


DETAIL OF RODENT SCREEN

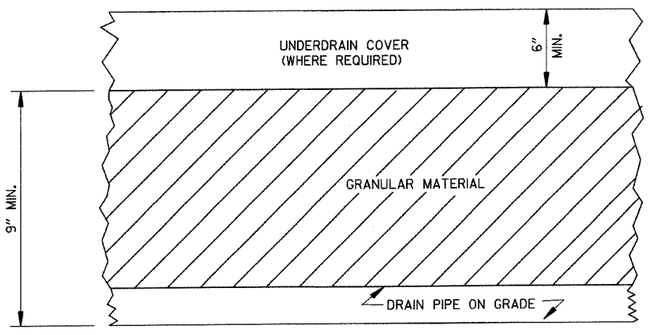




SIDE VIEW

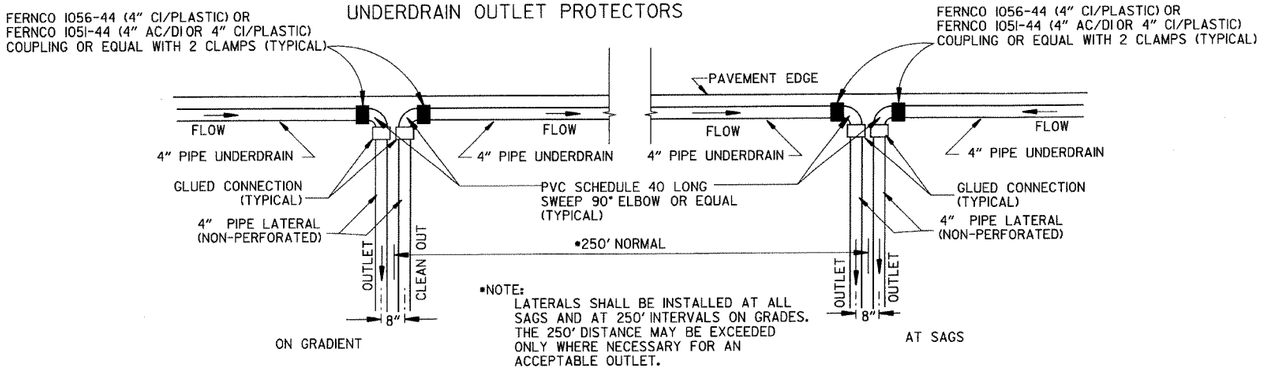


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

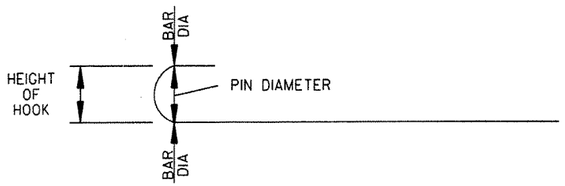
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

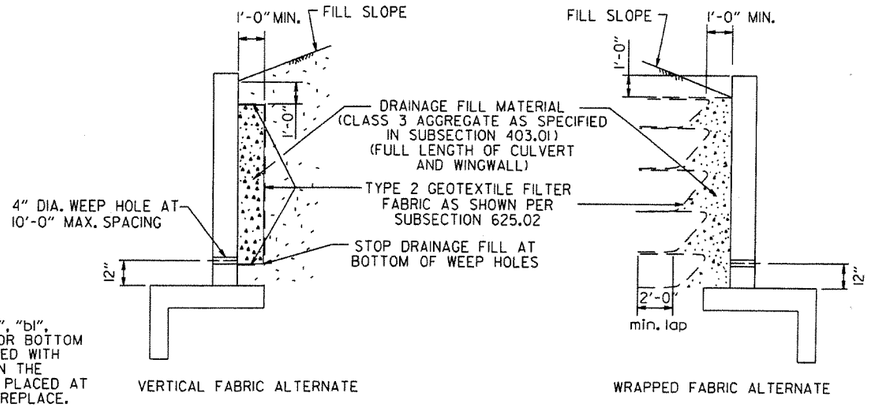
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

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

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

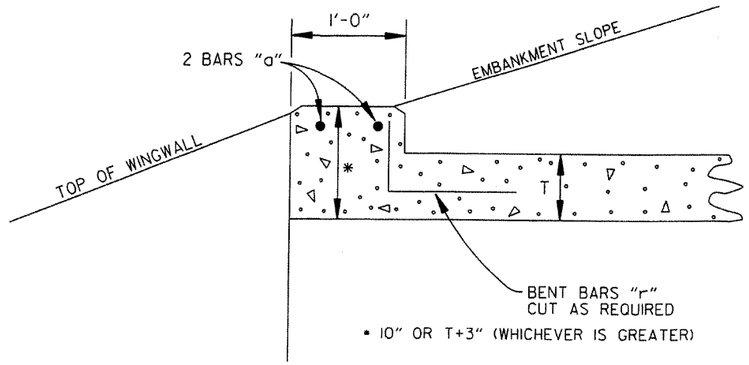
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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

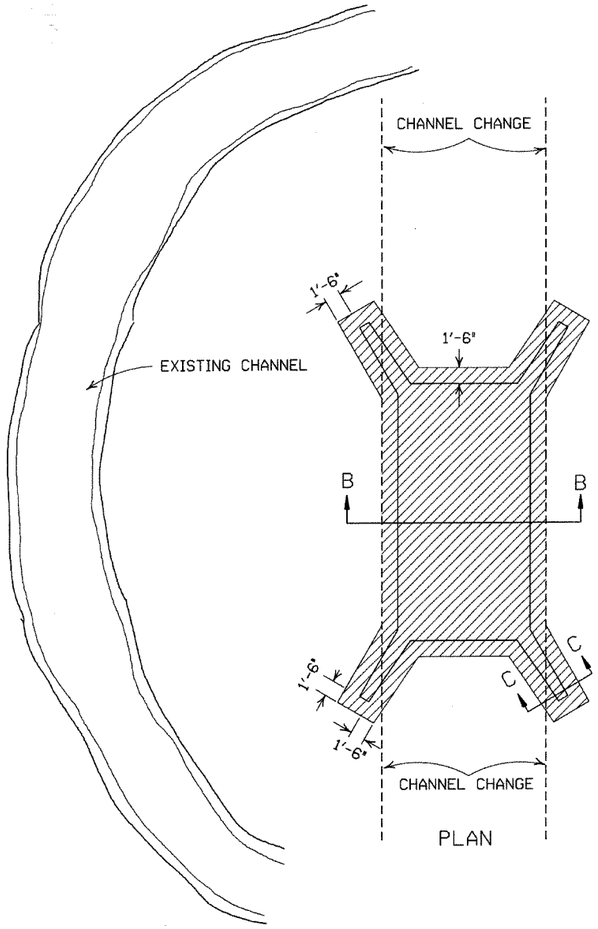
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

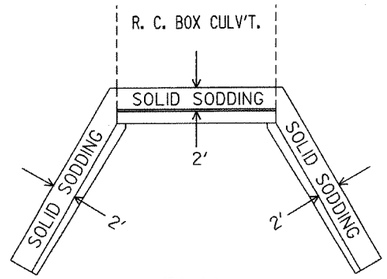
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

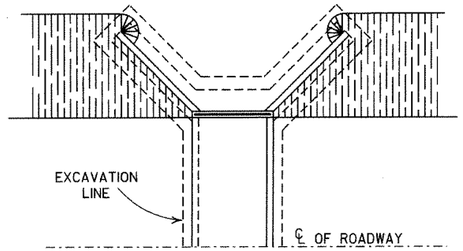
SOLID SODDING



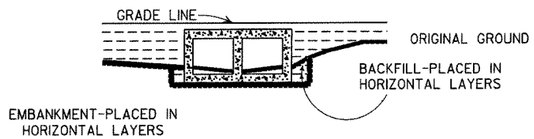
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

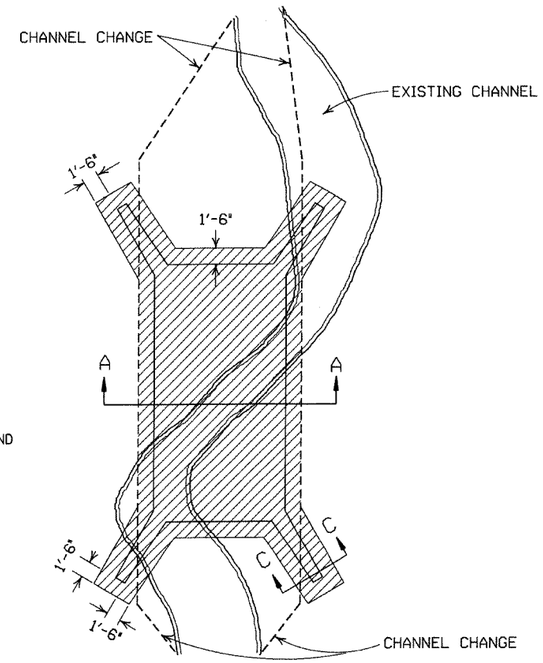


PLAN

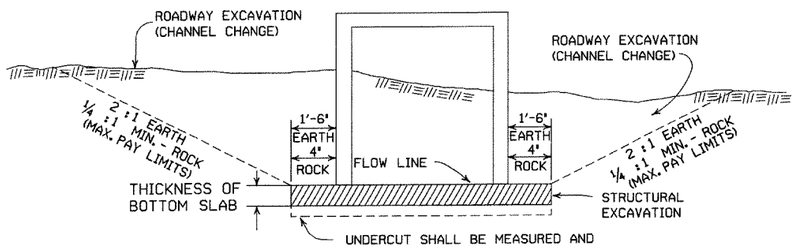


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

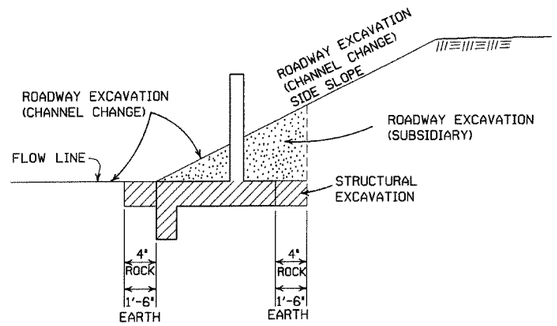


PLAN

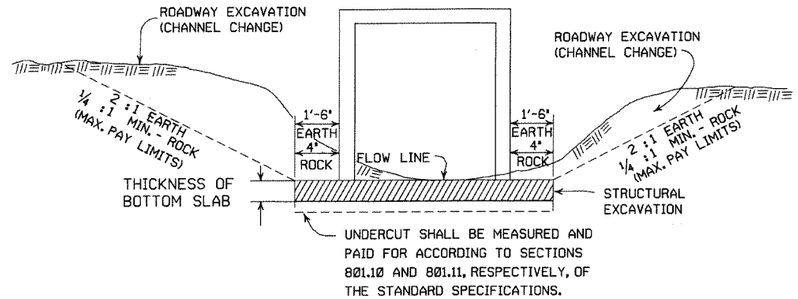


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

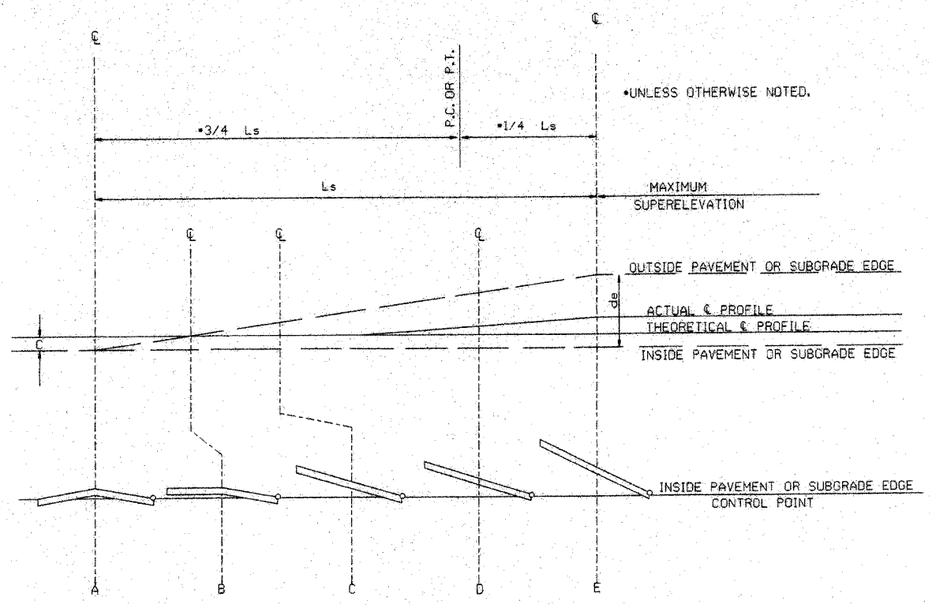
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

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



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

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

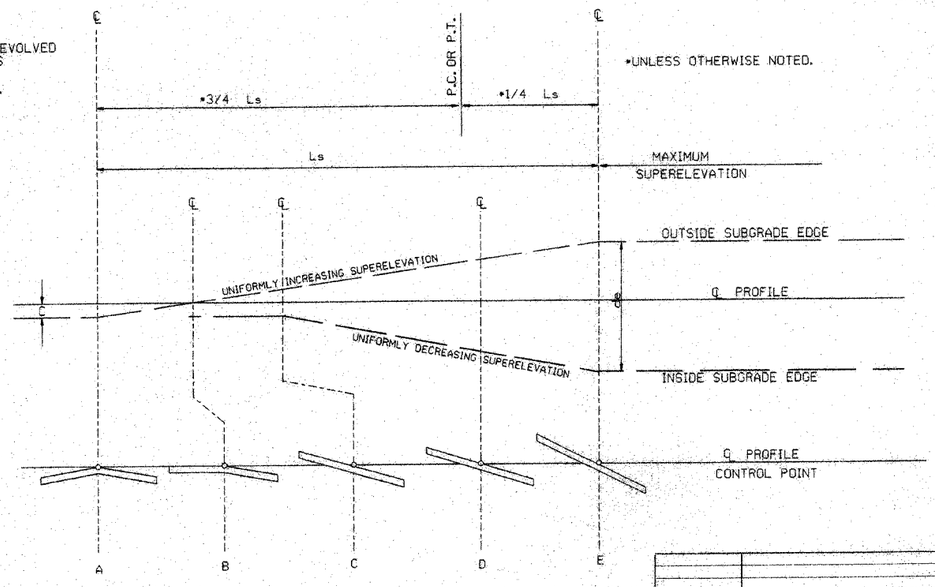
GENERAL NOTES

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

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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

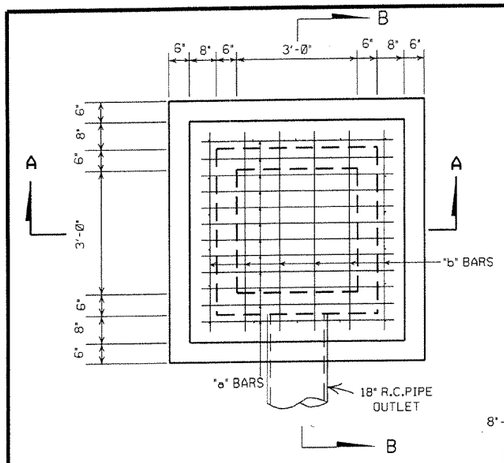
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

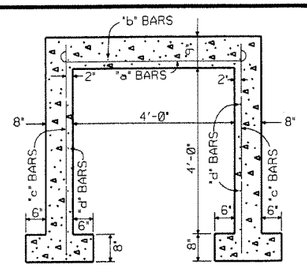
ARKANSAS STATE HIGHWAY COMMISSION

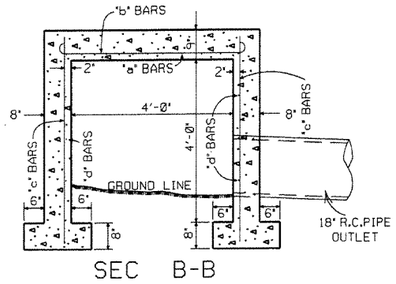
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN



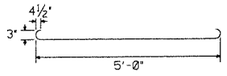




STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"a"	11	6'-0"	5"
"b"	6	6'-0"	10"
"c"	16	5'-1"	12"
"d"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



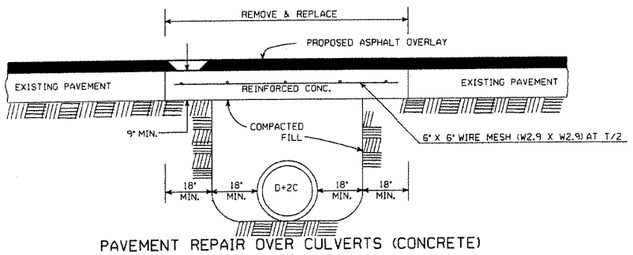
QUANTITIES

CONCRETE 3.40 CU. YDS.
REINFORCING STEEL 176 LB.

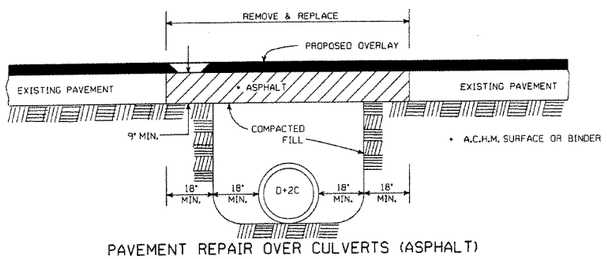
GENERAL NOTE:

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

REINFORCED CONCRETE SPRING BOX



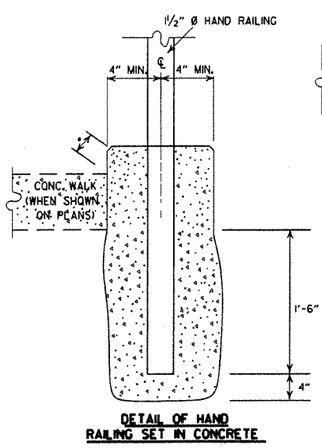
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



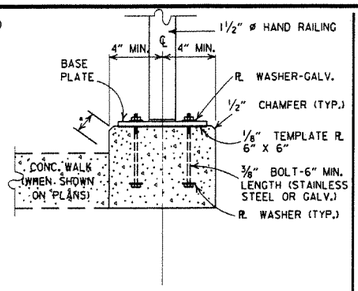
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

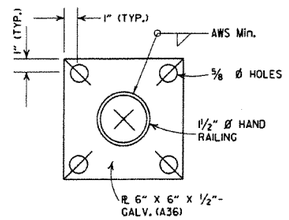
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

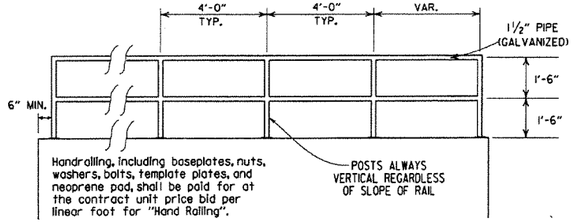


POST CONNECTION TO WALL

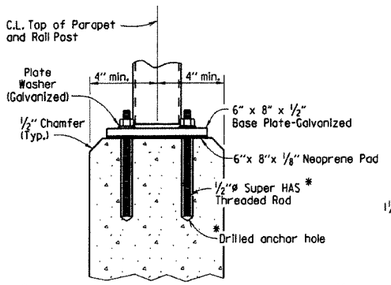


BASE PLATE

POST CONNECTION DETAILS



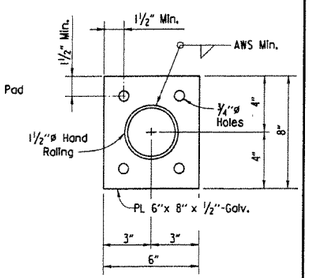
Hand railing shall conform to Section 633.



*HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The Adhesive Anchor System shall be Installed in accordance with Manufacturer's recommendations.

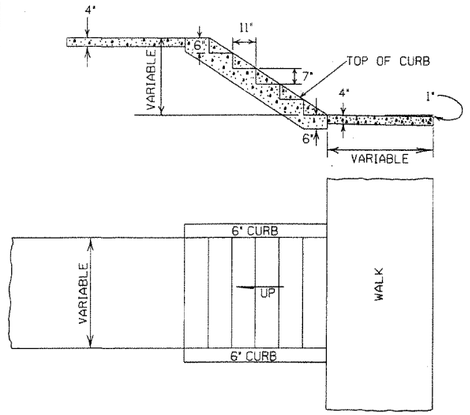
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

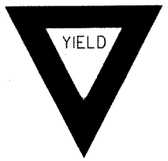
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

R1-1

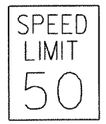
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



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

R2-1



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

R2-5A

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

R2-5C

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

R4-1

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

R4-2

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

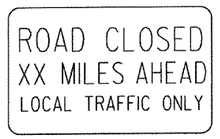
R5-1

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

R11-2

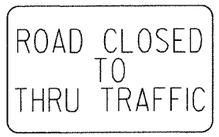
48"X30"

R11-3A



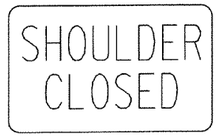
60"X30"

R11-4



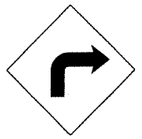
60"X30"

RSP-1



48"X30"

W1-1



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

W1-2

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

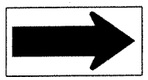
W1-3

STD. 48"X48"

W1-4

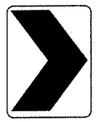
STD. 48"X48"

W1-6



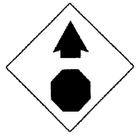
STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1

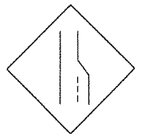


STD. 36"X36"
SPECIAL 48"X48"

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"

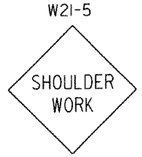
W20-7a

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

W21-2

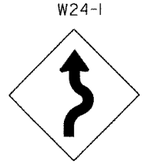
STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b

STD. 48"X48"

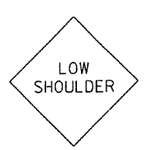
R56-1

STD. 18"X18"

W8-11

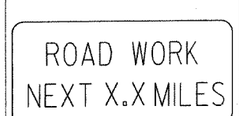
STD. 36"X36"
FWY. 48"X48"

W8-9



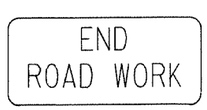
STD. 36"X36"
FWY. 48"X48"

G20-1



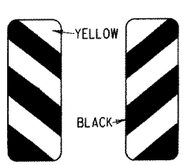
60"X24"

G20-2



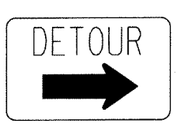
48"X24"

OM-3L OM-3R



12"X36"

M4-9

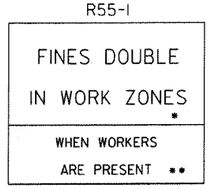


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

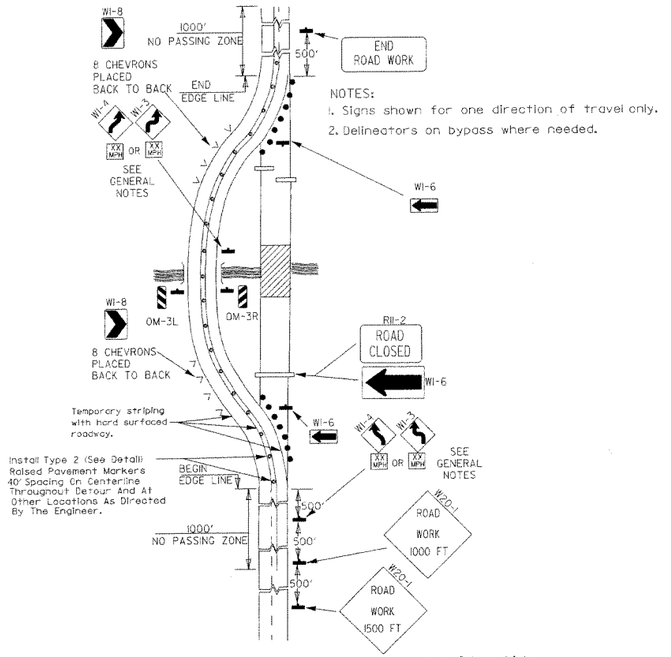
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

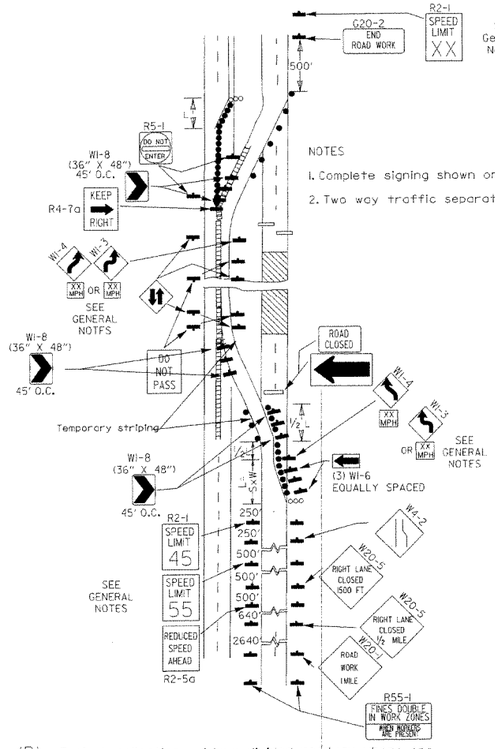
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



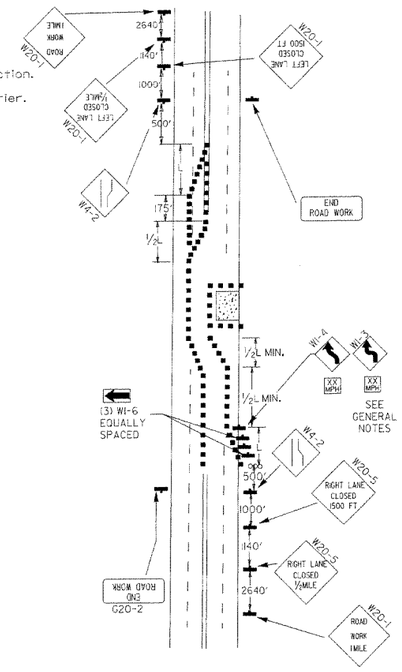
NOTES:
1. Signs shown for one direction of travel only.
2. Delineators on bypass where needed.

(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.

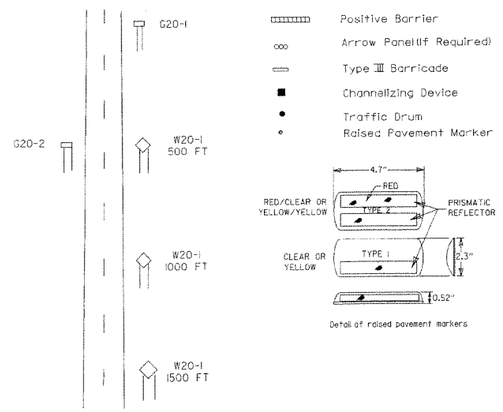


NOTES
1. Complete signing shown only in crossover direction.
2. Two way traffic separated with positive barrier.

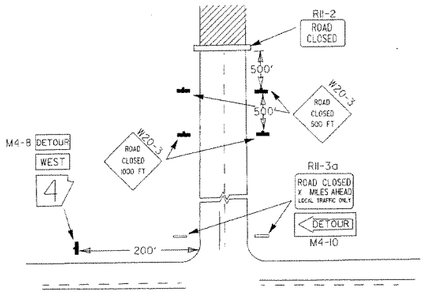
(B) Typical application - 4-lane divided roadway where one roadway is closed.

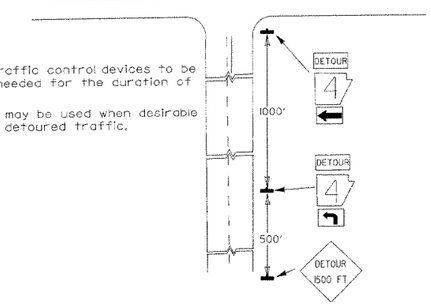


(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



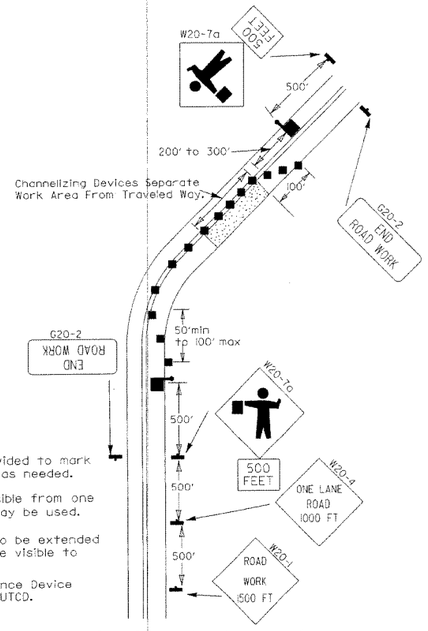
Typical advance warning sign placement





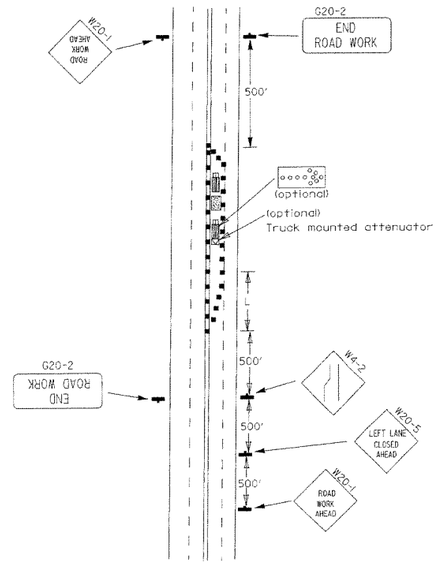
NOTES:
1. Regulatory traffic control devices to be modified as needed for the duration of the detour.
2. Street names may be used when desirable for directing detoured traffic.

(D) Typical application - roadway closed beyond detour point.



NOTES:
1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Channelizing devices are to be extended to a point where they are visible to approaching traffic.
4. Automated Flagger Assistance Device (AFAD) optional. Refer to MUTCD.

(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



(F) Typical application - 4-lane undivided roadway with inside lane closed.

Taper formulae:

L=SxW for speeds of 45mph or more.

$L=\frac{WS^2}{60}$ for speeds of 40mph or less.

Where:
L= Minimum length of taper.
S= Numerical value of posted speed limit prior to work or 85th percentile speed.
W= Width of offset.

GENERAL NOTES:

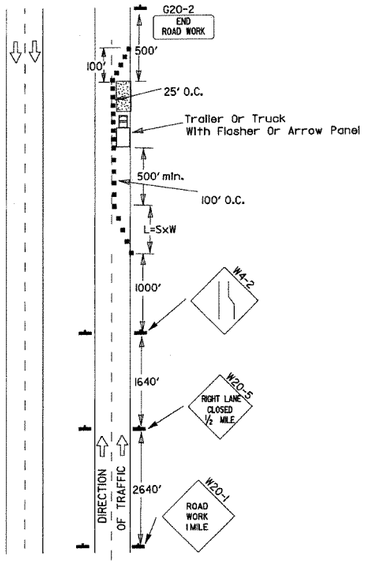
1. Advisory speed posted on WI-3 or WI-4 curve warning signs to be determined at site. Use WI-4 when speed is greater than 30mph and WI-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

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

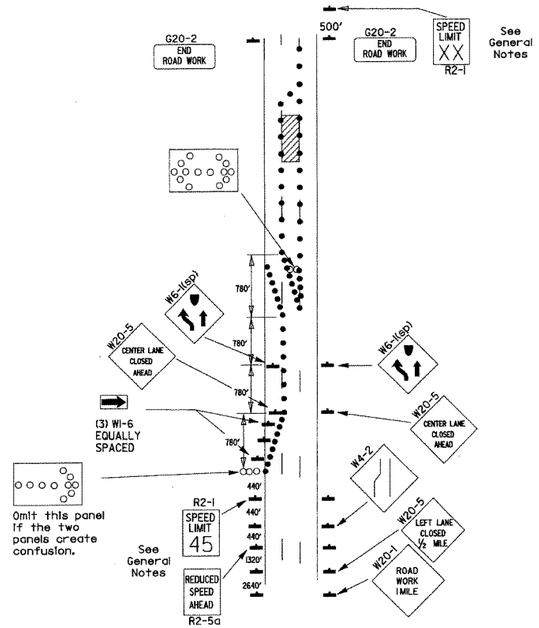
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

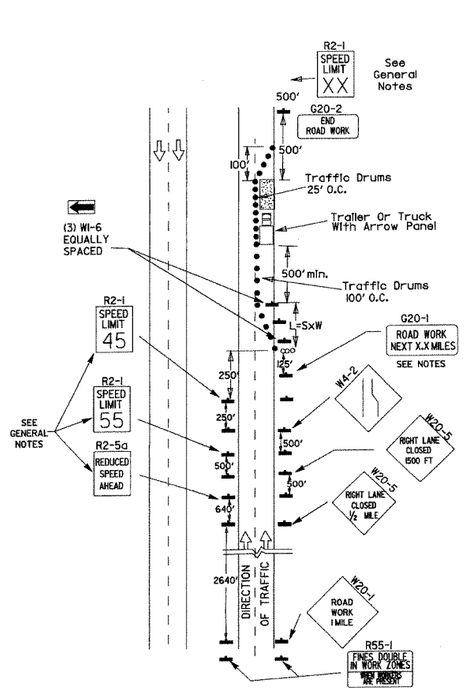
STANDARD DRAWING TC-2



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



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



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

KEY:

○○○ Arrow Panel (If Required)

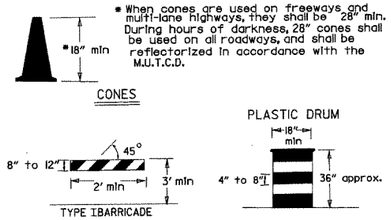
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

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

Channelizing devices



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

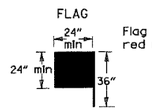
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

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

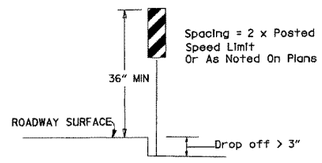
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

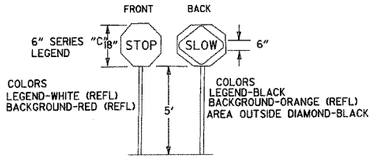


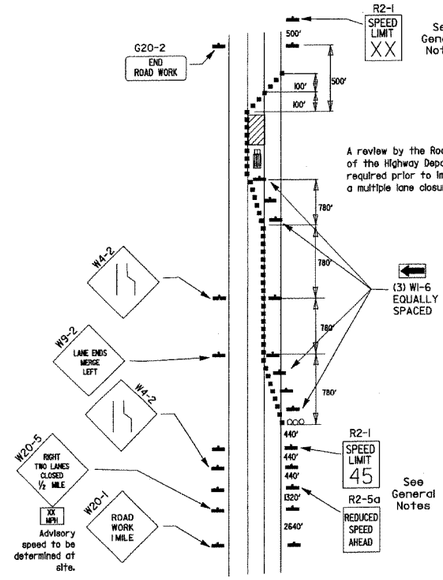
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



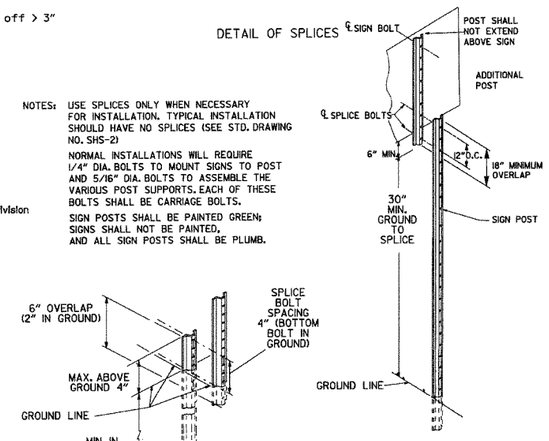
STOP SLOW PADDLE





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

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

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

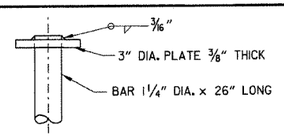
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

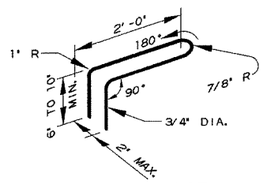
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

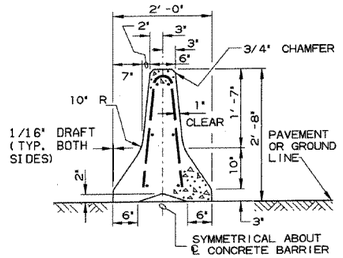
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 9 1/2"; 2'-1 3/8"; 4 3/8"



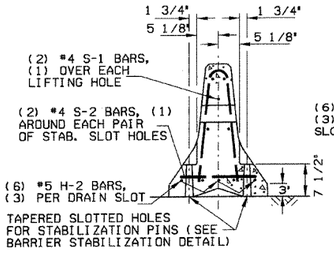
CONNECTION DETAILS



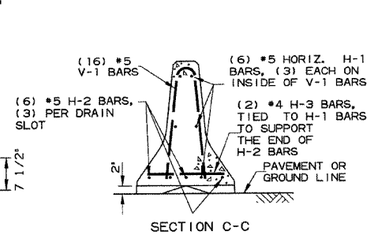
CONNECTION LOOP



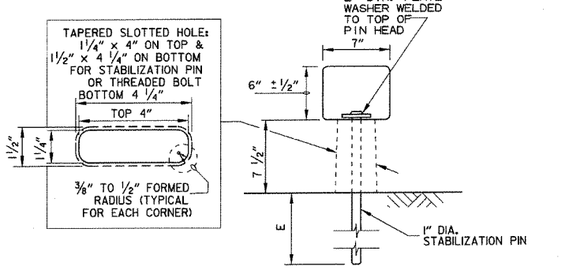
SECTION A-A



SECTION B-B



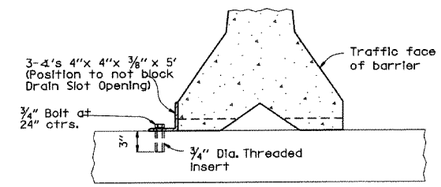
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

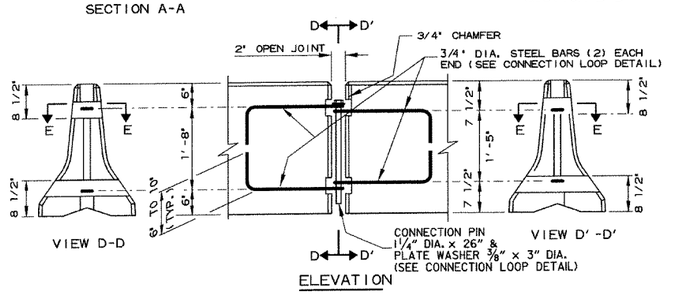
Ⓔ 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas

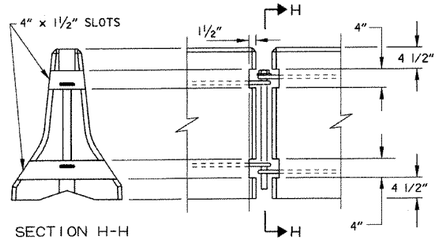


NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

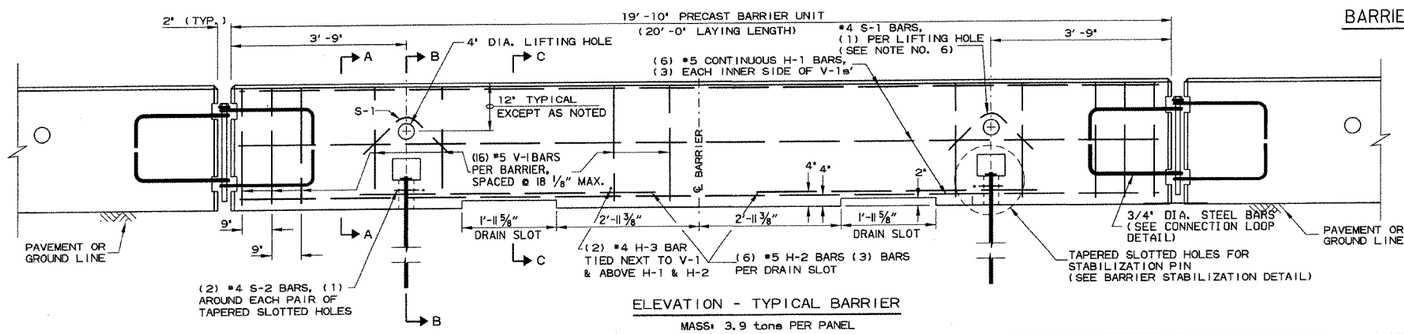
BARRIER STABILIZATION DETAIL

BRIDGE DECKS





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 walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

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.

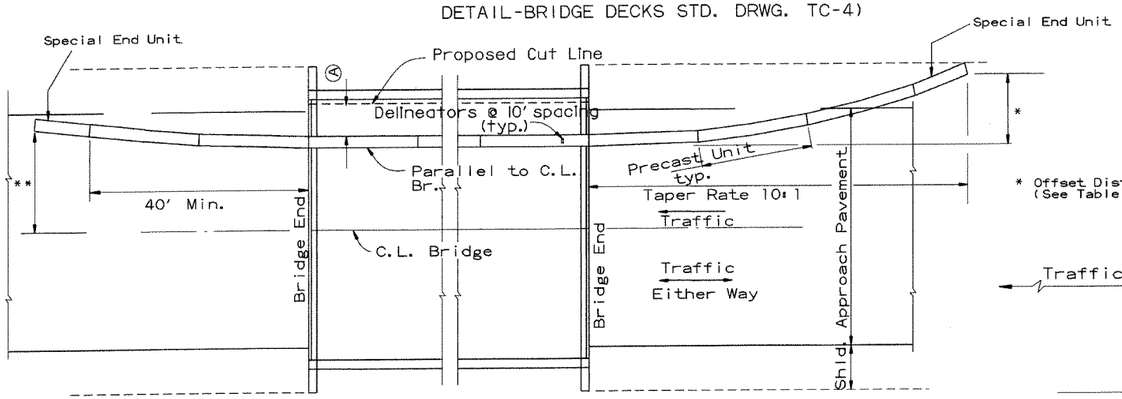
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

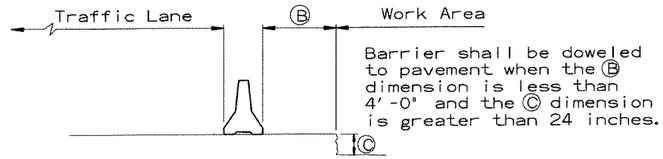
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

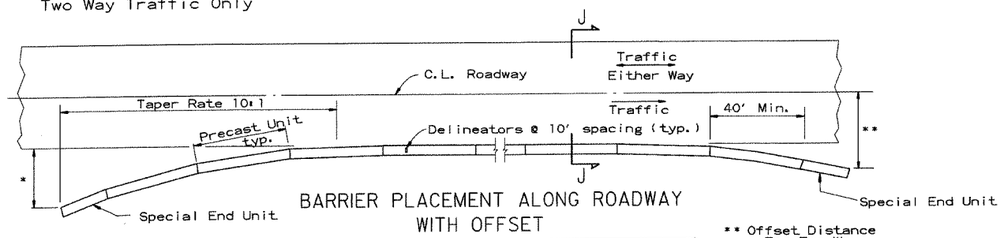


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

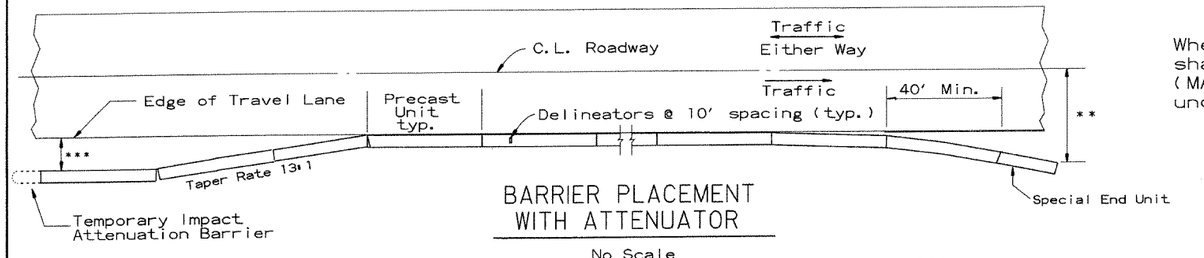
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

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

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

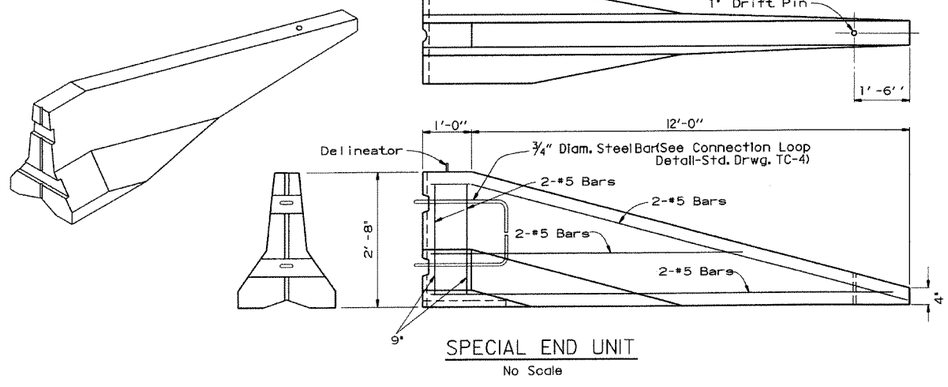


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

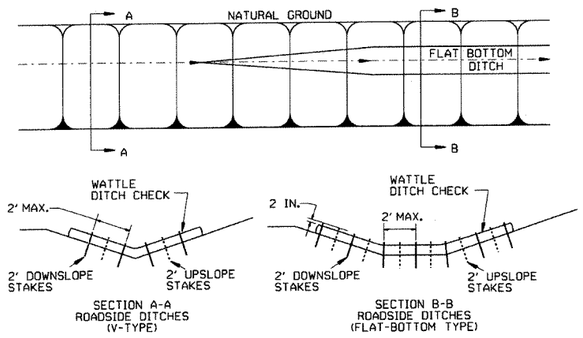
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

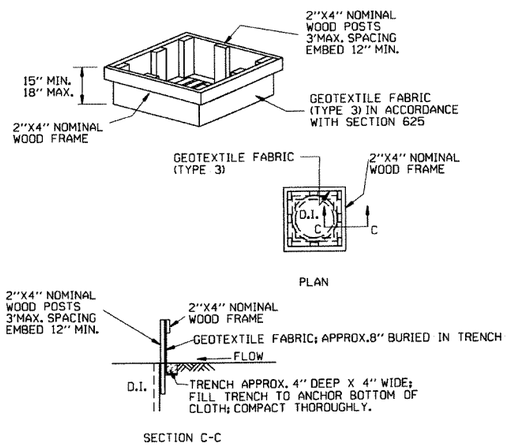
STANDARD DRAWING TC-5

GENERAL NOTES

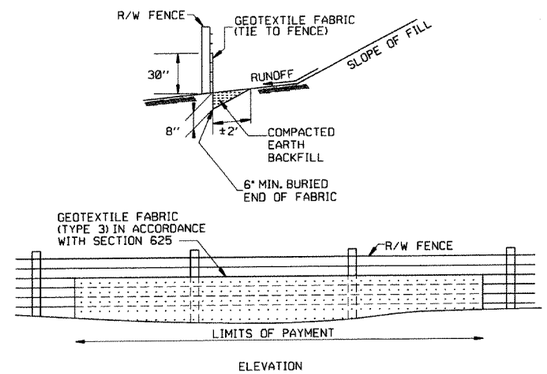
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

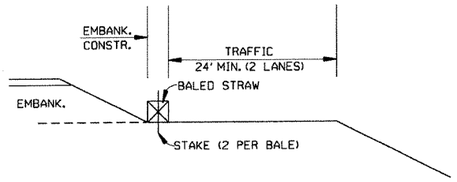
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

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

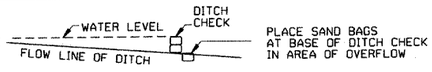
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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

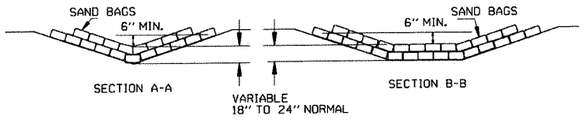


BALED STRAW FILTER BARRIER (E-2)

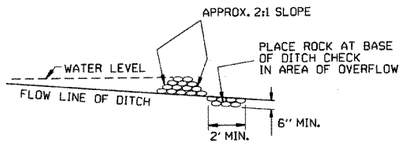
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.

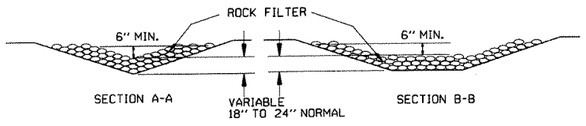


PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW

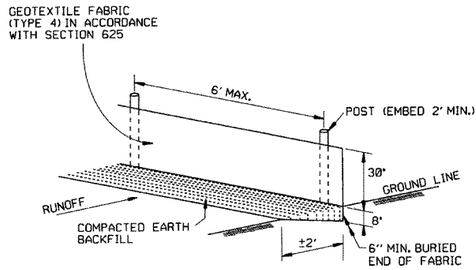


SAND BAG DITCH CHECK (E-5)





ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

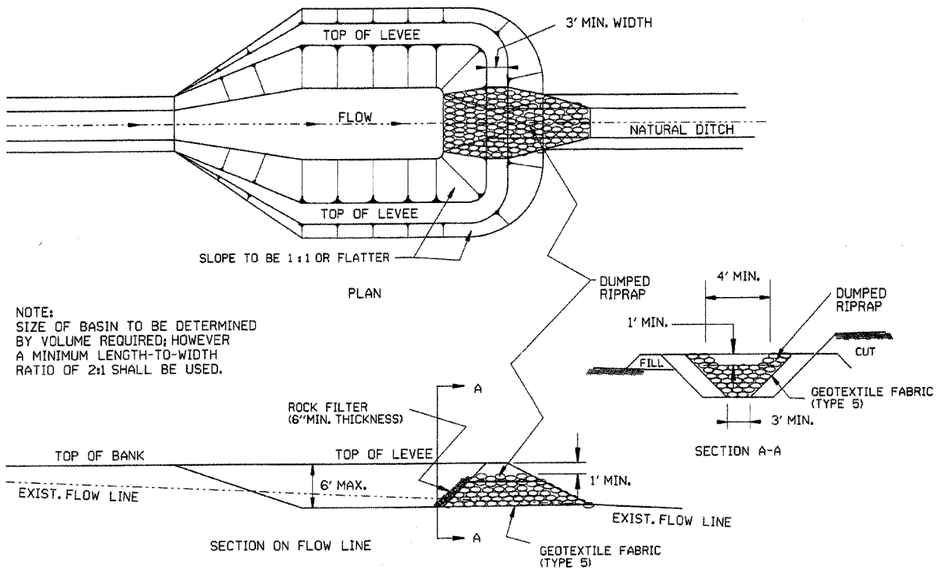
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

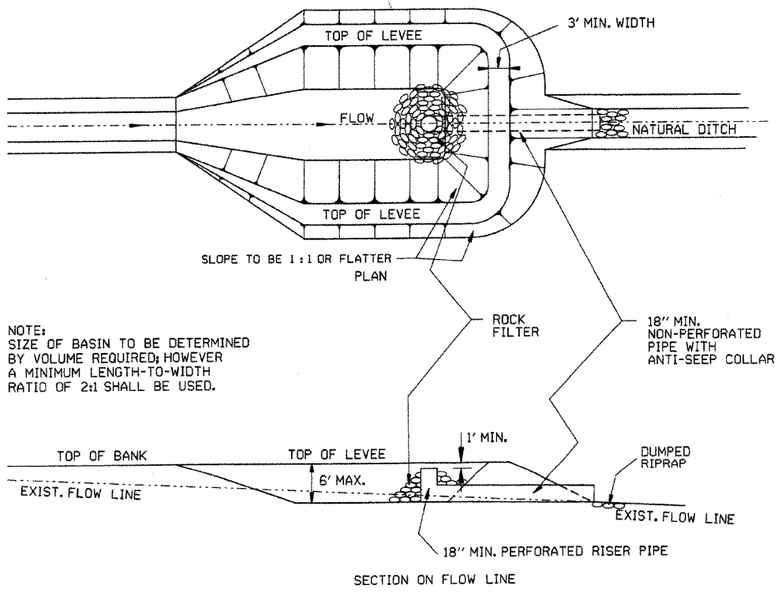
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

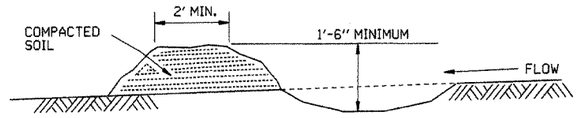
STANDARD DRAWING TEC-1



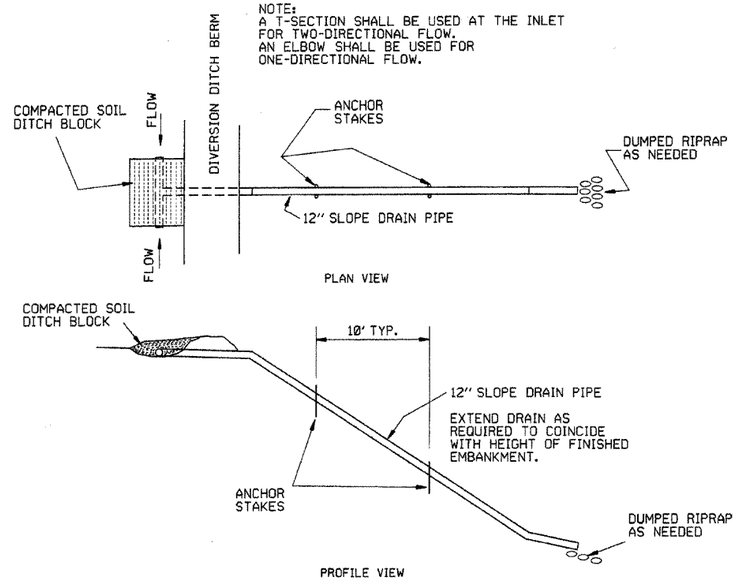
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



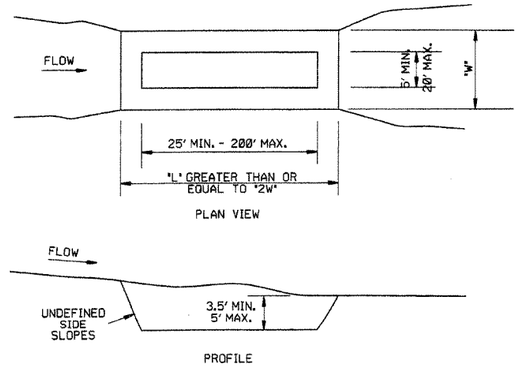
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

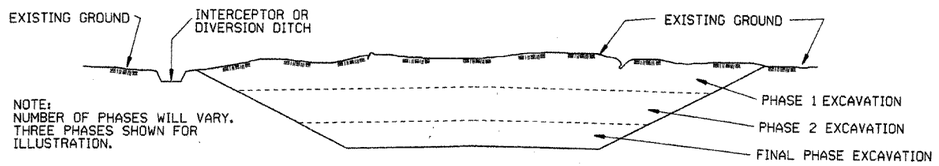
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



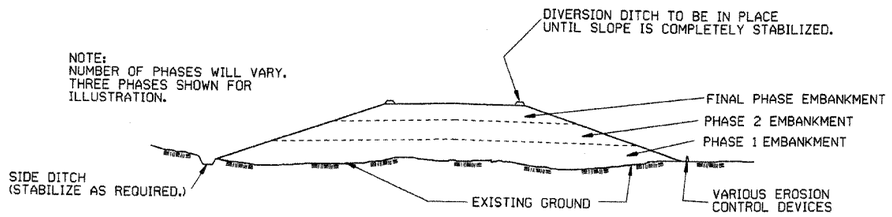
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn