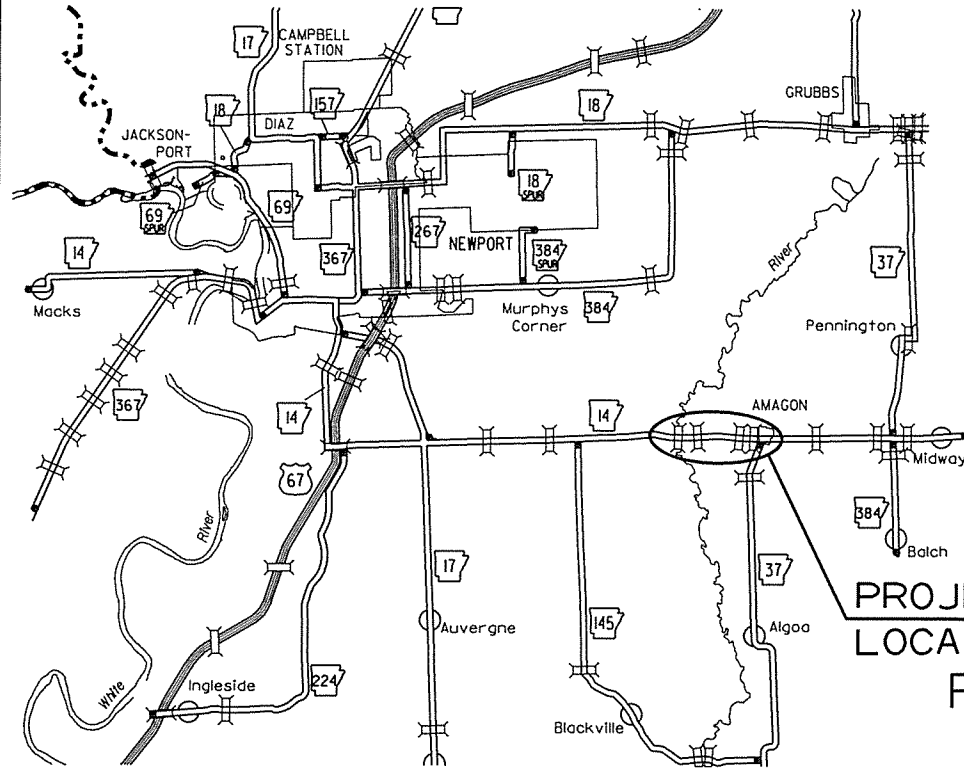


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	1	159
② CACHE RIVER-AMAGON STRS. & APPRS. (S)								



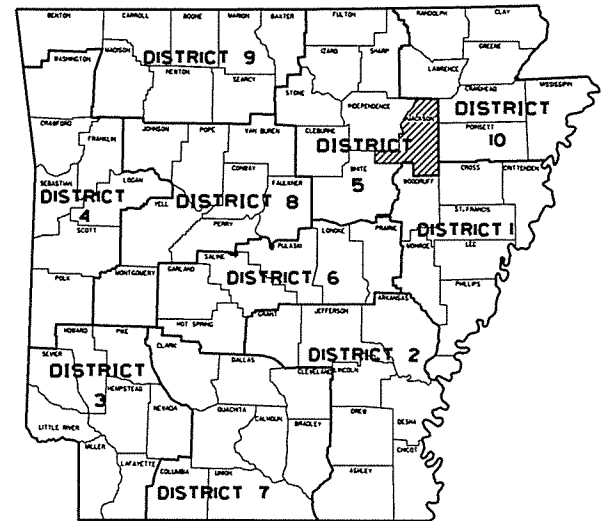
VICINITY MAP

# CACHE RIVER-AMAGON STRS. & APPRS. (S)

JACKSON COUNTY  
ROUTE 14 SECTION 12

## JOB 050272

FEDERAL AID PROJ. STPR-0034(4I) & 9940



ARKANSAS HIGHWAY DISTRICT 5

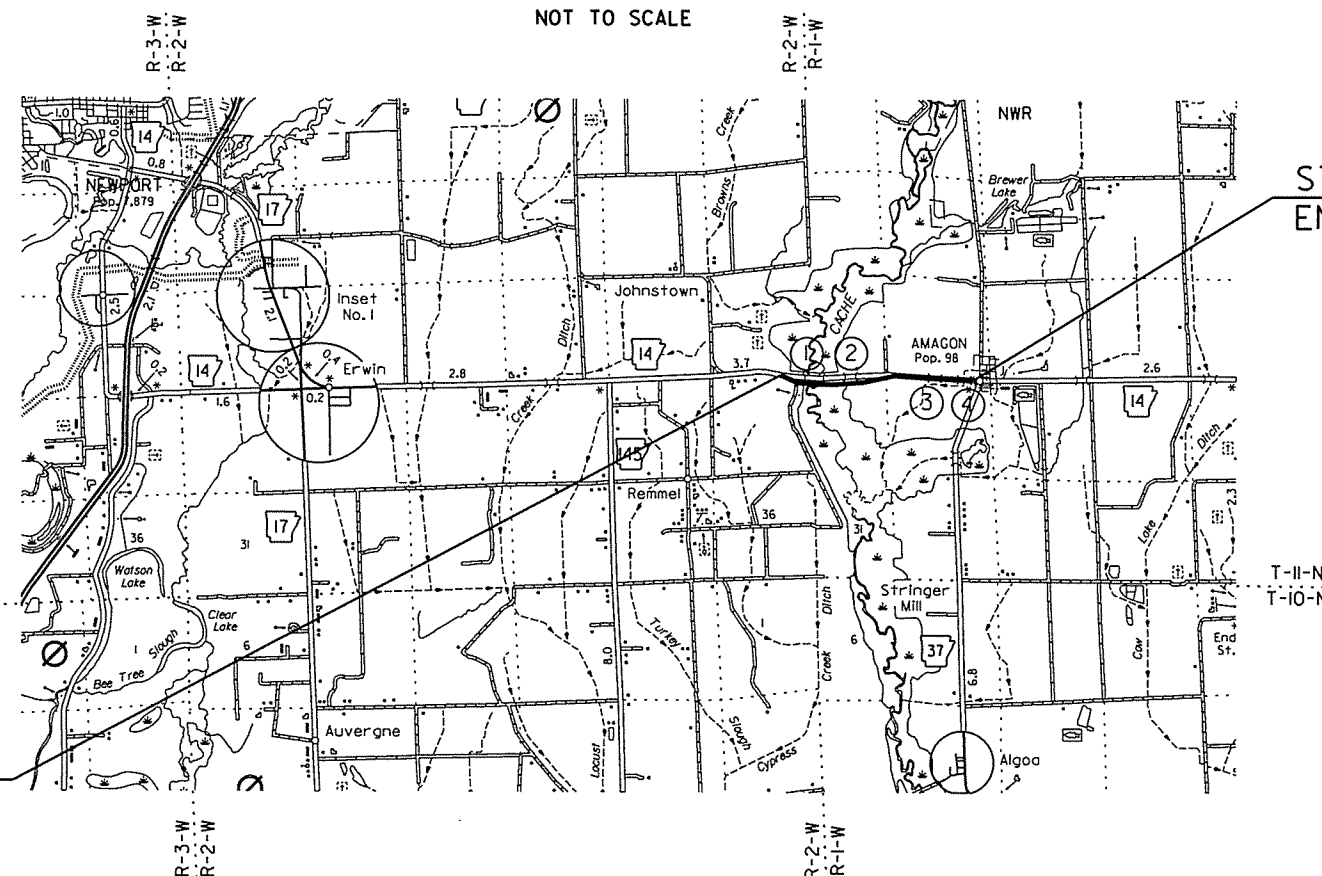
DESIGN TRAFFIC DATA

DESIGN YEAR	_____	2036
2016 ADT	_____	3,000
2036 ADT	_____	3,600
2036 DHV	_____	396
DIRECTIONAL DISTRIBUTION	_____	0.60
TRUCKS	_____	27%
DESIGN SPEED	_____	60 MPH

BRIDGE DATA

- ① STA. 109+23.92  
BRIDGE NO. 07374  
3-244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS  
(54', 68', 68', 54')  
40'-0" CLEAR ROADWAY  
734'-2" BRIDGE LENGTH  
STA. 116+58.08
- ② STA. 131+80.50  
BRIDGE NO. 07375  
162'-0" INTEGRAL W-BEAM UNIT  
(50', 62', 50')  
40'-0" CLEAR ROADWAY  
163'-0" BRIDGE LENGTH  
STA. 133+43.50
- ③ STA. 175+95.50  
BRIDGE NO. 07376  
162'-0" INTEGRAL W-BEAM UNIT  
(50', 62', 50')  
40'-0" CLEAR ROADWAY  
163'-0" BRIDGE LENGTH  
STA. 177+58.50
- ④ STA. 191+20.50  
BRIDGE NO. 07377  
162'-0" INTEGRAL W-BEAM UNIT  
(50', 62', 50')  
40'-0" CLEAR ROADWAY  
163'-0" BRIDGE LENGTH  
STA. 192+83.50

STA. 100+00.00  
BEGIN JOB 050272  
LOG MILE 11.41



STA. 197+27.00  
END JOB 050272



APPROVED



1-5-16  
DEPUTY DIRECTOR  
AND CHIEF ENGINEER

GROSS LENGTH OF PROJECT	9727.00	FEET	OR	1.842	MILES
NET " " ROADWAY	8503.84	"	"	1.610	"
NET " " BRIDGES	1223.16	"	"	0.232	"
NET " " PROJECT	9727.00	"	"	1.842	"

P.E. 050272

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°33' 49"	N 35°33' 47"	N 35°33' 43"
LONGITUDE	W 91°08' 42"	W 91°07' 46"	W 92°06' 45"

INDEX OF SHEETS

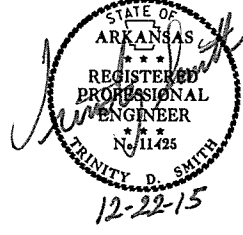
SHEET NO. TITLE BRIDGE NO. DRWG.NO. DATE

1	TITLE SHEET			
2	INDEX OF SHEETS			
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES			
4 - 6	TYPICAL SECTIONS OF IMPROVEMENT			
7 - 12	SPECIAL DETAILS			
13 - 24	TEMPORARY EROSION CONTROL DETAILS			
25 - 37	MAINTENANCE OF TRAFFIC DETAILS			
38	PERMANENT PAVEMENT MARKING DETAILS			
39 - 44	QUANTITIES			
45	SCHEDULE OF BRIDGE QUANTITIES	07374, 07375, 07376, 07377		58027
46 - 47	SUMMARY OF QUANTITIES AND REVISIONS			
48 - 52	SURVEY CONTROL DETAILS			
53	SOIL LOG			
54 - 61	PLAN AND PROFILE SHEETS			
62 - 63	PLAN AND PROFILE SHEETS-DETOUR			
64	LAYOUT OF BRIDGE OVER CACHE RIVER (SHEET 1 OF 3)	07374		58028
65	LAYOUT OF BRIDGE OVER CACHE RIVER (SHEET 2 OF 3)	07374		58029
66	LAYOUT OF BRIDGE OVER CACHE RIVER (SHEET 3 OF 3)	07374		58030
67	DETAILS OF END BENDS 1 & 13 (SHEET 1 OF 3)	07374		58031
68	DETAILS OF END BENDS 1 & 13 (SHEET 2 OF 3)	07374		58032
69	DETAILS OF END BENDS 1 & 13 (SHEET 3 OF 3)	07374		58033
70	DETAILS OF INTERMEDIATE BENTS 2, 3, 4, 6, 7, 8, 10, 11, & 12 (SHEET 1 OF 2)	07374		58034
71	DETAILS OF INTERMEDIATE BENTS 2, 3, 4, 6, 7, 8, 10, 11, & 12 (SHEET 2 OF 2)	07374		58035
72	DETAILS OF INTERMEDIATE BENTS 5 & 9	07374		58036
73	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 1 OF 8)	07374		58037
74	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 2 OF 8)	07374		58038
75	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 3 OF 8)	07374		58039
76	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 4 OF 8)	07374		58040
77	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 5 OF 8)	07374		58041
78	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 6 OF 8)	07374		58042
79	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 7 OF 8)	07374		58043
80	DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 8 OF 8)	07374		58044
81	DETAILS OF JOINTS (SHEET 1 OF 2)	07374		58045
82	DETAILS OF JOINTS (SHEET 2 OF 2)	07374		58046
83	DETAILS OF ELASTOMERIC BEARINGS	07374		58047
84	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 12.01) (SHEET 1 OF 2)	07375		58048
85	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 12.01) (SHEET 2 OF 2)	07375		58049
86	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 12.85) (SHEET 1 OF 2)	07376		58050
87	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 12.85) (SHEET 2 OF 2)	07376		58051
88	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 13.14) (SHEET 1 OF 2)	07377		58052
89	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (L.M. 13.14) (SHEET 2 OF 2)	07377		58053
90	DETAILS OF END BENDS	07375, 07376, 07377		58054
91	DETAILS OF INTERMEDIATE BENTS	07375, 07376, 07377		58055
92	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 1 OF 6)	07375, 07376, 07377		58056
93	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 2 OF 6)	07375, 07376, 07377		58057
94	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 3 OF 6)	07375, 07376, 07377		58058
95	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 4 OF 6)	07375, 07376, 07377		58059
96	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 5 OF 6)	07375, 07376, 07377		58060
97	DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT (SHEET 6 OF 6)	07375, 07376, 07377		58061
98	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS			58000
99	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES			58001
100	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS			58005
101	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES			58006
102	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE			58010
103	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS			58021
104	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS			58030C
105	STANDARD DETAILS FOR TYPE C2 APPROACH SLAB	58040C2		2-27-14
106	GUARD RAIL DETAILS			GR-8
107	GUARD RAIL DETAILS			GR-9
108	GUARD RAIL DETAILS			GR-9A
109	GUARD RAIL DETAILS			GR-10
110	GUARD RAIL DETAILS			GR-10A
111	MAILBOX DETAILS			MB-1
112	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING			PCM-1
113	METAL PIPE CULVERT FILL HEIGHTS & BEDDING			PCM-1
114	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)			PCP-1
115	PLASTIC PIPE CULVERT (PVC F949)			PCP-2
116	PAVEMENT MARKING DETAILS			PM-1
117	DETAILS OF PIPE UNDERDRAIN			PU-1
118	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC			SE-2
119	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION			TC-1
120	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION			TC-2
121	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION			TC-3
122	TEMPORARY EROSION CONTROL DEVICES			TEC-1
123	TEMPORARY EROSION CONTROL DEVICES			TEC-2
124	TEMPORARY EROSION CONTROL DEVICES			TEC-3
125 - 159	CROSS SECTIONS			

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

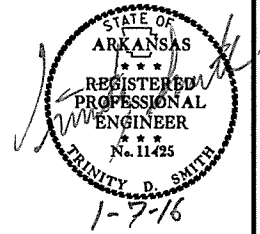
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		2	159

2 INDEX OF SHEETS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		3	159

2 GOVERNING SPECS. AND GENERAL NOTES



### GOVERNING SPECIFICATIONS

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

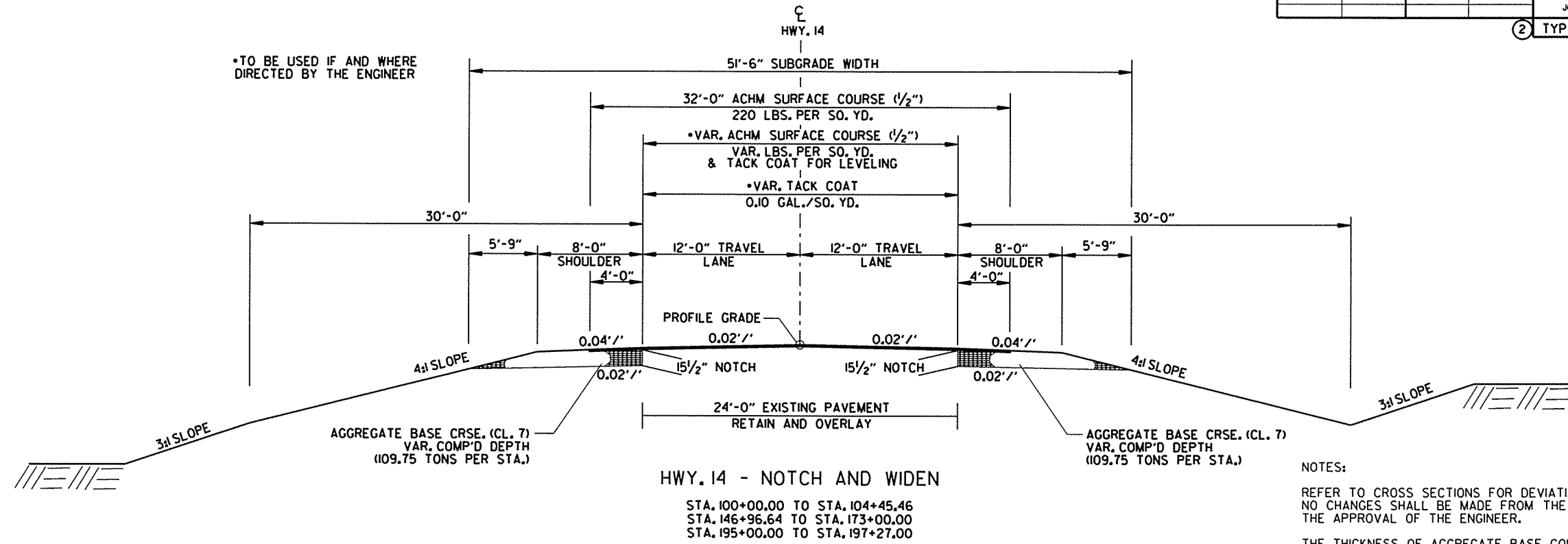
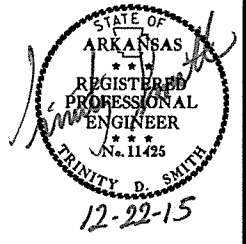
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB 050272
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
108-1	LIQUIDATED DAMAGES
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB 050272	BIDDING REQUIREMENTS AND CONDITIONS
JOB 050272	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050272	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050272	CARGO PREFERENCE ACT REQUIREMENTS
JOB 050272	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 050272	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 050272	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 050272	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050272	EMBANKMENT CONSTRUCTION
JOB 050272	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB 050272	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050272	HIGH PERFORMANCE PAVEMENT MARKING
JOB 050272	MANDATORY ELECTRONIC CONTRACT
JOB 050272	NESTING SITES OF MIGRATORY BIRDS
JOB 050272	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 050272	PARTNERING REQUIREMENTS
JOB 050272	PLASTIC PIPE
JOB 050272	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 050272	RUMBLE STRIPES
JOB 050272	SECTION 404 STANDARD INDIVIDUAL PERMIT REQUIREMENTS
JOB 050272	SHORING FOR CULVERTS
JOB 050272	SOIL STABILIZATION
JOB 050272	STORM WATER POLLUTION PREVENTION PLAN
JOB 050272	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050272	UTILITY ADJUSTMENTS
JOB 050272	VALUE ENGINEERING
JOB 050272	WARM MIX ASPHALT

### GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- 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.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- 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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.

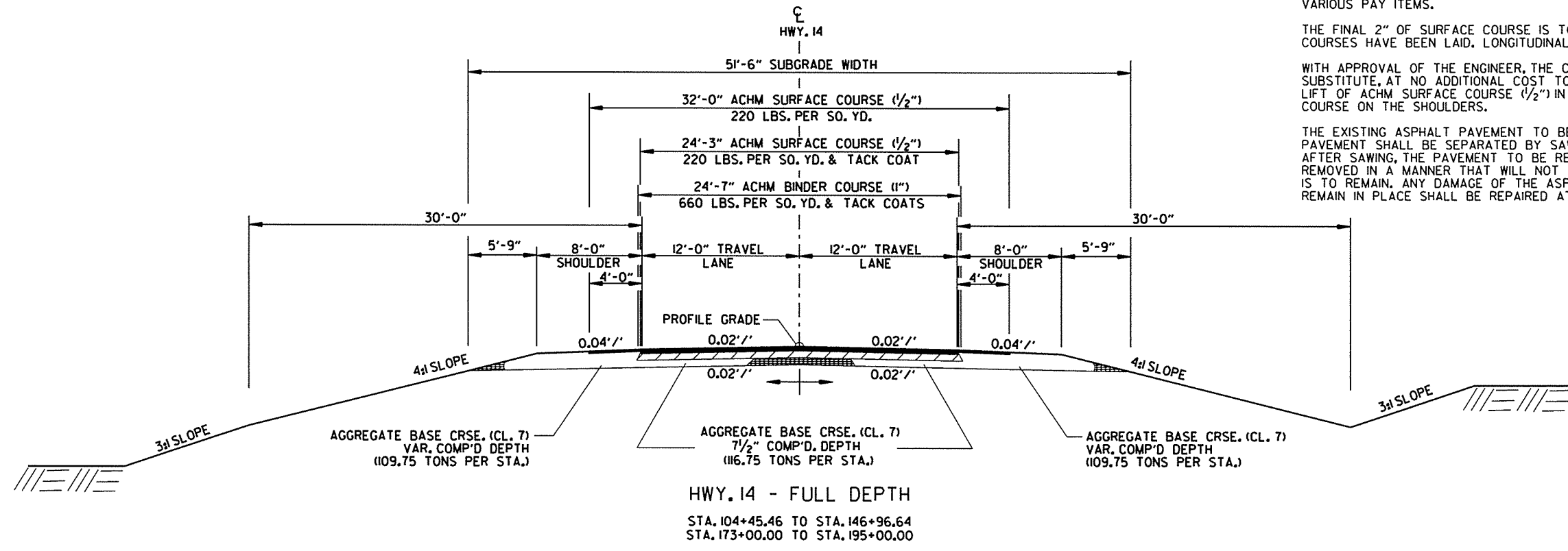
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		4	159

2 TYPICAL SECTIONS OF IMPROVEMENT



NOTES:

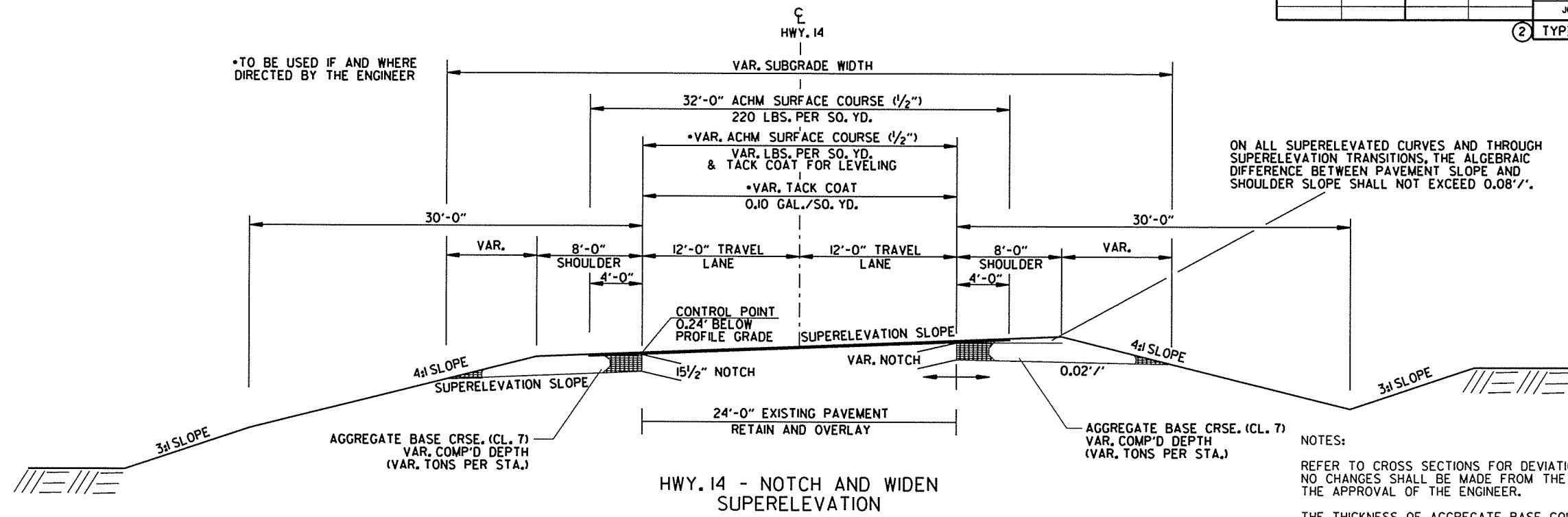
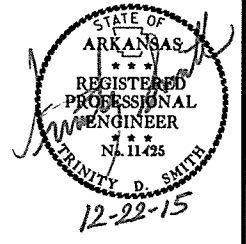
- REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
- THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
- ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
- THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
- WITH 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.
- 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.



12/18/2015  
 R050272.DGN

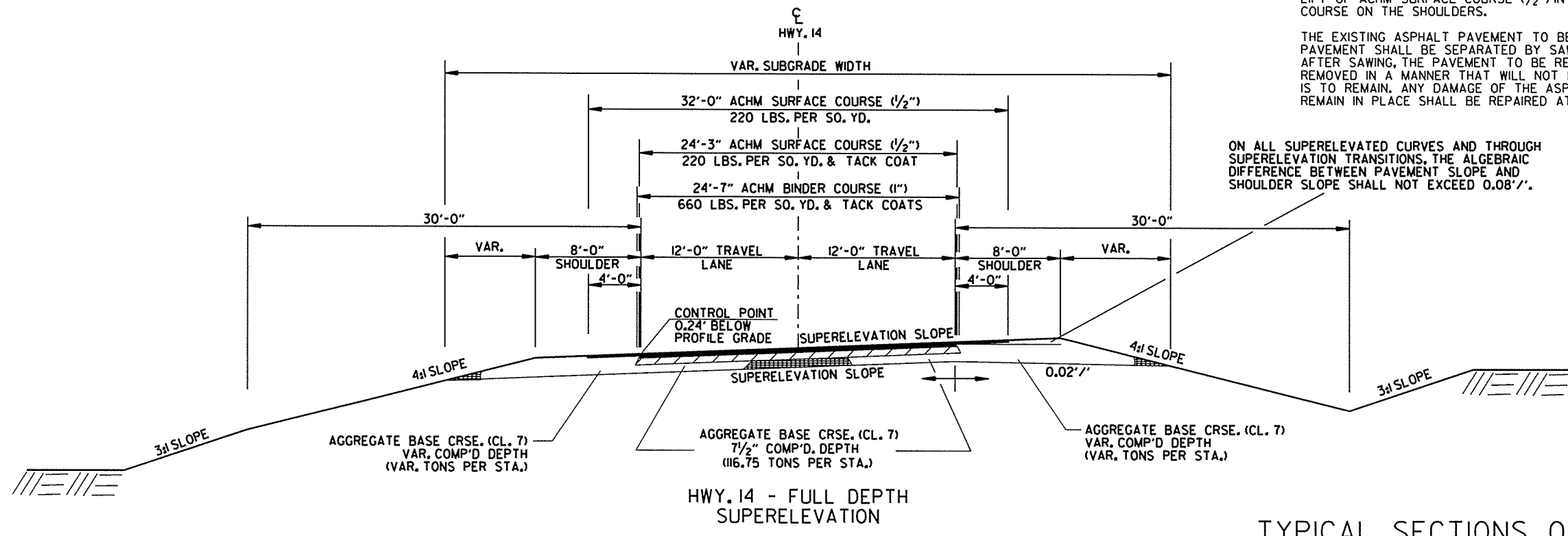
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	5	159	

2 TYPICAL SECTIONS OF IMPROVEMENT



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

- NOTES:
- REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
  - THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
  - ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
  - THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
  - WITH 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.
  - 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.



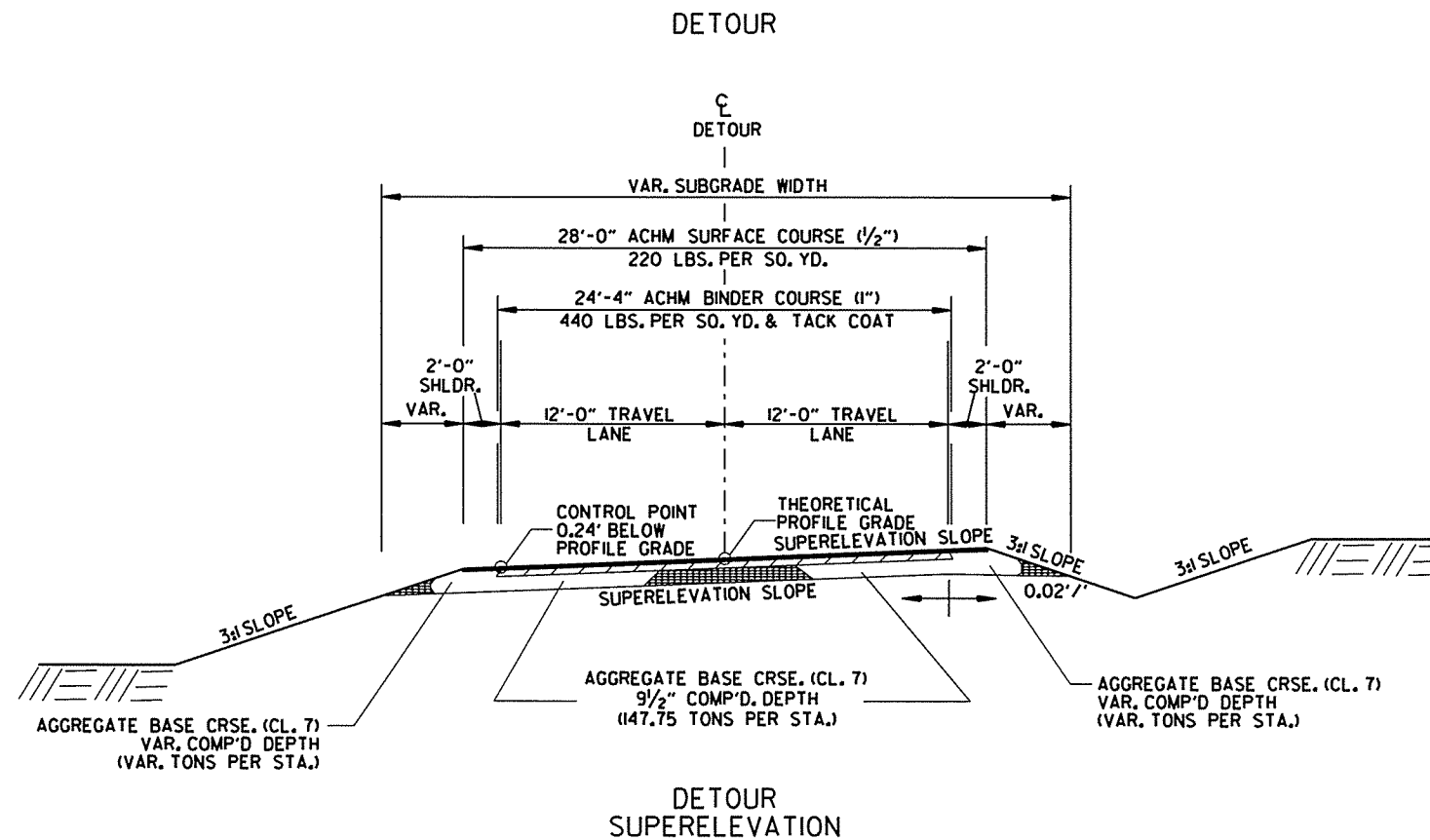
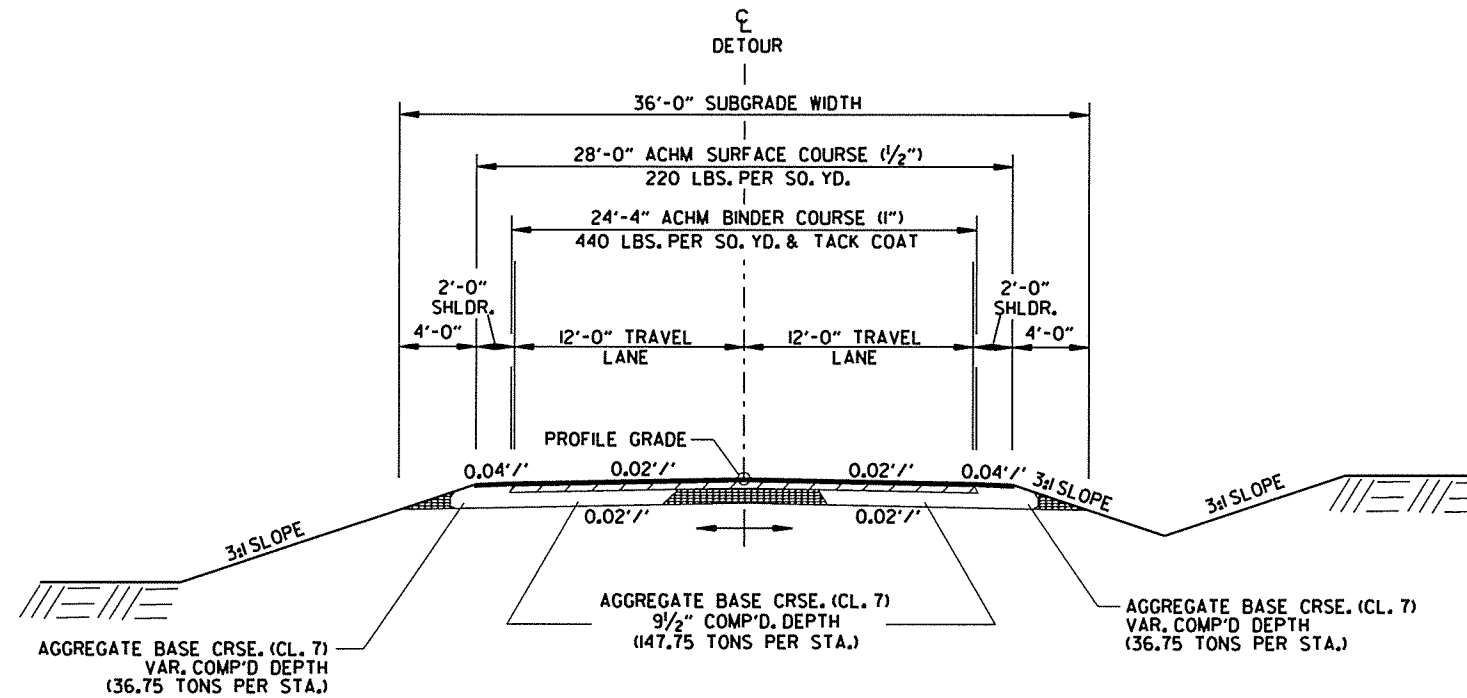
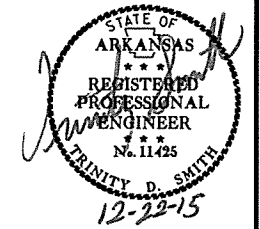
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

TYPICAL SECTIONS OF IMPROVEMENT

12/18/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							6	159

② TYPICAL SECTIONS OF IMPROVEMENT



NOTES:

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

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

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

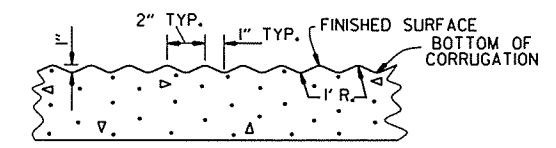
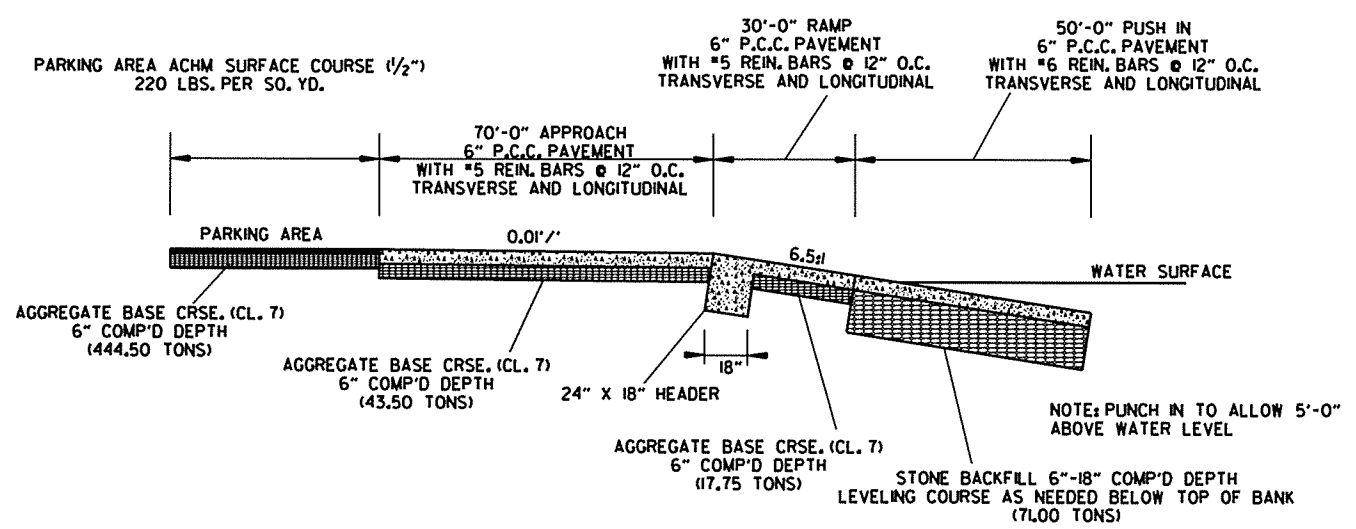
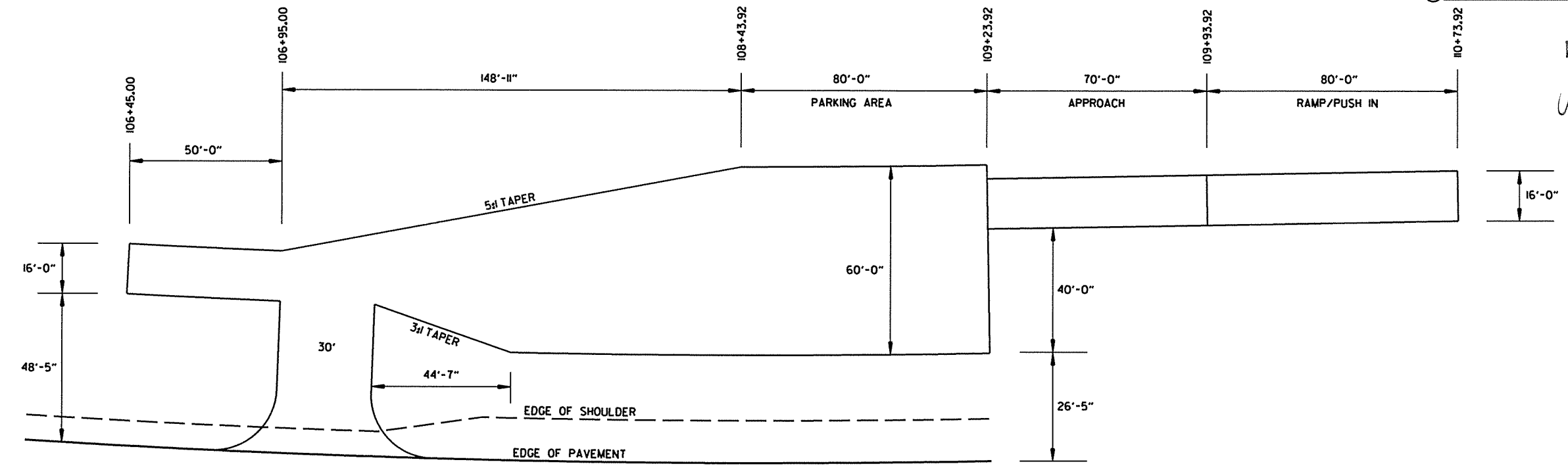
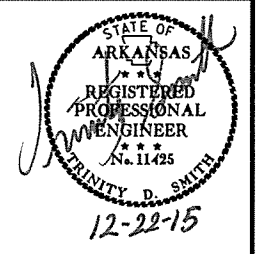
WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

12/18/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		7	159

② SPECIAL DETAILS

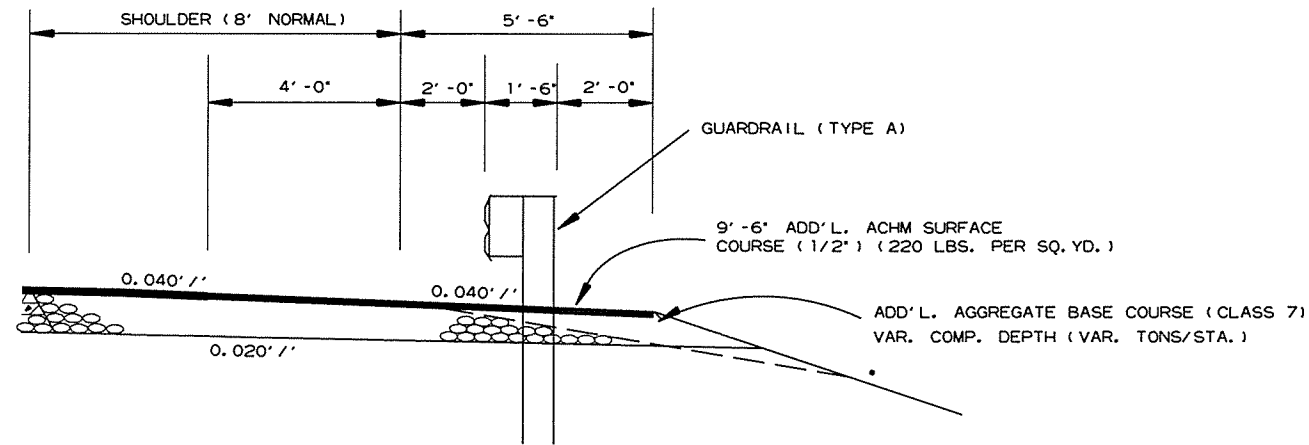


- NOTES:
1. CONTRACTOR SHALL EXCAVATE ENOUGH MATERIAL TO PLACE A MINIMUM OF 6' OF SB-2 GRAVEL FOR BASE.
  2. CONCRETE FOR THE RAMP WILL BE A 3500 PSI MIX WITH FIBERS.
  3. WHEN POURING AND FINISHING THE CONCRETE IT WILL BE UNIFORMLY SPREAD, SCREED, AND FLOAT WITH NO IRREGULARITIES IN GRADE, ENDING WITH A GROOVE FINISH.
  4. ADJACENT SLOPES ALONG RAMP WILL BE SHAPED TO A MINIMUM 3:1 INCLINE WHERE PRACTICAL. A 6' WIDE X 11' STRIP OF 6" X 12" RIPRAP WILL BE PLACED ON BOTH SIDES ALONG THE LENGTH OF THE RAMP.

DETAIL FOR BOAT RAMP CONSTRUCTION

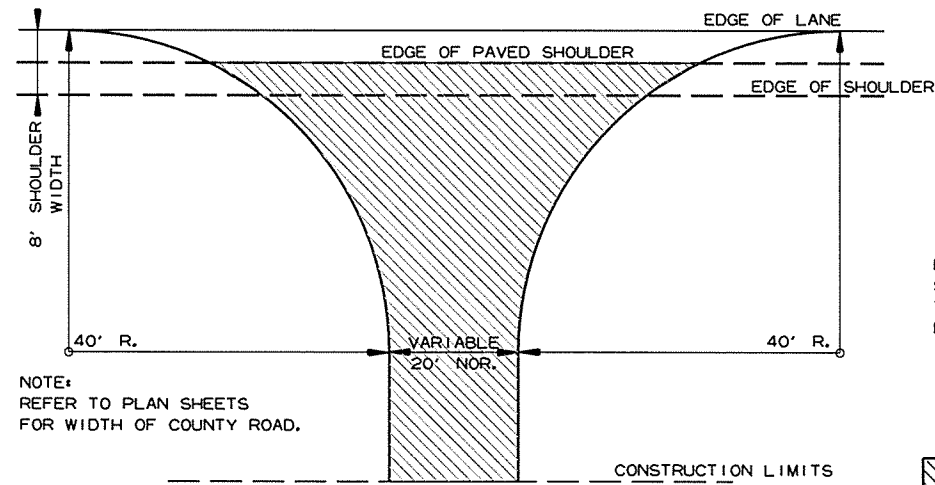
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							8	159

2 SPECIAL DETAILS



WIDENING FOR GUARDRAIL

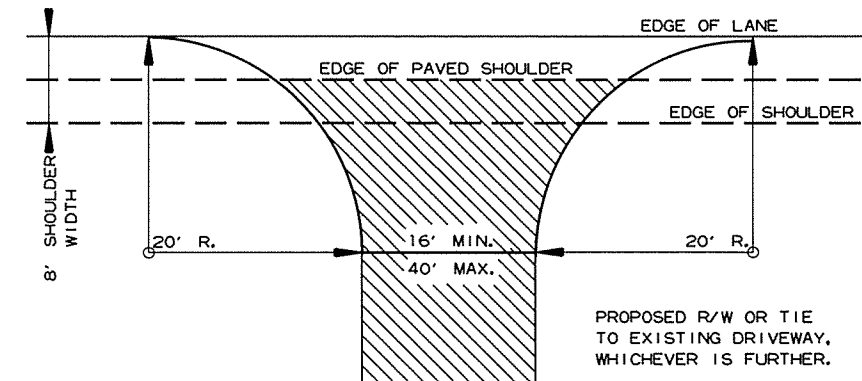
NOTE: REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



DETAIL FOR COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION

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

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7' COMP. DEPTH IF ASPHALT



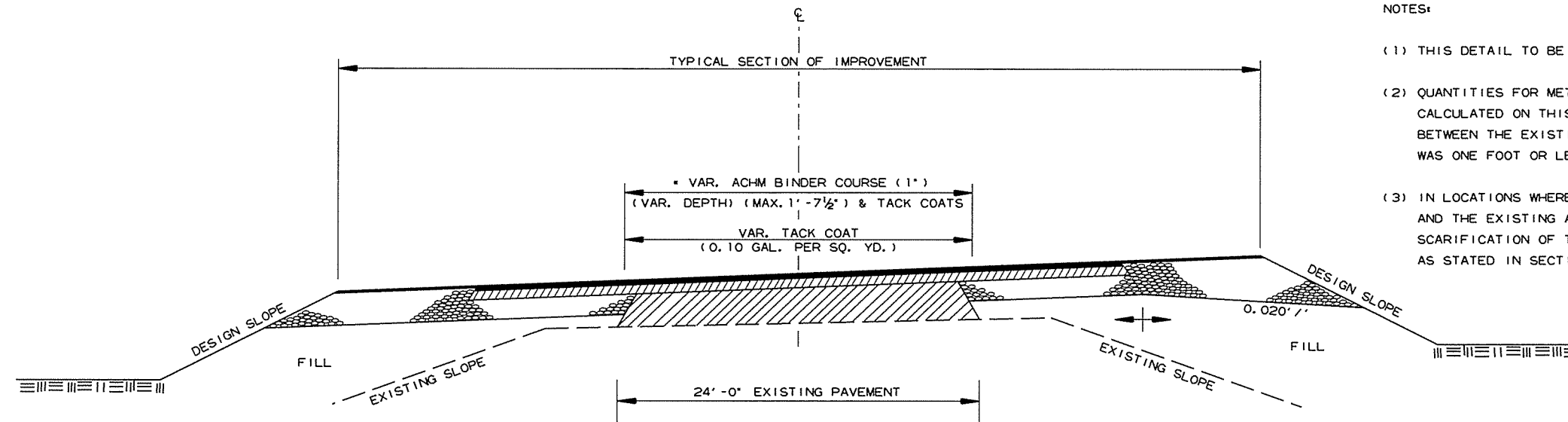
DETAIL FOR DRIVEWAY TURNOUTS  
OPEN SHOULDER SECTION  
(ARTERIALS)

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



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		9	159

2 SPECIAL DETAILS

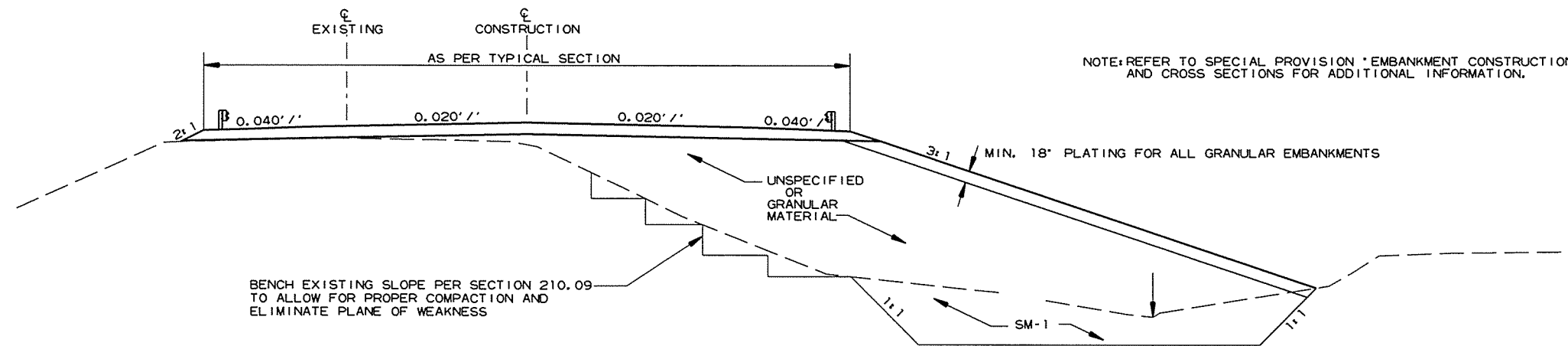


• 7½" AGGREGATE BASE COURSE (CLASS 7)  
TO BE REPLACED WITH ACHM BINDER COURSE (1")

METHOD OF RAISING GRADE

NOTES:

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



NOTE: REFER TO SPECIAL PROVISION 'EMBANKMENT CONSTRUCTION' AND CROSS SECTIONS FOR ADDITIONAL INFORMATION.

BENCH EXISTING SLOPE PER SECTION 210.09 TO ALLOW FOR PROPER COMPACTION AND ELIMINATE PLANE OF WEAKNESS

SPECIAL EMBANKMENT DETAIL

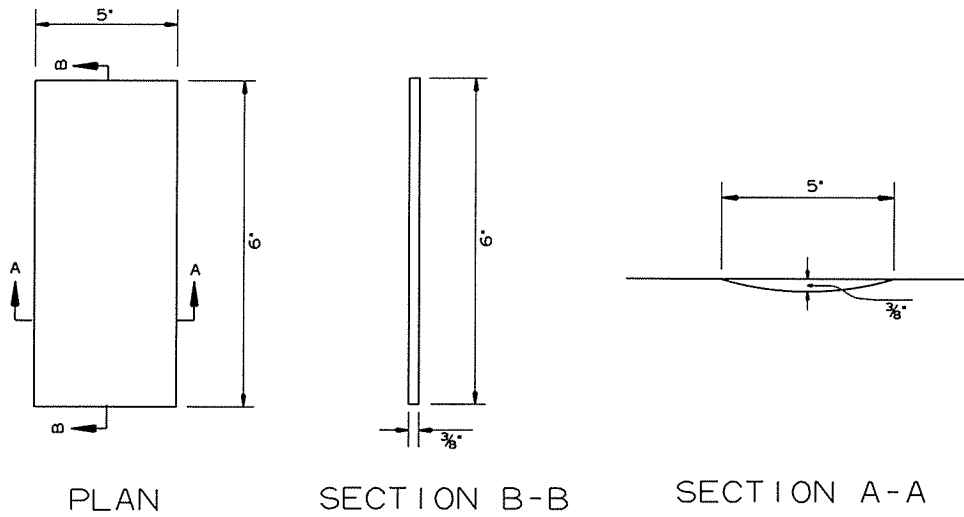
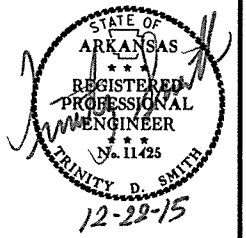
LOCATIONS OF UNDERCUT AS DIRECTED BY THE ENGINEER WHERE EMBANKMENT CONSTRUCTION EXTENDS OVER EXISTING BORROW DITCHES.

12/18/2015

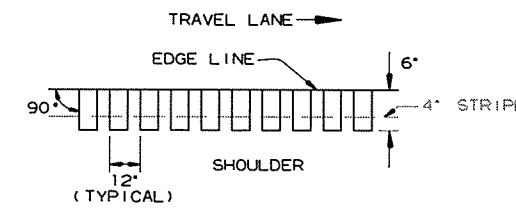
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							10	159

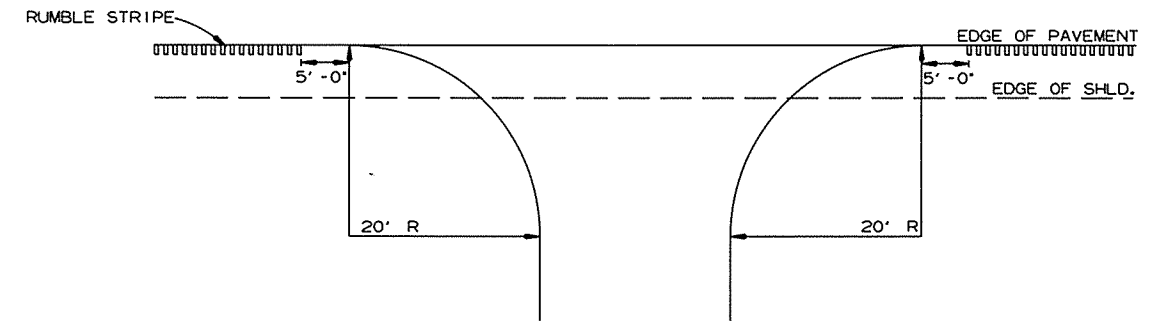
2 SPECIAL DETAILS



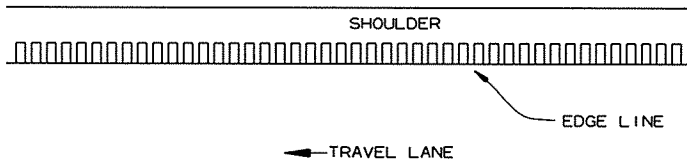
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE  
LEFT OR RIGHT SHOULDER



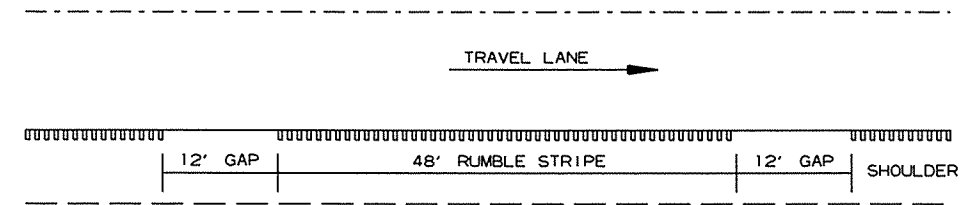
DETAIL FOR RUMBLE STRIPE GAP  
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS.
2. RUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
4. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 6' LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



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

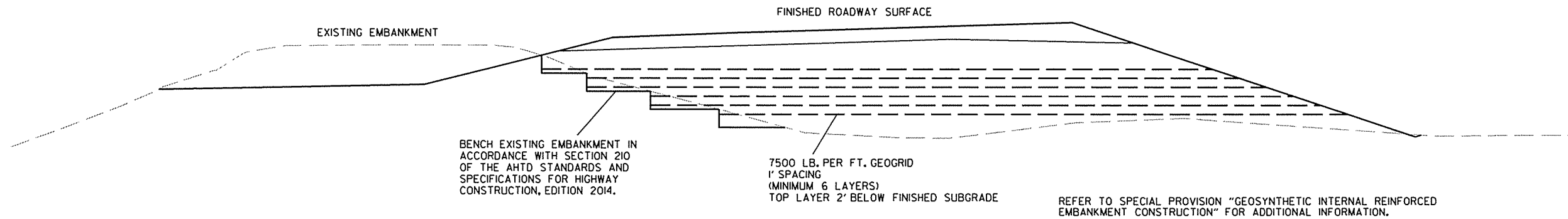
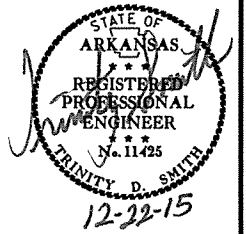
DETAIL FOR GAP PATTERN RUMBLE STRIPE

12/18/2015

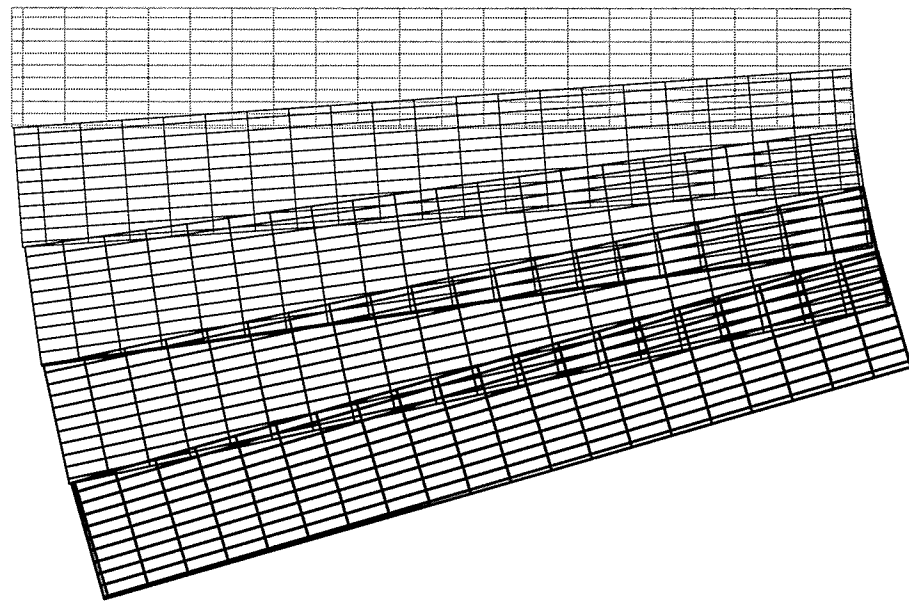
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							11	159

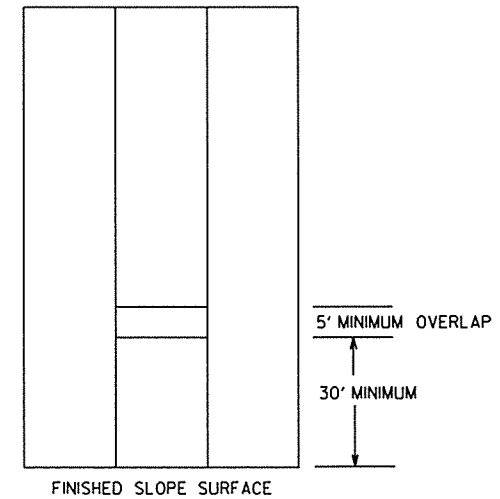
② SPECIAL DETAILS



DETAIL FOR GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT  
STA. 108+25.00 TO STA. 109+40.19  
STA. 116+41.58 TO STA. 117+60.00



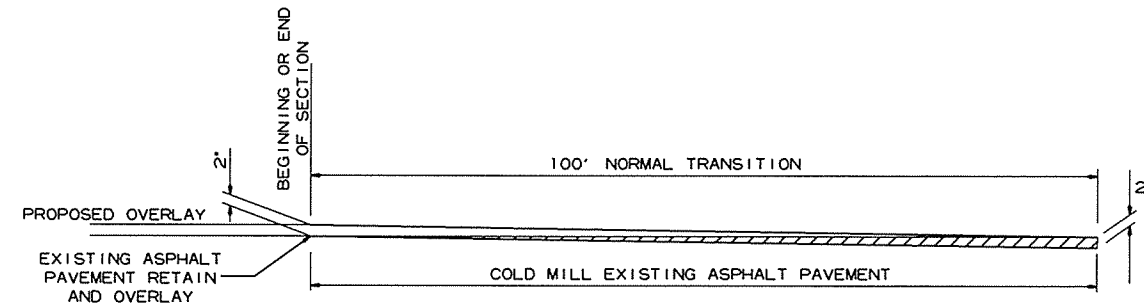
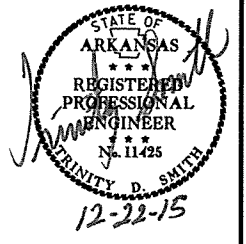
SIDE SLOPE TO END SLOPE  
GEOGRID TRANSITION



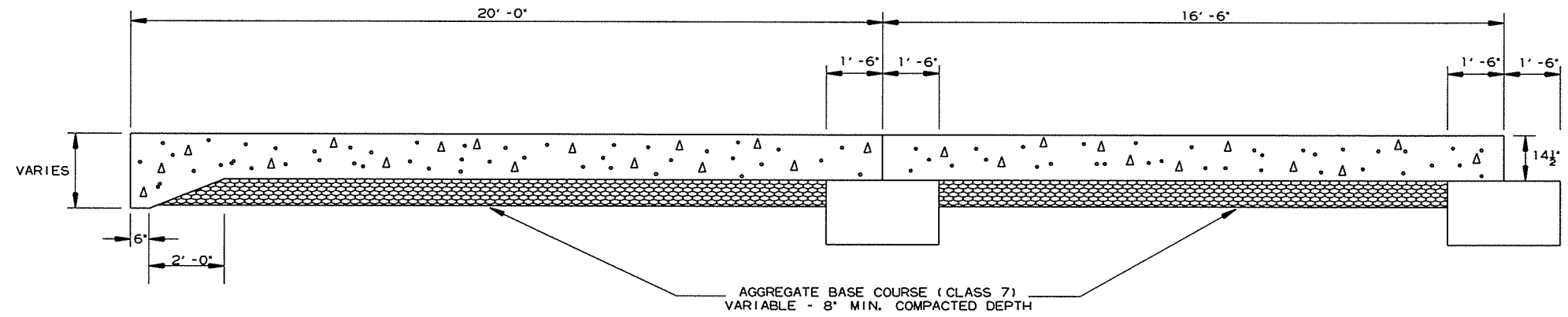
GEOGRID OVERLAP

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		12	159

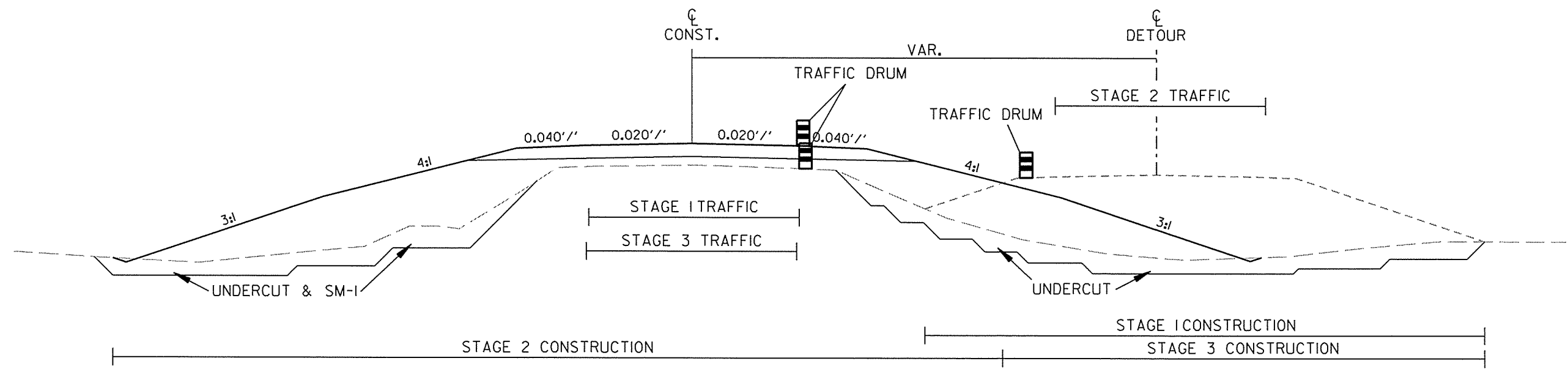
② SPECIAL DETAILS



DETAIL FOR TRANSITIONS



SECTION OF APPROACH SLAB



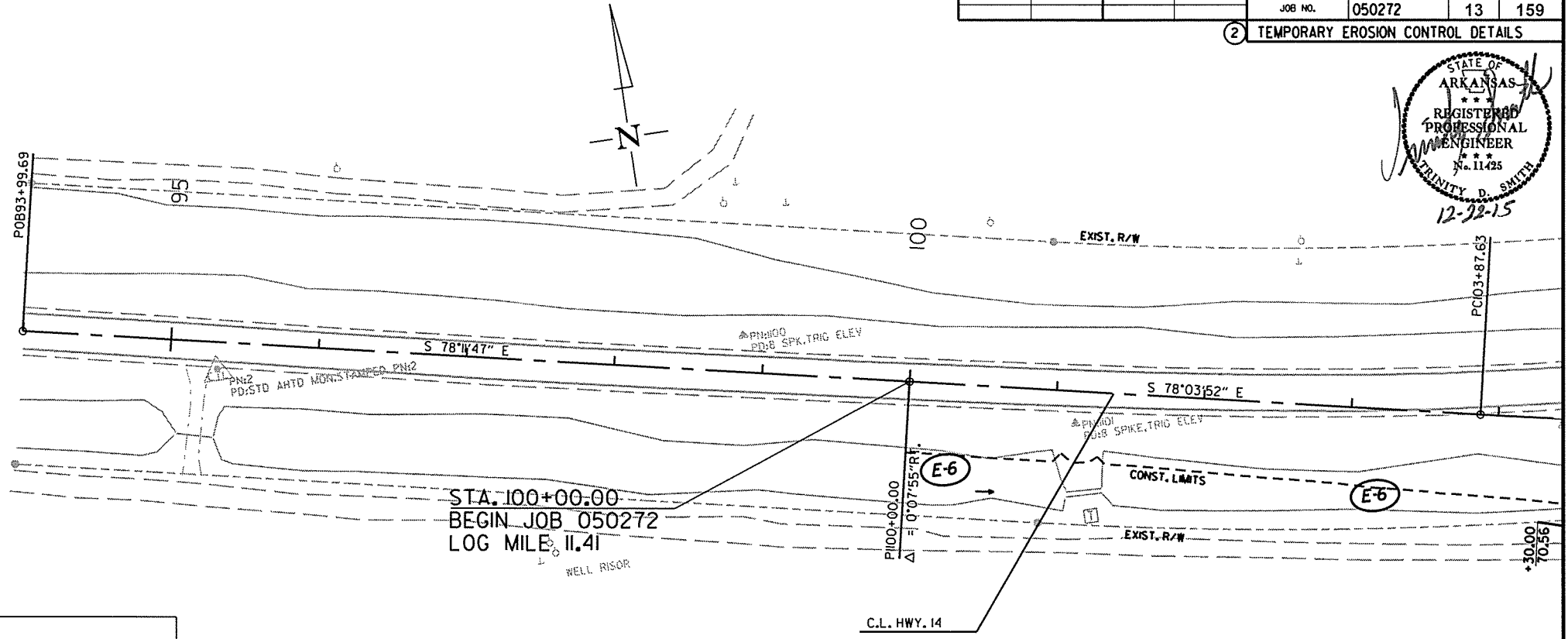
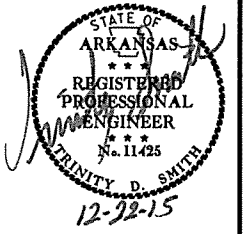
DETAIL FOR STAGE CONSTRUCTION

SPECIAL DETAILS

12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		13	159

2 TEMPORARY EROSION CONTROL DETAILS



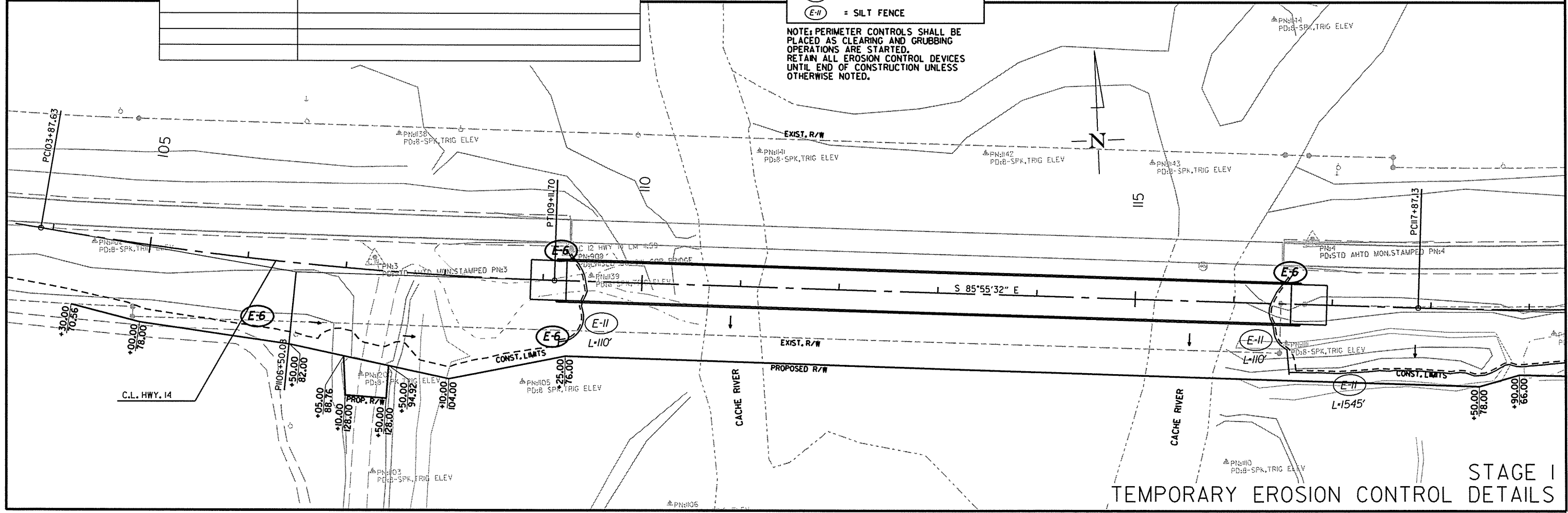
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

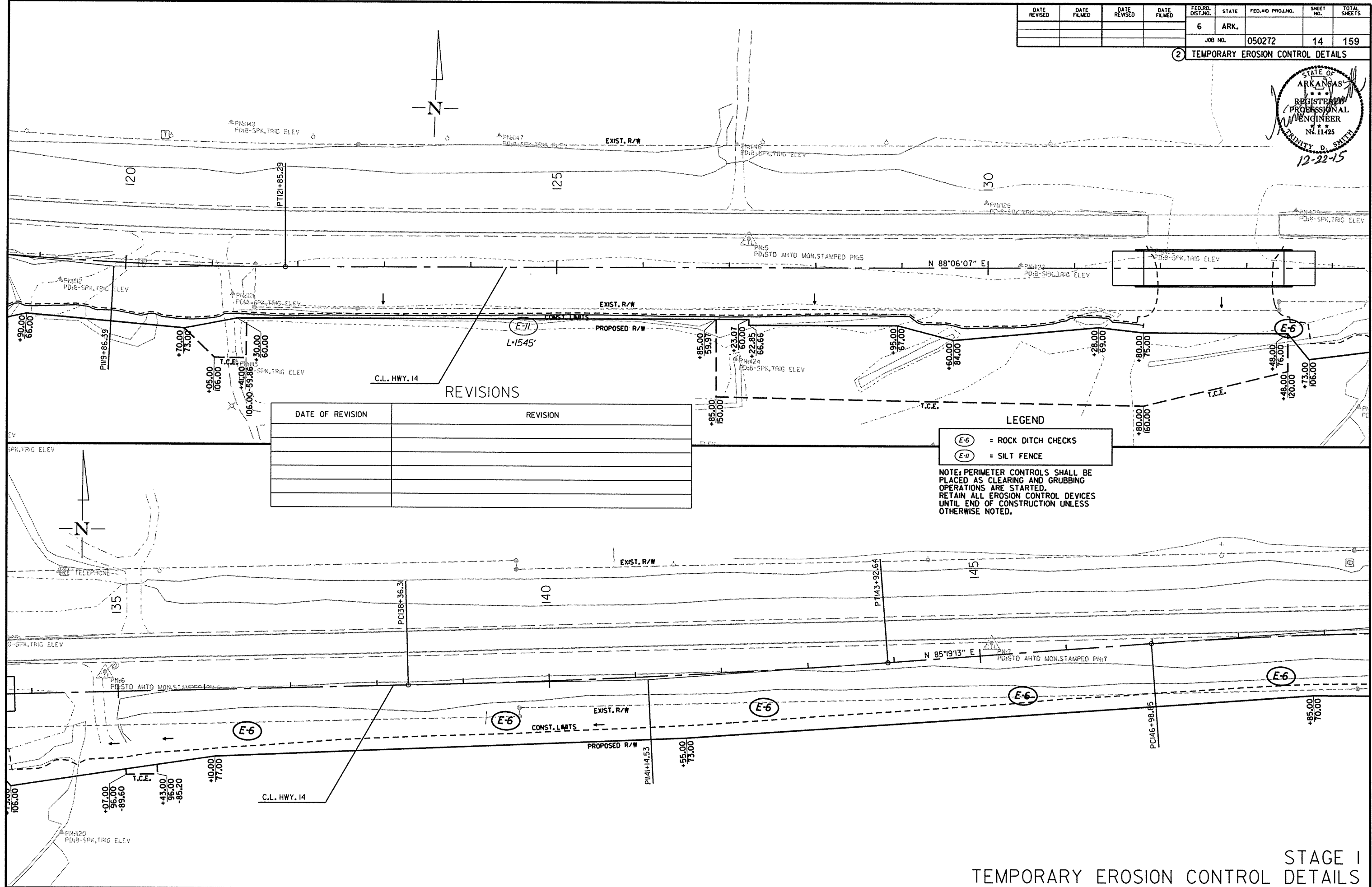
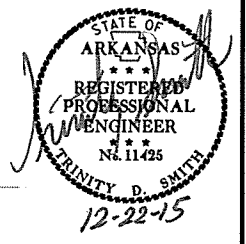


STAGE I TEMPORARY EROSION CONTROL DETAILS

R050272.DGN 12/21/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							14	159

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

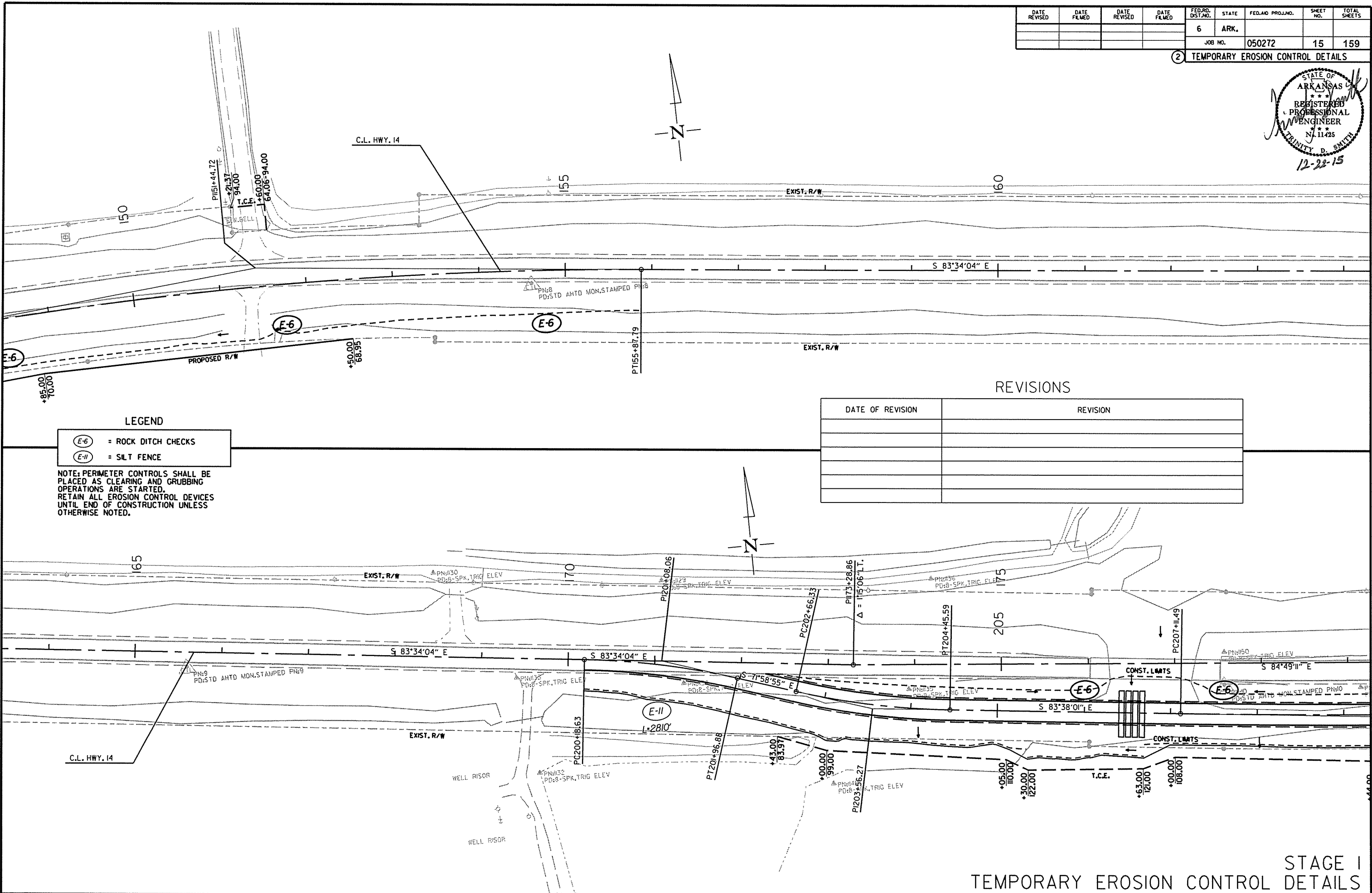
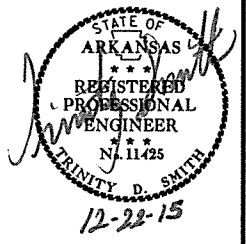
(E-6)	= ROCK DITCH CHECKS
(E-11)	= SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

12/18/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							15	159

② TEMPORARY EROSION CONTROL DETAILS



LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

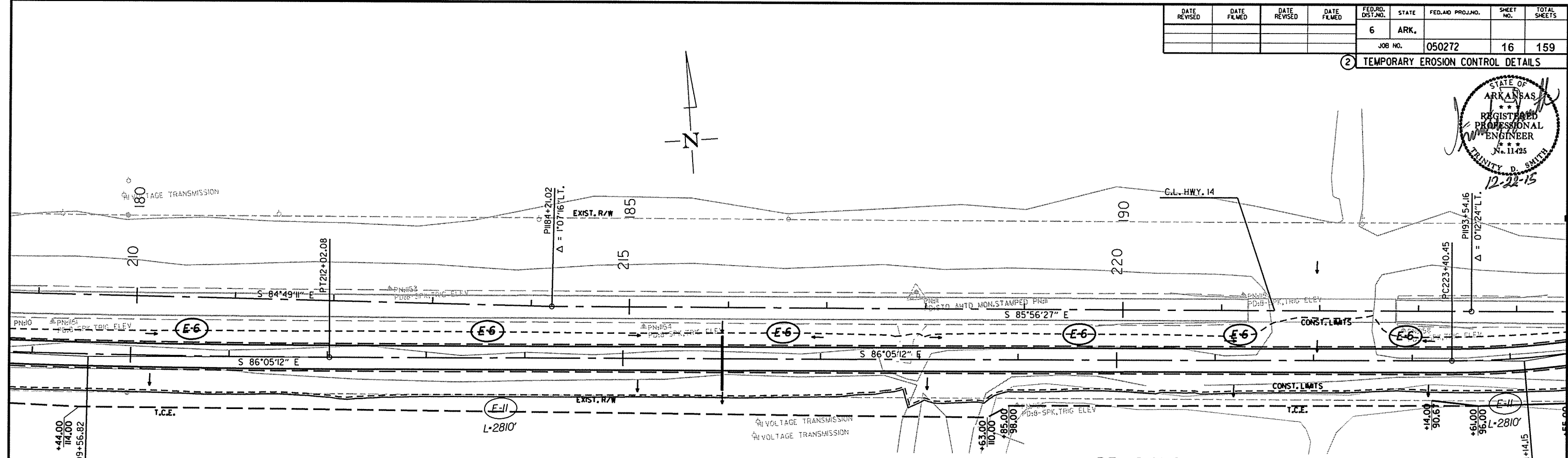
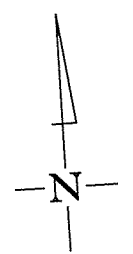
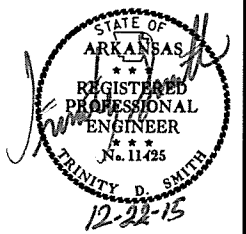
12/18/2015

R050272.DGN

STAGE I  
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							16	159

② TEMPORARY EROSION CONTROL DETAILS



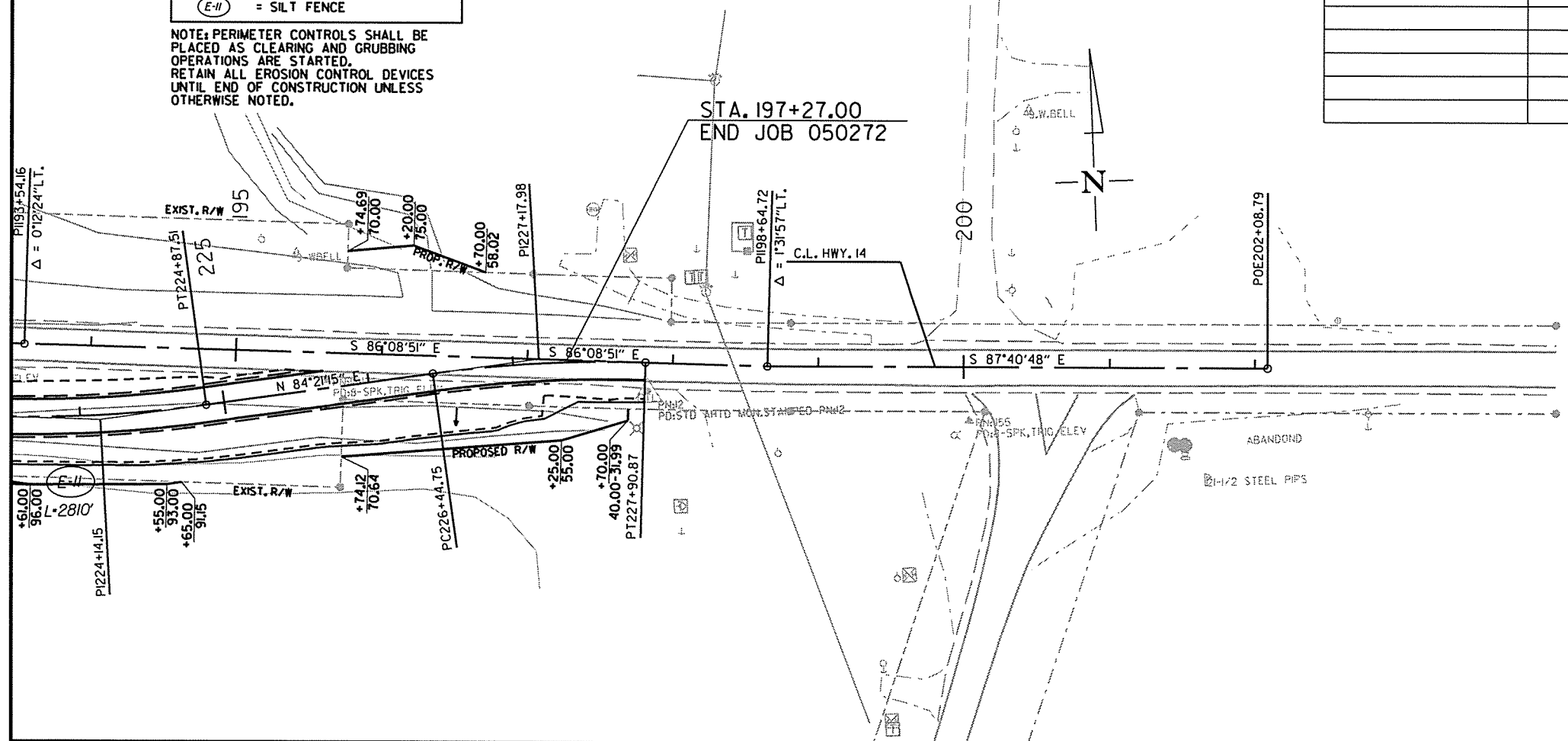
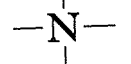
- LEGEND**
- (E-6) = ROCK DITCH CHECKS
  - (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

**REVISIONS**

DATE OF REVISION	REVISION

STA. 197+27.00  
END JOB 050272



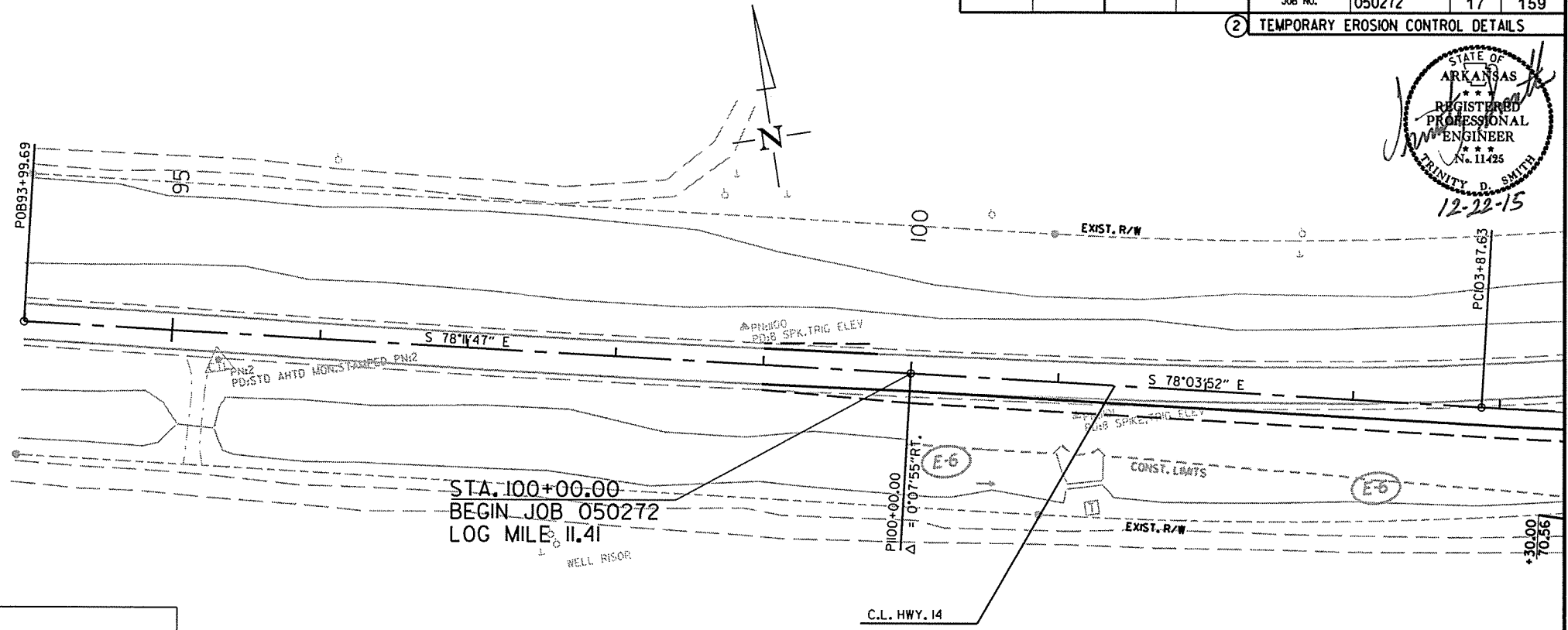
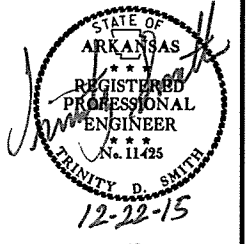
12/18/2015  
R050272.DGN

STAGE I  
TEMPORARY EROSION CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		17	159

2 TEMPORARY EROSION CONTROL DETAILS



STA. 100+00.00  
 BEGIN JOB 050272  
 LOG MILE 11.41

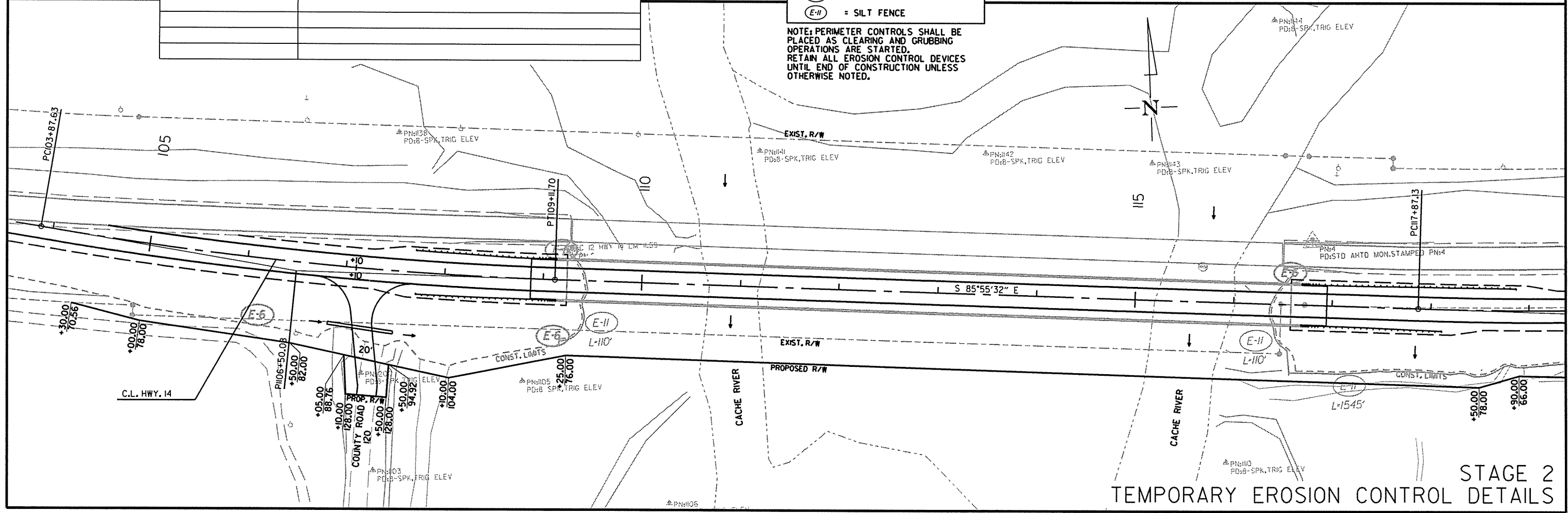
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

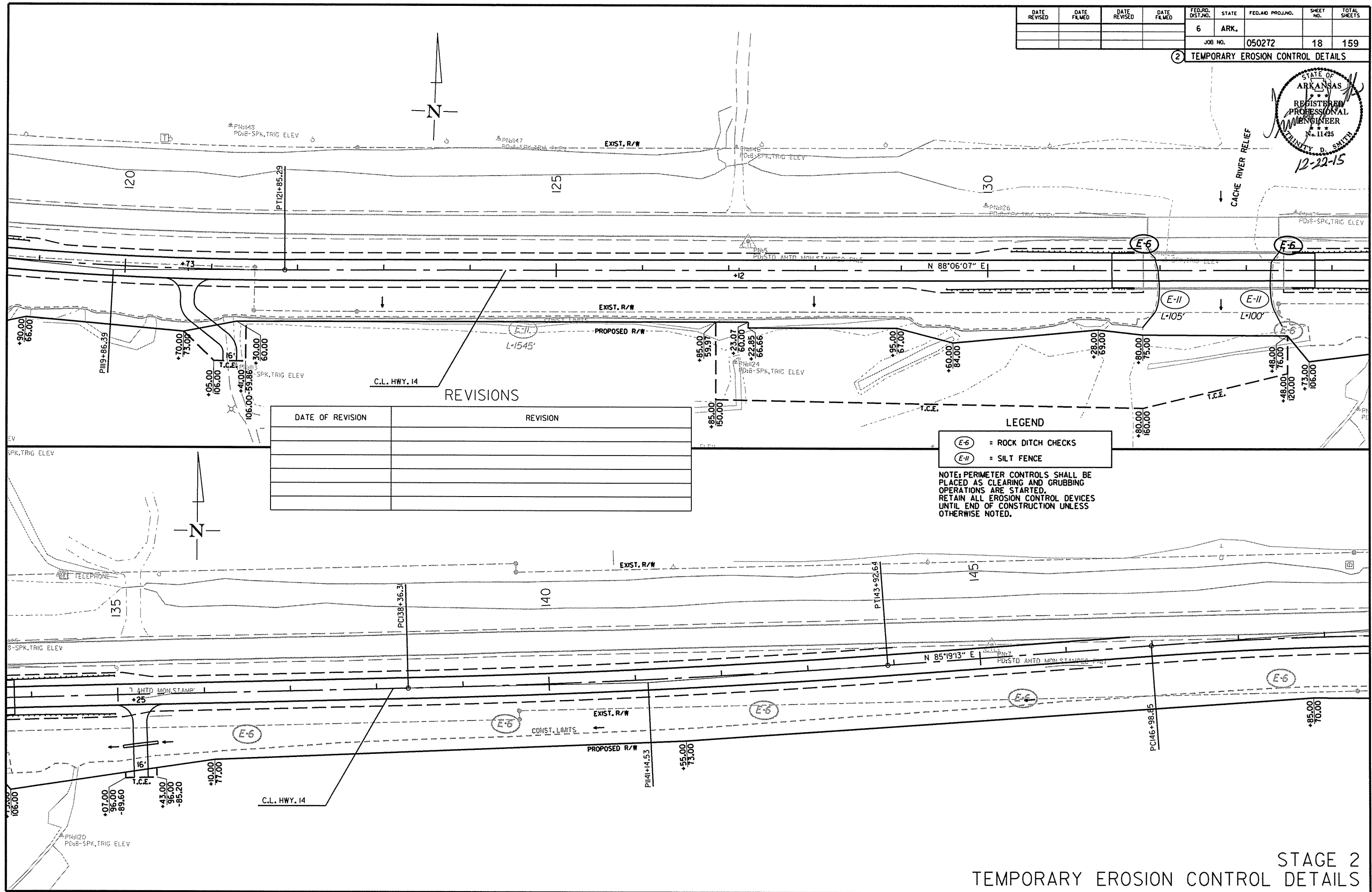
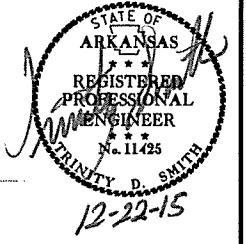


STAGE 2  
 TEMPORARY EROSION CONTROL DETAILS

12/21/2015  
 R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	159
				JOB NO.	050272		18	159

② TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6)	= ROCK DITCH CHECKS
(E-II)	= SILT FENCE

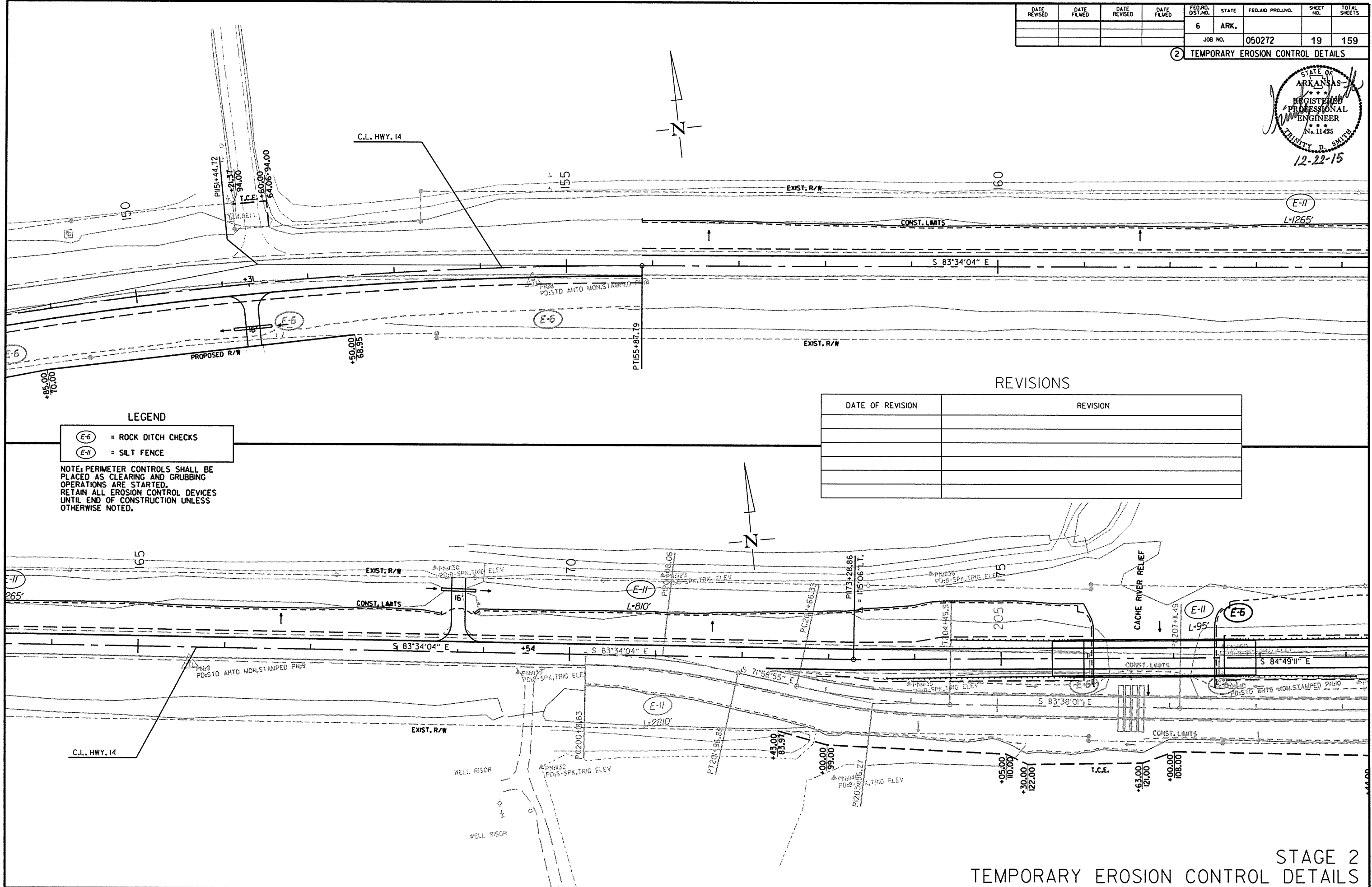
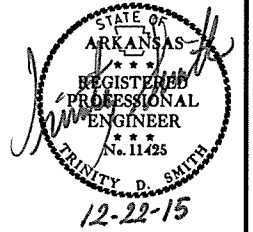
NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

R050272.DGN 12/18/2015

STAGE 2  
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		19	159

② TEMPORARY EROSION CONTROL DETAILS



LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

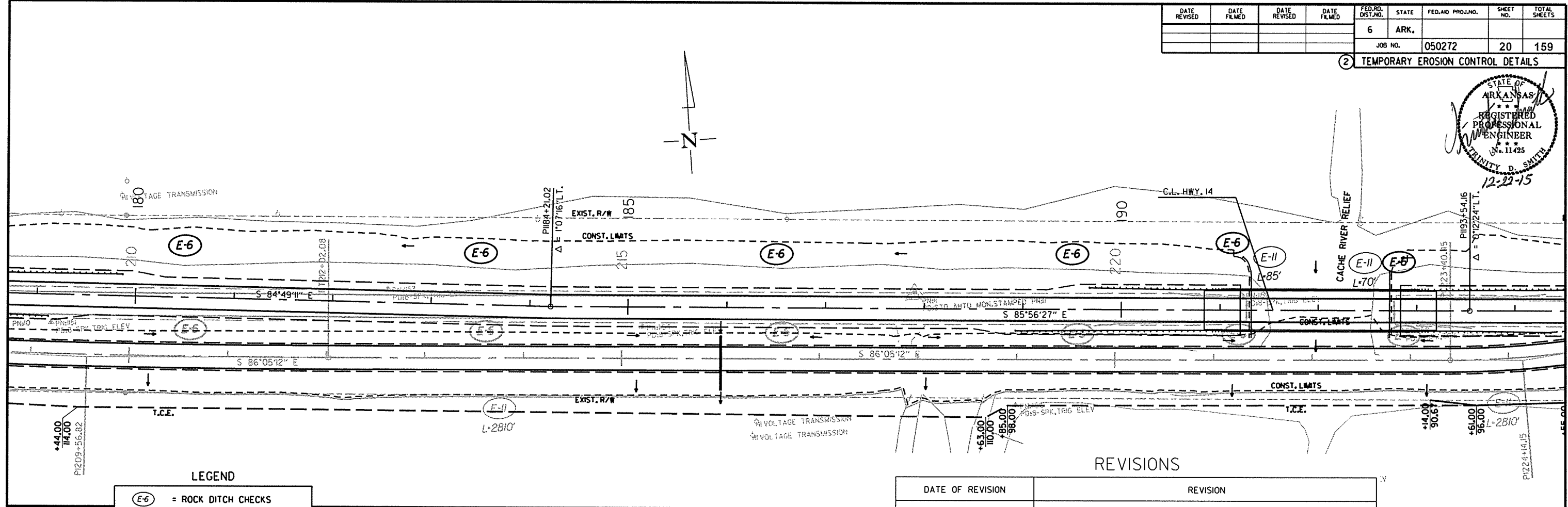
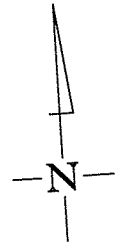
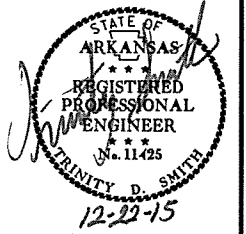
12/18/2015

R050272.DGN

STAGE 2  
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							20	159

2 TEMPORARY EROSION CONTROL DETAILS



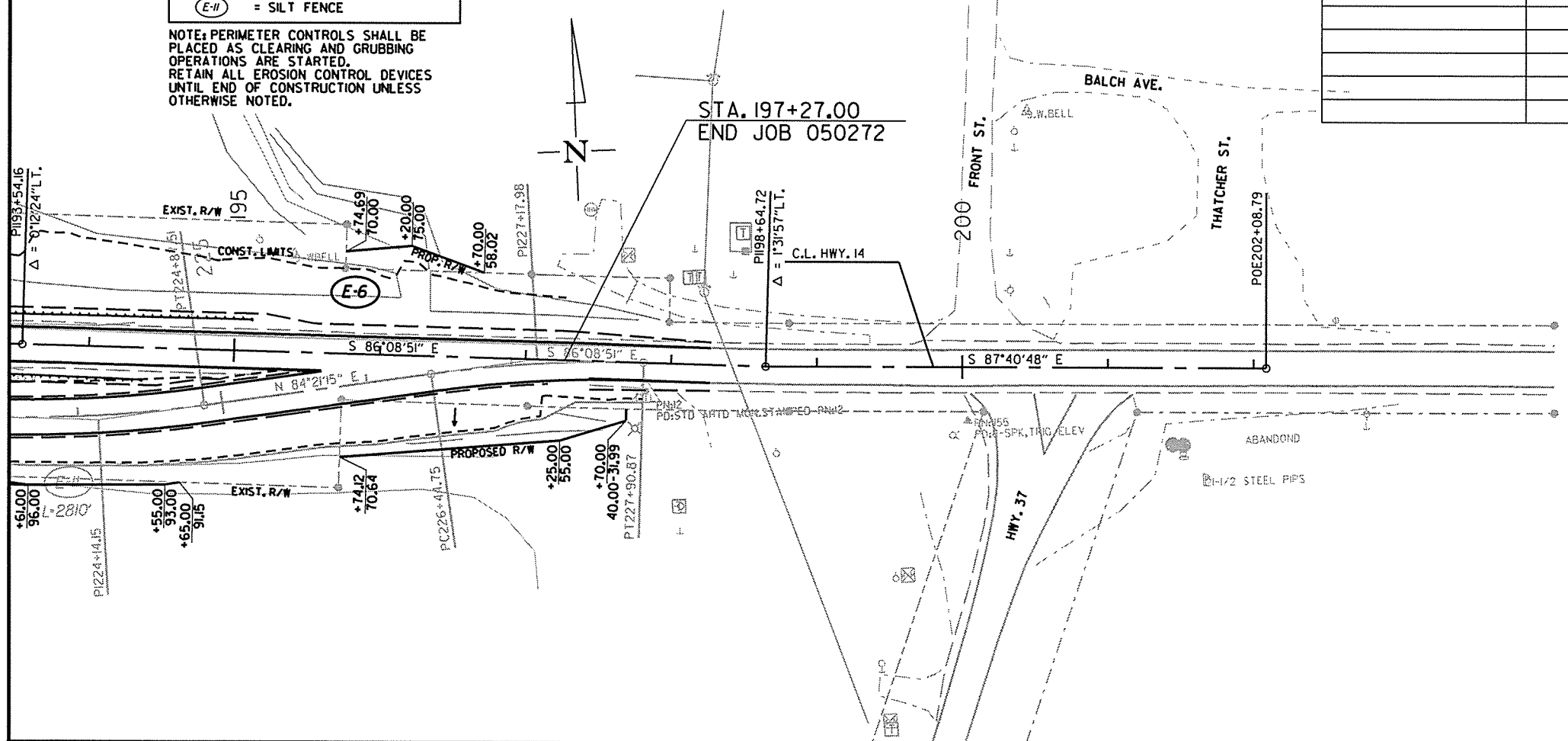
**LEGEND**

<b>(E-6)</b>	= ROCK DITCH CHECKS
<b>(E-11)</b>	= SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

**REVISIONS**

DATE OF REVISION	REVISION

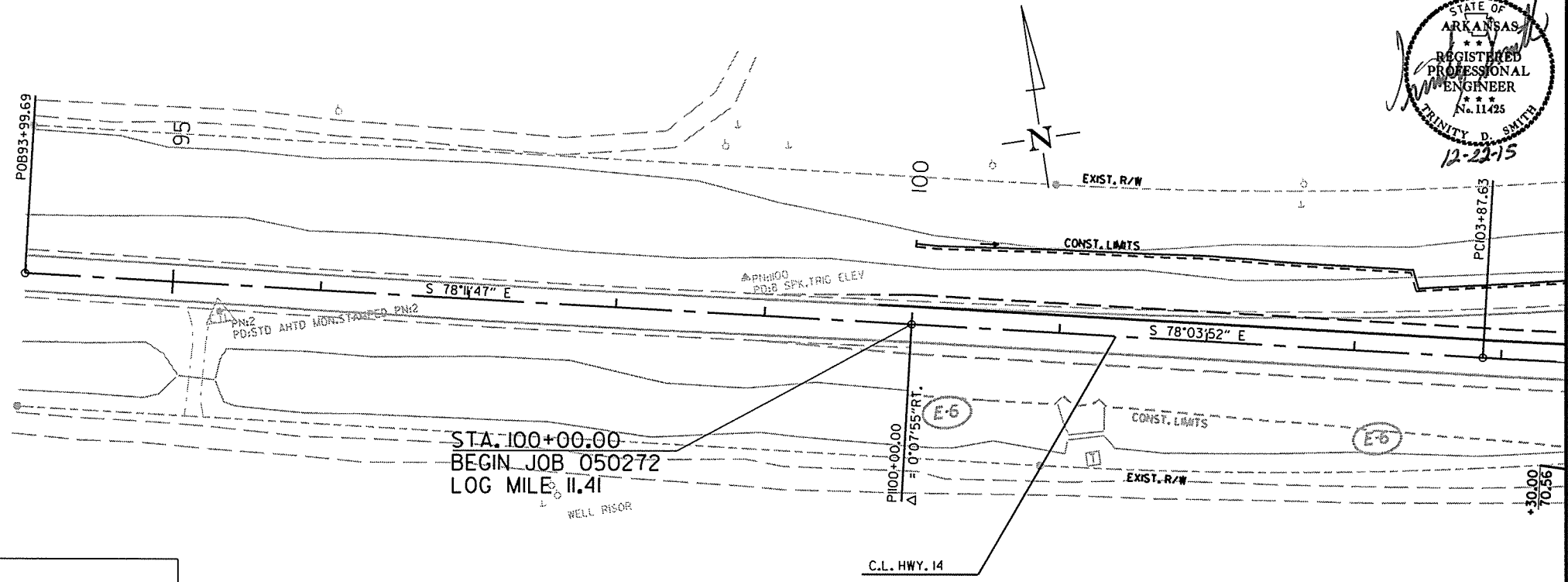
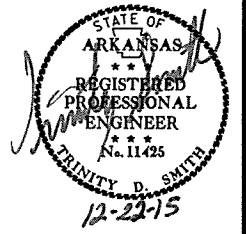


12/18/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							21	159

② TEMPORARY EROSION CONTROL DETAILS



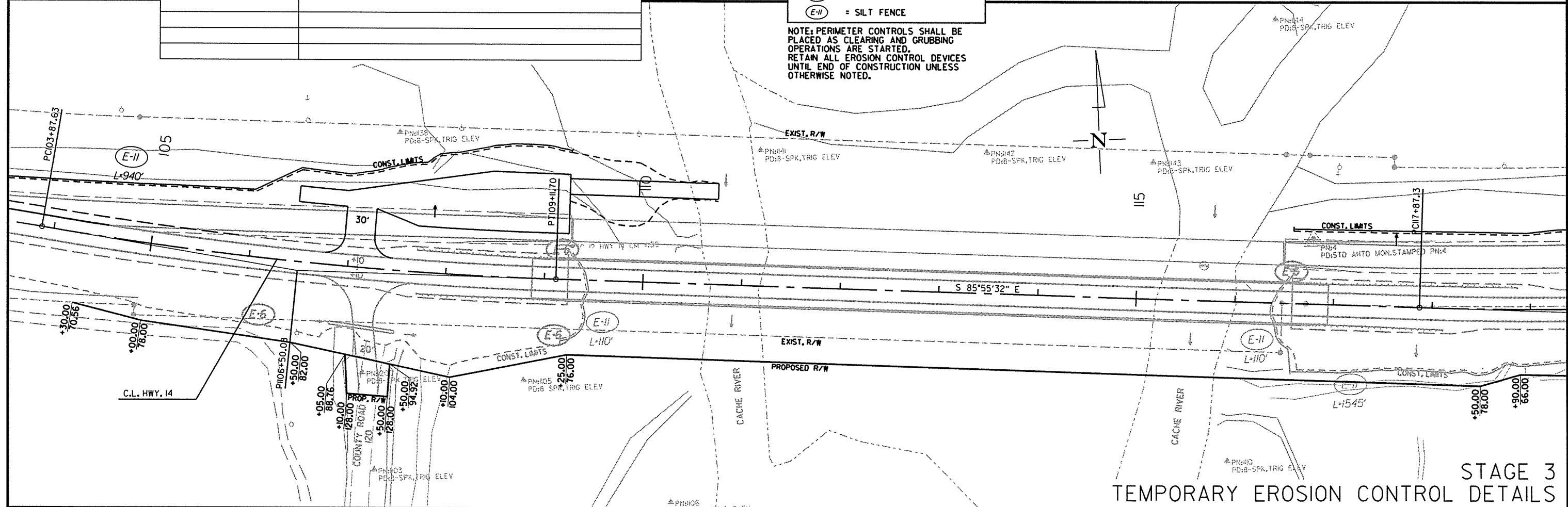
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.



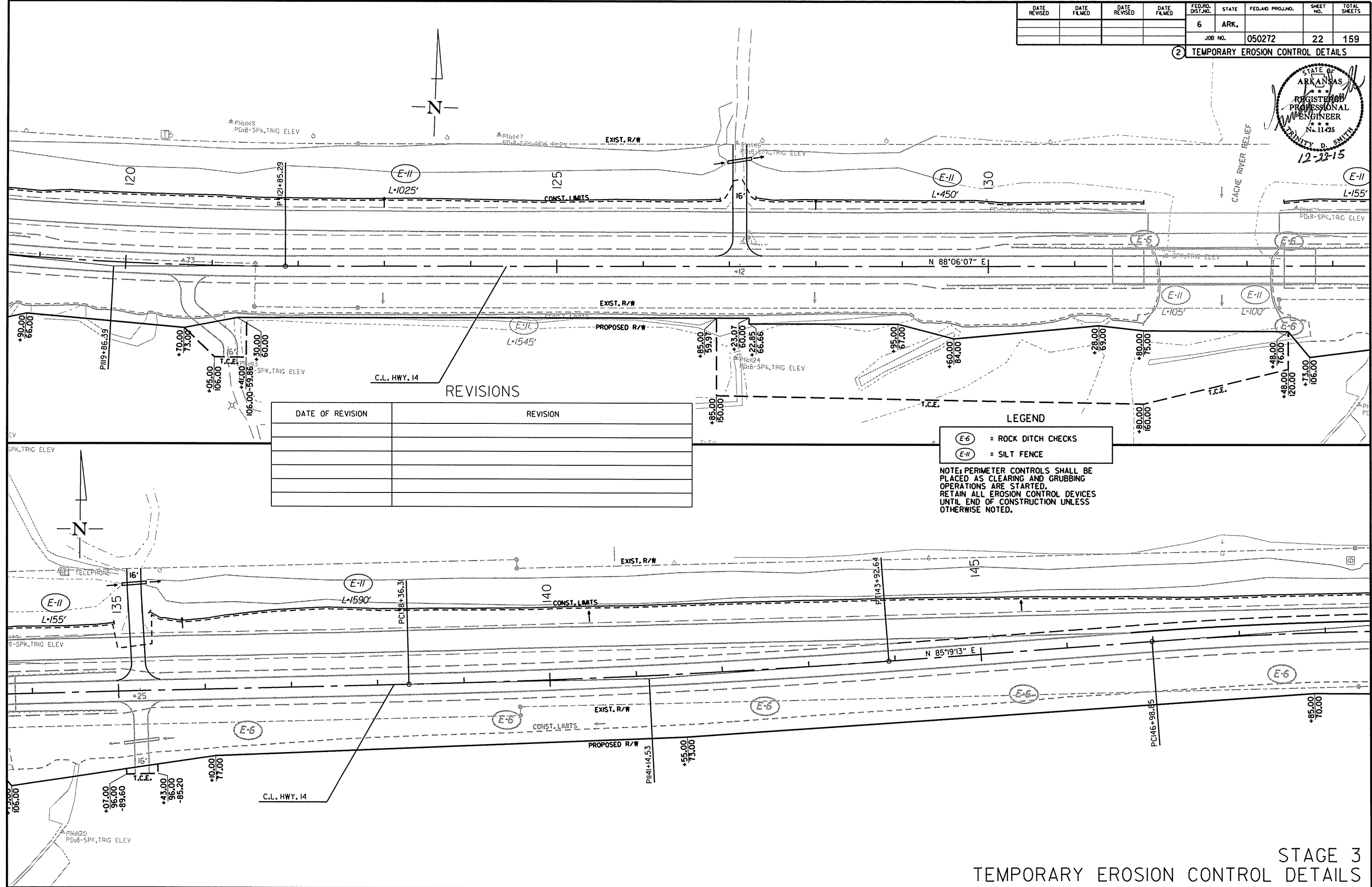
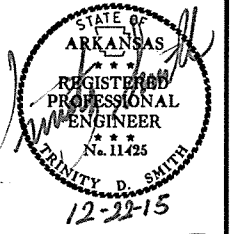
STAGE 3  
TEMPORARY EROSION CONTROL DETAILS

12/18/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							22	159

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

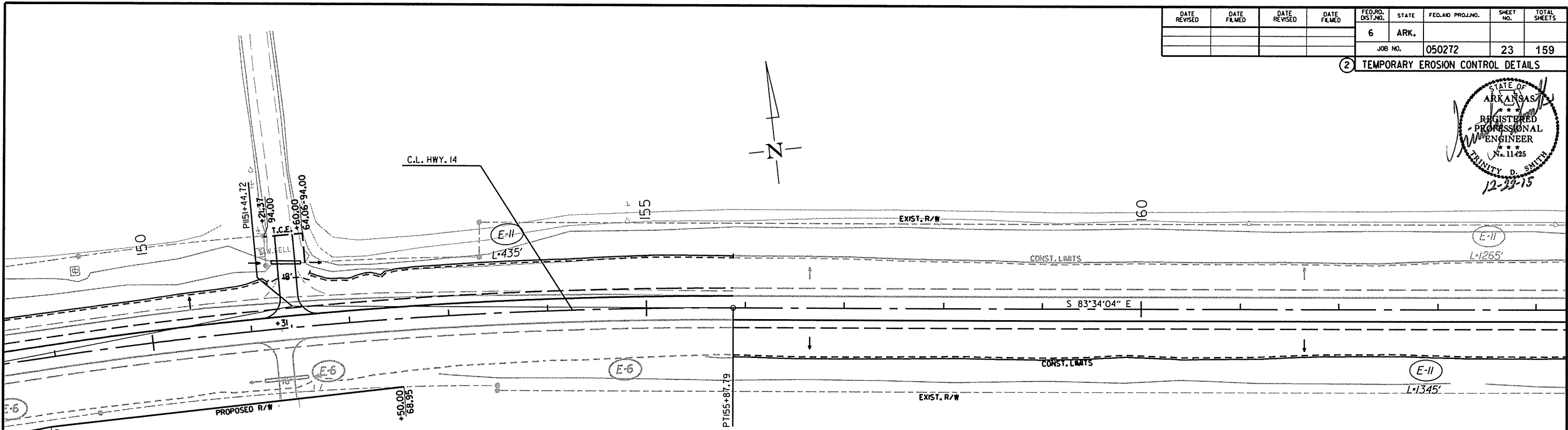
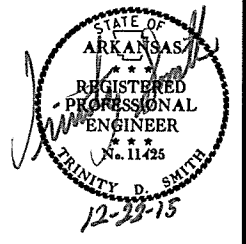
(E-6)	= ROCK DITCH CHECKS
(E-II)	= SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

12/18/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							23	159

② TEMPORARY EROSION CONTROL DETAILS



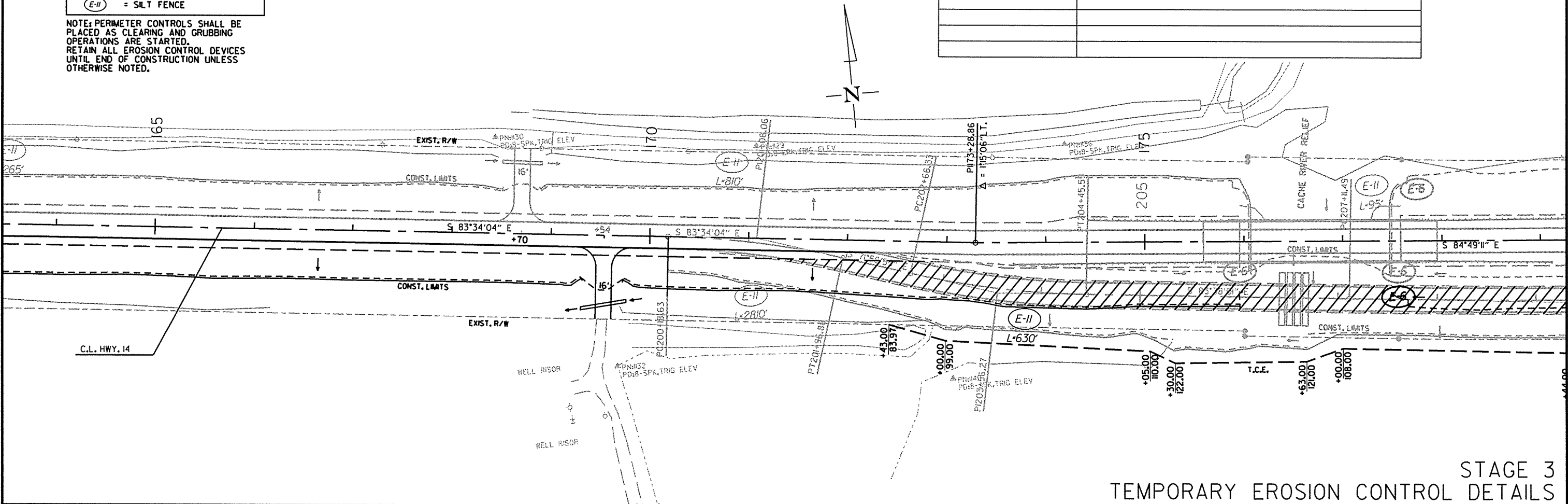
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.



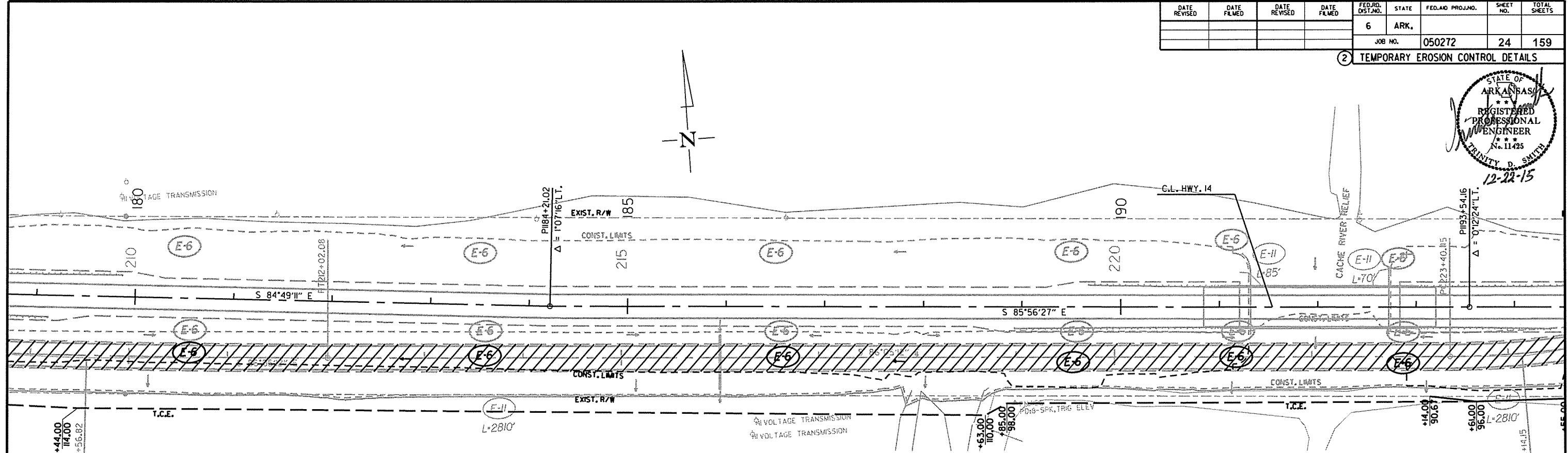
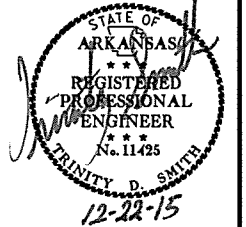
STAGE 3  
TEMPORARY EROSION CONTROL DETAILS

12/18/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		24	159

② TEMPORARY EROSION CONTROL DETAILS



LEGEND

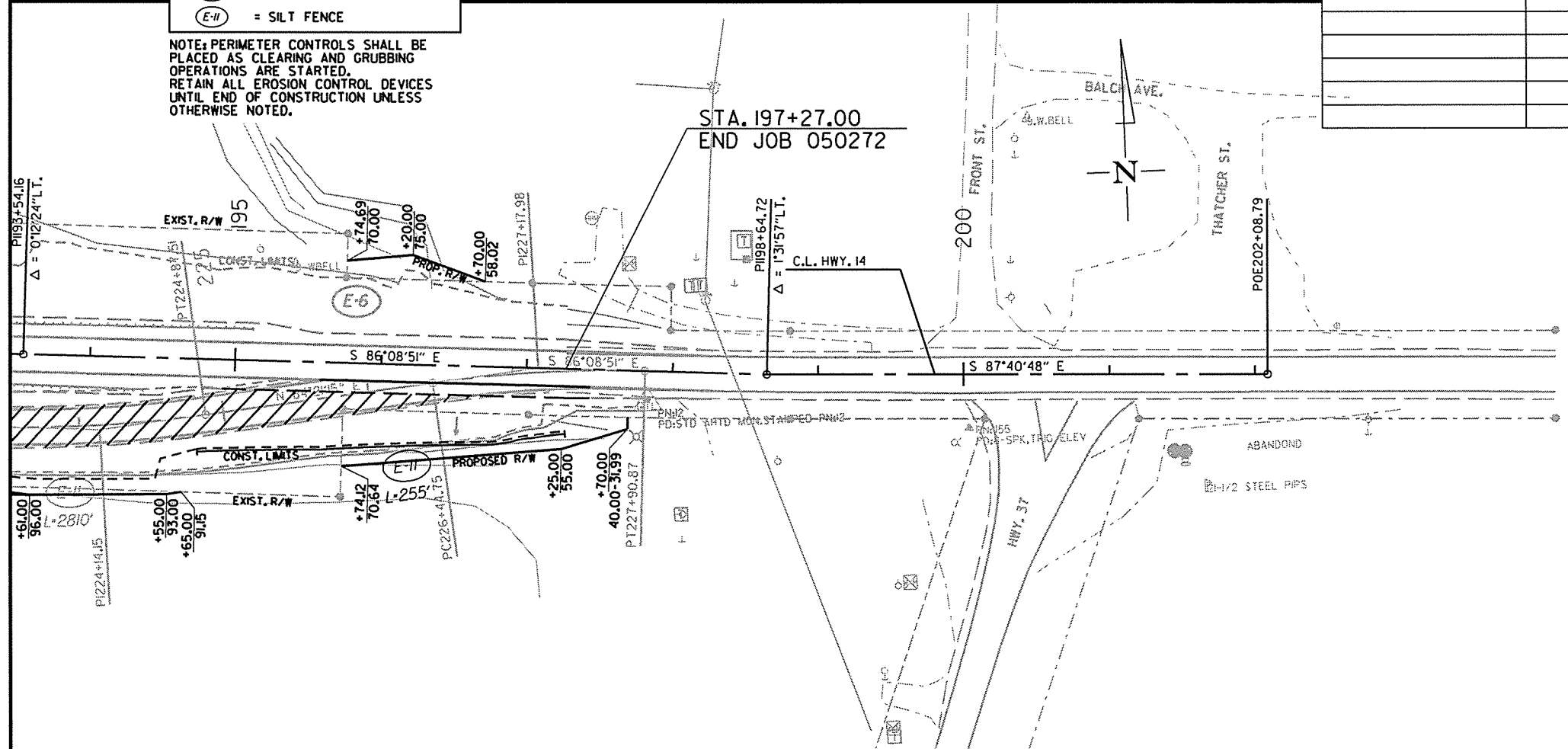
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

STA. 197+27.00  
END JOB 050272

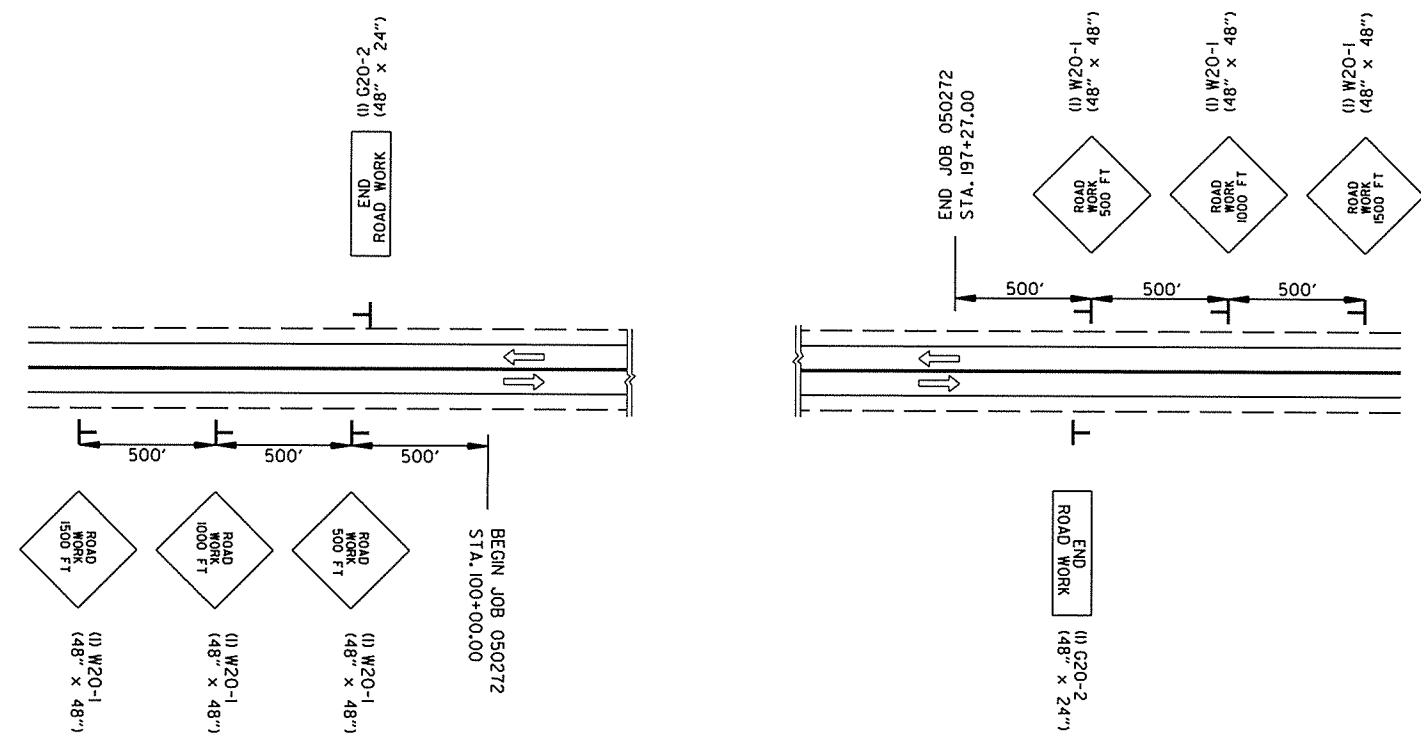
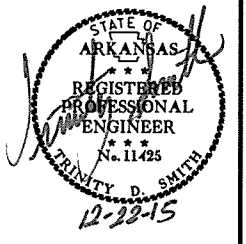


12/18/2015  
R050272.DGN

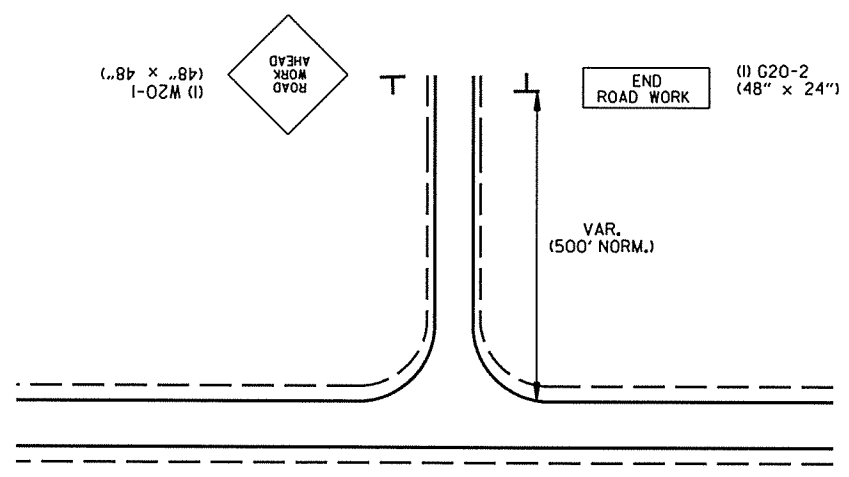


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							25	159

2 MAINTENANCE OF TRAFFIC DETAILS



ADVANCE WARNING (ALL STAGES)



ADVANCE WARNING - SIDE ROADS (ALL STAGES)

STA. 107+10.00, CO. RD. 120  
 STA. 200+10.00, FRONT ST.  
 STA. 200+70.00, HWY. 37  
 STA. 200+80.00, THATCHER ST.  
 NOTE: ALL STATIONS BASED OFF HWY. 14.

SHOULDER CLOSED (4) RSP-1 (48" X 30")

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

DO NOT PASS (2) R4-1 (24" X 30")

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

BUMP (2) W8-1 (30" X 30")

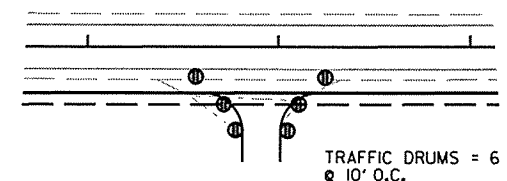
ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

(1) W1-4aL (48" X 48")

STAGE 2 STA. 232+90.87 L.M.L.

(1) W1-4aR (48" X 48")

STAGE 2 STA. 195+18.63 R.M.L.



TRAFFIC DRUMS = 6 EACH @ 10' O.C.

DRIVEWAY/TRAFFIC DRUM DETAIL

ADVANCE WARNING MAINTENANCE OF TRAFFIC DETAILS

12/21/2015

R050272.DGN

**STAGE I CONSTRUCTION SEQUENCE**

INSTALL ADVANCE WARNING SIGNS, END ROAD WORK SIGNS, AND INSTALL ROAD WORK AHEAD (W20-1) SIGN AS SHOWN ON THE ADVANCE WARNING MAINTENANCE OF TRAFFIC DETAIL.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

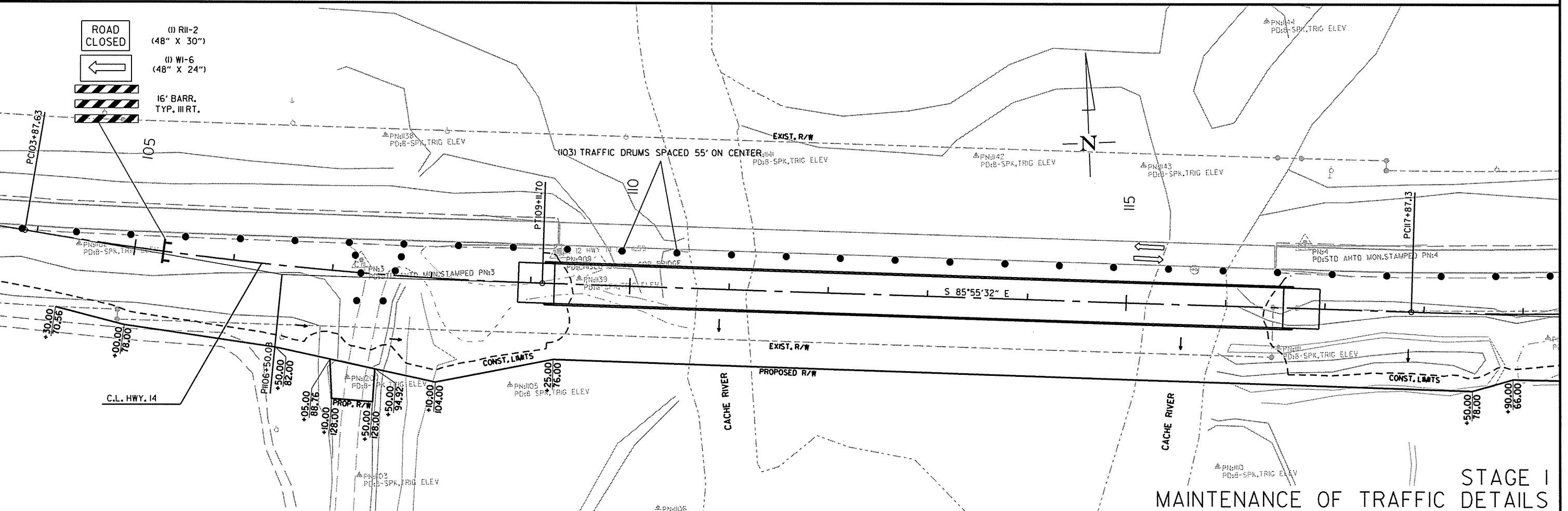
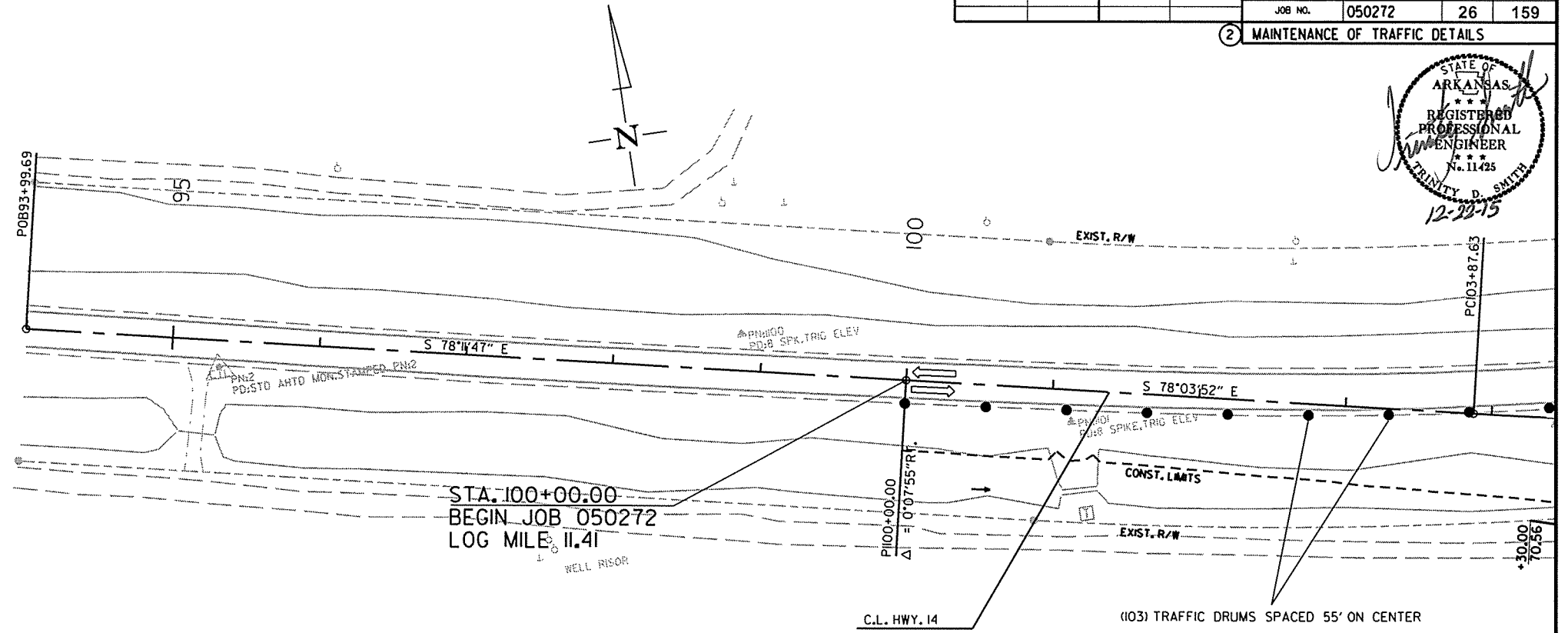
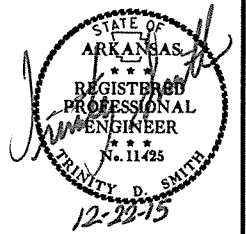
CONSTRUCT STRUCTURES AND EMBANKMENT ON RT. FROM STA. 100+00.00 TO STA. 155+87.79. CONSTRUCT DETOUR FROM STA. 200+18.63 TO STA. 227+90.87.

**STAGE I QUANTITIES**

SIGNS = 342.5 SQ. FT.  
 TRAFFIC DRUMS = 12 EACH  
 VERTICAL PANELS = 166 EACH  
 BARRICADES (TYPE III) = 64 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							26	159

② MAINTENANCE OF TRAFFIC DETAILS



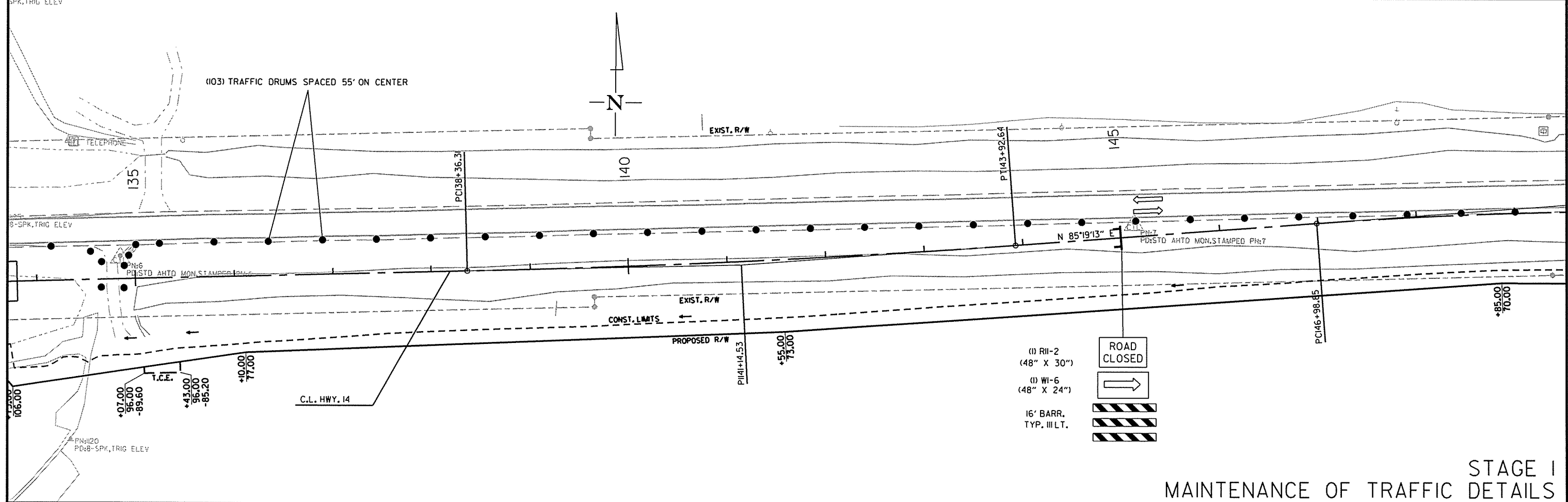
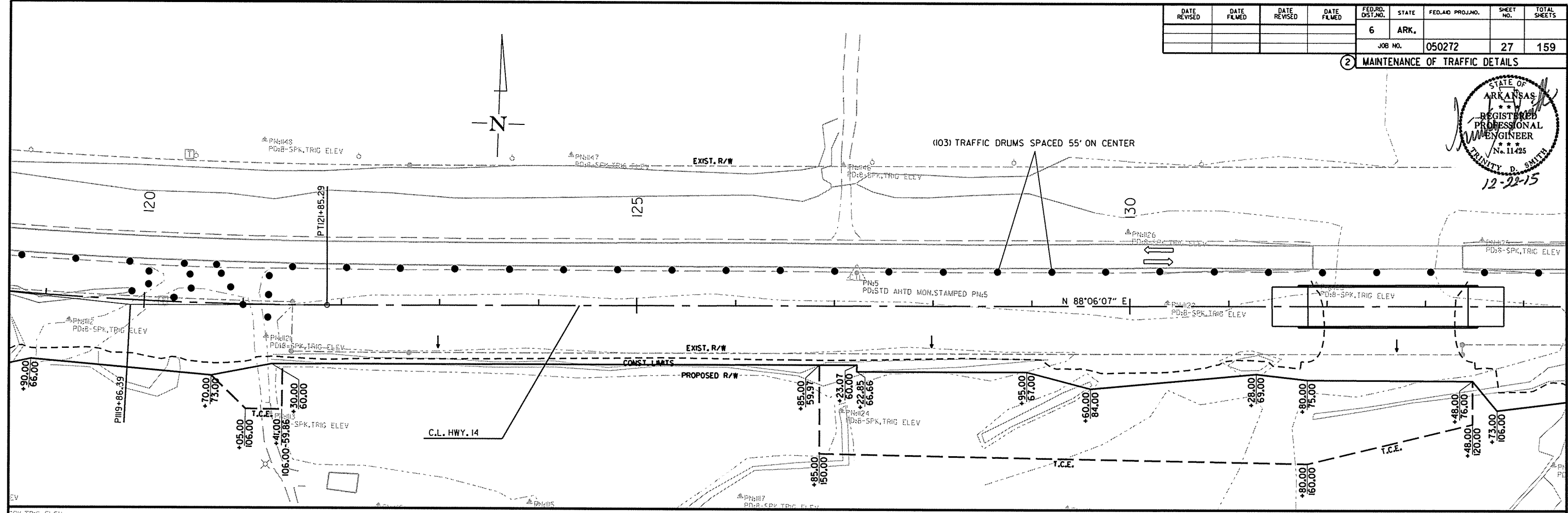
STAGE I  
 MAINTENANCE OF TRAFFIC DETAILS

12/21/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							27	159

② MAINTENANCE OF TRAFFIC DETAILS



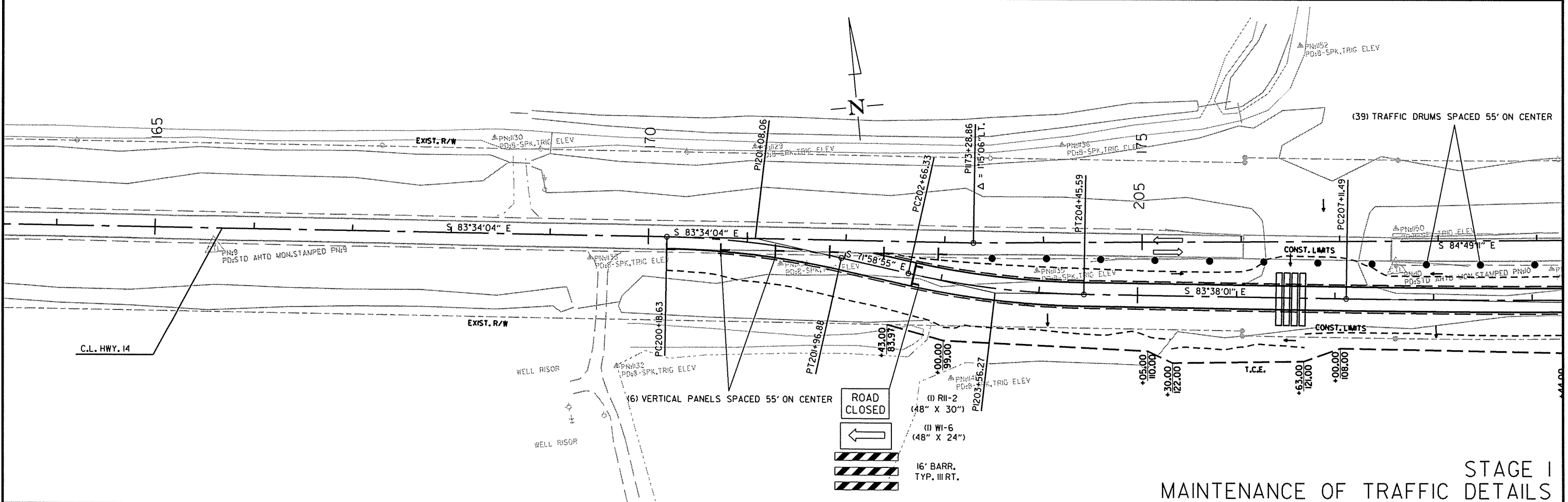
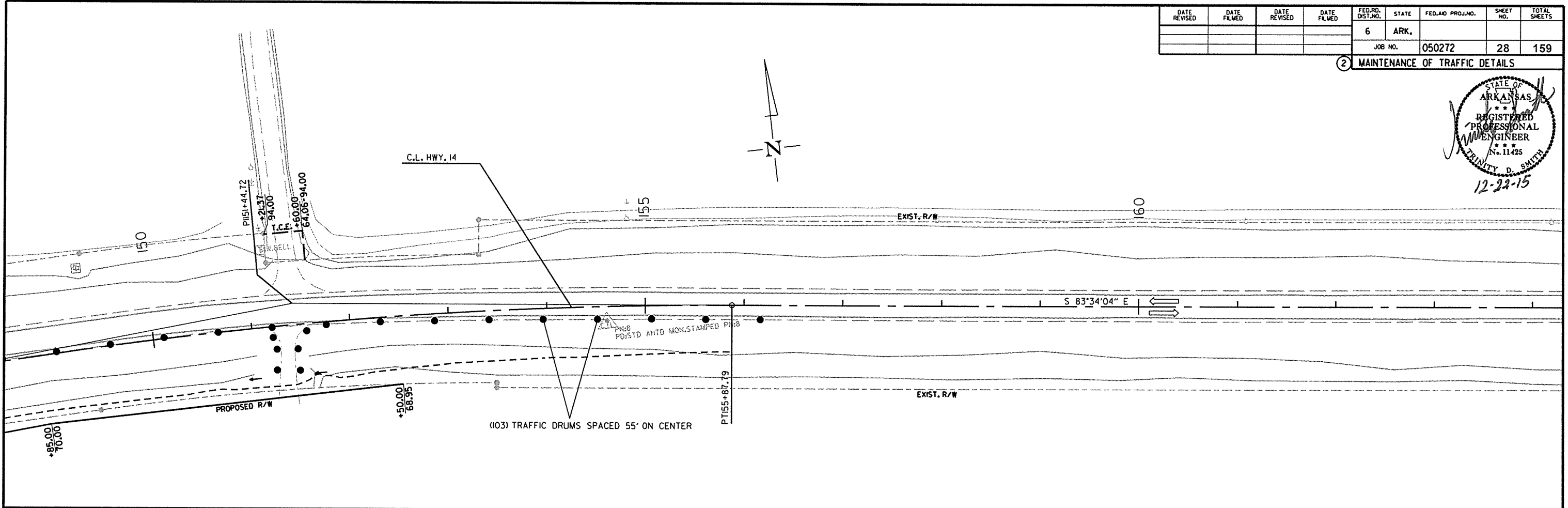
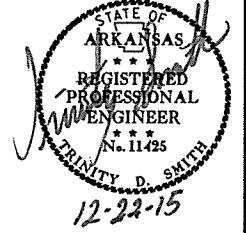
- (I) R11-2 (48" X 30")
- (I) W1-6 (48" X 24")
- 16' BARR. TYP. III LT.
- ROAD CLOSED
- 
- ▨▨▨▨▨▨
- ▨▨▨▨▨▨

STAGE I  
MAINTENANCE OF TRAFFIC DETAILS

12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							28	159

② MAINTENANCE OF TRAFFIC DETAILS



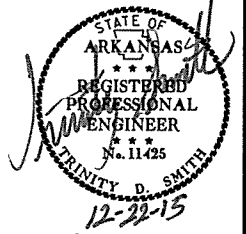
- ROAD CLOSED
- ←
- 16' BARR. TYP. III RT.
- (I) RII-2 (48" X 30")
- (II) WI-6 (48" X 24")

STAGE I  
MAINTENANCE OF TRAFFIC DETAILS

12/21/2015  
R050272.DGN

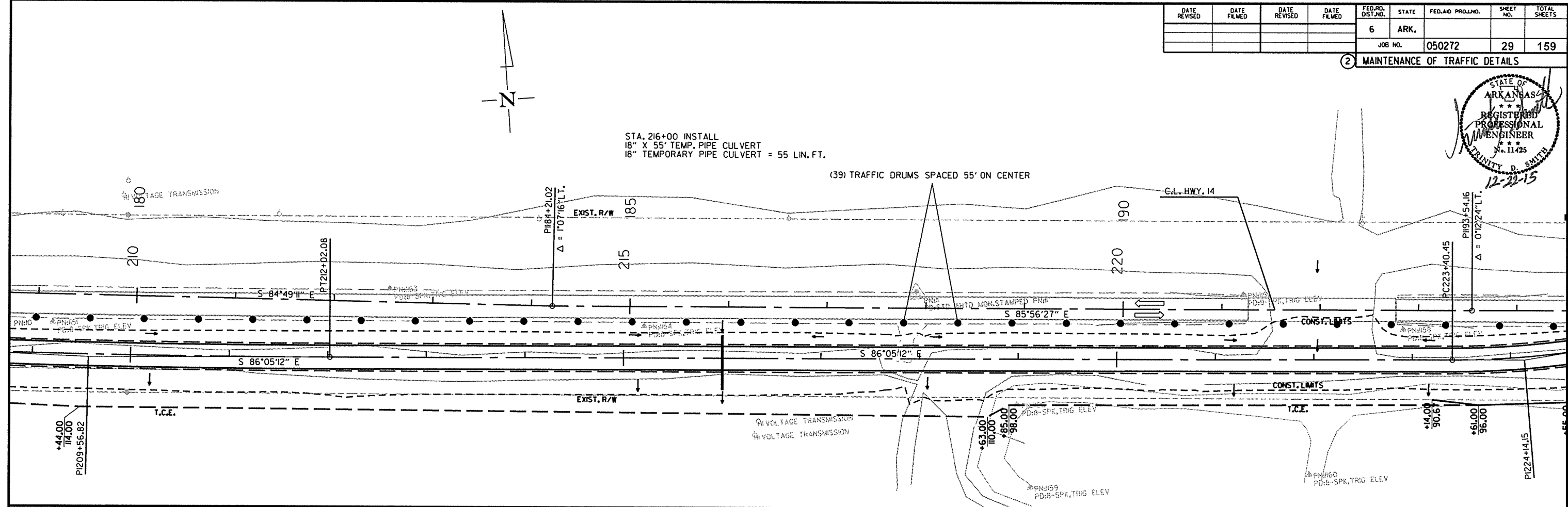
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							29	159

② MAINTENANCE OF TRAFFIC DETAILS

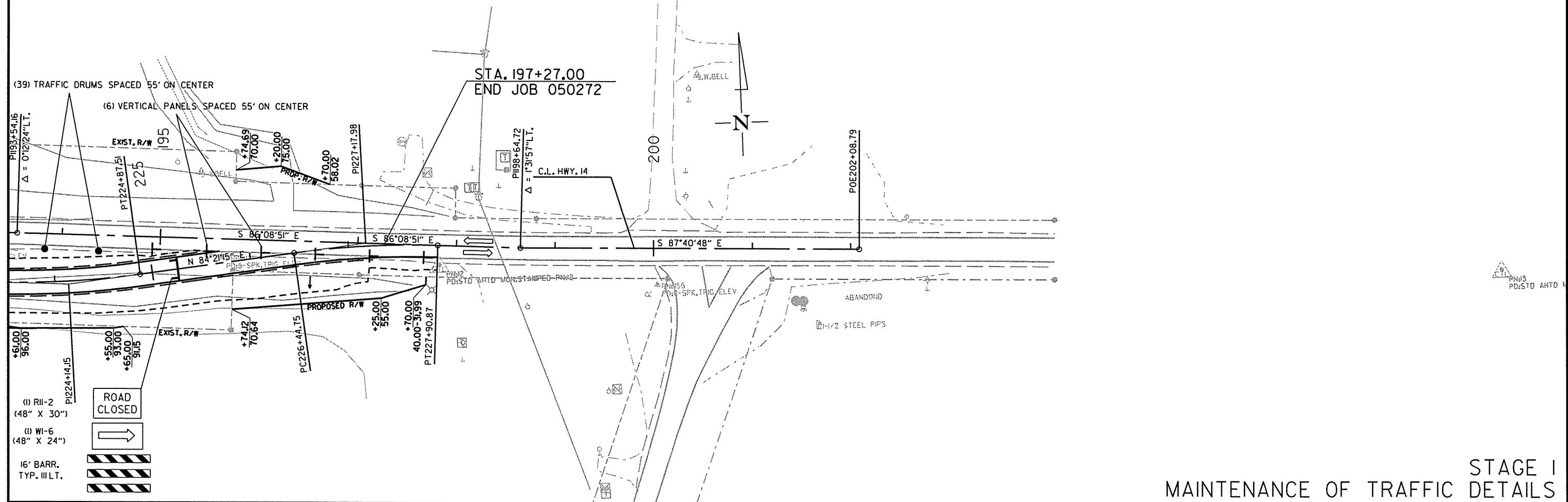


STA. 216+00 INSTALL  
18" X 55' TEMP. PIPE CULVERT  
18" TEMPORARY PIPE CULVERT = 55 LIN. FT.

(39) TRAFFIC DRUMS SPACED 55' ON CENTER



STA. 197+27.00  
END JOB 050272



- (1) R11-2 (48" X 30")
  - (2) W1-6 (48" X 24")
  - 16' BARR. TYP. III LT.
- 

STAGE I  
MAINTENANCE OF TRAFFIC DETAILS

12/21/2015  
R050272.DGN

**STAGE 2 CONSTRUCTION SEQUENCE**

MAINTAIN ADVANCE WARNING SIGNS AS SHOWN ON THE ADVANCE WARNING MAINTENANCE OF TRAFFIC DETAIL.

SHIFT TRAFFIC ONTO DETOUR AS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE.  
USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

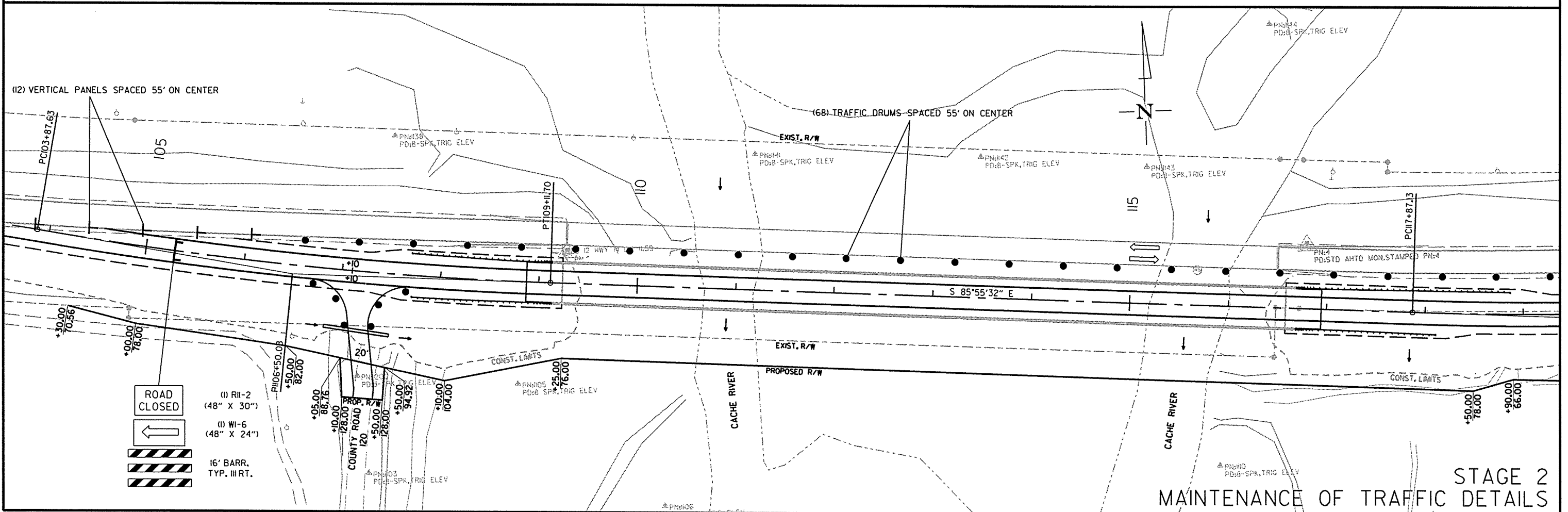
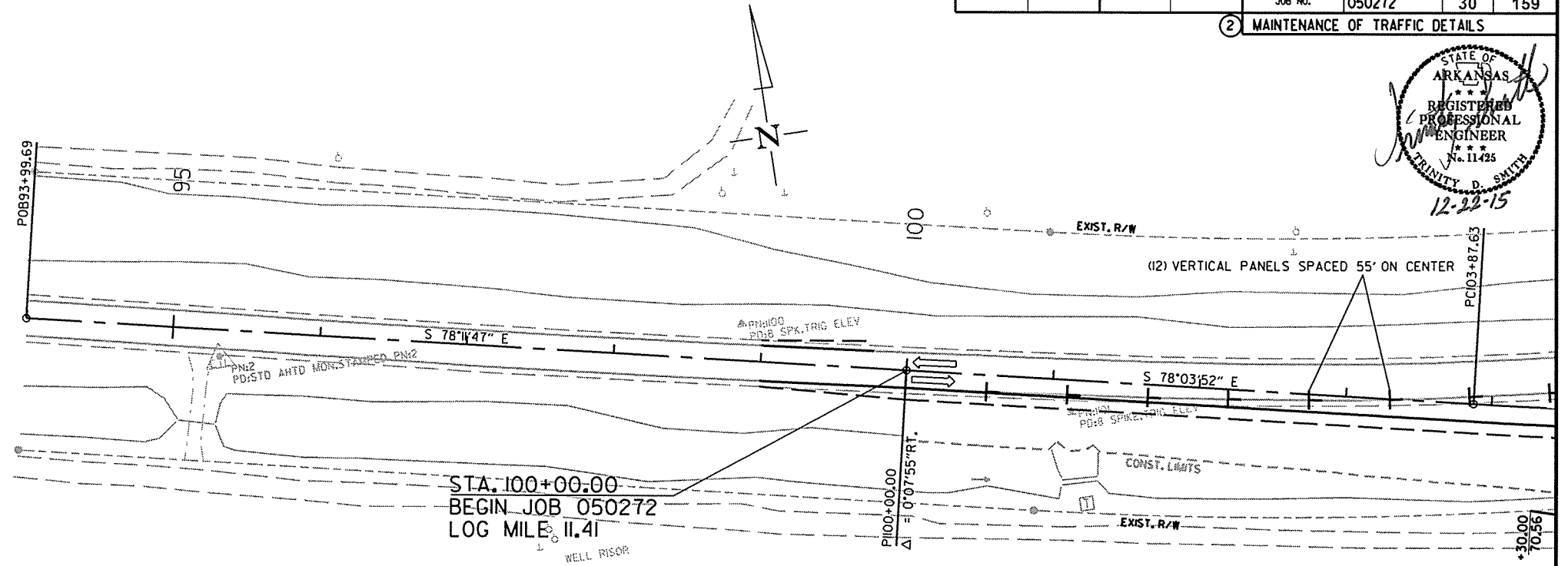
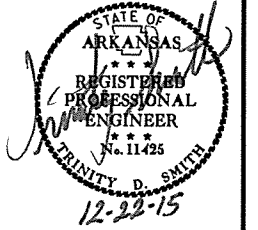
CONSTRUCT SURFACING ON RT. FROM STA. 100+00.00 TO STA. 155+87.79, NOTCH AND WIDEN LT. FROM STA. 155+87.79 TO 172+86.41, NOTCH AND WIDEN LT. AND RT. FROM STA. 172+86.41 TO STA. 194+91.32, AND NOTCH AND WIDEN LT. FROM STA. 194+91.32 TO STA. 197+27.00.

**STAGE 2 QUANTITIES**

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 953 LIN. FT.  
CONSTRUCTION PAVEMENT MARKINGS = 16812 LIN. FT.  
SIGNS = 374.5 SQ. FT.  
TRAFFIC DRUMS = 144 EACH  
VERTICAL PANELS = 108 EACH  
BARRICADES (TYPE III) = 64 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	30	159

② MAINTENANCE OF TRAFFIC DETAILS



ROAD CLOSED (48" X 30")

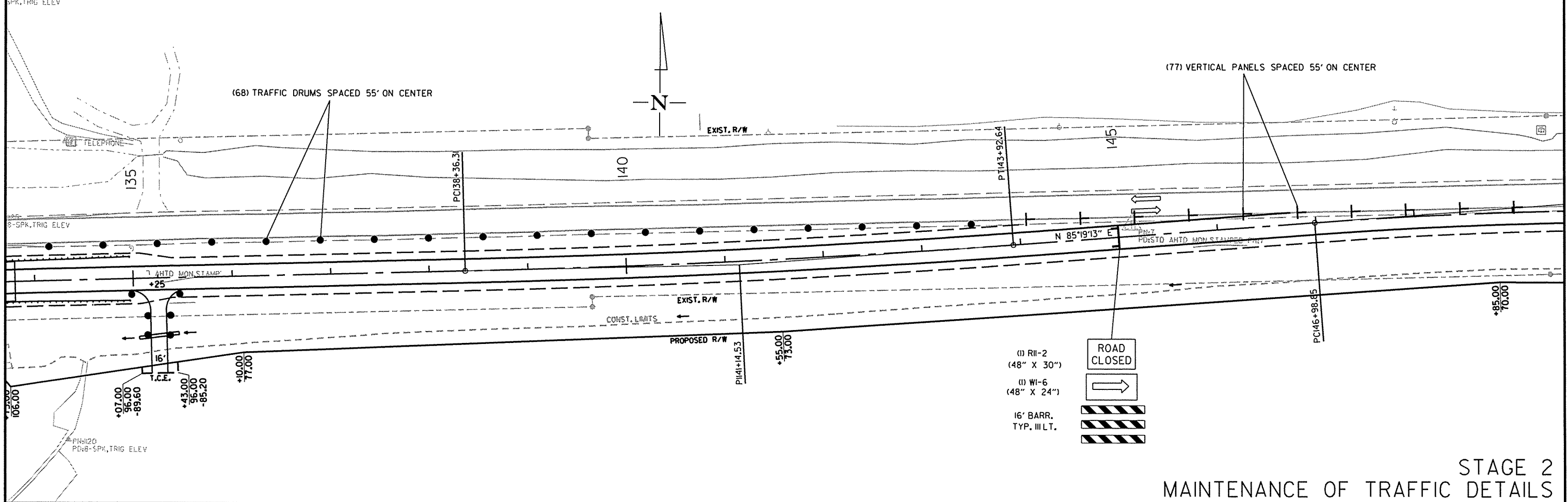
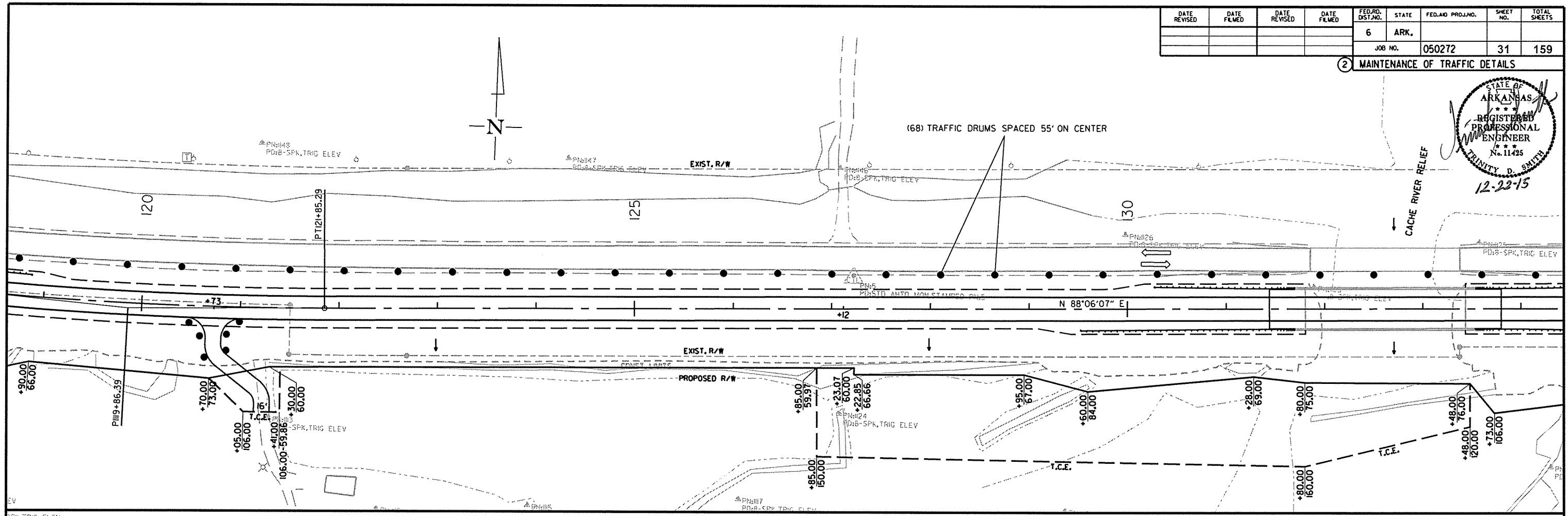
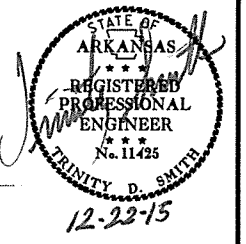
← (48" X 24")

16' BARR. TYP. III RT.

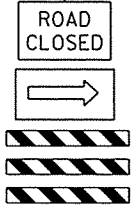
**STAGE 2 MAINTENANCE OF TRAFFIC DETAILS**

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		31	159

② MAINTENANCE OF TRAFFIC DETAILS



- (1) RI-2 (48" X 30")
- (1) WI-6 (48" X 24")
- 16' BARR. TYP. III LT.

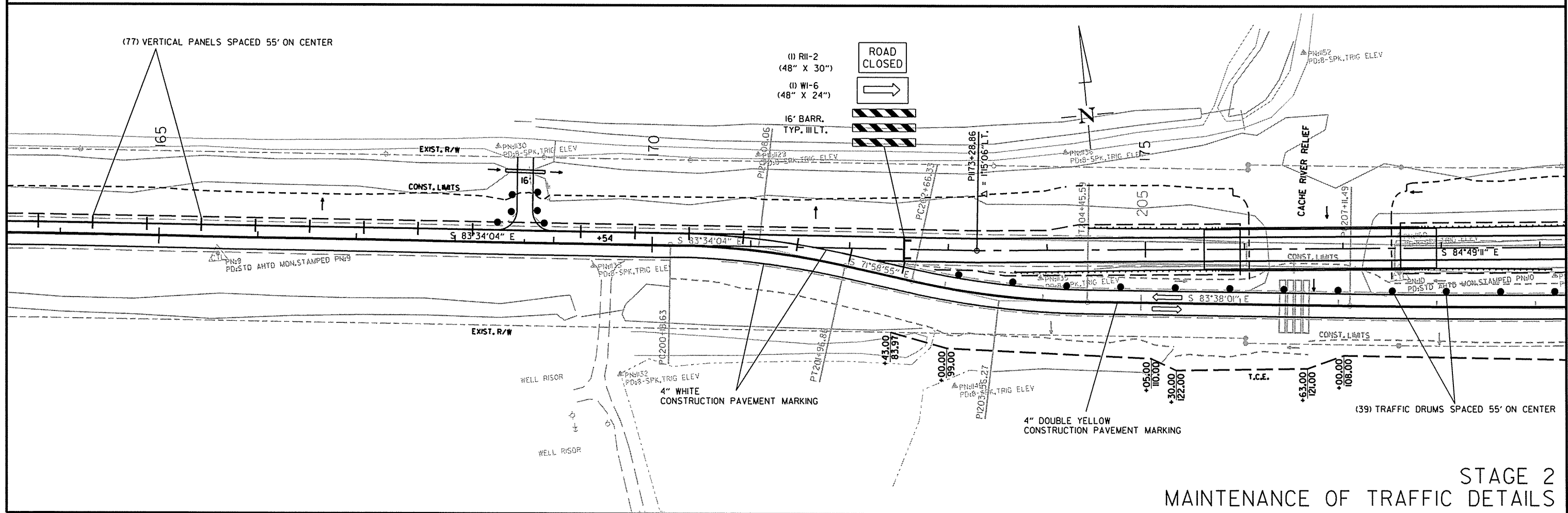
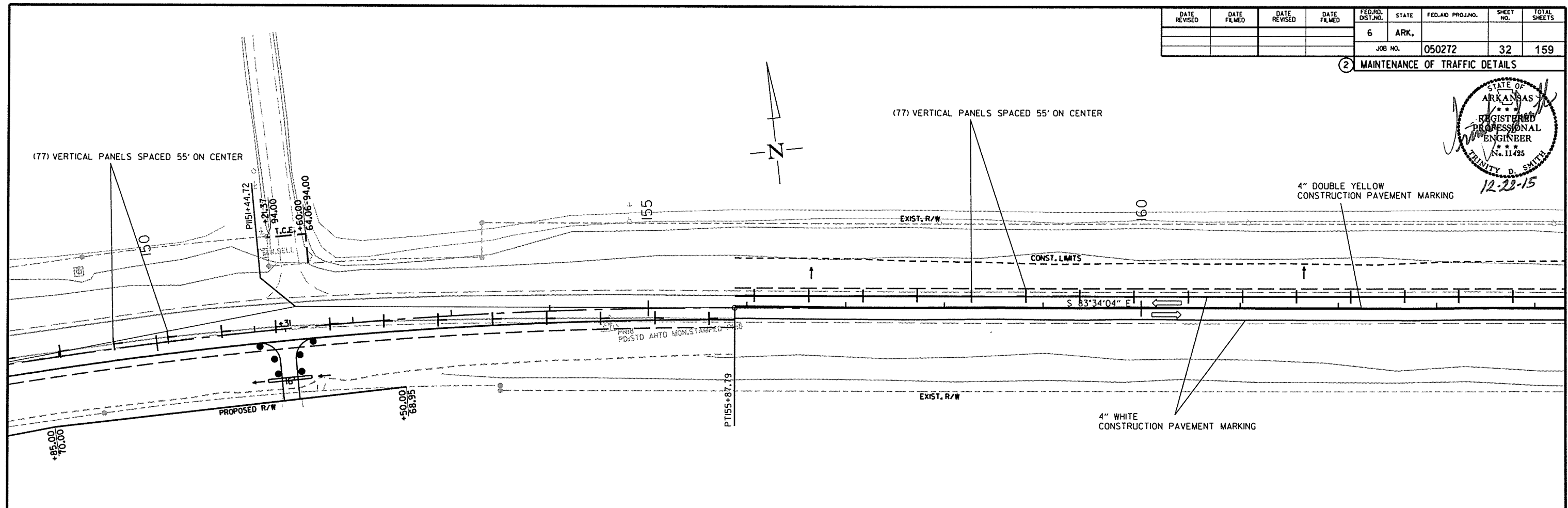
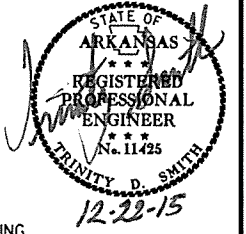


12/21/2015 R050272.DGN

STAGE 2  
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		32	159

② MAINTENANCE OF TRAFFIC DETAILS



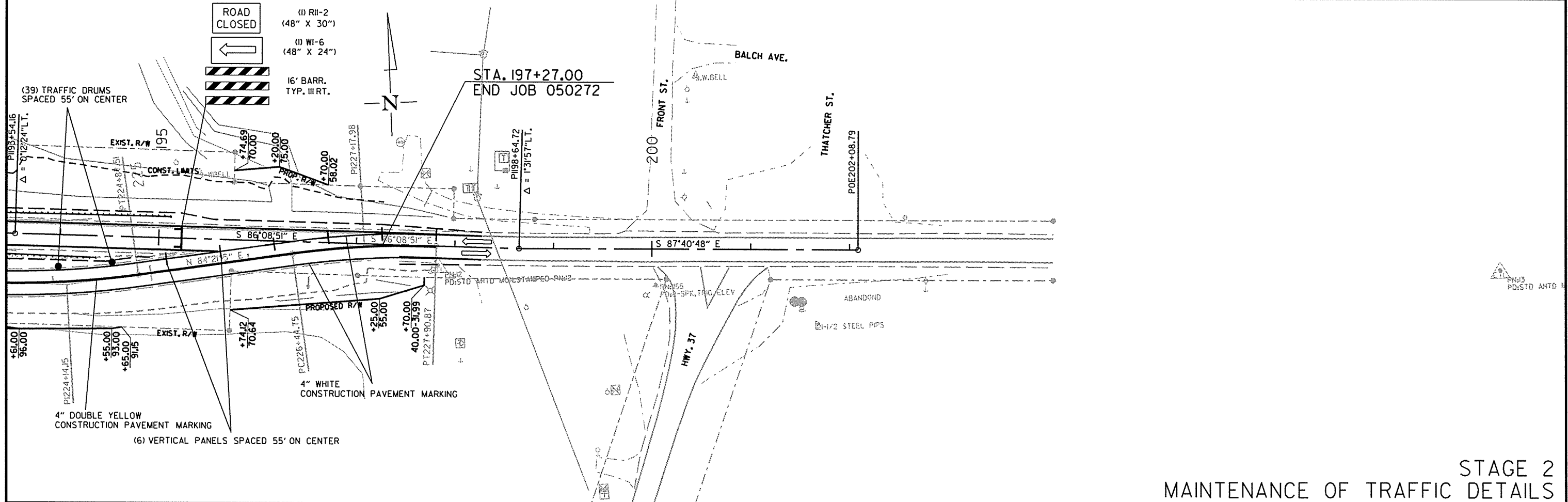
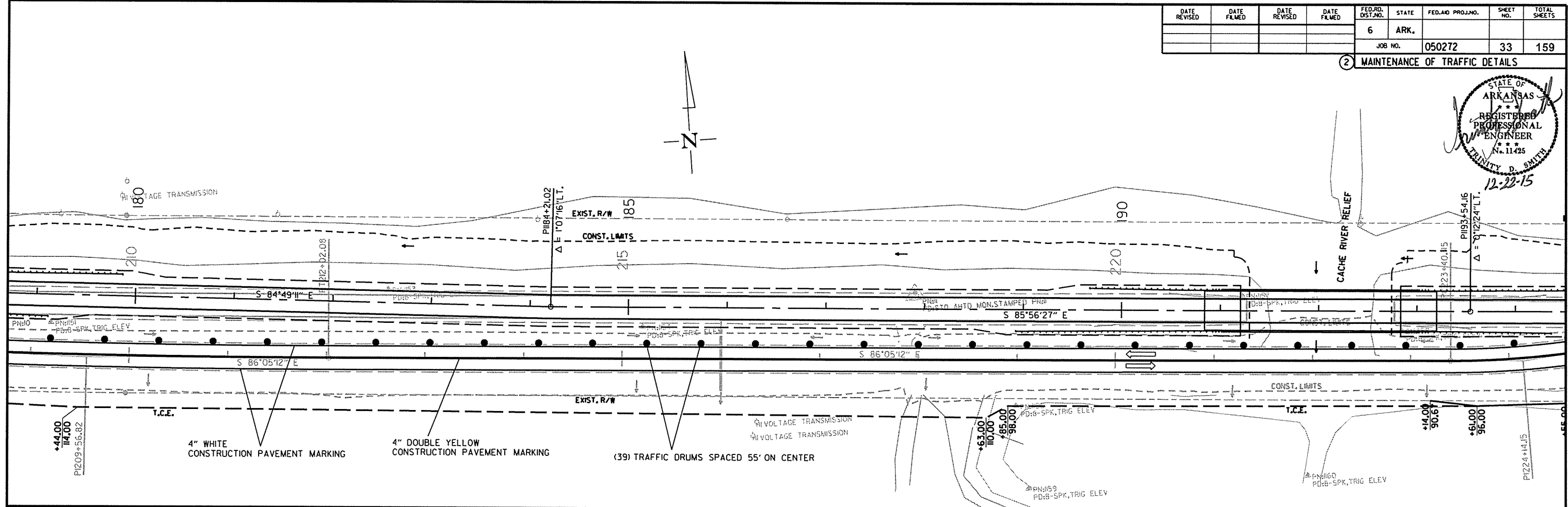
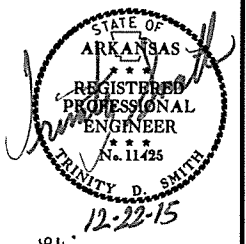
STAGE 2  
MAINTENANCE OF TRAFFIC DETAILS

12/21/2015  
R050272.DGN



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							33	159

2 MAINTENANCE OF TRAFFIC DETAILS



STAGE 2  
MAINTENANCE OF TRAFFIC DETAILS

12/21/2015  
R050272.DGN

**STAGE 3 CONSTRUCTION SEQUENCE**

SHIFT TRAFFIC ONTO NEW LOCATION AS SHOWN ON THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 55' ON CENTER 55' ON CENTER TO DELINEATE THE WORK ZONE.  
USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT NOTCH AND WIDEN LT. FROM STA. 100+00.00 TO STA. 155+87.79, NOTCH AND WIDEN RT. FROM STA. 155+87.79 STA. 172+86.41, AND NOTCH AND WIDEN RT. FROM STA. 194+91.32 TO STA. 197+27.00.

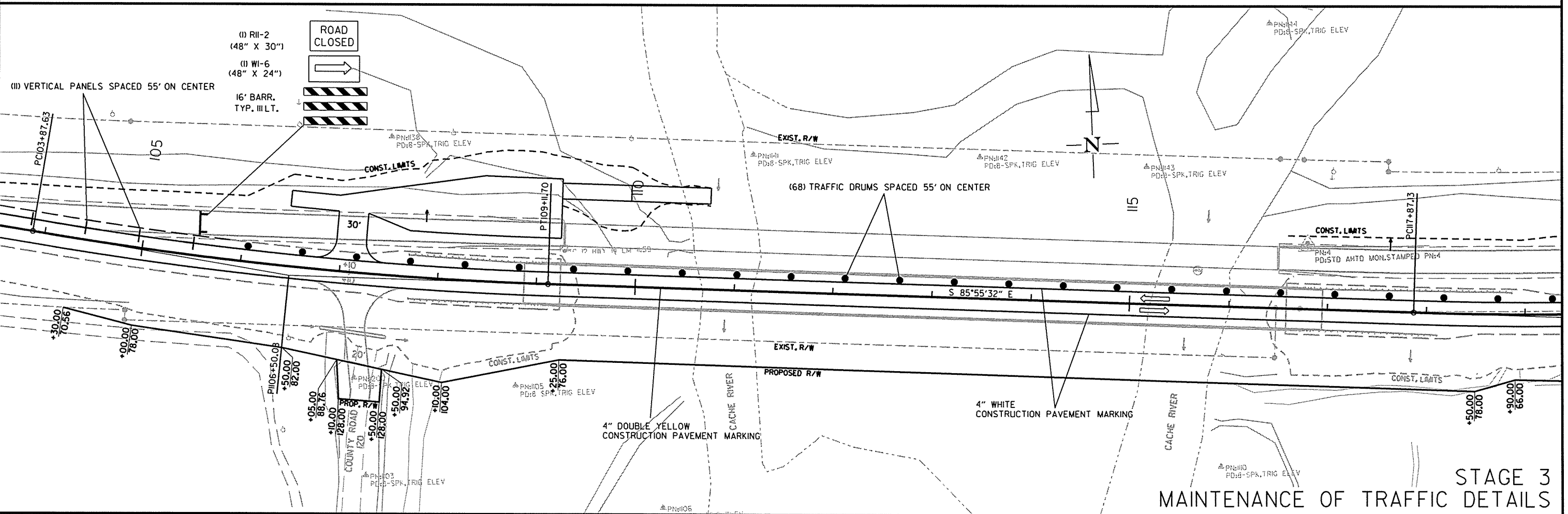
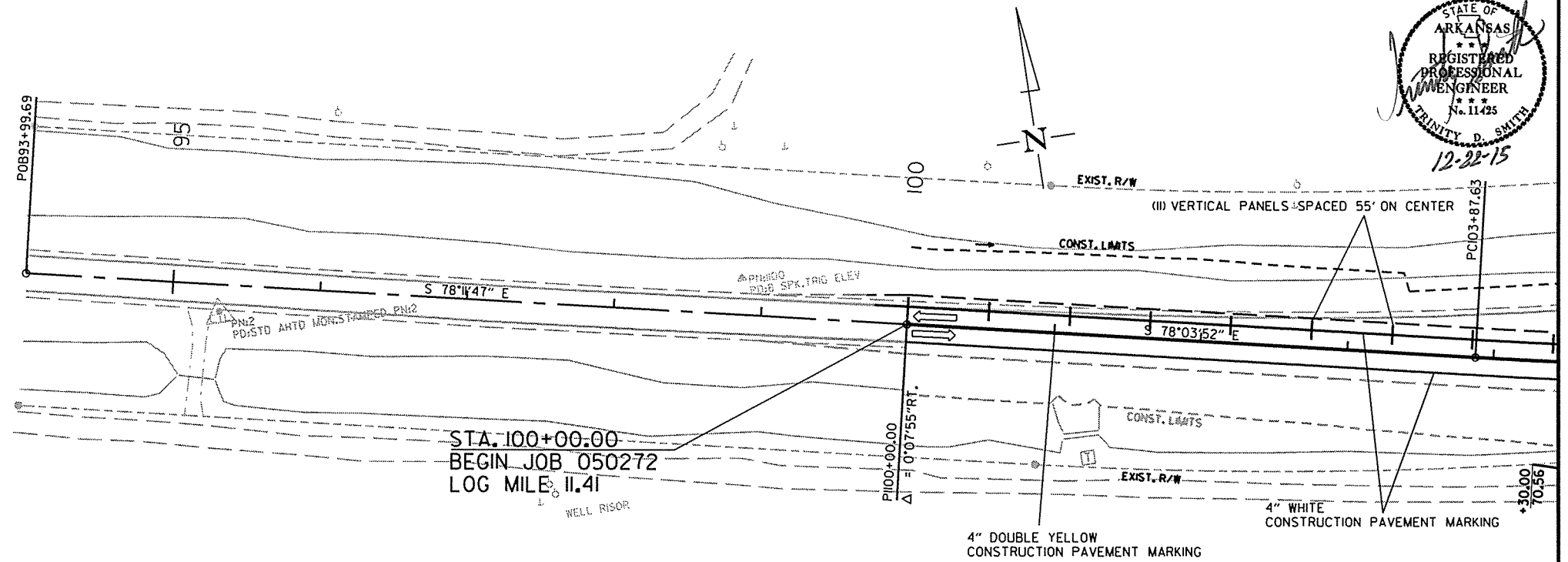
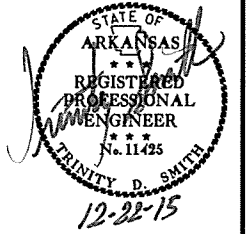
REMOVE EXISTING BRIDGE STRUCTURES.

**STAGE 3 QUANTITIES**

CONSTRUCTION PAVEMENT MARKINGS = 39130 LIN. FT.  
SIGNS = 342.5 SQ. FT.  
TRAFFIC DRUMS = 44 EACH  
VERTICAL PANELS = 126 EACH  
BARRICADES (TYPE III) = 64 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050272	34
								159

② MAINTENANCE OF TRAFFIC DETAILS



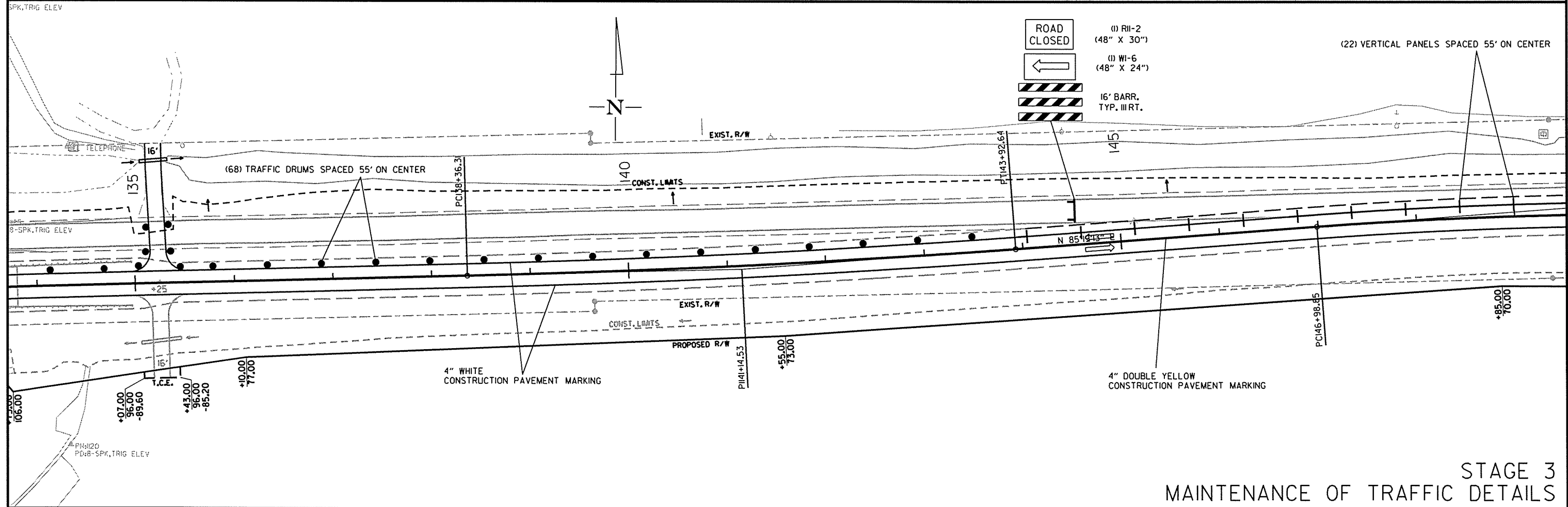
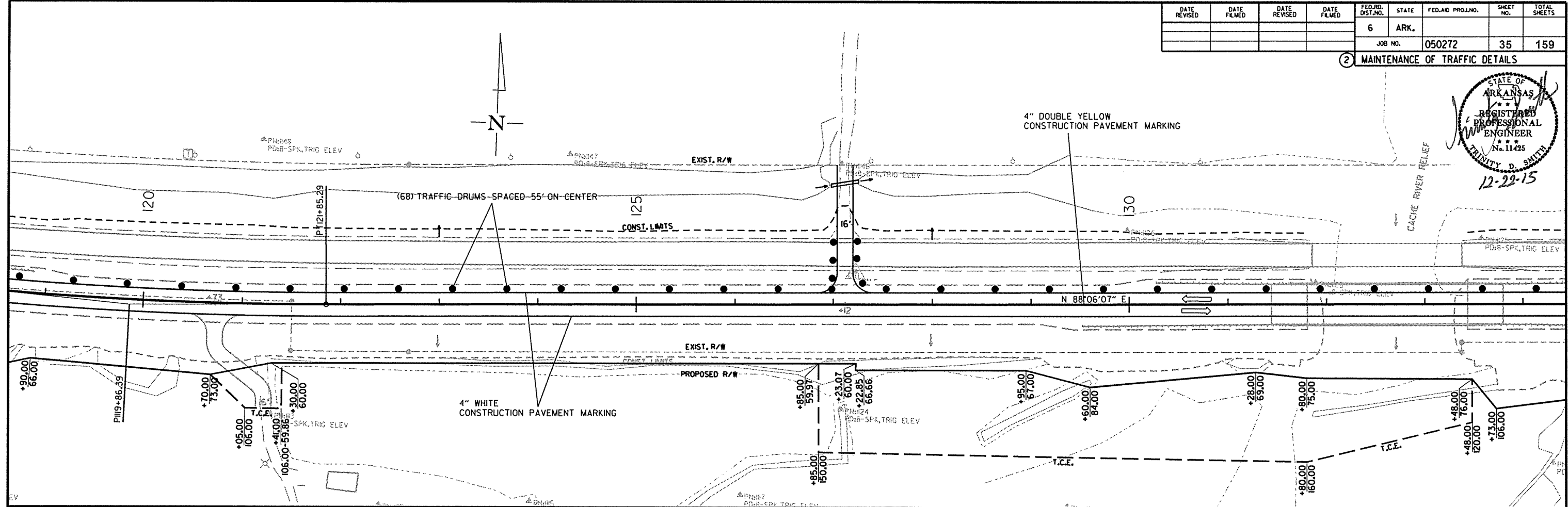
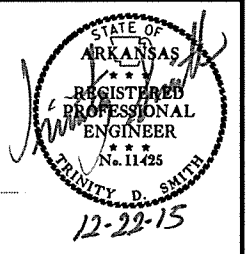
**STAGE 3  
MAINTENANCE OF TRAFFIC DETAILS**

12/21/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							35	159

② MAINTENANCE OF TRAFFIC DETAILS



- ROAD CLOSED (I) RII-2 (48" X 30")
- (II) WI-6 (48" X 24")
- 16' BARR. TYP. III RT.

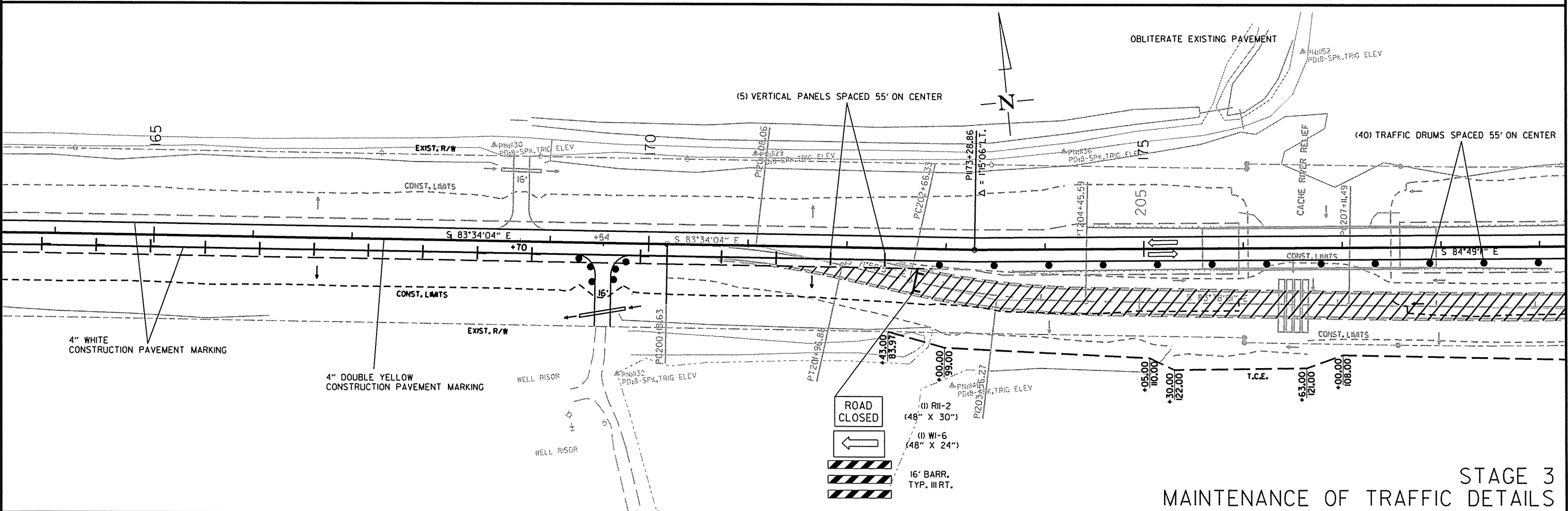
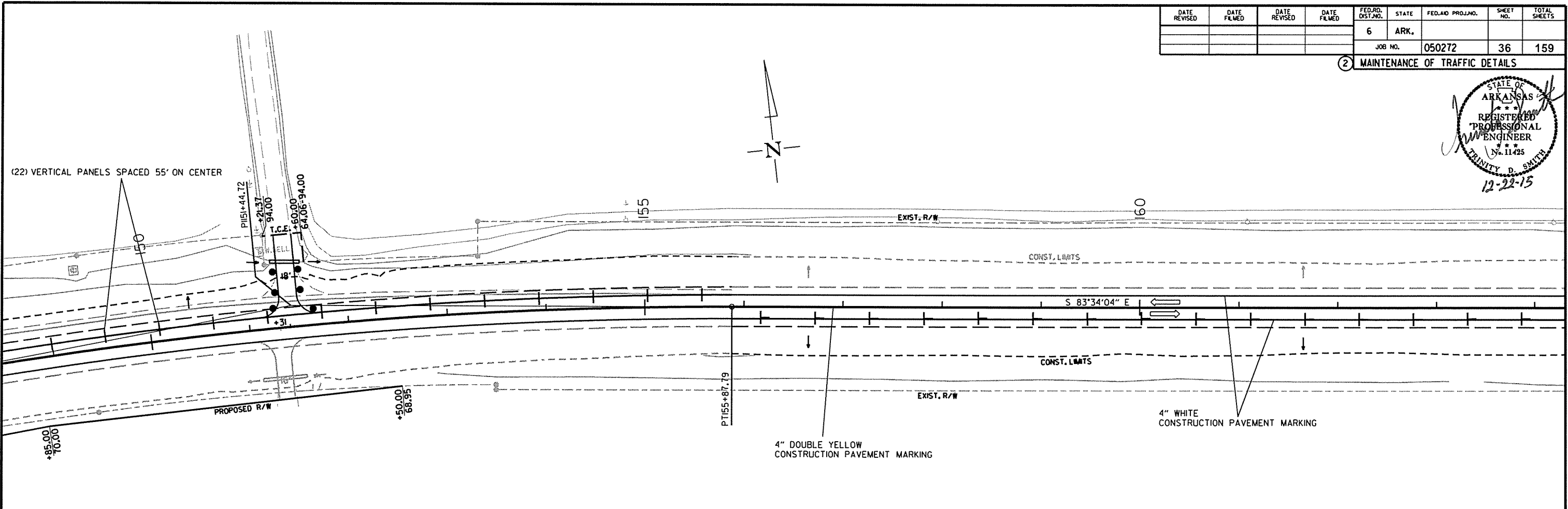
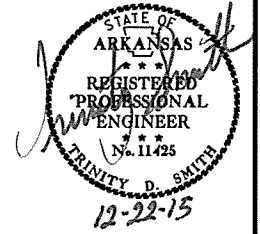
(22) VERTICAL PANELS SPACED 55' ON CENTER

12/21/2015 R050272.DGN

STAGE 3  
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		36	159

② MAINTENANCE OF TRAFFIC DETAILS



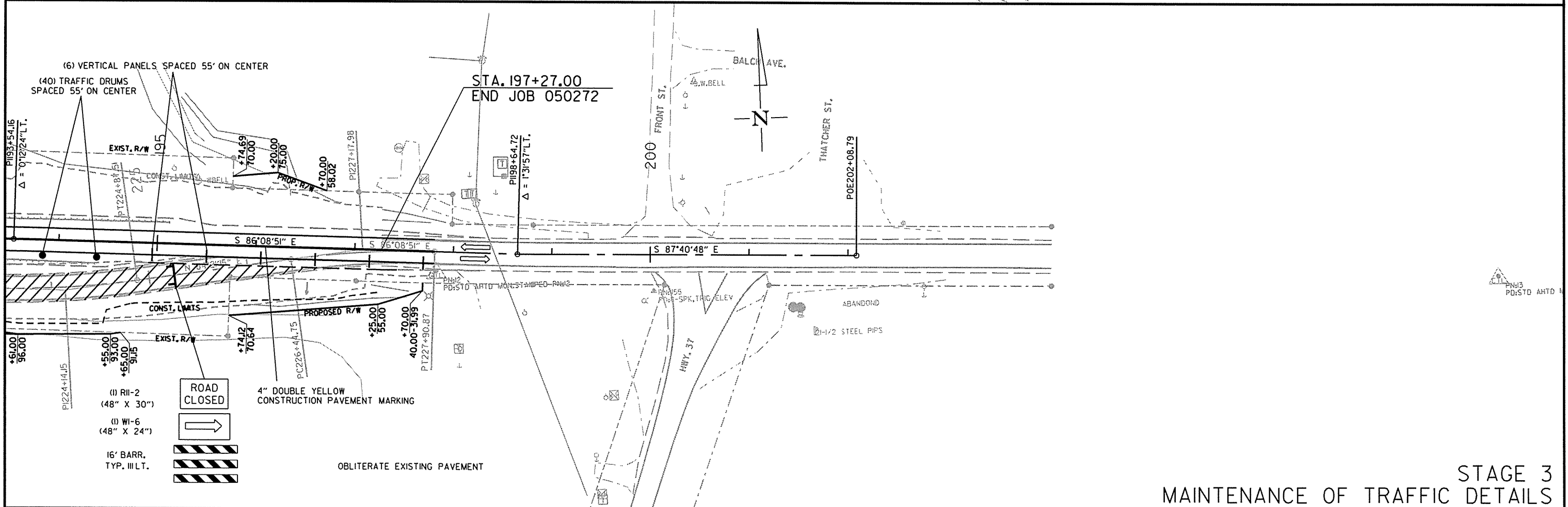
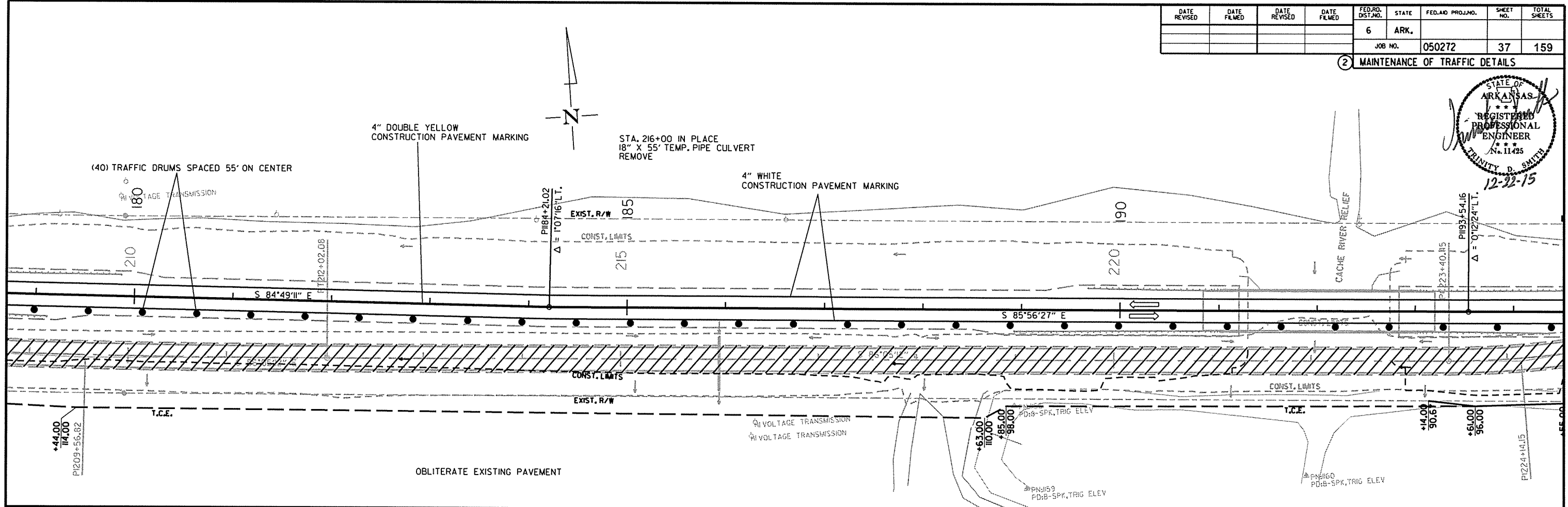
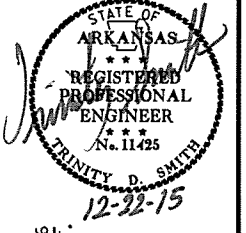
12/21/2015

R050272.DGN

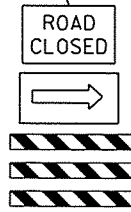
STAGE 3  
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							37	159

2 MAINTENANCE OF TRAFFIC DETAILS



- (I) RII-2 (48" X 30")
- (II) WI-6 (48" X 24")
- 16" BARR. TYP. III LT.



12/21/2015 R050272.DGN

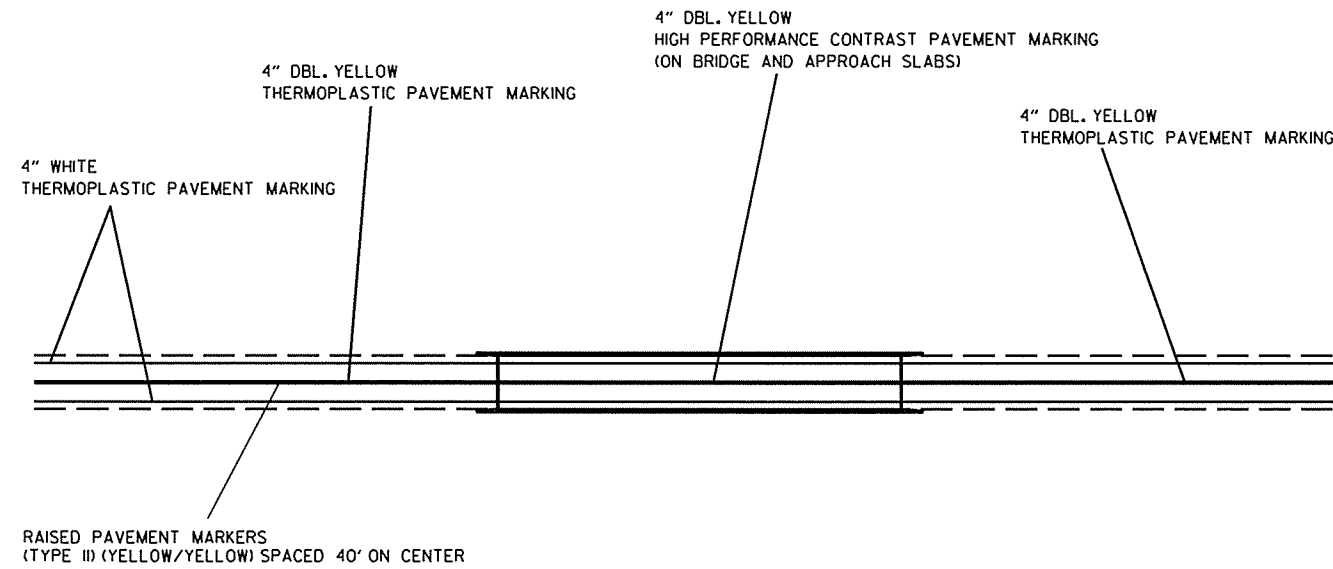
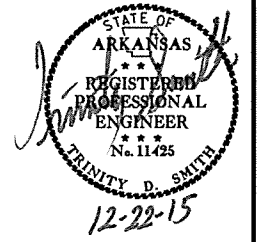
STAGE 3 MAINTENANCE OF TRAFFIC DETAILS

PERMANENT PAVEMENT MARKINGS

THERMOPLASTIC PAVEMENT MARKINGS WHITE (4") = 19568 LIN. FT.  
 THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4") = 17116 LIN. FT.  
 HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 2446 LIN. FT.  
 RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) (40' O.C.) = 245 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		38	159

② PERMANENT PAVEMENT MARKING DETAILS



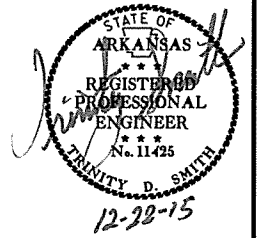
TYPICAL STRIPING DETAIL

12/16/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AO PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		39	159

② QUANTITIES



**ADVANCE WARNING SIGNS AND DEVICES**

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
							NO.	SQ. FT.			RIGHT	LEFT
			LIN. FT. - EACH								LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	4	4	64.0				
G20-2	END ROAD WORK	48"x24"	6	6	6	6	6	48.0				
W1-4AR	REVERSE CURVE RT.	48"x48"		1		1	1	16.0				
W1-4AL	REVERSE CURVE LT.	48"x48"		1		1	1	16.0				
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	4	40.0				
W1-6	LARGE ARROW	48"x24"	4	4	4	4	4	32.0				
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0				
RSP-1	SHOULDER CLOSED	48"x30"	4	4	4	4	4	40.0				
W8-1	BUMP	30"x30"	2	2	2	2	2	12.5				
	VERTICAL PANELS		12	64	75	75			75			
	TRAFFIC DRUMS		166	138	132	166			166			
	TYPE III BARRICADE-RT. (16')		2	2	2	2					32	
	TYPE III BARRICADE-LT. (16')		2	2	2	2						32
<b>TOTALS:</b>								374.5	75	166	32	32

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

**CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS**

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
							4"	4"	
						TYPE II (YEL/YEL)	WHITE	YELLOW	YELLOW
	LIN. FT. - EACH				LIN. FT.	EACH	LIN. FT.		LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	953			953					
CONSTRUCTION PAVEMENT MARKINGS	16812	39130			55942				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			245			245			
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			19568				19568		
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			17116					17116	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			2446						2446
<b>TOTALS:</b>				953	55942	245	19568	17116	2446

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

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

12/21/2015

R050272.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		40	159

② QUANTITIES

**EARTHWORK**

STATION	STATION	LOCATION / DESCRIPTION	HWY. 14			BOAT RAMP		
			UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	* SOIL STABILIZATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.			TON	CU. YD.	
ENTIRE PROJECT		STAGE 1-MAIN LANES	2227	91285				
ENTIRE PROJECT		STAGE 2-MAIN LANES	772	24756				
ENTIRE PROJECT		STAGE 3-MAIN LANES	41610	4301				
ENTIRE PROJECT		APPROACHES	5	3205				
ENTIRE PROJECT		UNDERCUT FOR UNSUITABLE EXISTING MATERIAL	52211	52211				
107+10.00		BOAT RAMP					160	1049
108+25.00	109+40.19	HWY. 14 BRIDGE END			2475			
116+41.58	117+60.00	HWY. 14 BRIDGE END			4158			
126+85.00	133+48.00	CLEAR AND EXCAVATE THE EXISTING CHANNEL	800					
175+88.70	177+65.30	HWY. 14 REMOVE EXISTING BRIDGE EMBANKMENTS	300					
191+13.70	192+90.30	HWY. 14 REMOVE EXISTING BRIDGE EMBANKMENTS	200					
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER				100		
<b>TOTALS:</b>			<b>98125</b>	<b>175758</b>	<b>6633</b>	<b>100</b>	<b>160</b>	<b>1049</b>

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

**CLEARING AND GRUBBING**

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
100+00	132+00	LT. & RT. OF HWY. 14	32	32
133+00	141+00	RT. OF HWY. 14	8	8
168+00	198+00	LT. & RT. OF HWY. 14	30	30
<b>TOTALS:</b>			<b>70</b>	<b>70</b>



**REMOVAL AND DISPOSAL OF CULVERTS**

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
107+10	24"X32' C.M. PIPE CULVERT	1
127+12	36"X25' C.M. PIPE CULVERT	1
135+25	24"X26' C.M. PIPE CULVERT	1
151+41	12"X33' C.M. PIPE CULVERT	1
168+70	36"X23' C.M. PIPE CULVERT	1
169+54	24"X44' C.M. PIPE CULVERT	1
<b>TOTAL:</b>		<b>6</b>

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

**REMOVAL AND DISPOSAL OF ITEMS**

STATION	STATION	LOCATION	POSTS	GUARDRAIL	BUILDINGS
			LIN. FT.	LIN. FT.	EACH
108+02	109+25	RT. OF EXISTING HWY. 14		125	
108+47	109+25	LT. OF EXISTING HWY. 14		75	
116+49	117+27	RT. OF EXISTING HWY. 14		75	
116+49	118+02	LT. OF EXISTING HWY. 14		150	
120+20		RT. OF EXISTING HWY. 14			1
130+31	131+83	RT. OF EXISTING HWY. 14		150	
131+06	131+83	LT. OF EXISTING HWY. 14		75	
133+39	134+17	RT. OF EXISTING HWY. 14		75	
133+39	134+91	LT. OF EXISTING HWY. 14		150	
174+48	175+99	RT. OF EXISTING HWY. 14		150	
175+24	17+60	LT. OF EXISTING HWY. 14		75	
177+53	178+31	RT. OF EXISTING HWY. 14		75	
177+54	179+06	LT. OF EXISTING HWY. 14		150	
187+65		RT. OF EXISTING HWY. 14	1		
189+72	191+26	RT. OF EXISTING HWY. 14		150	
190+48	191+26	LT. OF EXISTING HWY. 14		75	
192+78	193+56	RT. OF EXISTING HWY. 14		75	
192+78	194+31	LT. OF EXISTING HWY. 14		150	
<b>TOTALS:</b>			<b>1</b>	<b>1775</b>	<b>1</b>

NOTE: PAYMENT FOR REMOVAL AND DISPOSAL OF GUARDRAIL INCLUDES THE REMOVAL AND DISPOSAL OF ANY TERMINAL ANCHOR POSTS.

**REMOVAL AND DISPOSAL OF GATES**

STATION	LOCATION	GATES
		EACH
121+10	RT. OF EXISTING HWY. 14	2
169+30	RT. OF EXISTING HWY. 14	1
169+70	RT. OF EXISTING HWY. 14	1
<b>TOTAL:</b>		<b>4</b>

12/22/2015

R050272.DGN

QUANTITIES



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
1-27-16				6	ARK.			
						JOB NO. 050272	41	159

② QUANTITIES



**BENCH MARKS**

STATION	LOCATION	BENCH MARKS
		EACH
109+24	BRIDGE END	1
131+81	BRIDGE END	1
175+96	BRIDGE END	1
191+21	BRIDGE END	1
<b>TOTAL:</b>		<b>4</b>

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

**4" PIPE UNDERDRAIN**

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			4500	18
<b>TOTALS:</b>			<b>4500</b>	<b>18</b>

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

**GUARDRAIL**

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
107+70.77	109+14.52	LT. SIDE	75	1	1
107+70.77	109+14.52	RT. SIDE	75	1	1
116+67.48	118+11.23	RT. SIDE	75	1	1
116+67.48	118+86.23	LT. SIDE	150	1	1
129+52.35	131+71.10	RT. SIDE	150	1	1
130+27.35	131+71.10	LT. SIDE	75	1	1
133+52.90	134+96.65	LT. SIDE	75	1	1
133+52.90	134+96.65	RT. SIDE	75	1	1
173+67.35	175+86.10	RT. SIDE	150	1	1
174+42.35	175+86.10	LT. SIDE	75	1	1
177+67.90	179+11.65	RT. SIDE	75	1	1
177+67.90	179+86.65	LT. SIDE	150	1	1
188+92.35	191+11.10	RT. SIDE	150	1	1
189+67.35	191+11.10	LT. SIDE	75	1	1
192+92.90	194+36.65	RT. SIDE	75	1	1
192+92.90	195+11.65	LT. SIDE	150	1	1
<b>TOTALS:</b>			<b>1650</b>	<b>16</b>	<b>16</b>

**MAILBOXES**

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	1	1
<b>TOTALS:</b>	<b>1</b>	<b>1</b>

**SELECTED PIPE BEDDING**

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	40
<b>TOTAL:</b>	<b>40</b>

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

**EROSION CONTROL**

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE DITCH CHECKS (20") (E-1)	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.	LIN. FT.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE PROJECT	STAGE 1						13.28	13.28	270.9			66	4780		199		
ENTIRE PROJECT	STAGE 2						8.35	8.35	170.3			30	2325		96		
ENTIRE PROJECT	STAGE 3		15.53	31.06	15.53	1584.1	15.53	14.75	300.9			21	6825		260		
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.88	7.76	3.88	395.8	3.88	9.10	9.10	185.6	81	198	30	3483	3300	3300	3457
<b>TOTALS:</b>			<b>19.41</b>	<b>38.82</b>	<b>19.41</b>	<b>1979.9</b>	<b>19.41</b>	<b>45.48</b>	<b>45.48</b>	<b>927.7</b>	<b>81</b>	<b>198</b>	<b>147</b>	<b>17413</b>	<b>3300</b>	<b>3300</b>	<b>4012</b>

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

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

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

1/27/2016

R050272.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							42	159

② QUANTITIES



**APPROACH GUTTERS AND SLABS**

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE C)	APPROACH SLABS C-2	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU. YD.	CU. YD.	POUND	TON
108+87.42	109+23.92	HWY. 14-LT. SIDE	14.80		810	
108+87.42	109+23.92	HWY. 14-RT. SIDE	14.80		810	
108+87.42	109+23.92	HWY. 14		49.15	5980	38.00
116+58.08	116+94.58	HWY. 14-LT. SIDE	14.80		810	
116+58.08	116+94.58	HWY. 14-RT. SIDE	14.80		810	
116+58.08	116+94.58	HWY. 14		49.15	5980	38.00
131+44.00	131+80.50	HWY. 14-LT. SIDE	14.80		810	
131+44.00	131+80.50	HWY. 14-RT. SIDE	14.80		810	
131+44.00	131+80.50	HWY. 14		49.15	5980	38.00
133+43.50	133+80.00	HWY. 14-LT. SIDE	14.80		810	
133+43.50	133+80.00	HWY. 14-RT. SIDE	14.80		810	
133+43.50	133+80.00	HWY. 14		49.15	5980	38.00
175+59.00	175+95.50	HWY. 14-LT. SIDE	14.80		810	
175+59.00	175+95.50	HWY. 14-RT. SIDE	14.80		810	
175+59.00	175+95.50	HWY. 14		49.15	5980	38.00
177+58.50	177+95.00	HWY. 14-LT. SIDE	14.80		810	
177+58.50	177+95.00	HWY. 14-RT. SIDE	14.80		810	
177+58.50	177+95.00	HWY. 14		49.15	5980	38.00
190+84.00	191+20.50	HWY. 14-LT. SIDE	14.80		810	
190+84.00	191+20.50	HWY. 14-RT. SIDE	14.80		810	
190+84.00	191+20.50	HWY. 14		49.15	5980	38.00
192+83.50	193+20.00	HWY. 14-LT. SIDE	14.80		810	
192+83.50	193+20.00	HWY. 14-RT. SIDE	14.80		810	
192+83.50	193+20.00	HWY. 14		49.15	5980	38.00
<b>TOTALS:</b>			<b>236.80</b>	<b>393.20</b>	<b>60800</b>	<b>304.00</b>

NOTE: USE T=17.5" FOR 8" SHOULDER.

**STRUCTURES**

STATION	DESCRIPTION	TEMPORARY CULVERTS	
		18"	72"
206+54	TEMPORARY CULVERT		220
216+00	TEMPORARY CULVERT	55	
<b>TOTALS:</b>		<b>55</b>	<b>220</b>

**RUMBLE STRIPES**

STATION	STATION	LOCATION	* RUMBLE STRIPES
100+00	197+27	HWY. 14 - LT. AND RT.	12886.1
<b>TOTAL:</b>			<b>12886.1</b>

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

**COLD MILLING ASPHALT PAVEMENT**

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
99+00	100+00	MAIN LANES	24	266.67
197+27	198+27	MAIN LANES	24	266.67
<b>TOTAL:</b>				<b>533.34</b>

NOTE: AVERAGE MILLING DEPTH 1".

**ACHM PATCHING OF EXISTING ROADWAY**

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10
<b>TOTAL:</b>	<b>10</b>

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

**DRIVEWAYS & TURNOUTS-HWY.14**

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	STANDARD DRAWINGS
				SQ. YD.	TON			
107+10	RT.	HWY. 14	20	302.90	33.32	123.68	36"	PCC-1, PCM-1, PCP-1, PCP-2
120+73	RT.	HWY. 14	16	208.50	22.94	85.14	70"	
127+12	LT.	HWY. 14	16	231.80	25.50	94.65	36"	PCC-1, PCM-1, PCP-1, PCP-2
135+25	RT.	HWY. 14	16	150.80	16.59	61.58	60"	PCC-1, PCM-1, PCP-1, PCP-2
135+25	LT.	HWY. 14	16	231.20	25.43	94.41	34"	PCC-1, PCM-1, PCP-1, PCP-2
151+31	RT.	HWY. 14	16	104.00	11.44	42.47	42"	PCC-1, PCM-1, PCP-1, PCP-2
151+41	LT.	HWY. 14	16	147.10	16.18	60.07	30"	PCC-1, PCM-1, PCP-1, PCP-2
168+70	LT.	HWY. 14	16	132.80	14.61	54.23	40"	PCC-1, PCM-1, PCP-1, PCP-2
169+54	RT.	HWY. 14	16	129.60	14.26	52.92	46"	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						90.00		
<b>TOTALS:</b>				<b>1638.70</b>	<b>180.27</b>	<b>759.15</b>	<b>358</b>	

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

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

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.

**ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC**

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	50	100
<b>TOTALS:</b>	<b>50</b>	<b>100</b>

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

**DRIVEWAYS & TURNOUTS-BOAT RAMP**

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)
				SQ. YD.	TON	
107+10	LT.	HWY. 14	30	137.70	15.15	56.23
<b>TOTALS:</b>				<b>137.70</b>	<b>15.15</b>	<b>56.23</b>

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

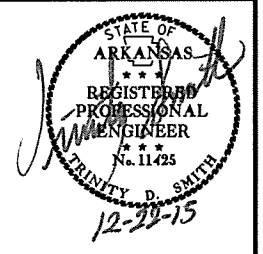
THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

QUANTITIES



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		44	159

2 QUANTITIES



BASE AND SURFACING-HWY. 14 (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")										
				TON / STATION	TON	(0.10 GAL. PER SQ. YD.)			(0.03 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	TOTAL PG 70-22 TON	
						TOTAL WID. FEET	SQ. YD.	GALLON	TOTAL WID. FEET	SQ. YD.	GALLON															
ADDITIONAL FOR SUPERELEVATION																										
101+62.63	104+62.63	SUPERELEVATION TRANSITION	300.00	36.13	108.39																					
104+62.63	108+36.70	MAXIMUM SUPERELEVATION	374.07	72.25	270.27																					
108+36.70	111+36.70	SUPERELEVATION TRANSITION	300.00	36.13	108.39																					
115+62.13	118+62.13	SUPERELEVATION TRANSITION	300.00	31.75	95.25																					
118+62.13	121+10.29	MAXIMUM SUPERELEVATION	248.16	63.50	157.58																					
121+10.29	124+10.29	SUPERELEVATION TRANSITION	300.00	31.75	95.25																					
144+73.85	147+73.85	SUPERELEVATION TRANSITION	300.00	19.13	57.39																					
147+73.85	155+12.79	MAXIMUM SUPERELEVATION	738.94	38.25	282.64																					
155+12.79	158+12.79	SUPERELEVATION TRANSITION	300.00	19.13	57.39																					
202+27.34	203+55.96	SUPERELEVATION TRANSITION	128.62	6.88	8.85																					
203+55.96	204+84.58	SUPERELEVATION TRANSITION	128.62	6.88	8.85																					
222+59.88	224+13.98	SUPERELEVATION TRANSITION	154.10	8.88	13.68																					
224+13.98	225+68.08	SUPERELEVATION TRANSITION	154.10	8.88	13.68																					
SUBTOTALS (BOX 1 OF 2):					31979.50																					
SUBTOTALS (BOX 2 OF 2):					1277.61																					
TOTALS:					33257.11		14890.18	1489.02		54575.33	1637.27	3126.29		21652.90		6422.58		22054.14		3214.00		42186.55		4640.50	7854.50	

BASIS OF ESTIMATE:  
 ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER  
 ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER  
 MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

BASE AND SURFACING-BOAT RAMP

STATION	LOCATION	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")			
		TON / STATION	TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON
BOAT RAMP							
107+10.00	BOAT RAMP	VAR.	444.50	VAR.	1269.98	220.00	139.70
TOTALS:			444.50		1269.98		139.70

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

CONCRETE BASE-BOAT RAMP

STATION	LOCATION	AGGREGATE BASE COURSE (CLASS 7)		STONE BACKFILL		PORTLAND CEMENT CONCRETE PAVEMENT	
		TONS / STATION	TONS	TONS / STATION	TONS	AVG. WID. FEET	6" U.T. SQ. YD.
107+10	BOAT RAMP-APPROACH	VAR.	43.50			16.0	124.4
107+10	BOAT RAMP-HEADER			VAR.	71.00	16.0	2.7
107+10	BOAT RAMP-RAMP	VAR.	17.75			16.0	50.7
107+10	BOAT RAMP-PUSH IN					16.0	88.9
TOTALS:			61.25		71.00		266.7

QUANTITIES

12/21/2015

R050272.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.	050272		45	159

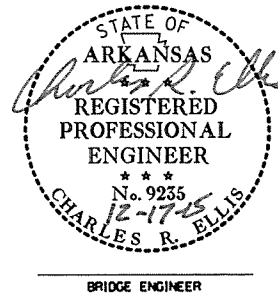
① 07374, 07375, - QUANTITIES - 58027  
07376 & 07377

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050272

BRIDGE NO. NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	805	805	805	SP & 807	808	809	809	812	816	816
		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 (M270, GRADE 50W)	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.
07374 CACHE RIVER	END BENT NOS. 1 & 13				72.60		0.6	10,926	2,483	855				2,300	2,730				333	189
	INT. BENT NOS. 2-4, 6-8, & 10-12				185.70			15,820	1,602											
	INT. BENT NOS. 5 & 9				52.10			4,594							5,460					
	3 - 244' -0' CONT. COMP. W-BM. UNITS						1,035.50	77.7		223,565				673,800		84	86	1		
	EXIST. BR. NO. 02440 (SITE NO. 1)		1																	
TOTALS FOR BRIDGE NO. 07374					310.40	1,035.50	78.3	31,340	227,650	855	4,305	512		676,100	8,190	84	86	1	333	189
07375 CACHE RIVER RELIEF	END BENT NOS. 1 & 4				33.00			3,145	656	850			100						454	251
	INT. BENT NOS. 2 & 3				42.00			3,505	356			80								
	162' -0' INTEGRAL W-BM. UNIT						263.80	17.4		51,418				128,750				1		
	EXIST. BR. NO. 02441 (SITE NO. 2)		1																	
TOTALS FOR BRIDGE NO. 07375					75.00	263.80	17.4	6,650	52,430	850	850	80	100	128,750				1	454	251
07376 CACHE RIVER RELIEF	END BENT NOS. 1 & 4		75	33.00				3,145	656	725			100						609	339
	INT. BENT NOS. 2 & 3			42.00				3,505	356		725	80								
	162' -0' INTEGRAL W-BM. UNIT						263.80	17.4		51,418				128,750				1		
	EXIST. BR. NO. 02442 (SITE NO. 3)		1																	
TOTALS FOR BRIDGE NO. 07376			75	75.00	263.80	17.4	6,650	52,430	725	725	80	100	128,750					1	609	339
07377 CACHE RIVER RELIEF	END BENT NOS. 1 & 4		67	33.00				3,145	656	700			100						554	310
	INT. BENT NOS. 2 & 3			42.00				3,505	356		725	80								
	162' -0' INTEGRAL W-BM. UNIT						263.80	17.4		51,418				128,750				1		
	EXIST. BR. NO. 02443 (SITE NO. 4)		1																	
TOTALS FOR BRIDGE NO. 07377			67	75.00	263.80	17.4	6,650	52,430	700	725	80	100	128,750					1	554	310
TOTALS FOR JOB NO. 050272			142	535.40	1,826.90	130.5	51,290	384,940	3,130	6,605	752	300	1,062,350	8,190	84	86	4	1,950	1,089	

① PILES AND PILE ENCASEMENT SHALL CONFORM TO STD. DWG. NO. 55021, EXCEPT STEEL SHELL PILES IN END BENTS SHALL USE ONLY CONICAL OR VANED PILE TIPS. FLAT PILE TIPS MAY BE USED AT INT. BENTS.

STEVEN PEYTON  
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES  
CACHE RIVER - AMAGON  
STRS. & APPRS. (S)  
JACKSON COUNTY  
ROUTE 14 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: CJR DATE: 12-2-15 FILENAME: 050272.dwg  
CHECKED BY: SVP DATE: 12-17-15 SCALE: NONE  
DESIGNED BY: -- DATE: --  
BRIDGE NO. 07374, 07375, 07376 & 07377 DRAWING NO. 58027

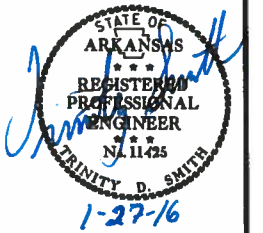
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1-27-16				6	ARK.			
						JOB NO. 050272	46	159

2 SUMMARY OF QUANTITIES

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY			UNIT
		STPR-0034(41)	9940	TOTAL	
201	CLEARING	70		70	STATION
201	GRUBBING	70		70	STATION
202	REMOVAL AND DISPOSAL OF POSTS	1		1	EACH
202	REMOVAL AND DISPOSAL OF GATES	4		4	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	6		6	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	1775		1775	LIN. FT.
202	REMOVAL AND DISPOSAL OF BUILDINGS	1		1	EACH
207	STONE BACKFILL		71	71	TON
210	UNCLASSIFIED EXCAVATION	98125	160	98285	CU. YD.
SP & 210	COMPACTED EMBANKMENT	175758	1049	176807	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)	6633		6633	CU. YD.
SP & 210	SOIL STABILIZATION	100		100	TON
303	AGGREGATE BASE COURSE (CLASS 7)	34320	562	34882	TON
SS & 401	TACK COAT	3226		3226	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	6140		6140	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	283		283	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	7609	147	7756	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	10	8	18	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	416		416	TON
412	COLD MILLING ASPHALT PAVEMENT	533		533	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	50		50	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	10		10	TON
501	PORTLAND CEMENT CONCRETE PAVEMENT (6" UNIFORM THICKNESS)		267	267	SQ. YD.
504	APPROACH SLABS	393.20		393.20	CU. YD.
504	APPROACH GUTTERS	236.80		236.80	CU. YD.
601	MOBILIZATION	1.00		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1		1	EACH
603	MAINTENANCE OF TRAFFIC	1.00		1.00	LUMP SUM
603	18" TEMPORARY CULVERT	55		55	LIN. FT.
603	72" TEMPORARY CULVERT	220		220	LIN. FT.
SS & 604	SIGNS	375		375	SQ. FT.
SS & 604	BARRICADES	64		64	LIN. FT.
SS & 604	TRAFFIC DRUMS	166		166	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	55942		55942	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	953		953	LIN. FT.
SS & 604	VERTICAL PANELS	75		75	EACH
SP, SS, & 606	36" SIDE DRAIN	358		358	LIN. FT.
606	SELECTED PIPE BEDDING	40		40	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	18		18	EACH
611	4" PIPE UNDERDRAINS	4500		4500	LIN. FT.
617	GUARDRAIL (TYPE A)	1650		1650	LIN. FT.
617	GUARDRAIL TERMINAL (TYPE 2)	16		16	EACH
617	THREE BEAM GUARDRAIL TERMINAL	16		16	EACH
620	LIME	39		39	TON
620	SEEDING	19.41		19.41	ACRE
SS & 620	MULCH COVER	64.89		64.89	ACRE
620	WATER	2907.6		2907.6	M.GAL.
621	TEMPORARY SEEDING	45.48		45.48	ACRE
621	SILT FENCE	17413		17413	LIN. FT.
621	SAND BAG DITCH CHECKS	198		198	BAG
621	SEDIMENT BASIN	3300		3300	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	3300		3300	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	4012		4012	CU. YD.
621	ROCK DITCH CHECKS	147		147	CU. YD.
621	WATTLE (20")	81		81	LIN. FT.
623	SECOND SEEDING APPLICATION	19.41		19.41	ACRE
635	ROADWAY CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
637	MAILBOXES	1		1	EACH
637	MAILBOX SUPPORTS (SINGLE)	1		1	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	19568		19568	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	17116		17116	LIN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	2446	(ALTERNATE NO. 1)	2446	LIN. FT.
SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	2446	(ALTERNATE NO. 2)	2446	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	245		245	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	60800		60800	POUND
SP	RUMBLE STRIPES	12886		12886	LIN. FT.

\* DENOTES ALTERNATE BID ITEMS.

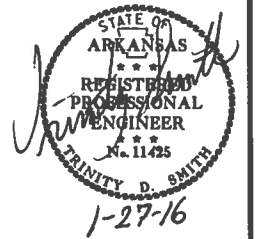


1/27/2016

R050272.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1-20-16				6	ARK.			
1-27-16								
				JOB NO.	050272		47	159

2 SUMMARY OF QUANTITIES AND REVISIONS



SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY			UNIT
		STPR-0034(41)	9940	TOTAL	
<b>STRUCTURES OVER 20' SPAN</b>					
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)	1.00		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	142		142	CU. YD.
802	CLASS S CONCRETE-BRIDGE	535.40		535.40	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	1826.90		1826.90	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	130.5		130.5	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	51290		51290	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	384940		384940	POUND
805	STEEL SHELL PILING (18" DIAMETER)	3130		3130	LIN. FT.
805	STEEL SHELL PILING (24" DIAMETER)	6605		6605	LIN. FT.
805	PILE ENCASEMENT	752		752	LIN. FT.
805	PREBORING	300		300	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	1062350		1062350	POUND
808	ELASTOMERIC BEARINGS	8190		8190	CU. IN.
809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	84		84	LIN. FT.
809	SILICONE JOINT SEALANT	86		86	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	4		4	EACH
816	FILTER BLANKET	1950		1950	SQ. YD.
816	DUMPED RIPRAP	1089		1089	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
1/20/2016	REVISED "OFF-SITE RESTRAINING CONDITIONS FOR BATS" SPECIAL PROVISION.	47
1/27/2016	REVISED "SEDIMENT BASIN", "OBLITERATION OF SEDIMENT BASIN", AND "SEDIMENT REMOVAL AND DISPOSAL" QUANTITIES.	41, 46, 47

1/27/2016

R050272.DGN

SURVEY CONTROL COORDINATES

Project Name: 050272
Date: 10/23/2013
Coordinate System: Arkansas State Plane Coordinates
Projected to Ground Coordinates
Units: U.S. Survey Foot

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

Table with 11 columns: Point No., Northing, SY, Easting, SX, Elevation, SZ, Feature Code, Point Description. Contains 100 rows of survey data points.

\*\*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8" x 24" Aluminum Cap stamped. "Include all common information here" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN:####" & "Job #######".

Positional Accuracy:

Horizontal - GPS (1.0 cm ± 1PPM)
Horizontal - Primary (2.0cm ± 20PPM)
Horizontal - Secondary (3 cm ± 50PPM)
Vertical - NGS 1st Order (±4mm x vdist in km)
Vertical - NGS 2nd Order (±6mm x vdist in km)
Vertical - NGS 3rd Order (±8mm x vdist in km)

Horizontal Datum:

NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.999929554 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Grid:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Easting:
To compute Easting Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum:

NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.9999891825 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 226.05 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-15,100-103,900-923
From NGS BM:

Basis of Bearing:

Grid Bearings based on AHTD GPS points: 340013-340013a, 340014-340014a
Convergence Angle is: 00 30 30 RIGHT at PN: 8
UT: 35-33-47.1 LG: 91-07-35.9
Grid Azimuth = Astronomical Azimuth - Convergence Angle

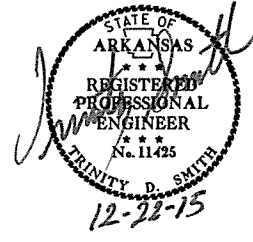
Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

HWY: 14
POINT NO.
8041
8000
8001
8002
8003
8004
8005
8006
8007
8008
8010
8011
8012
8013
8014

Table with 11 columns: TYPE, STATION, NORTHING, EASTING, DETOUR POINT NO., TYPE, STATION, NORTHING, EASTING. Contains data for points 8041 through 8014.

Table with columns: DATE REVISED, DATE FILMED, DATE REVISED, DATE FILMED, FED. PROJ. NO., STATE, FED. PROJ. NO., SHEET NO., TOTAL SHEETS. Values: 6, ARK., 050272, 48, 159.

2 SURVEY CONTROL DETAILS



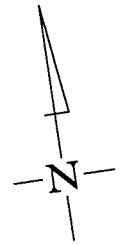
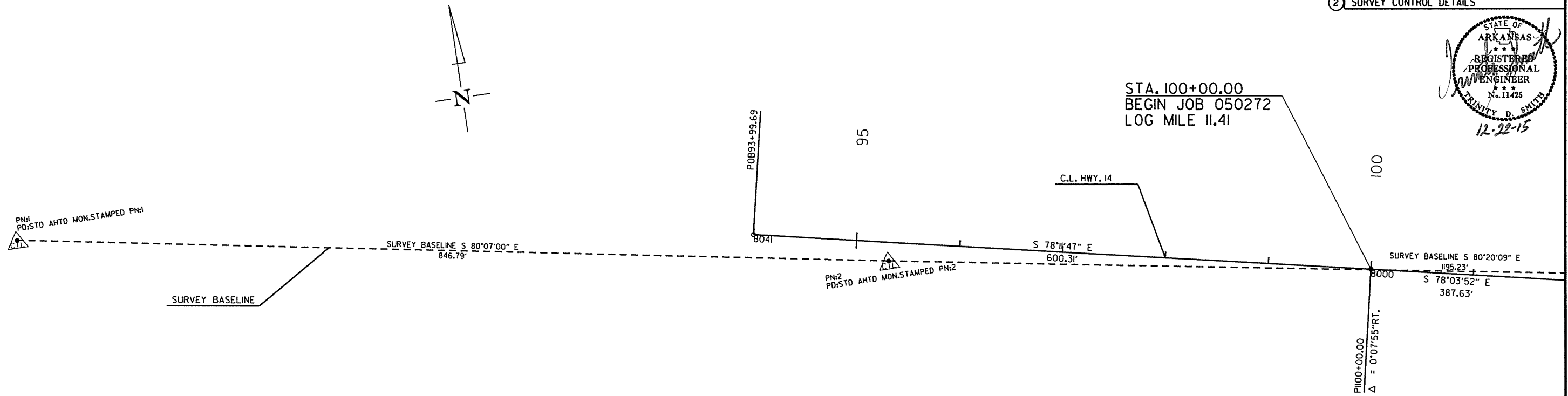


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		49	159

2 SURVEY CONTROL DETAILS



STA. 100+00.00  
BEGIN JOB 050272  
LOG MILE 11.41



SURVEY BASELINE

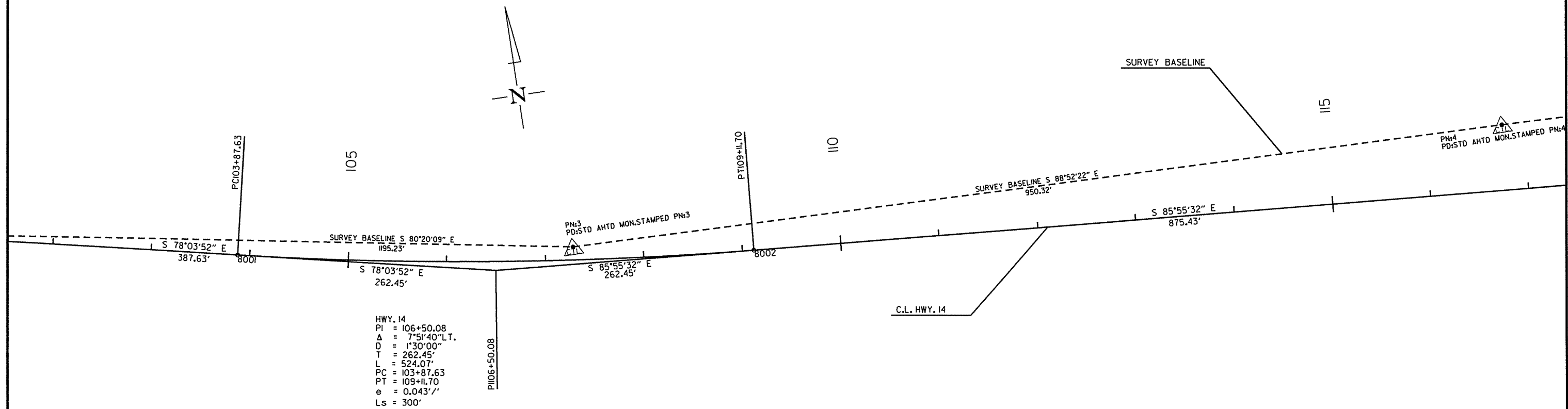
SURVEY BASELINE

115

110

105

PN4  
PD:STD AHTD MON.STAMPED PN4



HWY. 14  
PI = 106+50.08  
Δ = 7°51'40" LT.  
D = 1°30'00"  
T = 262.45'  
L = 524.07'  
PC = 103+87.63  
PT = 109+11.70  
e = 0.043' /'  
Ls = 300'

SURVEY CONTROL DETAILS

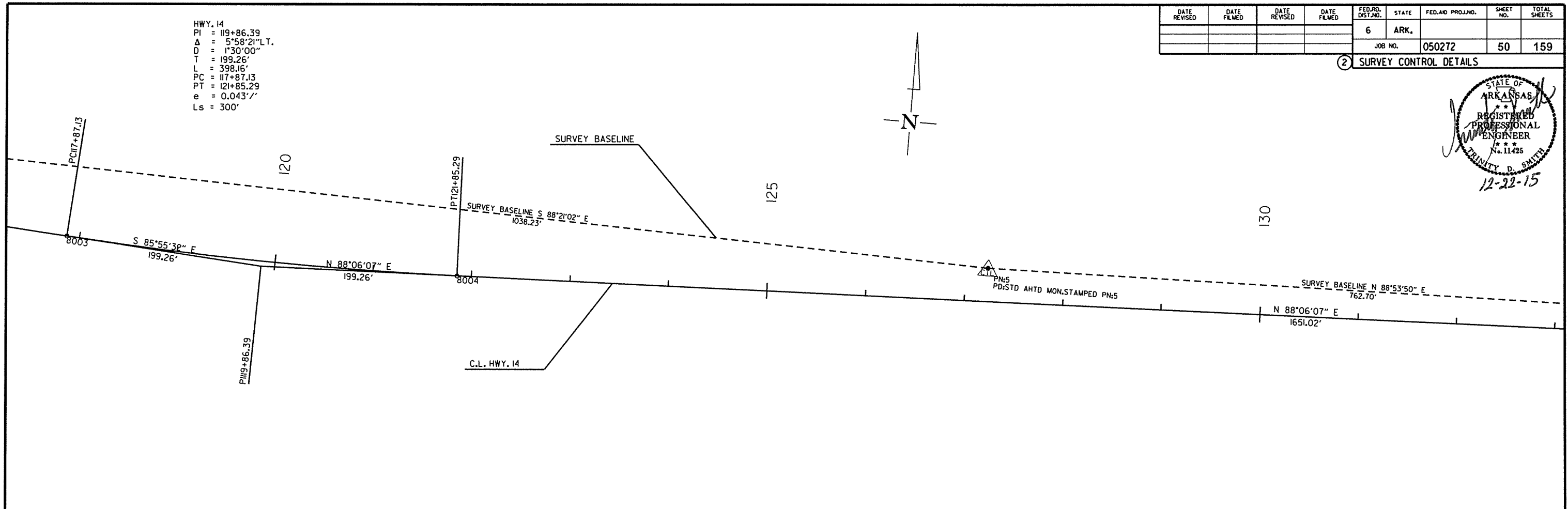
12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		50	159

2 SURVEY CONTROL DETAILS

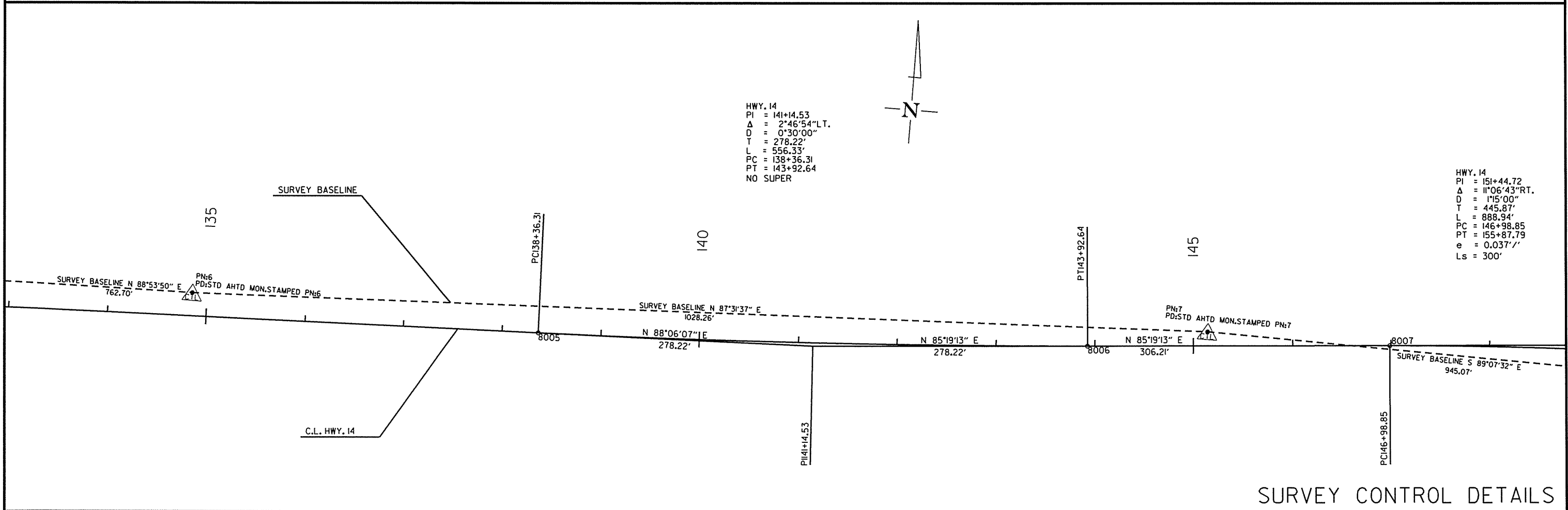


HWY. 14  
 PI = 119+86.39  
 Δ = 5°58'21" LT.  
 D = 1°30'00"  
 T = 199.26'  
 L = 398.16'  
 PC = 117+87.13  
 PT = 121+85.29  
 e = 0.043'/'  
 Ls = 300'



HWY. 14  
 PI = 141+14.53  
 Δ = 2°46'54" LT.  
 D = 0°30'00"  
 T = 278.22'  
 L = 556.33'  
 PC = 138+36.31  
 PT = 143+92.64  
 NO SUPER

HWY. 14  
 PI = 151+44.72  
 Δ = 11°06'43" RT.  
 D = 1°15'00"  
 T = 445.87'  
 L = 888.94'  
 PC = 146+98.85  
 PT = 155+87.79  
 e = 0.037'/'  
 Ls = 300'



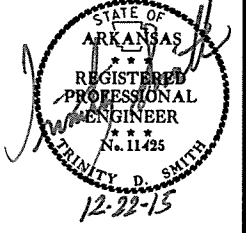
SURVEY CONTROL DETAILS

12/21/2015

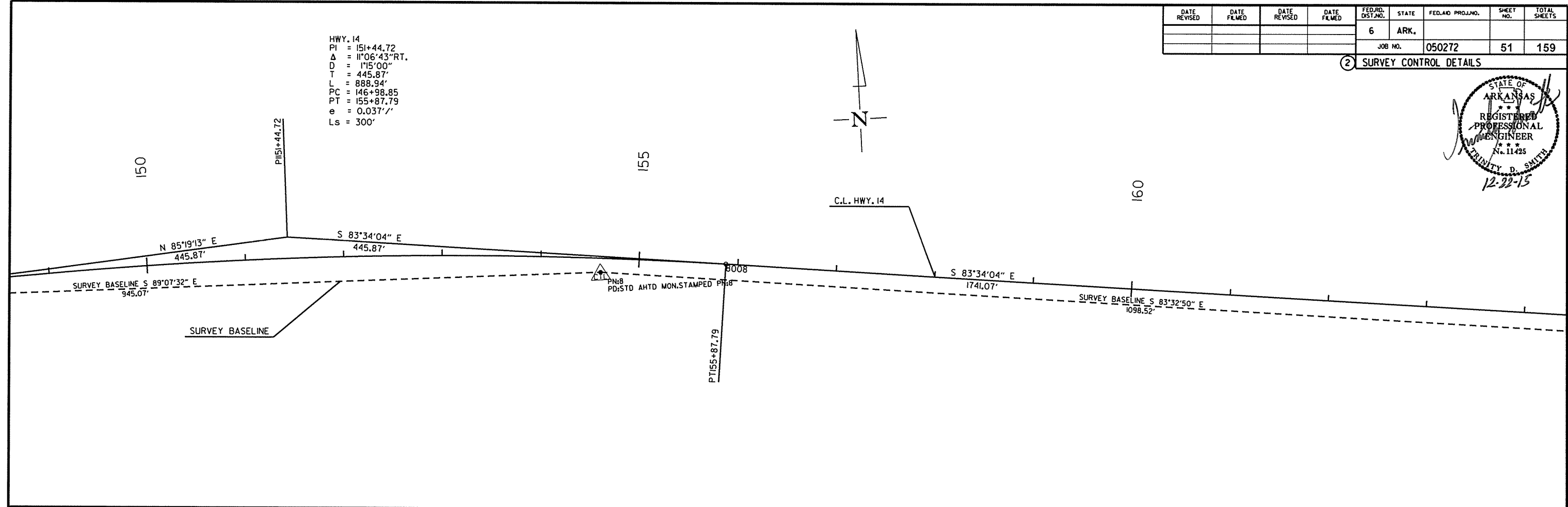
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							51	159

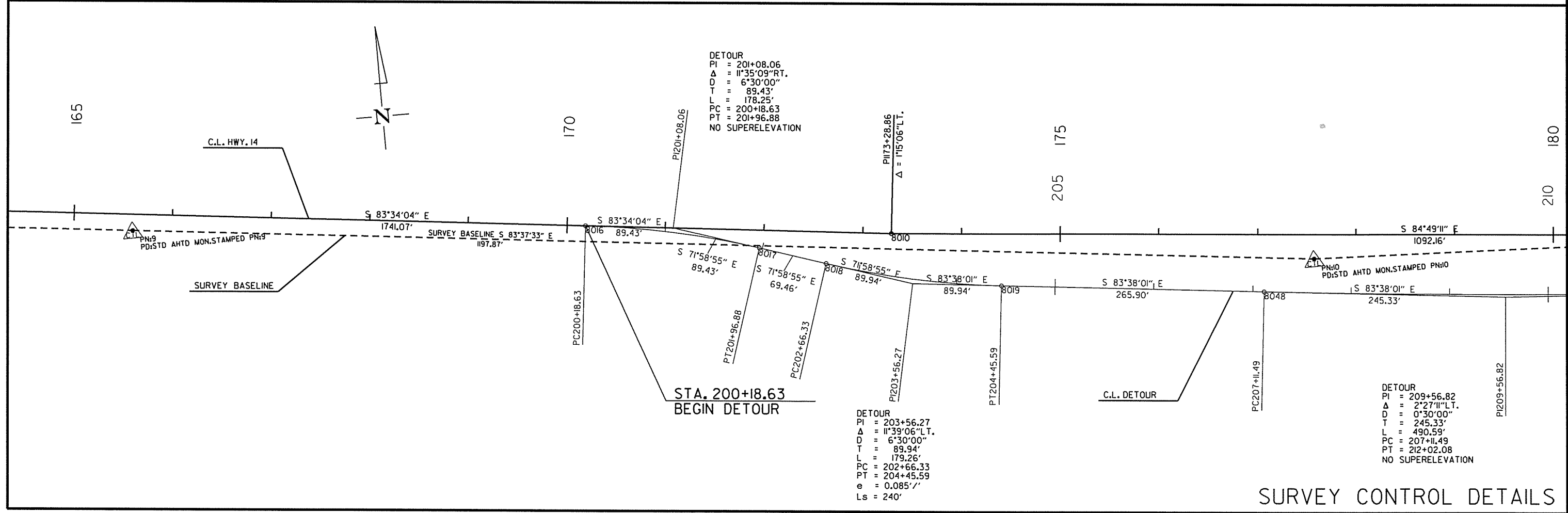
2 SURVEY CONTROL DETAILS



HWY. 14  
 PI = 151+44.72  
 Δ = 11°06'43" RT.  
 D = 1'15" 00"  
 T = 445.87'  
 L = 888.94'  
 PC = 146+98.85  
 PT = 155+87.79  
 e = 0.037' /'  
 Ls = 300'



DETOUR  
 PI = 201+08.06  
 Δ = 11°35'09" RT.  
 D = 6°30'00"  
 T = 89.43'  
 L = 178.25'  
 PC = 200+18.63  
 PT = 201+96.88  
 NO SUPERELEVATION



DETOUR  
 PI = 203+56.27  
 Δ = 11°39'06" LT.  
 D = 6°30'00"  
 T = 89.94'  
 L = 179.26'  
 PC = 202+66.33  
 PT = 204+45.59  
 e = 0.085' /'  
 Ls = 240'

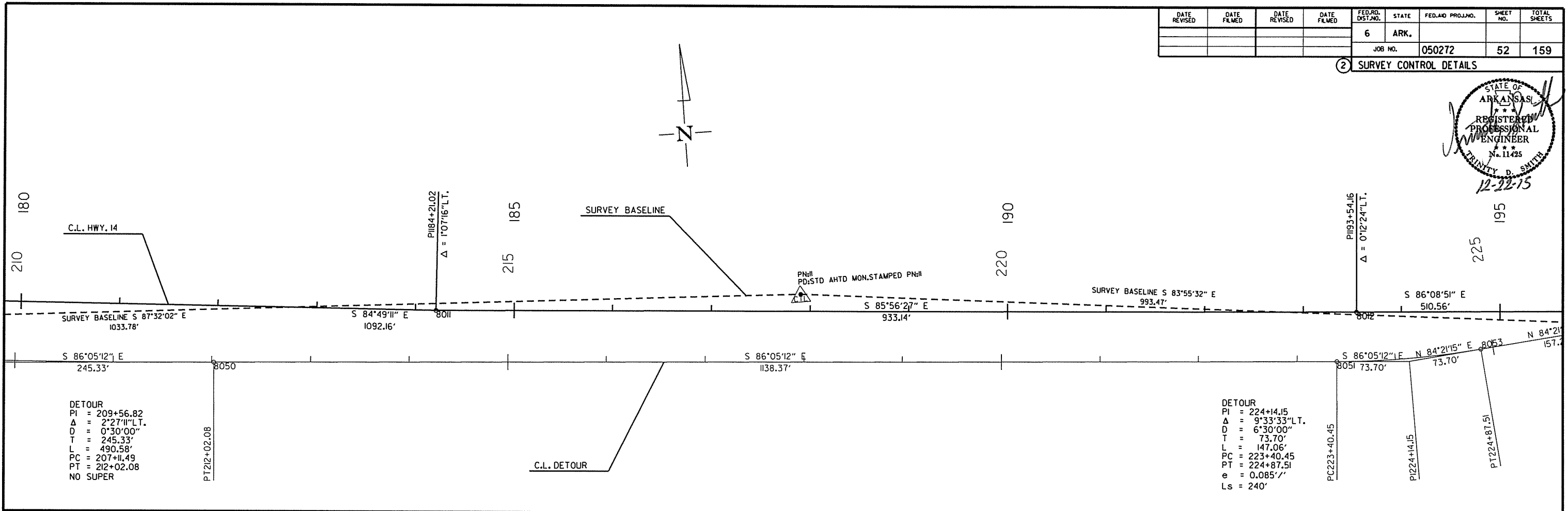
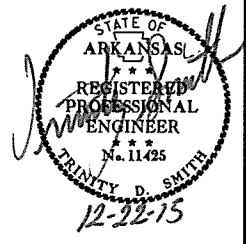
DETOUR  
 PI = 209+56.82  
 Δ = 2°27'11" LT.  
 D = 0°30'00"  
 T = 245.33'  
 L = 490.59'  
 PC = 207+11.49  
 PT = 212+02.08  
 NO SUPERELEVATION

SURVEY CONTROL DETAILS

12/21/2015  
 R050272.DGN

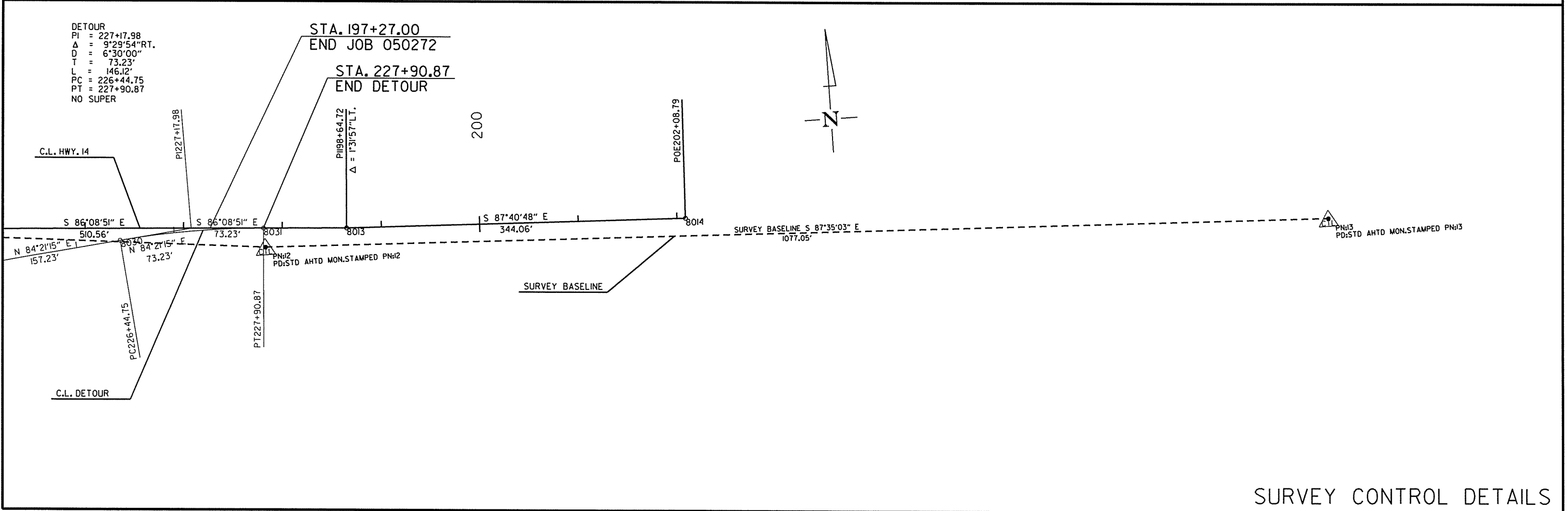
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							52	159

② SURVEY CONTROL DETAILS



DETOUR  
 PI = 209+56.82  
 Δ = 2°27'11\"/>

DETOUR  
 PI = 224+14.15  
 Δ = 9°33'33\"/>



DETOUR  
 PI = 227+17.98  
 Δ = 9°29'54\"/>

STA. 197+27.00  
 END JOB 050272  
 STA. 227+90.87  
 END DETOUR

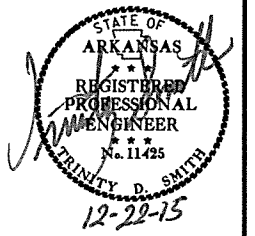
12/21/2015

R050272.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.	050272		53	159

② SOIL LOG



SOIL LOG

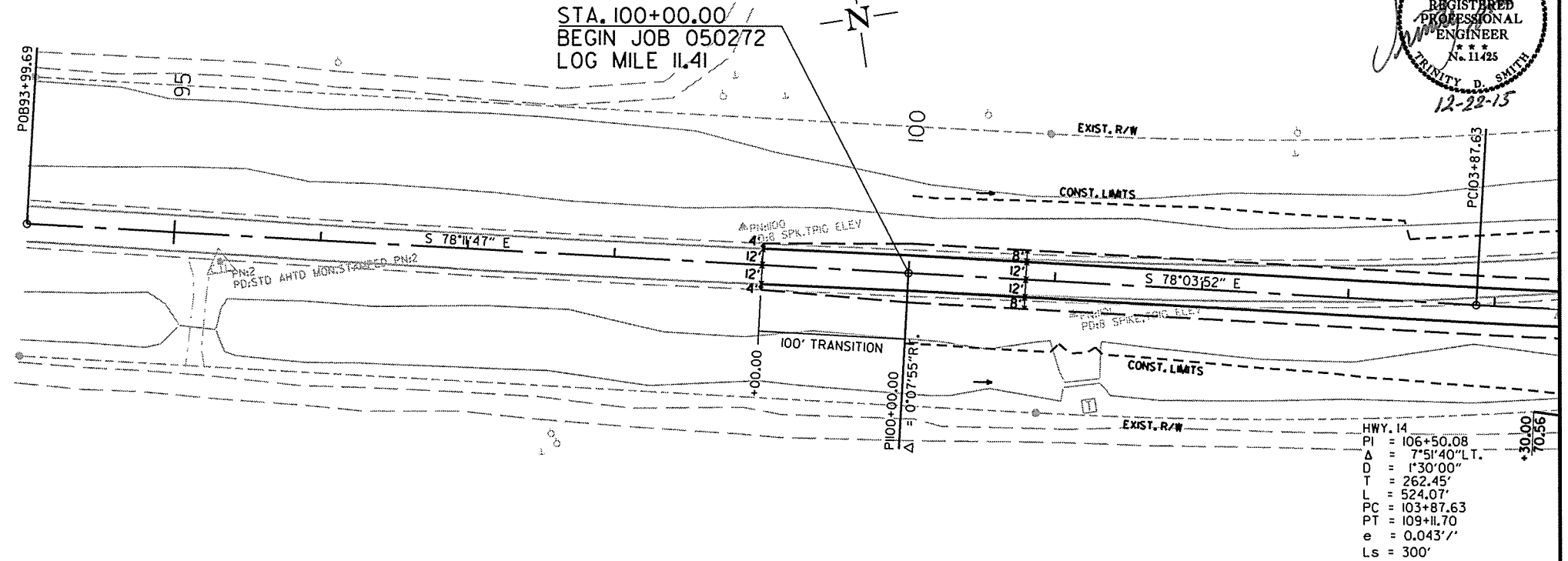
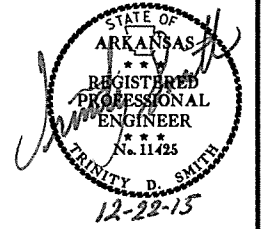
STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
501+00	35	33	49.80	91	8	47.70	6' RT.	0-5	29	16	A-6 (8)	BR/GR
501+00	35	33	49.80	91	8	47.70	16' RT.	0-5	31	28	A-6 (16)	GRAY
501+00	35	33	49.60	91	8	47.70	30' RT.	0-5	36	12	A-6 (7)	GRAY
501+00	35	33	49.60	91	8	47.70	30' RT.	0-5	36	22	A-6 (14)	GRAY
509+00	35	33	48.40	91	8	37.90	6' LT.	0-5	23	9	A-4 (2)	GRAY
509+00	35	33	48.40	91	8	37.90	14' LT.	0-5	27	14	A-6 (6)	GRAY
509+00	35	33	48.50	91	8	37.90	22' LT.	0-5	28	14	A-6 (4)	GRAY
525+00	35	33	46.90	91	8	18.60	6' RT.	0-5	24	11	A-6 (3)	GRAY
525+00	35	33	46.90	91	8	18.60	14' RT.	0-5	28	15	A-6 (4)	GRAY
525+00	35	33	46.80	91	8	18.60	20' RT.	0-5	26	15	A-6 (4)	GRAY
533+00	35	33	47.10	91	8	9.40	5' LT.	0-5	22	13	A-6 (2)	GRAY
533+00	35	33	47.20	91	8	9.40	14' LT.	0-5	24	11	A-6 (2)	GRAY
533+00	35	33	47.30	91	8	9.40	20' LT.	0-5	24	10	A-4 (1)	GRAY
541+00	35	33	47.20	91	7	59.80	5' RT.	0-5	36	23	A-6 (11)	GRAY
541+00	35	33	47.10	91	7	59.70	14' RT.	0-5	38	26	A-6 (14)	GRAY
541+00	35	33	47.00	91	7	59.70	28' RT.	0-5	45	30	A-7-6 (21)	GRAY
549+00	35	33	47.50	91	7	50.40	5' LT.	0-5	30	18	A-6 (8)	GRAY
549+00	35	33	47.60	91	7	50.40	15' LT.	0-5	43	30	A-7-6 (18)	GRAY
549+00	35	33	47.70	91	7	50.40	23' LT.	0-5	54	37	A-7-6 (30)	GRAY
557+00	35	33	47.50	91	7	40.10	5' RT.	0-5	26	14	A-6 (5)	GRAY
557+00	35	33	47.50	91	7	40.10	14' RT.	0-5	30	18	A-6 (7)	GRAY
557+00	35	33	47.30	91	7	40.10	33' RT.	0-5	29	16	A-6 (6)	GRAY
565+00	35	33	46.80	91	7	30.30	5' LT.	0-5	29	17	A-6 (9)	GRAY
565+00	35	33	46.90	91	7	30.30	14' LT.	0-5	30	15	A-6 (9)	GRAY
565+00	35	33	46.90	91	9	30.30	22' LT.	0-5	29	15	A-6 (10)	GRAY
573+00	35	33	45.70	91	7	20.50	5' RT.	0-5	26	12	A-6 (5)	GRAY
573+00	35	33	45.60	91	7	20.50	14' RT.	0-5	27	14	A-6 (7)	GRAY
573+00	35	33	45.50	91	7	20.50	23' RT.	0-5	ND	NP	A-4 (0)	GRAY
581+00	35	33	44.90	91	7	11.50	6' LT.	0-5	24	10	A-4 (3)	GRAY
581+00	35	33	45.00	91	7	11.50	15' LT.	0-5	28	15	A-6 (6)	GRAY
581+00	35	33	45.10	91	7	11.50	22' LT.	0-5	24	11	A-6 (3)	GRAY
589+00	35	33	44.00	91	7	1.70	6' RT.	0-5	24	10	A-4 (3)	GRAY
589+00	35	33	43.90	91	7	1.70	15' RT.	0-5	32	16	A-6 (10)	GRAY
589+00	35	33	43.90	91	7	1.70	20' RT.	0-5	26	11	A-6 (5)	GRAY
595+00	35	33	43.60	91	6	54.60	5' LT.	0-5	31	15	A-6 (8)	GRAY
595+00	35	33	43.70	91	6	54.60	15' LT.	0-5	36	23	A-6 (15)	GRAY
595+00	35	33	43.80	91	6	54.60	20' LT.	0-5	35	20	A-6 (14)	GRAY
604+00	35	33	42.90	91	6	43.70	5' RT.	0-5	41	27	A-7-6 (21)	GRAY
604+00	35	33	42.80	91	6	43.70	15' RT.	0-5	37	22	A-6 (11)	GRAY
604+00	35	33	42.60	91	6	43.70	30' RT.	0-5	36	22	A-6 (19)	GRAY
604+00	35	33	42.60	91	6	43.70	30' RT.	0-5	38	24	A-6 (18)	GRAY

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.  
 NP - NON-PLASTIC  
 ND - NOT DETERMINABLE

ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		54	159

② PLAN AND PROFILE SHEETS

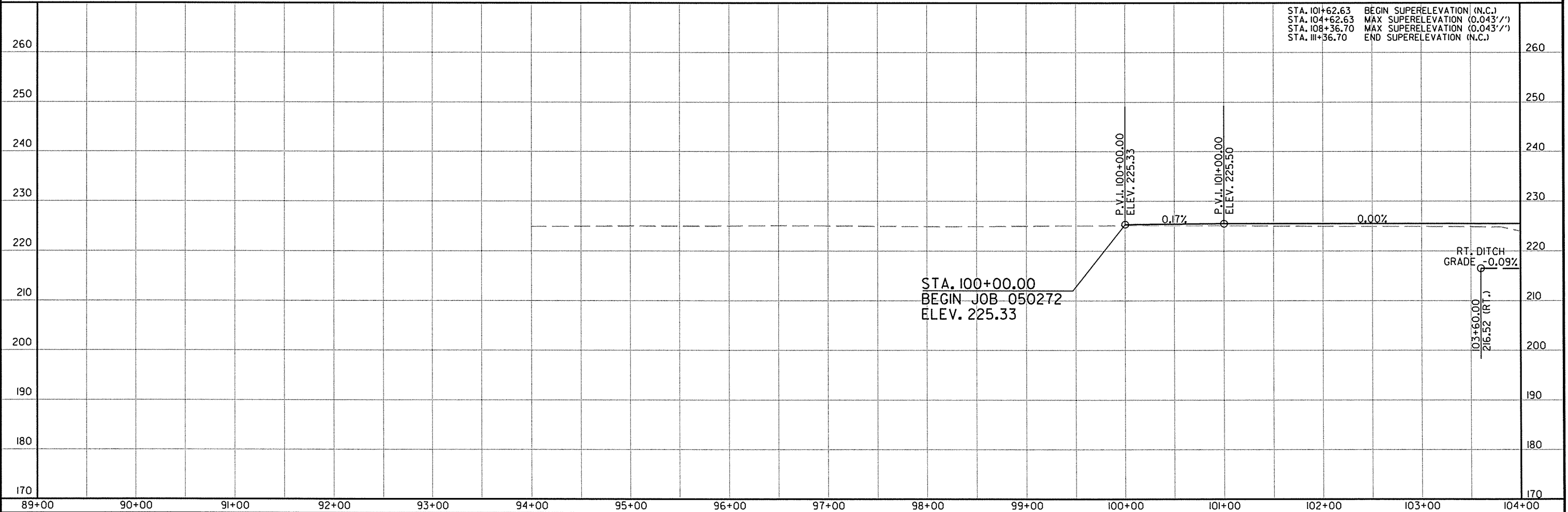


HWY. 14

PI	= 106+50.08
Δ	= 7°51'40" LT.
D	= 1'30'00"
T	= 262.45'
L	= 524.07'
PC	= 103+87.63
PT	= 109+11.70
e	= 0.043'/'
Ls	= 300'

HWY. 14

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

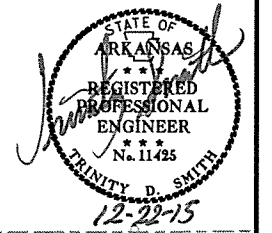


R050272.DGN 12/21/2015

ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							55	159

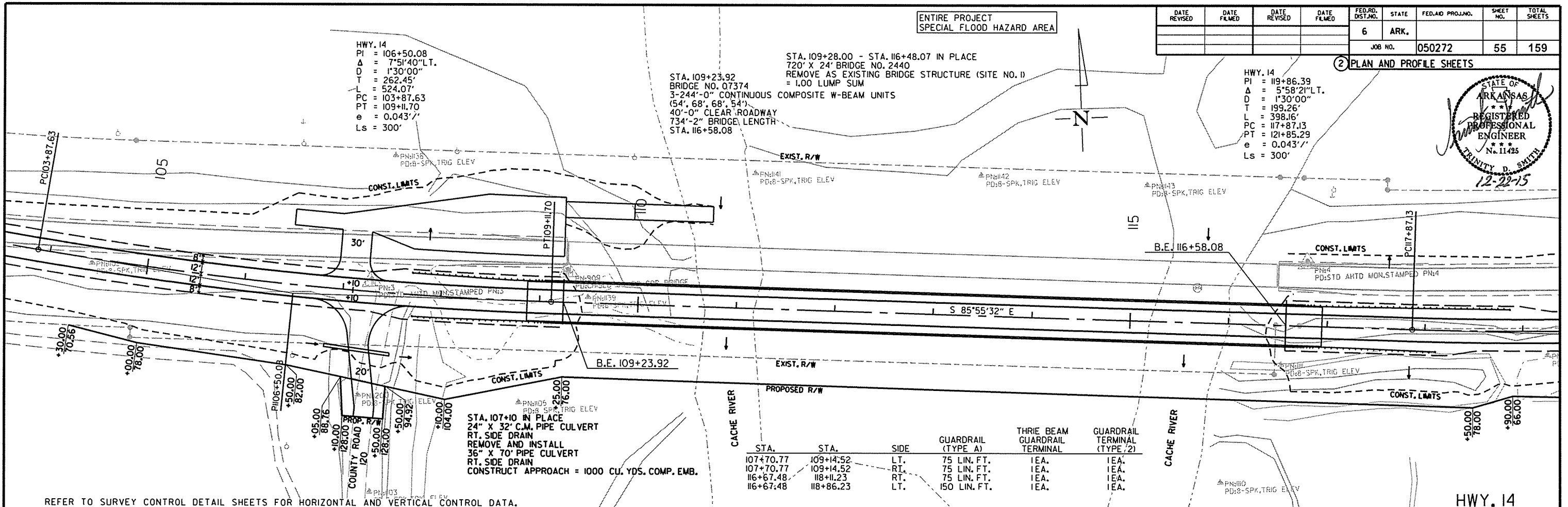
2 PLAN AND PROFILE SHEETS



HWY. 14  
PI = 106+50.08  
Δ = 7°51'40" L.T.  
D = 1°30'00"  
T = 262.45'  
L = 524.07'  
PC = 103+87.63  
PT = 109+11.70  
e = 0.043'/'  
Ls = 300'

STA. 109+28.00 - STA. 116+48.07 IN PLACE  
720' X 24' BRIDGE NO. 2440  
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1)  
= 1.00 LUMP SUM  
STA. 109+23.92  
BRIDGE NO. 07374  
3-244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS  
(54', 68', 68', 54')  
40'-0" CLEAR ROADWAY  
734'-2" BRIDGE LENGTH  
STA. 116+58.08

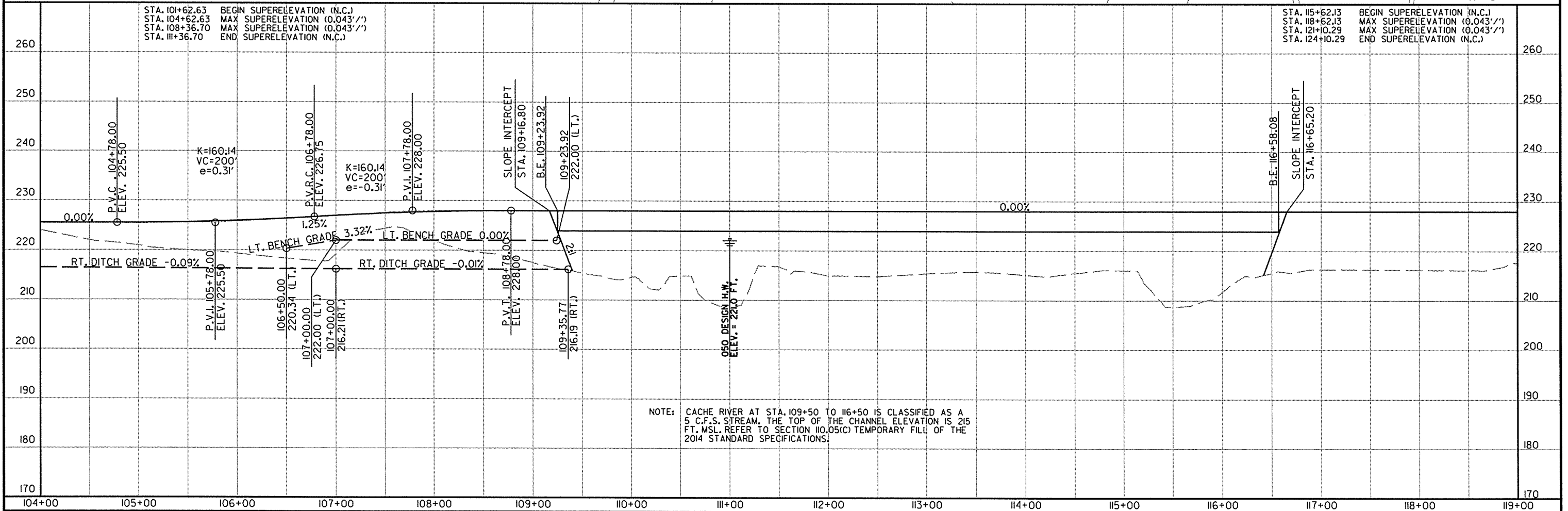
HWY. 14  
PI = 119+86.39  
Δ = 5°58'21" L.T.  
D = 1°30'00"  
T = 199.26'  
L = 398.16'  
PC = 117+87.13  
PT = 121+85.29  
e = 0.043'/'  
Ls = 300'



STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
107+70.77	109+14.52	LT.	75 LIN. FT.	1EA.	1EA.
107+70.77	109+14.52	RT.	75 LIN. FT.	1EA.	1EA.
116+67.48	118+11.23	RT.	75 LIN. FT.	1EA.	1EA.
116+67.48	118+86.23	LT.	150 LIN. FT.	1EA.	1EA.

STA. 107+10 IN PLACE  
24" X 32" C.M. PIPE CULVERT  
RT. SIDE DRAIN  
REMOVE AND INSTALL  
36" X 70" PIPE CULVERT  
RT. SIDE DRAIN  
CONSTRUCT APPROACH = 1000 CU. YDS. COMP. EMB.

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



NOTE: CACHE RIVER AT STA. 109+50 TO 116+50 IS CLASSIFIED AS A 5 C.F.S. STREAM. THE TOP OF THE CHANNEL ELEVATION IS 215 FT. MSL. REFER TO SECTION 110.05(C) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

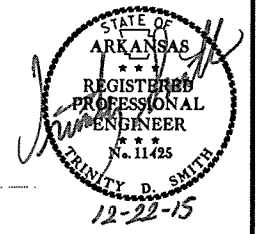
HWY. 14  
 PI = 119+86.39  
 Δ = 5°58'21" LT.  
 D = 1°30'00"  
 T = 199.26'  
 L = 398.16'  
 PC = 117+87.13  
 PT = 121+85.29  
 e = 0.043'/'  
 Ls = 300'

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
129+52.35	131+71.0	RT.	150 LIN. FT.	1EA.	1EA.
130+27.35	131+71.0	LT.	75 LIN. FT.	1EA.	1EA.
133+52.90	134+96.65	LT.	75 LIN. FT.	1EA.	1EA.
133+52.90	134+96.65	RT.	75 LIN. FT.	1EA.	1EA.

ENTIRE PROJECT  
 SPECIAL FLOOD HAZARD AREA

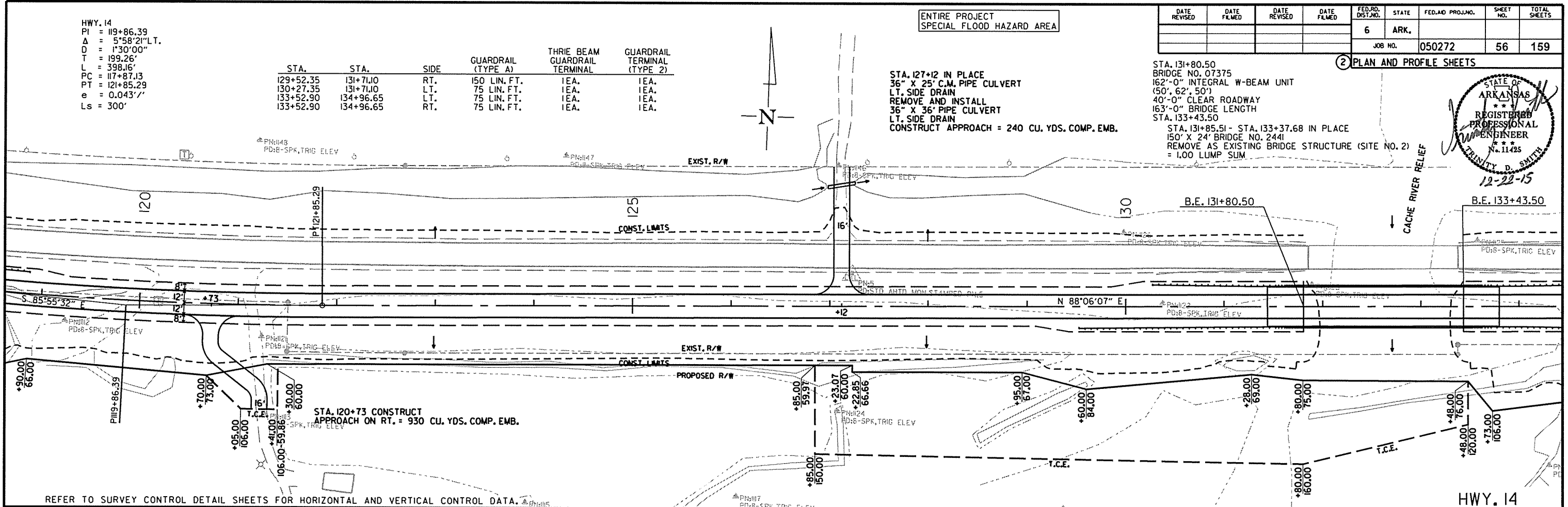
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							56	159

2 PLAN AND PROFILE SHEETS

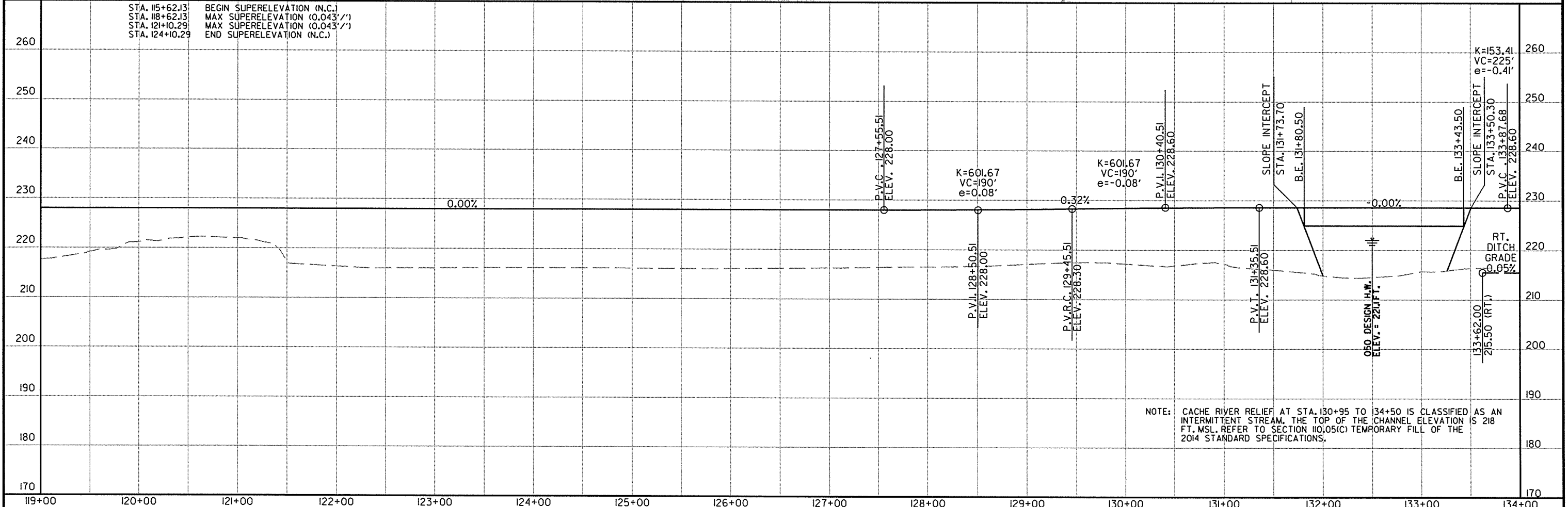


STA. 127+12 IN PLACE  
 36" X 25" C.M. PIPE CULVERT  
 LT. SIDE DRAIN  
 REMOVE AND INSTALL  
 36" X 36" PIPE CULVERT  
 LT. SIDE DRAIN  
 CONSTRUCT APPROACH = 240 CU. YDS. COMP. EMB.

STA. 131+80.50  
 BRIDGE NO. 07375  
 162'-0" INTEGRAL W-BEAM UNIT  
 (50', 62', 50')  
 40'-0" CLEAR ROADWAY  
 163'-0" BRIDGE LENGTH  
 STA. 133+43.50  
 STA. 131+85.51 - STA. 133+37.68 IN PLACE  
 150' X 24' BRIDGE NO. 2441  
 REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2)  
 = 1.00 LUMP SUM



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



R050272.DGN 12/21/2015



ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

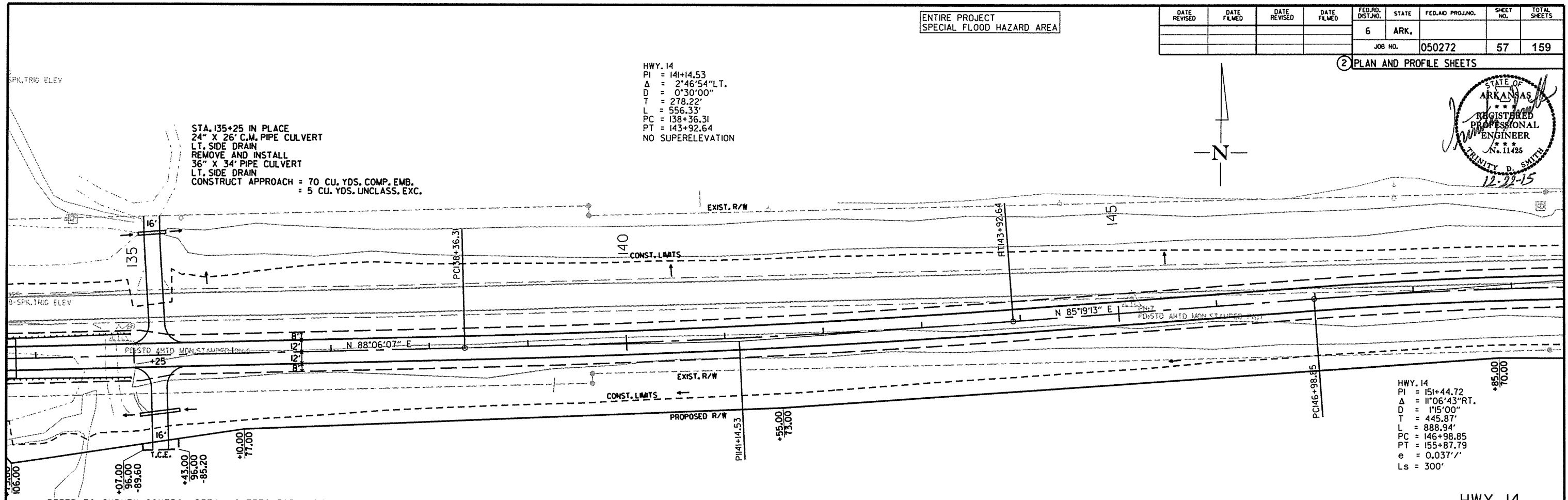
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							57	159

2 PLAN AND PROFILE SHEETS



HWY. 14  
PI = 141+14.53  
Δ = 2°46'54"LT.  
D = 0°30'00"  
T = 278.22'  
L = 556.33'  
PC = 138+36.31  
PT = 143+92.64  
NO SUPERELEVATION

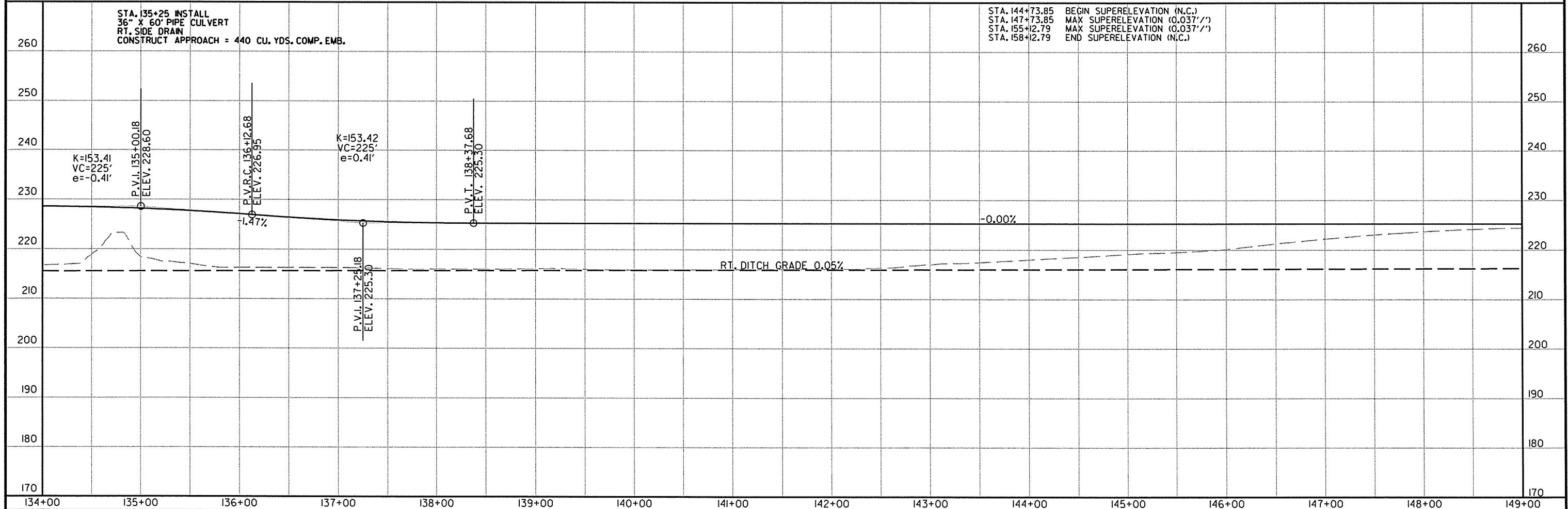
STA. 135+25 IN PLACE  
24" X 26" C.M. PIPE CULVERT  
LT. SIDE DRAIN  
REMOVE AND INSTALL  
36" X 34" PIPE CULVERT  
LT. SIDE DRAIN  
CONSTRUCT APPROACH = 70 CU. YDS. COMP. EMB.  
= 5 CU. YDS. UNCLASS. EXC.



HWY. 14  
PI = 151+44.72  
Δ = 11°06'43"RT.  
D = 1°15'00"  
T = 445.87'  
L = 888.94'  
PC = 146+98.85  
PT = 155+87.79  
e = 0.037'/'  
Ls = 300'

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

HWY. 14



STA. 135+25 INSTALL  
36" X 60" PIPE CULVERT  
RT. SIDE DRAIN  
CONSTRUCT APPROACH = 440 CU. YDS. COMP. EMB.

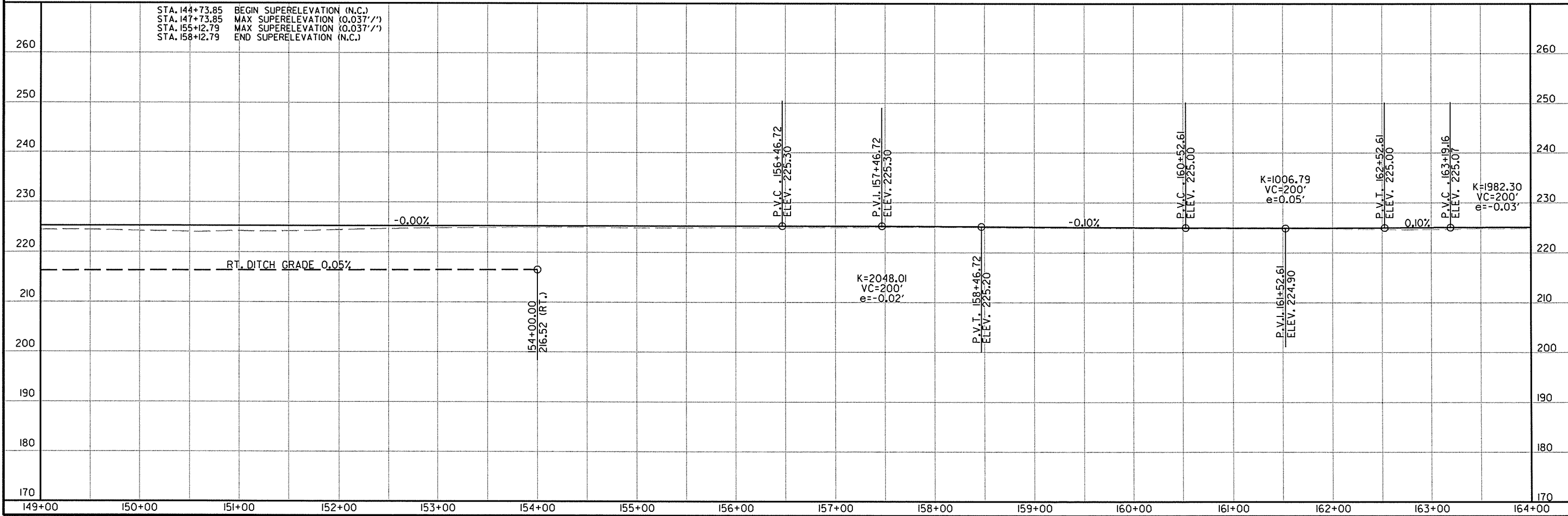
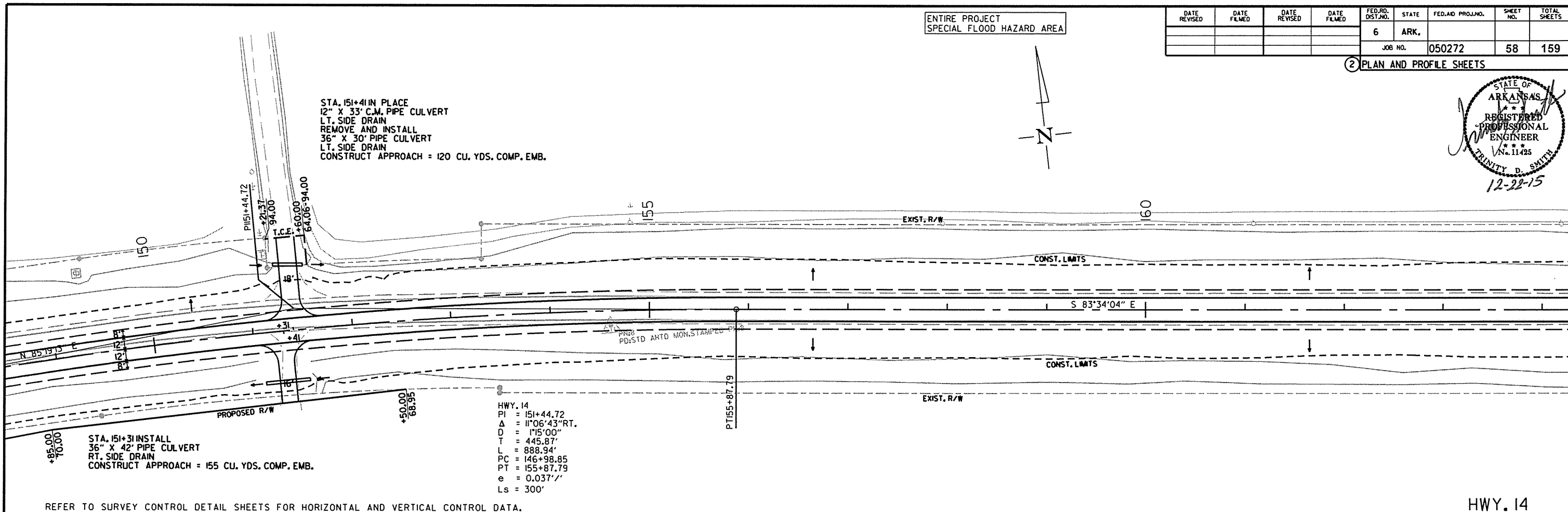
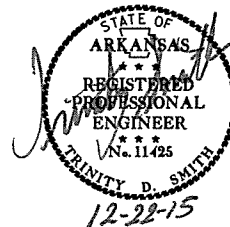
STA. 144+73.85 BEGIN SUPERELEVATION (N.C.)  
STA. 147+73.85 MAX SUPERELEVATION (0.037'/'')  
STA. 155+12.79 MAX SUPERELEVATION (0.037'/'')  
STA. 158+12.79 END SUPERELEVATION (N.C.)

R050272.DGN 12/21/2015

ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							58	159

2 PLAN AND PROFILE SHEETS



ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

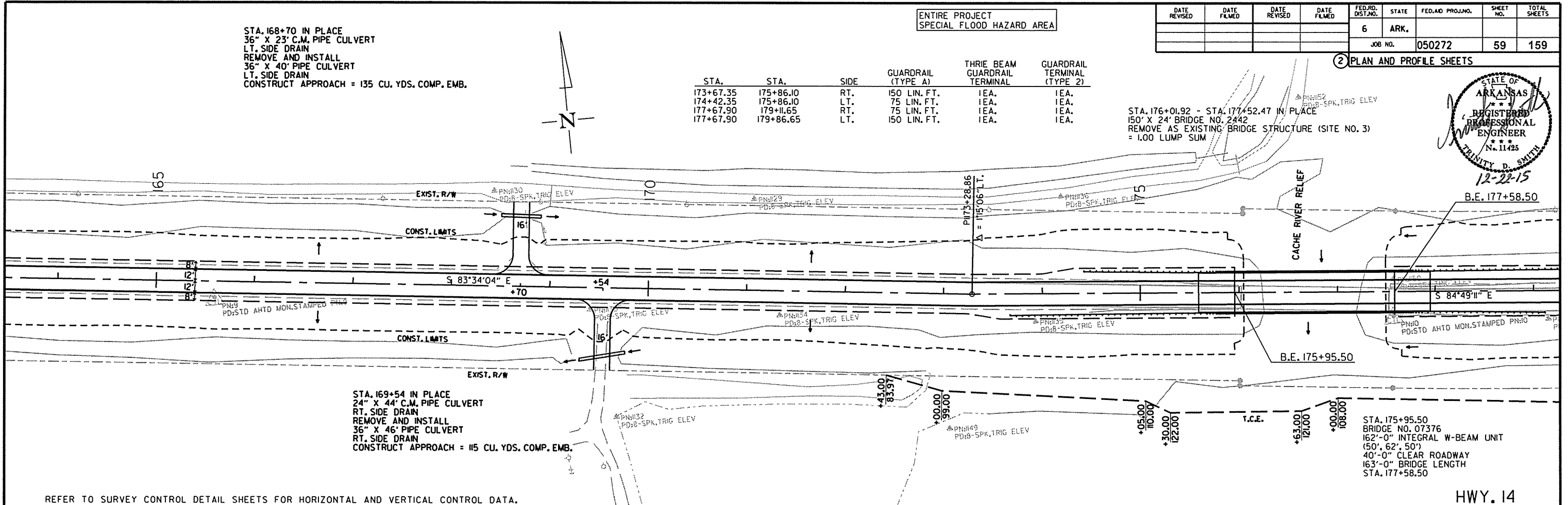
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							59	159

2 PLAN AND PROFILE SHEETS

STA. 168+70 IN PLACE  
36" X 23' C.M. PIPE CULVERT  
LT. SIDE DRAIN  
REMOVE AND INSTALL  
36" X 40' PIPE CULVERT  
LT. SIDE DRAIN  
CONSTRUCT APPROACH = 135 CU. YDS. COMP. EMB.

STA.	STA.	SIDE	GUARDRAIL (TYPE 1)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
173+67.35	175+86.10	RT.	150 LIN. FT.	1EA.	1EA.
174+42.35	175+86.10	LT.	75 LIN. FT.	1EA.	1EA.
177+67.90	179+11.65	RT.	75 LIN. FT.	1EA.	1EA.
177+67.90	179+86.65	LT.	150 LIN. FT.	1EA.	1EA.

STA. 176+01.92 - STA. 177+52.47 IN PLACE  
150' X 24' BRIDGE NO. 2442  
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 3)  
= 1.00 LUMP SUM

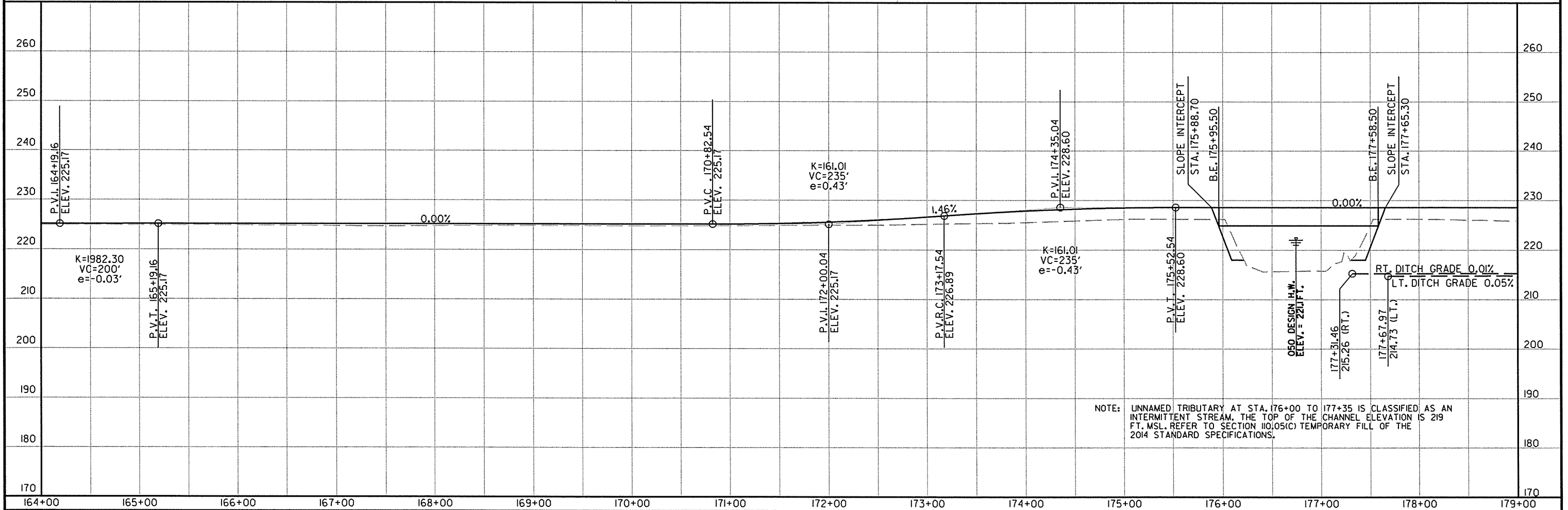


STA. 169+54 IN PLACE  
24" X 44' C.M. PIPE CULVERT  
RT. SIDE DRAIN  
REMOVE AND INSTALL  
36" X 46' PIPE CULVERT  
RT. SIDE DRAIN  
CONSTRUCT APPROACH = 115 CU. YDS. COMP. EMB.

STA. 175+95.50  
BRIDGE NO. 07376  
162'-0" INTEGRAL W-BEAM UNIT  
(50', 62', 50')  
40'-0" CLEAR ROADWAY  
163'-0" BRIDGE LENGTH  
STA. 177+58.50

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

HWY. 14



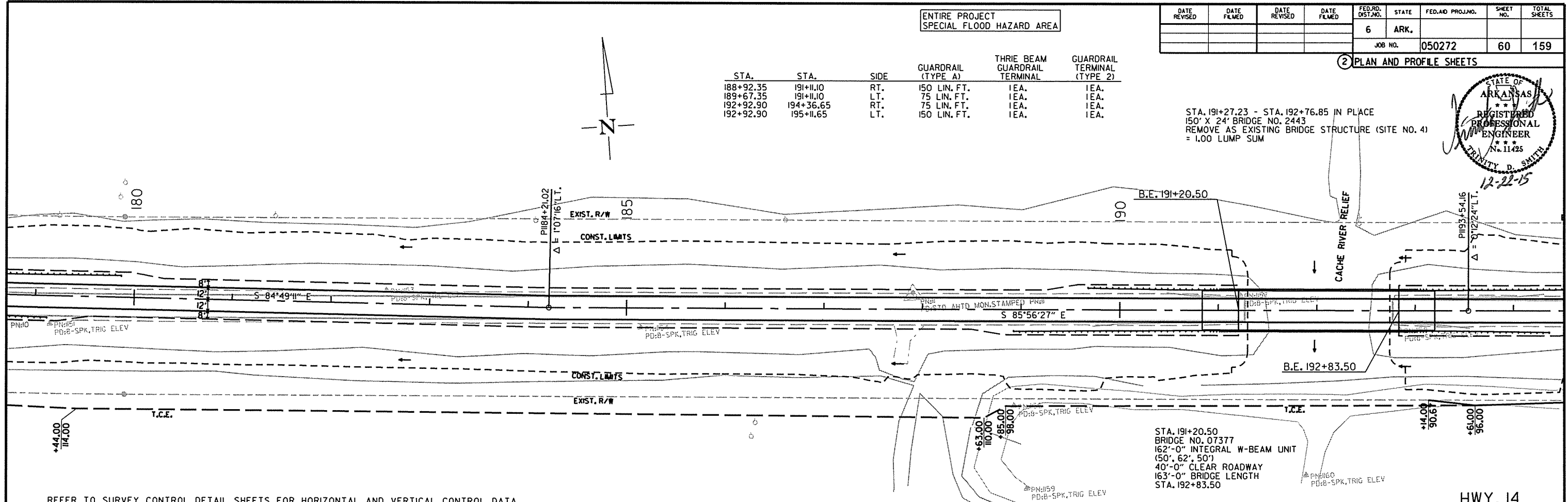
ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							60	159

2 PLAN AND PROFILE SHEETS

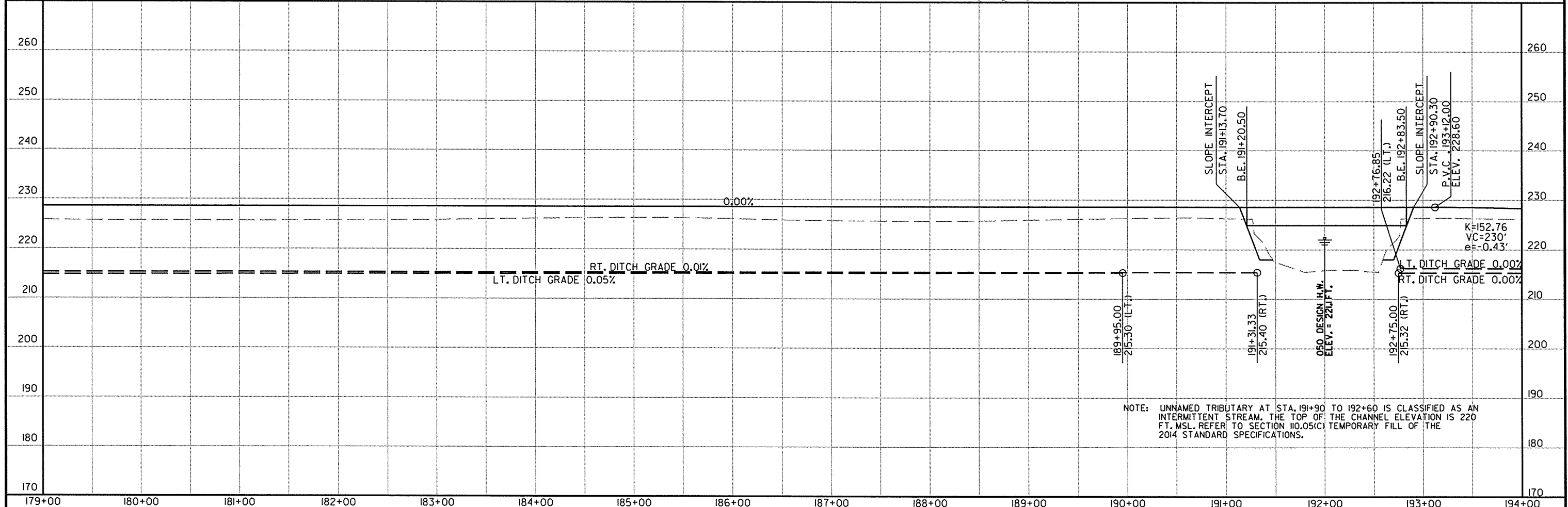
STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
188+92.35	191+11.10	RT.	150 LIN. FT.	1EA.	1EA.
189+67.35	191+11.10	LT.	75 LIN. FT.	1EA.	1EA.
192+92.90	194+36.65	RT.	75 LIN. FT.	1EA.	1EA.
192+92.90	195+11.65	LT.	150 LIN. FT.	1EA.	1EA.

STA. 191+27.23 - STA. 192+76.85 IN PLACE  
150' X 24' BRIDGE NO. 2443  
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 4)  
= 1.00 LUMP SUM



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

HWY. 14

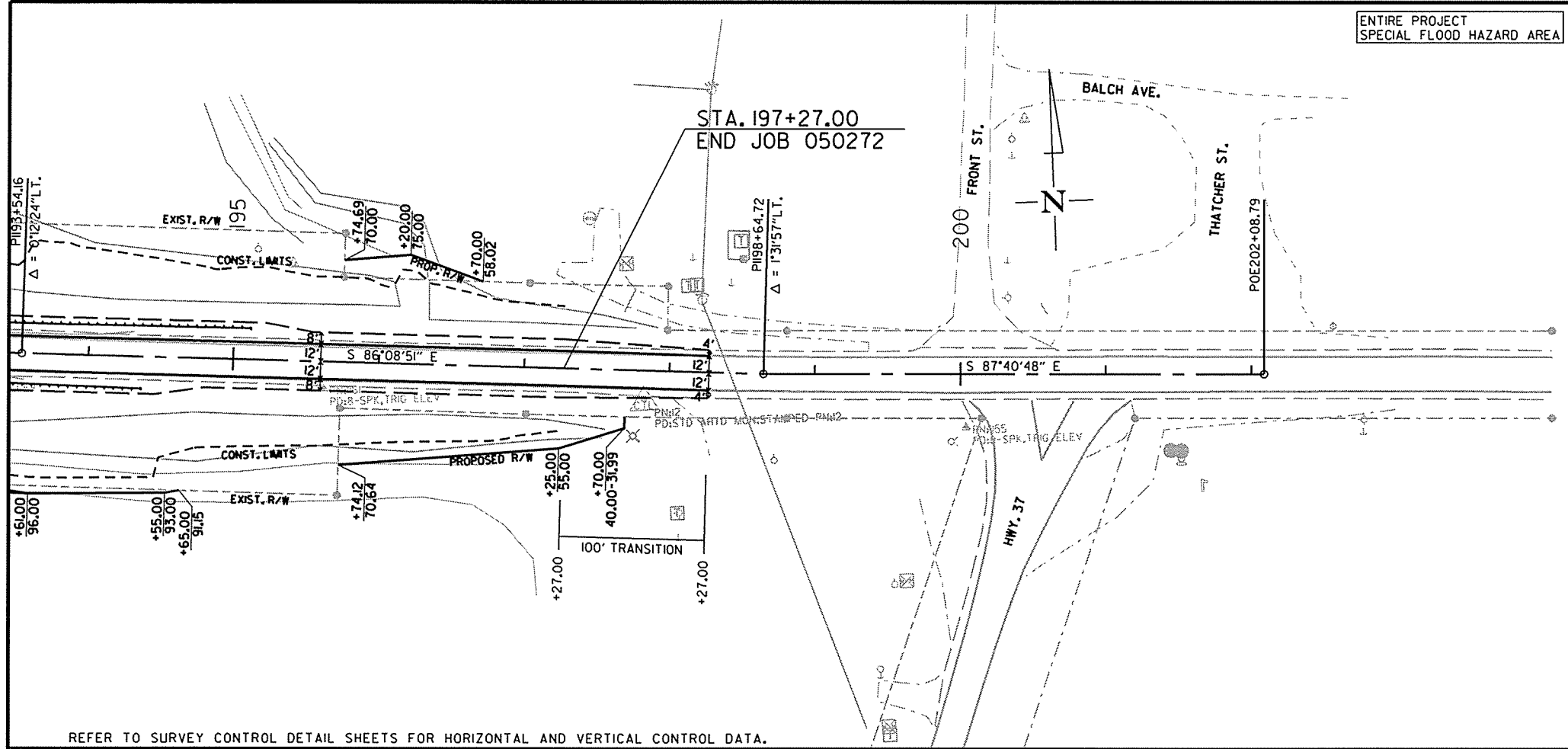
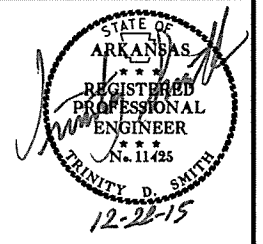


NOTE: UNNAMED TRIBUTARY AT STA. 191+90 TO 192+60 IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF THE CHANNEL ELEVATION IS 220 FT. MSL. REFER TO SECTION 110.05(C) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

ENTIRE PROJECT  
SPECIAL FLOOD HAZARD AREA

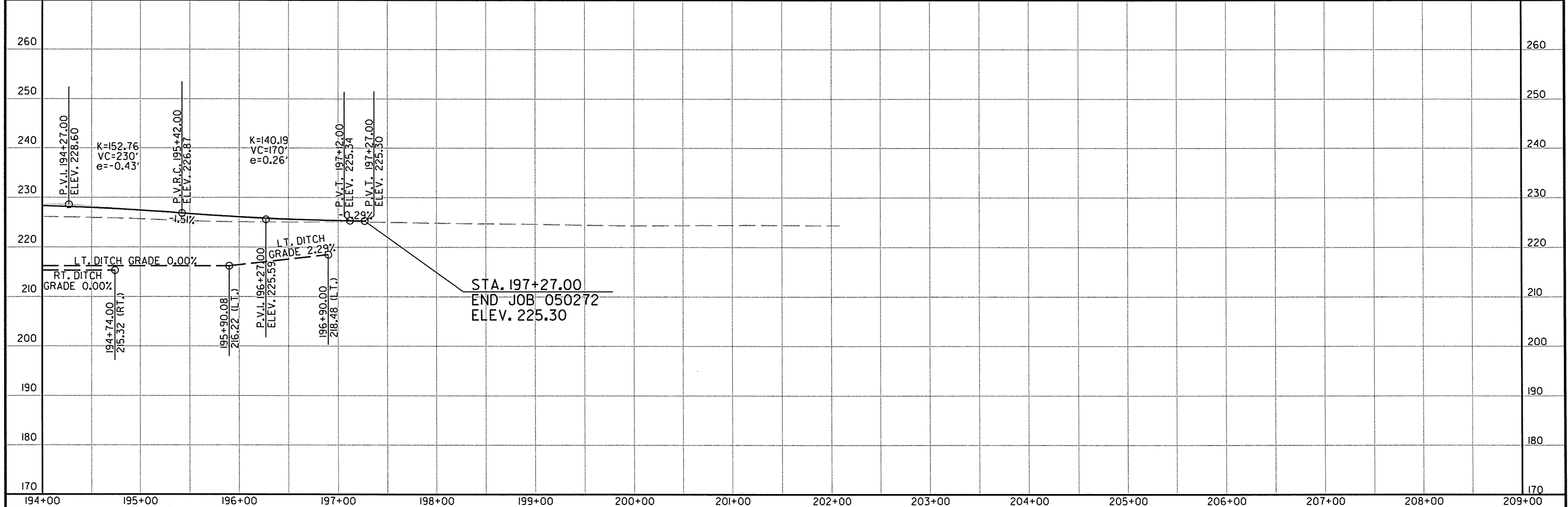
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 050272			61	159

② PLAN AND PROFILE SHEETS



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

HWY. 14



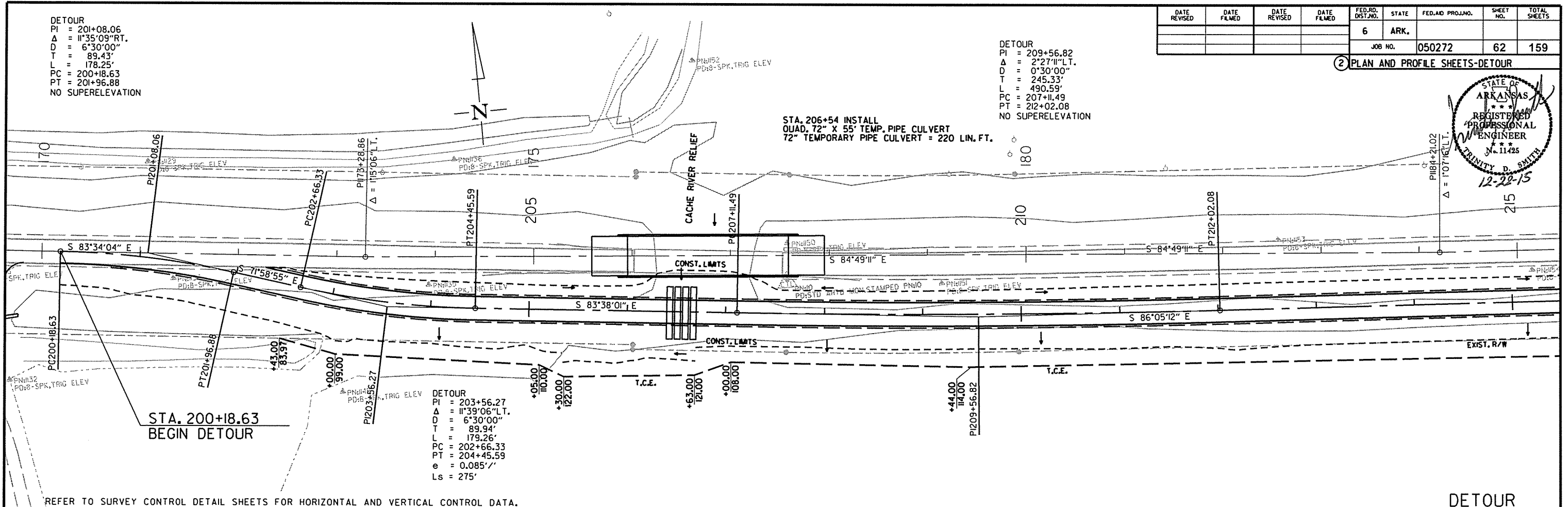
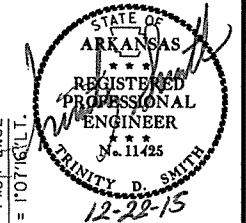
R050272.DGN 12/21/2015

DETOUR  
 PI = 201+08.06  
 Δ = 11°35'09" RT.  
 D = 6°30'00"  
 T = 89.43'  
 L = 178.25'  
 PC = 200+18.63  
 PT = 201+96.88  
 NO SUPERELEVATION

DETOUR  
 PI = 209+56.82  
 Δ = 2°27'11" LT.  
 D = 0°30'00"  
 T = 245.33'  
 L = 490.59'  
 PC = 207+11.49  
 PT = 212+02.08  
 NO SUPERELEVATION

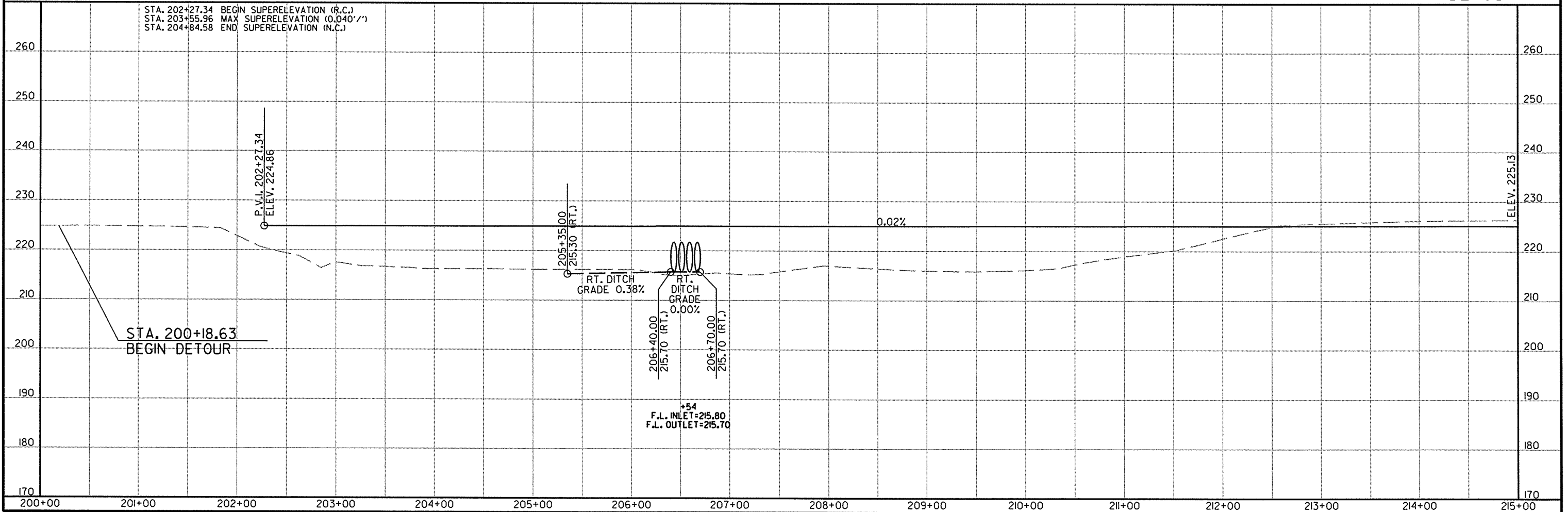
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							62	159

2 PLAN AND PROFILE SHEETS-DETOUR



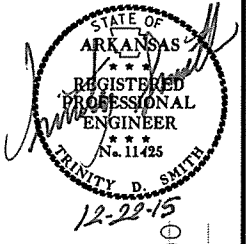
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

DETOUR

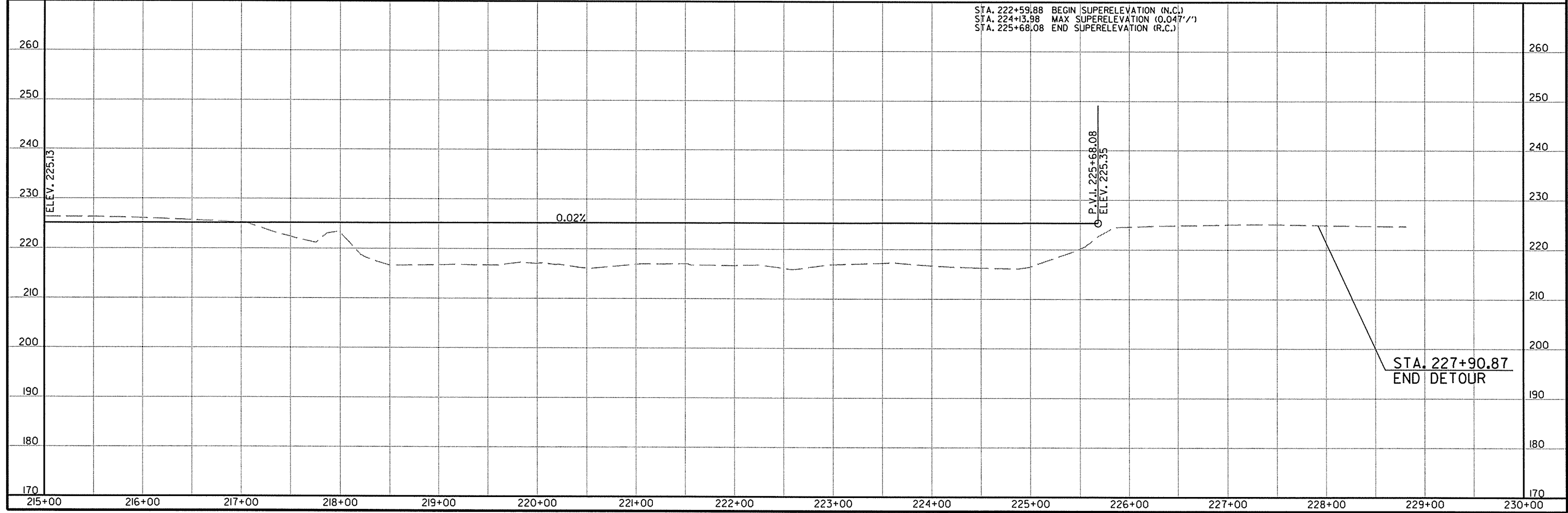
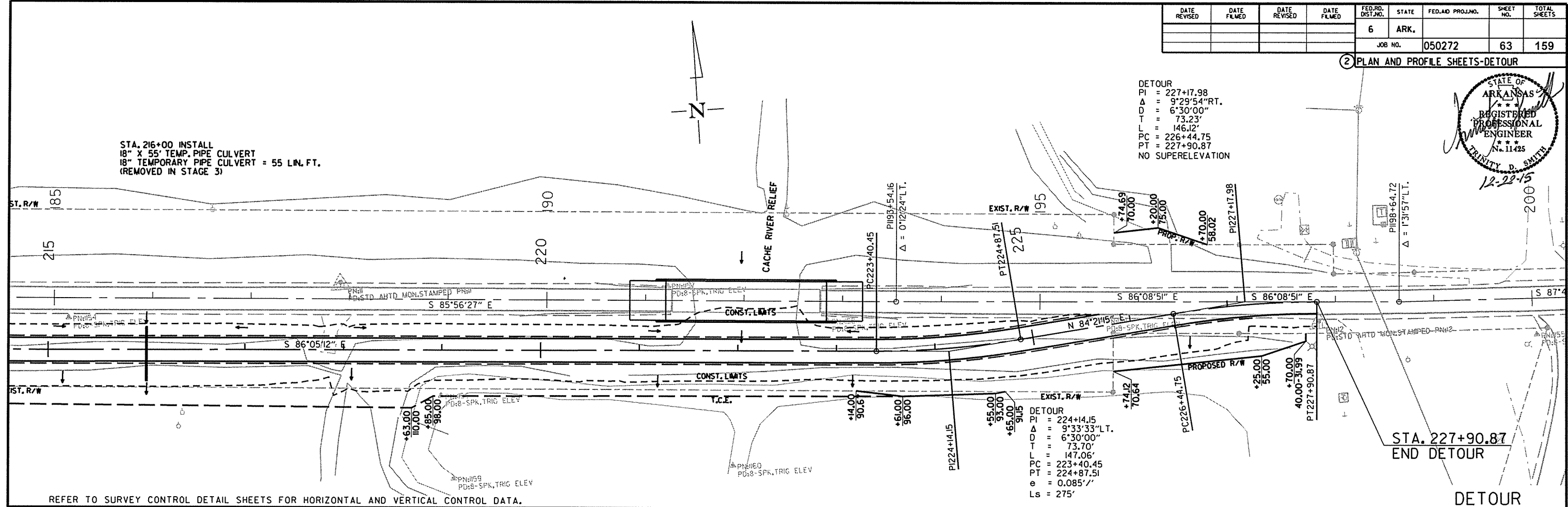


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							63	159

2 PLAN AND PROFILE SHEETS-DETOUR



DETOUR  
 PI = 227+17.98  
 Δ = 9°29'54" RT.  
 D = 6°30'00"  
 T = 73.23'  
 L = 146.12'  
 PC = 226+44.75  
 PT = 227+90.87  
 NO SUPERELEVATION



R050272.DGN 12/21/2015

For R/W Data, see Rdwy. Plans

Place Type C Approach Gutters ("w" = 8'-0") and Type C2 Approach Slabs at both ends of bridge. See Std. Dwg. Nos. 55030C & 55040C2.

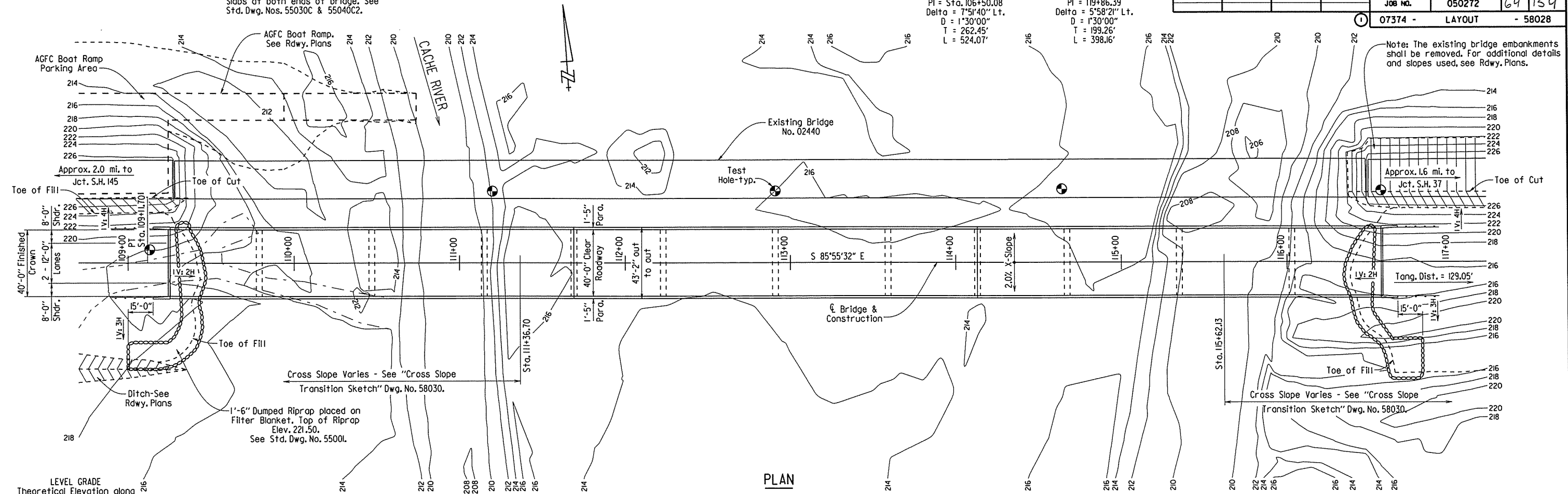
HORIZONTAL CURVE DATA  
AT BEGINNING OF BRIDGE

PI = Sta. 106+50.08  
Delta = 7°51'40" Lt.  
D = 1°30'00"  
T = 262.45'  
L = 524.07'

HORIZONTAL CURVE DATA  
AT END OF BRIDGE

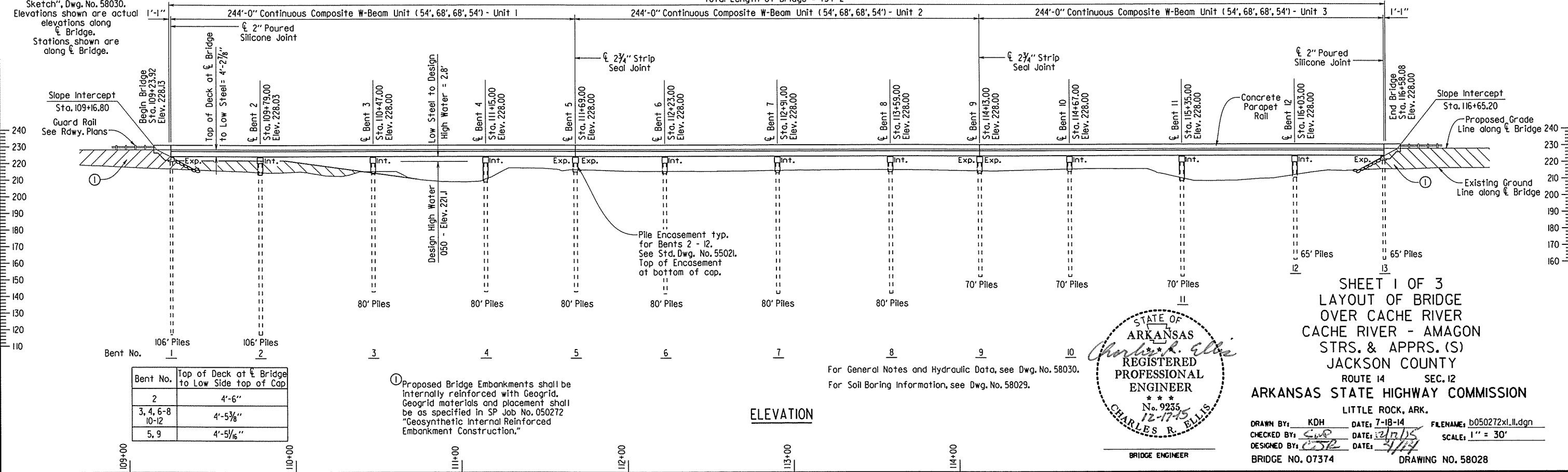
PI = 119+86.39  
Delta = 5°58'21" Lt.  
D = 1°30'00"  
T = 199.26'  
L = 398.16'

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.		050272	64	159
							- 58028	



PLAN

Total Length of Bridge = 734'-2"



ELEVATION

Bent No.	Top of Deck at $\bar{\bar{c}}$ Bridge to Low Side top of Cap
2	4'-6"
3, 4, 6-8	4'-5 $\frac{3}{8}$ "
10-12	4'-5 $\frac{1}{16}$ "
5, 9	4'-5 $\frac{1}{16}$ "

① Proposed Bridge Embankments shall be internally reinforced with Geogrid. Geogrid materials and placement shall be as specified in SP Job No. 050272 "Geosynthetic Internal Reinforced Embankment Construction."

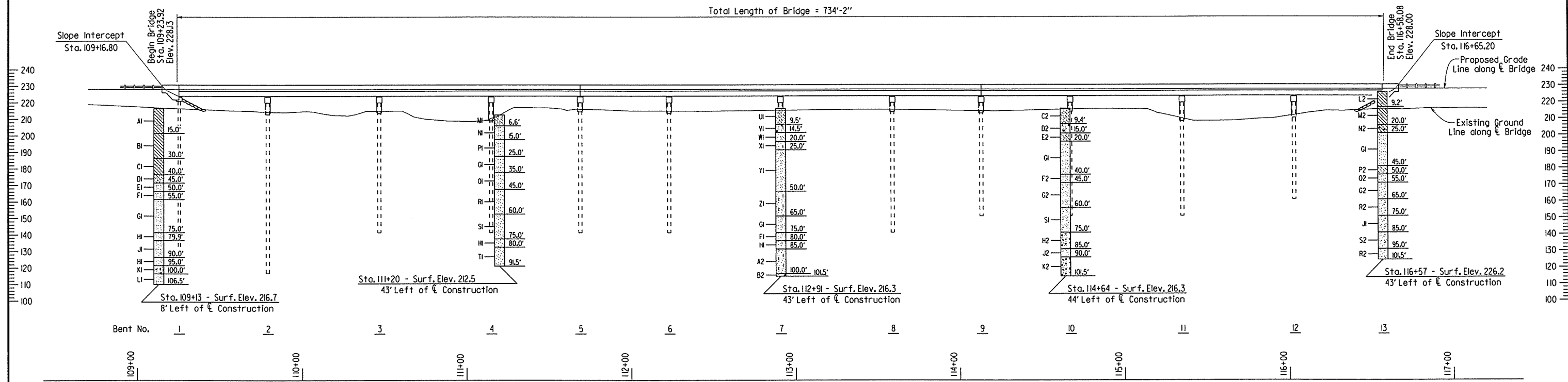
STATE OF ARKANSAS  
REGISTERED PROFESSIONAL ENGINEER  
No. 9235  
12-17-15  
CHARLES R. ELLIS  
BRIDGE ENGINEER

SHEET 1 OF 3  
LAYOUT OF BRIDGE  
OVER CACHE RIVER  
CACHE RIVER - AMAGON  
STRS. & APPRS. (S)  
JACKSON COUNTY  
ROUTE 14 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH DATE: 7-18-14 FILENAME: b050272x11.dgn  
CHECKED BY: CWP DATE: 12/15/15 SCALE: 1" = 30'  
DESIGNED BY: CSR DATE: 4/14  
BRIDGE NO. 07374 DRAWING NO. 58028

PRINT DATE: 12/17/2015



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	65	159
				07374 -	LAYOUT			58029

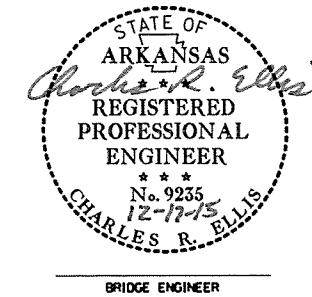


**"N" VALUES**

Sta. 109+13 - 8' Left of Centerline Construction	Sta. 111+20 - 43' Left of Centerline Construction	Sta. 112+91 - 43' Left of Centerline Construction	Sta. 114+64 - 44' Left of Centerline Construction	Sta. 116+57 - 43' Left of Centerline Construction
4.3- 5.3, N+6	2.1- 3.1, N+1	5.0- 6.0, N+8	4.9- 5.9, N+8	4.7- 5.7, N+19
9.3- 10.3, N+8	7.1- 8.1, N+7	10.0- 11.0, N+5	9.9- 10.9, N+6	9.7- 10.7, N+6
15.5- 16.5, N+0	12.1- 13.1, N+9	15.0- 16.0, N+10	15.5- 16.5, N+8	15.5- 16.5, N+5
20.5- 21.5, N+2	15.5- 16.5, N+10	20.5- 21.5, N+23	20.5- 21.5, N+17	20.5- 21.5, N+5
25.5- 26.5, N+0	20.5- 21.5, N+13	25.5- 26.5, N+18	25.5- 26.5, N+26	25.5- 26.5, N+25
30.5- 31.5, N+2	25.5- 26.5, N+18	30.5- 31.5, N+26	30.5- 31.5, N+30	30.5- 31.5, N+26
35.5- 36.5, N+5	30.5- 31.5, N+20	35.5- 36.5, N+26	35.5- 36.5, N+18	35.5- 36.5, N+23
40.5- 41.5, N+8	35.5- 36.5, N+8	40.5- 41.5, N+22	40.5- 41.5, N+14	40.5- 41.5, N+21
45.5- 46.5, N+10	40.5- 41.5, N+14	45.5- 46.5, N+21	45.5- 46.5, N+45	45.5- 46.5, N+5
50.5- 51.5, N+16	45.5- 46.5, N+16	50.5- 51.5, N+32	50.5- 51.5, N+30	50.5- 51.5, N+36
55.5- 56.5, N+27	50.5- 51.5, N+26	55.5- 56.5, N+32	55.5- 56.5, N+24	55.5- 56.5, N+39
60.5- 61.5, N+17	55.5- 56.5, N+17	60.5- 61.5, N+25	60.5- 61.5, N+22	60.5- 61.5, N+22
65.5- 66.5, N+24	60.5- 61.5, N+22	65.5- 66.5, N+27	65.5- 66.5, N+31	65.5- 66.5, N+54
70.5- 71.5, N+20	65.5- 66.5, N+26	70.5- 71.5, N+24	70.5- 71.5, N+26	70.5- 71.5, N+45
75.5- 76.5, N+48	70.5- 71.5, N+38	75.5- 76.5, N+29	75.5- 76.5, N+52	75.5- 76.5, N+27
80.5- 81.5, N+20	75.5- 76.5, N+41	80.5- 81.5, N+42	80.5- 81.5, N+27	80.5- 81.5, N+35
85.5- 86.5, N+36	80.5- 81.5, N+36	85.5- 86.5, N+41	85.5- 86.5, N+28	85.5- 86.5, N+50
90.5- 91.5, N+50	85.5- 86.5, N+32	90.5- 91.5, N+42	90.5- 91.5, N+39	90.5- 91.5, N+51
95.5- 96.5, N+30	90.5- 91.5, N+61	95.5- 96.5, N+33	95.5- 96.5, N+48	95.5- 96.5, N+56
100.5-101.5, N+60		100.5-101.5, N+48	100.5-101.5, N+49	100.5-101.5, N+40
105.5-106.5, N+52				

**BORING LEGEND**

- AI-Moist, Medium Stiff, Gray Clay with Sand and some Gravel and Organic Matter
- BI-Wet, Very Soft to Soft, Gray Clay
- CI-Wet, Soft to Medium Stiff, Gray Sandy Clay with some Organic Matter
- DI-Wet, Loose, Gray Clayey Sand
- EI-Wet, Loose, Gray Sand
- FI-Wet, Medium Dense, Gray Sand with Trace of Gravel
- GI-Wet, Medium Dense, Gray Sand
- HI-Wet, Dense, Gray Sand
- JI-Wet, Medium Dense to Dense, Gray Sand with Trace of Gravel
- KI-Wet, Medium Dense, Gray Sand with Gravel
- LI-Wet, Very Dense, Gray Sand with Trace of Gravel
- MI-Wet, Very Loose, Gray Clayey Sand with some Organic Matter
- NI-Wet, Loose, Gray Sand with some Clay and Organic Matter
- PI-Wet, Loose to Medium Dense, Gray Sand with Trace of Organic Matter
- OI-Wet, Loose to Medium Dense, Gray Sand with Trace of Clay
- RI-Wet, Medium Dense, Gray Sand with some Gravel and Organic Matter
- SI-Wet, Medium Dense to Dense, Gray Sand with some Gravel
- TI-Wet, Dense to Very Dense, Gray Sand with some Gravel
- UI-Moist, Loose, Gray Clayey Sand
- VI-Moist, Loose, Gray Sand with Silt and Organic Matter
- WI-Moist, Loose, Gray Sand
- XI-Moist, Medium Dense, Gray Sand with Silt
- YI-Alternating Layers of Wet, Medium Dense, Gray Sand and Medium Dense Sand with Silt
- ZI-Alternating Layers of Wet, Dense, Gray Sand with Silt and Dense Sand
- A2-Alternating Layers of Wet, Dense, Gray Sand with Silt and some Gravel and Dense Sand
- B2-Wet, Dense, Gray Sand with Gravel
- C2-Moist, Loose, Brown and Gray Sand with Clay
- D2-Moist, Loose, Gray Silty Sand with Organic Matter
- E2-Wet, Loose, Gray Sand with Clay
- F2-Wet, Medium Dense, Gray Sand with Trace of Clay
- G2-Wet, Dense to Medium Dense, Gray Sand
- H2-Wet, Very Dense to Medium Dense, Gray Sand with Gravel
- J2-Wet, Medium Dense, Gray Sand with some Gravel
- K2-Alternating Layers of Wet, Dense, Gray Sand with Gravel and Dense Sand
- L2-Moist, Very Stiff, Gray Sandy Clay with some Gravel and Organic Matter
- M2-Moist, Medium Stiff, Gray to Mottled Green and Brown Sandy Clay
- N2-Wet, Medium Stiff, Gray Clay with Organic Matter (Wood)
- P2-Wet, Loose, Gray Sand with Clay Seam
- O2-Wet, Dense, Gray Sand with Trace of Clay
- R2-Wet, Very Dense to Dense, Gray Sand
- S2-Wet, Dense to Very Dense, Gray Sand with Trace of Gravel



SHEET 2 OF 3  
 LAYOUT OF BRIDGE  
 OVER CACHE RIVER  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY

ROUTE 14 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: ADN DATE: 2-17-15 FILENAME: b050272x1.lldgn  
 CHECKED BY: [Signature] DATE: 12/17/15 SCALE: 1" = 30'  
 DESIGNED BY: [Signature] DATE: 4/14  
 BRIDGE NO. 07374 DRAWING NO. 58029

PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	66	159
				07374 - LAYOUT				58030

**GENERAL NOTES**

**BENCH MARK:** Vertical Control Data is shown in the Survey Control Data Sheets.

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

**DESIGN SPECIFICATIONS:** AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012), with 2013 Interims.

**LIVE LOADING:** HL-93                      **SEISMIC ZONE:** 4

**MATERIALS AND STRENGTHS:**  
 Class (S/AE) Concrete (superstructure)                      f'c = 4,000 psi  
 Class 5 Concrete (substructure)                              f'c = 3,500 psi  
 Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)                      fy = 60,000 psi  
 Structural Steel (AASHTO M 270, Gr. 36)                      Fy = 36,000 psi  
 Structural Steel (AASHTO M 270, Gr. 50W)                      Fy = 50,000 psi

**BORING LOGS:** Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

**STEEL SHELL PILING:** Piling for Bents 1 & 13 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 200 tons per pile and to the tip elevation shown in the table or lower. Piling for Bents 2 - 12 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 365 tons per pile and to the tip elevation shown in the table 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 are 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 40,000 ft.lbs. per blow will be required to obtain the ultimate bearing capacity at Bent Nos. 1 & 13. It is estimated that a minimum rated hammer energy of 75,000 ft.lbs. per blow will be required to obtain the ultimate bearing capacity at Bent Nos. 2 - 12.

Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum tip elevation. Preboring to achieve the minimum tip elevation shall be in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum tip elevation shall be considered subsidiary to "Steel Shell Piling".

**PILE ENCASEMENTS:** Pile encasements are required for Bents 2 - 12. See Std. Dwg. No. 5502L.

**BRIDGE DECK:** The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

<b>DETAIL DRAWINGS:</b>	<b>DRAWING NO.</b>
End Bents	58031-58033
Int. Bents	58034-58036
24' Continuous Composite W-Beam Units	58037-57047
Standard General Notes	55006
Concrete Filled Steel Shell Piles & Pile Encasements	55021
Type C2 Approach Slab	55040C2
Type C Approach Gutter	55030C

**EXISTING BRIDGE:** Existing Bridge No. 02440 (log mile 11.59) is 28.5' wide and 722' long and consists of twenty-four 30' spans with concrete deck on w-beams supported by concrete caps and piles. The existing bridge is located approx. 50' upstream from the proposed new bridge.

**REMOVAL AND SALVAGE:** After the new bridge is opened to traffic, the existing bridge No. 02440 shall be removed in accordance with Section 205. In addition, the Contractor shall remove the remnants of timber piling left in place from a previous structure(s) as directed by the Engineer. Payment for this work will be subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1)". This material and all material from the existing bridge shall become the property of the Contractor.

**MAINTENANCE OF TRAFFIC:** See Roadway Plans.

BENT NOS.	MINIMUM TIP ELEVATION
1 & 2	116.7
3 - 5	147.5
6 - 8	141.3
9 - 11	151.3
12 & 13	161.2

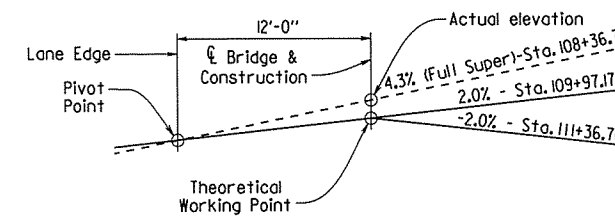
**HYDRAULIC DATA**

FLOOD DESCRIPTION	FREQUENCY YEARS	* TOTAL DISCHARGE	DISCHARGE BRIDGE NO. 07374	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
		CFS	CFS	FEET	FEET
Design	50	17,400	13,020	220.9	221.3
Base	100	19,400	14,400	221.1	221.6
Extreme	500	23,700	17,330	221.7	222.2
Overtopping	>500	-	-	-	-

\* Total Discharge thru this bridge and Bridge Nos. 07375, 07376 & 07377 over the Cache River Reliefs.

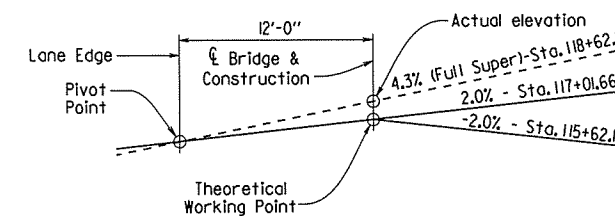
\*\* Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 221.5 ft.  
 Proposed Low Bridge Chord elevation = 223.88 ft.  
 Drainage area = 871 square miles.  
 Historical H.W. Elev. = 222.2 ft.



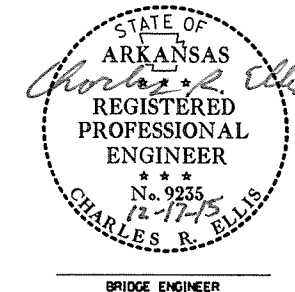
**CROSS SLOPE TRANSITION SKETCH**

At Beginning of Bridge Looking Ahead



**CROSS SLOPE TRANSITION SKETCH**

At End of Bridge Looking Ahead

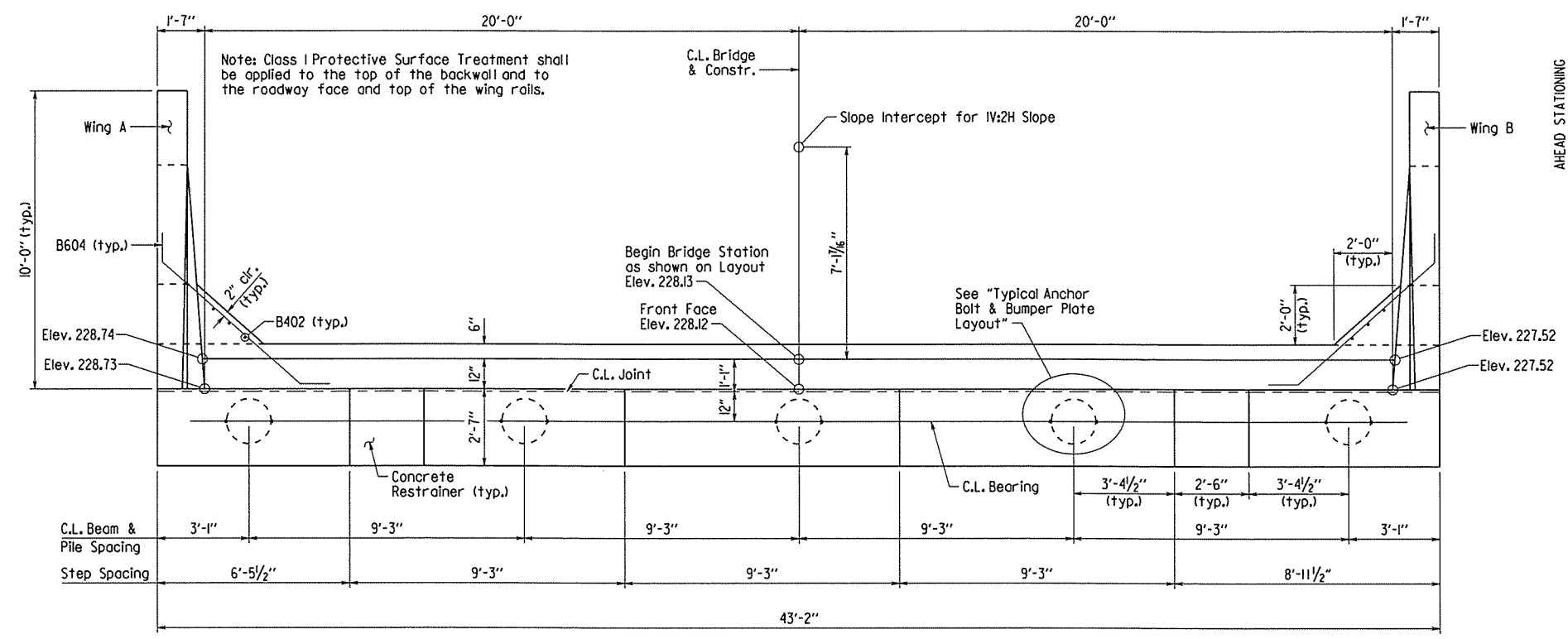


SHEET 3 OF 3  
 LAYOUT OF BRIDGE  
 OVER CACHE RIVER  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY

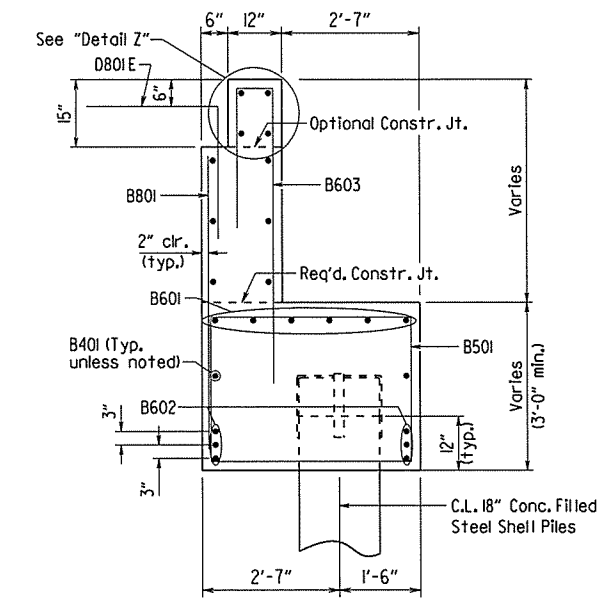
ROUTE 14                      SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: KDH                      DATE: 7-18-14                      FILENAME: b050272x1.l1.dgn  
 CHECKED BY: *[Signature]*                      DATE: 12/17/15                      SCALE: NO SCALE  
 DESIGNED BY: *[Signature]*                      DATE: 4/14                      SCALE: NO SCALE  
 BRIDGE NO. 07374                      DRAWING NO. 58030

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.	050272		67	159
				07374 -	END BENTS		- 58031	



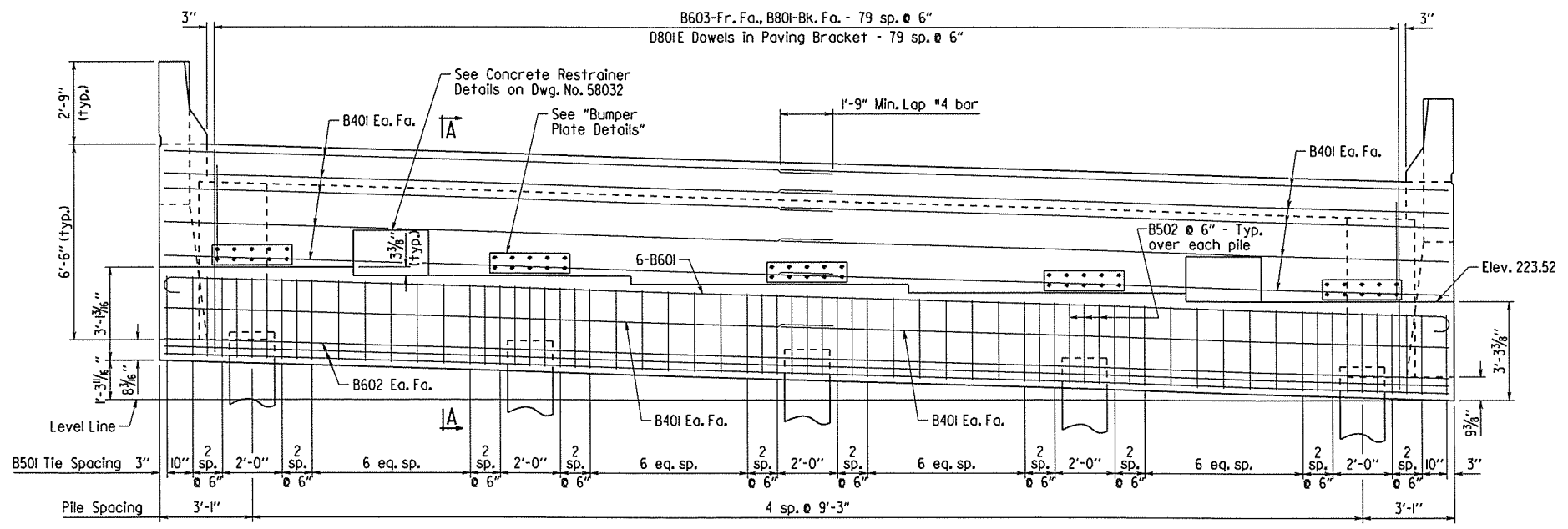
**PLAN - BENT I**  
3/8" = 1'-0"



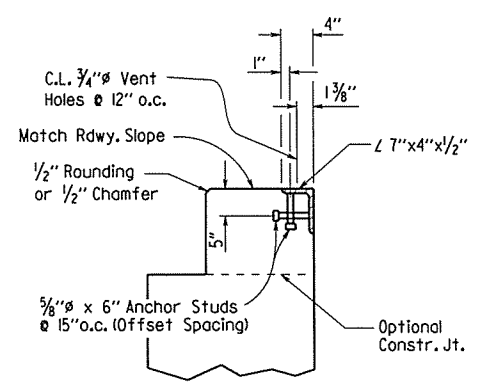
Note: For details of piles and pile anchorage, see Std. Dwg. No. 55021. Pile anchorage shall be located on piling in such a way as to avoid interference with anchor bolts.

**SECTION A-A**  
1/2" = 1'-0"

NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 58045, "Expansion Device Installation at End Bents", for additional information.



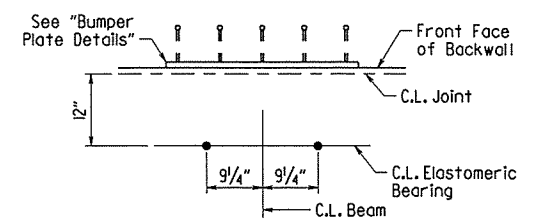
**ELEVATION - BENT I**  
Looking Back  
3/8" = 1'-0"



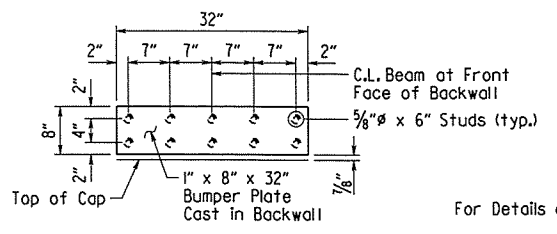
NOTE: For additional joint details, see Dwg. No. 58045.

**DETAIL Z**  
No Scale

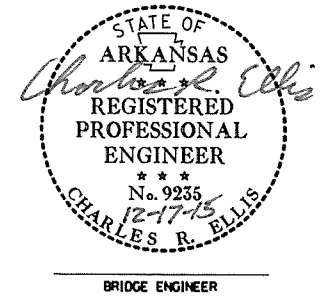
NOTE: Concrete shall be hand packed under the joint armor in the backwall.



**TYPICAL ANCHOR BOLT & BUMPER PLATE LAYOUT**  
No Scale



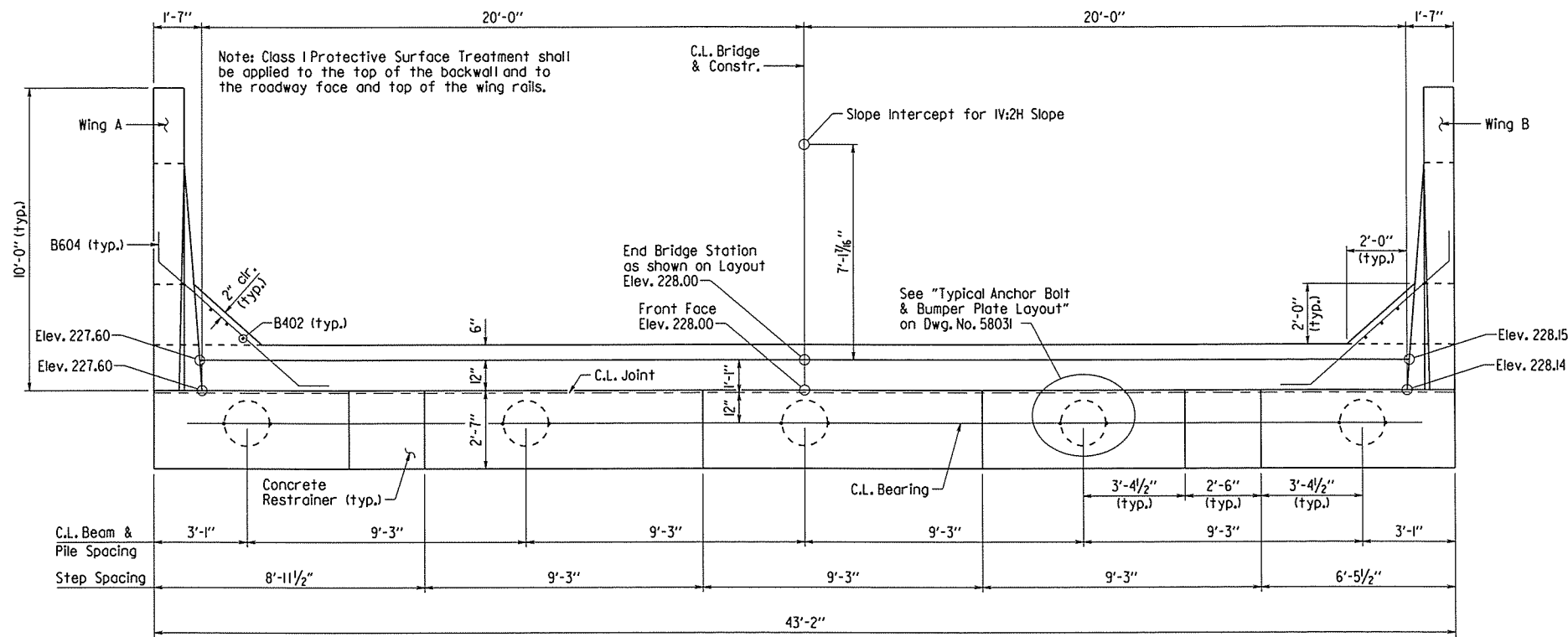
**BUMPER PLATE DETAILS**  
No Scale



SHEET 1 OF 3  
DETAILS OF END BENTS I & 13  
CACHE RIVER  
ROUTE 12-1-15  
ARIZONA STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: JYP DATE: 12-1-15  
CHECKED BY: [Signature] DATE: 12/15/15  
DESIGNED BY: [Signature] DATE: 12/15/15  
BRIDGE NO. 07374 DRAWING NO. 58031

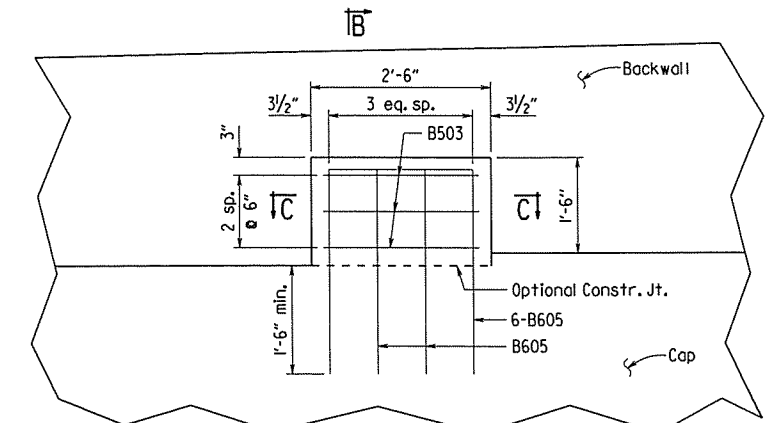
PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	68	159
				07374 -	END BENTS			58032



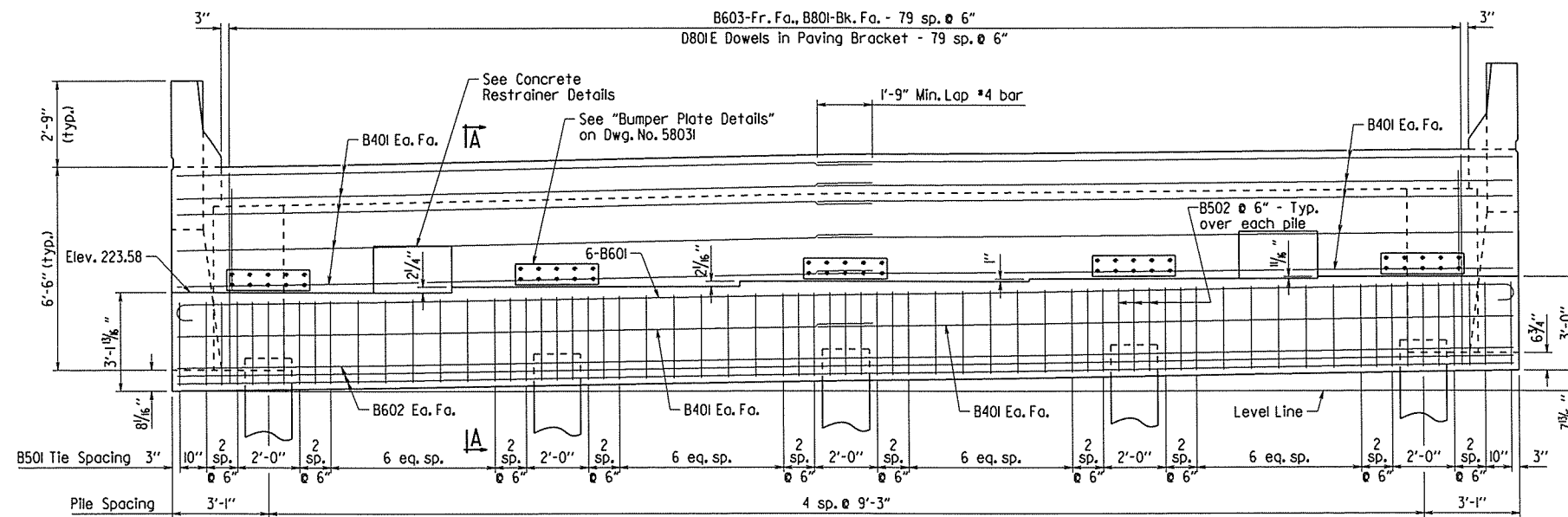
PLAN - BENT 13

3/8" = 1'-0"



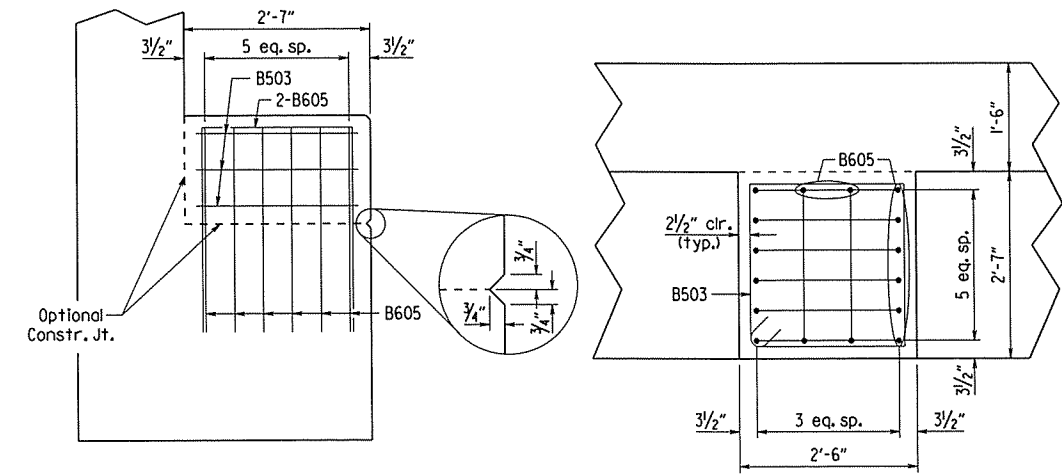
CONCRETE RESTRAINER DETAILS

Bent 13 Shown (Bent 1 Similar)  
3/4" = 1'-0"



ELEVATION - BENT 13

Looking Ahead  
3/8" = 1'-0"



SECTION B-B

3/4" = 1'-0"

SECTION C-C

3/4" = 1'-0"



SHEET 2 OF 3  
DETAILS OF END BENTS 1 & 13  
CACHE RIVER

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

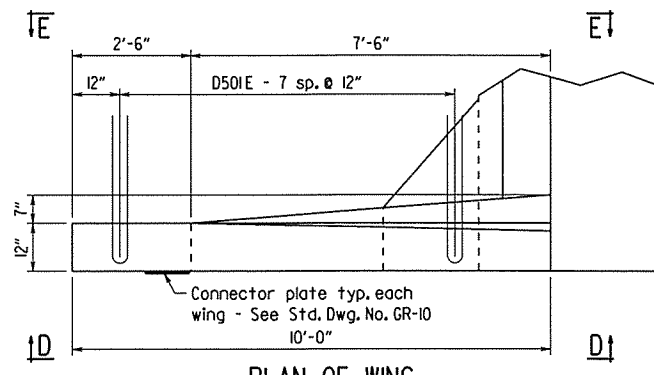
DRAWN BY: JYP DATE: 12-1-15 FILENAME: b050272xl.bl.dgn  
CHECKED BY: CSR DATE: 12/17/15 SCALE: As Shown  
DESIGNED BY: CSR DATE: 12/15

BRIDGE NO. 07374 DRAWING NO. 58032

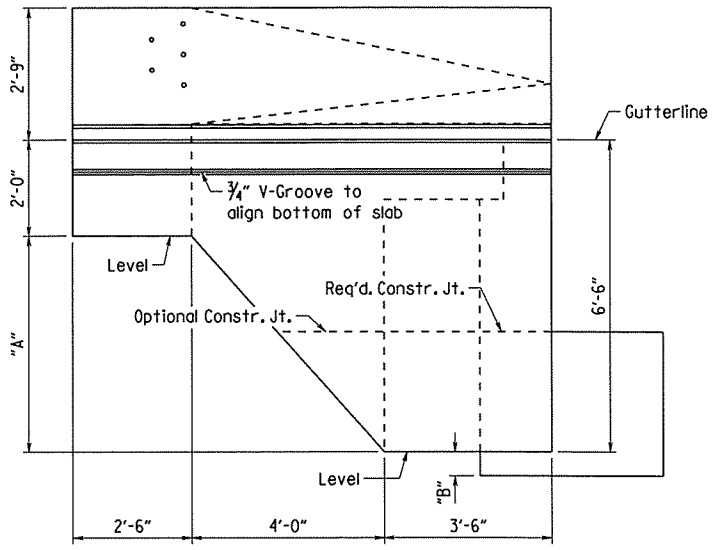
For "Section A-A", see Dwg. No. 58031.  
For Details of Wing & Rail, see Dwg. No. 58033.

BRIDGE ENGINEER

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.		050272	69	159
				07374 -	END BENTS			58033



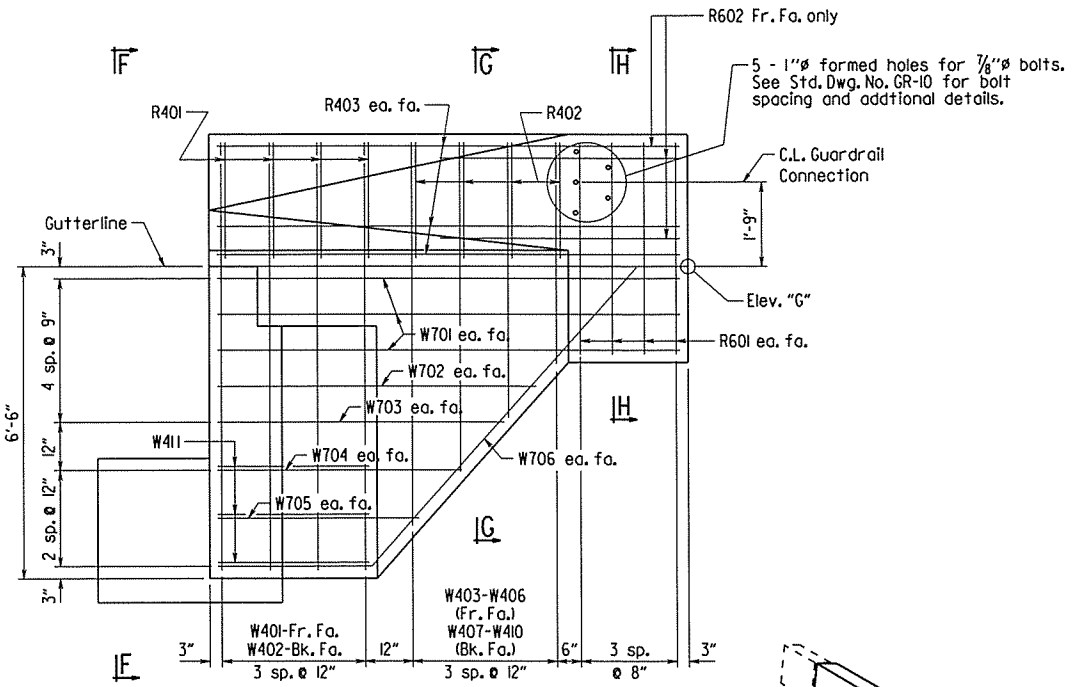
**PLAN OF WING**  
1/2" = 1'-0"



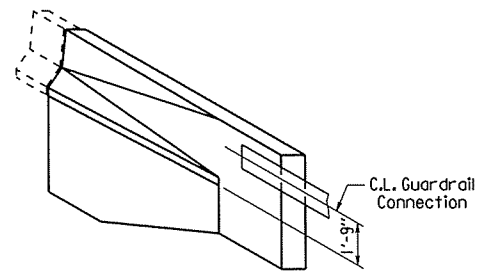
**VIEW D-D**  
1/2" = 1'-0"

**TABLE OF VARIABLES**

Bent	Wing	Elev. "C"	"A"	"B"
1	A	228.78	4'-6 5/8"	8 3/8"
	B	227.51	4'-5 1/8"	9 3/8"
13	A	227.60	4'-6"	8 1/8"
	B	228.20	4'-6 3/4"	6 3/4"



**VIEW E-E**  
1/2" = 1'-0"



**THREE DIMENSIONAL VIEW OF RAIL**  
No Scale

**BAR LIST - PER BENT**

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS	
B401	24	22'-4"	Str.		
B402	6	4'-11"	Str.		
B501	52	13'-4"	2 1/2"		
B502	15	8'-11"	2 1/2"		
B503	6	9'-2"	3 3/4"		
B601	6	44'-2"	4 1/2"		
B602	6	42'-10"	Str.		
B603	80	8'-1"	4 1/2"		
B604	6	8'-2"	4 1/2"		
B605	16	8'-0"	4 1/2"		
B801	80	5'-6"	Str.		
R401	8	3'-11"	2"		
R402	8	4'-0"	2"		
R403	12	9'-8"	Str.		
R601	16	4'-5"	Str.		
R602	6	5'-0"	Str.		
W401	8	8'-7"	2"		
W402	8	8'-11"	Str.		
W403-W406	2 each	Var. 3'-5" to 6'-9"	2"		
W407-W410	2 each	Var. 4'-7" to 7'-11"	Str.		
W411	6	8'-5"	2"		
W701	12	9'-8"	Str.		
W702	4	6'-8"	Str.		
W703	4	6'-0"	Str.		
W704	4	5'-1"	Str.		
W705	4	4'-2"	Str.		
W706	4	11'-6"	5 1/4"		
D501E	16	6'-2"	3 3/4"		
D801E	80	5'-4"	6"		

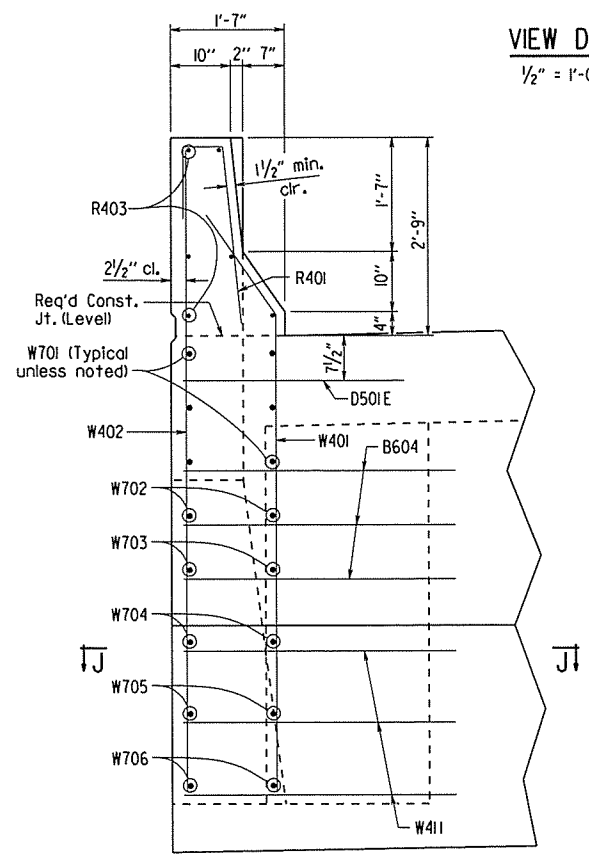
(Dimensions are out to out of bars)

NOTE: Bars with an "E" suffix are to be epoxy coated.

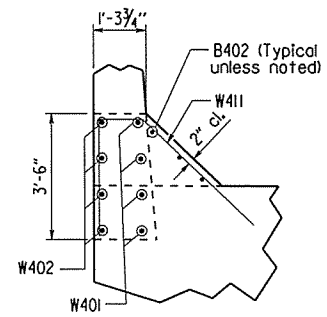
NOTES:  
For General Notes, see Std. Dwg. No. 55006.

All structural steel in End Bents shall be AASHTO M 270 Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

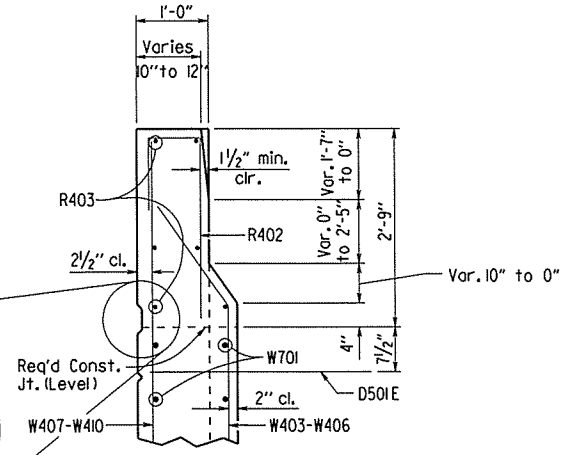
For additional information, see Layout.



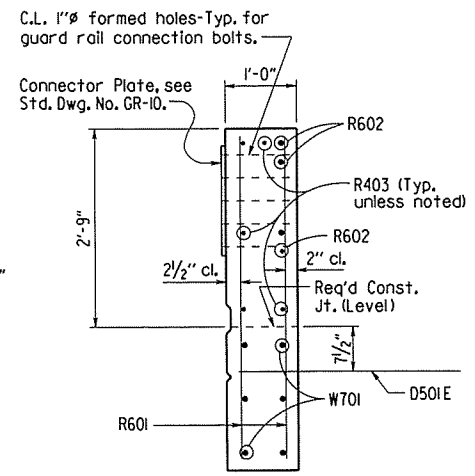
**VIEW F-F**  
3/4" = 1'-0"



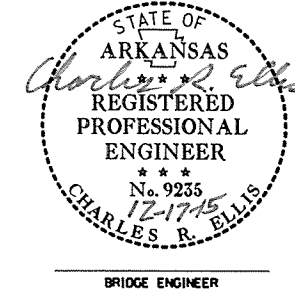
**SECTION J-J**  
3/8" = 1'-0"



**SECTION G-G**  
3/4" = 1'-0"

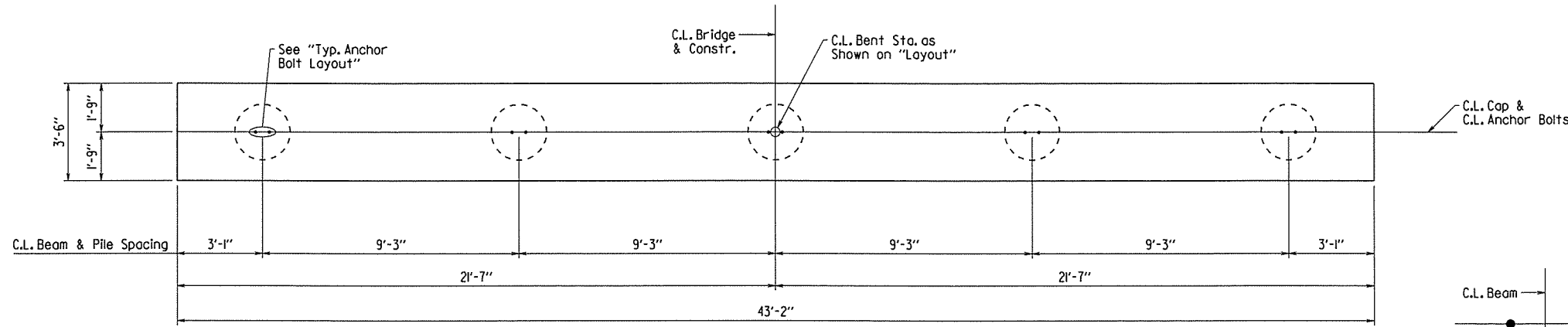


**SECTION H-H**  
3/4" = 1'-0"



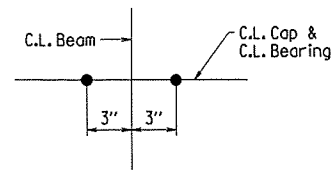
SHEET 3 OF 3  
DETAILS OF END BENTS 1 & 13  
CACHE RIVER  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: JYP DATE: 12-1-15 FILENAME: b050272xl.bl.dgn  
CHECKED BY: Sub DATE: 12/17/15 SCALE: As Shown  
DESIGNED BY: CSP DATE: 6/13  
BRIDGE NO. 07374 DRAWING NO. 58033

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. 050272							70	159
07374 - INT. BENTS - 58034								



PLAN - BENTS 2, 3, 4, 6, 7, 8, 10, 11, AND 12

3/8" = 1'-0"



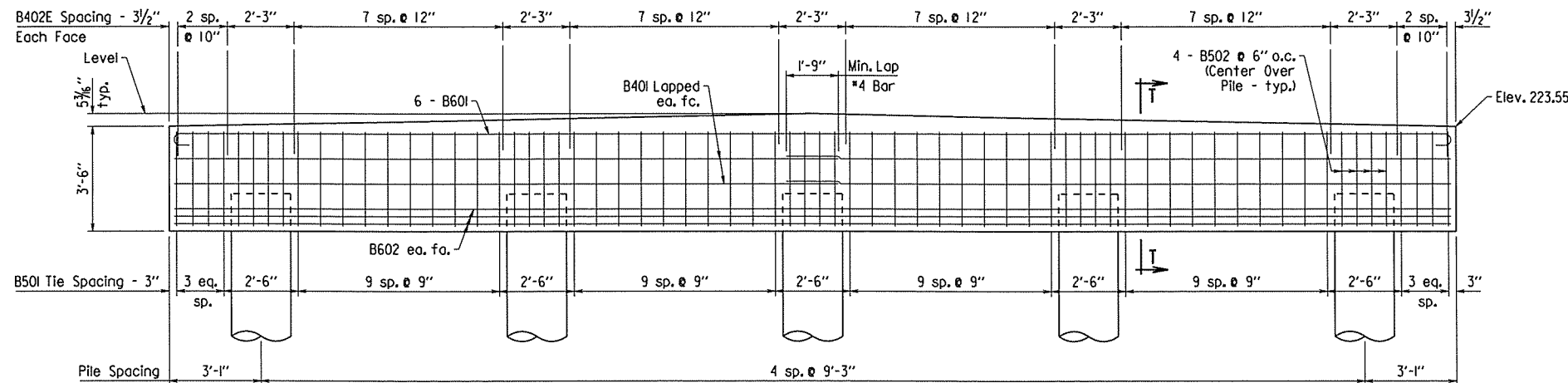
TYP. ANCHOR BOLT LAYOUT

No Scale

BAR LIST - PER BENT

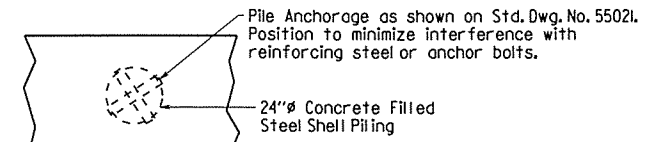
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B40I	8	22'-4"	Str.	(Dimensions are out to out of bars.) B50I
B40E	76	3'-6"	Str.	
B50I	48	13'-2"	2/2"	B50I
B502	20	9'-4"	2/2"	
B60I	6	44'-2"	4/2"	B60I
B602	6	42'-10"	Str.	

Bars designated with an "E" are epoxy coated.



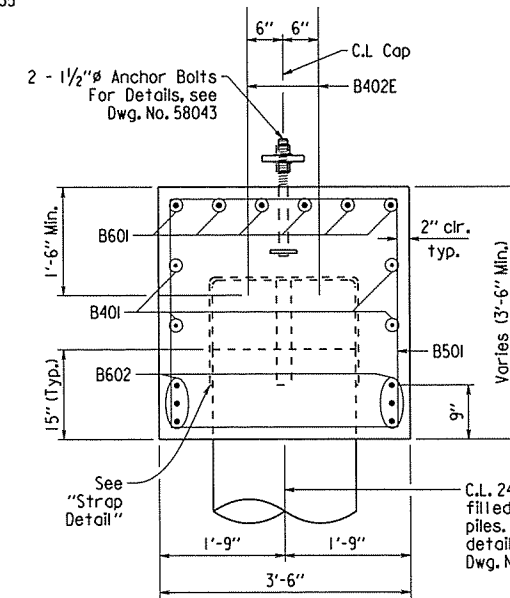
ELEVATION - BENTS 6, 7, 8, 10, AND 11

3/8" = 1'-0"



STRAP DETAIL

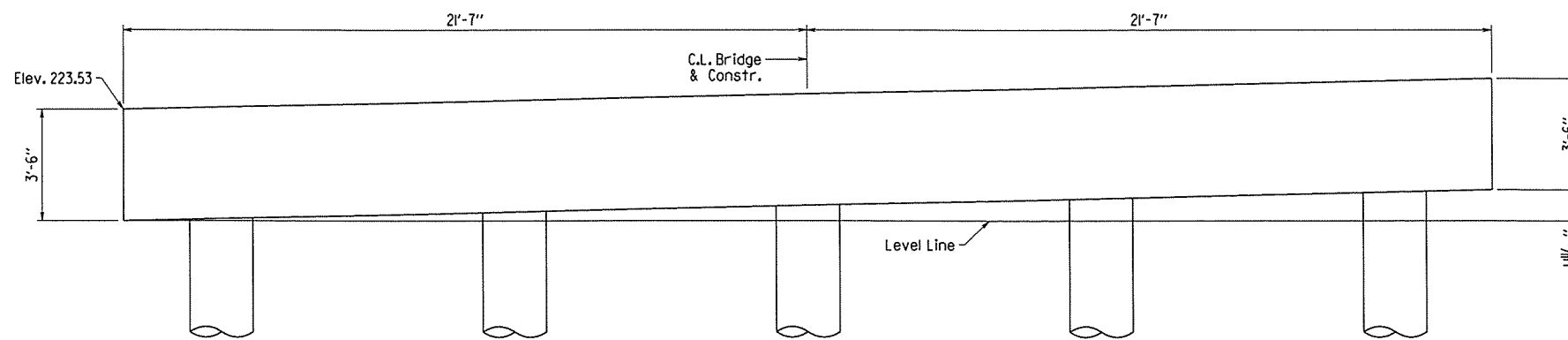
No Scale



SECTION T-T

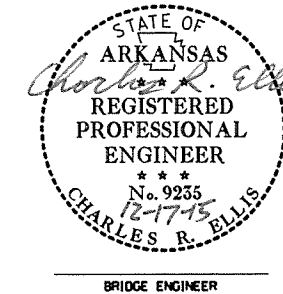
3/4" = 1'-0"

NOTES:  
See Std. Dwg. No. 55006 for General Notes.  
For additional information, see Layout.  
Reinforcing steel, details and dimensions shown for Bents 6, 7, 8, 10, and 11 are the same for Bents 2, 3, 4, and 12 except as shown.



ELEVATION - BENT 2

Looking Ahead  
3/8" = 1'-0"

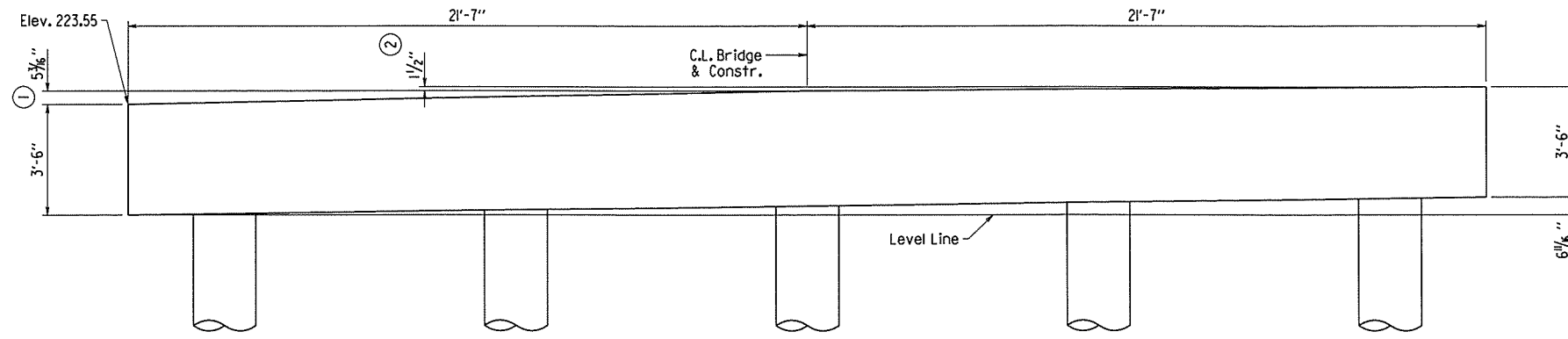


SHEET 1 OF 2  
DETAILS OF  
INTERMEDIATE BENTS  
2, 3, 4, 6, 7, 8, 10, 11, & 12  
CACHE RIVER

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 12/2/15 FILENAME: b050272xl.b2.dgn  
CHECKED BY: SWP DATE: 12/7/15 SCALE: AS NOTED  
DESIGNED BY: CSK DATE: 7/15  
BRIDGE NO. 07374 DRAWING NO. 58034

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.		050272	71	159
				07374 - INT. BENTS - 58035				

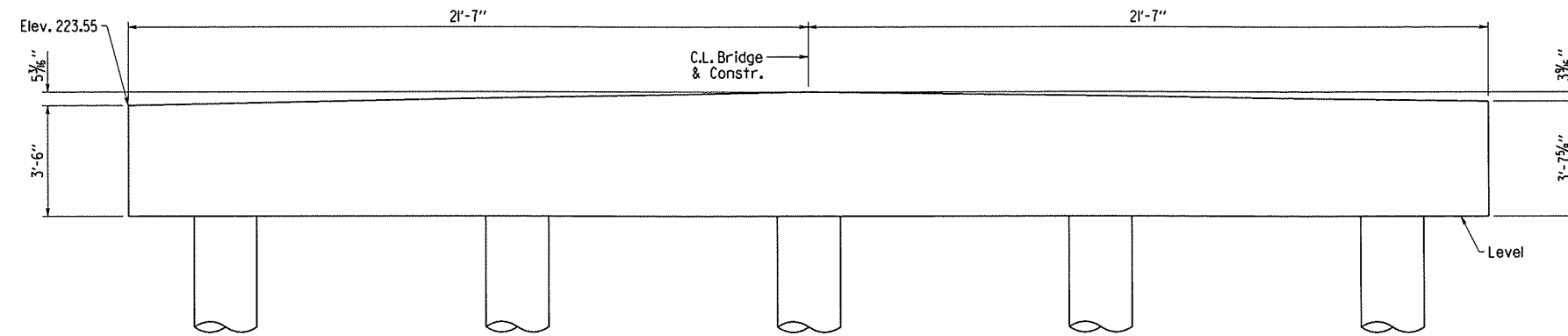


**ELEVATION - BENT 3**

Looking Ahead  
3/8" = 1'-0"

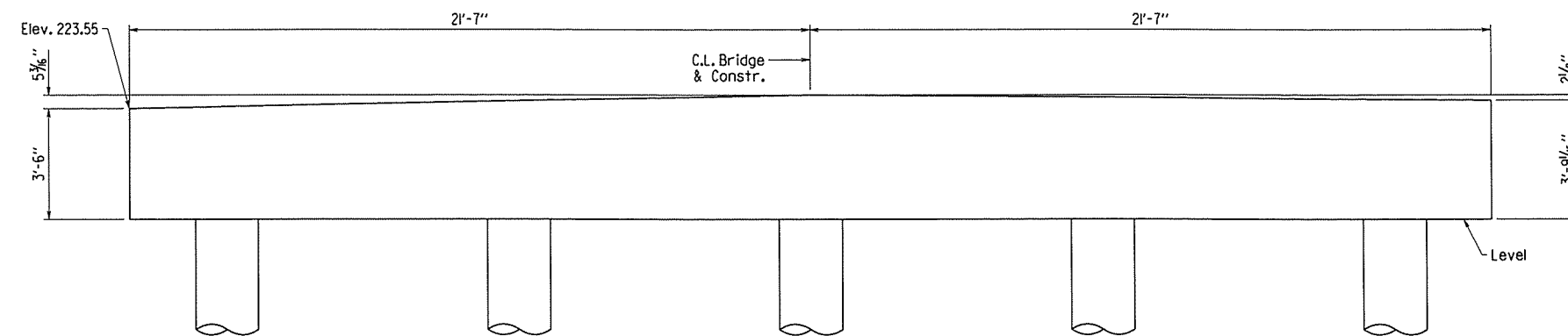
① Left Edge to C.L. Bridge

② C.L. Bridge to Right Edge



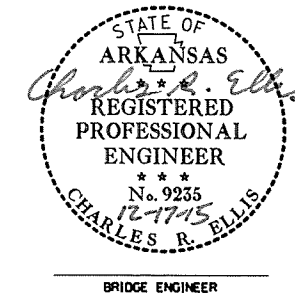
**ELEVATION - BENT 4**

Looking Ahead  
3/8" = 1'-0"



**ELEVATION - BENT 12**

Looking Ahead  
3/8" = 1'-0"



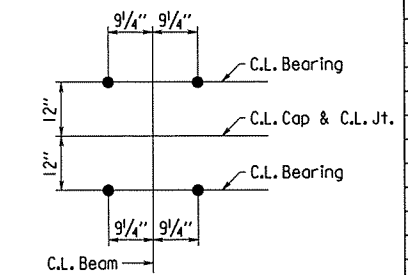
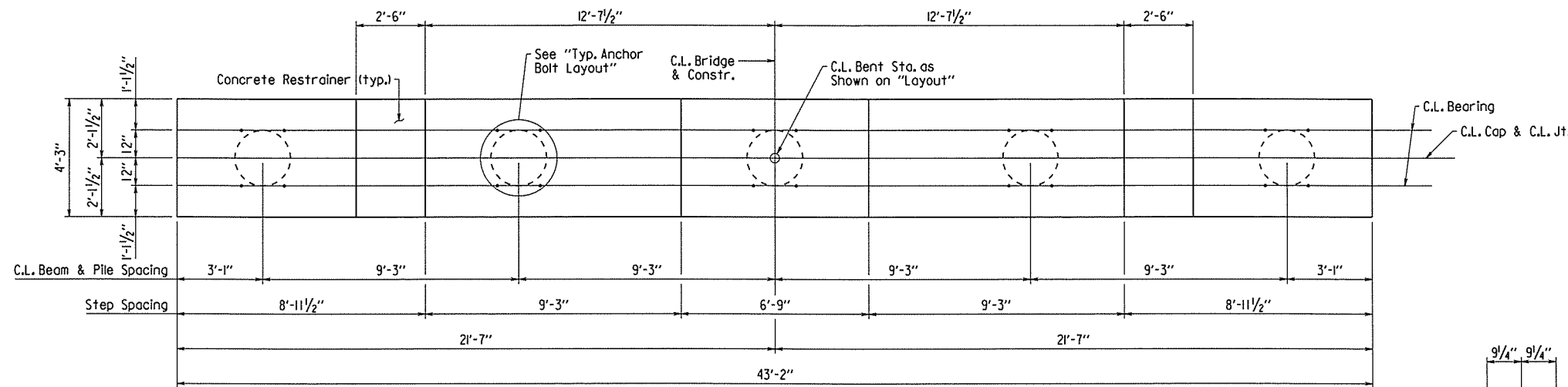
SHEET 2 OF 2  
DETAILS OF  
INTERMEDIATE BENTS  
2, 3, 4, 6, 7, 8, 10, 11, & 12  
CACHE RIVER

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 12/2/15 FILENAME: b050272xl.b2.dgn  
CHECKED BY: SWP DATE: 12/17/15 SCALE: AS NOTED  
DESIGNED BY: CSE DATE: 7/15

BRIDGE NO. 07374 DRAWING NO. 58035

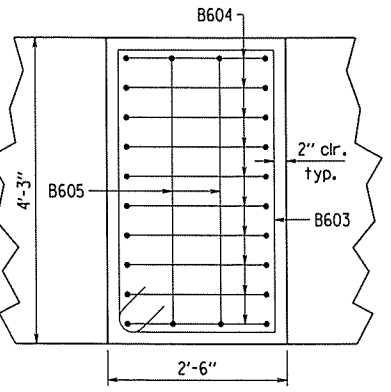
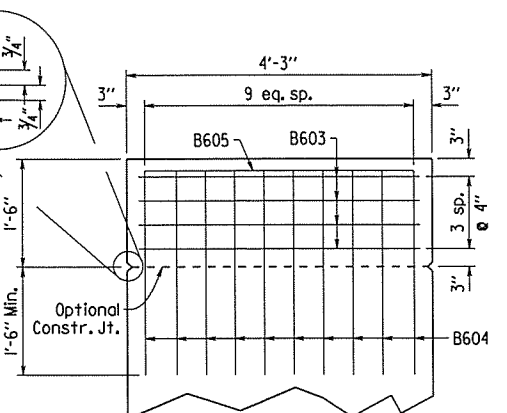
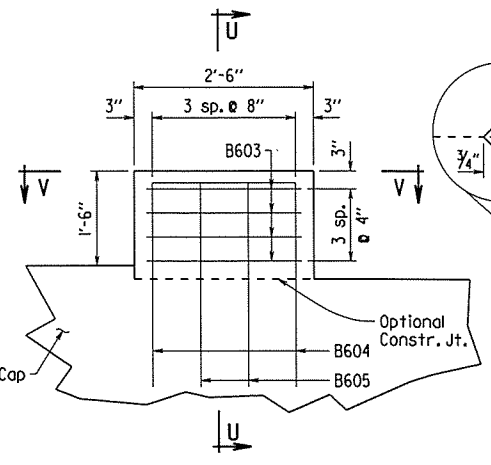
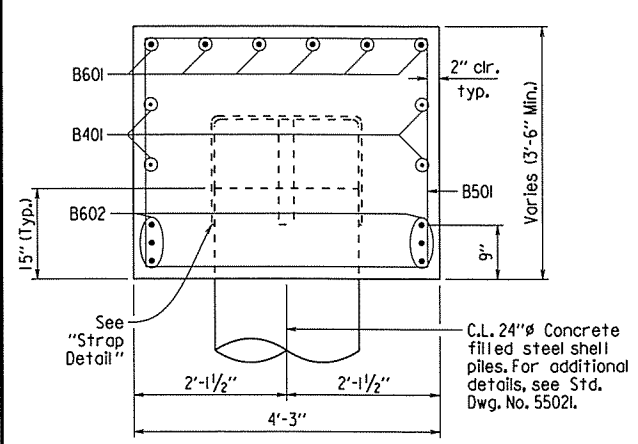
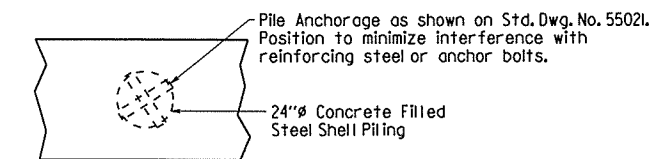
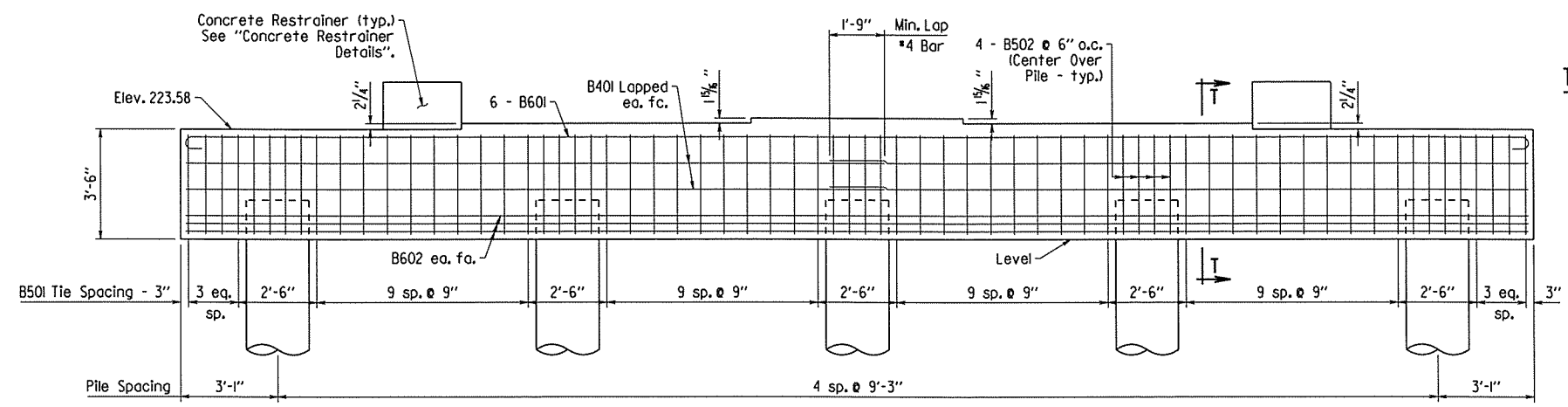
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							050272	72	159
07374 - INT. BENTS - 58036									



**BAR LIST - PER BENT**

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	8	22'-4"	Str.	B501
B501	48	14'-8"	2 1/2"	
B502	20	10'-1"	2 1/2"	B502
B601	6	44'-2"	4 1/2"	
B602	6	42'-10"	Str.	B603
B603	8	13'-0"	4 1/2"	
B604	20	7'-10"	4 1/2"	B604
B605	4	9'-7"	4 1/2"	

(Dimensions are out to out of bars.)



NOTES:  
 See Std. Dwg. No. 55006 for General Notes.  
 For additional information, see Layout.

STATE OF ARKANSAS  
**Charles R. Ellis**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 9235  
 12-17-15  
**CHARLES R. ELLIS**  
 BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS 5 & 9  
 CACHE RIVER

ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 12/1/15 FILENAME: b050272x1.b5.dgn  
 CHECKED BY: SJP DATE: 12/1/15 SCALE: AS NOTED  
 DESIGNED BY: CSK DATE: 3/7/15  
 BRIDGE NO. 07374 DRAWING NO. 58036

PRINT DATE: 12/17/2015



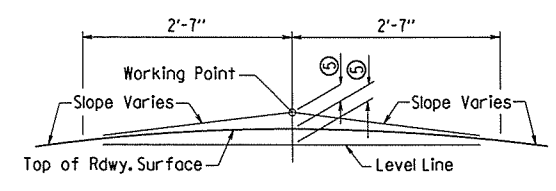
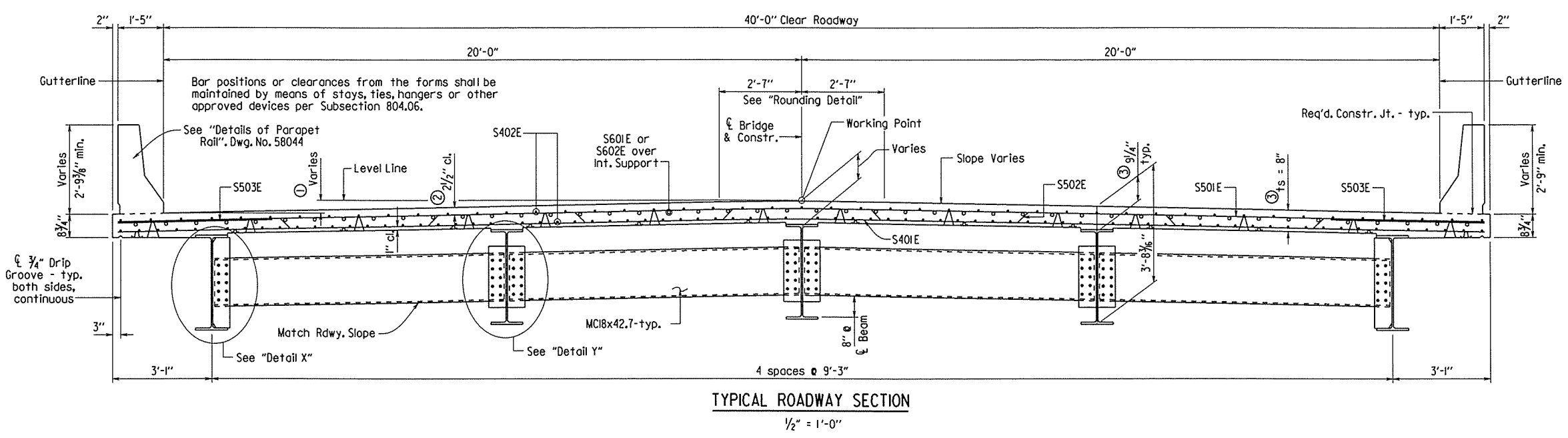
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	73	159	
				07374 - 244 FT. UNITS		- 58037		

**Slab Reinforcing:**  
 Longitudinal: S402E as shown  
 S601E or S602E as shown over int. supports, see "Reinforcing Plan & Pouring Sequence", Dwg. No. 58042.  
 Transverse: S502E @ 12" o.c. bent up over beams  
 S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom  
 S503E @ 6" in top of overhangs (bundled with #5 bars)

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

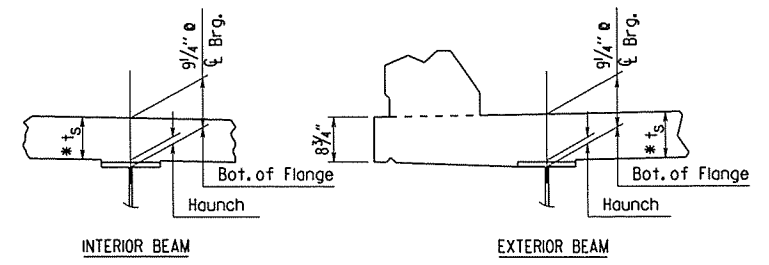
- ① Working point to gutterline.
- ② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".
- ③ See "Adjustment for Slab Thickness Tolerance".



NOTE: Working Point matches Theoretical Roadway Grade.

- ⑤ Dimension for Working Point to Top of Rdwy. Surface:  
 Varies from 0" at Sta. 109+97.17 to 3/8" at Sta. 111+36.70  
 5/8" from Sta. 111+36.70 to Sta. 115+62.13  
 Varies from 3/8" at Sta. 115+62.13 to 1/8" at Sta. 116+57.00

ts = slab thickness as shown in "Typical Roadway Section"

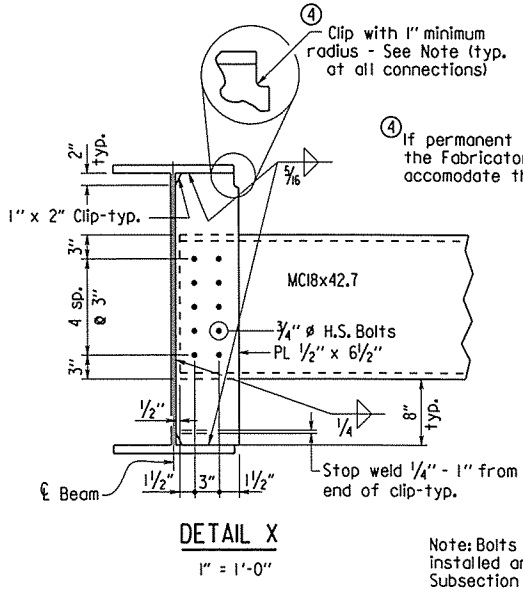


\*Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

**ADJUSTMENT FOR SLAB THICKNESS TOLERANCE**  
No Scale

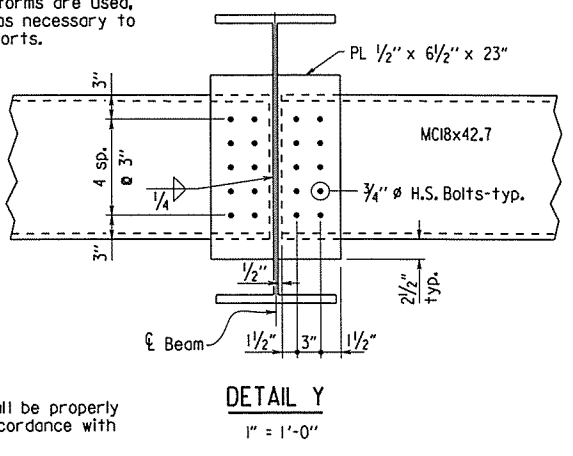
NOTES:  
 Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

Note: Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.71.



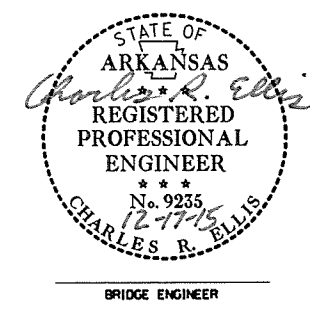
**TABLE FOR WELD**

Material Thickness of Thicker Part (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	Be
Over 3/4"	5/8"	Used

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.

For General Notes, see Std. Dwg. No. 55006.

Unless otherwise shown, structural steel shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

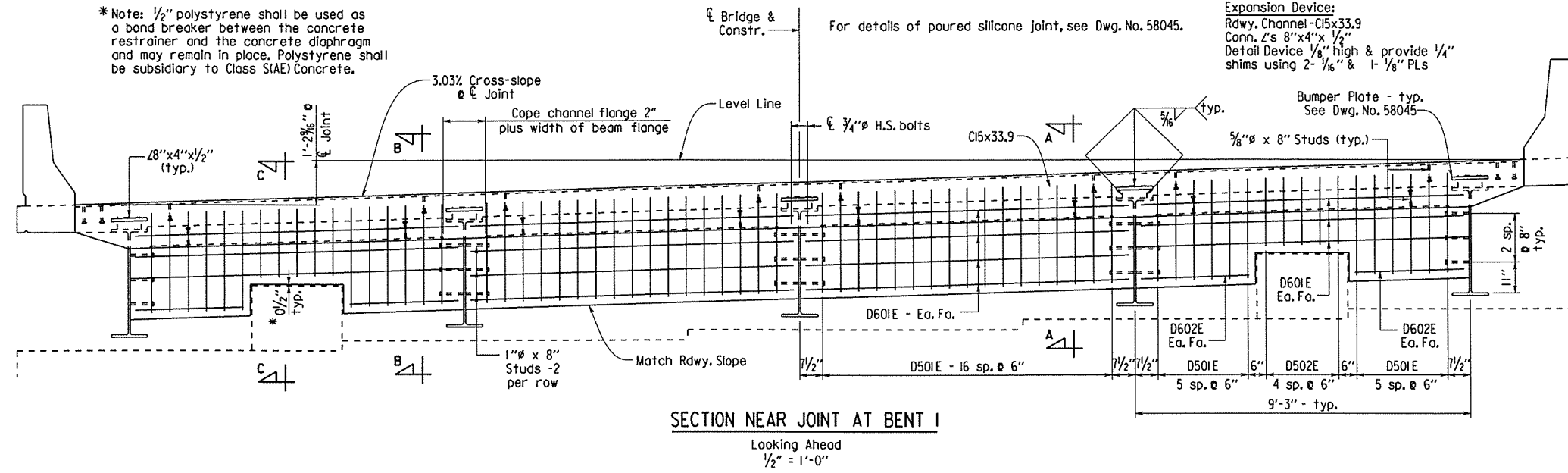


SHEET 1 OF 8  
 DETAILS OF 244'-0" CONTINUOUS  
 COMPOSITE W-BEAM UNITS  
 CACHE RIVER  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-24-15 FILENAME: b050272x1.dgn  
 CHECKED BY: CSE DATE: 12/17/15 SCALE: AS NOTED  
 DESIGNED BY: CSE DATE: 6/15  
 BRIDGE NO. 07374 DRAWING NO. 58037

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.	050272	74	159	
				07374 - 244 FT. UNITS		- 58038		

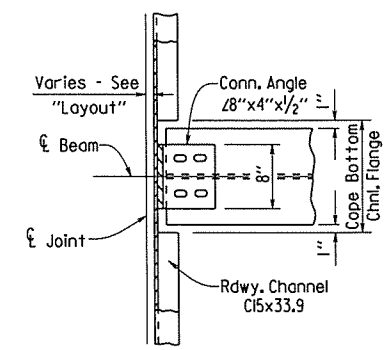
\*Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be subsidiary to Class S(AE) Concrete.



SECTION NEAR JOINT AT BENT 1

Looking Ahead  
1/2" = 1'-0"

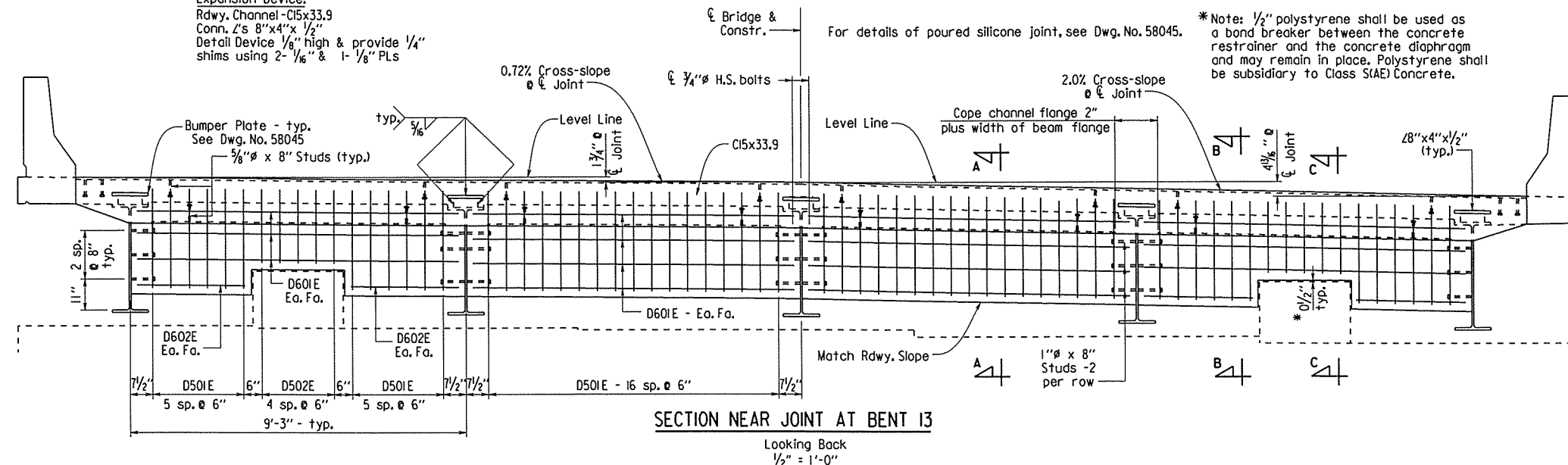
Expansion Device:  
Rdwy. Channel - C15x33.9  
Conn. L's 8"x4"x 1/2"  
Detail Device 1/8" high & provide 1/4" shims using 2- 1/16" & 1- 1/8" PLS



CHANNEL CONNECTION DETAIL

No Scale

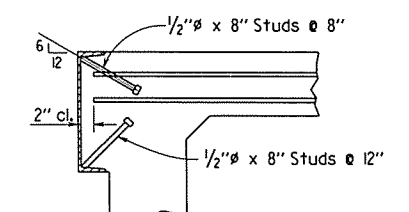
Expansion Device:  
Rdwy. Channel - C15x33.9  
Conn. L's 8"x4"x 1/2"  
Detail Device 1/8" high & provide 1/4" shims using 2- 1/16" & 1- 1/8" PLS



SECTION NEAR JOINT AT BENT 13

Looking Back  
1/2" = 1'-0"

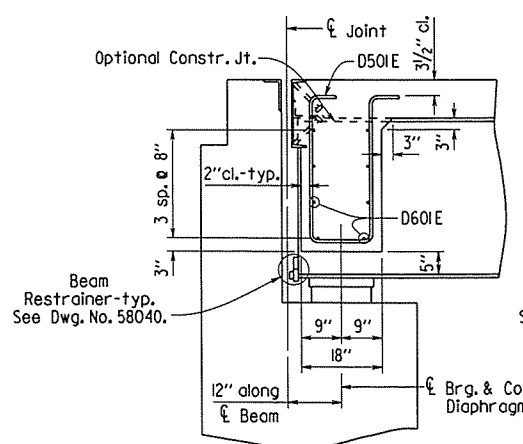
\*Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be subsidiary to Class S(AE) Concrete.



Note: As an alternate to 5/8" studs, 1/2" x 8" studs spaced as shown may be used. Use weight of 5/8" stud as basis of measurement of structural steel in anchors.

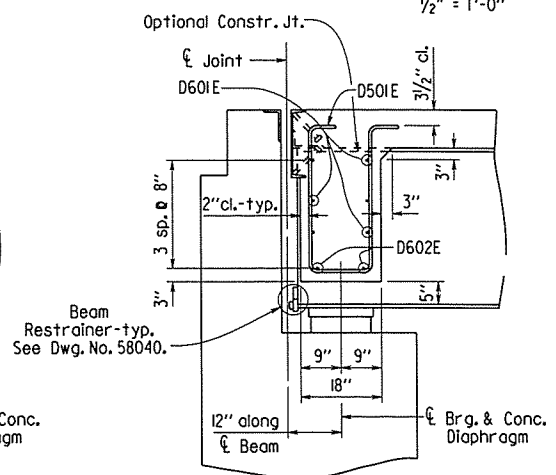
DETAILS OF ALTERNATE ANCHORS

No Scale



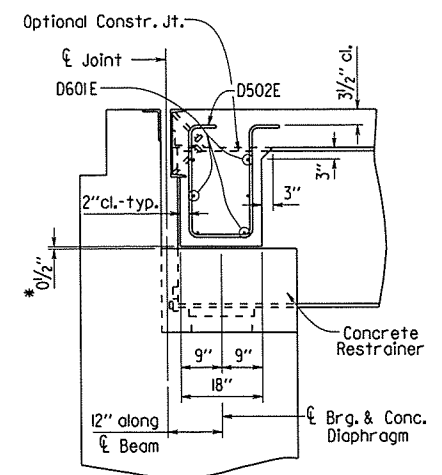
SECTION A-A

No Scale



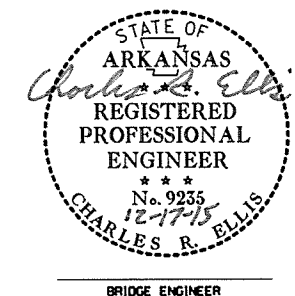
SECTION B-B

No Scale



SECTION C-C

No Scale



SHEET 2 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER

ROUTE 92C.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

BRIDGE ENGINEER

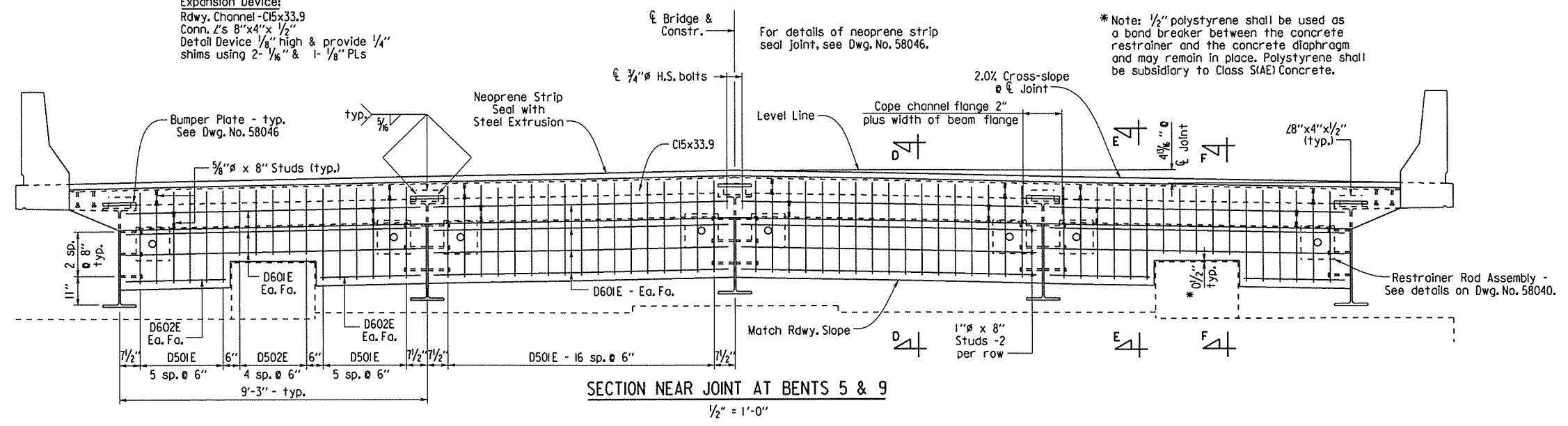
DRAWN BY: KDH DATE: 11-24-15 FILENAME: b050272xl.sl.dgn  
CHECKED BY: CDE DATE: 1/17/16 SCALE: AS NOTED  
DESIGNED BY: CSE DATE: 10/15

BRIDGE NO. 07374 DRAWING NO. 58038

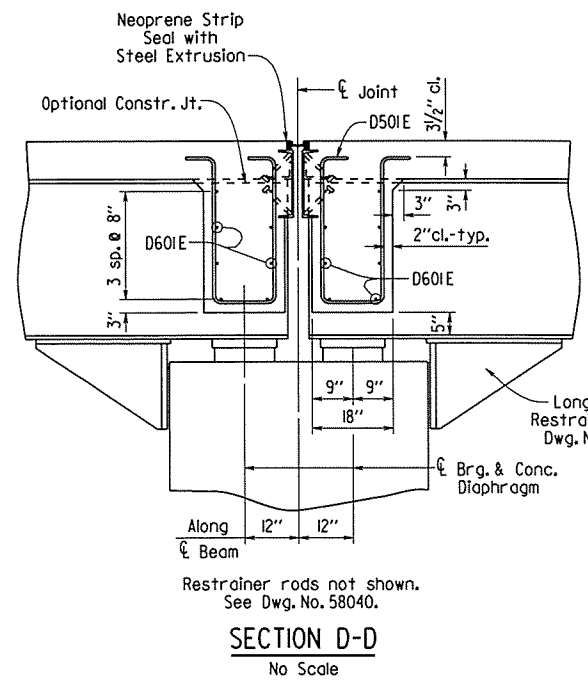
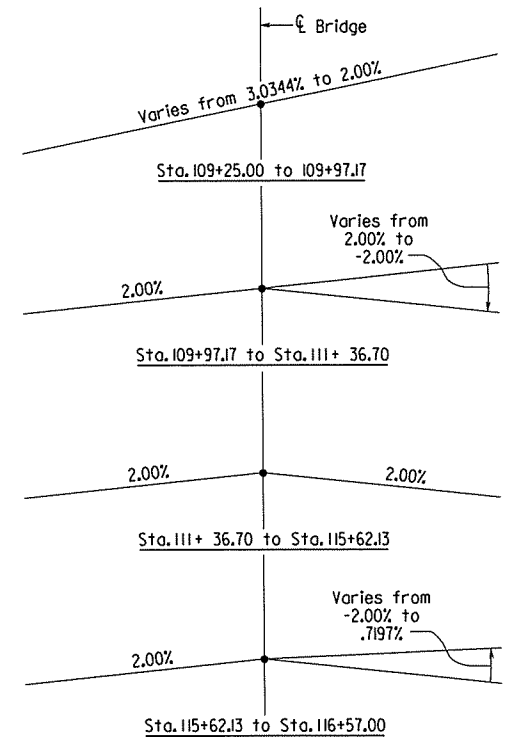
PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	75	159
				07374 - 244 FT. UNITS		- 58039		

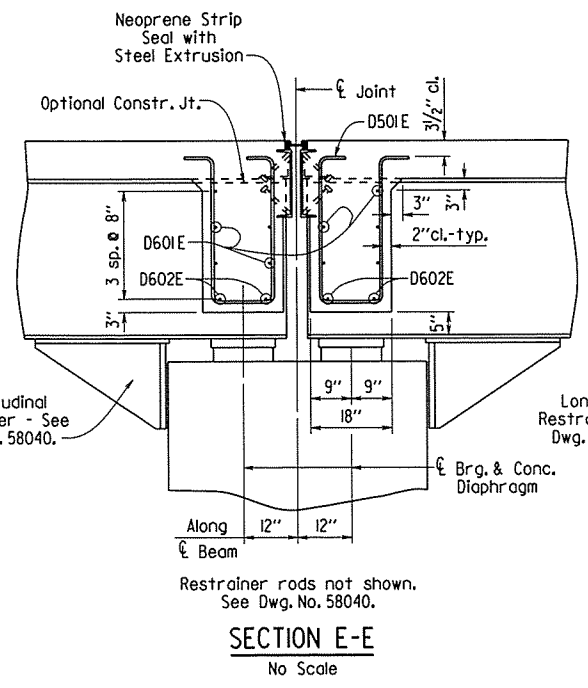
Expansion Device:  
Rdwy. Channel - C15x33.9  
Conn. L's 8"x4"x 1/2"  
Detail Device 1/8" high & provide 1/4"  
shims using 2- 1/16" & 1- 1/8" PLs



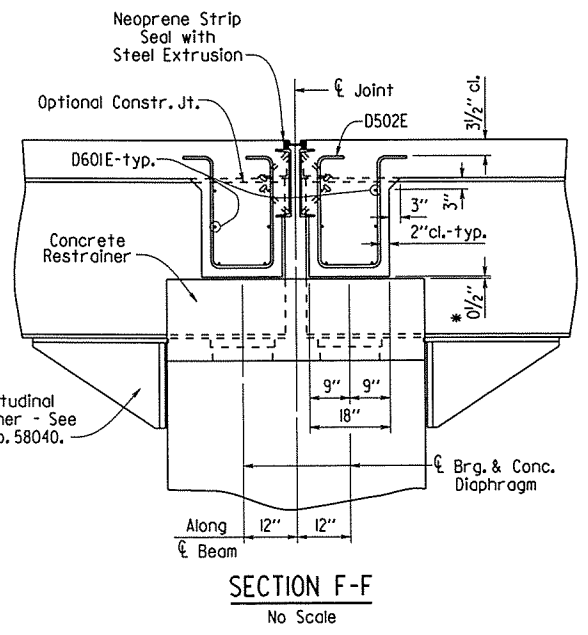
\* Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be subsidiary to Class (S/AE) Concrete.



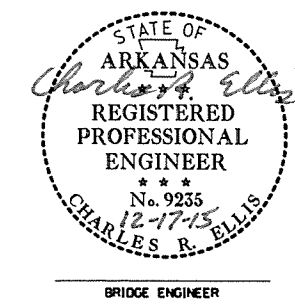
Restrainer rods not shown. See Dwg. No. 58040.  
**SECTION D-D**  
No Scale



Restrainer rods not shown. See Dwg. No. 58040.  
**SECTION E-E**  
No Scale



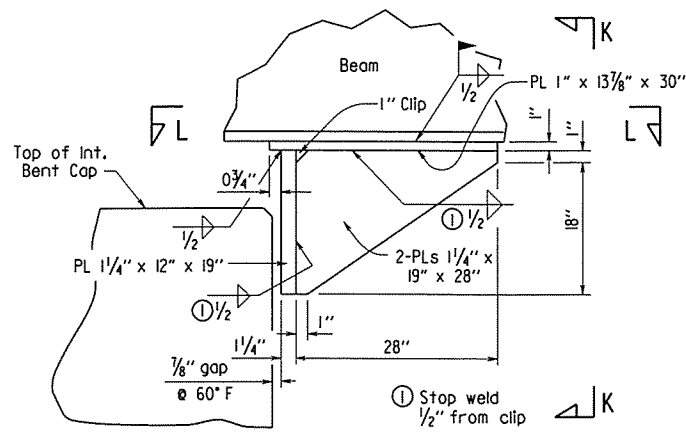
**SECTION F-F**  
No Scale



SHEET 3 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH DATE: 11-25-15 FILENAME: b050272xl.sl.dgn  
CHECKED BY: CSE DATE: 12/15/15 SCALE: AS NOTED  
DESIGNED BY: CSE DATE: 11/13/15  
BRIDGE NO. 07374 DRAWING NO. 58039

PRINT DATE: 12/17/2015

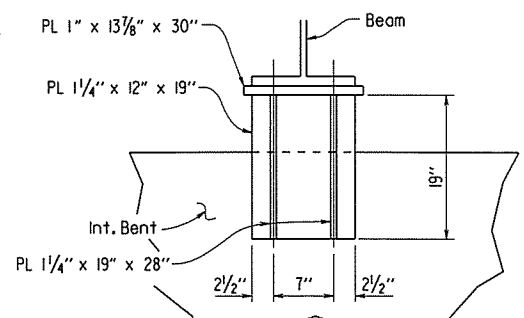
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	76	159
				07374 - 244 FT. UNITS		- 58040		



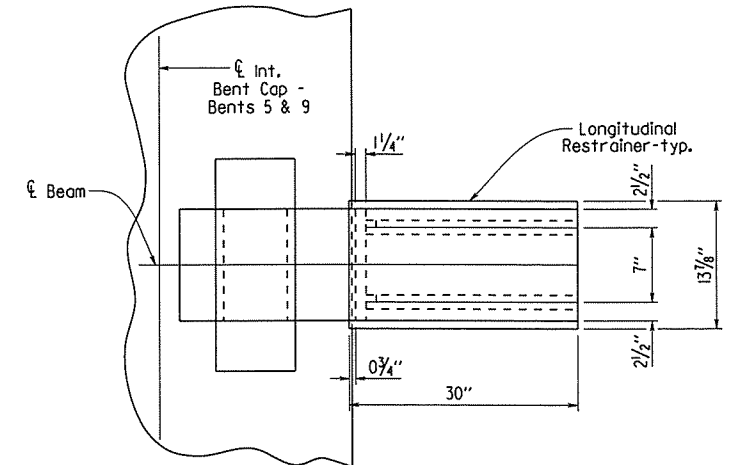
**LONGITUDINAL RESTRAINER DETAIL**

At Bents 5 & 9 Only  
No Scale

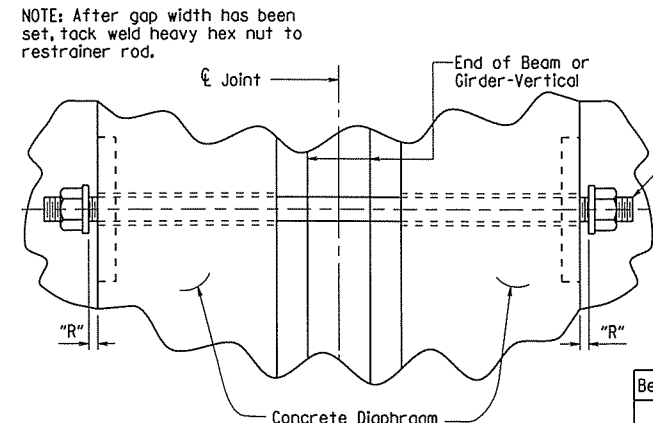
NOTE: Weld longitudinal restrainer after deck has been poured.



**VIEW K-K**  
No Scale



**VIEW L-L**  
No Scale

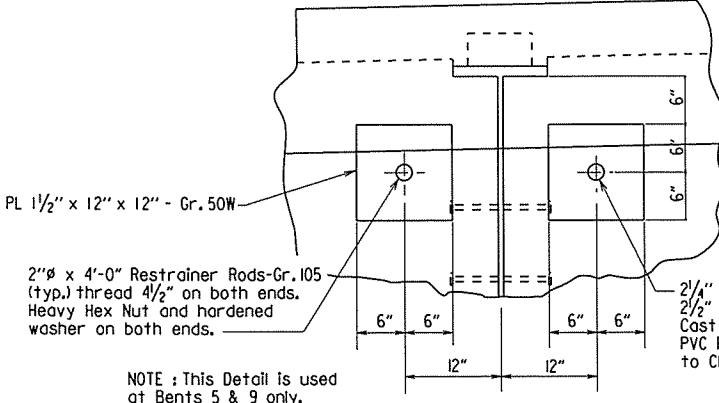


**RESTRAINER ROD INSTALLATION DETAIL**

At Bents 5 & 9 Only  
No Scale

**TABLE B**

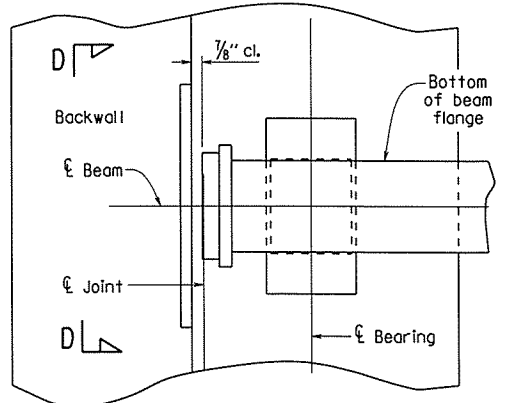
	40° F	60° F	80° F
Bents 5 & 9	1 5/8"	7/8"	7/16"



**RESTRAINER ROD ASSEMBLY DETAIL**

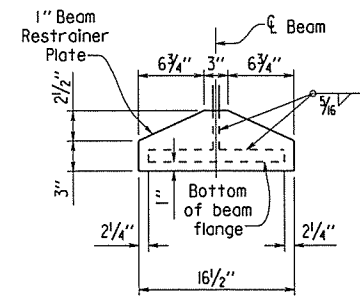
NOTE: This Detail is used at Bents 5 & 9 only.

NOTE: Longitudinal Restrainer Rod shall conform to AASHTO M314, Gr. 105 with threads on each end. Washers for longitudinal restrainer rod shall conform to ASTM F436. Nuts for longitudinal restrainers shall conform to Subsection 807.06. Rods, Nuts, Washers and Plates for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 Class C or ASTM B695 Class 50. See "Restrainer Rod Installation Detail". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".



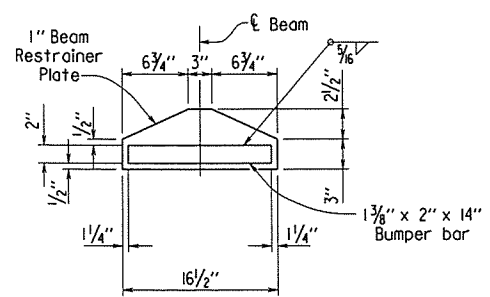
**BEAM RESTRAINER DETAILS**

At Bents 1 & 13  
No Scale

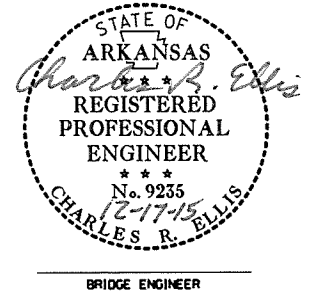


NOTE: Beam restrainer plate shall be centered on each beam line.  
Bumper bar not shown in this view.

**VIEW D-D**  
No Scale



NOTE: Hidden lines of beam are not shown in this view.



SHEET 4 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER

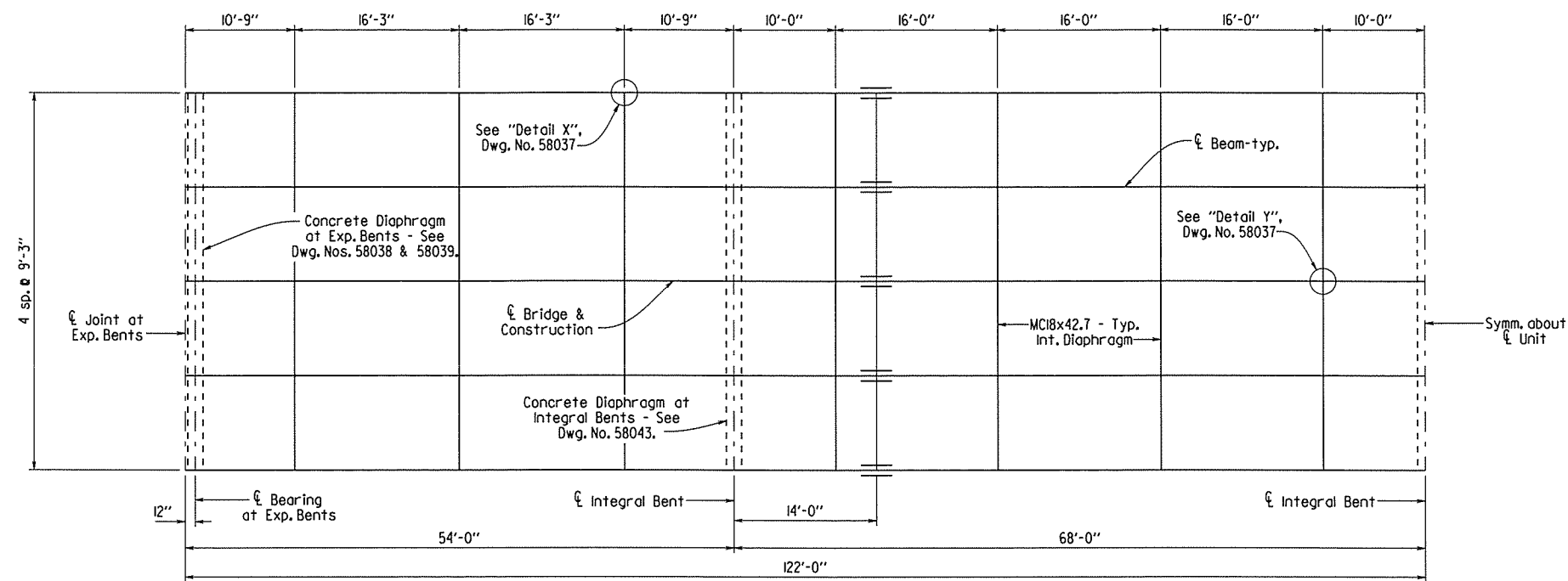
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

BRIDGE NO. 07374 DRAWING NO. 58040

DESIGNED BY: *CSL* DATE: *12/17/15*  
CHECKED BY: *CSL* DATE: *12/17/15*  
DRAWN BY: *KDH* DATE: *11-30-15* FILENAME: b050272xl.sl.dgn  
SCALE: AS NOTED

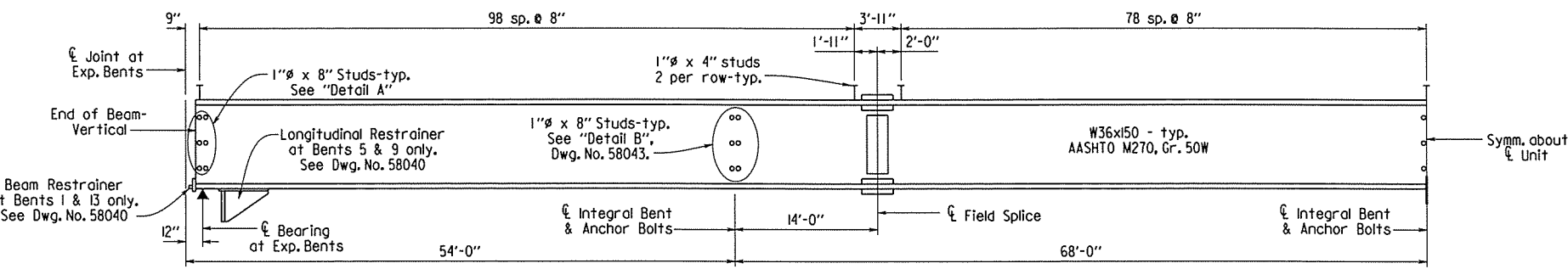
PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	77	159	
				07374 - 244 FT. UNITS - 58041				

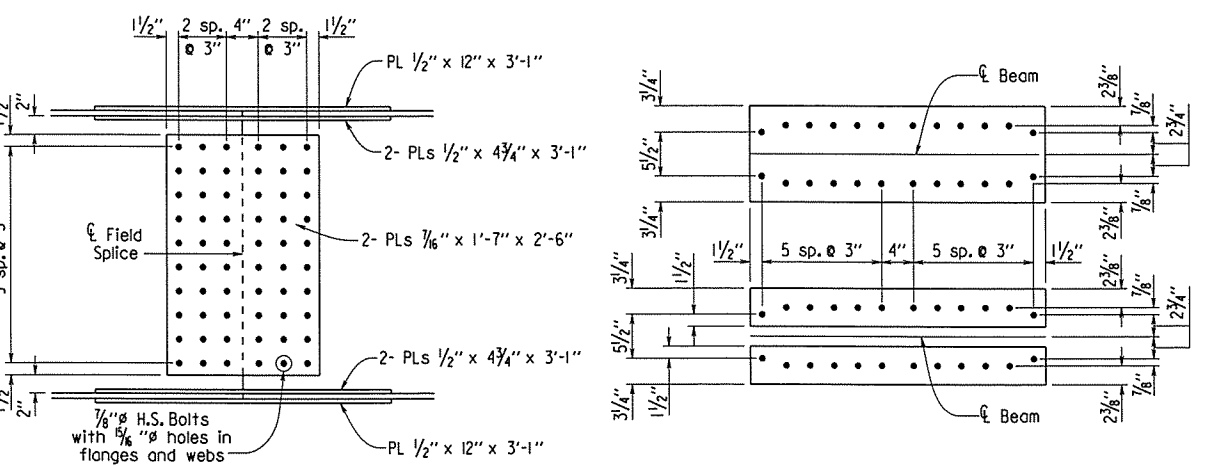


Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

**HALF-FRAMING PLAN**  
Scale: 1/8" = 1'-0"

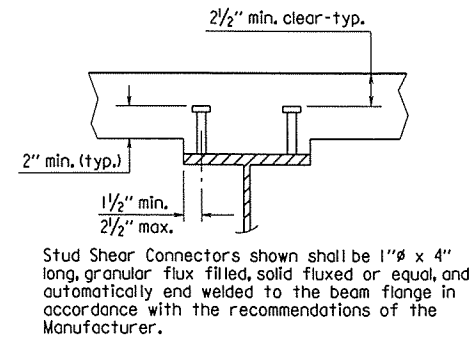


**HALF-BEAM ELEVATION**  
No Scale

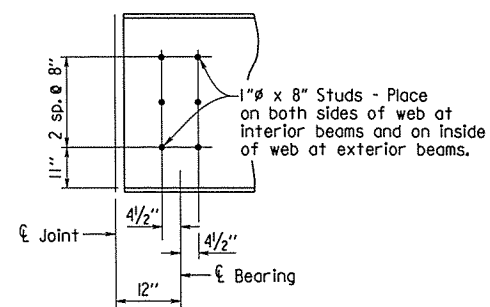


Note: All field splice plates shall be AASHTO M 270, Gr. 50W.

**WEB SPLICE**  
**FIELD SPLICE DETAILS**  
Scale: 1" = 1'-0"



**SHEAR CONNECTOR DETAIL**  
No Scale



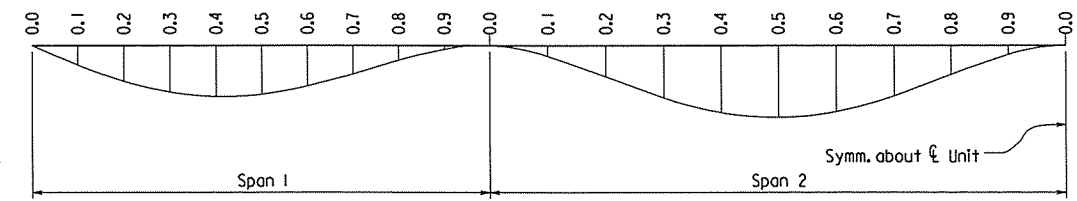
**DETAIL A**  
No Scale

STATE OF ARKANSAS  
REGISTERED PROFESSIONAL ENGINEER  
No. 9235  
12-17-15  
CHARLES R. ELLIS  
BRIDGE ENGINEER

**TABLE OF DEAD LOAD DEFLECTIONS (INCHES)**

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Beams	Ext. Beams	Int. Beams	Ext. Beams	Int. Beams	Ext. Beams
1	0	0	0	0	0	0	0
	0.1	0.018	0.017	0.114	0.100	0.122	0.108
	0.2	0.033	0.031	0.209	0.183	0.223	0.198
	0.3	0.043	0.040	0.273	0.239	0.291	0.258
	0.4	0.048	0.044	0.300	0.262	0.320	0.283
	0.5	0.046	0.042	0.286	0.250	0.305	0.270
	0.6	0.038	0.035	0.238	0.208	0.254	0.225
	0.7	0.026	0.025	0.166	0.146	0.177	0.158
	0.8	0.014	0.013	0.087	0.076	0.093	0.082
	0.9	0.004	0.003	0.022	0.019	0.023	0.021
2	0	0	0	0	0	0	0
	0.1	0.010	0.009	0.063	0.055	0.067	0.059
	0.2	0.029	0.027	0.183	0.160	0.195	0.173
	0.3	0.049	0.045	0.306	0.268	0.327	0.290
	0.4	0.062	0.058	0.392	0.344	0.418	0.372
	0.5	0.067	0.062	0.422	0.369	0.450	0.399
	0.6	0.061	0.057	0.386	0.339	0.412	0.366
	0.7	0.047	0.044	0.295	0.259	0.315	0.280
	0.8	0.027	0.025	0.170	0.149	0.181	0.161
	0.9	0.009	0.008	0.054	0.047	0.058	0.051
Unit	0	0	0	0	0	0	0

Note: Table is symmetrical about Unit



**DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)**

Note: Camber for Dead Load Deflection plus Vertical curve ±1/4" tolerance. Deflections shown are from a chord from Bearing to Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.

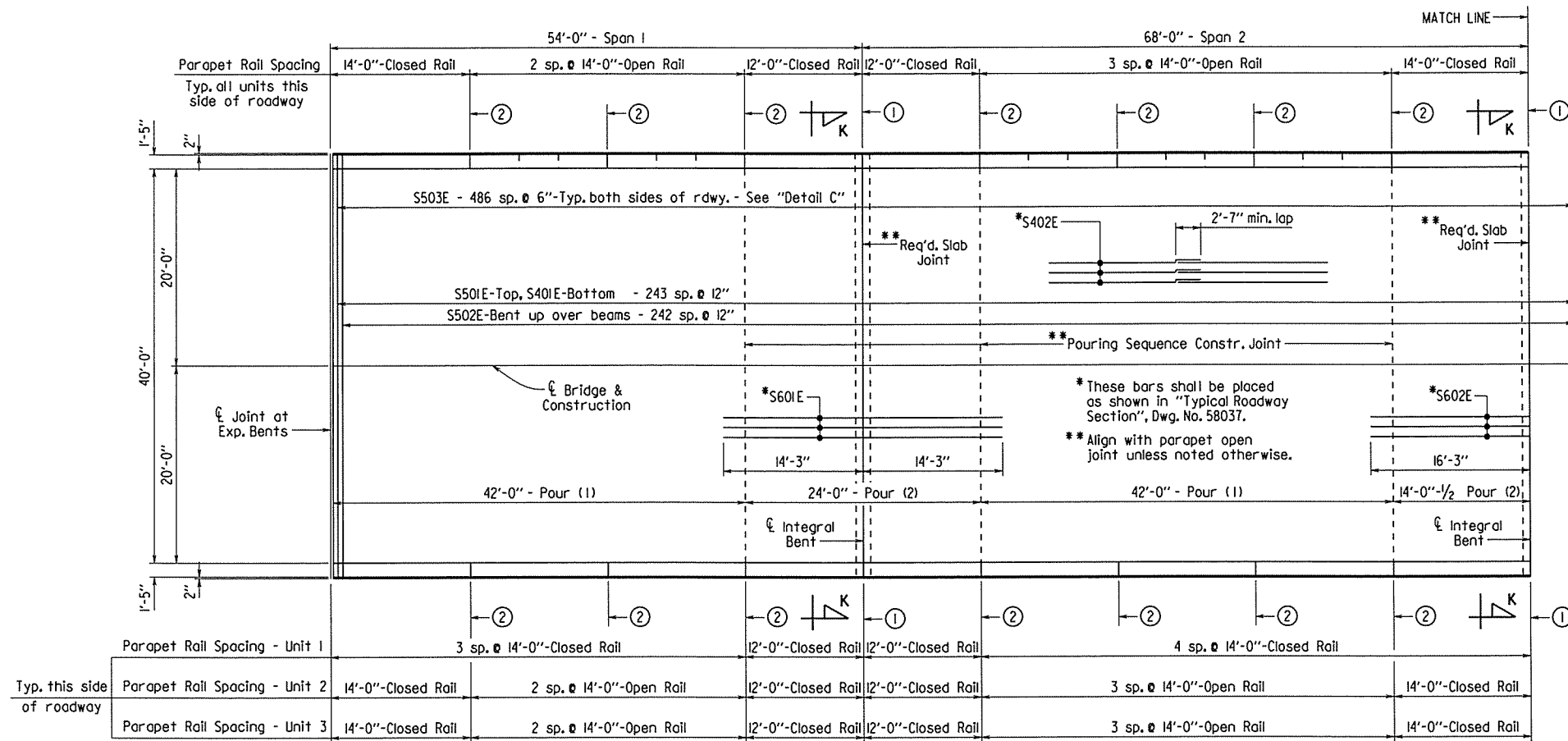
SHEET 5 OF 8  
DETAILS OF 244'-0" CONTINUOUS COMPOSITE W-BEAM UNITS  
CACHE RIVER

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

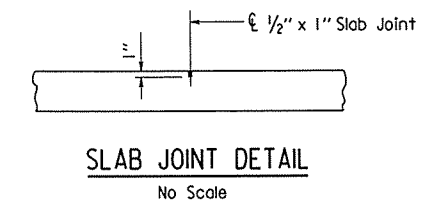
DRAWN BY: KDH DATE: 12-1-15 FILENAME: b050272xl.sl.dgn  
CHECKED BY: CSE DATE: 12/1/15 SCALE: AS NOTED  
DESIGNED BY: CSE DATE: 12/1/15  
BRIDGE NO. 07374 DRAWING NO. 58041

PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							78	159
07374 - 244 FT. UNITS							- 58042	



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class STAE Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



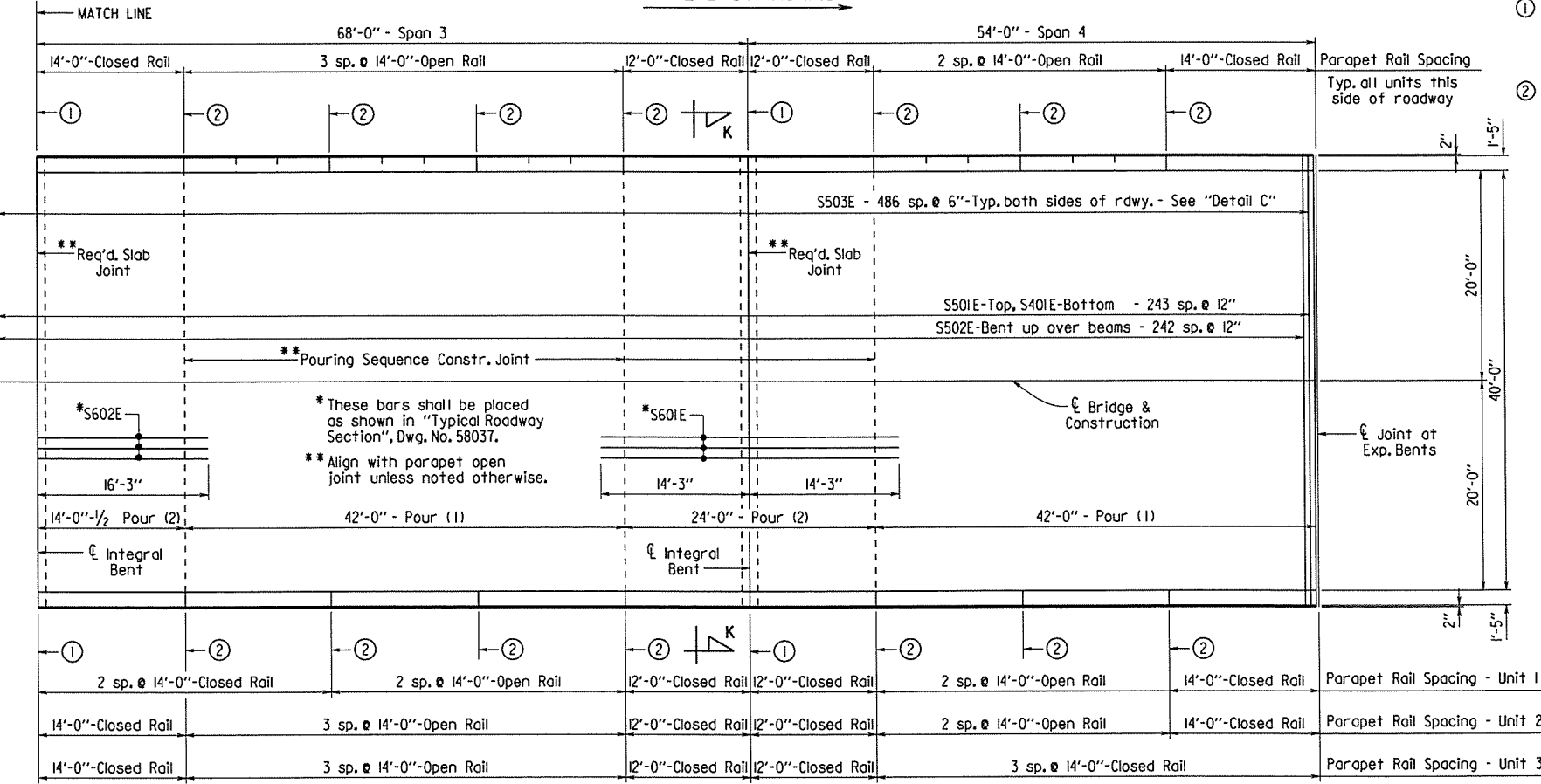
Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 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 deviations from the pouring sequence shown.

Concrete diaphragms at end bents and expansion intermediate bents may be poured monolithically with the slab pour.

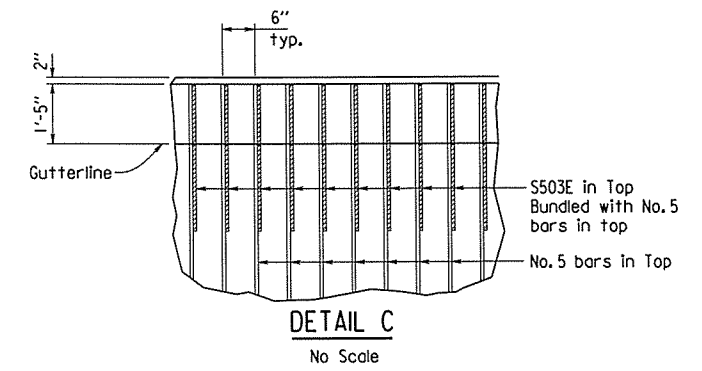
Concrete diaphragms at integral intermediate bents shall be poured separately. A minimum of 48 hours shall elapse between the diaphragm pours and the slab pours.

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.

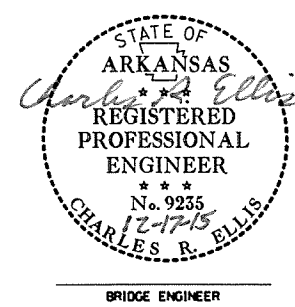
AHEAD STATIONING      Note: For "View K-K", see Dwg. No. 58043.



- ① Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab. See Dwg. No. 58044.
- ② Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab. See Dwg. No. 58044.



REINFORCING PLAN AND POURING SEQUENCE  
Scale: 1/8" = 1'-0"



SHEET 6 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER

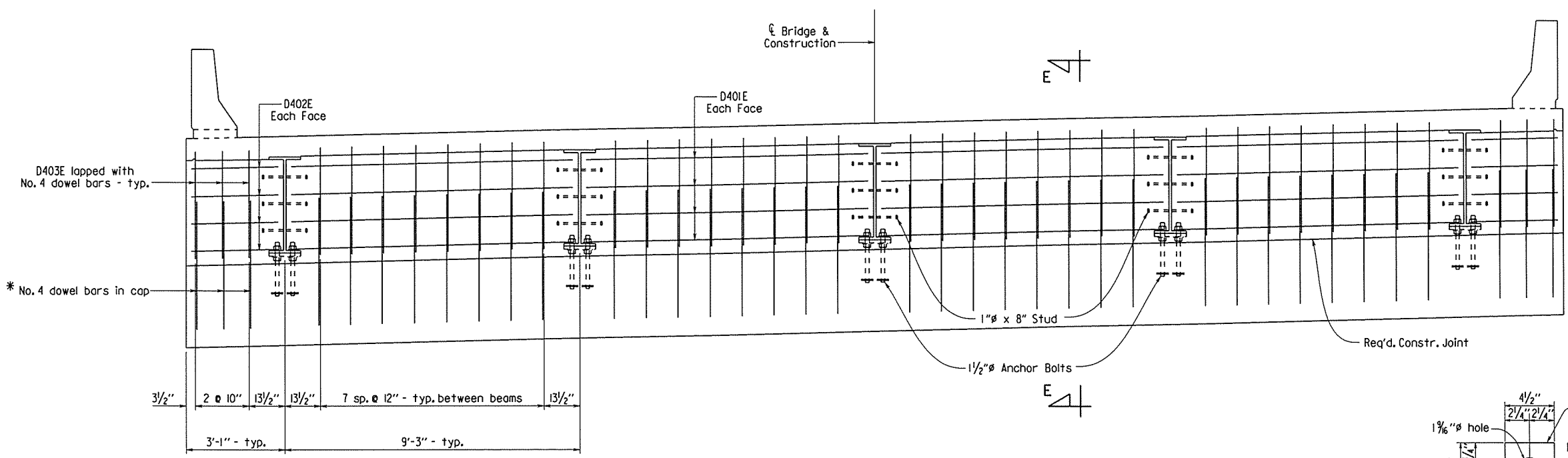
ROUTE      SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

BRIDGE NO. 07374      DRAWING NO. 58042

DRAWN BY: KDH      DATE: 12-1-15      FILENAME: b050272xl.sl.dgn  
CHECKED BY: CSE      DATE: 12/17/15      SCALE: AS NOTED  
DESIGNED BY: CSE      DATE: 12/15/15

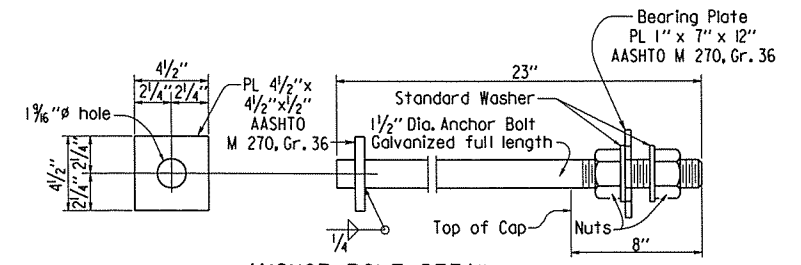
PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		79	159
				07374 - 244 FT. UNITS		- 58043		



\*See Dwg. No. 58035 for reinforcing details and placement.

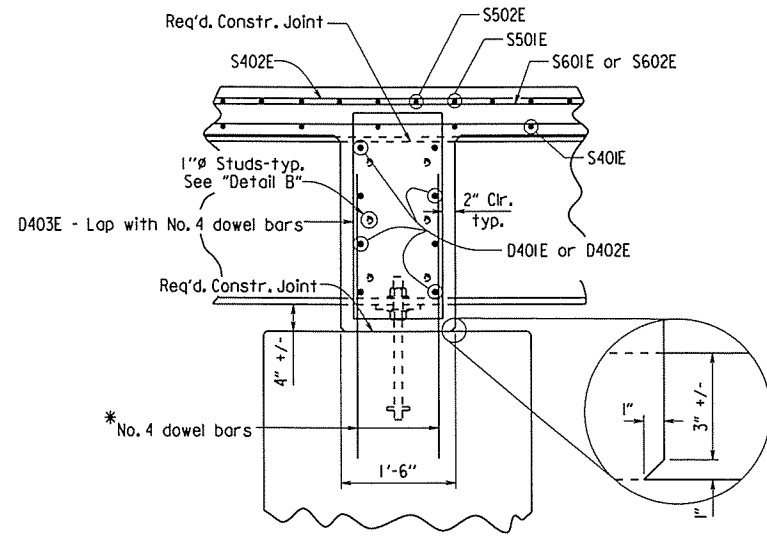
**VIEW K-K**  
Looking Ahead  
Shown for Bent 2  
All other Integral bents similar  
No Scale



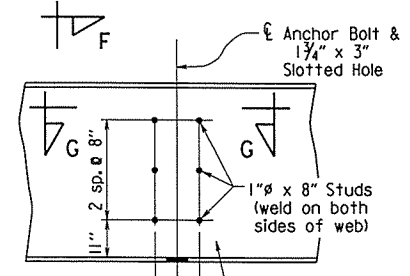
**ANCHOR BOLT DETAIL**  
At Integral Bents  
No Scale

Anchor bolts shall comply with AASHTO M 314, 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 (M 270, Gr. 50W)"

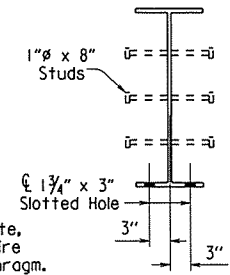
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



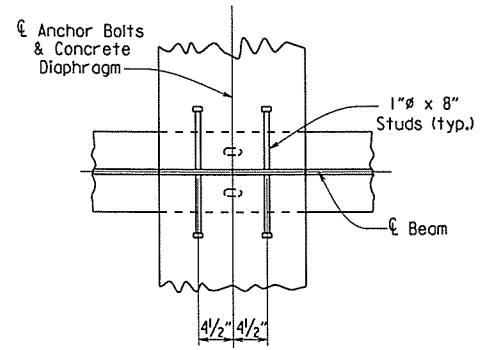
**SECTION E-E**  
No Scale



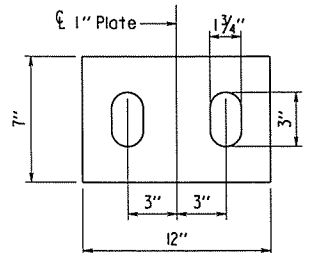
**DETAIL B**  
No Scale



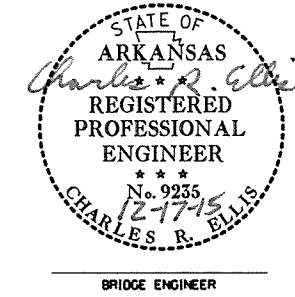
**VIEW F-F**  
No Scale



**SECTION G-G**  
No Scale



**BEARING PLATE DETAIL**  
No Scale



SHEET 7 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER

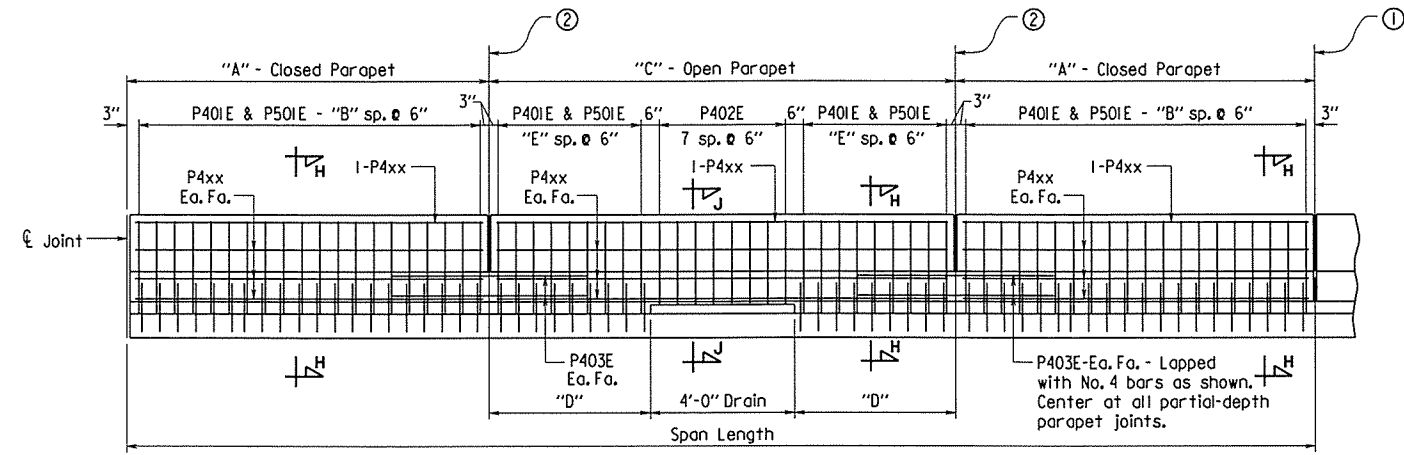
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-2-15 FILENAME: b050272xl.sl.dgn  
CHECKED BY: [Signature] DATE: 12/15 SCALE: AS NOTED  
DESIGNED BY: [Signature] DATE: 12/15

BRIDGE NO. 07374 DRAWING NO. 58043

PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	80	159	
				07374 - 244 FT. UNITS - 58044				



① Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 58042. Stop 4" from top of slab.

② Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 58042. Stop 1'-2" from top of slab.

DETAILS OF PARAPET RAIL  
No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B" P4xx Bar	"C" Open Parapet	"D"	"E"	P4xx Bar
12'-0"	23	14'-0"	5'-0"	9	P404E
14'-0"	27				P405E

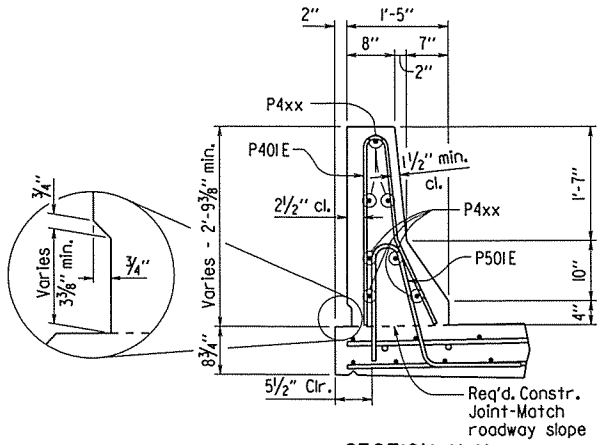
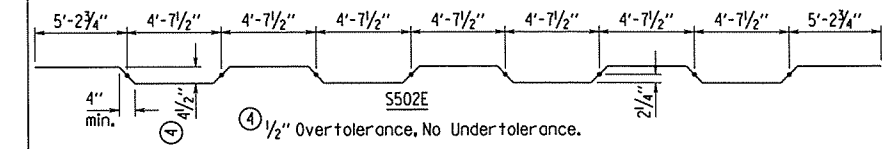
Note: For location of Open and Closed Parapet panels, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 58042.

BAR LIST - PER UNIT

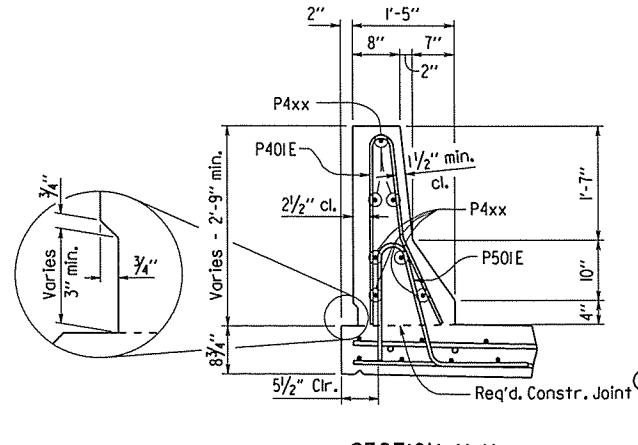
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	244	42'-10"	Str.	
S402E	847	37'-1"	Str.	
D401E	96	8'-11"	Str.	
D402E	48	2'-9"	Str.	
D403E	114	9'-8"	2"	
P401E	⑤	5'-6"	3"	
P402E	⑥	4'-10"	3"	
P403E	112	5'-6"	Str.	
P404E	56	11'-8"	Str.	
P405E	196	13'-8"	Str.	
S501E	244	42'-10"	Str.	
S502E	243	43'-8"	3"	
S503E	974	4'-10"	Str.	
D501E	116	7'-1"	2 1/2"	
D502E	20	5'-5"	2 1/2"	
P501E	⑦	4'-9"	3 3/4"	
S601E	92	28'-6"	Str.	
S602E	46	32'-6"	Str.	
D601E	56	8'-11"	Str.	
D602E	16	3'-1"	Str.	

NO. REQ'D.			
MARK	UNIT 1	UNIT 2	UNIT 3
⑤ P401E	864	816	832
⑥ P402E	112	160	144
⑦ P501E	864	816	832

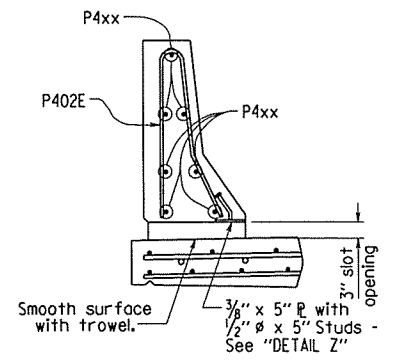
Note: Bars marked with an "E" suffix shall be epoxy coated.



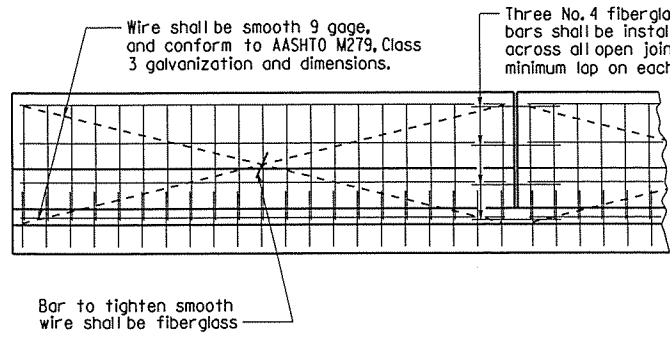
SECTION H-H  
Left Side - Looking Ahead  
Scale: 3/4" = 1'-0"



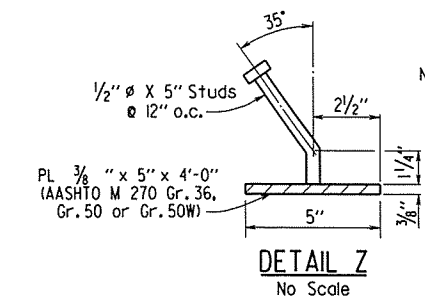
SECTION H-H  
Right Side - Looking Back  
Scale: 3/4" = 1'-0"



SECTION J-J  
Both Sides  
Scale: 3/4" = 1'-0"



DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL  
No Scale

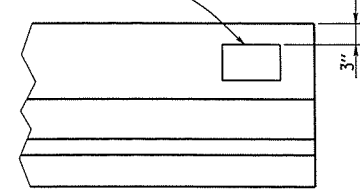


DETAIL Z  
No Scale

NOTE: The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M 270 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 (M 270, Gr. 50W)."

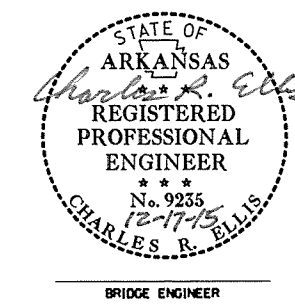
Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from front face of backwall on right side beginning of bridge



NAME PLATE DETAIL  
No Scale

All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.



SHEET 8 OF 8  
DETAILS OF 244'-0" CONTINUOUS  
COMPOSITE W-BEAM UNITS  
CACHE RIVER

ROUTE 86  
SEC. 1  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

BRIDGE ENGINEER  
BRIDGE NO. 07374

DATE: 12-2-15  
DATE: 12/17/15  
DATE: 12/17/15

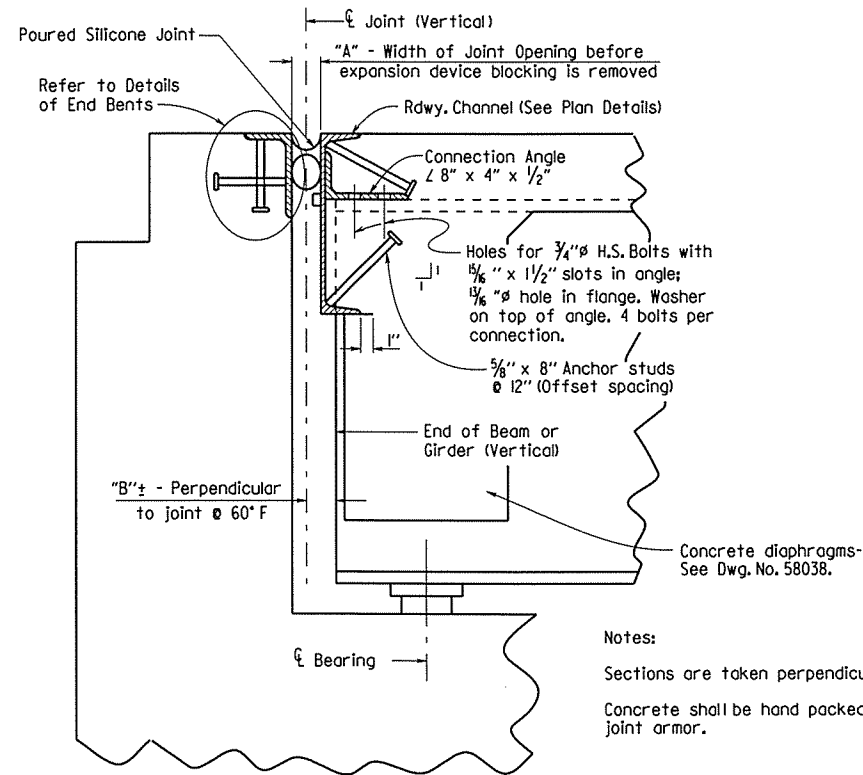
FILENAME: b050272xl.sl.dgn  
SCALE: AS NOTED

DRAWN BY: KDH  
CHECKED BY: CSE  
DESIGNED BY: CSE

DRAWING NO. 58044



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.		050272	81	159
				07374 - POURED JOINTS - 58045				

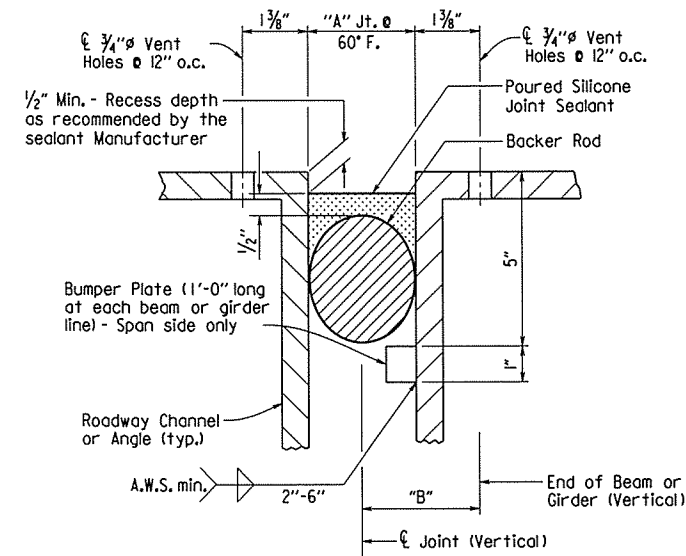


SECTION THRU JOINT AT END BENT

TABLE OF SILICONE JOINT DATA

①	"A" - Width perpendicular to joint at 24 hour average temperature of:			"B"	Bumper Plate Size
	40° F	60° F	80° F		
	2 3/8"	2"	1 1/2"	2 1/4" +/-	1" x 1"

Notes:  
Sections are taken perpendicular to  $\perp$  Joint.  
Concrete shall be hand packed under the joint armor.

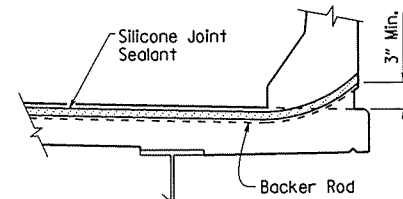


DETAIL OF POURED SILICONE JOINT

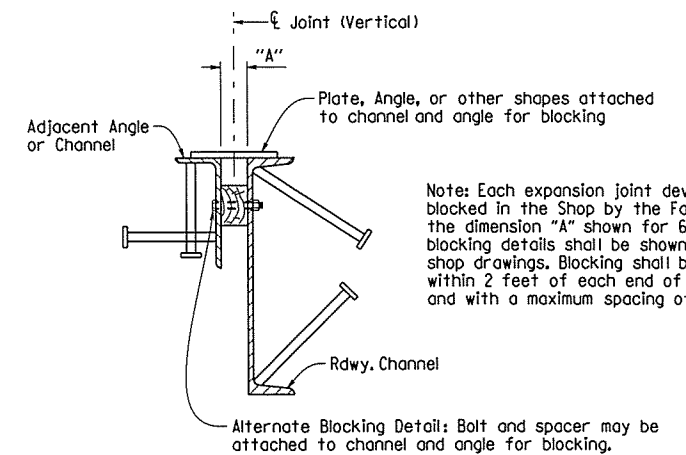
Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



JOINT SEAL PLACEMENT AT RAIL



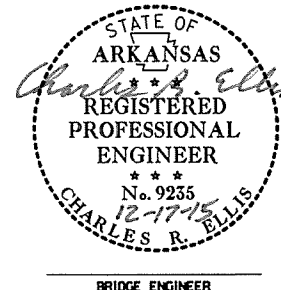
DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

- 1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.
- 2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

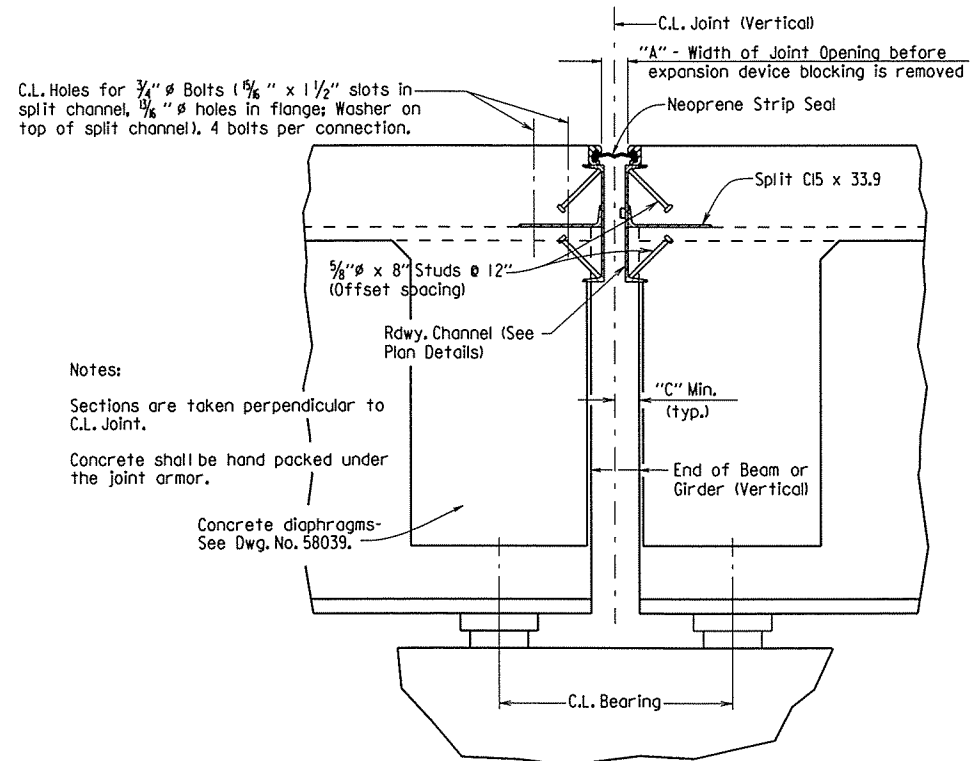
Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.



SHEET 1 OF 2  
DETAILS OF JOINTS  
CACHE RIVER  
ROUTE                      SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH                      DATE: 12-2-15                      FILENAME: b050272.psj.dgn  
CHECKED BY: CSB                      DATE: 12/17/15                      SCALE: NONE  
DESIGNED BY: CSB                      DATE: 12/17/15  
BRIDGE NO. 07374                      DRAWING NO. 58045

BRIDGE ENGINEER

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.	050272	92	159	
① 07374 - STRIP SEAL JOINT - 58046								



**Notes:**

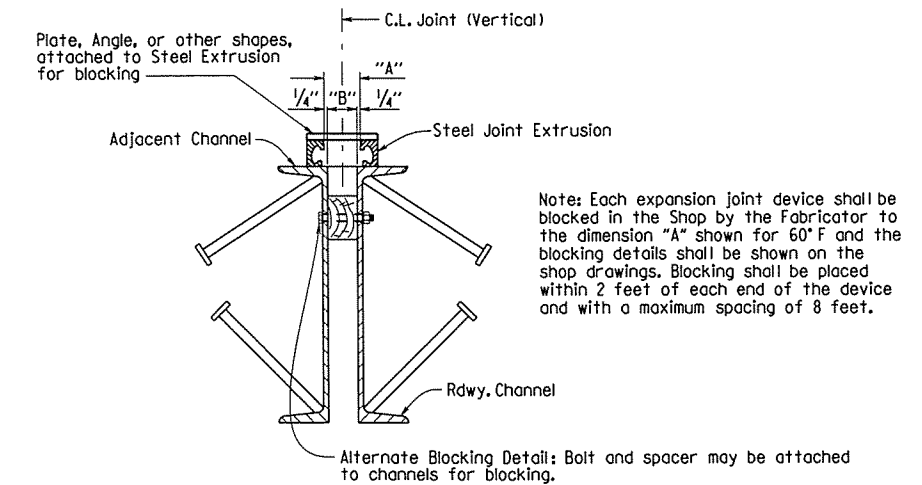
Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms- See Dwg. No. 58039.

**TABLE OF STRIP SEAL JOINT DATA**

① "A" - Width perpendicular to joint at 24 hour average temperature of:			"B"	"C"
40° F	60° F	80° F	2 1/4"	2 5/8" +/-
3 1/8"	2 3/4"	2 3/8"		



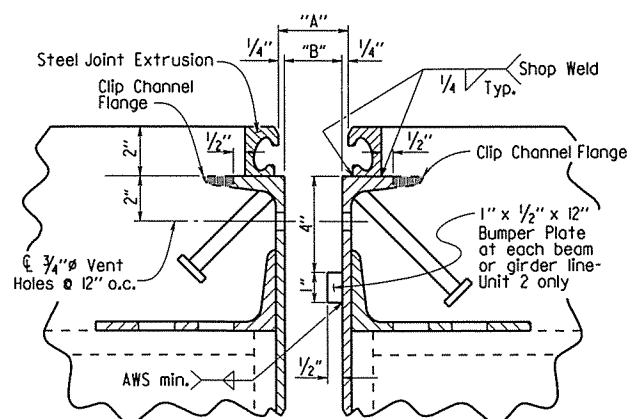
Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

**DETAILS FOR BLOCKING EXPANSION JOINT DEVICE**

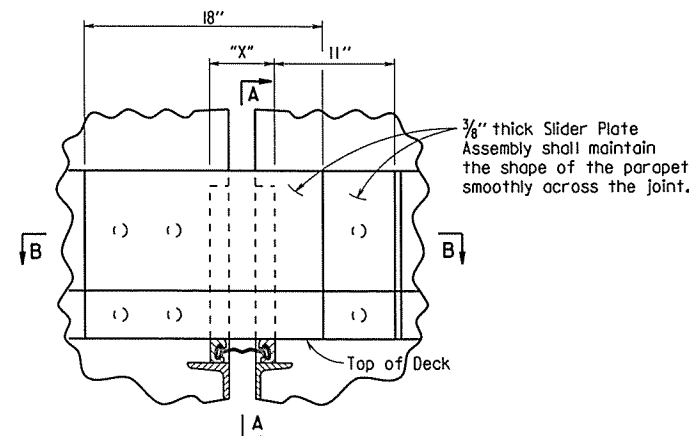
**EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:**

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

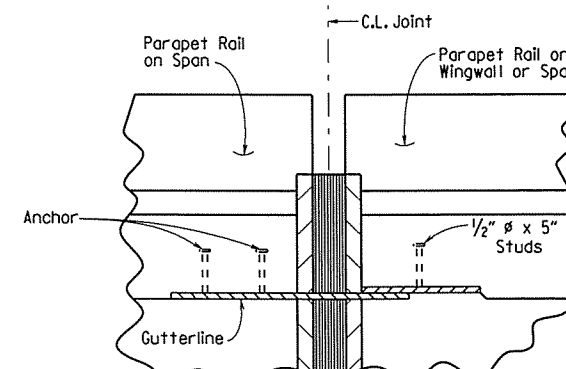


**DETAIL OF STRIP SEAL JOINT**



Dimension "X" equals the width of opening in parapet to allow for removal or repair of joint.

**DETAIL OF PARAPET SLIDER PLATES**



The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

Method of installation and fabrication shall be determined by the Manufacturer.

**SECTION B-B**

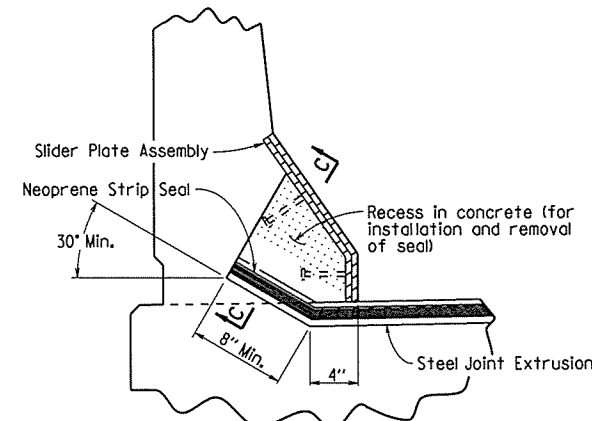
**GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:**

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA". The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

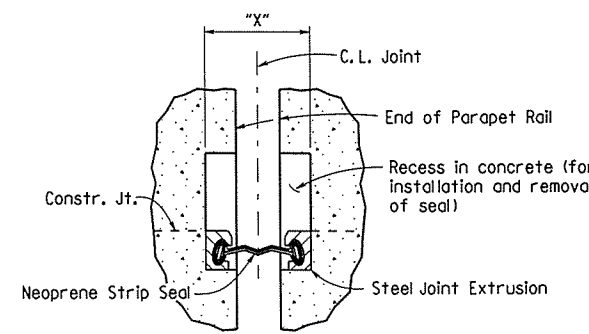
All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). The parapet slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel in slider plates shall be as specified in the plans.

The steel extrusion and neoprene strip seal shall be paid for in accordance with Section 809.

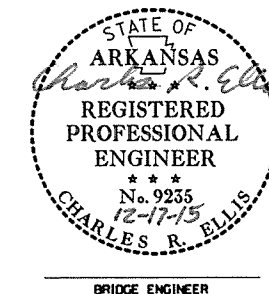


Details of Joint turn-up in parapet are general and show basic design controls only.

**SECTION A-A**



**SECTION C-C**



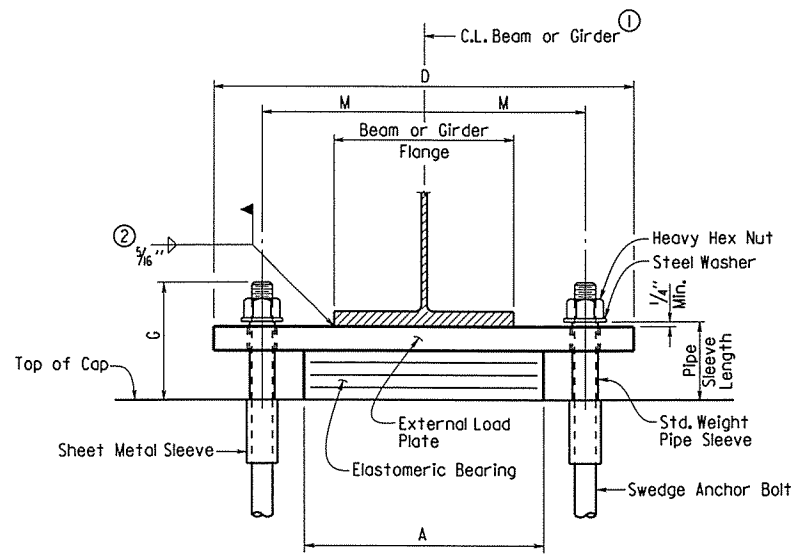
SHEET 2 OF 2  
DETAILS OF JOINTS  
CACHE RIVER

ROUTE                      SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

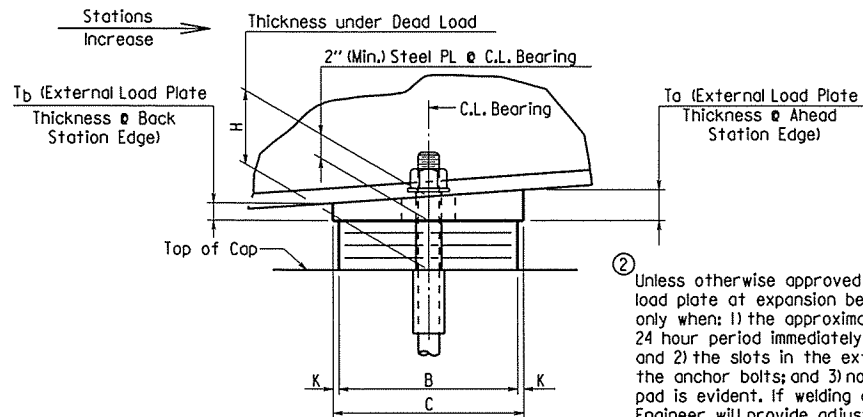
DRAWN BY: KDH                      DATE: 12-2-15                      FILENAME: b050272.ss.jgn  
CHECKED BY: SJP                      DATE: 12/17/15                      SCALE: NONE  
DESIGNED BY: CSP                      DATE: 6/15  
BRIDGE NO. 07374                      DRAWING NO. 58046

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.		050272	83	159
				07374 - ELASTO. BEARINGS - 58047				

The direction of bevel of the external load plate may not be accurately depicted with respect to  $T_a$  and  $T_b$  values shown in the "Table of Fabricator Variables".



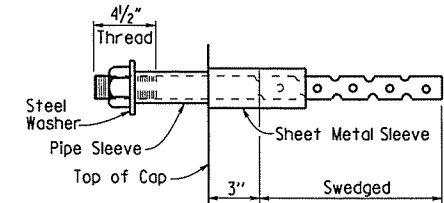
FRONT VIEW



SIDE VIEW

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

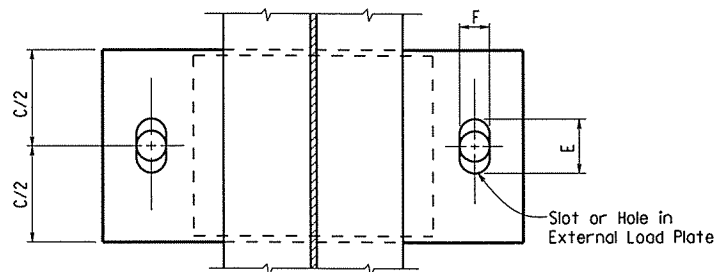


ANCHOR BOLT DETAIL

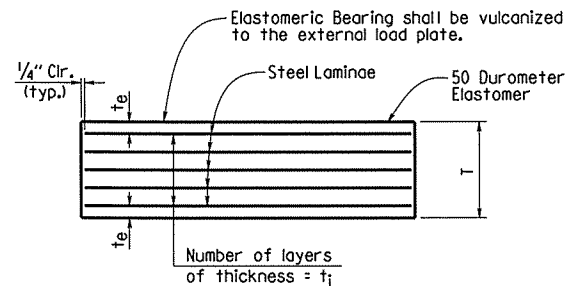
Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"

① C.L. Elastomeric Pad shall be aligned with C.L. Beam or Girder.



PLAN VIEW



ELASTOMERIC BEARING

$t_e$  = Thickness of elastomer cover on top and bottom of pad  
 $t_i$  = Thickness of elastomer between steel laminae  
 N = Number of elastomer layers of thickness  $t_i$

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

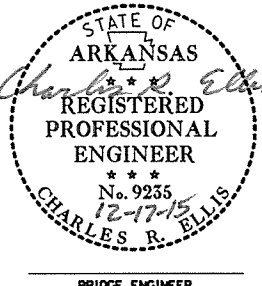
Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

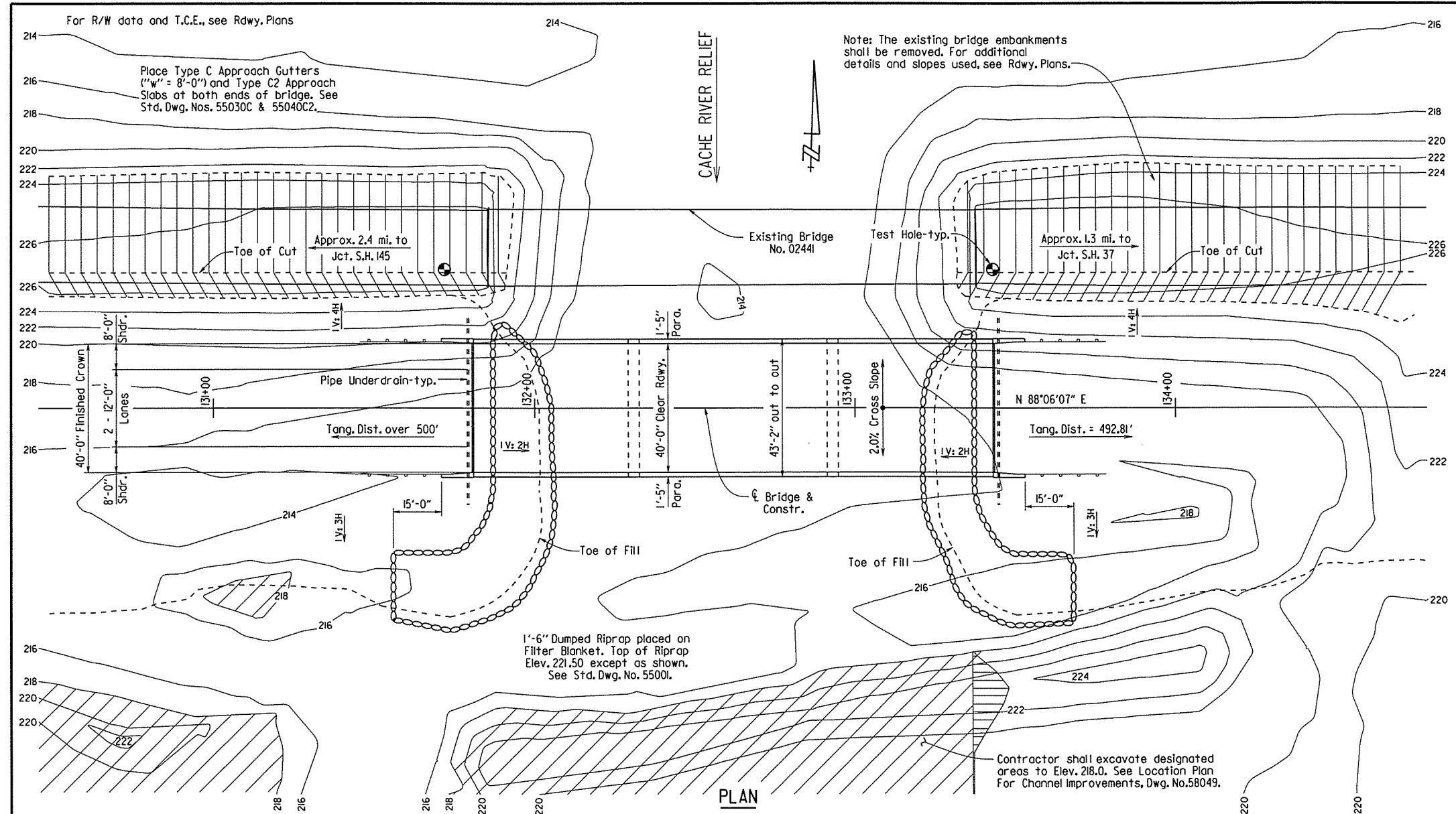
\*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD					EXTERNAL LOAD PLATE						ANCHOR BOLT										
	BENT NO(S)	BEAM OR GIRDER NO.						A	B	N	$t_i$	$t_e$	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	$T_a$	$T_b$	ANCHOR BOLT		PIPE SLEEVE SIZE ( $\phi \times L$ )	SHEET METAL SLEEVE SIZE ( $\phi \times L$ )	STEEL WASHER SIZE (O.D.)		
07374	1 & 13	All	Exp.	5	104	7 1/8"	4 3/8"	14"	8"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	9"	24"	4 1/4"	2 1/4"	1/2"	9 1/4"	2.0"	2.0"	1 1/2" x 23 3/4"	55	1 1/2" x 4 5/8"	3" x 9"	3"		
	5 & 9	All	Exp.	10	104	7 1/8"	4 3/8"	14"	8"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	9"	24"	4 1/4"	2 1/4"	1/2"	9 1/4"	2.0"	2.0"	1 1/2" x 23 3/4"	55	1 1/2" x 4 5/8"	3" x 9"	3"		



DETAILS OF  
 ELASTOMERIC BEARINGS  
 CACHE RIVER  
 ROUTE \_\_\_\_\_ SEC. \_\_\_\_\_  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: KDH DATE: 12-2-15 FILENAME: b050272.el.dgn  
 CHECKED BY: CSE DATE: 12/17/15 SCALE: NONE  
 DESIGNED BY: CSE DATE: 12/17/15  
 BRIDGE NO. 07374 DRAWING NO. 58047

DATE REVISED	FILMED	DATE REVISED	DATE FILMED	FED. ROAD	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		BY	159
				07375 -	LAYOUT		- 58048	



PLAN

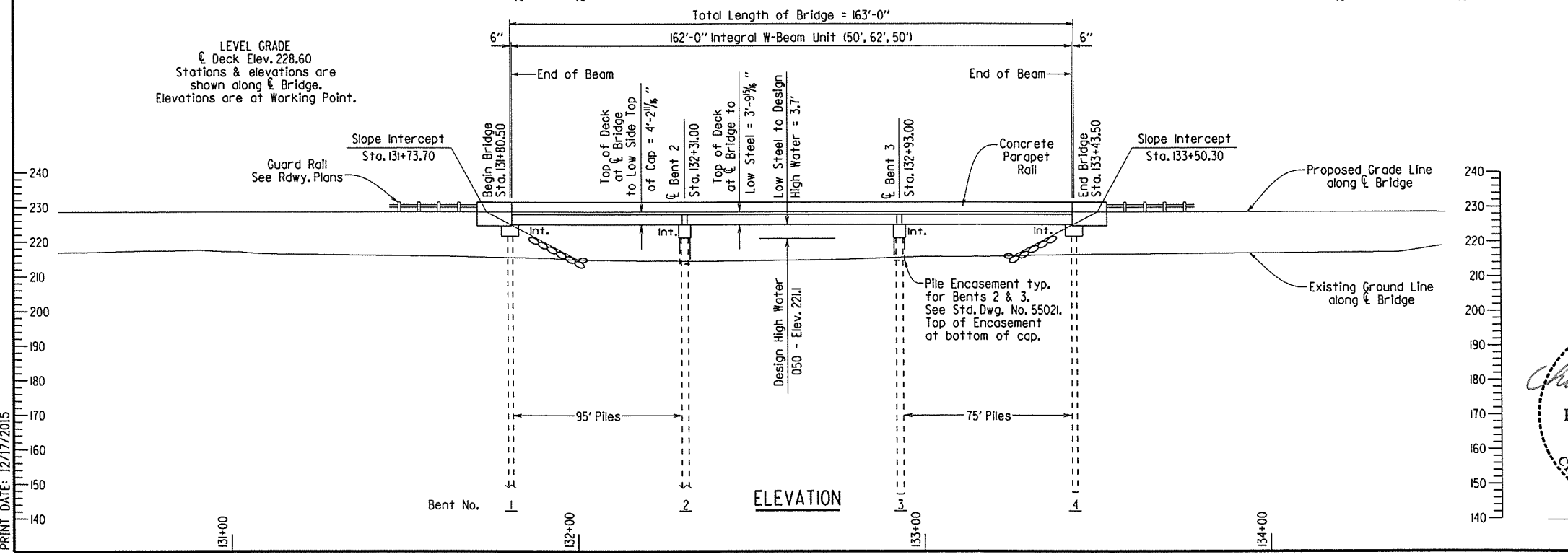
**HYDRAULIC DATA**

FLOOD DESCRIPTION	FREQUENCY YEARS	*TOTAL DISCHARGE	DISCHARGE BRIDGE NO. 07375	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
		CFS	CFS	FEET	FEET
Design	50	17,400	2,130	220.9	221.3
Base	100	19,400	2,380	221.1	221.6
Extreme	500	23,700	2,910	221.7	222.2
Overtopping	>500	-	-	-	-

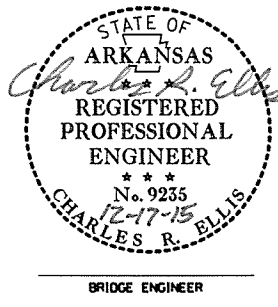
\*Total Discharge thru this bridge and Bridge Nos. 07374, 07376 & 07377 over the Cache River & Cache River Reliefs.

\*\*Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 221.5 ft.  
Proposed Low Bridge Chord elevation = 224.77 ft.  
Drainage area = 871 square miles.  
Historical H.W. Elev. = 222.2 ft.



For General Notes and Soil Boring Information, see Dwg. No. 58049.



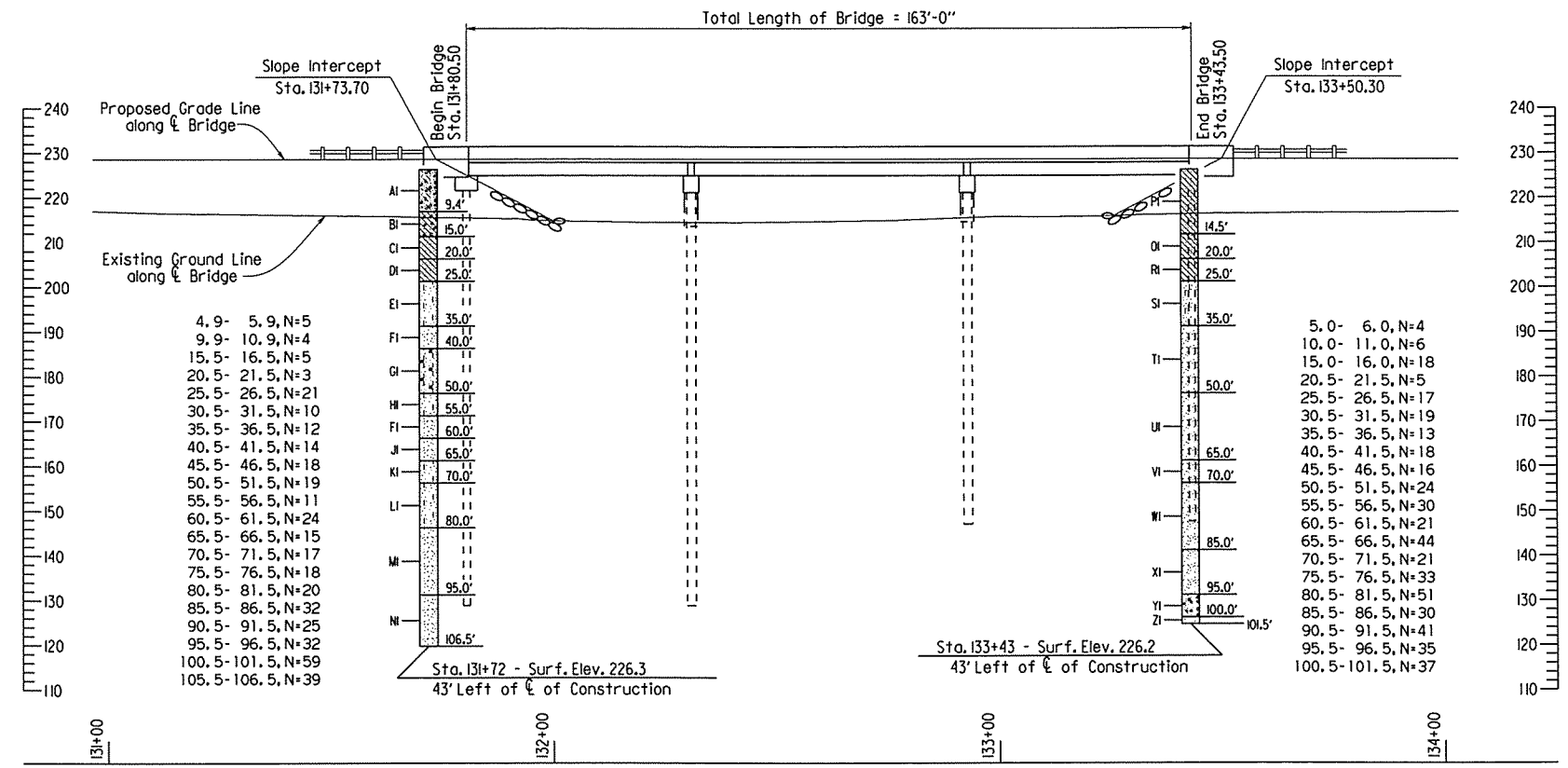
SHEET 1 OF 2  
LAYOUT OF BRIDGE OVER  
CACHE RIVER RELIEF (L.M. 12.01)  
CACHE RIVER - AMAGON  
STRS. & APPRS. (S)  
JACKSON COUNTY

ROUTE 14 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 7-21-14 FILENAME: b050272x2.ll.dgn  
CHECKED BY: SWP DATE: 12-7-15 SCALE: 1" = 20'  
DESIGNED BY: CSP DATE: 4/14  
BRIDGE NO. 07375 DRAWING NO. 58048

PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	85	159

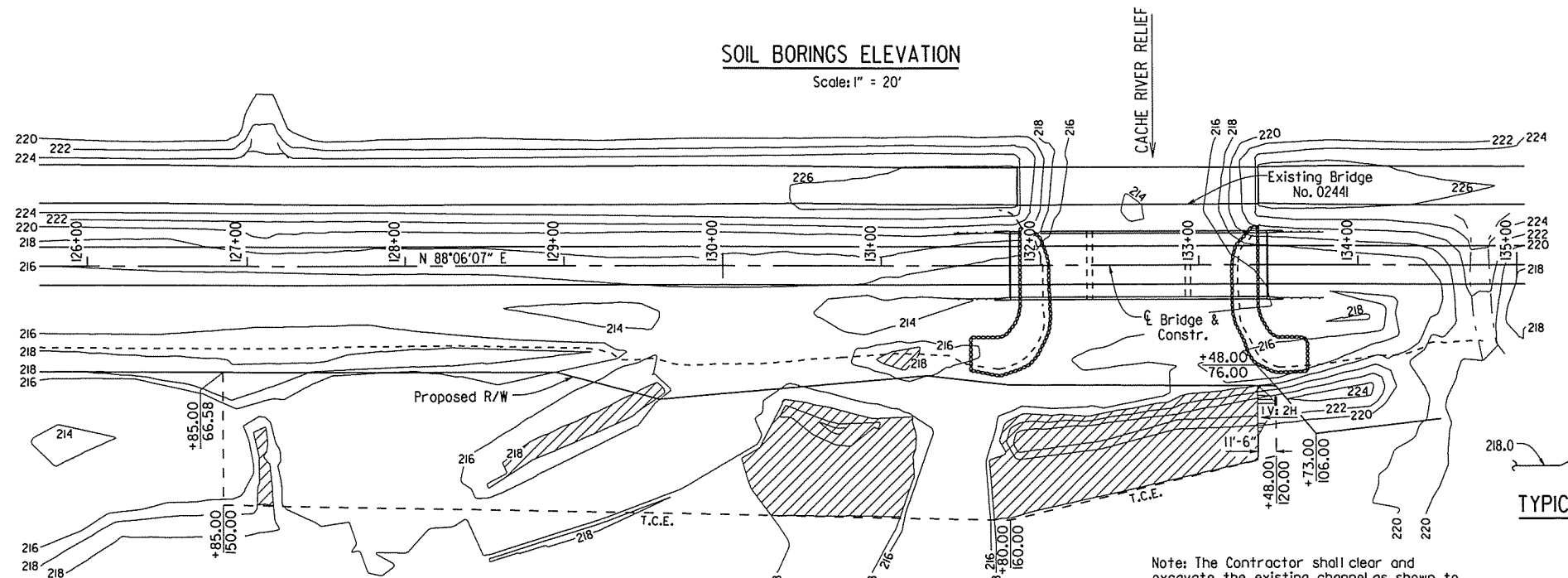


**BORING LEGEND**

- AI-Moist, Loose, Gray and Brown Sand with Clay and Gravel
- BI-Moist, Soft, Gray Clay with Sand and Gravel
- CI-Moist, Medium Stiff, Gray and Brown Clay with Sand
- DI-Moist, Soft, Gray Clay with Sand
- EI-Wet, Medium Dense to Loose, Gray Sand with Silt
- FI-Wet, Medium Dense, Gray Sand
- GI-Alternating Layers of Wet, Medium Dense, Gray Sand with Silt and Organic Matter and Medium Dense Sand
- HI-Wet, Medium Dense, Gray Sand with Silt, some Gravel and Trace of Organic Matter
- Ji-Wet, Medium Dense, Gray Sand with some Gravel
- KI-Wet, Medium Dense, Gray Sand with Silt and some Clay
- LI-Alternating Layers of Wet, Medium Dense, Gray Sand with Silt and Trace of Gravel and Medium Dense Sand
- MI-Alternating Layers of Wet, Medium Dense, Gray Sand with some Gravel and Dense Sand
- NI-Alternating Layers of Wet, Dense, Gray Sand with Trace of Gravel and Very Dense, Sand with Silt
- PI-Moist, Soft to Medium Stiff, Gray Sandy Clay with some Organic Matter and Trace of Gravel
- OI-Moist, Very Stiff, Gray Clay with Sand
- RI-Moist, Medium Stiff, Gray Clay
- SI-Alternating Layers of Wet, Medium Dense, Gray Silty Sand and Medium Dense Sand
- TI-Wet, Medium Dense, Gray Sand with some Gravel and Organic Matter
- UI-Wet, Medium Dense, Gray Sand with Trace of Gravel
- VI-Wet, Dense, Gray Sand with some Gravel
- WI-Wet, Medium Dense to Very Dense, Gray Sand with Trace of Gravel
- XI-Wet, Medium Dense, Gray Sand with some Gravel and Organic Matter
- YI-Wet, Dense, Gray Sand with Gravel and Organic Matter
- ZI-Wet, Dense, Gray Sand with Trace of Gravel and some Organic Matter

**SOIL BORINGS ELEVATION**

Scale: 1" = 20'



**LOCATION PLAN FOR CHANNEL IMPROVEMENTS**

Scale: 1" = 50'

**GENERAL NOTES**

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012), with 2013 Interims.

LIVE LOADING: HL-93 SEISMIC ZONE: 4

MATERIALS AND STRENGTHS:  
 Class (SAE) Concrete (superstructure) f'c = 4,000 psi  
 Class 5 Concrete (substructure) f'c = 3,500 psi  
 Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A) fy = 60,000 psi  
 Structural Steel (AASHTO M 270, Gr. 36) fy = 36,000 psi  
 Structural Steel (AASHTO M 270, Gr. 50W) fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL 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 200 tons per pile. 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. The minimum tip elevation for Bents 1 & 2 shall be 131.3 or lower. The minimum tip elevation for Bents 3 & 4 shall be 151.2 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 40,000 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 75,000 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 below the required preboring at Bents 1 and 4, and at Bents 2 & 3 to achieve the minimum tip elevation. Preboring to achieve the minimum tip elevation shall be in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum tip elevation shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASUREMENTS: Pile encasements are required for Bents 2 & 3. See Std. Dwg. No. 55021.

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 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 "Class 5 Concrete-Bridge".

**DETAIL DRAWINGS:**

DETAIL DRAWINGS:	DRAWING NO.
End Bents	58054
Int. Bents	58055
162'-0" Integral W-Beam Unit	58056-58061
Standard General Notes	55006
Concrete Filled Steel Shell Piles & Pile Encasements	55021
Type C2 Approach Slab	55040C2
Type C Approach Gutter	55030C

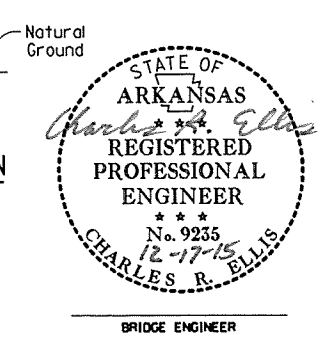
EXISTING BRIDGE: Existing Bridge No. 02441 (log mile 12.01) is 28.5' wide and 152' long and consists of five 30' spans with concrete deck on w-beams supported by concrete caps and piles. The existing bridge is located approx. 50' upstream from the proposed new bridge.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, the existing bridge No. 02441 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor, except the steel beams, which shall remain the property of AHTD. The Contractor shall provide suitable temporary storage and onsite loading onto AHTD equipment. Payment for this work will also be subsidiary to the item "Removal of Existing Bridge Structure (Site No. 2)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

SHEET 2 OF 2  
 LAYOUT OF BRIDGE OVER  
 CACHE RIVER RELIEF (L.M. 12.01)  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY

ROUTE 14 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

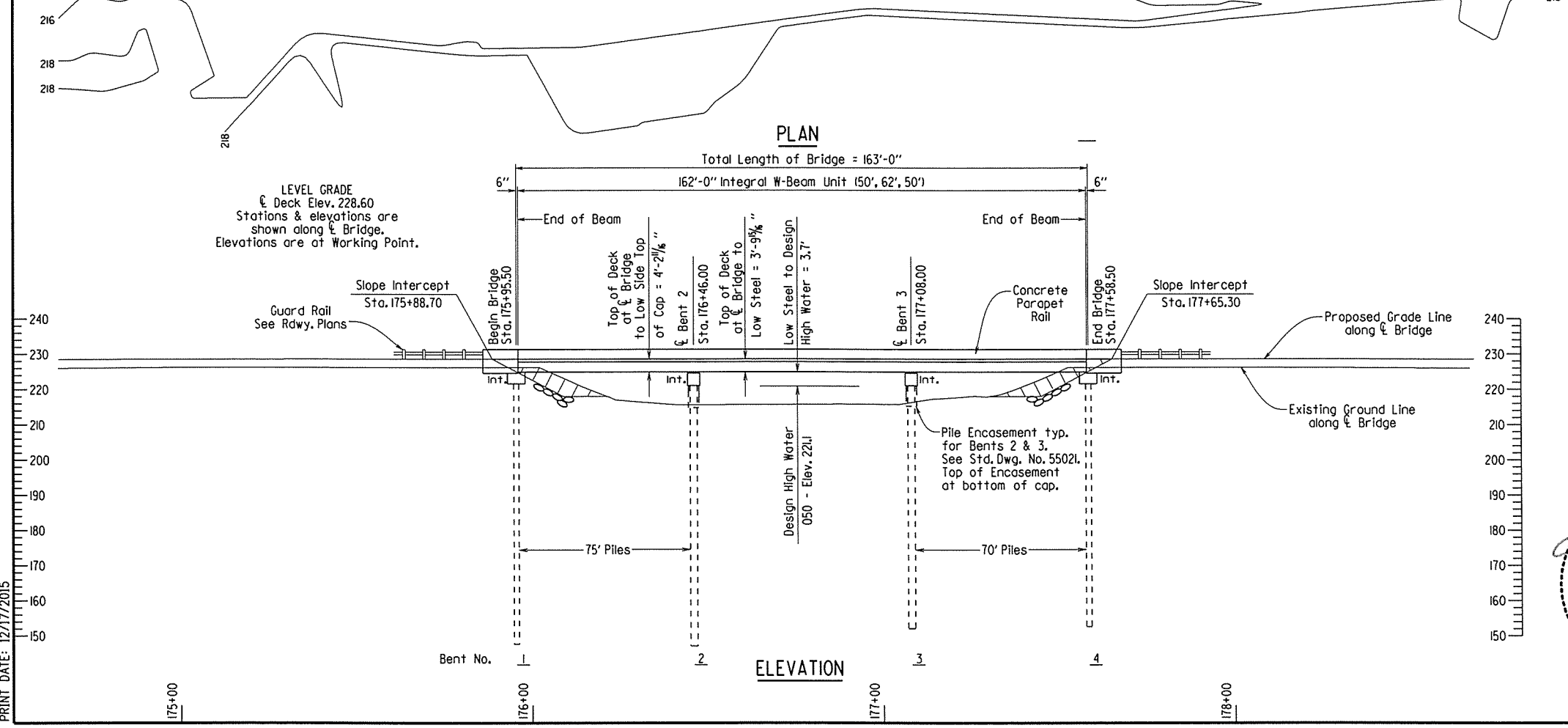
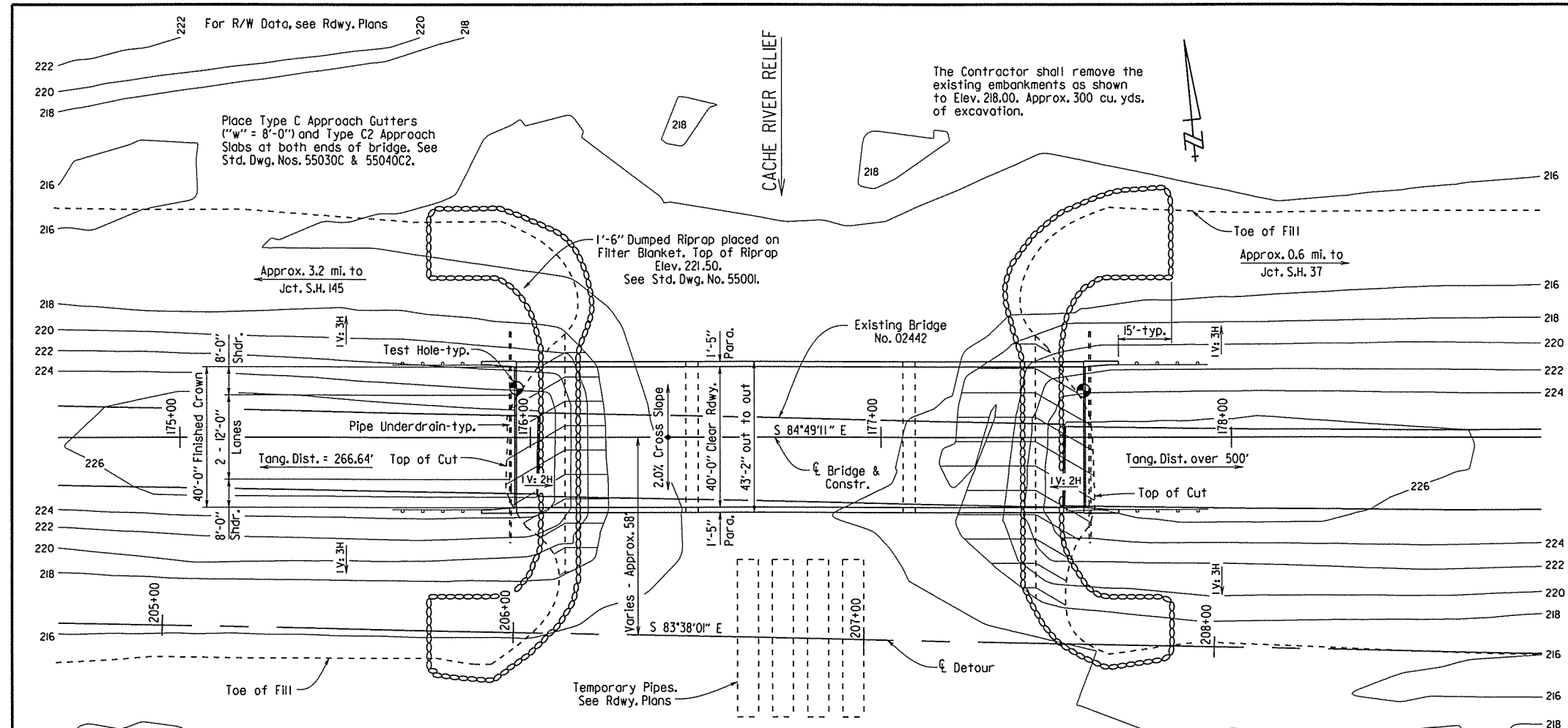


DRAWN BY: ADN	DATE: 3-11-15	FILENAME: b050272x2.ll.dgn
CHECKED BY: [Signature]	DATE: 2/17/15	SCALE: AS NOTED
DESIGNED BY: [Signature]	DATE: 2/14	
BRIDGE NO. 07375	DRAWING NO. 58049	

PRINT DATE: 12/17/2015

Note: The Contractor shall clear and excavate the existing channel as shown to elev. 218.0. Approx. 800 cu. yd. of excavation. Area below elev. 218.0 shall not be cleared.

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.		050272	86	159
				07376 -	LAYOUT			58050



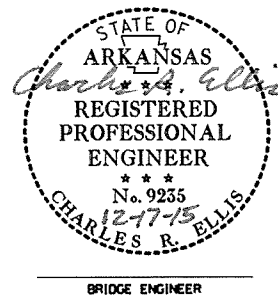
**HYDRAULIC DATA**

FLOOD DESCRIPTION	FREQUENCY YEARS	* TOTAL DISCHARGE CFS	DISCHARGE BRIDGE NO. 07376 CFS	** NATURAL WATER SURFACE ELEVATION FEET	WATER SURFACE ELEV. WITH BACKWATER FEET
Design	50	17,400	1,190	220.9	221.3
Base	100	19,400	1,400	221.1	221.6
Extreme	500	23,700	1,860	221.7	222.2
Overtopping	>500	-	-	-	-

\* Total Discharge thru this bridge and Bridge Nos. 07374, 07375 & 07377 over the Cache River & Cache River Reliefs.  
 \*\* Unconstricted water surface without structure or roadway approaches.  
 0100 backwater elevation for existing structure = 221.5 ft.  
 Proposed Low Bridge Chord elevation = 224.77 ft.  
 Drainage area = 871 square miles.  
 Historical H.W. Elev. = 222.2 ft.

For General Notes and Soil Boring Information, see Dwg. No. 58051.

SHEET 1 OF 2  
 LAYOUT OF BRIDGE OVER  
 CACHE RIVER RELIEF (L.M. 12.85)  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY  
 ROUTE 14 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: KDH DATE: 8-15-14 FILENAME: b050272x3.ll.dgn  
 CHECKED BY: [Signature] DATE: 12/7/15 SCALE: 1" = 20'  
 DESIGNED BY: [Signature] DATE: 7/1/14  
 BRIDGE NO. 07376 DRAWING NO. 58050



PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	87	159
				07376 -	LAYOUT			58051

GENERAL NOTES

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012), with 2013 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 (Gr. 60, AASHTO M31 or M322, Type A) fy = 60,000 psi  
 Structural Steel (AASHTO M 270, Gr. 36) Fy = 36,000 psi  
 Structural Steel (AASHTO M 270, Gr. 50W) Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL 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 200 tons per pile. 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. The minimum tip elevation for Bents 1 & 2 shall be 151.4 or lower. The minimum tip elevation for Bents 3 & 4 shall be 156.3 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 40,000 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 75,000 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 below the required preboring at Bents 1 and 4, and at Bents 2 & 3 to achieve the minimum tip elevation. Preboring to achieve the minimum tip elevation shall be in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum tip elevation shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASUREMENTS: Pile encasements are required for Bents 2 & 3. See Std. Dwg. No. 55021.

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 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 "Class 5 Concrete-Bridge".

DETAIL DRAWINGS:	DRAWING NO.
End Bents	58054
Int. Bents	58055
162'-0" Integral W-Beam Unit	58056-58061
Standard General Notes	55006
Concrete Filled Steel Shell Piles & Pile Encasements	55021
Type C2 Approach Slab	55040C2
Type C Approach Gutter	55030C

EXISTING BRIDGE: Existing Bridge No. 02442 (log mile 12.85) is 28.5' wide and 152' long and consists of five 30' spans with concrete deck on w-beams supported by concrete caps and piles. The existing bridge is located at the site of the proposed new bridge.

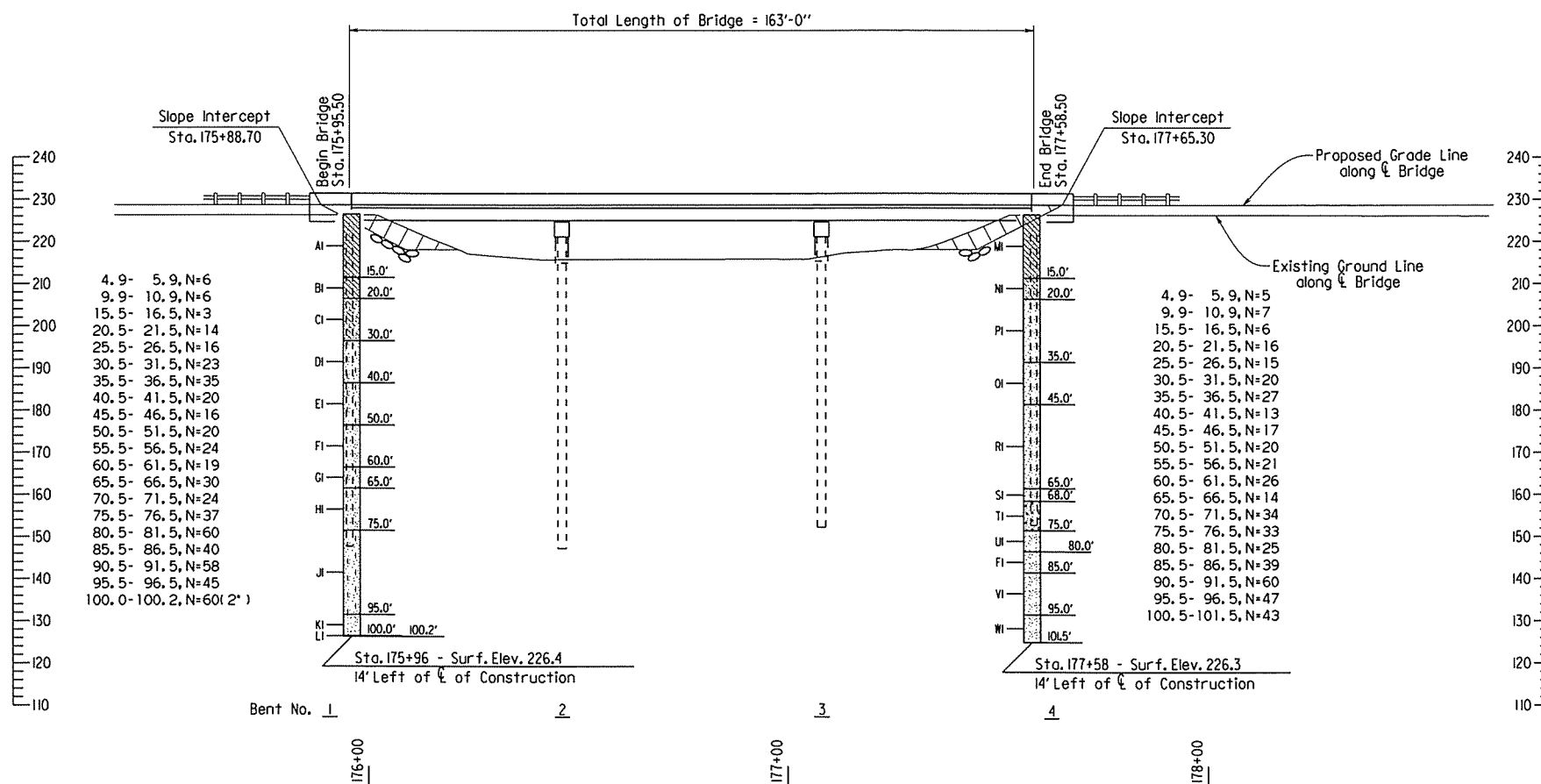
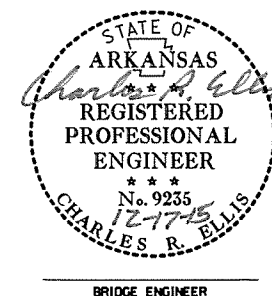
REMOVAL AND SALVAGE: After the new bridge is opened to traffic, the existing bridge No. 02442 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor, except the steel beams, which shall remain the property of AHTD. The Contractor shall provide suitable temporary storage and onsite loading onto AHTD equipment. Payment for this work will also be subsidiary to the item "Removal of Existing Bridge Structure (Site No. 3)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

SHEET 2 OF 2  
 LAYOUT OF BRIDGE OVER  
 CACHE RIVER RELIEF (L.M. 12.85)  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY

ROUTE 14 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

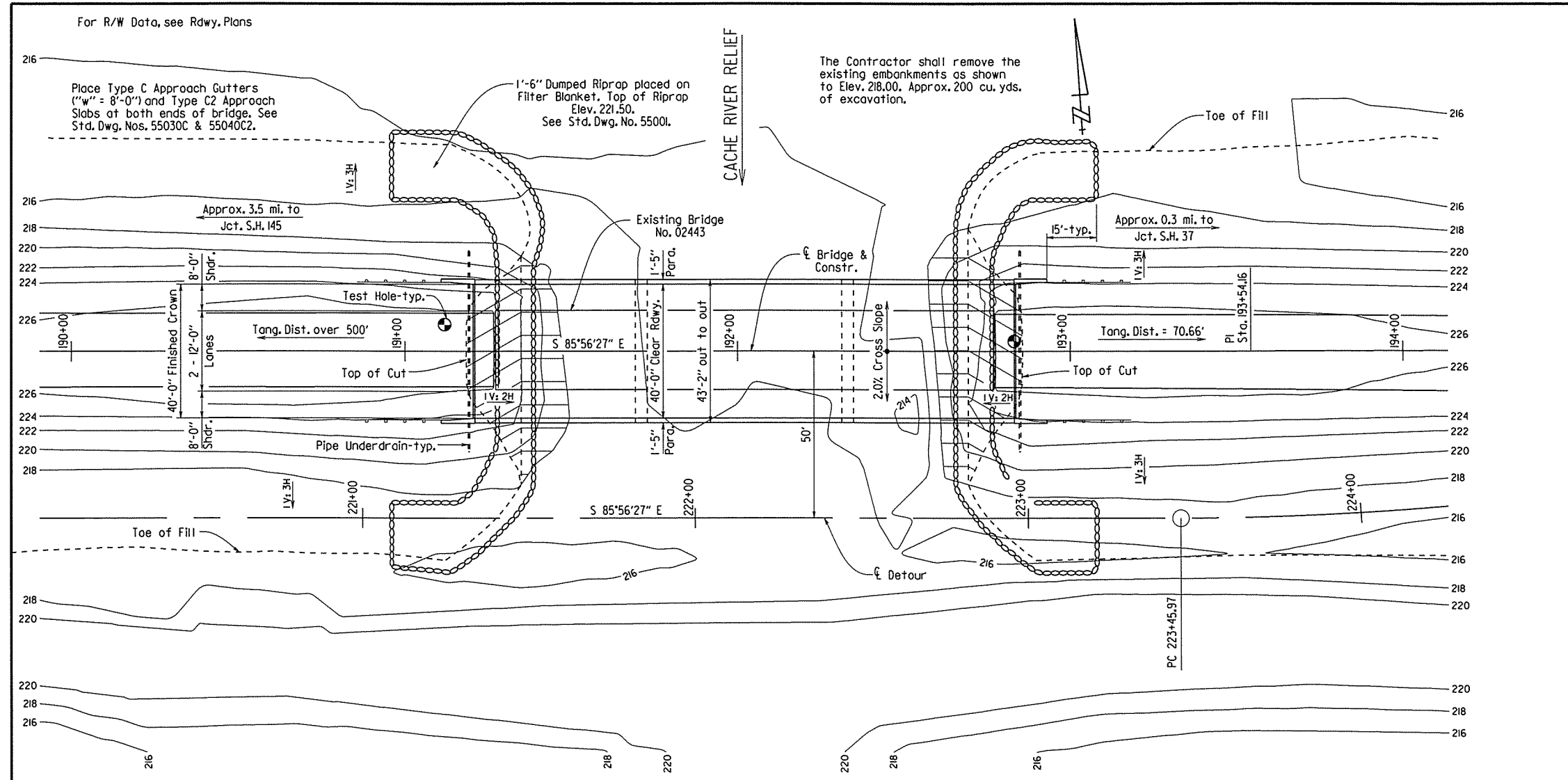
DRAWN BY: KDH DATE: 8-15-14 FILENAME: b050272x3.ll.dgn  
 CHECKED BY: SJA DATE: 12/17/15 SCALE: NO SCALE  
 DESIGNED BY: CSR DATE: 4/14  
 BRIDGE NO. 07376 DRAWING NO. 58051



BORING LEGEND

- AI-Moist, Medium Stiff, Gray and Brown Clay with Sand and some Organic Matter
- BI-Wet, Soft, Gray Clay with Sand
- CI-Wet, Medium Dense, Gray Sand with Clay and Trace of Organic Matter
- DI-Wet, Medium Dense to Dense, Gray Sand with Silt and some Organic Matter
- EI-Wet, Medium Dense, Gray Silty Sand to Sand with Silt
- FI-Wet, Medium Dense, Gray Sand with Trace of Gravel
- GI-Wet, Medium Dense, Gray Silty Sand with Trace of Gravel
- HI-Wet, Medium Dense, Gray Sand to Sand with Silt
- JI-Wet, Dense to Very Dense, Gray Sand with Silt and some Gravel
- KI-Wet, Dense, Gray Sand
- LI-Hard, Gray Cemented Sand
- MI-Moist, Medium Stiff, Gray and Brown Sandy Clay with some Organic Matter and Asphalt Fragments
- NI-Moist, Loose, Gray Sand with Clay and some Organic Matter
- PI-Wet, Medium Dense, Brown to Brown and Gray Sand
- OI-Wet, Medium Dense, Gray Sand with some Clay
- RI-Wet, Medium Dense, Dark Brown to Brown and Gray Sand
- SI-Wet, Medium Dense, Gray Sand
- TI-Wet, Dense, Gray and Brown Sand with Gravel
- UI-Wet, Dense, Gray Sand with Trace of Organic Matter
- VI-Wet, Dense to Very Dense, Gray Sand with Trace of Organic Matter
- WI-Wet, Dense, Gray to Brown and Gray Sand

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.		050272	88	159
				07377 - LAYOUT		- 58052		



PLAN

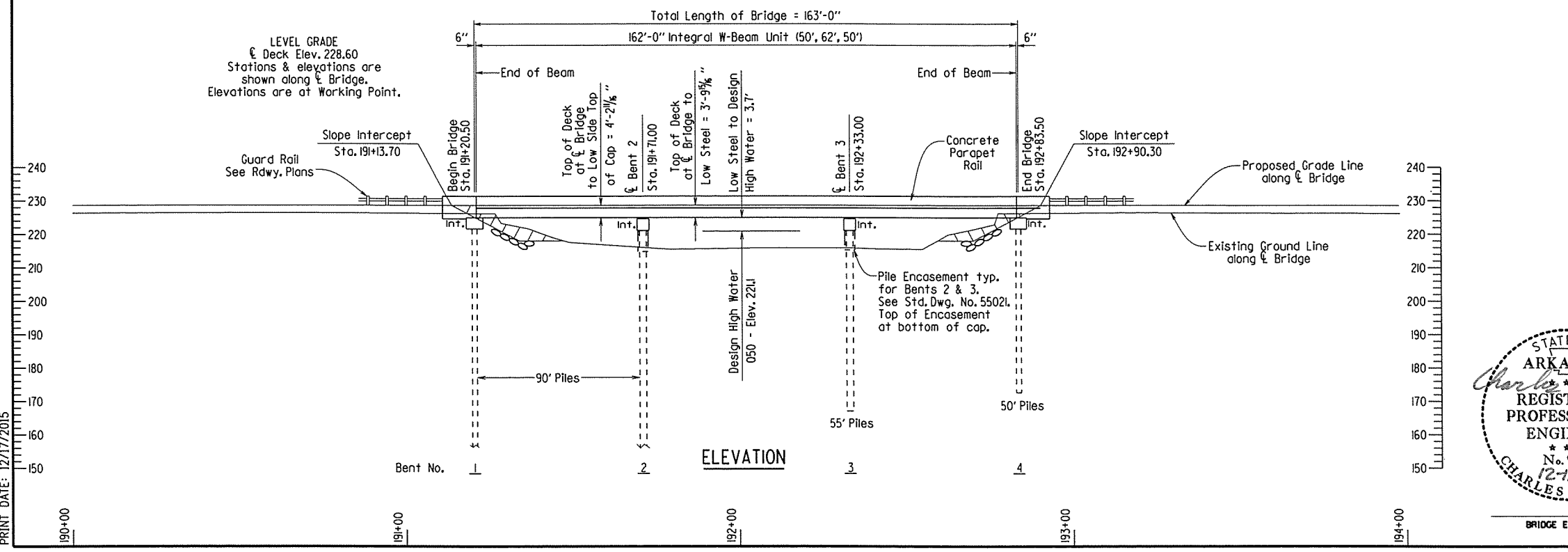
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	* TOTAL DISCHARGE	DISCHARGE BRIDGE NO. 07377	* NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	17,400	1,060	220.9	221.3
Base	100	19,400	1,220	221.1	221.6
Extreme	500	23,700	1,600	221.7	222.2
Overtopping	>500	-	-	-	-

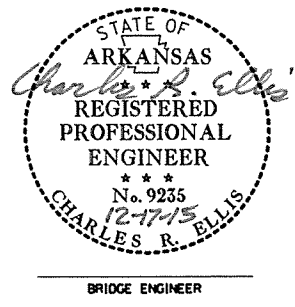
\* Total Discharge thru this bridge and Bridge Nos. 07374, 07375 & 07376 over the Cache River & Cache River Reliefs.

\*\* Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 221.5 ft.  
Proposed Low Bridge Chord elevation = 224.77 ft.  
Drainage area = 871 square miles.  
Historical H.W. Elev. = 222.2 ft.



For General Notes and Soil Boring Information, see Dwg. No. 58053.



SHEET 1 OF 2  
LAYOUT OF BRIDGE OVER  
CACHE RIVER RELIEF (L.M. 13.14)  
CACHE RIVER - AMAGON  
STRS. & APPRS. (S)  
JACKSON COUNTY

ROUTE 14 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 7-22-14 FILENAME: b050272x4.ll.dgn  
CHECKED BY: [Signature] DATE: 12/17/15 SCALE: 1" = 20'  
DESIGNED BY: [Signature] DATE: 1/1/14  
BRIDGE NO. 07377 DRAWING NO. 58052

PRINT DATE: 12/17/2015



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	89	159
				07377 -	LAYOUT			58053

GENERAL NOTES

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Sixth Edition, 2012), with 2013 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 (Gr. 60, AASHTO M31 or M322, Type A) fy = 60,000 psi  
 Structural Steel (AASHTO M 270, Gr. 36) Fy = 36,000 psi  
 Structural Steel (AASHTO M 270, Gr. 50W) Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL 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 200 tons per pile. 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. The minimum tip elevation for Bents 1 & 2 shall be 136.1 or lower. The minimum tip elevation for Bents 3 & 4 shall be 196.2 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 40,000 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 75,000 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 below the required preboring at Bents 1 and 4, and at Bents 2 & 3 to achieve the minimum tip elevation. Preboring to achieve the minimum tip elevation shall be in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum tip elevation shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASEMENTS: Pile encasements are required for Bents 2 & 3. See Std. Dwg. No. 55021.

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

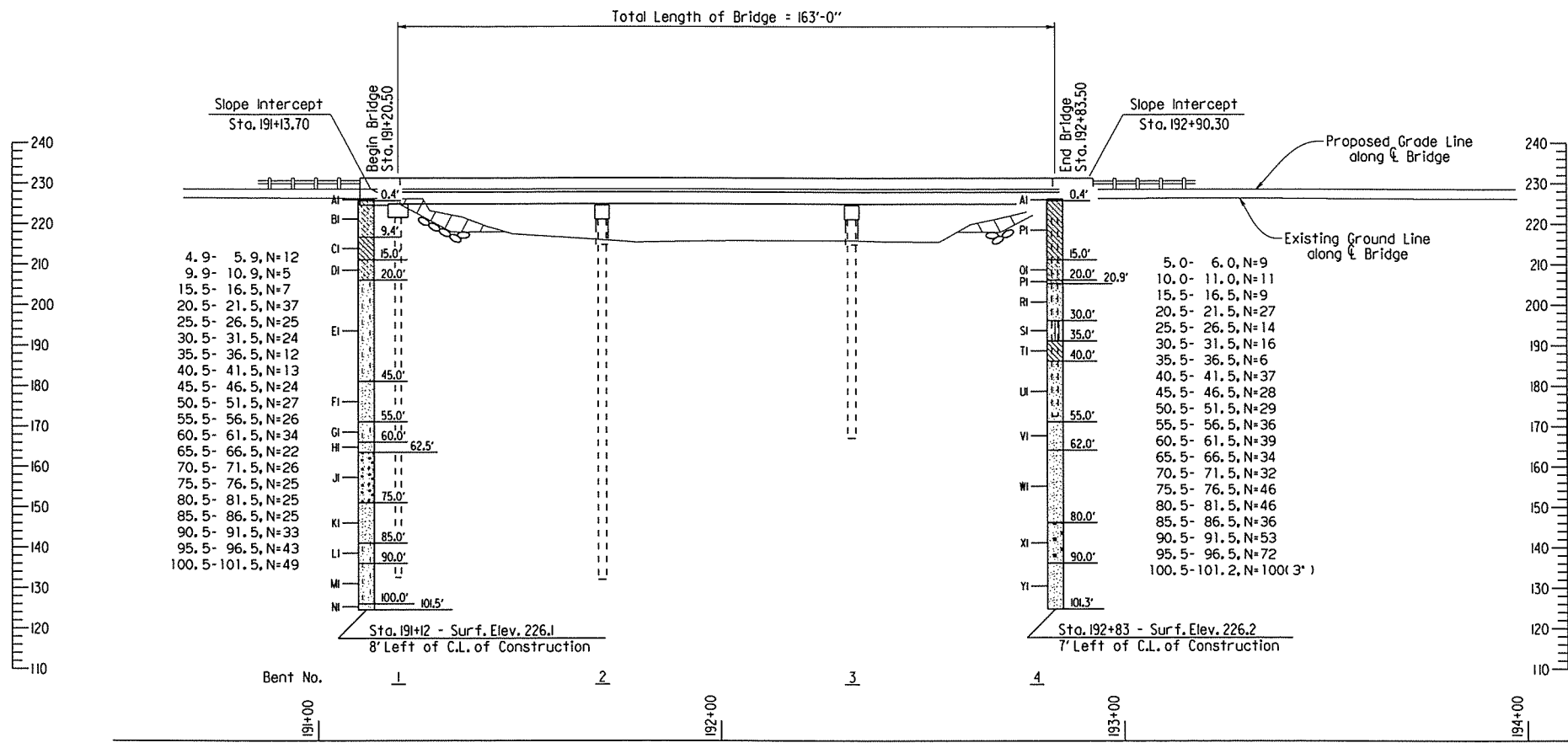
PIPE UNDERDRAIN: One pipe underdrain with outlet protectors shall be installed behind each bridge end in accordance with Section 611. Pipe underdrains and outlet protectors will not be paid for directly but shall be considered subsidiary to "Class 5 Concrete-Bridge".

DETAIL DRAWINGS:	DRAWING NO.
End Bents	58054
Int. Bents	58055
162'-0" Integral W-Beam Unit	58056-58061
Standard General Notes	55006
Concrete Filled Steel Shell Piles & Pile Encasements	55021
Type C2 Approach Slab	55040C2
Type C Approach Gutter	55030C

EXISTING BRIDGE: Existing Bridge No. 02443 (log mile 13.14) is 28.5' wide and 152' long and consists of five 30' spans with concrete deck on w-beams supported by concrete caps and piles. The existing bridge is located at the site of the proposed new bridge.

REMOVAL AND SALVAGE: After the temporary detour is opened to traffic, the existing bridge No. 02443 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor, except the steel beams, which shall remain the property of AHTD. The Contractor shall provide suitable temporary storage and onsite loading onto AHTD equipment. Payment for this work will also be subsidiary to the item "Removal of Existing Bridge Structure (Site No. 4)"

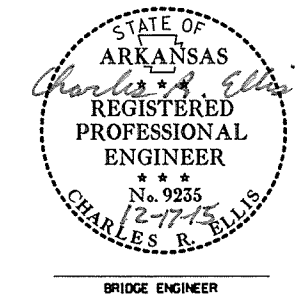
MAINTENANCE OF TRAFFIC: See Roadway Plans.



BORING LEGEND

- AI-Asphalt Pavement (5")
- BI-Moist, Medium Dense, Gray and Brown Sand with Clay and some Asphalt Fragments
- CI-Moist, Medium Stiff, Gray Sandy Clay
- DI-Moist, Loose, Gray Clayey Sand
- EI-Wet, Dense to Medium Dense, Gray Sand with Silt
- FI-Wet, Medium Dense, Gray Sand with Trace of Gravel
- GI-Wet, Medium Dense, Gray Sand with Silt
- HI-Wet, Dense, Gray Sand
- IJ-Wet, Medium Dense, Gray Sand with Gravel and Trace of Organic Matter
- KI-Wet, Medium Dense, Gray Sand with some Organic Matter
- LI-Wet, Medium Dense, Gray Sand with Silt and some Gravel and Organic Matter
- MI-Wet, Dense, Gray Silty Sand to Sand with Silt
- NI-Wet, Dense, Gray Sand with Trace of Gravel
- PI-Moist, Stiff, Gray and Brown Clay with Sand
- QI-Moist, Loose, Gray Sand with Clay
- RI-Wet, Medium Dense, Gray Sand with some Clay
- SI-Wet, Medium Dense, Gray and Brown Silt with Sand
- TI-Wet, Medium Stiff, Gray and Brown Clay with some Silt and Sand
- UI-Wet, Dense to Medium Dense, Gray and Brown to Gray Sand
- VI-Wet, Dense, Gray to Brown and Gray Sand
- WI-Wet, Dense, Gray Sand with some Gravel
- XI-Wet, Dense, Gray Sand with Organic Matter and some Gravel
- YI-Wet, Very Dense, Gray Sand with some Gravel

SHEET 2 OF 2  
 LAYOUT OF BRIDGE OVER  
 CACHE RIVER RELIEF (L.M. 13.14)  
 CACHE RIVER - AMAGON  
 STRS. & APPRS. (S)  
 JACKSON COUNTY



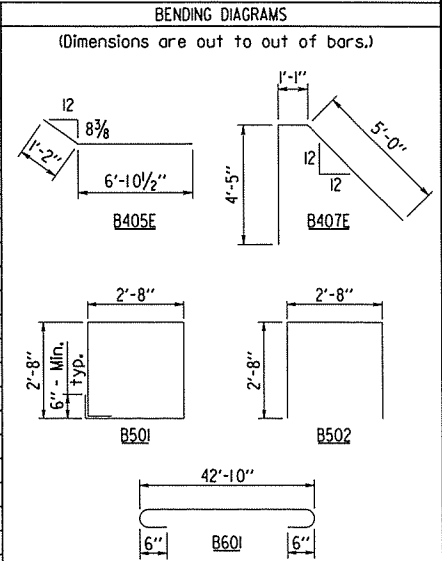
ROUTE 14 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-15-14 FILENAME: b050272x4.ll.dgn  
 CHECKED BY: [Signature] DATE: 12/17/15 SCALE: NO SCALE  
 DESIGNED BY: [Signature] DATE: 4/14  
 BRIDGE NO. 07377 DRAWING NO. 58053

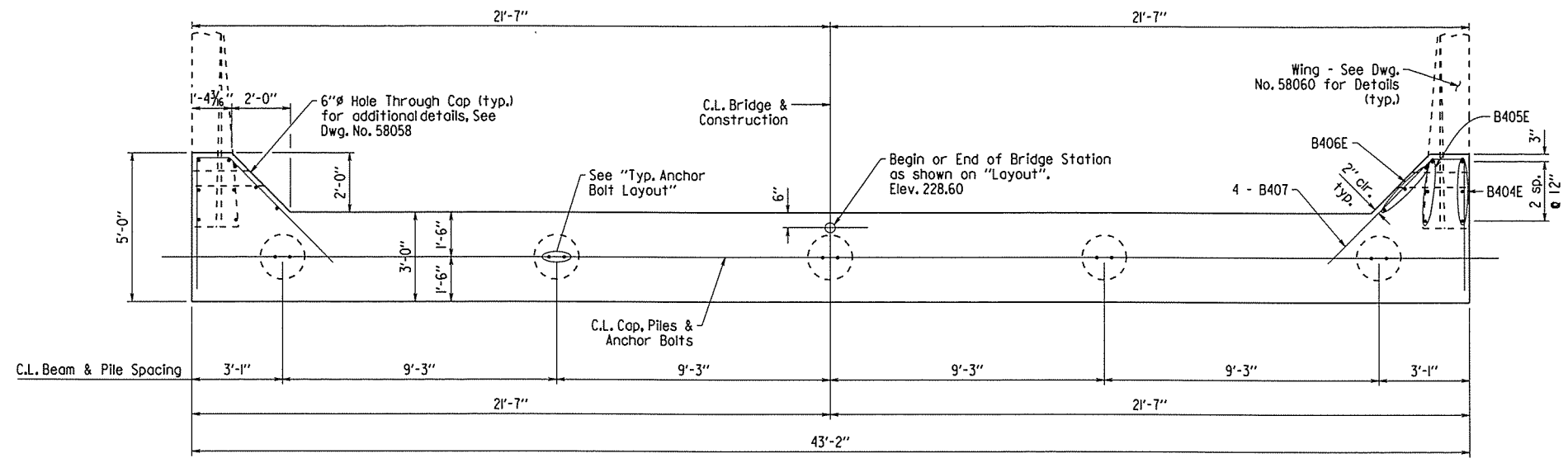
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	90	159	
				07375, 07376, - END BENTS - 58054				
				07377				

**BAR LIST - PER BENT**

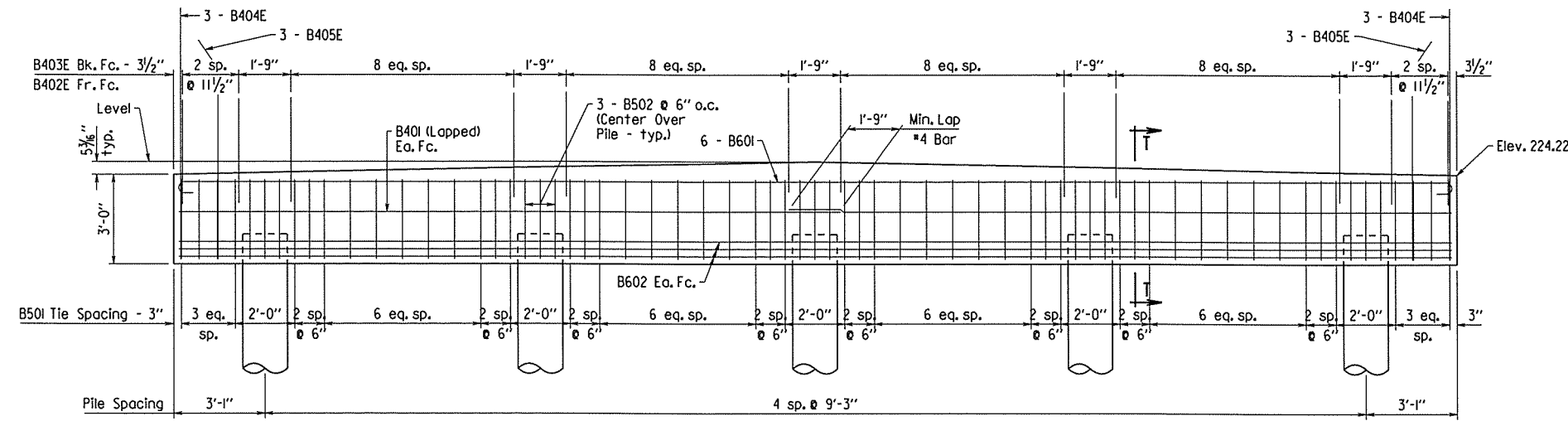
MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	22'-4"	Str.
B402E	42	3'-6"	Str.
B403E	42	3'-0"	Str.
B404E	6	9'-2"	Str.
B405E	6	8'-1"	2"
B406E	6	5'-3"	Str.
B407E	8	10'-5"	2"
B501	52	11'-2"	2 1/2"
B502	15	7'-10"	2 1/2"
B601	6	44'-2"	4 1/2"
B602	6	42'-10"	Str.



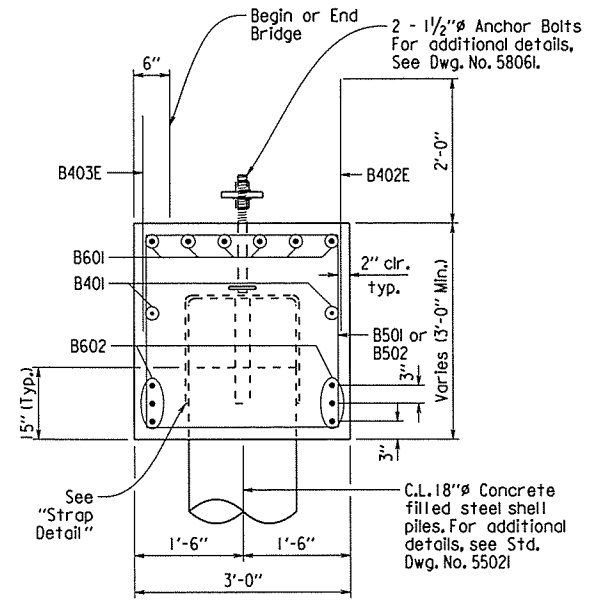
Bars designated with an "E" are epoxy coated.



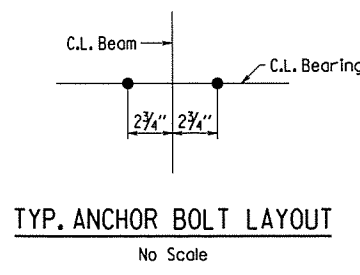
**PLAN**  
3/8" = 1'-0"



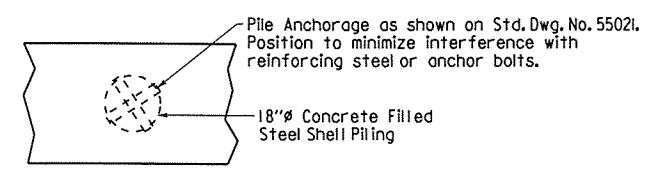
**ELEVATION**  
3/8" = 1'-0"



**SECTION T-T**  
3/4" = 1'-0"

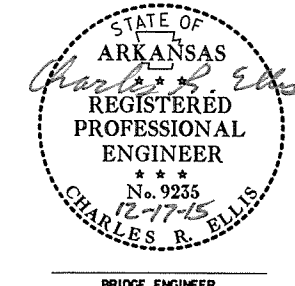


**TYP. ANCHOR BOLT LAYOUT**  
No Scale



**STRAP DETAIL**  
No Scale

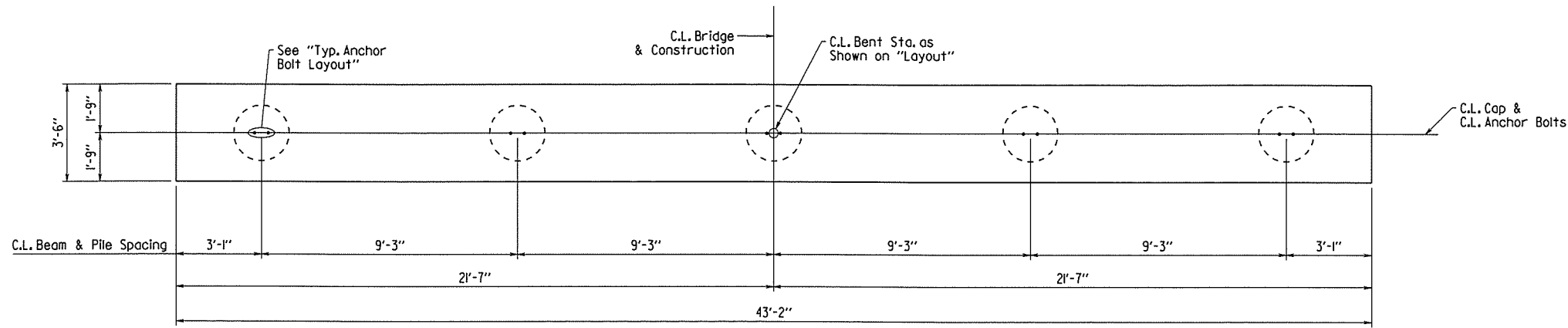
NOTES:  
See Std. Dwg. No. 55006 for General Notes.  
Bars B404E, B405E, & B406E shall have a 2'-10" embedment into the end bent cap.  
For additional information see Layouts.



**DETAILS OF END BENTS**  
**CACHE RIVER RELIEF**  
ROUTE \_\_\_\_\_ SEC. \_\_\_\_\_  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: EOR DATE: 12/4/15 FILENAME: b050272x2.bl.dgn  
CHECKED BY: SMD DATE: 12/7/15 SCALE: AS NOTED  
DESIGNED BY: DBS DATE: 11/15  
BRIDGE NO. 07375, 07376, DRAWING NO. 58054  
07377

PRINT DATE: 12/17/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. 050272	91 159
							07375, 07376, - INT. BENTS - 58055	
							07377	



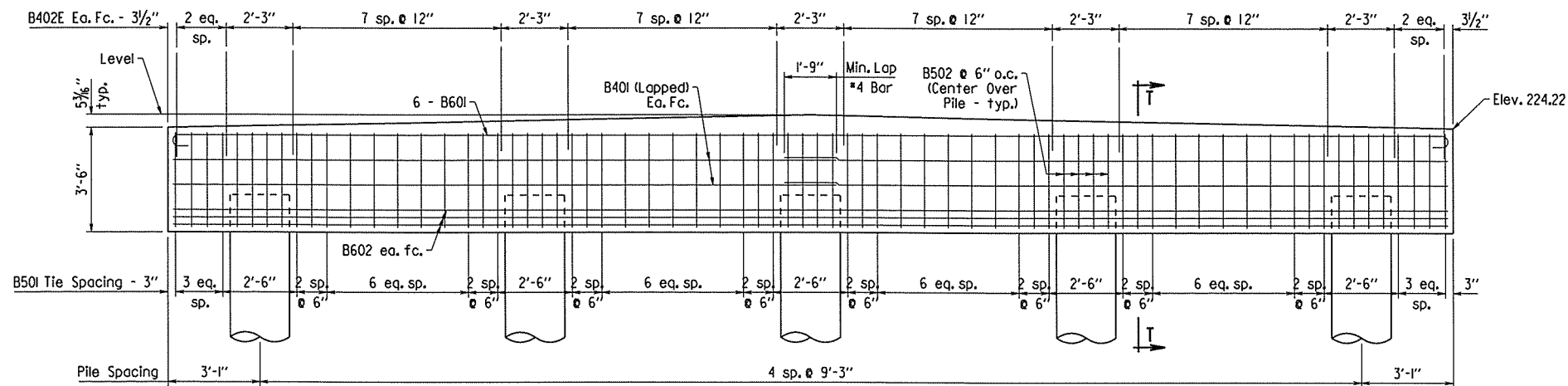
**PLAN**

3/8" = 1'-0"

**BAR LIST - PER BENT**

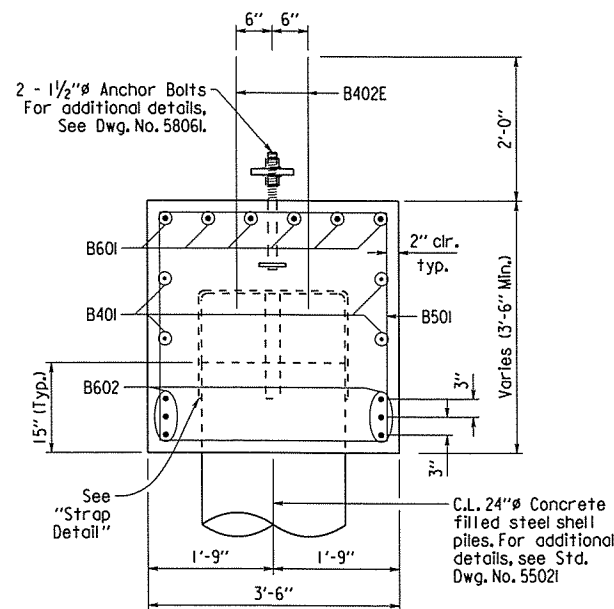
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B40I	4	22'-4"	Str.	(Dimensions are out to out of bars.) 
B402E	76	3'-6"	Str.	
B50I	52	13'-2"	2 1/2"	
B50J	20	9'-4"	2 1/2"	
B60I	6	44'-2"	4 1/2"	
B60J	6	42'-10"	Str.	

Bars designated with an "E" are epoxy coated.



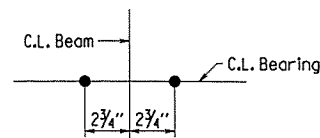
**ELEVATION**

3/8" = 1'-0"



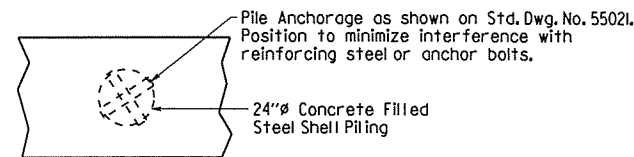
**SECTION T-T**

3/4" = 1'-0"



**TYP. ANCHOR BOLT LAYOUT**

No Scale



**STRAP DETAIL**

No Scale

NOTES:  
See Std. Dwg. No. 55006 for General Notes.  
For additional information see Layouts.



DETAILS OF INTERMEDIATE BENTS  
CACHE RIVER RELIEF  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 12/4/15 FILENAME: b050272x2.b2.dgn  
CHECKED BY: SWP DATE: 12/7/15 SCALE: AS NOTED  
DESIGNED BY: DBS DATE: 11/15  
BRIDGE NO. 07375, 07376, DRAWING NO. 58055  
07377

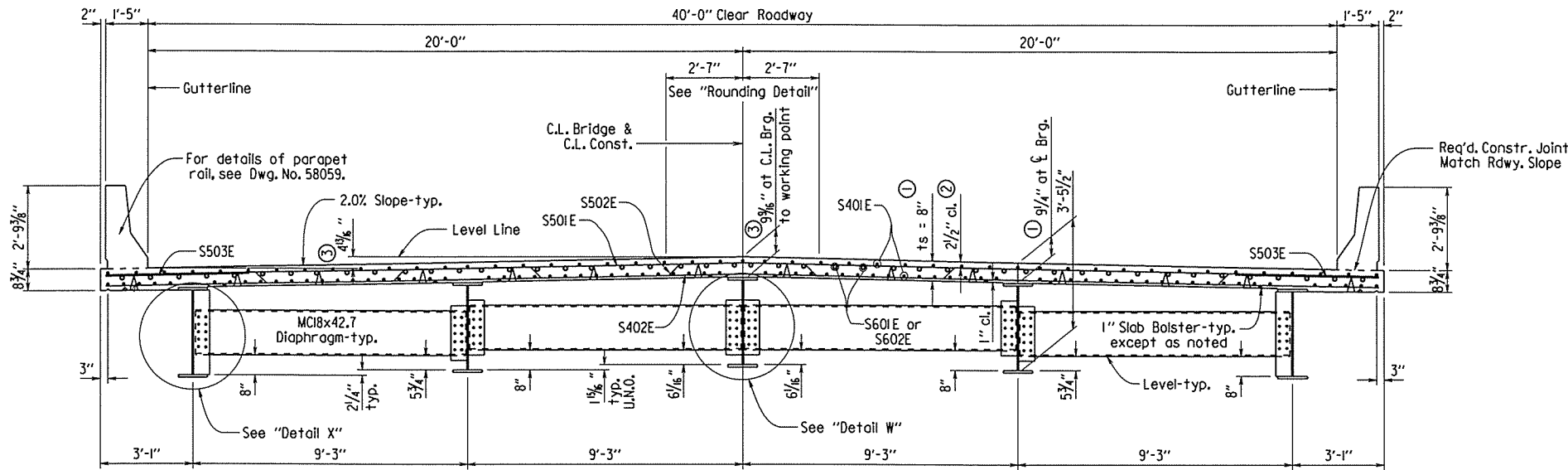
**SLAB REINFORCING**  
 Transverse: S501E  $\phi$  12" in top; S402E  $\phi$  12" o.c. in bottom — Alternate  
 S502E  $\phi$  12" o.c. bent up over beams  
 S503E bundled with #5 bars in top at both gutterlines  
 Longitudinal: S401E as shown  
 S601E at end of unit, S602E as shown over int. supports  
 Bar positions and clearances shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction. See Subsection 804.06.

NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

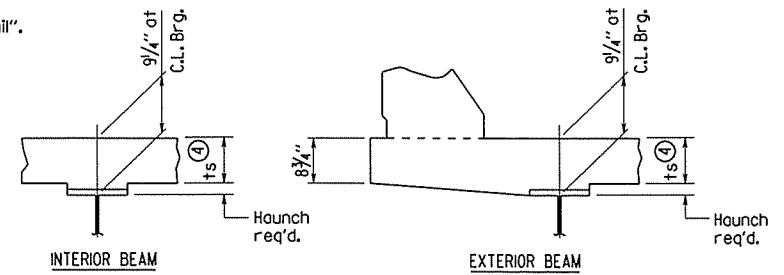
NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

- ① See "Adjustment for Slab Thickness Tolerance".
- ② Tolerance: Minus =  $1/4"$ ; 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".

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.		050272	97	159
				① 07375, 07376, - 162 FT. UNIT - 58056				
				07377				



**TYPICAL ROADWAY SECTION**  
 Scale:  $3/8" = 1'-0"$

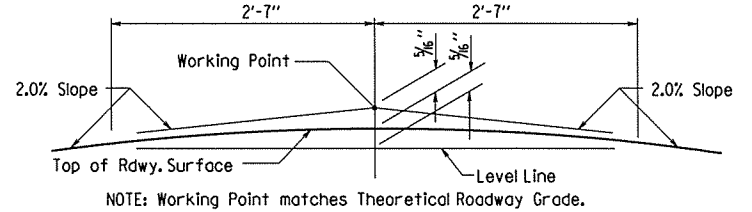


④ Tolerance when removable deck forming is used is  $+1/2"$ ,  $-1/4"$ . Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.  
 Note: ts = slab thickness as shown in "Typical Roadway Section".

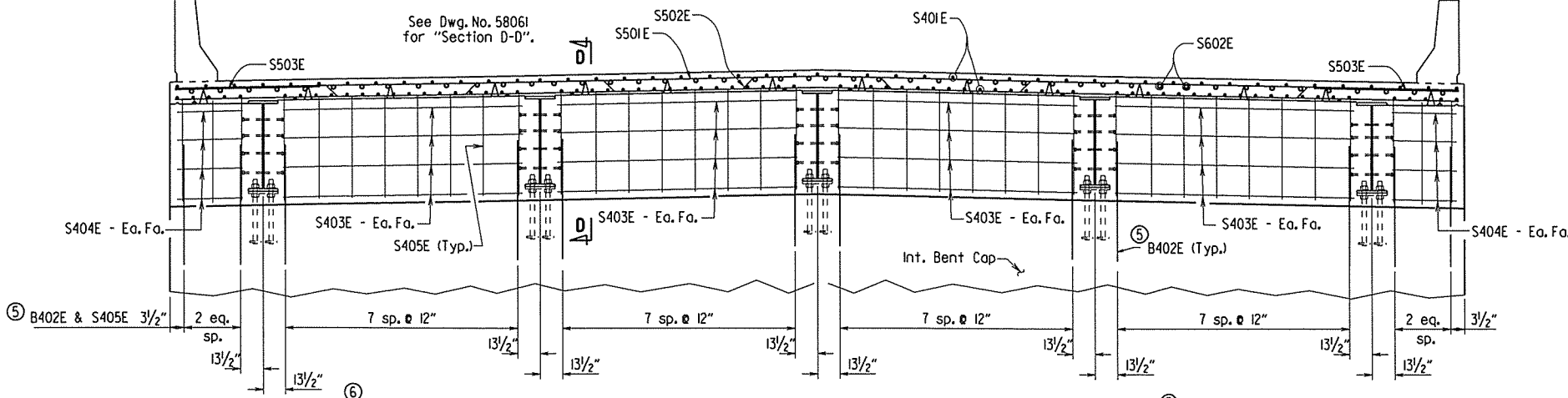
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus  $1 3/4"$ . No increase in concrete and structural steel quantities will be made to maintain tolerances.  
 Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

**ADJUSTMENT FOR SLAB THICKNESS TOLERANCE**

No Scale



**ROUNDING DETAIL**  
 No Scale



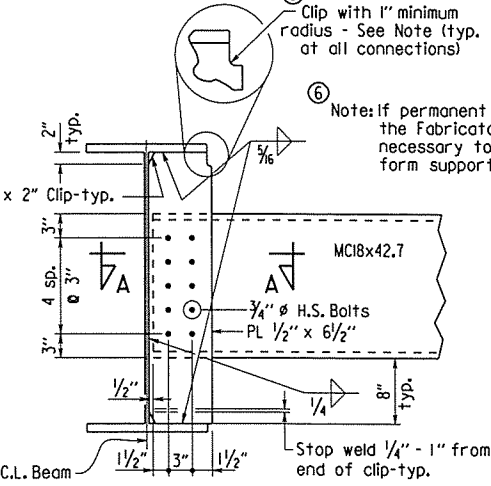
**TYPICAL ROADWAY SECTION AT INTERMEDIATE BENT**  
 Scale:  $3/8" = 1'-0"$

⑤ Note: See Intermediate Bent Detail on Dwg. No. 58055 for reinforcing and additional details.

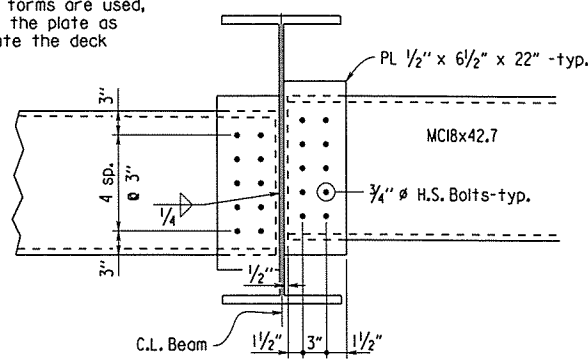
**TABLE FOR WELD**

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To $3/4"$ inclusive	$1/4"$	Be Used
Over $3/4"$	$5/16"$	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

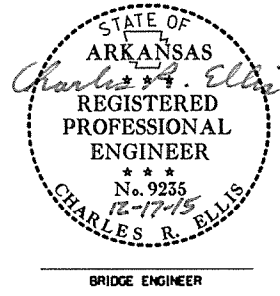


**DETAIL X**  
 No Scale



**DETAIL W**  
 No Scale

For General Notes, see Std. Dwg. No. 55006.  
 Unless otherwise shown, structural steel shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".



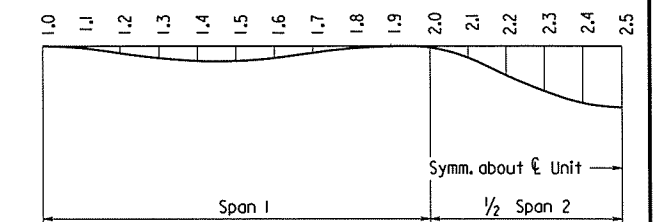
SHEET 1 OF 6  
 DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT  
 CACHE RIVER RELIEF  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2-sl.dgn  
 CHECKED BY: SNA DATE: 12/17/15 SCALE: AS NOTED  
 DESIGNED BY: DBS DATE: 11/15  
 BRIDGE NO. 07375, 07376, 07377 DRAWING NO. 58056

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.	050272	93	154	
				① 07375, 07376, - 162 FT. UNIT - 58057				
				07377				

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

POINT OF DEFLECTION	STRUCTURAL STEEL		STRUCTURAL STEEL + SLAB		STRUCTURAL STEEL + SLAB + PARAPET	
	INT. BEAM	EXT. BEAM	INT. BEAM	EXT. BEAM	INT. BEAM	EXT. BEAM
1.0	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.003	0.003	0.019	0.017	0.021	0.019
1.2	0.009	0.008	0.058	0.051	0.063	0.057
1.3	0.016	0.015	0.102	0.091	0.109	0.102
1.4	0.020	0.019	0.133	0.119	0.143	0.133
1.5	0.022	0.021	0.144	0.129	0.155	0.144
1.6	0.020	0.019	0.133	0.119	0.143	0.133
1.7	0.016	0.015	0.102	0.091	0.109	0.102
1.8	0.009	0.008	0.059	0.052	0.064	0.058
1.9	0.003	0.003	0.019	0.017	0.021	0.019
2.0	0.000	0.000	0.000	0.000	0.000	0.000
2.1	0.007	0.007	0.047	0.043	0.051	0.048
2.2	0.023	0.021	0.148	0.133	0.159	0.148
2.3	0.040	0.037	0.260	0.234	0.279	0.259
2.4	0.052	0.049	0.339	0.306	0.363	0.339
2.5	0.056	0.053	0.368	0.333	0.394	0.368

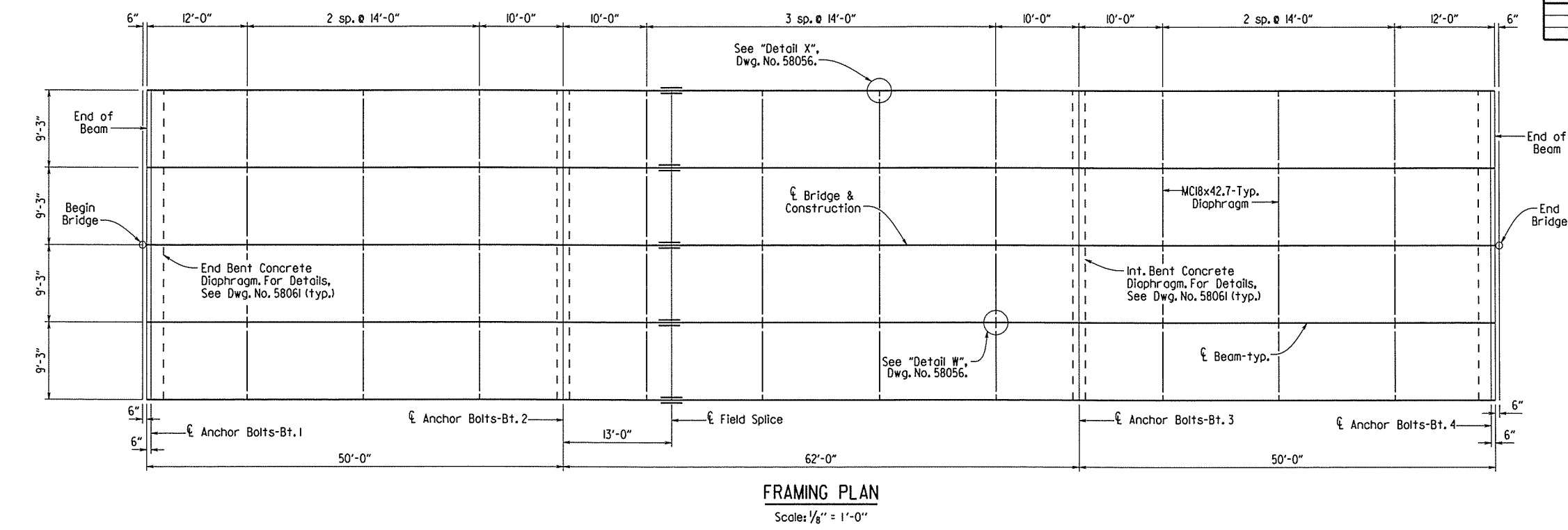
Symm. about  $\bar{C}$  Unit



DEAD LOAD DEFLECTION DIAGRAM

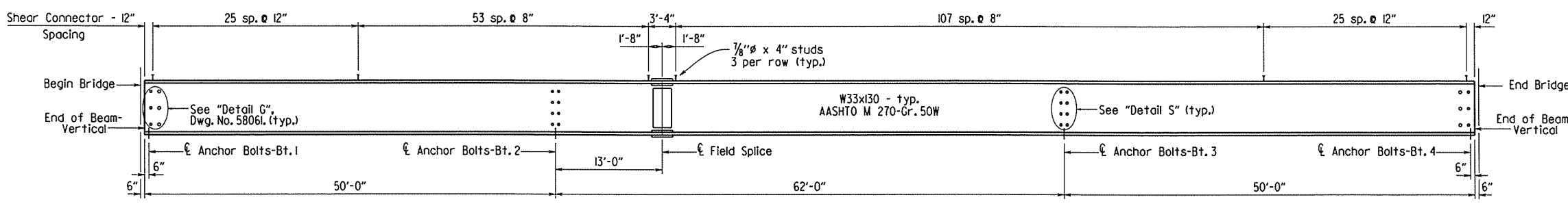
Not to Scale

Note: Camber for Dead Load Deflection plus Vertical curve +/- 1/4" tolerance. Deflections shown are along  $\bar{C}$  Beam from the plane perpendicular to the web extending from  $\bar{C}$  Anchor Bolts to  $\bar{C}$  Anchor Bolts.



FRAMING PLAN

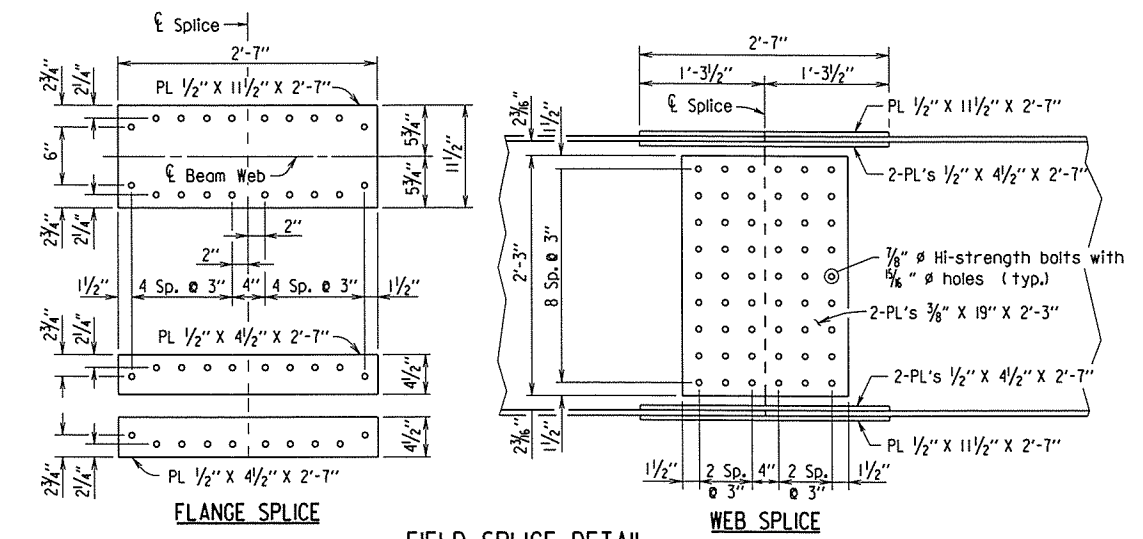
Scale: 1/8" = 1'-0"



TYP. BEAM ELEVATION

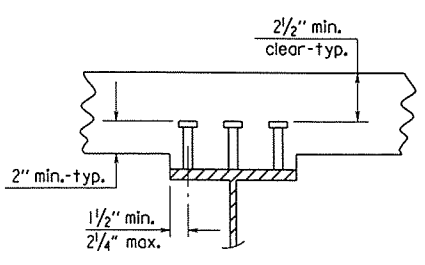
No Scale

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.



FIELD SPLICE DETAIL

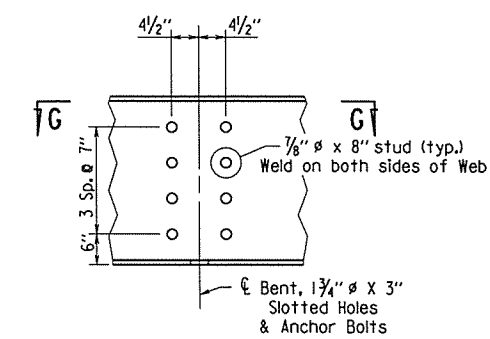
No Scale



SHEAR CONNECTOR DETAIL

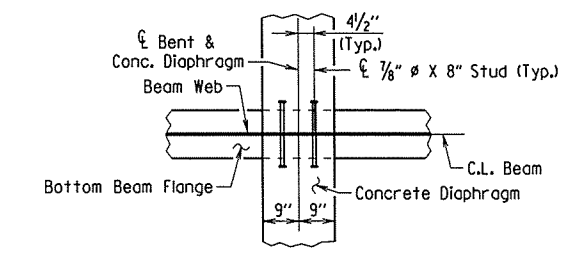
No Scale

Stud Shear Connectors shown shall be 7/8" 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.



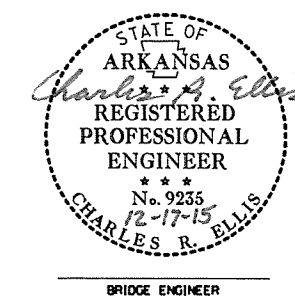
DETAIL S

No Scale



SECTION G-G

No Scale



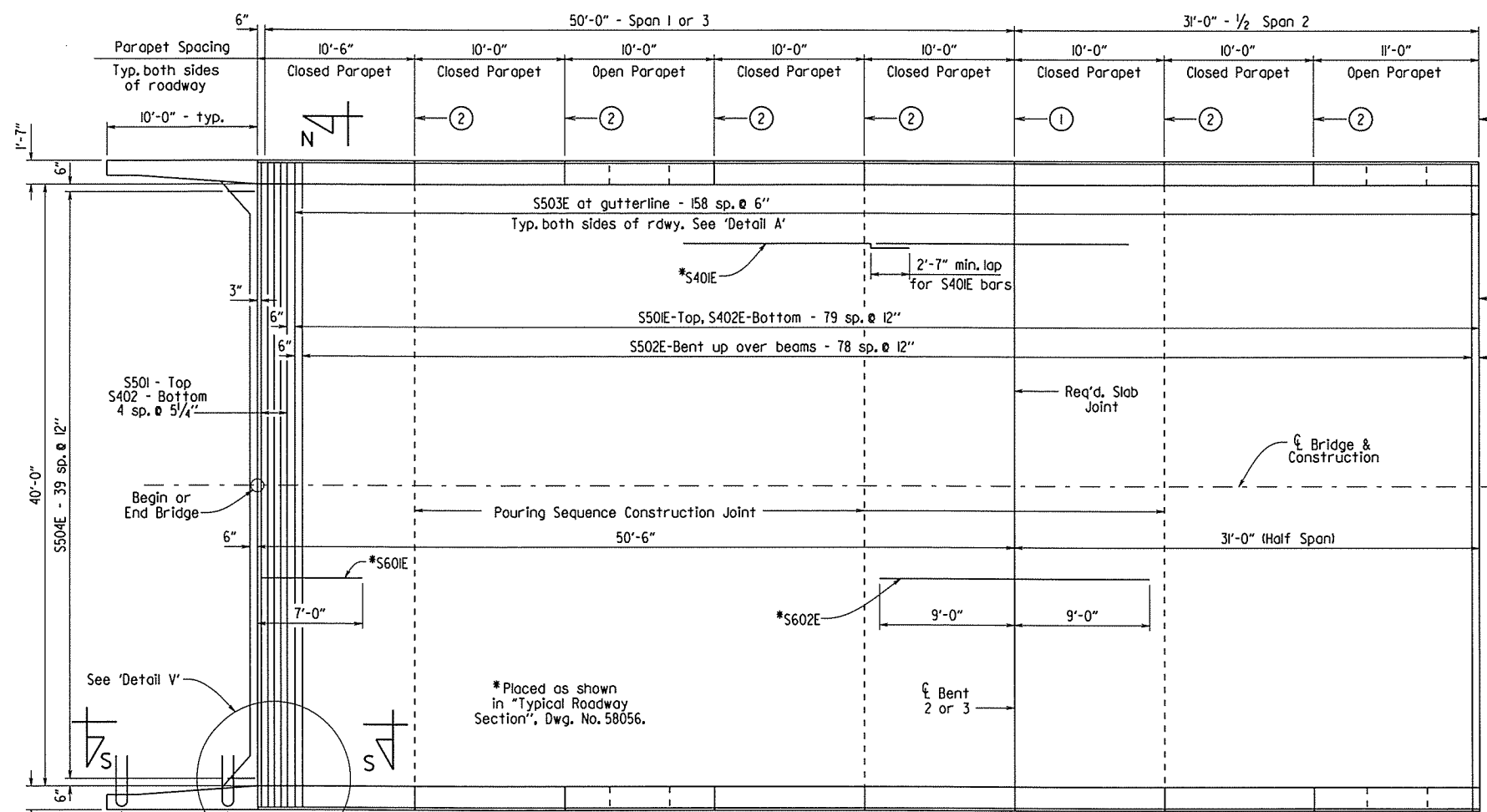
SHEET 2 OF 6  
 DETAILS OF 162'-0" INTEGRAL  
 W-BEAM UNIT  
 CACHE RIVER RELIEF  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2.sl.dgn  
 CHECKED BY: SWP DATE: 12/17/15 SCALE: AS NOTED  
 DESIGNED BY: DBS DATE: 11/15  
 BRIDGE NO. 07375, 07376, & 07377 DRAWING NO. 58057

PRINT DATE: 12/17/2015

Note: All Field Splice plates to be AASHTO M 270, Gr. 50W steel.

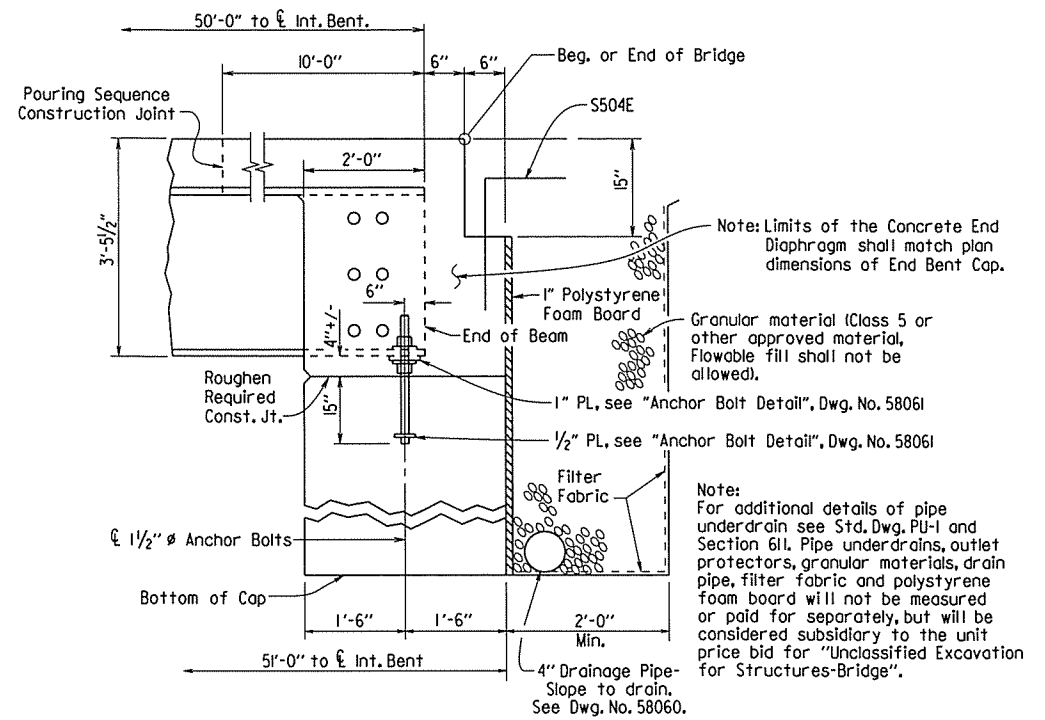
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	94	159
				07375, 07376, - 162 FT. UNIT - 58058				
				07377				



**HALF-REINFORCING PLAN**

Scale: 1/4" = 1'-0"

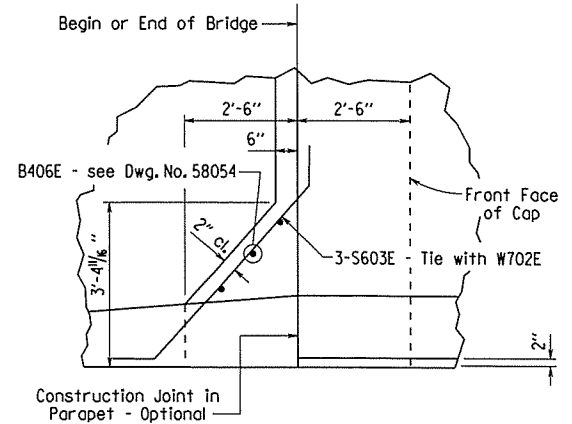
- ① Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.
- ② Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



**SECTION AT END BENT**

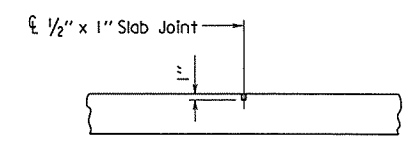
No Scale

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 construction joints shall align with parapet open joints at the gutterline.  
 For "VIEW N-N", see Dwg. No. 58061.  
 For "VIEW R-R" and "SECTION S-S", see Dwg. No. 58060.



**DETAIL V**

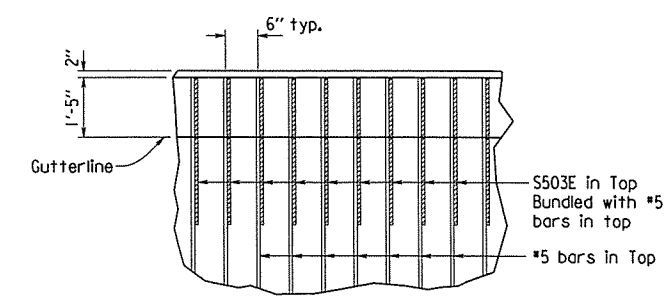
No Scale



**SLAB JOINT DETAIL**

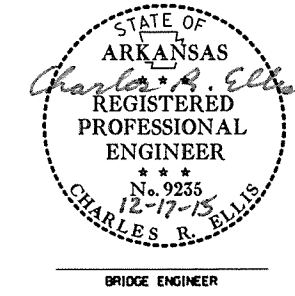
No Scale

Use Type 3 or 4 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class (SIAE) 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 A**

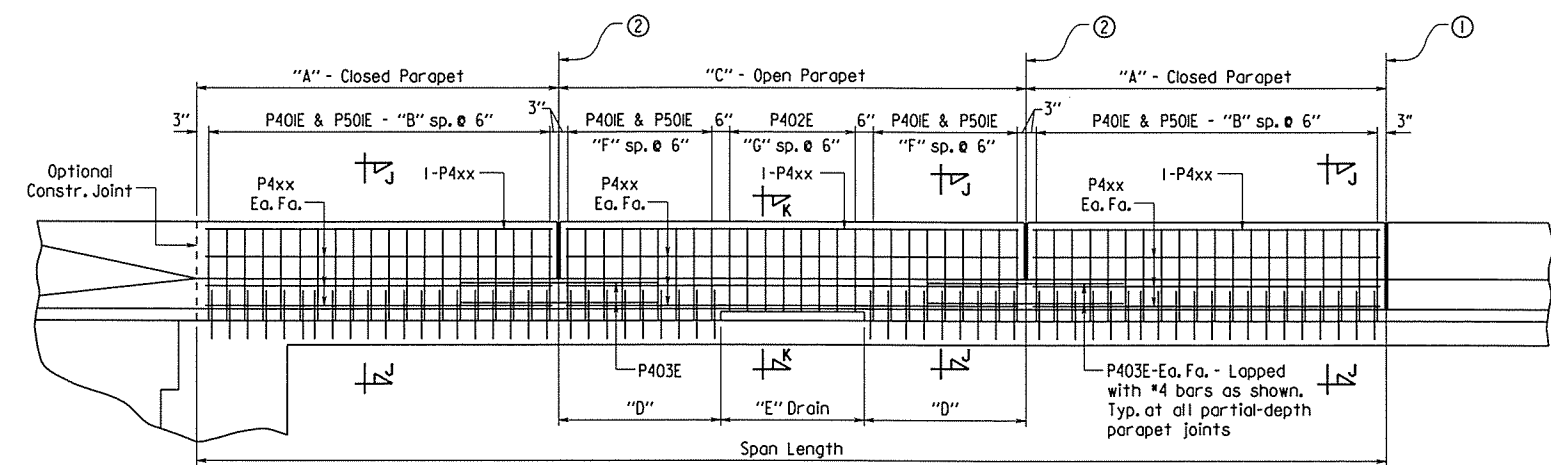
No Scale



SHEET 3 OF 6  
 DETAILS OF 162'-0" INTEGRAL  
 W-BEAM UNIT  
 CACHE RIVER RELIEF  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2.sl.dgn  
 CHECKED BY: SWP DATE: 12/7/15 SCALE: AS NOTED  
 DESIGNED BY: DBS DATE: 11/15  
 BRIDGE NO. 07375, 07376, & 07377 DRAWING NO. 58058

PRINT DATE: 12/17/2015

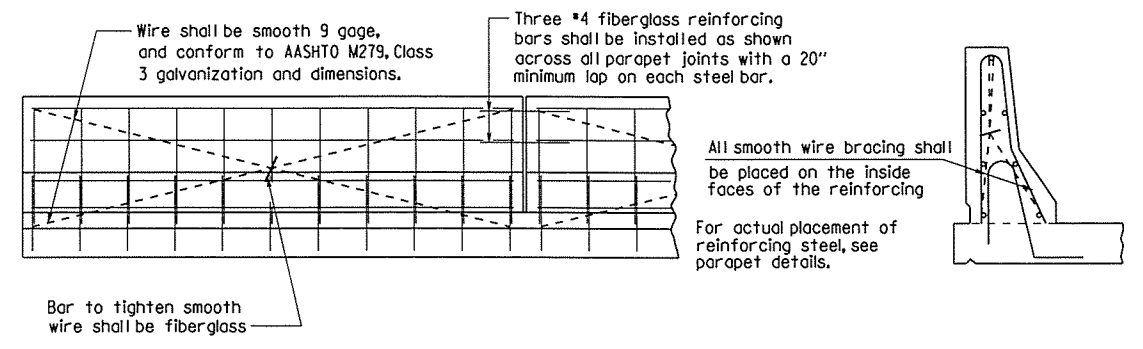
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	95	159	
				07375, 07376, - 162 FT. UNIT - 58059				
				07377				



① Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 58058. Stop 4" from top of slab.

**DETAILS OF PARAPET RAIL**  
Scale: 3/8" = 1'-0"

② Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 58058. 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 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

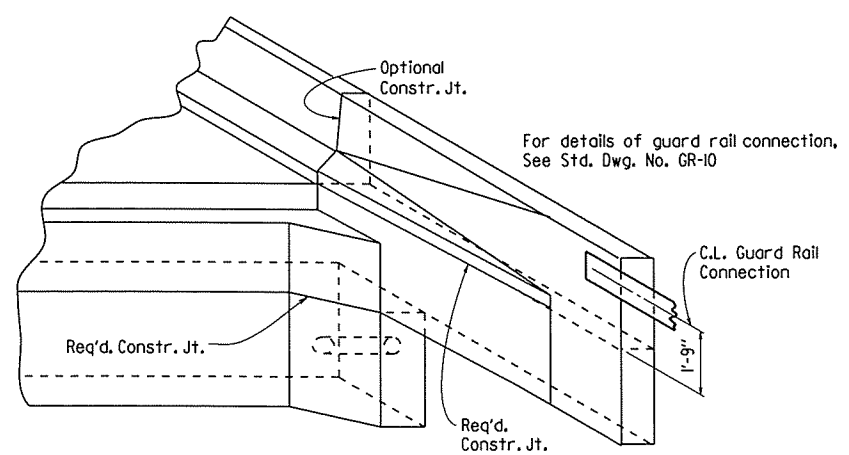
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

**DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL**  
No Scale

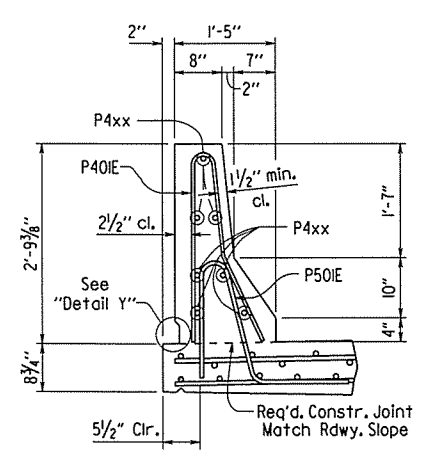
**TABLE OF PARAPET RAIL VARIABLES**

"A" Closed Parapet	"B"	P4xx Bar	"C" Open Parapet	"D"	"E"	"F"	"G"	P4xx Bar
10'-0"	19	P404E	10'-0"	3'-0"	4'-0"	5	7	P404E
10'-6"	20	P405E	11'-0"	3'-6"	4'-0"	6	7	P406E

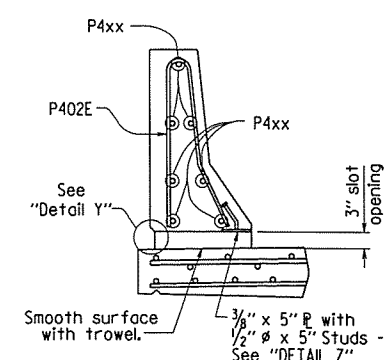
Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan", Dwg. No. 58058.



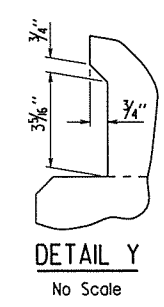
**THREE DIMENSIONAL VIEW OF INTEGRAL BENT**  
No Scale



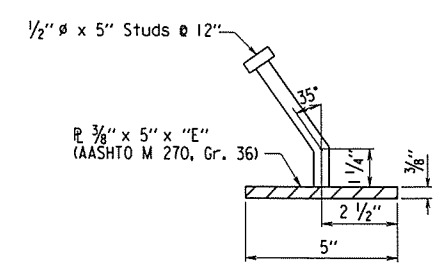
**SECTION J-J**  
Scale: 3/4" = 1'-0"



**SECTION K-K**  
Scale: 3/4" = 1'-0"



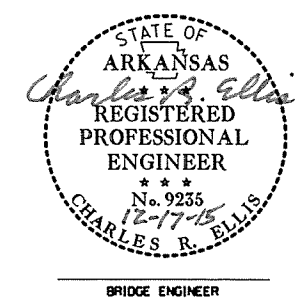
**DETAIL Y**  
No Scale



**DETAIL Z**  
No Scale

Note: The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

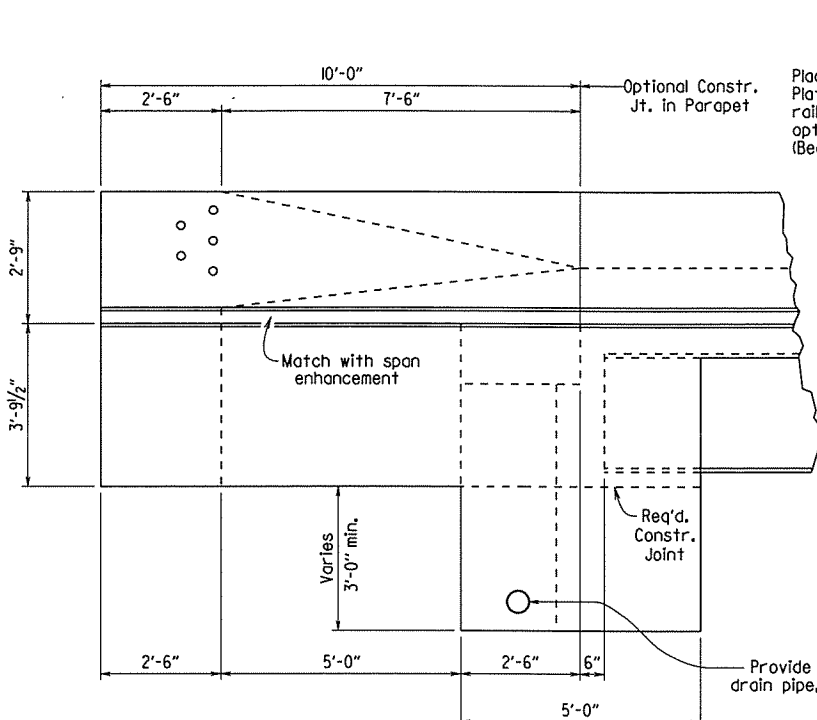


SHEET 4 OF 6  
**DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT CACHE RIVER RELIEF**  
 ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

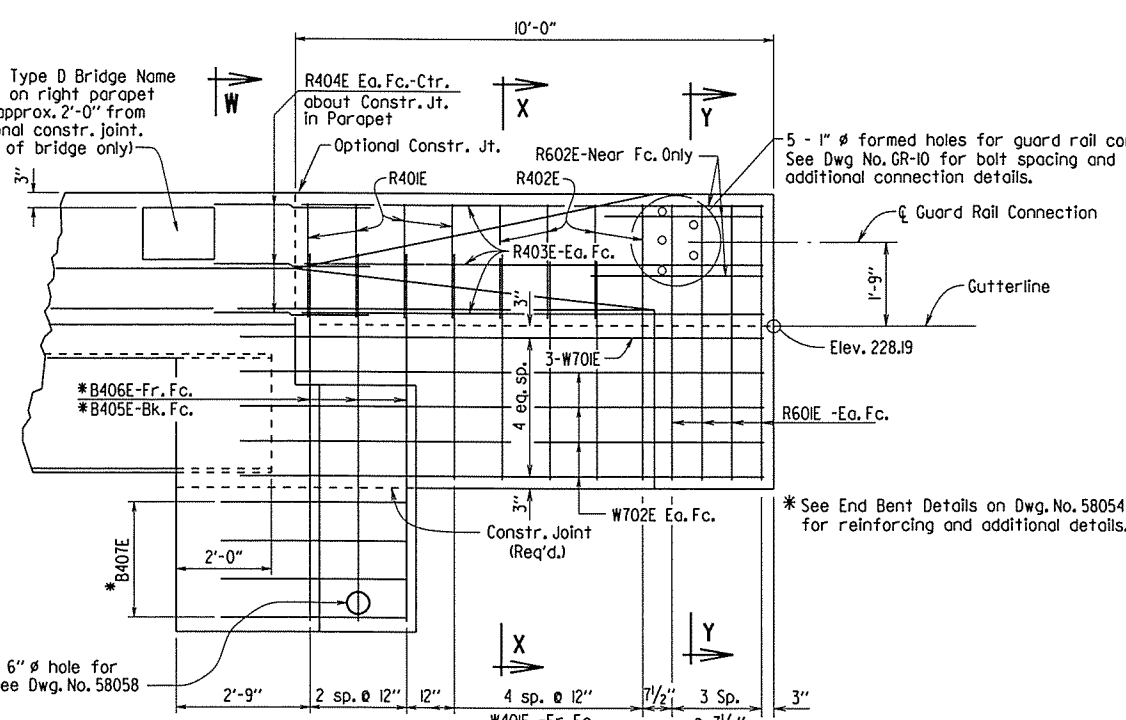
DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2.sl.dgn  
 CHECKED BY: SMD DATE: 12/17/15 SCALE: AS NOTED  
 DESIGNED BY: DBS DATE: 11/15  
 BRIDGE NO. 07375, 07376, & 07377 DRAWING NO. 58059

PRINT DATE: 12/17/2015

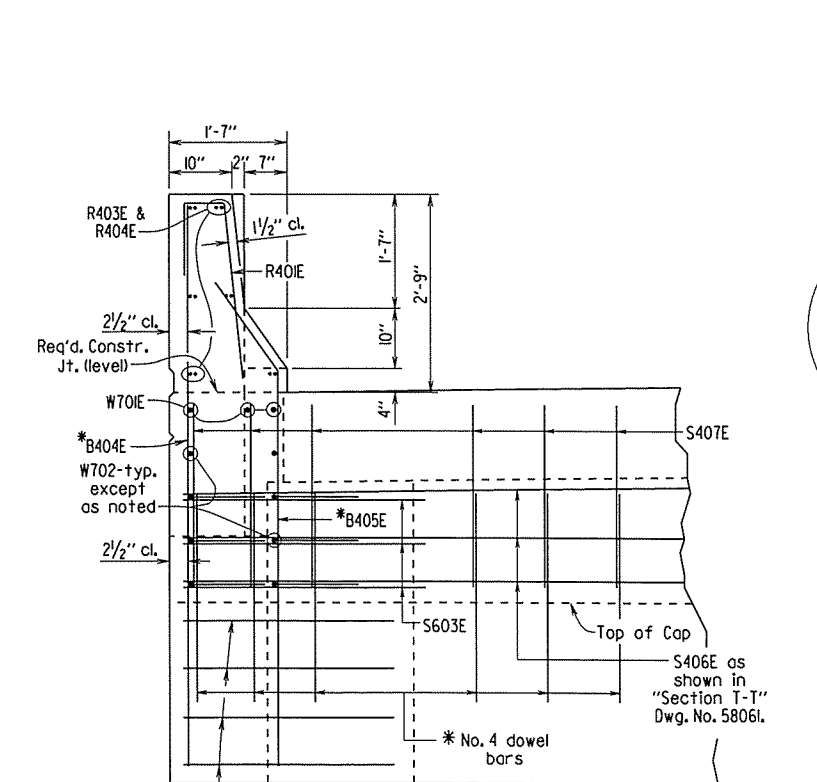
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	96	159
				07375, 07376, - 162 FT. UNIT - 58060				
				07377				



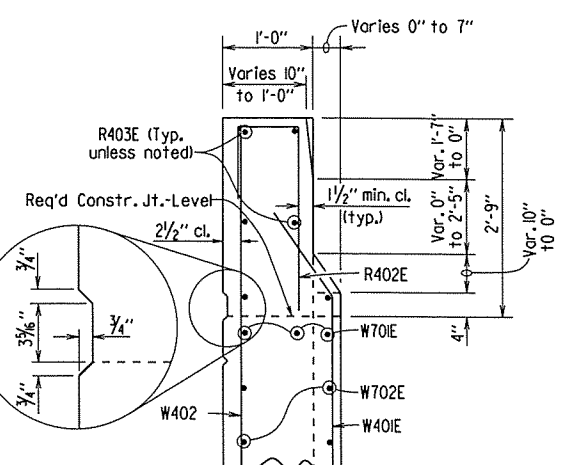
**VIEW R-R**  
Scale: 1/2" = 1'-0"



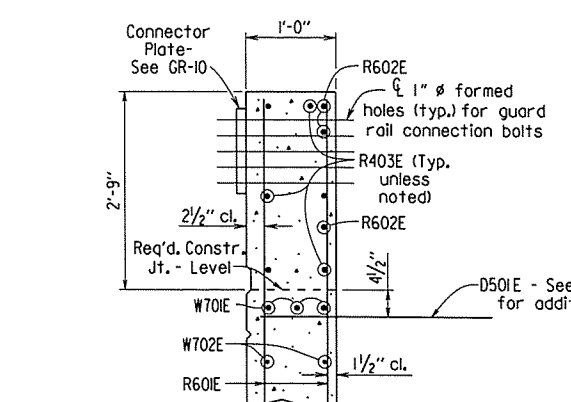
**SECTION S-S**  
Scale: 1/2" = 1'-0"



**SECTION W-W**  
Scale: 3/4" = 1'-0"



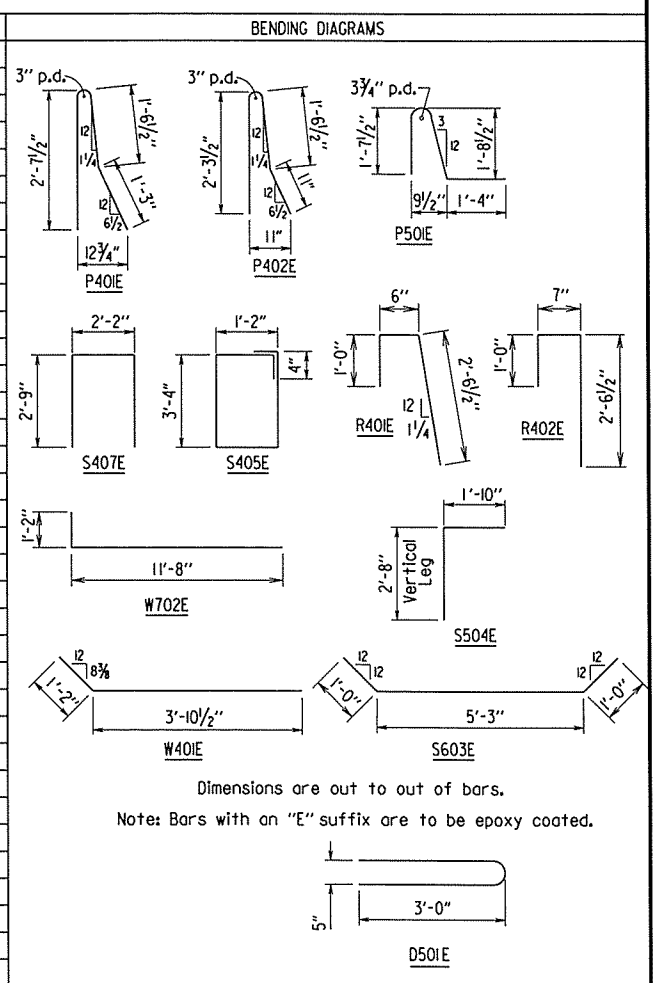
**SECTION X-X**  
No Scale



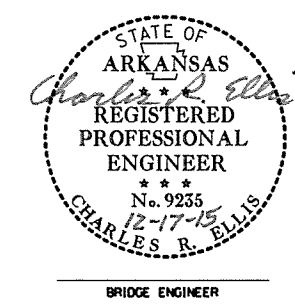
**SECTION Y-Y**  
No Scale

**BAR LIST - PER UNIT**

MARK	NO.	REQ'D.	LENGTH	P.D.
S401E	484		42'-8"	Str.
S402E	169		42'-10"	Str.
S403E	64		8'-11"	Str.
S404E	32		2'-9"	Str.
S405E	76		9'-4"	2"
S406E	12		42'-10"	Str.
S407E	84		7'-6"	2"
P401E	588		5'-6"	3"
P402E	64		4'-10"	3"
P403E	104		4'-5"	Str.
P404E	168		9'-8"	Str.
P405E	28		10'-2"	Str.
P406E	28		10'-8"	Str.
R401E	16		3'-11"	2"
R402E	16		4'-0"	2"
R403E	24		9'-8"	Str.
R404E	24		4'-5"	Str.
W401E	20		5'-0"	2"
W402E	20		6'-3"	Str.
S501E	169		42'-10"	Str.
S502E	158		43'-8"	3"
S503E	634		4'-10"	Str.
S504E	80		4'-5"	3 3/4"
P501E	588		4'-9"	3 3/4"
D501E	28		6'-2"	3 3/4"
S601E	92		7'-0"	Str.
S602E	92		18'-0"	Str.
S603E	12		7'-3"	4 1/2"
R601E	32		6'-3"	Str.
R602E	12		5'-0"	Str.
W701E	12		11'-11"	Str.
W702E	32		12'-8"	5 1/4"



Dimensions are out to out of bars.  
Note: Bars with an "E" suffix are to be epoxy coated.



SHEET 5 OF 6  
DETAILS OF 162'-0" INTEGRAL  
W-BEAM UNIT  
CACHE RIVER RELIEF

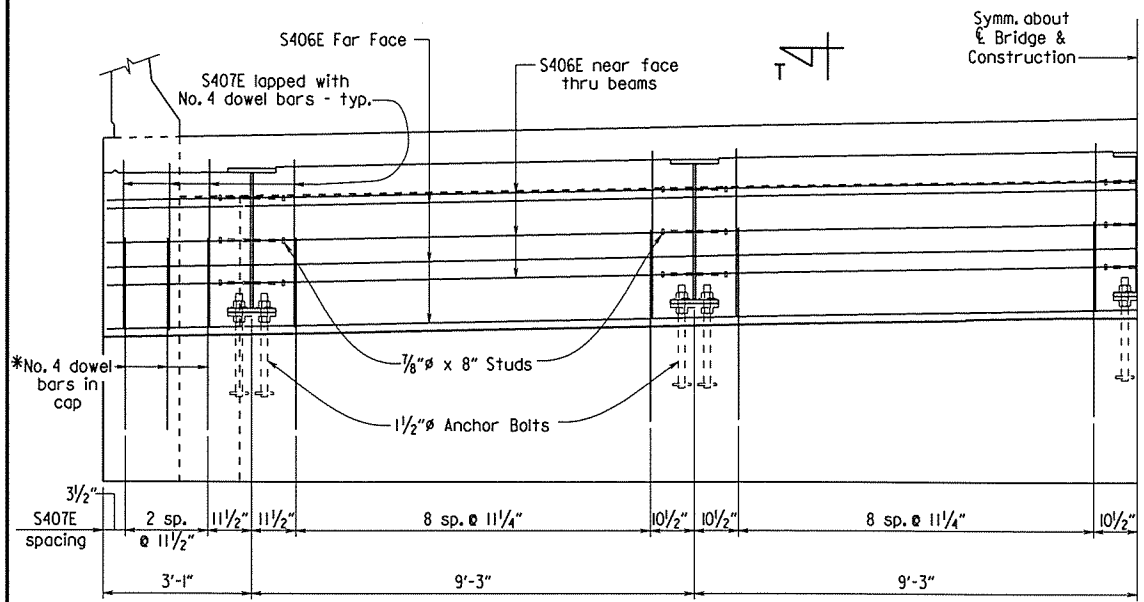
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2.sl.dgn  
CHECKED BY: SWP DATE: 12/7/15 SCALE: AS NOTED  
DESIGNED BY: DBS DATE: 11/15  
BRIDGE NO. 07375, 07376, & 07377 DRAWING NO. 58060

PRINT DATE: 12/17/2015

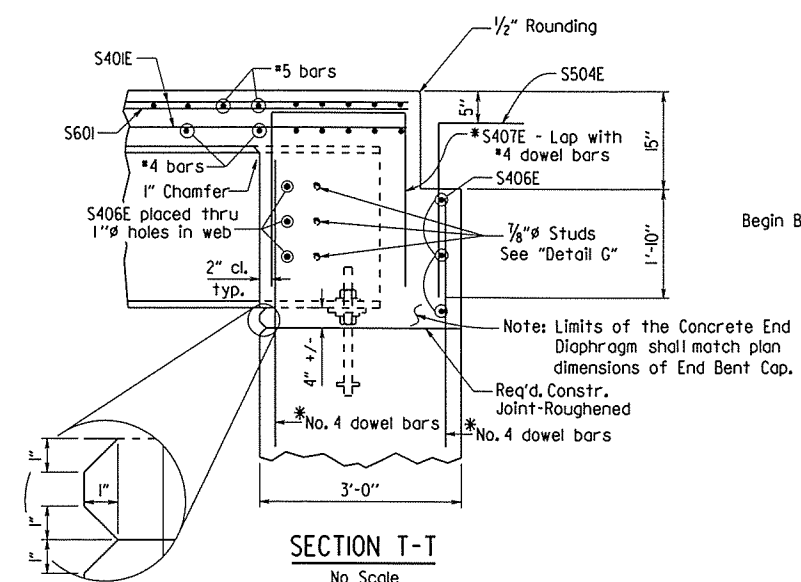


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	97	159
				07375, 07376, - 162 FT. UNIT - 58061				
				07377				

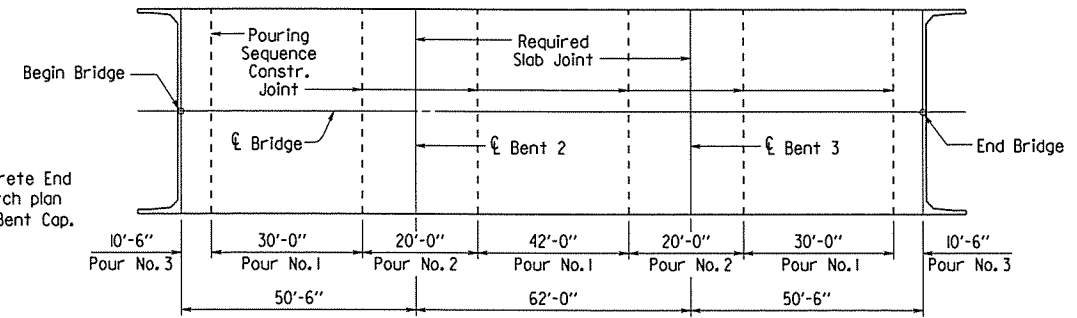


\*See Dwg. No. 58054 for reinforcing details and placement.

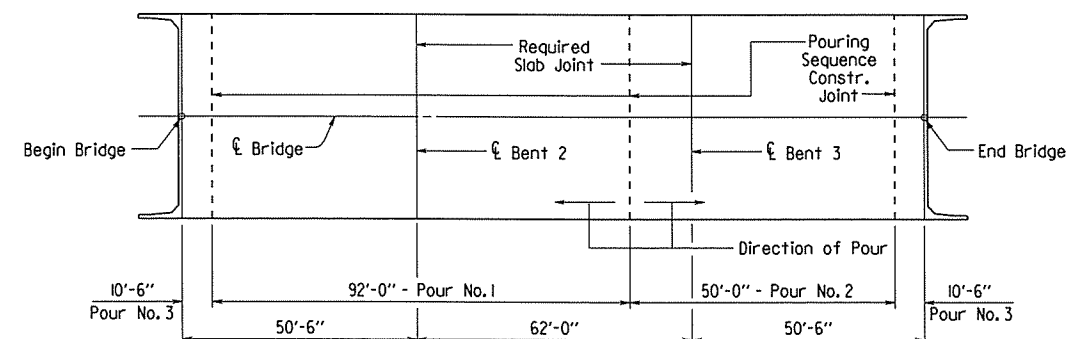
**VIEW N-N**  
Looking Back - Bent 1  
Looking Ahead - Bent 4  
Scale: 1/2" = 1'-0"



**SECTION T-T**  
No Scale



**ALTERNATE NO. 1**



**ALTERNATE NO. 2**

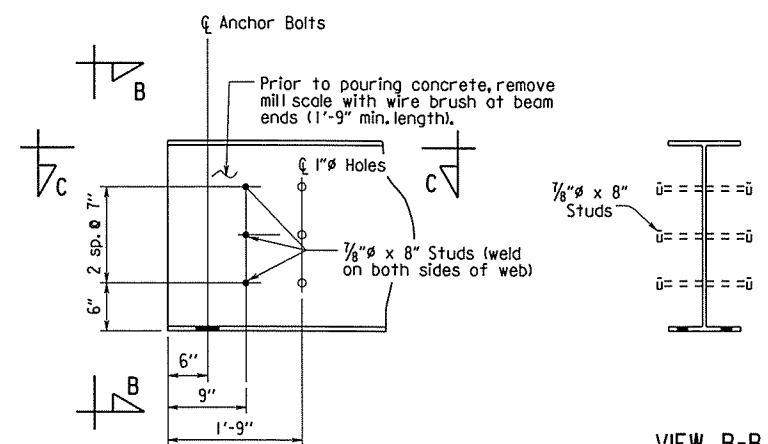
**CONCRETE POURING SEQUENCE**

No Scale

Note: 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 rolling 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.

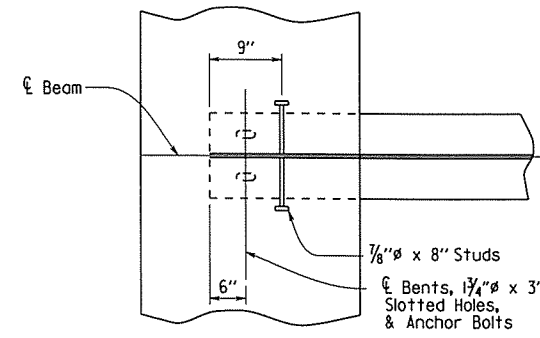
Concrete diaphragms at end bents shall be poured monolithically with the slab. Concrete diaphragms at integral intermediate bents shall be poured separately from the slab pour. A minimum of 48 hours shall elapse between diaphragm pours and slab pours.

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.

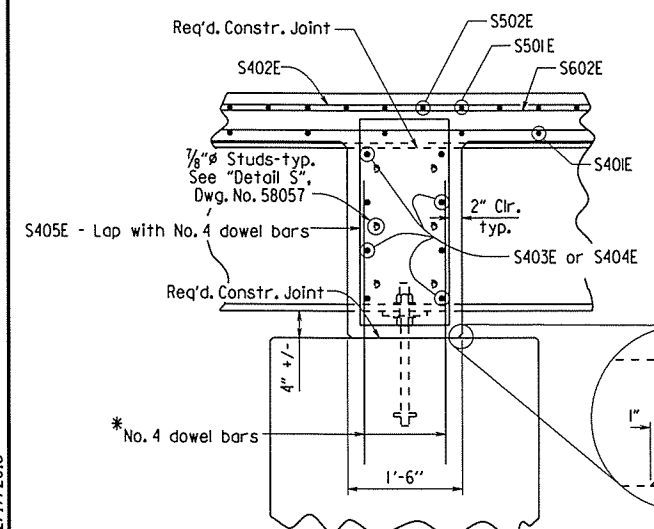


**DETAIL G**  
No Scale

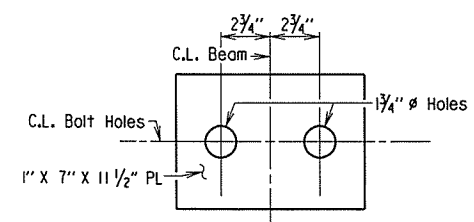
**VIEW B-B**  
No Scale



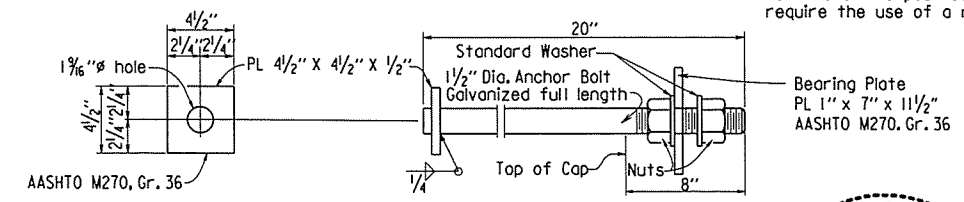
**SECTION C-C**  
No Scale



**SECTION D-D**  
No Scale



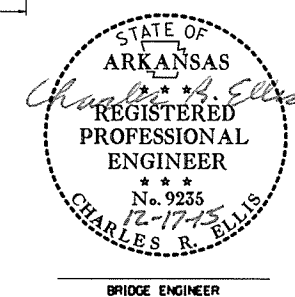
**ANCHOR BOLT PLATE DETAIL**  
Not to Scale



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.

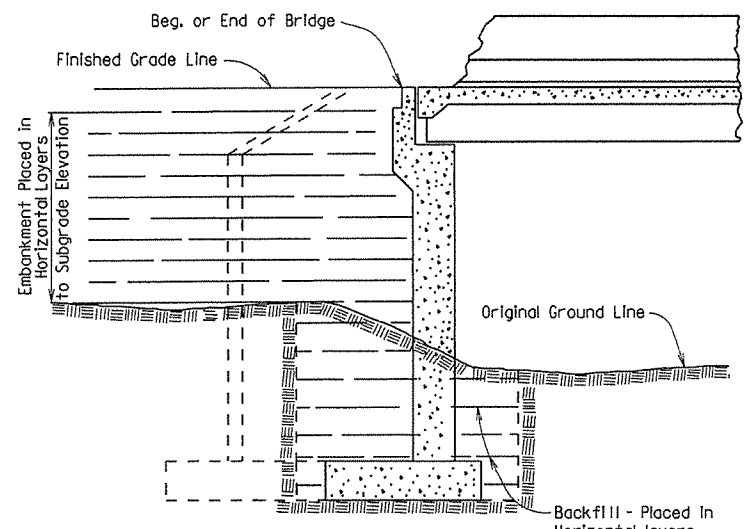
**ANCHOR BOLT DETAIL**  
No Scale



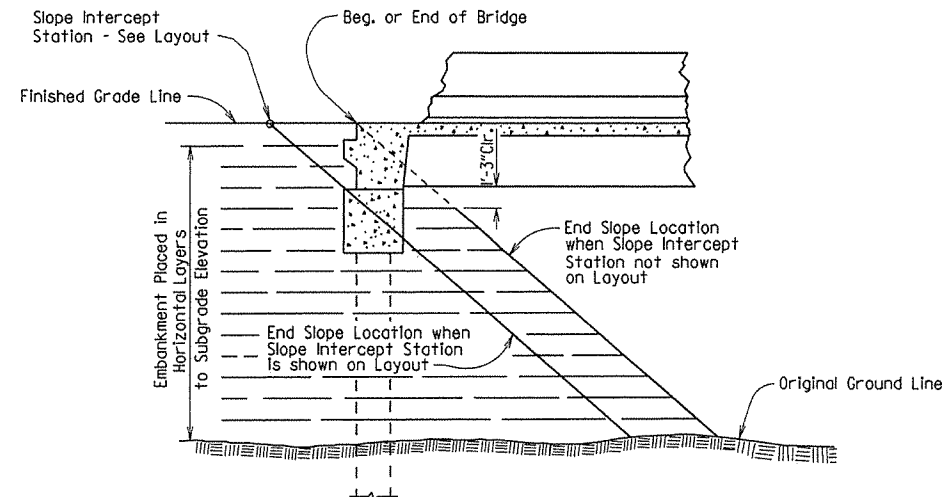
SHEET 6 OF 6  
DETAILS OF 162'-0" INTEGRAL W-BEAM UNIT  
CACHE RIVER RELIEF  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: DBS DATE: 12/7/15 FILENAME: b050272x2.sl.dgn  
CHECKED BY: GMB DATE: 12/17/15 SCALE: AS NOTED  
DESIGNED BY: DBS DATE: 11/15  
BRIDGE NO. 07375, 07376, & 07377 DRAWING NO. 58061

PRINT DATE: 12/17/2015

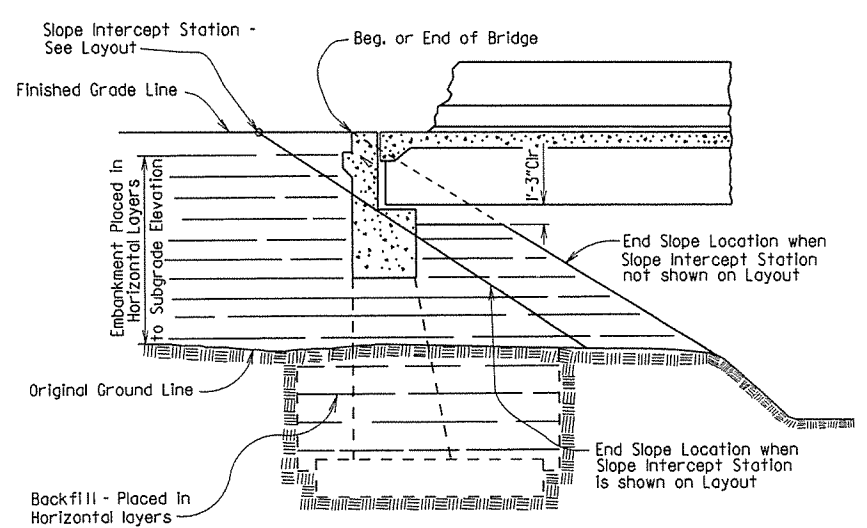
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		99	
							JOB NO.	
							EMBANKMENT & BACKFILL	55000



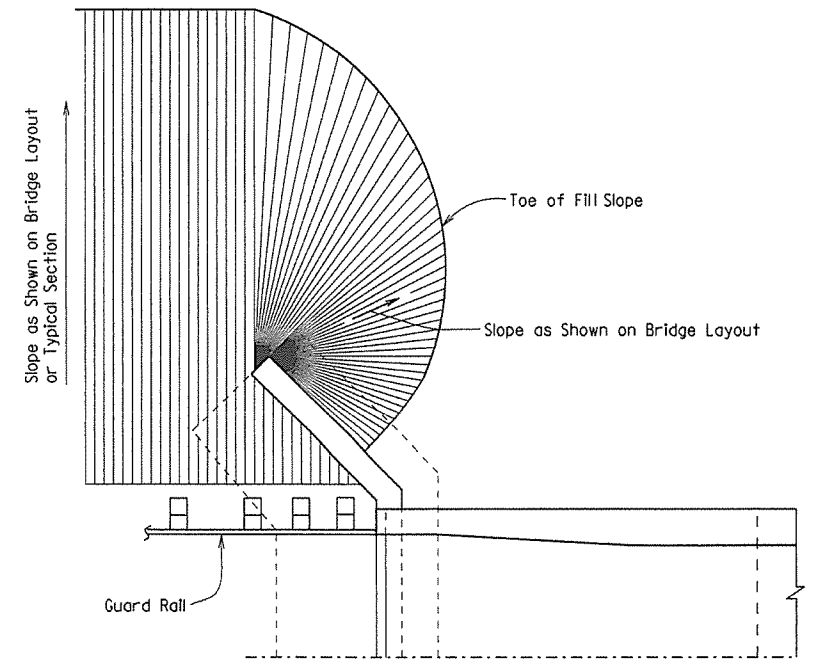
**EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS**



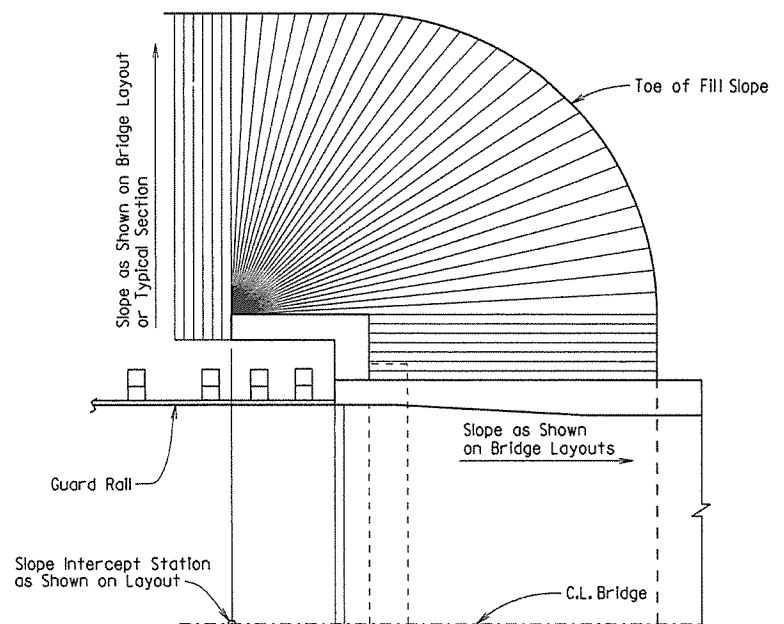
**EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS**



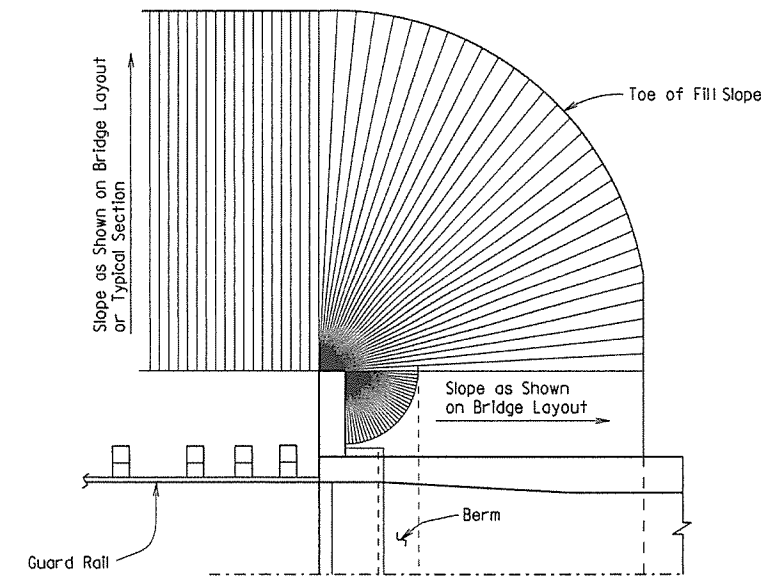
**EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS**



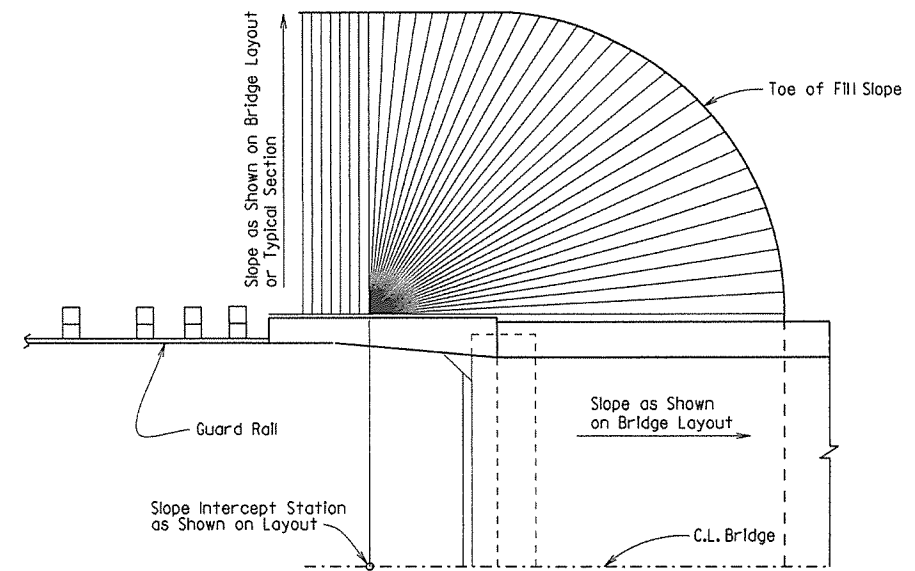
**VERTICAL WALL ABUTMENTS**



**SPILL-THROUGH END BENTS WITH TURNBACK WING**



**SPILL-THROUGH END BENTS WITH STUB WING**



**SPILL-THROUGH END BENTS WITH TRANSITION WING**

**METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS**

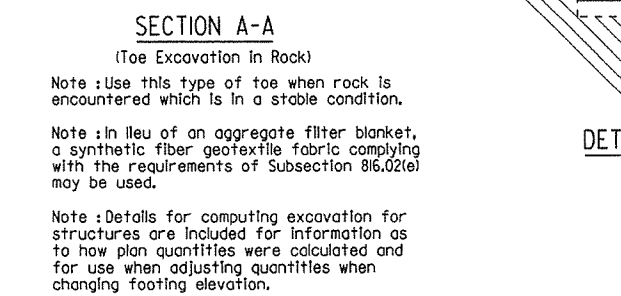
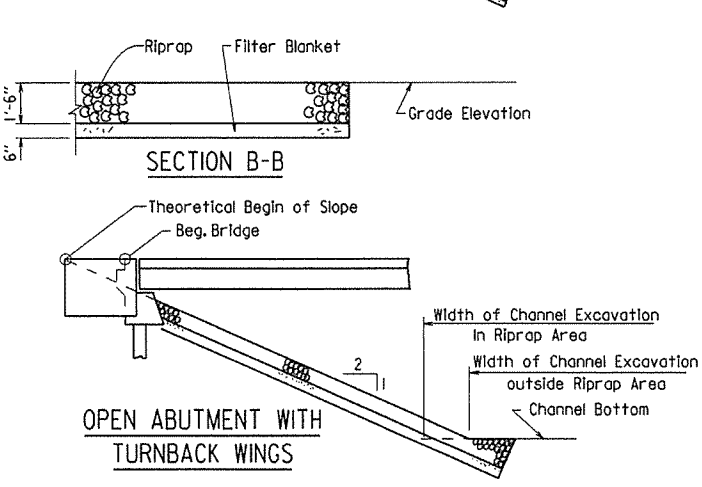
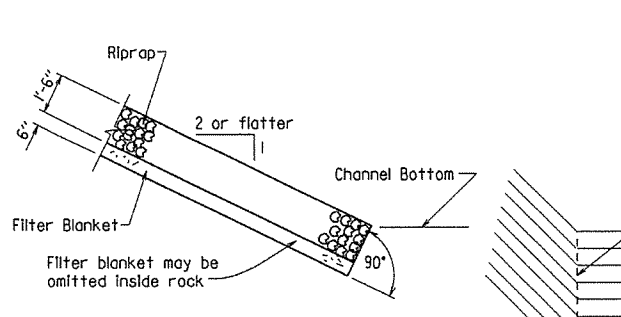
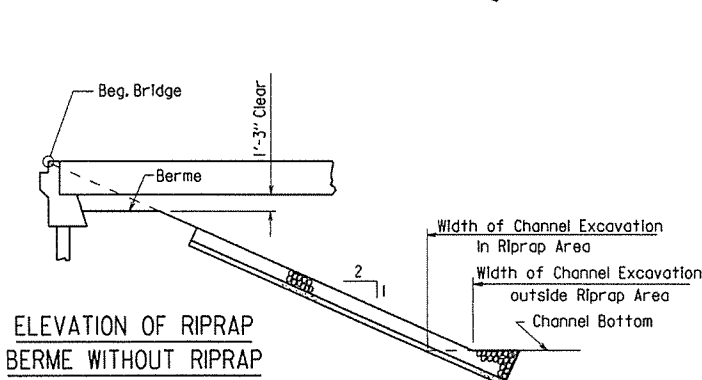
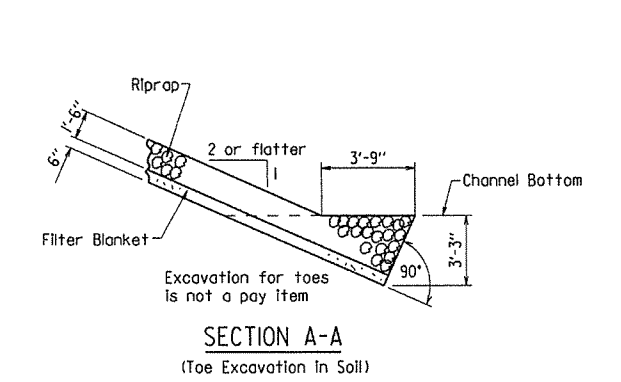
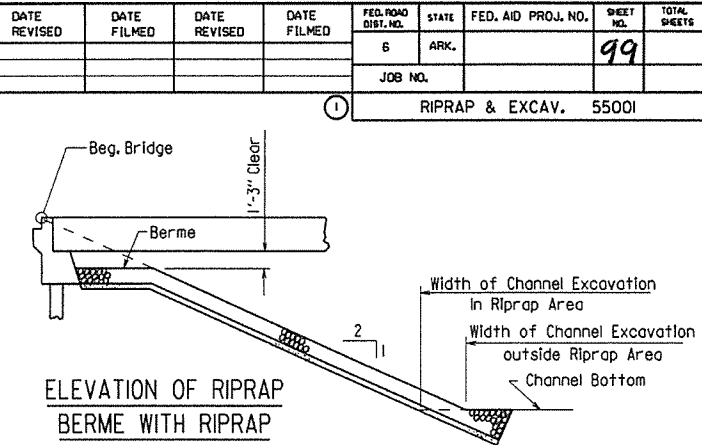
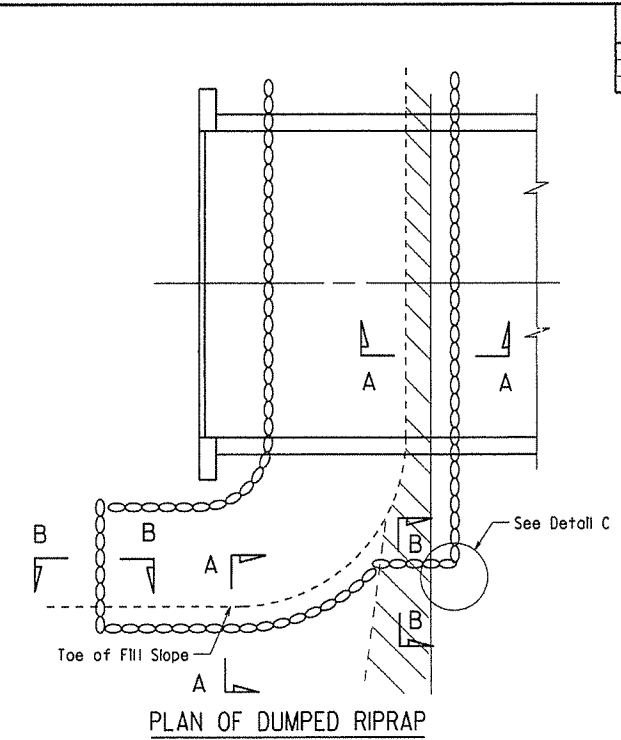
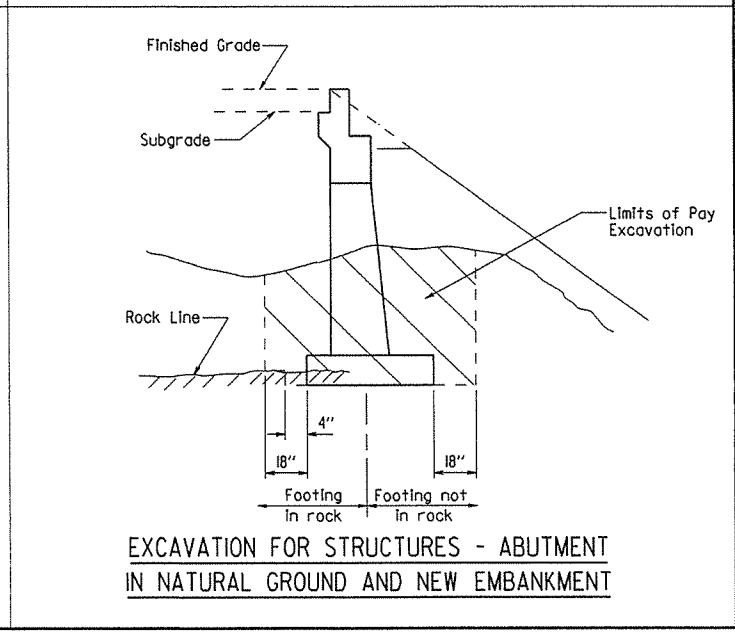
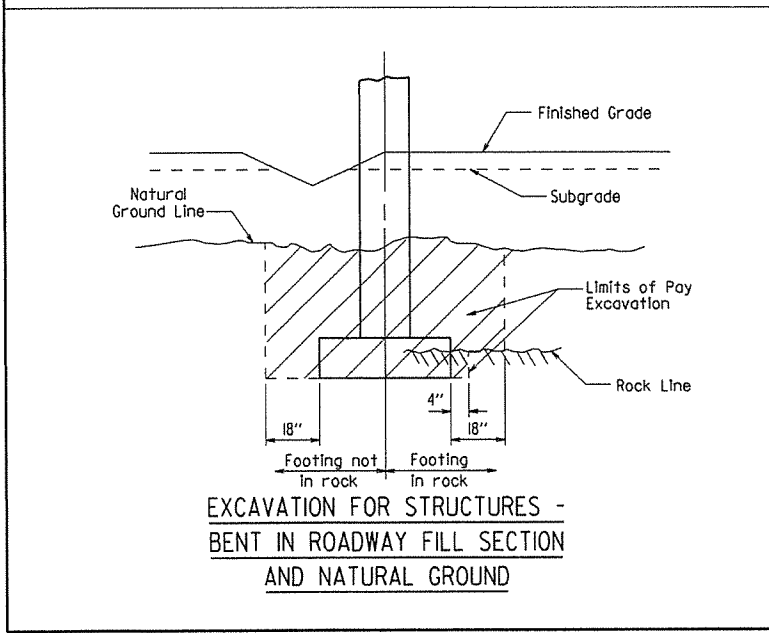
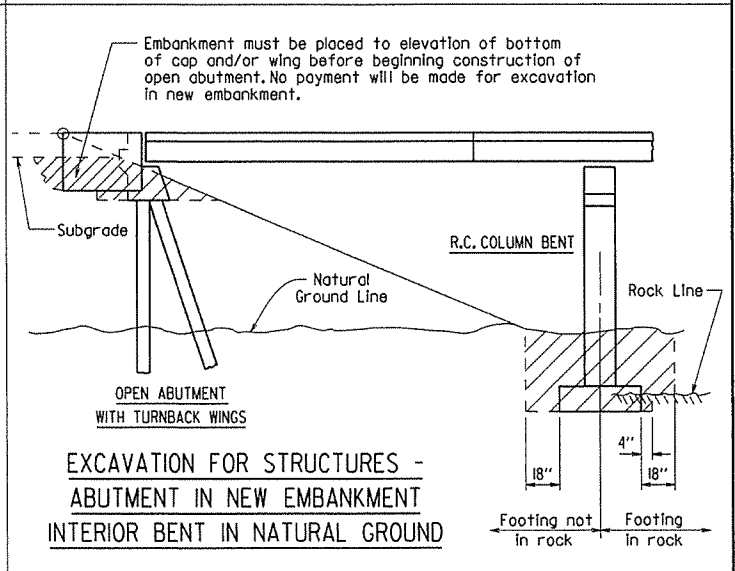
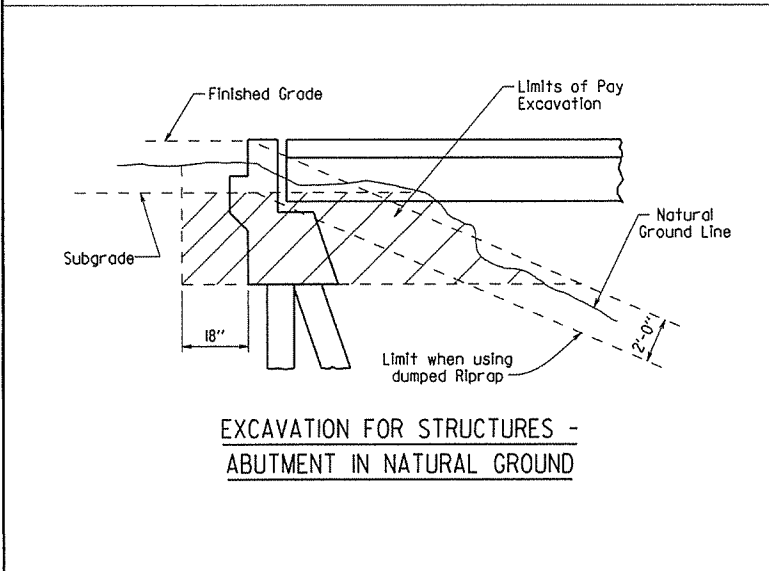
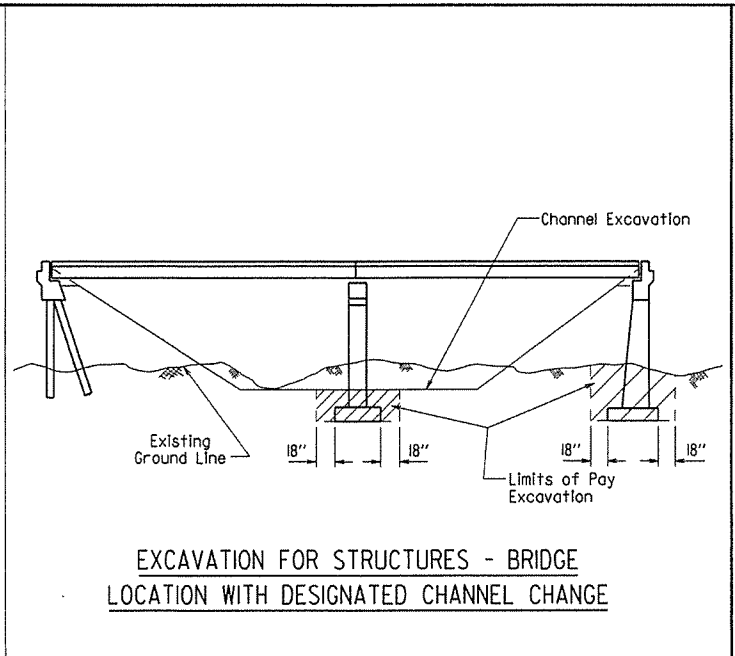
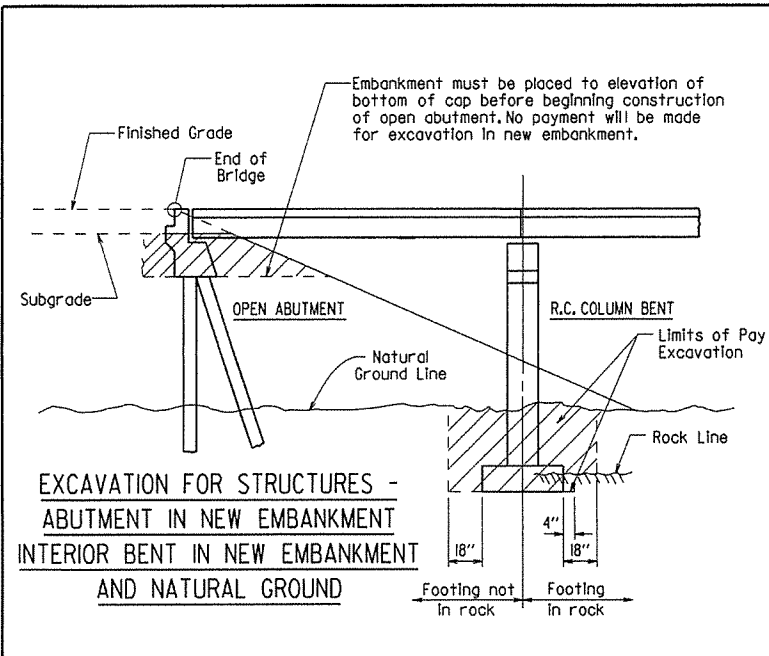
**GENERAL NOTES**

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

**STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS**

ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn  
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE  
 DESIGNED BY: STD. DATE: -  
 DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		99	
JOB NO.							RIPRAP & EXCAV. 55001	

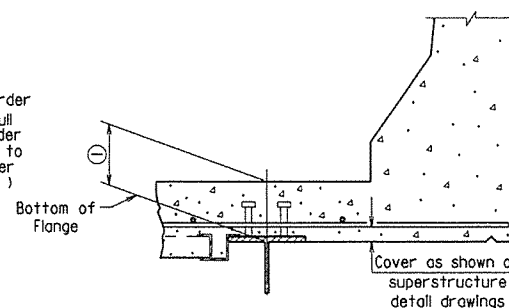
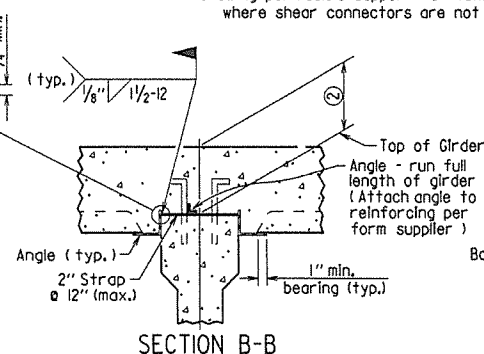
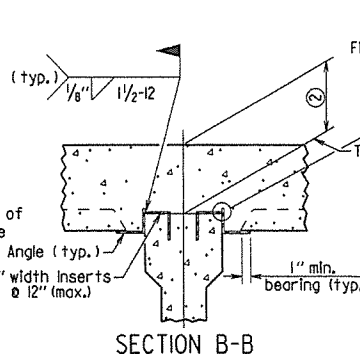
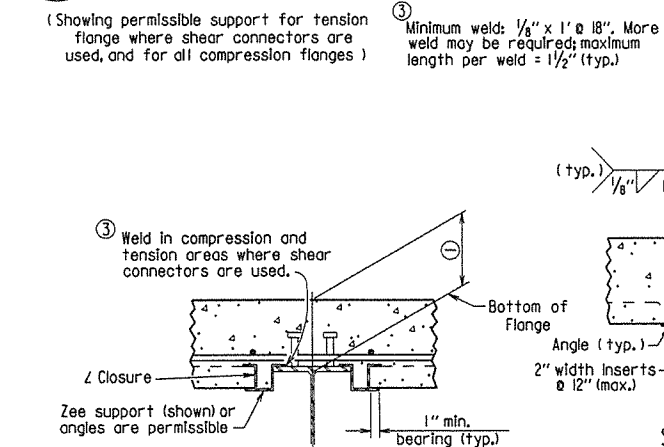
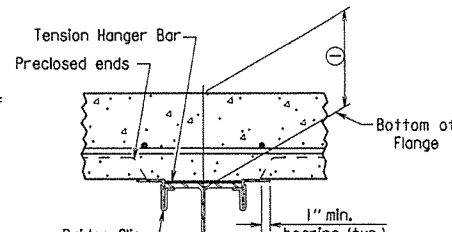
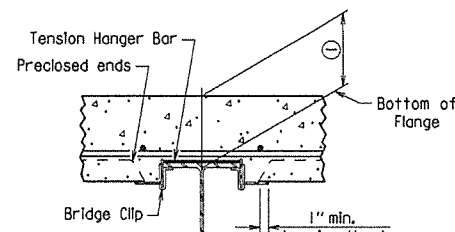
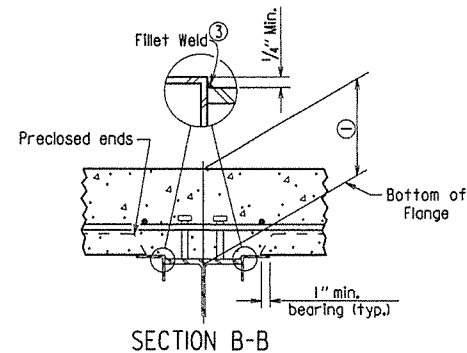
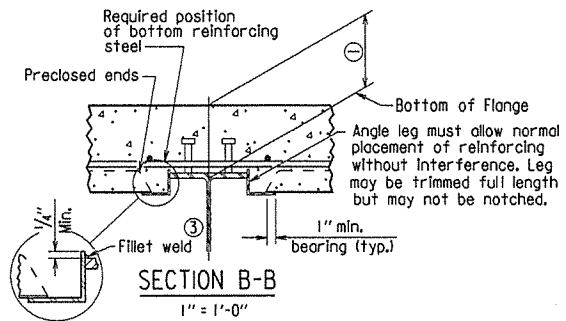
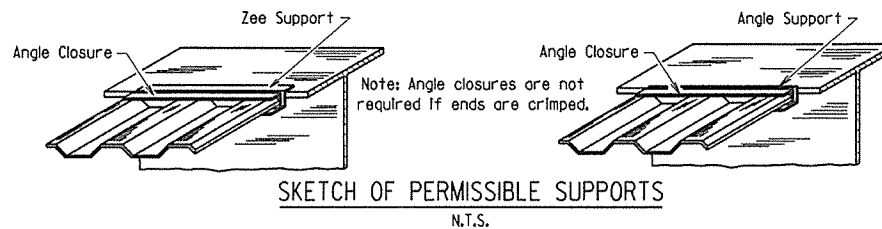
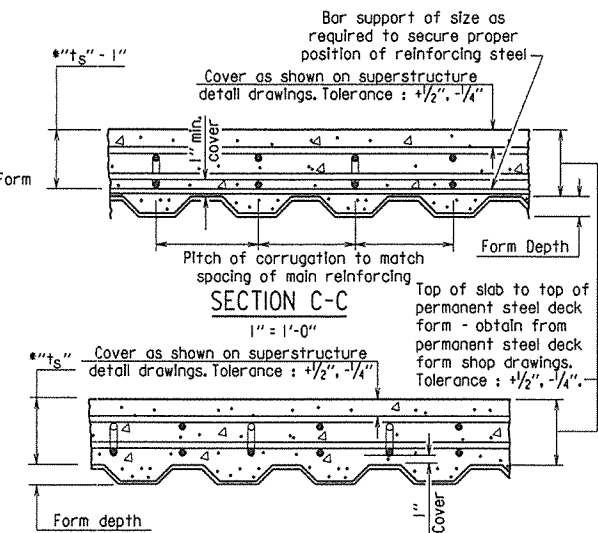
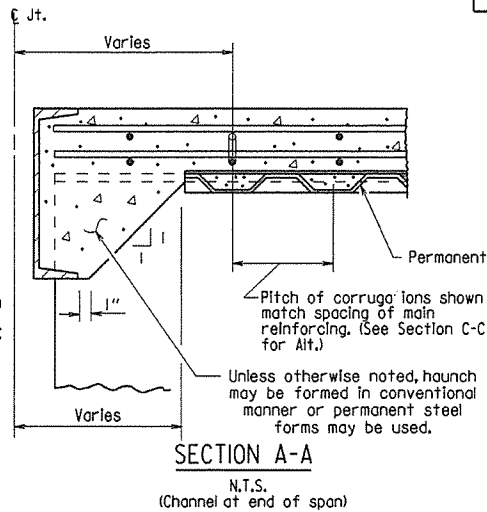
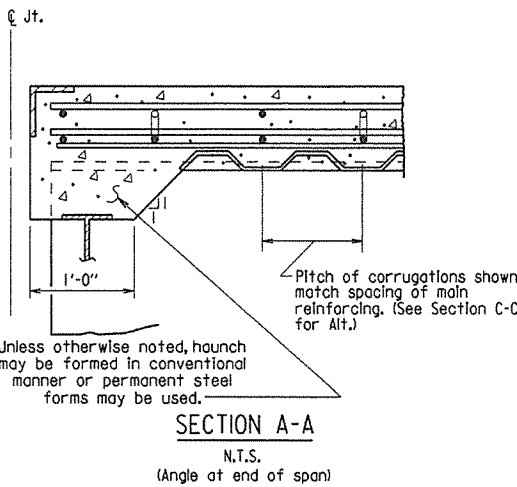
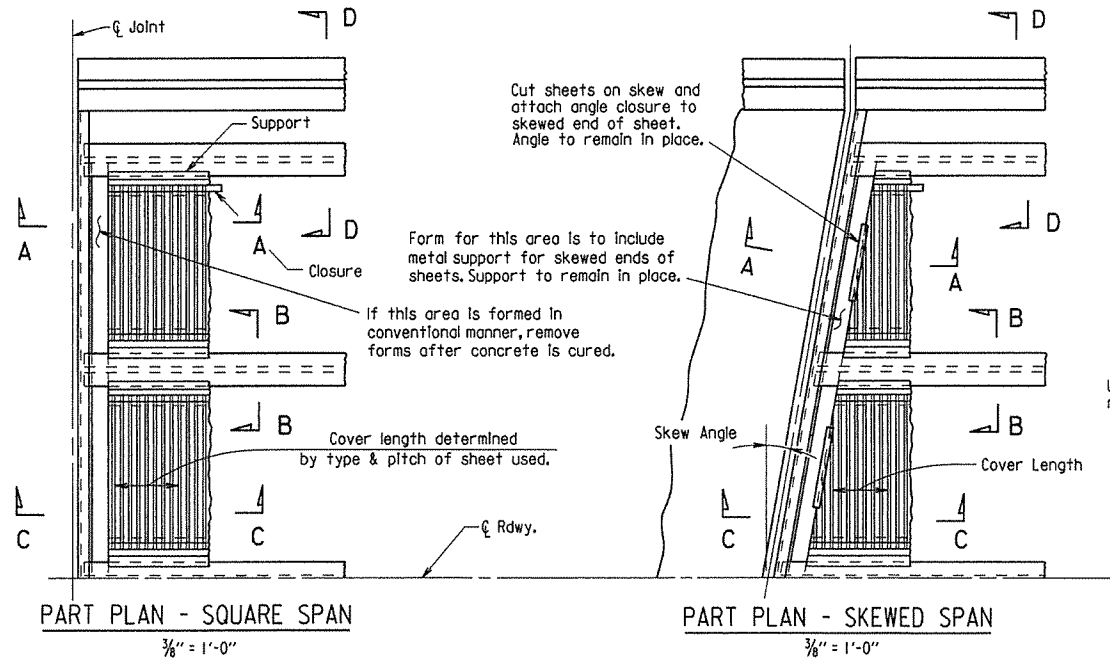


STANDARD DETAILS FOR  
 DUMPED RIPRAP AND FILTER BLANKET  
 AND COMPUTING  
 EXCAVATION FOR STRUCTURES  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn  
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE  
 DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		100	
							JOB NO.	
							BRIDGE DECK FORMS	55005



\*t<sub>s</sub> = slab thickness as shown on superstructure detail drawings.  
GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b), Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or L supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

## STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn  
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE  
DESIGNED BY: STD. DATE: \_\_\_\_\_

DRAWING NO. 55005

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<sub>s</sub> + 1 1/4" + 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.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		101	
① GENERAL NOTES							55006	

## GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout(s).

### SUPERSTRUCTURE NOTES:

#### MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	f <sub>y</sub> = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	F <sub>y</sub> = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	F <sub>y</sub> = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	F <sub>y</sub> = 50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	F <sub>y</sub> = 70,000 psi

See Plan Details for Grades of Structural Steel required.

#### CONCRETE:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

#### REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. 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 (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

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.

Unless otherwise noted, field connections shall be bolted with 3/4" ø high-strength bolts using 1/8" ø open holes. Holes for 3/4" ø high-strength bolts may be 5/8" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

#### STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ... )".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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 beam dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

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.

#### STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ... )".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ... )".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

### SUBSTRUCTURE NOTES:

#### CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered 3/4" unless otherwise noted.

#### REINFORCING STEEL:

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

#### STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

## STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

### ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn  
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE  
DESIGNED BY: STD. DATE: \_\_\_\_\_

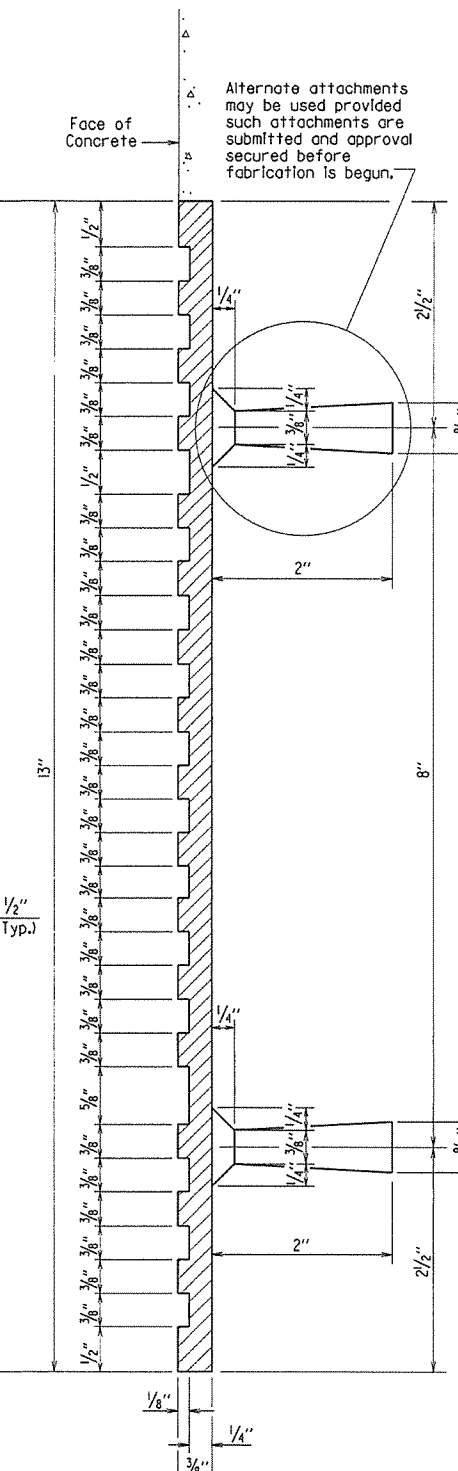
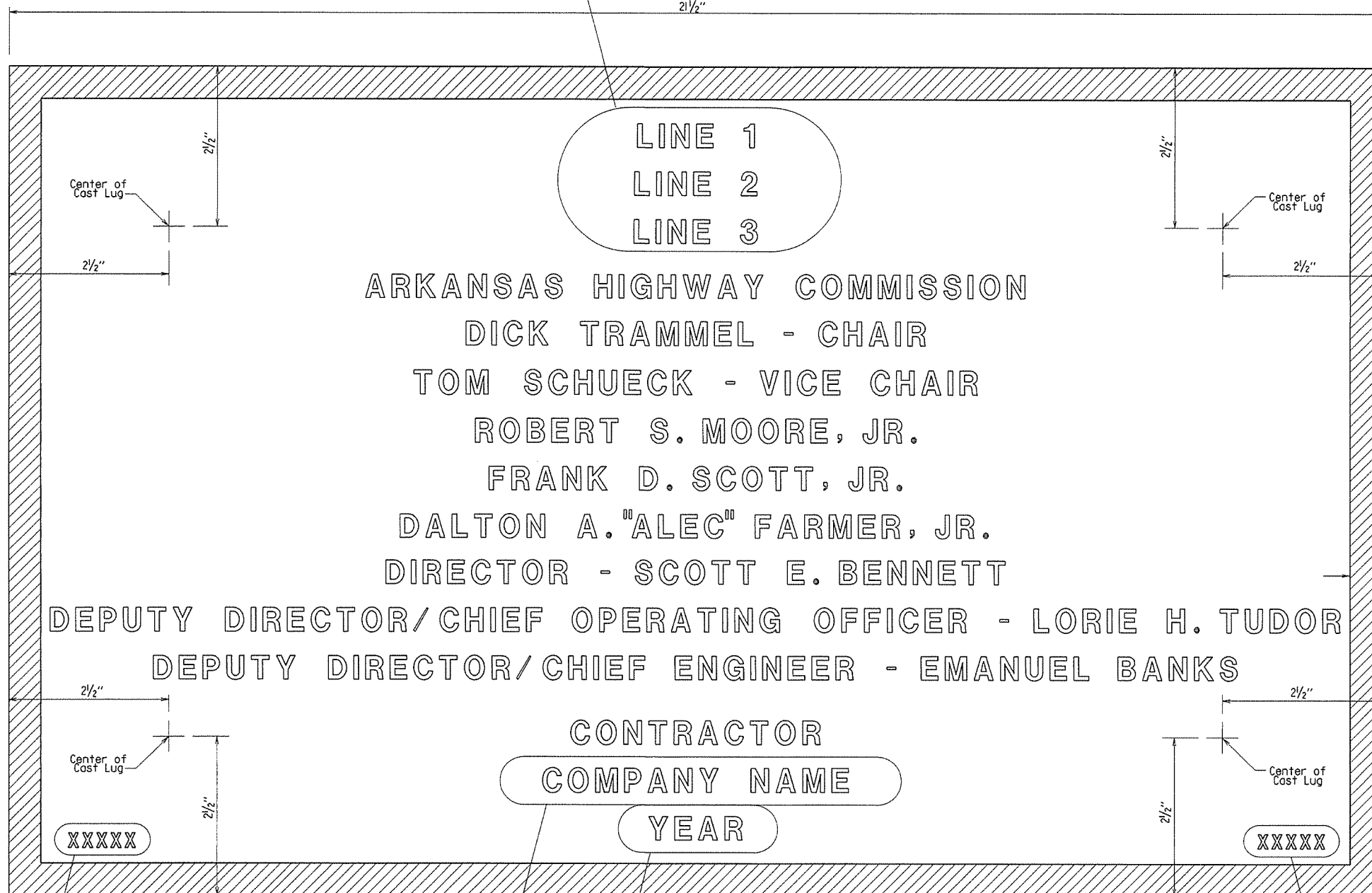
DRAWING NO. 55006

PRINT DATE: 9/10/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		102	
1-14-15								
				JOB NO.				
TYPE D NAME PLATE								55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	Highway
Line 2	Relief	Road	River	5
Line 3		Overpass	Relief	



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 1/4" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

Revised Chair and Vice Chair Added New Commissioner

1-14-15 KDH Checked By: CRE

Revised Deputy Director/Chief Engineer Added Deputy Director/Chief Operating Officer

12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn  
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE  
 DESIGNED BY: STD. DATE: \_\_\_\_\_

DRAWING NO. 55010

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples: HS 20 HL-93

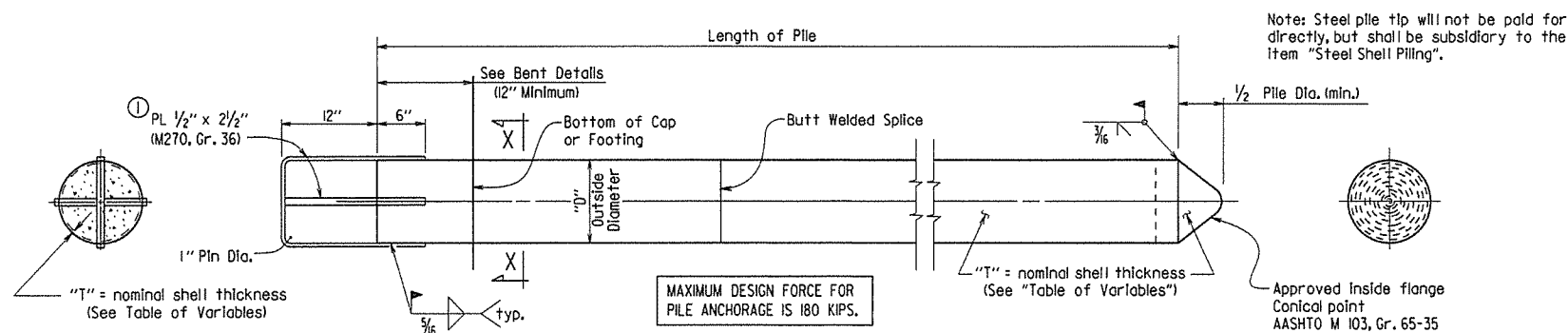
Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example: 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples: A1234 05432

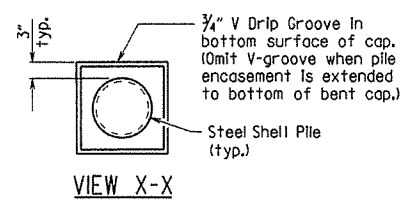
TYPICAL BRIDGE NAME PLATE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		163	
							JOB NO.	
							STEEL SHELL PILES	55021



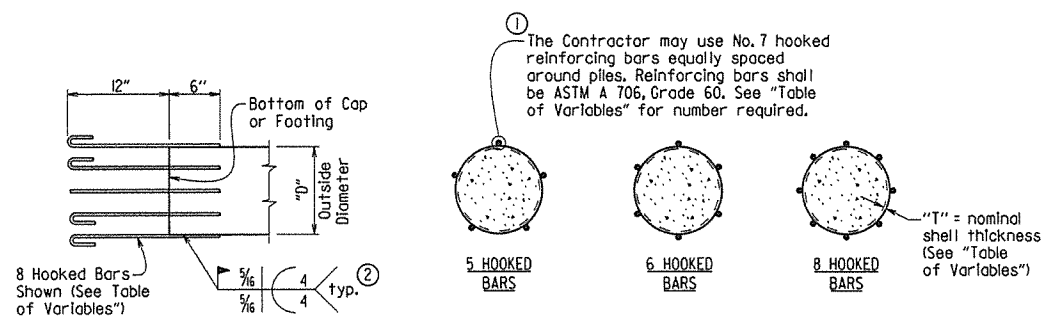
**CONCRETE FILLED STEEL SHELL PILE**

- 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.



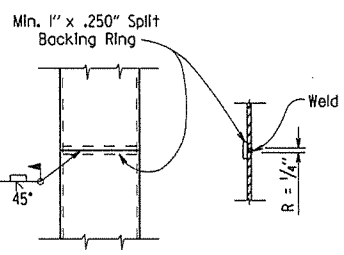
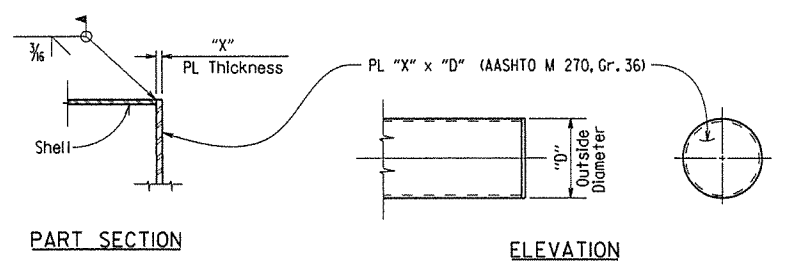
**GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES:**

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 driving information.  
 Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



**ALTERNATE PILE ANCHORAGE DETAIL**

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.



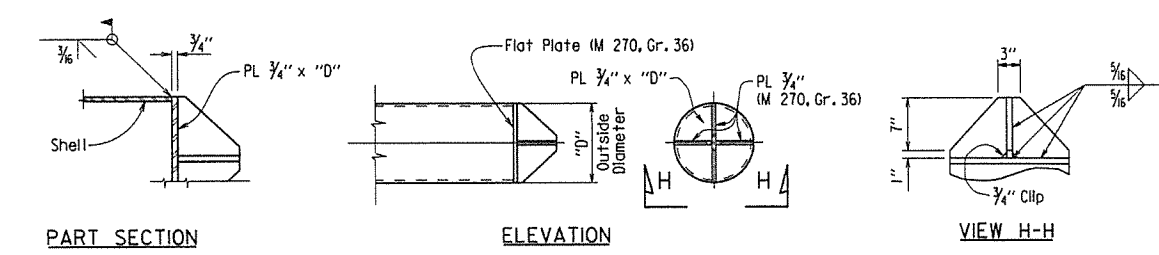
**TYPICAL SPLICE DETAILS**

**TABLE OF VARIABLES**

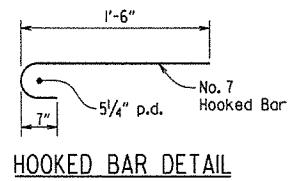
OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	PLATE THICKNESS "X"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE
14"	0.50"	3/4"	5
16"	0.50"	1"	5
18"	0.50"	1 1/4"	6
20"	0.50"	1 1/2"	6
24"	0.50"	1 3/4"	8

**ALTERNATE FLAT TIP DETAIL**

Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.

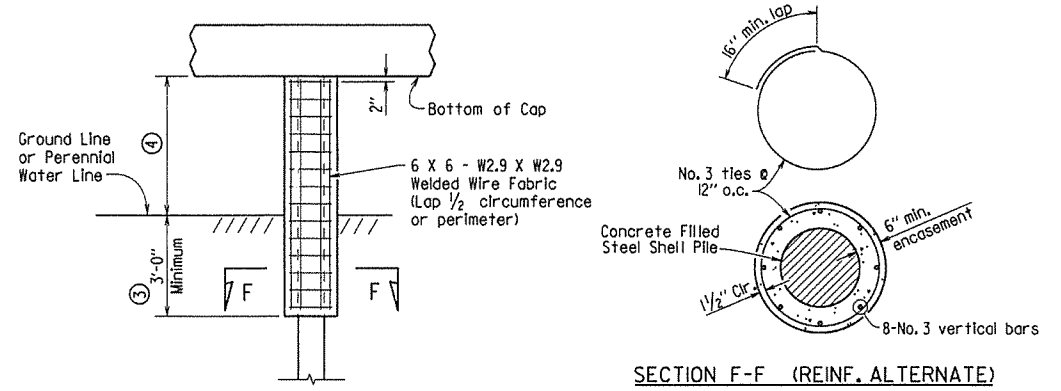


**ALTERNATE VANED TIP DETAIL**



**GENERAL NOTES FOR PILE ENCASEMENTS:**

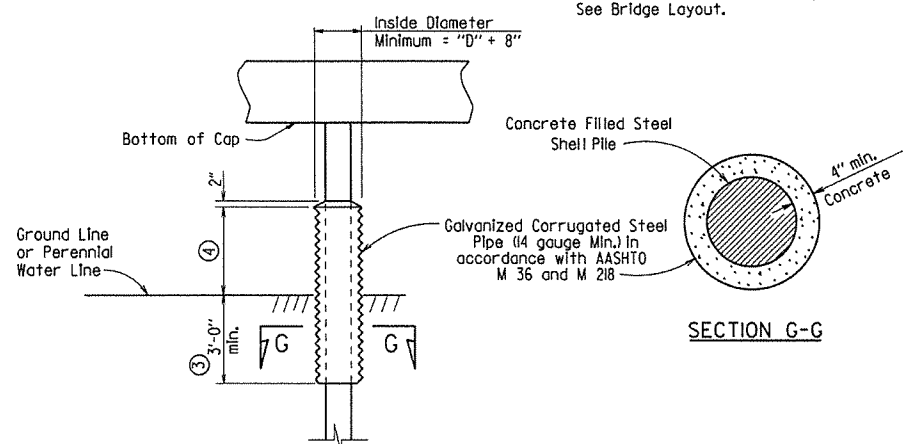
See Bridge Layout for additional notes and required location of pile encasements.  
 Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.  
 Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.  
 Welded wire fabric shall conform to AASHTO M 55 or M 221.  
 Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



**PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES**

(Shown with Encasement to Bottom of Cap)

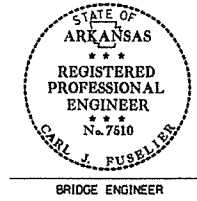
- ③ Unless otherwise noted on Bridge Layout.
- ④ See Bridge Layout for height of pile encasement (3'-0" Minimum).
- ⑤ Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.
- ⑥ Alternate pile encasement may not be allowed. See Bridge Layout.



**ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES**

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Carl J. Fuseller, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.



**STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS**

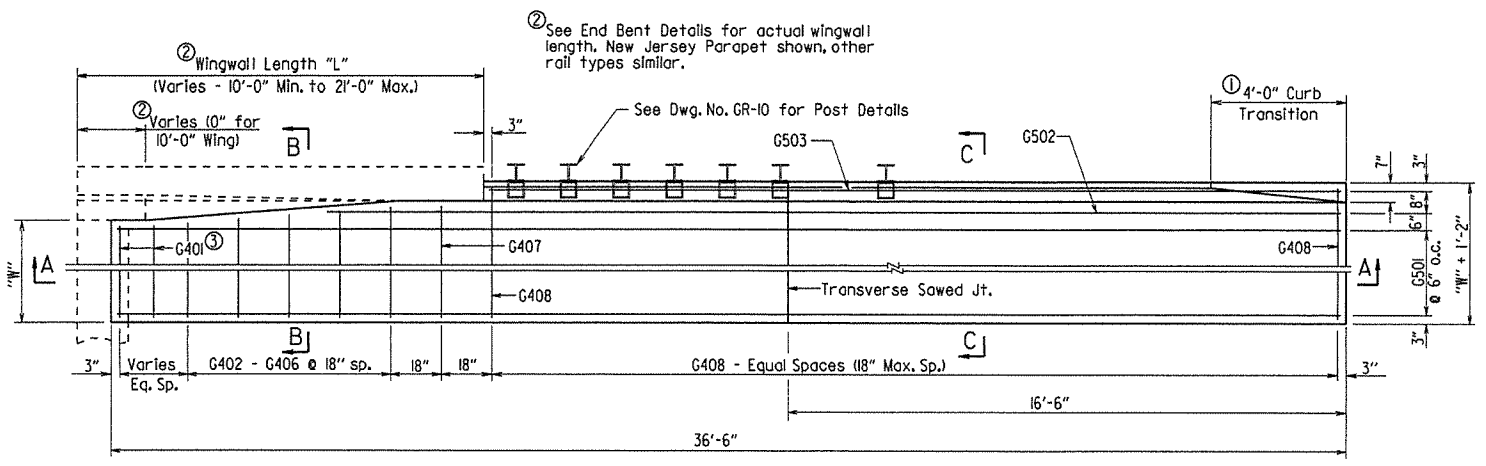
ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55021.dgn  
 CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE  
 DESIGNED BY: STD. DATE: —

DRAWING NO. 55021

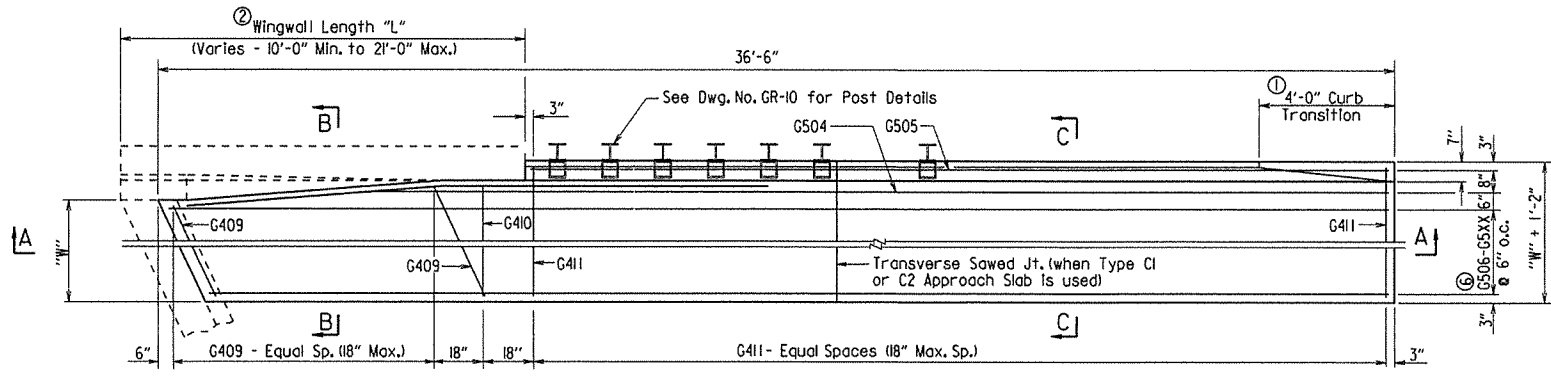
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		104	
							JOB NO.	

TYPE C GUTTERS 55030C

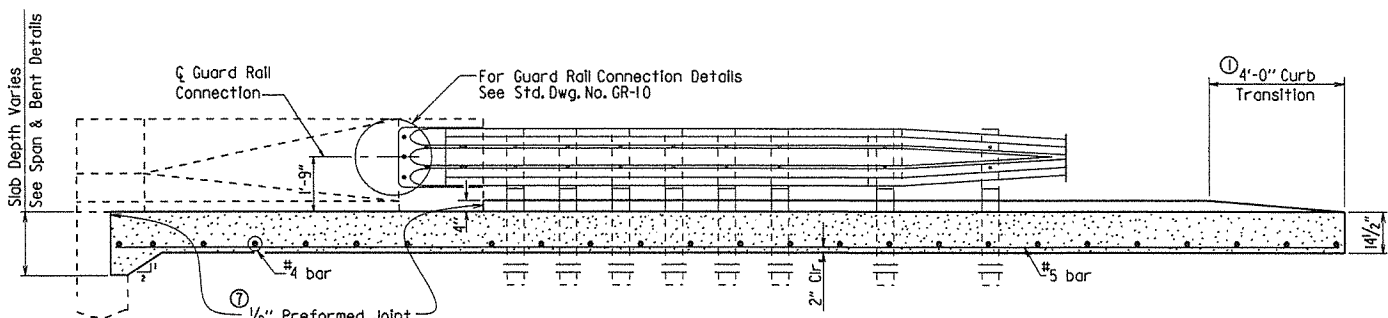


③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



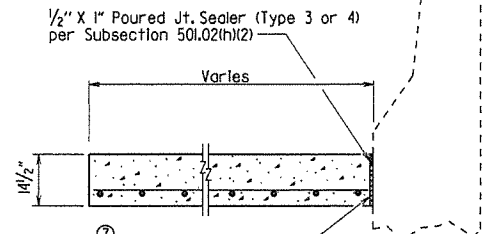
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



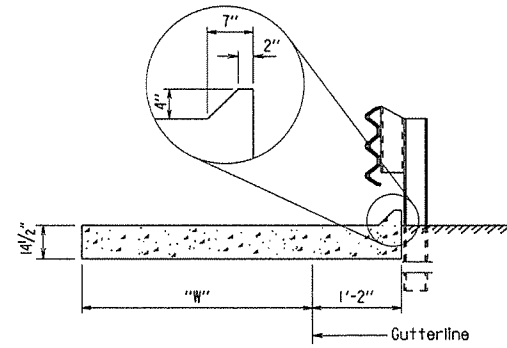
SECTION A-A

④ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.  
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B  
N.T.S.



SECTION C-C  
N.T.S.

BAR LIST FOR ONE TYPE C GUTTER

Mark	No. Req'd. for Width "W"				Length
	4'-0"	6'-0"	8'-0"	10'-0"	
G401	④	④	④	④	"W" - 4"
G402 - G406	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 2"
G407	1	1	1	1	"W" + 3"
G408	④	④	④	④	"W" + 10"
G501	8	12	16	20	36'-2"
G502	1	1	1	1	(4' - 11") - "L"
G503	1	1	1	1	(37' - 2") - "L"
G409	④	④	④	④	⑤
G410	1	1	1	1	"W" + 3"
G411	④	④	④	④	"W" + 10"
G504	1	1	1	1	⑤
G505	1	1	1	1	⑤
G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④ No. Req'd. varies with Skew and Wingwall Length.  
⑤ Bar Lengths vary with Skew and Wingwall Length.  
⑥ G513 for "W" = 4'  
G517 for "W" = 6'  
G521 for "W" = 8'  
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER (FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.  
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.  
Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

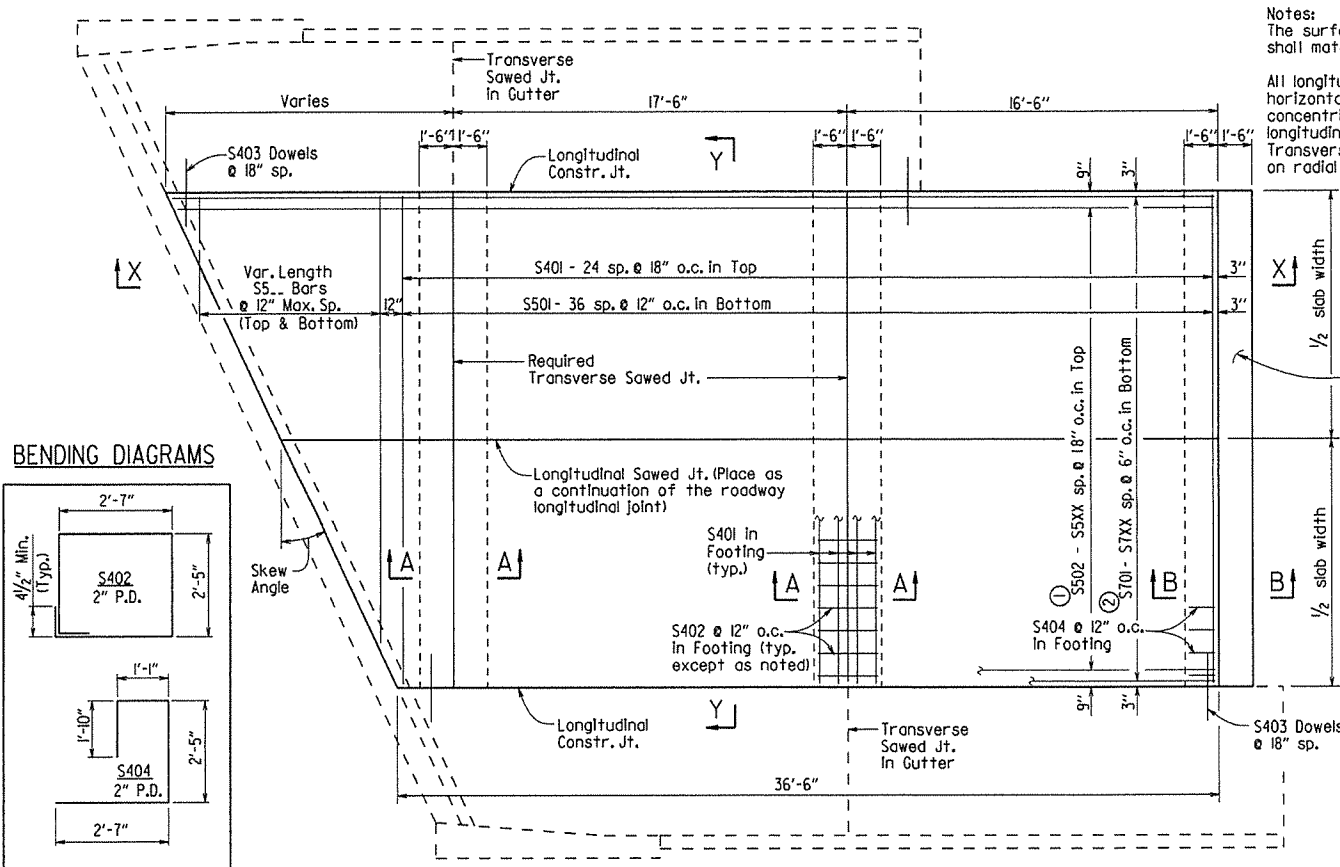
LITTLE ROCK, ARK.  
DRAWN BY: A.M.S. DATE: 2/21/2014 FILENAME: b55030c.dgn  
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0"  
DESIGNED BY: STD. DATE: or As Shown

DRAWING NO. 55030C

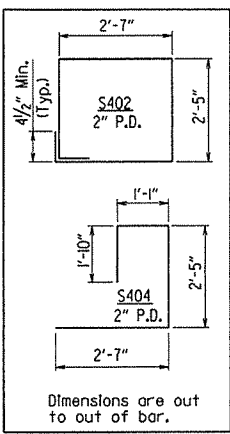


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		105	
				JOB NO.		TYPE C2 APPROACH SLAB 55040C2		

Notes:  
The surface finish for Approach Slabs shall match that used on the bridge deck.  
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



**BENDING DIAGRAMS**

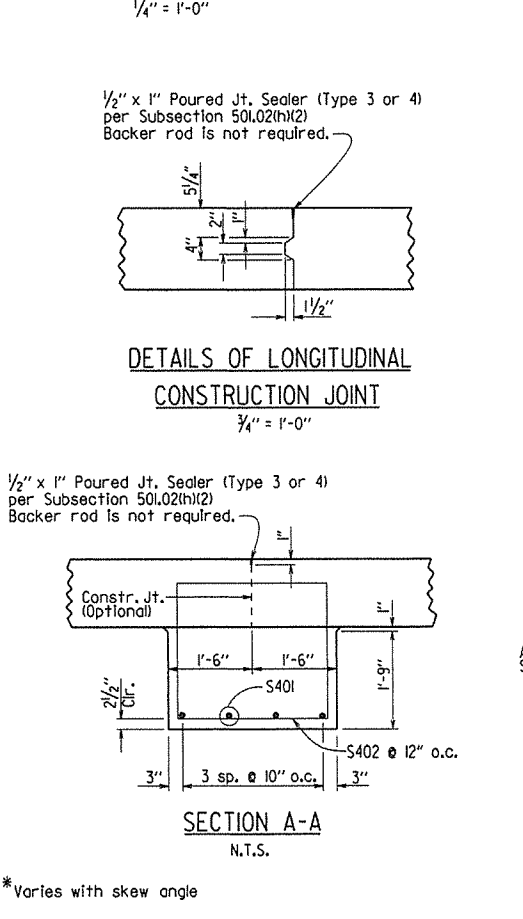


**BAR LIST**

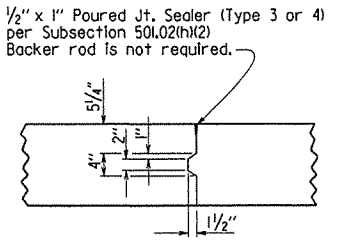
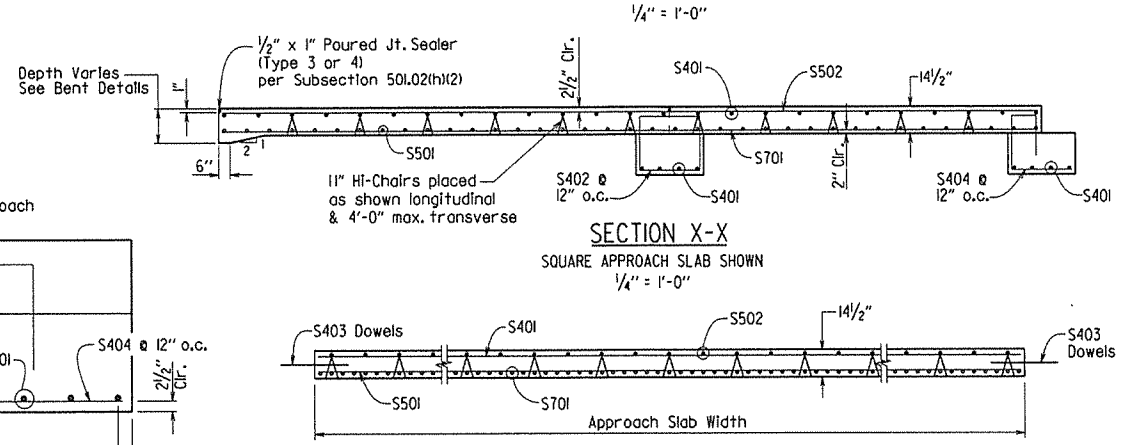
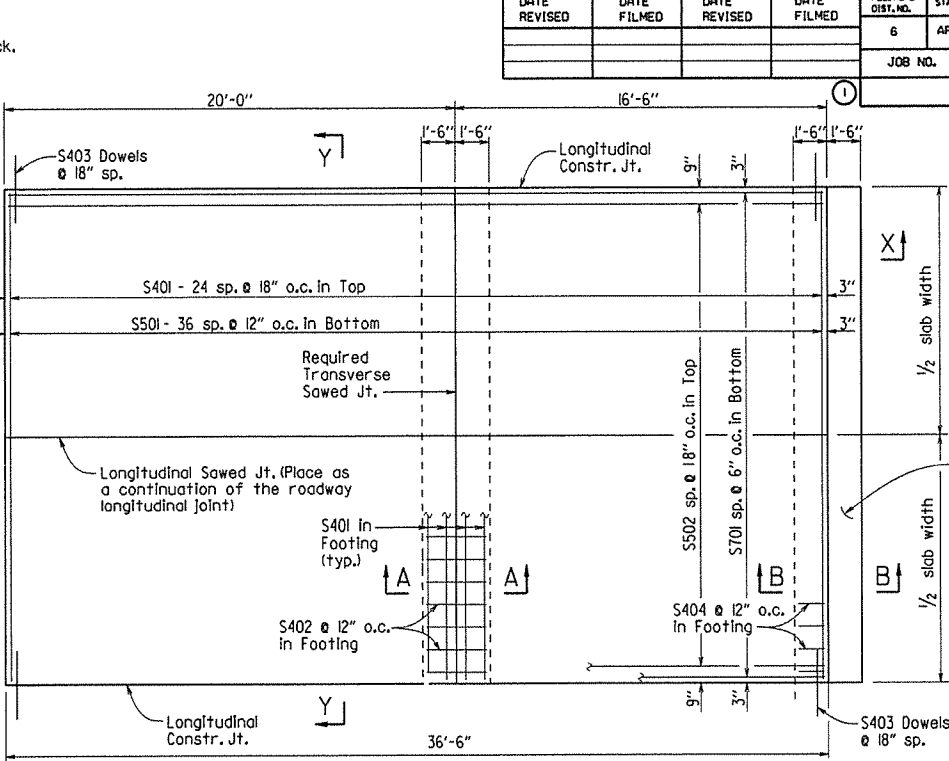
(Square & Skewed Approach Slabs)

Slab Width	Square		Skewed		
	Mark	No. Req'd.	Length	No. Req'd.	
15'-0"	S401	33	14'-8"	37	
	S402	15	10'-4"	30	
	S403	50	3'-0"	*	
	S404	15	7'-8"	15	
	S501	37	14'-8"	37	
	S502	10	36'-2"	—	
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5...	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	
	S701 - S730	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)
24'-0"	S401	33	23'-8"	37	
	S402	24	10'-4"	48	
	S403	50	3'-0"	*	
	S404	24	7'-8"	24	
	S501	37	23'-8"	37	
	S502	16	36'-2"	—	
	S502 - S517	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)
	S5...	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	
	S701 - S748	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)
36'-0"	S401	33	35'-8"	37	
	S402	36	10'-4"	72	
	S403	50	3'-0"	*	
	S404	36	7'-8"	36	
	S501	37	35'-8"	37	
	S502	24	36'-2"	—	
	S502 - S525	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)
	S5...	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	
	S701 - S772	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)

**PLAN - SQUARE APPROACH SLAB**

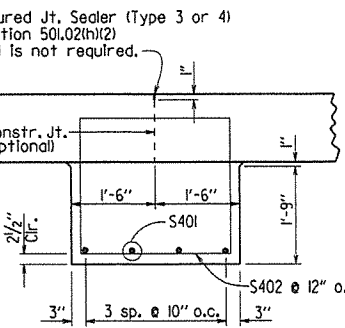


- ① S5XX = S511 for 15'-0" Width  
= S517 for 24'-0" Width  
= S525 for 36'-0" Width
- ② S7XX = S730 for 15'-0" Width  
= S748 for 24'-0" Width  
= S772 for 36'-0" Width



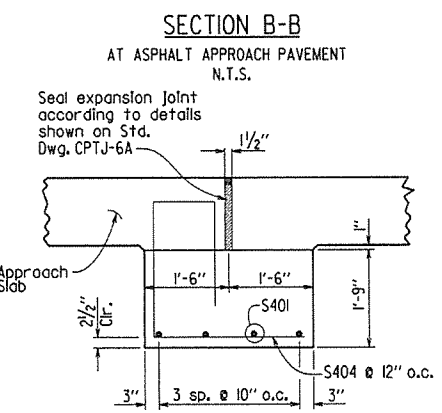
**DETAILS OF LONGITUDINAL CONSTRUCTION JOINT**

1/2" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



**SECTION A-A**

N.T.S.



**SECTION B-B**

AT CONCRETE APPROACH PAVEMENT N.T.S.

**TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB**

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

**GENERAL NOTES**  
This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:  
15'-0" Slab Width: Maximum Skew Angle = 50°  
24'-0" Slab Width: Maximum Skew Angle = 40°  
36'-0" Slab Width: Maximum Skew Angle = 30°

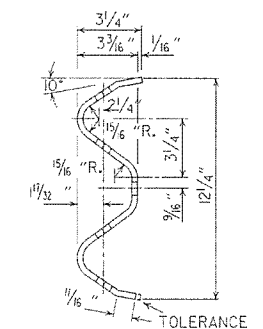
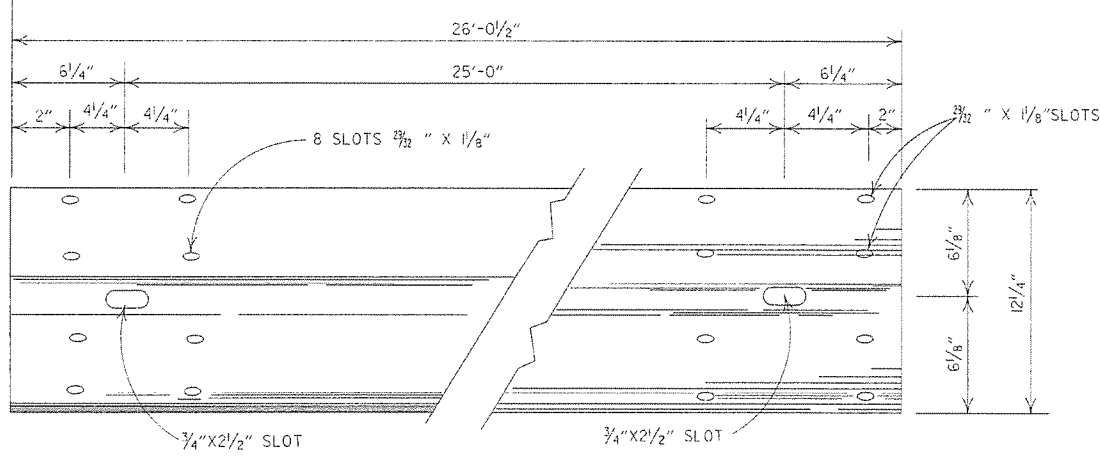
All concrete shall be Class S (AE) with a minimum 28 day compressive strength  $f'_c = 4,000$  psi and shall be poured in the dry.  
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.  
Approach Slabs will be measured and paid for in accordance with Section 504.

**STANDARD DETAILS FOR TYPE C2 APPROACH SLAB**

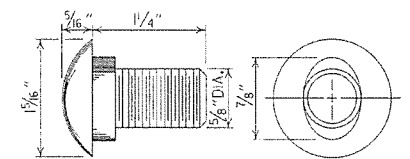
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn  
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN  
DESIGNED BY: STD. DATE: \_\_\_\_\_

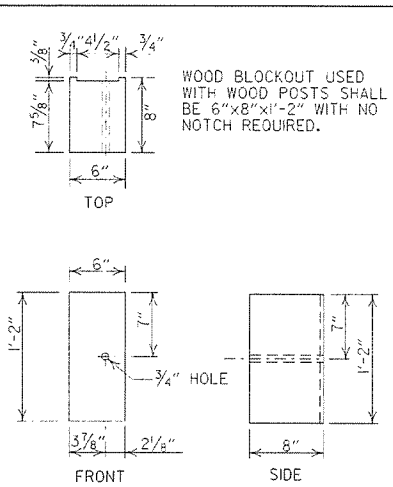
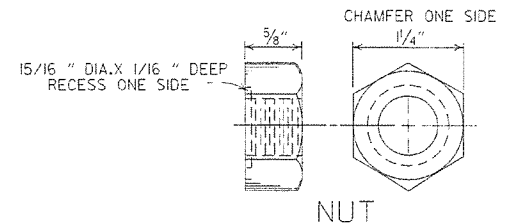
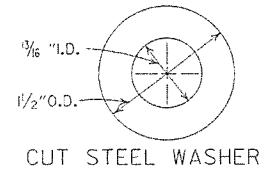
DRAWING NO. 55040C2



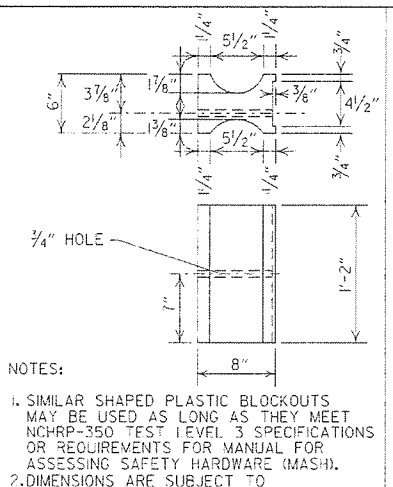
**DETAILS OF W-BEAM GUARD RAIL**  
 RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



**SPLICE BOLT POST BOLT - SAME EXCEPT LENGTH**

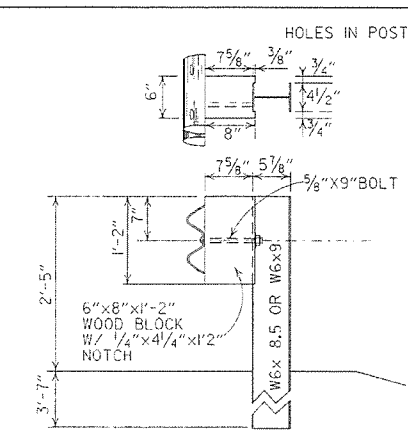


**WOOD BLOCKOUT (W-BEAM)**

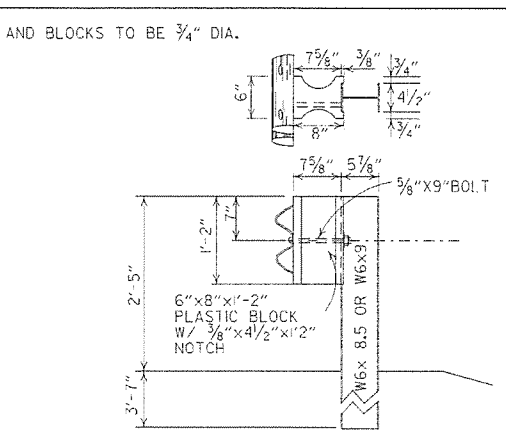


**PLASTIC BLOCKOUT (W-BEAM)**

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.

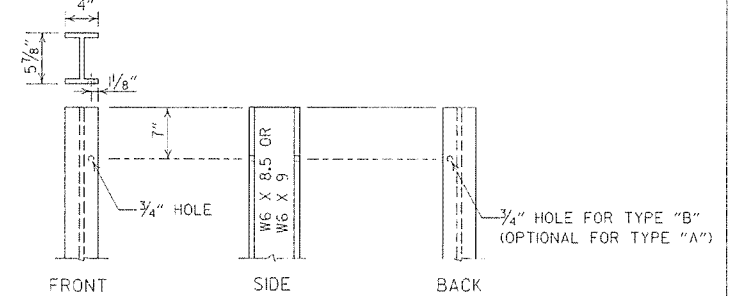


**WOOD BLOCKOUT CONNECTIONS**

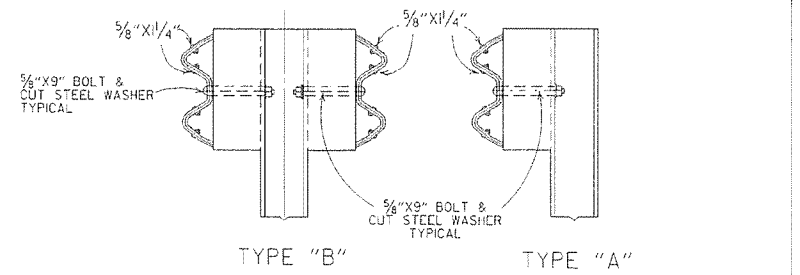


**PLASTIC BLOCKOUT CONNECTIONS**

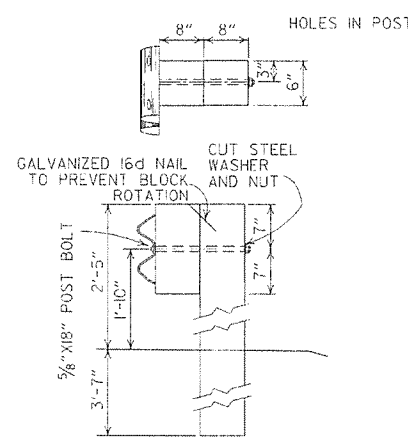
**DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)**



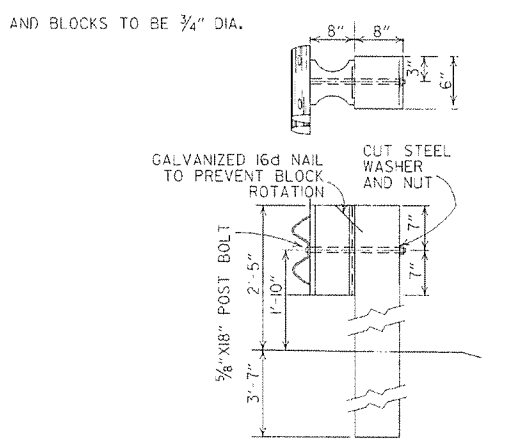
**STEEL POST**



**DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)**



**WOOD BLOCKOUT CONNECTIONS**



**PLASTIC BLOCKOUT CONNECTIONS**

**DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)**

**-GENERAL NOTES-**

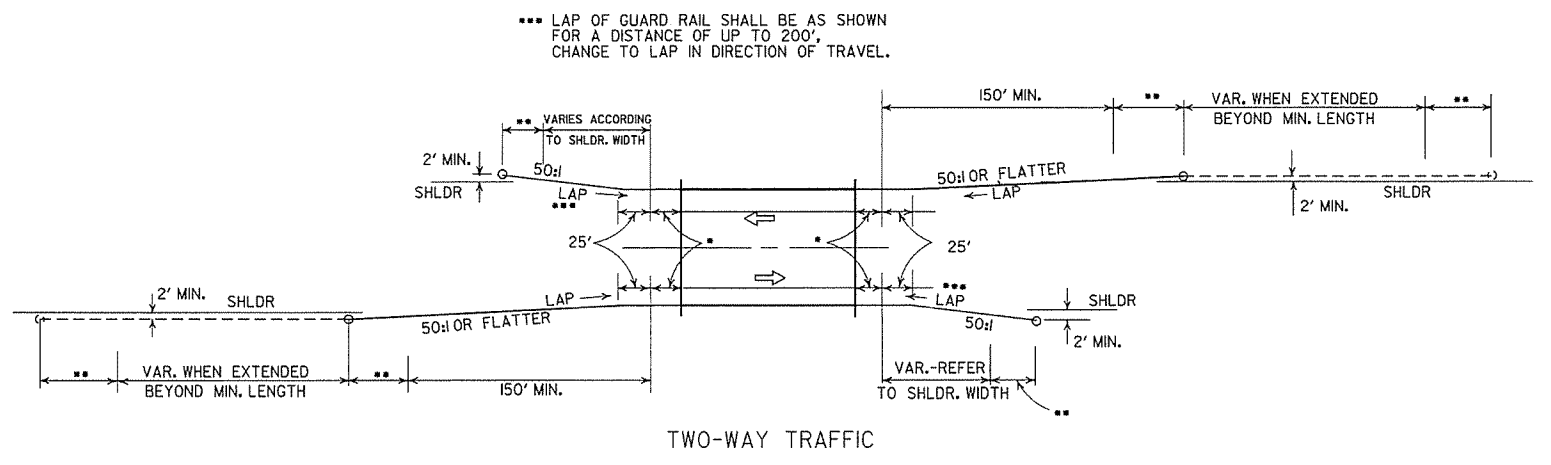
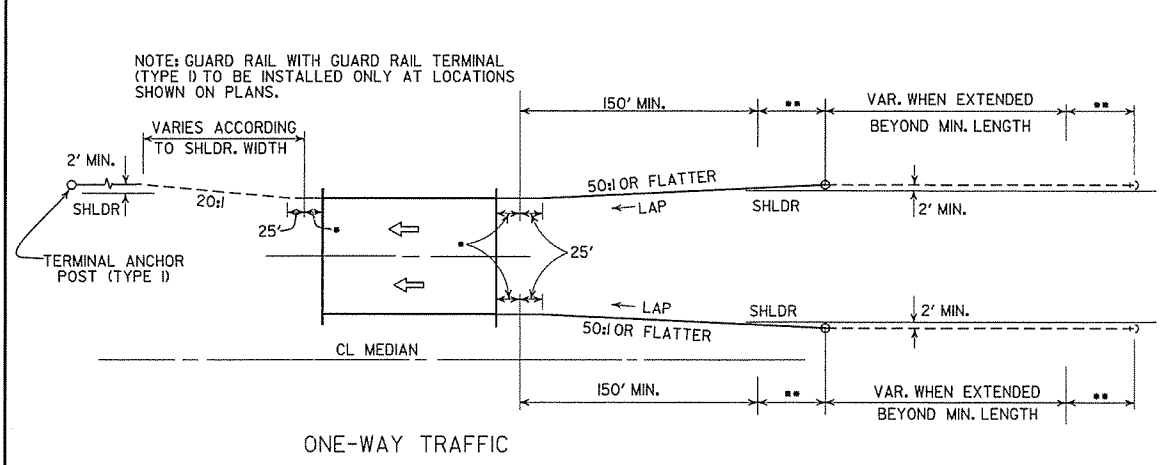
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.  
 WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.  
 W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.  
 USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.  
 ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.  
 WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7+ (1400 #) OR NO. 1 (350 #) 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.

7-4-10	RAISED HEIGHT OF GUARD RAIL 1"	
0-15-99	ADDED REFERENCE TO MASH	
4-10-93	REVISED GENERAL NOTES	
9-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
11-2-00	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 & DEPTH 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
0-9-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	DATE FILED

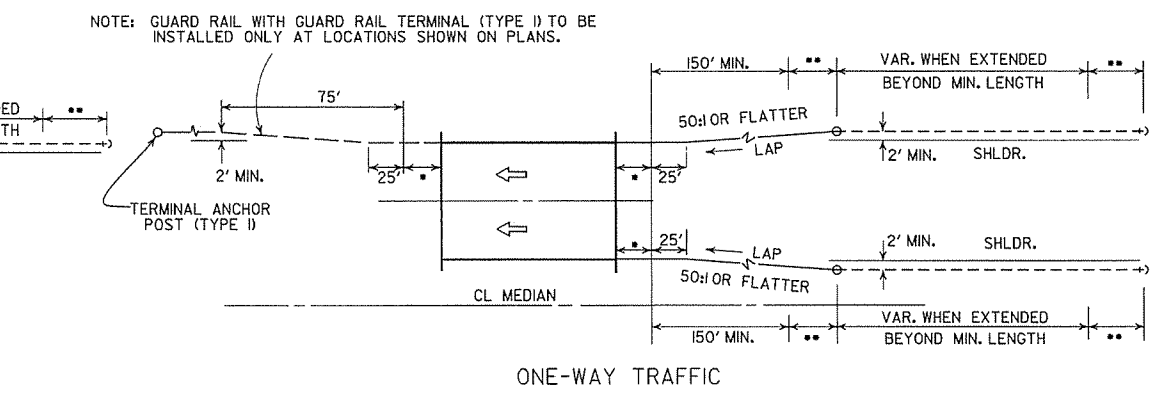
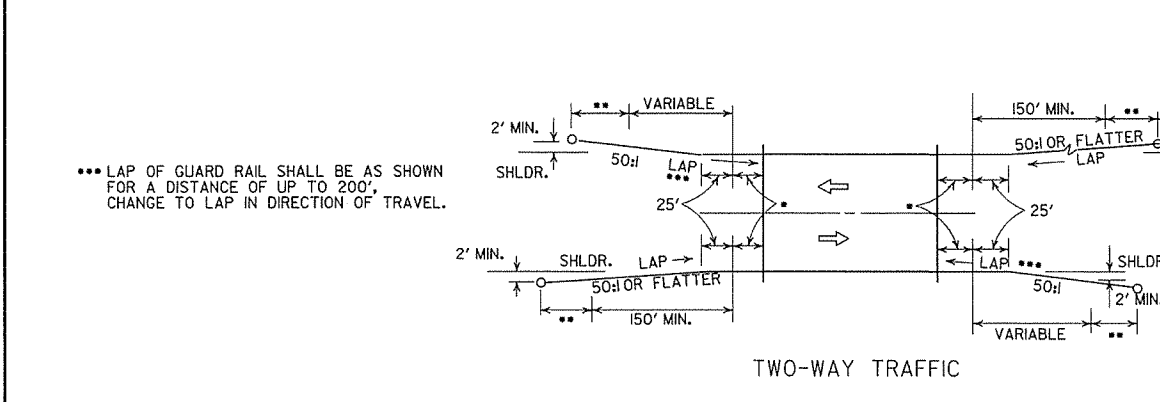
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

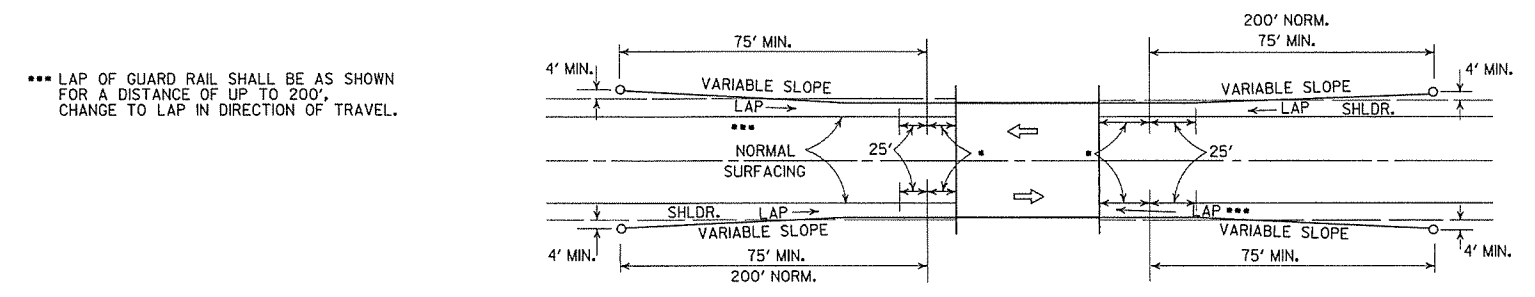
STANDARD DRAWING GR-8



METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



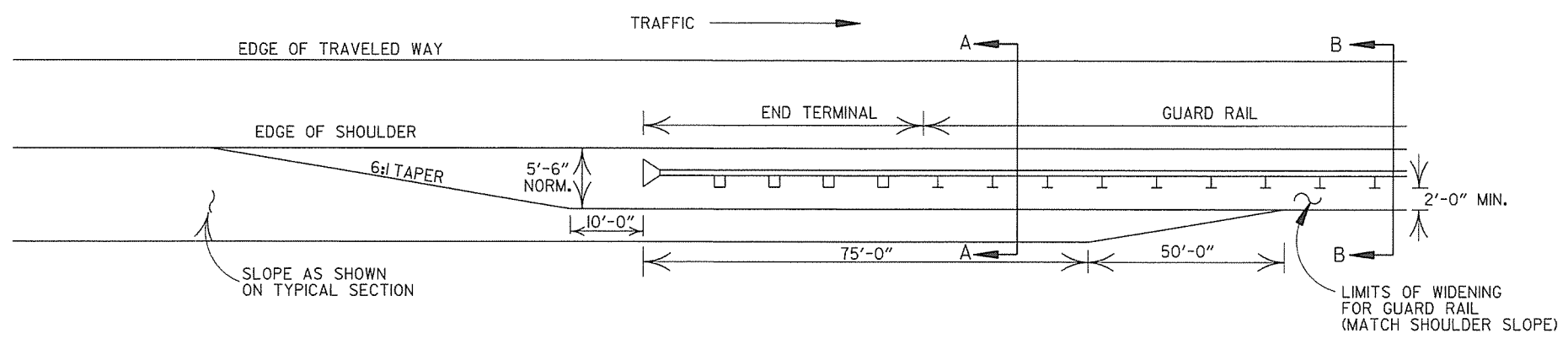
LEGEND

- THREE BEAM GUARD RAIL TERMINAL
- GUARD RAIL TERMINAL (TYPE 2)

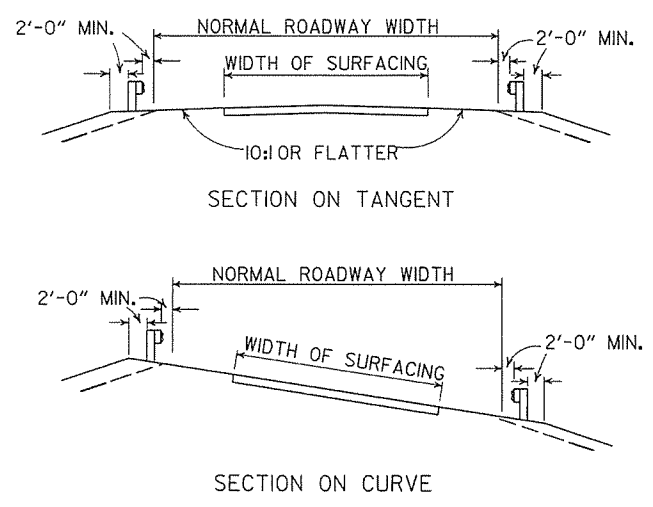
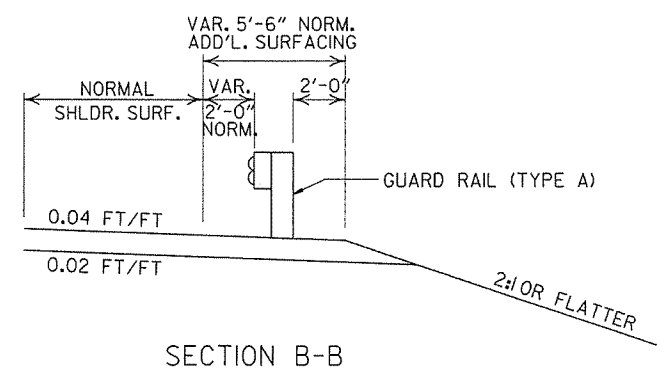
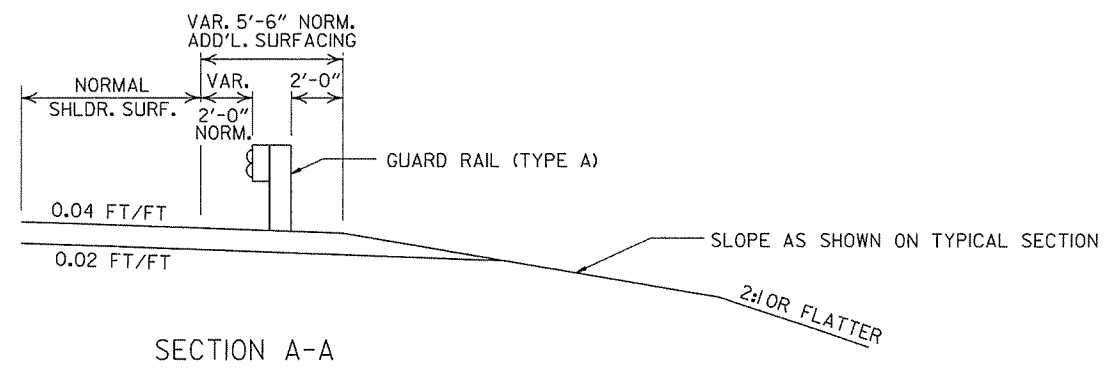
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
10-9-87	ADDED NOTE	
	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION	
GUARD RAIL DETAILS	
STANDARD DRAWING GR-9	

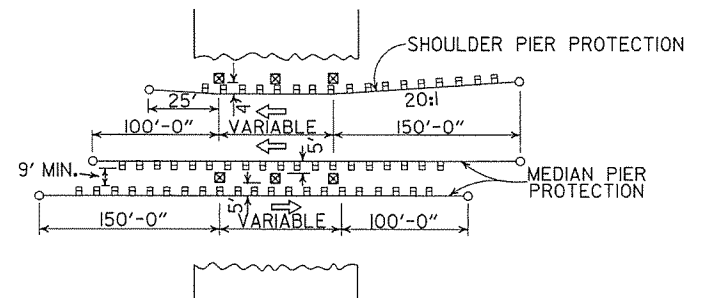


NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.



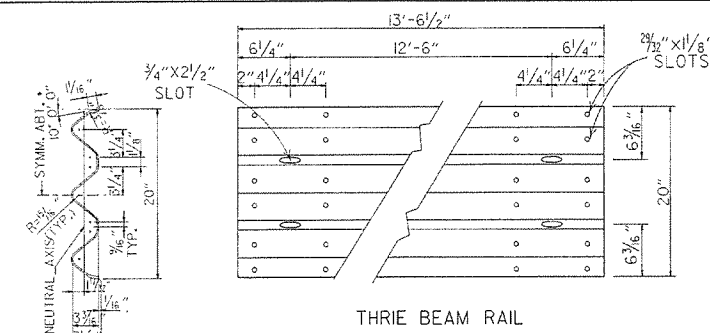
DETAILS OF WIDENING FOR GUARD RAIL

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



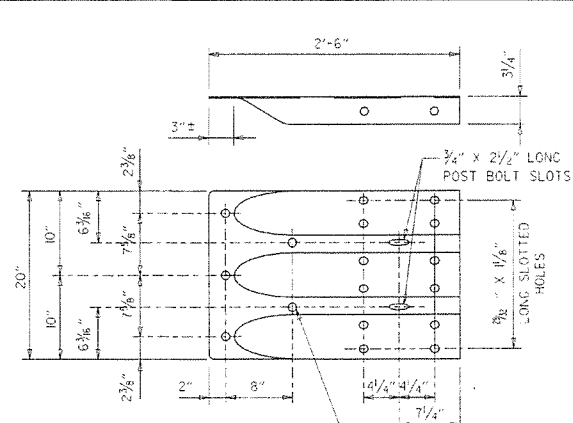
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
4-17-08	MINOR REVISION		STANDARD DRAWING GR-9A
11-10-05	DRAWN		
DATE	REVISION	DATE FILM	

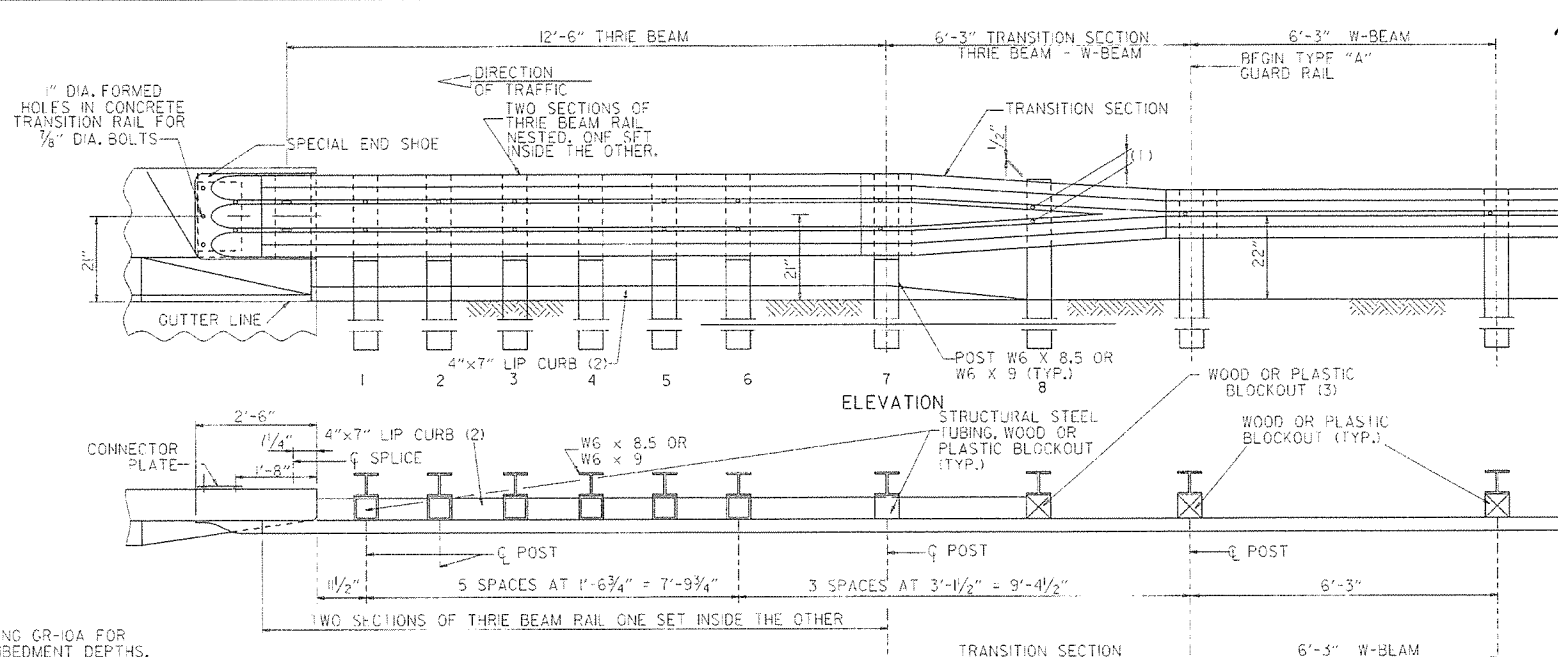


THRIE BEAM RAIL

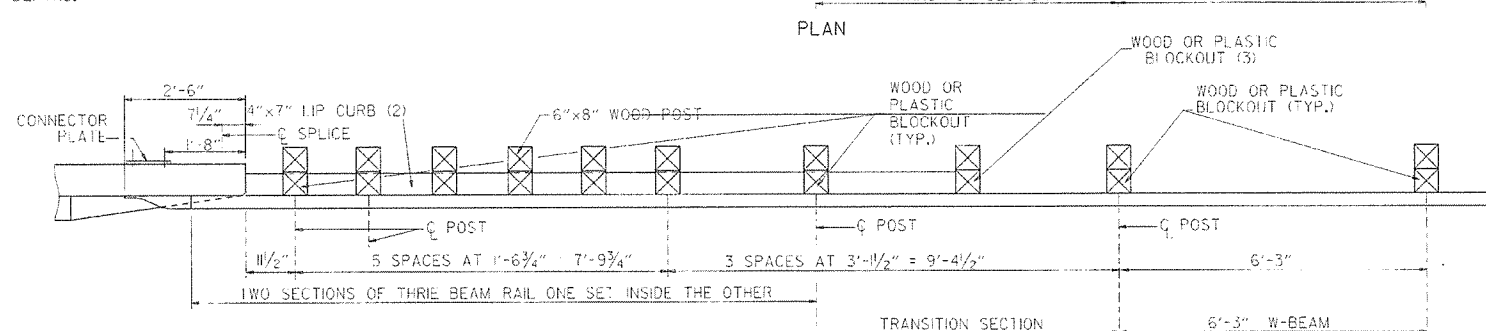
SECTION THRU THRIE BEAM RAIL



SPECIAL END SHOE



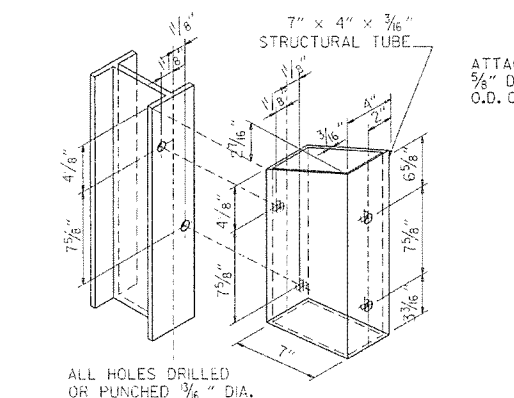
ELEVATION



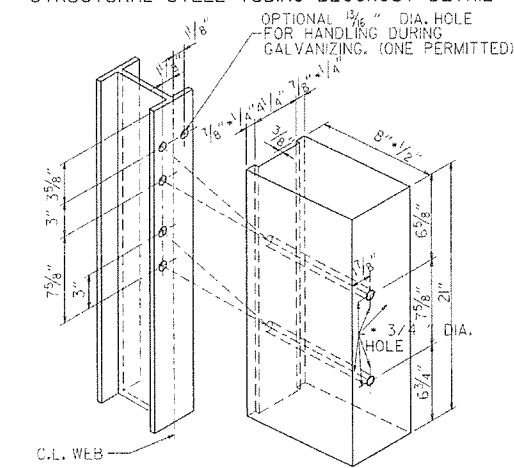
PLAN



PLAN



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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

ATTACH BLOCKOUT TO POST USING 5/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

1" DIA. HOLES (TYP.) FOR 7/8" DIA. HIGH-STRENGTH BOLTS

1" DIA. HOLES (TYP.) FOR 7/8" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS

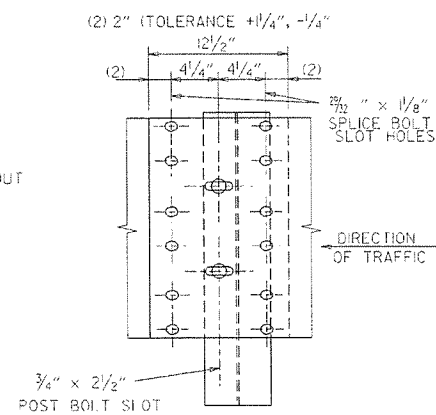
NOTE: SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

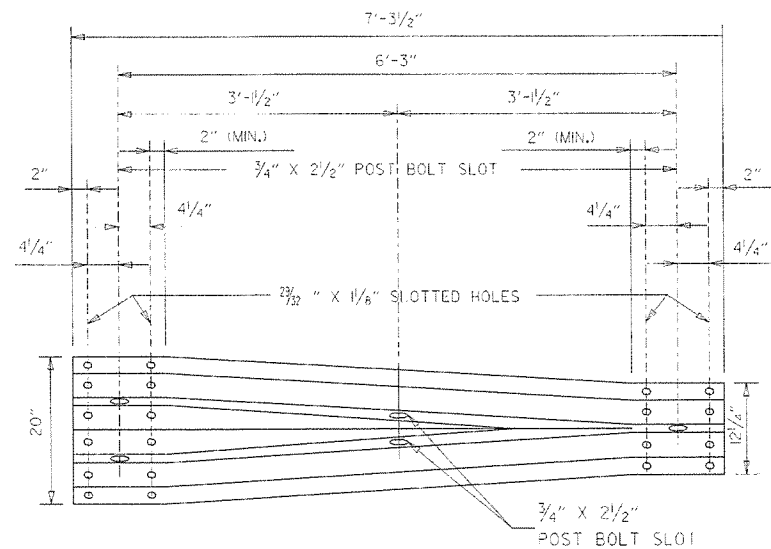
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 1/2" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

- (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



THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

GENERAL NOTES:

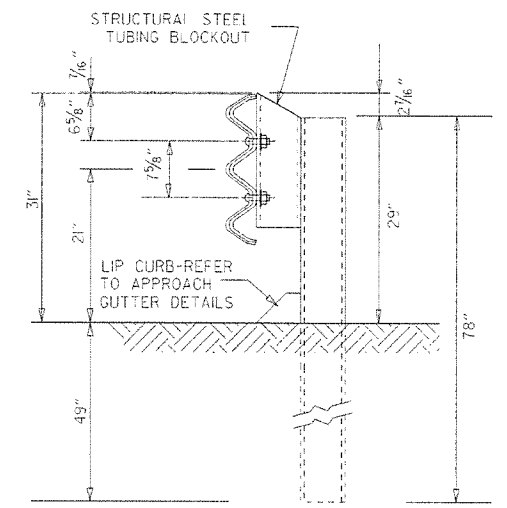
- THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.
- ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
- ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.
- WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7F (1400 F) OR NO. 1 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	

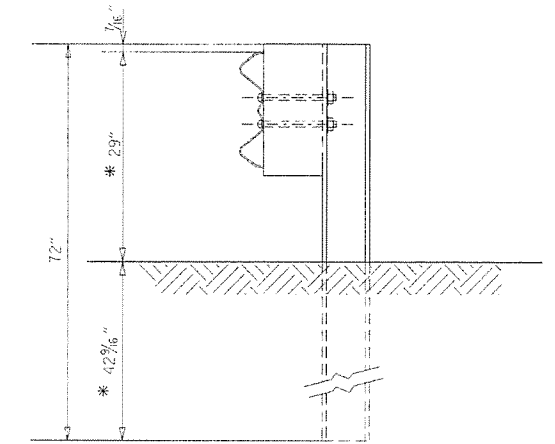
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

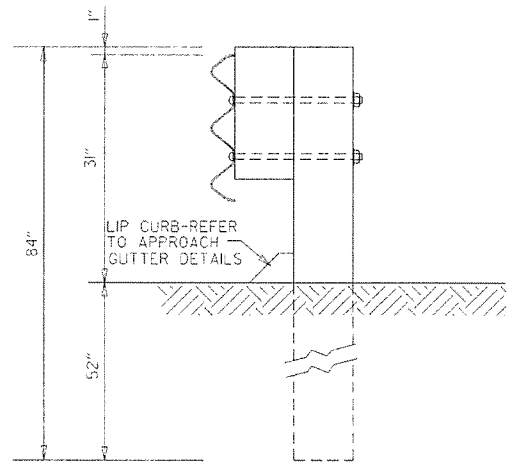


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST  
POSTS 1-7

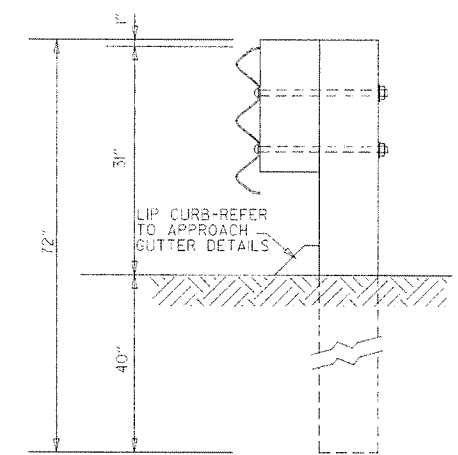


W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST  
POST 8

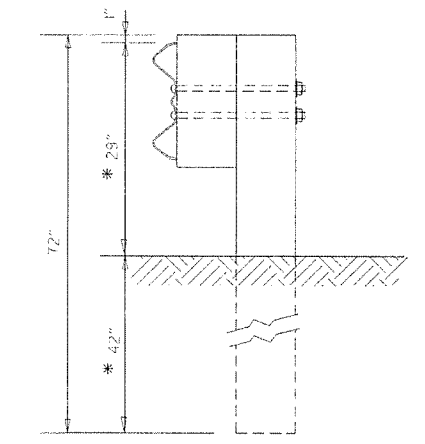
\* NOTE:  
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

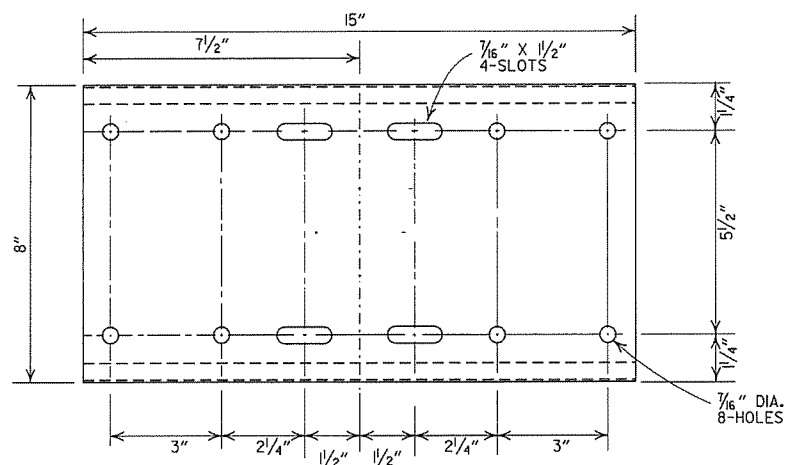
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 2.7F (1400 F) OR NO. 1 (350 F) SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION

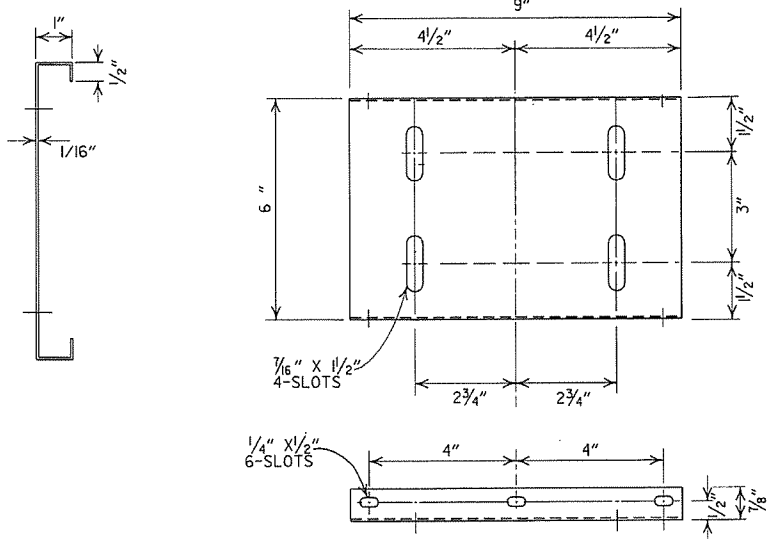
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

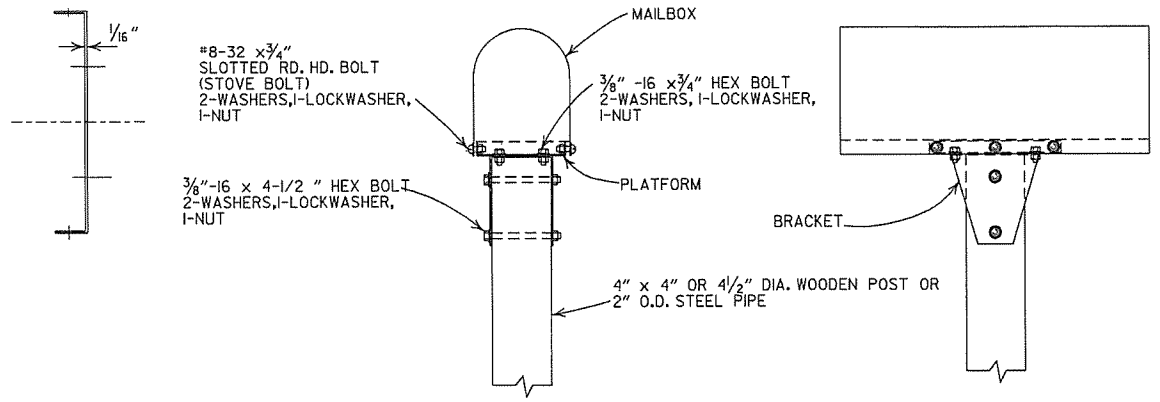
DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	



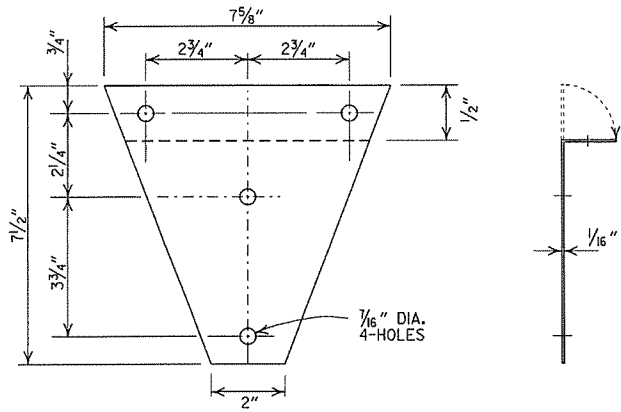
SHELF



PLATFORM

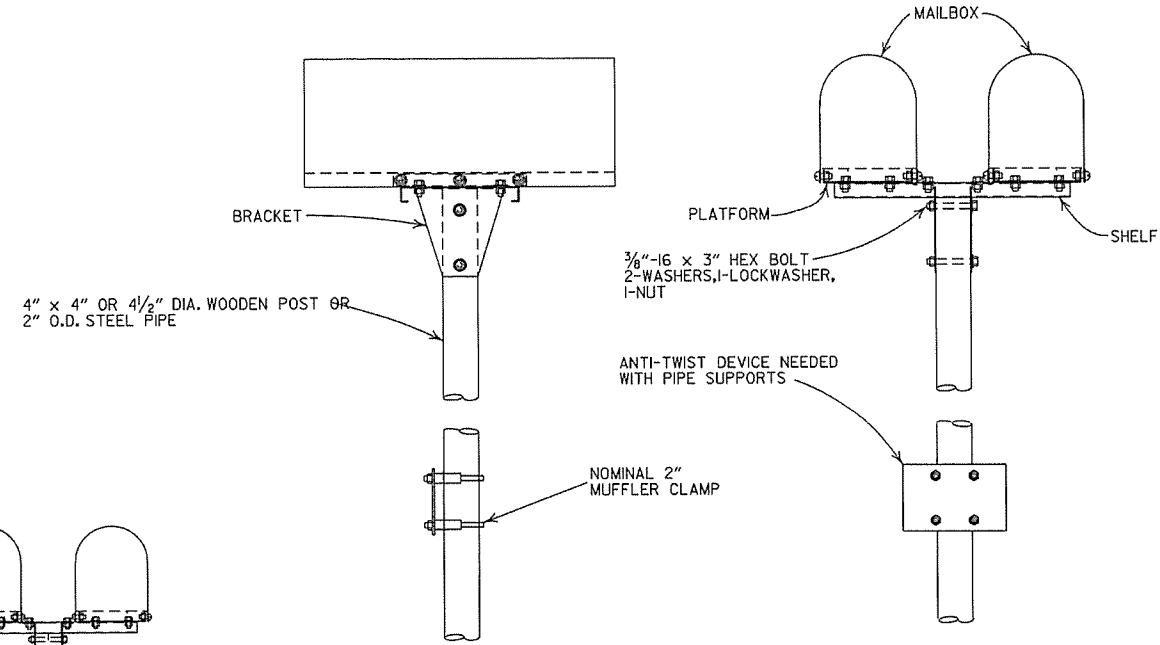


SINGLE INSTALLATION

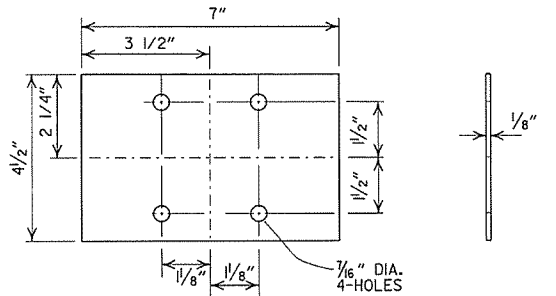


BRACKET

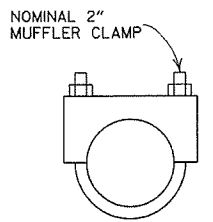
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
  2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
  3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
  4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
  5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
  6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



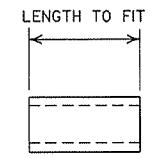
DOUBLE INSTALLATION



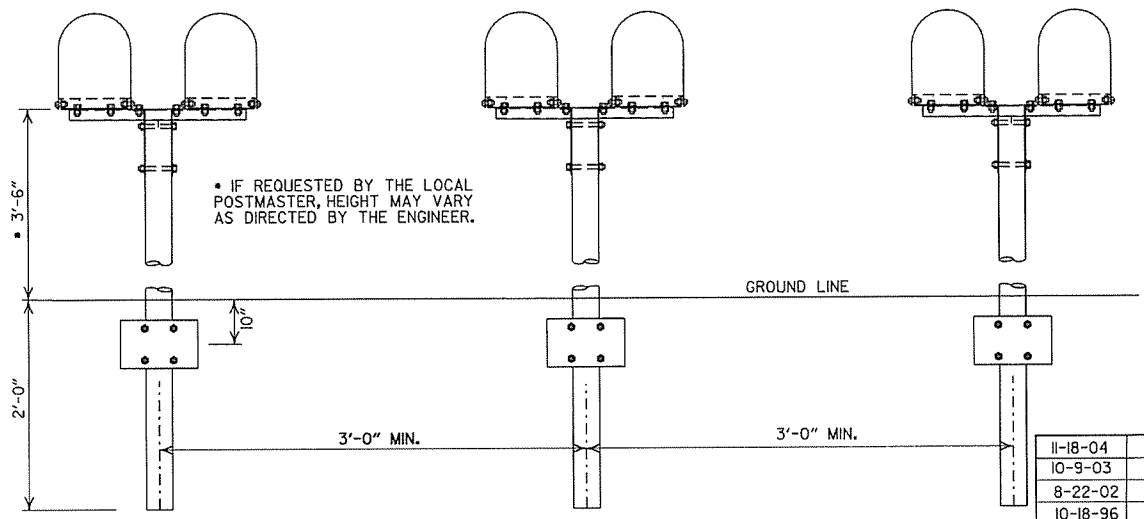
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS  
STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 3/8	27
42	51 1/8	51	31 1/8	31
48	58 1/2	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	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 3/8	97
132	168 3/4	169	106 1/2	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).

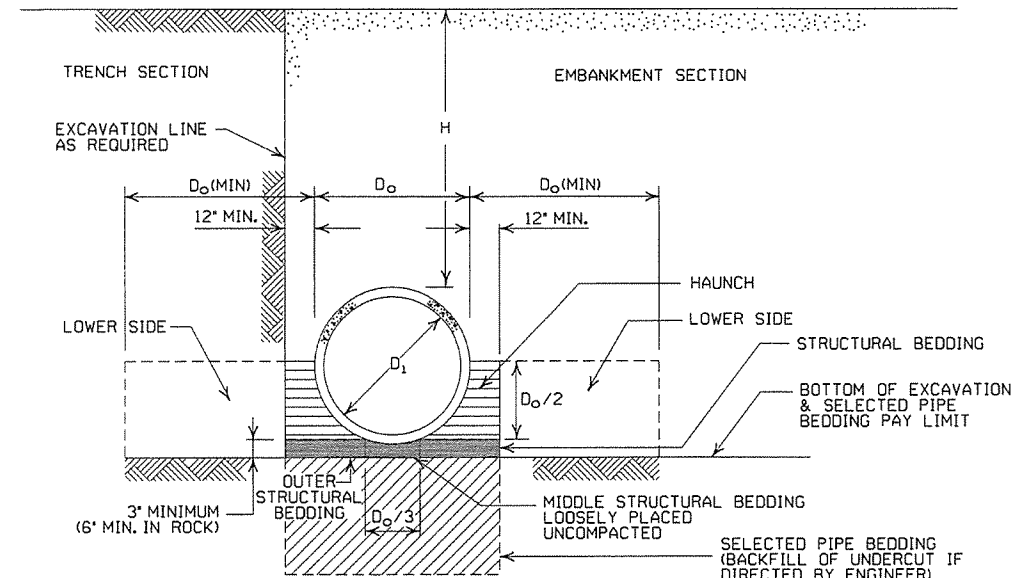
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D<sub>i</sub> = NORMAL INSIDE DIAMETER OF PIPE
- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

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

\* SM-3 WILL NOT BE ALLOWED.  
\*\* MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

Table with columns for PIPE DIAMETER (INCHES), MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET), MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET), and METAL THICKNESS (INCHES) for various diameters and cover heights.

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...

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

Table with columns for INSTALLATION TYPE and MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING.

SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

Table with columns for METAL THICKNESS IN INCHES (STEEL, ZINC COATED, UNCOATED, ALUMINUM) and GAUGE NUMBER.

CORRUGATED ALUMINUM PIPE (ROUND)

Table with columns for PIPE DIAMETER (INCHES), MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET), MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET), and METAL THICKNESS IN INCHES.

CORRUGATED METAL PIPE ARCHES

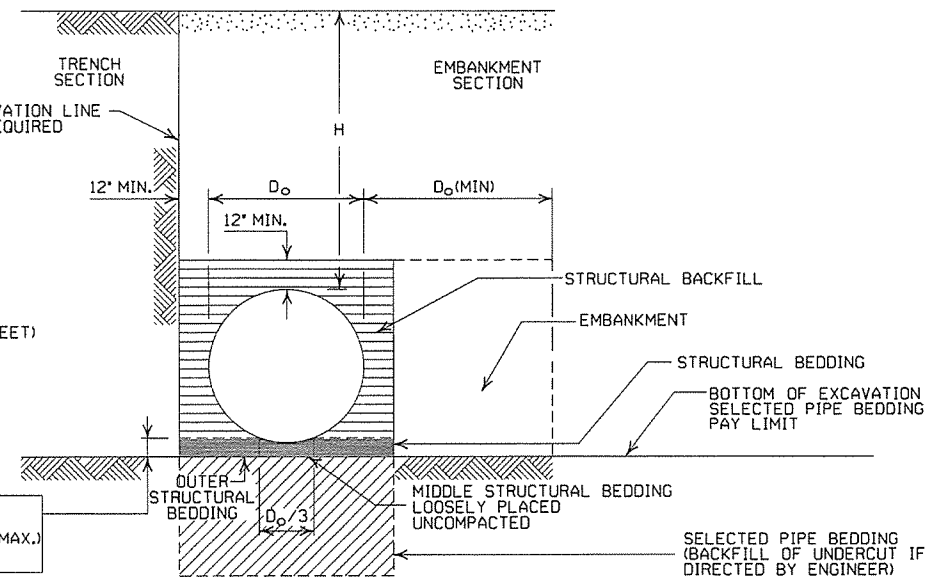
Large table with columns for EQUIV. DIA., PIPE DIMENSION, MINIMUM CORNER RADIUS, MIN. THICKNESS, MIN. HEIGHT OF FILL, MAX. HEIGHT OF FILL, and MIN. THICKNESS REQUIRED for various pipe arches.

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

WHERE THE STANDARD 2 2/3" x 1/2" 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...

LEGEND

- Do = 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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" x 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" x 1" OR 5" x 1" CORRUGATION.

GENERAL NOTES

- 1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
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."

Table with columns for DATE, REVISION, and DATE FILMED, listing various revision dates and descriptions.

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
- SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

### 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"

NOTE:  
18" MIN. (18" - 30" DIAMETERS)  
24" MIN. (36" - 48" DIAMETERS)  
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

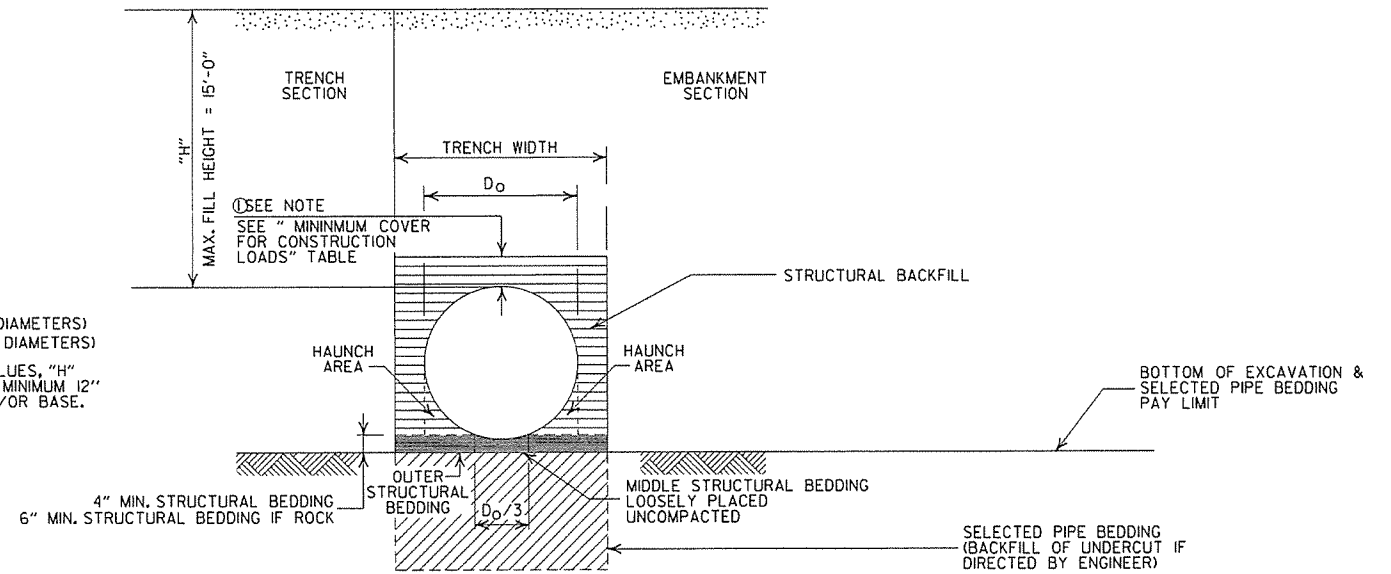
### MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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 COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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"

MINIMUM 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

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

### - LEGEND -

- H = FILL HEIGHT (FT.)
- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
- ||||||| = UNDISTURBED SOIL

### GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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.

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

ARKANSAS STATE HIGHWAY COMMISSION  
PLASTIC PIPE CULVERT  
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL. SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 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"

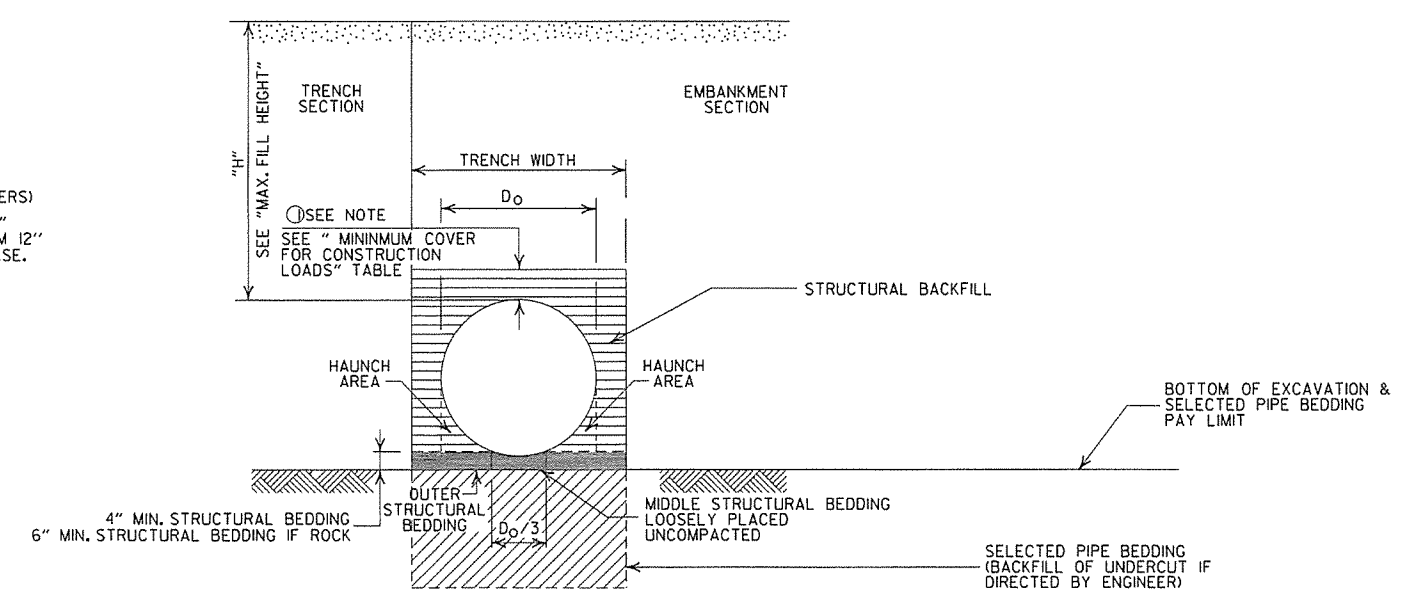
MULTIPLE INSTALLATION OF PVC PIPES

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"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- 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

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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"

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

GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS I2454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Hatched Pattern] = STRUCTURAL BACKFILL MATERIAL
- [Dotted Pattern] = UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

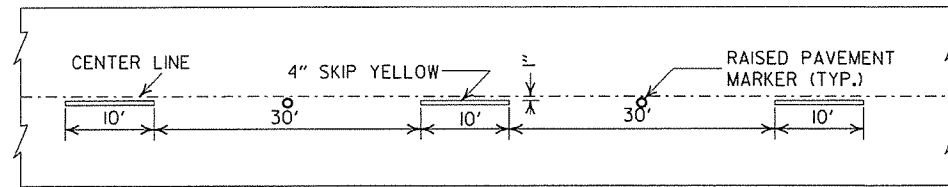
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

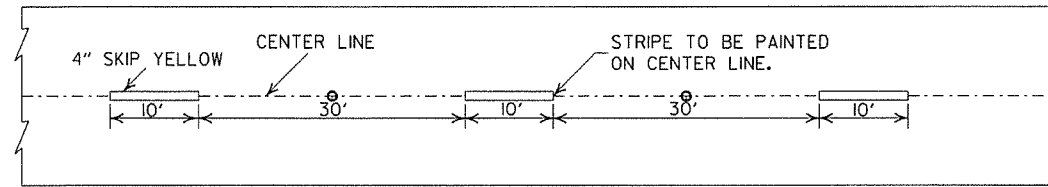


NOTES:

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

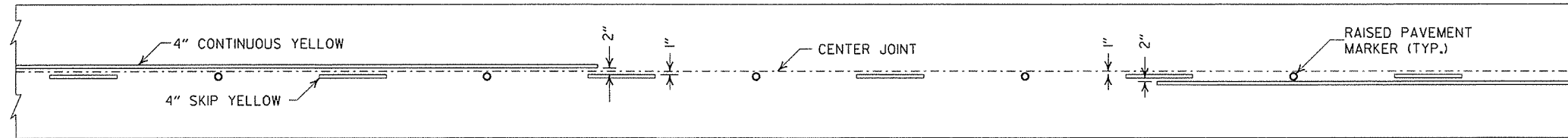


CONCRETE PAVEMENT

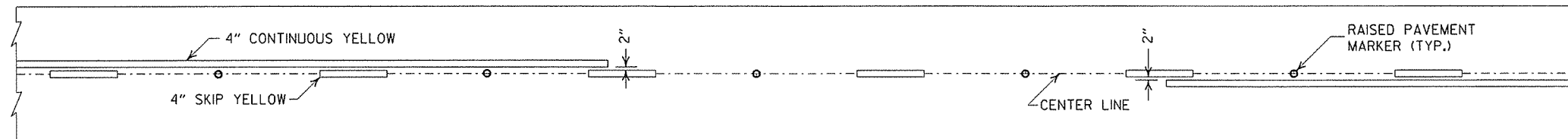


ASPHALT PAVEMENT

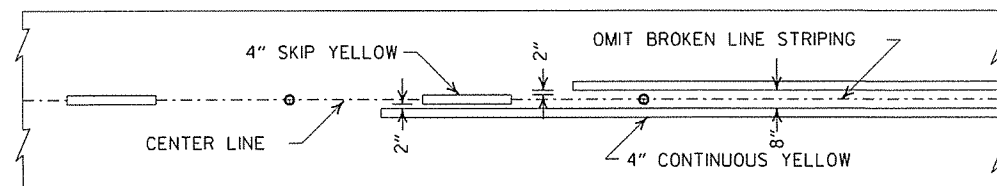
BROKEN LINE STRIPING



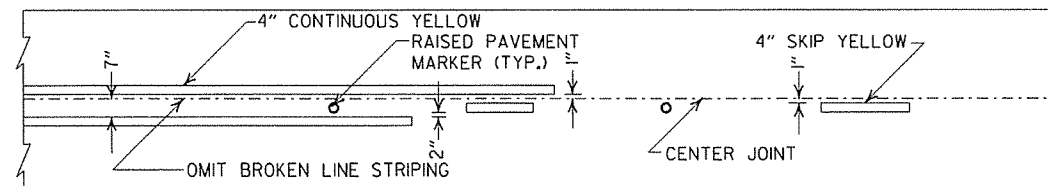
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

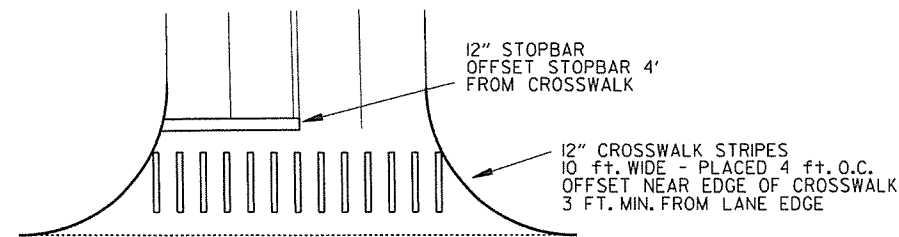


ASPHALT PAVEMENT



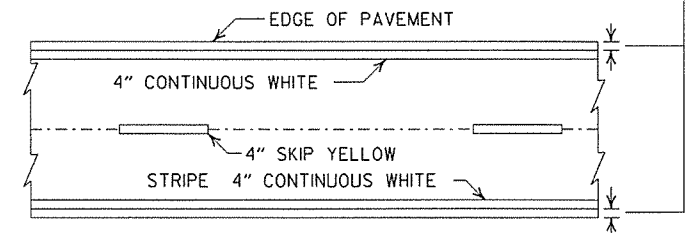
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

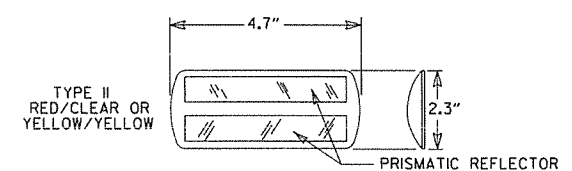


CROSSWALK AND STOPBAR DETAILS

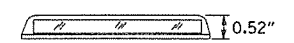
2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

NOTE:

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

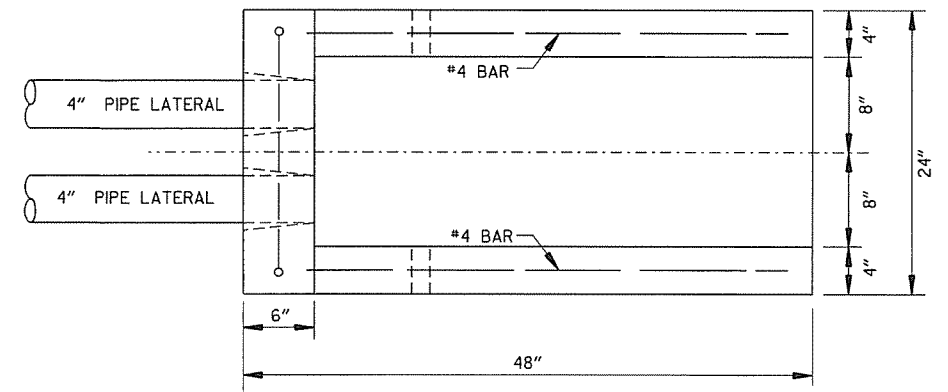
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PAVT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80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

ARKANSAS STATE HIGHWAY COMMISSION

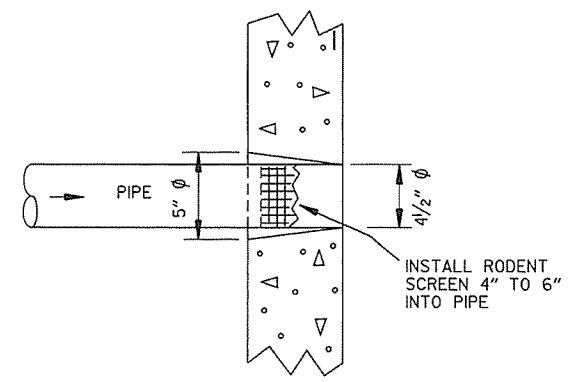
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

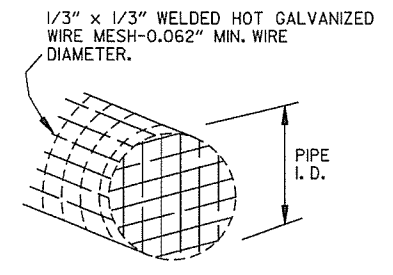
NOTE:  
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.  
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.  
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



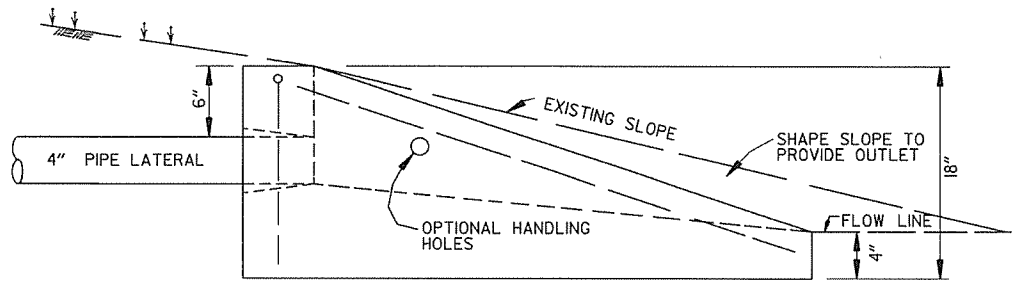
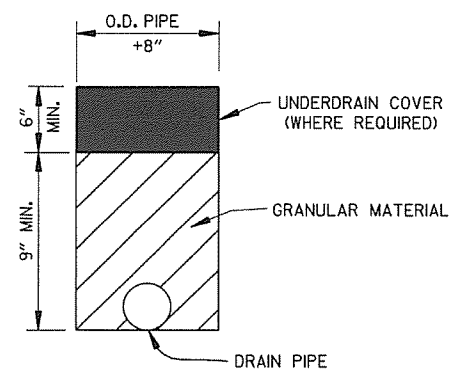
PLAN VIEW



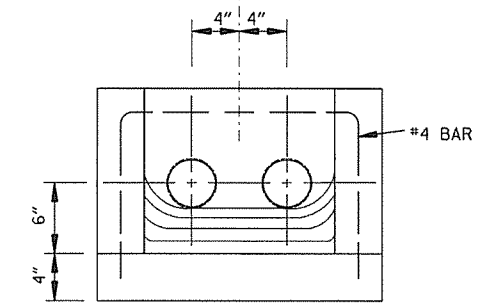
DETAIL OF HOLE FOR 4" PIPE



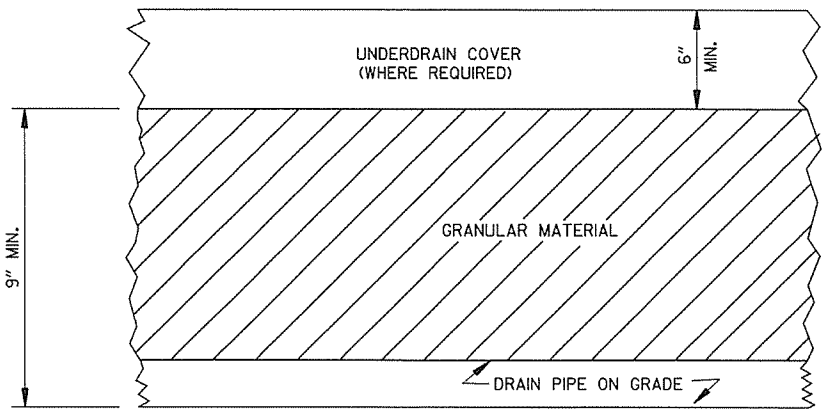
DETAIL OF RODENT SCREEN



SIDE VIEW



FRONT VIEW

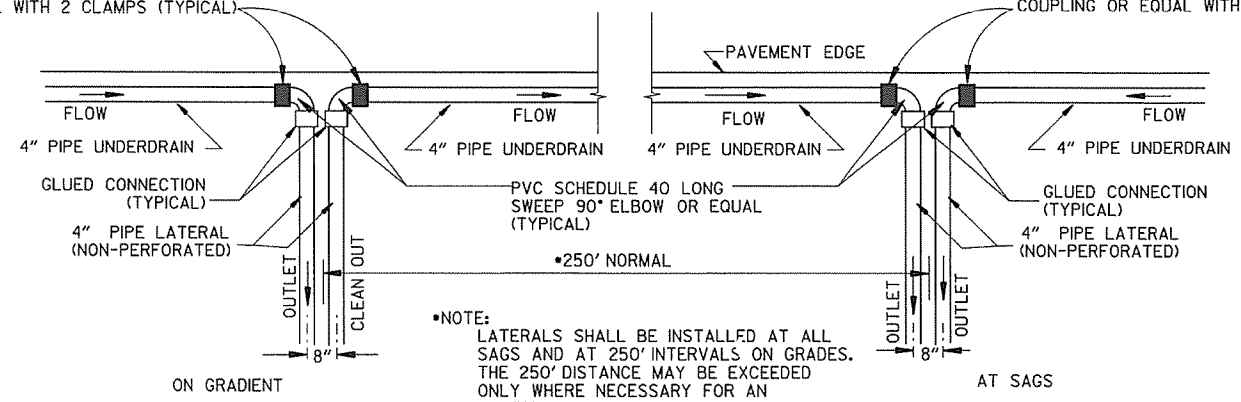


DETAILS OF PIPE UNDERDRAIN

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE: LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

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.

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; 5 1/2" 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 POLYETHYLENE 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
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	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.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
2° 30'	R.C.		0.025	175	0.025	200	0.025	225	0.025	250	0.025	300
2° 45'	R.C.		0.028		0.028		0.028		0.028		0.028	
3° 00'	R.C.		0.031		0.031		0.031		0.031		0.031	
3° 15'	R.C.		0.034		0.034		0.034		0.034		0.034	
3° 30'	R.C.		0.037		0.037		0.037		0.037		0.037	
3° 45'	R.C.		0.040		0.040		0.040		0.040		0.040	
4° 00'	R.C.		0.043		0.043		0.043		0.043		0.043	
4° 15'	R.C.		0.046		0.046		0.046		0.046		0.046	
4° 30'	R.C.		0.049		0.049		0.049		0.049		0.049	
4° 45'	R.C.		0.051		0.051		0.051		0.051		0.051	
5° 00'	R.C.		0.054		0.054		0.054		0.054		0.054	
5° 15'	R.C.		0.057		0.057		0.057		0.057		0.057	
5° 30'	R.C.		0.060		0.060		0.060		0.060		0.060	
5° 45'	R.C.		0.063		0.063		0.063		0.063		0.063	
6° 00'	R.C.		0.066	185	0.066	205	0.066	230	0.066	260	0.066	300
6° 15'	R.C.		0.069		0.069		0.069		0.069		0.069	
6° 30'	R.C.		0.072		0.072		0.072		0.072		0.072	
6° 45'	R.C.		0.074		0.074		0.074		0.074		0.074	
7° 00'	R.C.		0.077		0.077		0.077		0.077		0.077	
7° 15'	R.C.		0.079		0.079		0.079		0.079		0.079	
7° 30'	R.C.		0.081		0.081		0.081		0.081		0.081	
7° 45'	R.C.		0.083		0.083		0.083		0.083		0.083	
8° 00'	R.C.		0.085		0.085		0.085		0.085		0.085	
8° 15'	R.C.		0.086	195	0.086	210	0.086	230	0.086	250	0.086	275
8° 30'	R.C.		0.088		0.088		0.088		0.088		0.088	
8° 45'	R.C.		0.089		0.089		0.089		0.089		0.089	
9° 00'	R.C.		0.091		0.091		0.091		0.091		0.091	
9° 15'	R.C.		0.093		0.093		0.093		0.093		0.093	
9° 30'	R.C.		0.094		0.094		0.094		0.094		0.094	
9° 45'	R.C.		0.095		0.095		0.095		0.095		0.095	
10° 00'	R.C.		0.096	200	0.096	220	0.096	240	0.096	260	0.096	280
10° 15'	R.C.		0.097		0.097		0.097		0.097		0.097	
10° 30'	R.C.		0.098		0.098		0.098		0.098		0.098	
10° 45'	R.C.		0.099		0.099		0.099		0.099		0.099	
11° 00'	R.C.		0.100		0.100		0.100		0.100		0.100	
11° 15'	R.C.		0.083	190	0.083	210	0.083	230	0.083	250	0.083	275
11° 30'	R.C.		0.086		0.086		0.086		0.086		0.086	
11° 45'	R.C.		0.088		0.088		0.088		0.088		0.088	
12° 00'	R.C.		0.089		0.089		0.089		0.089		0.089	
12° 15'	R.C.		0.091		0.091		0.091		0.091		0.091	
12° 30'	R.C.		0.093		0.093		0.093		0.093		0.093	
12° 45'	R.C.		0.094		0.094		0.094		0.094		0.094	
13° 00'	R.C.		0.095		0.095		0.095		0.095		0.095	
13° 15'	R.C.		0.096		0.096		0.096		0.096		0.096	
13° 30'	R.C.		0.097		0.097		0.097		0.097		0.097	
13° 45'	R.C.		0.098		0.098		0.098		0.098		0.098	
14° 00'	R.C.		0.099		0.099		0.099		0.099		0.099	
14° 15'	R.C.		0.100		0.100		0.100		0.100		0.100	

D MAX = 24' 45"

GENERAL NOTES

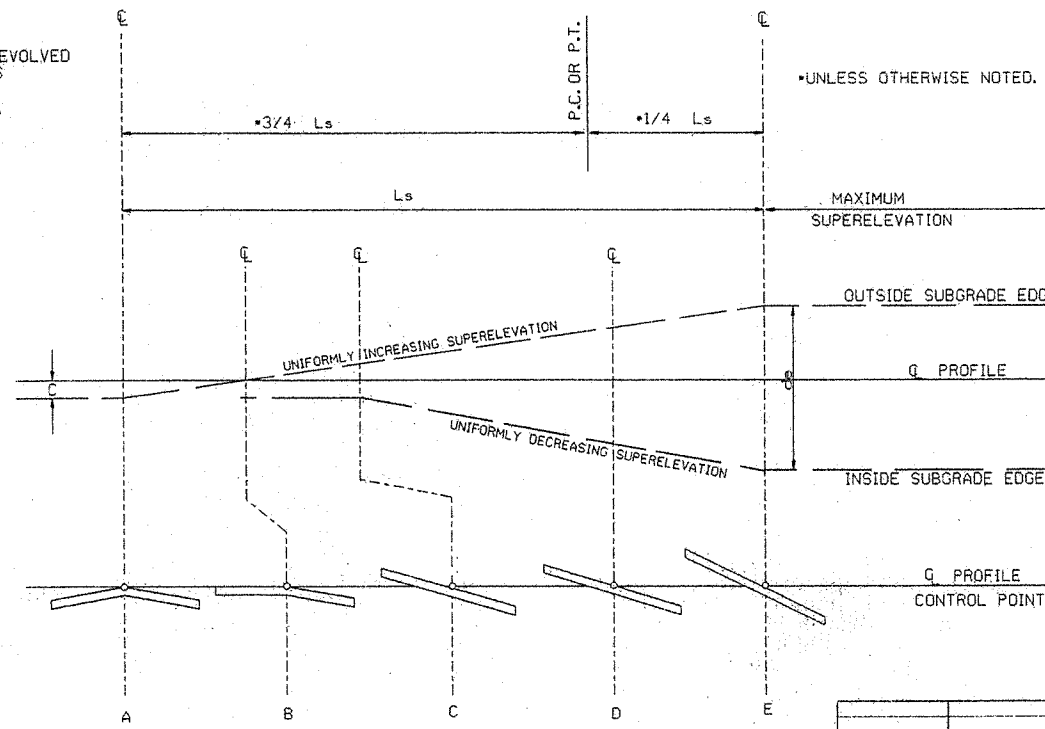
- ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS.
- SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
- LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
- 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.

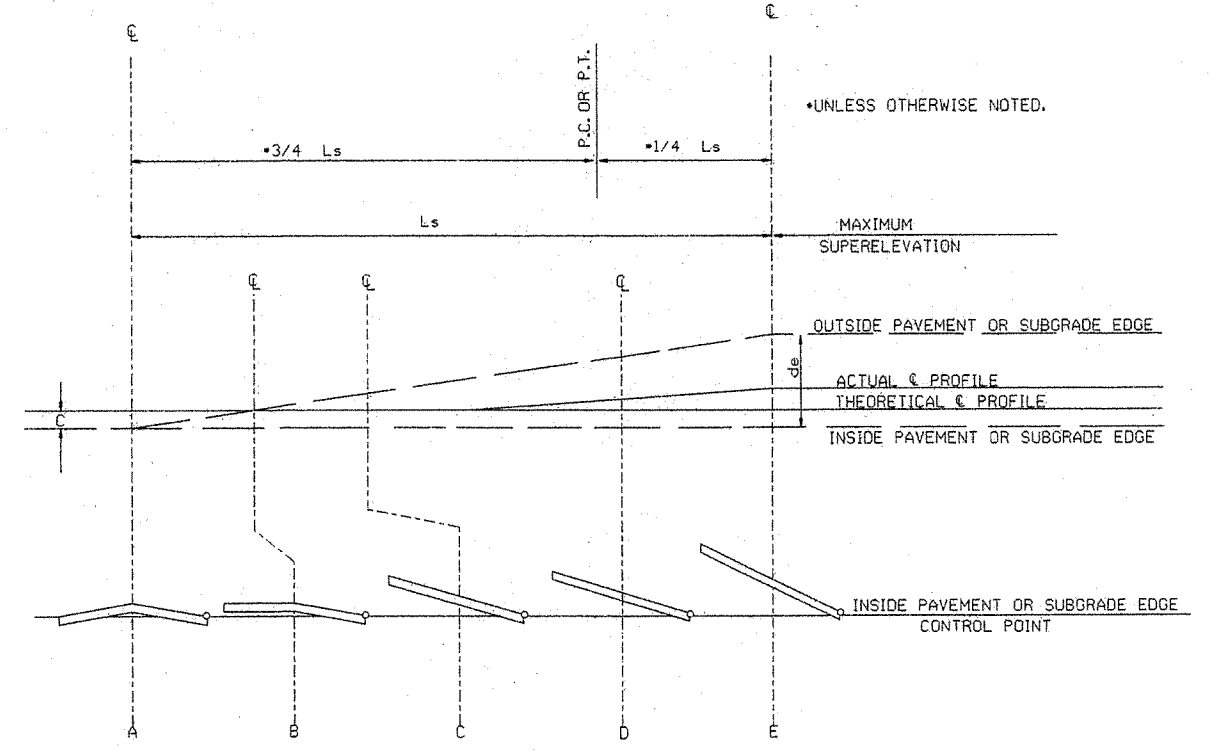
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

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 CENTER LINE



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

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


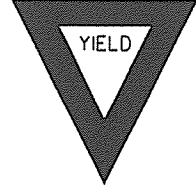
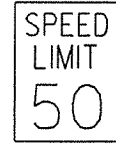


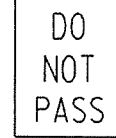
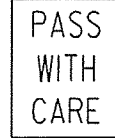

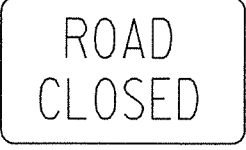
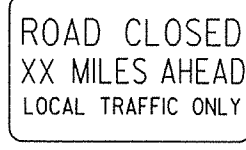
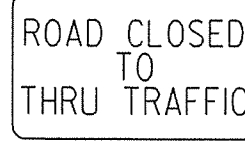
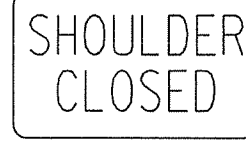
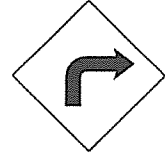
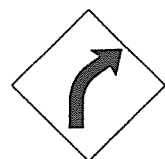
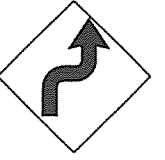

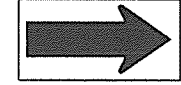
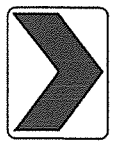
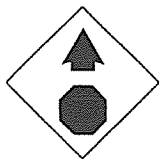
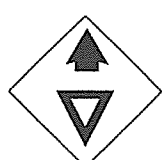
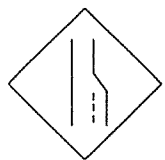

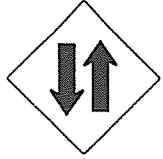

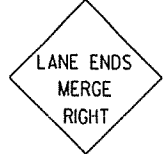









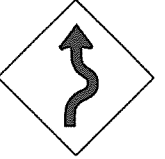


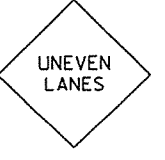
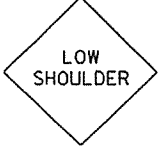
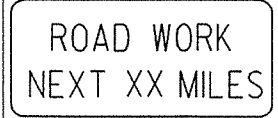
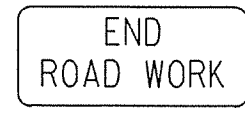
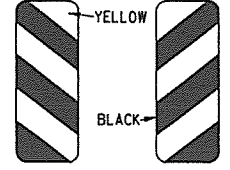
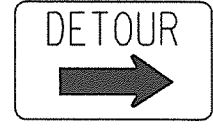

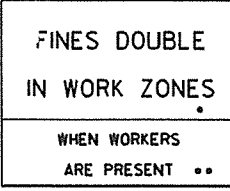
$$\text{SUPERELEVATION FORMULA} = \frac{Lde}{Ls}$$

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

10-18-96	ADDED FORMULA	16-18-96
01-03-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILMED

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>500 FEET 24" STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS • USE 4" D LETTERS</p>

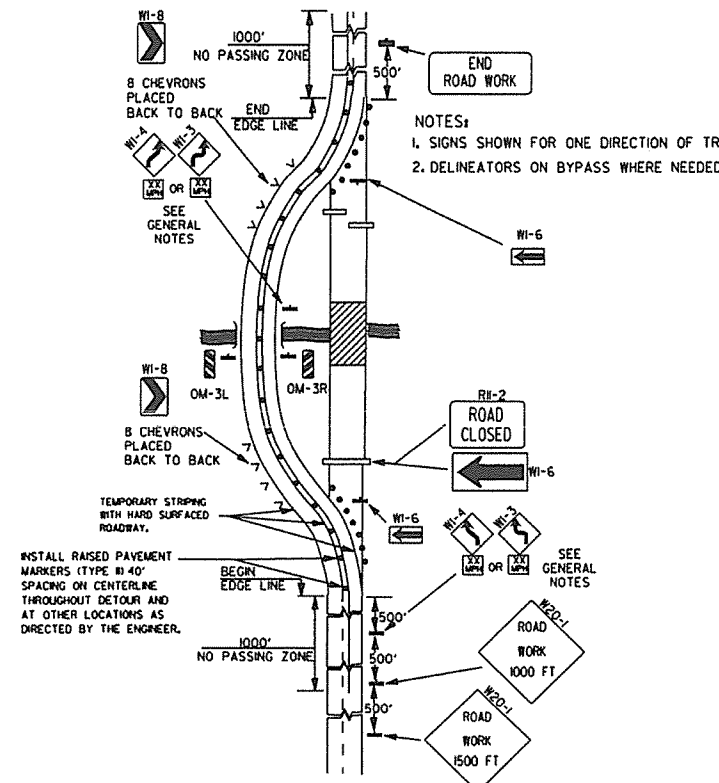
ADVANCE DISTANCES (XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

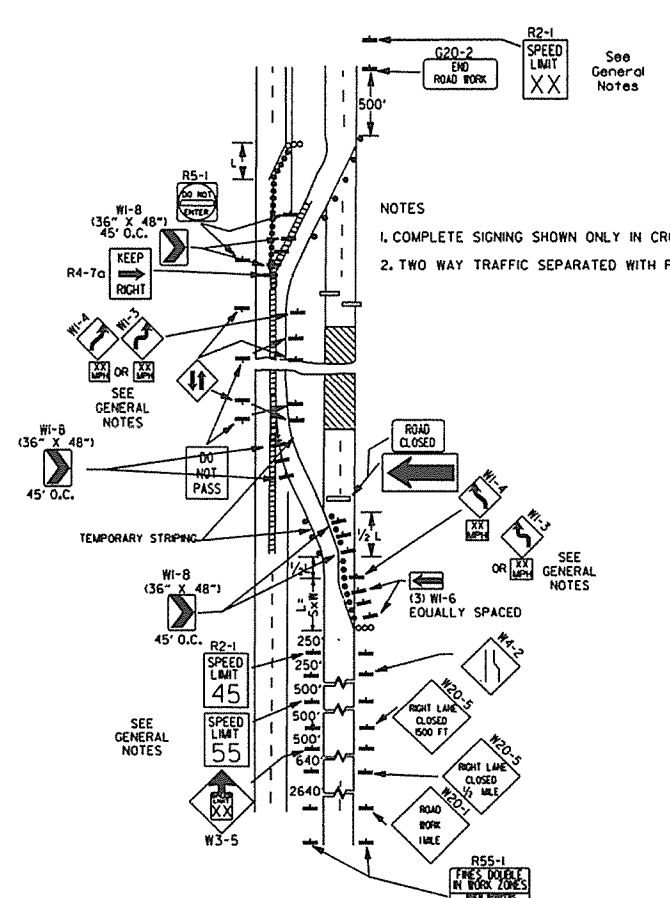
GENERAL NOTES:

- 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.
  - 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.
  - 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.
  - 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.
  - 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.
  - 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.
  - 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.
  - FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
  - 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.
  - 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.

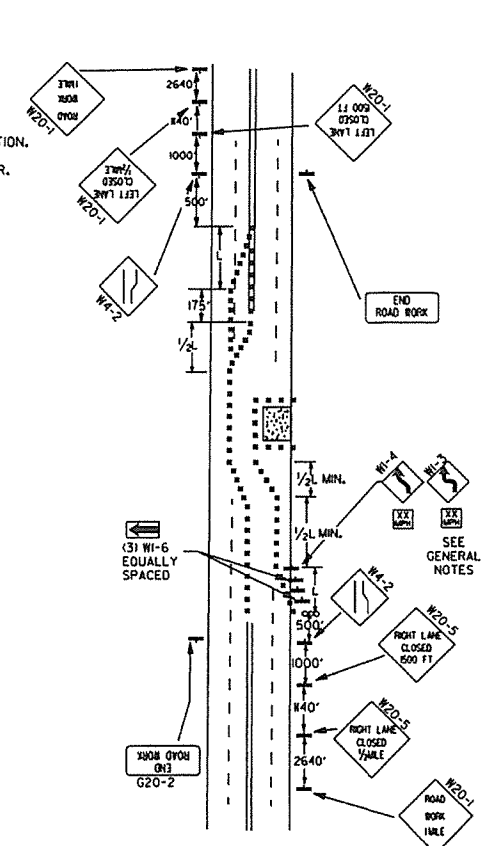
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS	
	REVISED ROAD WORK NEXT XX MILES	
12-15-1	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
8-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-04	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-95	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	REVISED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-94	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED



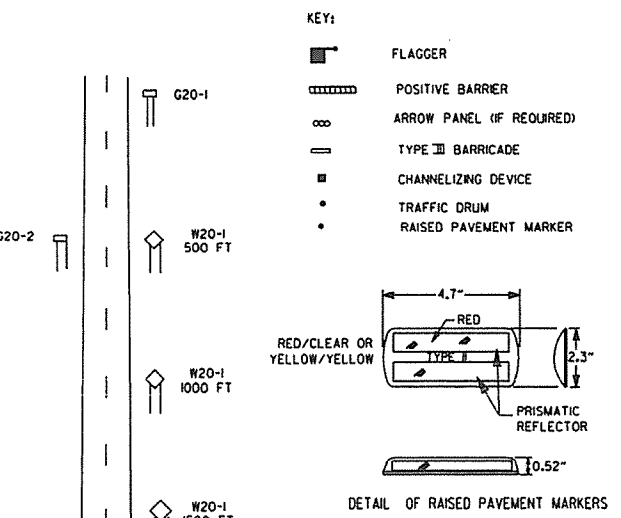
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



(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.



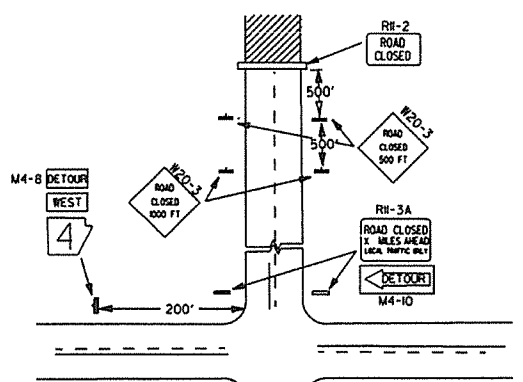
TYPICAL ADVANCE WARNING SIGN PLACEMENT

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.

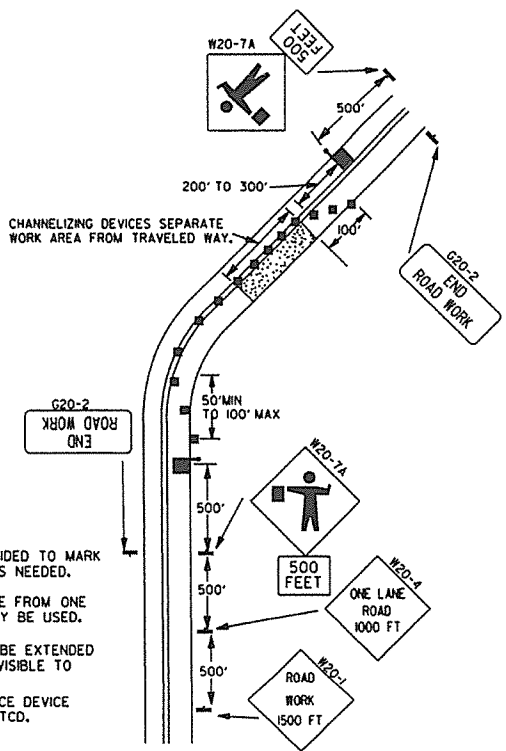
- GENERAL NOTES:
- ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
  - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(155) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(1XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-(145) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(1XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - 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.
  - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
  - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
  - 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.
  - 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.

9-2-15	REVISED NOTE 2. ADDED NOTE 8. REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILED

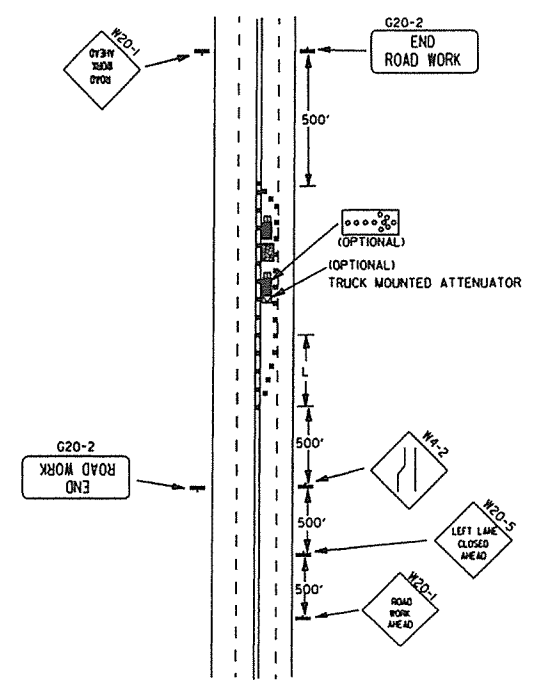
ARKANSAS STATE HIGHWAY COMMISSION  
 STANDARD TRAFFIC CONTROLS  
 FOR HIGHWAY CONSTRUCTION  
 STANDARD DRAWING TC-2



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



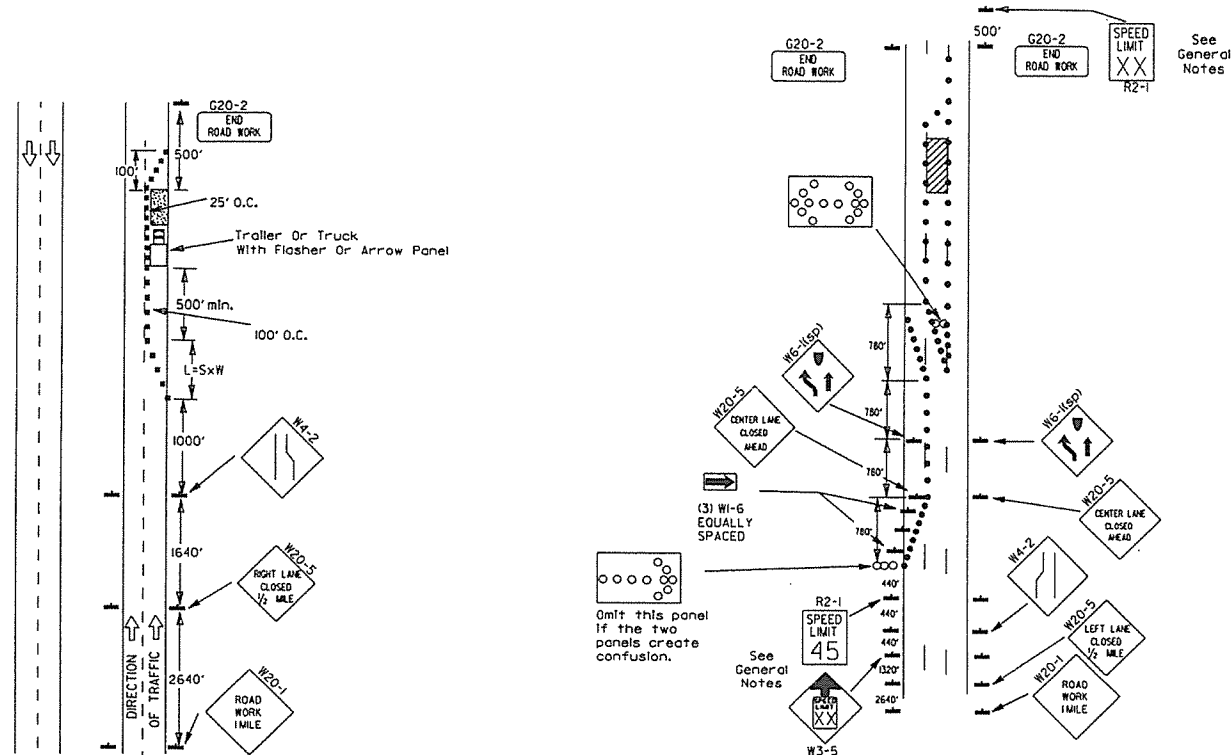
(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



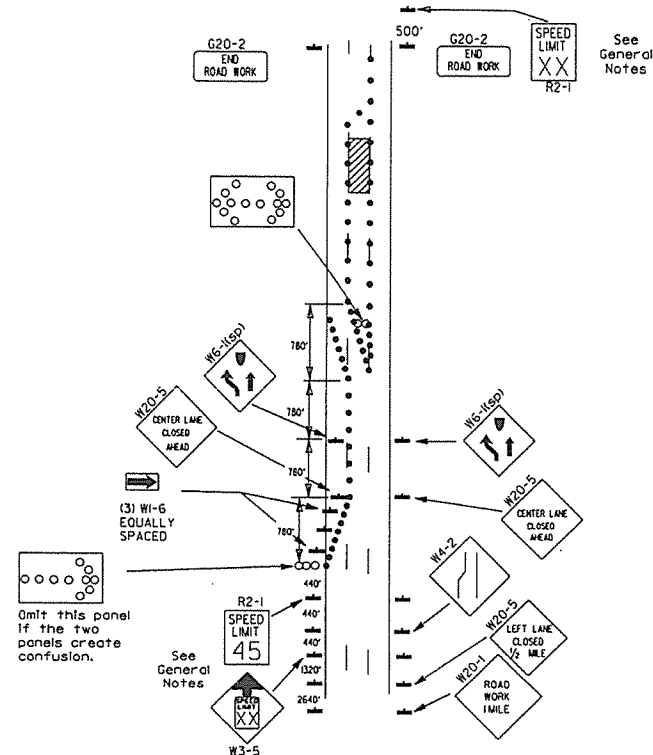
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.



Channelizing devices



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

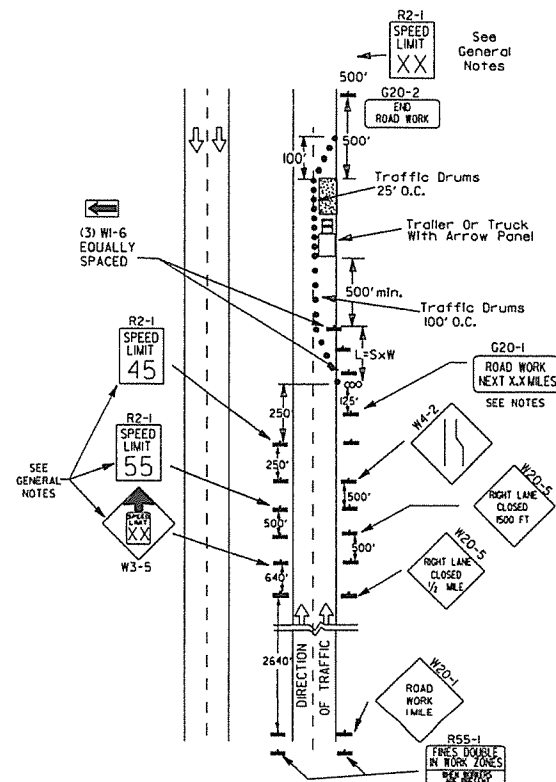


(B) Typical application - 3-lane oneway roadway where center lane is closed.

- KEY:
- Arrow Panel (if Required)
  - Channelizing Device
  - Traffic drum

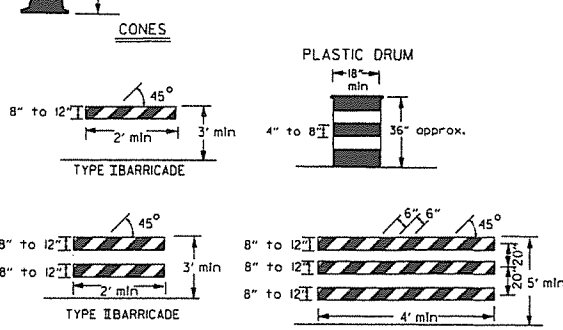
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1(45) 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(65) shall be omitted. Additional R2-1(55) 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 1/2 mile in advance of the job limit. Additional W20-1(1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

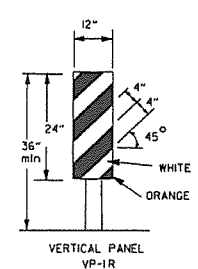


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

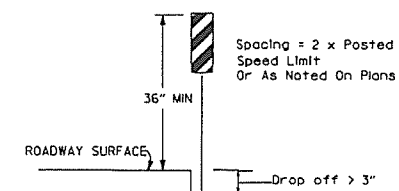
When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.



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



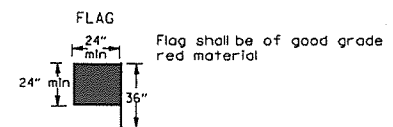
VERTICAL PANEL PLACEMENT



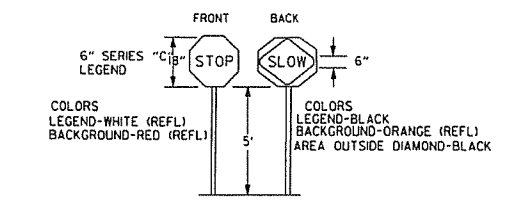
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

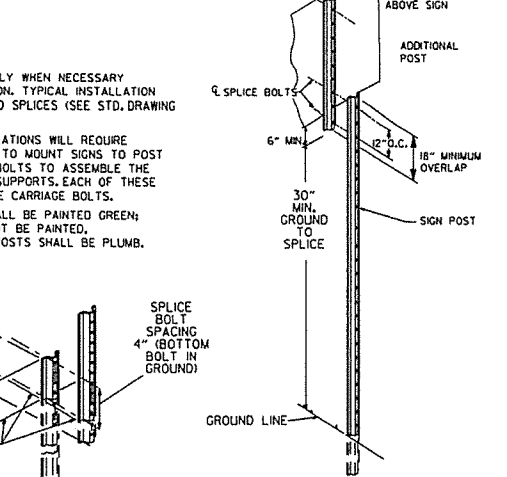
\* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



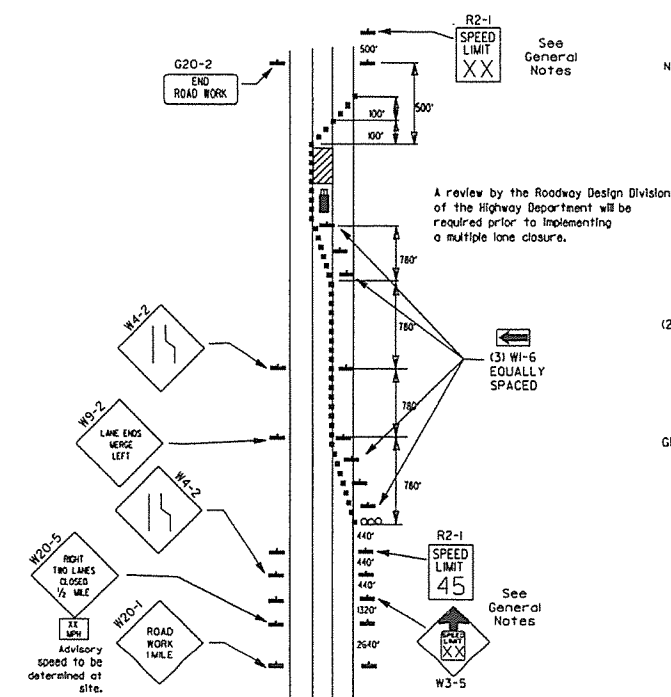
STOP SLOW PADDLE



DETAIL OF SPLICES



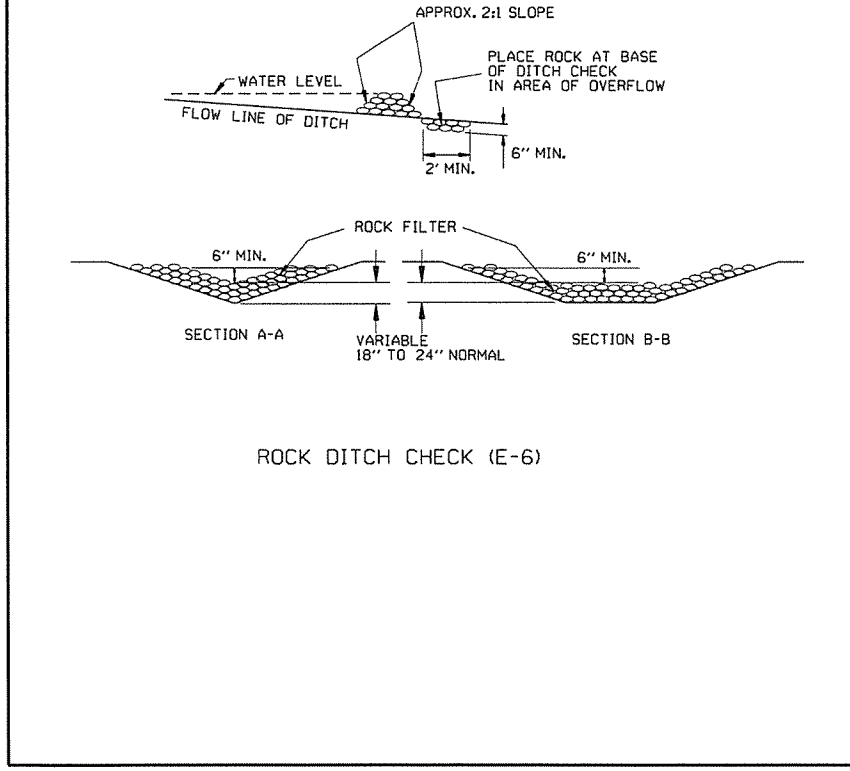
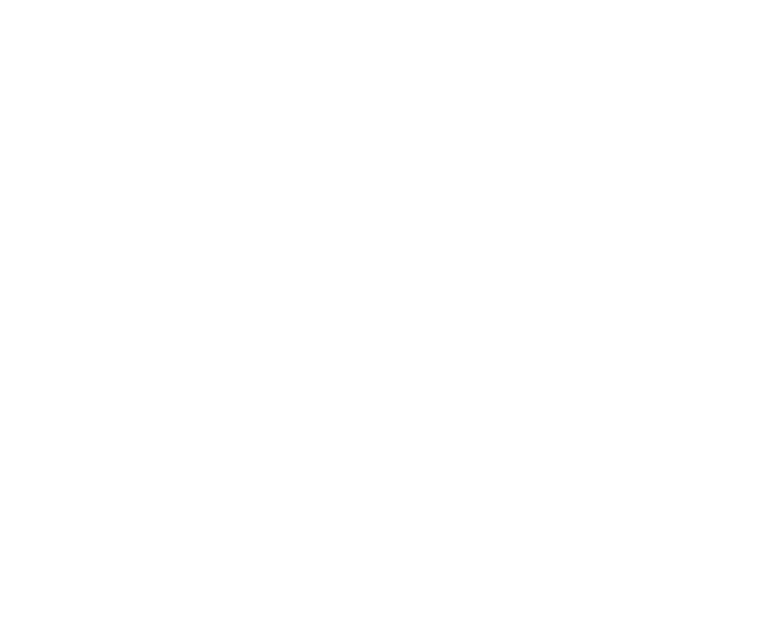
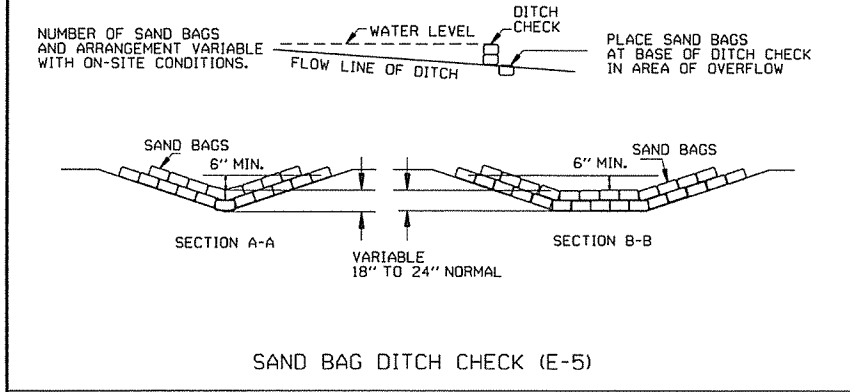
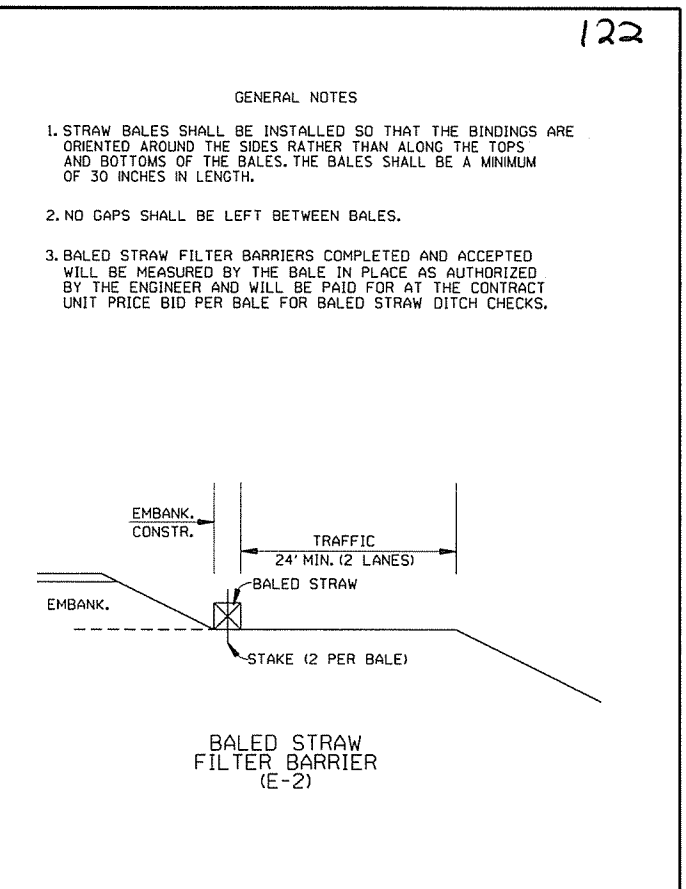
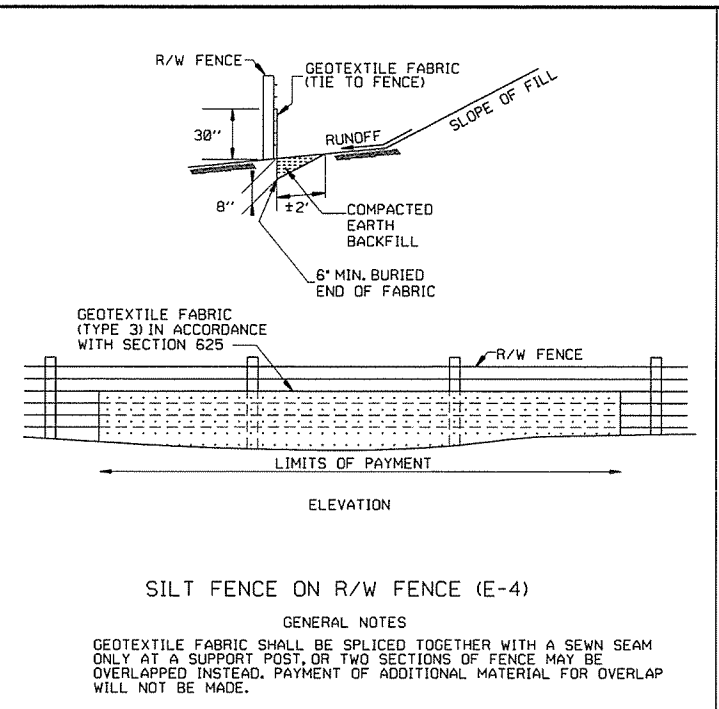
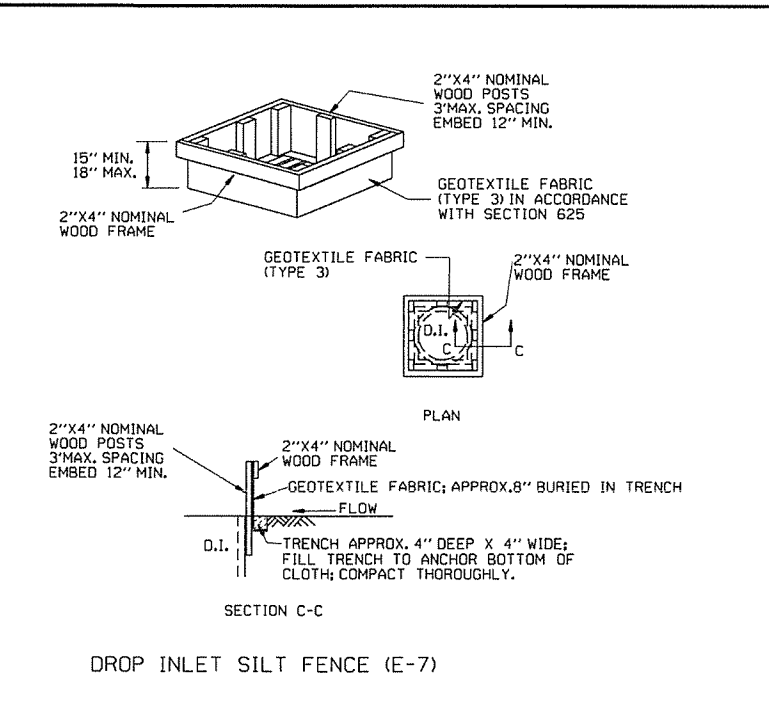
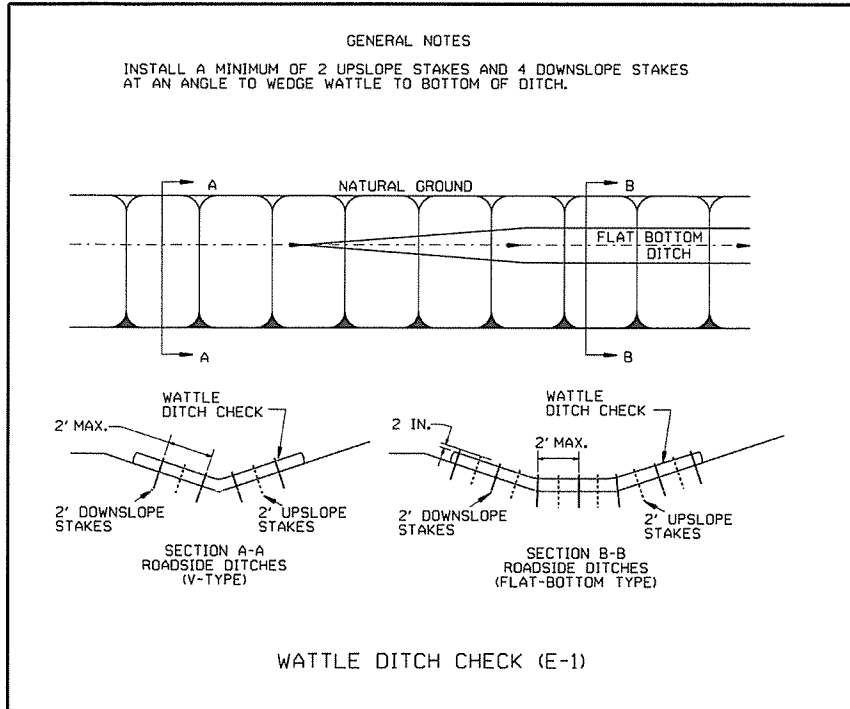
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21). NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS. SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



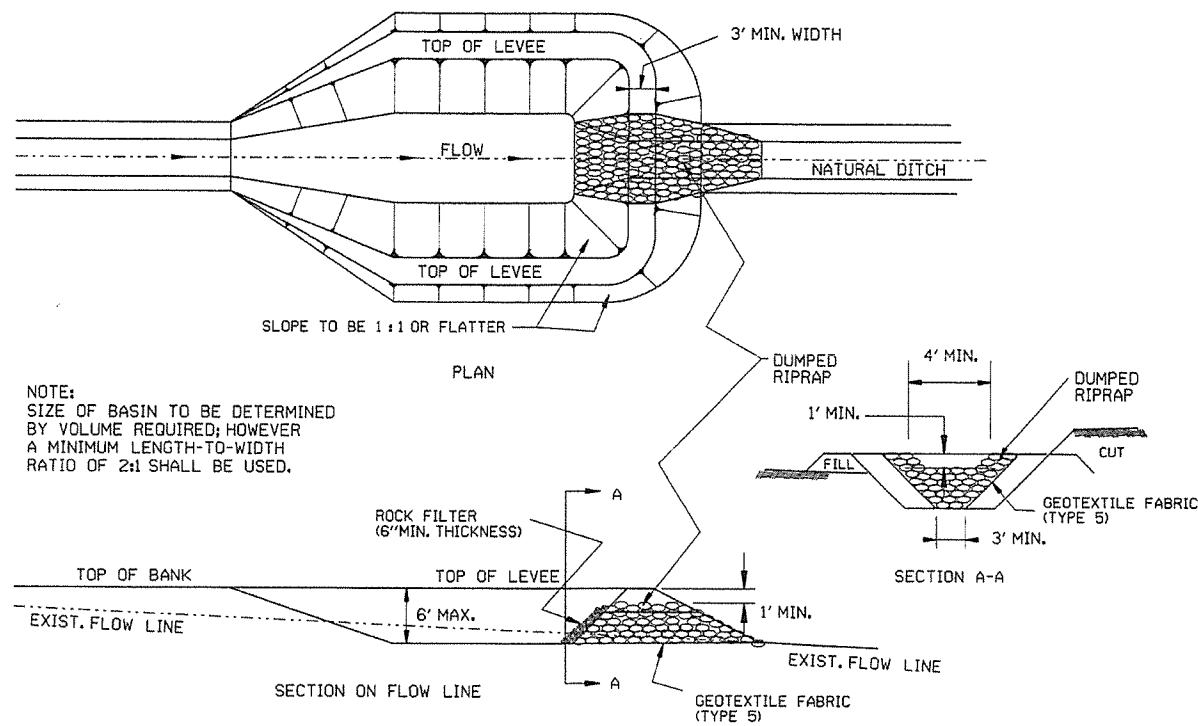
(D) Typical application - closing multiple lanes of a multi-lane highway.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

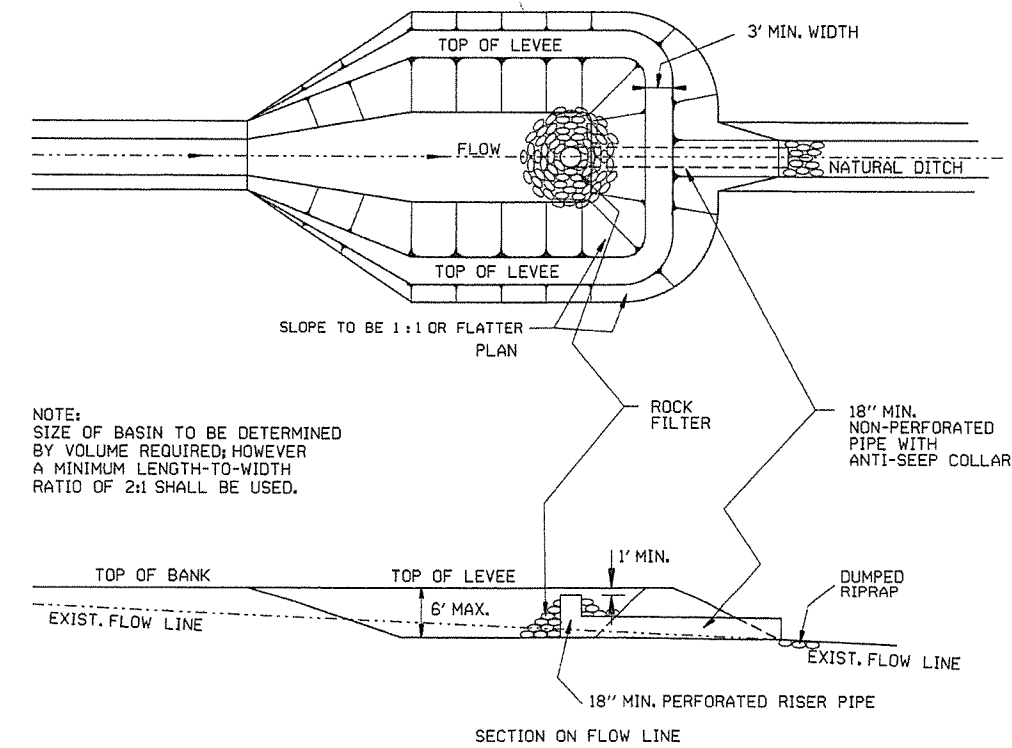
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-3



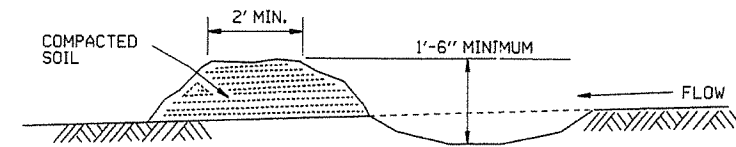
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4, 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	
DATE	REVISION	FILMED	STANDARD DRAWING TEC-1



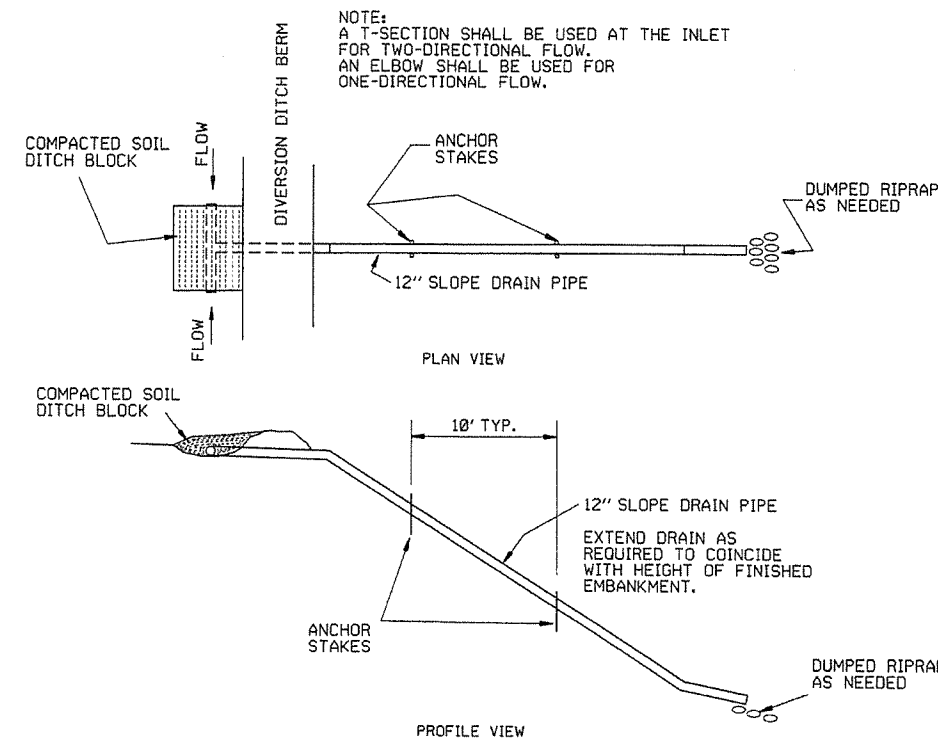
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



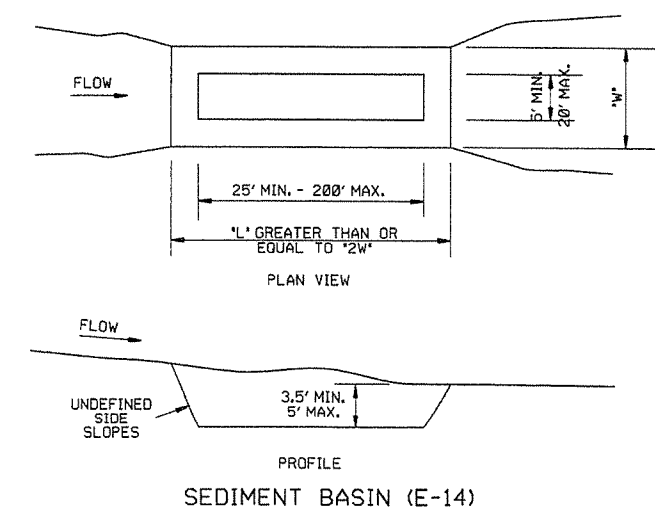
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

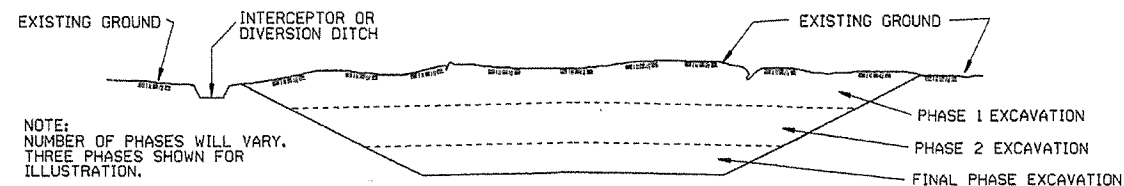
		ARKANSAS STATE HIGHWAY COMMISSION	
		TEMPORARY EROSION CONTROL DEVICES	
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

## 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



NOTE:  
NUMBER OF PHASES WILL VARY.  
THREE PHASES SHOWN FOR  
ILLUSTRATION.

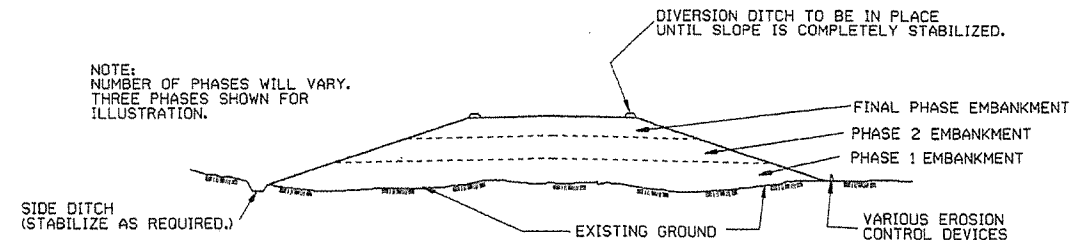
### GENERAL NOTE

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



NOTE:  
NUMBER OF PHASES WILL VARY.  
THREE PHASES SHOWN FOR  
ILLUSTRATION.

### 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

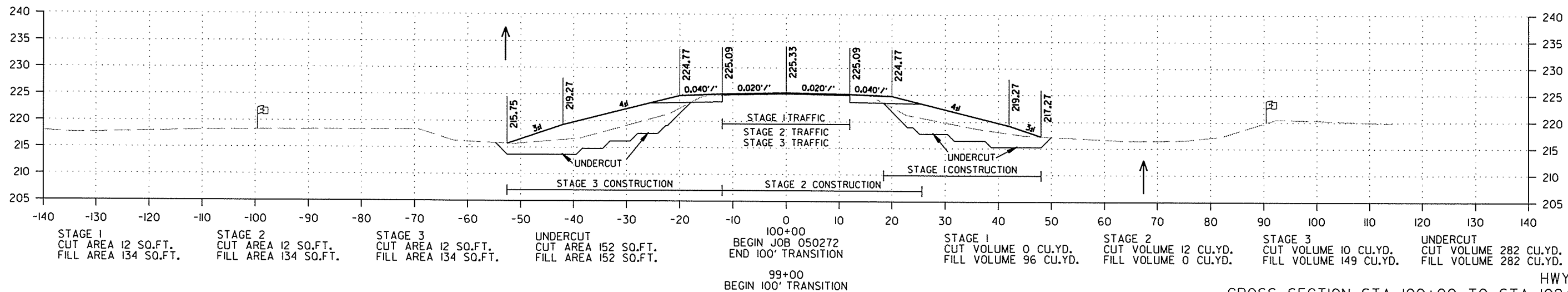
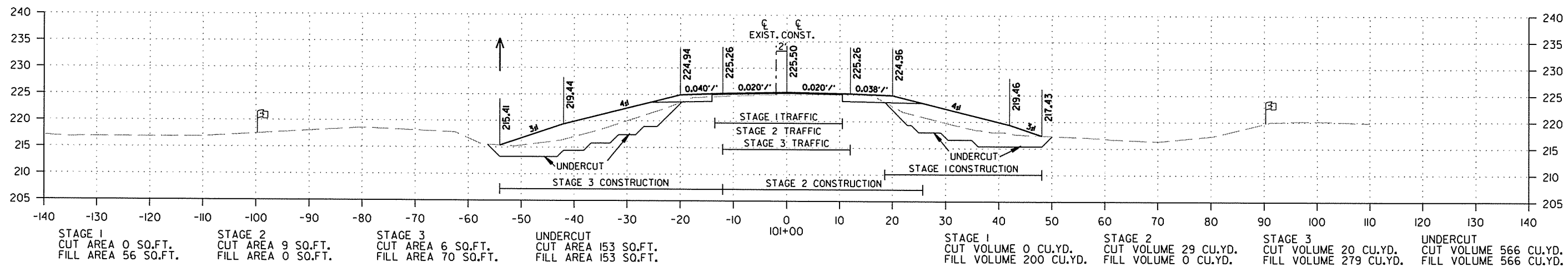
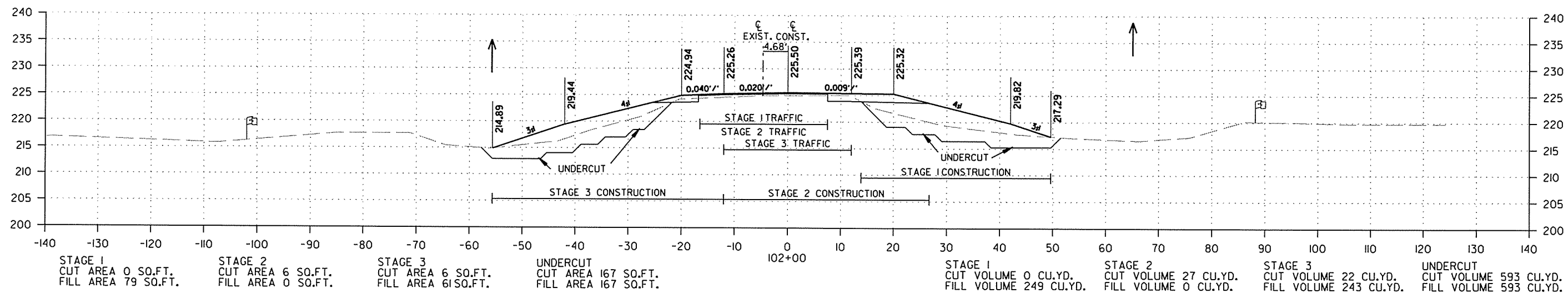
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

124

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-3		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

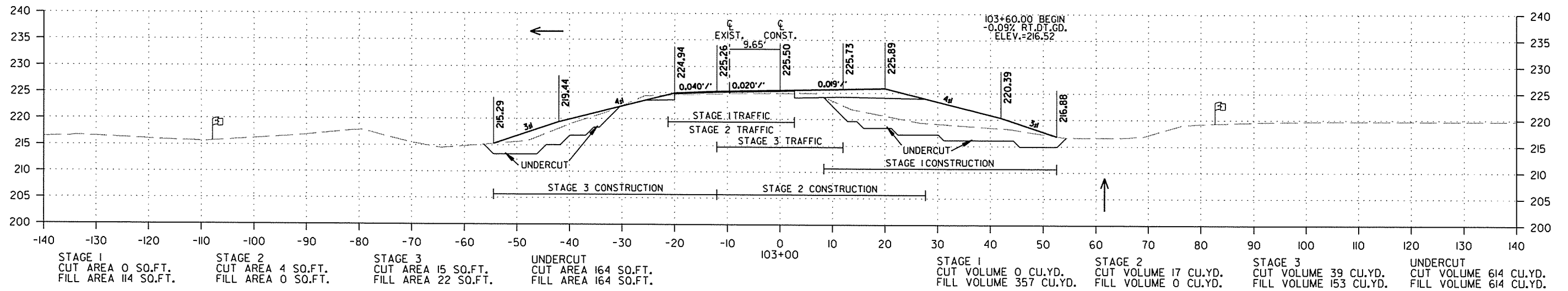
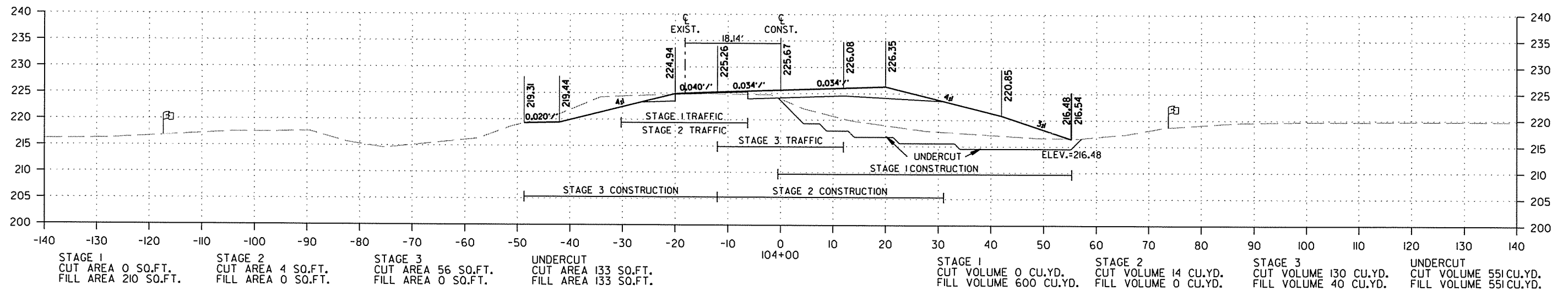
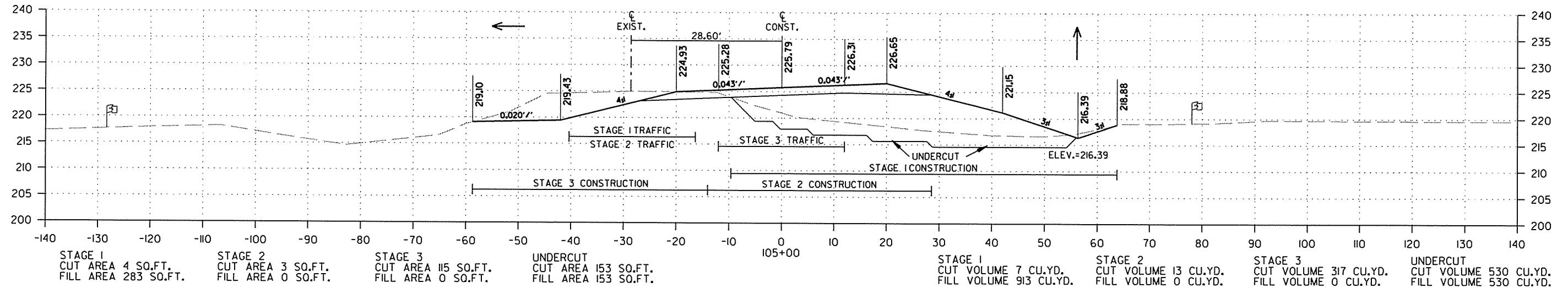
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	125	159

2 CROSS SECTIONS



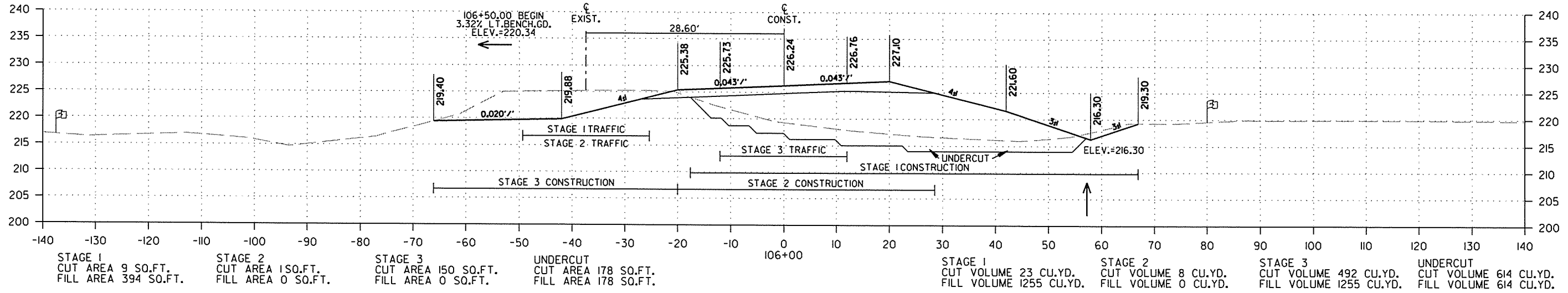
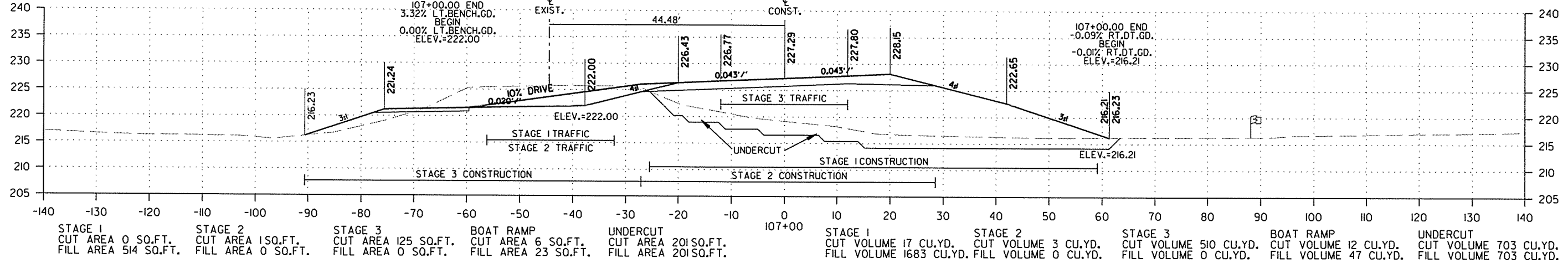
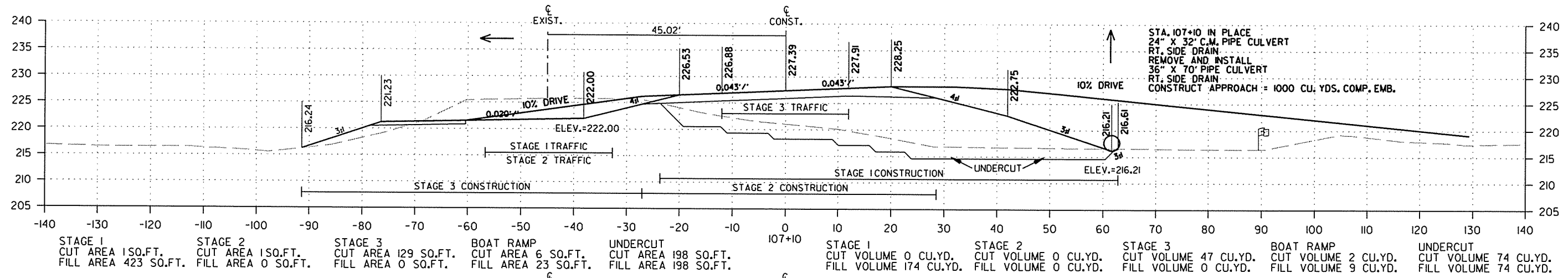
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		126	159

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050272	127
								159

2 CROSS SECTIONS

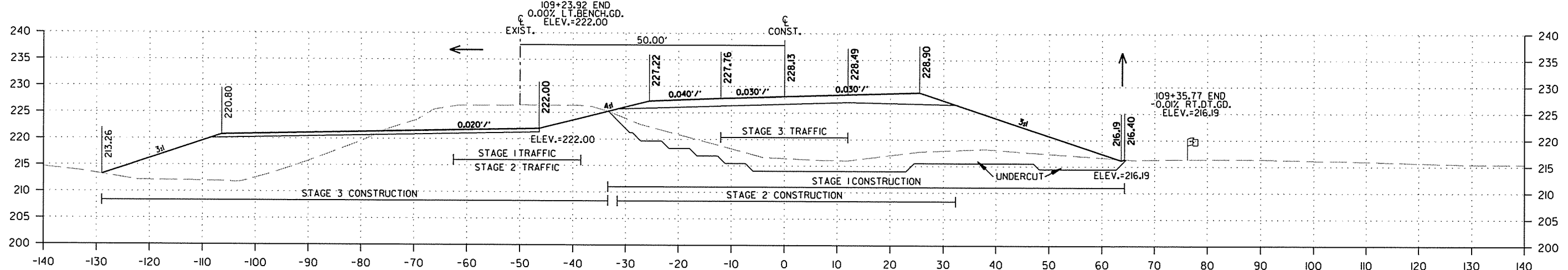


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	128	159

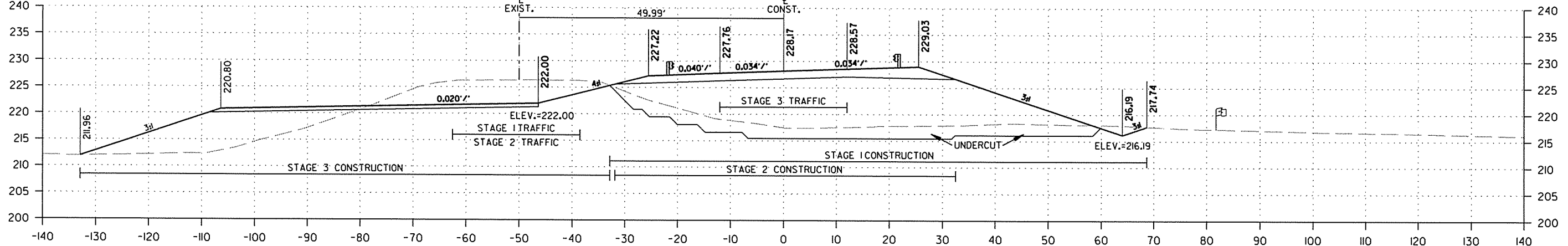
2 CROSS SECTIONS

STAGE 1 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 2 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 3 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	UNDERCUT CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	116+41.58 SLOPE INTERCEPT	STAGE 1 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 2 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 3 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	UNDERCUT CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.
--	--	--	---	------------------------------	--	--	--	---

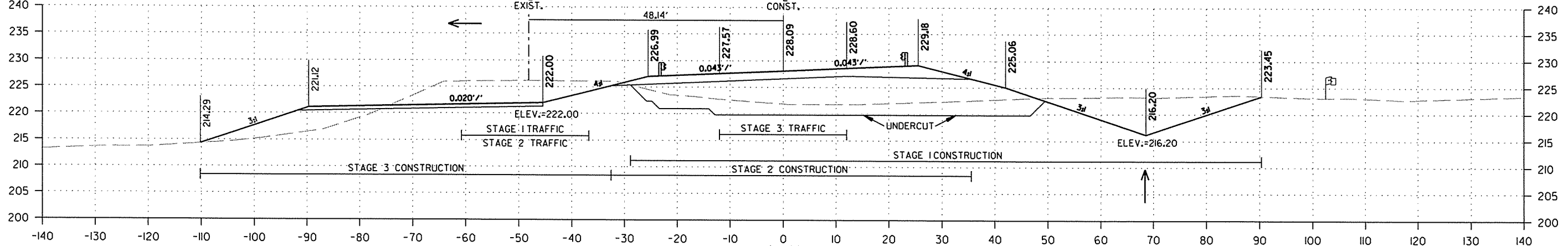
STAGE 1 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 2 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 3 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	BOAT RAMP CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	UNDERCUT CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	109+40.19 SLOPE INTERCEPT	STAGE 1 CUT VOLUME 0 CU.YD. FILL VOLUME 195 CU.YD.	STAGE 2 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 3 CUT VOLUME 42 CU.YD. FILL VOLUME 0 CU.YD.	BOAT RAMP CUT VOLUME 6 CU.YD. FILL VOLUME 76 CU.YD.	UNDERCUT CUT VOLUME 71 CU.YD. FILL VOLUME 71 CU.YD.
--	--	--	--	---	------------------------------	--	--	---	---	---



STAGE 1 CUT AREA 0 SQ.FT. FILL AREA 647 SQ.FT.	STAGE 2 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 3 CUT AREA 138 SQ.FT. FILL AREA 0 SQ.FT.	BOAT RAMP CUT AREA 20 SQ.FT. FILL AREA 252 SQ.FT.	UNDERCUT CUT AREA 234 SQ.FT. FILL AREA 234 SQ.FT.	109+23.92 BRIDGE END	STAGE 1 CUT VOLUME 4 CU.YD. FILL VOLUME 548 CU.YD.	STAGE 2 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 3 CUT VOLUME 127 CU.YD. FILL VOLUME 0 CU.YD.	BOAT RAMP CUT VOLUME 19 CU.YD. FILL VOLUME 205 CU.YD.	UNDERCUT CUT VOLUME 195 CU.YD. FILL VOLUME 195 CU.YD.
--	--	--	---	---	-------------------------	--	--	--	---	---



STAGE 1 CUT AREA 9 SQ.FT. FILL AREA 590 SQ.FT.	STAGE 2 CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 3 CUT AREA 148 SQ.FT. FILL AREA 0 SQ.FT.	BOAT RAMP CUT AREA 22 SQ.FT. FILL AREA 210 SQ.FT.	UNDERCUT CUT AREA 207 SQ.FT. FILL AREA 207 SQ.FT.	109+00	STAGE 1 CUT VOLUME 297 CU.YD. FILL VOLUME 1615 CU.YD.	STAGE 2 CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 3 CUT VOLUME 523 CU.YD. FILL VOLUME 0 CU.YD.	BOAT RAMP CUT VOLUME 78 CU.YD. FILL VOLUME 539 CU.YD.	UNDERCUT CUT VOLUME 726 CU.YD. FILL VOLUME 726 CU.YD.
--	--	--	---	---	--------	---	--	--	---	---



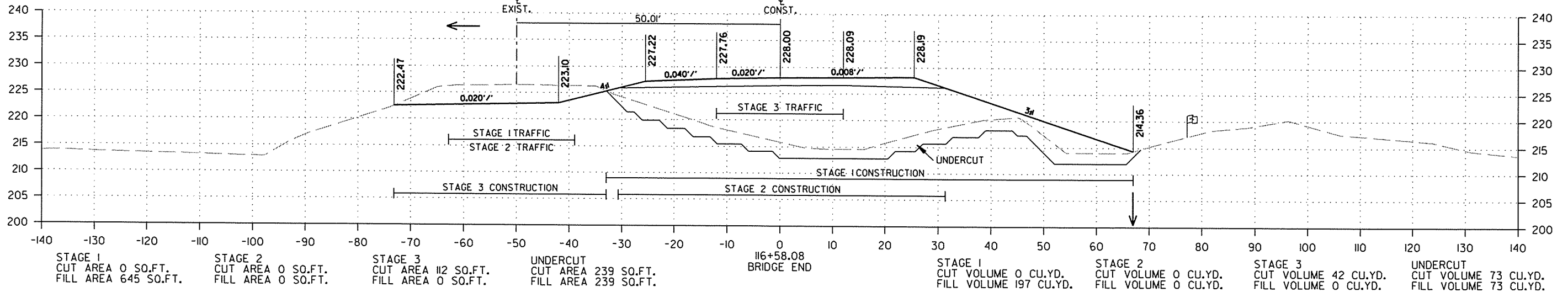
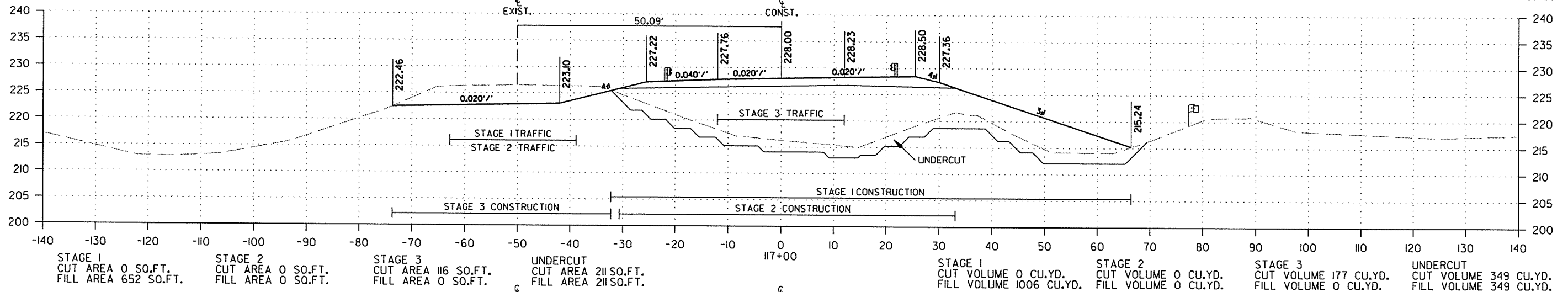
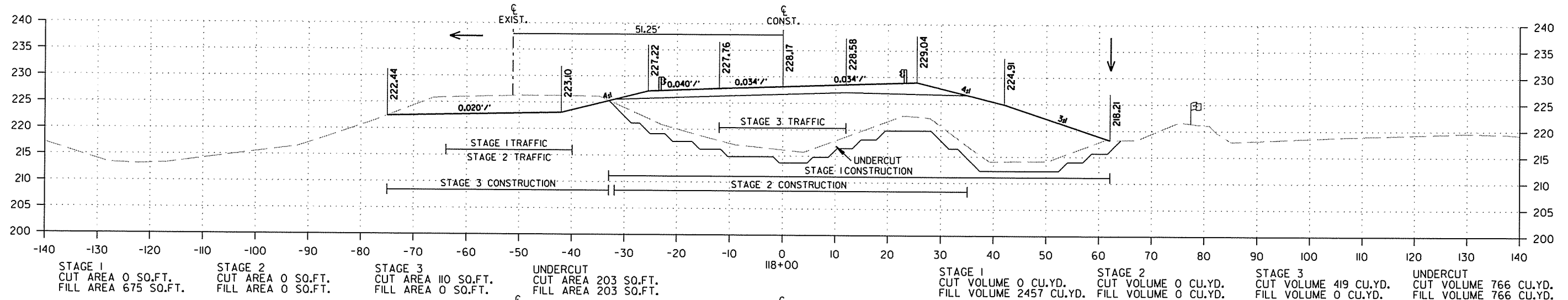
STAGE 1 CUT AREA 151 SQ.FT. FILL AREA 282 SQ.FT.	STAGE 2 CUT AREA 2 SQ.FT. FILL AREA 0 SQ.FT.	STAGE 3 CUT AREA 134 SQ.FT. FILL AREA 0 SQ.FT.	BOAT RAMP CUT AREA 20 SQ.FT. FILL AREA 81 SQ.FT.	UNDERCUT CUT AREA 185 SQ.FT. FILL AREA 185 SQ.FT.	108+00	STAGE 1 CUT VOLUME 253 CU.YD. FILL VOLUME 1175 CU.YD.	STAGE 2 CUT VOLUME 5 CU.YD. FILL VOLUME 0 CU.YD.	STAGE 3 CUT VOLUME 438 CU.YD. FILL VOLUME 0 CU.YD.	BOAT RAMP CUT VOLUME 43 CU.YD. FILL VOLUME 173 CU.YD.	UNDERCUT CUT VOLUME 639 CU.YD. FILL VOLUME 639 CU.YD.
--	--	--	--	---	--------	---	--	--	---	---

12/21/2015 R050272.DGN



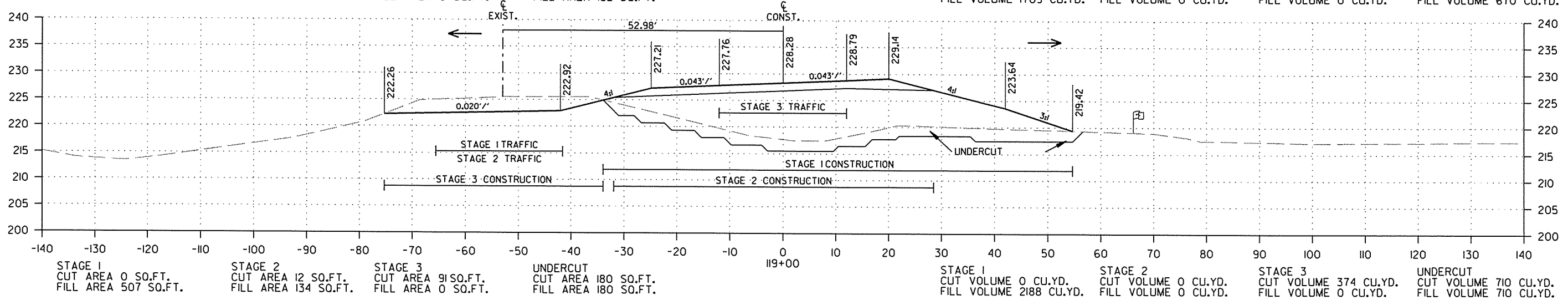
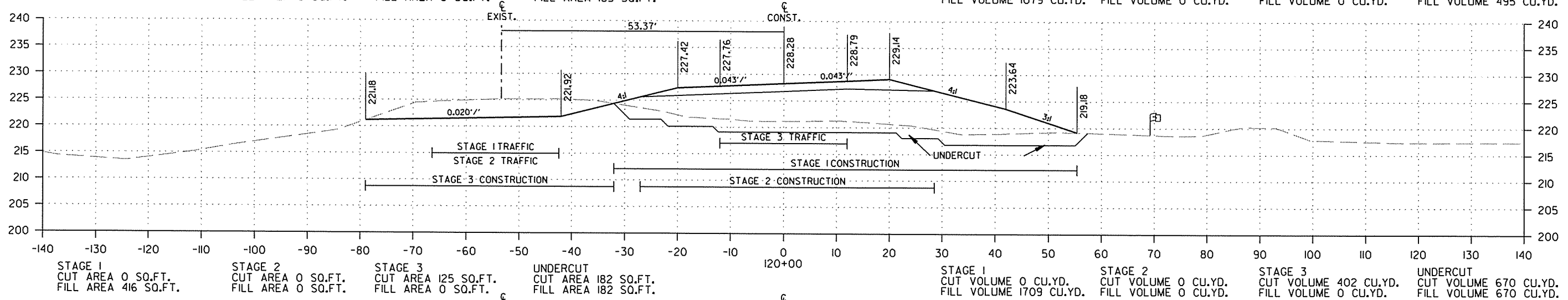
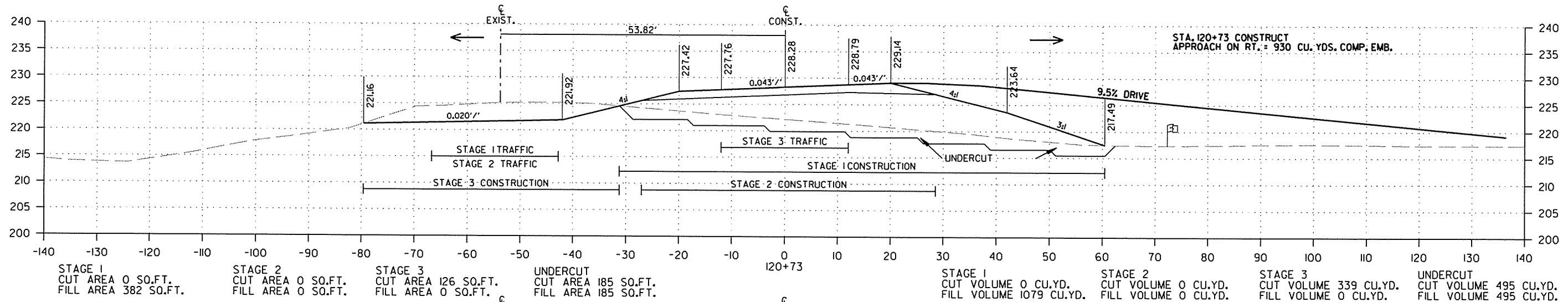
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		129	159

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							130	159

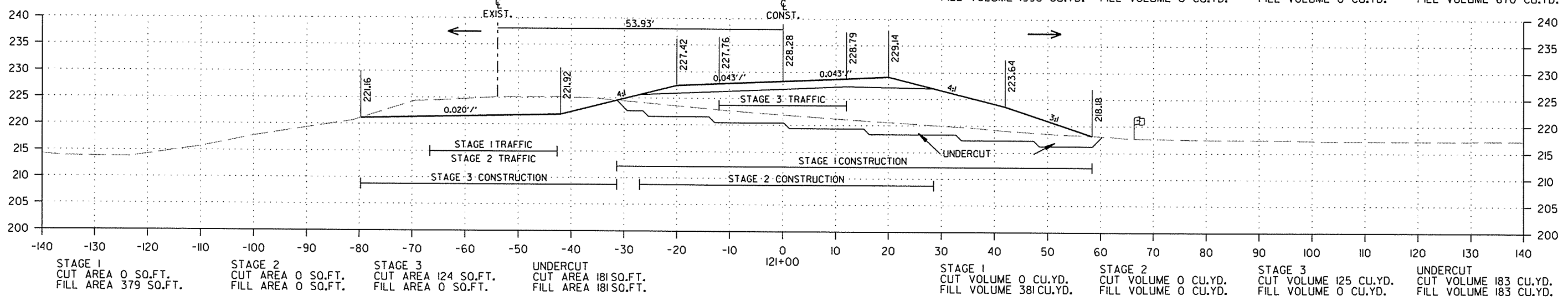
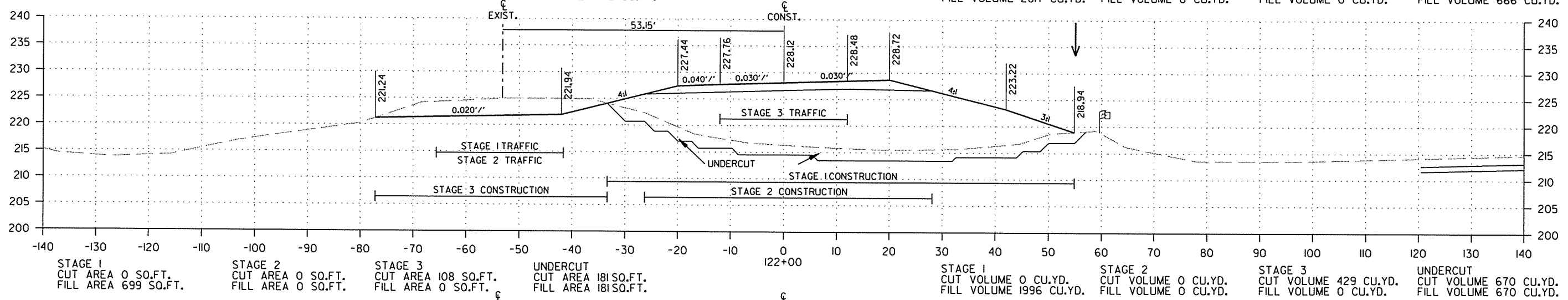
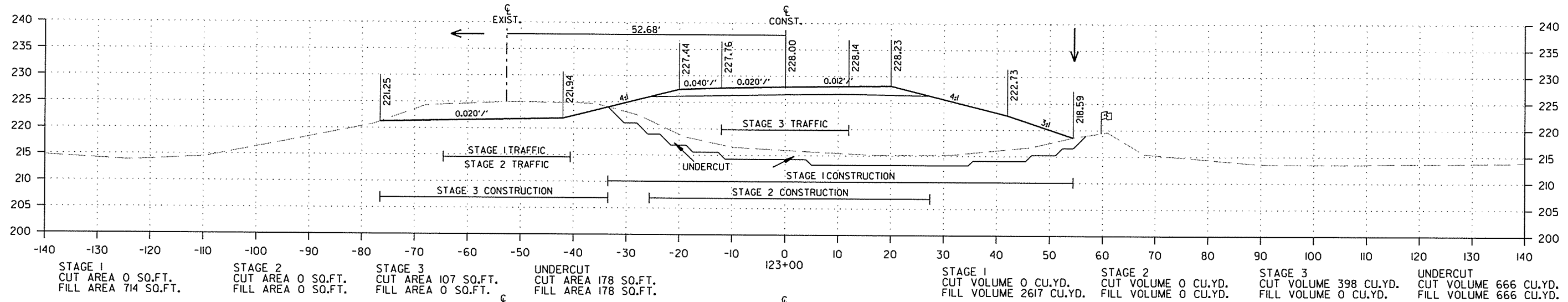
2 CROSS SECTIONS



12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							131	159

2 CROSS SECTIONS

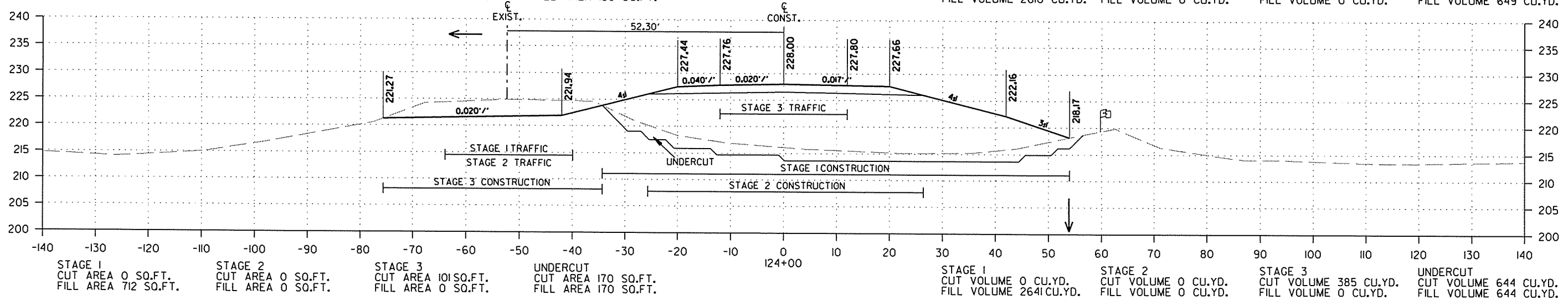
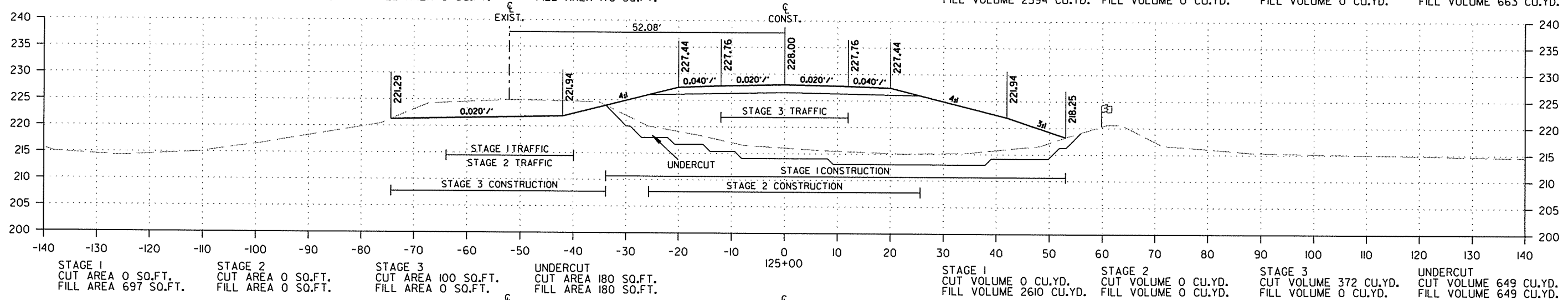
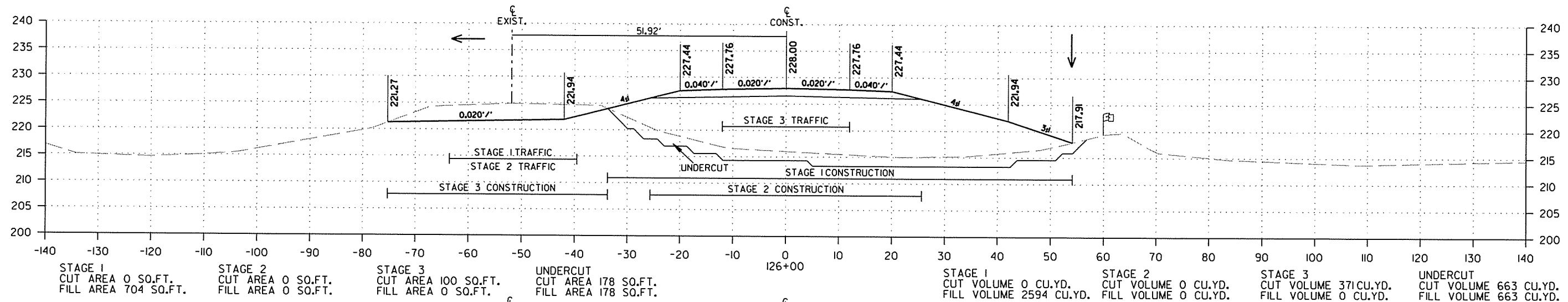


12/21/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	132	159

2 CROSS SECTIONS

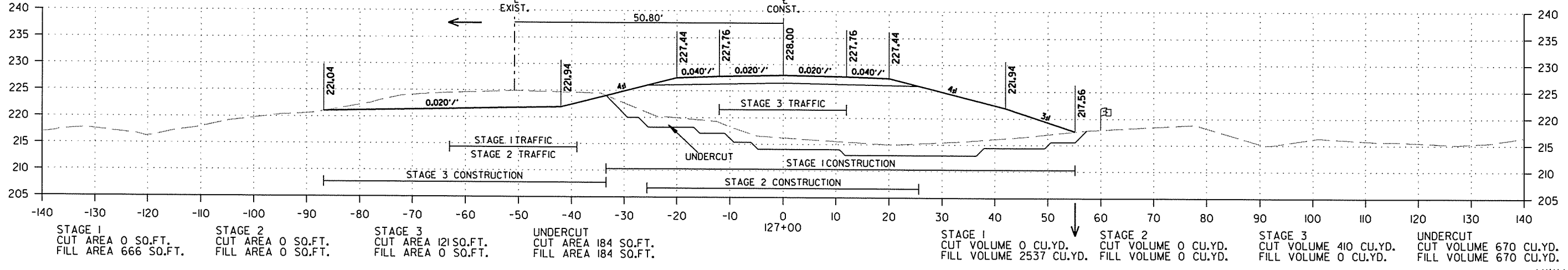
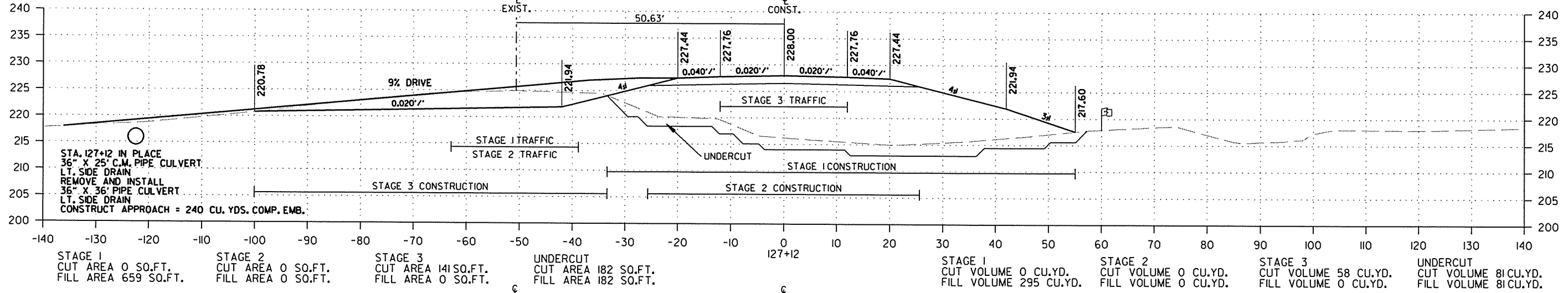
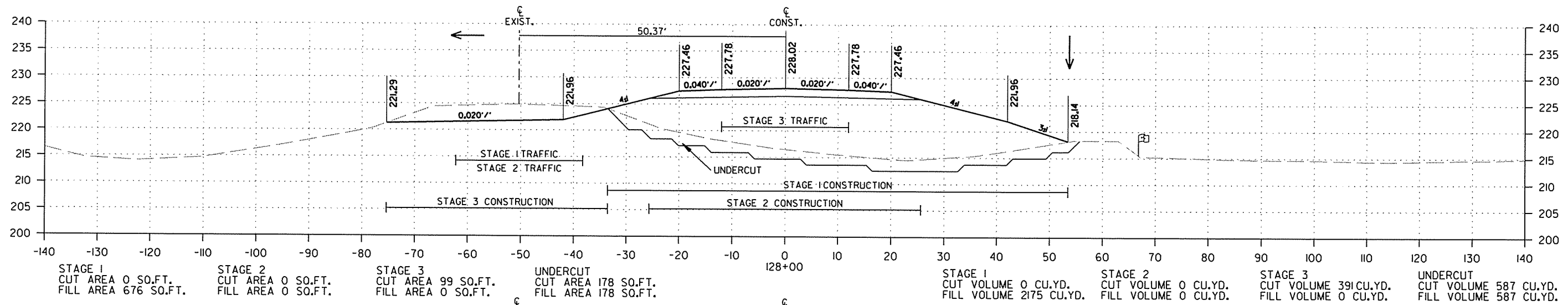


12/21/2015

R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	133	159

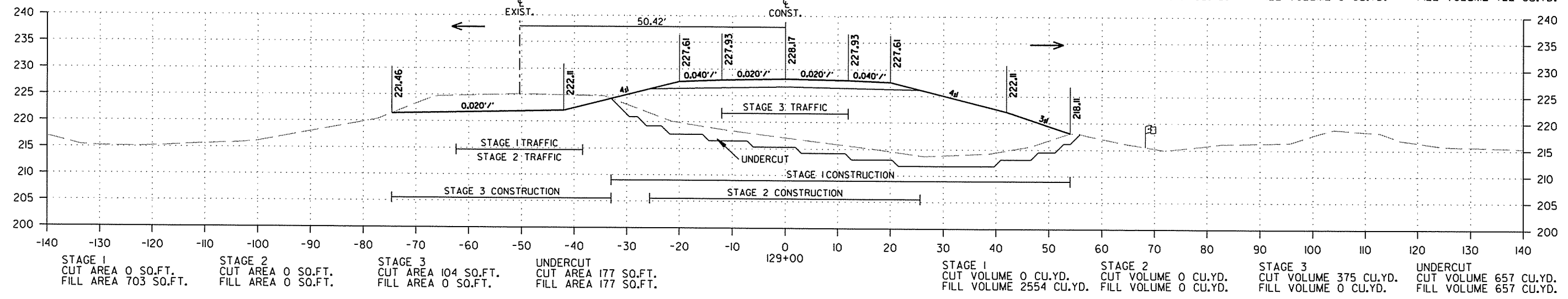
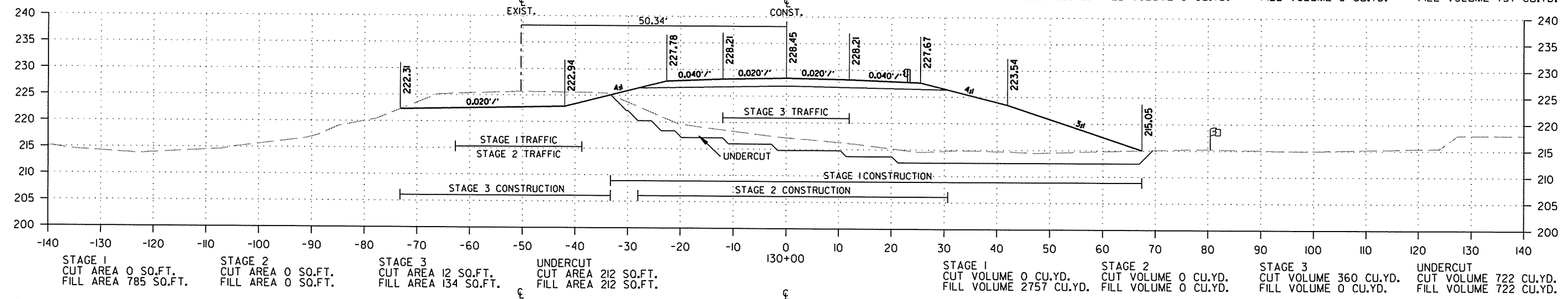
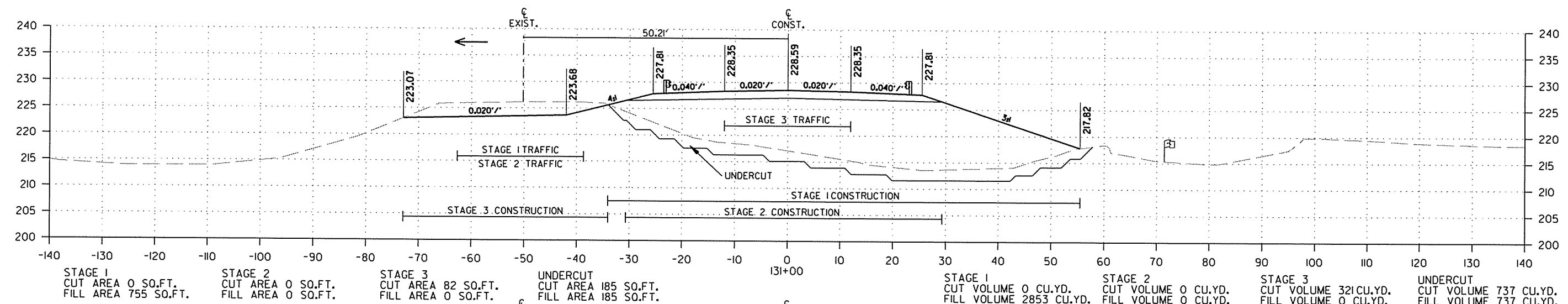
2 CROSS SECTIONS



12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	134	159

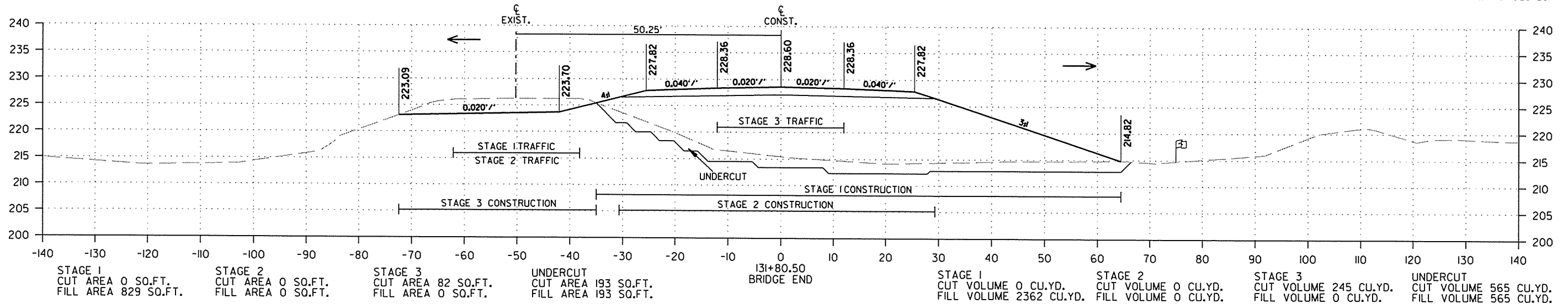
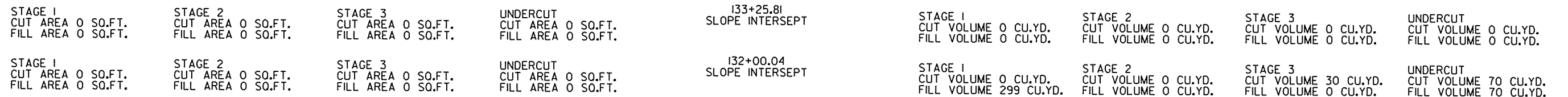
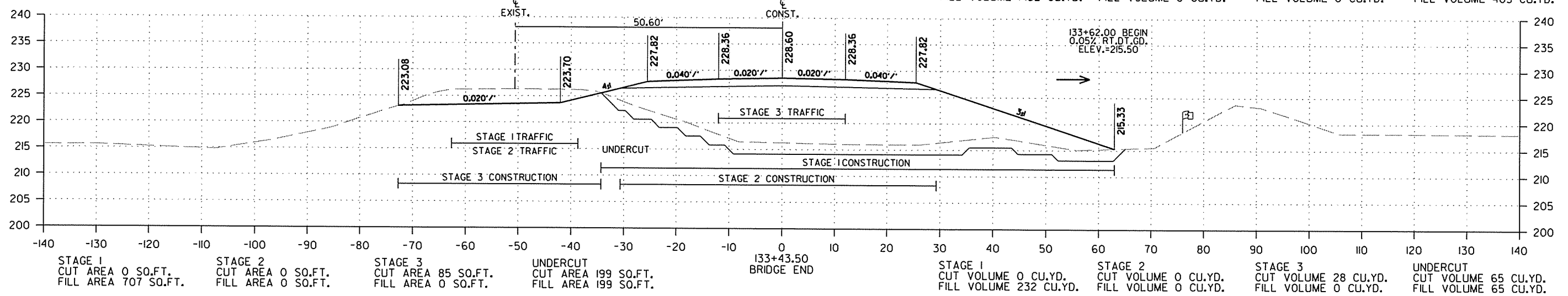
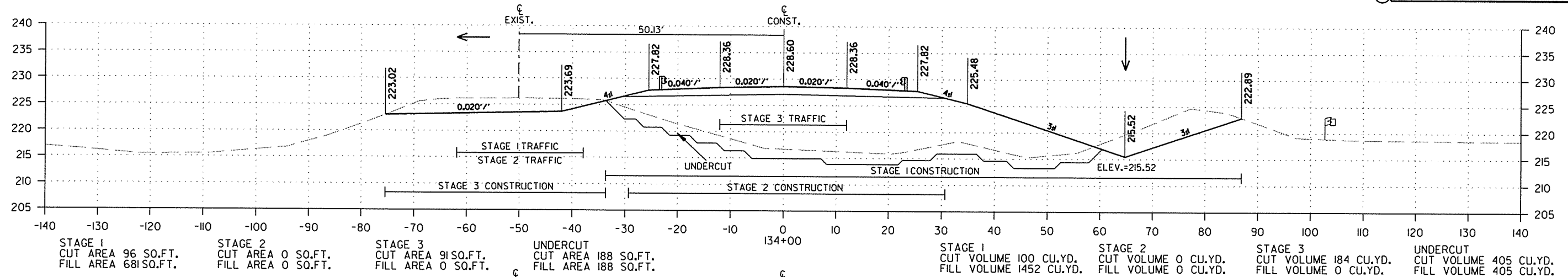
2 CROSS SECTIONS



12/21/2015  
R050272.DGN

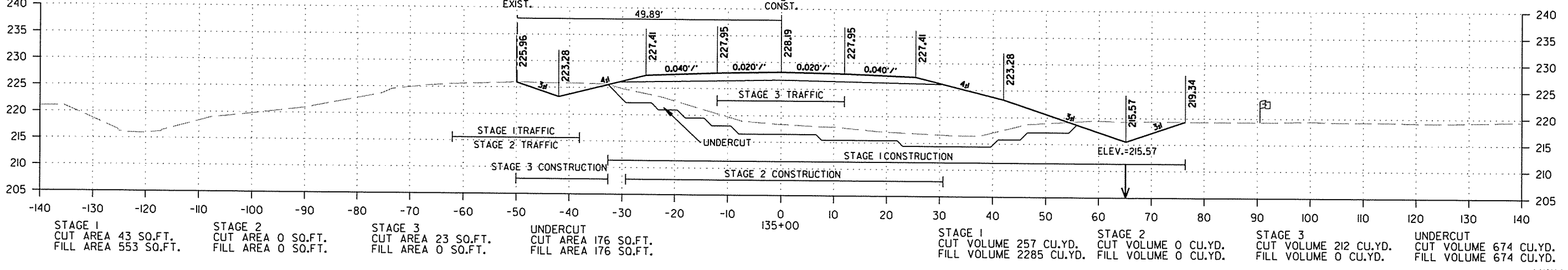
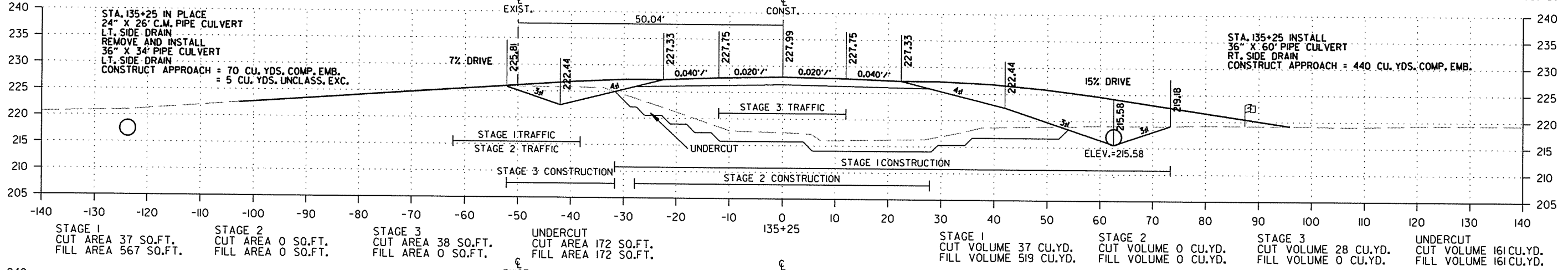
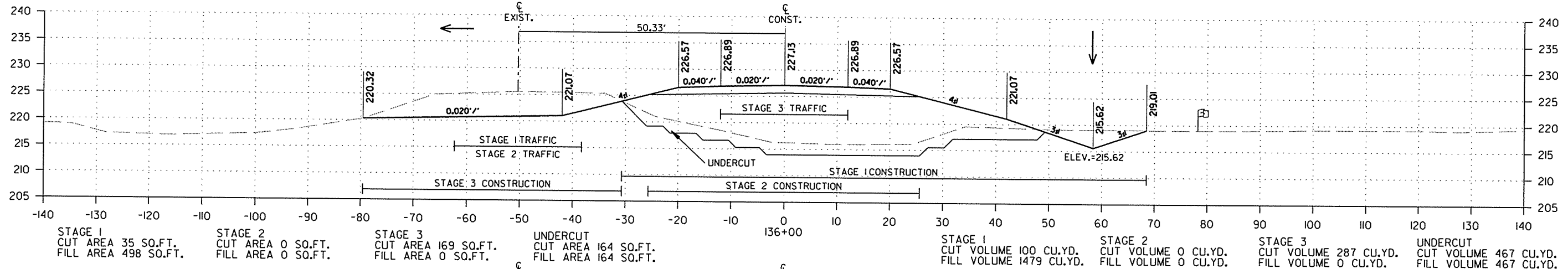
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		135	159

② CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	136	159

2 CROSS SECTIONS

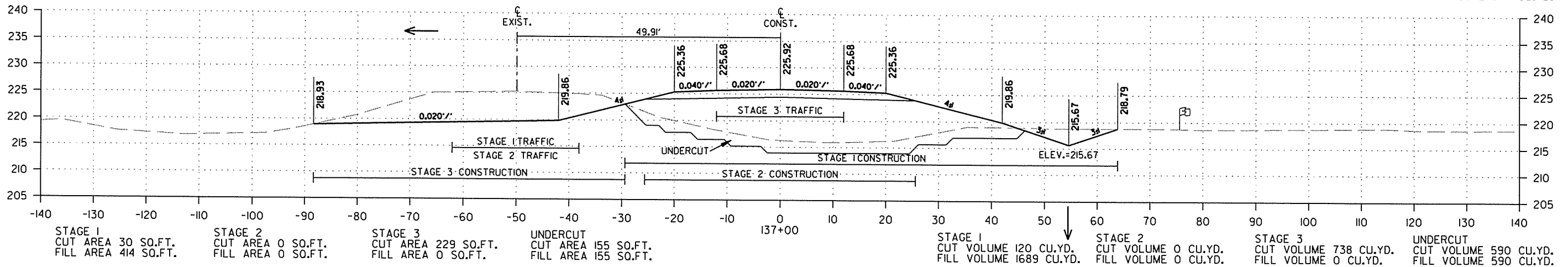
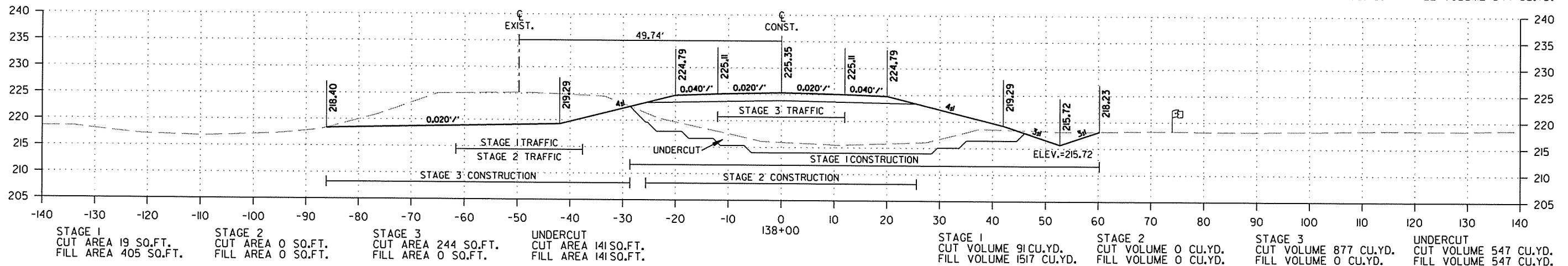
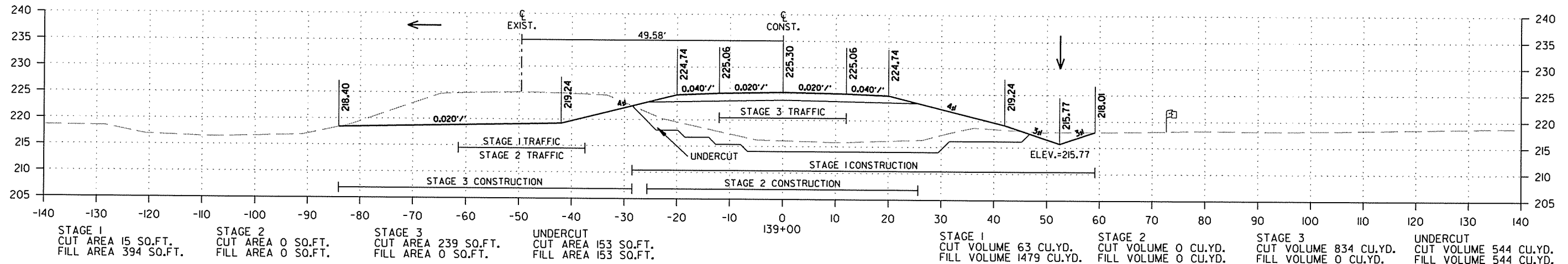


12/21/2015 R050272.DGN



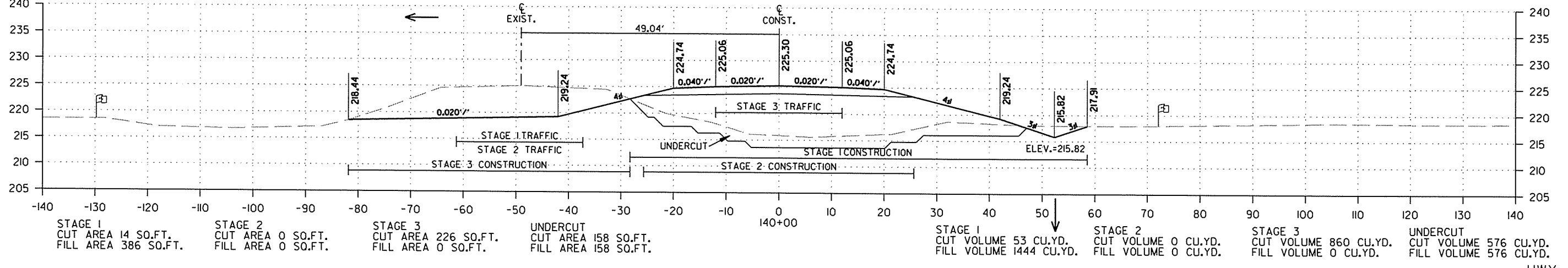
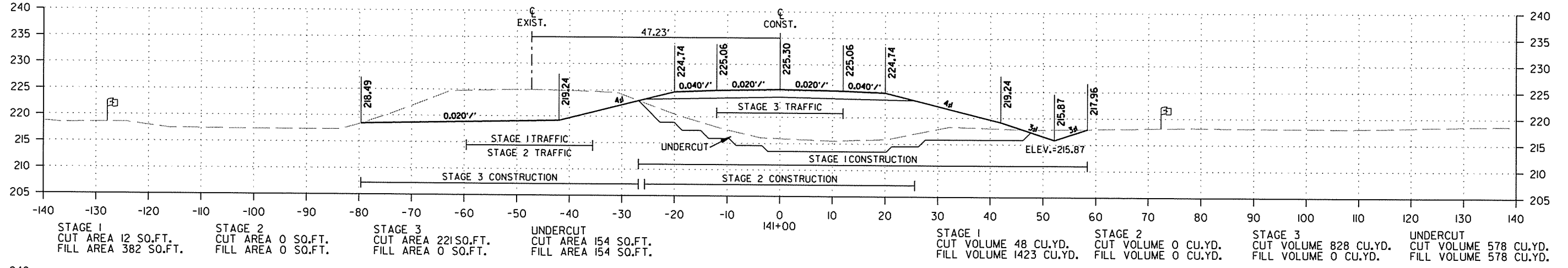
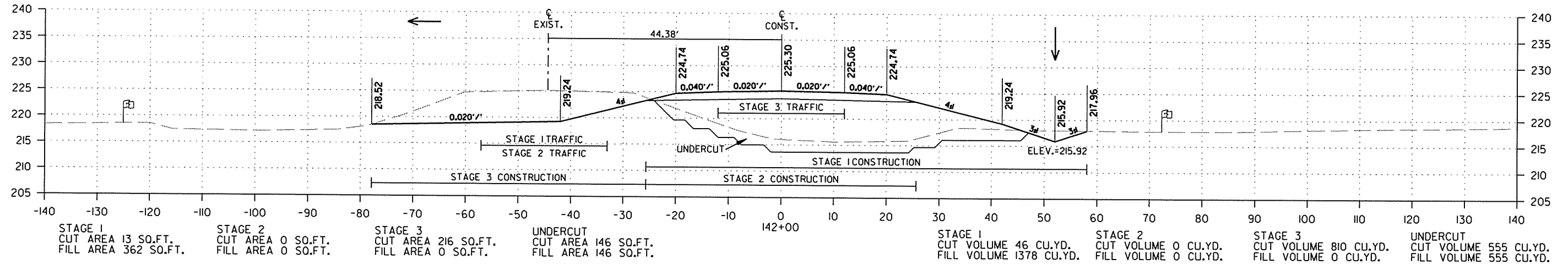
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272	137	159	

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	138	159

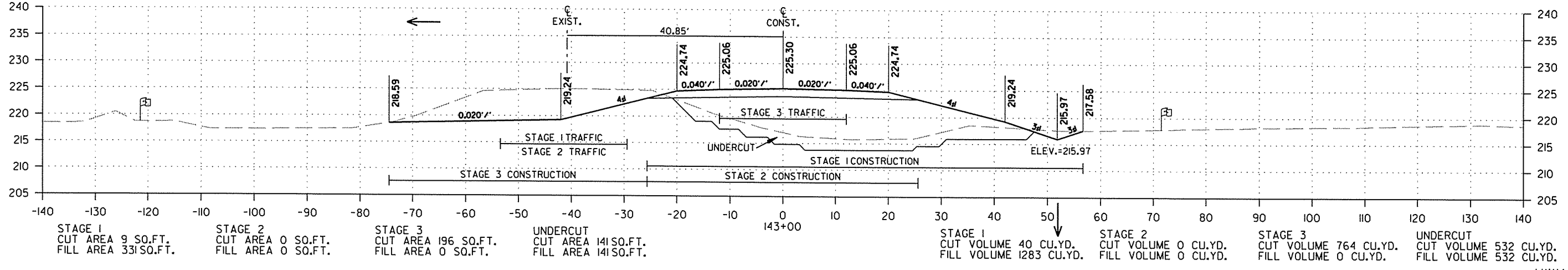
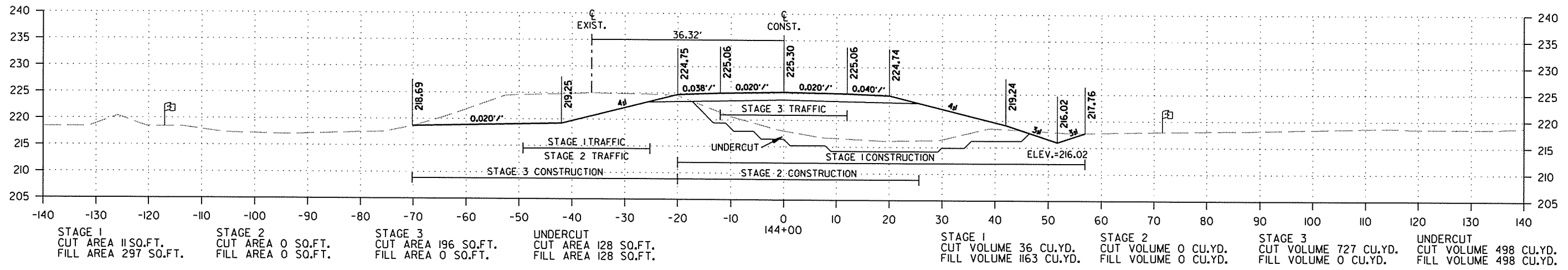
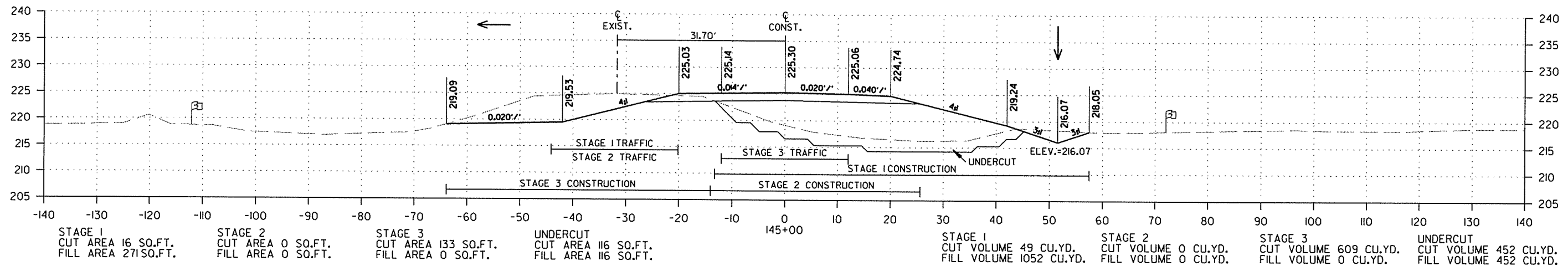
2 CROSS SECTIONS



12/21/2015  
R050272.DGN

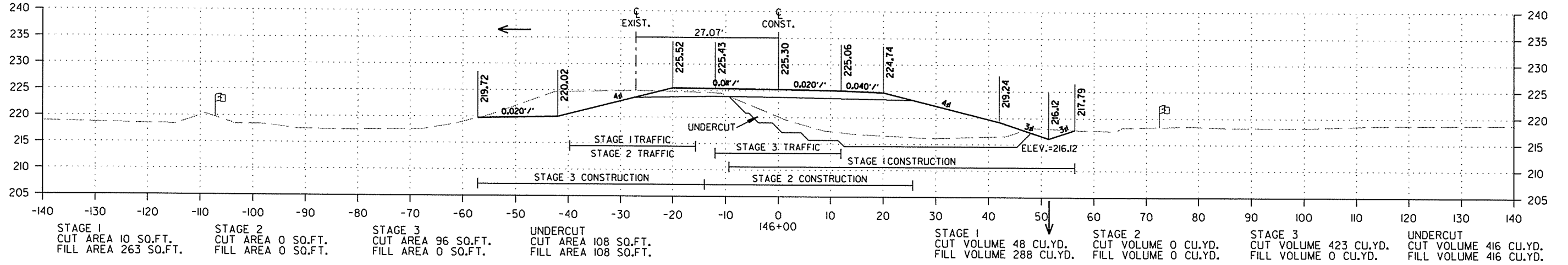
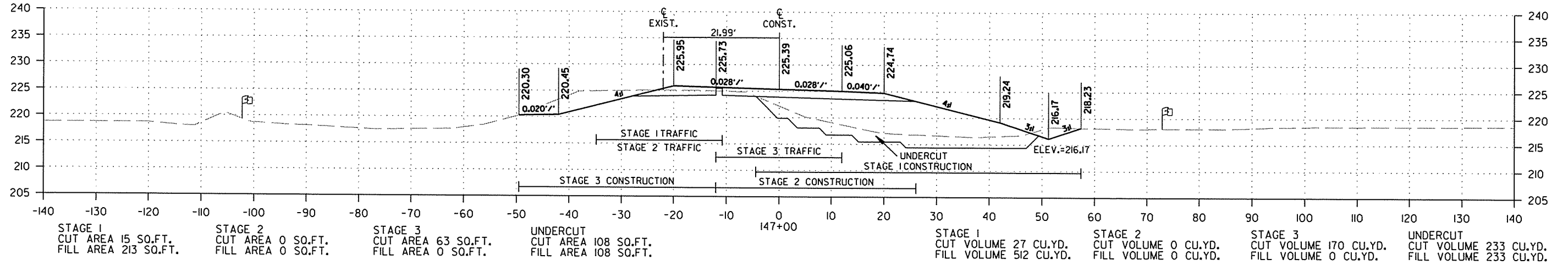
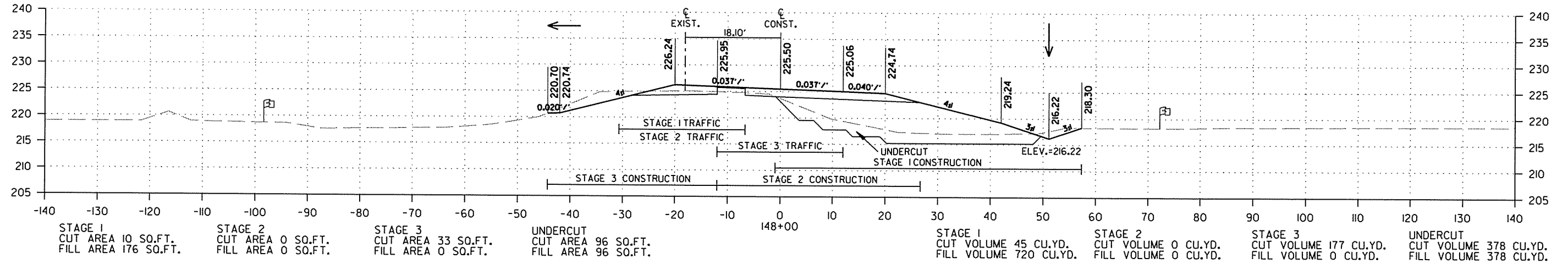
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	139	159

2 CROSS SECTIONS



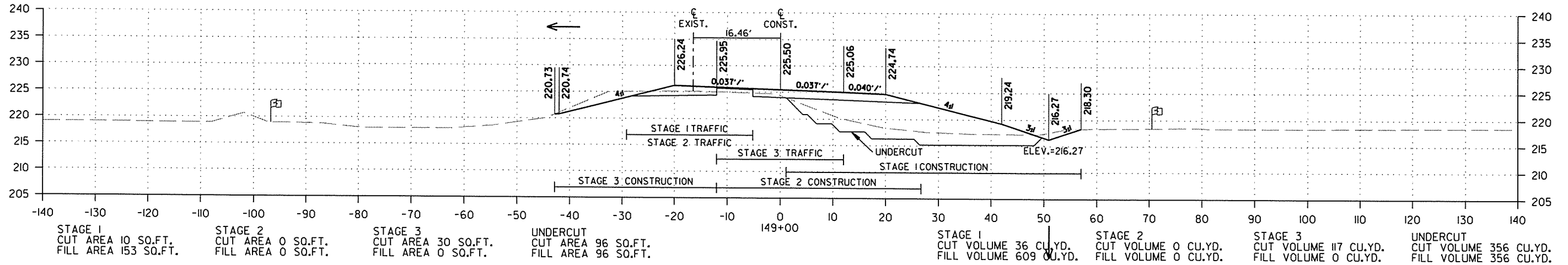
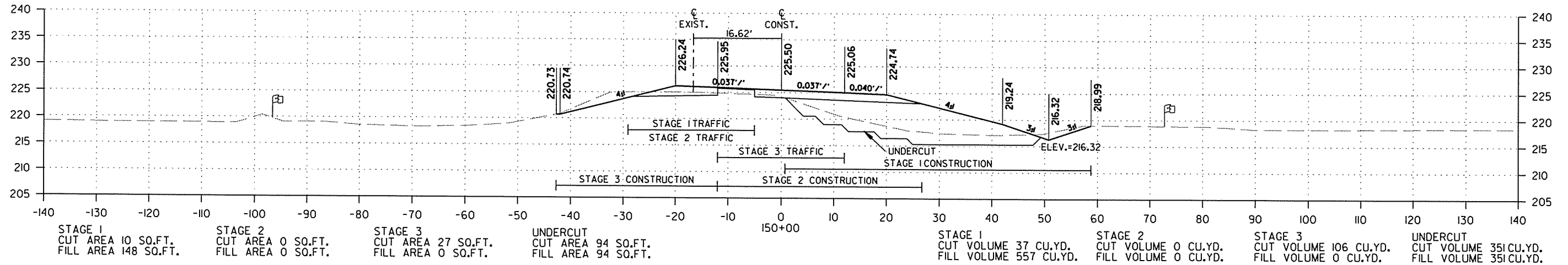
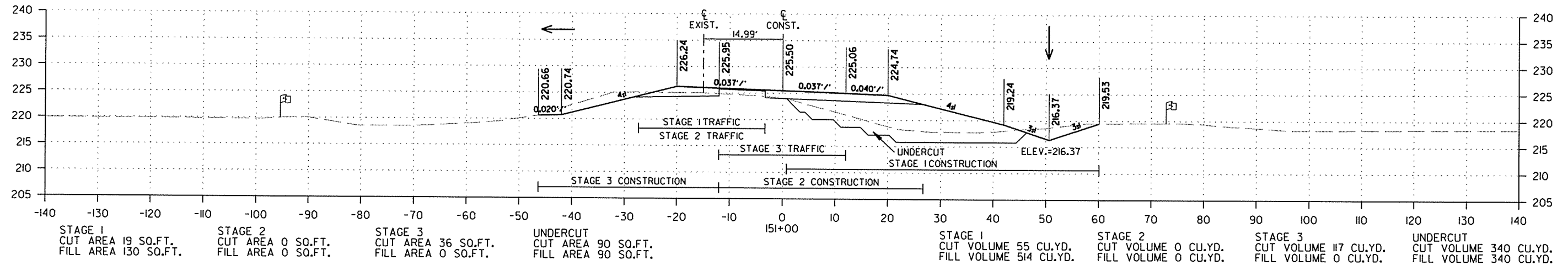
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	140	159

2 CROSS SECTIONS



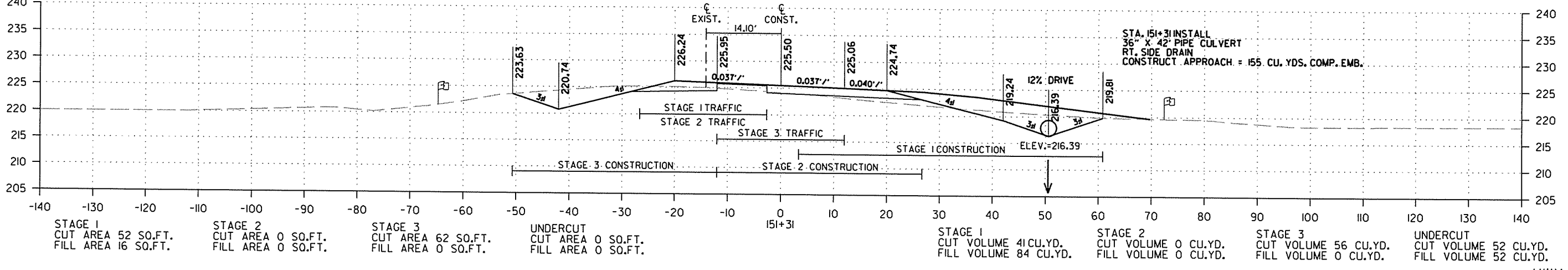
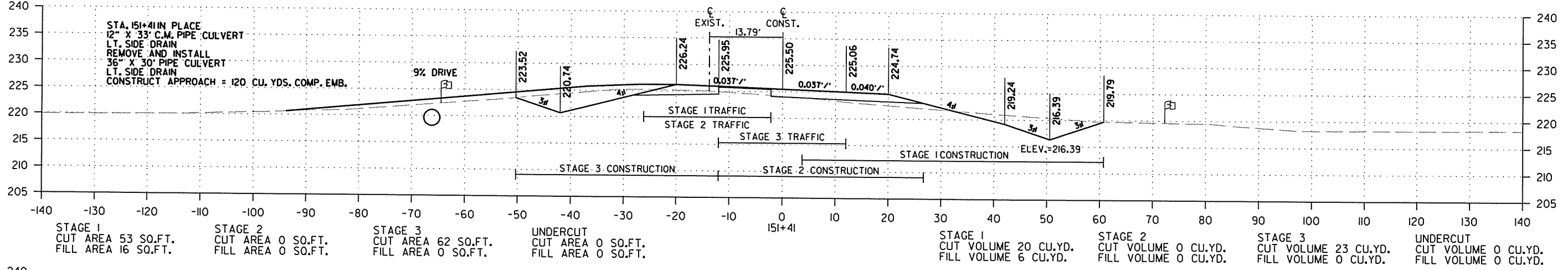
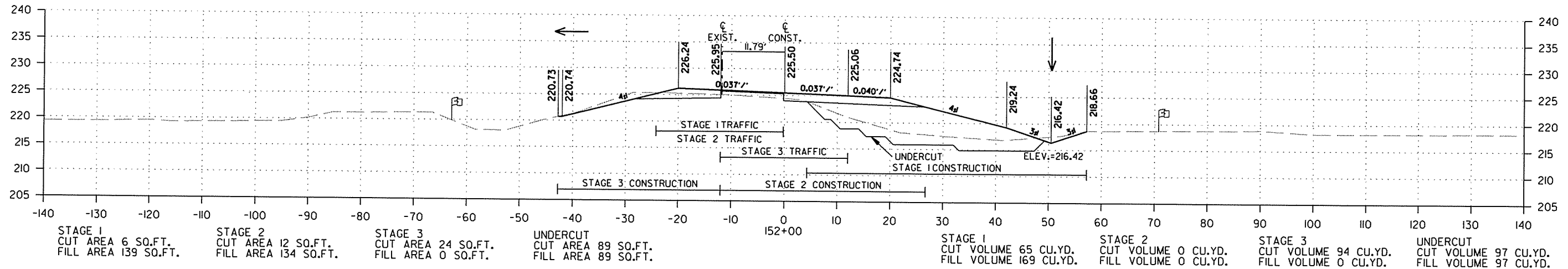
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		141	159

2 CROSS SECTIONS



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	142	159

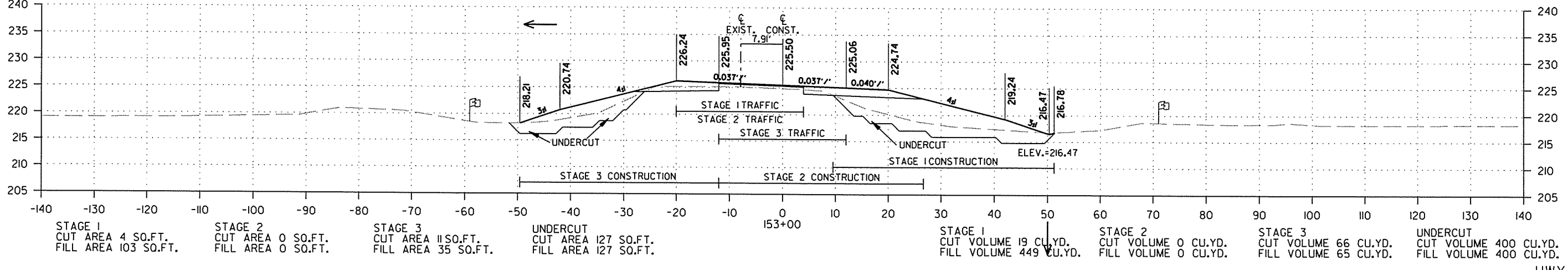
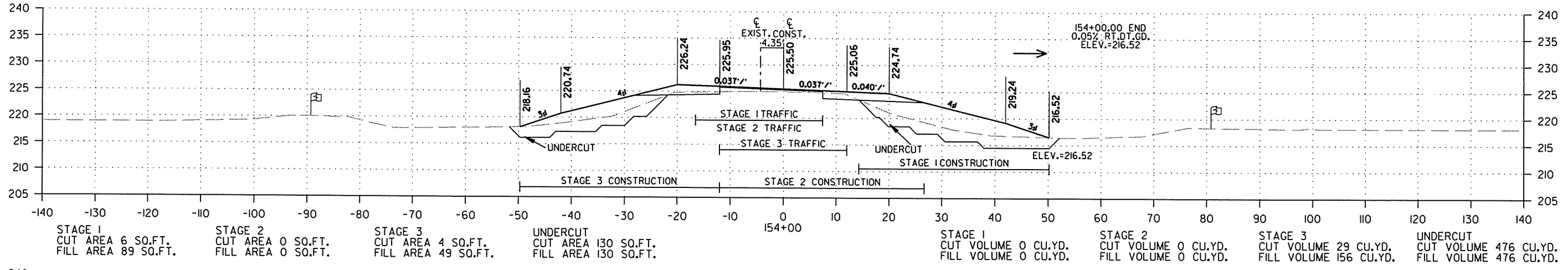
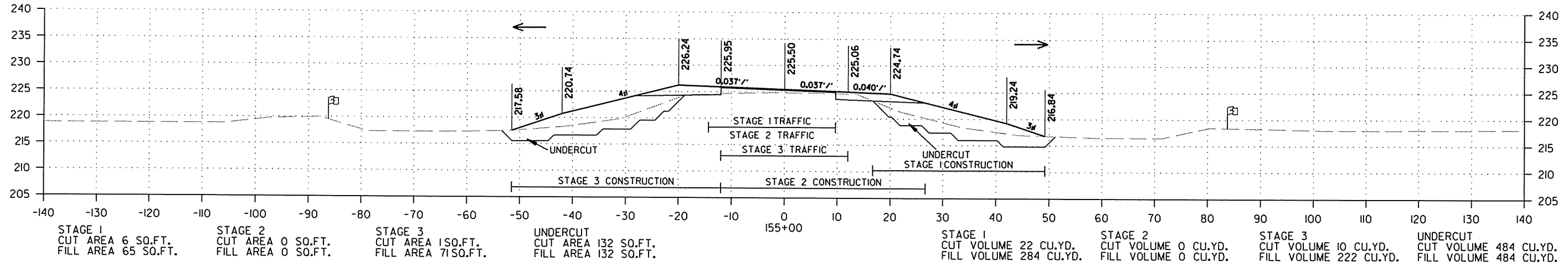
2 CROSS SECTIONS



12/21/2015 R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		143	159

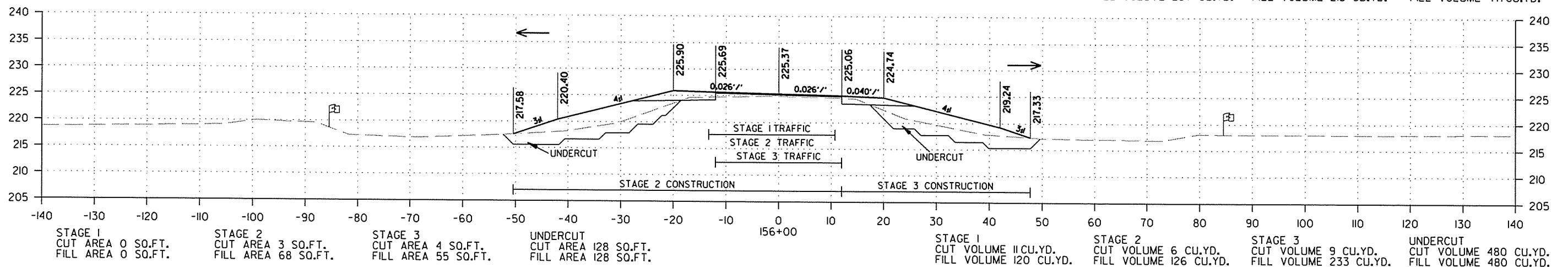
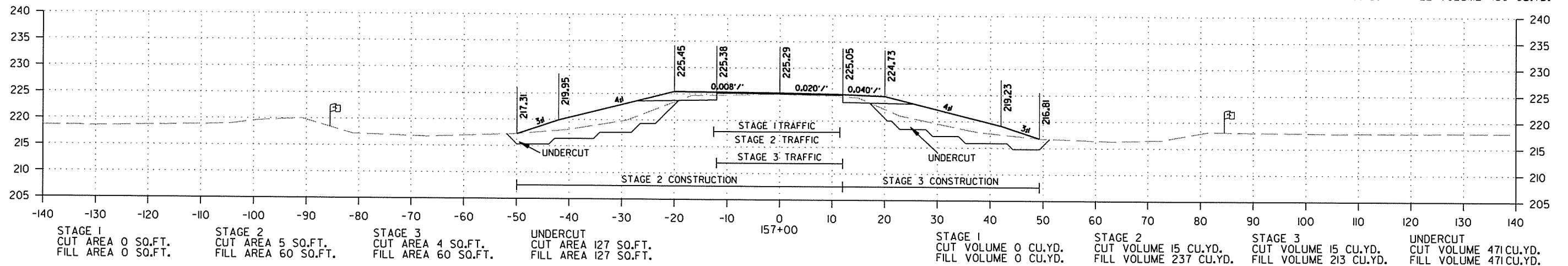
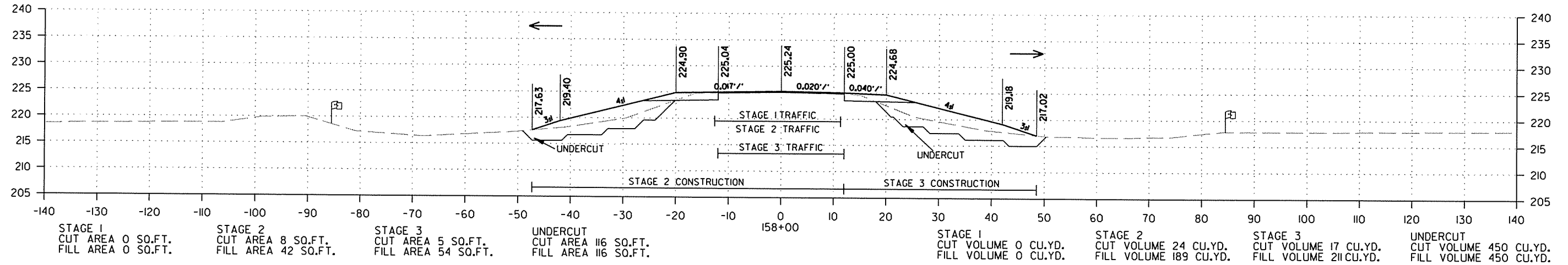
2 CROSS SECTIONS



12/21/2015 R050272.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	144	159

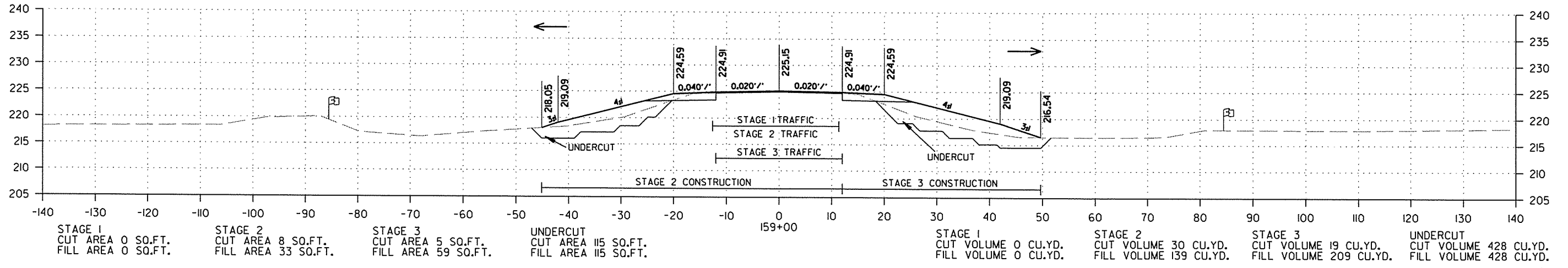
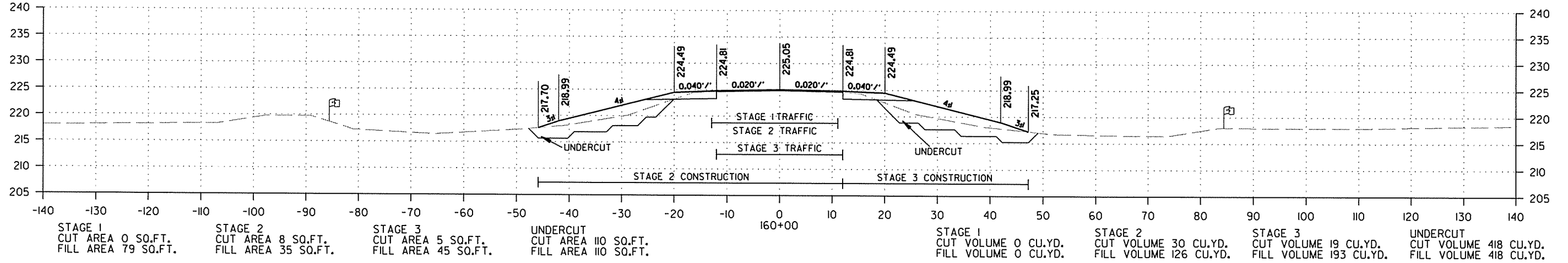
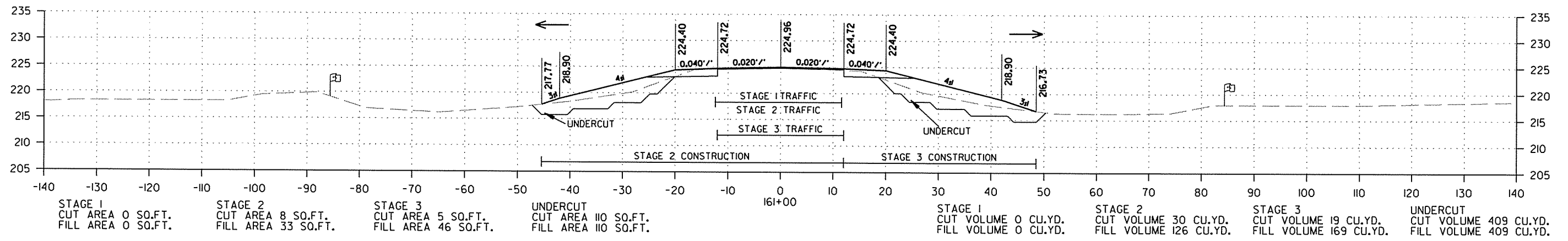
② CROSS SECTIONS





DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050272	145 159

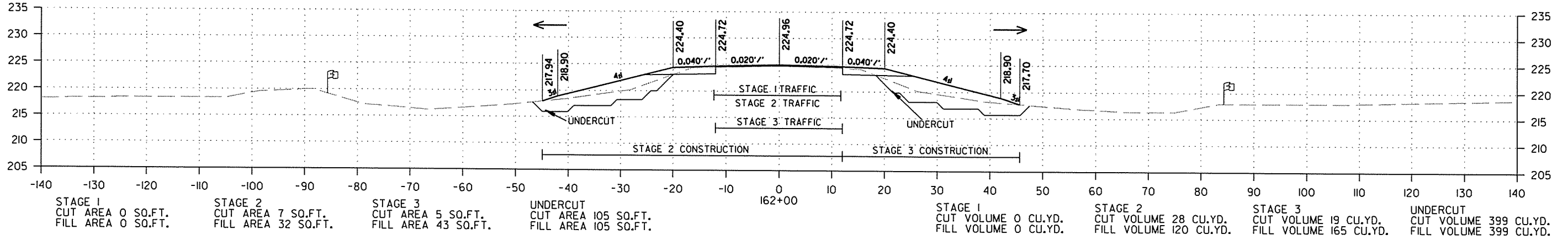
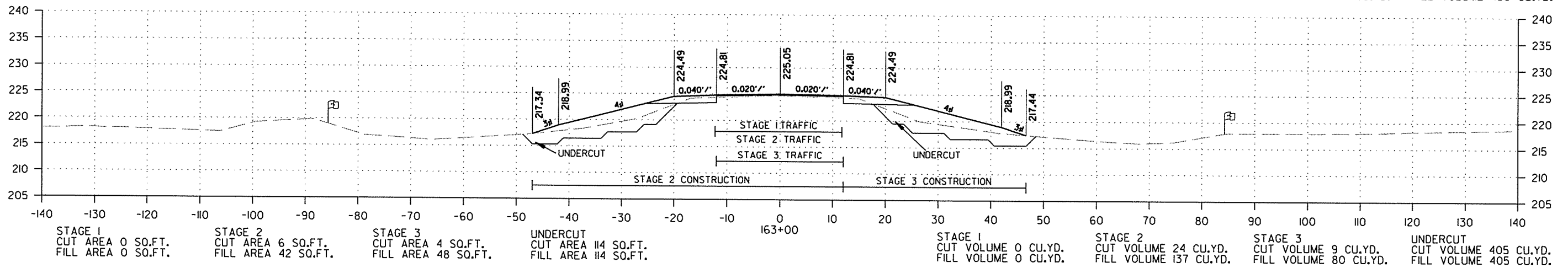
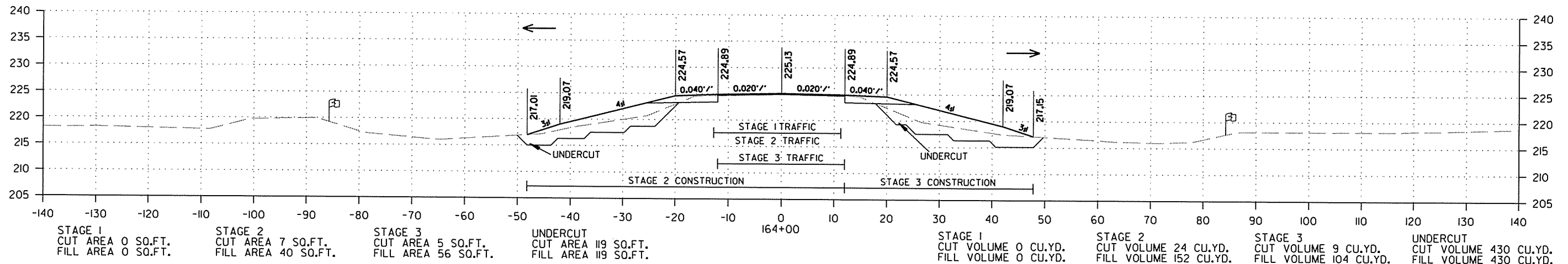
② CROSS SECTIONS



12/21/2015  
R050272.DGN

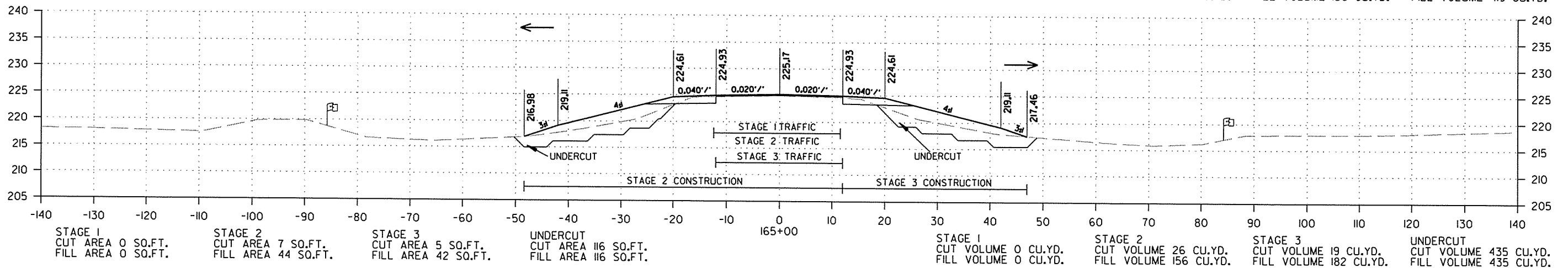
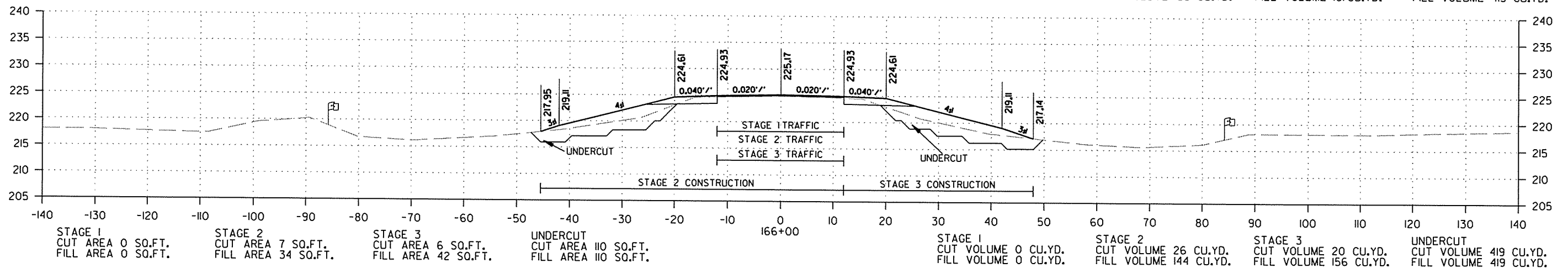
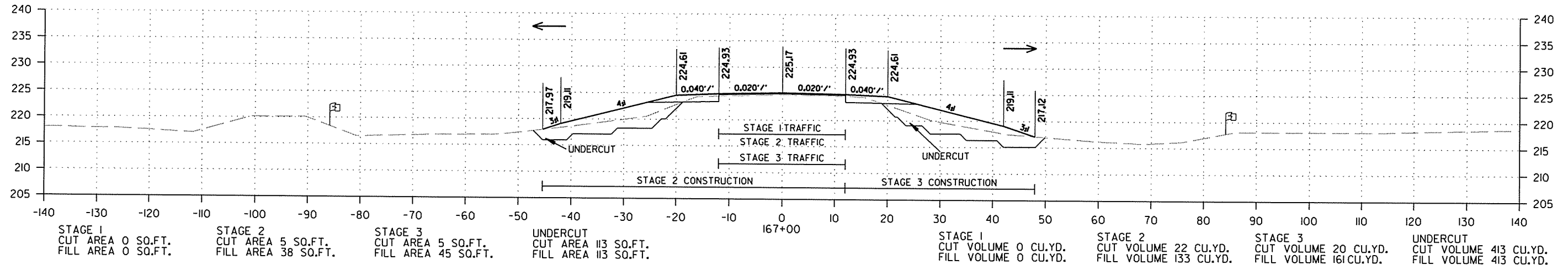
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	146	159

2 CROSS SECTIONS



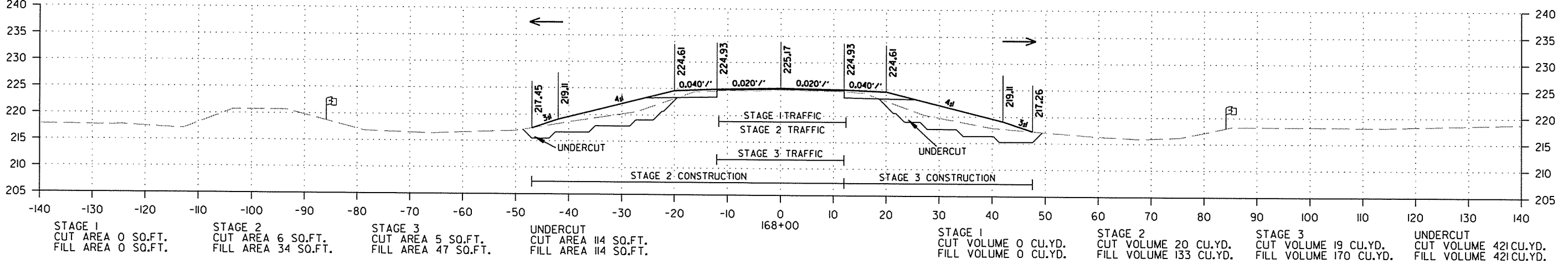
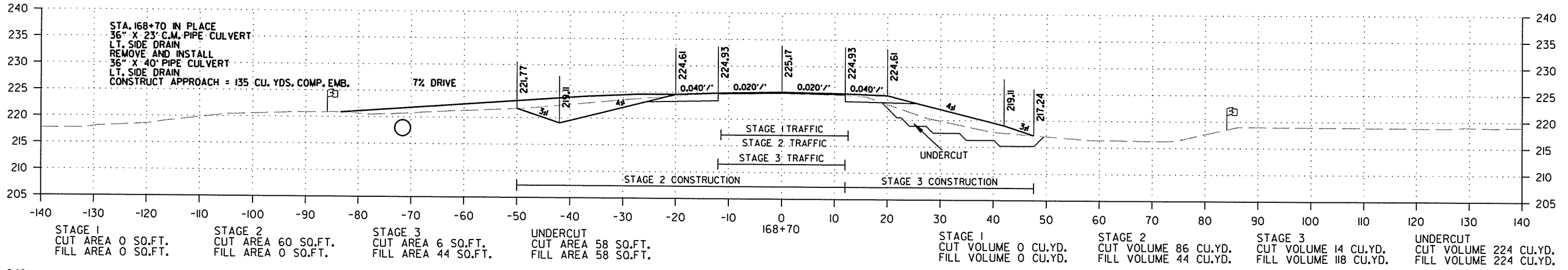
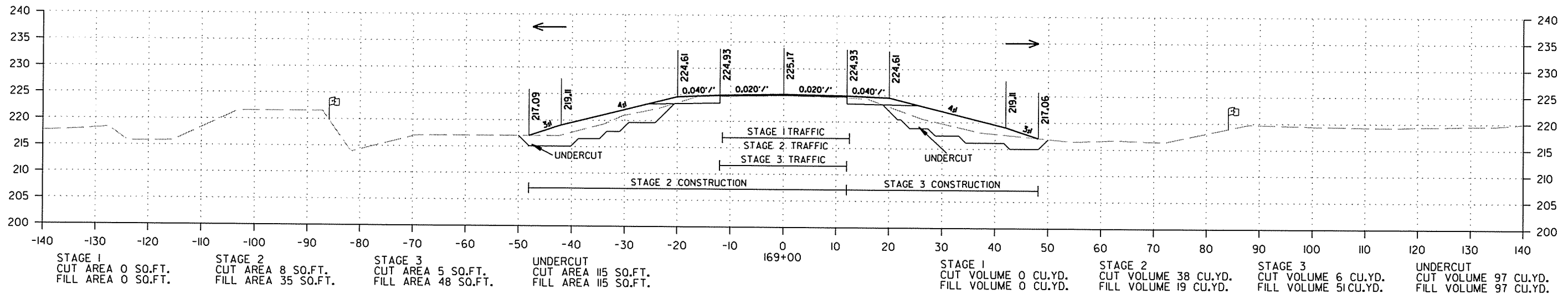
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	147	159

2 CROSS SECTIONS



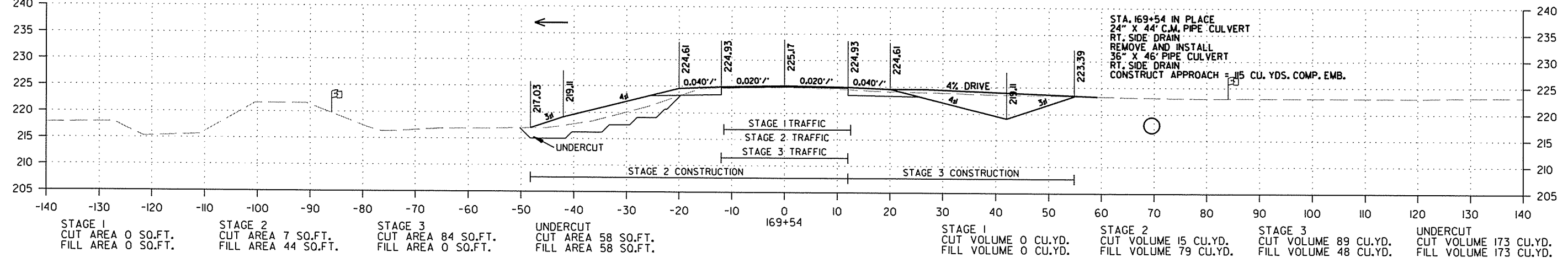
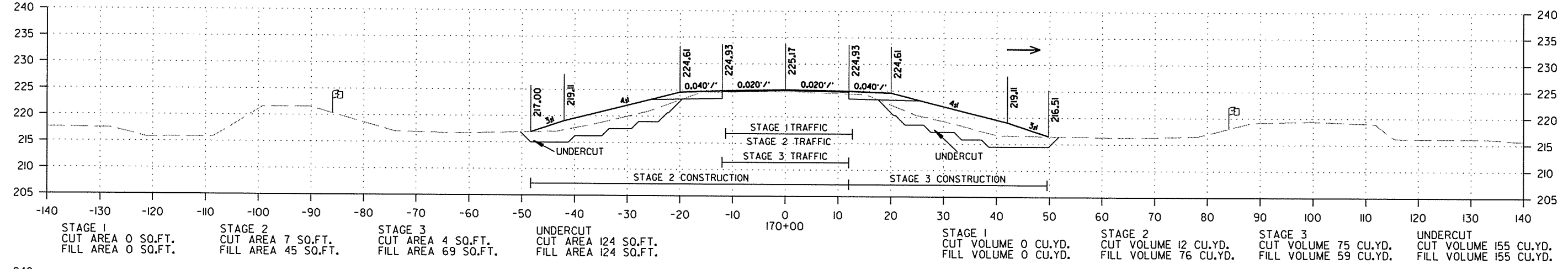
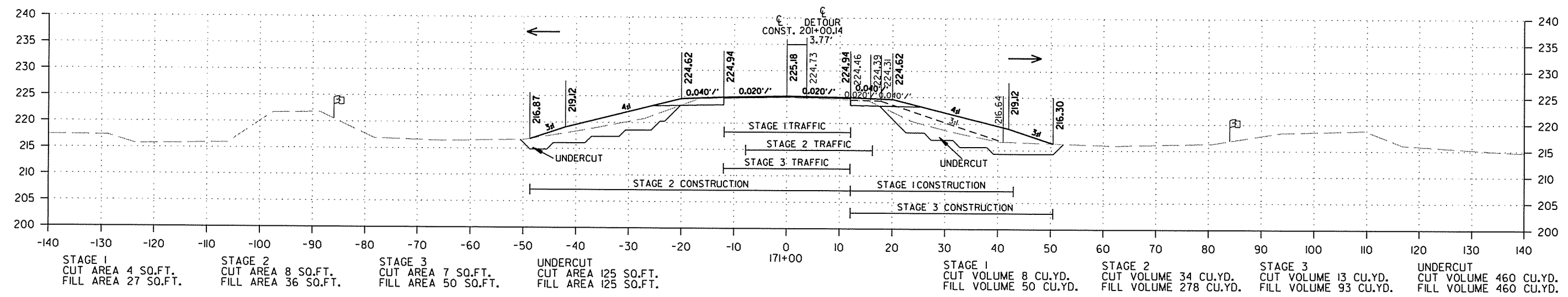
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	148	159

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050272	149 159

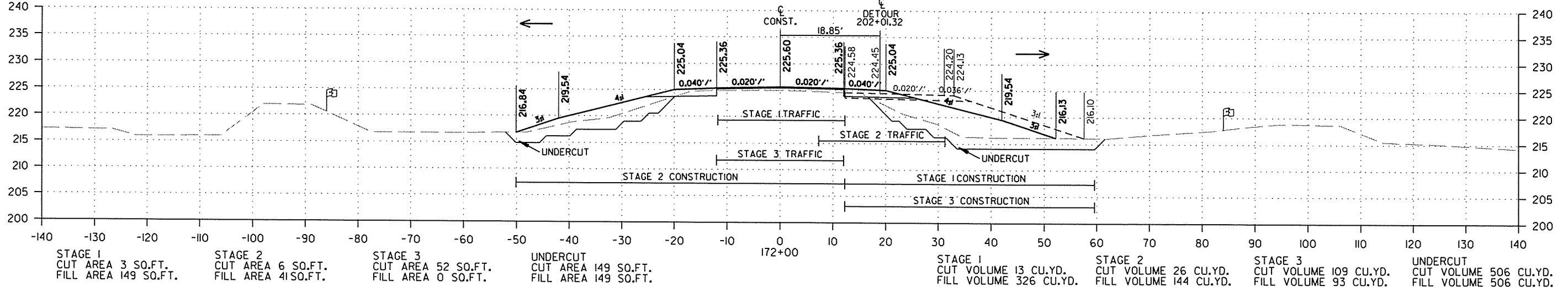
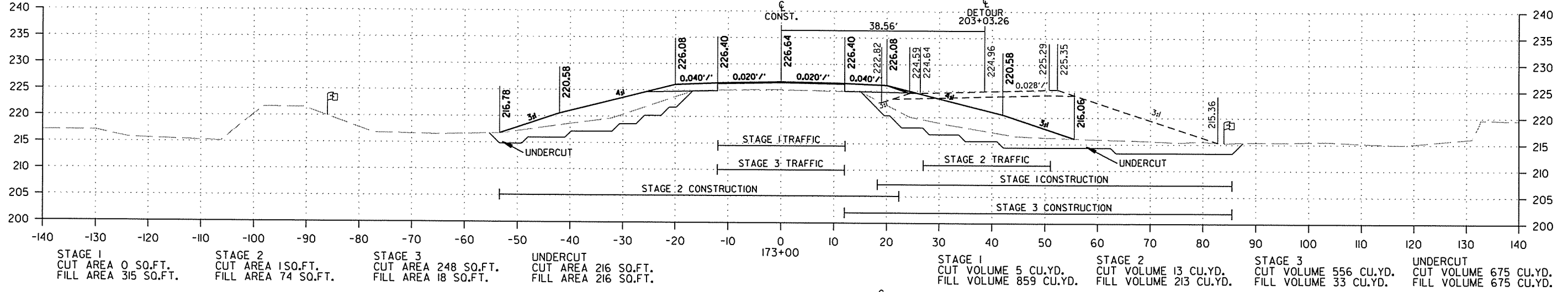
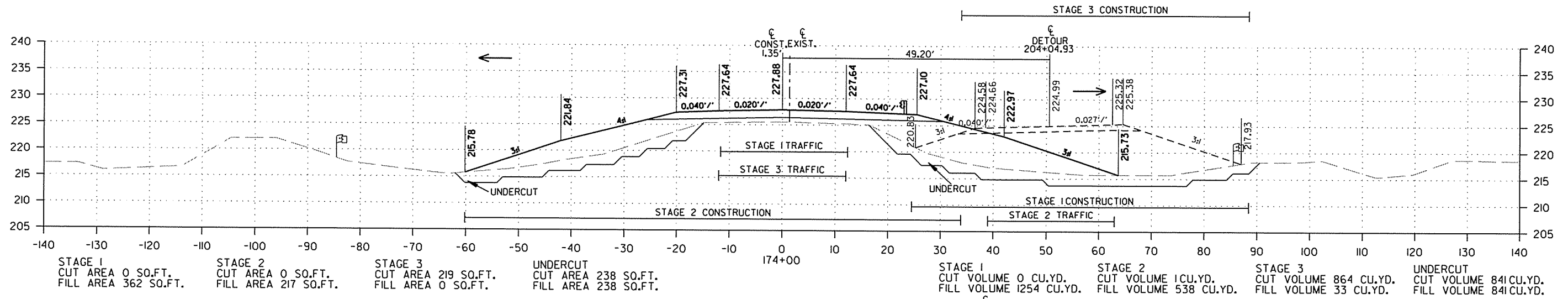
② CROSS SECTIONS



12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050272	150 159

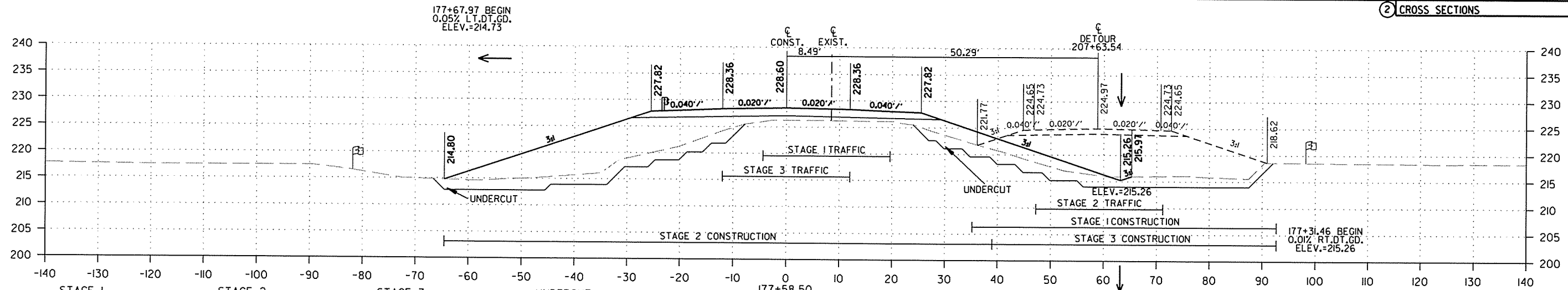
② CROSS SECTIONS



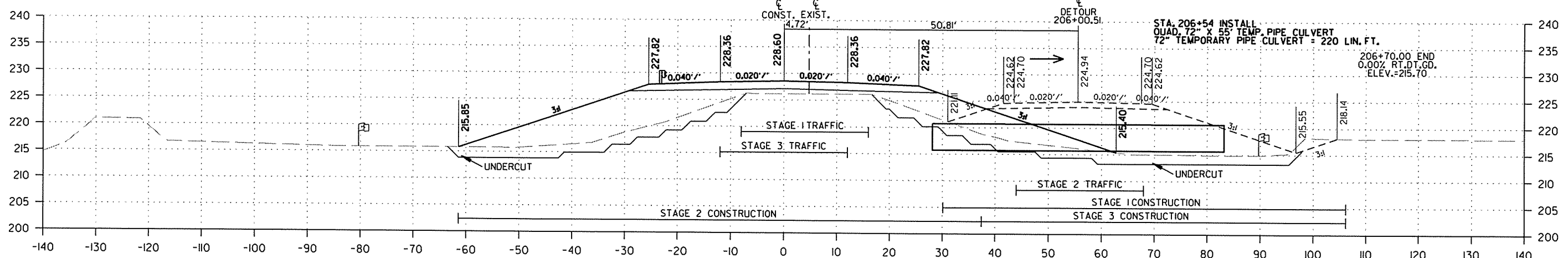
12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	151	159

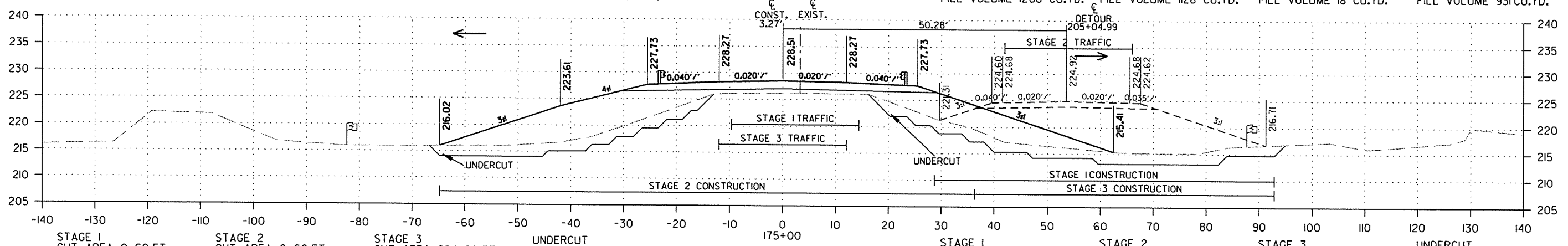
2 CROSS SECTIONS



STAGE	CUT AREA (SQ.FT.)	FILL AREA (SQ.FT.)	CUT VOLUME (CU.YD.)	FILL VOLUME (CU.YD.)
STAGE 1	0	307	0	472
STAGE 2	0	339	0	261
STAGE 3	313	0	362	0
UNDERCUT	245	245	128	128
STAGE 1	0	318	14	1392
STAGE 2	0	0	0	0
STAGE 3	365	0	0	0
UNDERCUT	0	0	0	0
STAGE 1	7	374	10	360
STAGE 2	0	0	0	158
STAGE 3	437	5	370	7
UNDERCUT	0	0	127	127



STAGE	CUT AREA (SQ.FT.)	FILL AREA (SQ.FT.)	CUT VOLUME (CU.YD.)	FILL VOLUME (CU.YD.)
STAGE 1	13	374	24	1268
STAGE 2	0	329	0	1128
STAGE 3	331	10	1105	18
UNDERCUT	263	263	931	931

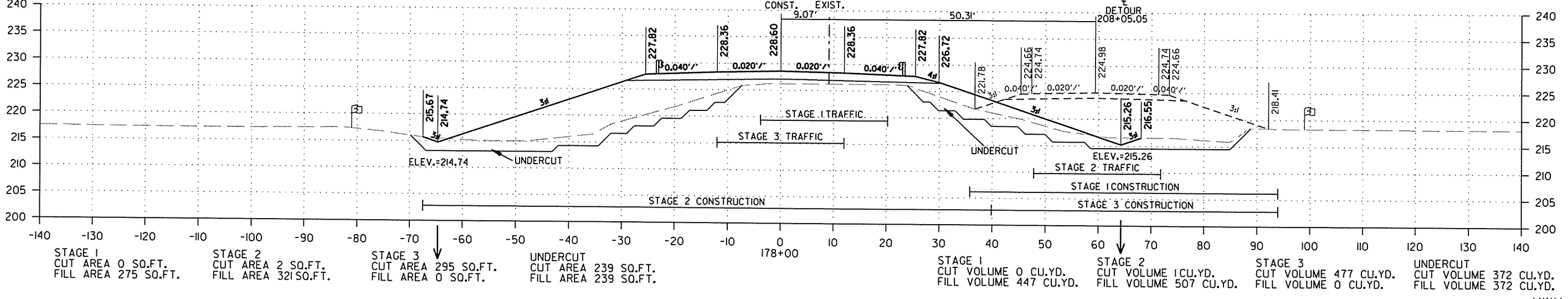
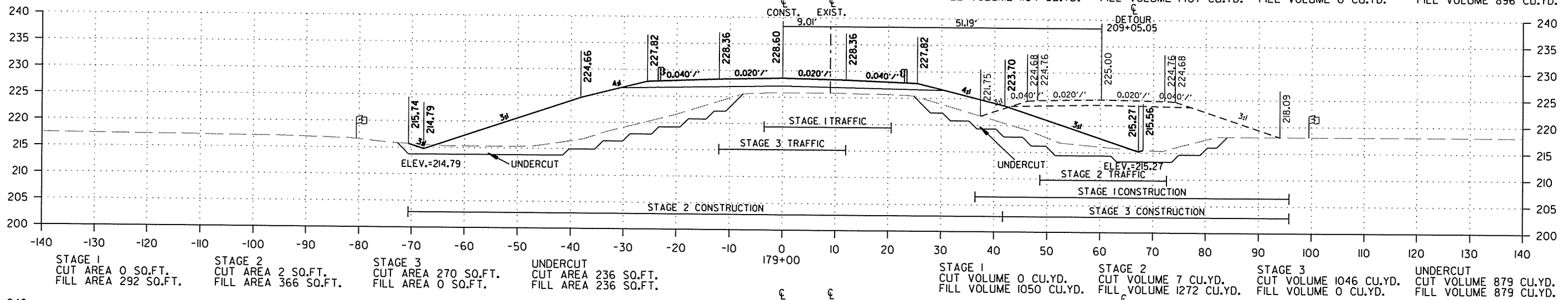
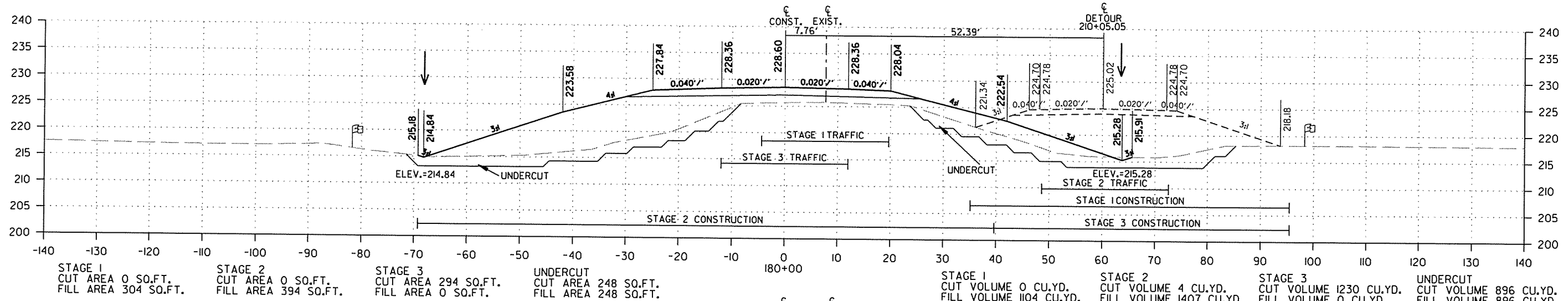


STAGE	CUT AREA (SQ.FT.)	FILL AREA (SQ.FT.)	CUT VOLUME (CU.YD.)	FILL VOLUME (CU.YD.)
STAGE 1	0	343	0	1306
STAGE 2	0	309	0	974
STAGE 3	294	0	950	0
UNDERCUT	263	263	929	929

12/21/2015  
R050272.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050272							152	159

2 CROSS SECTIONS

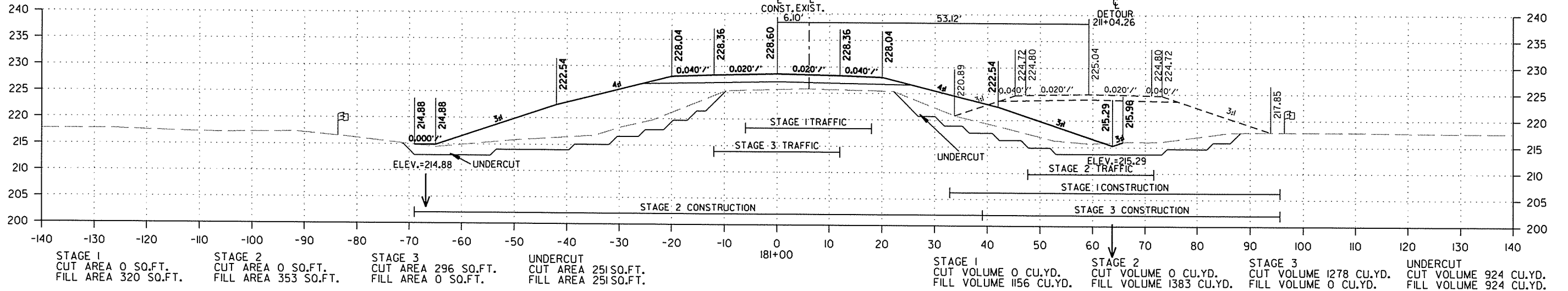
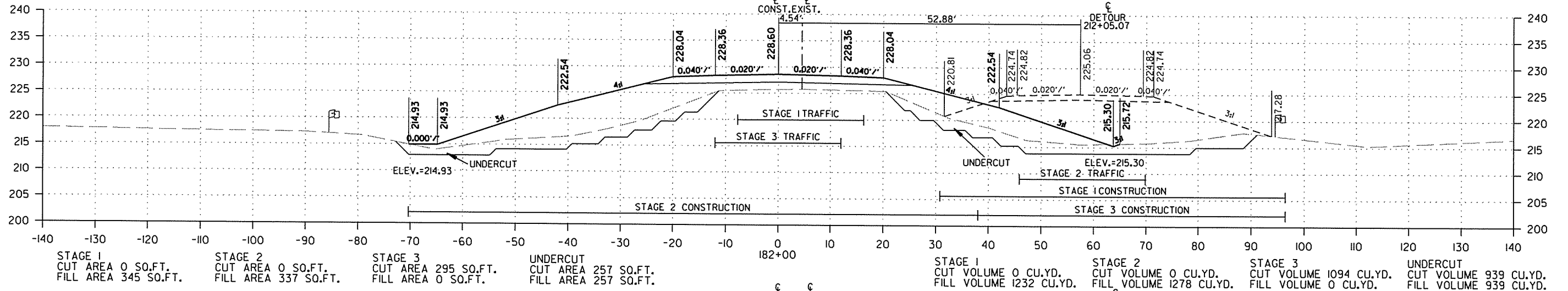
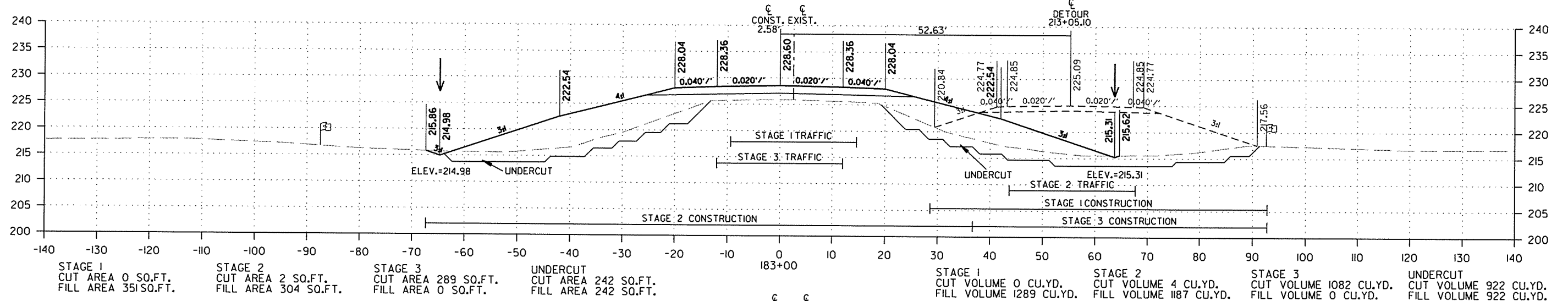


12/21/2015  
R050272.DGN



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050272	153	159

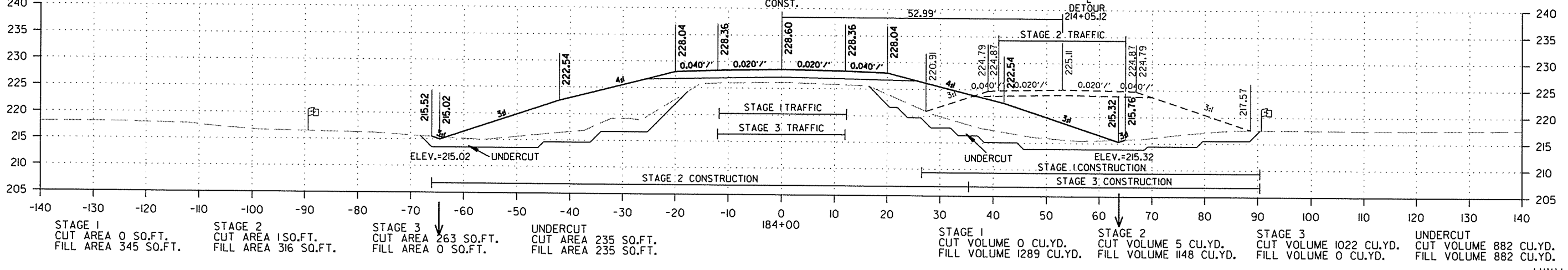
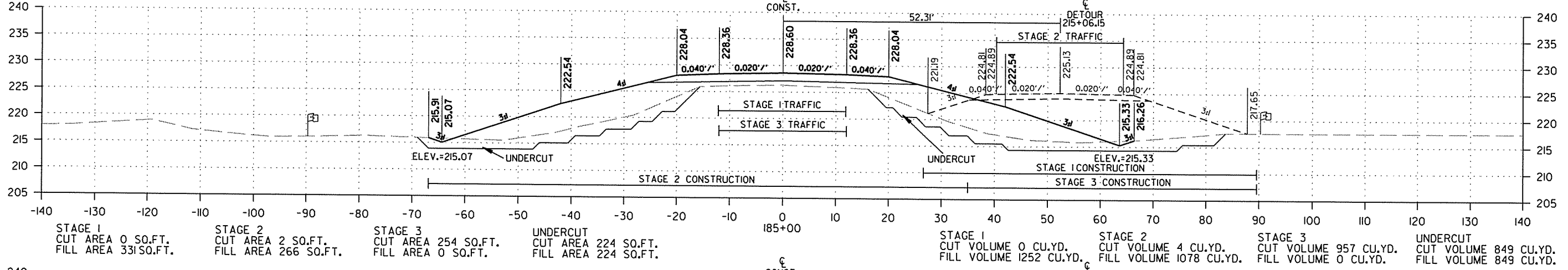
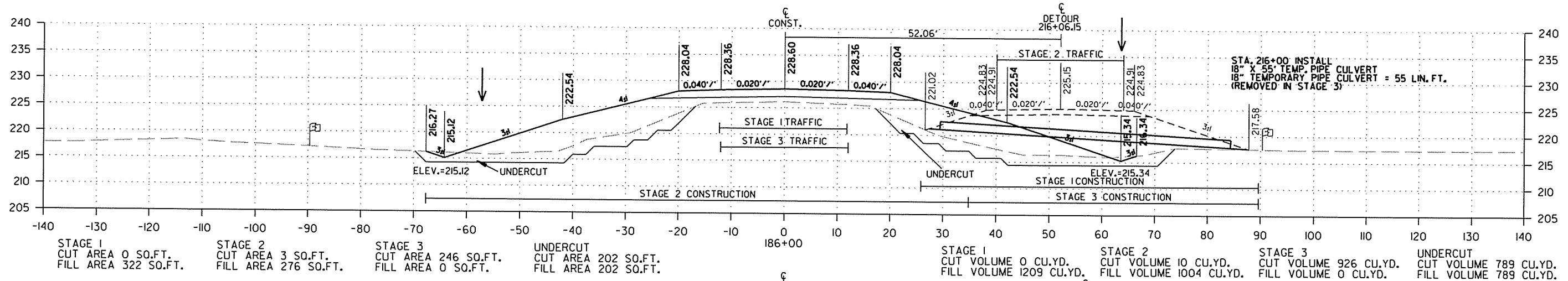
2 CROSS SECTIONS



12/21/2015  
R050272.DGN

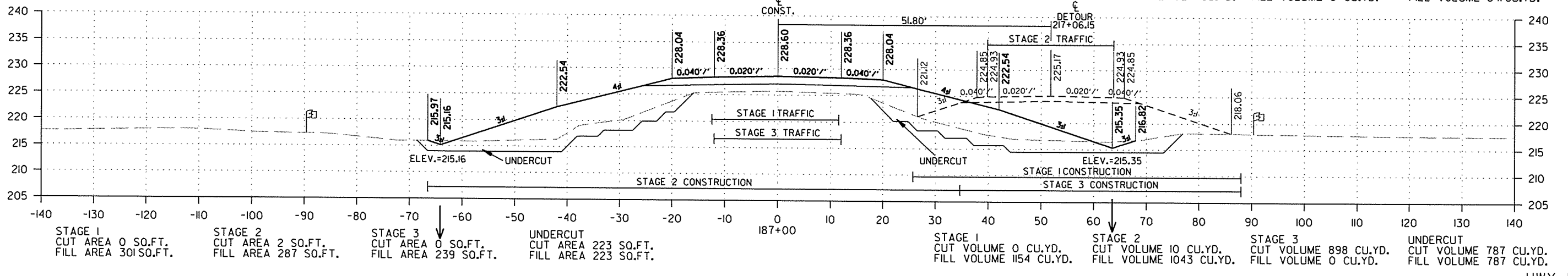
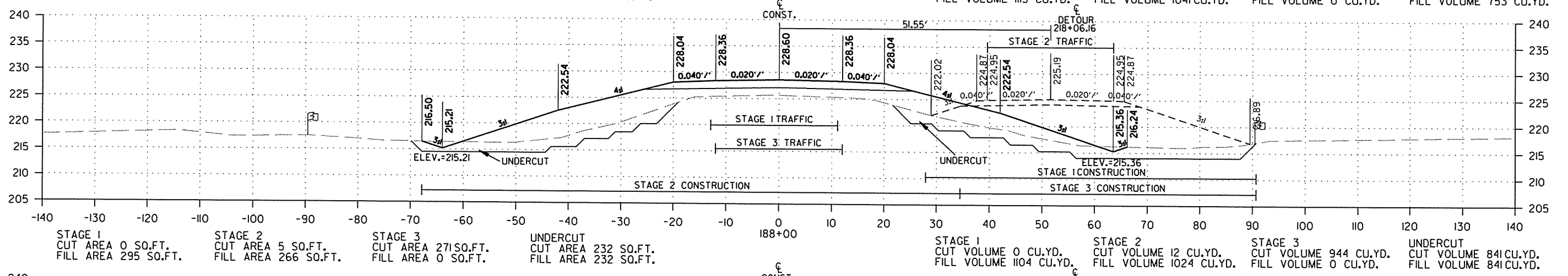
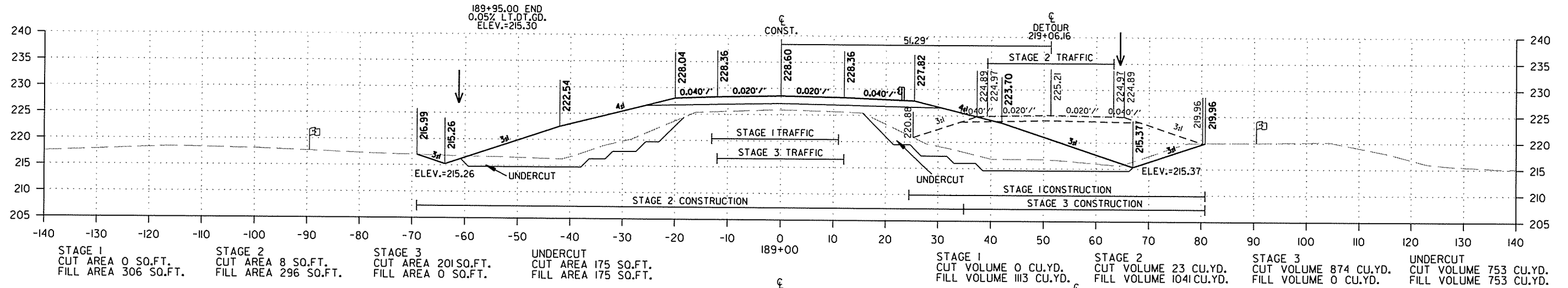
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	154	159

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	155	159

② CROSS SECTIONS



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	156	159

2 CROSS SECTIONS

192+76.85 BEGIN  
0.00% LT. DT. GD.  
ELEV.=216.22

192+75.00 BEGIN  
0.00% RT. DT. GD.  
ELEV.=215.32

STAGE 1  
CUT AREA 0 SO.FT.  
FILL AREA 272 SO.FT.

STAGE 2  
CUT AREA 0 SO.FT.  
FILL AREA 0 SO.FT.

STAGE 3  
CUT AREA 223 SO.FT.  
FILL AREA 0 SO.FT.

UNDERCUT  
CUT AREA 0 SO.FT.  
FILL AREA 0 SO.FT.

192+59.17  
SLOPE INTERCEPT

STAGE 1  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 1196 CU.YD.

STAGE 2  
CUT VOLUME 1 CU.YD.  
FILL VOLUME 0 CU.YD.

STAGE 3  
CUT VOLUME 972 CU.YD.  
FILL VOLUME 0 CU.YD.

UNDERCUT  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 0 CU.YD.

STAGE 1  
CUT AREA 0 SO.FT.  
FILL AREA 305 SO.FT.

STAGE 2  
CUT AREA 0 SO.FT.  
FILL AREA 0 SO.FT.

STAGE 3  
CUT AREA 246 SO.FT.  
FILL AREA 0 SO.FT.

UNDERCUT  
CUT AREA 0 SO.FT.  
FILL AREA 0 SO.FT.

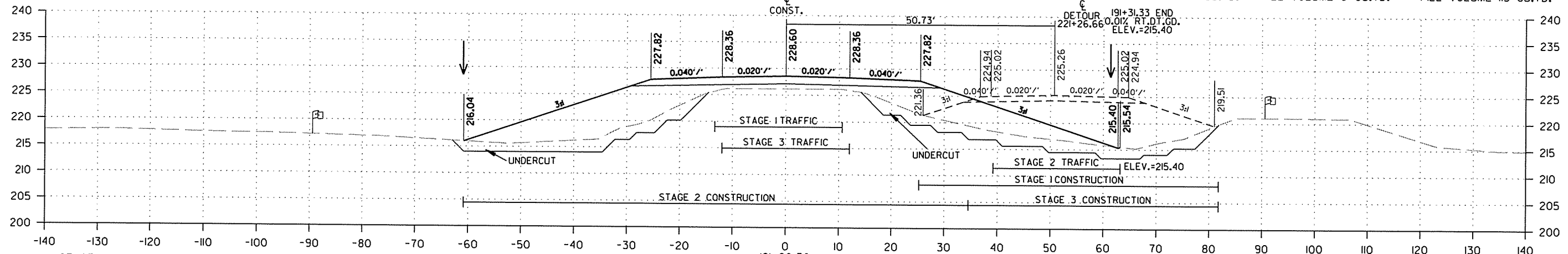
191+47.30  
SLOPE INTERCEPT

STAGE 1  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 303 CU.YD.

STAGE 2  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 157 CU.YD.

STAGE 3  
CUT VOLUME 244 CU.YD.  
FILL VOLUME 0 CU.YD.

UNDERCUT  
CUT VOLUME 113 CU.YD.  
FILL VOLUME 113 CU.YD.



STAGE 1  
CUT AREA 0 SO.FT.  
FILL AREA 305 SO.FT.

STAGE 2  
CUT AREA 0 SO.FT.  
FILL AREA 316 SO.FT.

STAGE 3  
CUT AREA 246 SO.FT.  
FILL AREA 0 SO.FT.

UNDERCUT  
CUT AREA 227 SO.FT.  
FILL AREA 227 SO.FT.

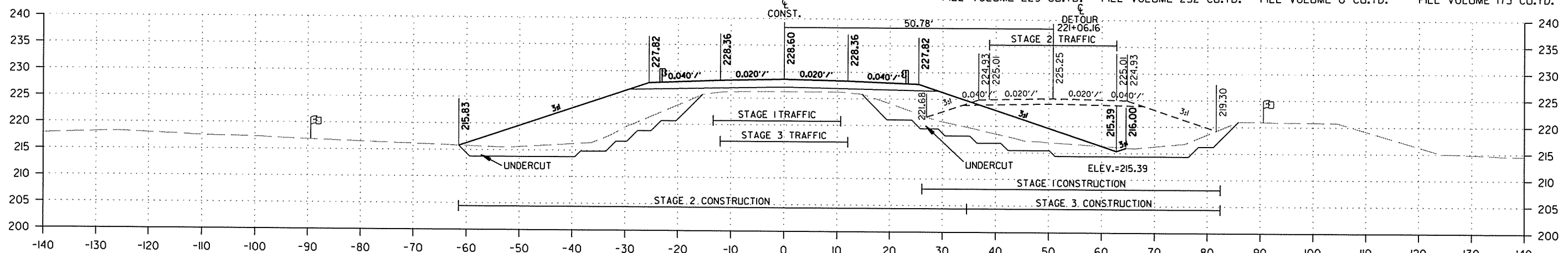
191+20.50  
BRIDGE END

STAGE 1  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 229 CU.YD.

STAGE 2  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 232 CU.YD.

STAGE 3  
CUT VOLUME 187 CU.YD.  
FILL VOLUME 0 CU.YD.

UNDERCUT  
CUT VOLUME 173 CU.YD.  
FILL VOLUME 173 CU.YD.



STAGE 1  
CUT AREA 0 SO.FT.  
FILL AREA 297 SO.FT.

STAGE 2  
CUT AREA 0 SO.FT.  
FILL AREA 295 SO.FT.

STAGE 3  
CUT AREA 247 SO.FT.  
FILL AREA 0 SO.FT.

UNDERCUT  
CUT AREA 229 SO.FT.  
FILL AREA 229 SO.FT.

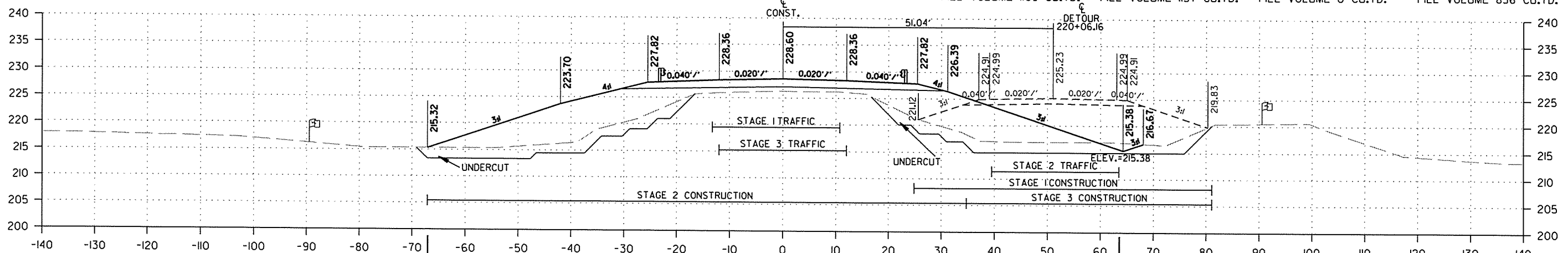
191+00

STAGE 1  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 1109 CU.YD.

STAGE 2  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 1157 CU.YD.

STAGE 3  
CUT VOLUME 876 CU.YD.  
FILL VOLUME 0 CU.YD.

UNDERCUT  
CUT VOLUME 836 CU.YD.  
FILL VOLUME 836 CU.YD.



STAGE 1  
CUT AREA 0 SO.FT.  
FILL AREA 302 SO.FT.

STAGE 2  
CUT AREA 0 SO.FT.  
FILL AREA 330 SO.FT.

STAGE 3  
CUT AREA 226 SO.FT.  
FILL AREA 0 SO.FT.

UNDERCUT  
CUT AREA 222 SO.FT.  
FILL AREA 222 SO.FT.

190+00

STAGE 1  
CUT VOLUME 0 CU.YD.  
FILL VOLUME 1126 CU.YD.

STAGE 2  
CUT VOLUME 14 CU.YD.  
FILL VOLUME 1159 CU.YD.

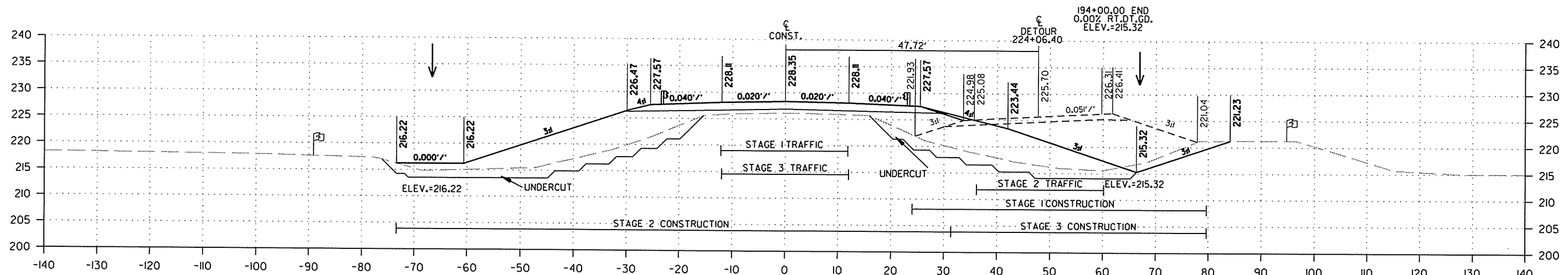
STAGE 3  
CUT VOLUME 791 CU.YD.  
FILL VOLUME 0 CU.YD.

UNDERCUT  
CUT VOLUME 735 CU.YD.  
FILL VOLUME 735 CU.YD.

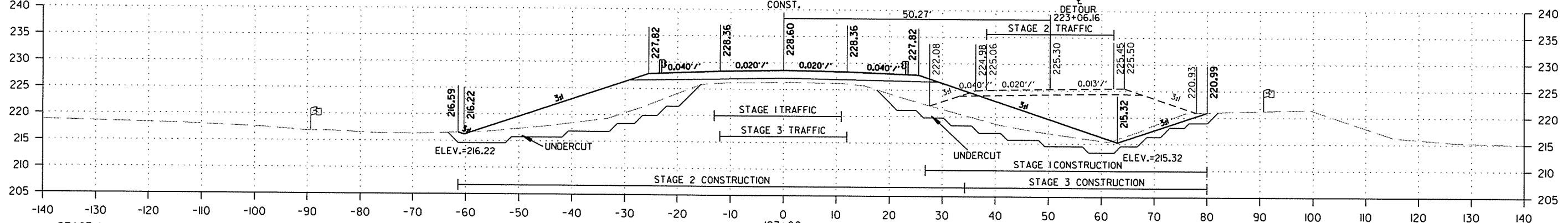
12/21/2015 R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050272		157	159

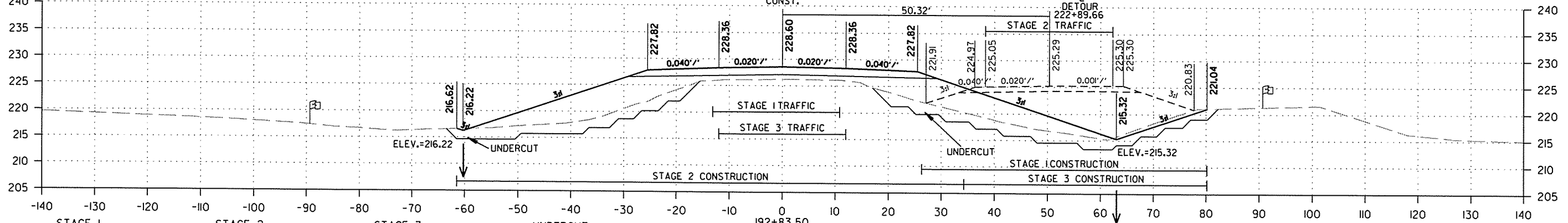
② CROSS SECTIONS



STAGE 1 CUT AREA 0 SO.FT. FILL AREA 325 SO.FT.	STAGE 2 CUT AREA 0 SO.FT. FILL AREA 284 SO.FT.	STAGE 3 CUT AREA 236 SO.FT. FILL AREA 2 SO.FT.	UNDERCUT CUT AREA 206 SO.FT. FILL AREA 206 SO.FT.	194+00	STAGE 1 CUT VOLUME 0 CU.YD. FILL VOLUME 1098 CU.YD.	STAGE 2 CUT VOLUME 1 CU.YD. FILL VOLUME 952 CU.YD.	STAGE 3 CUT VOLUME 865 CU.YD. FILL VOLUME 4 CU.YD.	UNDERCUT CUT VOLUME 765 CU.YD. FILL VOLUME 765 CU.YD.
--	--	--	---	--------	---	--	--	---



STAGE 1 CUT AREA 0 SO.FT. FILL AREA 268 SO.FT.	STAGE 2 CUT AREA 1 SO.FT. FILL AREA 230 SO.FT.	STAGE 3 CUT AREA 231 SO.FT. FILL AREA 0 SO.FT.	UNDERCUT CUT AREA 207 SO.FT. FILL AREA 207 SO.FT.	193+00	STAGE 1 CUT VOLUME 0 CU.YD. FILL VOLUME 165 CU.YD.	STAGE 2 CUT VOLUME 0 CU.YD. FILL VOLUME 145 CU.YD.	STAGE 3 CUT VOLUME 139 CU.YD. FILL VOLUME 0 CU.YD.	UNDERCUT CUT VOLUME 128 CU.YD. FILL VOLUME 128 CU.YD.
--	--	--	---	--------	--	--	--	---

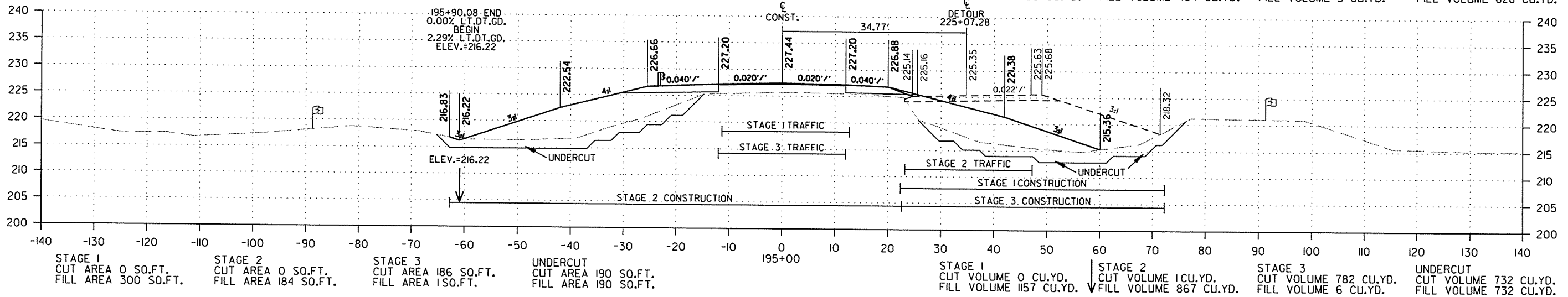
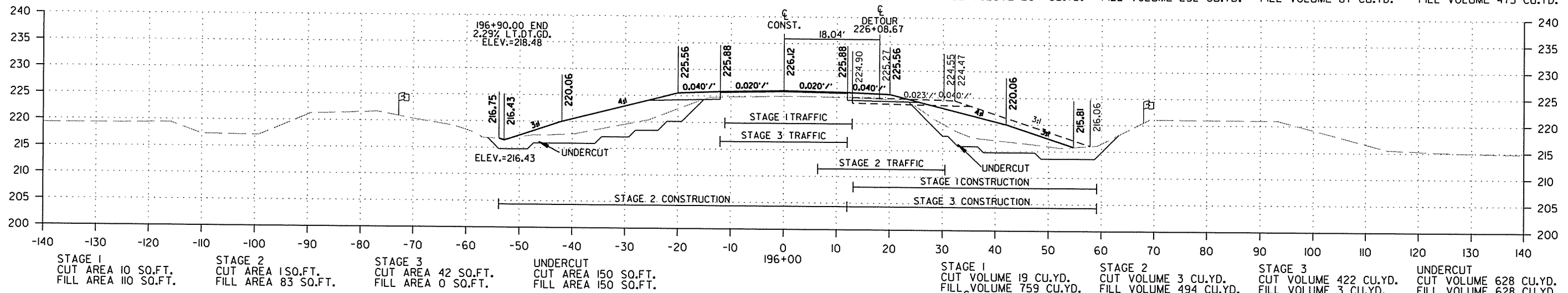
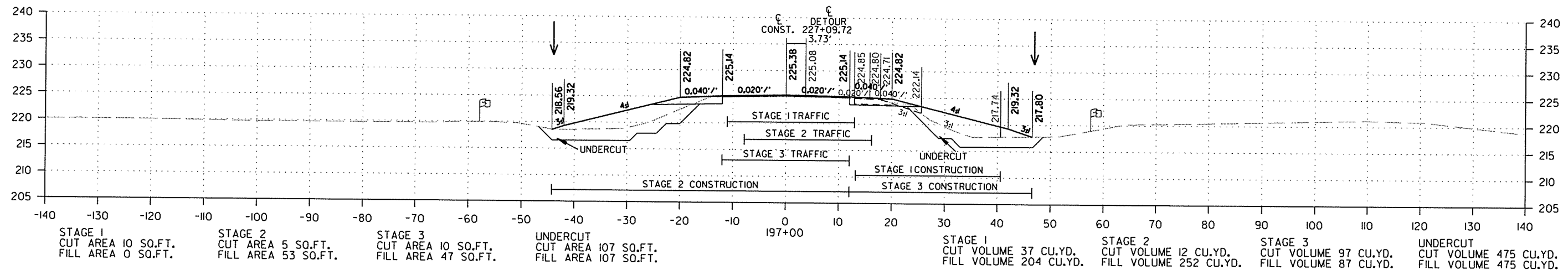


STAGE 1 CUT AREA 0 SO.FT. FILL AREA 272 SO.FT.	STAGE 2 CUT AREA 1 SO.FT. FILL AREA 243 SO.FT.	STAGE 3 CUT AREA 223 SO.FT. FILL AREA 0 SO.FT.	UNDERCUT CUT AREA 213 SO.FT. FILL AREA 213 SO.FT.	192+83.50 BRIDGE END	STAGE 1 CUT VOLUME 0 CU.YD. FILL VOLUME 245 CU.YD.	STAGE 2 CUT VOLUME 1 CU.YD. FILL VOLUME 109 CU.YD.	STAGE 3 CUT VOLUME 20 CU.YD. FILL VOLUME 0 CU.YD.	UNDERCUT CUT VOLUME 96 CU.YD. FILL VOLUME 96 CU.YD.
--	--	--	---	-------------------------	--	--	---	---

12/21/2015 R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	158	159

2 CROSS SECTIONS



12/21/2015  
R050272.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050272	159	159

2 CROSS SECTIONS

STAGE 1  
CUT AREA 0 SQ.FT.  
FILL AREA 0 SQ.FT.

STAGE 2  
CUT AREA 0 SQ.FT.  
FILL AREA 0 SQ.FT.

STAGE 3  
CUT AREA 0 SQ.FT.  
FILL AREA 0 SQ.FT.

UNDERCUT  
CUT AREA 0 SQ.FT.  
FILL AREA 0 SQ.FT.

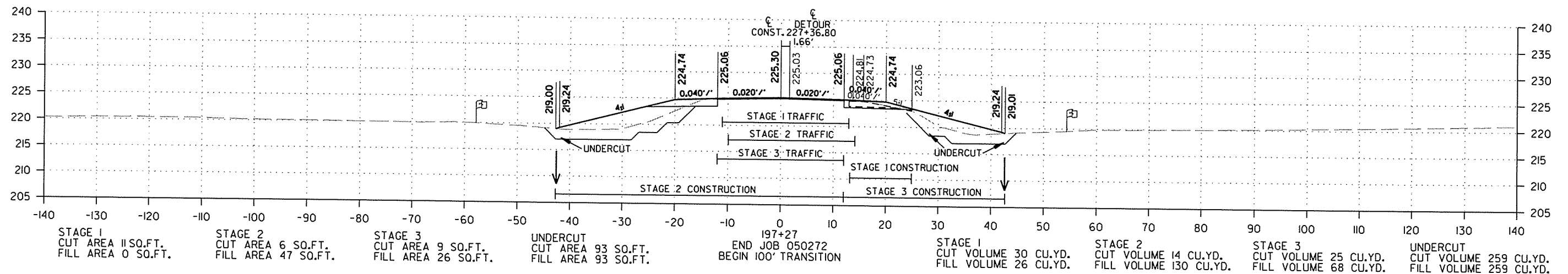
198+27  
END 100' TRANSITION

STAGE 1  
CUT VOLUME 6 CU.YD.  
FILL VOLUME 0 CU.YD.

STAGE 2  
CUT VOLUME 3 CU.YD.  
FILL VOLUME 26 CU.YD.

STAGE 3  
CUT VOLUME 5 CU.YD.  
FILL VOLUME 15 CU.YD.

UNDERCUT  
CUT VOLUME 52 CU.YD.  
FILL VOLUME 52 CU.YD.



12/21/2015  
R050272.DGN