

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		1	102

② GUT CREEK STR. & APPRS. (S)

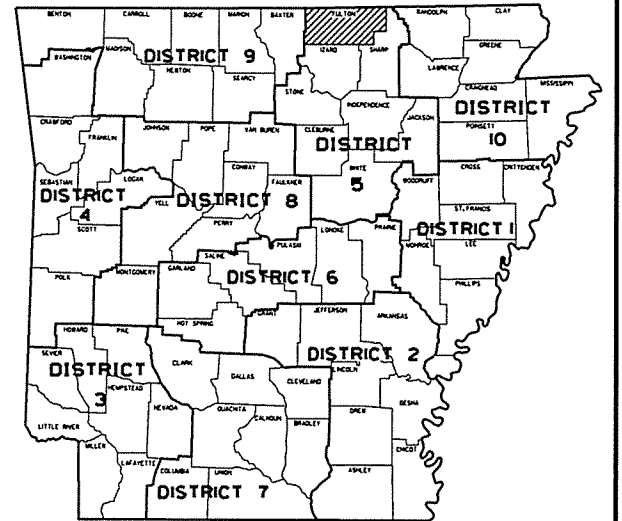
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

GUT CREEK STR. & APPRS. (S)

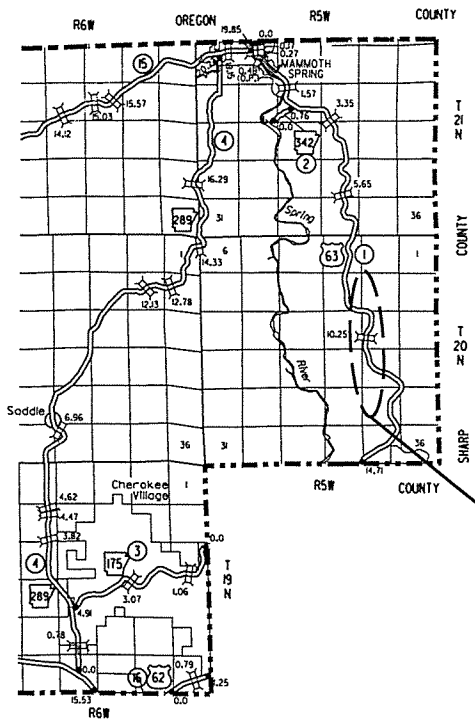
FULTON COUNTY
ROUTE 63 SECTION I

JOB 050274

FED. AID PROJ. NHPP-0025(17)



ARK. HWY. DIST. NO. 5



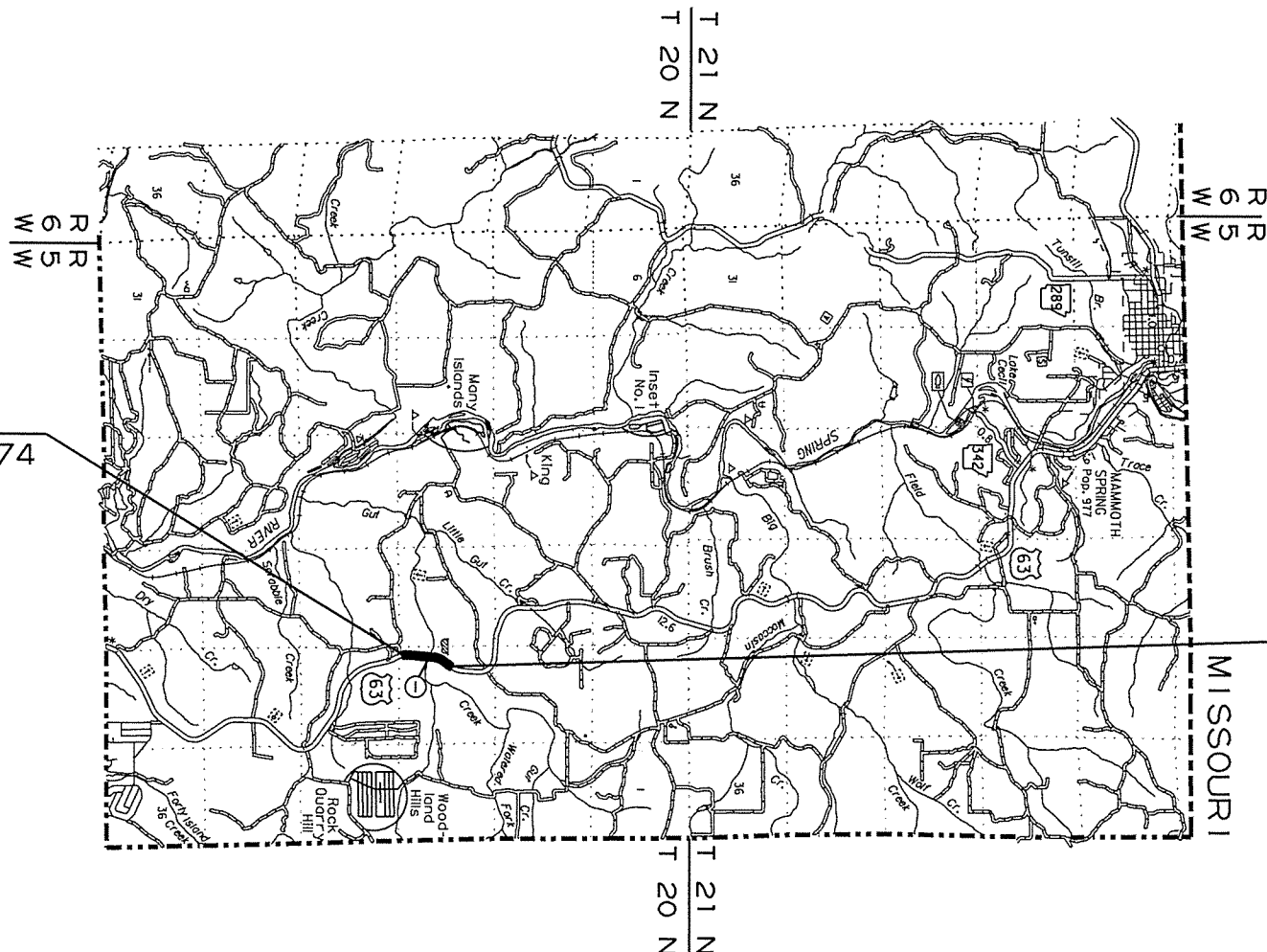
PROJECT LOCATION

VICINITY MAP

NOT TO SCALE

DESIGN TRAFFIC DATA

DESIGN YEAR	2035
2015 ADT	5,500
2035 ADT	7,500
2035 DHV	825
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	27%
DESIGN SPEED	60 MPH



STA. 43+23.46
END JOB NO. 050274

STA. 11+50.00
BEGIN JOB 050274
LOG MILE 9.98

APPROVED



3-5-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

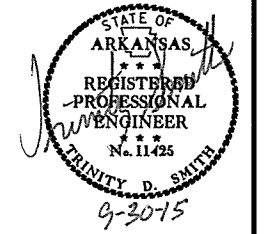
- BRIDGE DATA
- ① STA. 22+78.85 BR. END
BRIDGE NO. 07337
255'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(85'-85'-85')
255'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(85'-85'-85')
512'-3 5/8" BRIDGE LENGTH
40'-0" CLEAR ROADWAY
STA. 27+91.15 BR. END

BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE = N 36°23'15"	LATITUDE = N 36°23'01"	LATITUDE = N 36°22'45"
LONGITUDE = W 91°29'09"	LONGITUDE = W 91°29'15"	LONGITUDE = W 91°29'15"

GROSS LENGTH OF PROJECT	3173.46	FEET	OR	0.601	MILES
NET " " ROADWAY	2661.16	" " "	" "	0.504	" "
NET " " BRIDGES	512.30	" " "	" "	0.097	" "
NET " " PROJECT	3173.46	" " "	" "	0.601	" "

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② INDEX OF SHEETS



INDEX OF SHEETS

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83	TEMPORARY EROSION CONTROL DEVICES		TEC-4	7-26-12
84	WIRE FENCE TYPE C AND D		WF-4	8-22-02
85 - 102	CROSS SECTIONS			

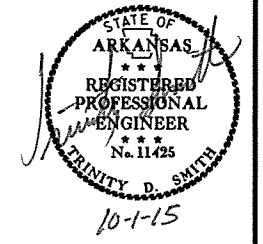
NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

9/30/2015

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② GOVERNING SPECS. & 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 050274
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB 050274	BIDDING REQUIREMENTS AND CONDITIONS
JOB 050274	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050274	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050274	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050274	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050274	HIGH PERFORMANCE PAVEMENT MARKING
JOB 050274	MANDATORY ELECTRONIC CONTRACT
JOB 050274	NESTING SITES OF MIGRATORY BIRDS
JOB 050274	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 050274	PARTNERING REQUIREMENTS
JOB 050274	PLASTIC PIPE
JOB 050274	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 050274	ROCK FILL
JOB 050274	SECTION 404 LETTER OF PERMISSION PERMIT REQUIREMENTS
JOB 050274	SOIL STABILIZATION
JOB 050274	SPECIAL CLEARING REQUIREMENTS
JOB 050274	STORM WATER POLLUTION PREVENTION PLAN
JOB 050274	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050274	TRENCHING AND SHOULDER PREPARATION
JOB 050274	UTILITY ADJUSTMENTS
JOB 050274	VALUE ENGINEERING
JOB 050274	VEGETATED BUFFER
JOB 050274	WARM MIX ASPHALT

GENERAL NOTES

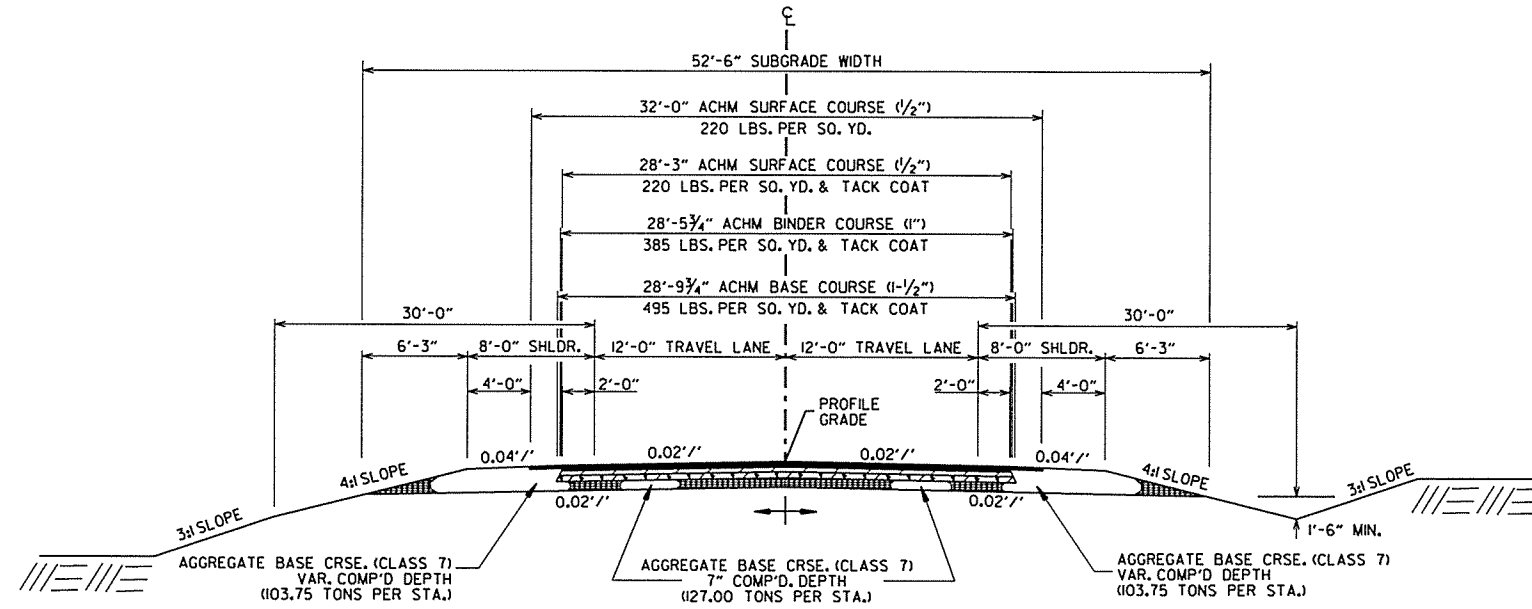
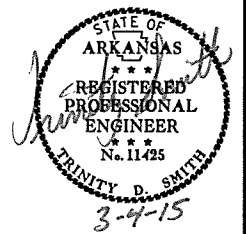
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY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

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2 TYPICAL SECTIONS OF IMPROVEMENT



HWY. 63
FULL DEPTH SECTION
STA. 12+68.25 TO STA. 22+78.85
STA. 27+91.15 TO STA. 42+00.00

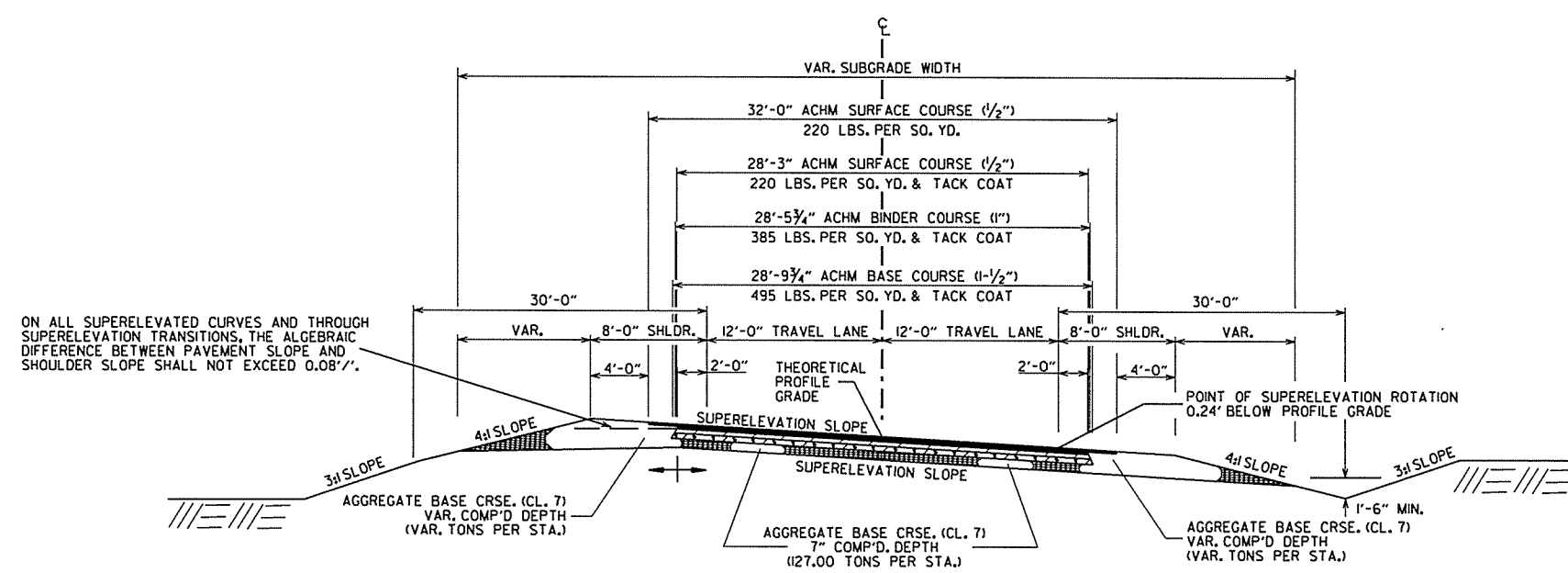
NOTES:

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

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

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.



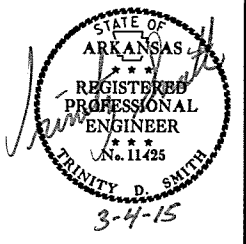
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

HWY. 63
FULL DEPTH SECTION - SUPERELEVATION

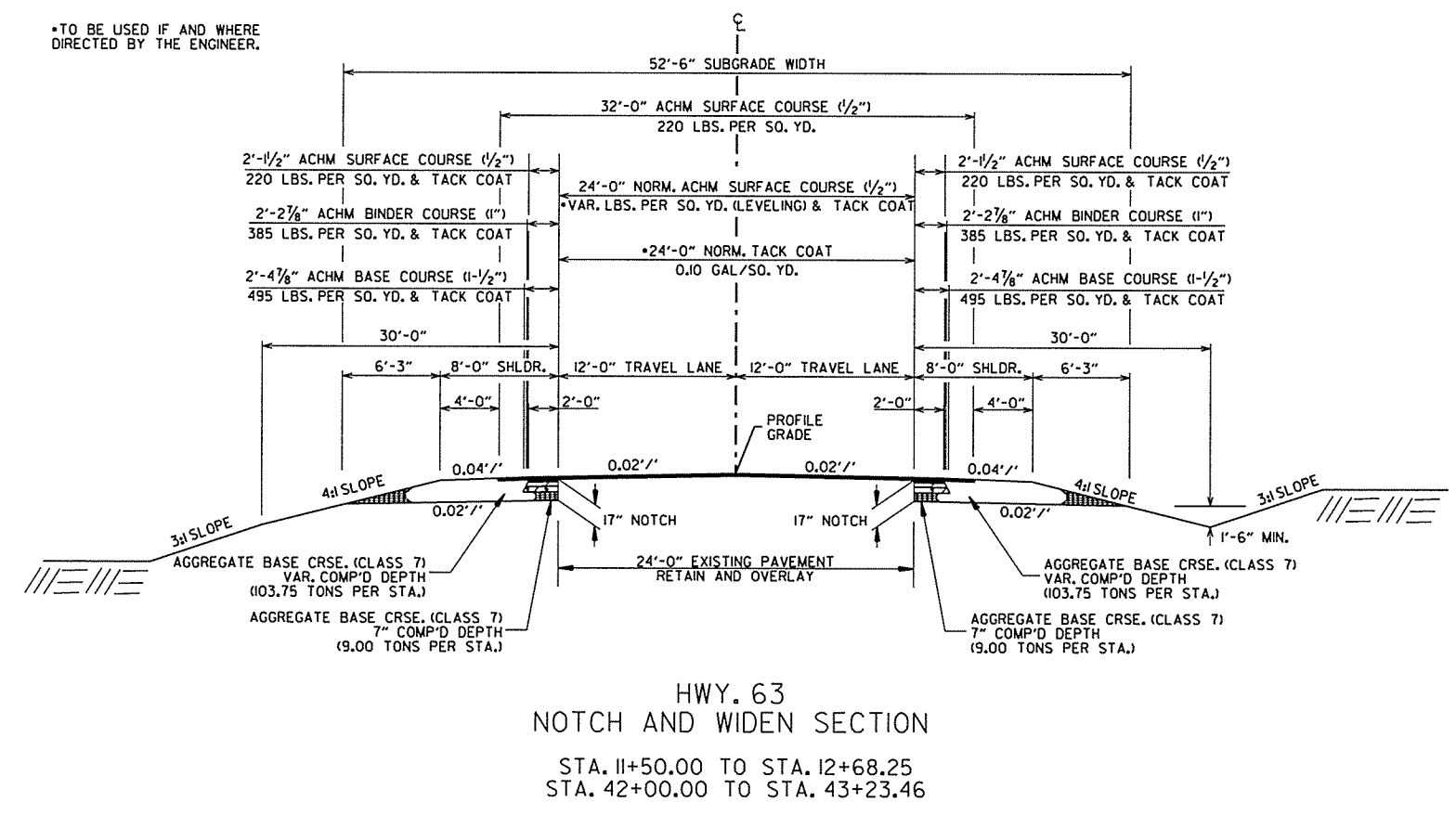
2/27/2015
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2 TYPICAL SECTIONS OF IMPROVEMENT

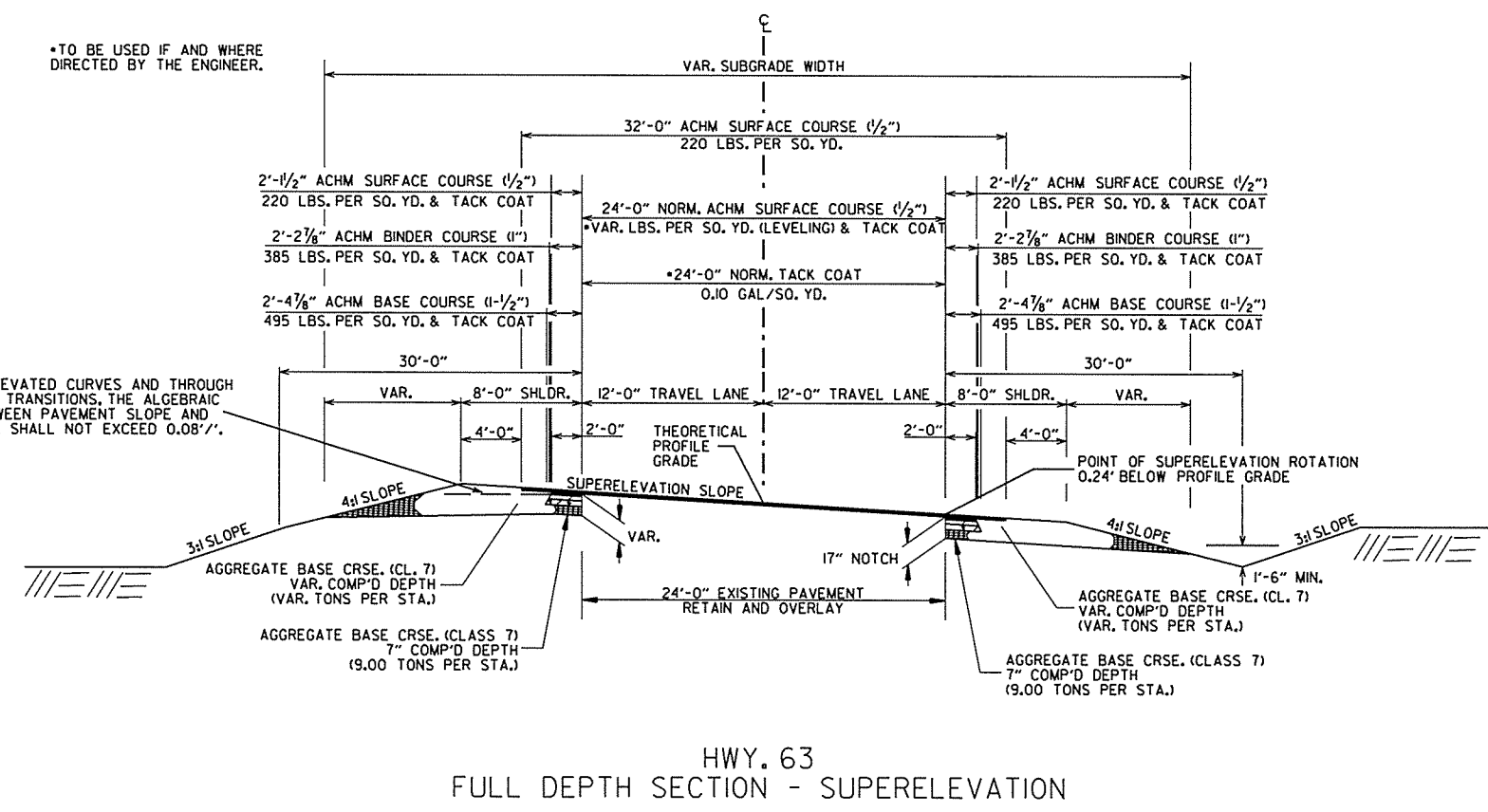


*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

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

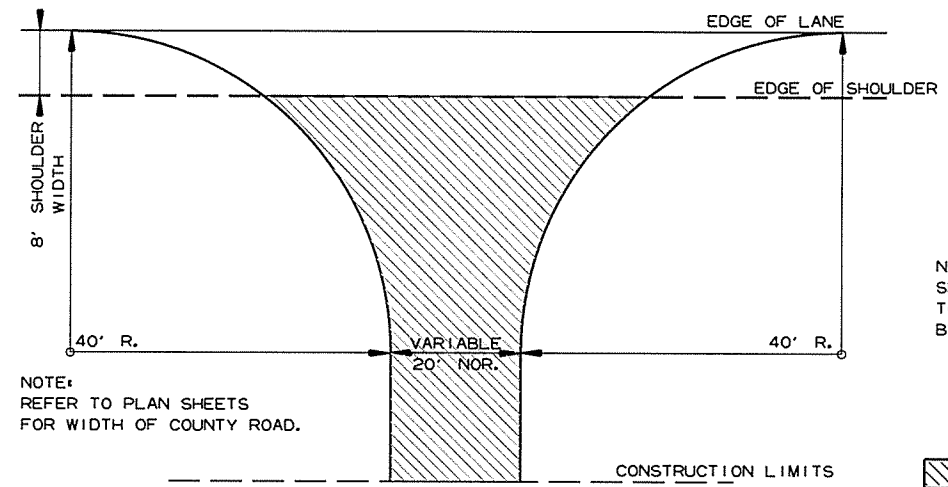
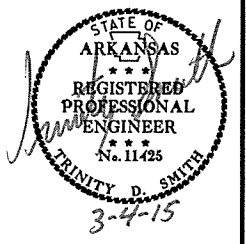


NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT 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.

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2 SPECIAL DETAILS

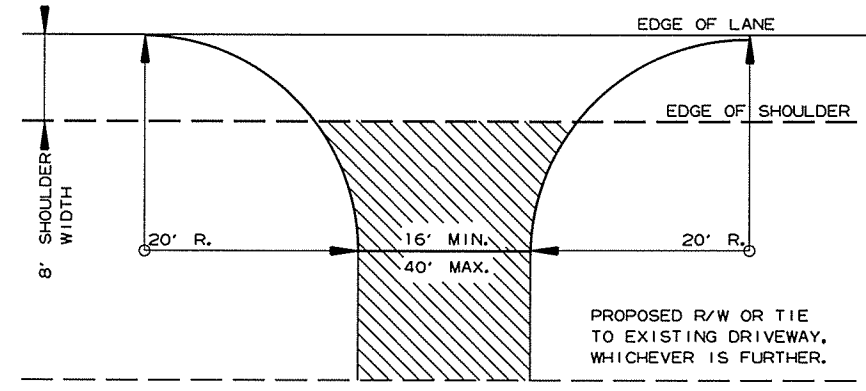


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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

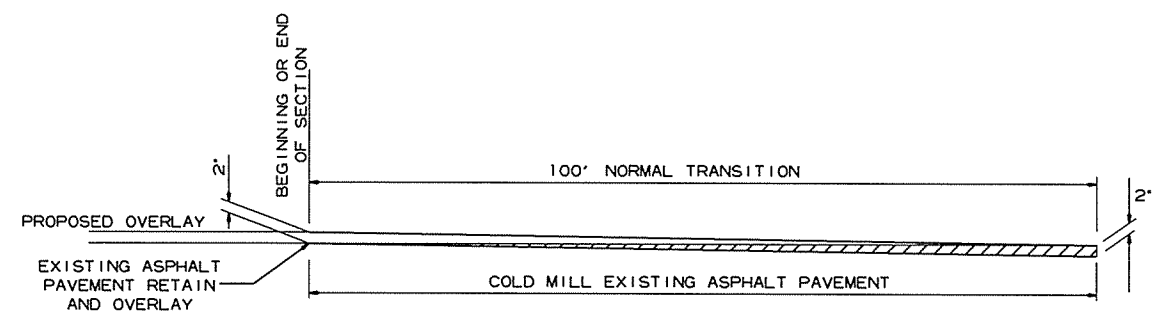
A. C. H. M SURFACE COURSE (1/2')
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH.

DETAIL FOR COUNTY ROAD TURNOUTS

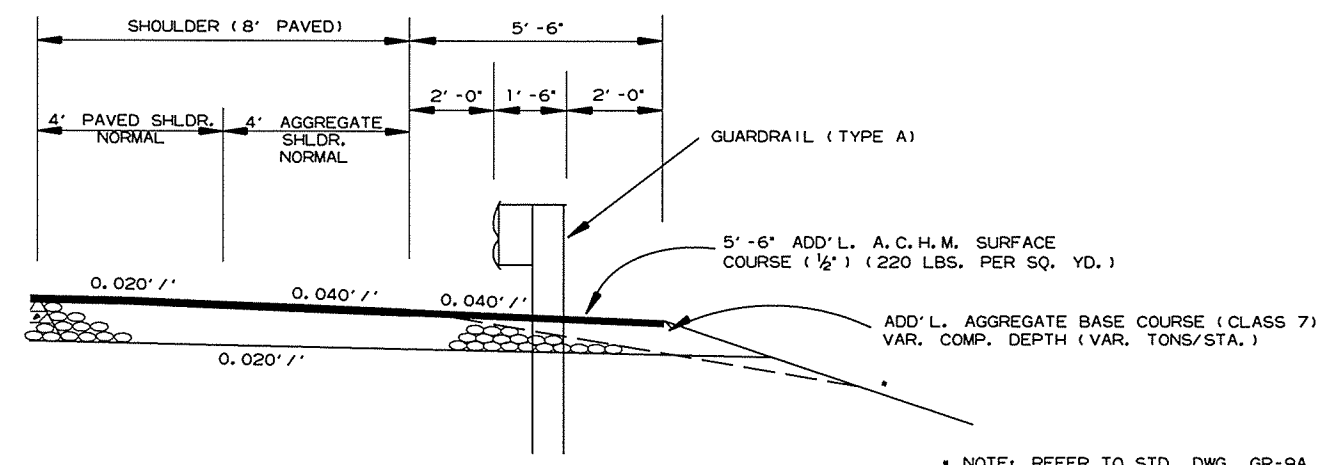


PROPOSED R/W OR TIE
TO EXISTING DRIVEWAY,
WHICHEVER IS FURTHER.

DETAIL FOR DRIVEWAY TURNOUTS



DETAIL FOR TRANSITIONS



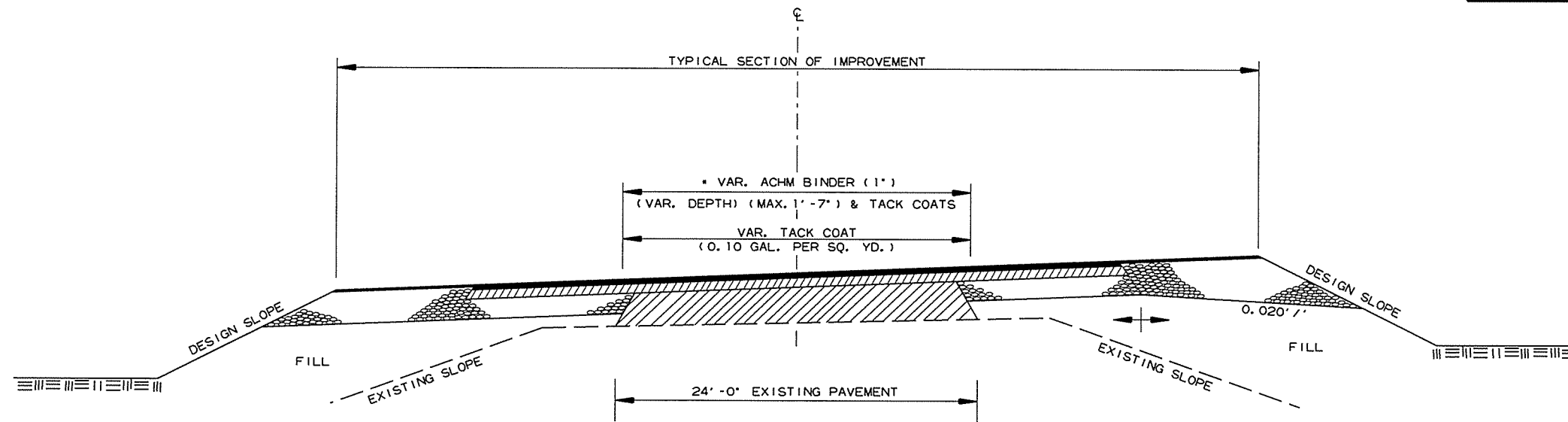
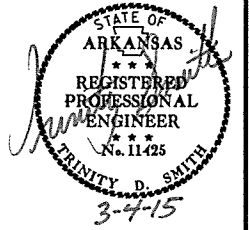
WIDENING FOR GUARDRAIL

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

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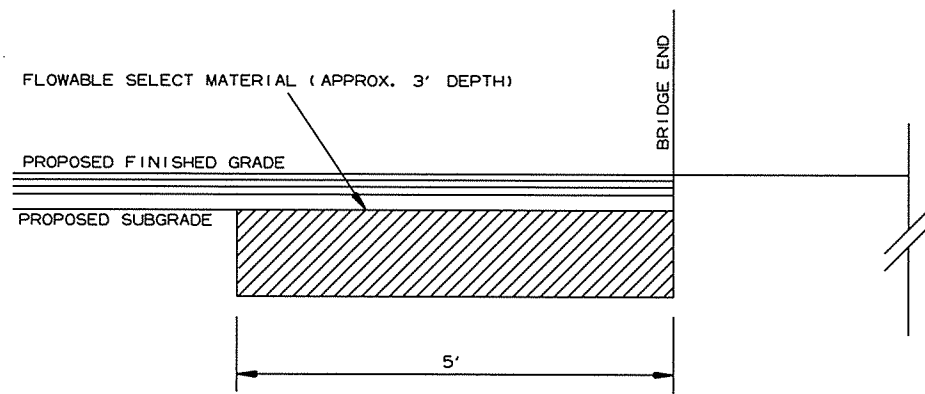


• 7" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH A.C.H.M. BINDER COURSE (1")

METHOD OF RAISING GRADE

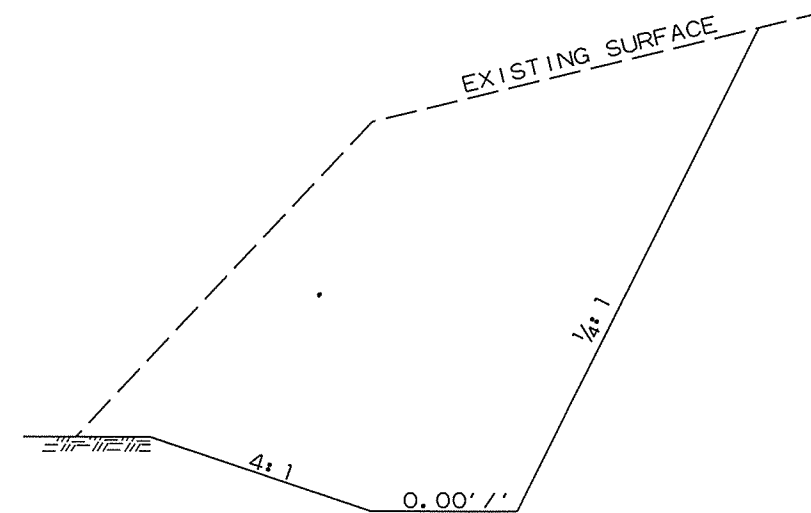
NOTES:

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

FLOWABLE SELECT MATERIAL AT BRIDGE ENDS



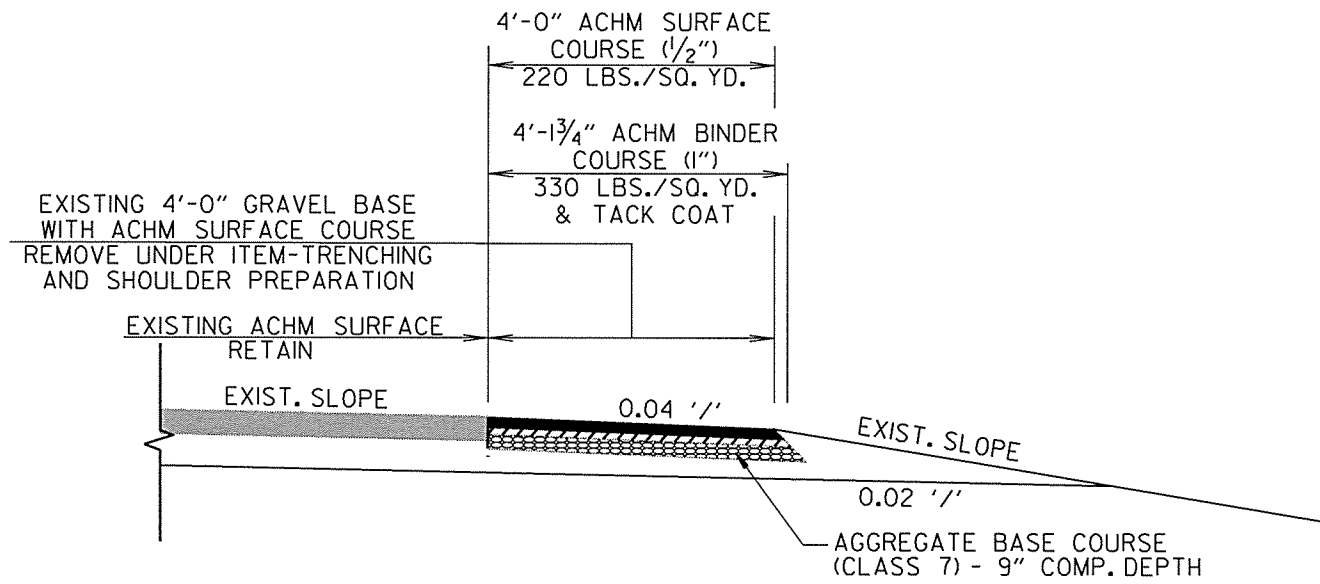
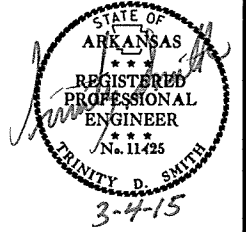
DETAIL FOR BENCHING IN SOLID ROCK

2/27/2015

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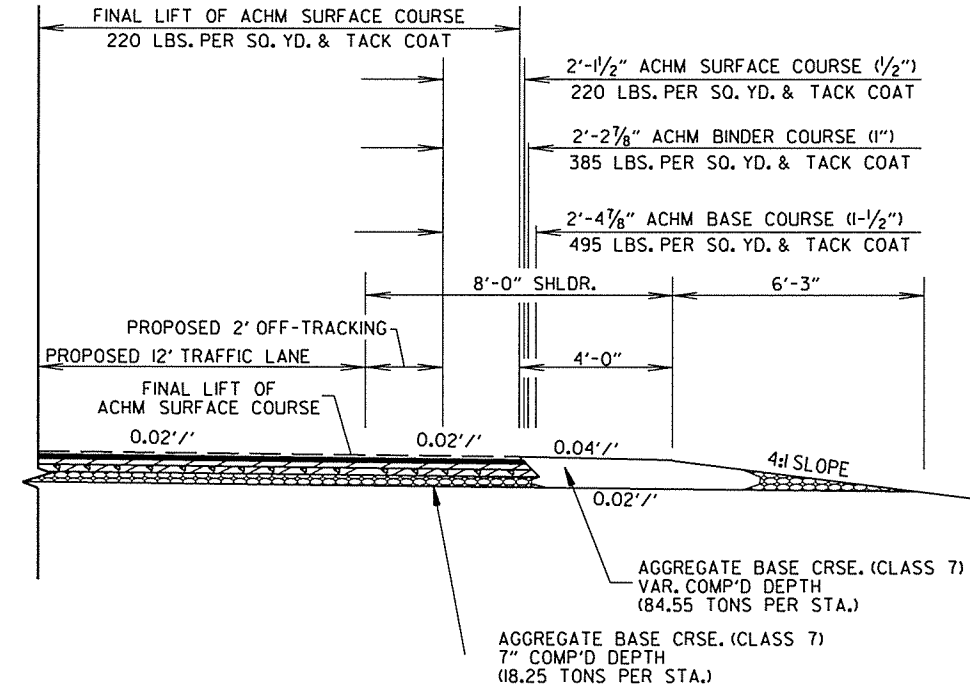
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2 SPECIAL DETAILS



SHOULDER RECONSTRUCTION OF EXISTING ROADWAY
FOR MAINTENANCE OF TRAFFIC
(EXISTING ROADWAY)

STA. 13+00.00 TO STA. 15+50.00 (RT. SHOULDER)
STA. 39+35.00 TO STA. 42+10.00 (RT. SHOULDER)



FULL DEPTH SHOULDER CONSTRUCTION
FOR MAINTENANCE OF TRAFFIC
(PROPOSED ROADWAY)

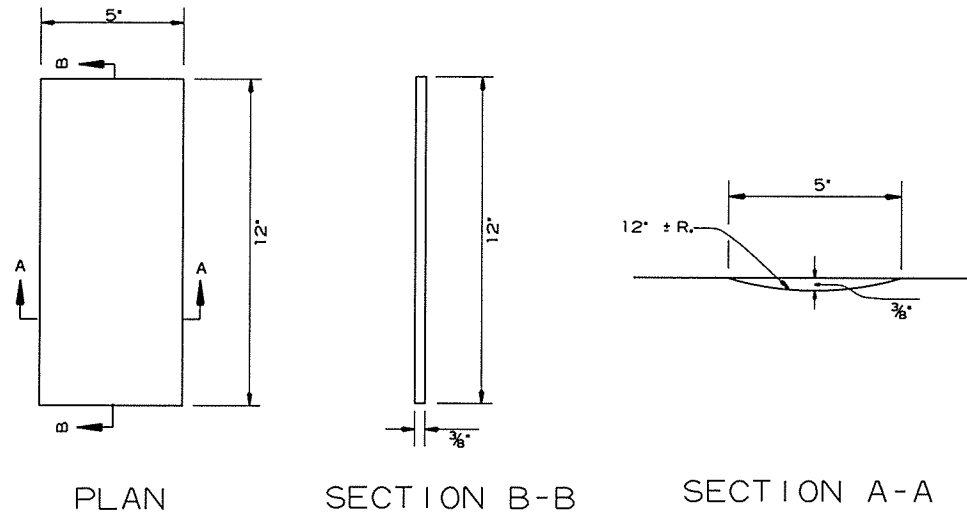
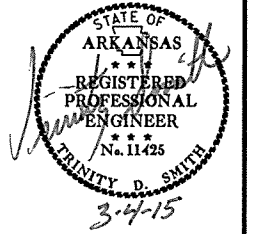
STA. 13+00.00 TO STA. 15+00.00

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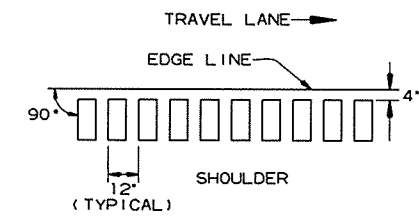
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		9	102

② SPECIAL DETAILS

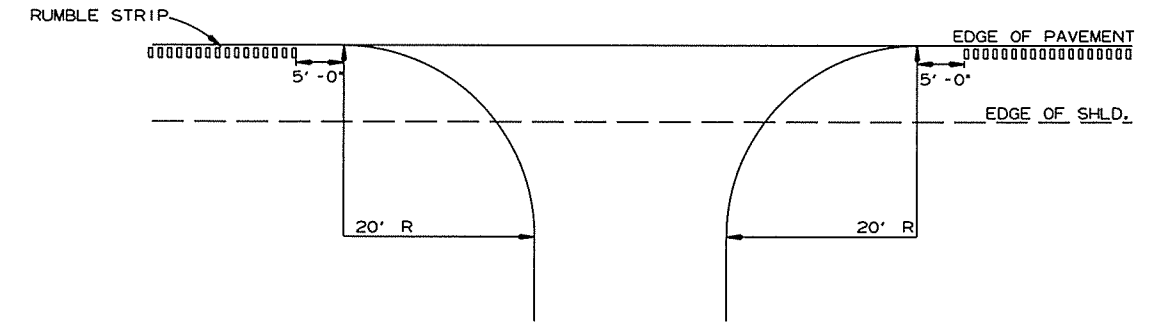


PLAN SECTION B-B SECTION A-A

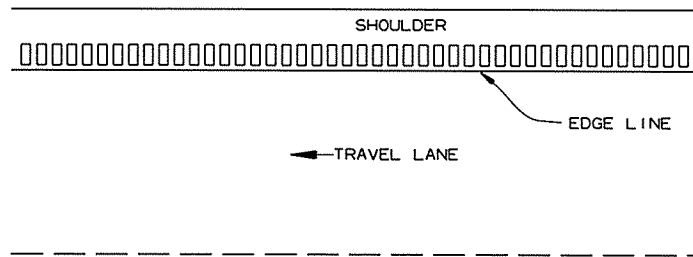
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



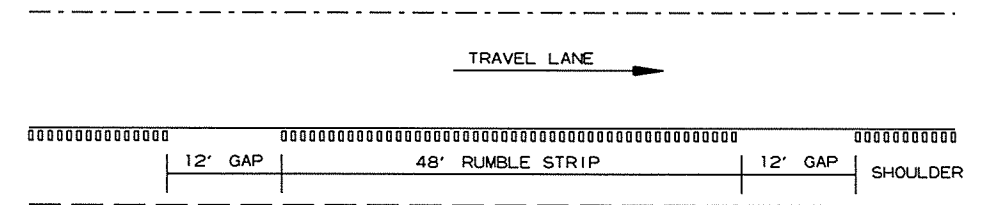
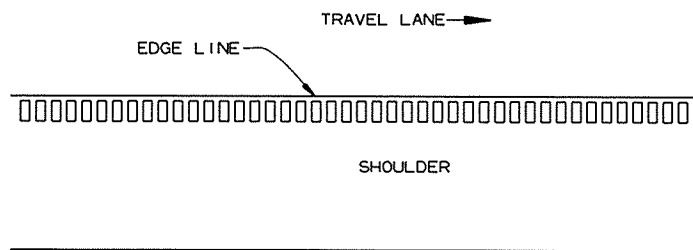
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

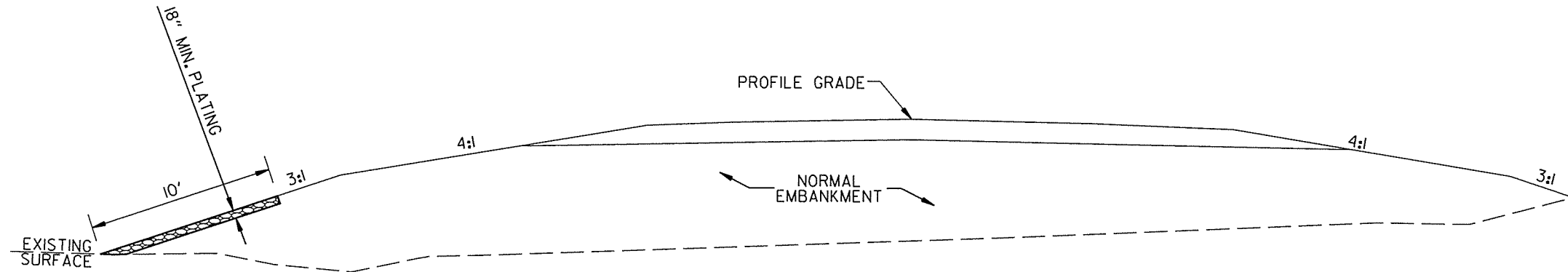
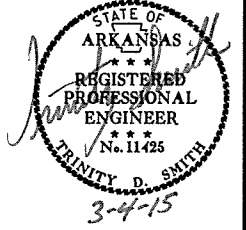
DETAIL FOR GAP PATTERN RUMBLE STRIP

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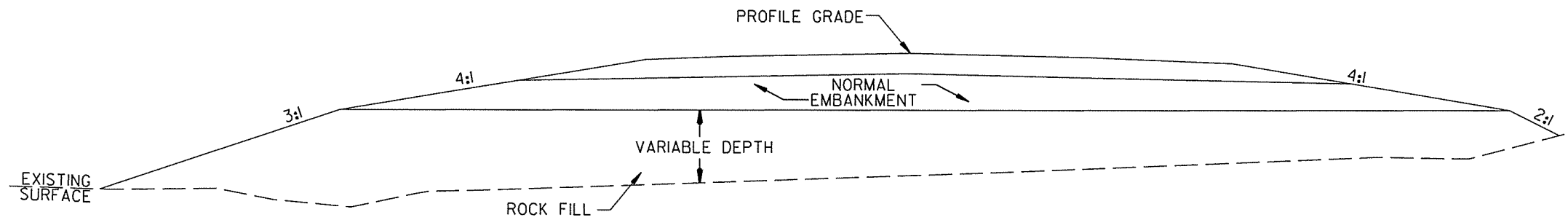
R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		10	102
				JOB NO.		050274		

② SPECIAL DETAILS



DETAIL OF EMBANKMENTS FOR PLATING
STA. 28+59 TO STA. 38+00



NOTE: ROCK FILL IS TO BE PLACED FROM EXISTING SURFACE TO BOTTOM OF PROPOSED CLEAR ZONE.

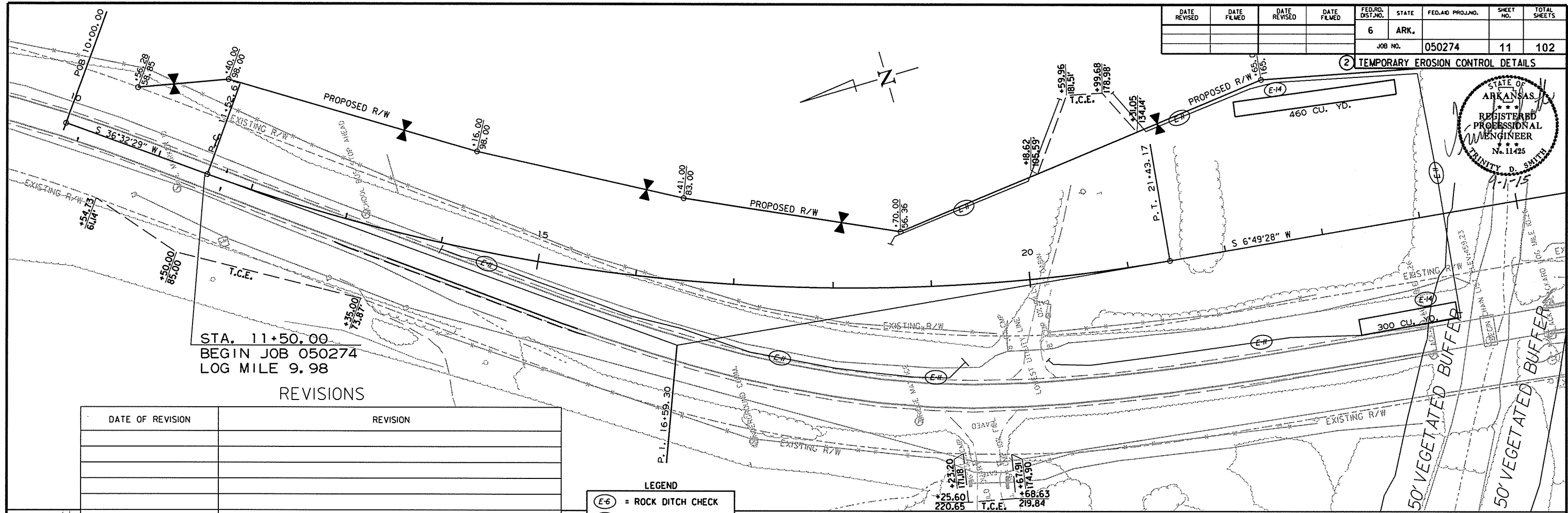
DETAIL OF EMBANKMENTS FOR ROCK FILL
STA. 17+00 TO STA. 23+79
STA. 26+91 TO STA. 30+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	102

2 TEMPORARY EROSION CONTROL DETAILS



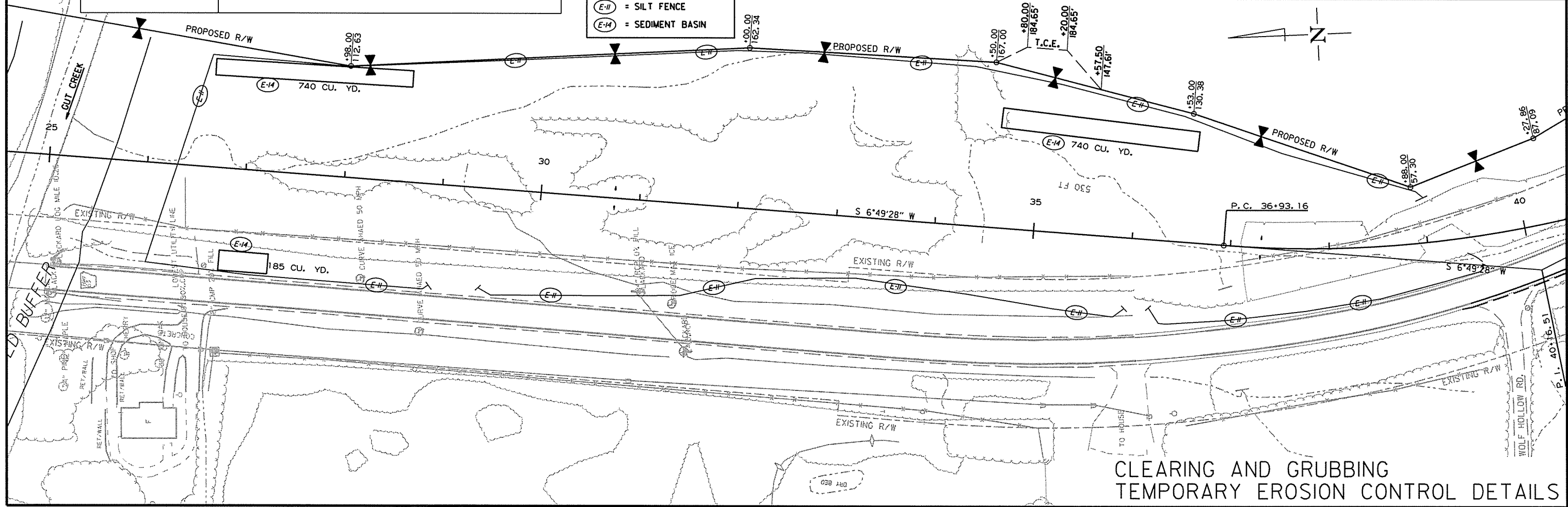
STA. 11+50.00
BEGIN JOB 050274
LOG MILE 9.98

REVISIONS

DATE OF REVISION	REVISION

LEGEND

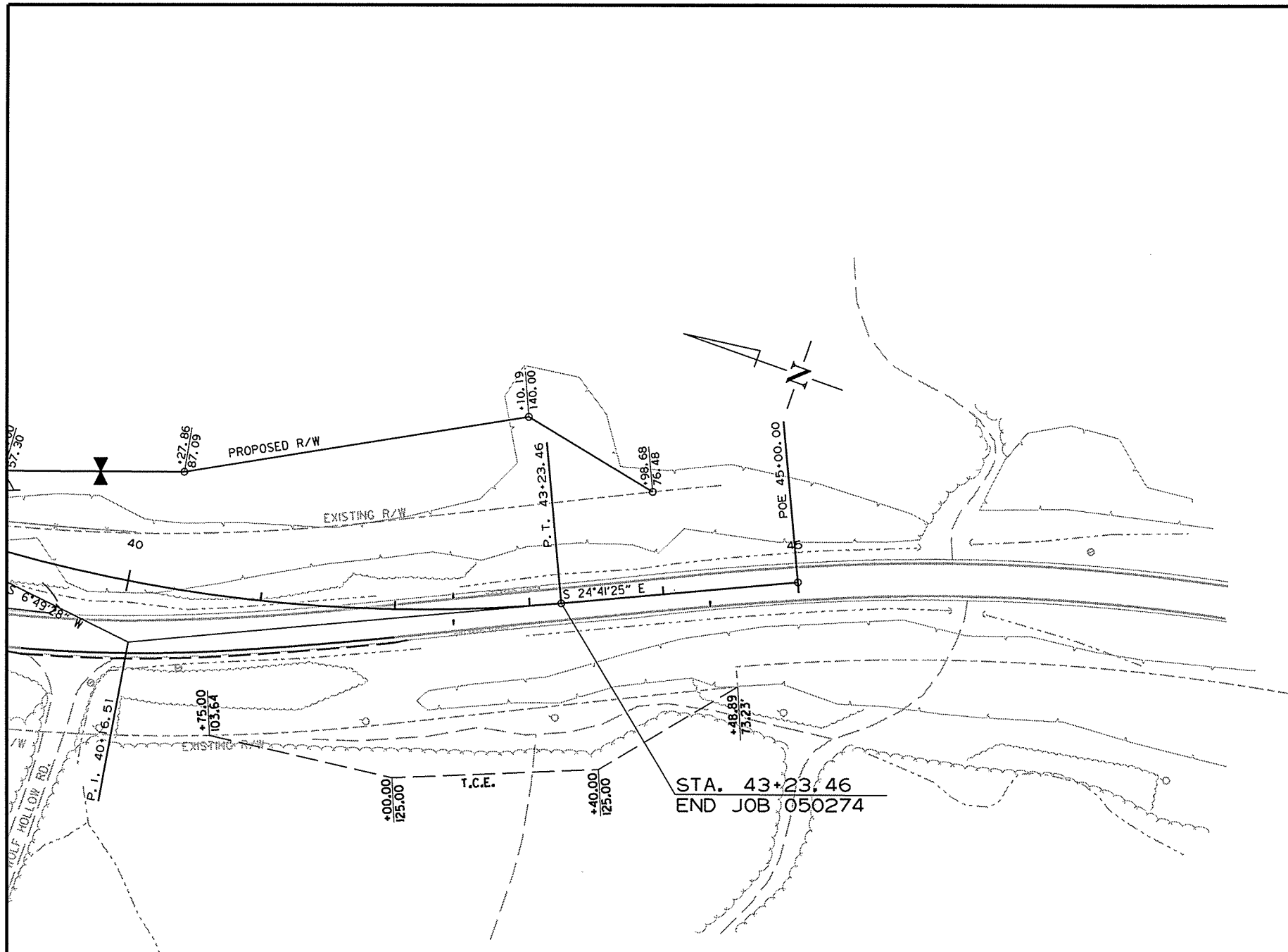
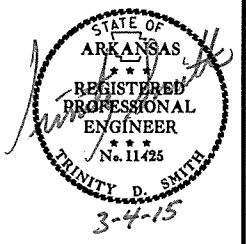
- (E-6) = ROCK DITCH CHECK
- (E-II) = SILT FENCE
- (E-III) = SEDIMENT BASIN



CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 050274		12		102

② TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

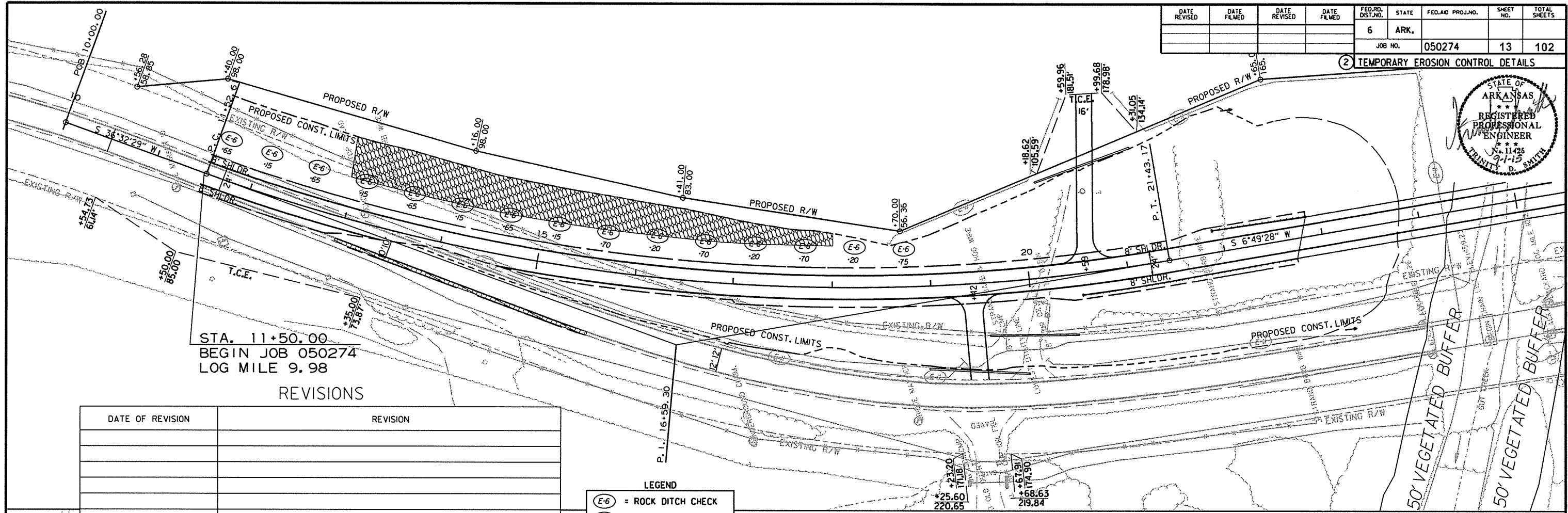
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

3/2/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		13	102

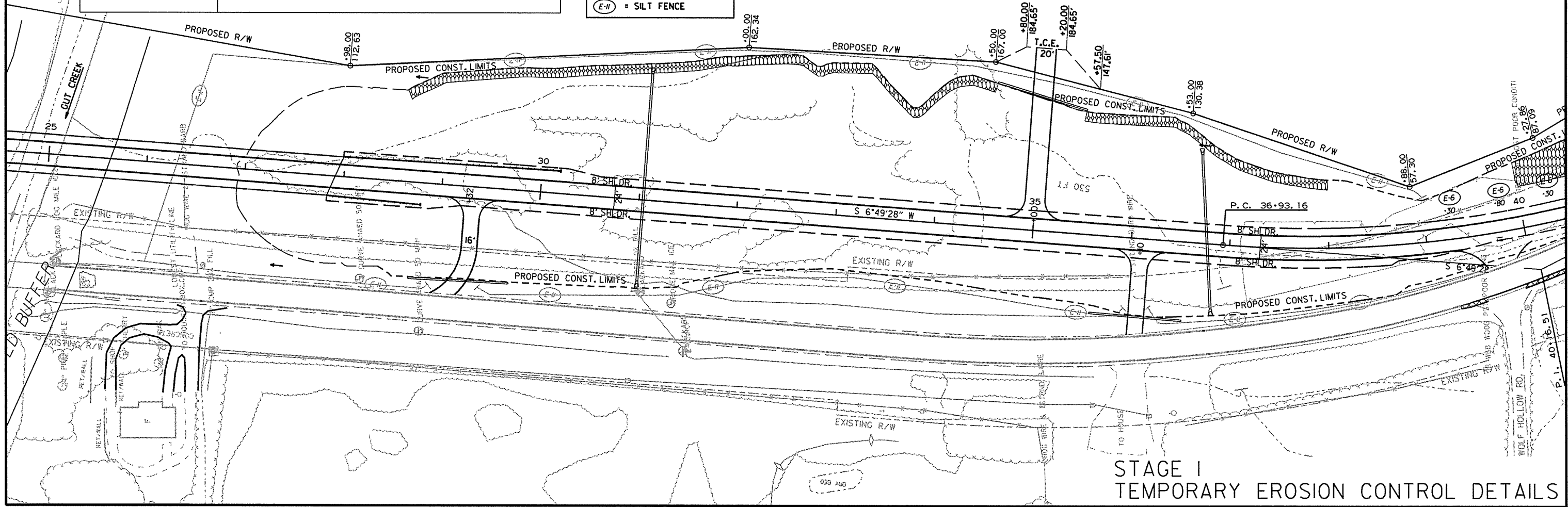
2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

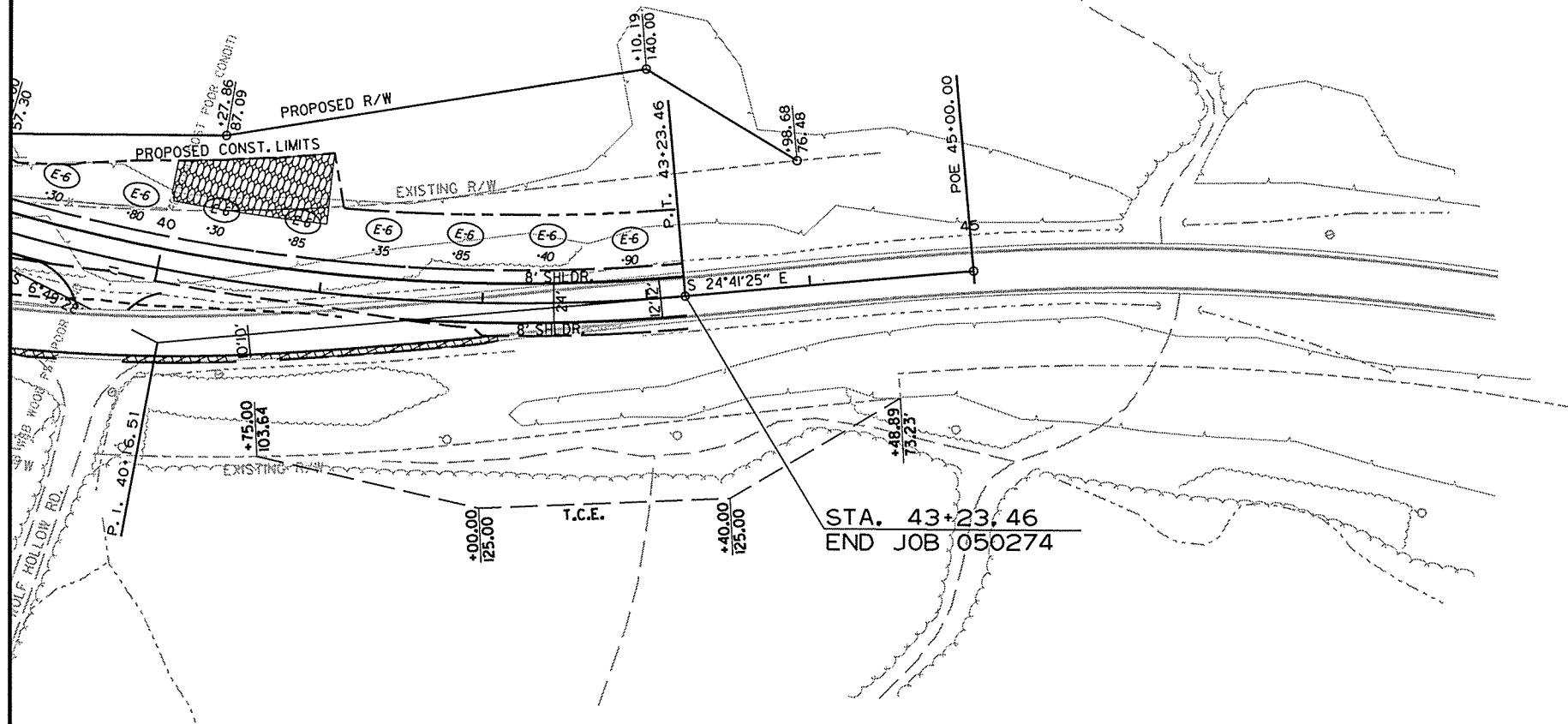
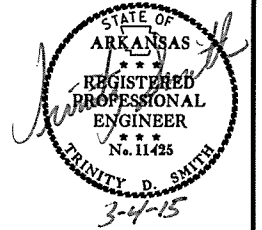
LEGEND
 (E-6) = ROCK DITCH CHECK
 (E-11) = SILT FENCE



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.	050274		14	102

② TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

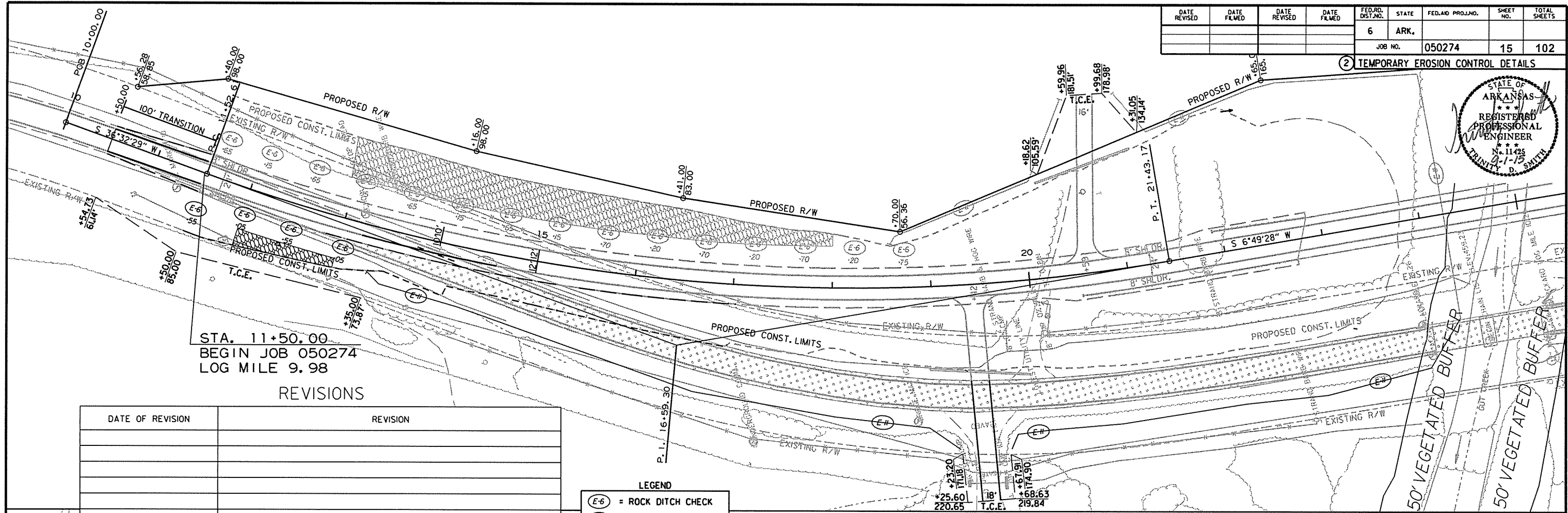
(E-6)	= ROCK DITCH CHECK
(E-11)	= SILT FENCE

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
							JOB NO. 050274	15	102

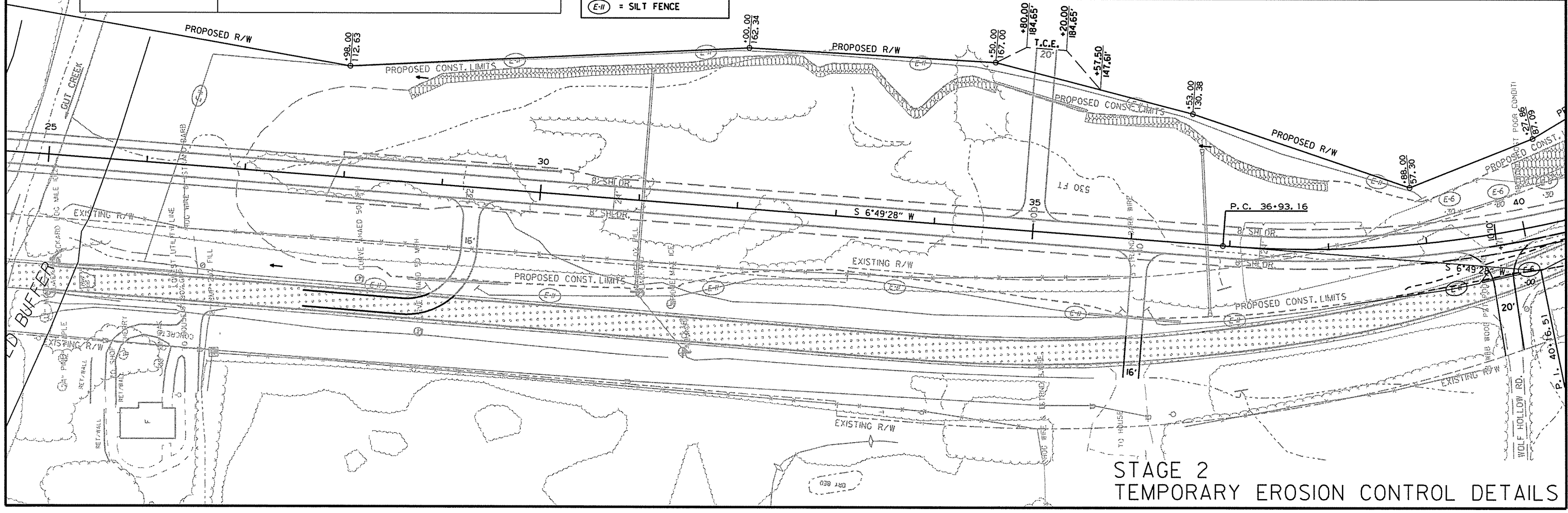
2 TEMPORARY EROSION CONTROL DETAILS



STA. 11+50.00
BEGIN JOB 050274
LOG MILE 9.98

REVISIONS

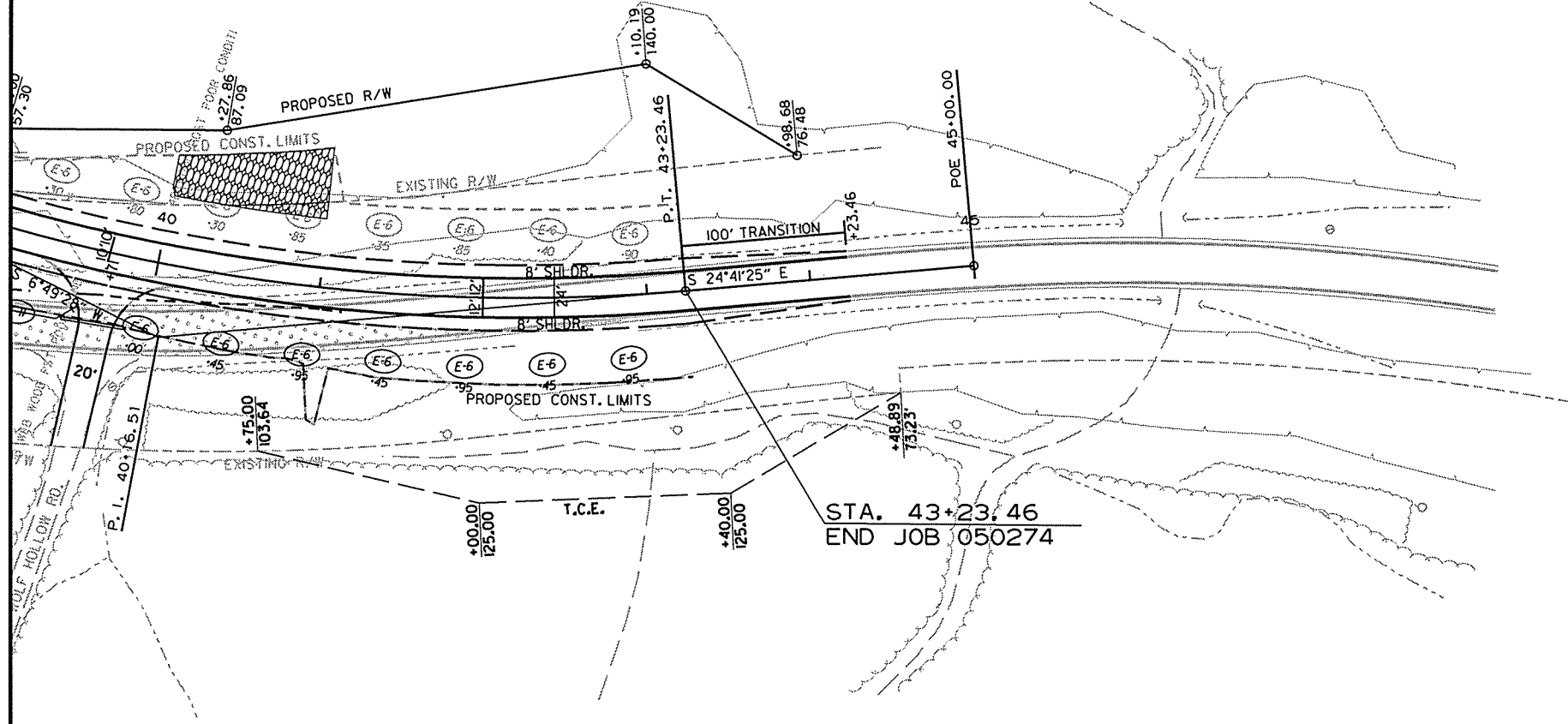
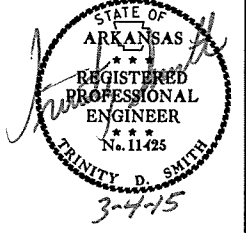
DATE OF REVISION	REVISION



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.	050274		16	102

② TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

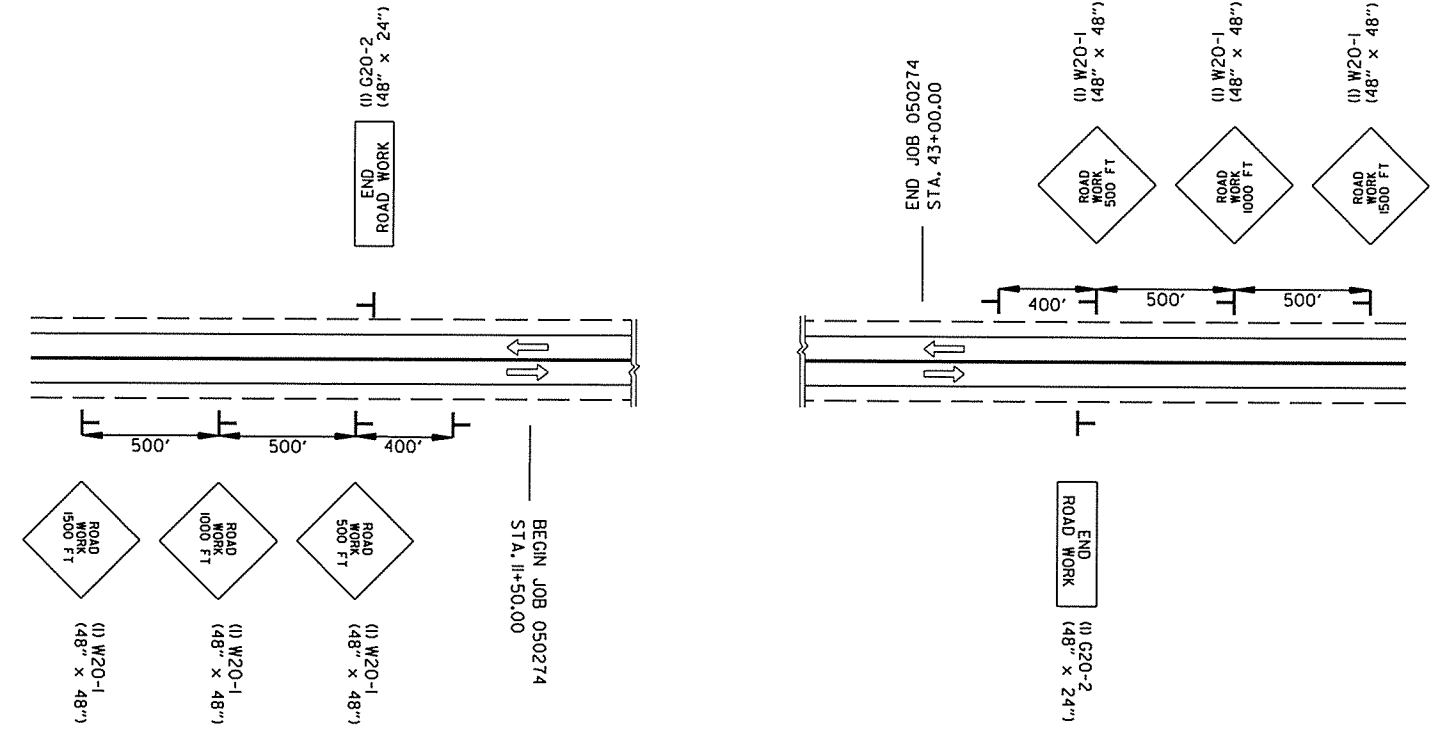
(E-6)	= ROCK DITCH CHECK
(E-11)	= SILT FENCE

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		17	102

② MAINTENANCE OF TRAFFIC

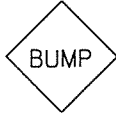


ADVANCE WARNING (ALL STAGES)



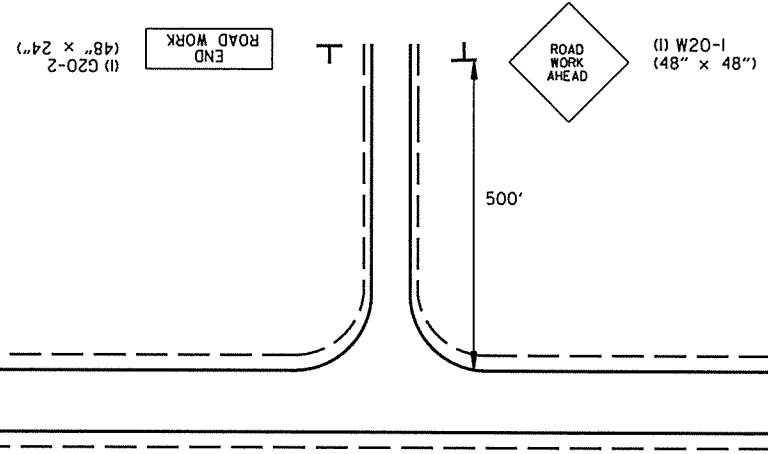
(2) R4-1
(24" X 30")

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



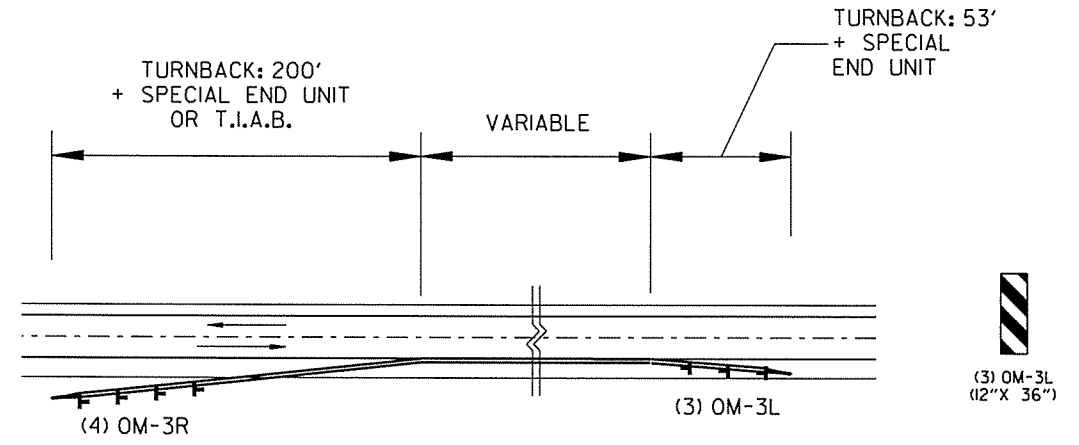
(2) W8-1
(30" X 30")

STAGE 2 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



ADVANCE WARNING - SIDE ROADS (ALL STAGES)

STA. 39+71.00, WOLF HOLLOW RD.
NOTE: STATION BASED OFF PROPOSED CENTERLINE.



REFER ALSO TO STANDARD DRAWING TC-5 FOR DETAILS OF PLACEMENT OF PCCB TURNBACKS.

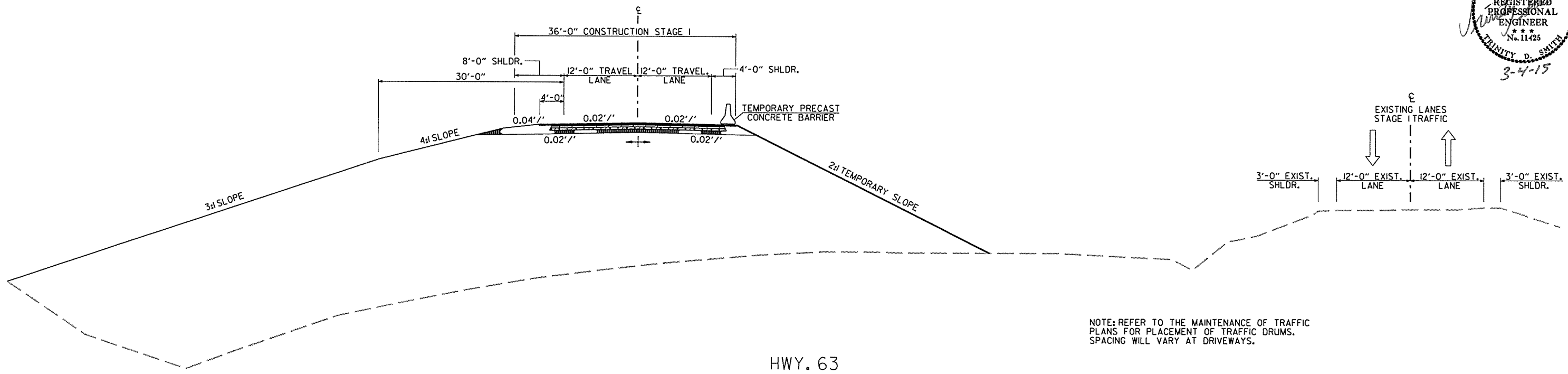
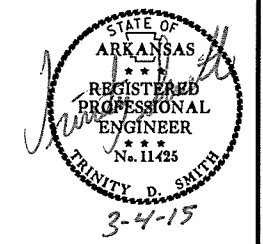
NOTE: OM-3L & OM-3R SIGNS SHALL BE EQUALLY SPACED ALONG P.C.C.B. TURNBACK.

DETAIL OF OBJECT MARKERS AT PRECAST CONCRETE BARRIER TURNBACKS

ADVANCE WARNING 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.	050274		18	102

② MAINTENANCE OF TRAFFIC



HWY. 63
 STAGE 2 MAINTENANCE OF TRAFFIC
 STA. 14+00 TO STA. 16+00

NOTE: REFER TO THE MAINTENANCE OF TRAFFIC PLANS FOR PLACEMENT OF TRAFFIC DRUMS. SPACING WILL VARY AT DRIVEWAYS.

SEQUENCE OF CONSTRUCTION NOTES

STAGE 1: 1) INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN ON THE MAINTENANCE OF TRAFFIC - ADVANCE WARNING SHEET. 2) TRENCH AND PREPARE EXISTING SHOULDER FOR MAINTENANCE OF TRAFFIC. APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS AND REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA. 3) CONSTRUCT BRIDGE NO. 07337 AND PAVEMENT THROUGH FIRST LAYER OF SURFACE COURSE FOR PROPOSED ROADWAY. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.

STAGE 2: 1) APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS AND SHIFT TRAFFIC ONTO THE PROPOSED ROADWAY CONSTRUCTED IN STAGE 1. 2) CONSTRUCT FINAL SLOPES IN REQUIRED LOCATIONS. 3) MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF A.C.H.M. SURFACE COURSE. 4) INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS AND REFER TO STANDARD DRAWING PM-1. 5) OBLITERATE EXISTING ROADWAY AND REMOVE EXISTING BRIDGE STRUCTURE.

STAGE 1 QUANTITIES:

SIGNS = 274.5 SQ. FT.
 VERTICAL PANELS = 35 EACH
 TRAFFIC DRUMS = 87 EACH
 TYPE III BARRICADE - RT. 16' (8 EACH)
 TYPE III BARRICADE - LT. 16' (3 EACH)
 CONSTRUCTION PAVEMENT MARKINGS = 3500 LIN. FT.
 REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3440 LIN. FT.

STAGE 2 QUANTITIES:

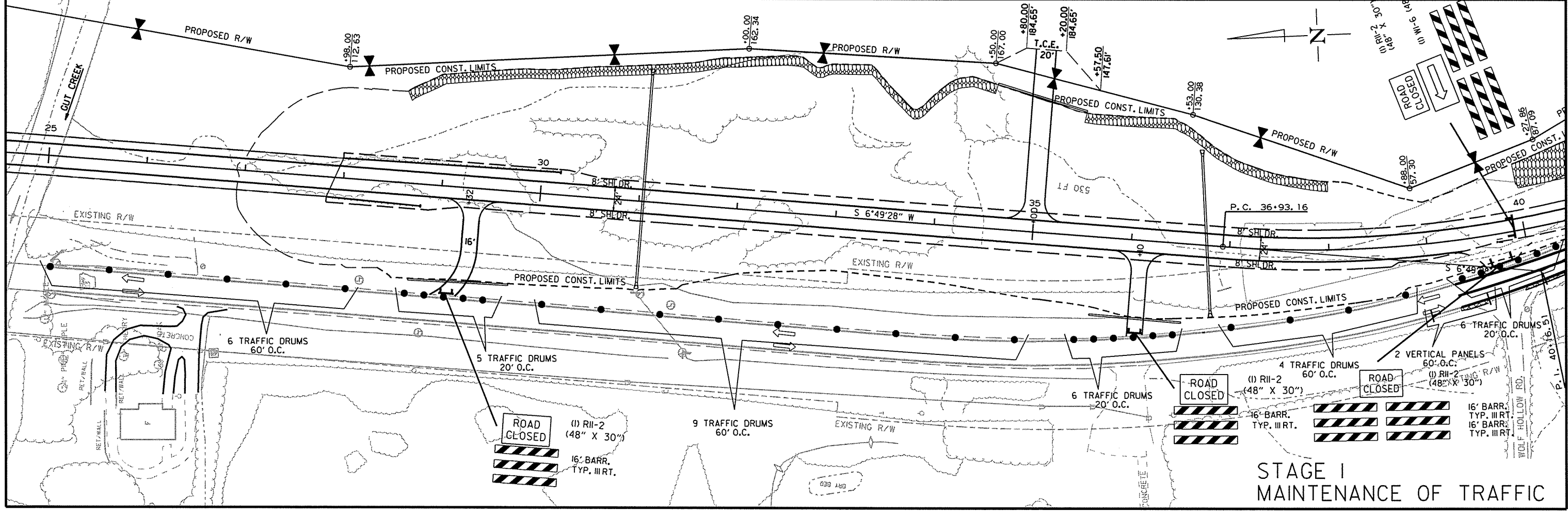
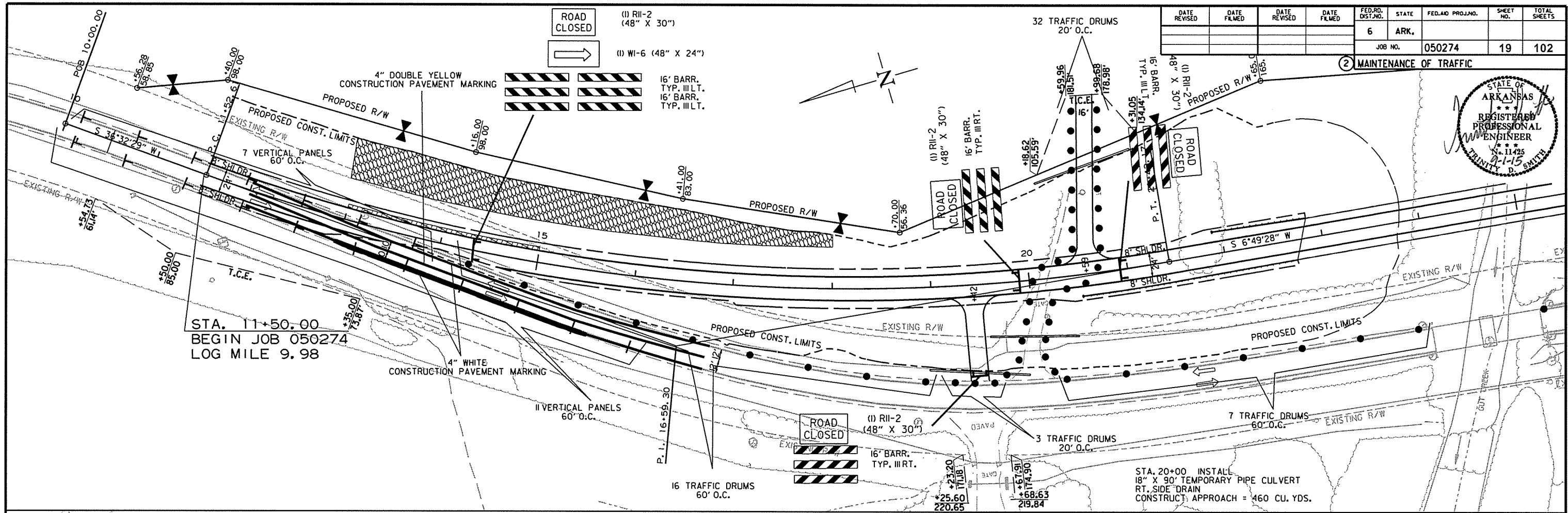
SIGNS = 315.5 SQ. FT.
 TRAFFIC DRUMS = 135 EACH
 TYPE III BARRICADE - RT. 16' (7 EACH)
 TYPE III BARRICADE - LT. 16' (7 EACH)
 FURNISHING AND INSTALLING P.C.C.B. = 340 LIN. FT.
 CONSTRUCTION PAVEMENT MARKINGS = 13713 LIN. FT.

SEQUENCE OF CONSTRUCTION
 MAINTENANCE OF TRAFFIC

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				6	ARK.			
JOB NO. 050274							19	102

② MAINTENANCE OF TRAFFIC

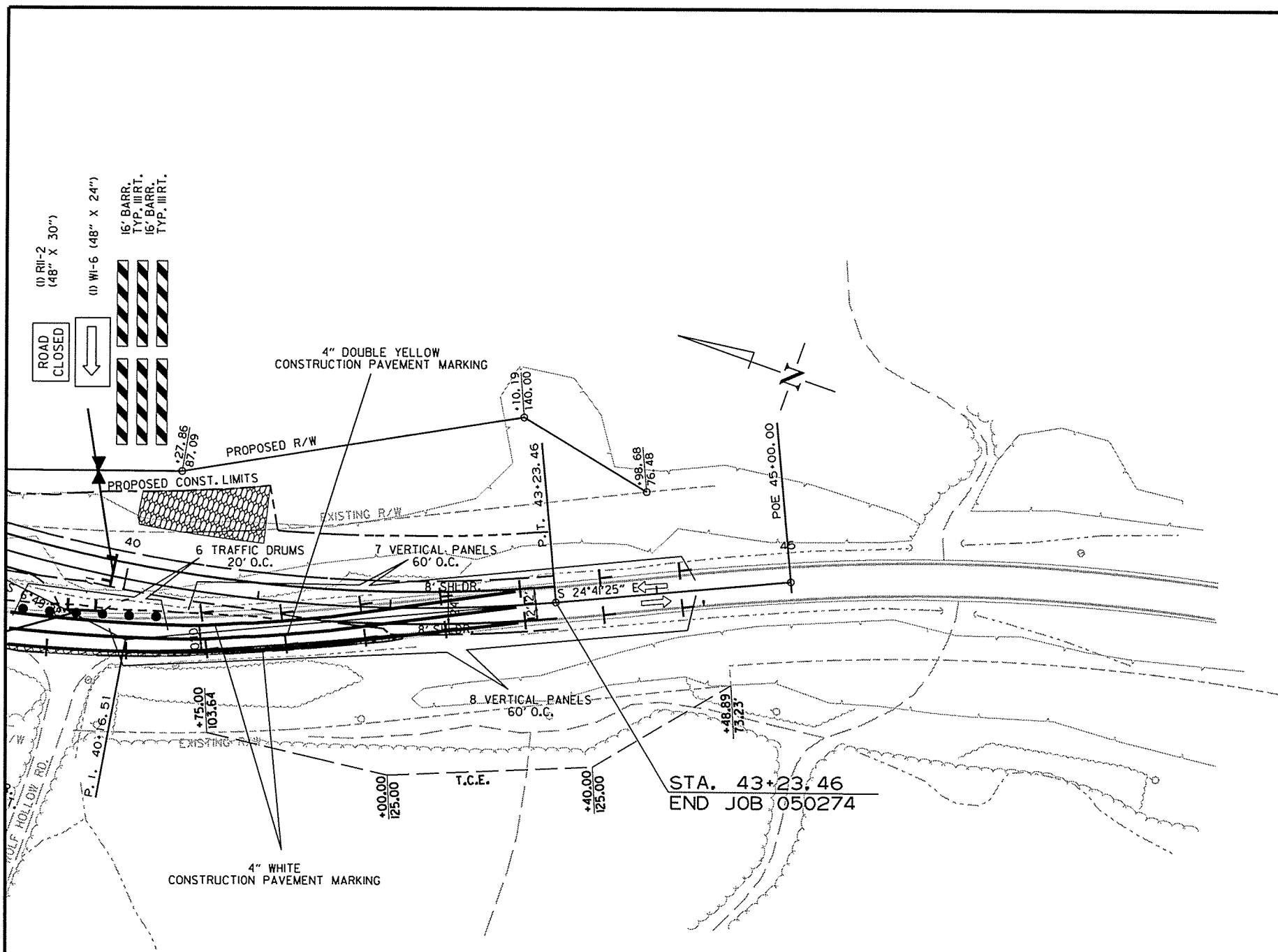
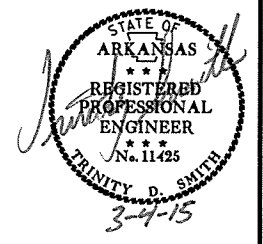


STAGE I
MAINTENANCE OF TRAFFIC

5/11/2015
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				6	ARK.			
				JOB NO.	050274		20	102

② MAINTENANCE OF TRAFFIC

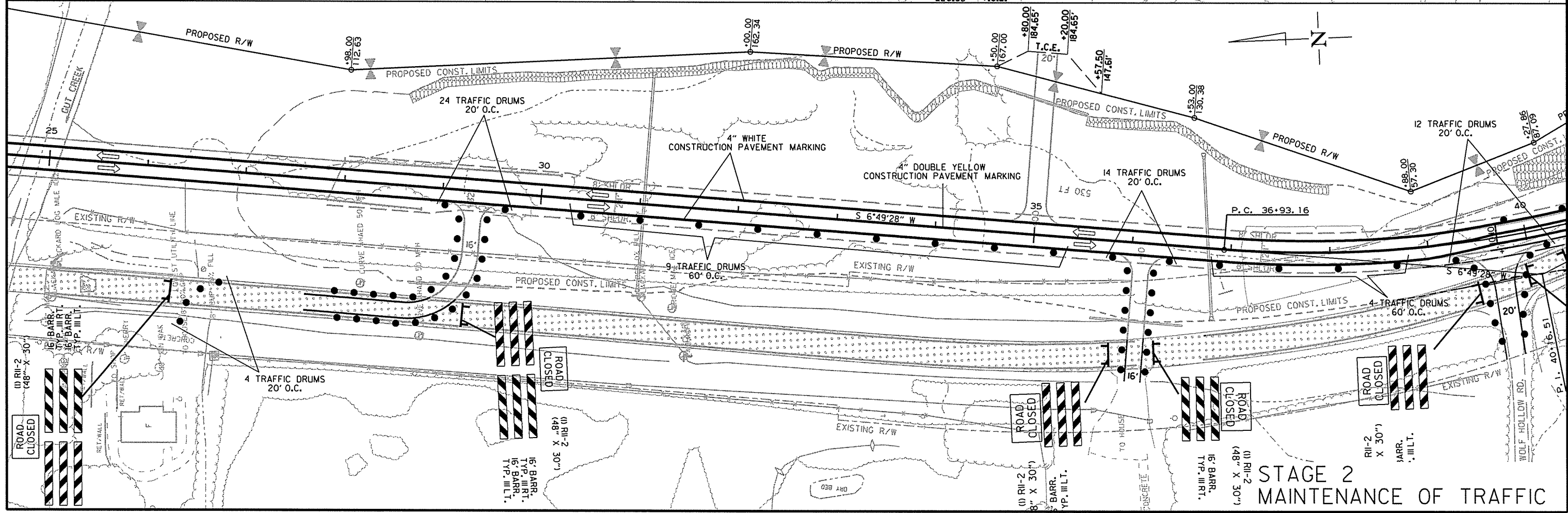
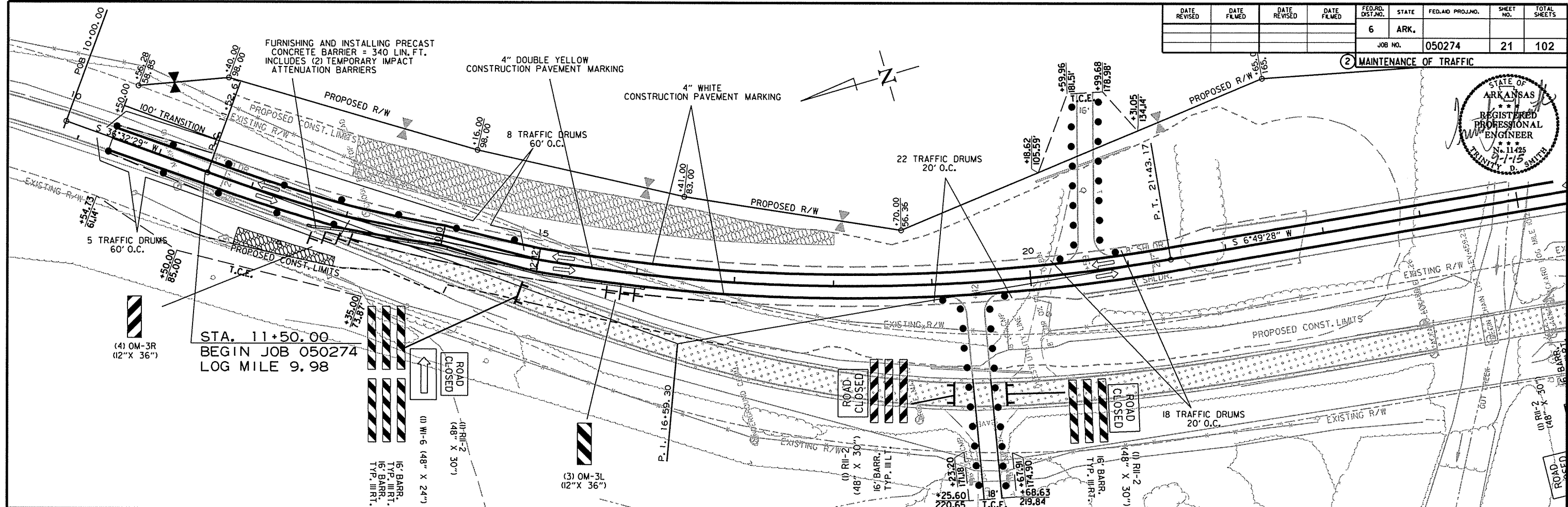


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STAGE I
MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		21	102
JOB NO. 050274								

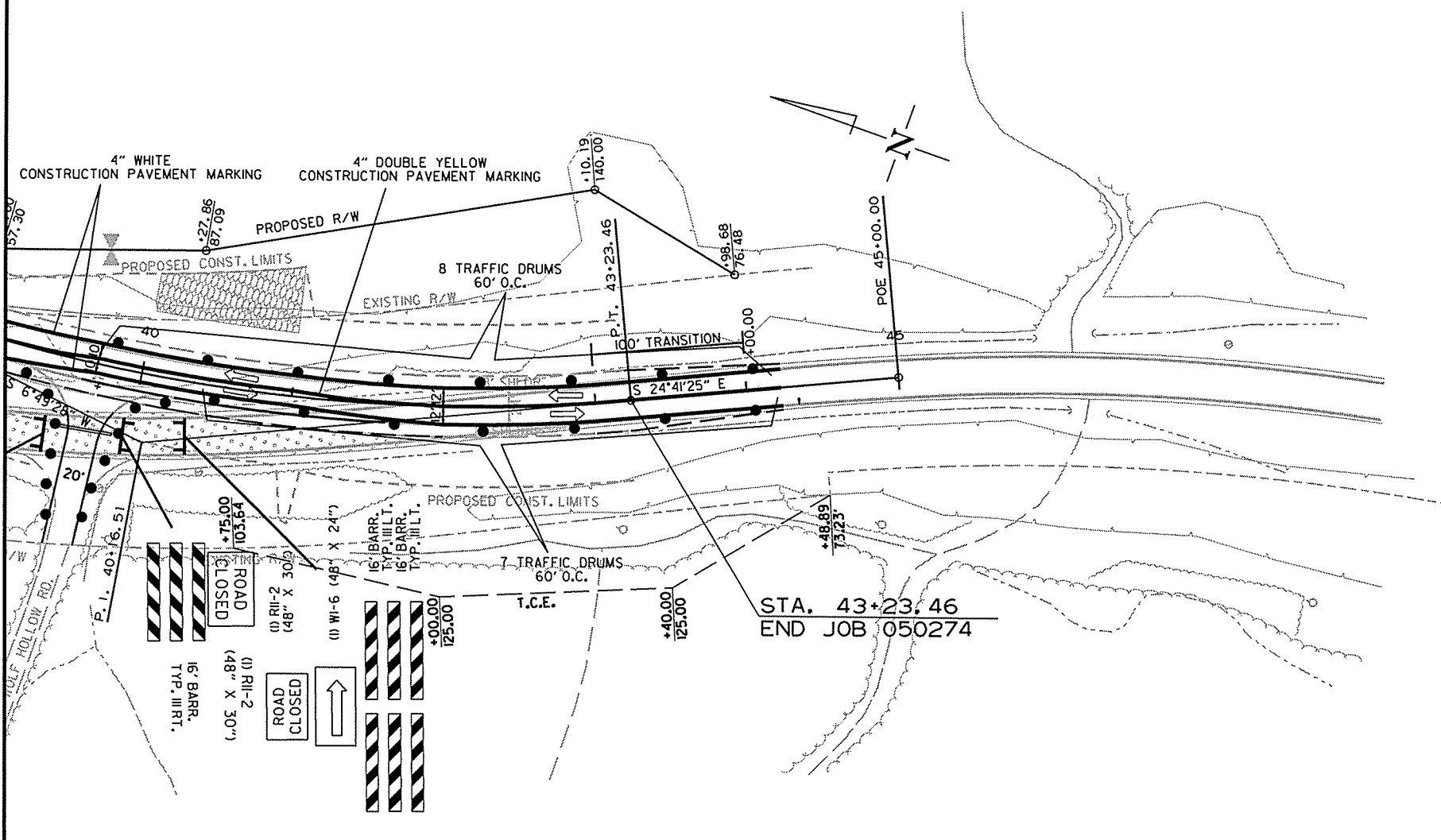
② MAINTENANCE OF TRAFFIC



5/11/2015
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		22	102

② MAINTENANCE OF TRAFFIC



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STAGE 2
 MAINTENANCE OF TRAFFIC

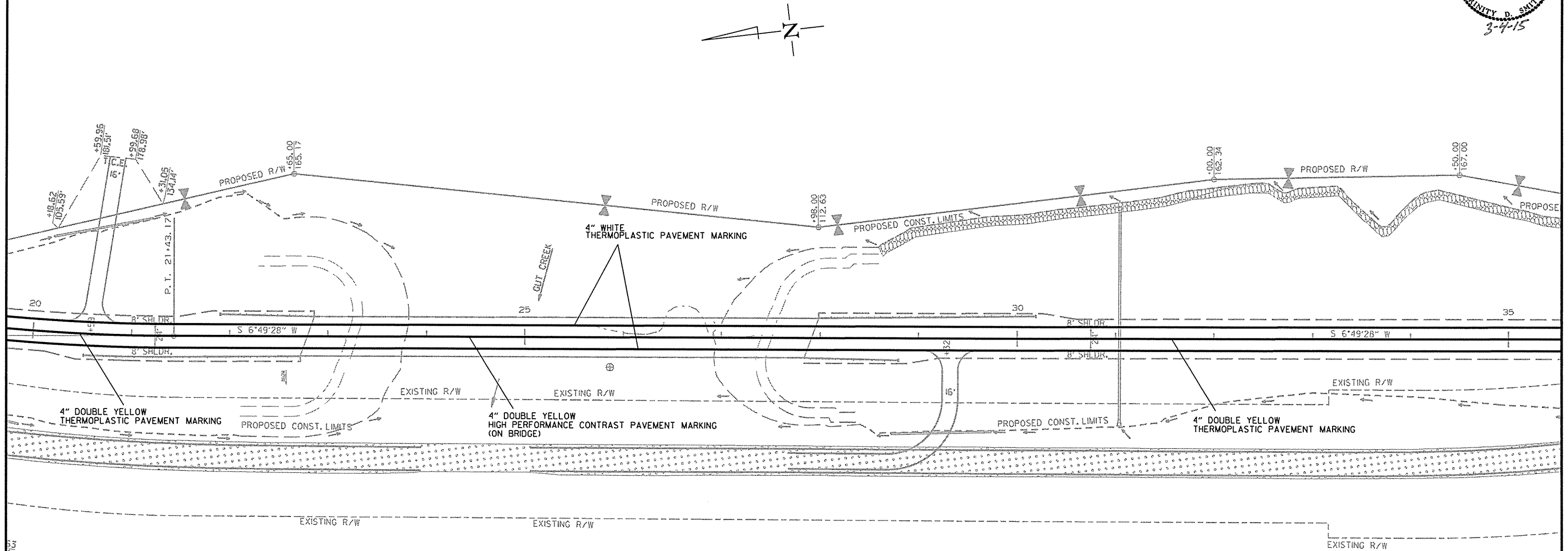
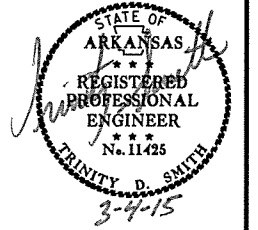
PERMANENT PAVEMENT MARKINGS

THERMOPLASTIC PAVEMENT MARKINGS WHITE (4") = 6700 LIN. FT.
 THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4") = 5676 LIN. FT.
 HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 1024 LIN. FT.
 RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 84 EACH
 (RAISED PAVEMENT MARKERS ARE TO BE SPACED 40' ON CENTER.)

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.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		23	102

② PERMANENT PAVEMENT MARKING DETAILS

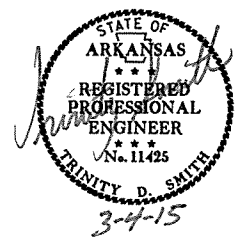


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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		24	102

② QUANTITIES



CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) EACH	THERMOPLASTIC PAVEMENT MARKING			HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
							4"			
							WHITE	YELLOW	YELLOW	
				LIN. FT. - EACH	LIN. FT.	LIN. FT.				
REMOVAL OF PERMANENT PAVEMENT MARKINGS	3440			3440						
CONSTRUCTION PAVEMENT MARKINGS	3500	13713			17213					
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			84			84				
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			6700				6700			
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			5676					5676		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1024						1024	
TOTALS:				3440	17213	84	6700	5676	1024	

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.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)	
						NO.	SQ. FT.			EACH	RIGHT				LEFT
											LIN. FT.				EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0								
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	16.0								
G20-2	END ROAD WORK	48"x24"	3	3	3	3	24.0								
R11-2	ROAD CLOSED	48"x30"	8	10	10	10	100.0								
OM-3L	OBJECT MARKER	12"x36"		3	3	3	9.0								
OM-3R	OBJECT MARKER	12"x36"		4	4	4	12.0								
W1-6	LARGE ARROW	48"x24"	2	2	2	2	16.0								
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0								
W8-1	BUMP	30"x30"	2	2	2	2	12.5								
	VERTICAL PANELS		35		35			35							
	TRAFFIC DRUMS		87	135	135				135						
	TYPE III BARRICADE-RT. (16')		8	7	8					128					
	TYPE III BARRICADE-LT. (16')		3	7	7						112				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			340	340						340				
	TEMPORARY IMPACT ATTENUATION BARRIER			2	2							2			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			2	2									2	
TOTALS:							295.5	35	135	128	112	340	2	2	

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

2/27/2015

R050274.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. NO. PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-17-15				6	ARK.			
JOB NO. 050274						25	102	

② QUANTITIES



DRIVEWAYS & TURNOUTS

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
			FEET	SQ. YD.	TON	TON	18" LIN. FT.		
19+42	RT.	RT. OF HWY. 63	18	404.20	44.46	165.05	136	PCC-1, PCM-1, PCP-1, PCP-2	
20+59	LT.	LT. OF HWY. 63	16	277.80	30.56	113.44	106	PCC-1, PCM-1, PCP-1, PCP-2	
29+32	RT.	RT. OF HWY. 63	16	430.00	47.30	175.58	94	PCC-1, PCM-1, PCP-1, PCP-2	
35+00	LT.	LT. OF HWY. 63	20	369.30	40.62	150.80	142	PCC-1, PCM-1, PCP-1, PCP-2	
36+10	RT.	RT. OF HWY. 63	16	216.70	23.84	88.49	96	PCC-1, PCM-1, PCP-1, PCP-2	
39+71	RT.	RT. OF HWY. 63	20	169.70	18.67	69.29	56	PCC-1, PCM-1, PCP-1, PCP-2	
*ADDITIONAL FOR TEMPORARY DRIVES							30.00		
TOTALS:				1867.70	205.45	792.65	630		

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

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

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.

* FOR INFORMATION ONLY

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

SHOULDER RECONSTRUCTION FOR MAINTENANCE OF TRAFFIC

STATION	STATION	LOCATION	LENGTH	AVG. WIDTH	AREA	ACHM SURFACE COURSE (1/2") (PG 64-22)		ACHM BINDER COURSE (1") (PG 64-22)		TACK COAT 0.10 GAL PER SQ. YD.	AGGREGATE BASE COURSE (CLASS 7)		TRENCHING AND SHOULDER PREPARATION
						LBS. PER SQ. YD.	TON	LBS. PER SQ. YD.	TON		TONS PER STA.	TON	
13+00.00	15+50.00	EXISTING LANES RT. SHOULDER	250.00	4.00	111.11	220.00	12.22	330.00	19.00	22.63	23.25	58.13	2.50
39+35.00	42+10.00	EXISTING LANES RT. SHOULDER	275.00	4.00	122.22	220.00	13.44	330.00	20.90	24.89	23.25	63.94	2.75
TOTALS:						233.33	25.66	39.90	47.52		122.07	5.25	

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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 (20") DITCH CHECKS (E-1)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	TRIANGULAR SILT DIKE	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING															
ENTIRE	PROJECT	STAGE 1							8.22	8.22	167.7		69	8183	2425	2425	2728
ENTIRE	PROJECT	STAGE 2	18.34	36.68	18.34	1870.7	18.34						33	2515			104
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			4.59	9.18	4.59	468.2	4.59	2.06	2.06	42.0	225	26	2675	606	606	2675	730
TOTALS:			22.93	45.86	22.93	2338.9	22.93	10.28	10.28	209.7	225	128	13373	3031	3031	2675	3585

BASIS OF ESTIMATE:
 LIME2 TONS / ACRE OF SEEDING
 WATER.....102.0 M.G. / ACRE OF SEEDING
 WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
 WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
 WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
 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.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
22+79	BRIDGE END	1
TOTAL:		1

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT CU. YD.	ROCK FILL	PRESPLITTING SQ. YD.	*SOIL STABILIZATION TON
ENTIRE	PROJECT	HWY. 63	23562	106178			
17+00	23+79	HWY. 63 ROCK FILL			75329		
26+91	30+00	HWY. 63 ROCK FILL			45611		
41+10	43+23	HWY. 63 LT. AND RT. APPROACHES		16270		1062	
ENTIRE	PROJECT	CHANNEL CONSTRUCTION	25	5			
36+77		CHANNEL CONSTRUCTION	15	10			
ENTIRE	PROJECT	BRIDGE EMBANKMENT	2580				
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER					50
TOTALS:			26182	122463	120940	1062	50

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

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
10+50	11+50	HWY. 63	24	266.67
43+23	44+23	HWY. 63	24	266.67
TOTAL:				533.34

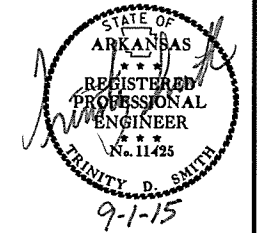
NOTE: AVERAGE MILLING DEPTH 2".

11/17/2015
 050274.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.	050274
							26	102

2 QUANTITIES



REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
19+96	RT. OF HWY. 63	1
31+30	RT. OF HWY. 63	1
37+09	RT. OF HWY. 63	1
TOTAL:		3

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
22+76	HWY. 63	360
27+94	HWY. 63	360
TOTAL:		720

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	EACH
ENTIRE PROJECT	1	1
TOTALS:		1

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A)	REINFORCING STEEL-RDWY. (GR. 60)
			CU. YD.	POUND
22+44.45	22+72.98	RT. OF HWY. 63	7.55	665
22+56.17	22+84.70	LT. OF HWY. 63	7.55	665
27+58.29	28+13.82	RT. OF HWY. 63	7.55	665
27+97.01	28+25.55	LT. OF HWY. 63	7.55	665
TOTALS:			30.20	2660

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	EACH
20+52.77	22+71.52	RT. SHOULDER	150	1	1
21+92.42	22+86.17	LT. SHOULDER	25	1	1
27+83.82	28+77.57	RT. SHOULDER	25	1	1
27+98.48	30+17.23	LT. SHOULDER	150	1	1
TOTALS:			350	4	4

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT		FLARED END SECTIONS FOR R.C. PIPE CULVERTS	TEMPORARY CULVERTS	STD. DWG. NOS.
		(CLASS IV)	(CLASS V)			
		24"	24"			
20+00	18" X 90' TEMPORARY PIPE CULVERT				18"	
31+02	24" X 210' R.C. PIPE CULVERT		210	2	18"	FES-1, FES-2, PCC-1
36+77	24" X 156' R.C. PIPE CULVERT	156		2	18"	FES-1, FES-2, PCC-1
TOTALS:		156	210	4	90	

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN. FT.
10+50	19+08	RT. SHOULDER	858
19+76	22+73	RT. SHOULDER	297
27+86	28+99	RT. SHOULDER	113
29+65	35+77	RT. SHOULDER	612
36+43	39+16	RT. SHOULDER	273
40+26	44+00	RT. SHOULDER	374
10+50	20+26	LT. SHOULDER	976
20+92	22+85	LT. SHOULDER	193
27+97	34+65	LT. SHOULDER	668
35+35	44+00	LT. SHOULDER	865
TOTAL:			5229

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE	* 16'-0" GATES
			(TYPE C)	EACH
			LIN. FT.	
10+94	22+65	LT. OF HWY. 63	1128	1
25+46	40+28	LT. OF HWY. 63	1480	
TOTALS:			2608	1

* DENOTES ALTERNATE BID ITEM.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	STATION
11+00	14+00	LT. OF HWY. 63	3	3
14+00	43+00	LT. & RT. OF HWY. 63	29	29
TOTALS:			32	32

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
21+92	23+95	RIGHT OF EXISTING ROADWAY	200
23+17	23+92	LEFT OF EXISTING ROADWAY	75
25+02	25+11	RIGHT OF EXISTING ROADWAY	75
25+84	26+34	LEFT OF EXISTING ROADWAY	125
TOTAL:			475

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
11+50	22+79	LT. OF HWY. 63	1129.0	501.8
27+91	36+77	LT. OF HWY. 63	886.0	787.6
36+77	43+23	LT. OF HWY. 63	646.0	287.1
11+50	20+59	RT. OF HWY. 63	909.0	404.0
20+59	22+79	RT. OF HWY. 63	220.0	195.6
27+91	32+00	RT. OF HWY. 63	409.0	363.6
32+00	36+00	RT. OF HWY. 63	400.0	177.8
36+00	39+00	RT. OF HWY. 63	300.0	266.7
39+00	43+23	RT. OF HWY. 63	423.0	188.0
TOTAL:			3172.2	

NOTE: AVERAGE WIDTH = 8'-0"

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			500	4
TOTALS:			500	4

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
10+94	19+63	LT. OF HWY. 63	874
20+13	22+83	LT. OF HWY. 63	321
25+19	36+02	LT. OF HWY. 63	1139
39+99	37+07	LT. OF HWY. 63	294
TOTAL:			2628

DUMPED RIPRAP AND FILTER BLANKET

STATION	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YDS.	SQ. YDS.
12+00	13+00	RT. BACKSLOPE	85	
13+00	18+00	LT. BACKSLOPE	956	
28+59	38+00	BOTTOM OF EMBANKMENT	481	961
40+00	41+00	LT. BACKSLOPE	208	
TOTALS:			1730	961

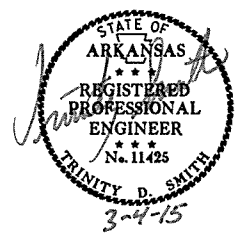
*NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

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

9/1/2015 R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		27	102

② QUANTITIES



BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")											
				TON / STATION	TON	(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	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																				
MAIN LANES																															
10+50.00	11+50.00	TRANSITION	100.00			VAR.	266.67	26.67				26.67																			
11+50.00	12+68.25	NOTCH AND WIDEN	118.25	VAR.	279.81				VAR.	262.97	7.89	7.89	VAR.	89.70	495.00	22.20	VAR.	87.39	385.00	16.82	VAR.	85.88	220.00	9.45	32.00	420.44	220.00	46.25	55.70		
12+68.25	22+78.85	FULL DEPTH	1010.60	334.50	3380.46				85.54	9605.19	288.16	288.16	28.81	3235.04	495.00	800.67	28.48	3197.99	385.00	615.61	28.25	3172.16	220.00	348.94	32.00	3593.24	220.00	395.26	744.20		
27+91.15	42+00.00	FULL DEPTH	1408.85	334.50	4712.60				85.54	13390.34	401.71	401.71	28.81	4509.89	495.00	1116.20	28.48	4458.23	385.00	858.21	28.25	4422.22	220.00	486.44	32.00	5009.24	220.00	551.02	1037.46		
42+00.00	43+23.46	NOTCH AND WIDEN	123.46	VAR.	287.75				VAR.	262.35	7.87	7.87	VAR.	90.35	495.00	22.36	VAR.	87.19	385.00	16.78	VAR.	84.81	220.00	9.33	32.00	438.97	220.00	48.29	57.62		
43+23.46	44+23.46	TRANSITION	100.00			VAR.	266.67	26.67				26.67																			
ADDITIONAL FOR METHOD OF RAISING GRADE																															
11+50.00	13+75.00	METHOD OF RAISING GRADE	225.00			VAR.	613.66	61.37	VAR.	1227.32	36.82	98.19					VAR.	613.66	VAR.	129.29	VAR.	613.66	VAR.	55.04					55.04		
41+50.00	43+00.00	METHOD OF RAISING GRADE	150.00			VAR.	426.93	42.69	VAR.	853.86	25.62	68.31					VAR.	426.93	VAR.	43.96	VAR.	426.93	VAR.	44.15					44.15		
ADDITIONAL FOR SUPERELEVATION																															
11+50.00	14+50.00	SUPERELEVATION TRANSITION	300.00	22.59	67.77																										
14+50.00	19+68.17	MAXIMUM SUPERELEVATION	518.17	46.63	241.62																										
19+68.17	22+68.17	SUPERELEVATION TRANSITION	300.00	22.59	67.77																										
34+30.66	37+80.66	SUPERELEVATION TRANSITION	350.00	48.61	170.14																										
37+80.66	39+73.46	MAXIMUM SUPERELEVATION	192.80	84.67	163.24																										
39+73.46	43+23.46	SUPERELEVATION TRANSITION	350.00	48.61	170.14																										
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																															
13+00.00	15+00.00	ADDITIONAL FULL DEPTH SHOULDER	200.00						6.00	133.33	4.00	4.00	2.00	44.44	495.00	11.00	2.00	44.44	385.00	8.55	2.00	44.44	220.00	4.89					4.89		
ADDITIONAL FOR GUARDRAIL																															
20+09.77	22+71.52	RT. SHOULDER	261.75	VAR.	85.00																										
21+49.42	22+86.17	LT. SHOULDER	136.75	VAR.	46.50																										
27+83.82	29+20.57	RT. SHOULDER	136.75	VAR.	46.50																										
27+98.48	30+60.23	LT. SHOULDER	261.75	VAR.	85.00																										
TOTALS:				9804.30			1573.93	157.40		25735.36	772.07	929.47		7969.42		1972.43		8915.83		1689.22		8850.10		958.24		10751.73		1182.70	2140.94		

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
 ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

2/27/2015
R050274.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274	28	102	
				①	07337	- QUANTITIES -	56463	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050274

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	807	808	809	812		
				ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	② STEEL PILING (HP 12X53)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)		
				UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH		
07337	X071	GUT CREEK	BENT 1				34.70		0.3	3,842		260	804	1657.5				
			BENT 2		114	148.44					26,946				2120.5			
			BENT 3		100	157.76					28,121				2120.5			
			BENT 4		62	154.49					27,755				3315.0			
			BENT 5		68	145.50					26,580				2120.5			
			BENT 6		101	135.76					25,304				2120.5			
			BENT 7			36.35				0.3	4,032		240	804	1657.5			
			2 - 255' CONT. W-BEAM UNITS					649.80	53.4			150,800		601,662		137	1	
			TOTALS FOR JOB NO. 050274				1	①445	813.00	649.80	54.0	142,580	150,800	500	603,270	15,112.0	137	1

① INCLUDES APPROX. 147 CU. YDS. OF ROCK EXCAVATION.

② THESE STEEL PILES ARE REQUIRED TO BE GRADE 50 AND HAVE SPECIAL PILE TIPS WHICH WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 12X53)".

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

SCHEDULE OF BRIDGE QUANTITIES
GUT CREEK STR. & APPRS. (S)
FULTON COUNTY

ROUTE 63 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 12/4/14 FILENAME: b050274-ql.dgn
CHECKED BY: ACP DATE: 1-16-15 SCALE: None
DESIGNED BY: DATE:

BRIDGE NO. 07337 DRAWING NO. 56463



BRIDGE ENGINEER

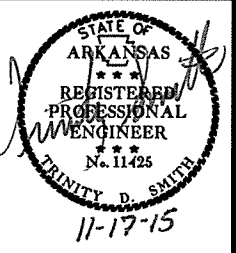
SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	32	STATION
201	GRUBBING	32	STATION
202	REMOVAL AND DISPOSAL OF FENCE	2628	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	3	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	475	LIN. FT.
206	FLOWABLE SELECT MATERIAL	720	CU. YD.
210	UNCLASSIFIED EXCAVATION	26182	CU. YD.
210	PRESPLITTING	1062	SQ. YD.
210	COMPACTED EMBANKMENT	122463	CU. YD.
SP & 210	SOIL STABILIZATION	50	TON
SP & 215	TRENCHING AND SHOULDER PREPARATION	5	STATION
303	AGGREGATE BASE COURSE (CLASS 7)	10719	TON
SS & 401	TACK COAT	977	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	1895	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")	77	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1655	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	2	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	73	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2244	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	12	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	116	TON
412	COLD MILLING ASPHALT PAVEMENT	533	SQ. YD.
504	APPROACH GUTTERS	30.20	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
602	FURNISHING FIELD LABORATORY	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	90	LIN. FT.
SS & 604	SIGNS	296	SQ. FT.
SS & 604	BARRICADES	240	LIN. FT.
SS & 604	TRAFFIC DRUMS	135	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	340	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	17213	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	3440	LIN. FT.
SS & 604	VERTICAL PANELS	35	EACH
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	156	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	210	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	630	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
611	UNDERDRAIN OUTLET PROTECTORS	500	LIN. FT.
611	4" PIPE UNDERDRAINS	350	LIN. FT.
617	GUARDRAIL (TYPE A)	4	EACH
617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
617	THREE BEAM GUARDRAIL TERMINAL	2608	LIN. FT.
619	WIRE FENCE (TYPE C)	1	EACH
619	16" STEEL GATES	1	EACH
619	16' ALUMINUM GATES	46	TON
620	LIME	22.93	ACRE
620	SEEDING	33.21	ACRE
SS & 620	MULCH COVER	2548.6	M.GAL.
620	WATER	10.28	ACRE
621	TEMPORARY SEEDING	13373	LIN. FT.
621	SILT FENCE	2675	LIN. FT.
621	TRIANGULAR SILT DIKE	225	LIN. FT.
621	WATTLE (20")	3031	CU. YD.
621	SEDIMENT BASIN	3031	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	3031	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	3585	CU. YD.
621	ROCK DITCH CHECKS	128	CU. YD.
623	SECOND SEEDING APPLICATION	22.93	ACRE
626	EROSION CONTROL MATTING (CLASS 3)	3172	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	1	EACH
637	MAILBOX SUPPORTS (SINGLE)	1	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	5229	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	6700	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	5676	LIN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	1024	LIN. FT.
SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	1024	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	84	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	2	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	2	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	2660	POUND
816	FILTER BLANKET	961	SQ. YD.
816	DUMPED RIPRAP	1730	CU. YD.
SP	ROCK FILL	120940	CU. YD.
STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	445	CU. YD.
802	CLASS S CONCRETE-BRIDGE	813.00	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	649.80	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	54.0	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	142580	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	150800	POUND
805	STEEL PILING (HP 12X53)	500	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	603270	POUND
808	ELASTOMERIC BEARINGS	15112.0	CU. IN.
809	SILICONE JOINT SEALANT	137	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH

* DENOTES ALTERNATE BID ITEMS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-17-15				6	ARK.		29	102
				JOB NO.	050274			

2 SUMMARY OF QUANTITIES AND REVISIONS



REVISIONS

DATE	REVISION	SHEET NUMBER
11/17/2015	ADDED "PRESPLITTING" QUANTITY	25, 29

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		30	102

2 SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: 050274
Date: 2/24/2015
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : 250013 - 250013A
Projected to Ground Coordinates
Units: U.S. Survey Foot

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

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	744874.3371	0.0120	1463326.4843	0.0090	615.47	0.003	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:1
2	745448.8382	0.0050	1463038.5383	0.0050	588.40	0.003	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:2
3	746137.9925	0.0130	1462998.1125	0.0080	541.41	0.001	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:3
4	746856.1996	0.0110	1463153.3945	0.0080	485.48	0.002	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:4
5	746865.8245	0.0080	1463077.2620	0.0070	486.61	0.002	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:5
6	747965.0260	0.0080	1463468.0563	0.0070	530.81	0.004	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:6
7	748373.3612	0.0170	1463845.7078	0.0110	568.11	0.004	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:7
8	749076.9164	0.0190	1464003.9537	0.0140	613.20	0.004	CTL	PD:5/8" X 24" Rebar with 2" Aluminum cap stamped PN:8
100	747495.6662	0.0001	1463152.8505	0.0001	491.62	0.002	GPS	PD:5/8" x 48" Rebar with 2.5" Aluminum cap Stamped PN: 250013
101	745836.7705	0.0001	1462981.1477	0.0001	562.01	0.002	GPS	PD:5/8" x 48" Rebar with 2.5" Aluminum cap Stamped PN: 250013A
900	746008.1193	30.0000	1463068.6971	30.0000	549.52	0.000	BM	PD:NGS BM H 313
901	744873.3751	30.0000	1463336.9292	30.0000	617.40	0.003	TBM	PD:CHIS SQ CUT IN ROCK
902	746954.2639	30.0000	1463153.4075	30.0000	483.92	0.002	TBM	PD:CHIS SQUARE CUT IN BR
903	748297.8377	30.0000	1463804.8600	30.0000	567.18	0.004	BM	PD:NGS BM Z 308
904	749173.9928	30.0000	1463976.4509	30.0000	616.22	0.004	TBM	PD:CHIS SQUARE CTR W HW

HWY. 63

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	10+00.00	748277.5268	1463752.1522
8001	PC	11+52.61	748154.9168	1463661.2883
8003	PT	21+43.17	747244.7264	1463299.3927
8004	PC	36+93.16	745705.7154	1463115.2081
8006	PT	43+23.46	745090.8845	1463211.8491
8007	POE	45+00.00	744930.4838	1463285.5920



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

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

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

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

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

Positional Accuracy:	Horizontal - GPS (1.0 cm ± 1PPM)	PN: 100-101
	Horizontal - Primary (2.0 cm ± 20PPM):	PN: 1-8
	Horizontal - Secondary (3 cm ± 50PPM):	PN:
	Vertical - NGS 1st Order (±4mm x vdist in km)	PN:
	Vertical - NGS 2nd Order (±6mm x vdist in km)	PN:
	Vertical - NGS 3rd Order (±8mm x vdist in km)	PN: 900-904

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: 1.000006819 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.999973478 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 554.49 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-8, 100-101, 900-904 From NGS BM: H 313

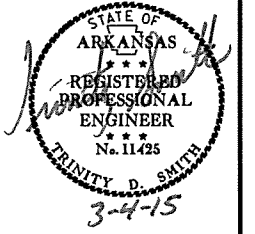
Basis of Bearing: Grid Bearings based on AHTD GPS points: 250013 - 250013A
Convergence Angle is: 00 17 53 RIGHT at PN: 4
LT: 36-23-02.7 LG: 091-29-15.5
Grid Azimuth = Astronomical Azimuth - Convergence Angle

2/27/2015

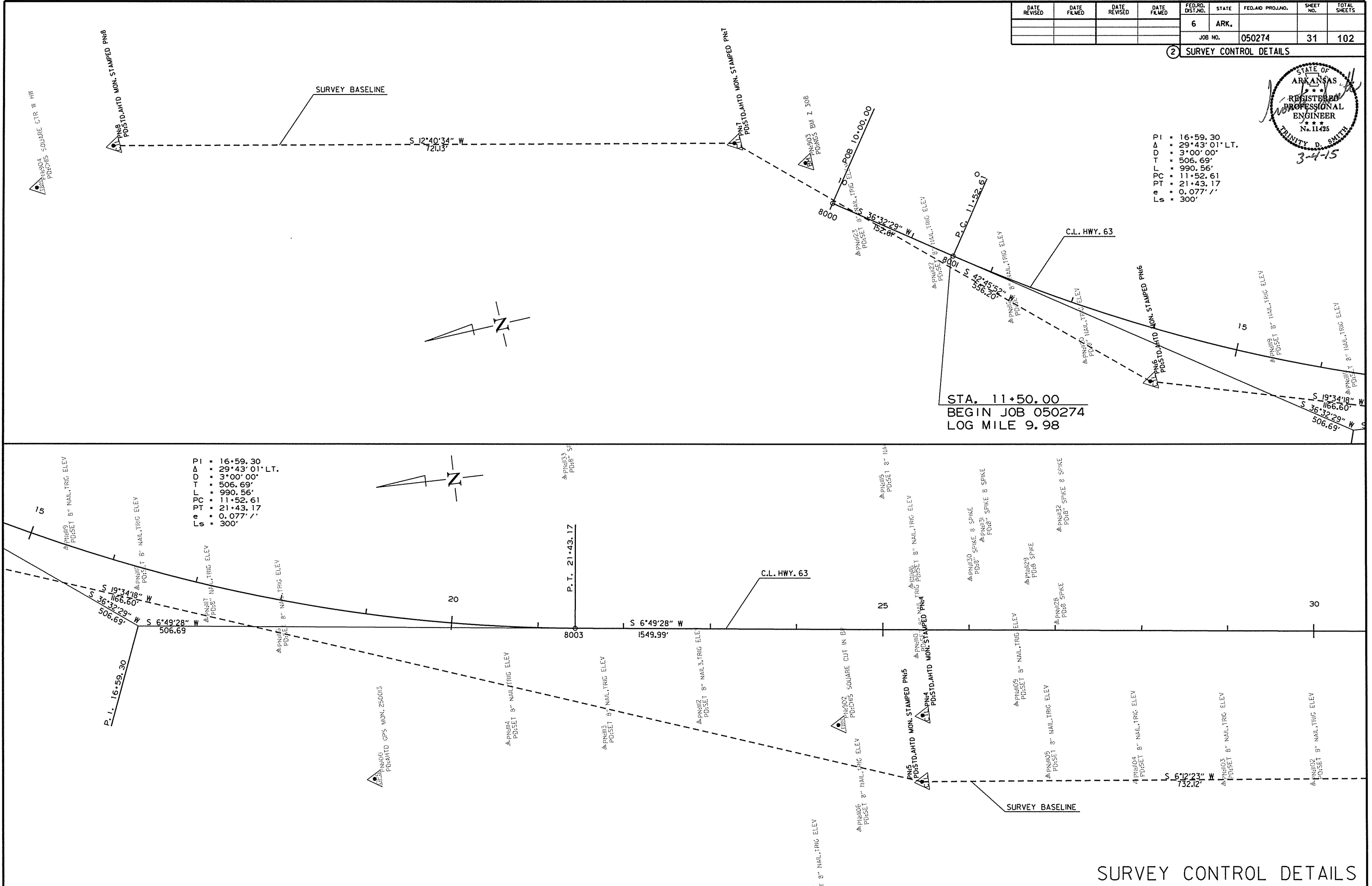
R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		31	102

2 SURVEY CONTROL DETAILS

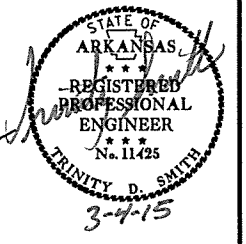


- PI = 16+59.30
- Δ = 29°43'01" LT.
- D = 3°00'00"
- L = 506.69'
- T = 990.56'
- PC = 11+52.61
- PT = 21+43.17
- e = 0.077' /'
- Ls = 300'

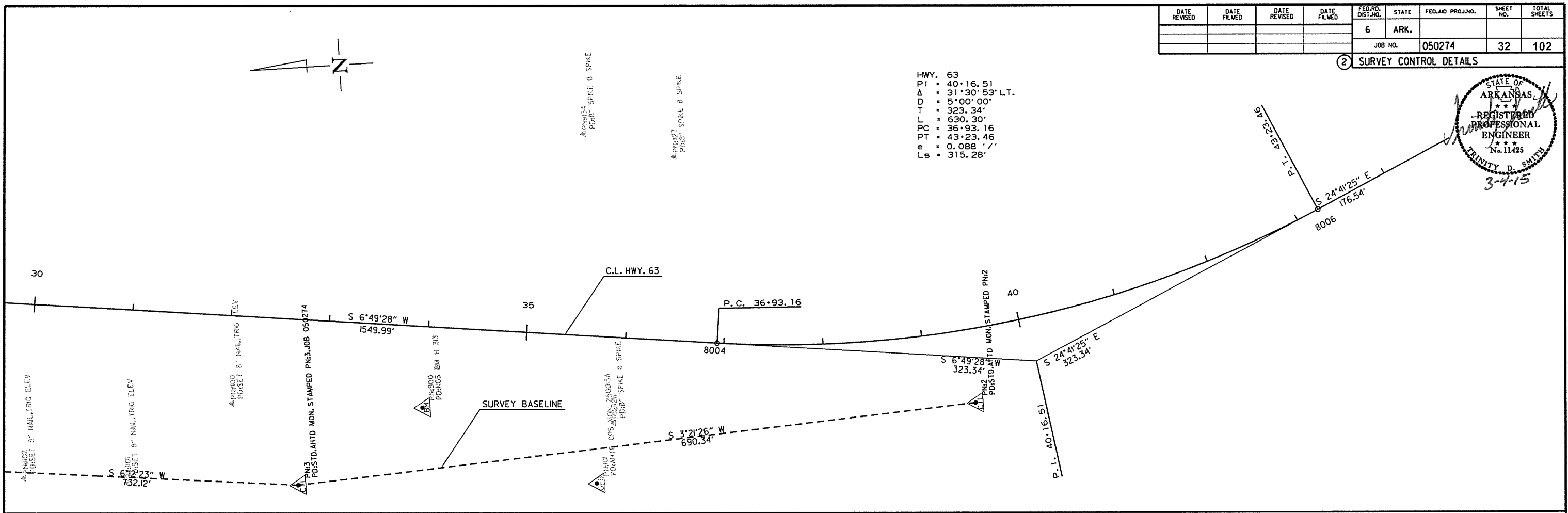


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. RD. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		32	102
				JOB NO.		050274		

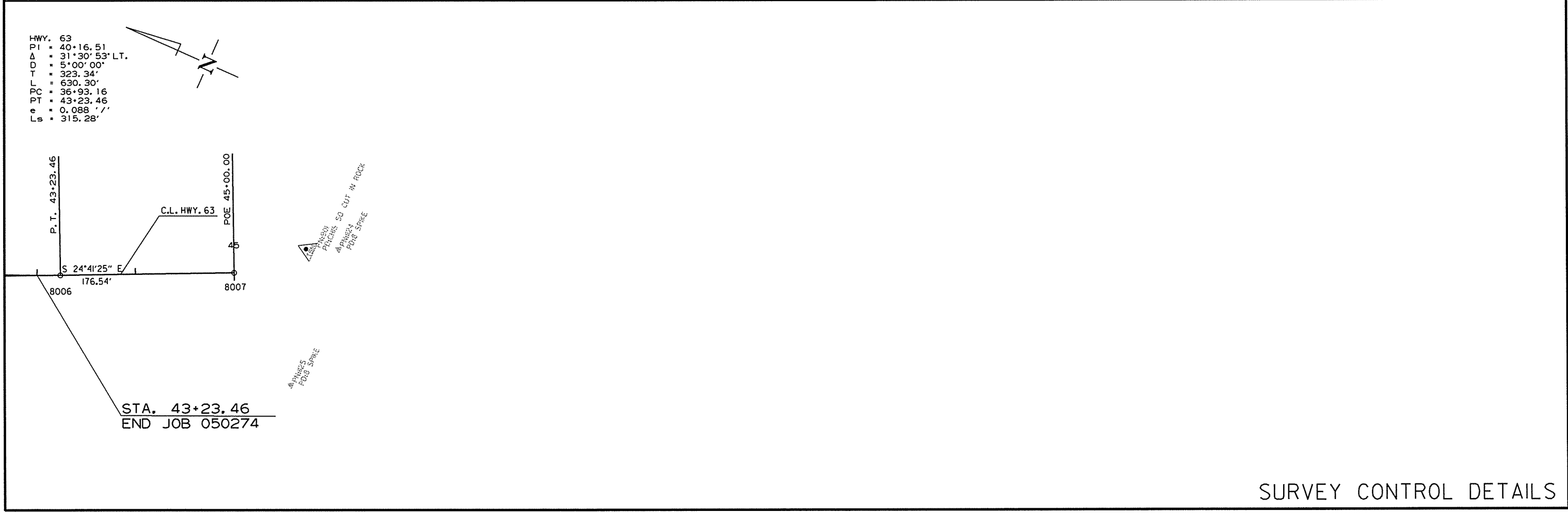
2 SURVEY CONTROL DETAILS



HWY. 63
 PI = 40+16.51
 Δ = 31°30'53" LT.
 D = 5°00'00"
 T = 323.34'
 L = 630.30'
 PC = 36+93.16
 PT = 43+23.46
 e = 0.088 ' / '
 Ls = 315.28'



HWY. 63
 PI = 40+16.51
 Δ = 31°30'53" LT.
 D = 5°00'00"
 T = 323.34'
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2/27/2015
 R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		33	102

2 SOIL LOG



SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
12+41	36	23	16.10	91	29	8.80	11.35' RT.	0-5	20	9	A-4(0)	BR/GR
12+40	36	23	16.20	91	29	8.90	19.33' RT.	0-4Z	37	22	A-6(7)	BR/GR
12+40	36	23	16.20	91	29	8.90	26.32' RT.	0-3Z	ND	NP	A-4(0)	BR/GR
19+22	36	23	10.50	91	29	13.50	64.74' RT.	0-5	67	39	A-7-6(26)	BR/GR
33+14	36	22	59.00	91	29	16.00	101.78' RT.	0-5	48	28	A-7-6(23)	BROWN
33+14	36	22	59.00	91	29	16.00	101.78' RT.	0-5	57	35	A-7-6(31)	BROWN
39+89	36	22	50.20	91	29	17.00	37.51' RT.	0-5	47	30	A-7-6(16)	BR/GR
39+88	36	22	50.20	91	29	16.90	30.63' RT.	0-5	46	26	A-7-6(4)	BR/GR
39+86	36	22	50.20	91	29	16.70	19.82' RT.	0-5	58	33	A-7-6(22)	BR/GR

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

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050274							34	102

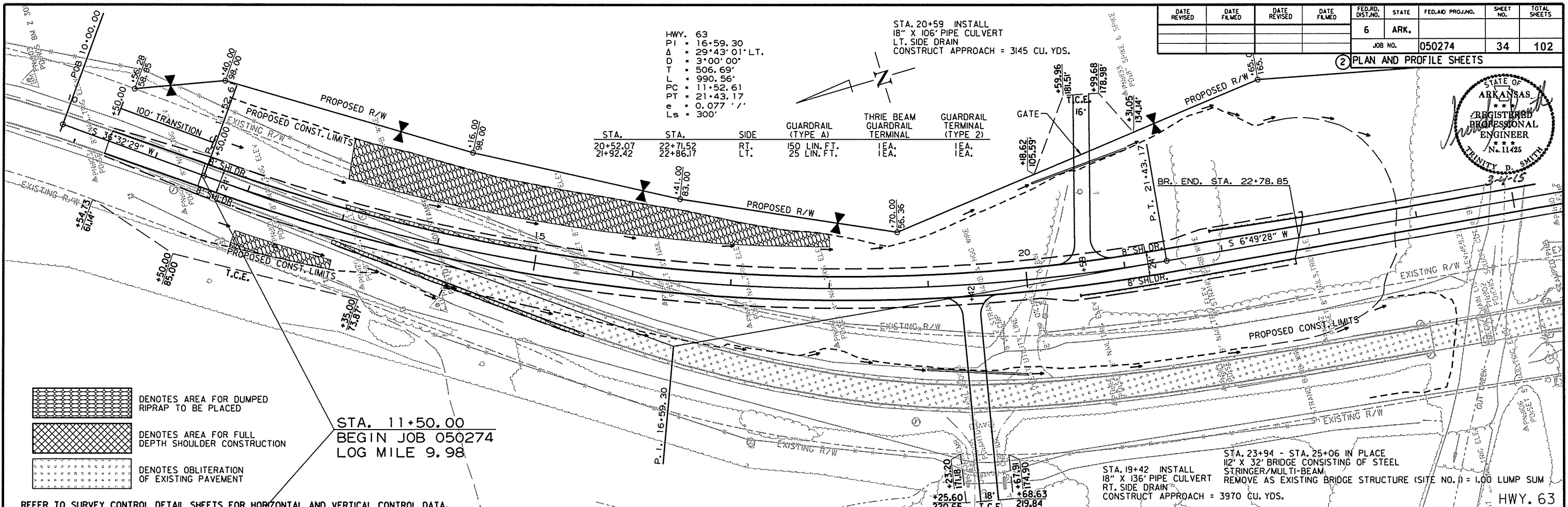
2 PLAN AND PROFILE SHEETS



HWY. 63
 PI = 16+59.30
 Δ = 29°43'01" L.T.
 D = 3°00'00"
 T = 506.69'
 L = 990.56'
 PC = 11+52.61
 PT = 21+43.17
 e = 0.077' /'
 Ls = 300'

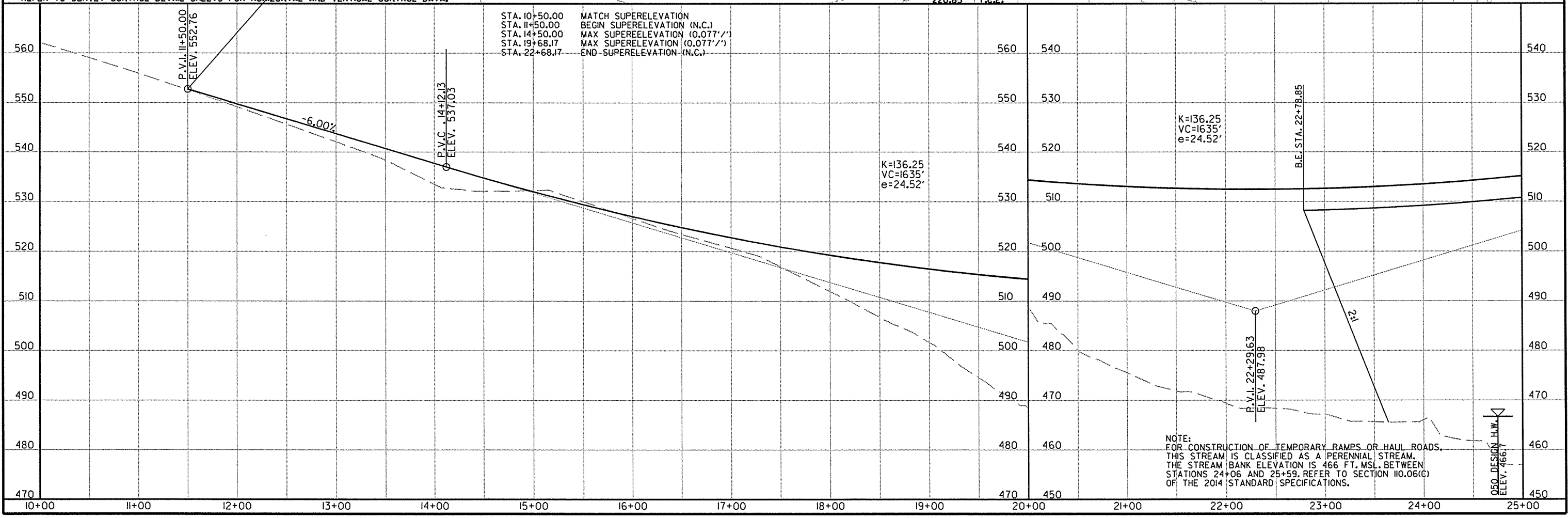
STA. 20+59 INSTALL
 18" X 106" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 3145 CU. YDS.

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
20+52.07	22+71.52	RT. LT.	150 LIN. FT. 25 LIN. FT.	IEA. IEA.	IEA. IEA.
21+92.42	22+86.17				



- DENOTES AREA FOR DUMPED RIPRAP TO BE PLACED
- DENOTES AREA FOR FULL DEPTH SHOULDER CONSTRUCTION
- DENOTES OBLITERATION OF EXISTING PAVEMENT

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

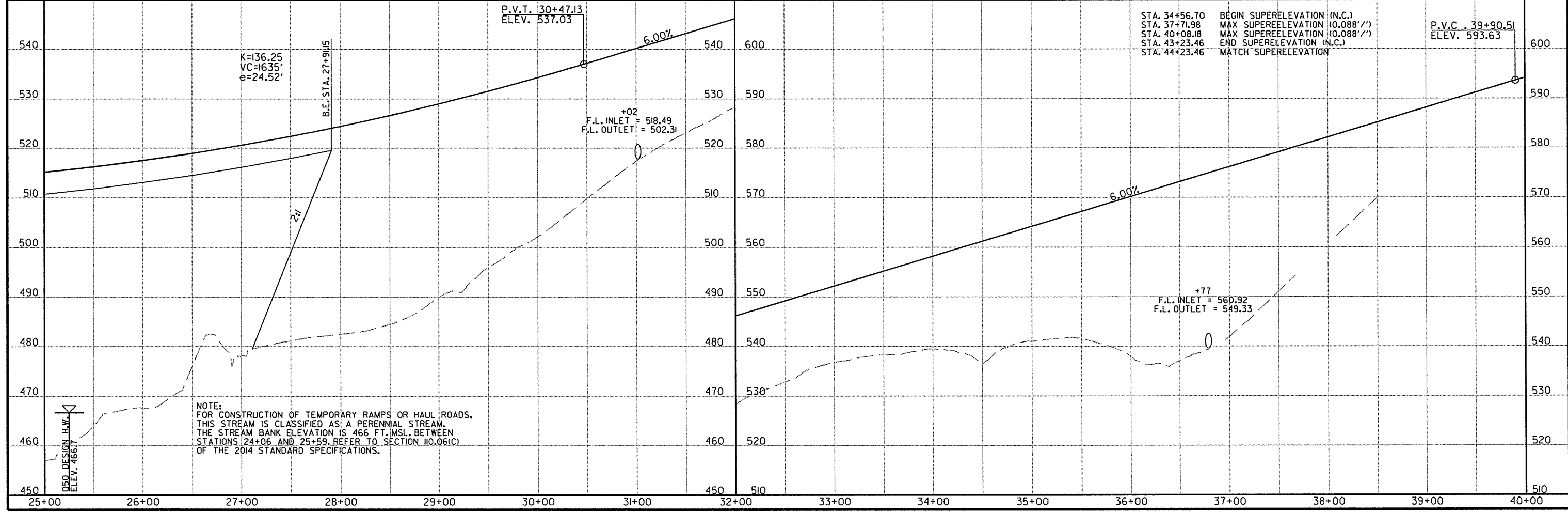
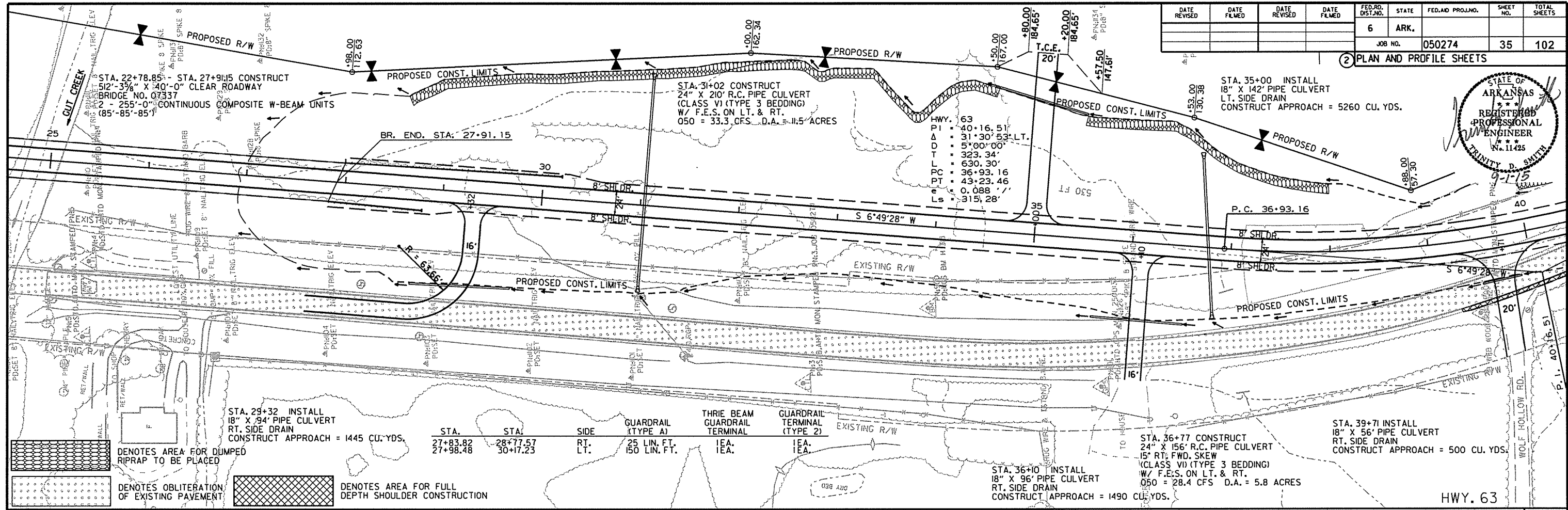


NOTE:
 FOR CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS,
 THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM.
 THE STREAM BANK ELEVATION IS 466 FT. MSL. BETWEEN
 STATIONS 24+06 AND 25+59. REFER TO SECTION 110.06(C)
 OF THE 2014 STANDARD SPECIFICATIONS.

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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. 050274							35	102

2 PLAN AND PROFILE SHEETS

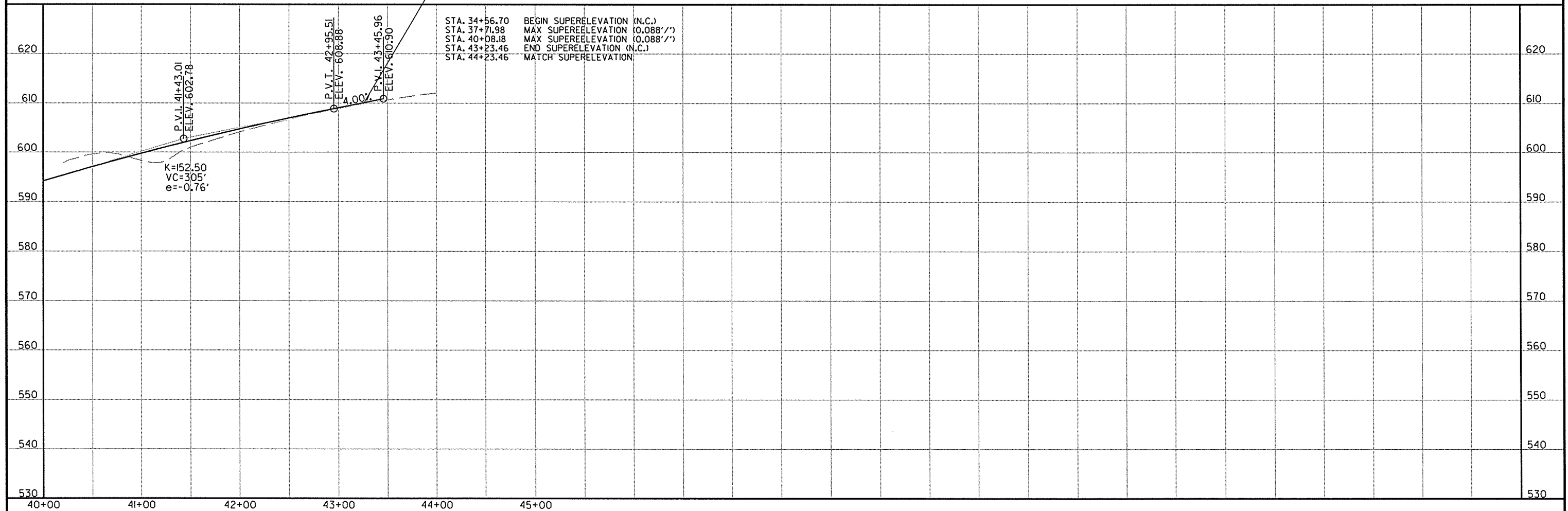
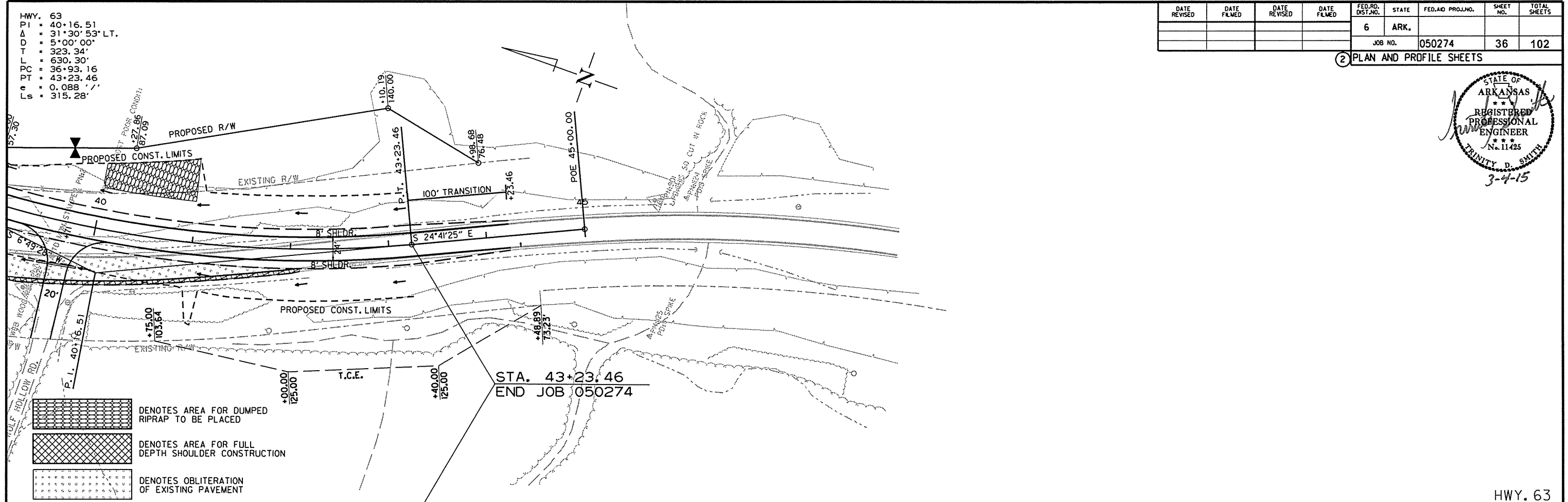
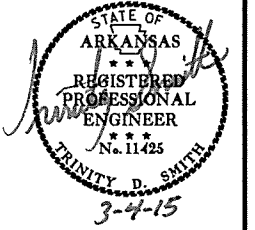


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HWY. 63
 PI = 40+16.51
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 D = 5°00'00"
 T = 323.34'
 L = 630.30'
 PC = 36+93.16
 PT = 43+23.46
 e = 0.088' /'
 Ls = 315.28'

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050274		36	102

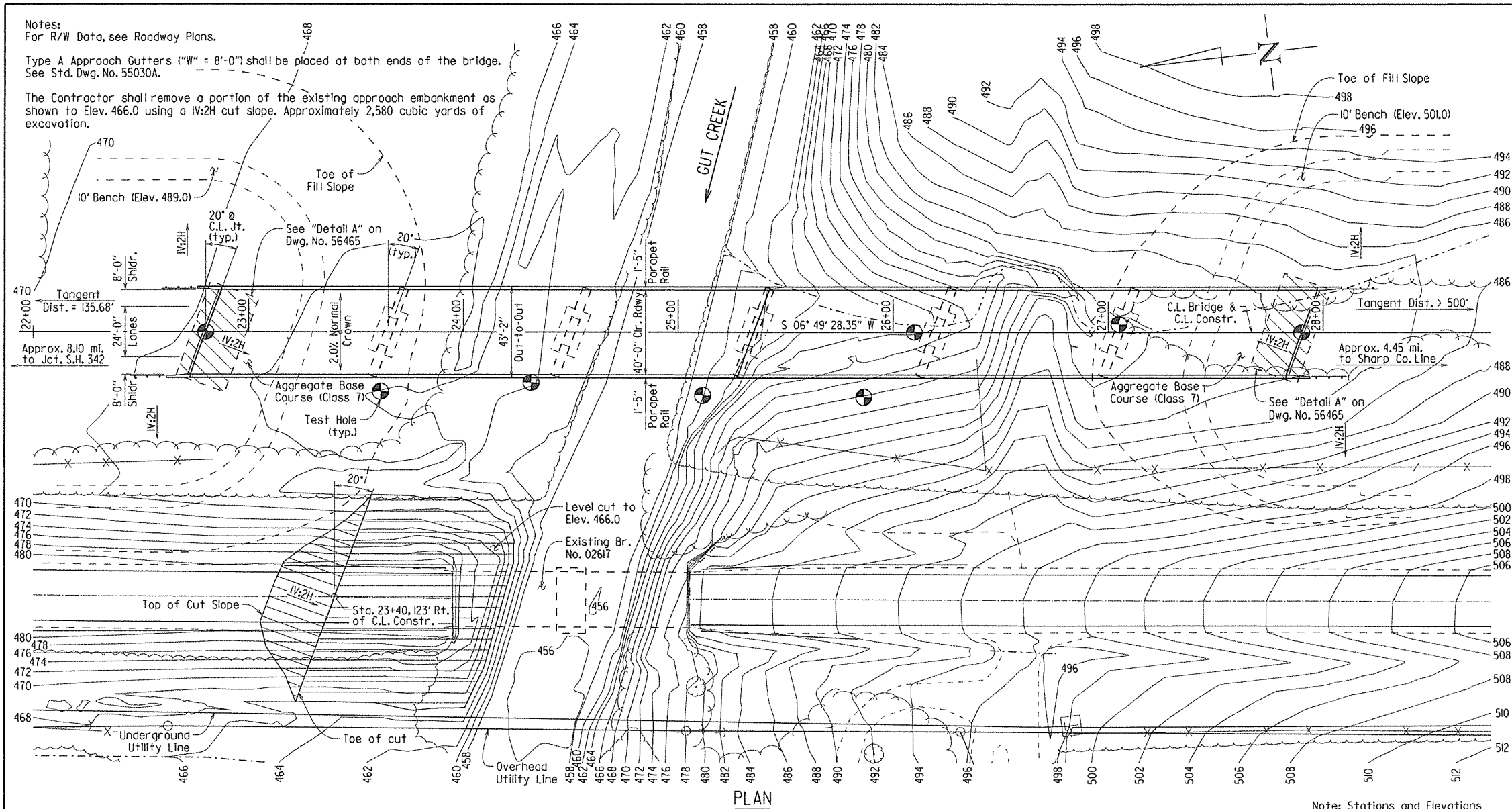
② PLAN AND PROFILE SHEETS



Notes:
For R/W Data, see Roadway Plans.

Type A Approach Gutters ("W" = 8'-0") shall be placed at both ends of the bridge.
See Std. Dwg. No. 55030A.

The Contractor shall remove a portion of the existing approach embankment as shown to Elev. 466.0 using a 1V:2H cut slope. Approximately 2,580 cubic yards of excavation.



PLAN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		37	102
				JOB NO.	050274		57	102

GENERAL NOTES
07337 - LAYOUT - 56464

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. Unless otherwise noted in the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 6th Edition (2012) with 2013 Interim Revisions.

LIVE LOADING: HL-93
SEISMIC PERFORMANCE ZONE: I

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 M270, Gr. 50W) fy = 50,000 psi
Structural Steel (AASHTO M270, Gr. 36) fy = 36,000 psi

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

STEEL PILING: All Piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer into a material designated as dolostone or dolostone with chert seams on the boring legend and to a minimum safe bearing capacity of 95 tons per pile. Piling in End Bents shall be driven to a minimum penetration of 8' below natural ground after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

FOOTINGS: Footings for Bents 2 thru 5 shall be set a minimum of 2'-0" into material designated as dolostone with occasional chert layers or dolostone on the boring legend. The top of all footings shall be set at or below natural ground as determined by the lowest elevation within the footprint of the footing area. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to the neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against surfaces of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

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.

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

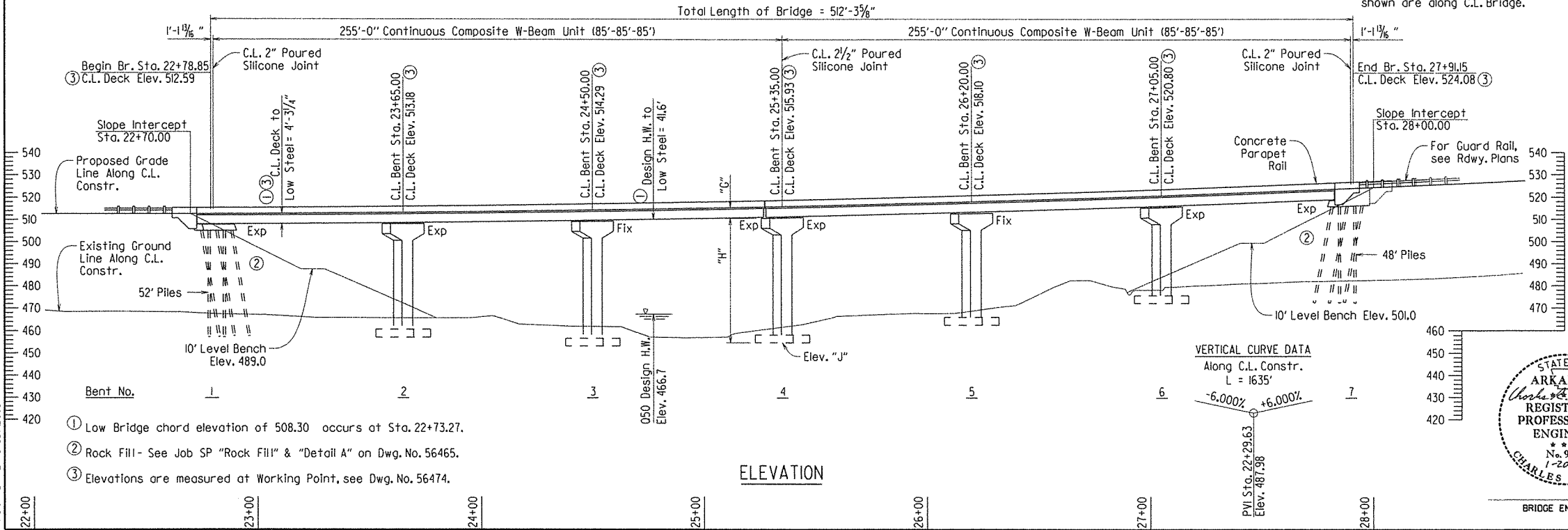
DETAIL DRAWINGS:
End Bents 56466 - 56468
Intermediate Bents 56469 - 56472
Elastomeric Bearings 56473
255'-0" Continuous W-Beam Unit 56474 - 56479
Type A Approach Gutters 55030A
Steel Piling 55020

EXISTING BRIDGE: Existing Bridge No. 02617 (L.M. 10.26) is 31.6' wide and 112' long. The existing bridge consists of a concrete deck on steel stringers supported by concrete footings at end bents and a hammerhead column at the intermediate bent.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, Existing Bridge No. 02617 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor. The exposed grouted concrete from the existing structure shall be removed to a minimum of 2 feet below the finished surface as directed by the Engineer. This work shall be considered incidental to the item "Removal of Existing Bridge Structure".

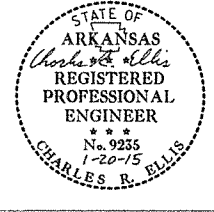
TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap	Low Seat of Cap to Bottom of Ftg.	Bottom of Ftg. Elevation
2	4'-7 ¹ / ₂ "	5'-6"	457.02
3	4'-8 ³ / ₄ "	5'-6"	453.09
4	4'-9 ³ / ₄ "	5'-6"	456.62
5	4'-9 ³ / ₄ "	4'-6"	463.82
6	4'-9 ¹ / ₂ "	4'-0"	471.98



ELEVATION

VERTICAL CURVE DATA
Along C.L. Constr.
L = 1635'
-6.000% +6.000%



SHEET 1 OF 2
LAYOUT OF BRIDGE OVER GUT CREEK
GUT CREEK STR. & APPRS. (S)
FULTON COUNTY
ROUTE 63 SEC. I
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 07-01-14 FILENAME: b050274_ll.dgn
CHECKED BY: AMS DATE: 7/7/14 SCALE: 1" = 30'
DESIGNED BY: ACP DATE: 07-14
BRIDGE NO. 07337 DRAWING NO. 56464

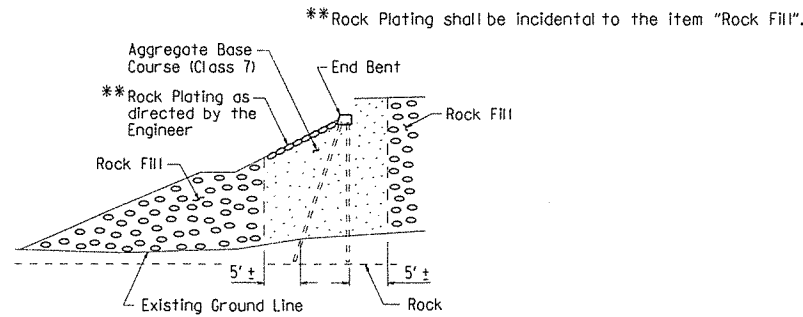
PRINT DATE: 1/15/2015

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.		050274	38	102
				07337 - LAYOUT - 56465				

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	*NATURAL WATER SURFACE ELEVATION FEET	WATER SURFACE ELEV. WITH BACKWATER FEET
Design	50	4,850	466.6	466.7
Base	100	5,610	467.1	467.3
Extreme	500	7,520	468.4	468.7
Overtopping	> 500	—	—	—

*Unconstricted water surface without structure or roadway approaches.
 O100 backwater elevation for existing structure = 469.4
 Proposed Low Bridge Chord Elev. = 508.30
 Drainage area = 10.1 square miles.
 Historical H.W. Elev. = 471.46



Where rock fill is used for embankment construction, Aggregate Base Course (Class 7), in accordance with Subsection 303.02, shall be placed as shown in areas where piling will be located. Aggregate Base Course (Class 7) shall be paid for as "Rock Fill".

At the Contractor's option, preboring or other methods as approved by the Engineer may be used to facilitate pile installation through the aggregate base course (Class 7) material at the end bents. Preboring or other methods used for installation of piles, where rock fill is used for embankment construction, will not be paid for separately but shall be considered subsidiary to the item "Steel Piling 1HP 12x53".

DETAIL "A"

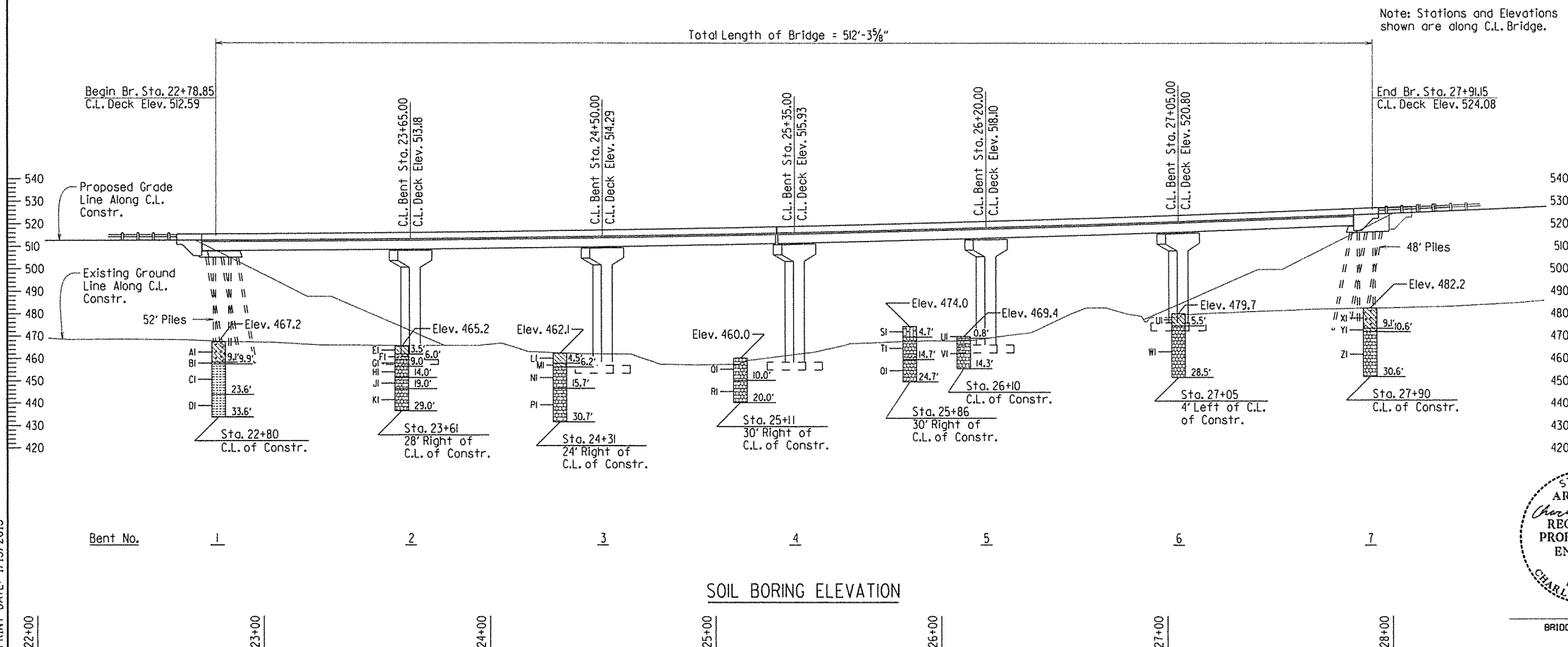
(Shown Normal to End Bent 7, Bent 1 Similar)
 Not to Scale

BORING LEGEND

- AI-Moist, Hard, Brown and Gray Sandy Clay with Gravel (Dolostone Fragments) and some Organic Matter
- BI-Wet, Very Hard, Brown Sandy Clay with Gravel (Dolostone Fragments)
- CI-DOLOSTONE - Gray, Medium Bedded, Weathered, Hard, with Steep Dip and Fractured Layers
- DI-DOLOSTONE - Gray, Medium Bedded, Vuggy, Weathered, Hard, with Steep Dip and Fractured Layers
- EI-Moist, Stiff, Brown Clay with some Organic Matter
- FI-Moist, Stiff, Brown Clay with Gravel (Dolostone Fragments)
- GI-DOLOSTONE WITH OCCASIONAL CHERT LAYERS - Light Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
- HI-DOLOSTONE WITH OCCASIONAL CHERT LAYERS - Light Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
- JI-DOLOSTONE - Light Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
- KI-DOLOSTONE - Light Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
- LI-Moist to Wet, Stiff, Brown Clay with some Organic Matter
- MI-Wet, Very Dense, Gray Gravel (Dolostone Fragments) with Brown Clay
- NI-DOLOSTONE - Light Gray, Thin Bedded, Weathered, Hard, with Slight Dip and Fractured Layers
- PI-DOLOSTONE - Light Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
- OI-DOLOSTONE - Light Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
- RI-DOLOSTONE - Light Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
- SI-Dry, Very Dense, Light Gray Gravel (Dolostone Fragments) with Silt
- TI-DOLOSTONE - Light Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers
- UI-Moist, Stiff, Brown Clay with Trace of Organic Matter
- VI-DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
- WI-DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
- XI-Moist, Very Stiff, Brown Clay with Gravel (Dolostone Fragments) and some Organic Matter
- YI-Moist, Very Hard, Brown and Gray Sandy Clay with Gravel (Dolostone Fragments)
- ZI-DOLOSTONE WITH CHERT SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers

"N" VALUES

- Sta. 22+80 - C.L. of Construction
4.6 - 5.6, N=49
9.6 - 9.9, N=20(3")
- Sta. 23+61 - 28' Right of C.L. of Construction
4.0 - 5.0, N=12
6.0 - 6.0, N=60(1")
- Sta. 24+31 - 24' Right of C.L. of Construction
5.0 - 5.3, N=60(4")
- Sta. 25+11 - 30' Right of C.L. of Construction
- Sta. 25+86 - 30' Right of C.L. of Construction
4.5 - 4.7, N=60(2")
- Sta. 26+10 - C.L. of Construction
- Sta. 27+05 - 4' Left of C.L. of Construction
4.4 - 5.4, N=10
- Sta. 27+90 - C.L. of Construction
4.6 - 5.6, N=20
9.6 - 9.7, N=4(1")



Note: Stations and Elevations shown are along C.L. Bridge.

SHEET 2 OF 2
 LAYOUT OF BRIDGE OVER GUT CREEK
 GUT CREEK STR. & APPRS. (S)
 FULTON COUNTY
 ROUTE 63 SEC. 1
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: ACP DATE: 07-01-14 FILENAME: b050274_ll.dgn
 CHECKED BY: AHS DATE: 7/1/14 SCALE: 1" = 30'
 DESIGNED BY: ACP DATE: 07-14
 BRIDGE NO. 07337 DRAWING NO. 56465



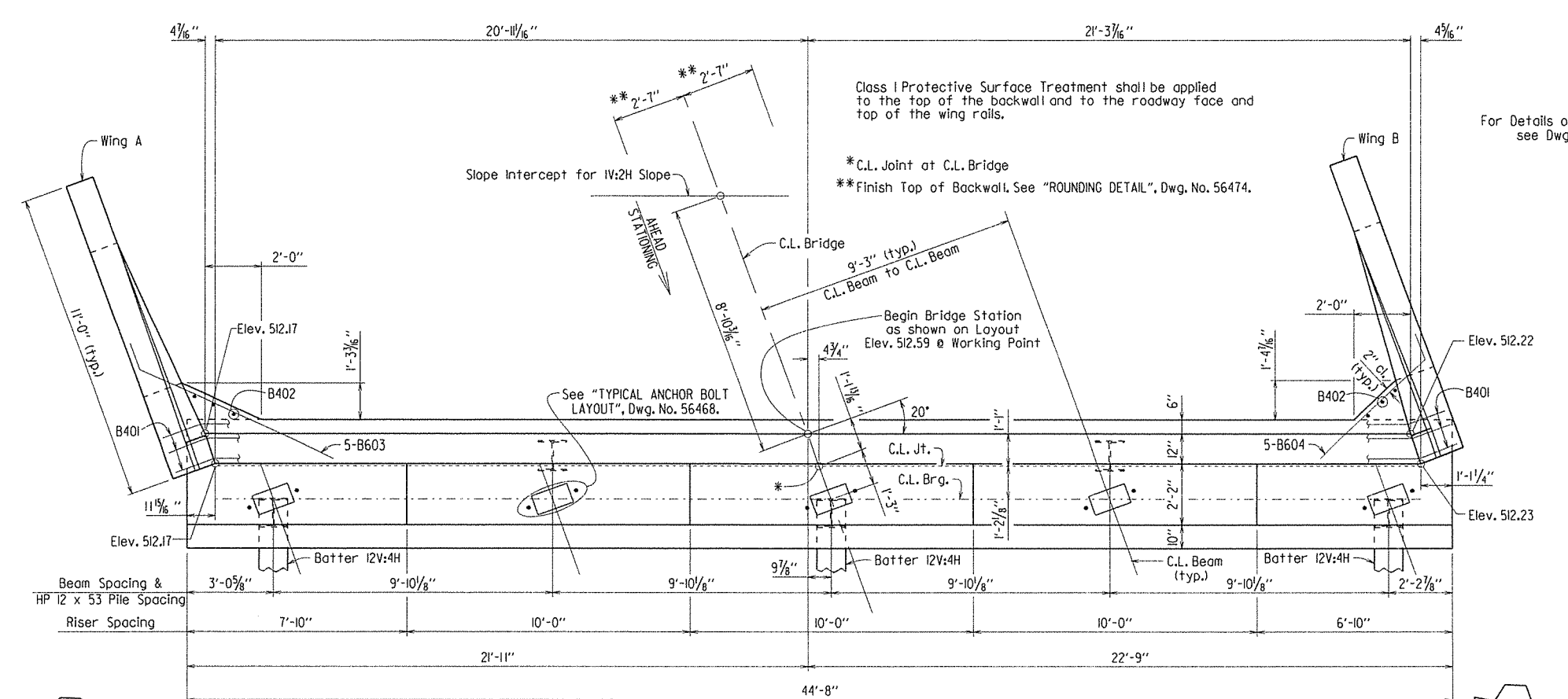
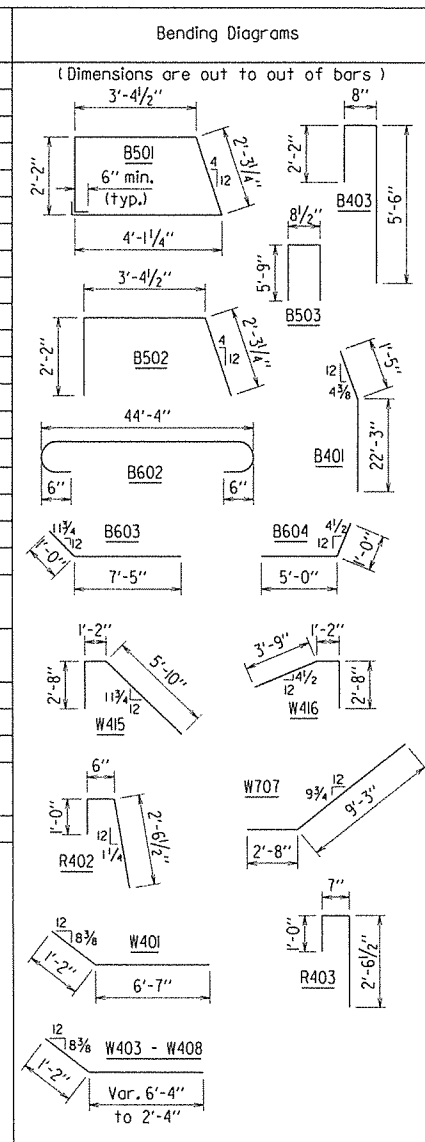
BRIDGE ENGINEER

PRINT DATE: 1/15/2015

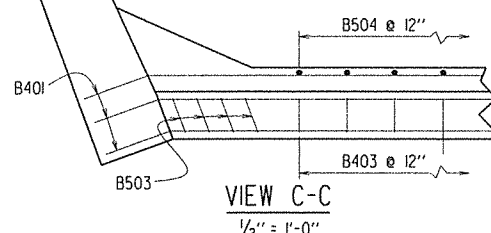
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				6	ARK.			
				JOB NO.	050274	39	102	

BAR LIST - BENT I ① 07337 - END BENTS - 56466

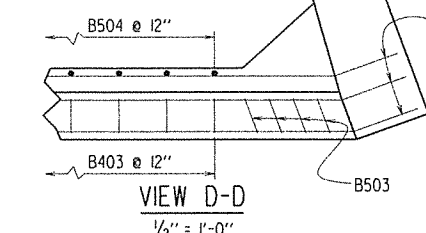
Mark	No.	Req'd.	Length	Pin Dia.
B401	24		23'-8"	2"
B402	6		5'-4"	Str.
B403	38		8'-2"	2"
B404	2		44'-4"	Str.
B501	60		12'-5"	2 1/2"
B502	10		7'-7"	2 1/2"
B503	8		12'-0"	2 1/2"
B504	38		5'-0"	Str.
B601	6		44'-4"	Str.
B602	6		45'-8"	4 1/2"
B603	5		8'-5"	4 1/2"
B604	5		6'-0"	4 1/2"
R401	12		10'-8"	Str.
R402	12		4'-0"	2"
R403	8		4'-0"	2"
R601	16		4'-5"	Str.
R602	6		5'-0"	Str.
W401	8		7'-9"	2"
W402	8		8'-10"	Str.
W403 - W408	2 ea.		7'-6" - 3'-6"	2"
W409 - W414	2 ea.		8'-7" - 4'-7"	Str.
W415	3		9'-7"	2"
W416	3		7'-6"	2"
W701	12		10'-8"	Str.
W702 - W706	4 ea.		7'-6" - 3'-9"	Str.
W707	4		11'-11"	5/4"



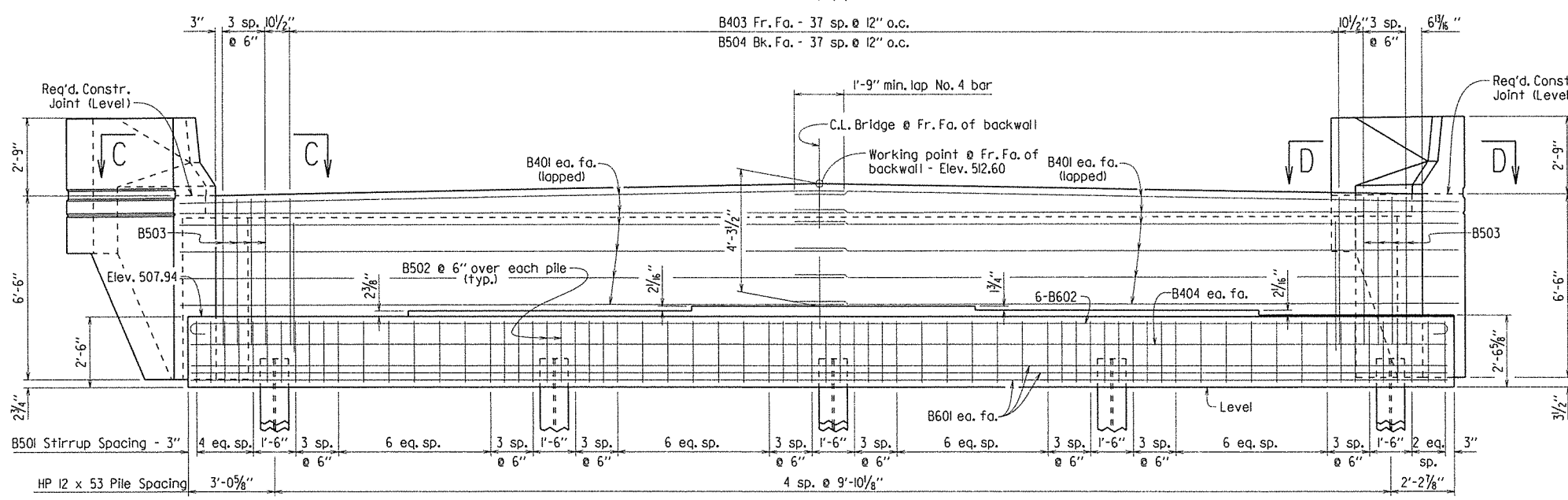
PLAN OF BENT I
3/8" = 1'-0"



VIEW C-C
1/2" = 1'-0"

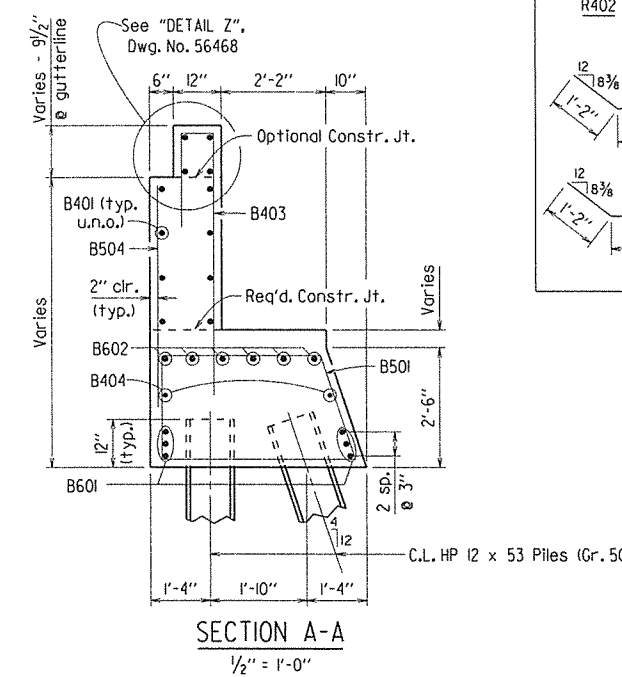


VIEW D-D
1/2" = 1'-0"

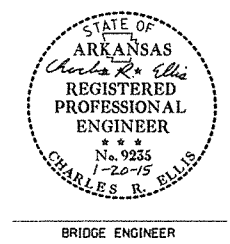


ELEVATION OF BENT I
Looking Back
3/8" = 1'-0"

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. 56479, "Expansion Device Installation at End Bents", for additional information.



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



SHEET 1 OF 3
DETAILS OF END BENTS
GUT CREEK

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

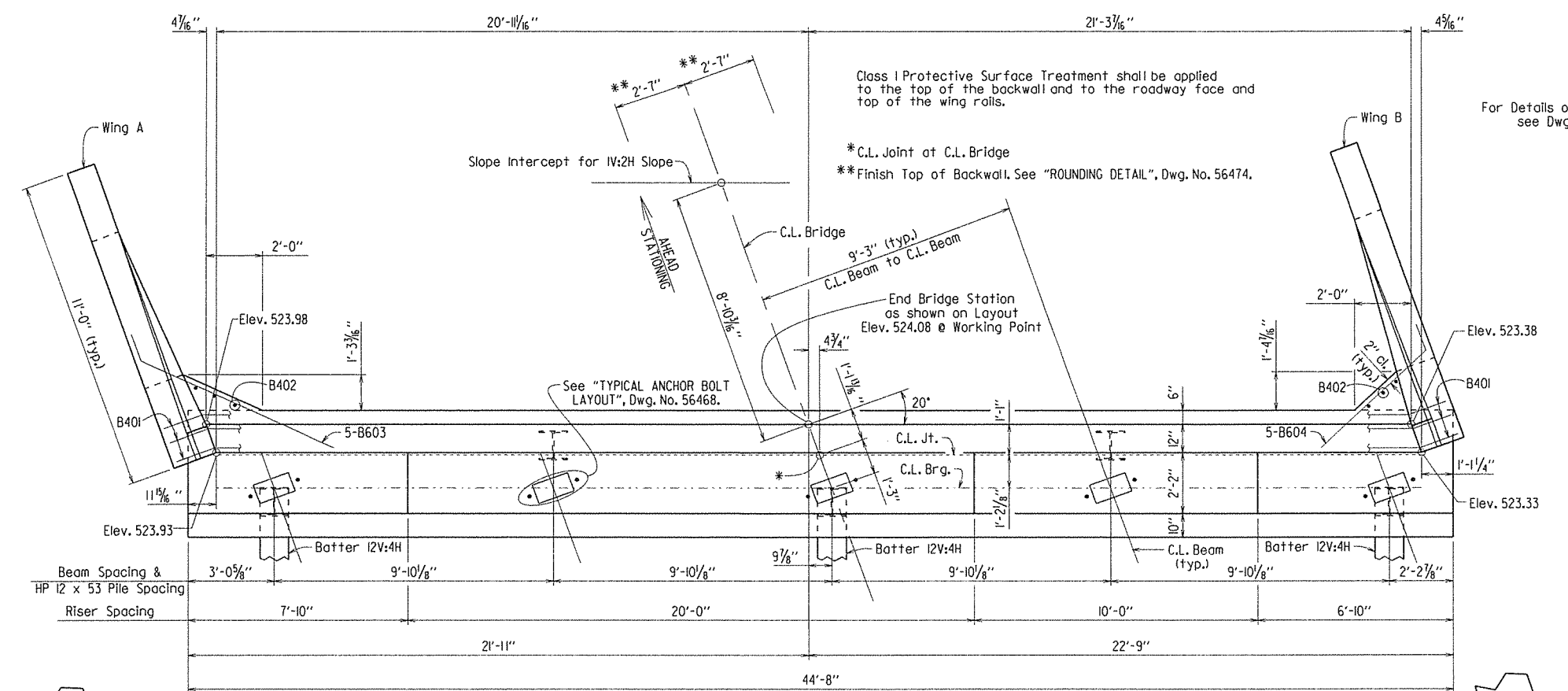
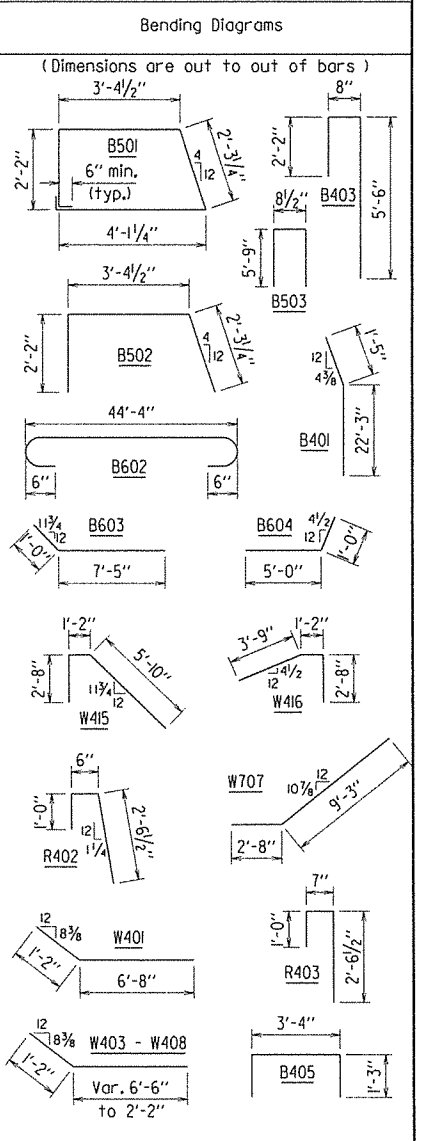
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DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 DRAWING NO. 56466

PRINT DATE: 1/15/2015

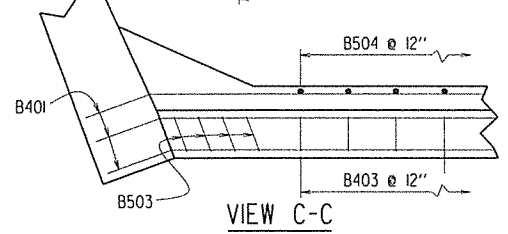
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				6	ARK.			
				JOB NO.	050274		40	102

BAR LIST - BENT 7 (1) 07337 - END BENTS - 56467

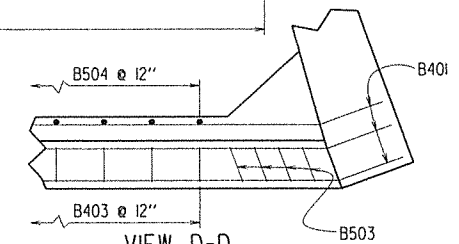
Mark	No. Req'd.	Length	Pin Dia.
B401	24	23'-8"	2"
B402	6	5'-4"	Str.
B403	38	8'-2"	2"
B404	2	44'-4"	Str.
B405	19	5'-8"	2"
B406	6	27'-6"	Str.
B501	60	12'-5"	2 1/2"
B502	10	7'-9"	2 1/2"
B503	8	12'-0"	2 1/2"
B504	38	5'-0"	Str.
B601	6	44'-4"	Str.
B602	6	45'-8"	4 1/2"
B603	5	8'-5"	4 1/2"
B604	5	6'-0"	4 1/2"
R401	12	10'-8"	Str.
R402	12	4'-0"	2"
R403	8	4'-0"	2"
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	7'-10"	2"
W402	8	8'-11"	Str.
W403 - W408	2 ea.	7'-8" - 3'-4"	2"
W409 - W414	2 ea.	8'-9" - 4'-5"	Str.
W415	3	9'-7"	2"
W416	3	7'-6"	2"
W701	12	10'-8"	Str.
W702 - W706	4 ea.	7'-6" - 4'-0"	Str.
W707	4	11'-1"	5 1/4"



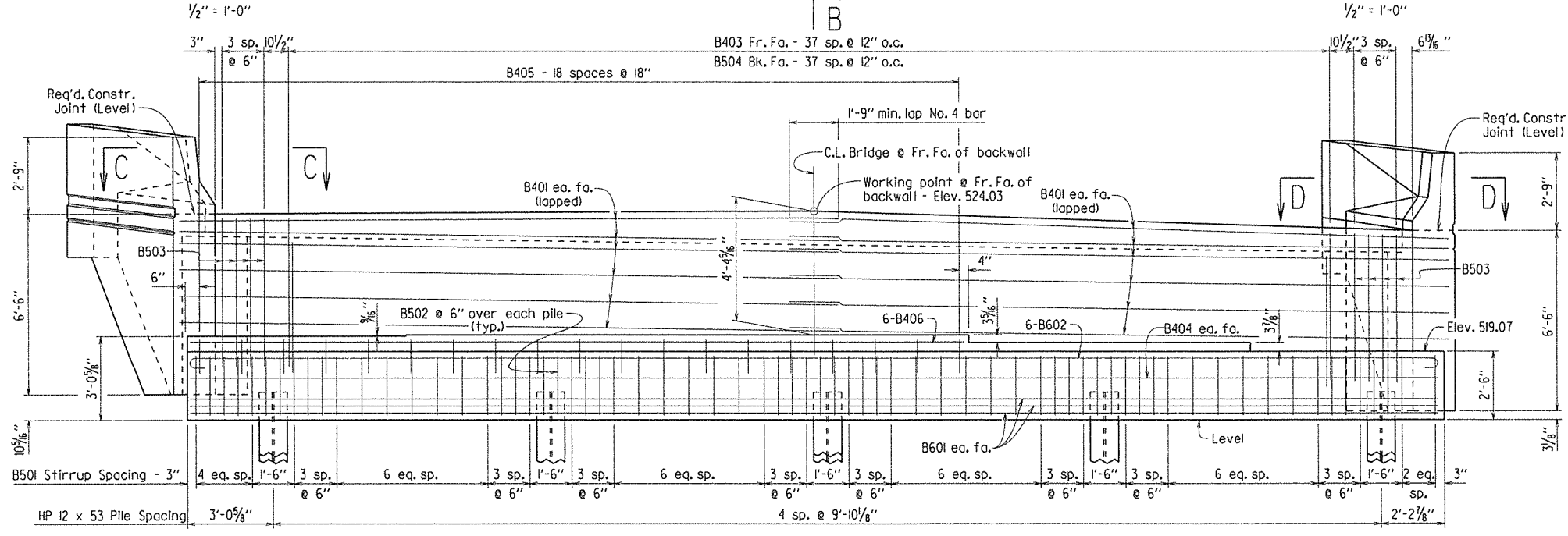
PLAN OF BENT 7
3/8" = 1'-0"



VIEW C-C
1/2" = 1'-0"

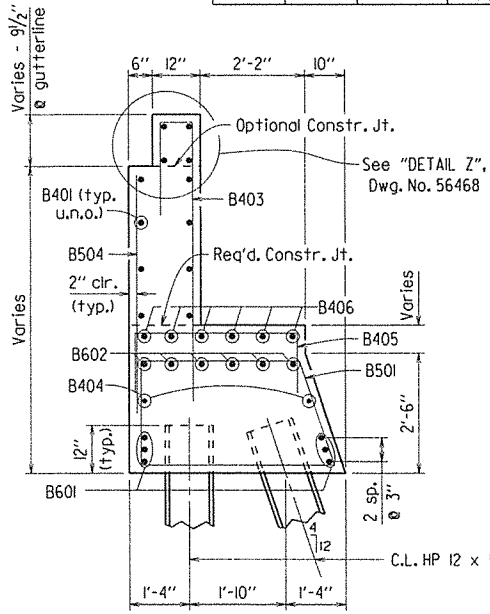


VIEW D-D
1/2" = 1'-0"

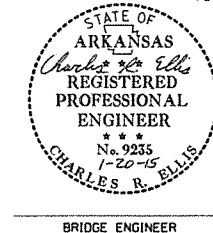


ELEVATION OF BENT 7
Looking Ahead
3/8" = 1'-0"

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. 56479, "Expansion Device Installation at End Bents", for additional information.



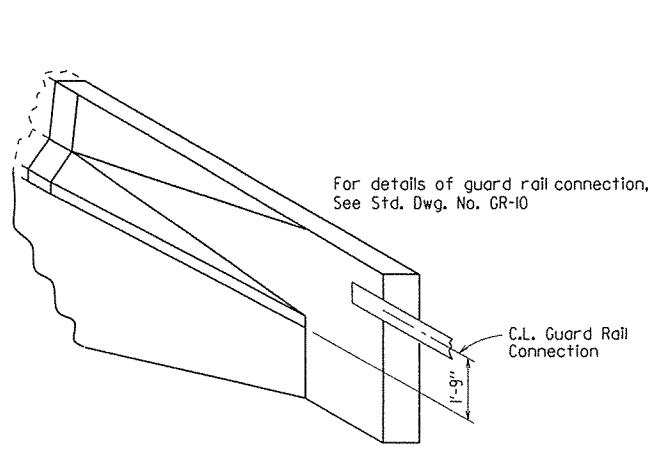
SECTION B-B
1/2" = 1'-0"



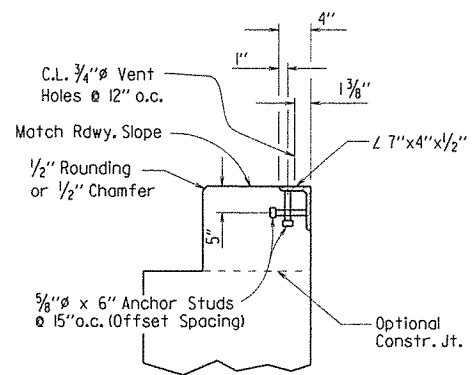
SHEET 2 OF 3
DETAILS OF END BENTS
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: LJB DATE: 10/9/14 FILENAME: b050274_b1.dgn
CHECKED BY: JYP DATE: 1/14/15 SCALE: as noted
DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 DRAWING NO. 56467

PRINT DATE: 1/15/2015

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.		050274	41	102
				①	07337 - END BENTS		- 56468	

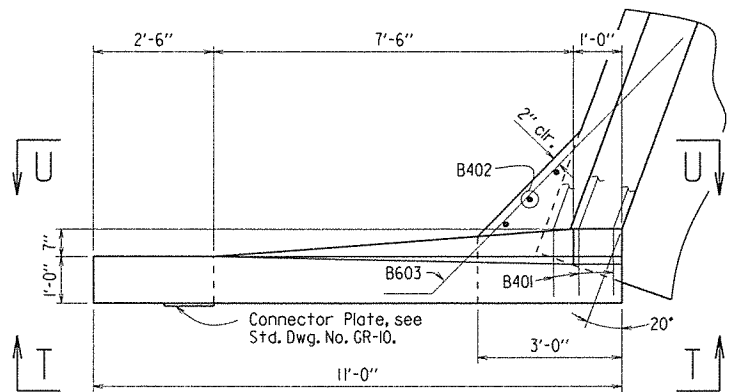


THREE DIMENSIONAL VIEW OF RAIL
No Scale

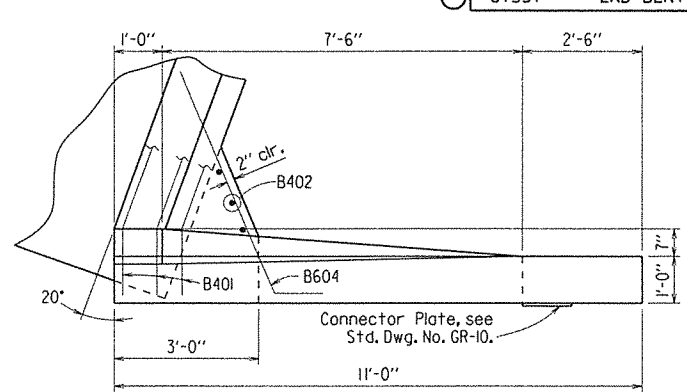


For additional joint details, see Dwg. No. 56479.
Concrete shall be hand packed under the joint armor in the backwall.

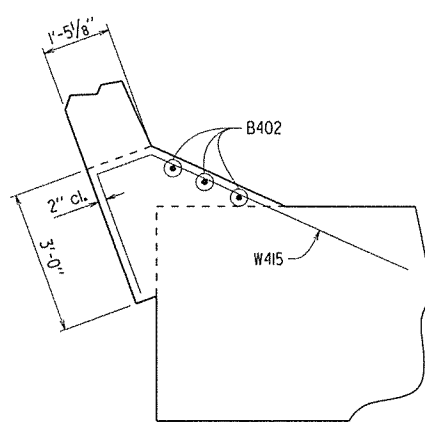
DETAIL Z
No Scale



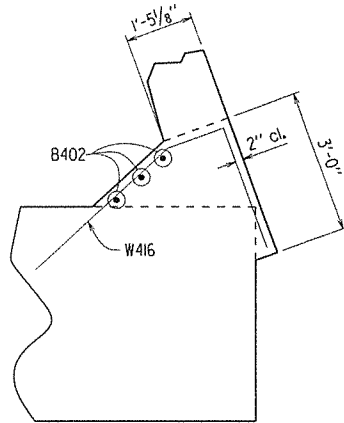
PLAN OF WING A
1/2" = 1'-0"



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

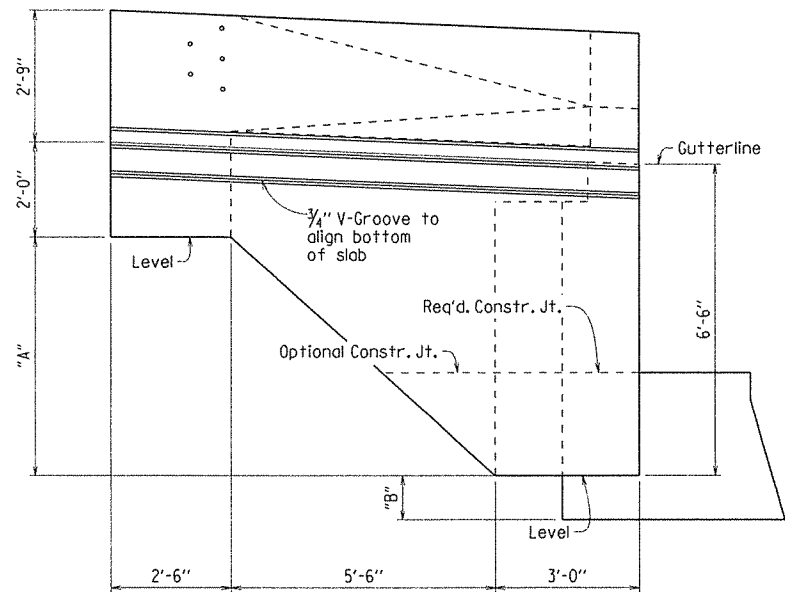


WING A

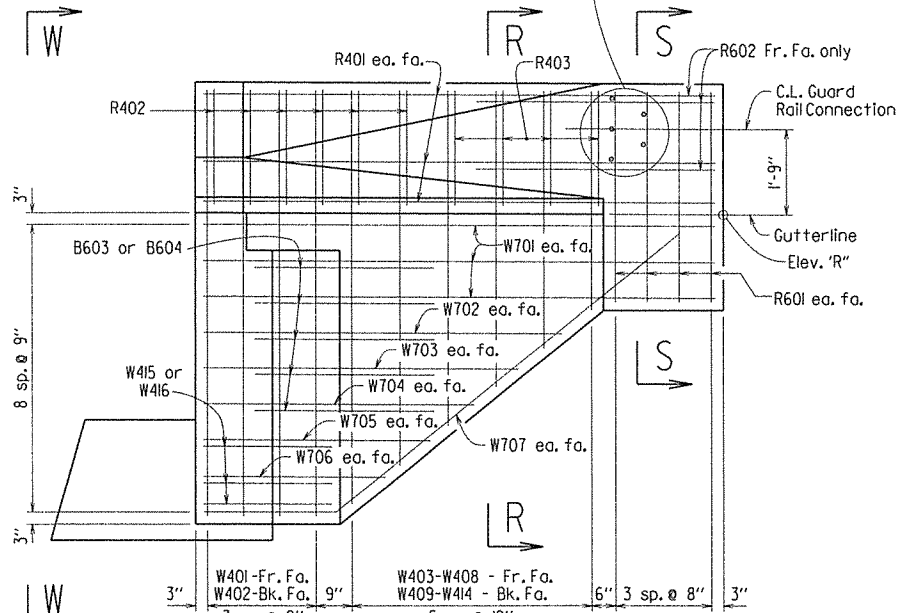


WING B

SECTION P-P
1/2" = 1'-0"



VIEW T-T
Bent 7 Depicted
1/2" = 1'-0"



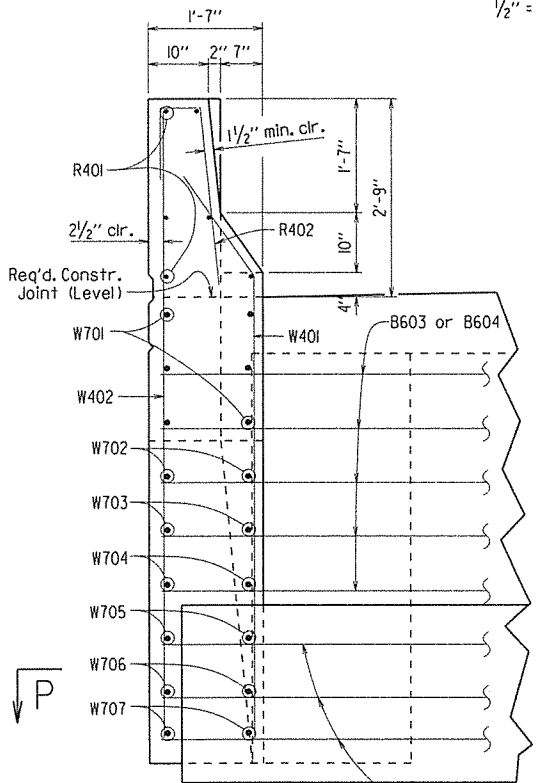
VIEW U-U
Bent 1 Depicted
1/2" = 1'-0"

TABLE OF VARIABLES

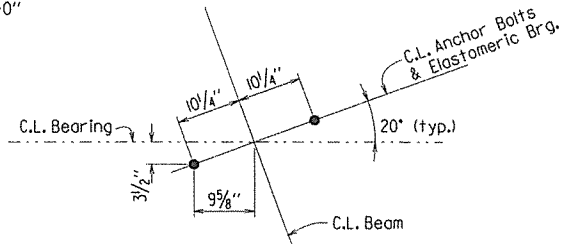
Bent	Wing	"A"	"B"	Elev. "R"
1	A	4'-5 5/8"	2 3/4"	512.14
	B	4'-5 3/8"	3 1/2"	512.18
7	A	4'-11 5/8"	10 5/8"	524.40
	B	4'-11 1/2"	3 3/8"	523.79

GENERAL NOTES

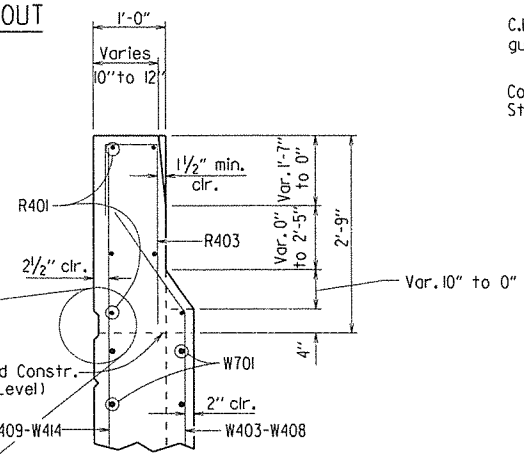
All concrete shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered $3/4$ " unless otherwise noted.
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.
Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
For additional information, see Layout.



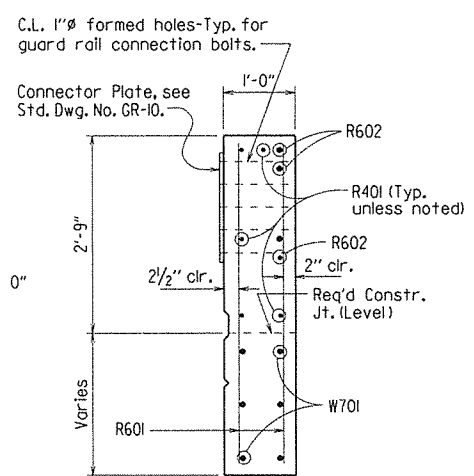
VIEW W-W
3/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"



SECTION R-R
3/4" = 1'-0"



SECTION S-S
3/4" = 1'-0"



SHEET 3 OF 3
DETAILS OF END BENTS
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: LJB DATE: 10/9/14 FILENAME: b050274.bl.dgn
CHECKED BY: JYP DATE: 1/14/15 SCALE: as noted
DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 BRIDGE ENGINEER
DRAWING NO. 56468

PRINT DATE: 1/15/2015

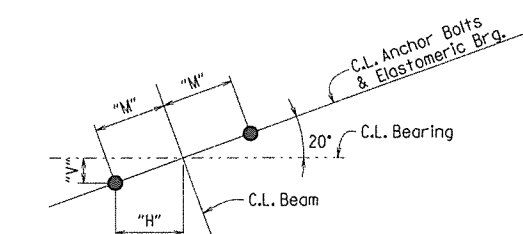
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				6	ARK.			
				JOB NO.		050274	48	102
				07337 -	INT. BENTS			- 56469

TABLE OF VARIABLES - BENTS 2 & 3

Bent No.	"BH"	"CH"	"R1"	"R2"	"R3"	"R4"	"C"	Elev. "LS"	Elev. "FTG"	"Y"	"Z"	"L"	"M"	"H"	"V"
2	51'-6"	38'-0"	1 1/8"	1 1/2"	2 5/8"	2 5/8"	4'-1 5/8"	508.52	457.02	95	897	39'-0"	11 3/4"	11 1/16"	4"
3	56'-6"	43'-0"	1 7/8"	1 1/4"	2 5/8"	2 7/8"	4'-2 5/8"	509.59	453.09	100	912	44'-0"	12"	11 1/4"	4 1/8"

BAR LIST PER BENT

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams
B501 - B516	2 ea.	14'-4" - 22'-4"	3'-2"	3'-9" - 7'-9"	2 1/2"	(Dimensions are out to out of bars)
B517 - B525	2 ea.	22'-8" - 25'-10"	3'-2"	7'-11" - 9'-6"	2 1/2"	
B526	10	22'-4"	3'-2"	9'-8"	2 1/2"	
B601	8	24'-4"	8'-4"	16'-0"	4 1/2"	
B701	12	43'-8"	-	-	Str.	
B702	2	42'-7"	-	-	Str.	
B703	2	40'-1"	-	-	Str.	
B704	2	37'-7"	-	-	Str.	
B705	2	35'-1"	-	-	Str.	
B706	2	30'-11"	-	-	Str.	
B707	2	26'-9"	-	-	Str.	
B708	2	22'-8"	-	-	Str.	
B709	2	18'-6"	-	-	Str.	
B901	7	46'-2"	43'-8"	10"	9"	
B902	7	43'-8"	-	-	Str.	
C401	"Y"	33'-10"	13'-7"	3'-1"	3"	
C402	"Z"	4'-2"	3'-1"	-	3"	
C403	136	14'-8"	13'-7"	-	3"	
C901	60	"L"	-	-	Str.	
F601	22	11'-0"	-	-	Str.	
F602	12	21'-6"	-	-	Str.	
F701	22	23'-2"	21'-6"	7"	5 1/4"	
F801	33	12'-10"	11'-0"	8"	6"	
F901	60	20'-10"	19'-6"	1'-7 1/4"	Str.	



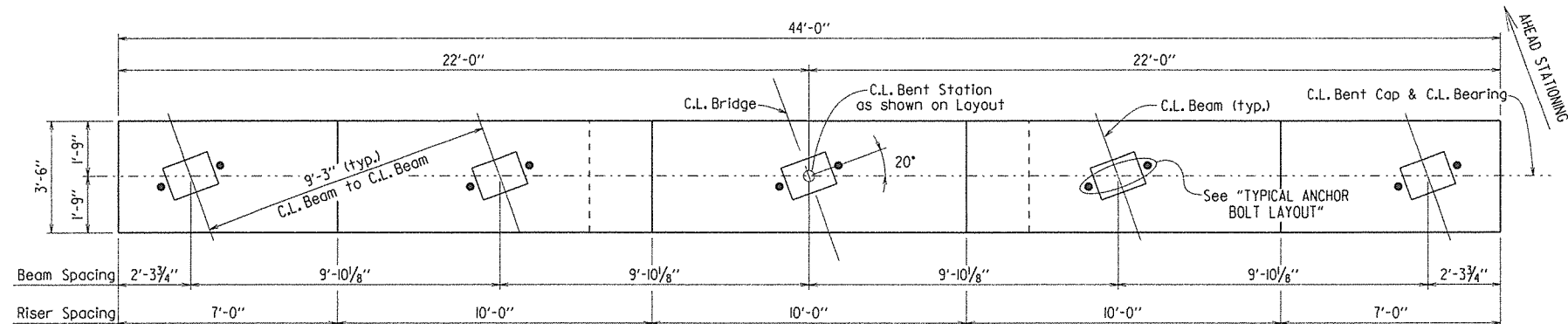
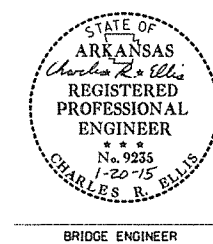
For details of elastomeric bearings, see Dwg. No. 56473.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

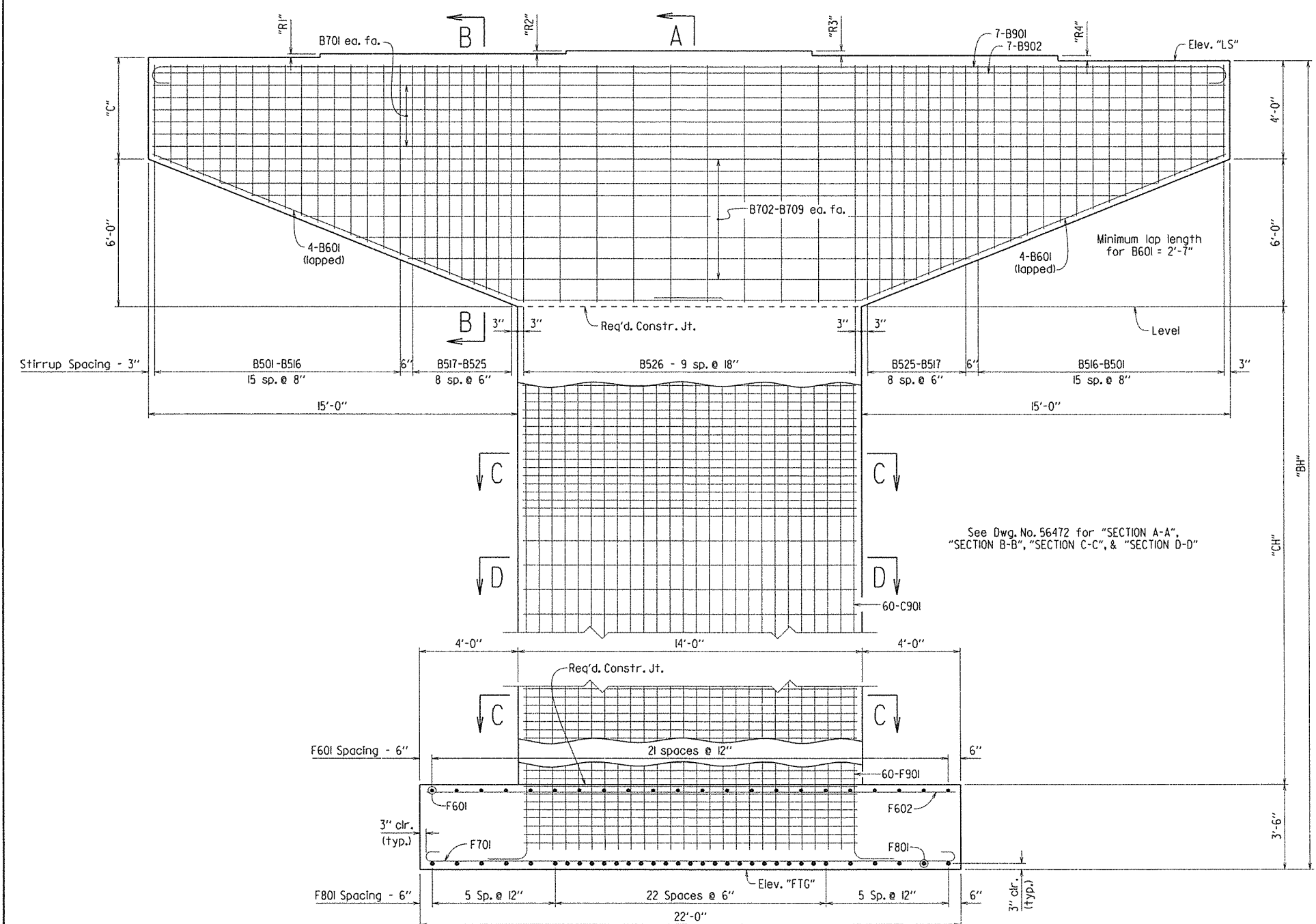
DETAILS OF BENTS 2 AND 3
GUT CREEK

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

DRAWN BY: LJB DATE: 10/9/14 FILENAME: b050274_b2.dgn
CHECKED BY: JJP DATE: 1/14/15 SCALE: as noted
DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 DRAWING NO. 56469



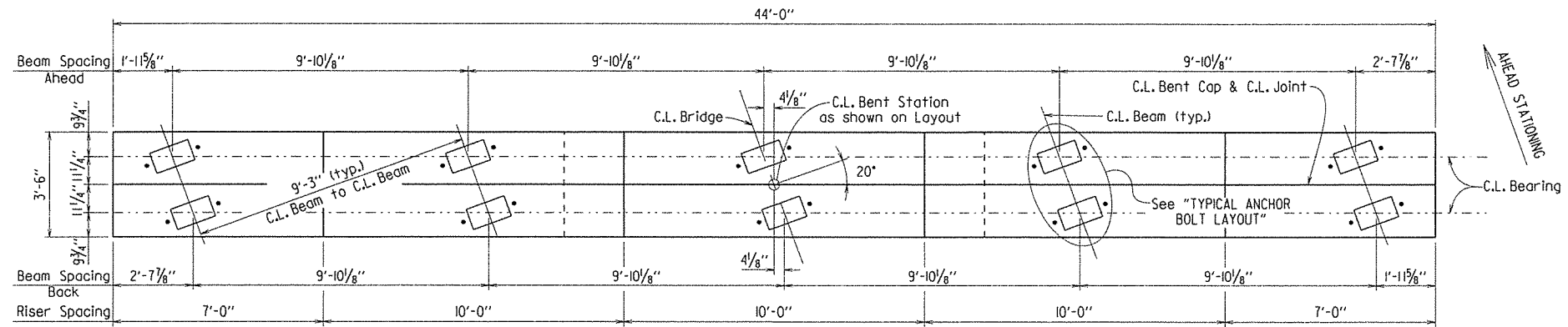
PLAN
3/8" = 1'-0"



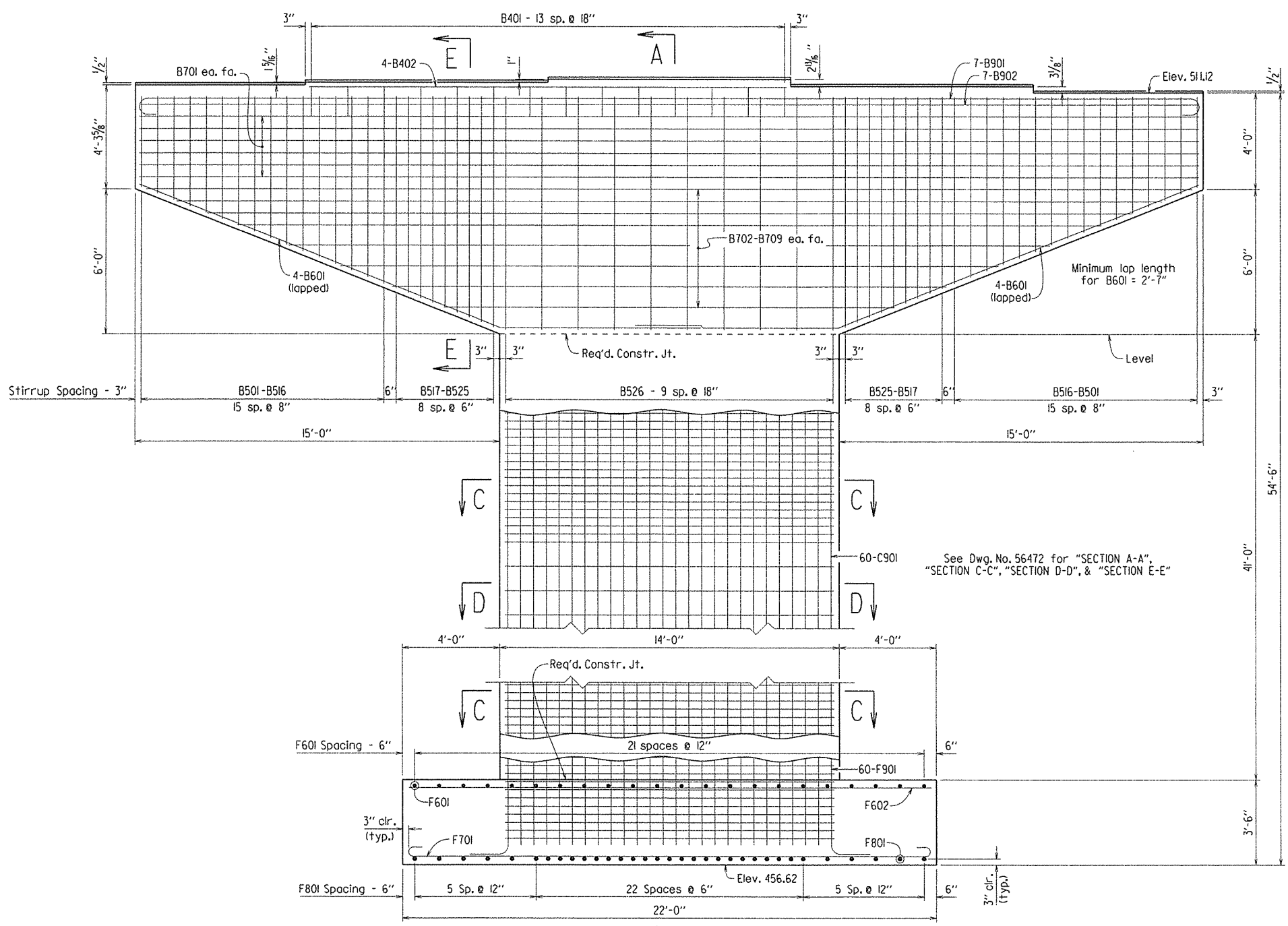
ELEVATION
Looking Ahead
3/8" = 1'-0"

PRINT DATE: 1/15/2015

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.	050274	43	102	
				07337 - INT. BENTS		- 56470		



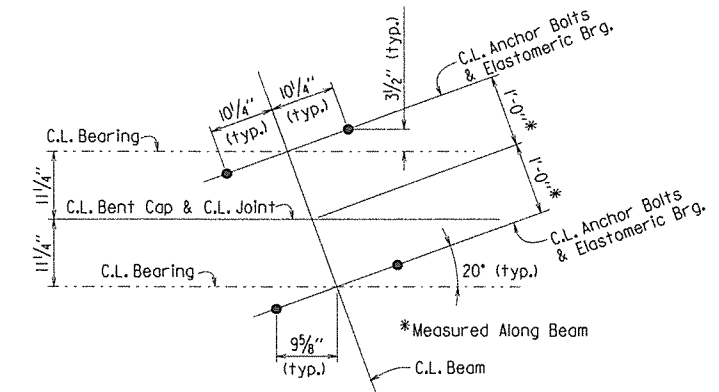
PLAN
3/8" = 1'-0"



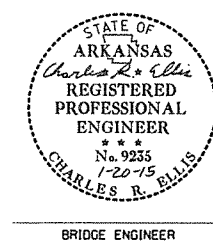
ELEVATION
Looking Ahead
3/8" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams
B401	14	5'-6"	3'-2"	1'-3"	2"	(Dimensions are out to out of bars)
B402	4	19'-8"	-	-	Str.	
B501 - B516	2 ea.	14'-4" - 22'-4"	3'-2"	3'-9" - 7'-9"	2 1/2"	
B517 - B525	2 ea.	22'-8" - 25'-10"	3'-2"	7'-11" - 9'-6"	2 1/2"	
B526	10	22'-4"	3'-2"	9'-8"	2 1/2"	
B601	8	24'-4"	8'-4"	16'-0"	4 1/2"	
B701	12	43'-8"	-	-	Str.	
B702	2	42'-7"	-	-	Str.	
B703	2	40'-1"	-	-	Str.	
B704	2	37'-7"	-	-	Str.	
B705	2	35'-1"	-	-	Str.	
B706	2	30'-11"	-	-	Str.	
B707	2	26'-9"	-	-	Str.	
B708	2	22'-8"	-	-	Str.	
B709	2	18'-6"	-	-	Str.	
B901	7	46'-2"	43'-8"	10"	9"	
B902	7	43'-8"	-	-	Str.	
C401	98	33'-10"	13'-7"	3'-1"	3"	
C402	906	4'-2"	3'-1"	-	3"	
C403	136	14'-8"	13'-7"	-	3"	
C901	60	42'-0"	-	-	Str.	
F601	22	11'-0"	-	-	Str.	
F602	12	21'-6"	-	-	Str.	
F701	22	23'-2"	21'-6"	7"	5 1/4"	
F801	33	12'-10"	11'-0"	8"	6"	
F901	60	20'-10"	19'-6"	1'-7 1/4"	Str.	



For details of elastomeric bearings, see Dwg. No. 56473.
TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"



DETAILS OF BENT 4
GUT CREEK

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

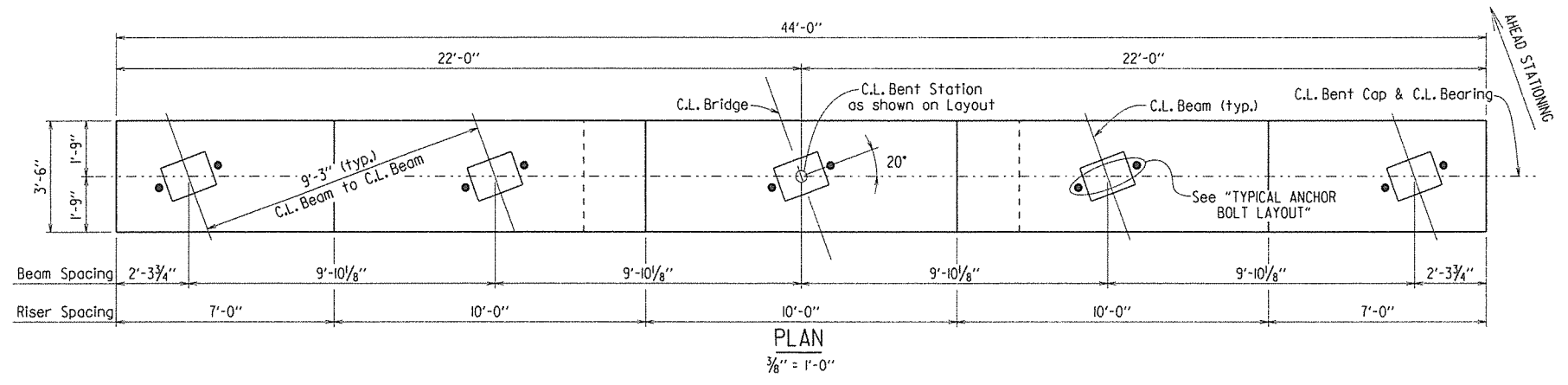
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CHECKED BY: JYP DATE: 1/16/15 SCALE: as noted
DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 DRAWING NO. 56470

PRINT DATE: 1/15/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		41	102
				JOB NO.	050274		41	102
				07337 - INT. BENTS		- 56471		

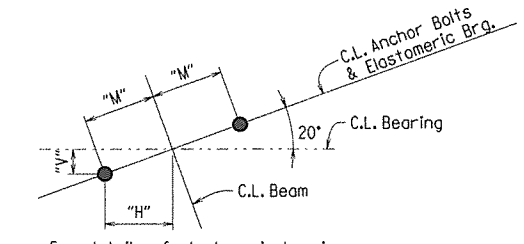
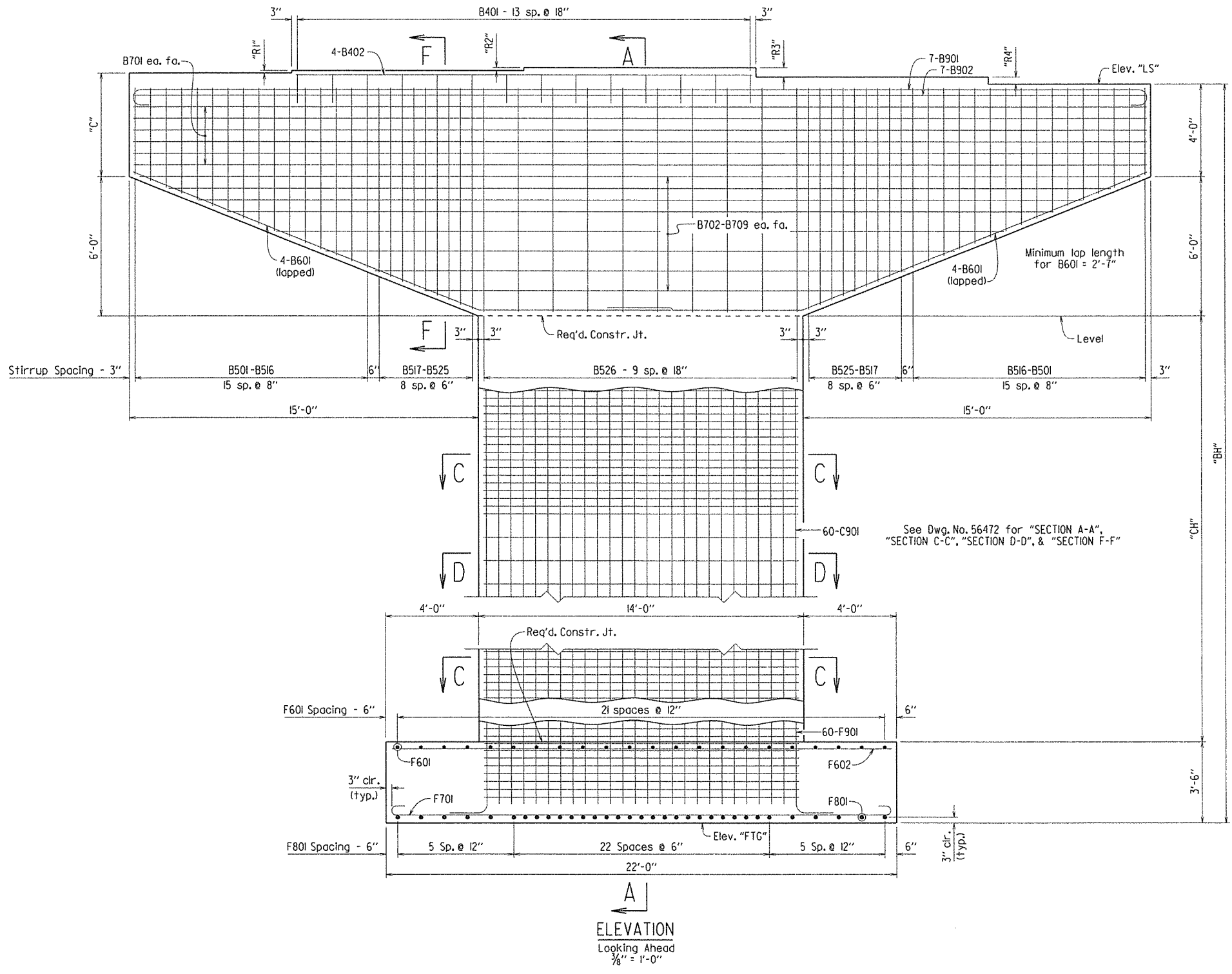
TABLE OF VARIABLES - BENTS 5 & 6

Bent No.	"BH"	"CH"	"R1"	"R2"	"R3"	"R4"	"C"	Elev. "LS"	Elev. "FTG"	"Y"	"Z"	"L"	"M"	"H"	"V"
5	49'-6"	36'-0"	1"	3/4"	3/16"	3 5/16"	4'-4 5/8"	513.32	463.82	93	891	37'-0"	12"	11 1/4"	4 7/8"
6	44'-0"	30'-6"	1 1/2"	1/2"	3 5/16"	3 3/16"	4'-5 5/16"	515.98	471.98	88	876	31'-6"	11 3/4"	11 1/16"	4"

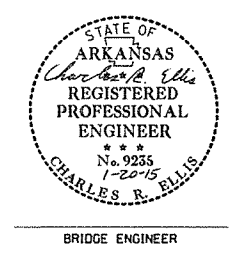


BAR LIST PER BENT

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams
B401	14	5'-6"	3'-2"	1'-3"	2"	(Dimensions are out to out of bars)
B402	4	19'-8"	-	-	Str.	
B501 - B516	2 eo.	14'-4" - 22'-4"	3'-2"	3'-9" - 7'-9"	2 1/2"	
B517 - B525	2 eo.	22'-8" - 25'-10"	3'-2"	7'-11" - 9'-6"	2 1/2"	
B526	10	22'-4"	3'-2"	9'-8"	2 1/2"	
B601	8	24'-4"	8'-4"	16'-0"	4 1/2"	
B701	12	43'-8"	-	-	Str.	
B702	2	42'-7"	-	-	Str.	
B703	2	40'-1"	-	-	Str.	
B704	2	37'-7"	-	-	Str.	
B705	2	35'-1"	-	-	Str.	
B706	2	30'-11"	-	-	Str.	
B707	2	26'-9"	-	-	Str.	
B708	2	22'-8"	-	-	Str.	
B709	2	18'-6"	-	-	Str.	
B901	7	46'-2"	43'-8"	10"	9"	
B902	7	43'-8"	-	-	Str.	
C401	"Y"	33'-10"	13'-7"	3'-1"	3"	
C402	"Z"	4'-2"	3'-1"	-	3"	
C403	136	14'-8"	13'-7"	-	3"	
C901	60	"L"	-	-	Str.	
F601	22	11'-0"	-	-	Str.	
F602	12	21'-6"	-	-	Str.	
F701	22	23'-2"	21'-6"	7"	5 1/4"	
F801	33	12'-10"	11'-0"	8"	6"	
F901	60	20'-10"	19'-6"	1'-7 1/4"	Str.	



TYPICAL ANCHOR BOLT LAYOUT
No Scale



DETAILS OF BENTS 5 AND 6
GUT CREEK

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

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BRIDGE NO. 07337 DRAWING NO. 56471

PRINT DATE: 1/15/2015

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.	050274		45	102
				07337 -	INT. BENTS		- 56472	

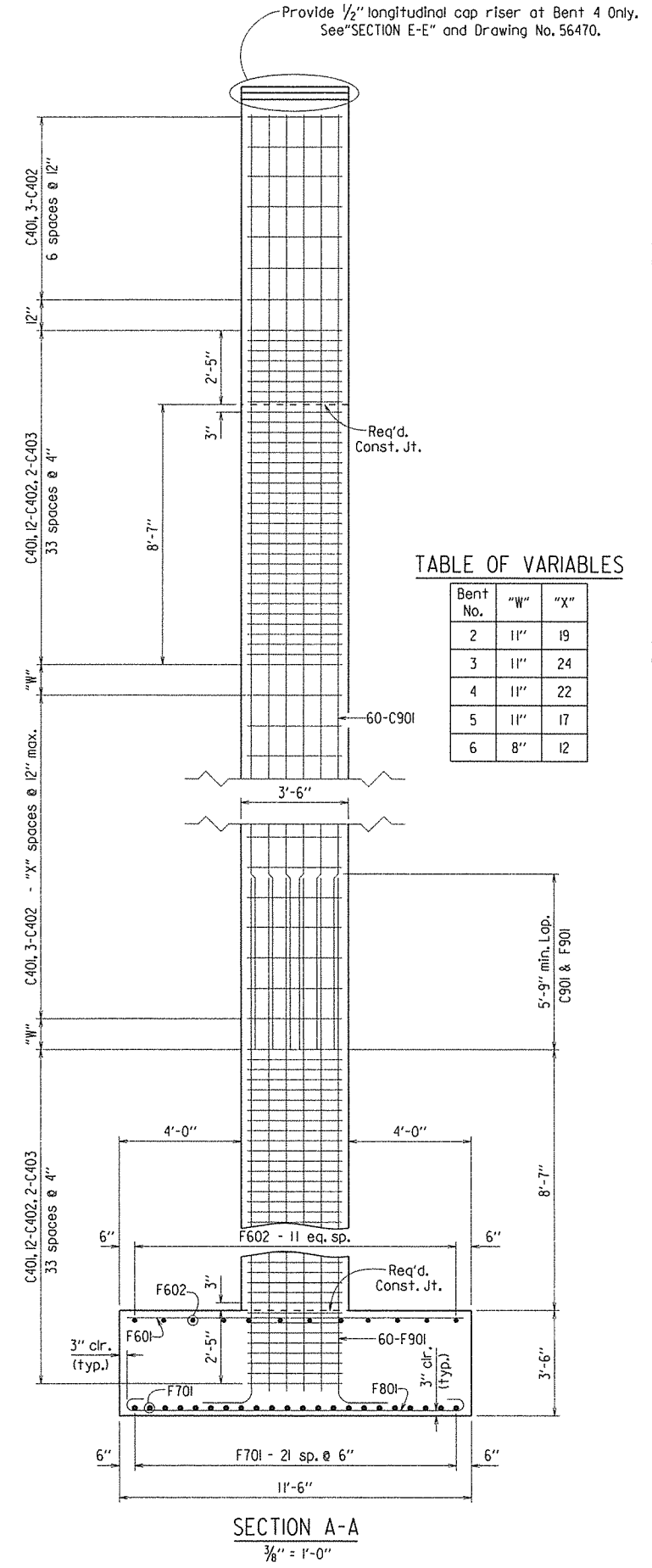
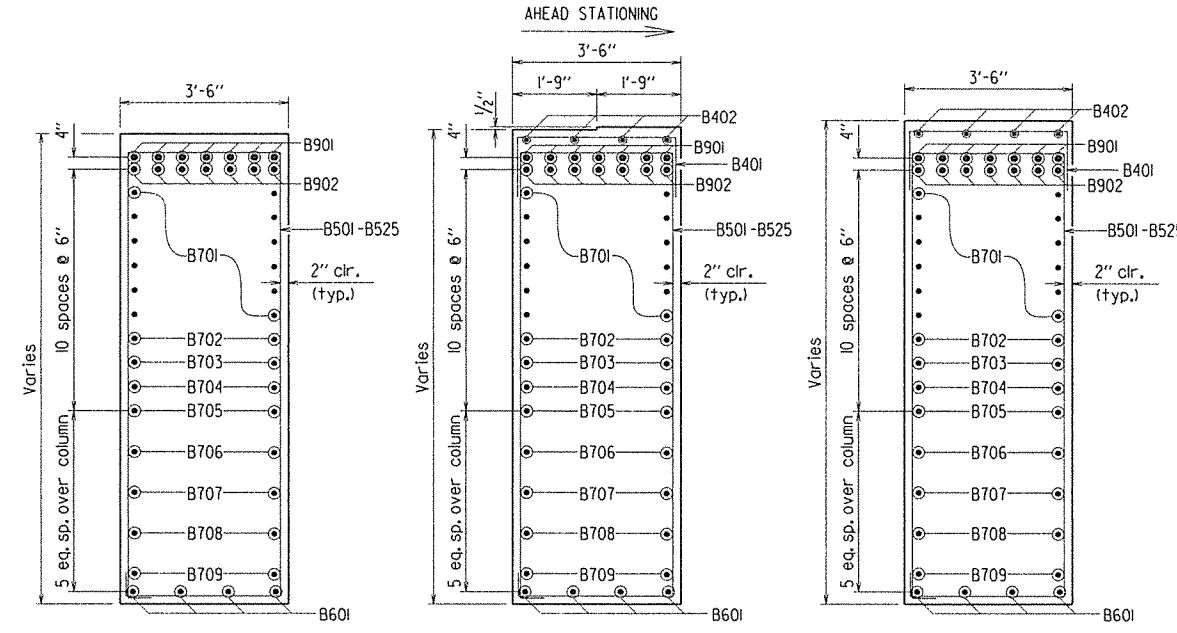
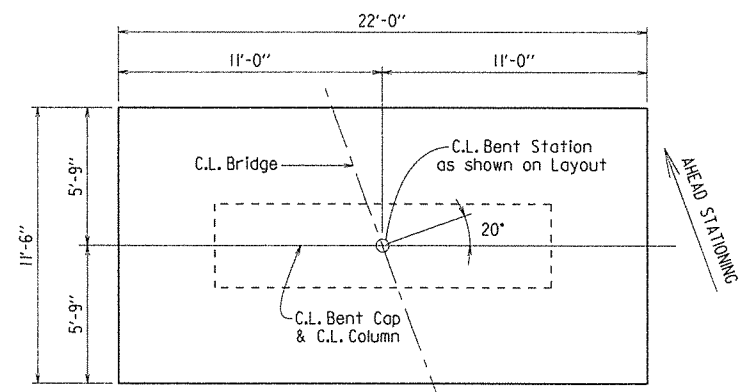
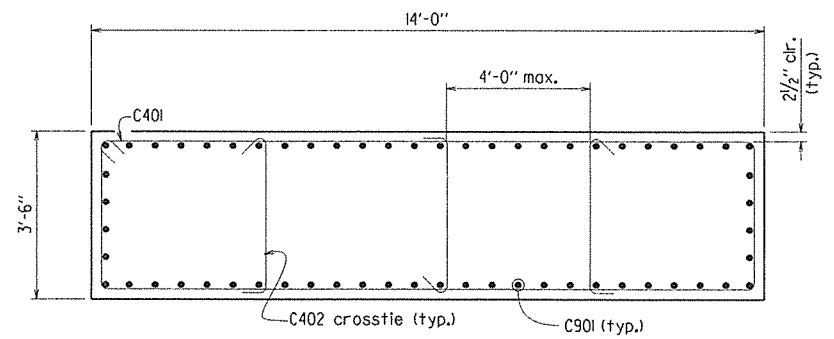
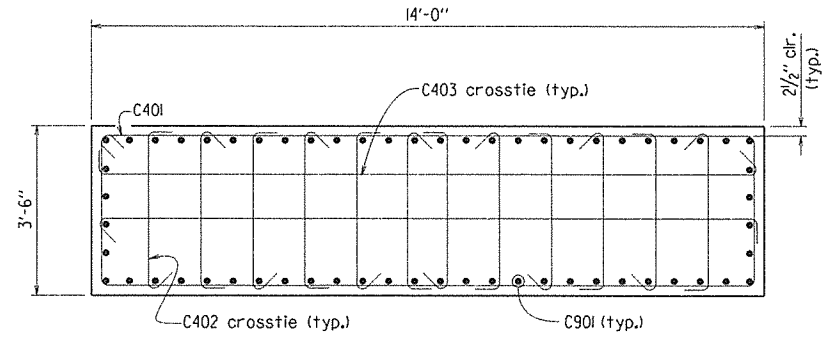


TABLE OF VARIABLES

Bent No.	"W"	"X"
2	11"	19
3	11"	24
4	11"	22
5	11"	17
6	8"	12



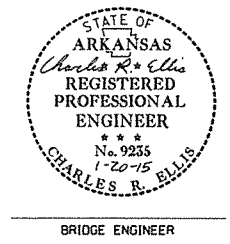
GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered $3/4$ " unless otherwise noted.

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

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

For additional information, see Layout.



DETAILS COMMON TO INTERMEDIATE BENTS
GUT CREEK

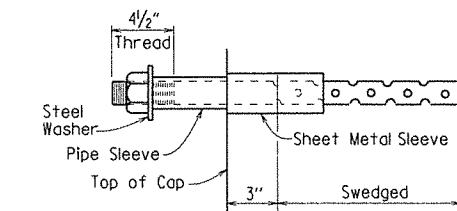
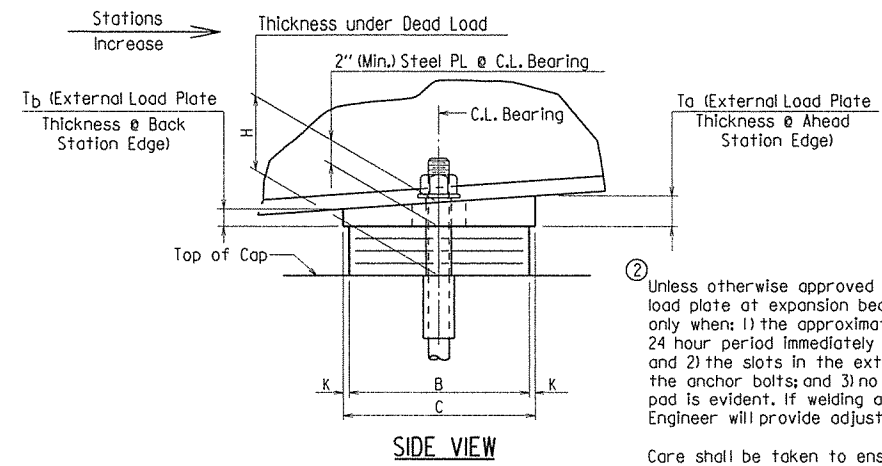
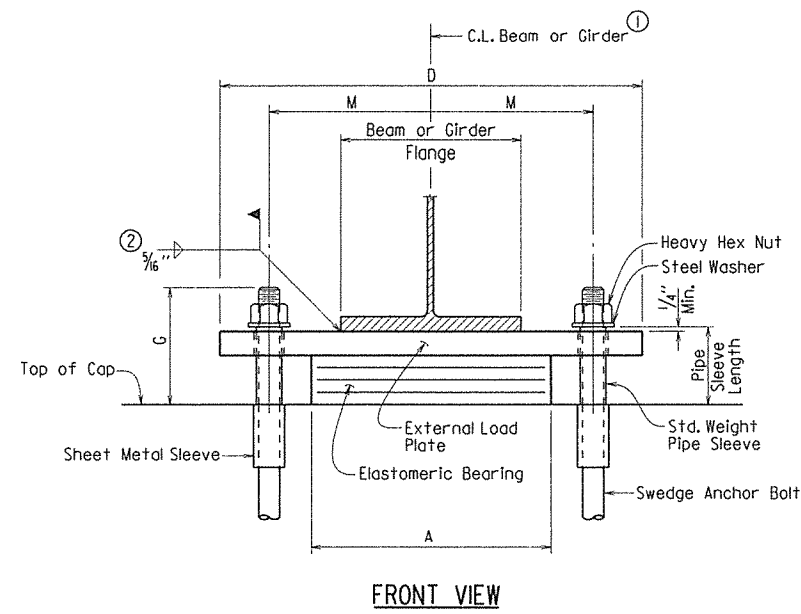
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 10/9/14 FILENAME: b050274_b2.dgn
CHECKED BY: JHP DATE: 1/16/15 SCALE: as noted
DESIGNED BY: ACP DATE: 10-14
BRIDGE NO. 07337 DRAWING NO. 56472

PRINT DATE: 1/15/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						050274	46	102
				07337		ELASTO BRGS.		56473

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".



ANCHOR BOLT DETAIL

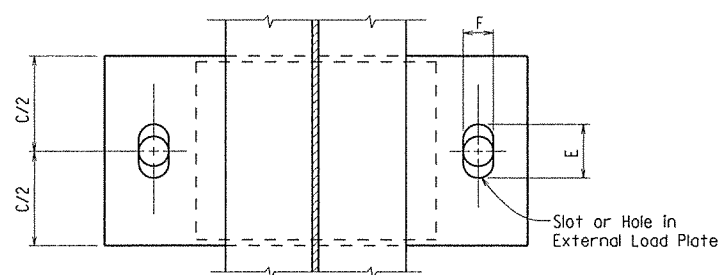
Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

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)".

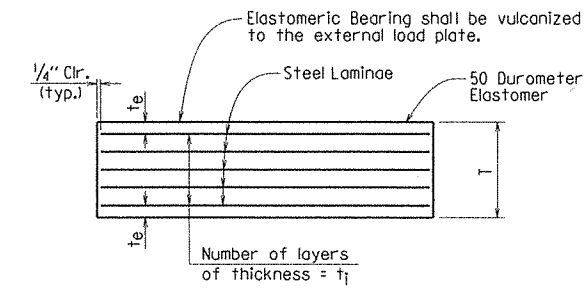
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external 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.

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



PLAN VIEW



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

ELASTOMERIC BEARING

TABLE FOR EXTERNAL LOAD PL THICKNESS

BENT NO.	BEAM NO(S).	NO. of BEARINGS	T_a	T_b
7	1, 2, 4 & 5	4	2.20"	1.80"
7	3	1	2.43"	2.03"

Note: Beams are numbered left to right looking ahead station.

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_l	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT ($\phi \times L$)	PIPE SLEEVE SIZE ($\phi \times L$)	SHEET METAL SLEEVE SIZE ($\phi \times L$)	STEEL WASHER SIZE (O.D.)	
07337	1	All	Exp.	5	134	7 1/8"	4 3/8"	16"	8 1/2"	3	1/2"	1/4"	4 @ 12 Ga.	2 3/16"	9 1/2"	26"	4 3/8"	2 1/4"	1/2"	10 1/4"	2.02"	1.98"	1 1/2" x 25"	55	1 1/2" x 4 5/8"	3" x 9"	3"
	2	All	Exp.	5	284	7 1/8"	3 9/16"	18"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 9/16"	14"	30"	4"	3 1/8"	1/2"	11 3/4"	2.07"	1.93"	2" x 31"	55	2 1/2" x 4 1/8"	4" x 12"	3 3/4"
	3	All	Fix	5	284	8 1/8"	3 9/16"	18"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 9/16"	14"	31"	3 3/4"	3 3/4"	1/2"	12"	2.11"	1.89"	2 3/4" x 40"	55	3" x 4 1/8"	5" x 14"	5"
	4	All	Exp.	10	134	7 1/8"	4 3/8"	16"	8 1/2"	3	1/2"	1/4"	4 @ 12 Ga.	2 3/16"	9 1/2"	26"	4 3/8"	2 1/4"	1/2"	10 1/4"	2.11"	1.89"	1 1/2" x 25"	55	1 1/2" x 4 5/8"	3" x 14"	3"
	5	All	Fix	5	284	8 1/8"	3 9/16"	18"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 9/16"	14"	31"	3 3/4"	3 3/4"	1/2"	12"	2.20"	1.80"	2 3/4" x 40"	55	3" x 4 1/8"	5" x 14"	5"
	6	All	Exp.	5	284	7 1/8"	3 9/16"	18"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 9/16"	14"	30"	4"	3 1/8"	1/2"	11 3/4"	2.24"	1.76"	2" x 31"	55	2 1/2" x 4 1/8"	4" x 14"	3 3/4"
	7	All	Exp.	5	134	7 1/8"	4 3/8"	16"	8 1/2"	3	1/2"	1/4"	4 @ 12 Ga.	2 3/16"	9 1/2"	26"	4 3/8"	2 1/4"	1/2"	10 1/4"	See "Table"			1 1/2" x 25"	55	1 1/2" x 4 5/8"	3" x 12"

GENERAL NOTES

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

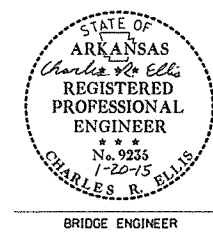
External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

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 (M 270, 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.



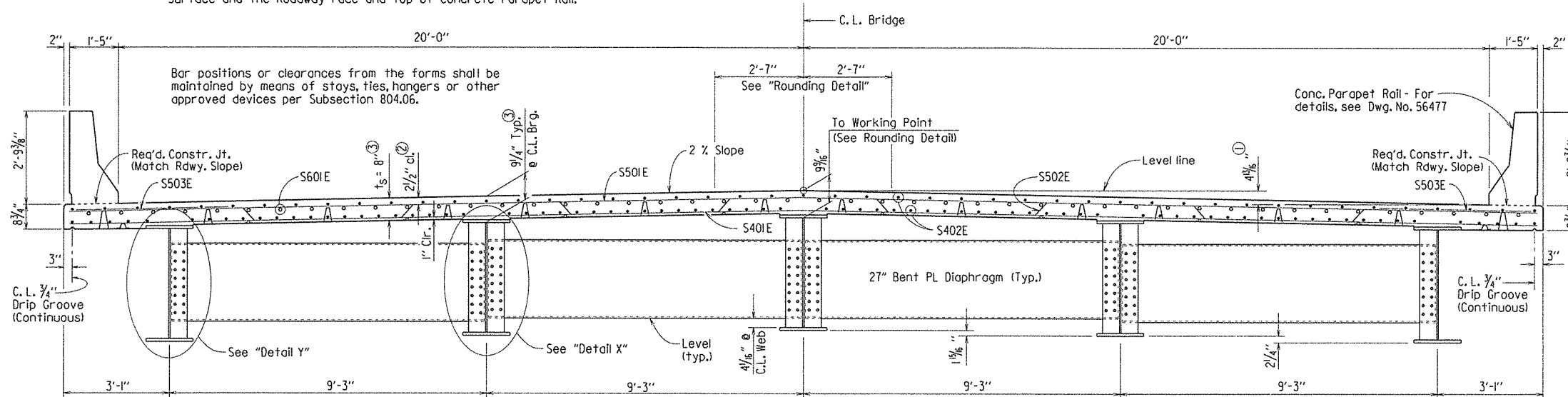
DETAILS OF ELASTOMERIC BEARINGS GUT CREEK
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 10/10/14. FILENAME: b050274_el.dgn
 CHECKED BY: ACP. DATE: 01/16/15. SCALE: None
 DESIGNED BY: ACP. DATE: 09/14
 BRIDGE NO. 07337 DRAWING NO. 56473

PRINT DATE: 1/15/2015

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

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.		050274	47	162
				07337		CONT. UNIT		56474



TYPICAL ROADWAY SECTION

LOOKING AHEAD
1/2" = 1'-0"

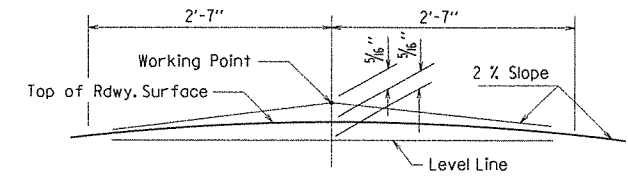
Slab Reinforcing:

Longitudinal: S402E Top & Bottom placed as shown
S601E placed as shown over Interior Supports
(See "Reinforcing Plan & Slab Pouring Sequence", Dwg. No. 56476)
Transverse: S501E @ 12" o.c. in top, S401E @ 12" in bottom
S502E @ 12" o.c. bent up over beams — Alternate
S503E @ 6" o.c. in top @ Overhangs (bundled with #5 bars)

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

Bars with an "E" suffix are epoxy coated.

- ① Working point to gutterline
- ② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance— See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"
- ③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"



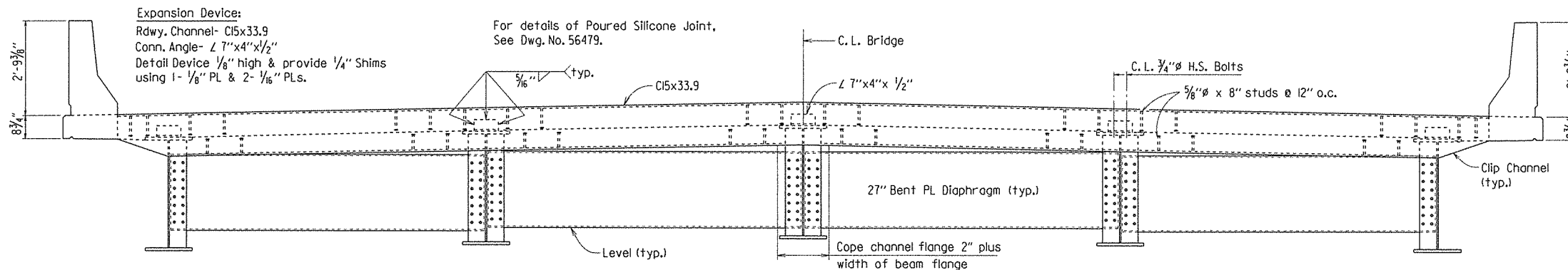
NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
N.T.S.

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"	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.



ROADWAY SECTION NEAR JOINT

LOOKING AHEAD
1/2" = 1'-0"

Expansion Device:
Rdwy. Channel- C15x33.9
Conn. Angle- L 7"x4"x 1/2"
Detail Device 1/8" high & provide 1/4" Shims using 1- 1/8" PL & 2- 1/16" PLs.

For details of Poured Silicone Joint, See Dwg. No. 56479.

Notes:
Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.7L.

Stop weld 1/4" to 1" from end of clip (typ.)

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.

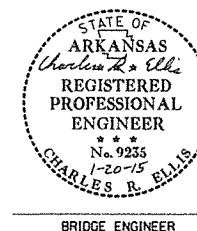
Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1 1/4". No increase in concrete and structural steel quantities will be made to maintain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

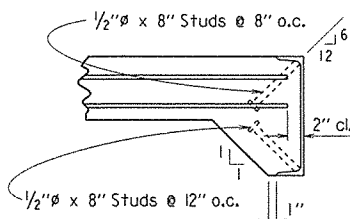
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE
N.T.S.

SHEET 1 OF 6
DETAILS OF
255'-0" CONTINUOUS W-BEAM UNIT
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 9/15/14 FILENAME: b090282.sl.dgn
CHECKED BY: ACP DATE: 01/16/15 SCALE: As Noted
DESIGNED BY: ACP DATE: 09-14
BRIDGE NO. 07337 DRAWING NO. 56474

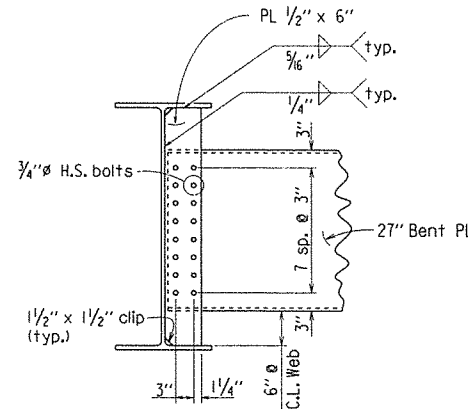


BRIDGE ENGINEER

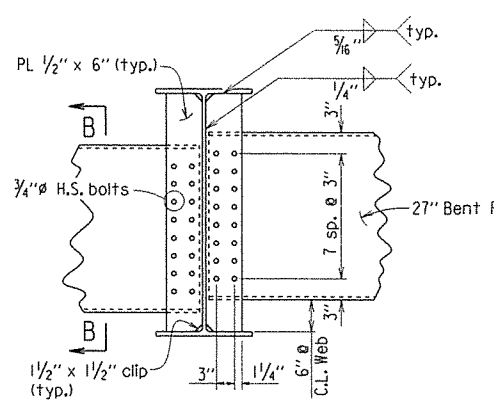


Note: As an alternate to 5/8" studs, 1/2" x 8" studs spaced as shown may be used. Use weight of 3/8" stud as basis of measurement of structural steel in anchors.

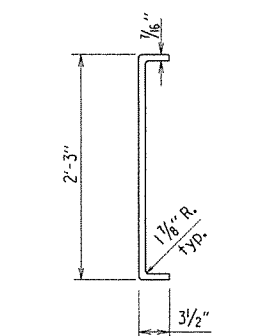
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT
N.T.S.



DETAIL Y
N.T.S.



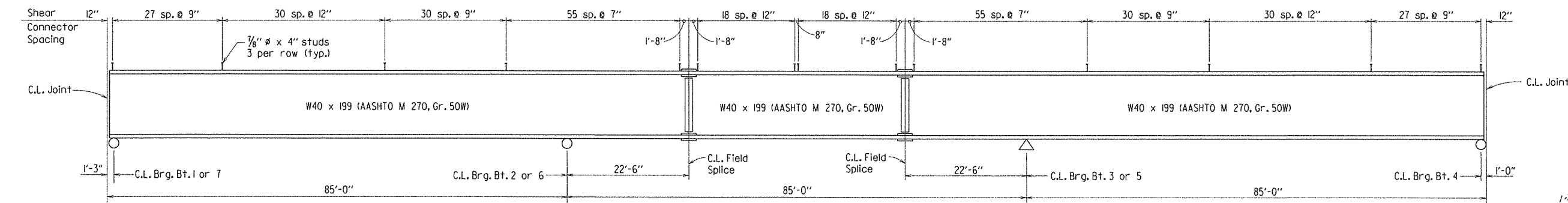
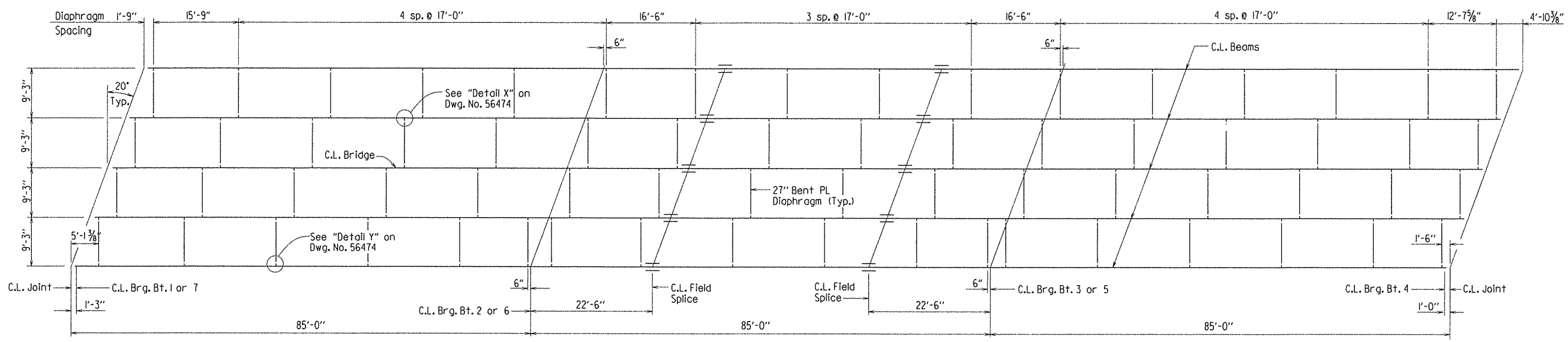
DETAIL X
N.T.S.



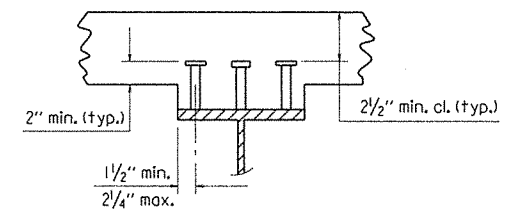
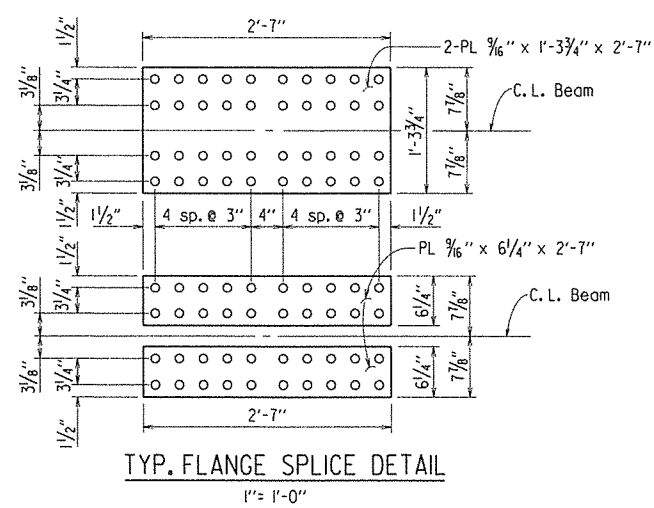
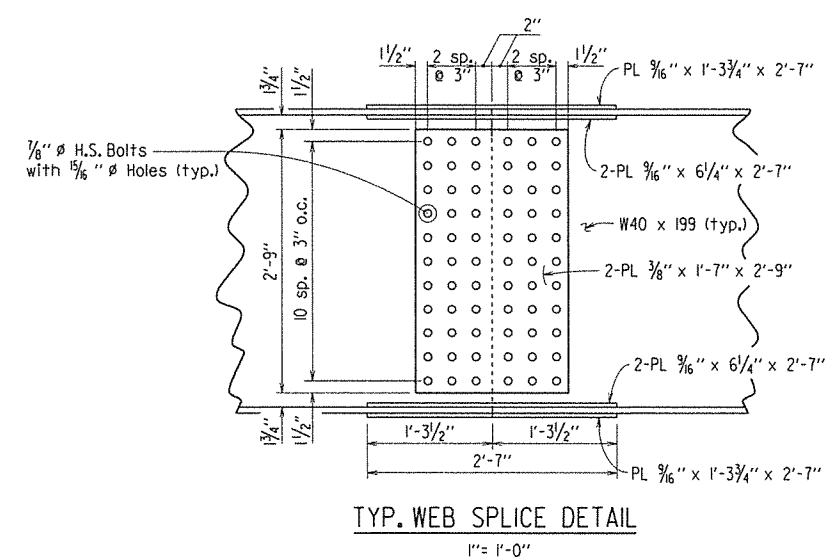
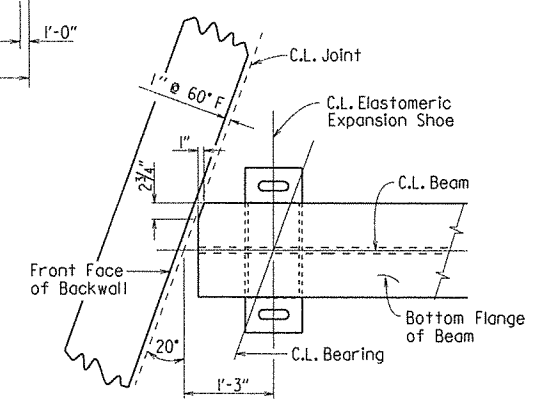
Typ. cross-section for all 27" Bent Plate Diaphragms

SECTION B-B
N.T.S.

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.		050274	148	102
				07337		CONT. UNIT		56475

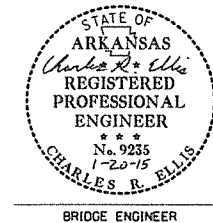


Note:
 Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.



Stud Shear Connectors shown shall be $\frac{7}{8}'' \phi \times 4''$ long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. $\frac{3}{4}'' \phi$ studs may be used in place of the $\frac{7}{8}'' \phi$ studs shown, at the ratio of 1.361 $\frac{3}{4}'' \phi$ studs in place of one $\frac{7}{8}'' \phi$ stud. $\frac{7}{8}'' \phi$ studs will be used as basis for measurement of structural steel in shear connectors.

All field splice bolts shall be $\frac{7}{8}'' \phi$ Hi-str. bolts
 All holes for splice bolts shall be $\frac{7}{8}'' \phi$.
 All field splice plates shall be AASHTO M 270, Gr. 50W steel.

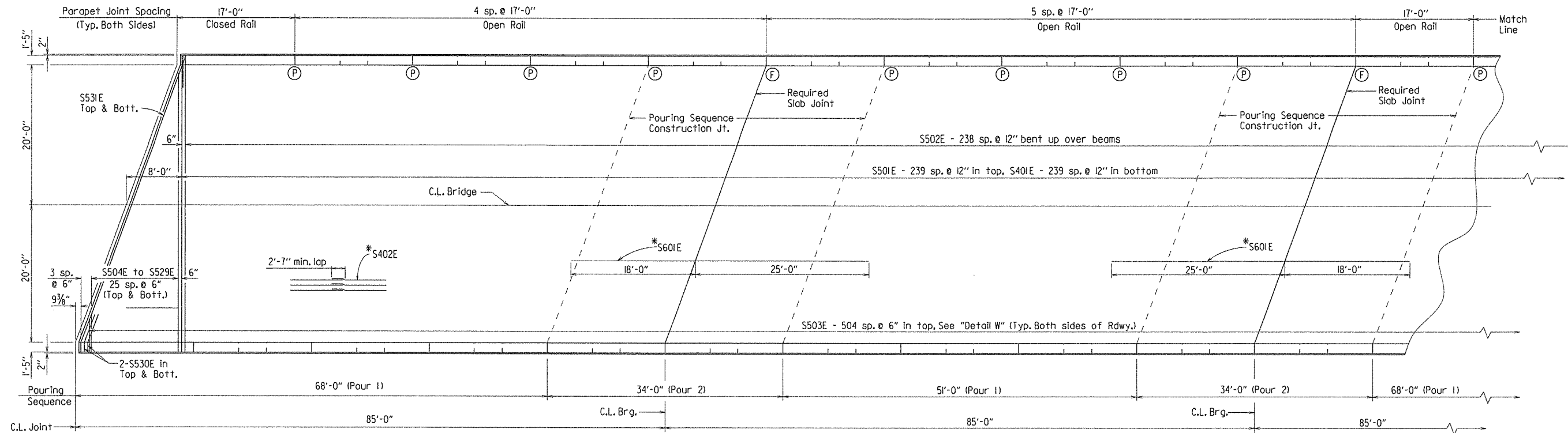


SHEET 2 OF 6
 DETAILS OF
 255'-0'' CONTINUOUS W-BEAM UNIT
 GUT CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: AMS DATE: 9/15/14 FILENAME: b050274_sl.dgn
 CHECKED BY: ACP DATE: 01-16-15 SCALE: As Noted
 DESIGNED BY: ACP DATE: 9-14
 BRIDGE NO. 07337 DRAWING NO. 56475

PRINT DATE: 1/16/2015

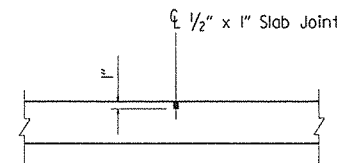
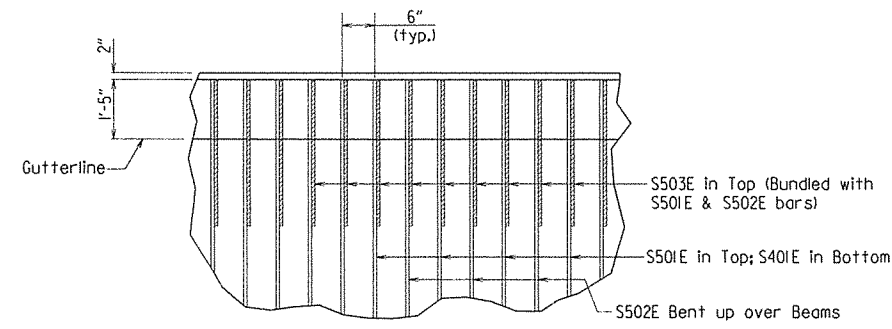
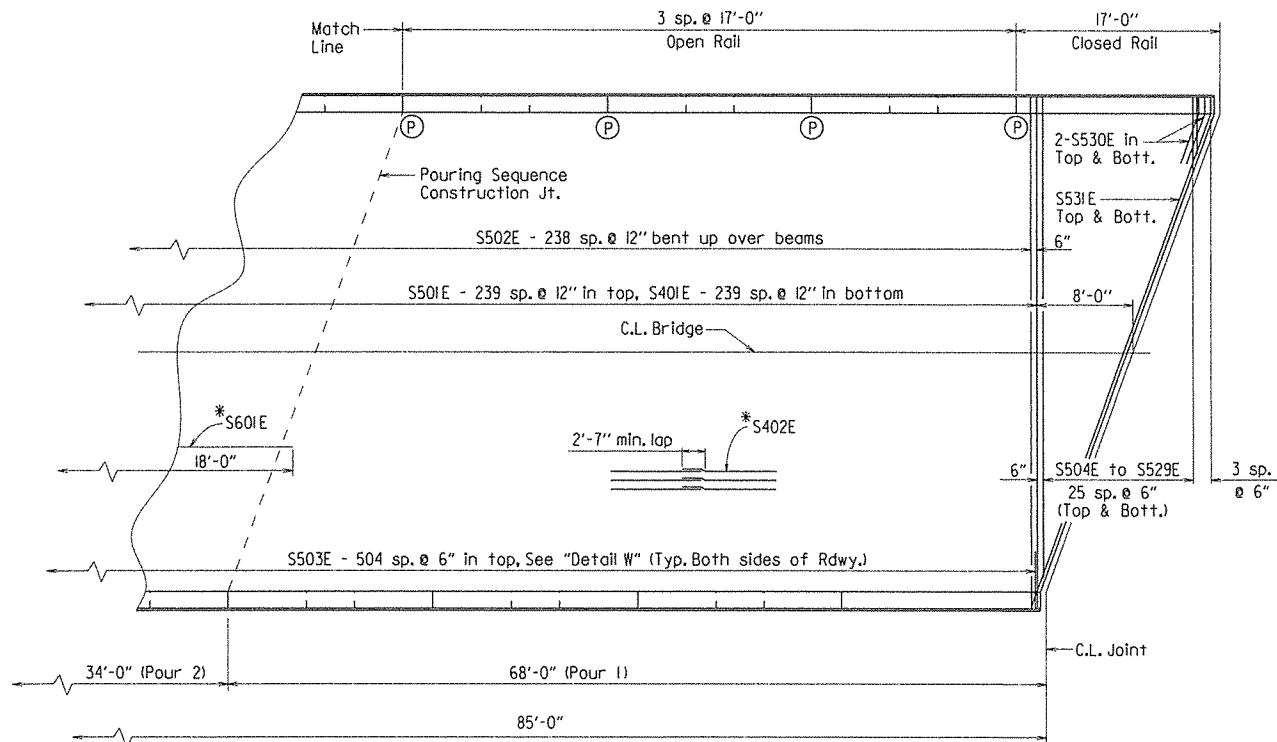
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050274	49	102
				07337	CONT. UNIT			56476

*Placed as shown in "Typical Roadway Section," Dwg. No. 56474.



REINFORCING PLAN AND SLAB POURING SEQUENCE

1/8" = 1'-0"



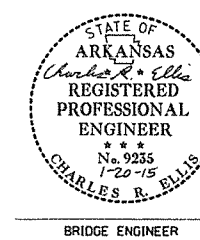
Use Type 3 or 4 Joint Sealer. See Subsections 50i.02(h) and 50i.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the parapet and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

SLAB JOINT DETAIL
N.T.S.

- Notes:
For Bar List and Parapet Details, See Dwg. No. 56477.
For Concrete Placement Procedure, See Dwg. No. 56478.
- Req'd. slab joints and pouring sequence joints shall align with open joints in parapet rail at the gutterline.
- Locations of full and partial depth parapet joints shown are typical for both sides of roadway.
- (P) Partial Depth Parapet Joint at this location
 - (F) Full Depth Parapet Joint at this location

Slab Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

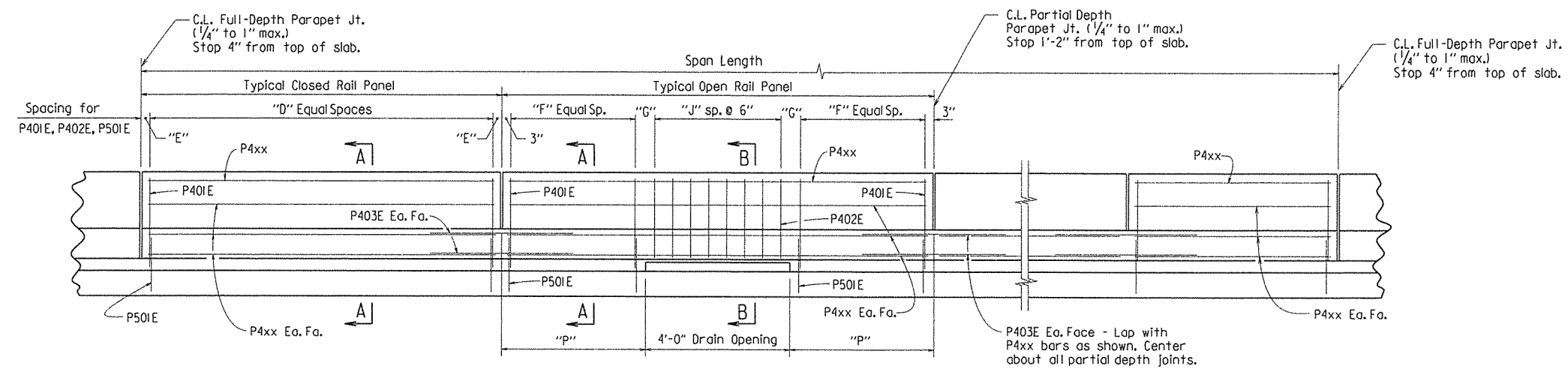


SHEET 3 OF 6
DETAILS OF
255'-0" CONTINUOUS W-BEAM UNIT
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: AMS DATE: 9/15/14 FILENAME: b050274_sl.dgn
CHECKED BY: ACP DATE: 01/16/15 SCALE: As Noted
DESIGNED BY: ACP DATE: 09-14
BRIDGE NO. 07337 DRAWING NO. 56476

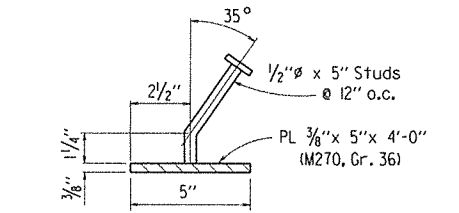
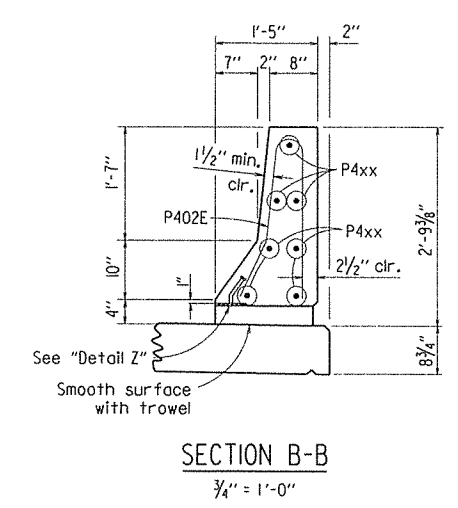
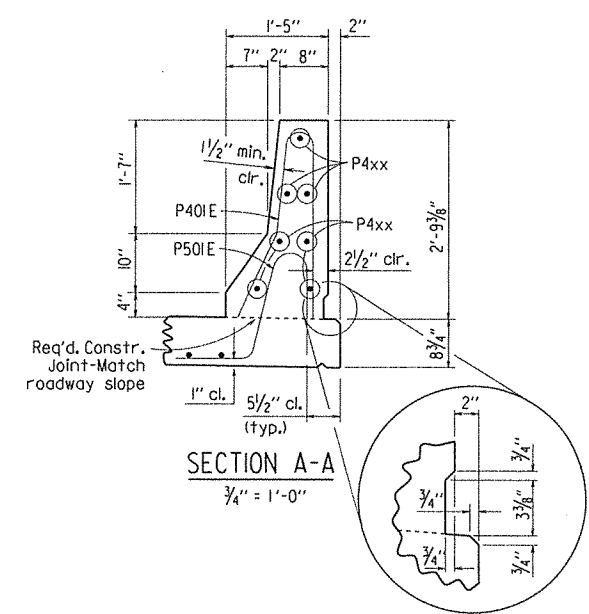
PRINT DATE: 1/15/2015

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.		050274	50	102
				07337	CONT. UNIT		56477	



BAR LIST - PER UNIT

Mark	No. Req'd.	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
S401E	240	42'-10"	Str.	<p>1/2" Over tolerance, No Under tolerance. Symmetrical About C.L. Bridge S502E S530E, S531E S530E, S531E P401E P402E P501E Bars with "E" designation shall be epoxy coated.</p>
S402E	875	38'-8"	Str.	
S501E	240	42'-10"	Str.	
S502E	239	43'-8"	3"	
S503E	1010	4'-10"	Str.	
S504E to S529E	4 Ea.	6'-11" to 4'-3"	Str.	
S530E	8	5'-1"	3 3/4"	
S531E	4	45'-5"	3 3/4"	
S601E	92	43'-0"	Str.	
P401E	812	5'-6"	3"	
P402E	208	4'-10"	3"	
P403E	96	5'-7"	Str.	
P404E	210	16'-8"	Str.	
P501E	812	4'-10"	3 3/4"	

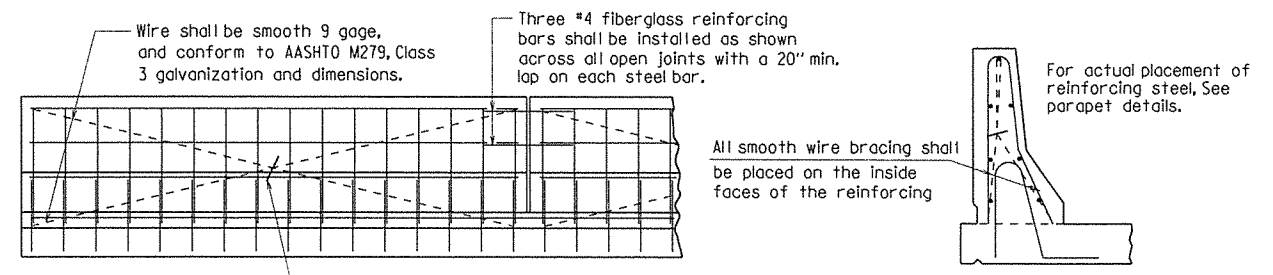


Note:
For Location of fixed and partial depth joints, See "Reinforcing Plan and Slab Pouring Sequence" on Dwg. No. 56476.

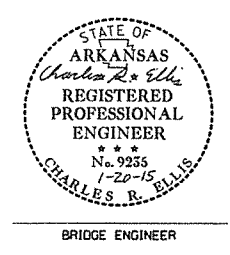
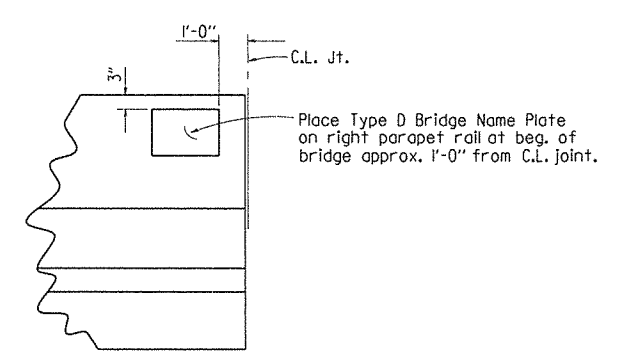
Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as Structural Steel in Beam Spans (M270, Gr. 50W).
The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to Structural Steel in Beam Spans (M270, Gr. 50W).

TABLE OF VARIABLES

Panel Length	Closed Rail Panels			Open Rail Panels				P4xx Bar	
	"D"	"E"	P4xx Bar	"F"	"G"	"J"	"p"		
17'-0"	33	3"	P404E	17'-0"	12	6"	7	6'-6"	P404E



All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of Class 2 Rubbed Finish.



SHEET 4 OF 6
DETAILS OF
255'-0" CONTINUOUS W-BEAM UNIT
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: AMS. DATE: 9/15/14 FILENAME: b050274_sl.dgn
CHECKED BY: ACP DATE: 01/16/15 SCALE: As Noted
DESIGNED BY: ACP DATE: 09-14
BRIDGE NO. 07337 DRAWING NO. 56477

PRINT DATE: 1/15/2015

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.		050274	51	102
				07337	CONT. UNIT			56478

GENERAL NOTES

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition with 2013 Interim Revisions.

MATERIALS AND STRENGTHS:
 Class (S(AE)) Concrete $f'c = 4,000$ psi
 Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A) $f_y = 60,000$ psi
 Structural Steel (M 270, Gr. 50W) $F_y = 50,000$ psi
 Structural Steel (M 270, Gr. 36) $F_y = 36,000$ psi

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

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

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the rolling. A minimum of 72 hours shall elapse between the completion of the slab and the pouring of the rolling. Any rolling pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL :
 All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL :
 All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.8(4)(e). Structural Steel completely embedded in concrete may be AASHTO M 270, Grade 36 or 50 unless otherwise noted.

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

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

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

All beams shall be assembled in the shop as specified in Subsection 807.54 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 beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

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

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$ " ϕ bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for $\frac{3}{4}$ " ϕ high-strength bolts may be $\frac{1}{8}$ " ϕ diameter if a washer is supplied for use under both the nut and head of the bolt.

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

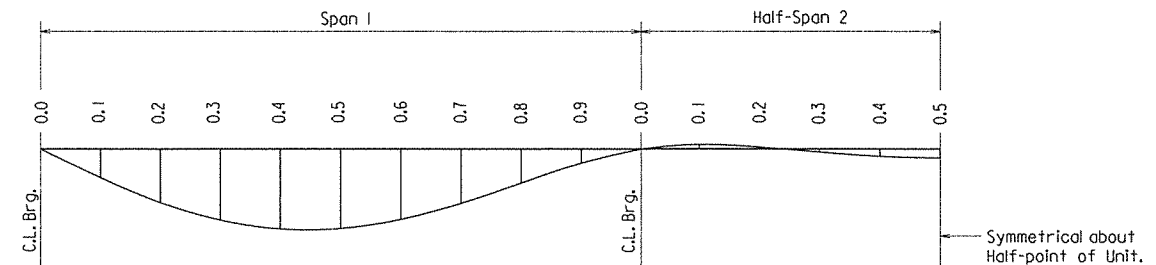
All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

DEAD LOAD DEFLECTIONS (INCHES)

Camber for Dead Load Deflection $\pm \frac{1}{4}$ " tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections are not included.

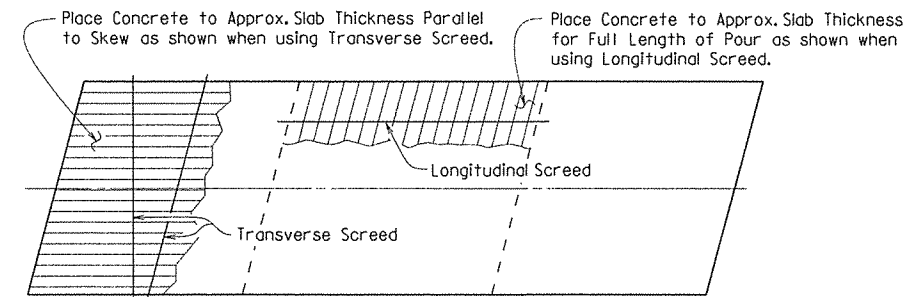
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Rail	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.103	0.111	0.518	0.619	0.561	0.660
	0.2	0.191	0.206	0.962	1.150	1.041	1.225
	0.3	0.254	0.274	1.281	1.531	1.387	1.631
	0.4	0.286	0.308	1.441	1.723	1.560	1.836
	0.5	0.284	0.307	1.433	1.713	1.551	1.825
	0.6	0.252	0.271	1.267	1.515	1.371	1.614
	0.7	0.194	0.209	0.977	1.168	1.058	1.245
	0.8	0.122	0.132	0.615	0.735	0.666	0.783
	0.9	0.051	0.055	0.257	0.308	0.278	0.328
2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	-0.016	-0.017	-0.079	-0.094	-0.085	-0.100
	0.2	-0.007	-0.007	-0.034	-0.041	-0.037	-0.044
	0.3	0.011	0.012	0.054	0.065	0.058	0.069
	0.4	0.026	0.028	0.130	0.155	0.141	0.165
	0.5	0.031	0.034	0.158	0.189	0.171	0.201

Symmetrical about Half-point of Unit.



DEAD LOAD DEFLECTION DIAGRAM

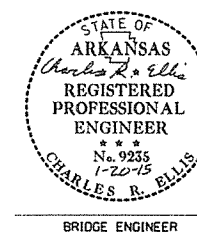
No Scale



At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE

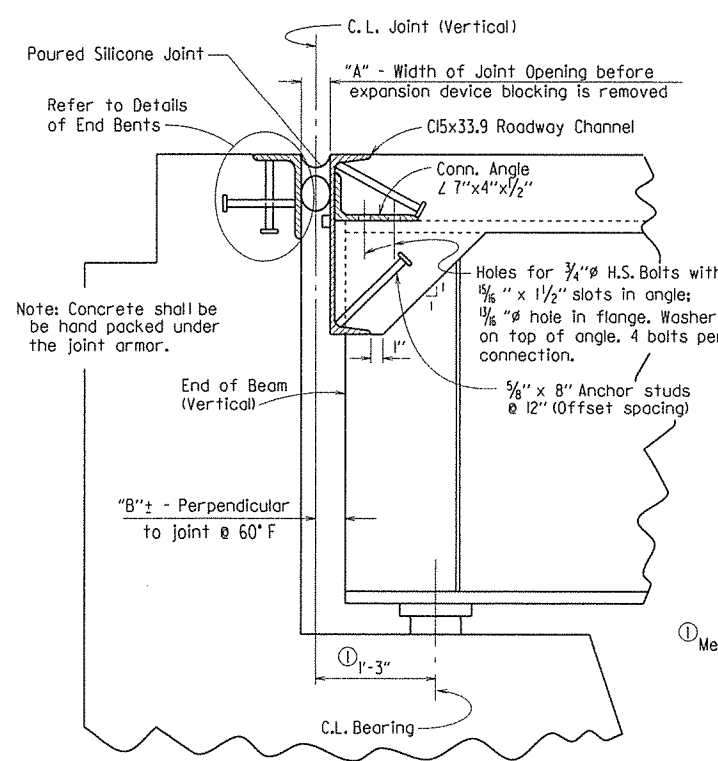
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SHEET 5 OF 6
 DETAILS OF
 255'-0" CONTINUOUS W-BEAM UNIT
 GUT CREEK
 ROUTE 509
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

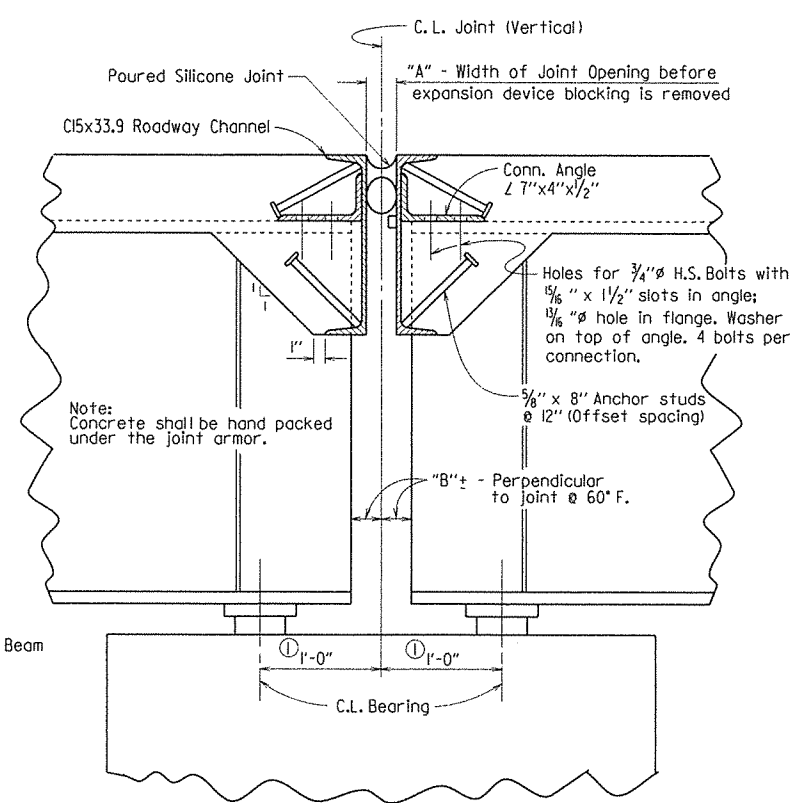
DRAWN BY: AMS DATE: 9/15/14 FILENAME: b050274_sl.dgn
 CHECKED BY: ACP DATE: 01/16/15 SCALE: As Noted
 DESIGNED BY: ACP DATE: 09-14
 BRIDGE NO. 07337 DRAWING NO. 56478

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.		050274	52	102
				07337		CONT. UNIT		56479



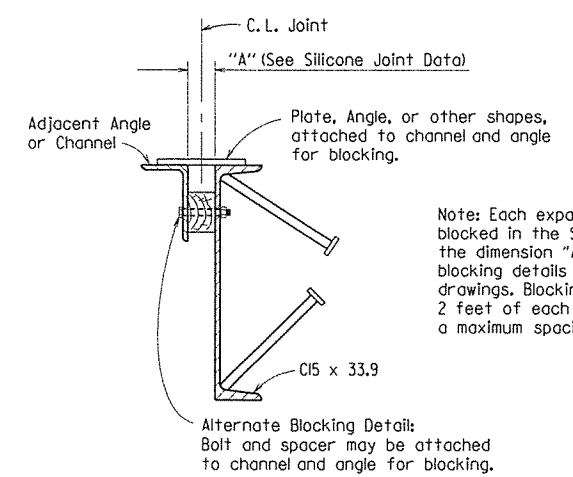
Note: Section taken perpendicular to C.L. Joint, except as noted.

SECTION THRU JOINT AT END BENT



Note: Section taken perpendicular to C.L. Joint, except as noted.

SECTION THRU JOINT AT BENT 4



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

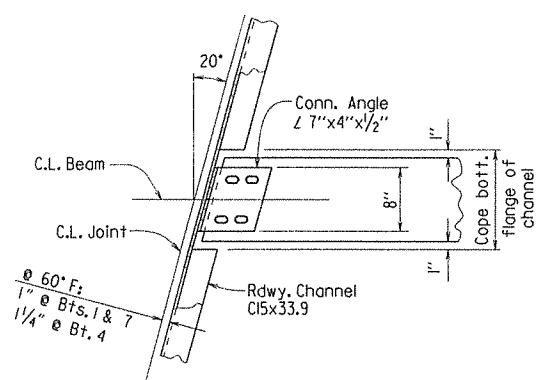
The Contractor may elect to install the expansion device using one of the following two alternatives:

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

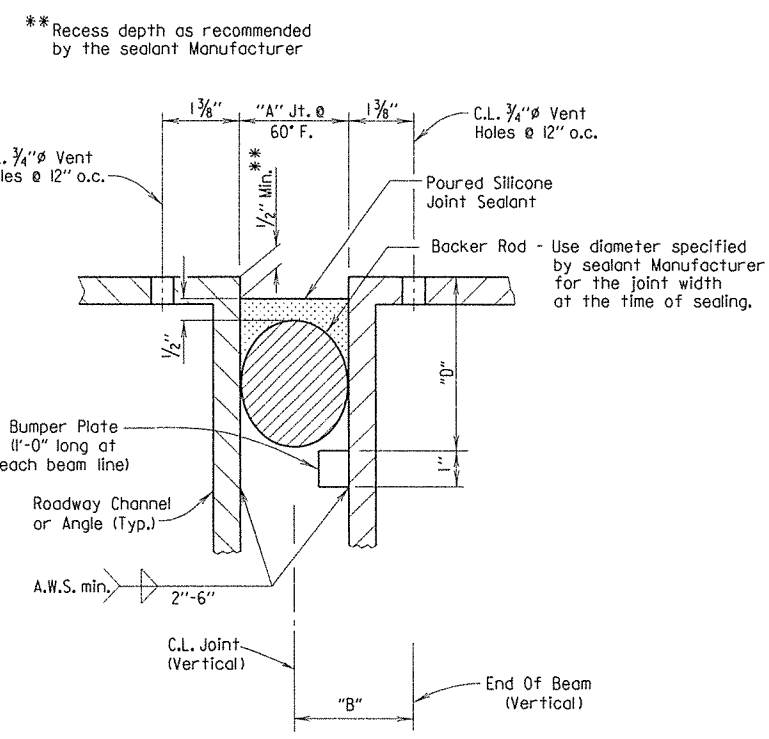
EXPANSION DEVICE INSTALLATION AT INTERIOR BENTS:

After all beams 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.



CHANNEL CONNECTION DETAIL
N.T.S.



DETAIL OF POURED SILICONE JOINT

SILICONE JOINT DATA

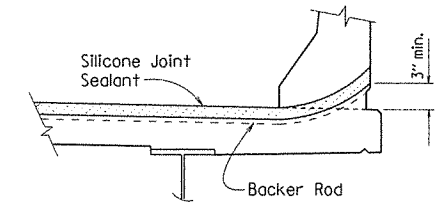
Bent No.	"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
	40°F	60°F	80°F			
1 & 7	2 3/8"	2"	1 9/8"	2 1/4" ±	4 1/2"	1" x 1"
4	2 1/8"	2 1/2"	2 1/8"	2 1/2" ±	5"	1 1/4" x 1"

* The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

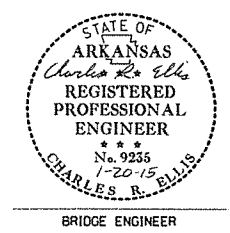
Notes: The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

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.



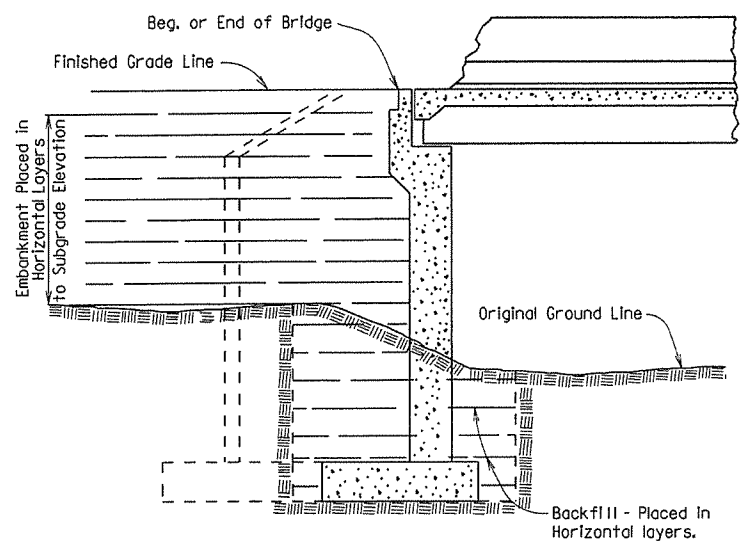
JOINT SEAL PLACEMENT AT CURB



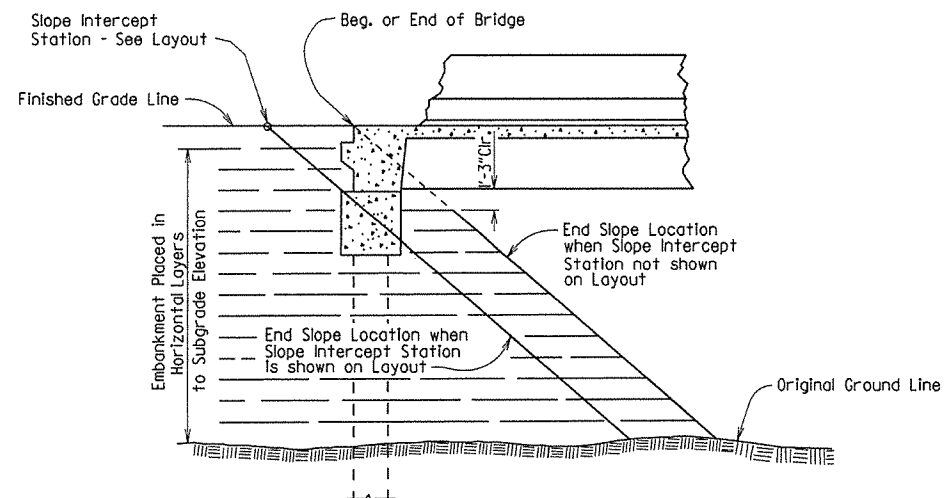
SHEET 6 OF 6
DETAILS OF
255'-0" CONTINUOUS W-BEAM UNIT
GUT CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: AMS. DATE: 9/15/14 FILENAME: b050274_sl.dgn
CHECKED BY: ACP DATE: 01/16/15 SCALE: No Scale
DESIGNED BY: ACP DATE: 09-14
BRIDGE NO. 07337 DRAWING NO. 56479

PRINT DATE: 1/15/2015

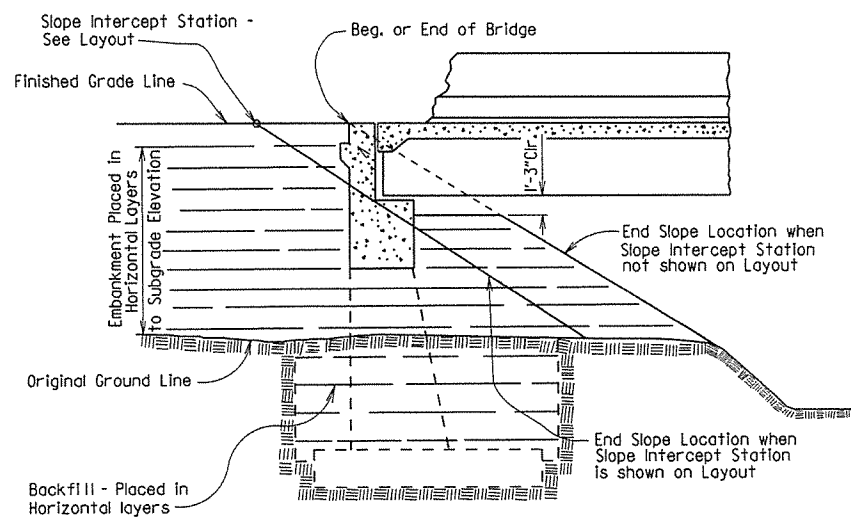
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		53	
							JOB NO.	
							① EMBANKMENT & BACKFILL	55000



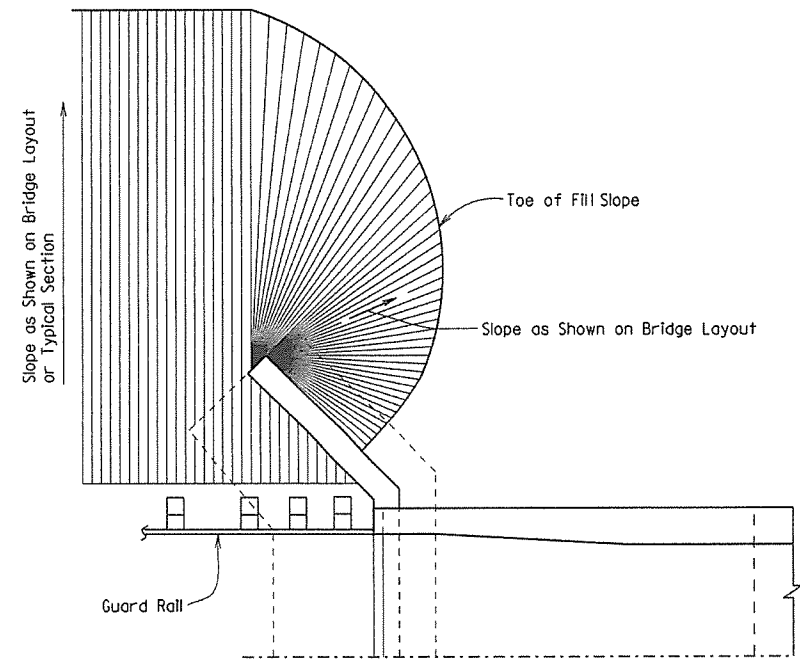
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



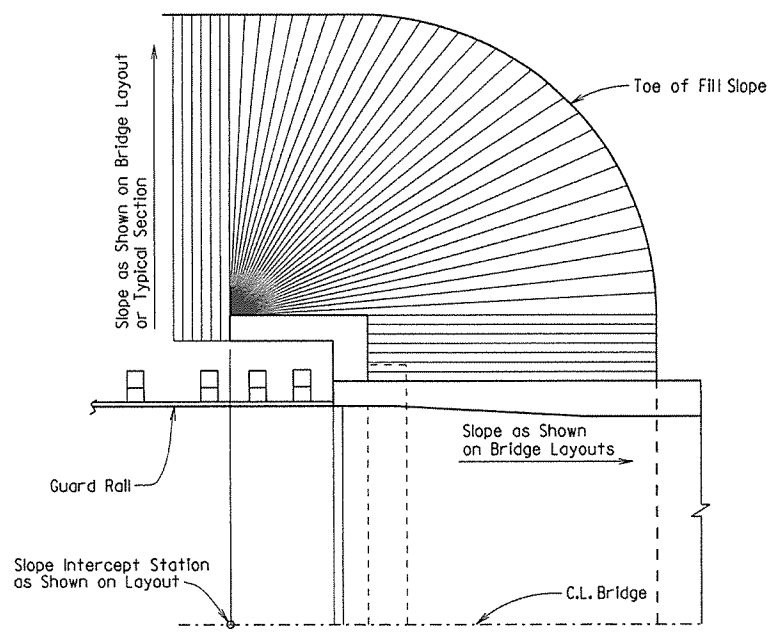
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



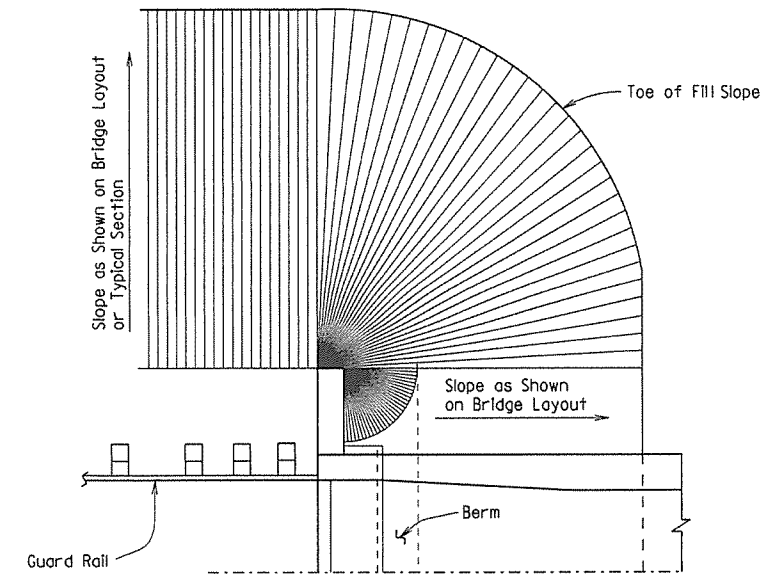
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



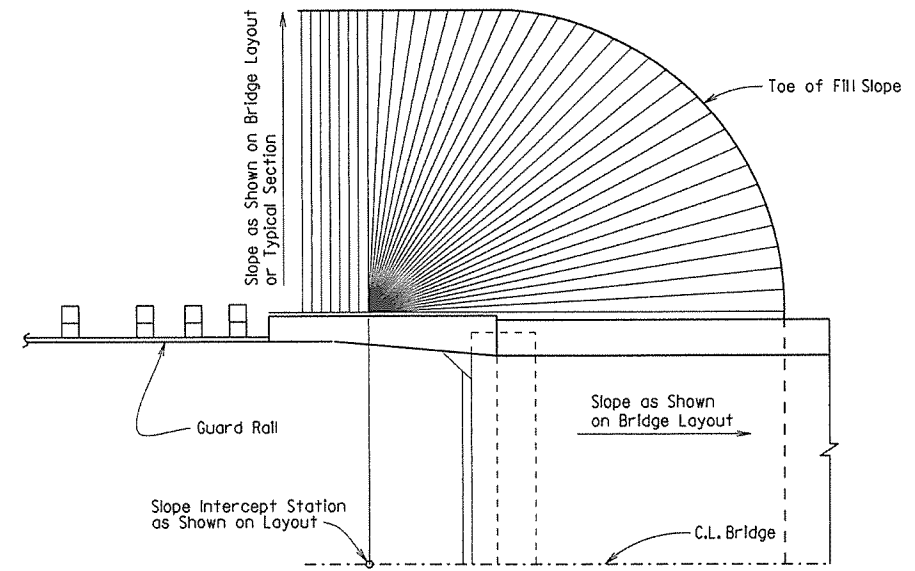
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH 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.

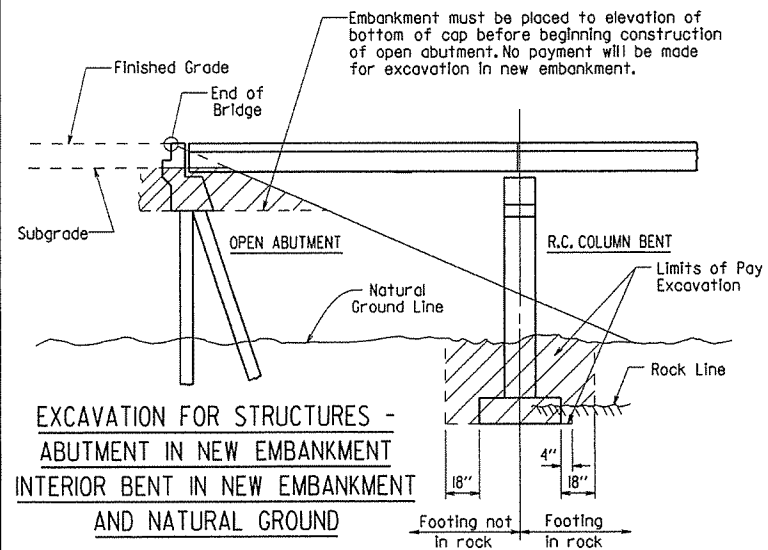
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

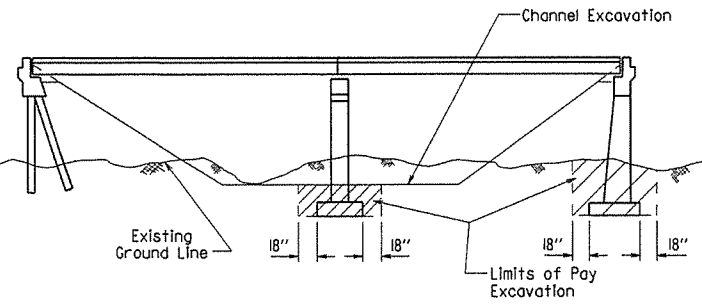
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

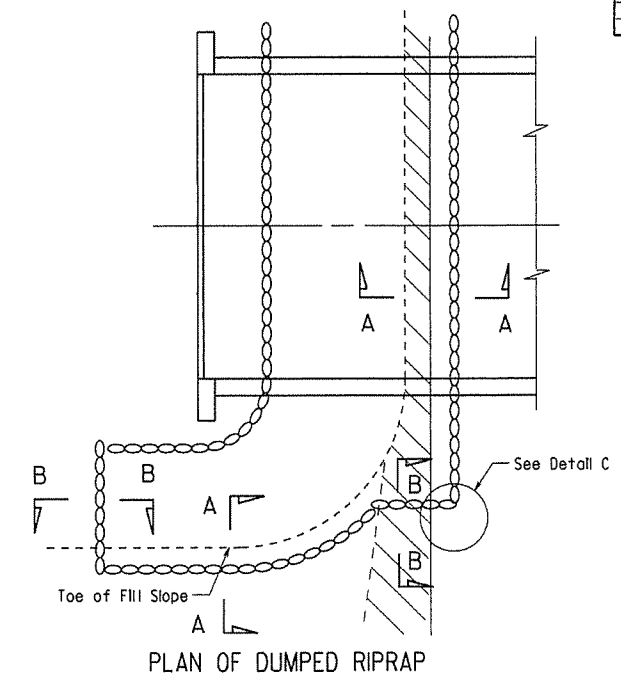
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		54	
				JOB NO.		RIPRAP & EXCAV. 55001		



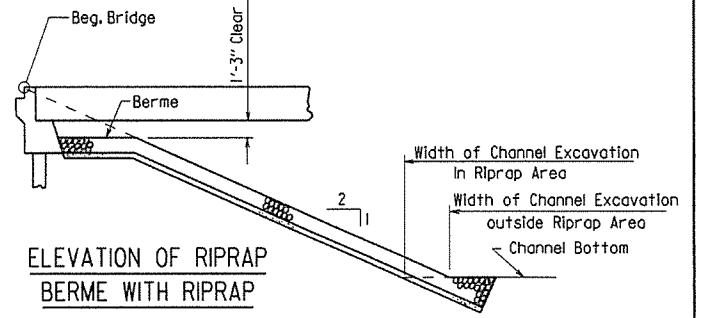
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT AND NATURAL GROUND



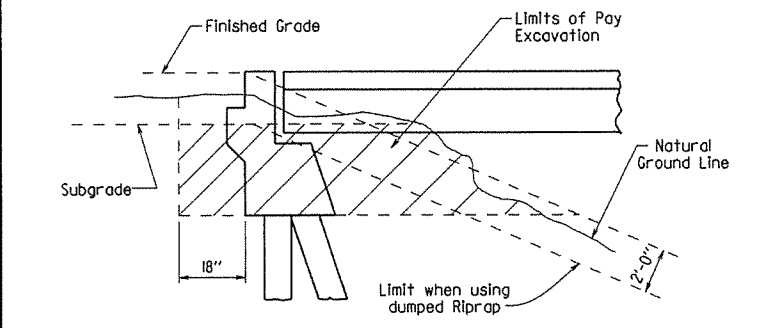
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



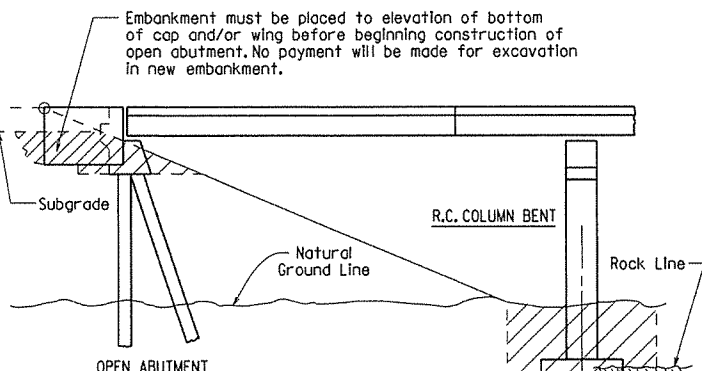
PLAN OF DUMPED RIPRAP



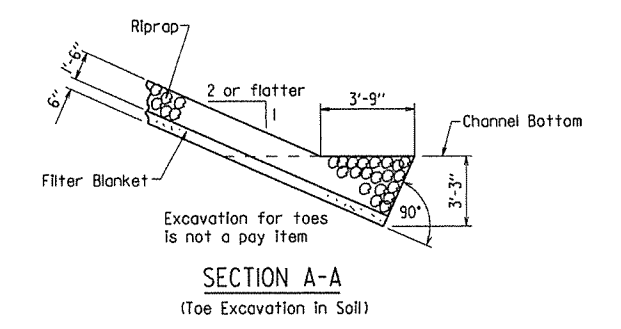
ELEVATION OF RIPRAP BERME WITH RIPRAP



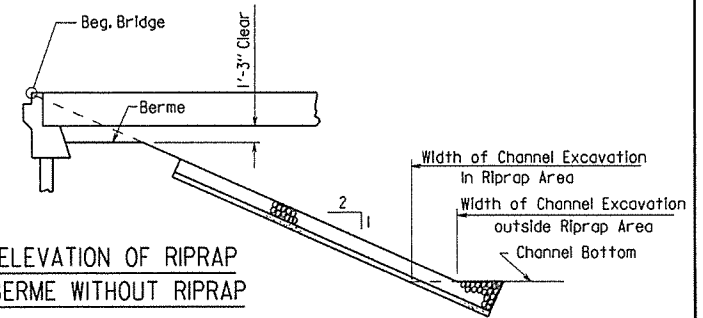
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



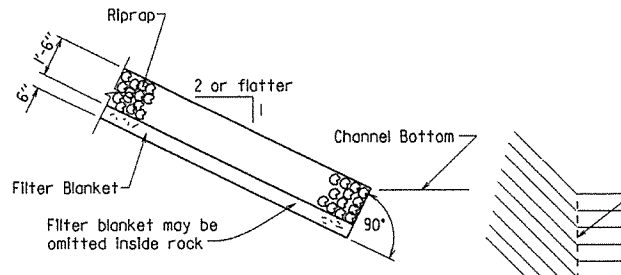
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT WITH TURNBACK WINGS AND INTERIOR BENT IN NATURAL GROUND



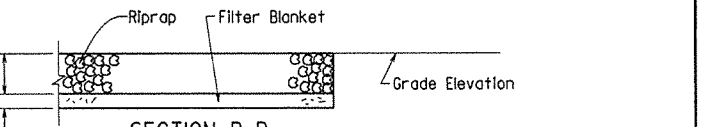
SECTION A-A (Toe Excavation in Soil)



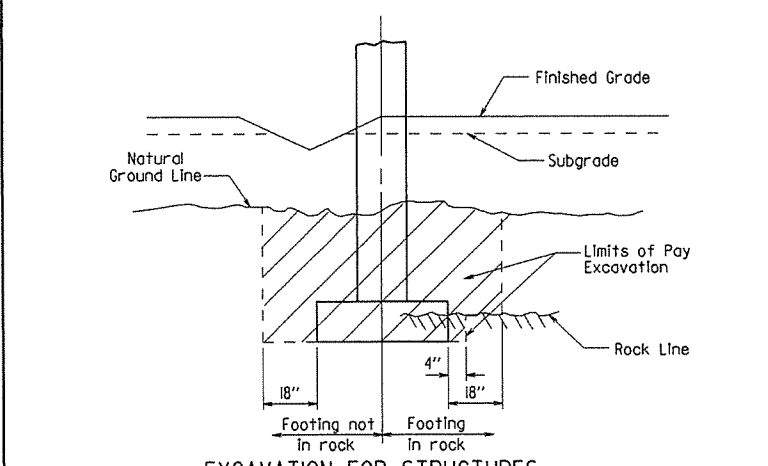
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



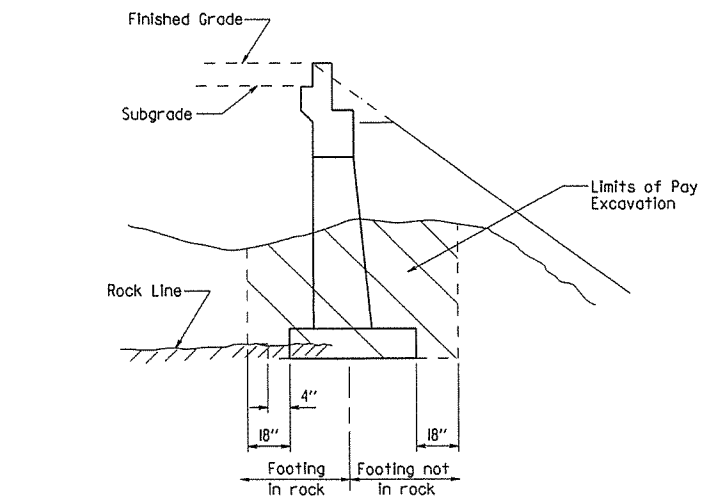
SECTION A-A (Toe Excavation in Rock)



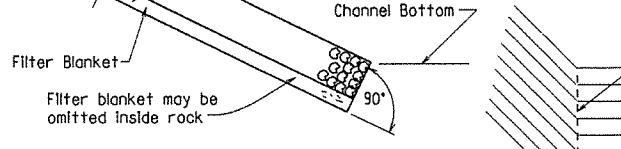
SECTION B-B



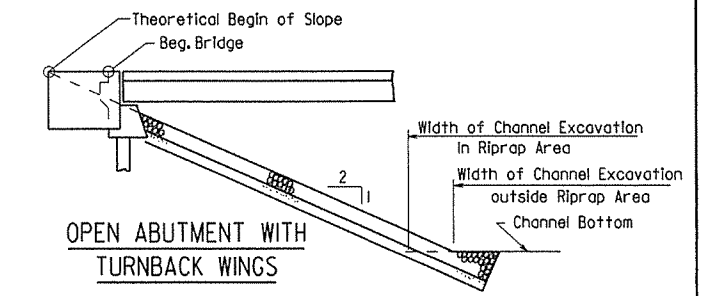
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



DETAIL C



OPEN ABUTMENT WITH TURNBACK WINGS

Note: Use this type of toe when rock is encountered which is in a stable condition.

Note: In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

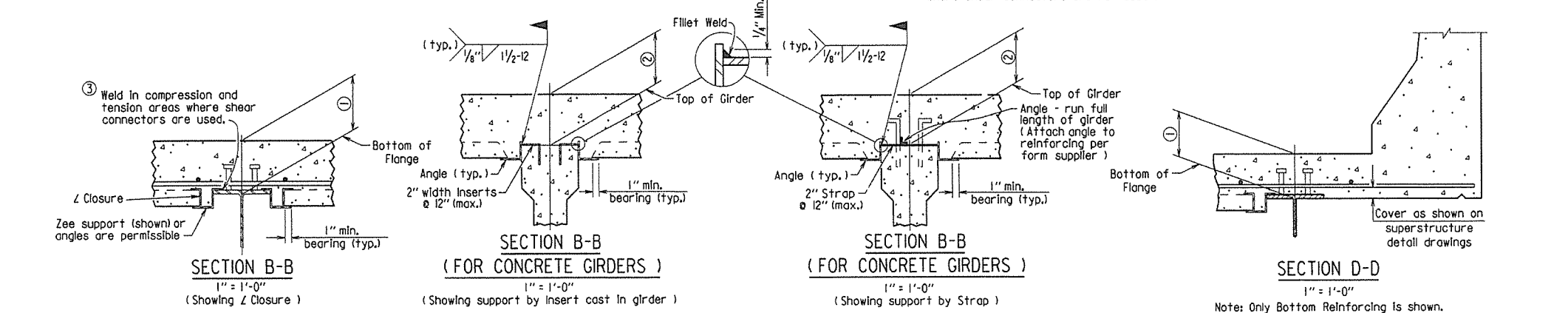
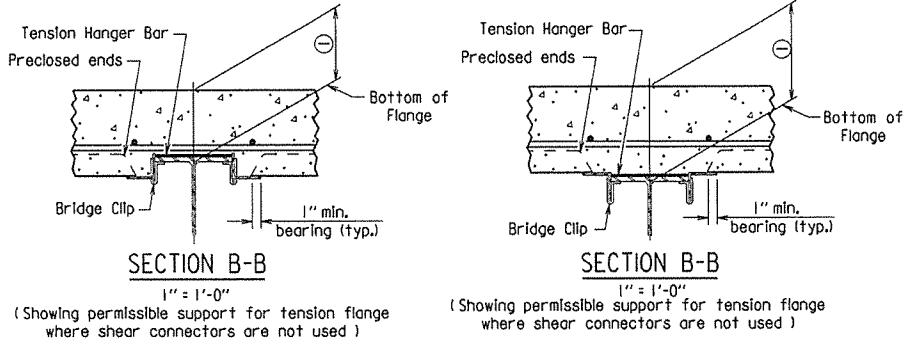
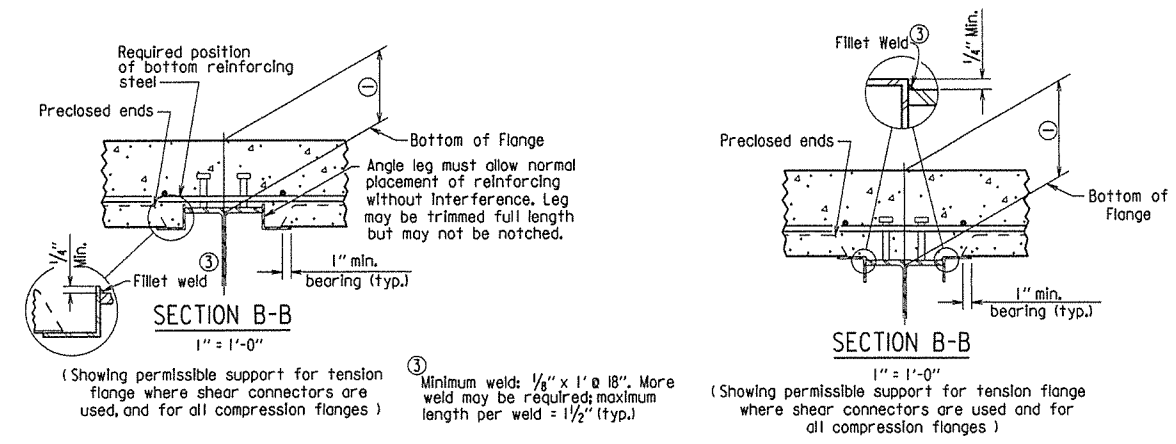
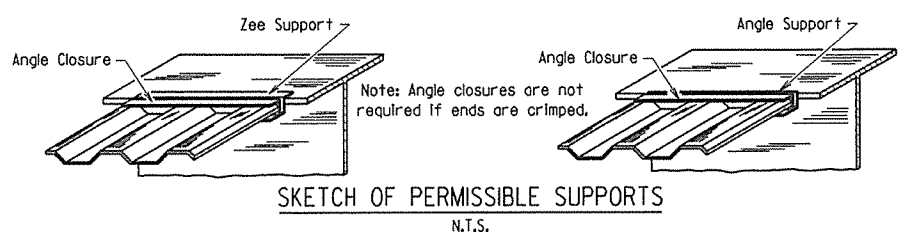
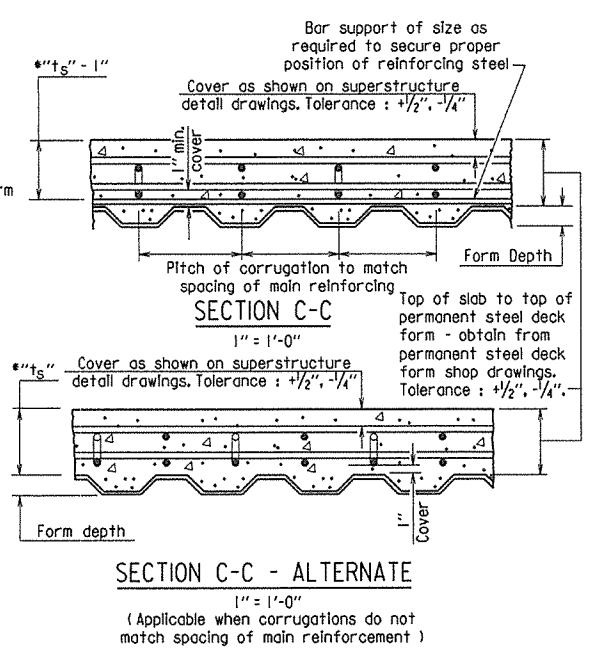
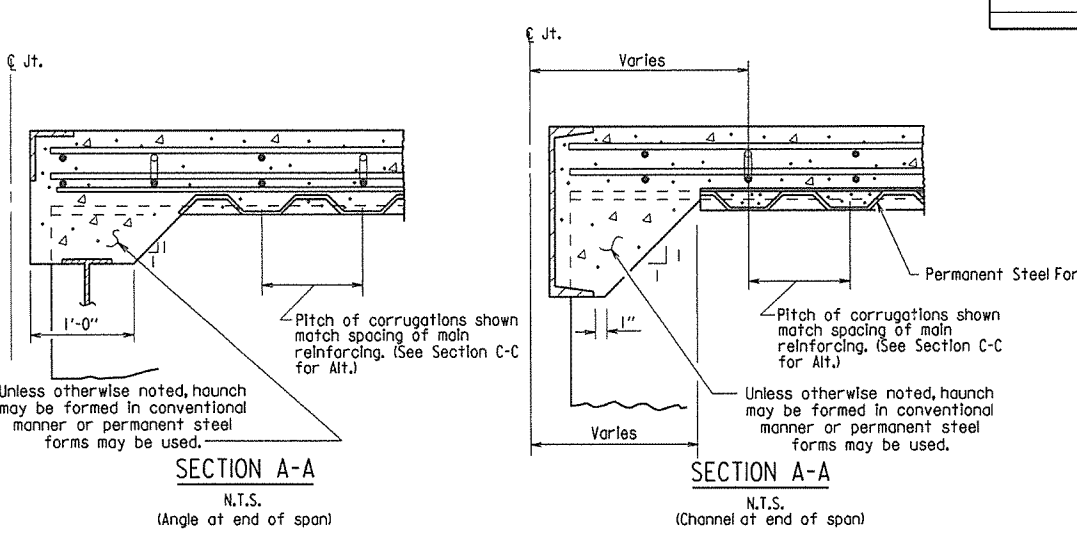
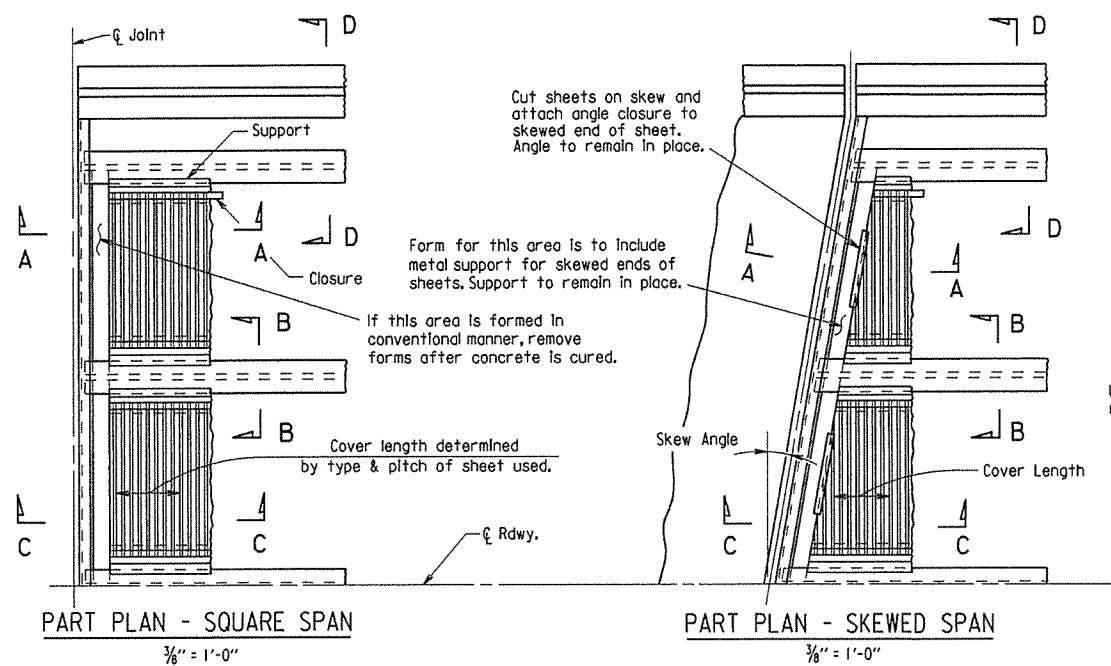
Note: Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.

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:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		55	
JOB NO.							BRIDGE DECK FORMS	55005



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 = $t_s + 1\frac{1}{4}" + \text{flange thickness}$. See Section C-C for slab thickness tolerance between adjacent girder flanges.

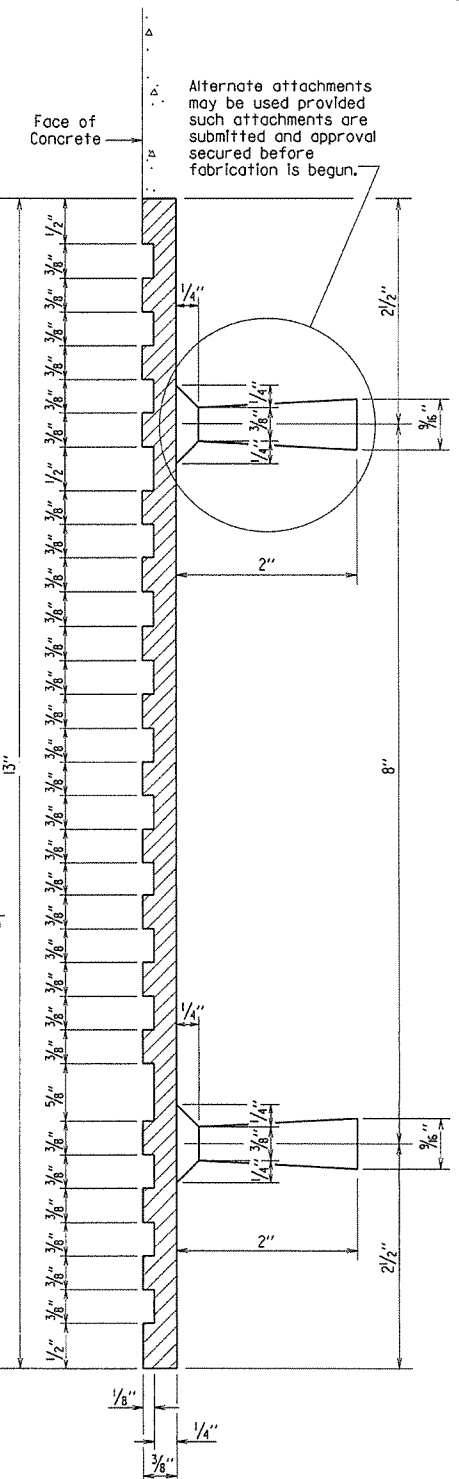
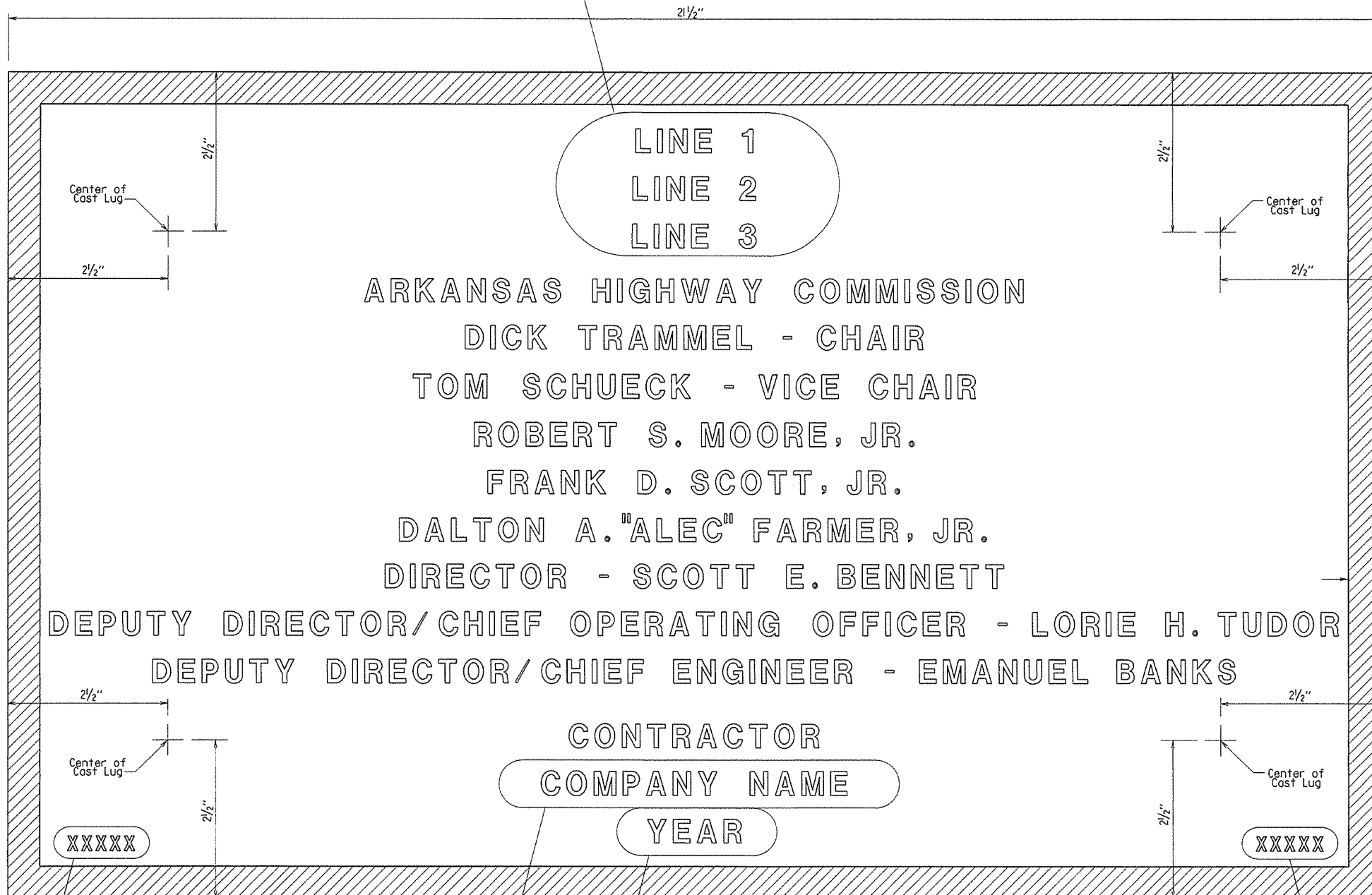
② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top of girder or the support angle leg 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
12-1-14				6	ARK.		56	
1-14-15								
JOB NO.								

① TYPE D NAME PLATE 55010

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

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Road	River	Highway 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 tapered cone lugs 3/8" to 5/8" 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

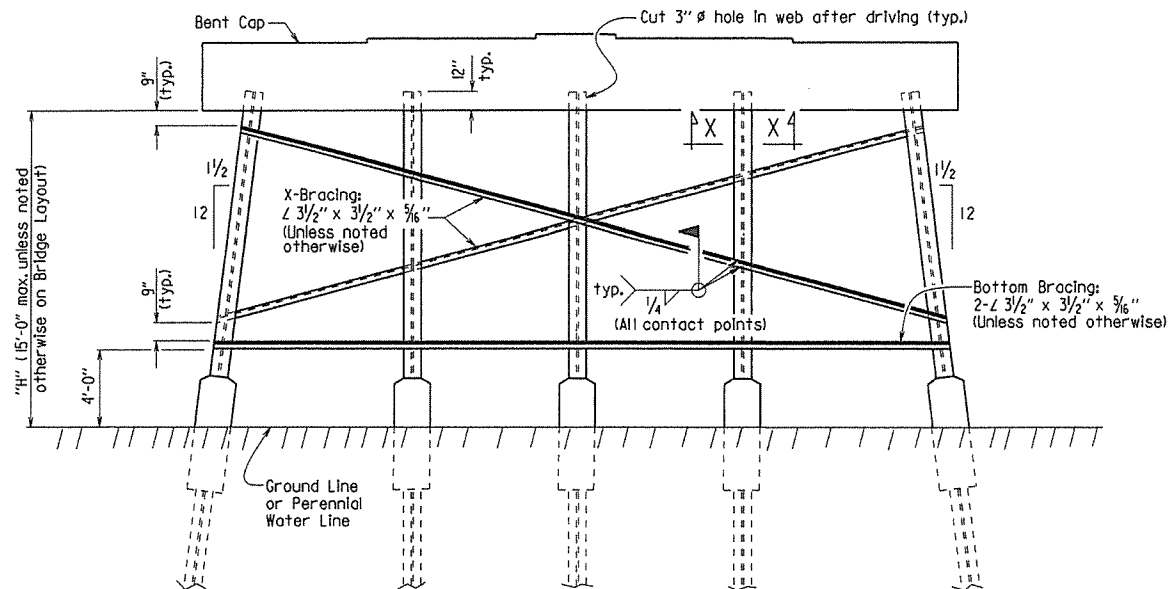
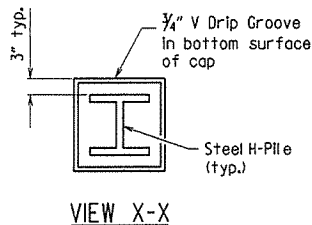
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



Notes:

All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

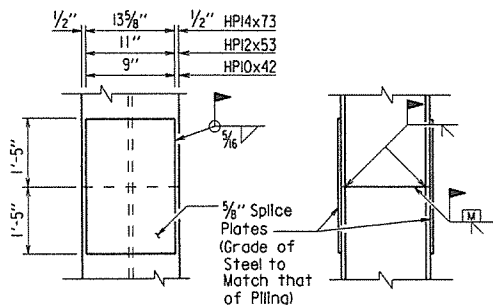
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

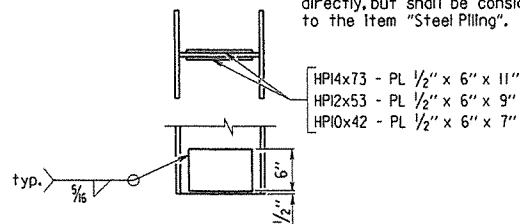
TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



Note: The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS



REINFORCING DETAIL FOR STEEL H-PILE TIP

Notes: Steel pile tip reinforcing not required when approved H-Pile driving points are used. Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".

- HPI4x73 - PL 1/2" x 6" x 11"
- HPI2x53 - PL 1/2" x 6" x 9"
- HPI0x42 - PL 1/2" x 6" x 7"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		57	
JOB NO.							STEEL H-PILES	55020

GENERAL NOTES FOR H-PILE ENCASEMENTS:

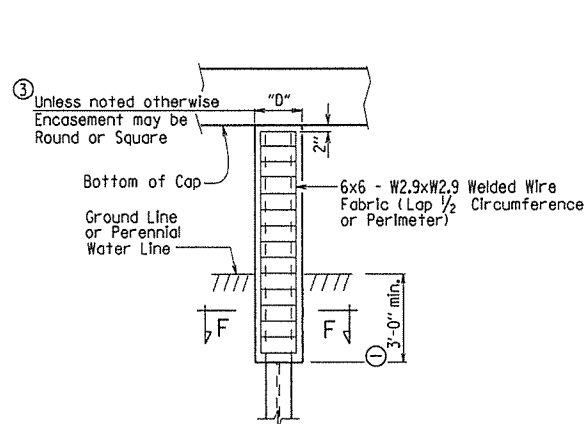
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

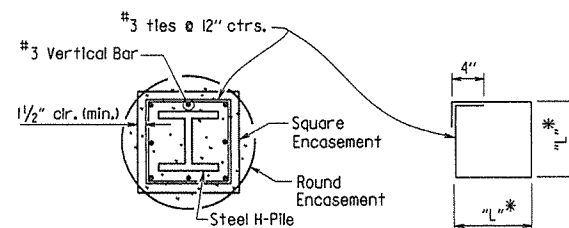
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

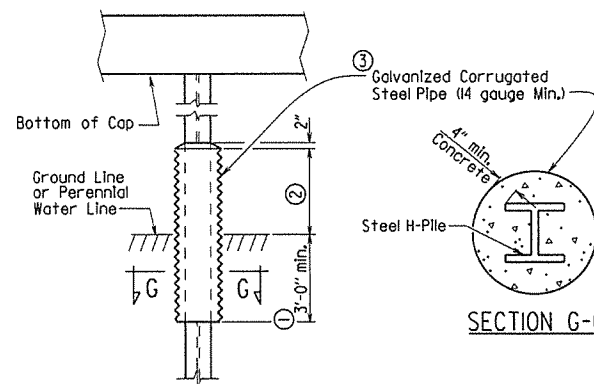


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D"		"L"*
	Square Encsmt.	Round Encsmt.	
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

- ① Unless otherwise noted on Bridge Layout.
- ② 3'-0" minimum or as shown on Bridge Layout.
- ③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 1/2" and a minimum clearance of 1 1/4" from the pile.
- ④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.
- ⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

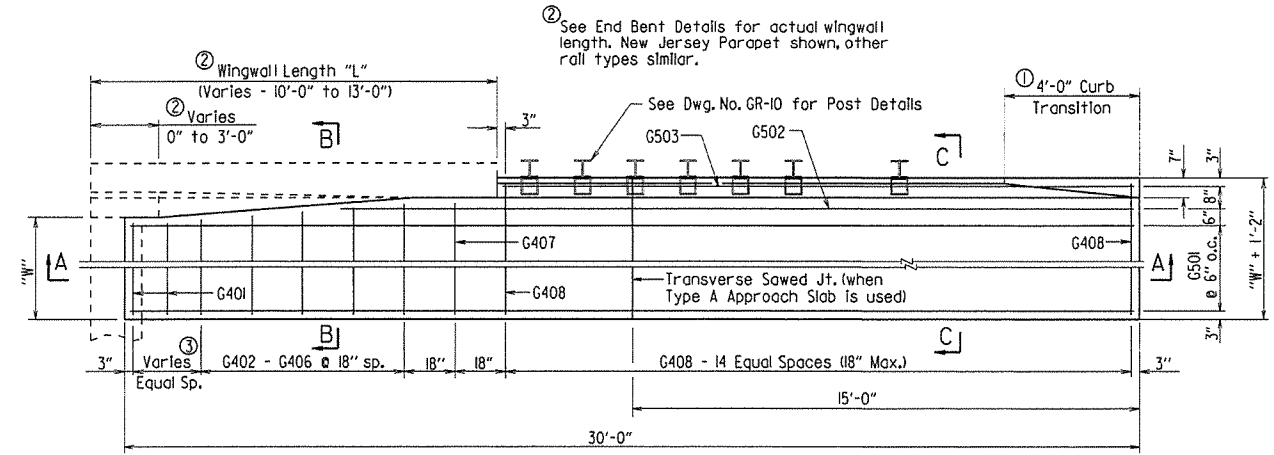


This document was originally issued and sealed by Carl J. Fuseller, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

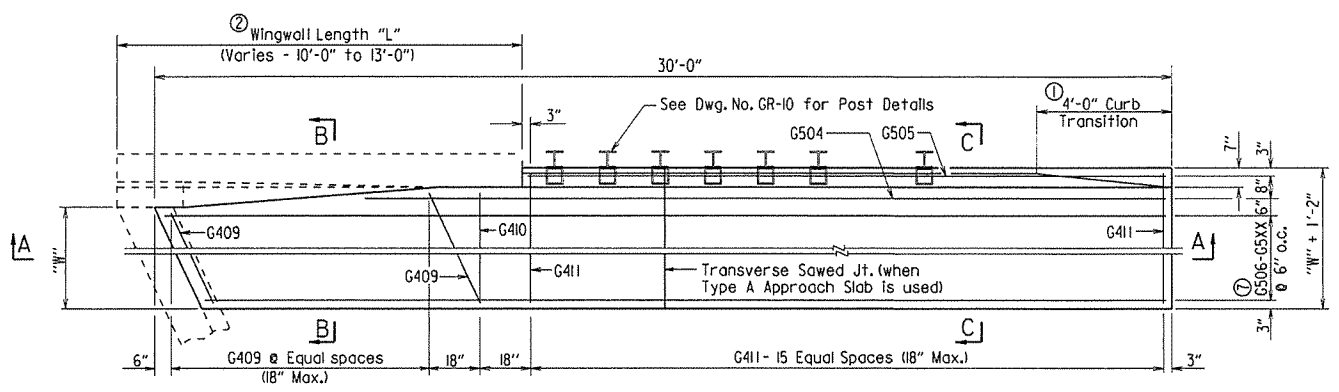
BRIDGE ENGINEER

DRAWING NO. 55020

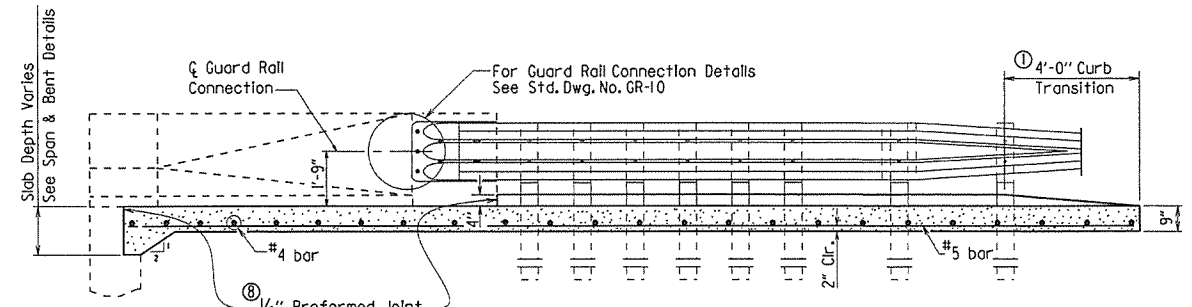
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/22/15				6	ARK.		58	
JOB NO.							TYPE A GUTTERS	55030A



HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

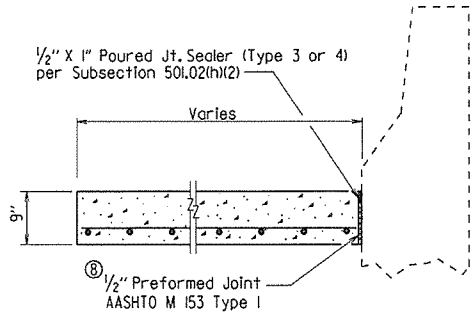


SECTION A-A

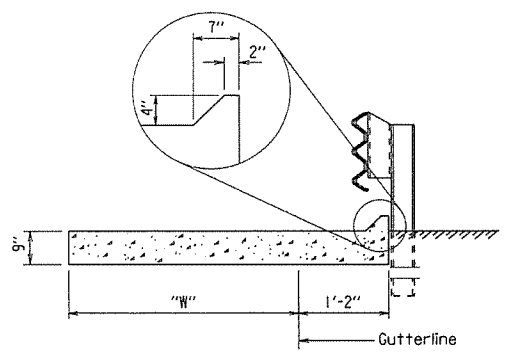
⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

Note:
 All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

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 A GUTTER

Mark	No. Req'd. for Width "W"					Length
	2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	
G401	④	④	④	④	④	"W" - 4"
G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
G407	1	1	1	1	1	"W"+3"
G408	15	15	15	15	15	"W"+10"
G501	4	6	8	12	16	29'-8"
G502	1	1	1	1	1	(35'-5") - "L"
G503	1	1	1	1	1	30'-8"-L"
G409	⑥	⑥	⑥	⑥	⑥	⑤
G410	1	1	1	1	1	"W"+3"
G411	16	16	16	16	16	"W"+10"
G504	1	1	1	1	1	⑤
G505	1	1	1	1	1	⑤
G506 - G5XX	⑦ 1 each	1 each	1 each	1 each	1 each	⑤

- ④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'
- ⑤ Bar Lengths vary with Skew and Wingwall length.
- ⑥ No. Req'd. varies with Skew and Wingwall length.
- ⑦ C509 for "W" = 2'
C511 for "W" = 3'
C513 for "W" = 4'
C517 for "W" = 6'
C521 for "W" = 8'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER (FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

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

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 31or M 322, Type A, with mill test reports.
 Approach Gutters will be measured and paid for in accordance with Section 504.

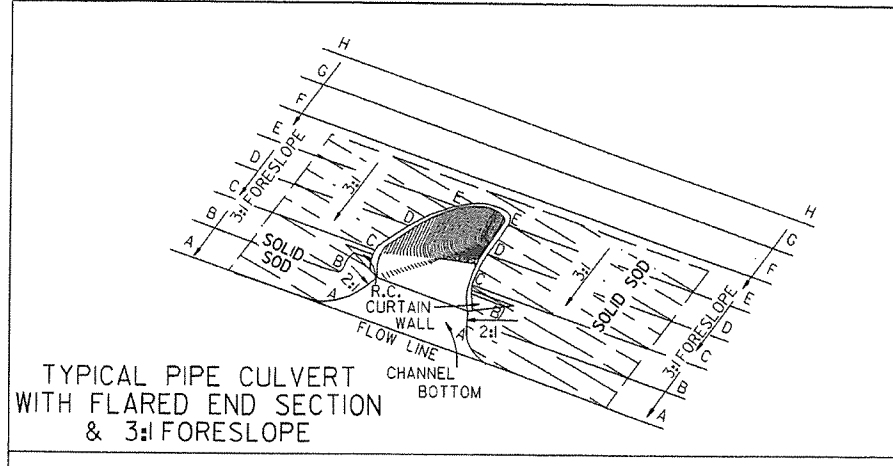
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

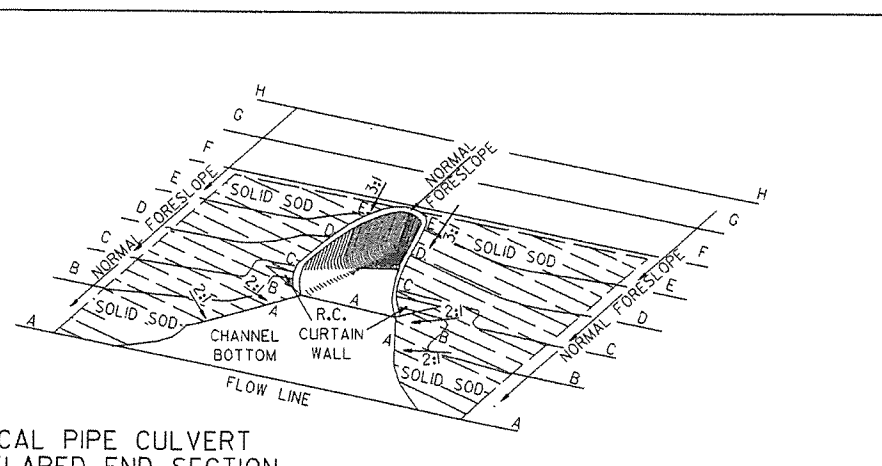
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
 CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0"
 DESIGNED BY: STD. DATE: or As Shown

DRAWING NO. 55030A

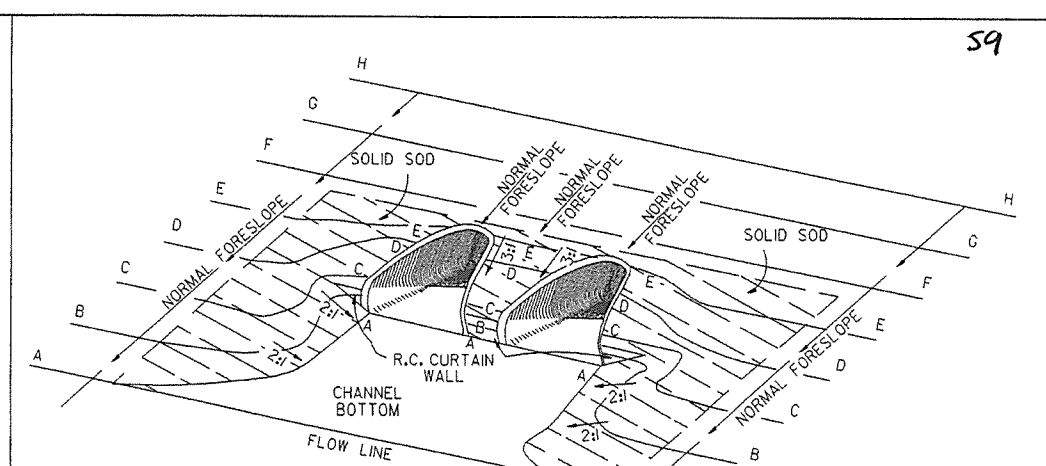
Revised to add "W" = 2'-0"; By LJB
 Checked By: KMY 9/2/15



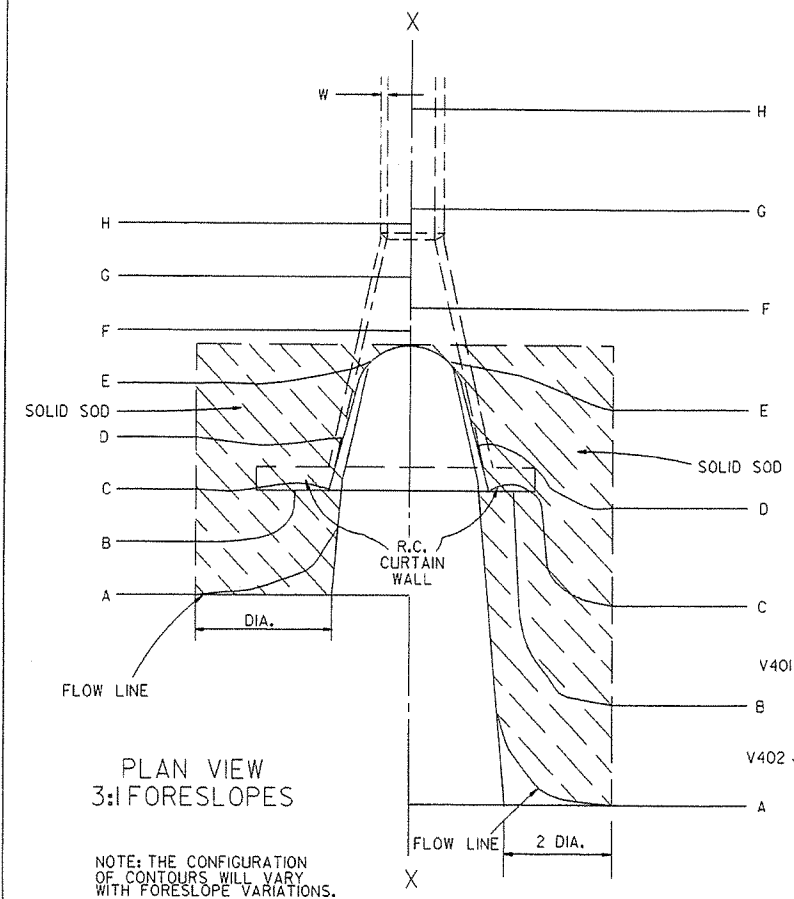
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES



PLAN VIEW 3:1 FORESLOPES

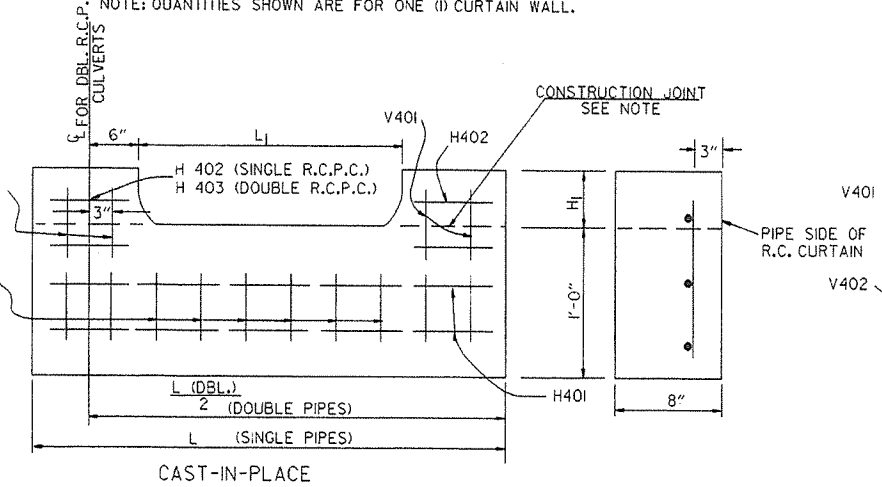
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

PIPE DIA.	H ₁	L ₁	L	L (DBL.) / 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



R.C. CURTAIN WALL DETAILS

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

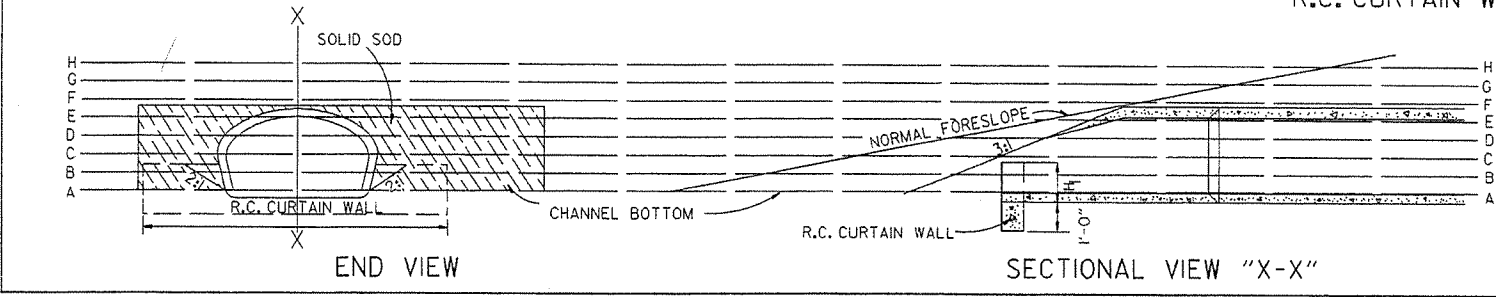
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.					
	3:1		4:1		6:1		3:1		4:1		6:1	
	SQ. YDS.						SQ. YDS.					
18"	5	7	12	6	8	13	5	7	12	6	8	13
24"	8	12	19	9	13	20	8	12	19	9	13	20
30"	13	18	29	14	19	30	13	18	29	14	19	30
36"	17	26	41	18	28	43	17	26	41	18	28	43
42"	23	35	55	25	37	57	23	35	55	25	37	57
48"	29	46	68	31	48	70	29	46	68	31	48	70
54"	35	57	85	37	59	87	35	57	85	37	59	87
60"	45	62	104	48	65	107	45	62	104	48	65	107
72"	64	92	156	67	95	159	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
 2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 4. WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILED	STANDARD DRAWING FES-1
10-18-96	ADDED NOTE TO SOLID SODDING		ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING	10-18-96	
11-3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES, CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		

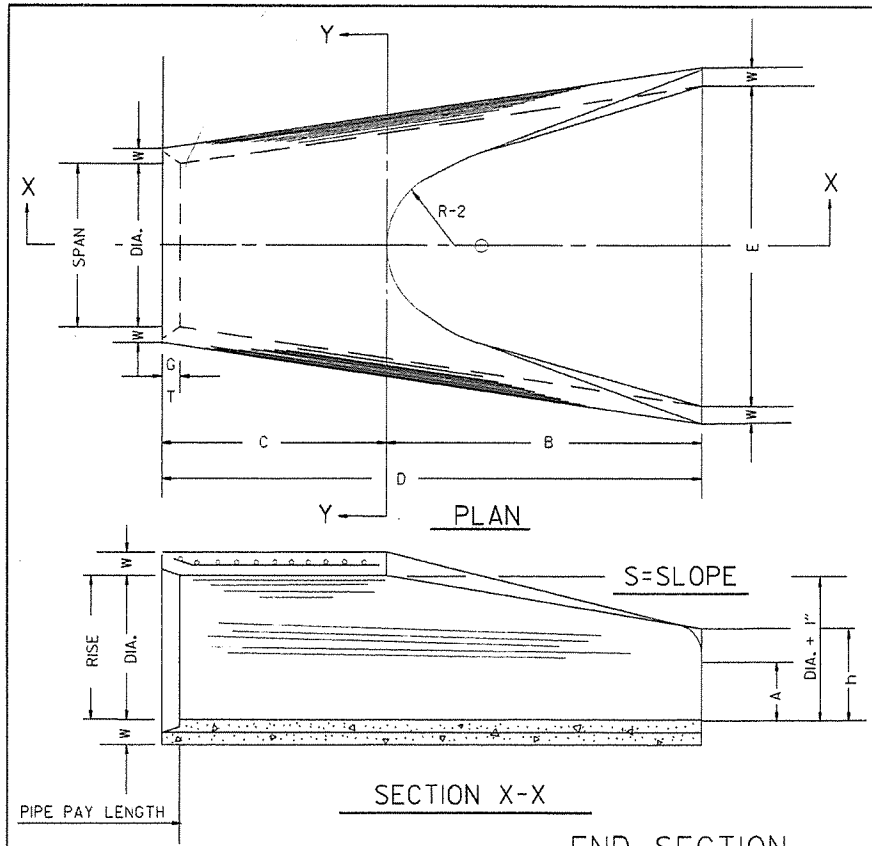


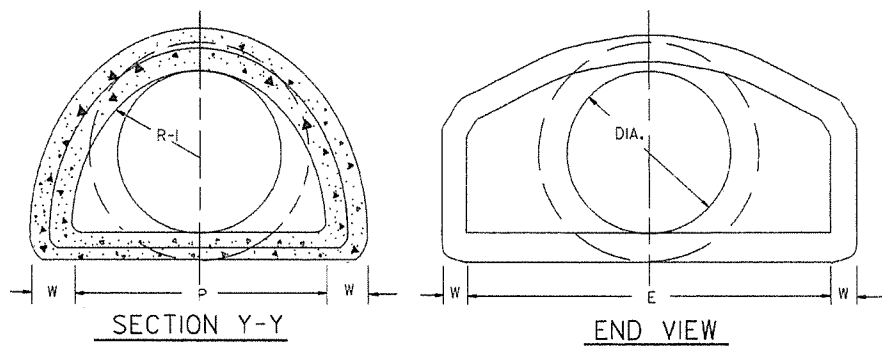
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. - 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 3/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 1/8"	24 3/8"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/2"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/4"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 1/8"	38 3/8"	24"	5"	13250	4'-6"

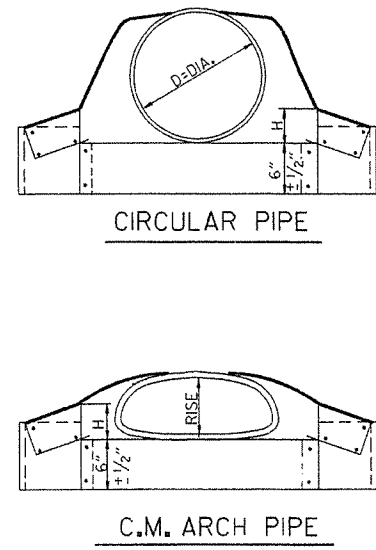
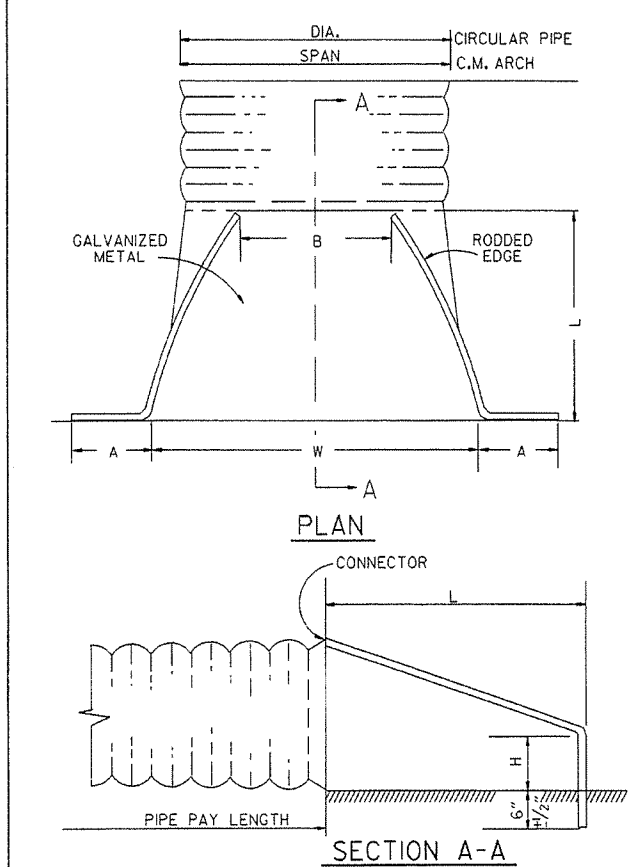
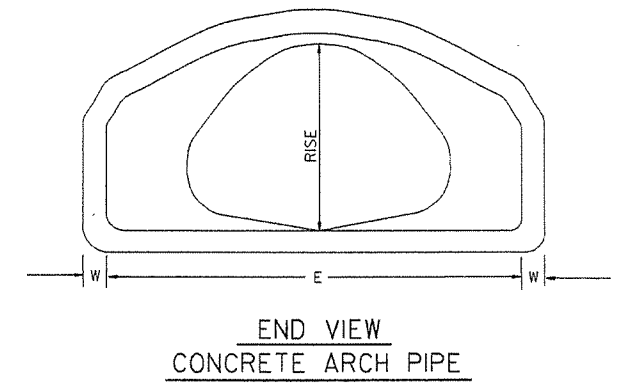
ARCH PIPE

EQUIV. DIA.	SPAN		RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 3/8"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 1/8	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 3/8"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/2:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/8"	24"	5"	2 1/2:1

* THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

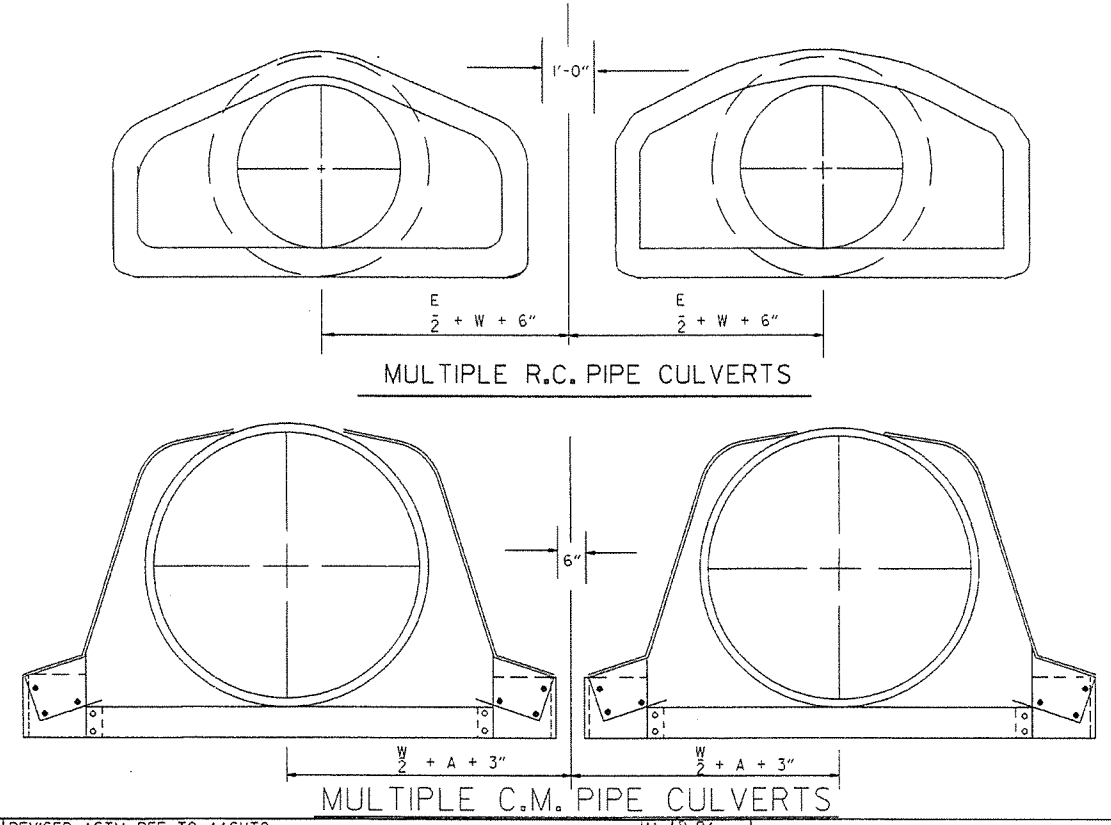


CIRCULAR PIPE

D. DIA.	GAUGE	A	B. MAX.	H	L	W	S
12	16	6	6	6	21	24	2 1/2:1
15	16	7	8	6	26	30	2 1/2:1
18	16	8	10	6	31	36	2 1/2:1
21	16	9	12	6	36	42	2 1/2:1
24	16	10	13	6	41	48	2 1/2:1
30	14	12	16	8	51	60	2 1/2:1
36	14	14	19	9	60	72	2 1/2:1
42	12	16	22	11	69	84	2 1/2:1
48	12	18	27	12	78	90	2 1/2:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1 3/4:1
66	12	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

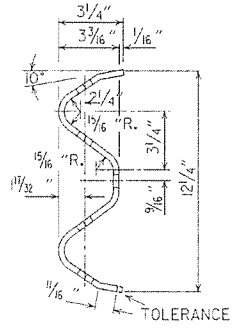
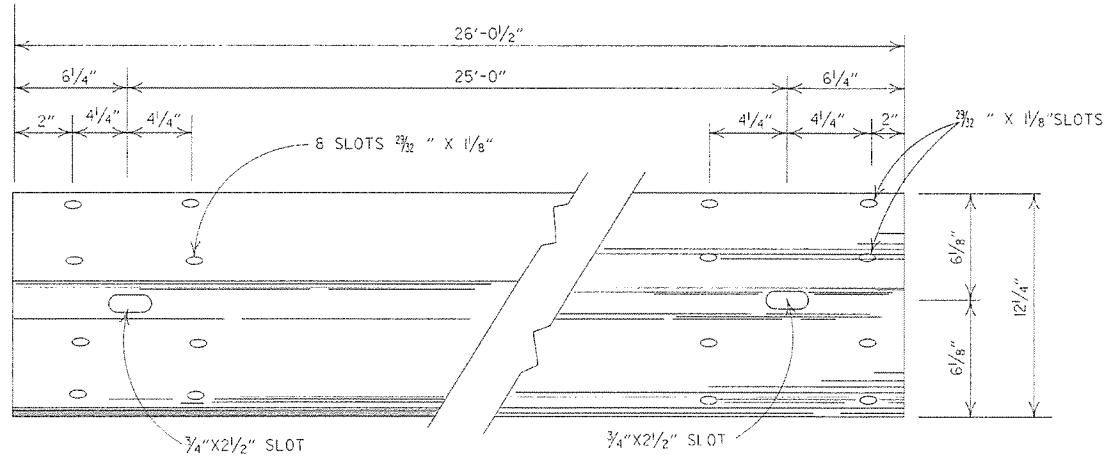
EQUIV. DIA.	SPAN	RISE	A	B. MAX.	H	L	W	S	GAUGE
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	2 1/2:1	14
42"	49	33	13	21	9	53	85	2 1/2:1	12
48"	57	38	18	26	12	63	90	2 1/2:1	12
54"	64	43	18	30	12	70	102	2 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12



NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

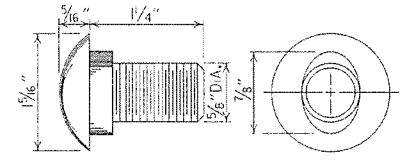
END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	FLARED END SECTION
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	STANDARD DRAWING FES-2
DATE	REVISION	FILMED	

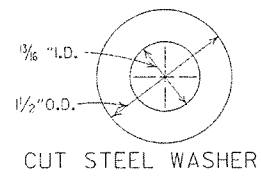


DETAILS OF W-BEAM GUARD RAIL

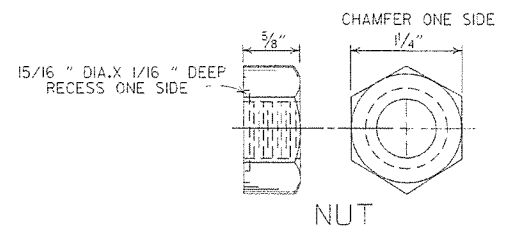
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



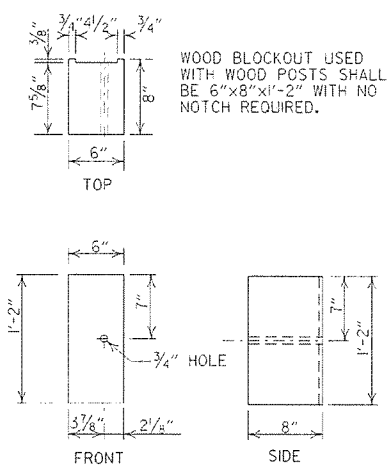
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



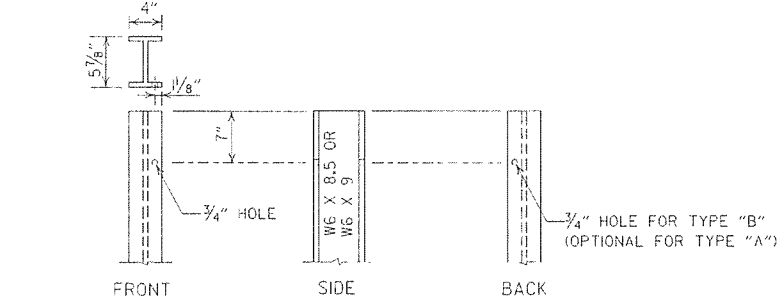
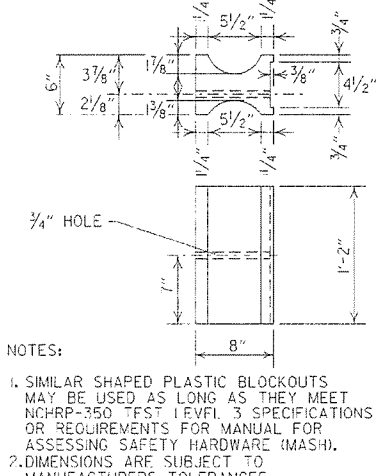
CUT STEEL WASHER



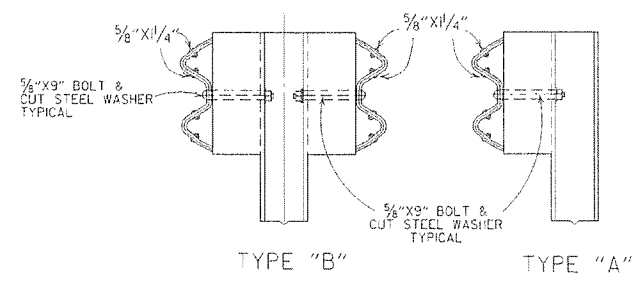
NUT



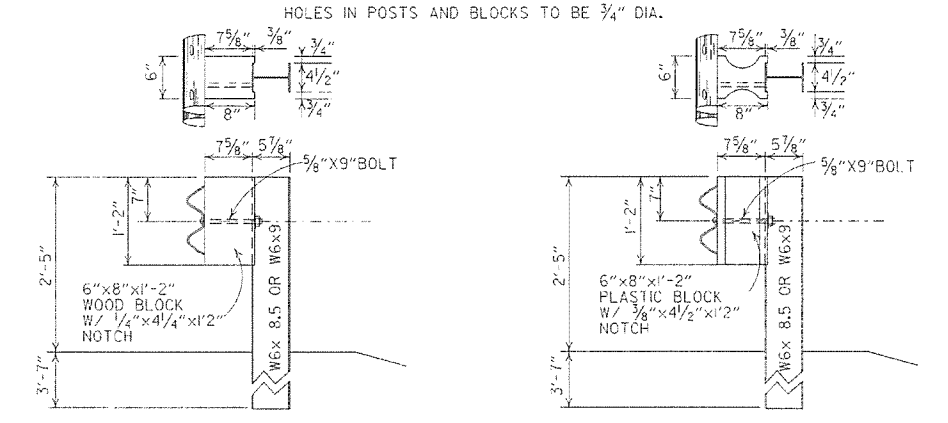
WOOD BLOCKOUT (W-BEAM)



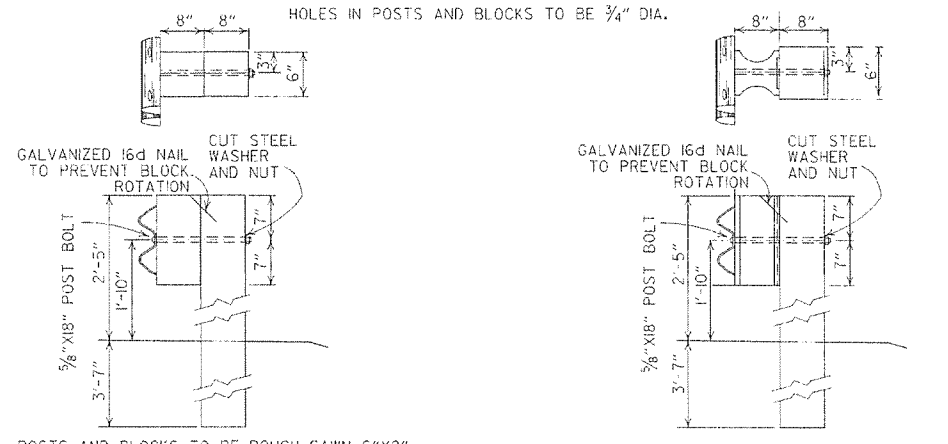
STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

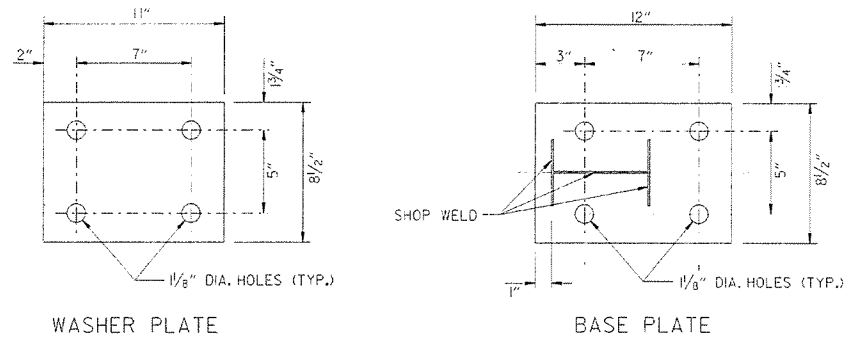
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED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

7-4-10	RAISED HEIGHT OF GUARD RAIL 1"	
0-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE. DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE IN SOLID ROCK & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED #1, STIFF 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 FILM

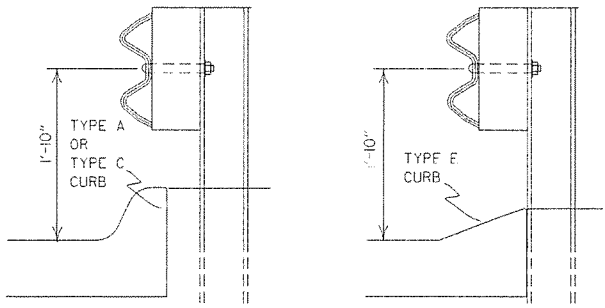
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

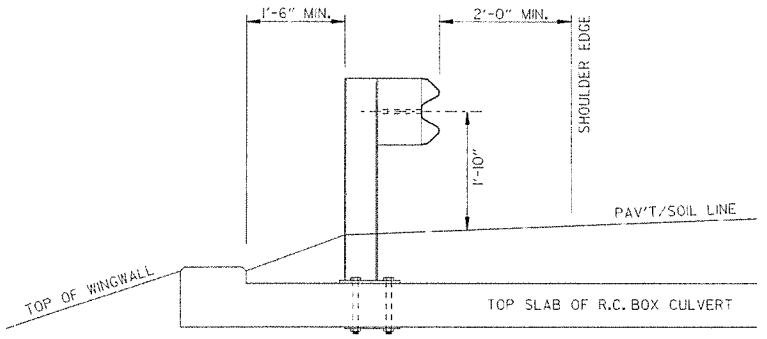


FOR DESIGN SPEEDS OF 50 MPH OR LESS
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

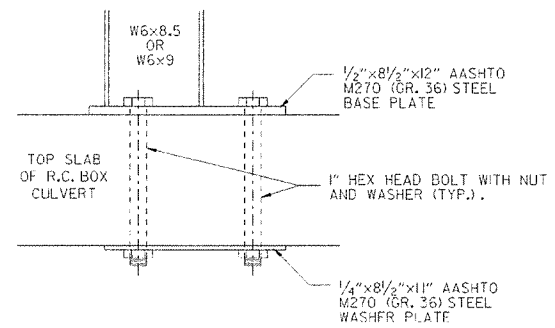
FOR DESIGN SPEEDS OF 55 MPH OR MORE
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

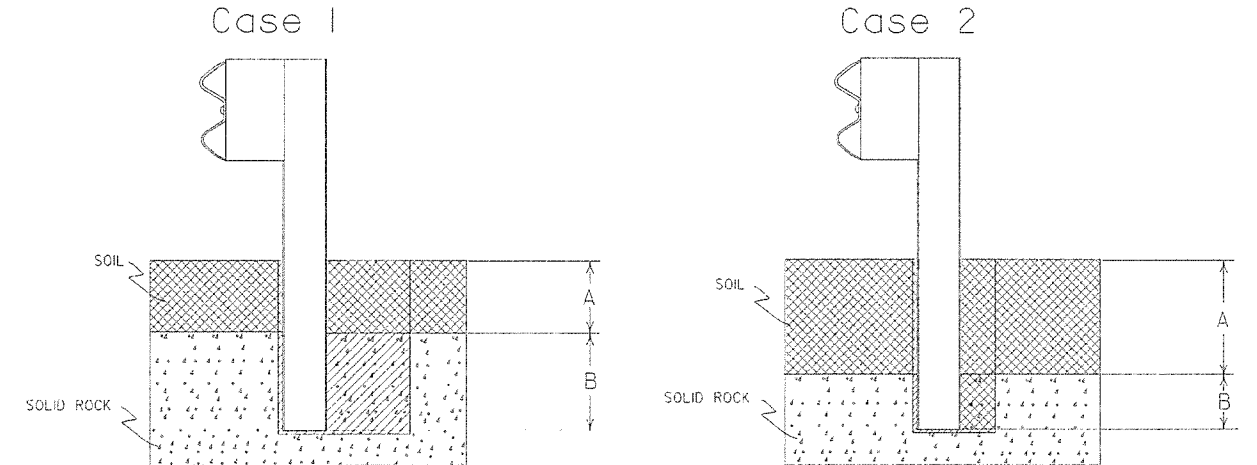
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

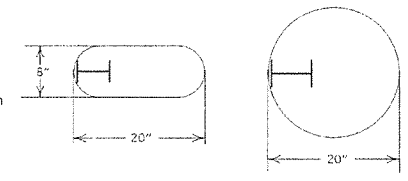


DETAIL OF CONNECTION



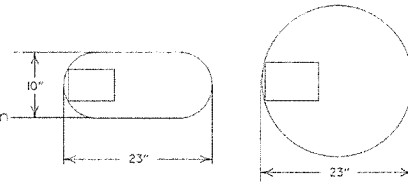
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

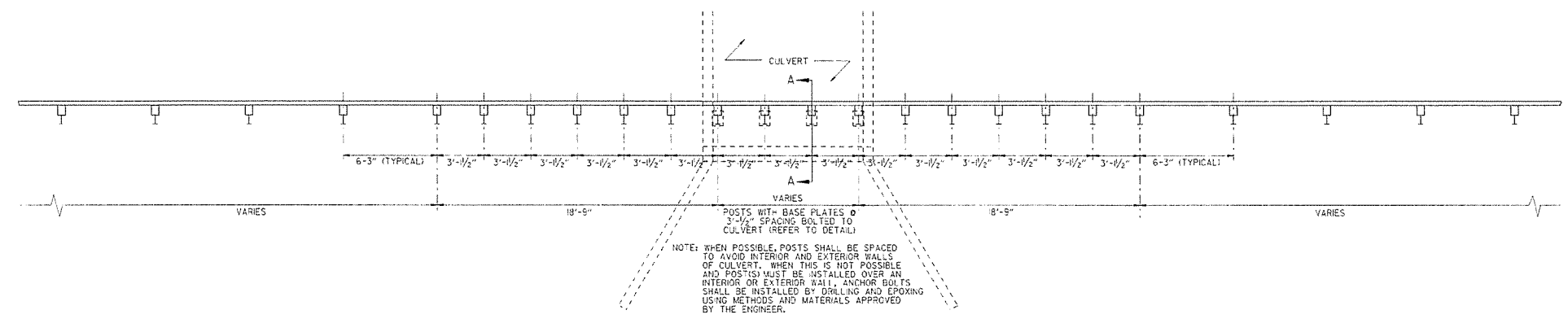
Zone A: Backfill according to Section 617.03(a).

Zone B: Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B: Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

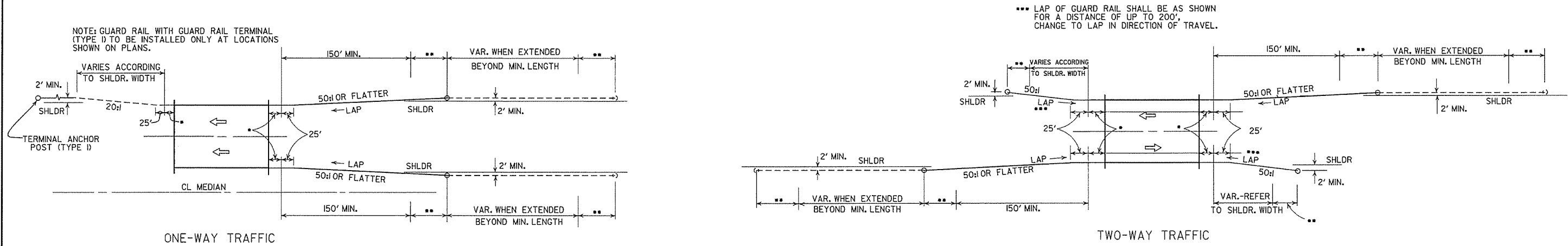
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8.

7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
6-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVERT. DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-3-87	REDRAWN & REVISED	803-10-9-87
DATE	REVISION	DATE FILED

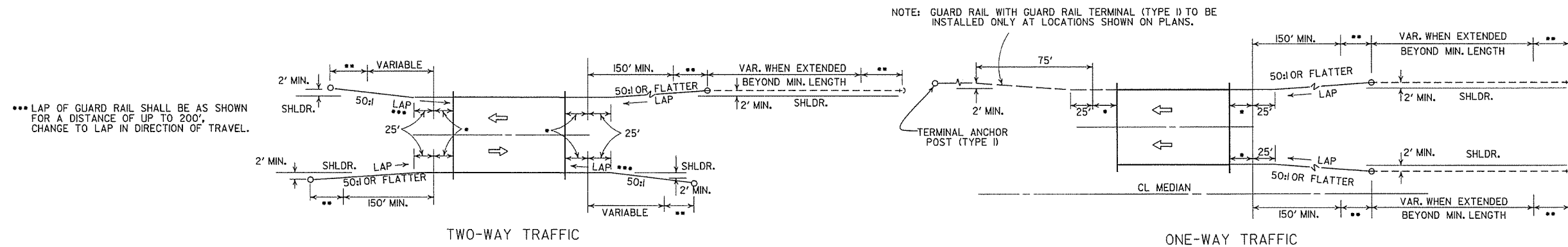
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

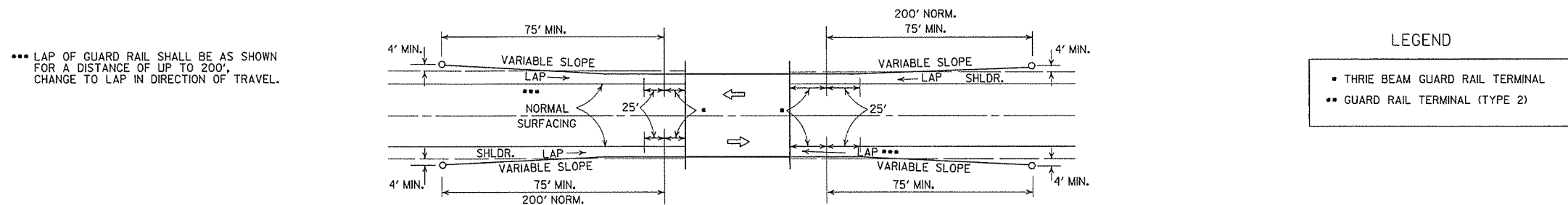
STANDARD DRAWING GR-8A



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



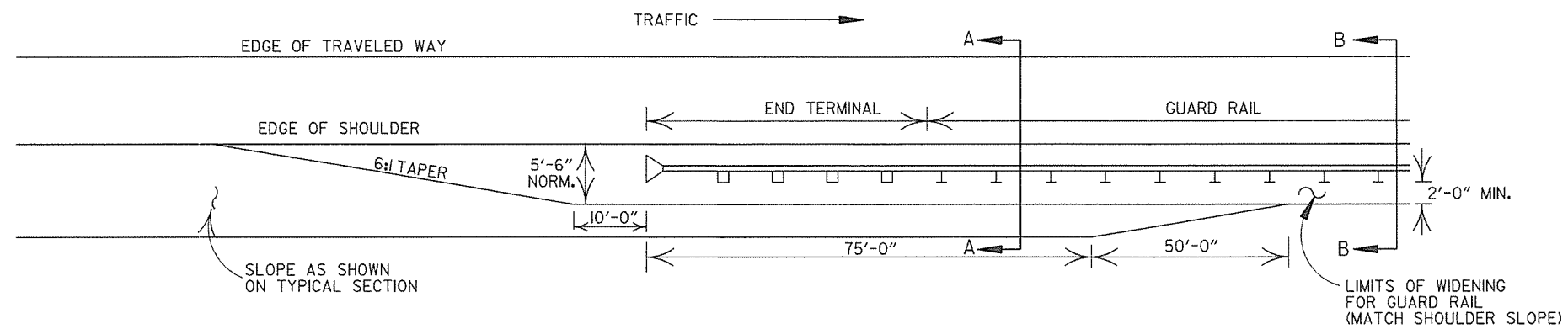
METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



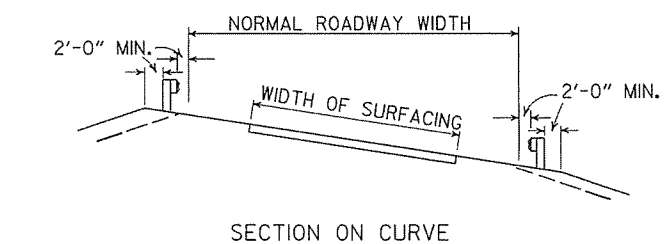
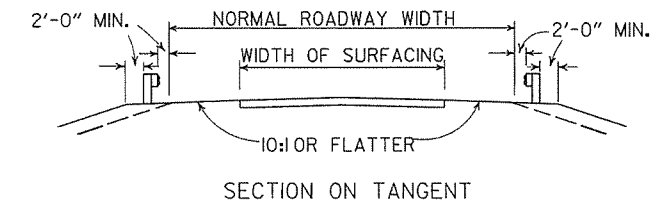
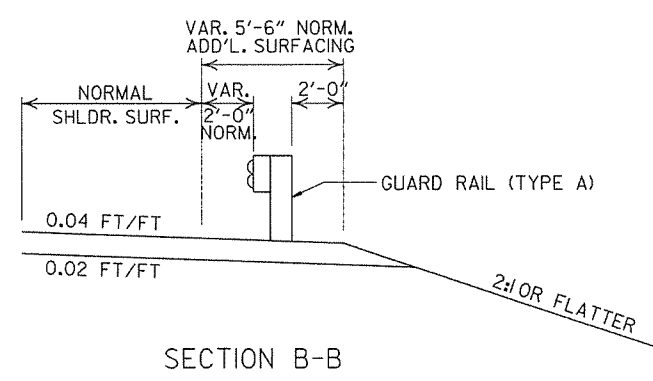
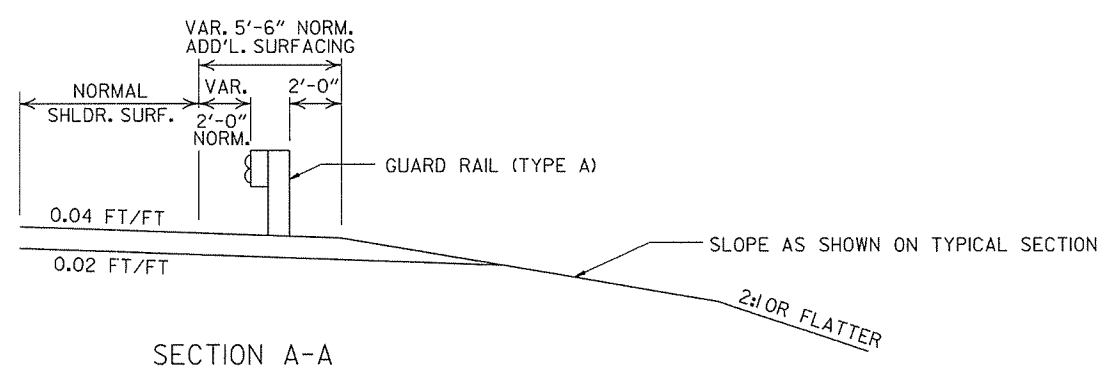
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

			ARKANSAS STATE HIGHWAY COMMISSION	
			GUARD RAIL DETAILS	
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	
	ADDED NOTE			
10-9-87	REDRAWN & REVISED			
DATE	REVISION		DATE FILM	

STANDARD DRAWING GR-9

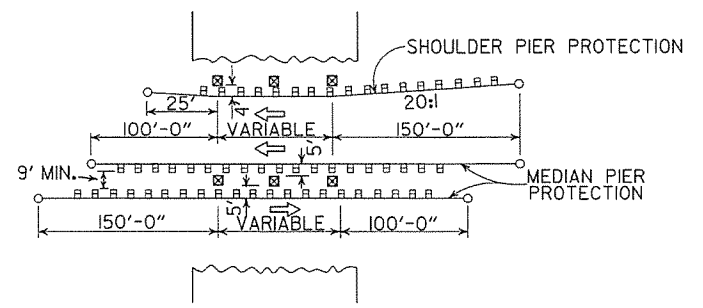


NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.



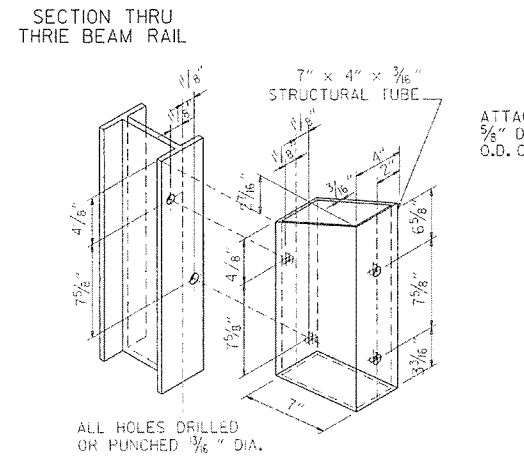
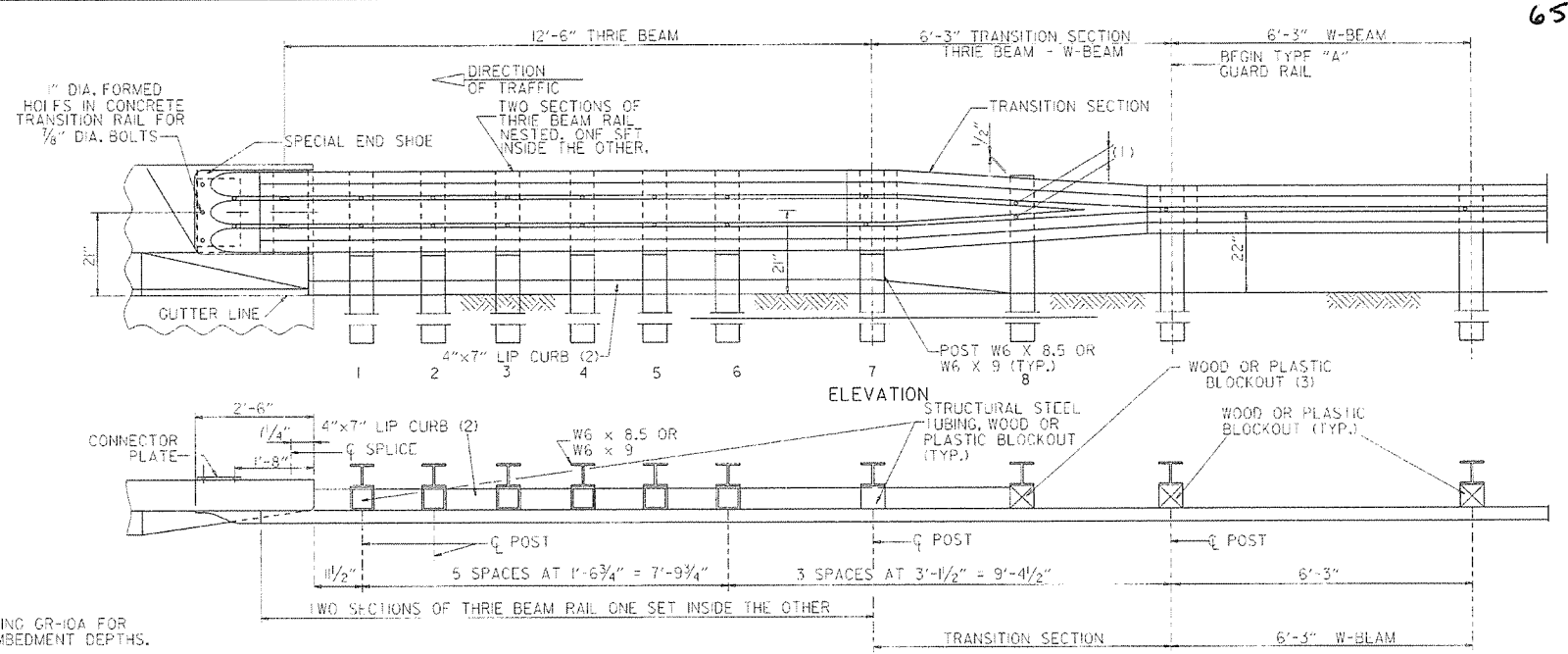
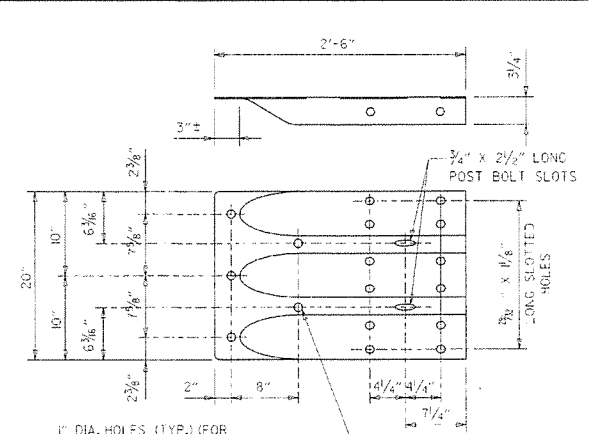
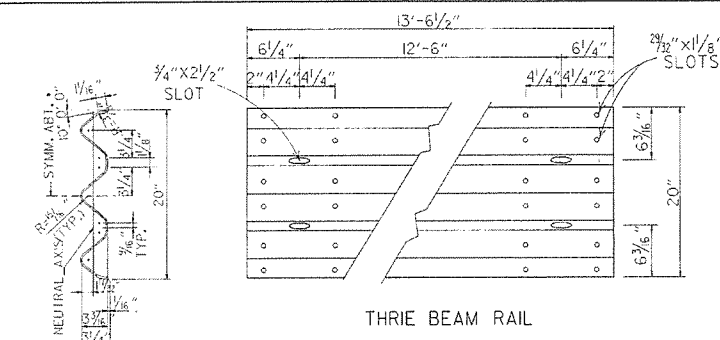
DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

DETAILS OF WIDENING FOR GUARD RAIL



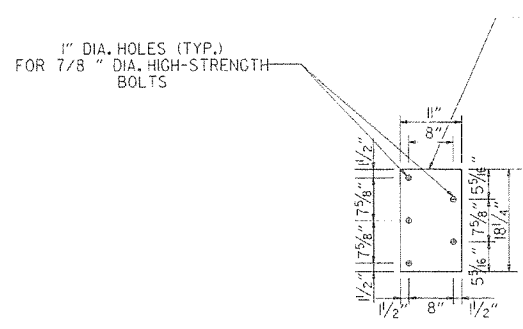
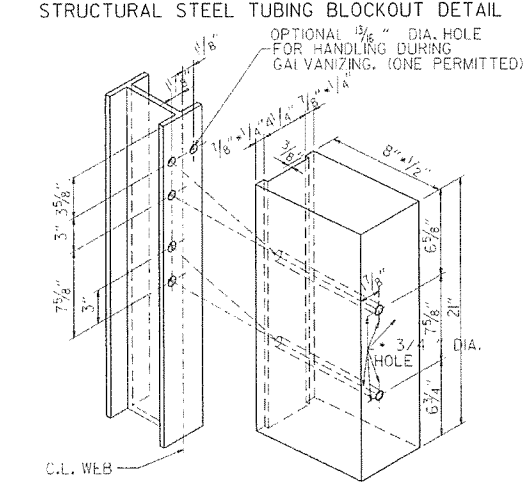
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

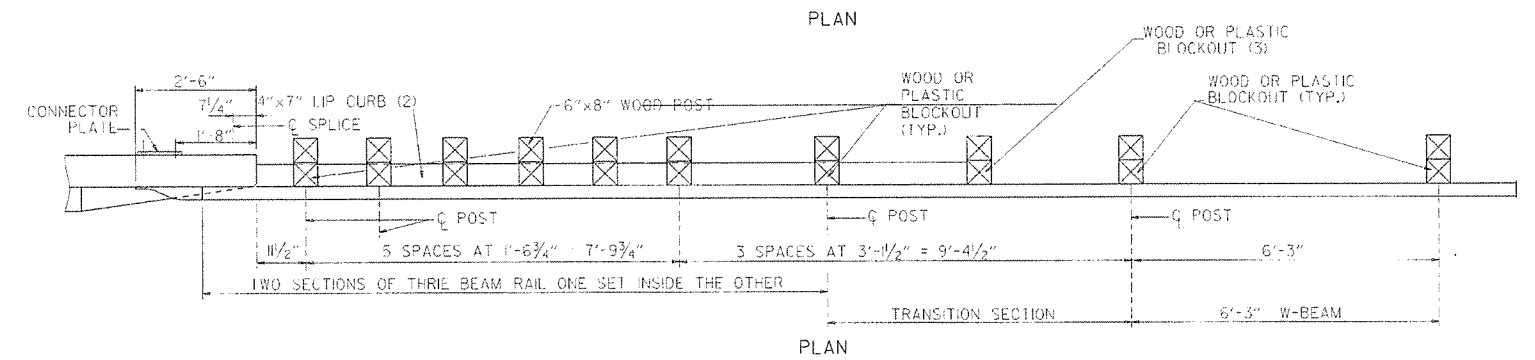


ATTACH BLOCKOUT TO POST USING 3/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

1" DIA. HOLES (TYP.) FOR 3/8" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS



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 3/8" 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.

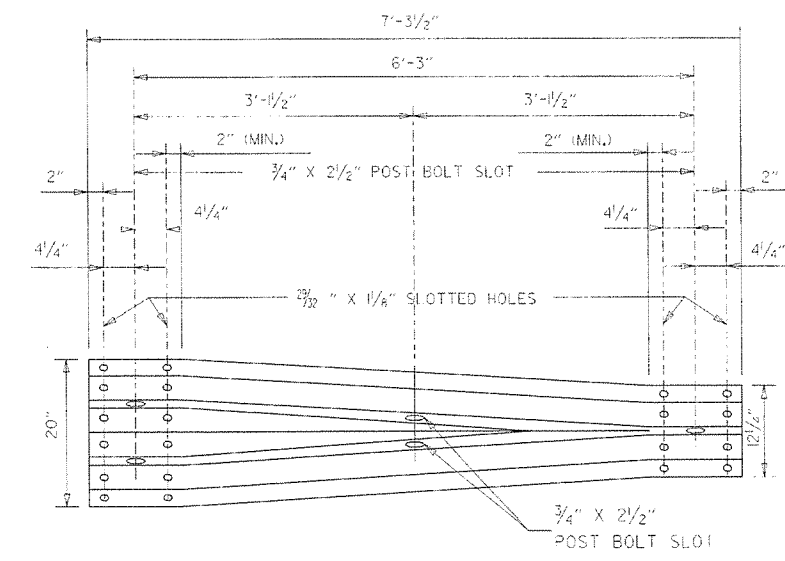
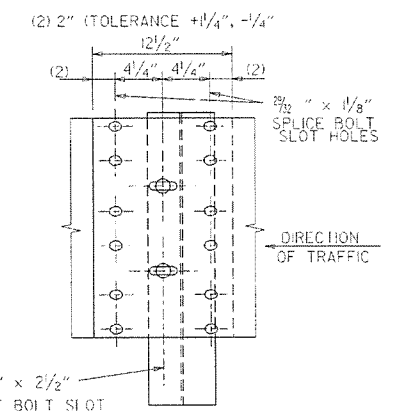


- (1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
- (2) REFER TO APPROACH GUTTER DETAILS.
- (3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

ALL HOLES 1/8" DIAMETER EXCEPT AS NOTED

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



GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 1:1 GAGE. ZINC COATING SHALL BE TYPE 1.

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. 11350 F SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

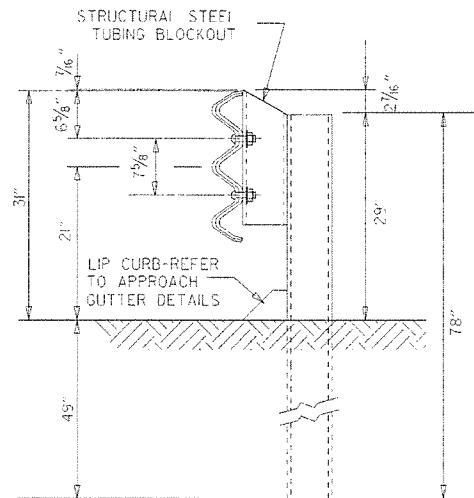
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILED
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	

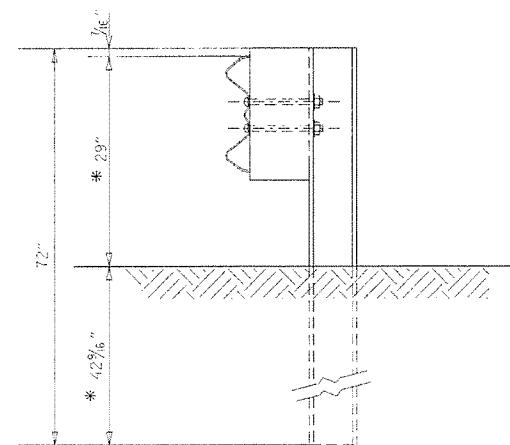
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

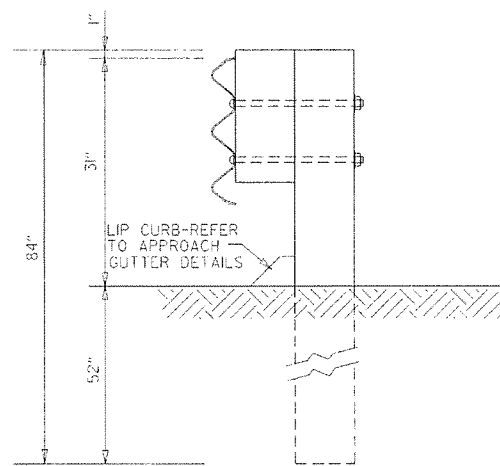


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7

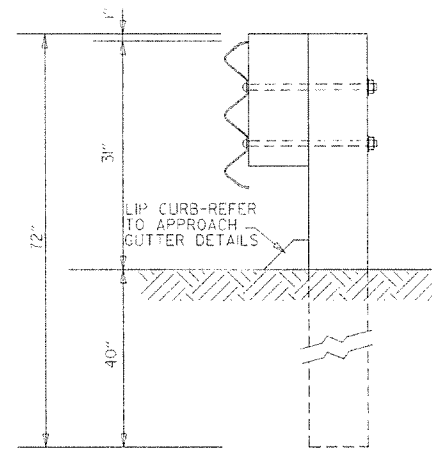


W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

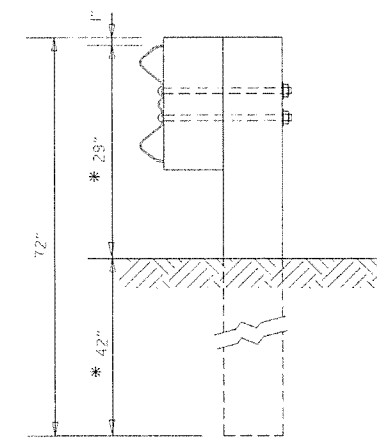
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

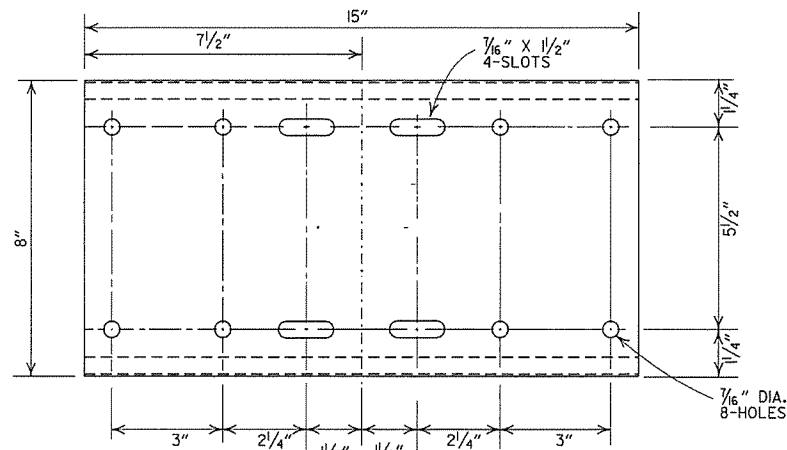
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DFNSE NO. 1 STRUCTURAL OR BETTER 9.7T (1400 F) OR NO. 1 (350 F SOUTHERN PINE).

ARKANSAS STATE HIGHWAY COMMISSION

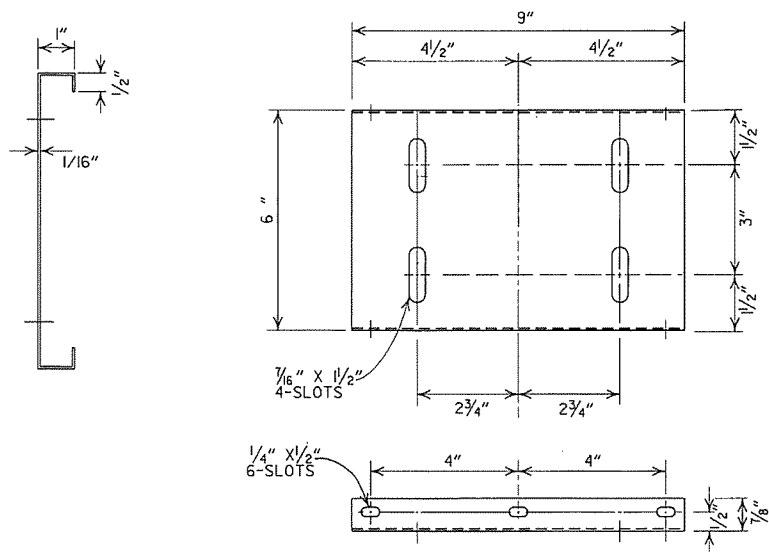
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

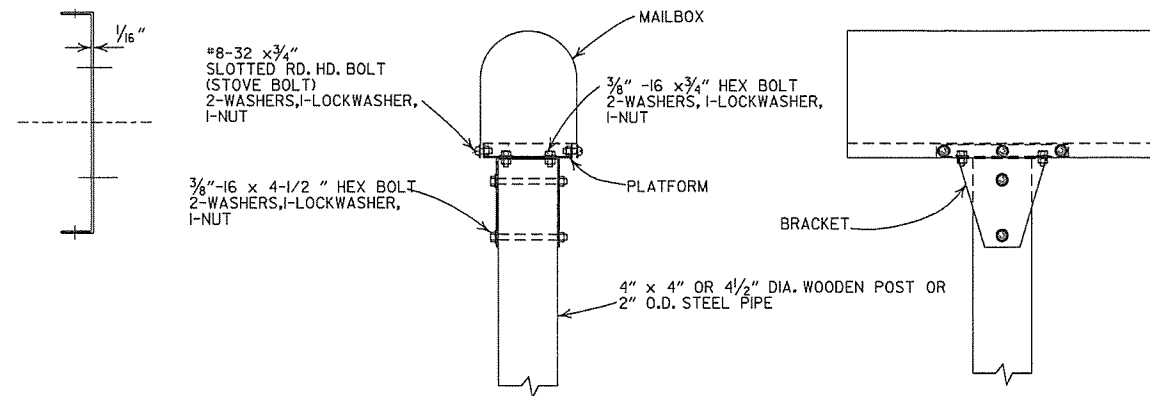
DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	



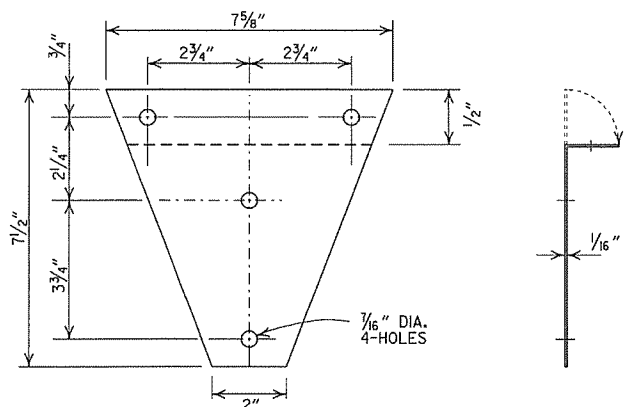
SHELF



PLATFORM

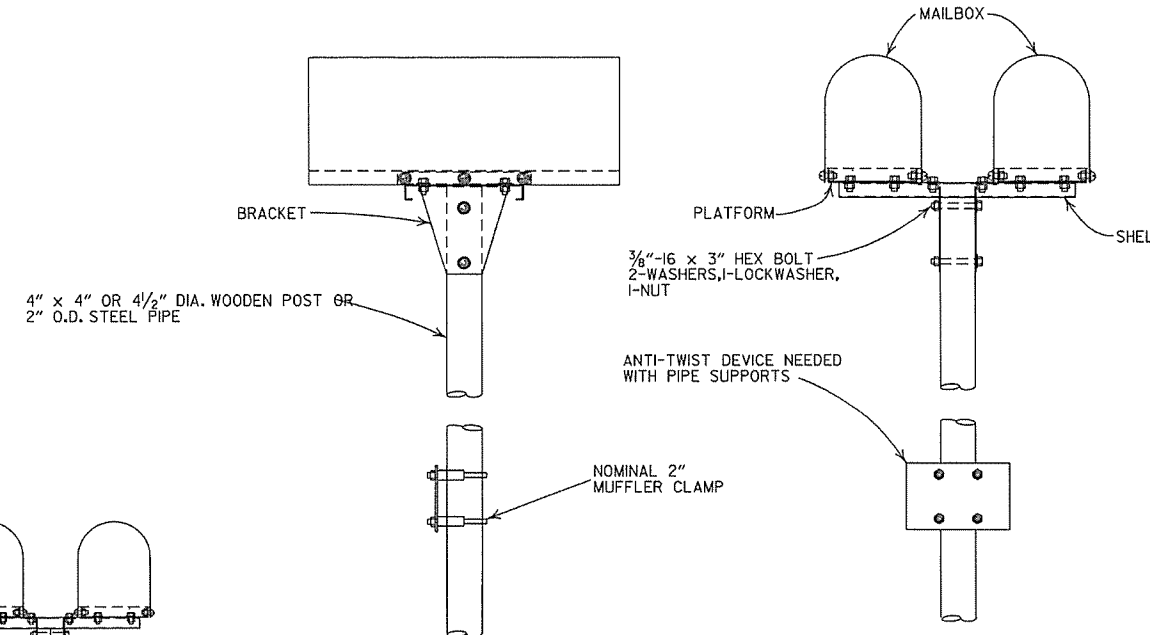


SINGLE INSTALLATION

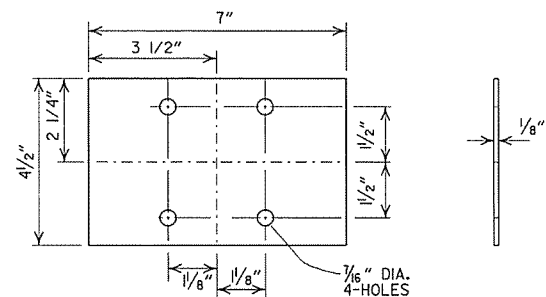


BRACKET

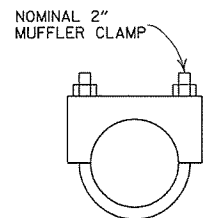
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED 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.



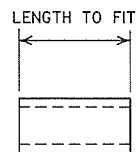
DOUBLE INSTALLATION



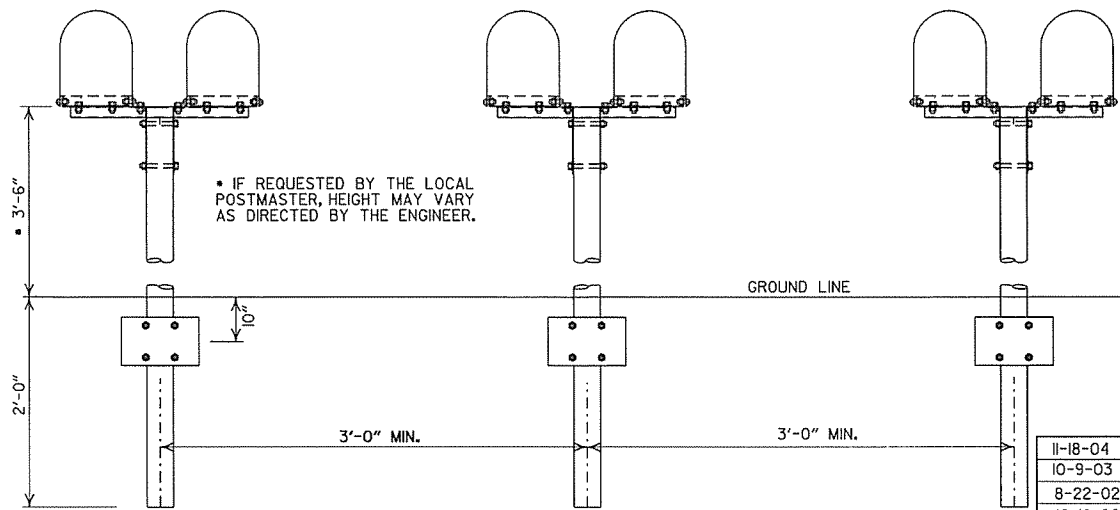
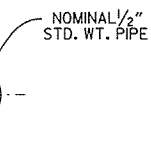
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	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 5/8	27
42	51 1/8	51	31 5/8	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)(II).

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

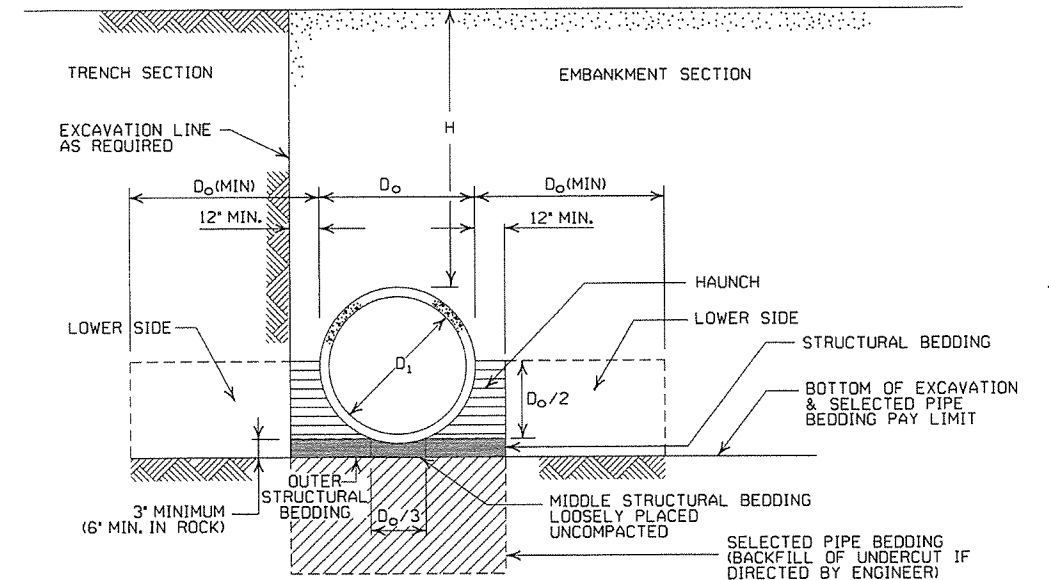
- LEGEND -

- D_i = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION		
CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE I.	
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	

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
 2. INSTALL PIPE TO GRADE.
 3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
 4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.
- NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45	52		
18	2	30	30	39	41	
24	2	22	22	31	32	34
30	2		18	26	27	28
36	2.5		15	43	43	44
42	2			40	41	43
48	2			35	37	38
54	2				33	34
60	2					31
66	2					29
72	2					

CORRUGATED METAL PIPE ARCHES

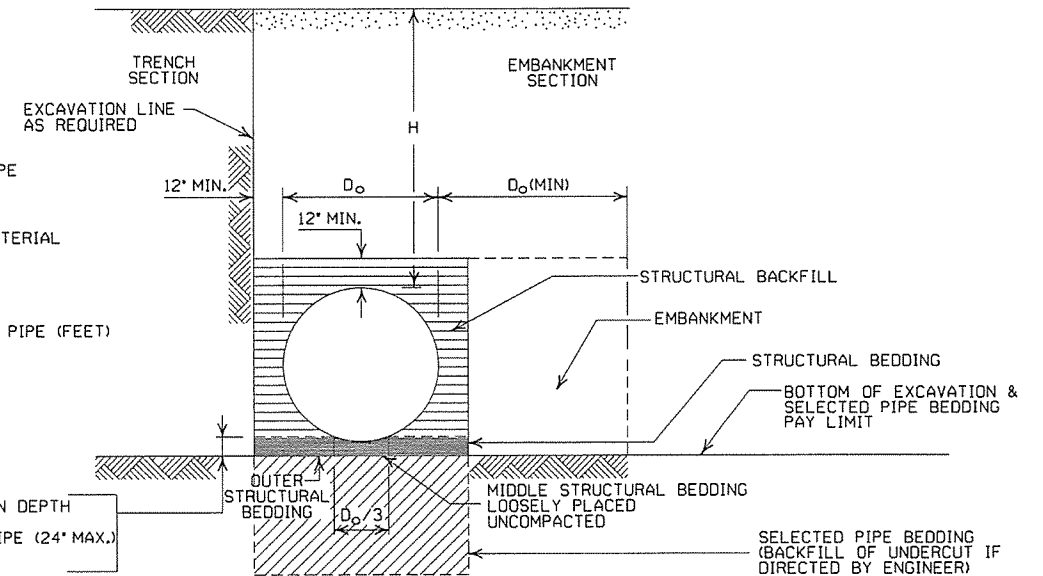
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1		
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
15	17x13	3	0.064	2	15	0.060	2	15		
18	21x15	3	0.064	2	15	0.060	2	15		
21	24x18	3	0.064	2,25	15	0.060	2,25	15		
24	28x20	3	0.064	2,5	15	0.075	2,5	15		
30	35x24	3	0.079	3	12	0.075	3	12		
36	42x29	3 1/2	0.079	3	12	0.105	3	12		
42	49x33	4	0.079	3	12	0.105	3	12		
48	57x38	5	0.109	3	13	0.135	3	13		
54	64x43	6	0.109	3	14	0.135	3	14		
60	71x47	7	0.138	3	15	0.164	3	15		
66	77x52	8	0.168	3	15					
72	83x57	9	0.168	3	15					
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
			INSTALLATION TYPE 2				INSTALLATION TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② 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, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- LEGEND -

- D_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Symbol] = STRUCTURAL BACKFILL MATERIAL
- [Symbol] = 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, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



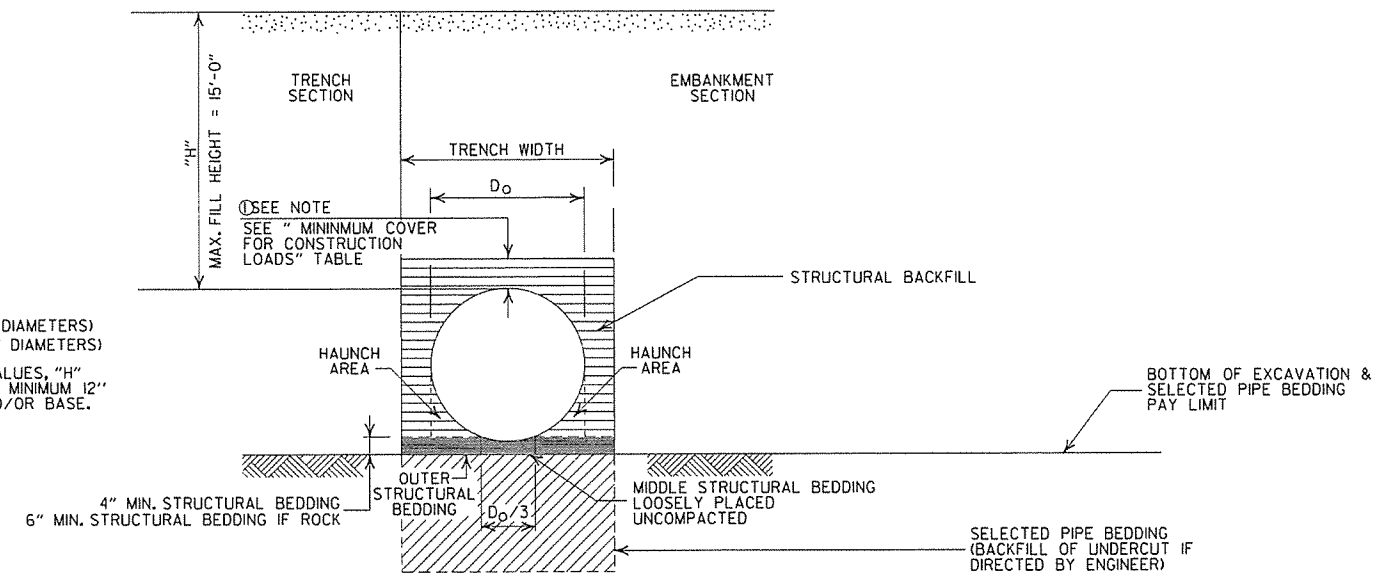
INSTALLATION TYPE	** MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 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"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- I. 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.

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	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

- CONSTRUCTION SEQUENCE
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
 2. INSTALL PIPE TO GRADE.
 3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
 4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
 5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

- H = FILL HEIGHT (FT.)
- D_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ==== = STRUCTURAL BACKFILL MATERIAL
- ===== = UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE I.	
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.

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM 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"

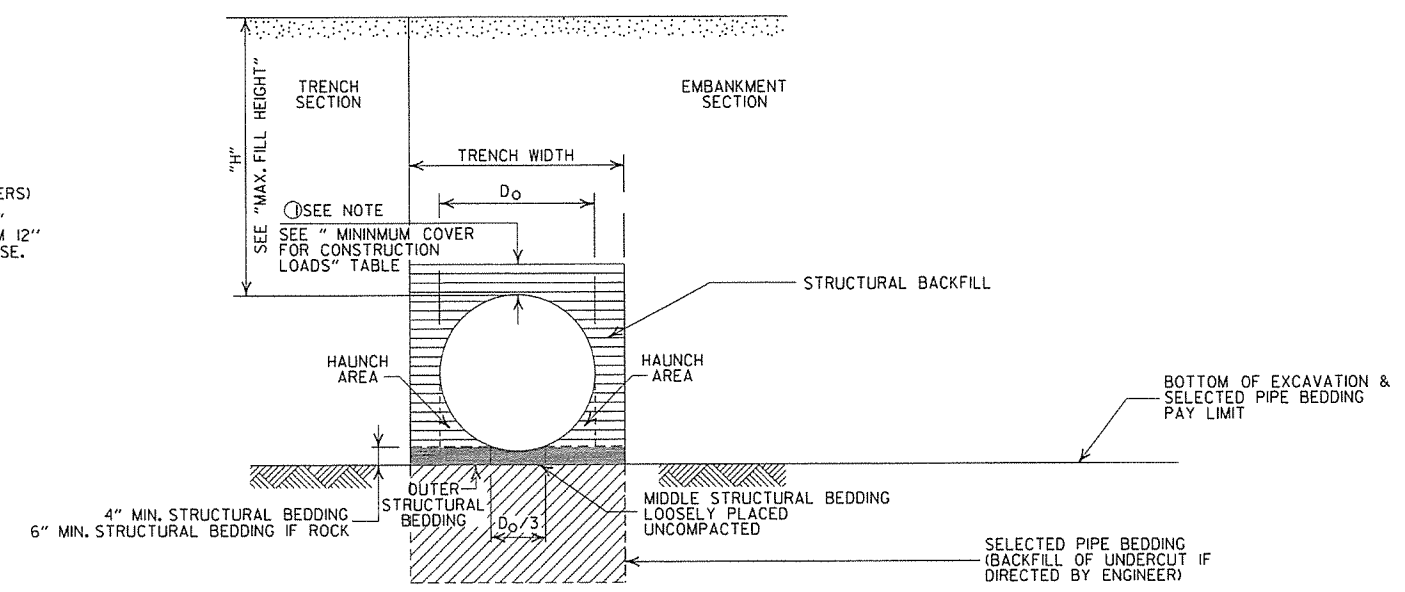
MULTIPLE INSTALLATION OF
PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MINIMUM COVER FOR
CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

② 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

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

- H = FILL HEIGHT (FT.)
- D_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Hatched pattern] = STRUCTURAL BACKFILL MATERIAL
- [Dotted pattern] = UNDISTURBED SOIL

GENERAL NOTES

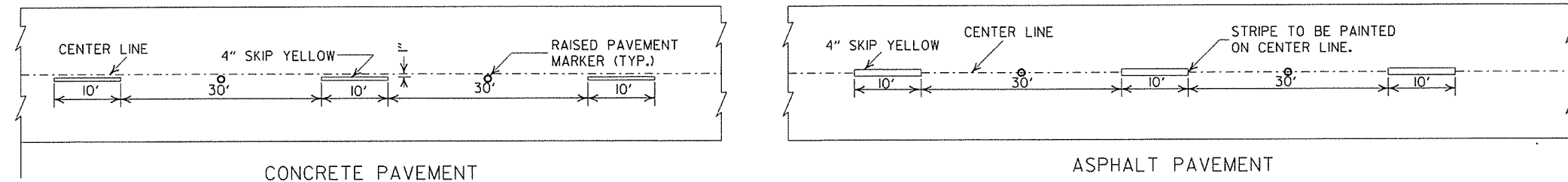
1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

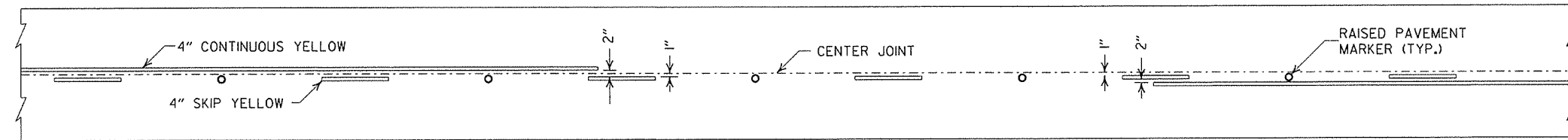
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

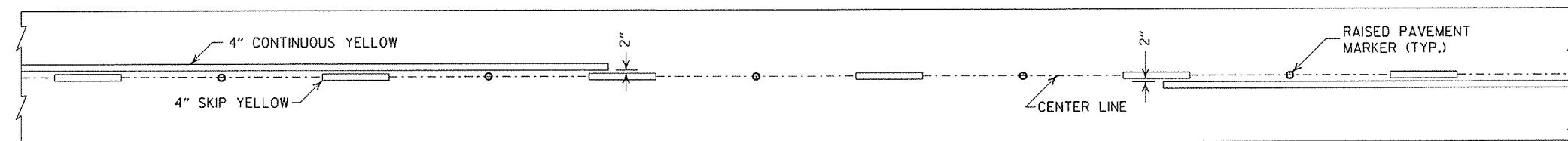
STANDARD DRAWING PCP-2



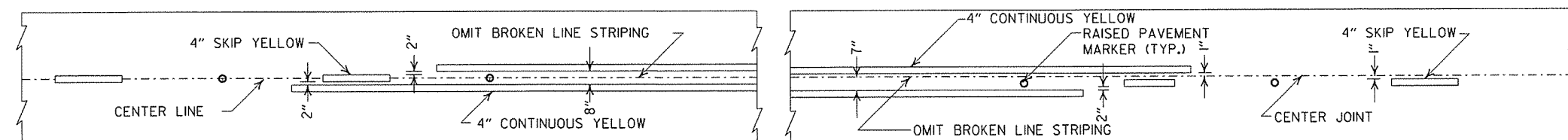
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



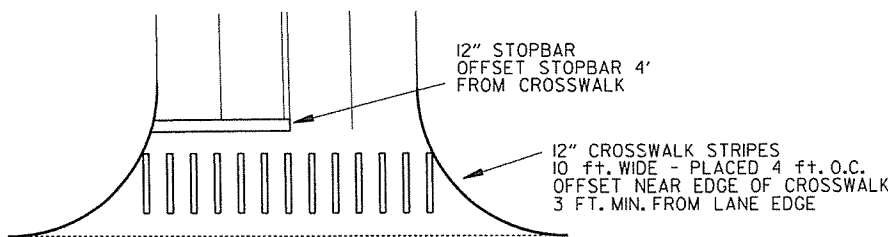
SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT

CONCRETE PAVEMENT

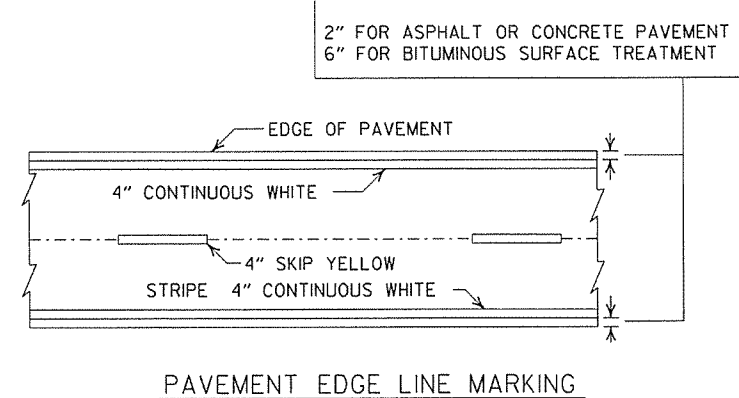
STRIPING AT ADJACENT NO PASSING LANES



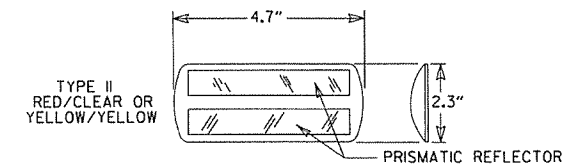
CROSSWALK AND STOPBAR DETAILS

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.



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

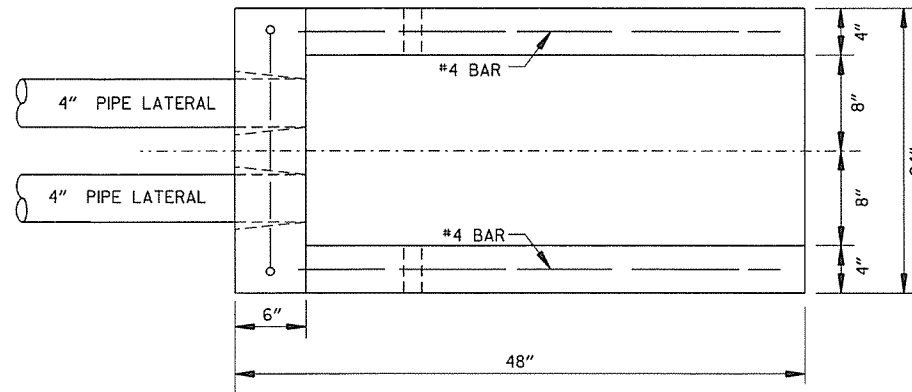
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

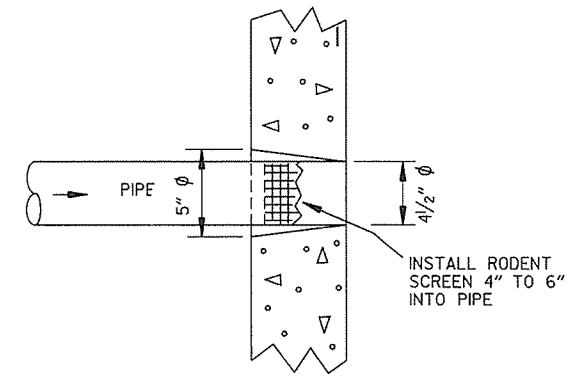
DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION	
PAVEMENT MARKING DETAILS	
STANDARD DRAWING PM-1	

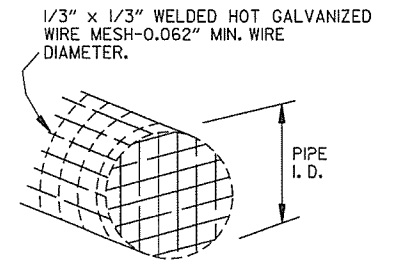
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



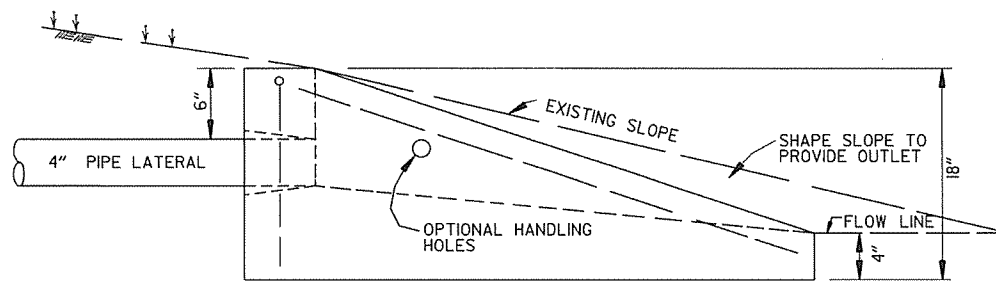
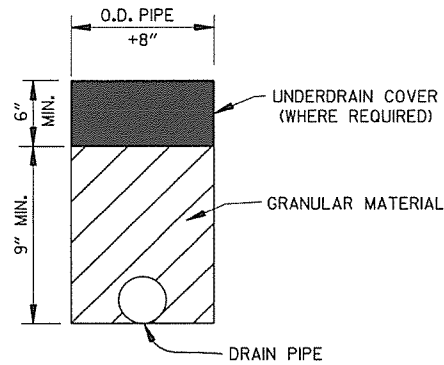
PLAN VIEW



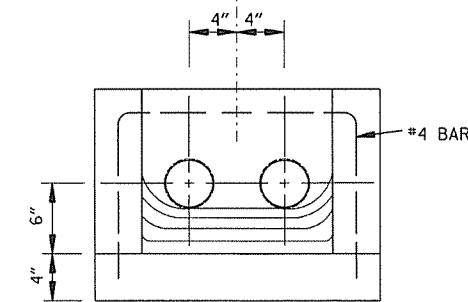
DETAIL OF HOLE FOR 4" PIPE



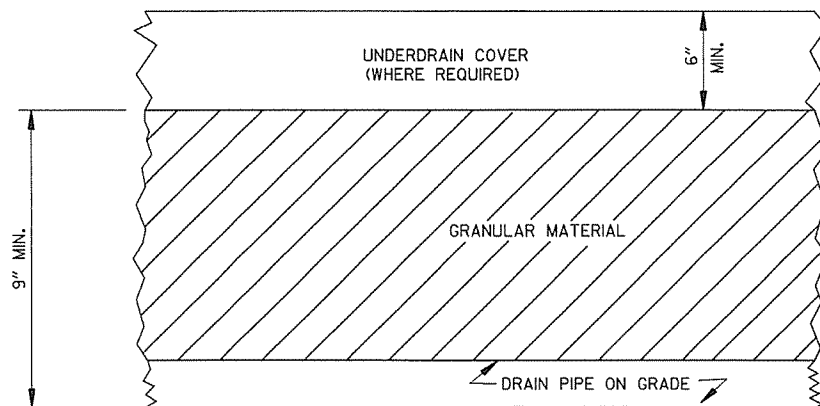
DETAIL OF RODENT SCREEN



SIDE VIEW

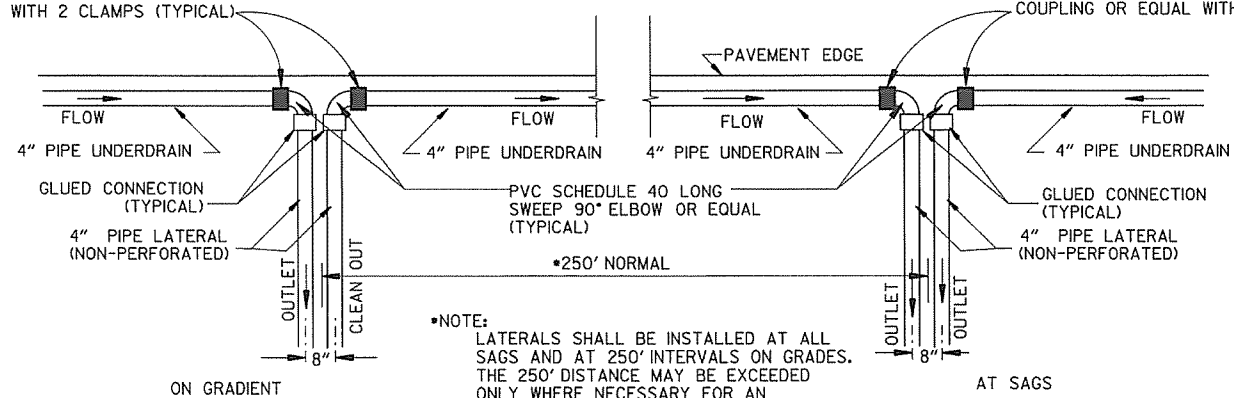


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS
 FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 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

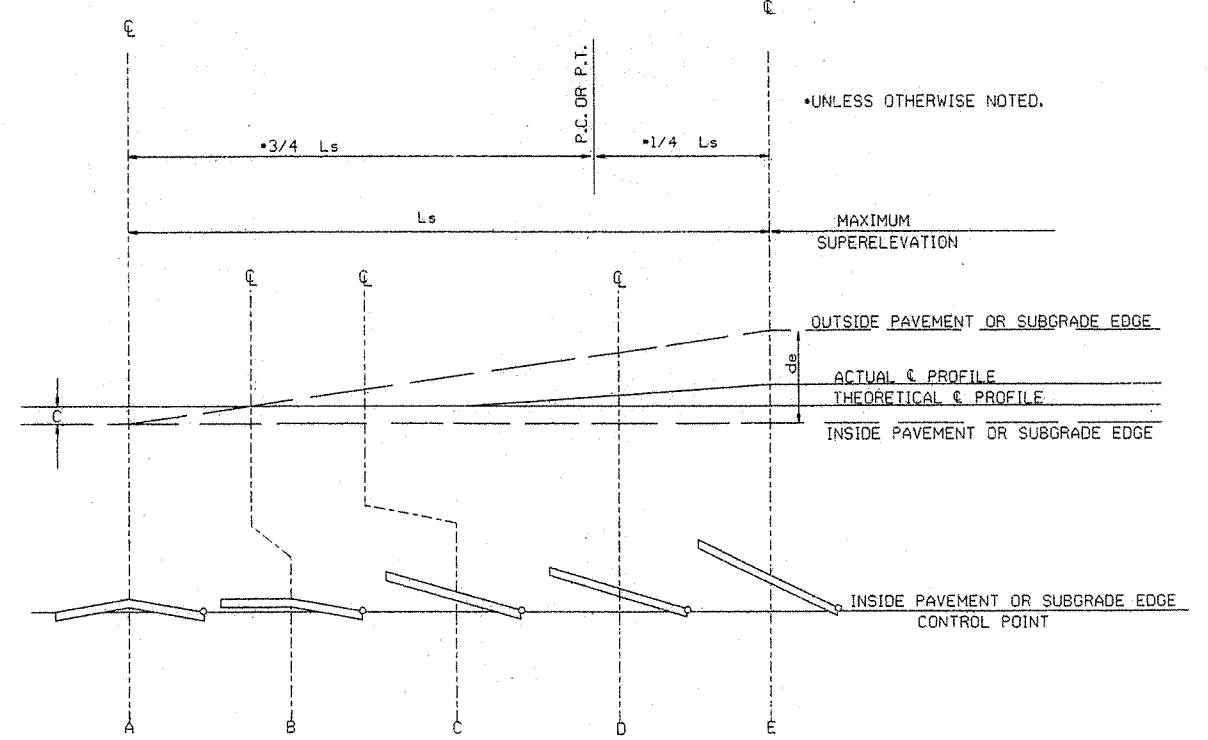
DETAILS OF PIPE UNDERDRAIN

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'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
9° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
10° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
11° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
12° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
13° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
14° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
15° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
16° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
17° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
18° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
19° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
20° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
21° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
22° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
23° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
24° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	

ABBREVIATIONS
 NC - NORMAL CROWN
 RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
 e - RATE OF SUPERELEVATION (FT. PER FT.)
 Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
 L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
 d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
 C - NORMAL CROWN (FT.)

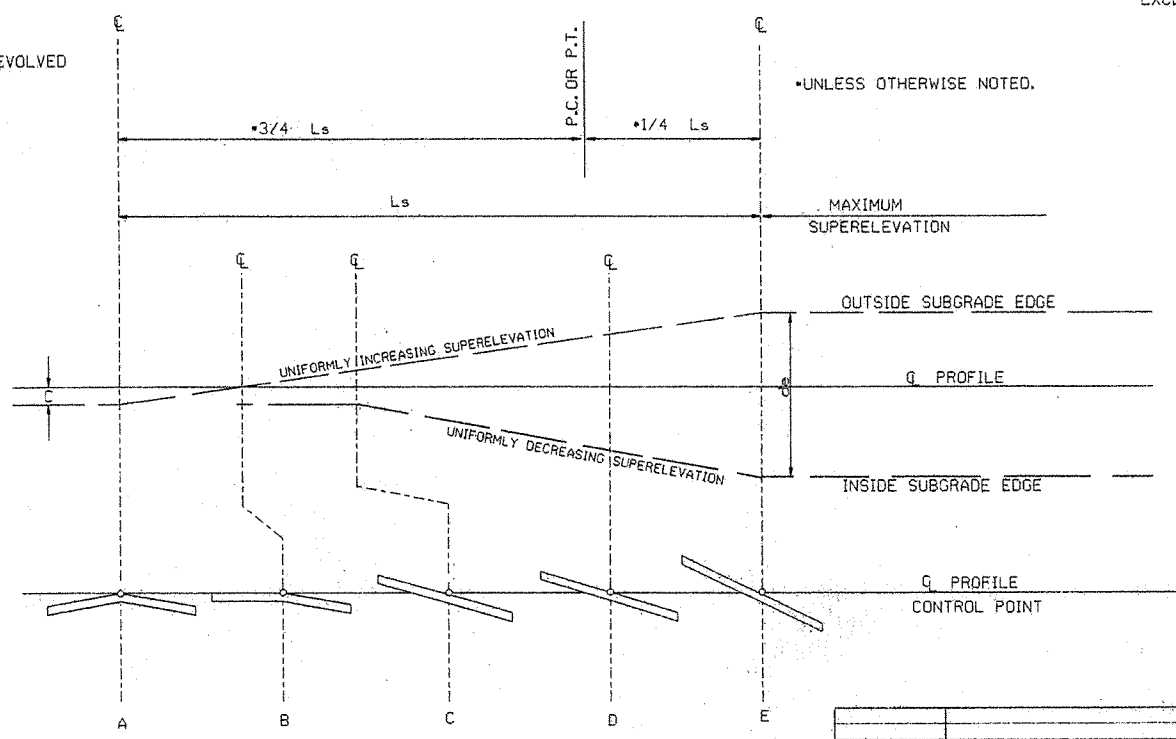


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE
 NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

- 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%


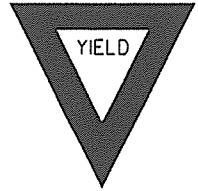
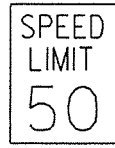


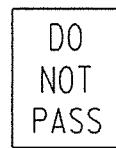

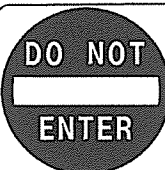

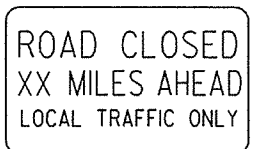
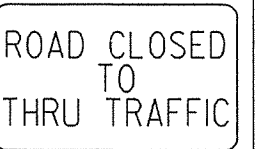

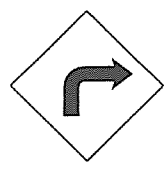
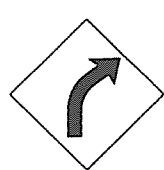
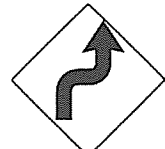

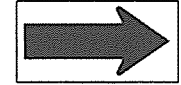
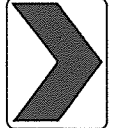
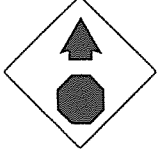
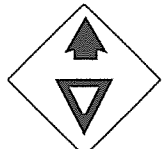
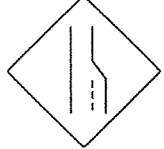



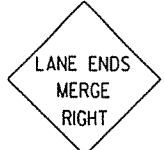
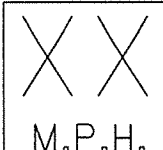





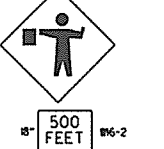


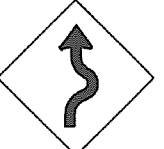



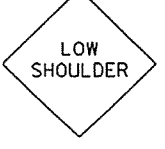
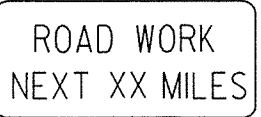
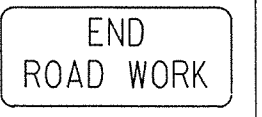
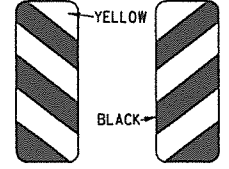


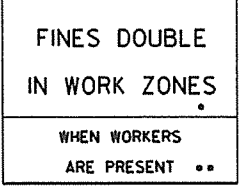
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
 RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILLED

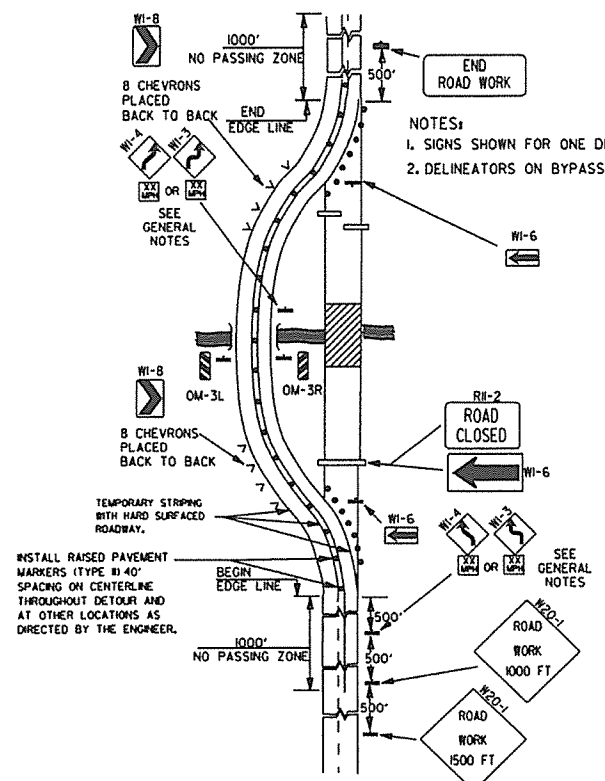
ARKANSAS STATE HIGHWAY COMMISSION
 TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC
 STANDARD DRAWING SE-2

							ADVANCE DISTANCES (XXXX)	75
<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>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</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>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>		
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</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" W6-2</p> <p>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>W1-4b</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" • USE 6" C LETTERS •• USE 4" D LETTERS</p>	

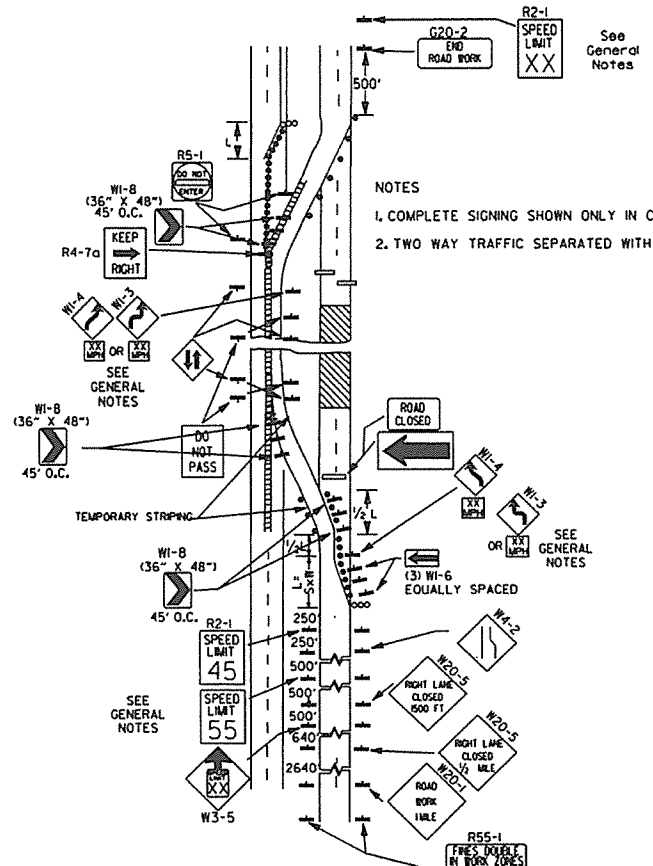
- GENERAL NOTES:
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
 - TRAFFIC CONTROL DEVICES SHALL BE SET UP 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	
1-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
1-16-01	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	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-94	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

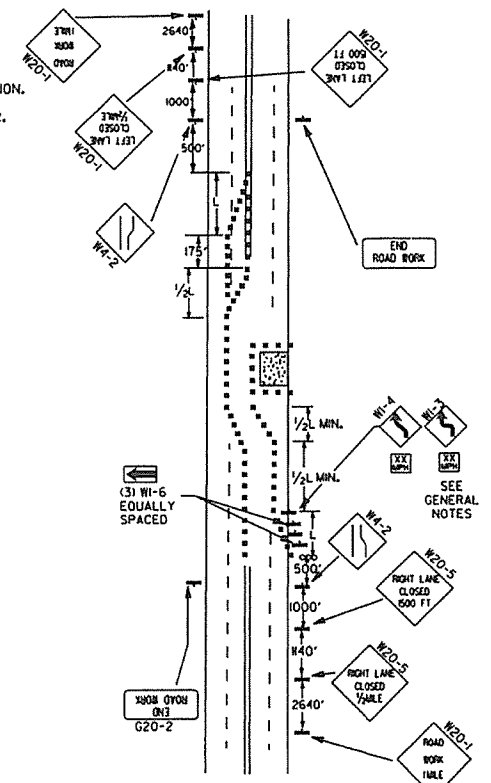
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



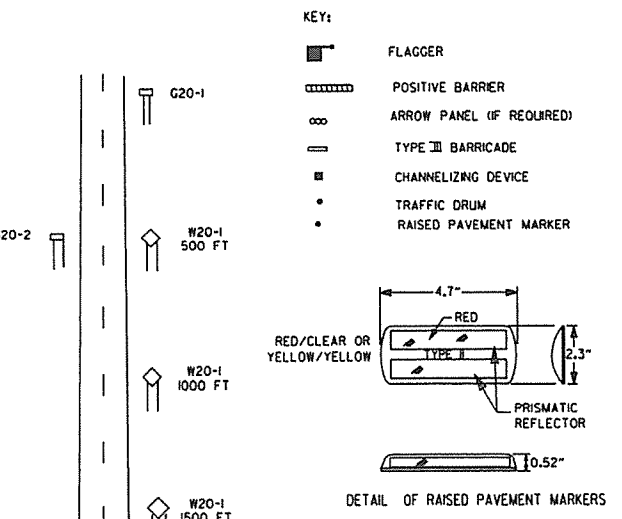
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



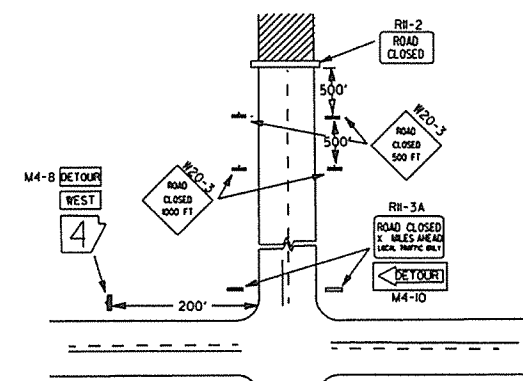
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



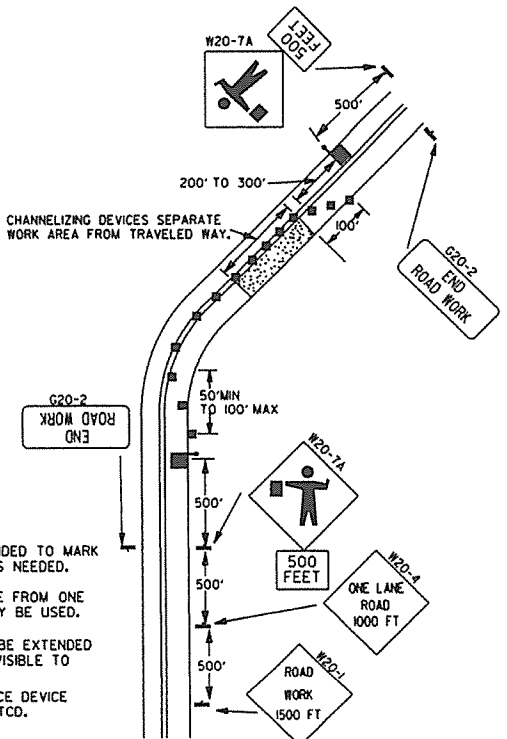
TYPICAL ADVANCE WARNING SIGN PLACEMENT

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.

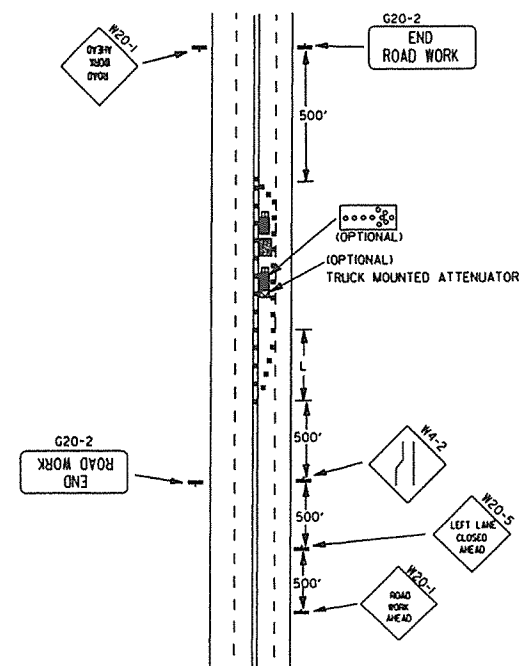
- GENERAL NOTES:
 1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(45) SHALL BE OMITTED AND THE 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-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



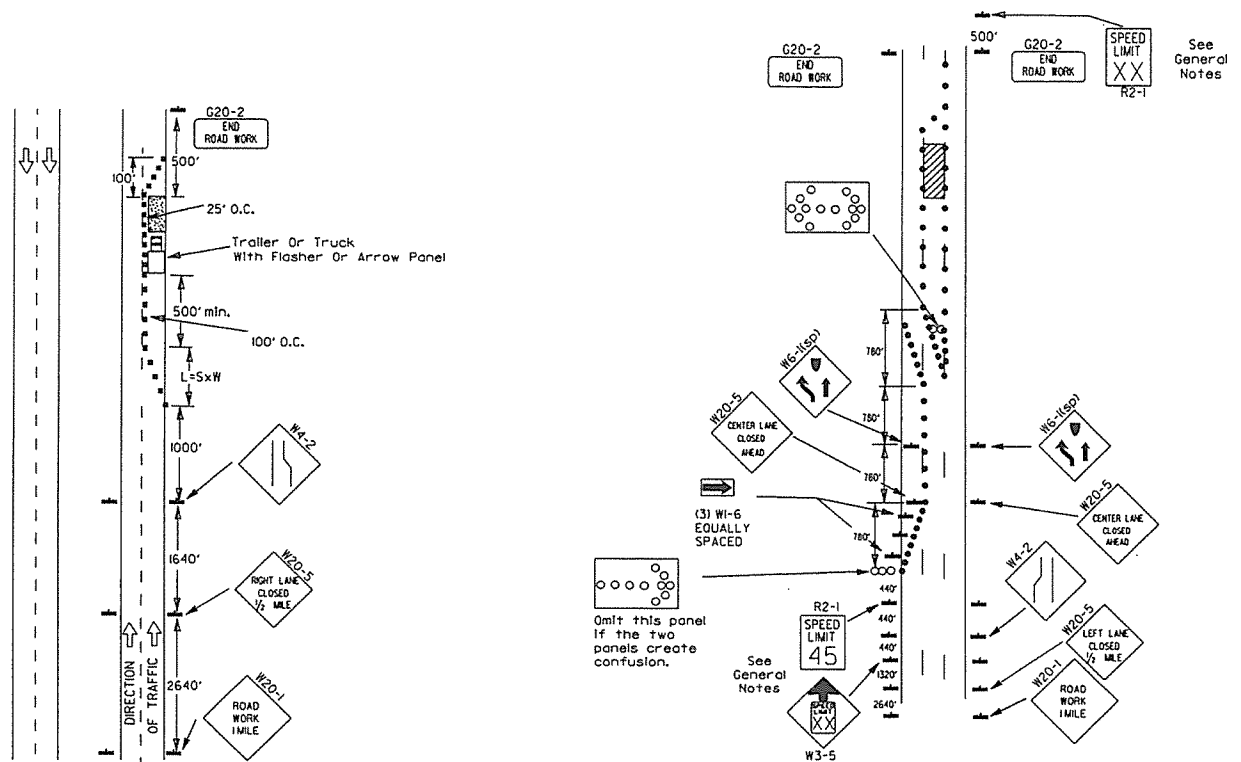
(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



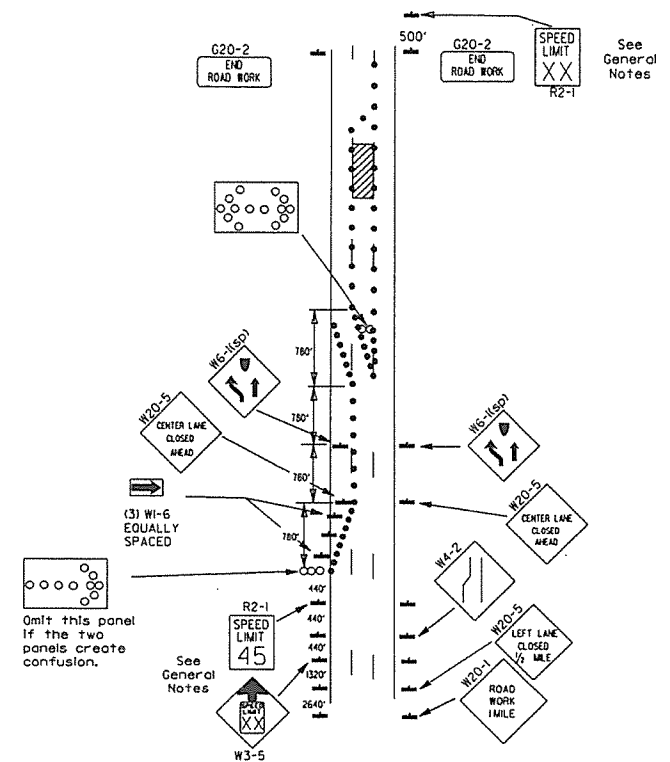
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILED
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	
3-4-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCO, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

Channelizing devices



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

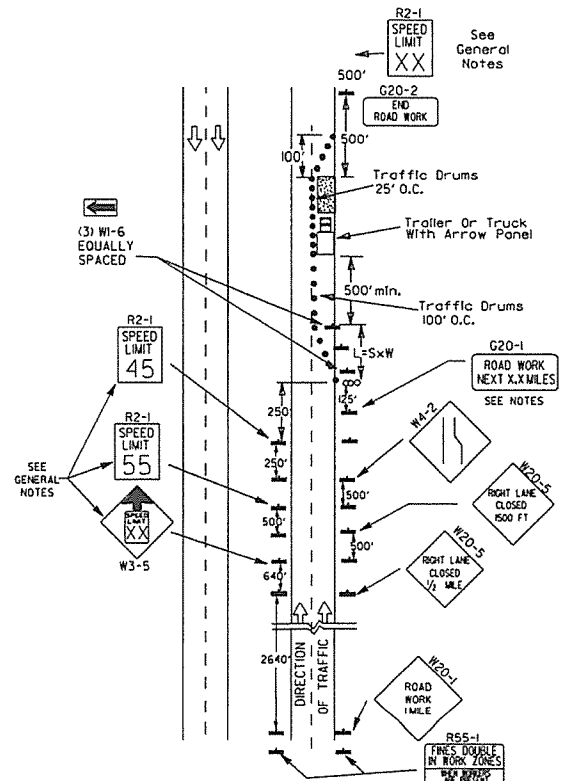


(B) Typical application - 3-lane oneway roadway where center lane is closed.

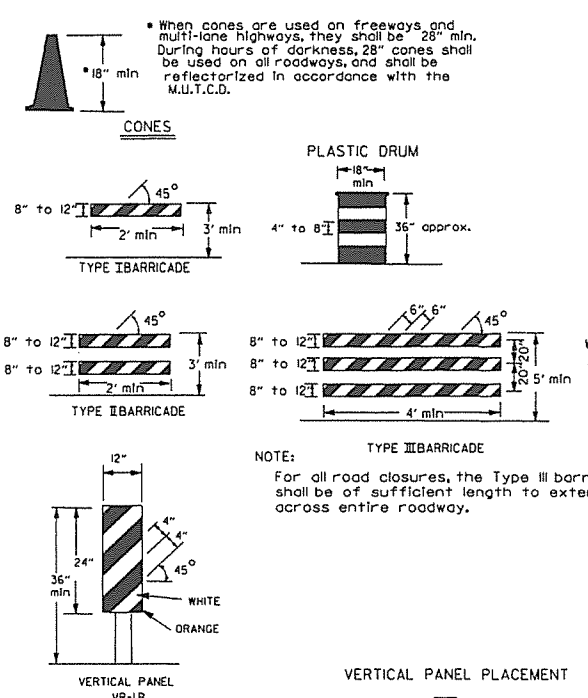
- KEY:
- ◻ Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

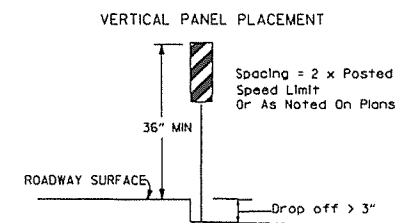
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1(1/2 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.



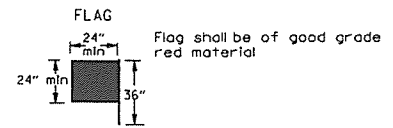
NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

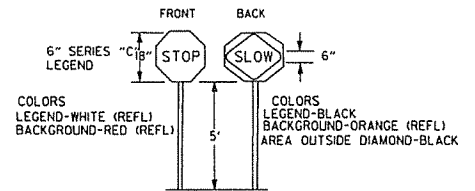
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical 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.

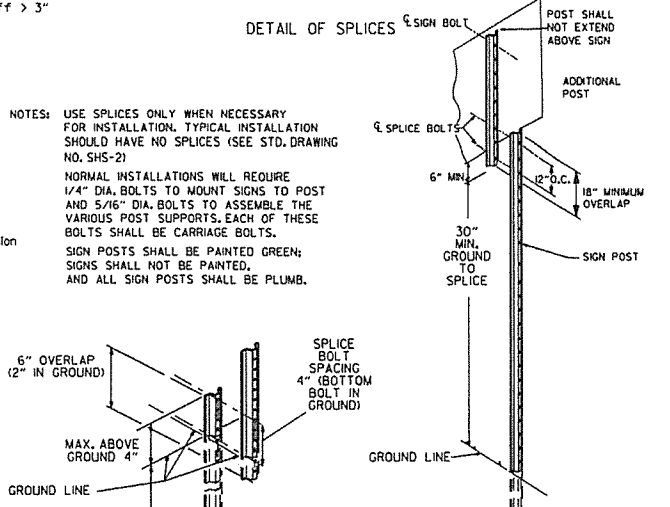


Flag shall be of good grade red material

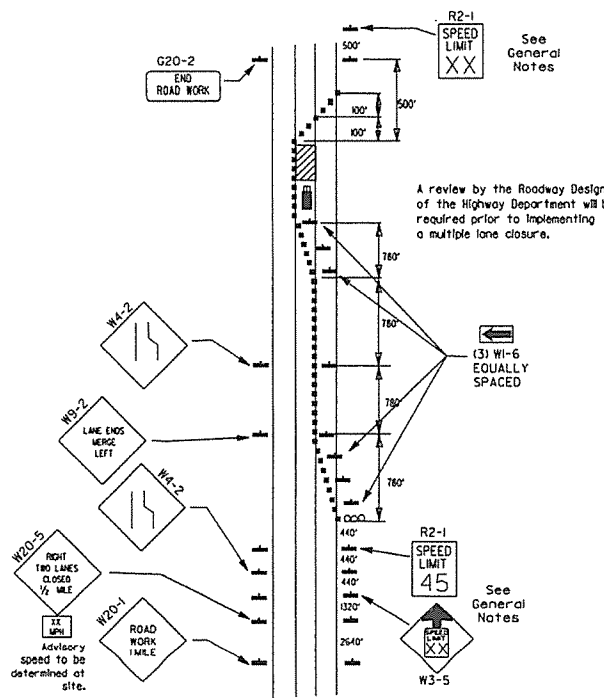
STOP SLOW PADDLE



DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2) NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS. SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

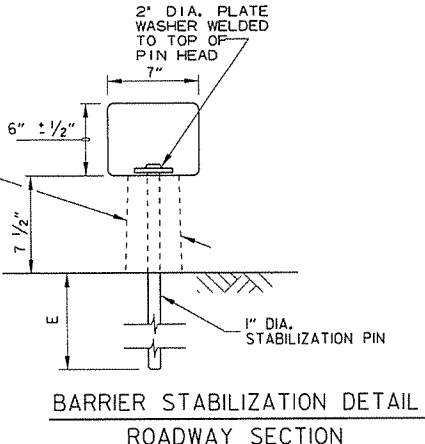
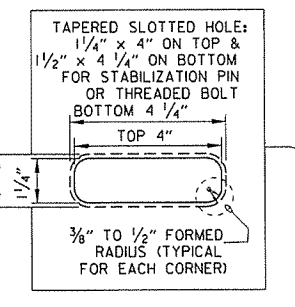
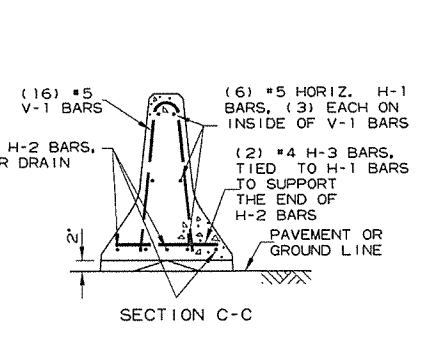
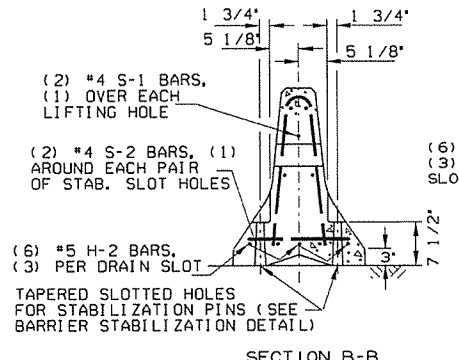
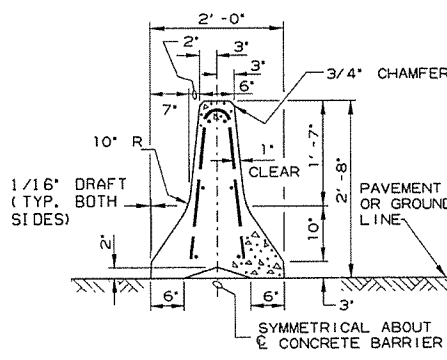
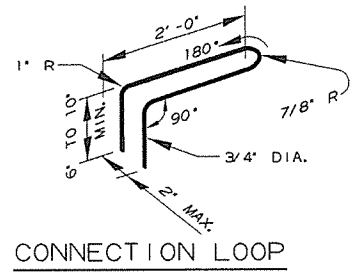
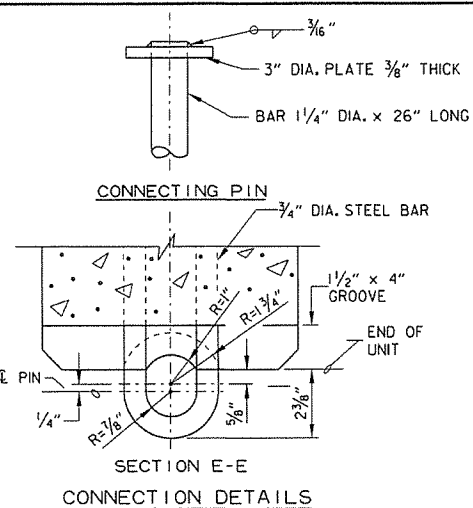


(D) Typical application - closing multiple lanes of a multi-lane highway.

DATE	REVISION	FILED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

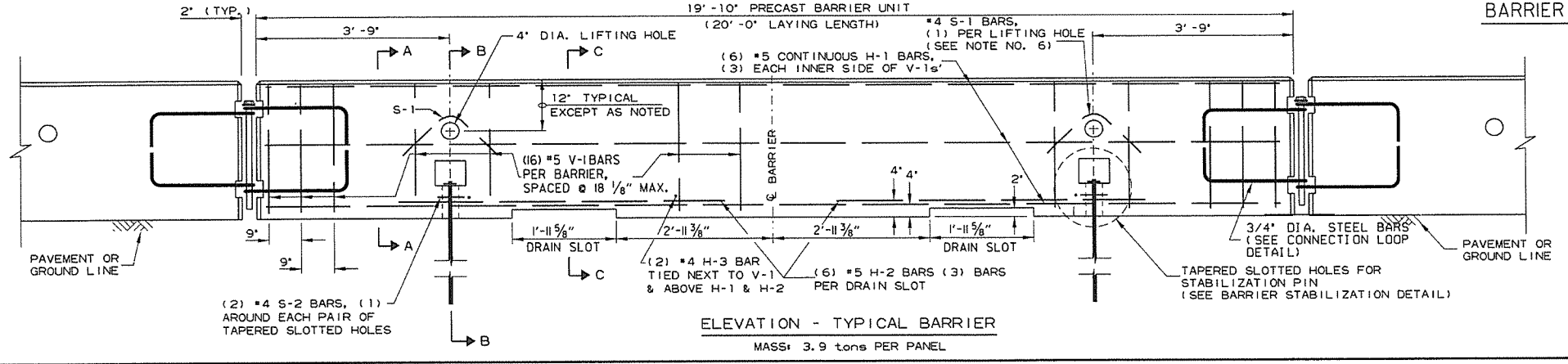
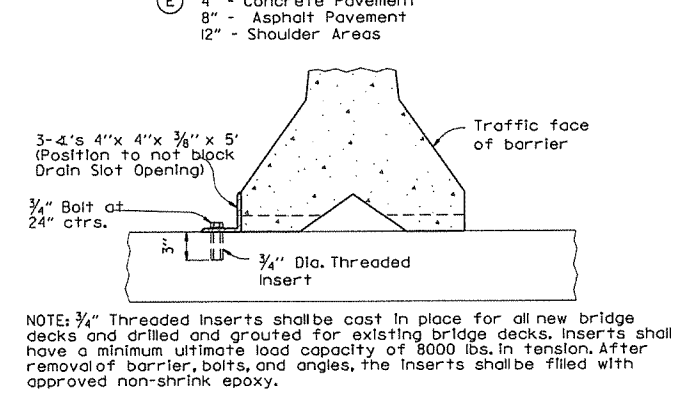
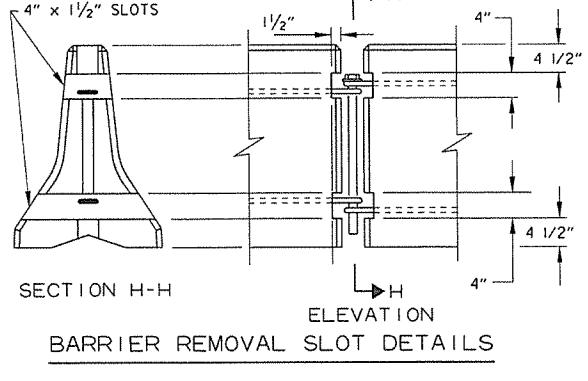
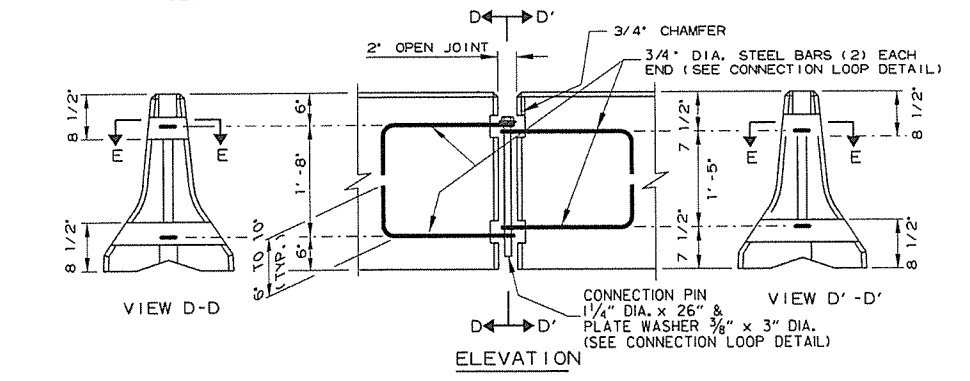
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)



- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements: Concrete: 2500 psi compressive strength at 28 days. Reinforcing Steel: AASHTO M 31 or M 53, Grade 60 Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin. Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

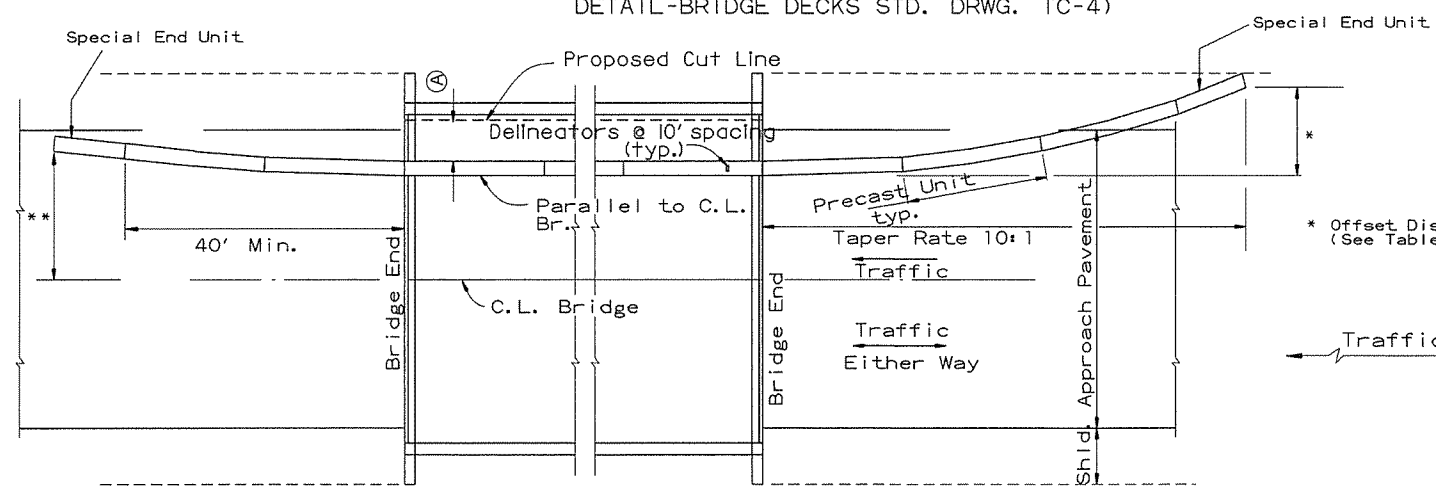
In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delineator color shall be in accordance with the Manual Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
 - Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
 - Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
 - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
 - A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.



DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION -
TEMPORARY PRECAST BARRIER
STANDARD DRAWING TC-4

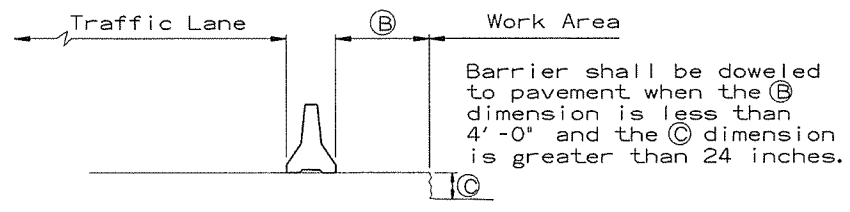
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

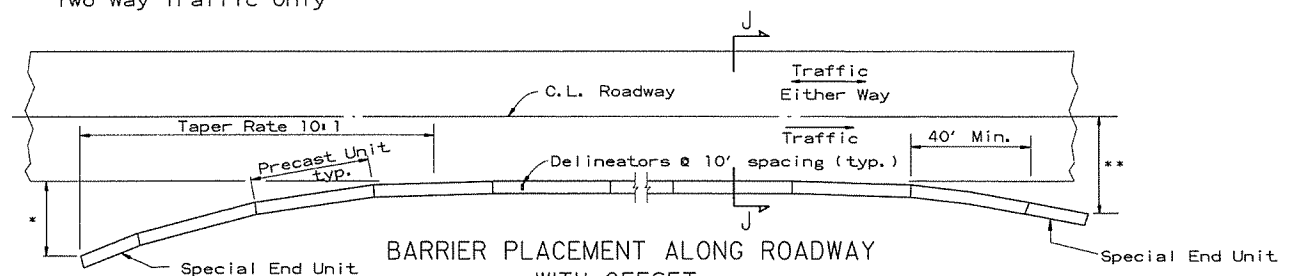
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



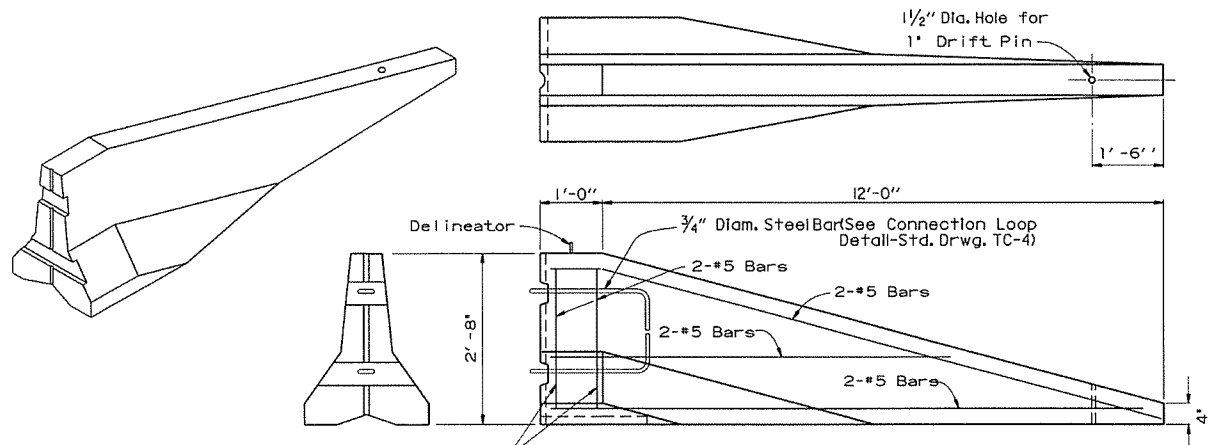
BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

* Offset Distance (See Table)

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

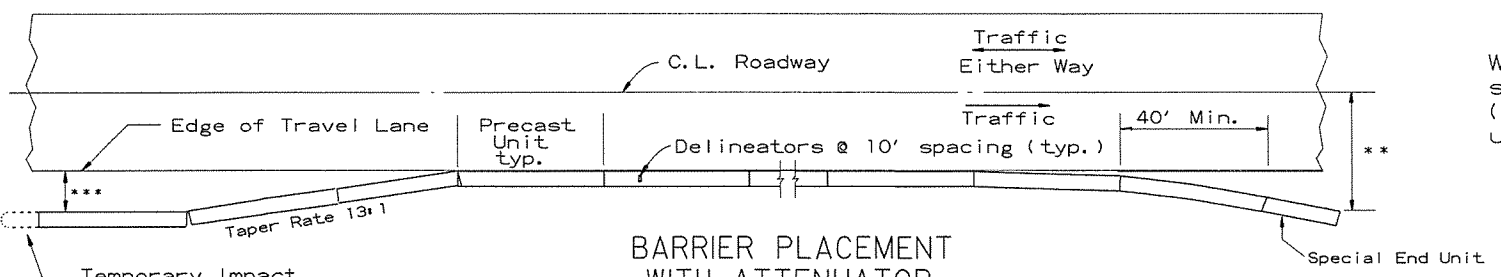


SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of 'Temporary Impact Attenuation Barrier.'



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

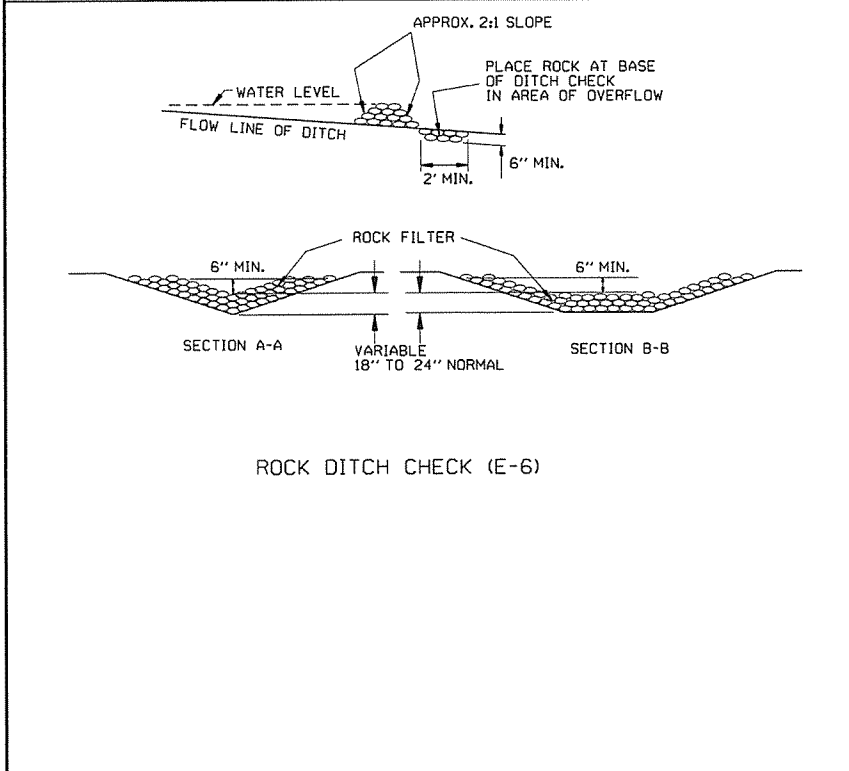
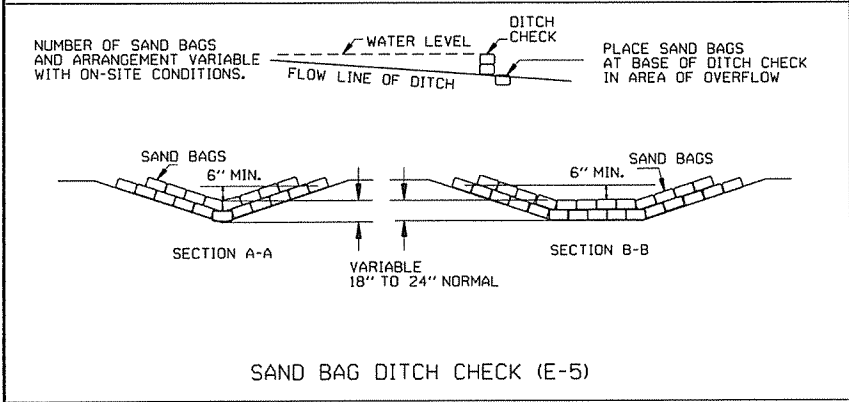
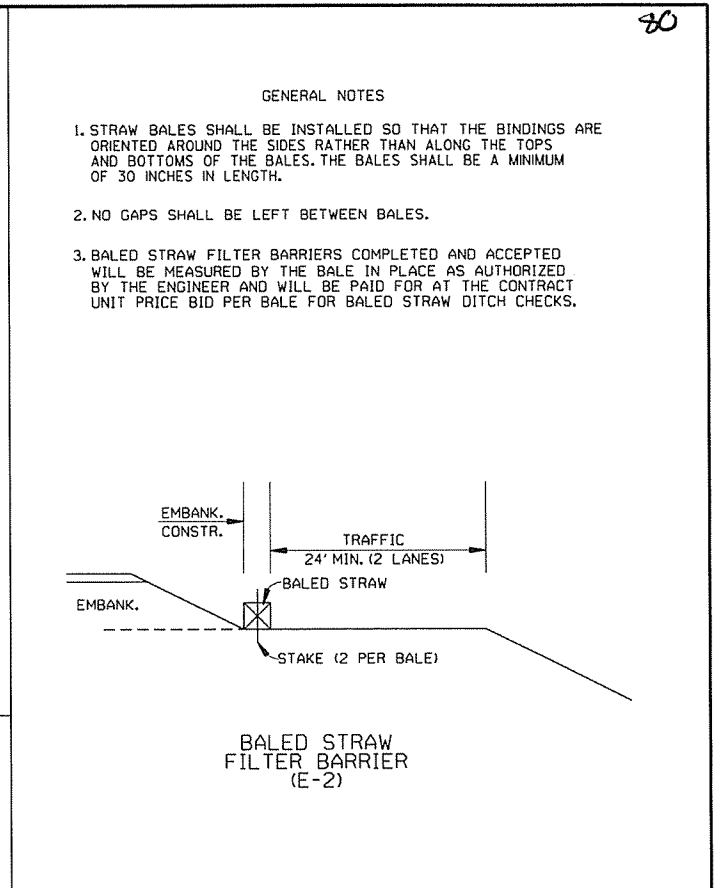
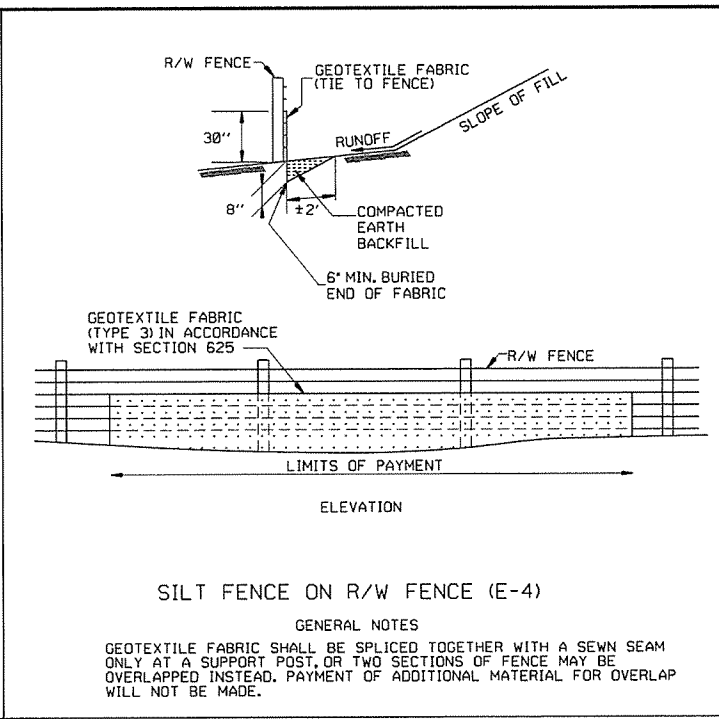
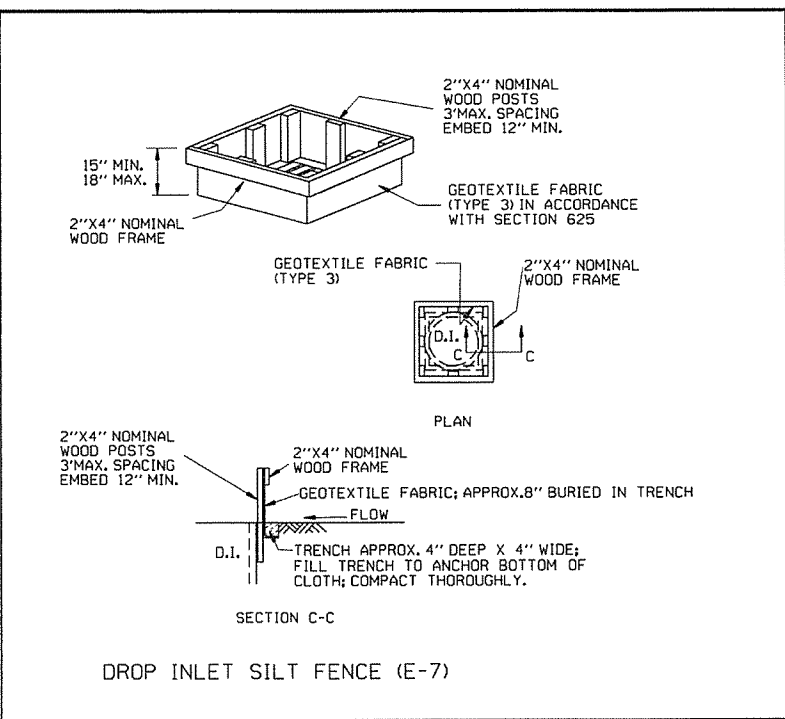
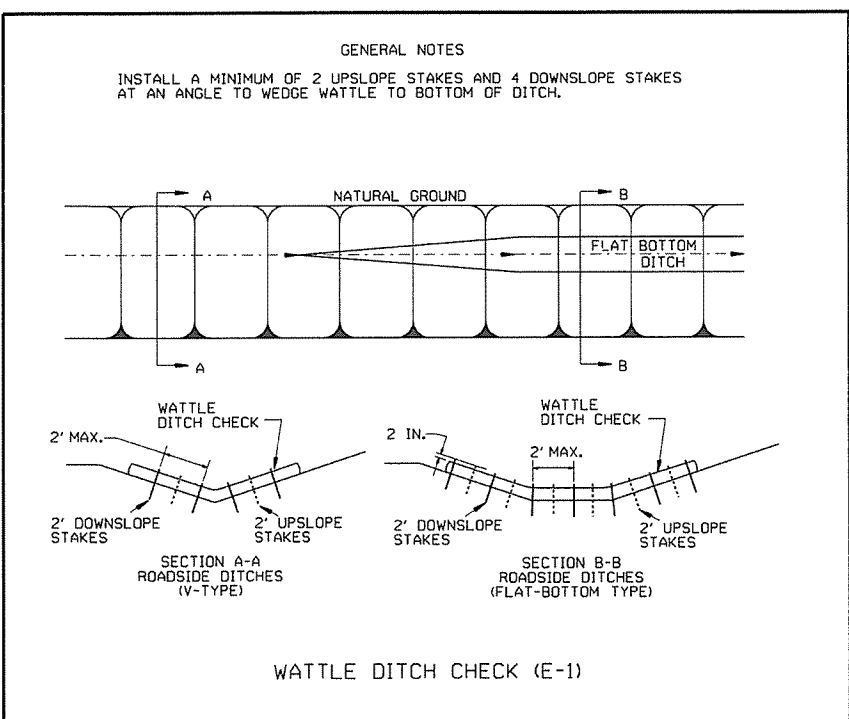
*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

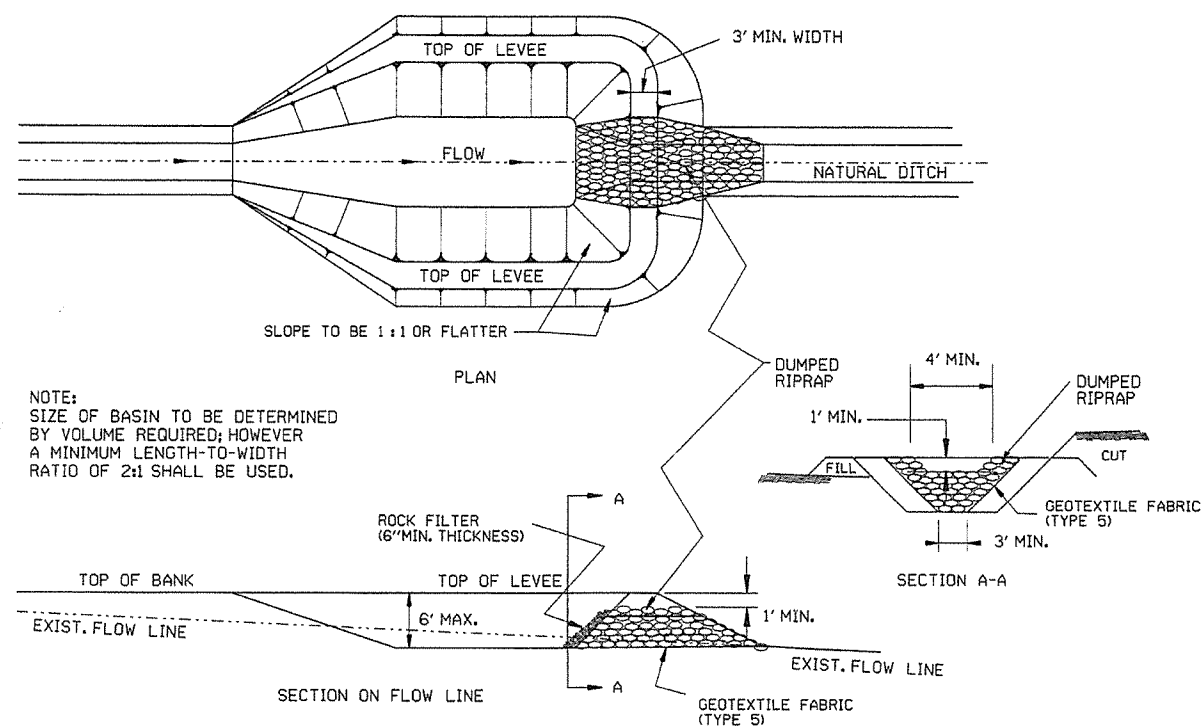
STANDARD DRAWING TC-5



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	

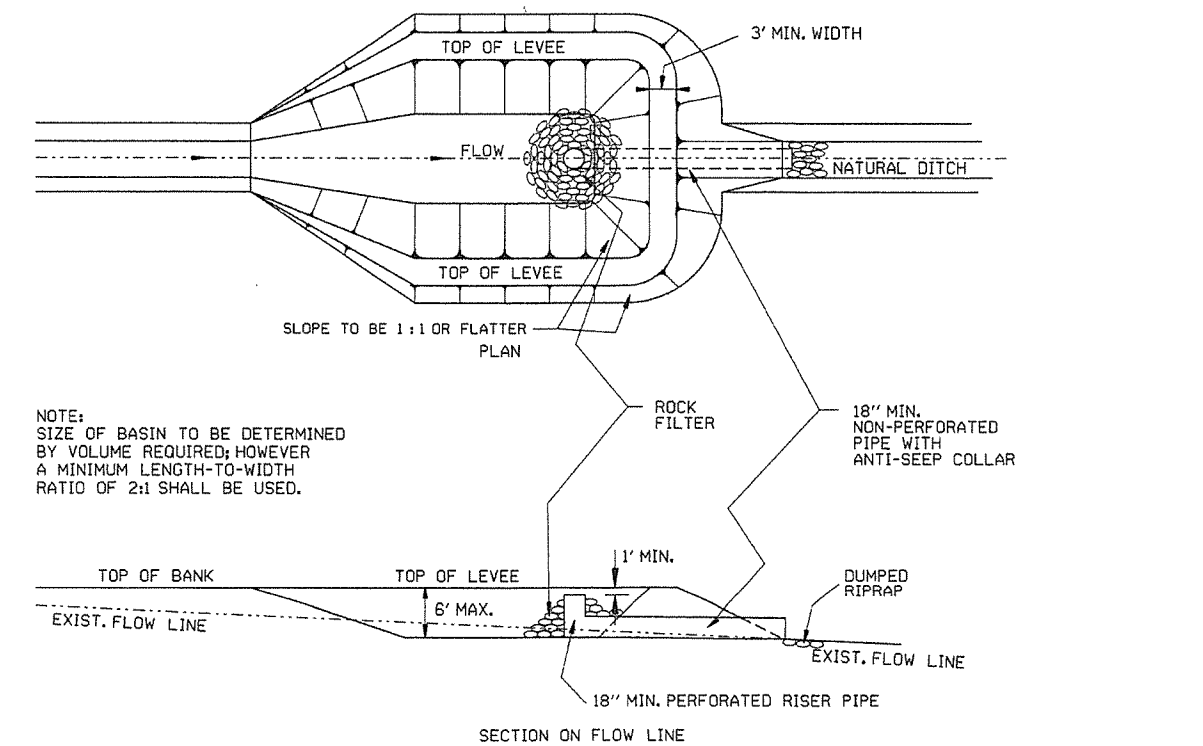
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1



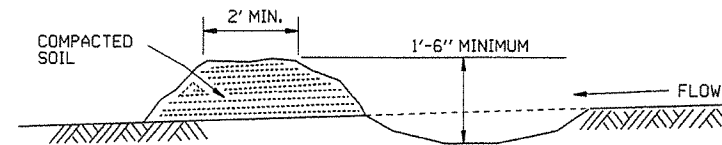
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

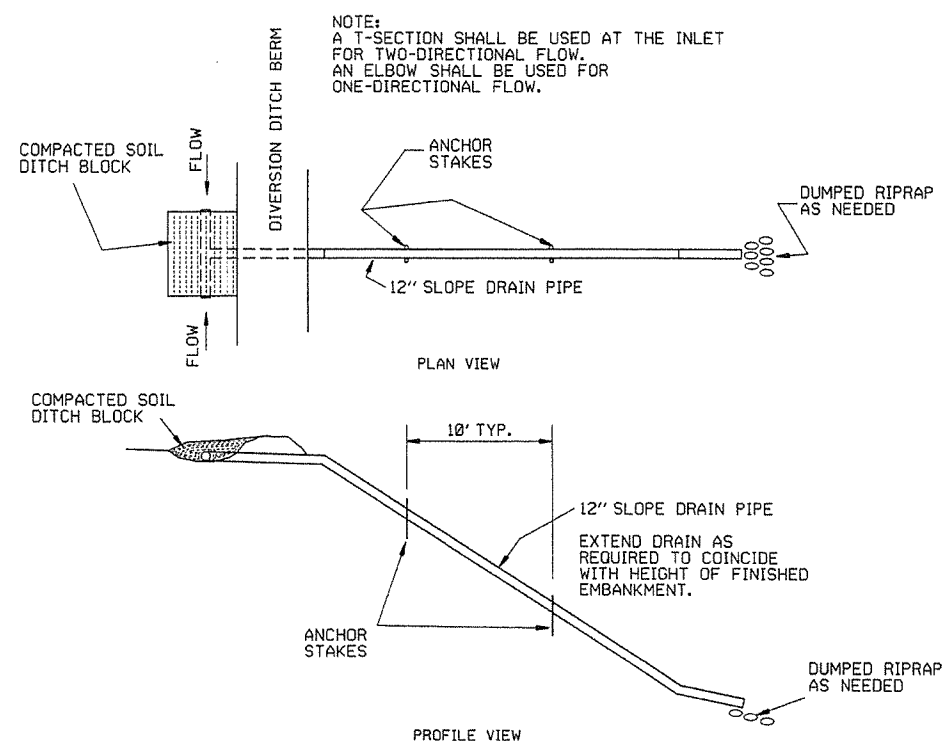


NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

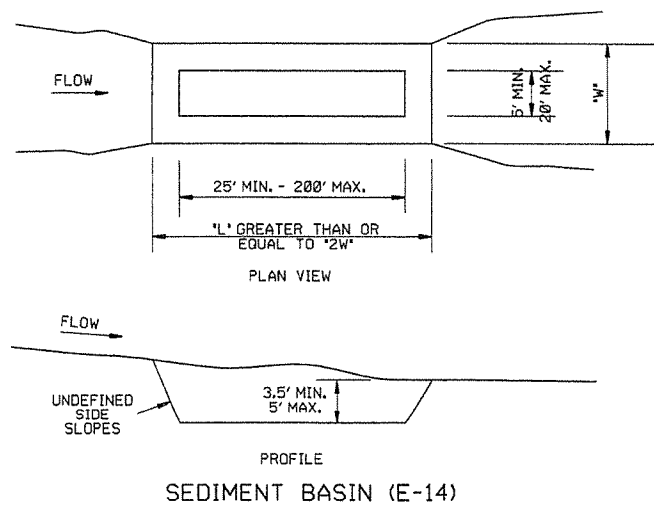
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

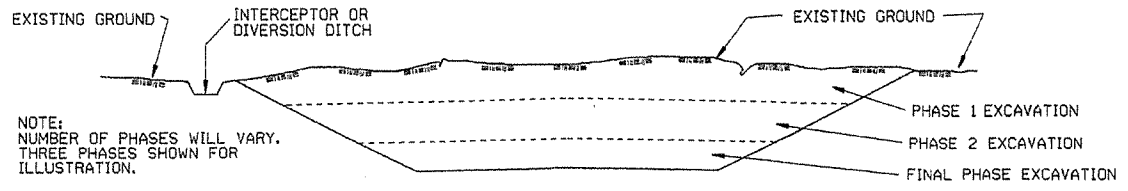
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

- CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
 2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

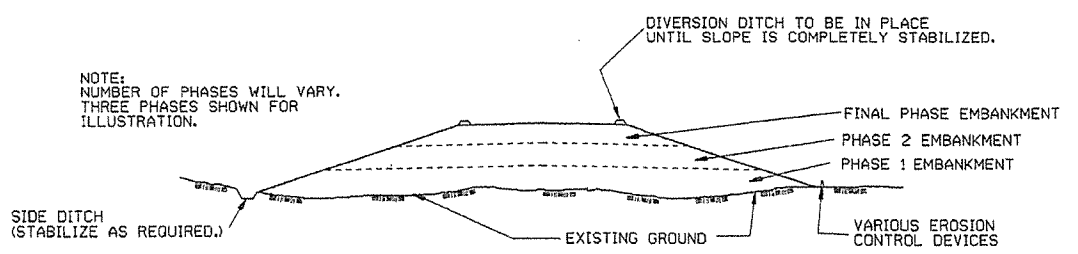
GENERAL NOTE

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.

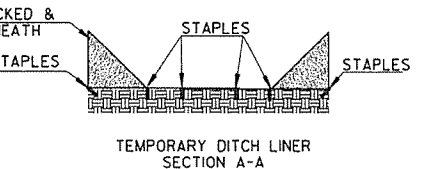
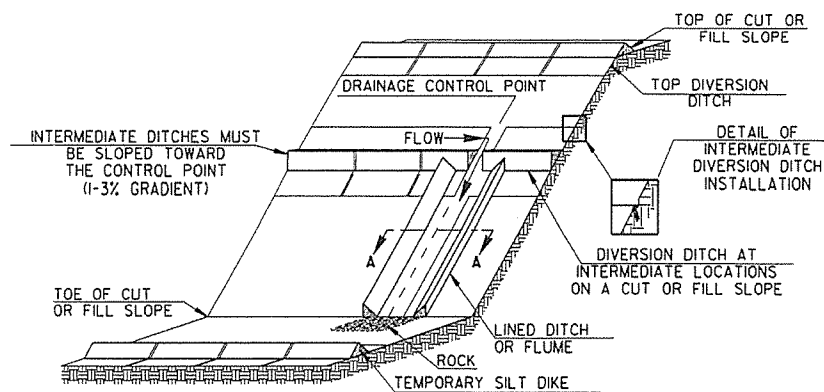
GENERAL NOTE

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.

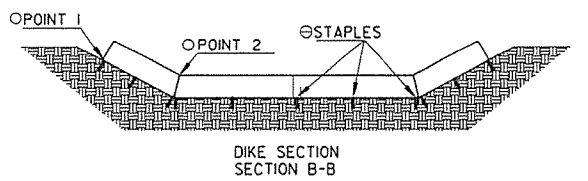
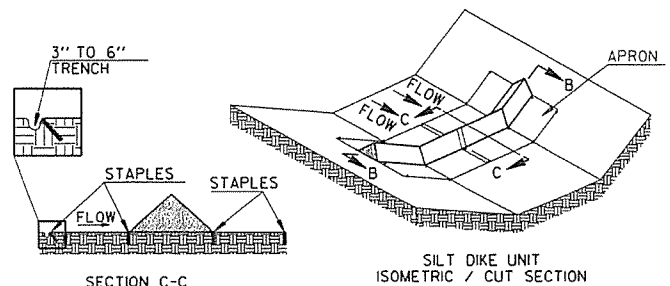
CONSTRUCTION SEQUENCE

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.

		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	FILMED
DATE	REVISION		

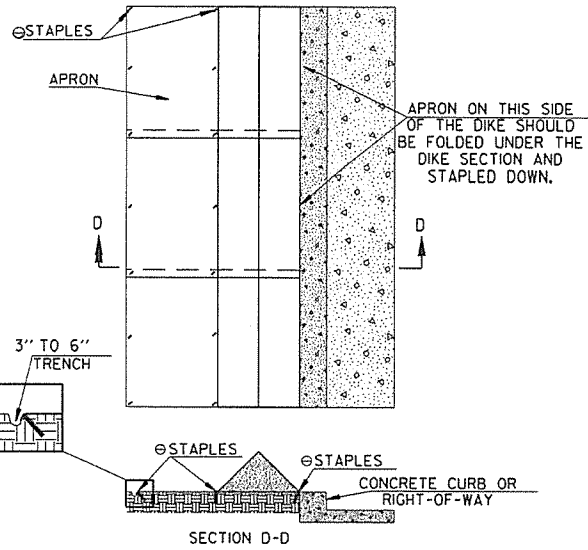


TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

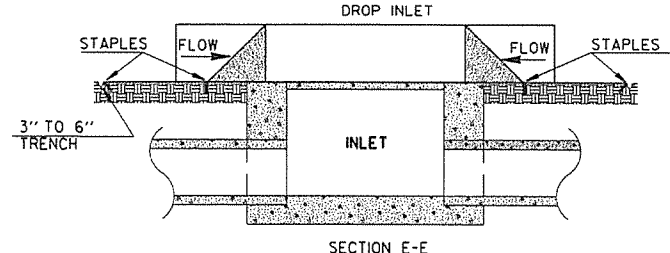
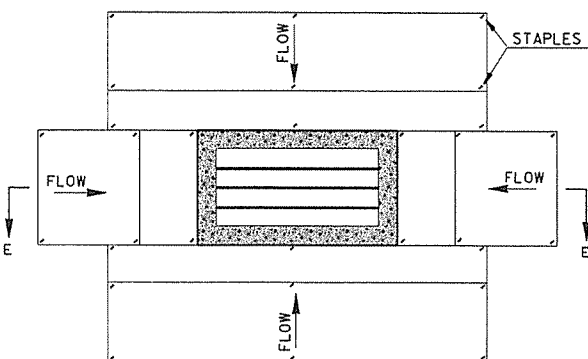


TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

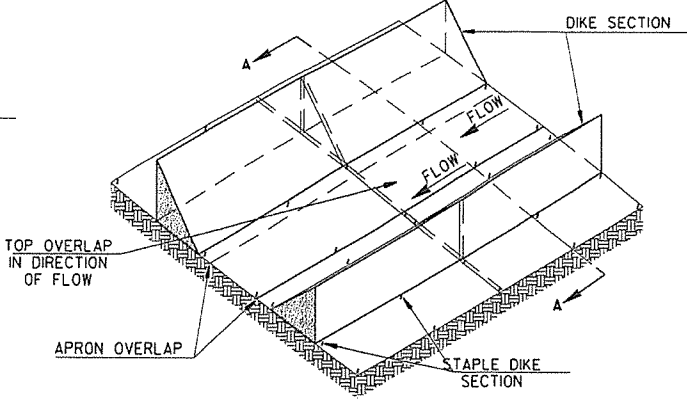
○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
 ⊗ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



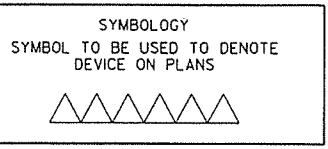
TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

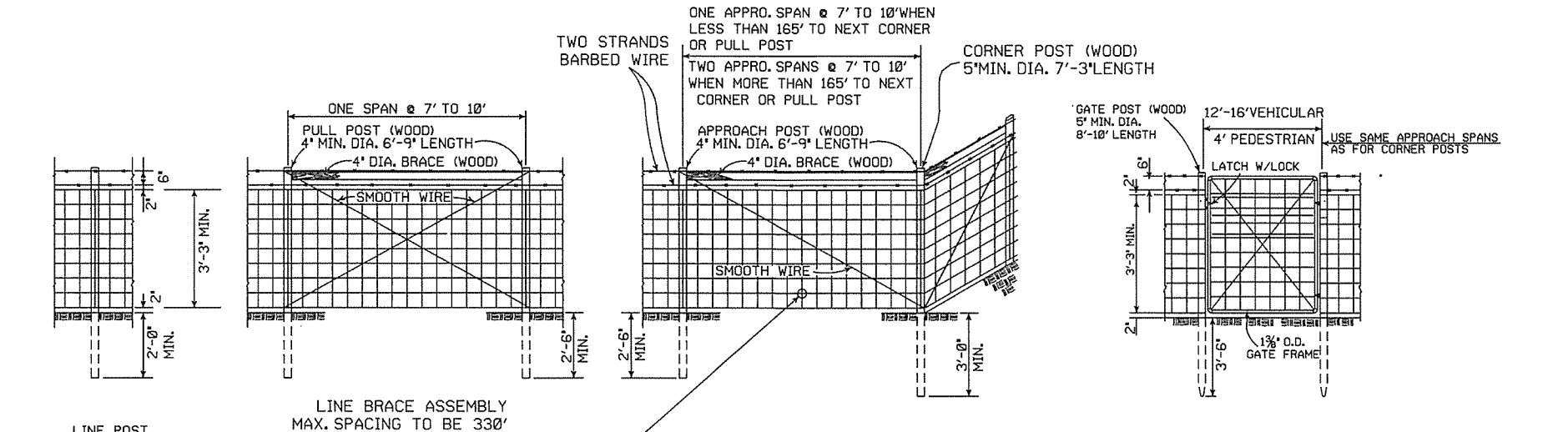
GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.
2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.



NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

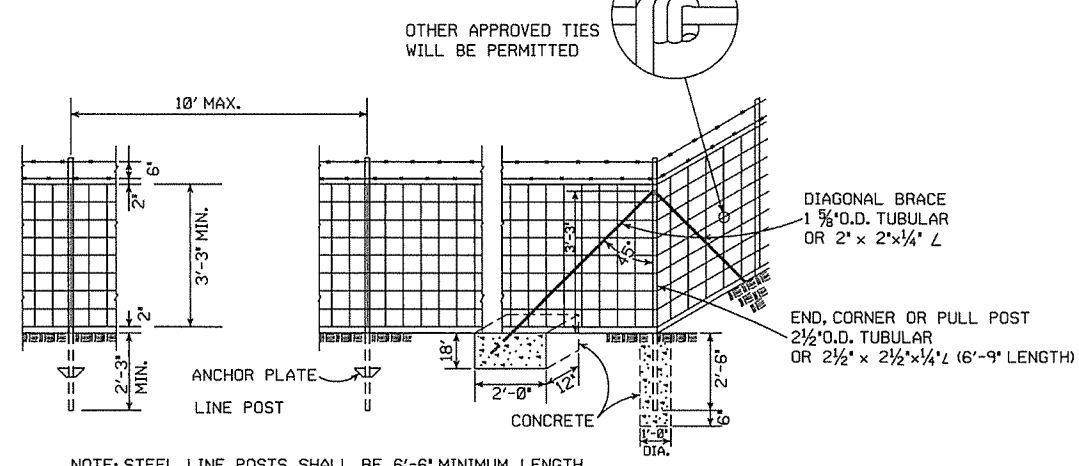
ARKANSAS STATE HIGHWAY COMMISSION			
TEMPORARY EROSION CONTROL DEVICES			
7-26-12	REVISED GENERAL NOTE 2.		
12-15-11	ISSUED		
DATE	REVISION		FILMED
STANDARD DRAWING TEC-4			



LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

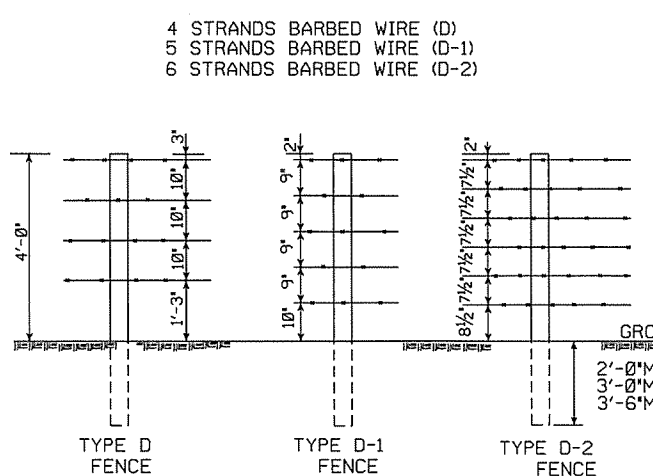
LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

TYPE C FENCE (WOOD POSTS)

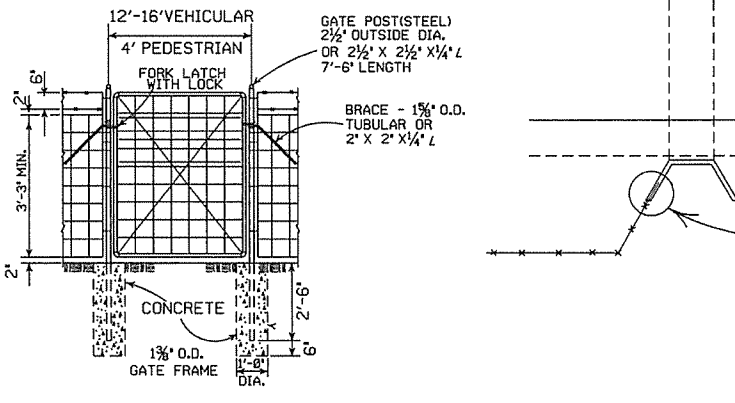


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

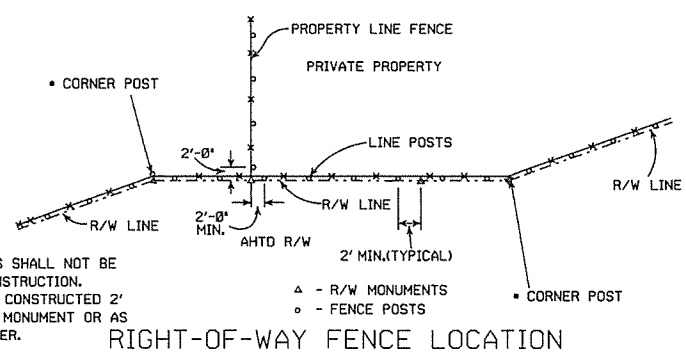


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



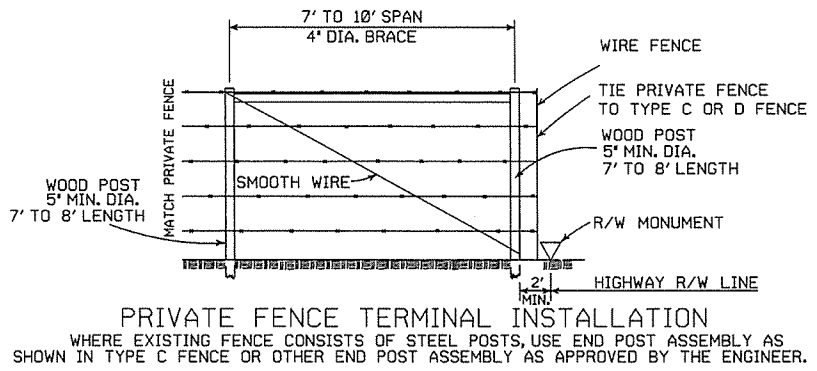
NOTE: USE 3/8" X 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.

DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)



NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

GENERAL NOTES:
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE. AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE -1" TO +2". TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

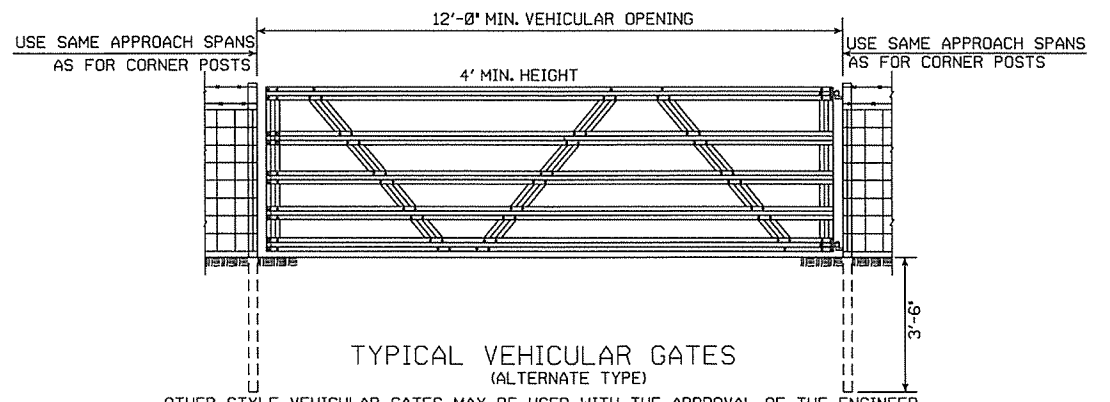
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS, WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD, WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP, THE LOOPS SHALL BE CONNECTED, AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72
DATE	REVISION	FILMED

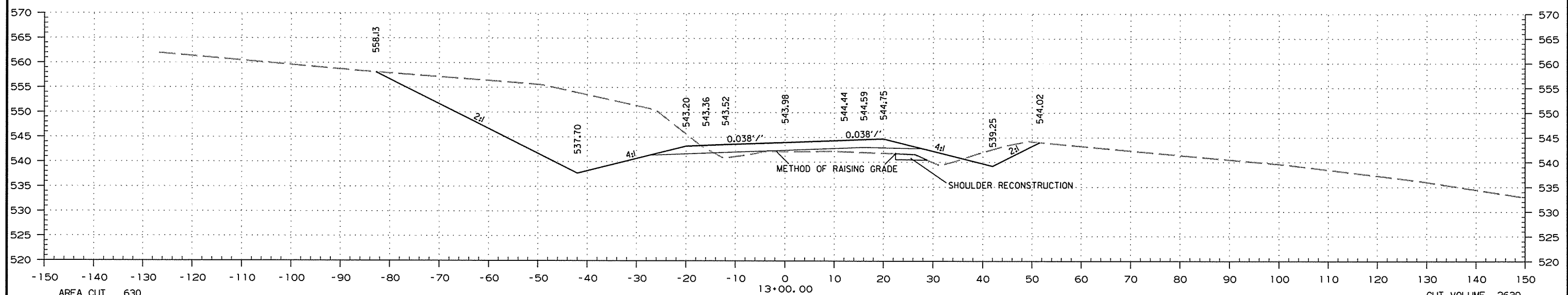
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050274							85	102

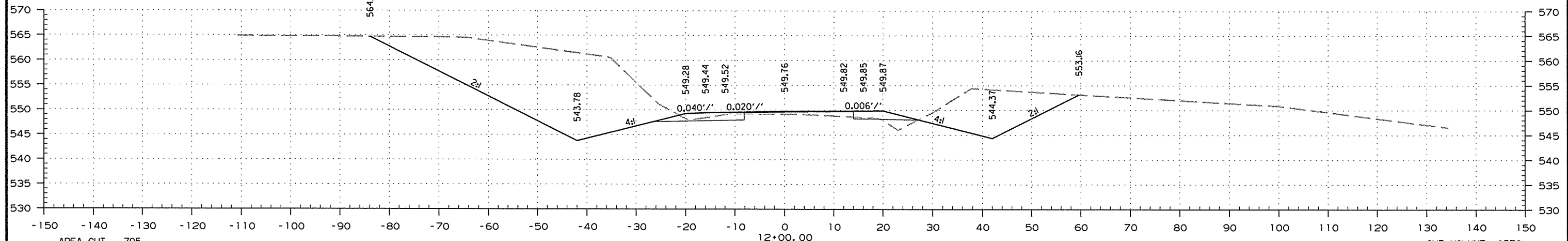
② CROSS SECTIONS



AREA CUT 630
AREA FILL 45
AREA ROCK FILL 0

CUT VOLUME 2639
FILL VOLUME 98
ROCK FILL VOLUME 0

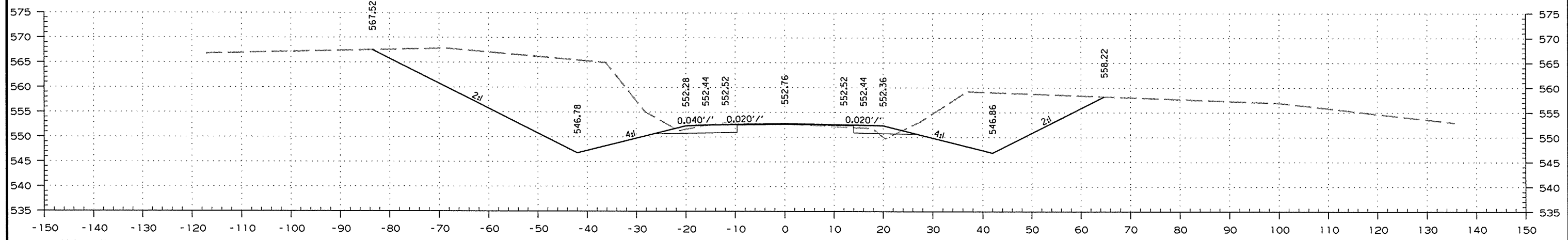
13+00.00



AREA CUT 795
AREA FILL 8
AREA ROCK FILL 0

CUT VOLUME 1576
FILL VOLUME 9
ROCK FILL VOLUME 0

12+00.00



AREA CUT 907
AREA FILL 2
AREA ROCK FILL 0

CUT VOLUME 0
FILL VOLUME 0
ROCK FILL VOLUME 0

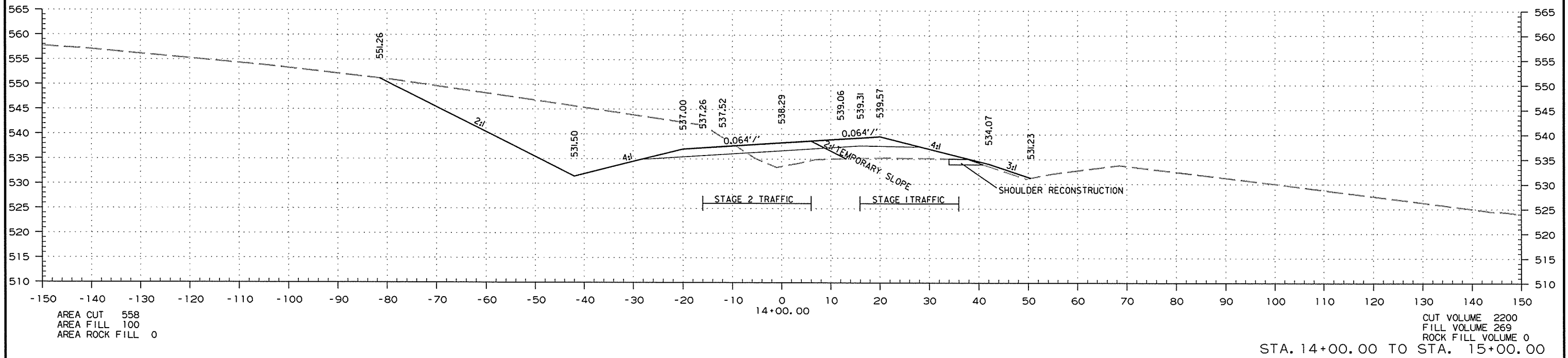
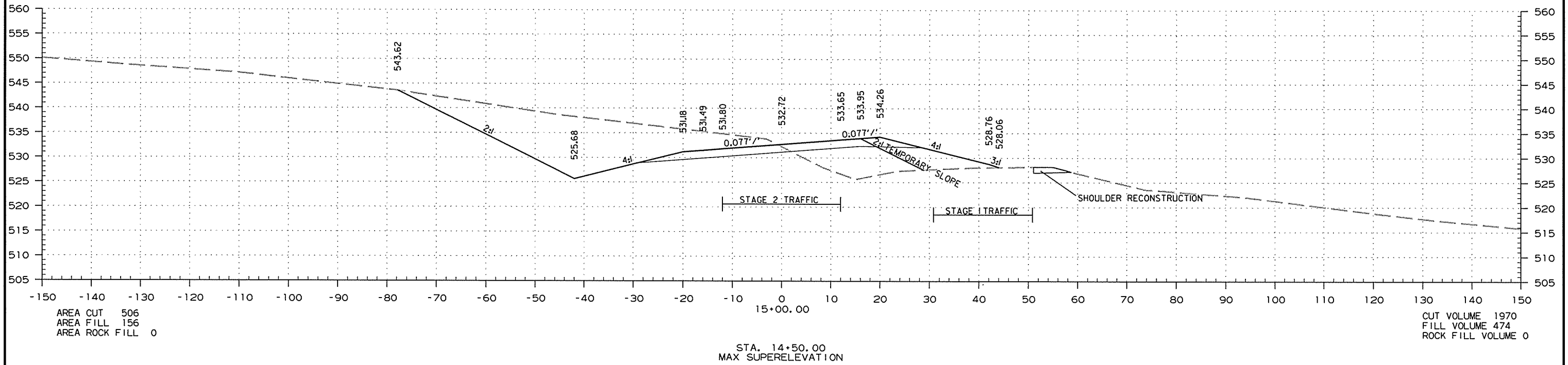
STA. 11+50.00
BEGIN JOB 050274
BEGIN SUPERELEVATION

STA. 11+50.00 TO STA. 13+00.00

2/27/2015
R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050274	86	102

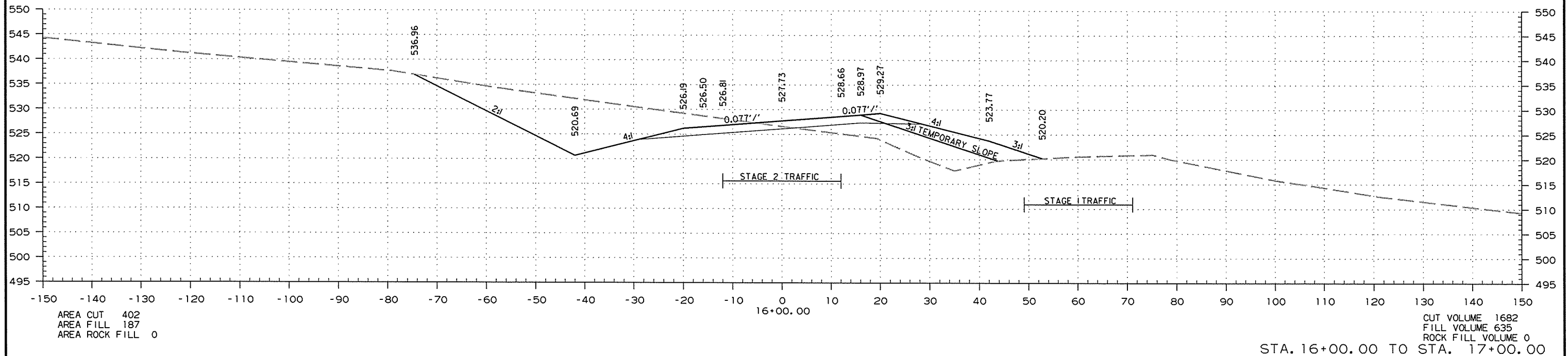
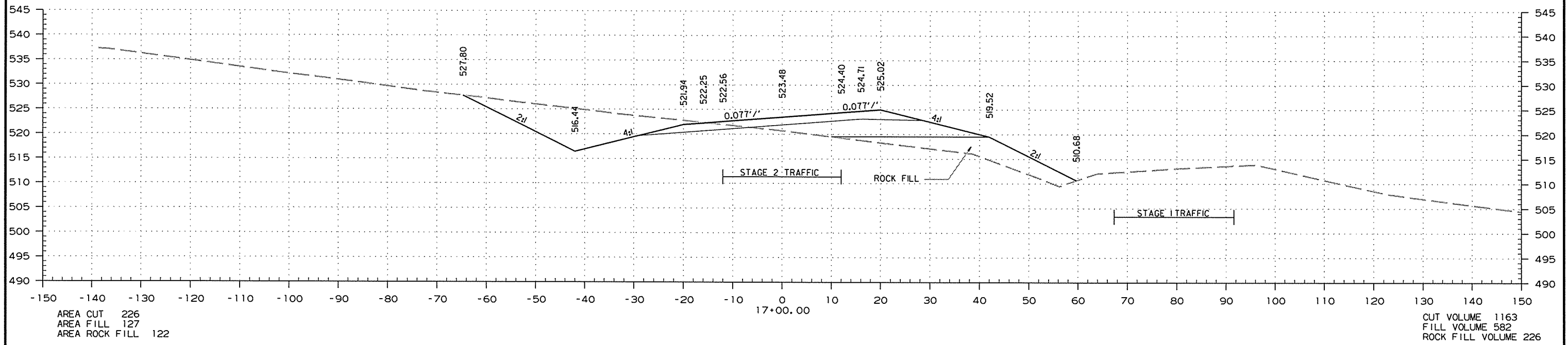
② CROSS SECTIONS



2/27/2015 R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050274	87	102

2 CROSS SECTIONS

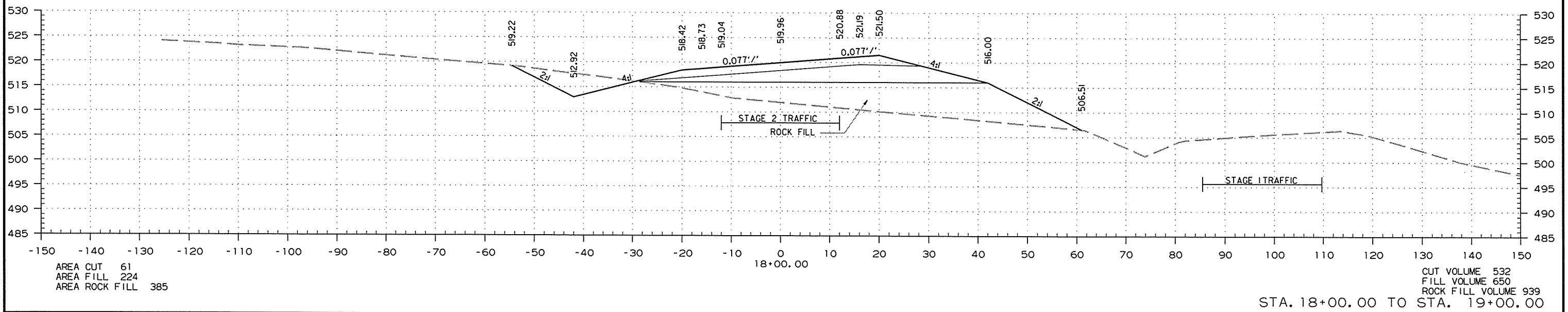
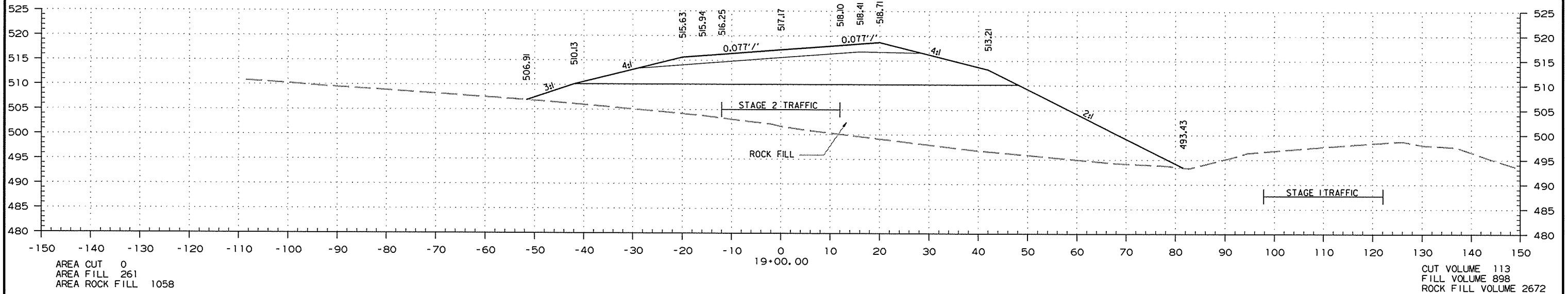


R050274.DGN 2/27/2015

STA. 16+00.00 TO STA. 17+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						050274	88	102

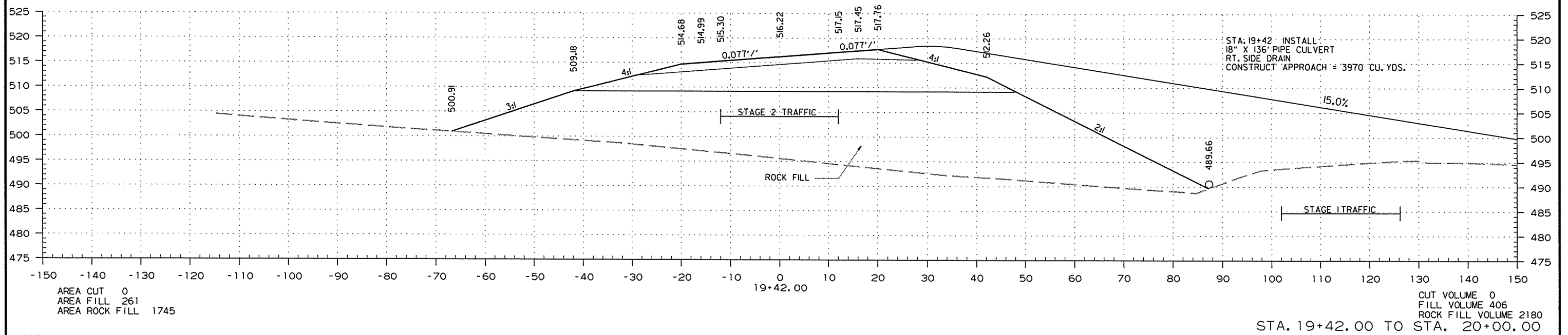
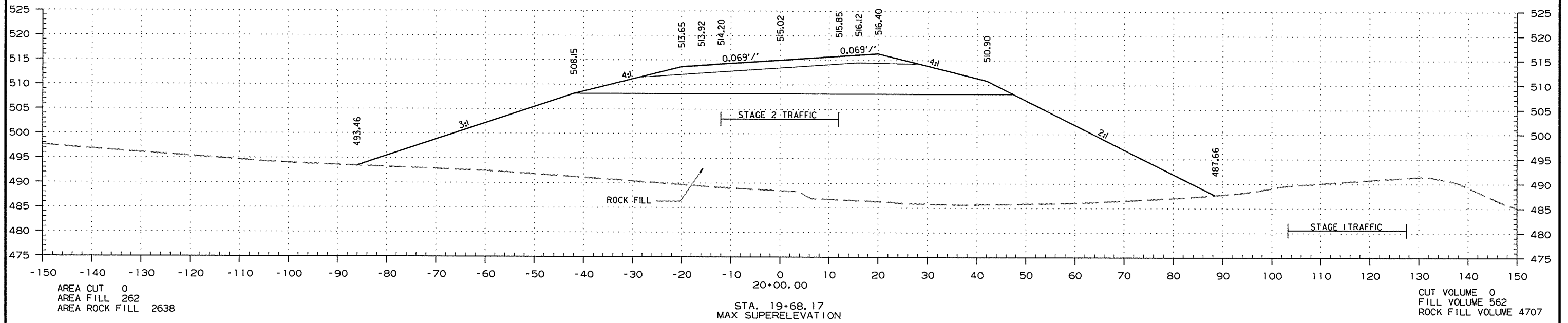
② CROSS SECTIONS



2/27/2015 R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 050274			89	102

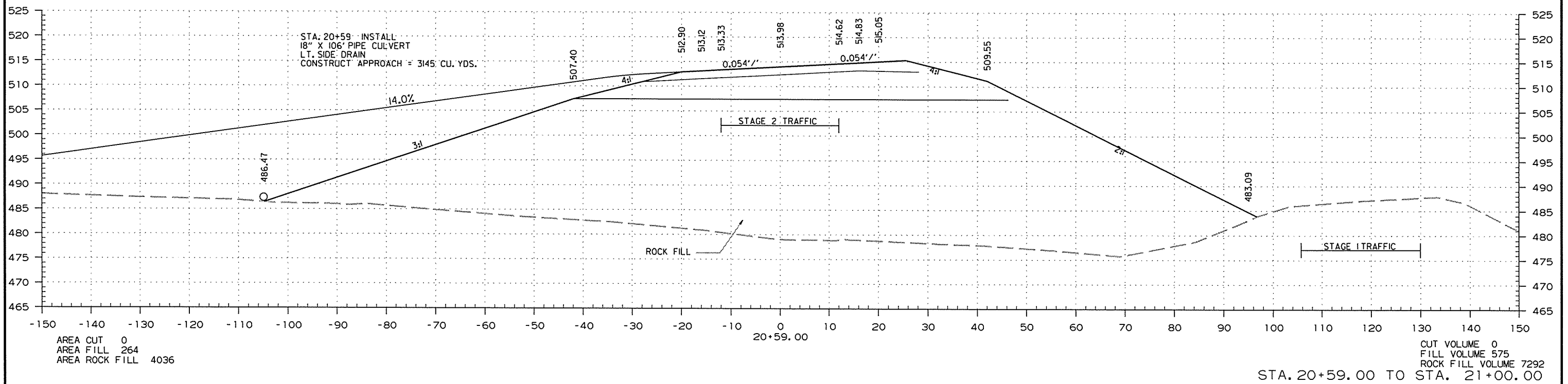
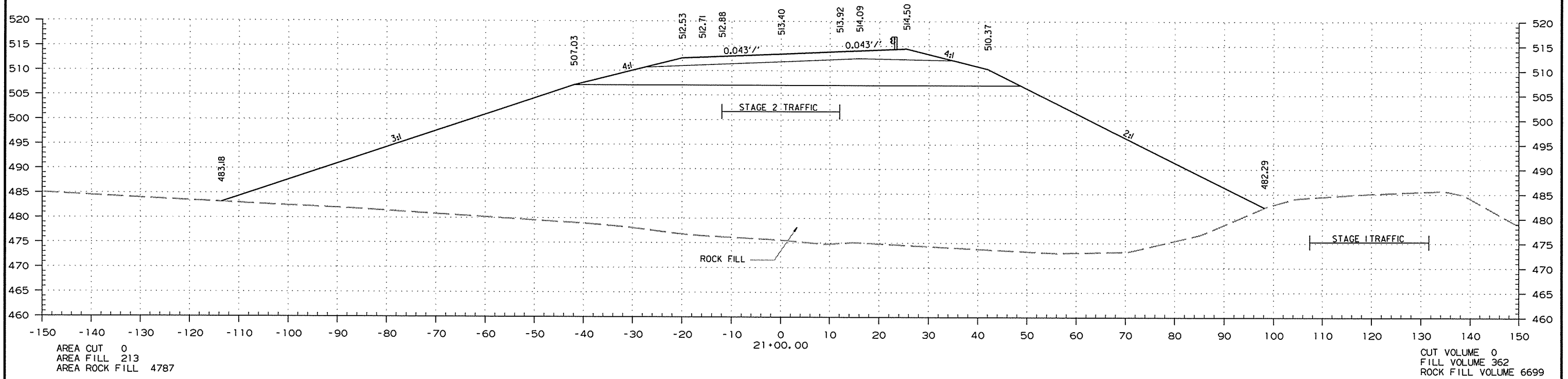
② CROSS SECTIONS



R050274.DGN 2/27/2015

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. 050274			90	102

2 CROSS SECTIONS



STA. 20+59.00 TO STA. 21+00.00

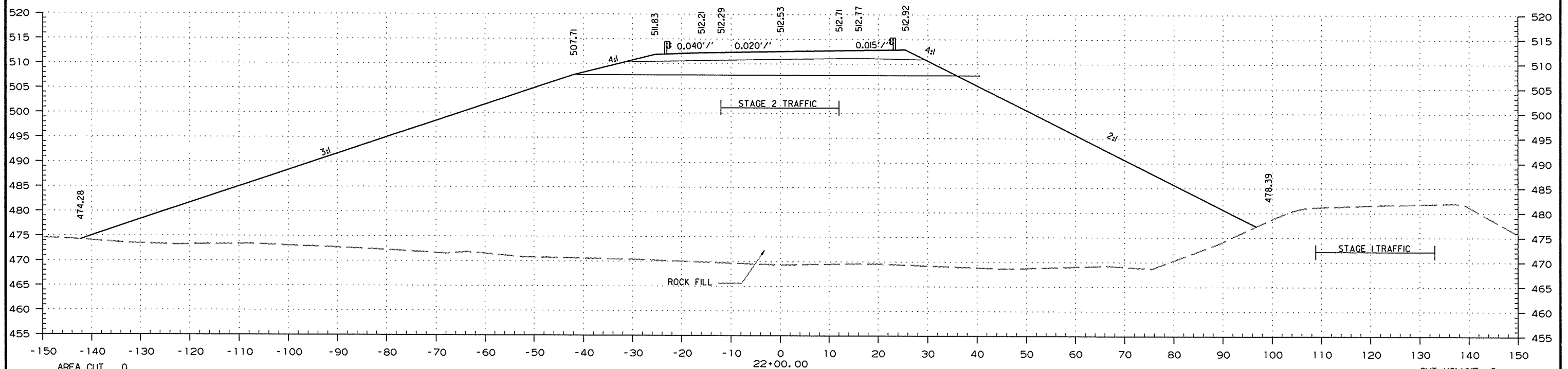
R050274.DGN 2/27/2015

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. 050274	91	102

② CROSS SECTIONS

TOE OF SLOPE STATION 23+79.19
B. E. STATION 22+78.85

STA. 22+68.17
END SUPERELEVATION



AREA CUT 0
AREA FILL 111
AREA ROCK FILL 6299

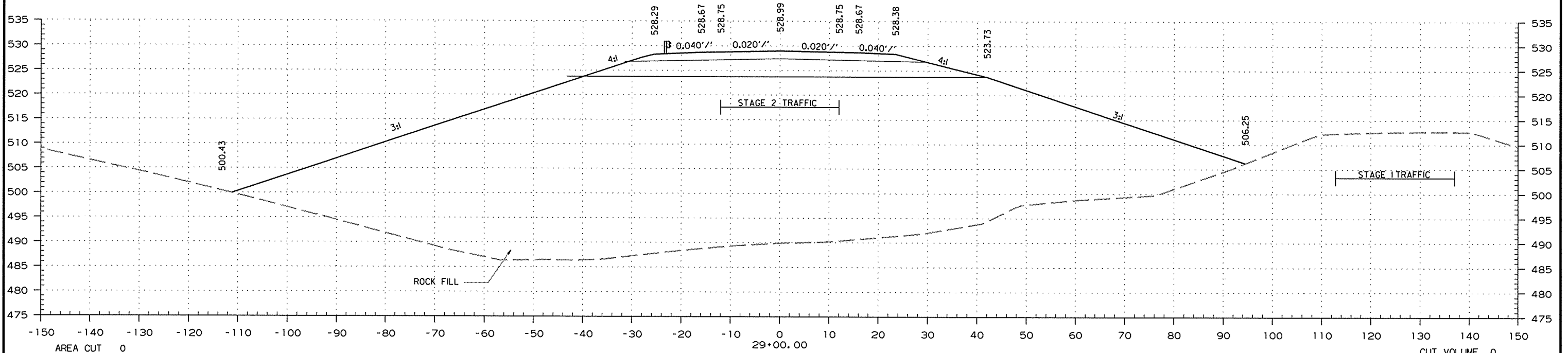
CUT VOLUME 0
FILL VOLUME 600
ROCK FILL VOLUME 20530

STA. 22+00.00 TO STA. 23+00.00

R050274.DGN 2/27/2015

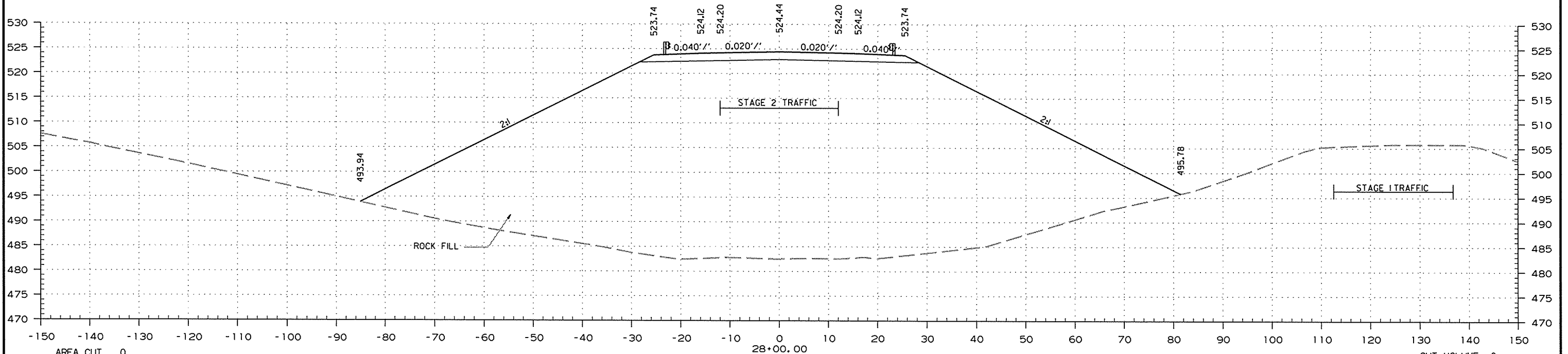
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050274	92	102

② CROSS SECTIONS



AREA CUT 0
 AREA FILL 244
 AREA ROCK FILL 5104

CUT VOLUME 0
 FILL VOLUME 452
 ROCK FILL VOLUME 17659



AREA CUT 0
 AREA FILL 0
 AREA ROCK FILL 4432

CUT VOLUME 0
 FILL VOLUME 0
 ROCK FILL VOLUME 9636

B. E. STATION 27+91.15
 TOE OF SLOPE STATION 26+91.32

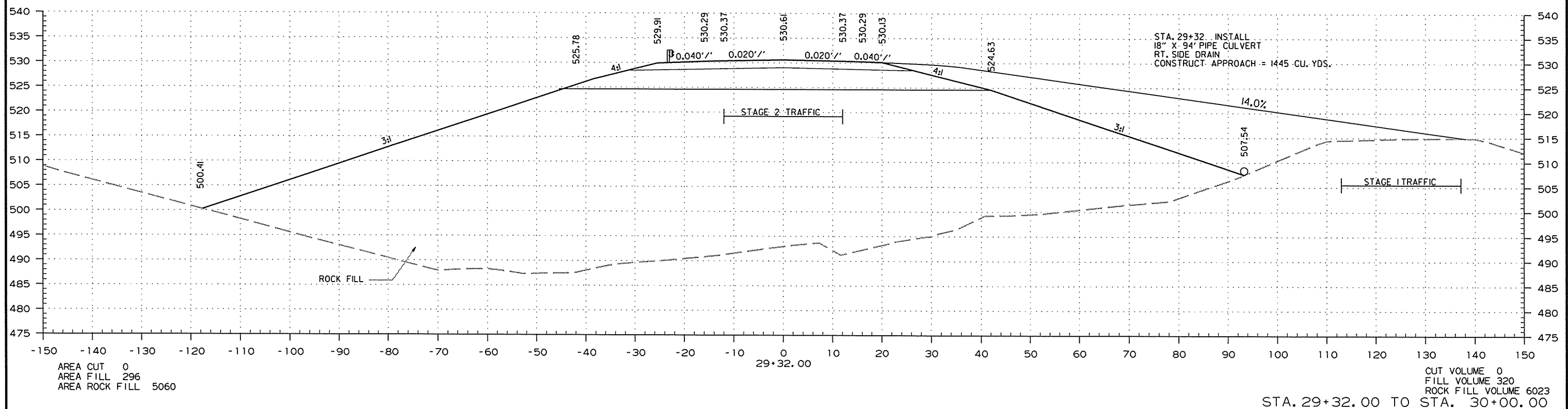
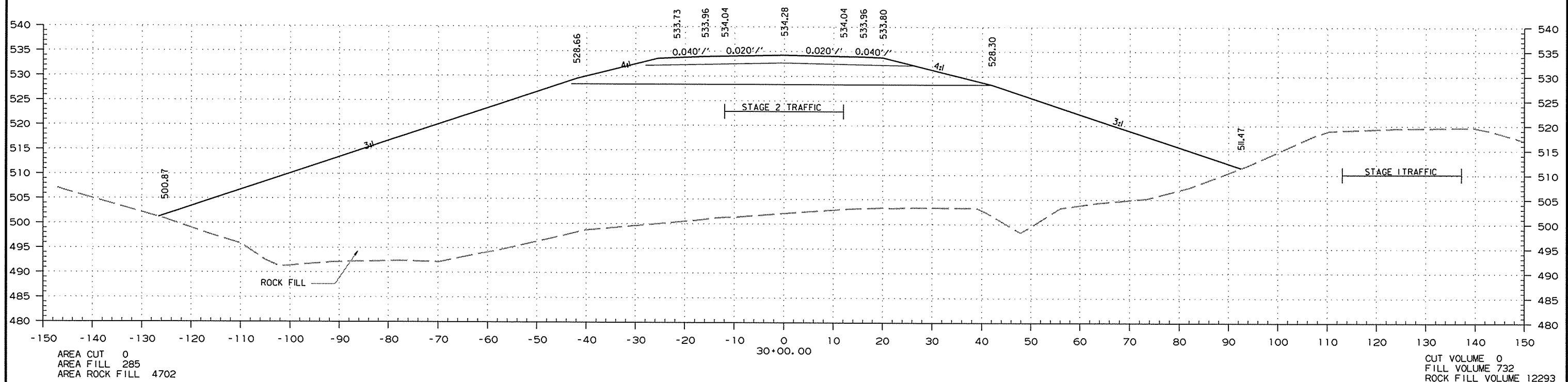
STA. 28+00.00 TO STA. 29+00.00

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R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050274							93	102

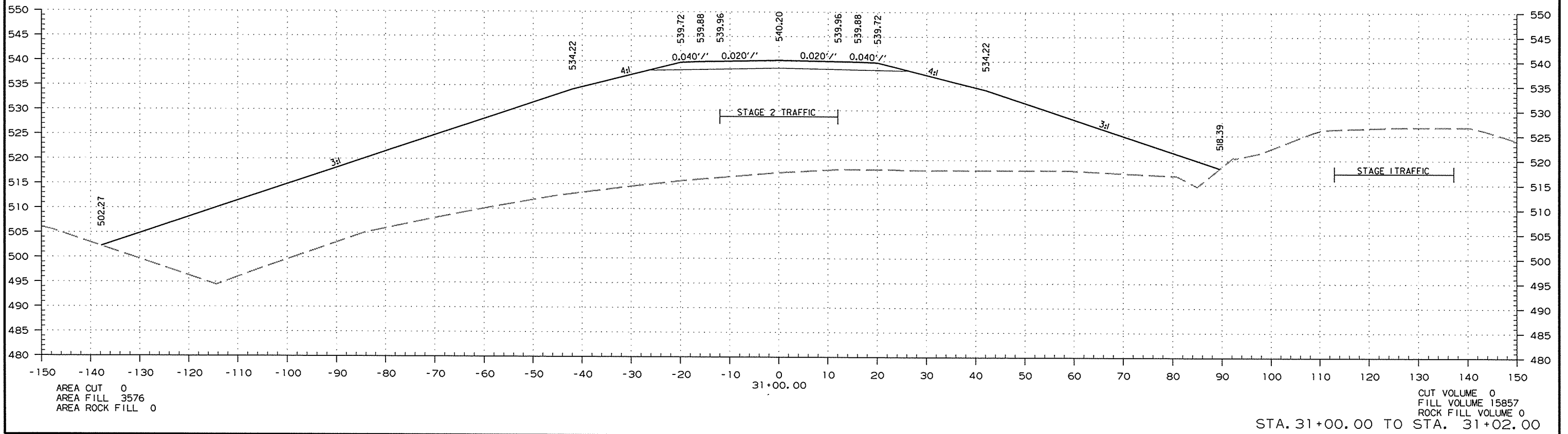
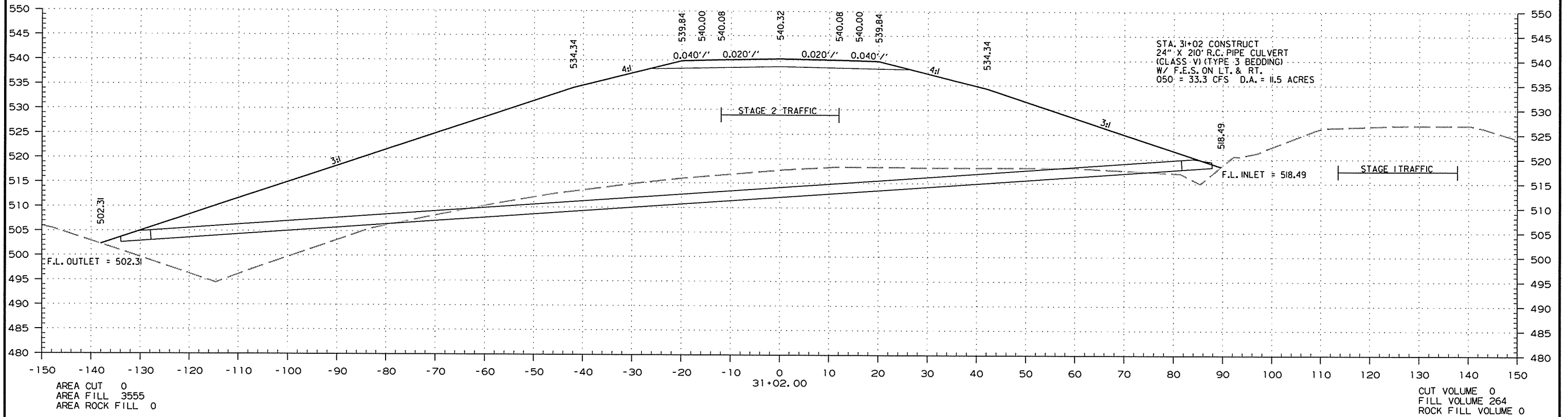
② CROSS SECTIONS



R050274.DGN 2/27/2015

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. 050274							94	102

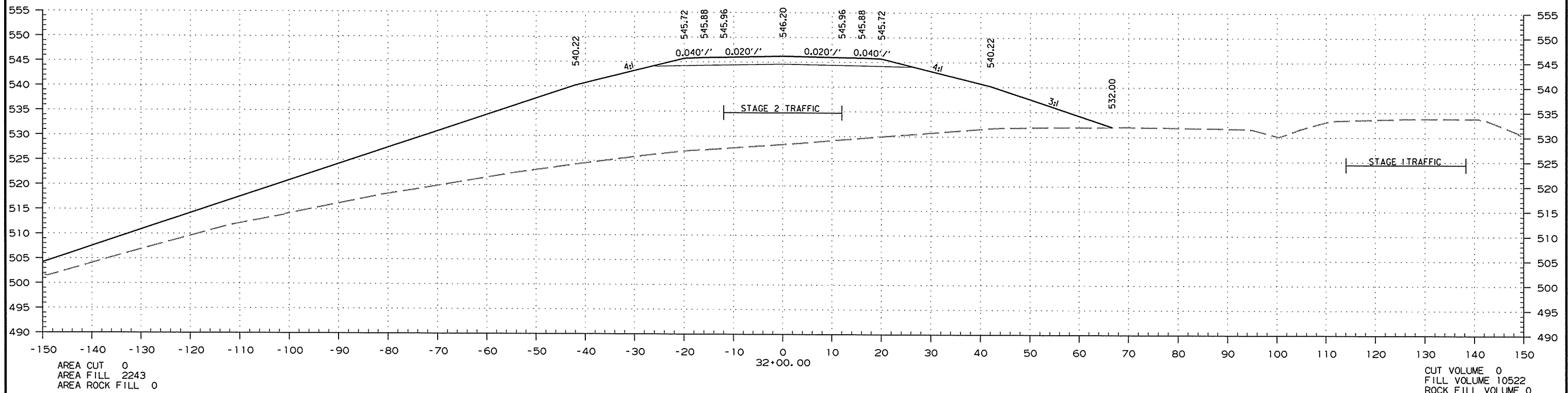
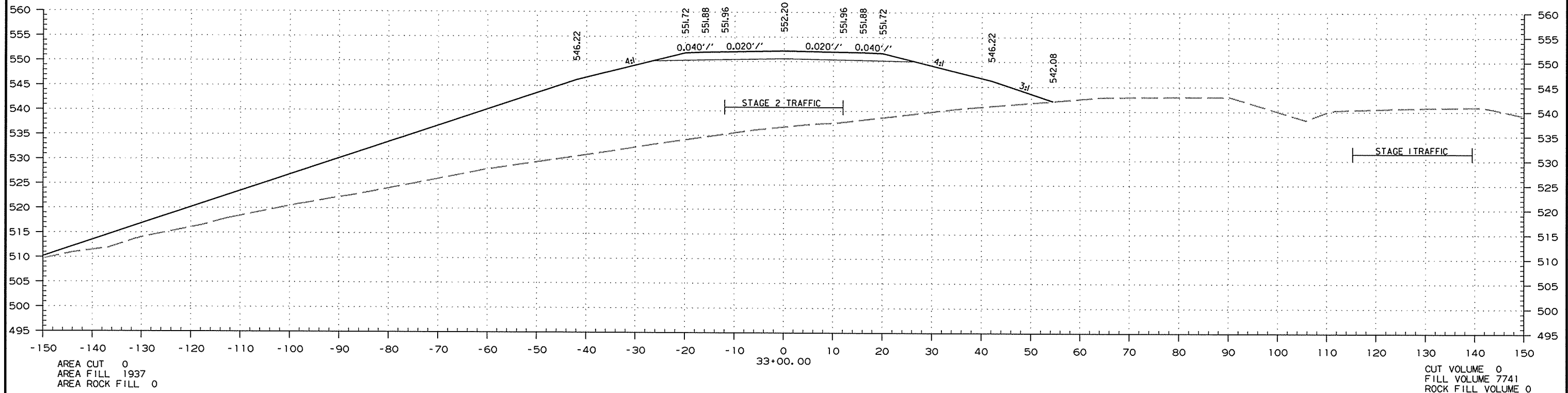
2 CROSS SECTIONS



R050274.DGN 2/27/2015

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. 050274							95	102

2 CROSS SECTIONS

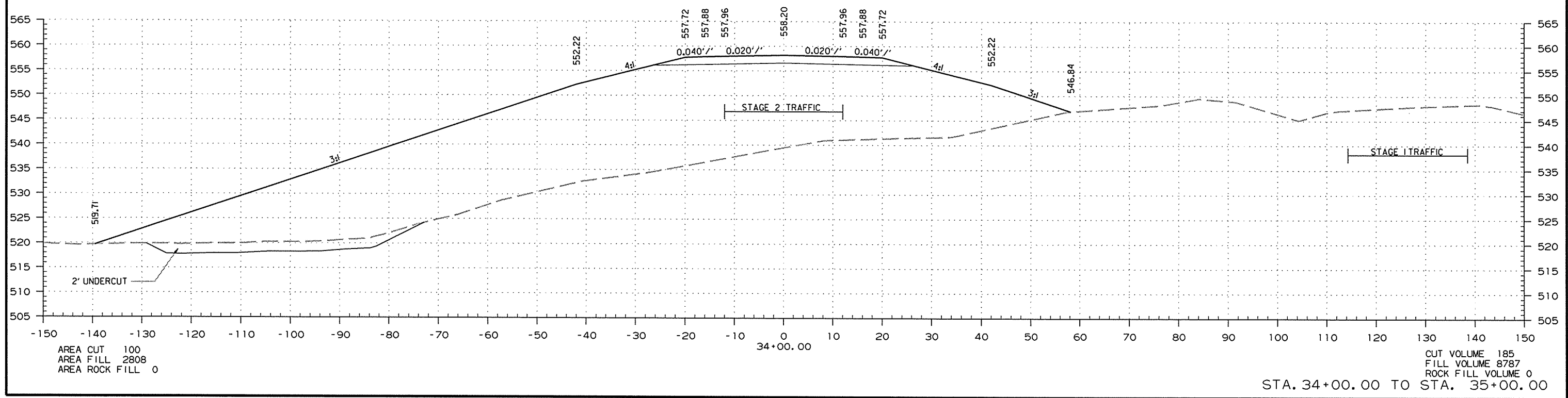
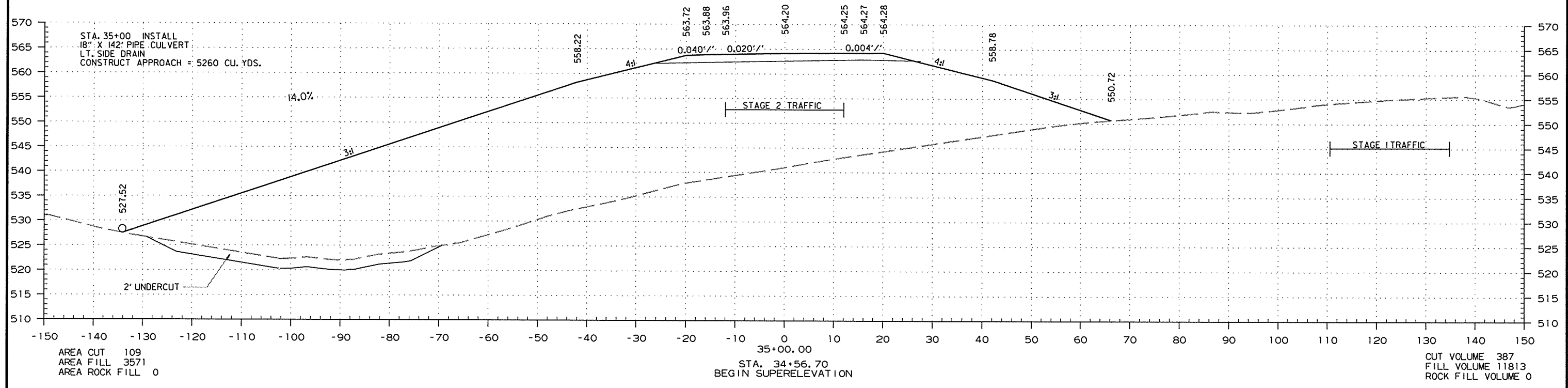


STA. 32+00.00 TO STA. 33+00.00

R050274.DGN 2/27/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						050274	96	102

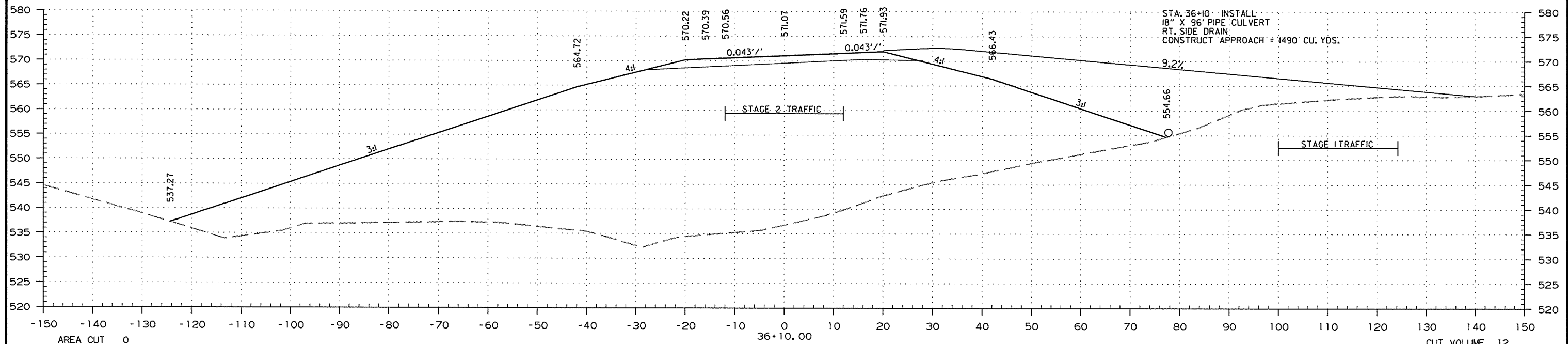
② CROSS SECTIONS



5/11/2015 R050274.DGN

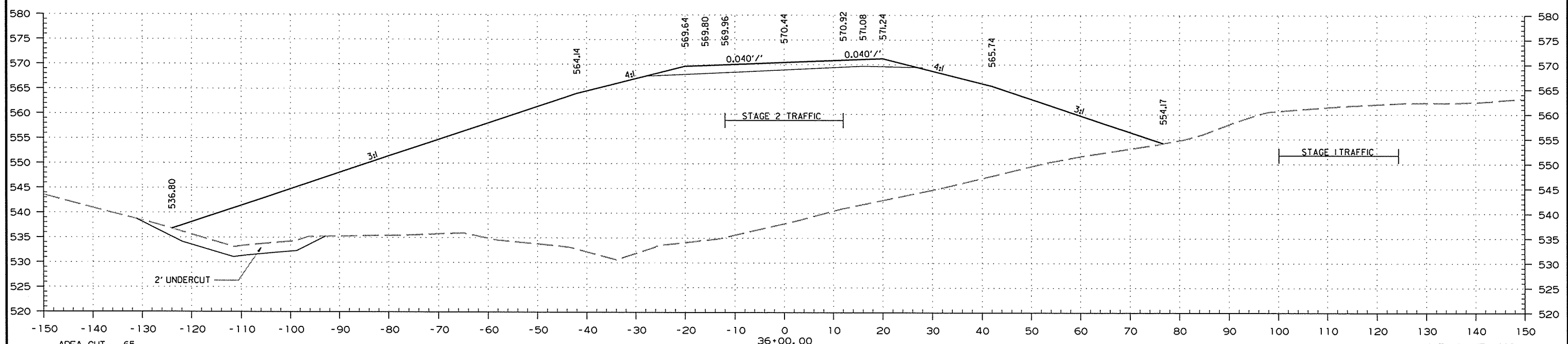
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						050274	97	102

② CROSS SECTIONS



AREA CUT 0
AREA FILL 4077
AREA ROCK FILL 0

CUT VOLUME 12
FILL VOLUME 1514
ROCK FILL VOLUME 0



AREA CUT 65
AREA FILL 4096
AREA ROCK FILL 0

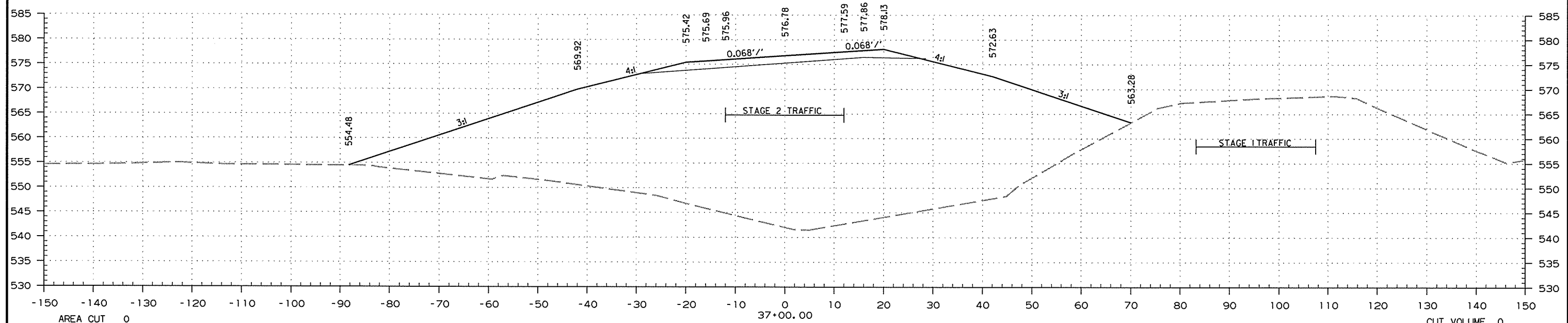
CUT VOLUME 322
FILL VOLUME 14198
ROCK FILL VOLUME 0

STA. 36+00.00 TO STA. 36+10.00

2/27/2015
R050274.DGN

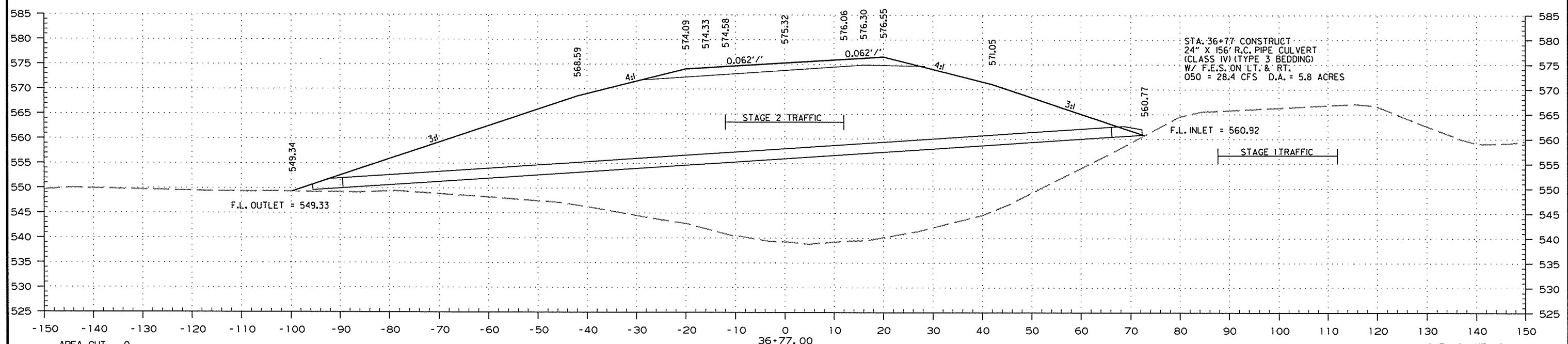
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050274							98	102

2 CROSS SECTIONS



AREA CUT 0
 AREA FILL 3226
 AREA ROCK FILL 0

CUT VOLUME 0
 FILL VOLUME 2916
 ROCK FILL VOLUME 0



AREA CUT 0
 AREA FILL 3620
 AREA ROCK FILL 0

CUT VOLUME 0
 FILL VOLUME 9550
 ROCK FILL VOLUME 0

STA. 36+77 CONSTRUCT
 24" X 156' R.C. PIPE CULVERT
 (CLASS IV) (TYPE 3 BEDDING)
 W/ F.E.S. ON LT. & RT.
 050 = 28.4 CFS D.A. = 5.8 ACRES

F.L. INLET = 560.92

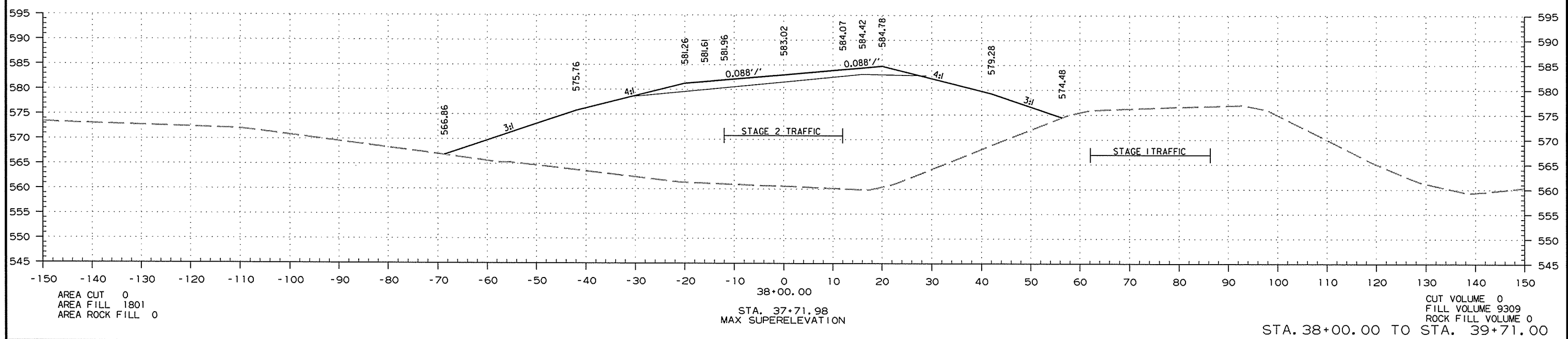
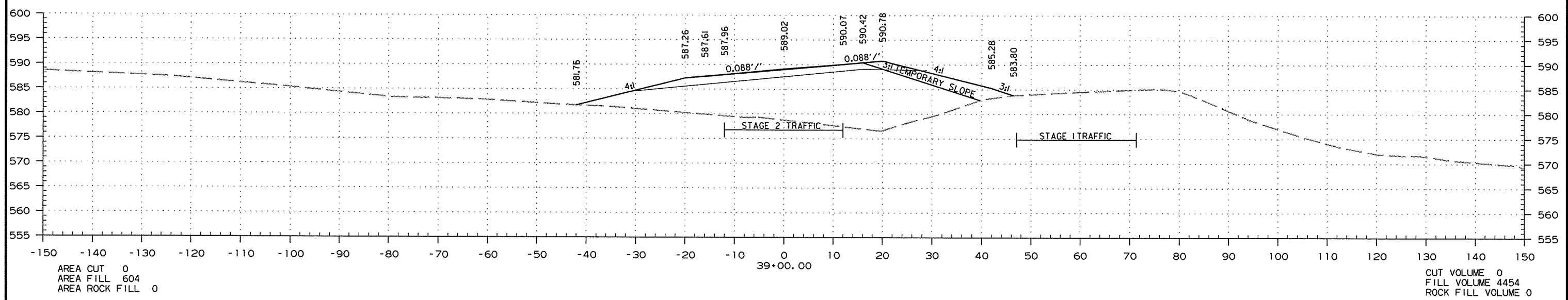
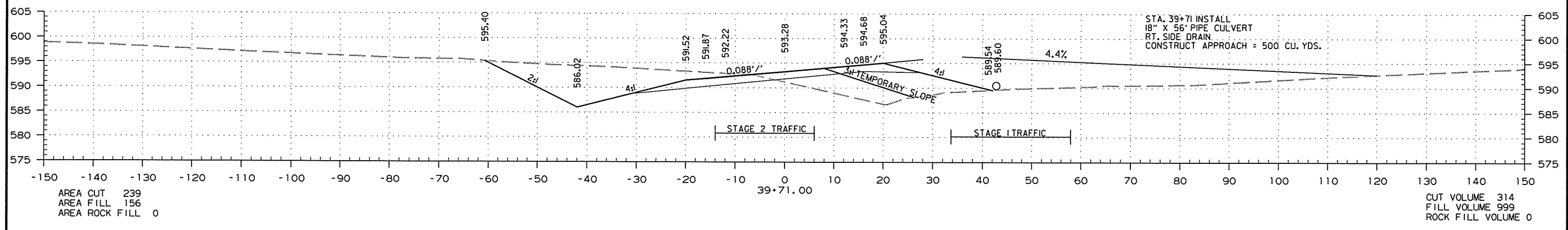
F.L. OUTLET = 549.33

STA. 36+77.00 TO STA. 37+00.00

2/27/2015
 R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						050274	99	102

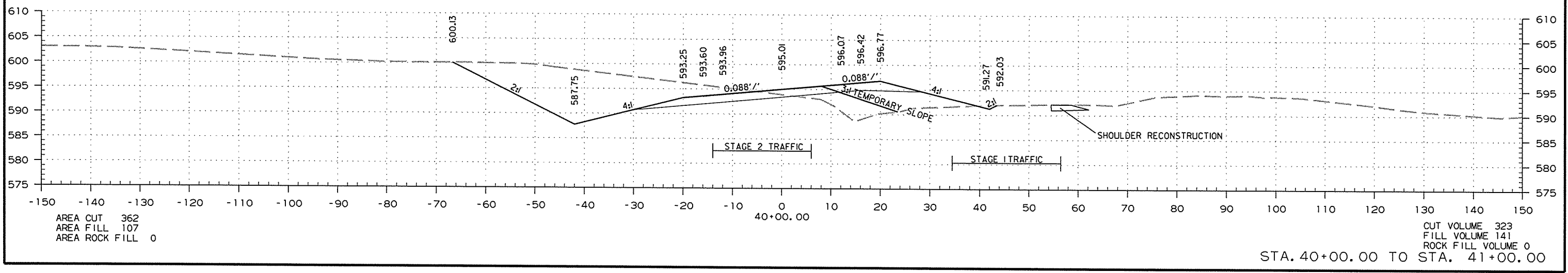
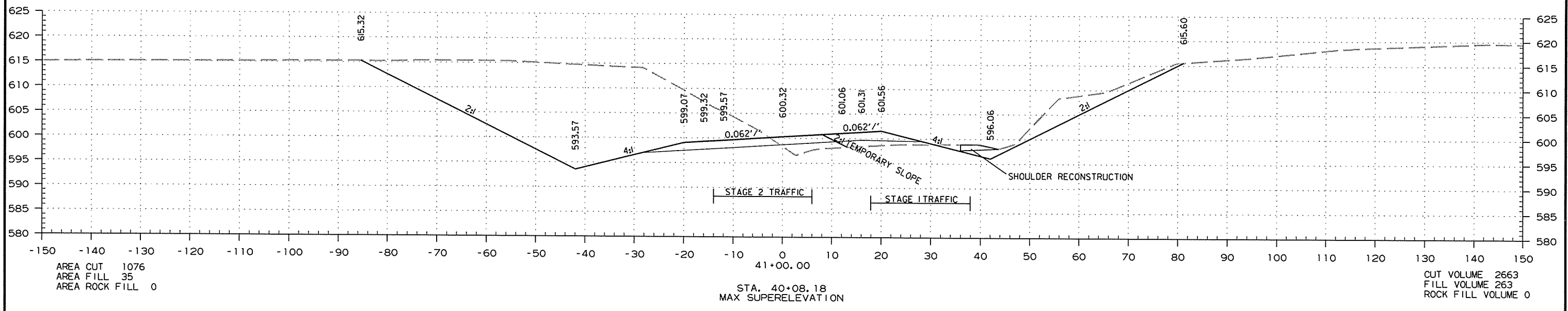
2 CROSS SECTIONS



2/27/2015
R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	050274	100

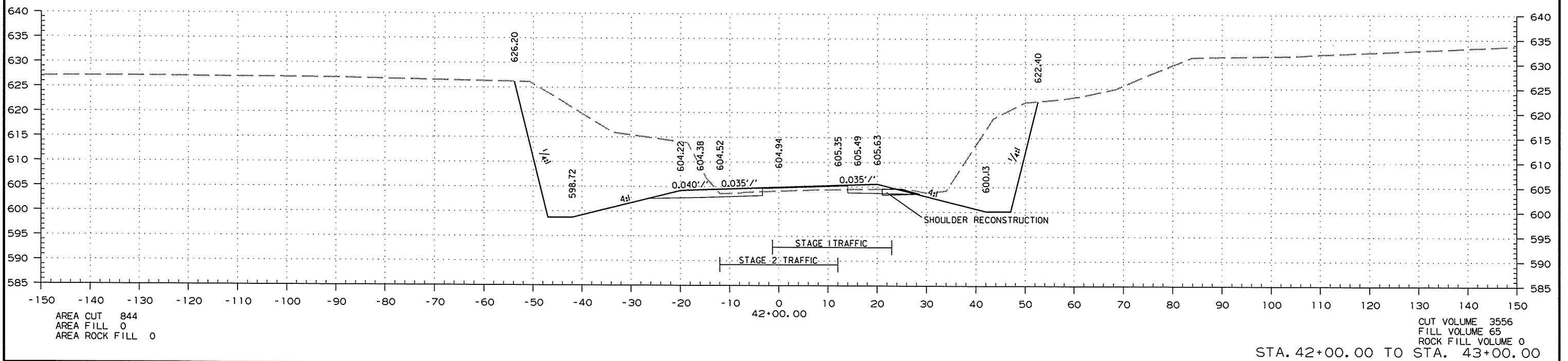
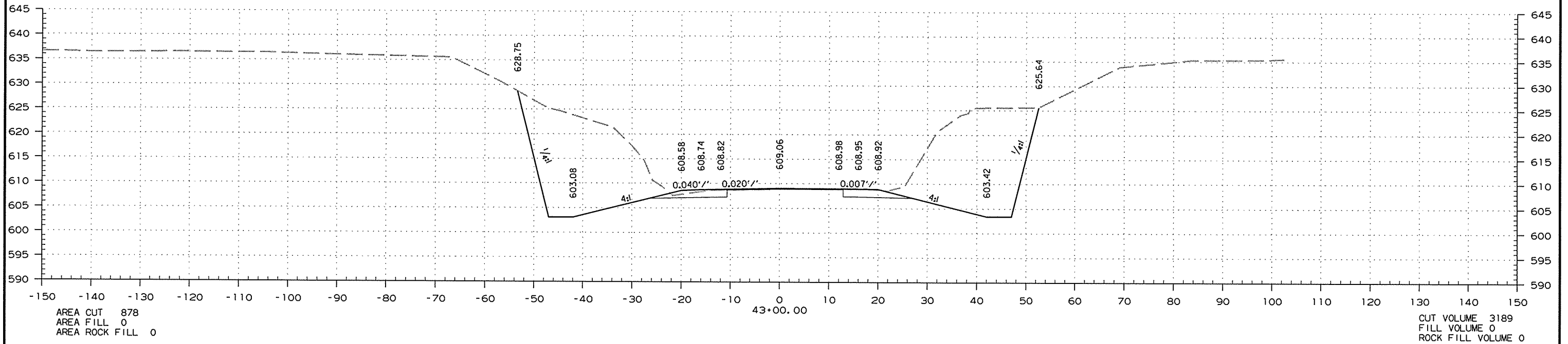
② CROSS SECTIONS



2/27/2015
R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						050274	101	102

② CROSS SECTIONS



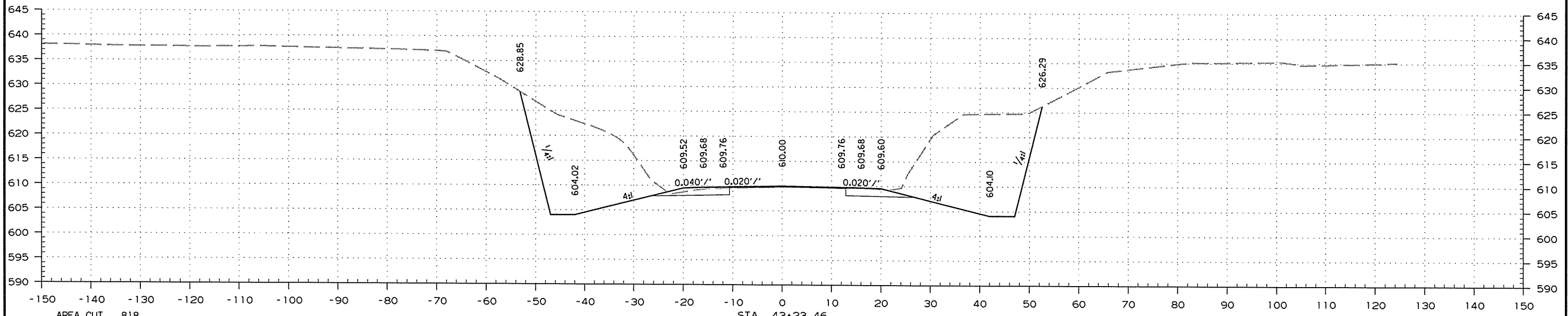
STA. 42+00.00 TO STA. 43+00.00

2/27/2015

R050274.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050274	102	102

② CROSS SECTIONS



R050274.DGN 2/27/2015

AREA CUT 818
 AREA FILL 0
 AREA ROCK FILL 0

STA. 43+23.46
 END JOB 050274
 END SUPERELEVATION

CUT VOLUME 738
 FILL VOLUME 0
 ROCK FILL VOLUME 0

STA. 43+23.46 TO STA. 43+23.46