

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012290	1	42

ARKANSAS DEPARTMENT OF TRANSPORTATION  
CONSTRUCTION PLANS FOR STATE HIGHWAY

② HWY. 64 - HWY. 5 (SAFETY IMPVTS.) (SEL. SECS.) (S)

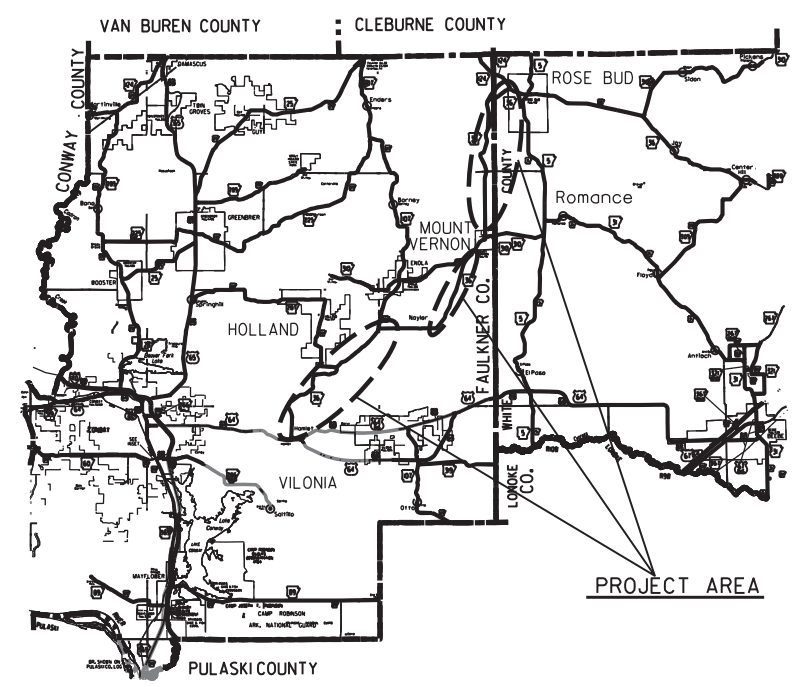
HWY. 64 - HWY. 5  
(SAFETY IMPVTS.) (SEL. SECS.) (S)

FAULKNER & WHITE COUNTIES

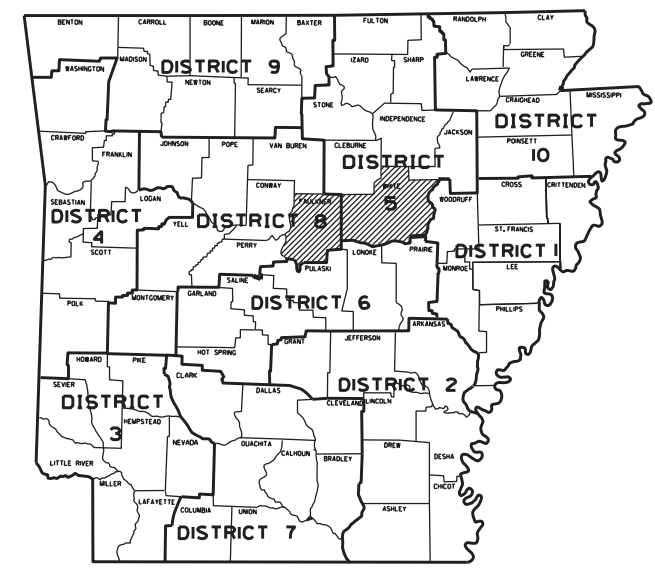
ROUTE 36 SECTIONS 1 & 2

JOB 012290

FED. AID PROJ. HSIP-2373(3)

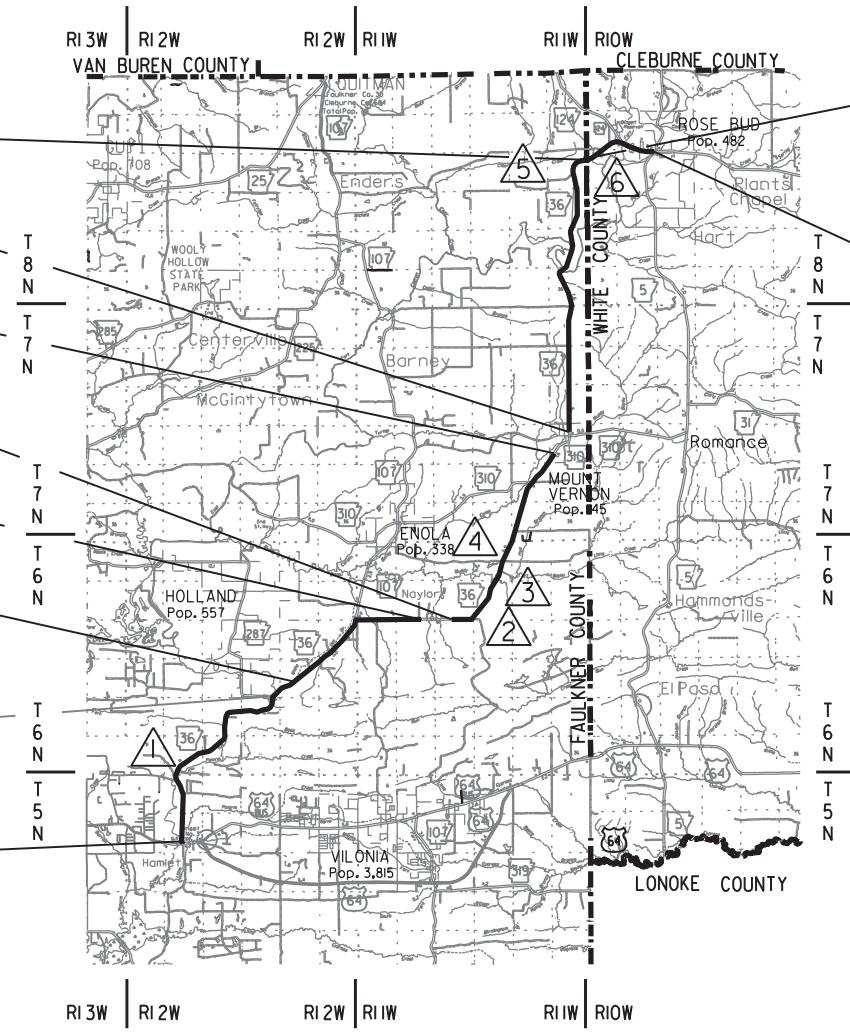


VICINITY MAP



ARK. HWY. DIST. NO. 5 & 8

NOT TO SCALE



EXCEPTIONS TO  
JOB NO. 012290 (BRIDGES)

- ① LOG MILE 1.92 BR. END  
30.80' BRIDGE NO. 03403  
28'-6" CLEAR ROADWAY  
LOG MILE 1.94 BR. END
- ② LOG MILE 12.63 BR. END  
44.94' BRIDGE NO. 03485  
28'-6" CLEAR ROADWAY  
LOG MILE 12.64 BR. END
- ③ LOG MILE 12.73 BR. END  
75.13' BRIDGE NO. 03480  
28'-6" CLEAR ROADWAY  
LOG MILE 12.74 BR. END
- ④ LOG MILE 12.90 BR. END  
111.87' BRIDGE NO. 03481  
28'-6" CLEAR ROADWAY  
LOG MILE 12.92 BR. END
- ⑤ LOG MILE 21.40 BR. END  
175.85' BRIDGE NO. 03477  
28'-6" CLEAR ROADWAY  
LOG MILE 21.43 BR. END
- ⑥ LOG MILE 1.12 BR. END  
251.96' BRIDGE NO. 03105  
26'-6" CLEAR ROADWAY  
LOG MILE 1.17 BR. END

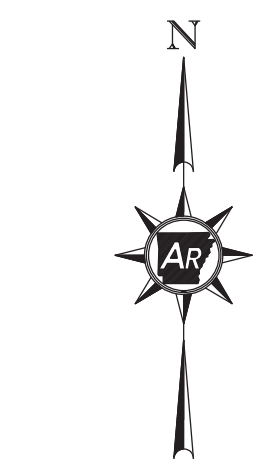
- END EXCEPTION NO. 2  
L.M. 17.00
- BEGIN EXCEPTION NO. 2  
L.M. 16.41
- END EXCEPTION NO. 1  
L.M. 10.96
- BEGIN EXCEPTION NO. 1  
L.M. 10.24
- STA. 318+50.00  
END SITE 1
- STA. 296+50.00  
BEGIN SITE 1  
L.M. 5.55
- BEGIN JOB 012290  
SECTION 1, L.M. 0.00

BEGIN SECTION 2  
L.M. 0.00

END JOB 012290  
SECTION 2, L.M. 2.02

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	2000
2040 ADT	2800
2040 DHV	308
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	6%
DESIGN SPEED	55 MPH



APPROVED



Banks C. Manuel  
DEPUTY DIRECTOR  
AND CHIEF ENGINEER

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°04' 40"	N 35°10' 30"	N 35°19' 54"
LONGITUDE	W 92°18' 20"	W 92°09' 28"	W 92°04' 49"

LENGTH OF PROJECT CALCULATED ALONG C. L.

GROSS NET	LENGTH OF	PROJECT	140395.20	FEET OR	26.590 MILES
NET	ROADWAY	132787.85			25.149
NET	BRIDGES	00.00			0.000
NET	PROJECT	132787.85			25.149

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② INDEX OF SHEETS & STANDARD DRAWINGS



*Trinity D. Smith*

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INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS AND STANDARD DRAWINGS
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 7	TYPICAL SECTIONS OF IMPROVEMENT
8 - 13	SPECIAL DETAILS
14 - 16	TEMPORARY EROSION CONTROL DETAILS
17 - 19	MAINTENANCE OF TRAFFIC DETAILS
20	PERMANENT PAVEMENT MARKING DETAILS
21 - 27	QUANTITIES
28	SUMMARY OF QUANTITIES AND REVISIONS
29 - 30	SURVEY CONTROL DETAILS
31 - 32	PLAN AND PROFILE SHEETS
33 - 42	CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
GR-6	GUARDRAIL DETAILS	11-07-19
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	11-07-19
GRT-1	GUARDRAIL DETAILS	11-07-19
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94



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2 GOVERNING SPECIFICATIONS & GENERAL NOTES

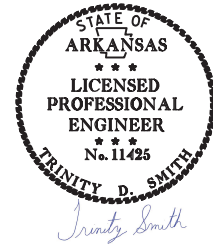
**GOVERNING SPECIFICATIONS**

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 012290
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
210-1	UNCLASSIFIED EXCAVATION
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
404-3	DESIGN OF ASPHALT MIXTURES
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2	INCIDENTAL CONSTRUCTION
603-1	LANE CLOSURE NOTIFICATION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1	CONCRETE DITCH PAVING
606-1	PIPE CULVERTS FOR SIDE DRAINS
617-1	GUARDRAIL TERMINAL (TYPE 2)
620-1	MULCH COVER
JOB 012290	AGGREGATE SURFACE COURSE
JOB 012290	BIDDING REQUIREMENTS AND CONDITIONS
JOB 012290	BORROW
JOB 012290	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 012290	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 012290	CARGO PREFERENCE ACT REQUIREMENTS
JOB 012290	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 012290	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 012290	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 012290	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 012290	EXTENSION FOR PIPE CULVERTS
JOB 012290	FLEXIBLE BEGINNING OF WORK
JOB 012290	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 012290	MANDATORY ELECTRONIC CONTRACT
JOB 012290	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 012290	PARTNERING REQUIREMENTS
JOB 012290	PLASTIC PIPE
JOB 012290	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 012290	RUMBLE STRIPS
JOB 012290	SHAPING DITCH
JOB 012290	SHORING FOR CULVERTS
JOB 012290	SOIL STABILIZATION
JOB 012290	STORM WATER POLLUTION PREVENTION PLAN
JOB 012290	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 012290	UTILITY ADJUSTMENTS
JOB 012290	VALUE ENGINEERING
JOB 012290	WARM MIX ASPHALT
JOB 012290	WATER POLLUTION CONTROL

**GENERAL NOTES**

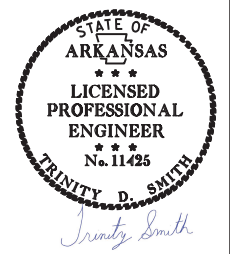
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- 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.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.



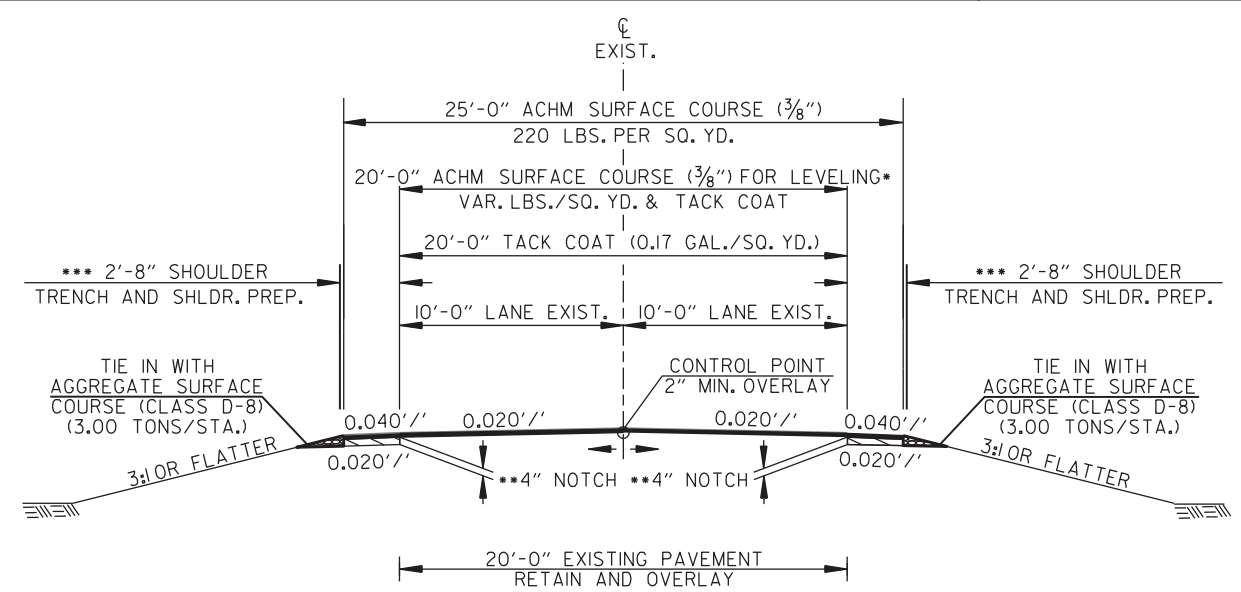
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② TYPICAL SECTIONS OF IMPROVEMENT



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TYPICAL SECTION OF IMPROVEMENT  
HWY. 36 - SHOULDER WIDENING (4'-0")  
& OVERLAY

SECTION 1

- LOG MILE 0.00 TO LOG MILE 1.92
- LOG MILE 1.94 TO LOG MILE 3.35
- LOG MILE 3.82 TO LOG MILE 3.99
- LOG MILE 4.29 TO LOG MILE 5.26
- LOG MILE 5.92 TO LOG MILE 8.44
- LOG MILE 17.00 TO LOG MILE 17.31
- LOG MILE 21.14 TO LOG MILE 21.40

- TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- \*\*\* 3'-0" DESIRED (2'-0" MINIMUM)

\*\*EXISTING 2' UNPAVED SHOULDER - NOTCH 4" (TRENCH SHOULDER) 2'-6" ACHM BINDER COURSE (440 LBS./SQ. YD.) (PG 64-22) & TACK COAT

NOTES:

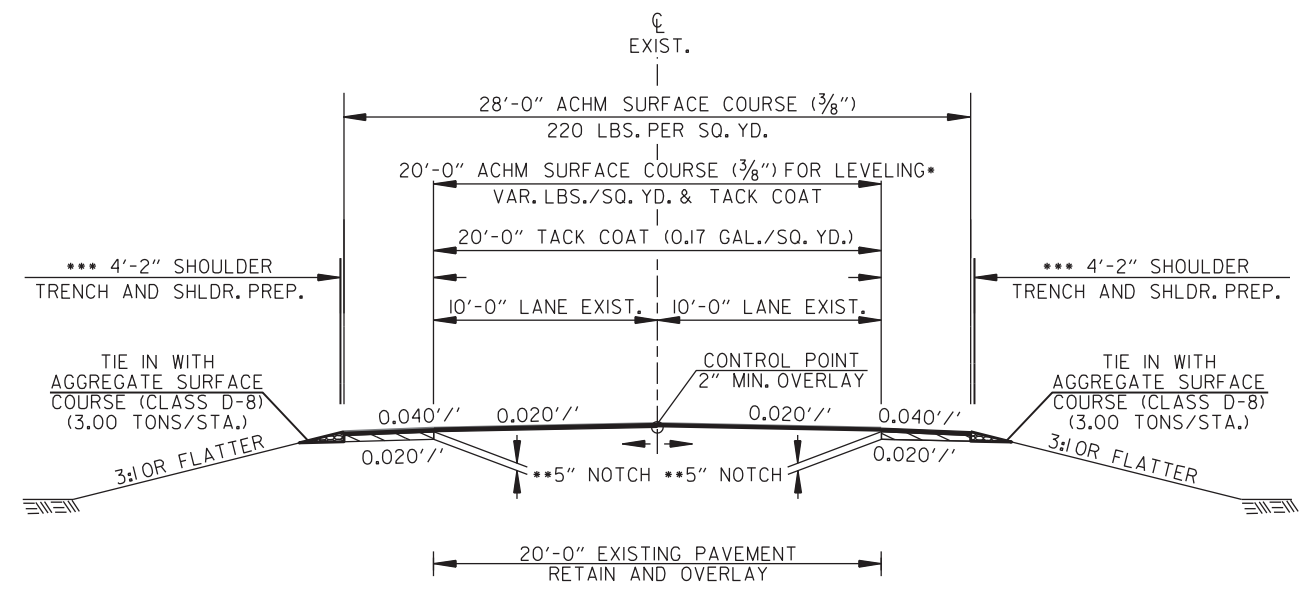
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

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.

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



TYPICAL SECTION OF IMPROVEMENT  
HWY. 36 - SHOULDER WIDENING (4'-0")  
& OVERLAY

SECTION 1

- LOG MILE 17.31 TO LOG MILE 21.14
- LOG MILE 21.43 TO LOG MILE 24.48

SECTION 2

- LOG MILE 0.36 TO LOG MILE 1.12
- LOG MILE 1.17 TO LOG MILE 2.00

- TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- \*\*\* 4'-0" DESIRED (2'-0" MINIMUM)

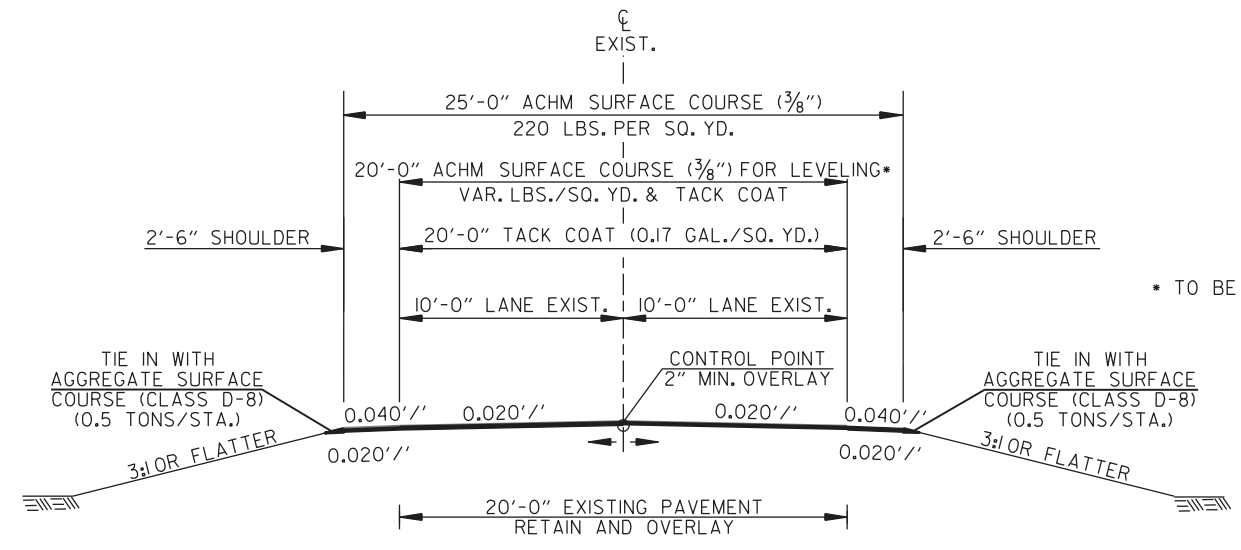
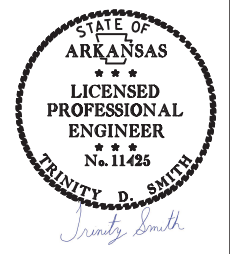
\*\*EXISTING 2' UNPAVED SHOULDER - NOTCH 4" (TRENCH SHOULDER) 4'-0" ACHM BINDER COURSE (550 LBS./SQ. YD.) (PG 64-22) & TACK COAT

TYPICAL SECTIONS OF IMPROVEMENT



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2 TYPICAL SECTIONS OF IMPROVEMENT



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

TYPICAL SECTION OF IMPROVEMENT  
HWY. 36 - OVERLAY

SECTION 1  
LOG MILE 3.35 TO LOG MILE 3.82  
LOG MILE 3.99 TO LOG MILE 4.29  
LOG MILE 5.26 TO LOG MILE 5.55  
LOG MILE 8.44 TO LOG MILE 8.50  
LOG MILE 8.58 TO LOG MILE 10.24  
LOG MILE 10.96 TO LOG MILE 16.41

NOTES:

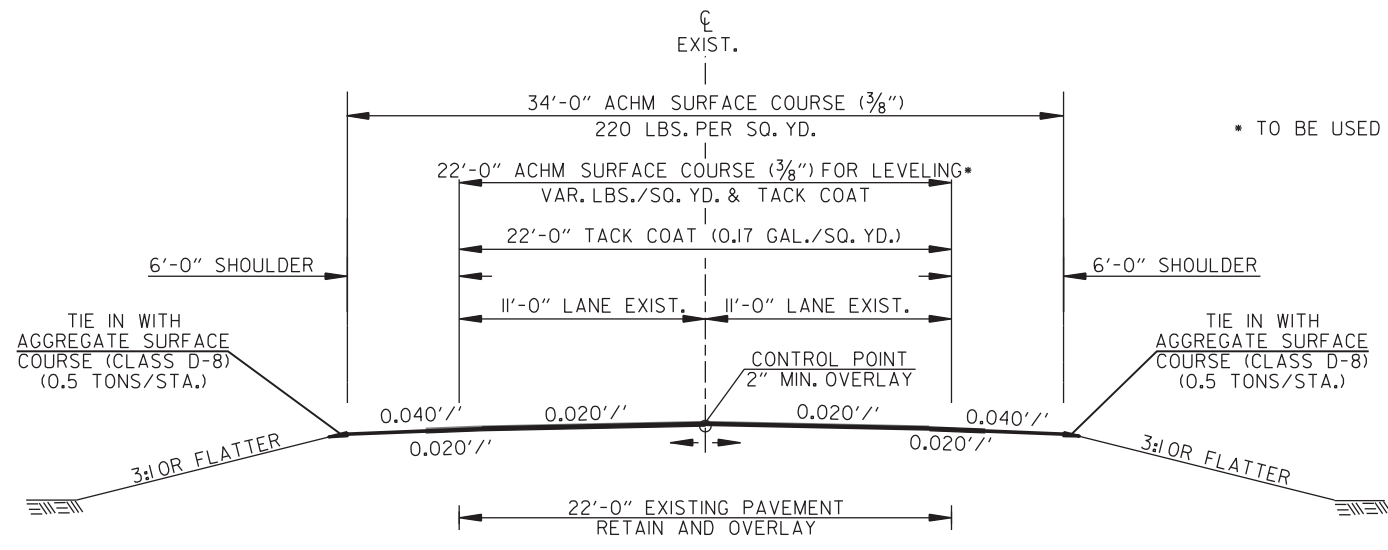
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REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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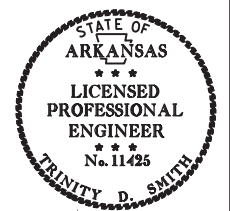
\* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TYPICAL SECTION OF IMPROVEMENT  
HWY. 36 - OVERLAY

SECTION 1  
LOG MILE 24.48 TO LOG MILE 24.59  
SECTION 2  
LOG MILE 0.00 TO LOG MILE 0.36

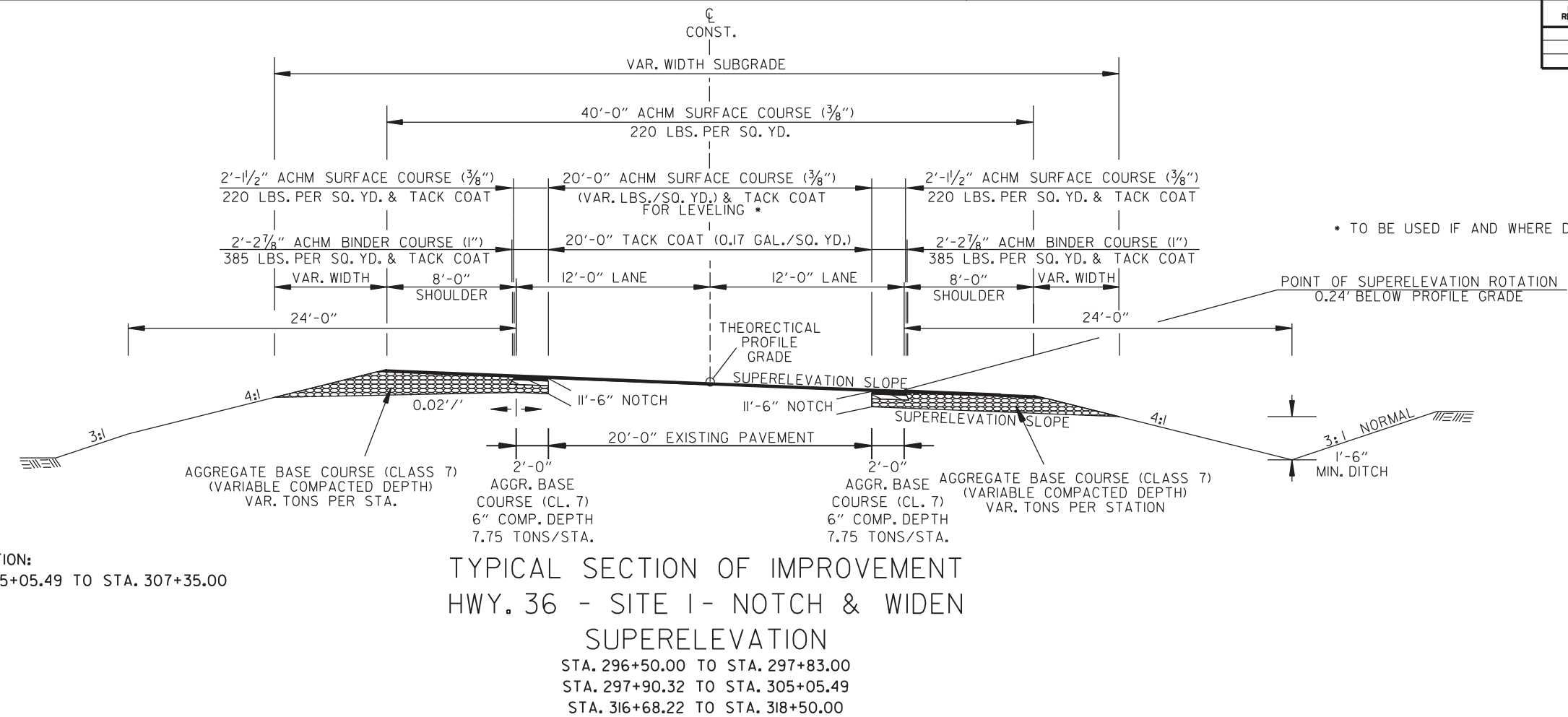
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2 TYPICAL SECTIONS OF IMPROVEMENT



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TRANSITION:  
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• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

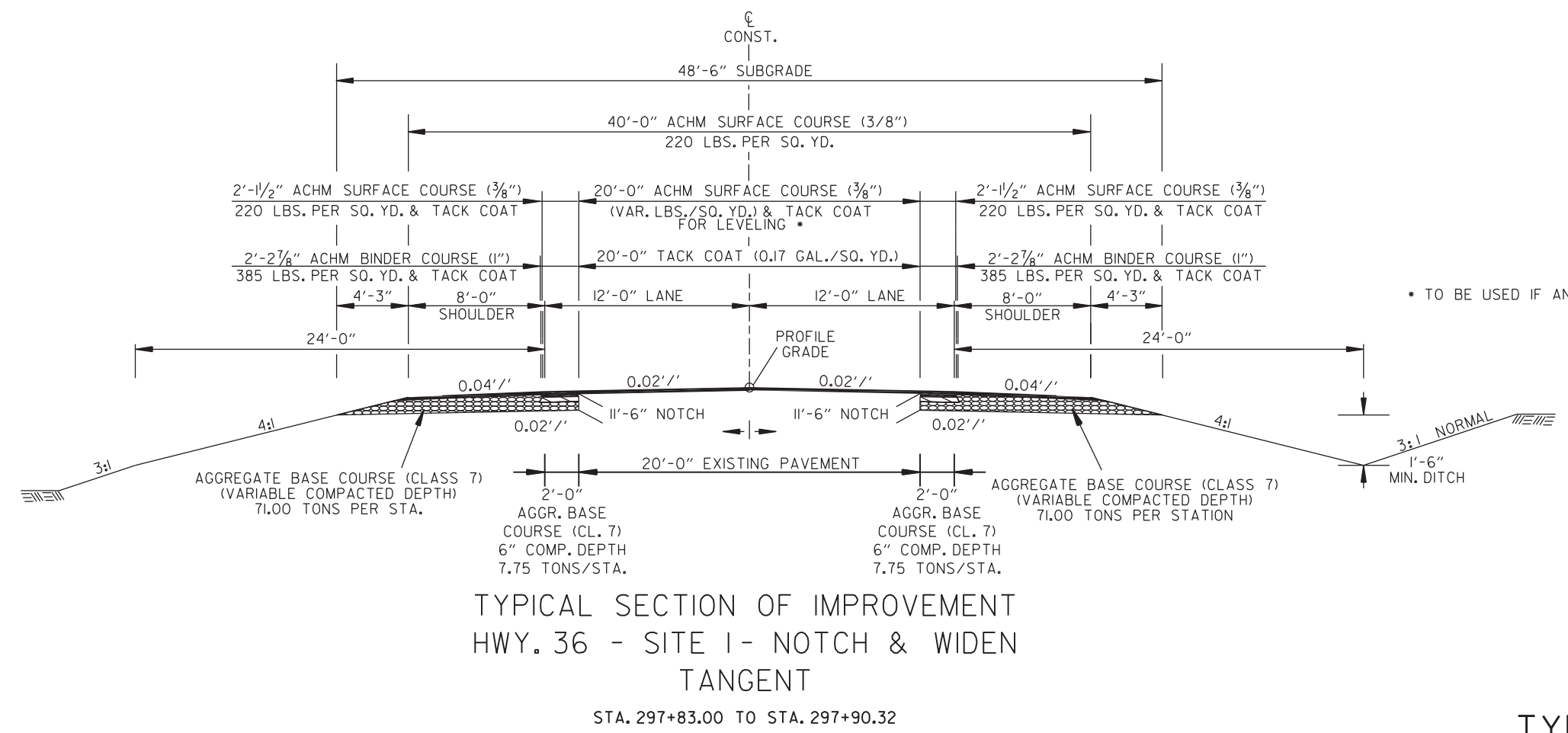
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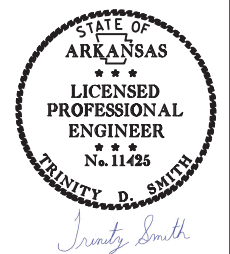
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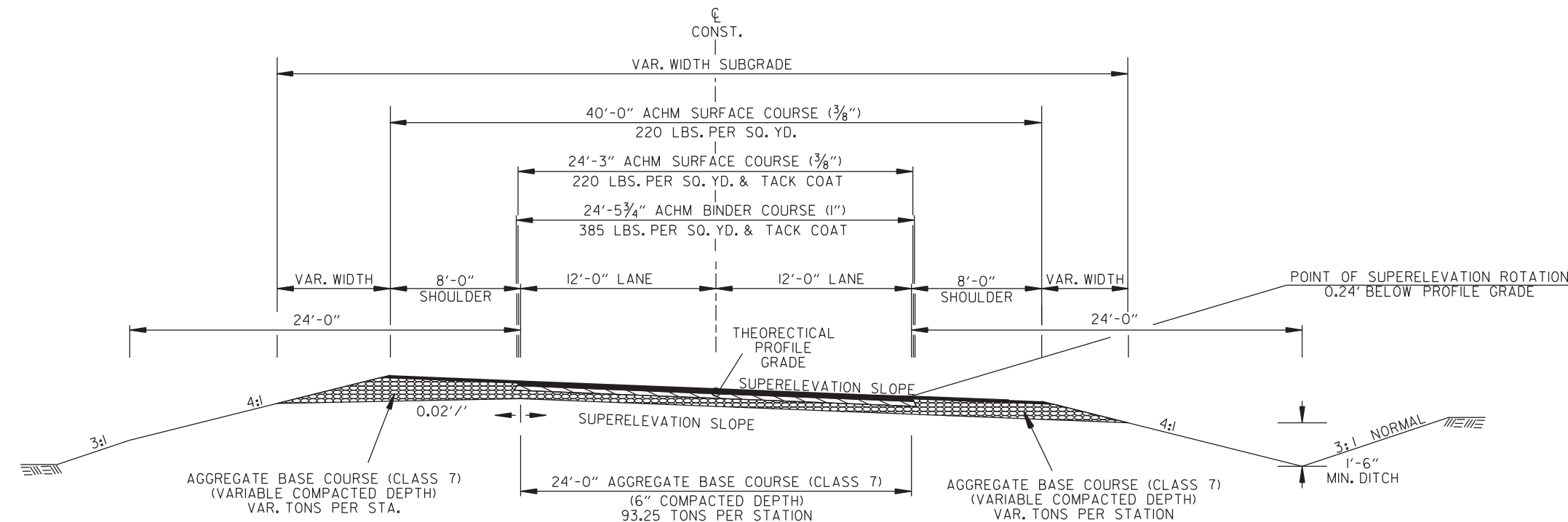
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② TYPICAL SECTIONS OF IMPROVEMENT



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

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.

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

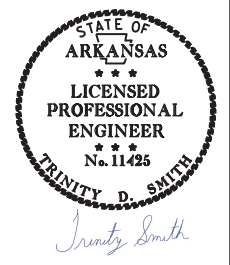
TRANSITION:  
STA. 310+85.00 TO STA. 316+68.22

TYPICAL SECTION OF IMPROVEMENT  
HWY. 36 - SITE I- FULL DEPTH  
SUPERELEVATION  
STA. 307+35.00 TO STA. 310+85.00

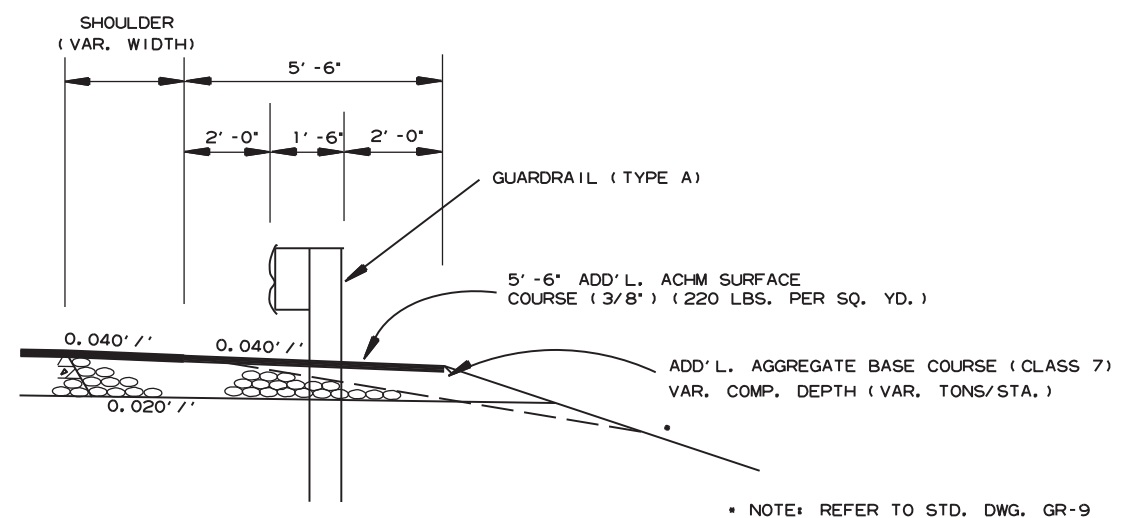


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012290		8	42

2 SPECIAL DETAILS

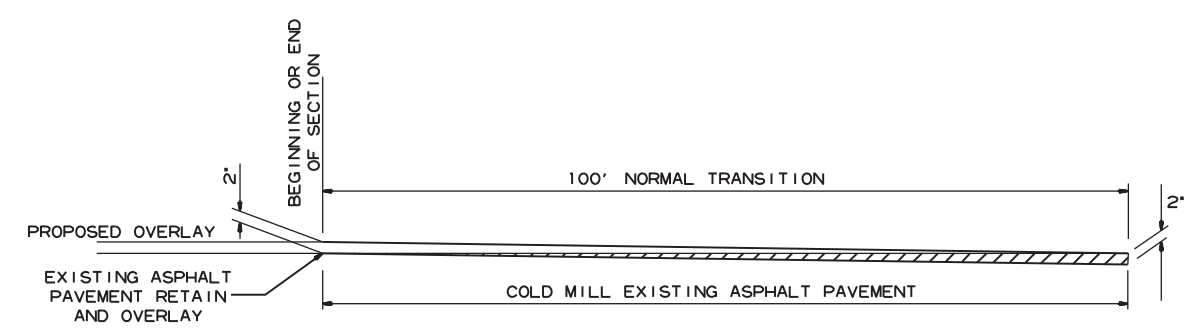


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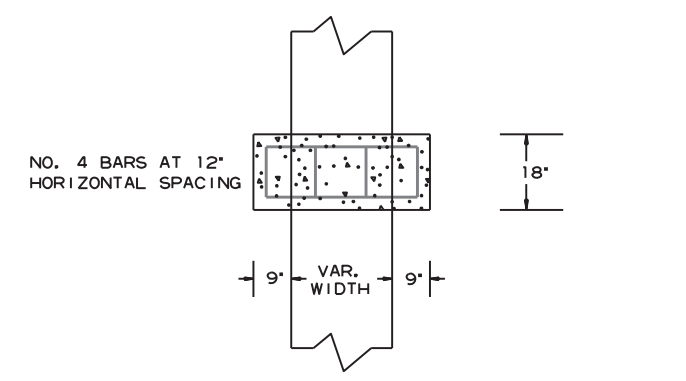


WIDENING FOR GUARDRAIL

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

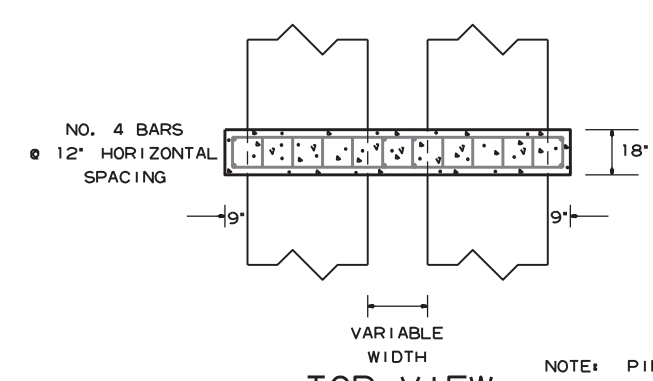


DETAIL FOR TRANSITIONS



TOP VIEW

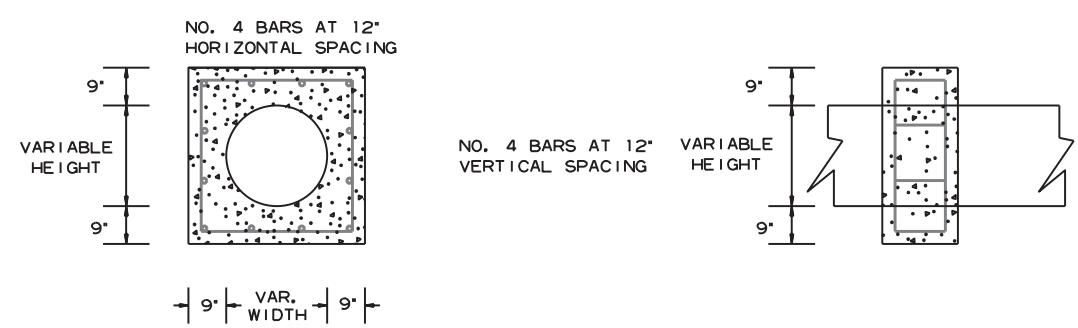
MIN. 3" COVER



TOP VIEW

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

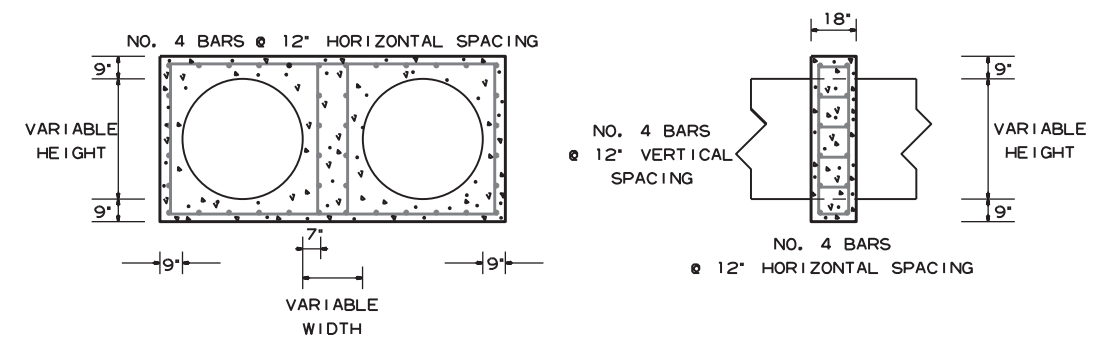
MIN. 3" COVER



FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

SPECIAL DETAILS

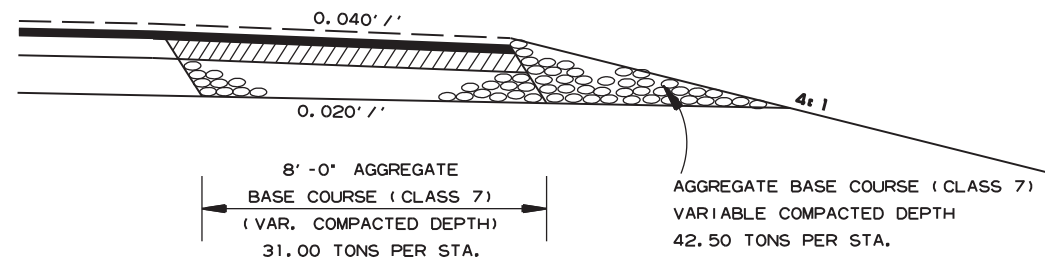
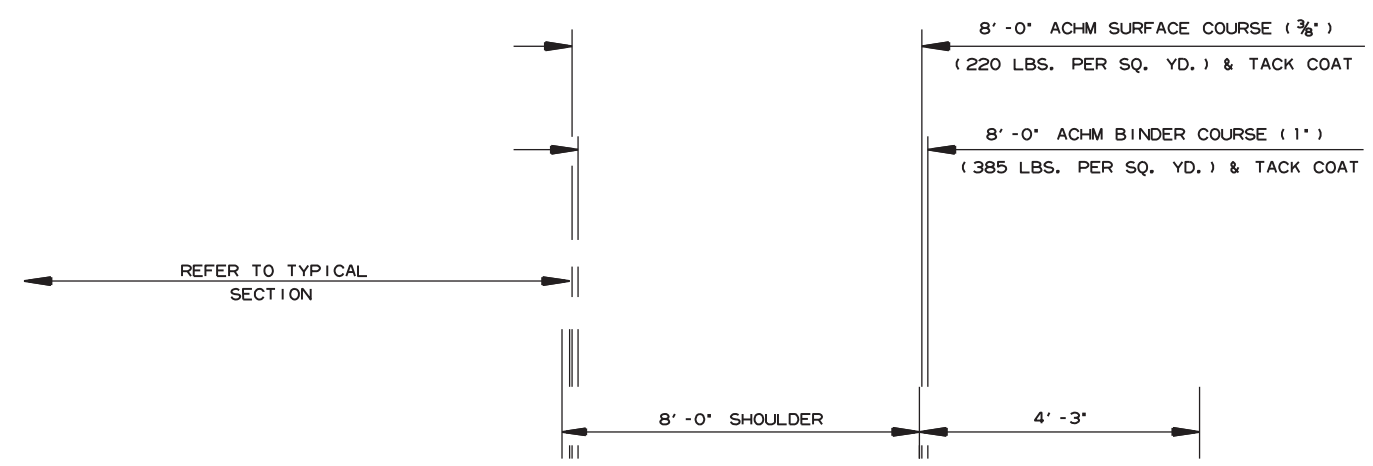
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				JOB NO.	012290		9	42

2 SPECIAL DETAILS



*Trinity D. Smith*

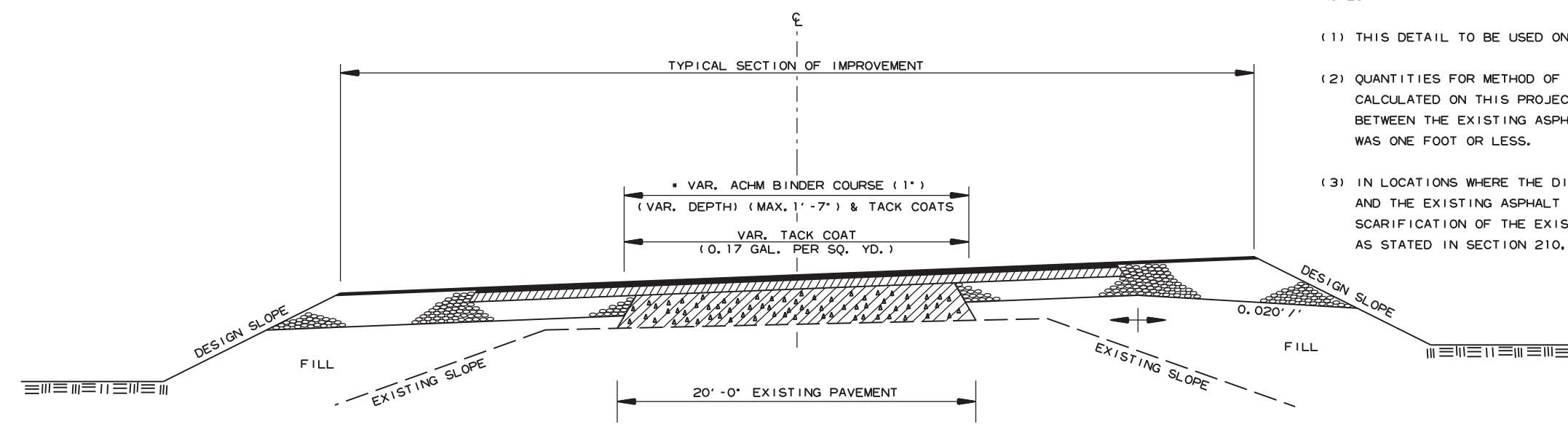
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**FULL DEPTH SHOULDER  
FOR MAINTENANCE OF TRAFFIC**  
STA. 305+30 TO STA. 311+70

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.

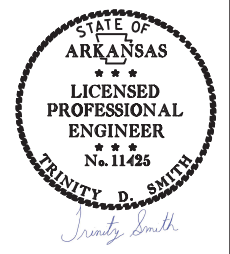


• 6" AGGREGATE BASE COURSE (CLASS 7)  
TO BE REPLACED WITH ACHM BASE COURSE (1-1/2")

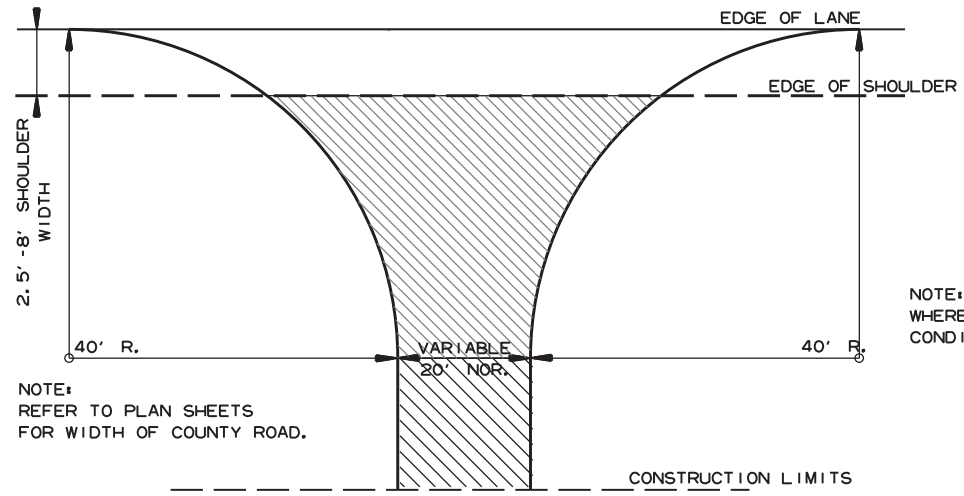
**METHOD OF RAISING GRADE**

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012290							10	42

2 SPECIAL DETAILS



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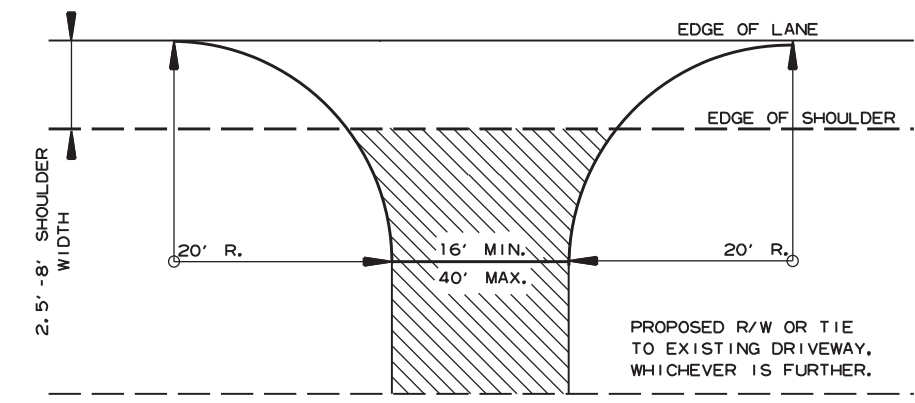


NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

ACHM SURFACE COURSE (3/8") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH

DETAIL COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION



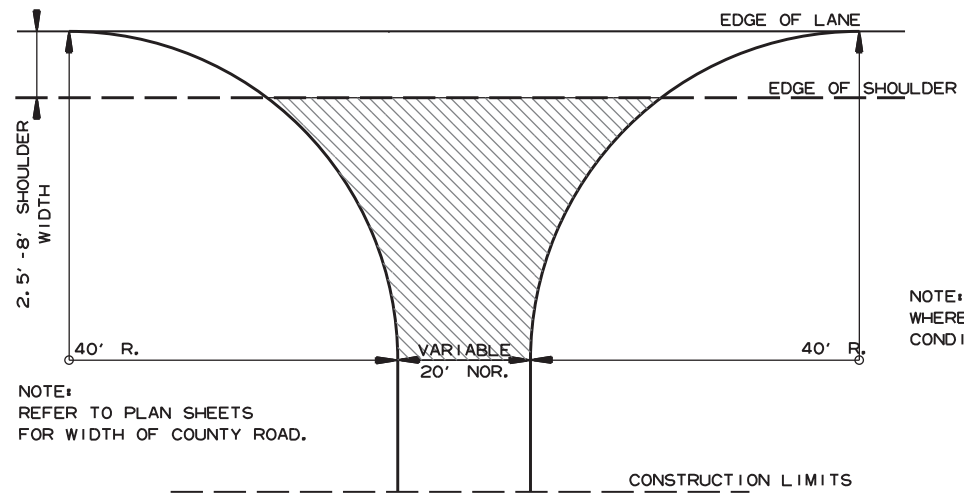
PROPOSED R/W OR TIE TO EXISTING DRIVEWAY, WHICHEVER IS FURTHER.

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

ACHM SURFACE COURSE (3/8") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS  
OPEN SHOULDER SECTION  
(ARTERIALS)

DETAILS FOR RECONSTRUCTION

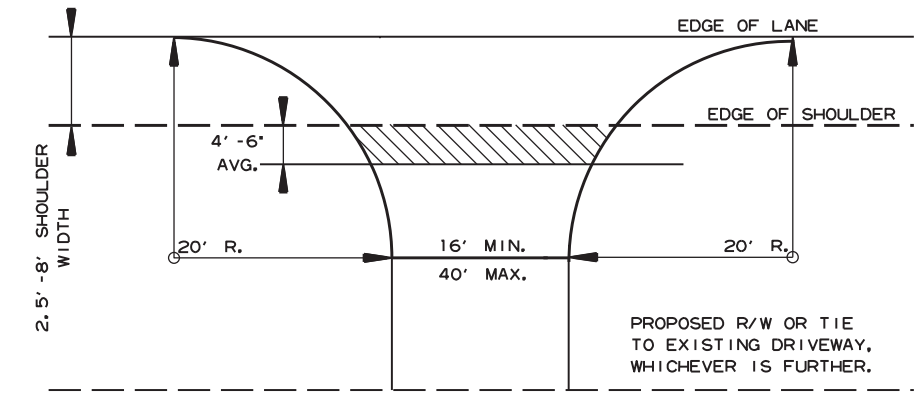


NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

ACHM SURFACE COURSE (3/8") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH

DETAIL COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION



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

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

ACHM SURFACE COURSE (3/8") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS  
OPEN SHOULDER SECTION  
(ARTERIALS)

DETAILS FOR SHOULDER WIDENING/OVERLAY

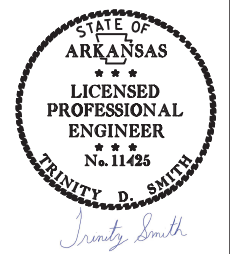
SPECIAL DETAILS

1w39665 4/23/2020 R012290.DGN

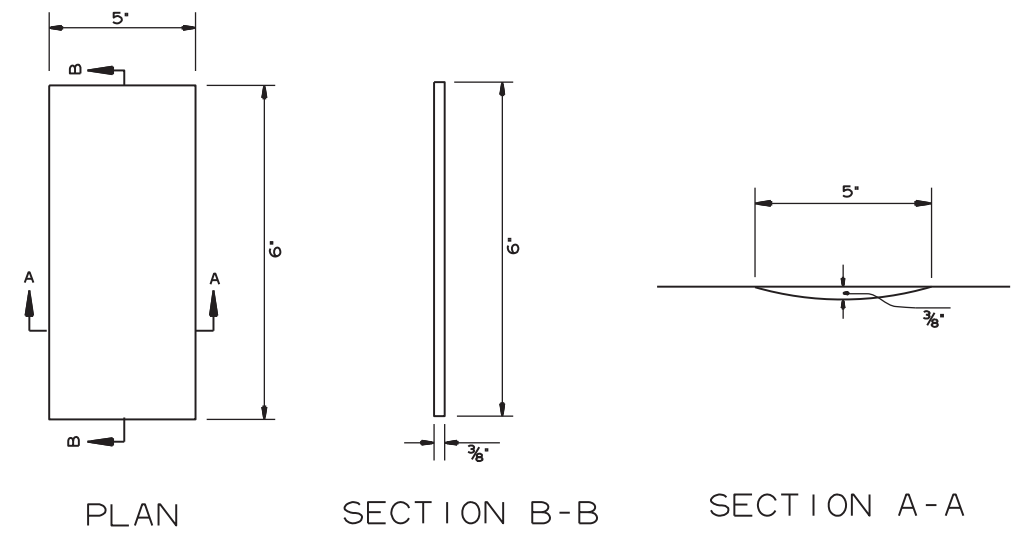


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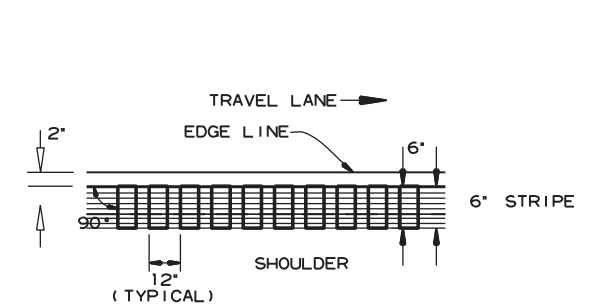
2 SPECIAL DETAILS



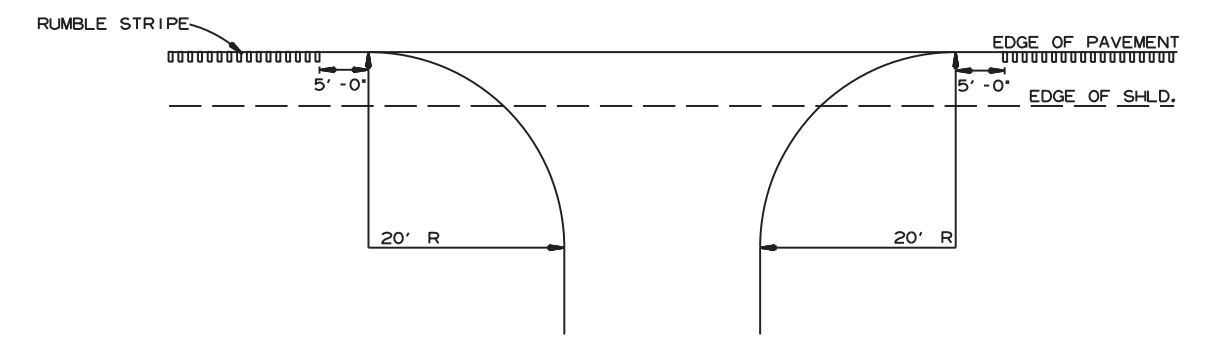
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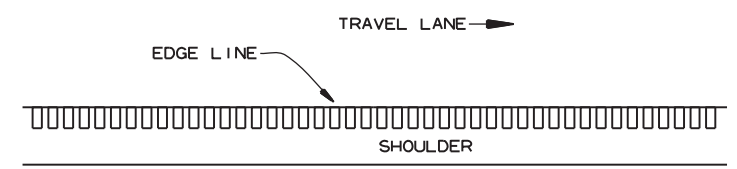
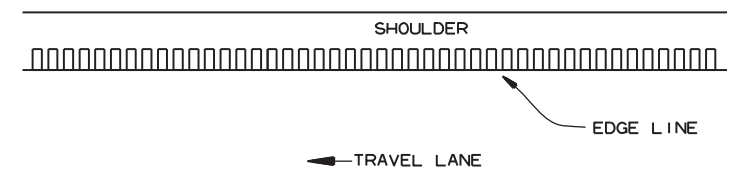
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE  
LEFT OR RIGHT SHOULDER



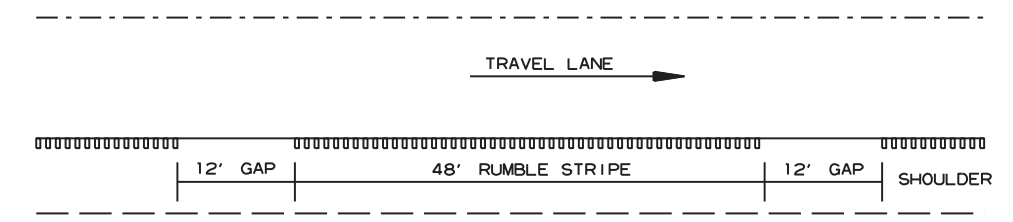
DETAIL FOR RUMBLE STRIPE GAP  
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIPE

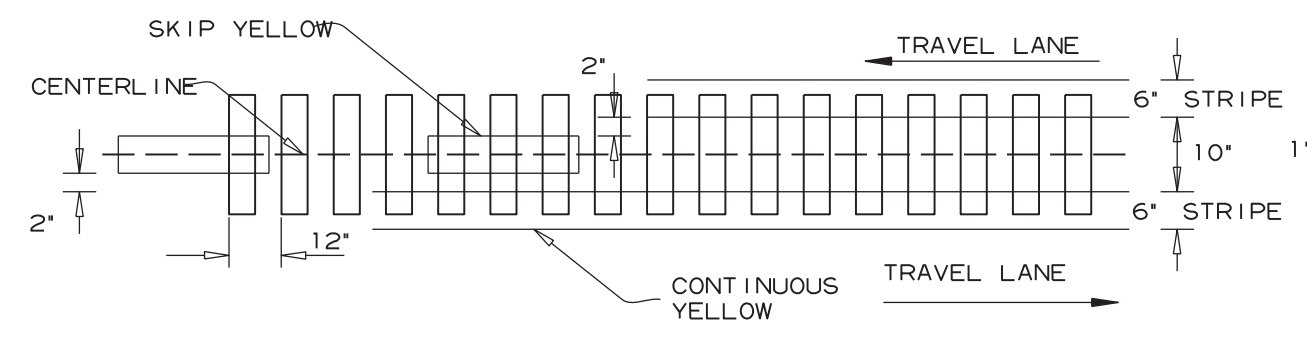
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				6	ARK.			
				JOB NO.	012290		12	42

② SPECIAL DETAILS

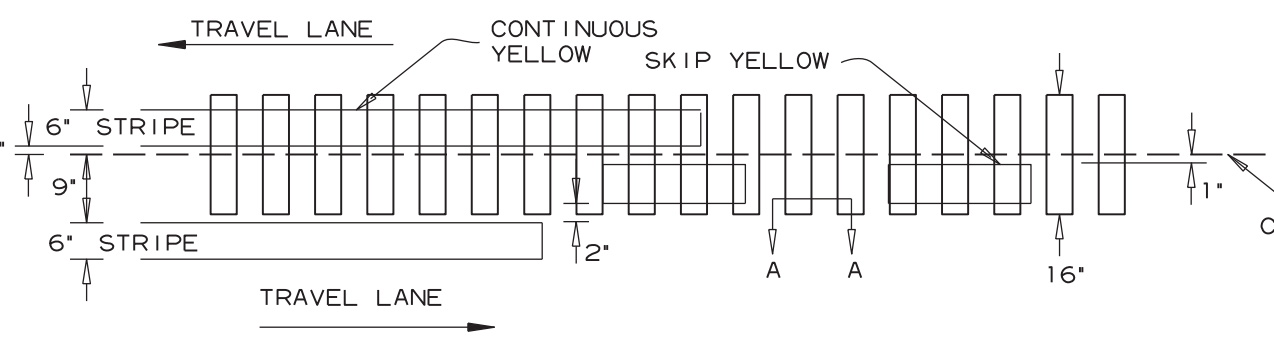


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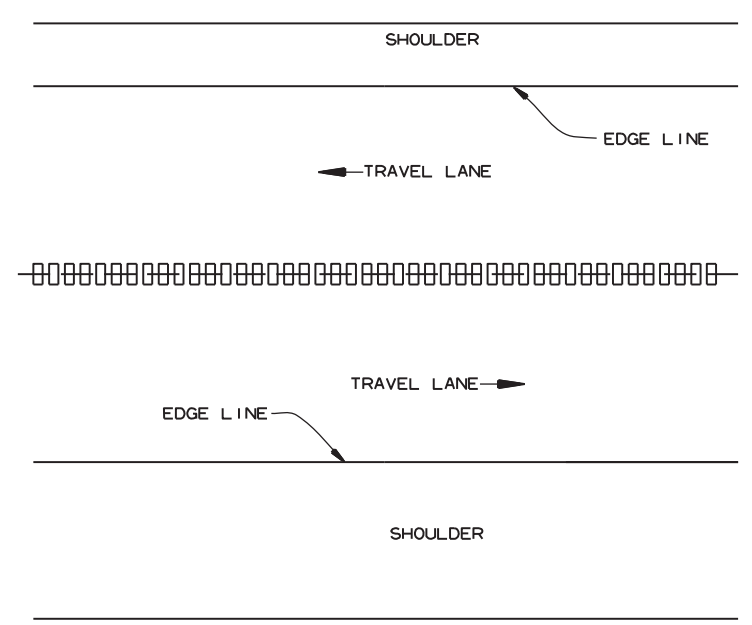


ASPHALT PAVEMENT

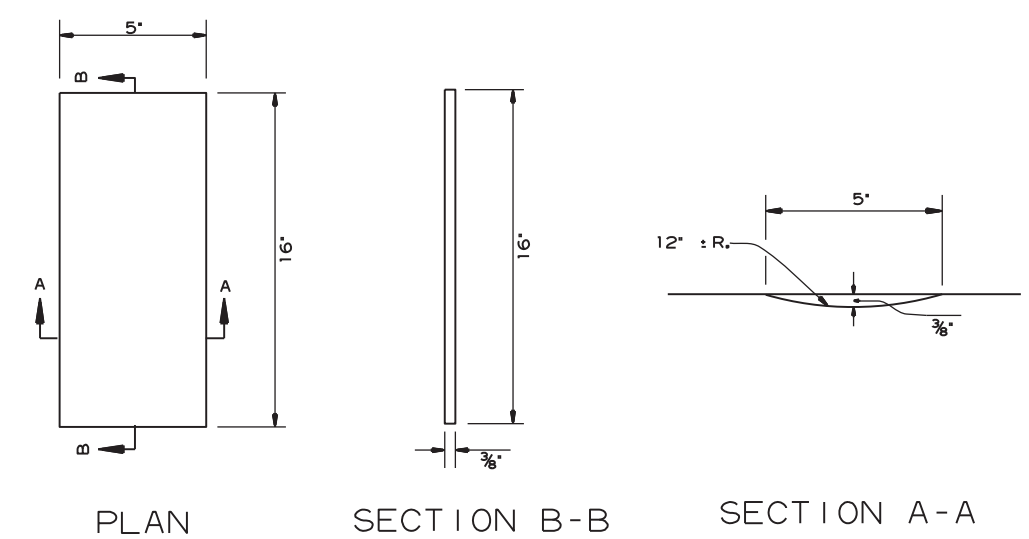


CONCRETE PAVEMENT

LOCATION PLAN OF CENTERLINE RUMBLE STRIPES



PLAN VIEW



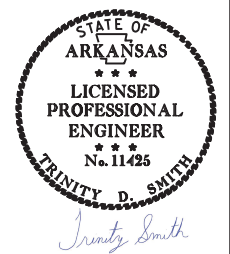
DETAILS OF CENTERLINE RUMBLE STRIPES

GENERAL NOTES

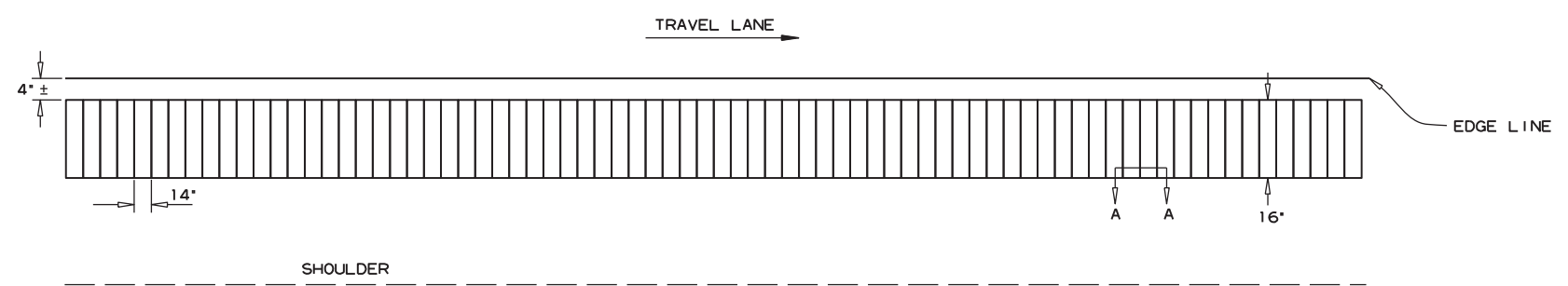
1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE CENTERLINE.
3. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16' LENGTH. SOME VARIATION TO SUIT SLOPE BREAKS MAY BE NECESSARY.

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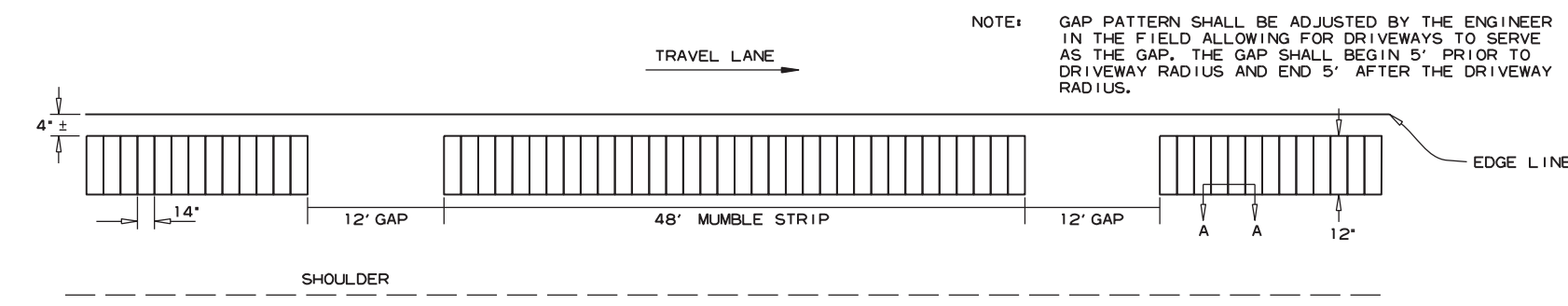
2 SPECIAL DETAILS



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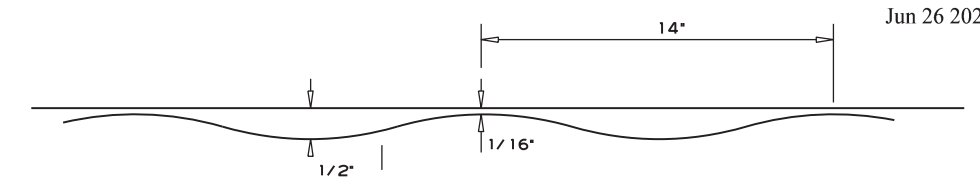


MUMBLE STRIPS (TYPE 1)

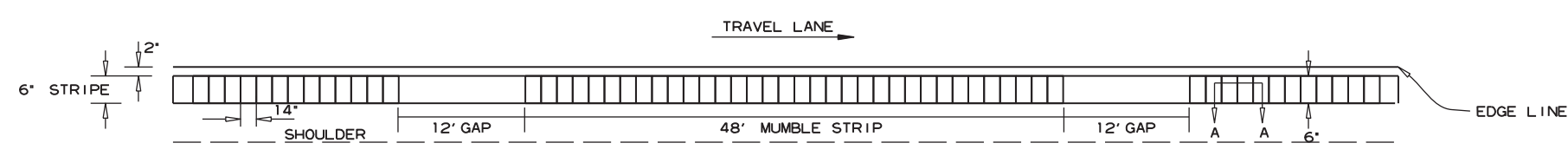


MUMBLE STRIPS (TYPE 2)

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP. THE GAP SHALL BEGIN 5' PRIOR TO DRIVEWAY RADIUS AND END 5' AFTER THE DRIVEWAY RADIUS.



SECTION A-A  
DETAIL OF MUMBLE STRIP(E)

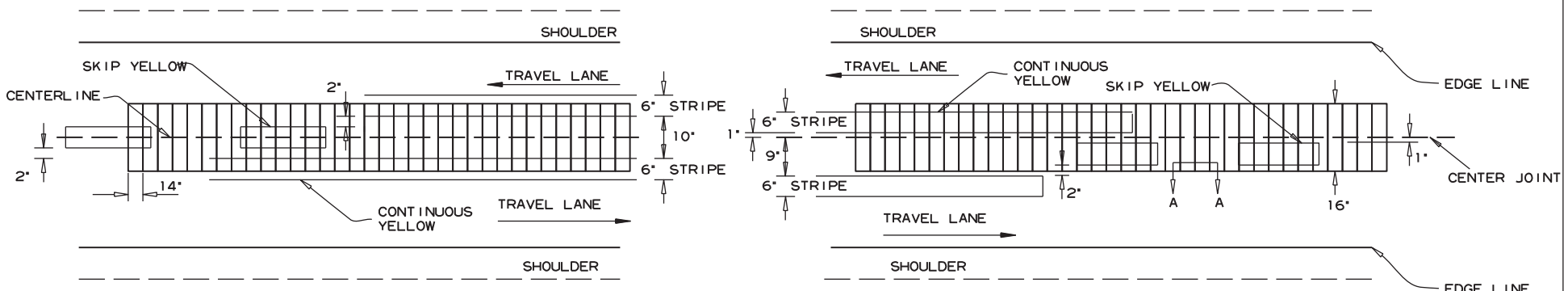


MUMBLE STRIPES

NOTE: IF SHOULDER IS GREATER THAN 4', GAPS SHALL BE PLACED FOR ACCOMMODATION OF BICYCLES.  
NOTE: STRIPING IS TO BE PLACED AFTER MUMBLE STRIPES HAVE BEEN CONSTRUCTED.  
NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP. THE GAP SHALL BEGIN 5' PRIOR TO DRIVEWAY RADIUS AND END 5' AFTER THE DRIVEWAY RADIUS.

- NOTES FOR MUMBLE STRIPS (LOW NOISE RUMBLE STRIPS) (TYPE 1 AND 2)
- MUMBLE 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.
  - MUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
  - 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.
  - MUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH MUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE MUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
  - ALIGNMENT OF MUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE AS WELL AS TO AVOID EXISTING LONGITUDINAL JOINTS.
  - THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE MUMBLE STRIP LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.

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



CENTERLINE MUMBLE STRIPES

NOTE: STRIPING IS TO BE PLACED AFTER MUMBLE STRIPES HAVE BEEN CONSTRUCTED.  
NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP. THE GAP SHALL BEGIN 5' PRIOR TO DRIVEWAY RADIUS AND END 5' AFTER THE DRIVEWAY RADIUS.

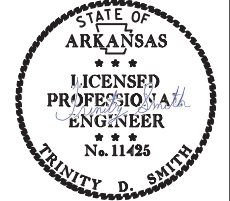
- NOTES FOR CENTERLINE MUMBLE STRIPES (LOW NOISE RUMBLE STRIPES)
- CENTERLINE MUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
  - CENTERLINE MUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE CENTERLINE.
  - THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SLOPE BREAKS MAY BE NECESSARY.
  - PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE CENTERLINE ON WHICH MUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE MUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.

SPECIAL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012290		14	42

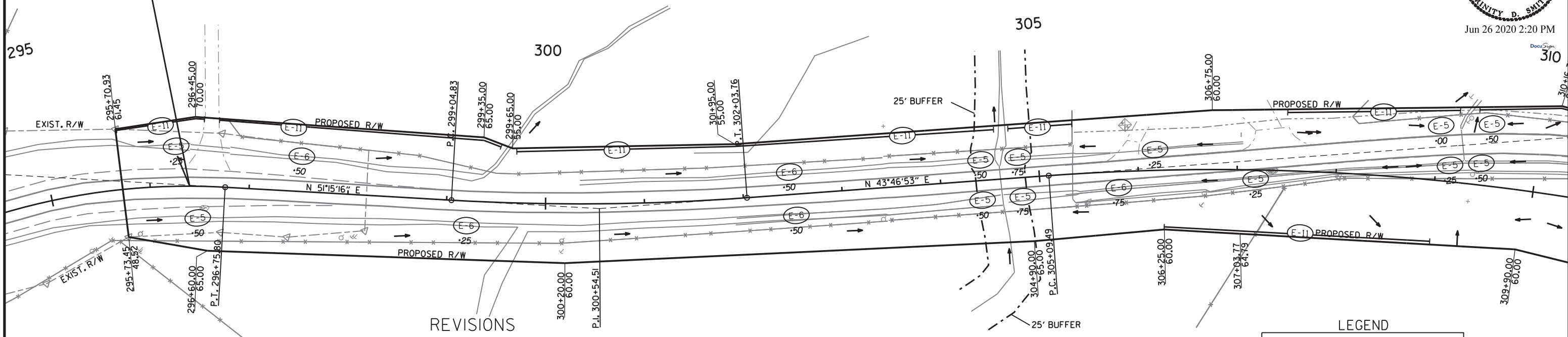
② TEMPORARY EROSION CONTROL DETAILS



Jun 26 2020 2:20 PM

CLEARING & GRUBBING  
 SAND BAG DITCH CHECKS (E-5)  
 19 LOCATIONS = 418 BAGS  
 ROCK DITCH CHECKS (E-6)  
 11 LOCATIONS = 33 CU. YD.  
 SILT FENCE (E-11)  
 9 LOCATIONS = 2420 LIN. FT.

STA. 296+50.00  
 BEGIN SITE I  
 LOG MILE 5.55



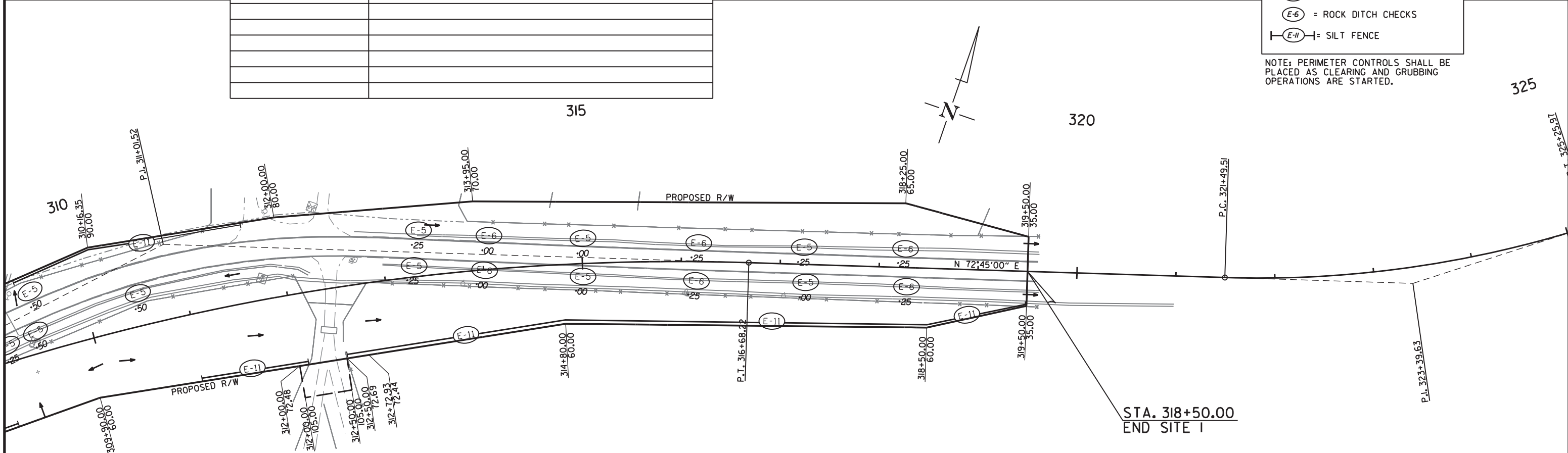
REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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

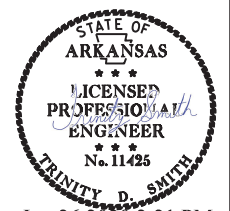


STA. 318+50.00  
 END SITE I

CLEARING & 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
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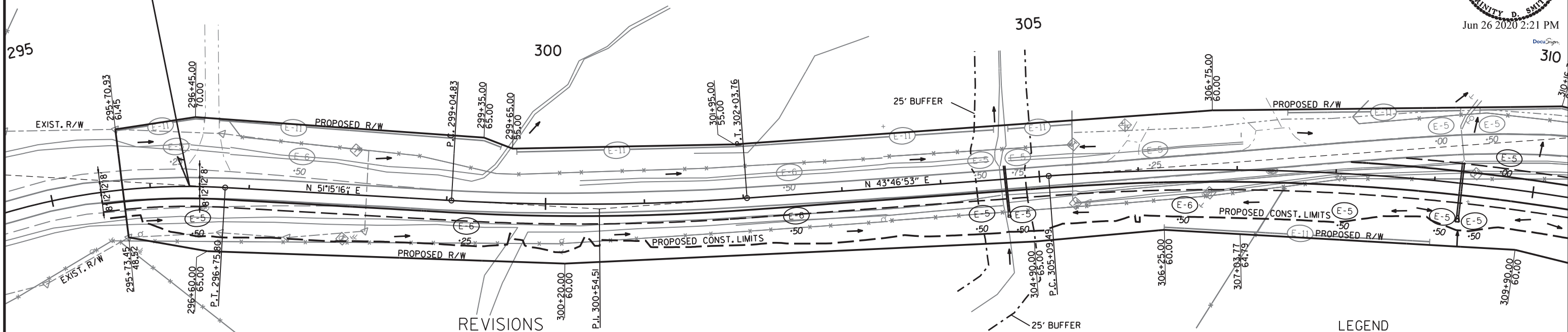
2 TEMPORARY EROSION CONTROL DETAILS



Jun 26 2020 2:21 PM

STAGE I  
 SAND BAG DITCH CHECKS (E-5)  
 11 LOCATIONS = 242 BAGS  
 ROCK DITCH CHECKS (E-6)  
 6 LOCATIONS = 18 CU. YD.

STA. 296+50.00  
 BEGIN SITE I  
 LOG MILE 5.55

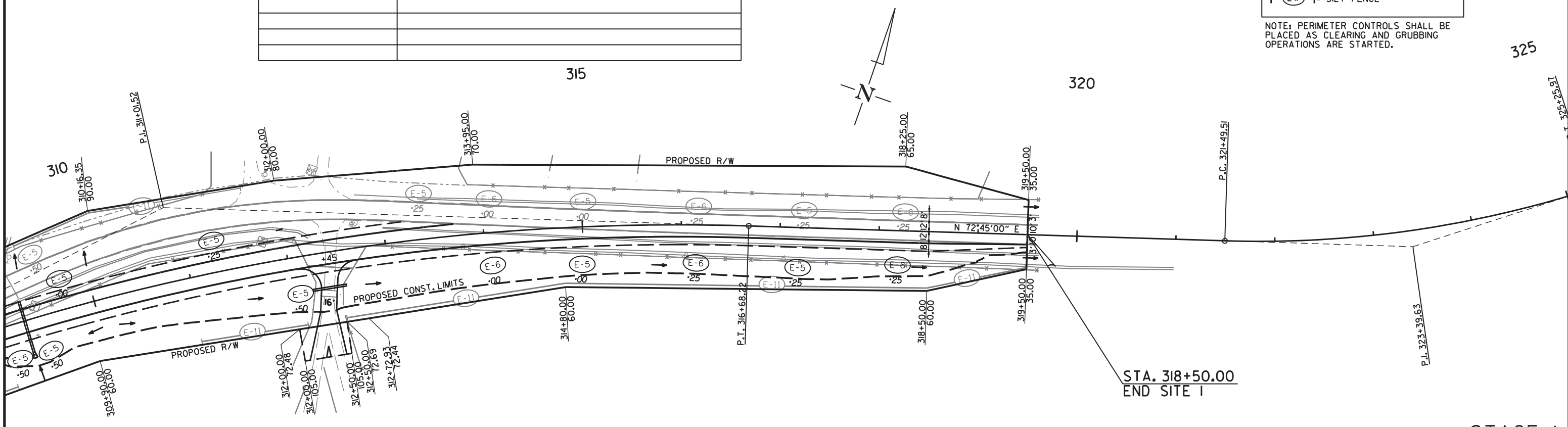


DATE OF REVISION	REVISION

**LEGEND**

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

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



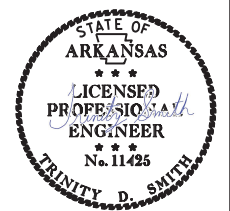
STA. 318+50.00  
 END SITE I

STAGE I  
 TEMPORARY EROSION CONTROL  
 DETAILS

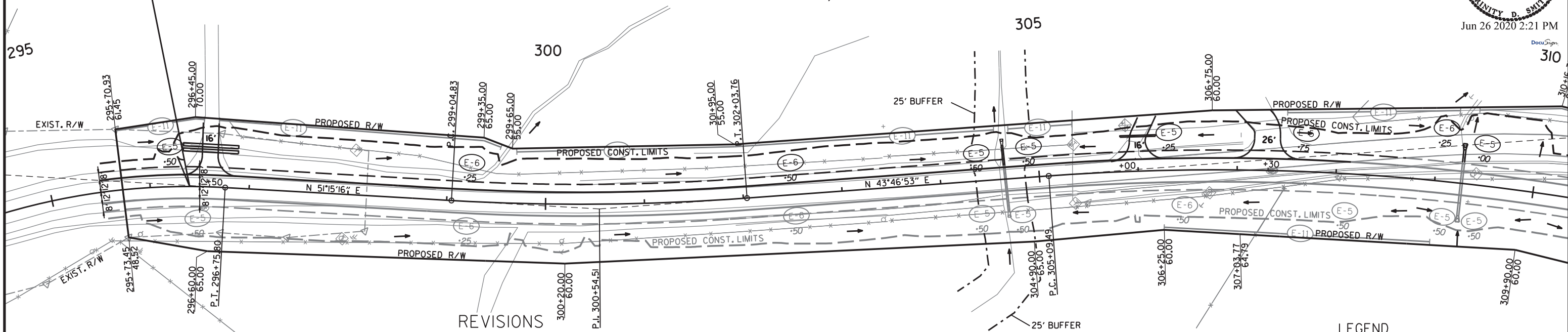
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				6	ARK.			
				JOB NO.	012290		16	42

STAGE 2  
 SAND BAG DITCH CHECKS (E-5)  
 9 LOCATIONS = 198 BAGS  
 ROCK DITCH CHECKS (E-6)  
 6 LOCATIONS = 18 CU. YD.

② TEMPORARY EROSION CONTROL DETAILS



STA. 296+50.00  
 BEGIN SITE 1  
 LOG MILE 5.55



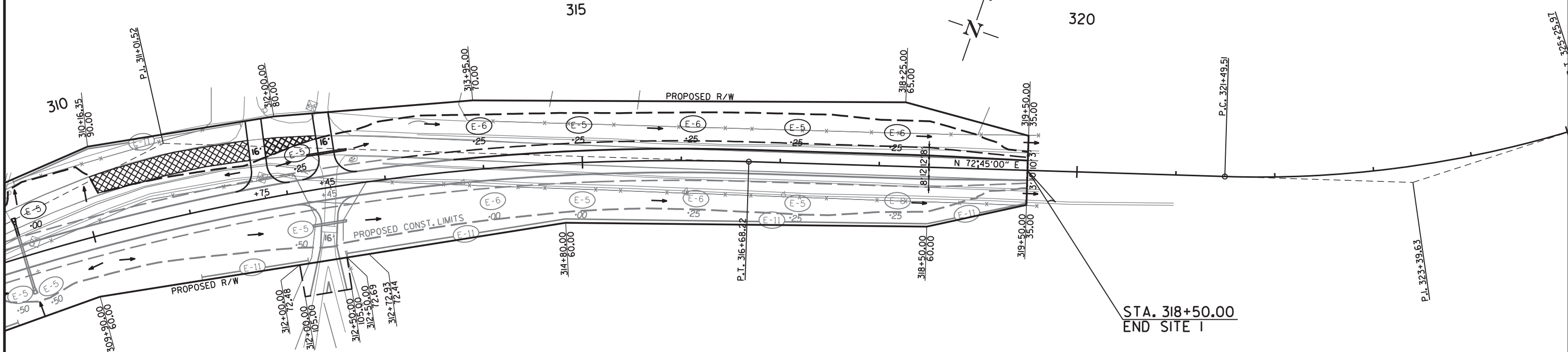
DATE OF REVISION	REVISION

OBLITERATION OF EXISTING PAVEMENT

**LEGEND**

- = SAND BAG DITCH CHECKS
- = ROCK DITCH CHECKS
- = SILT FENCE

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



STA. 318+50.00  
 END SITE 1

STAGE 2  
 TEMPORARY EROSION CONTROL DETAILS

1W39665 4/23/2020  
 R012290.DGN



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	42
				JOB NO.		012290		

② MAINTENANCE OF TRAFFIC DETAILS



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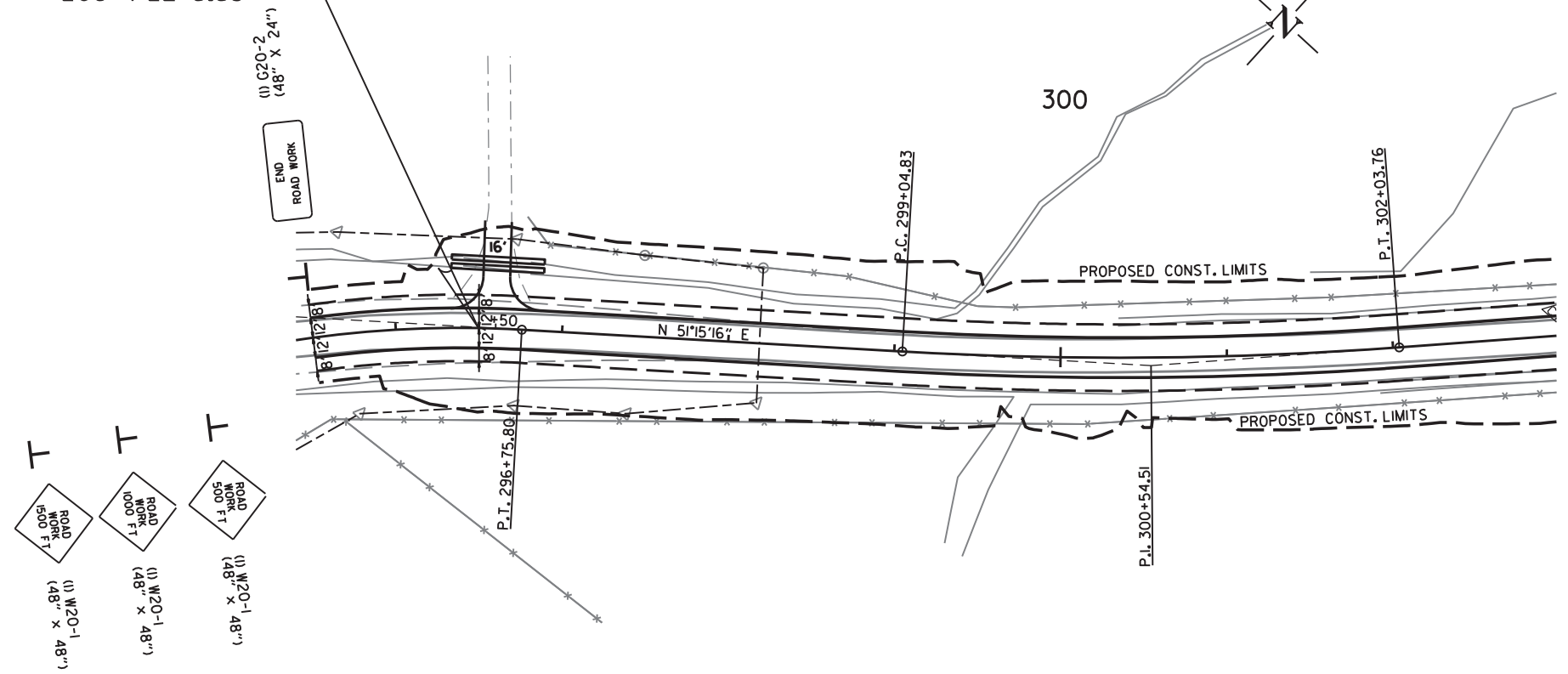
SEQUENCE OF CONSTRUCTION

STAGE 1:  
 MAINTAIN TRAFFIC ON EXISTING ROADWAY.  
 CONSTRUCT GUARDRAIL ON RT. AT EXISTING BRIDGES ON HWY. 36.  
 NOTCH & WIDEN RT. SIDE AND CONSTRUCT SITE 1- HWY. 36 ON NEW LOCATION.  
 CONSTRUCT PIPE CULVERTS RT.  
 CONSTRUCT SHOULDERS RT. ON HWY. 36 SHOULDER WIDEN SECTIONS.

STAGE 2:  
 SHIFT TRAFFIC AT SITE 1 ON TO NEW LOCATION.  
 CONSTRUCT LT. SIDE OF SITE 1- HWY. 36 & DRIVES.  
 CONSTRUCT SHOULDERS LT. ON HWY. 36 SHOULDER WIDEN SECTIONS.  
 OBLITERATION OF EXISTING ROADWAY.  
 PLACE FINAL SURFACE COURSE.  
 PLACE PERMANENT PAVEMENT MARKINGS.

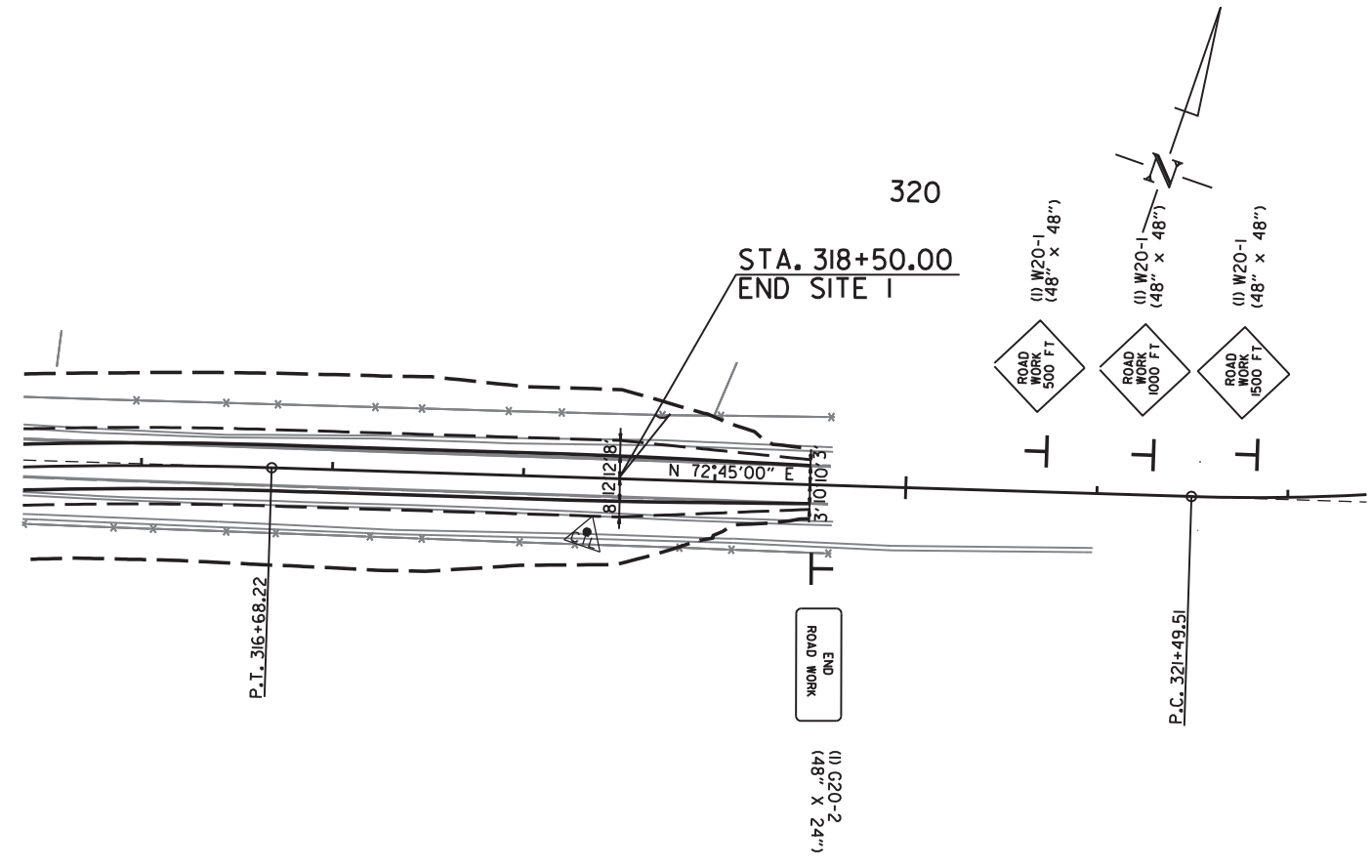
- ⊥ DO NOT PASS (2) R4-1 (24" X 30")
- ⊥ RIGHT SHOULDER CLOSED (2) W21-5a (48" X 48")

STA. 296+50.00  
 BEGIN SITE 1  
 LOG MILE 5.55



ADVANCE WARNING  
 HWY. 287  
 HWY. 107  
 HWY. 310  
 HWY. 124

STA. 318+50.00  
 END SITE 1

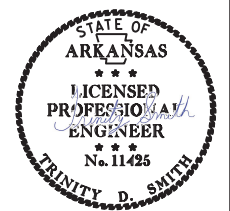


ALL STAGES  
 MAINTENANCE OF TRAFFIC DETAILS

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.	012290		18	42

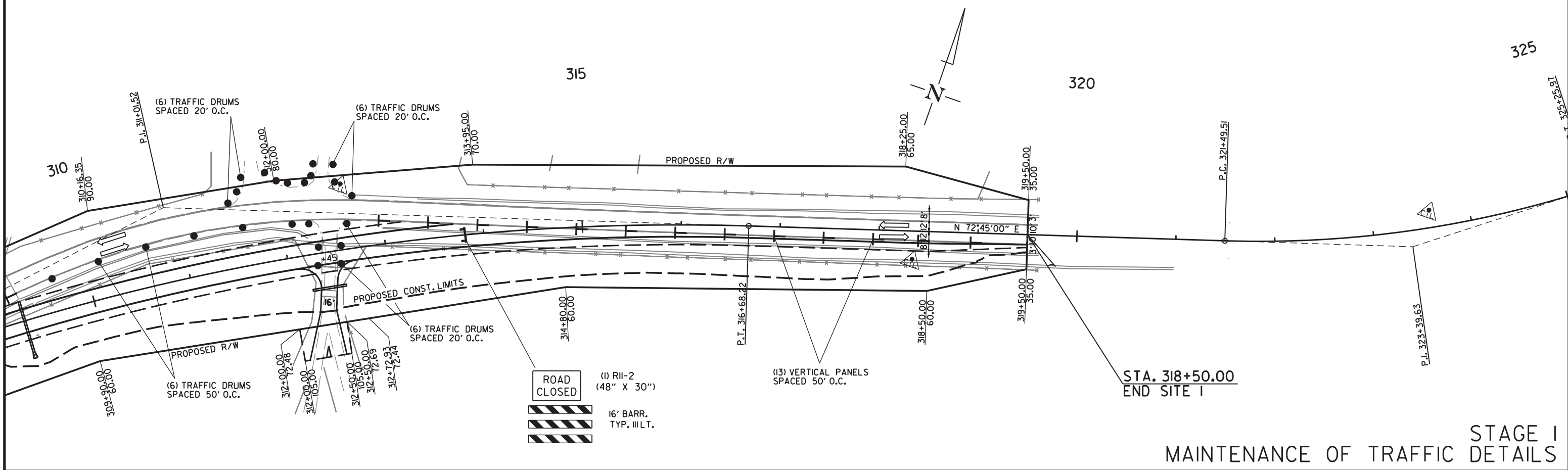
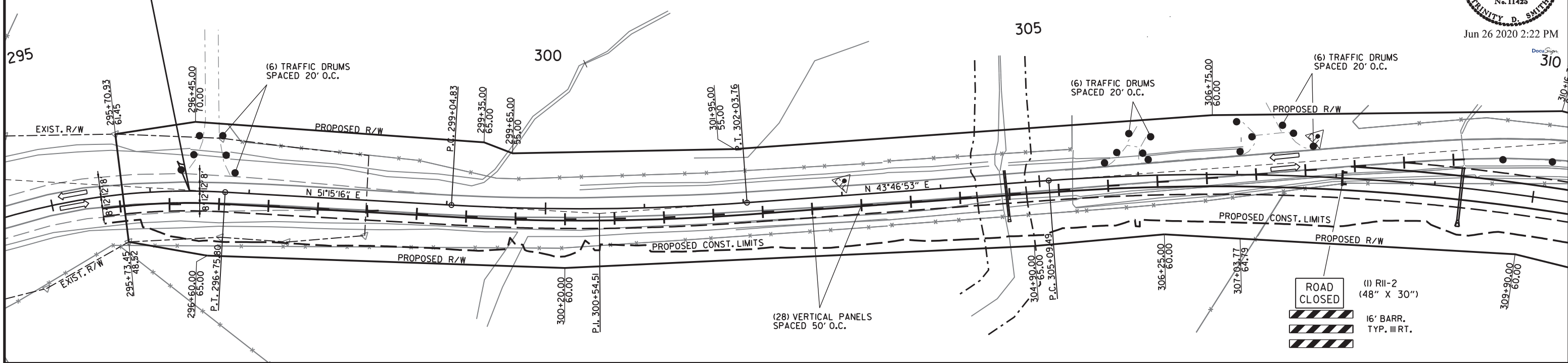
SEQUENCE OF CONSTRUCTION  
 STAGE I:  
 MAINTAIN TRAFFIC ON EXISTING ROADWAY.  
 CONSTRUCT GUARDRAIL ON RT. AT EXISTING BRIDGES ON HWY. 36.  
 NOTCH & WIDEN RT. SIDE AND CONSTRUCT SITE I- HWY. 36 ON NEW LOCATION.  
 CONSTRUCT PIPE CULVERTS RT.  
 CONSTRUCT SHOULDERS RT. ON HWY. 36 SHOULDER WIDEN SECTIONS.

② MAINTENANCE OF TRAFFIC DETAILS



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STA. 296+50.00  
 BEGIN SITE I  
 LOG MILE 5.55

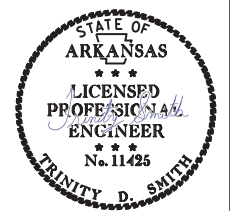


1w39665 4/23/2020 R012290.DGN

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.	012290	19	42	

SEQUENCE OF CONSTRUCTION  
 STAGE 2:  
 SHIFT TRAFFIC AT SITE I ONTO NEW LOCATION.  
 CONSTRUCT LT. SIDE OF SITE I - HWY. 36 & DRIVES.  
 CONSTRUCT SHOULDERS LT. ON HWY. 36 SHOULDER WIDEN SECTIONS.  
 OBLITERATION OF EXISTING ROADWAY.  
 PLACE FINAL SURFACE COURSE.  
 PLACE PERMANENT PAVEMENT MARKINGS.

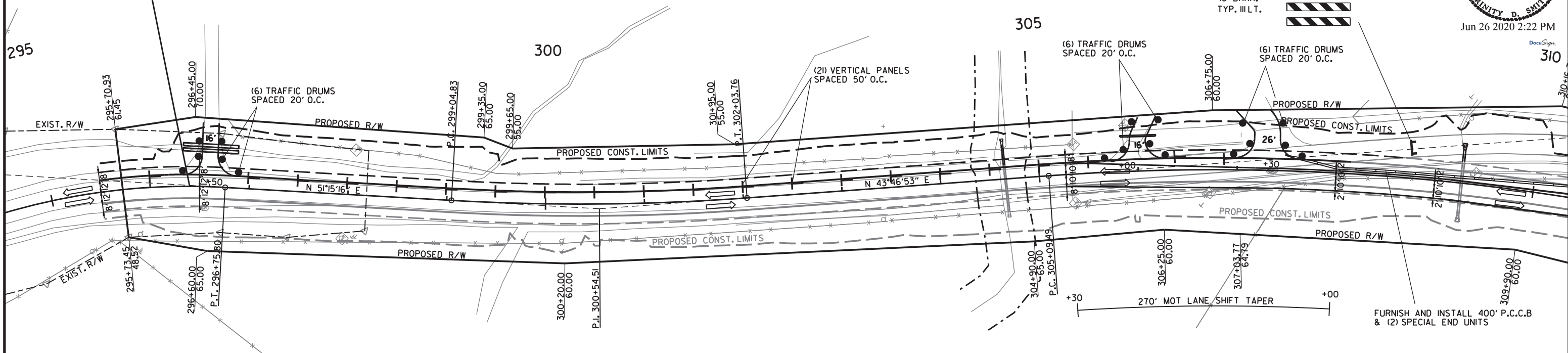
② MAINTENANCE OF TRAFFIC DETAILS



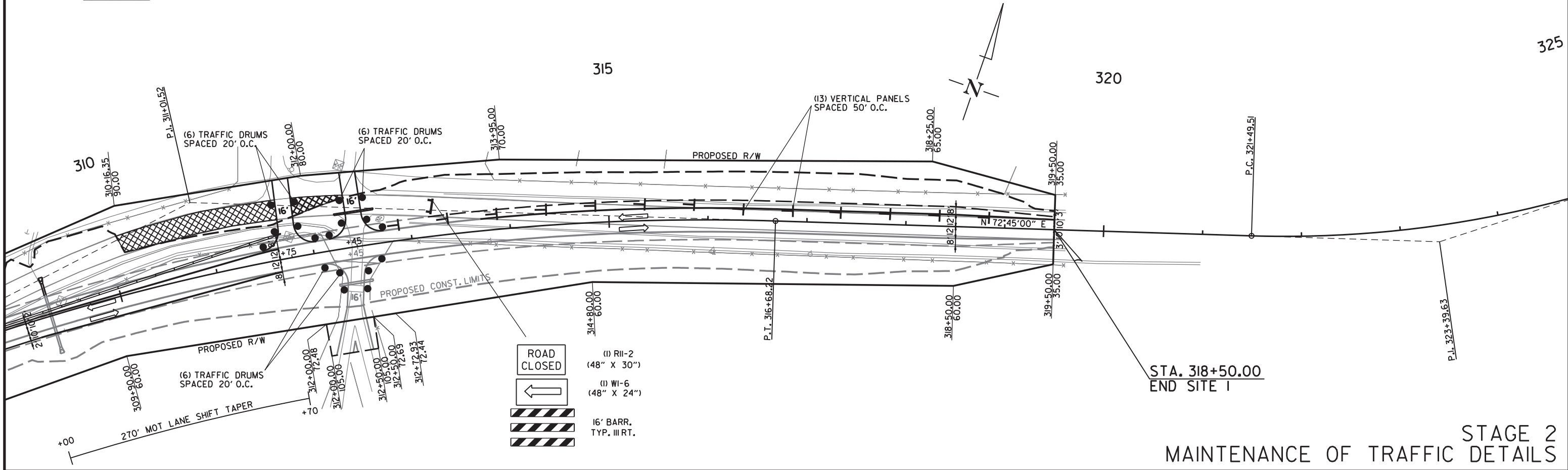
- (I) R11-2 (48" X 30")
- (II) W1-6 (48" X 24")
- 16' BARR. TYP. III LT.



STA. 296+50.00  
 BEGIN SITE I  
 LOG MILE 5.55



OBLITERATION OF EXISTING PAVEMENT



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

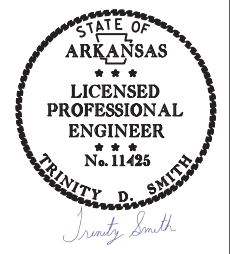
STA. 318+50.00  
 END SITE I

STAGE 2  
 MAINTENANCE OF TRAFFIC DETAILS

1w39665 4/23/2020  
 R012290.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.	012290		20	42

② PERMANENT PAVEMENT MARKING DETAILS



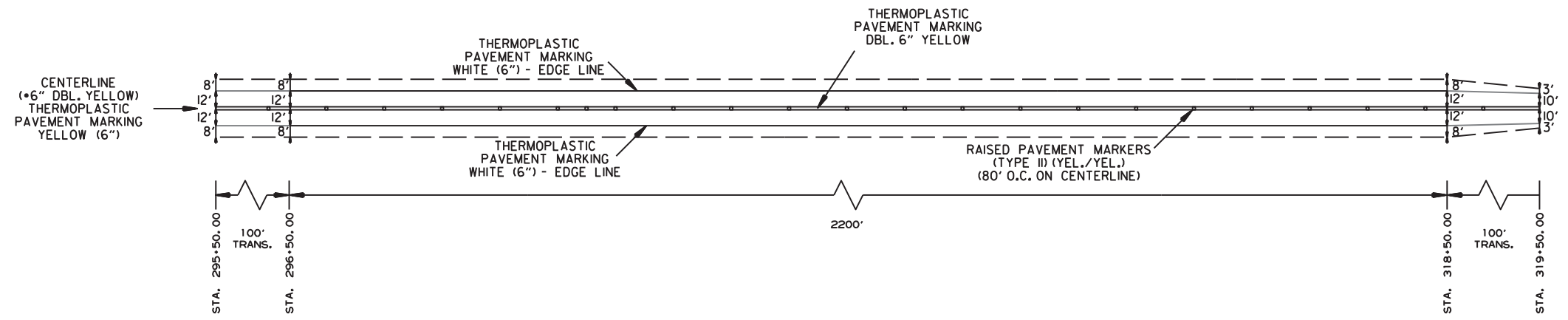
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•THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

PERMANENT PAVEMENT MARKINGS:

THERMOPLASTIC PAVEMENT MARKING:  
RT. AND LT. EDGE LINES = 4800 LIN. FT. WHITE  
DBL. CENTERLINE = 4800 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:  
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 30 EACH

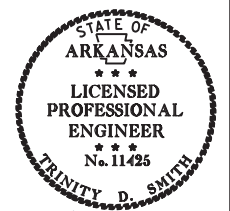


HWY. 36 - SITE 1 - PERMANENT PAVEMENT MARKING LAYOUT



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012290		21	42

② QUANTITIES



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**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
			LIN. FT. - EACH			NO.	SQ. FT.			RIGHT	LEFT	
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"	39	39	39	39	624.0					
G20-2	END ROAD WORK	48"x24"	42	42	42	42	336.0					
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	20.0					
W1-6	LARGE ARROW	48"x24"		2	2	2	16.0					
R4-1	DO NOT PASS	24"x30"	10	10	10	10	50.0					
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	10	10	10	10	90.0					
	VERTICAL PANELS		276	269	276			276				
	TRAFFIC DRUMS		277	271	277				277			
	TYPE III BARRICADE-RT. (16')		1	1	1					16		
	TYPE III BARRICADE-LT. (16')		1	1	1						16	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			400	400							400
<b>TOTALS:</b>							<b>1232.0</b>	<b>276</b>	<b>277</b>	<b>16</b>	<b>16</b>	<b>400</b>

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

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

**CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS**

DESCRIPTION	END OF JOB LIN. FT. - EACH	CONSTRUCTION PAVEMENT MARKINGS LIN. FT.	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		
			TYPE II (YELLOW/YELLOW) EACH	6"		WORDS EACH
				WHITE	YELLOW	
CONSTRUCTION PAVEMENT MARKINGS	9600	9600				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	1661		1661			
THERMOPLASTIC PAVEMENT MARKING WHITE (6")	265787			265787		
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	265787				265787	
THERMOPLASTIC PAVEMENT MARKING WHITE (12")	75					75
THERMOPLASTIC PAVEMENT MARKING (WORDS)	1					1
<b>TOTALS:</b>		<b>9600</b>	<b>1661</b>	<b>265787</b>	<b>265787</b>	<b>75</b>

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

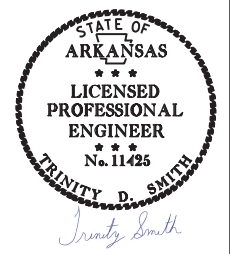
NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
07/28/2020				6	ARK.			
						JOB NO. 012290	22	42

② QUANTITIES



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**CLEARING AND GRUBBING**

STATION	STATION	LOCATION	CLEARING	GRUBBING
STATION				
299+00	300+00	HWY. 36	1	1
304+00	305+00	HWY. 36	1	1
307+00	308+00	HWY. 36	1	1
<b>TOTALS:</b>			<b>3</b>	<b>3</b>

**CLEARING AND GRUBBING TREES**

LOG MILE	LOCATION	CLEARING AND GRUBBING TREES EACH
1.68	HWY. 36 - LT.	1
<b>TOTAL:</b>		<b>1</b>

**SOIL LOG**

STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
306+00	6' RT.	0-5	34	14	A-6(13)	BROWN
306+00	14' RT.	0-5	30	11	A-6(6)	BROWN
311+04	14' LT.	0-5	33	12	A-6(4)	BROWN
315+00	6' LT.	0-5	33	15	A-6(9)	BROWN
315+00	14' LT.	0-5	28	11	A-6(2)	BROWN
315+00	14' LT.	0-5	38	15	A-6(12)	BROWN

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

**REMOVAL AND DISPOSAL OF FENCE**

STATION	STATION	LOCATION	FENCE LIN. FT.	GATES EACH
295+73	319+50	HWY. 36 - RT.	2576	2
296+75	305+35	HWY. 36 - LT.	950	
308+20	311+30	HWY. 36 - LT.	330	
313+75	319+50	HWY. 36 - LT.	575	
<b>TOTALS:</b>			<b>4431</b>	<b>2</b>

**MAILBOXES**

LOCATION	MAILBOXES	MAILBOX SUPPORTS EACH	
		(SINGLE)	(DOUBLE)
ENTIRE PROJECT	220	130	45
<b>TOTALS:</b>		<b>220</b>	<b>130</b>

**REMOVAL AND DISPOSAL OF ITEMS**

LOG MILE / STATION	LOG MILE / STATION	LOCATION	SIGN FOUNDATIONS EACH	SIGNS EACH	GUARDRAIL LIN. FT.	MAILBOXES EACH	CATTLE GUARD EACH
1.92	1.92	HWY. 36 - LT. & RT.			75		
1.94	1.94	HWY. 36 - LT. & RT.			75		
296+30	296+30	HWY. 36 - LT.				1	
307+05	307+05	HWY. 36 - LT.	2	1			
307+35	307+35	HWY. 36 - RT.				1	
312+35	312+35	HWY. 36 - RT.					1
312+70	312+70	HWY. 36 - LT. & RT.				2	
12.63	12.63	HWY. 36 - LT. & RT.			75		
12.64	12.64	HWY. 36 - LT. & RT.			75		
12.73	12.73	HWY. 36 - LT. & RT.			75		
12.74	12.74	HWY. 36 - LT. & RT.			75		
12.90	12.90	HWY. 36 - LT. & RT.			75		
12.92	12.92	HWY. 36 - LT. & RT.			75		
21.40	21.40	HWY. 36 - LT. & RT.			75		
21.43	21.43	HWY. 36 - LT. & RT.			75		
ENTIRE PROJECT			2	1	750	22	1
<b>TOTALS:</b>			<b>2</b>	<b>1</b>	<b>750</b>	<b>22</b>	<b>1</b>

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

**REMOVAL AND DISPOSAL OF CULVERTS**

LOG MILE / STATION	DESCRIPTION	PIPE CULVERTS EACH
2.49	HWY. 36 - (SEC. 1)	1
2.58	HWY. 36 - (SEC. 1)	1
4.49	HWY. 36 - (SEC. 1)	1
5.06	HWY. 36 - (SEC. 1)	1
296+60	HWY. 36 - SITE 1 - LT.	2
304+60	HWY. 36 - SITE 1	1
306+00	HWY. 36 - SITE 1 - LT.	1
309+30	HWY. 36 - SITE 1	1
6.12	HWY. 36 - (SEC. 1)	2
6.69	HWY. 36 - (SEC. 1)	1
7.40	HWY. 36 - (SEC. 1)	2
7.47	HWY. 36 - (SEC. 1)	1
7.57	HWY. 36 - (SEC. 1)	1
7.73	HWY. 36 - (SEC. 1)	3
7.80	HWY. 36 - (SEC. 1)	2
8.14	HWY. 36 - (SEC. 1)	1
17.09	HWY. 36 - (SEC. 1)	1
18.23	HWY. 36 - (SEC. 1)	1
22.48	HWY. 36 - (SEC. 1)	2
0.07	HWY. 36 - (SEC. 2)	1
<b>TOTAL:</b>		<b>27</b>

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

**ACHM PATCHING OF EXISTING ROADWAY**

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	600
<b>TOTAL:</b>	<b>600</b>

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

**DUMPED RIPRAP AND FILTER BLANKET**

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
1.05	OUTLET OF PPE CULVERT - SEC. 1	21	31
1.32	OUTLET OF PPE CULVERT - SEC. 1	36	55
1.51	OUTLET OF PPE CULVERT - SEC. 1	43	65
2.49	OUTLET OF PPE CULVERT - SEC. 1	11	16
2.58	OUTLET OF PPE CULVERT - SEC. 1	13	19
3.00	OUTLET OF PPE CULVERT - SEC. 1	31	46
4.49	OUTLET OF PPE CULVERT - SEC. 1	13	19
5.07	OUTLET OF PPE CULVERT - SEC. 1	13	19
5.79	OUTLET OF PPE CULVERT - SEC. 1	25	38
5.88	OUTLET OF PPE CULVERT - SEC. 1	22	32
6.12	OUTLET OF PPE CULVERT - SEC. 1	39	58
6.69	OUTLET OF PPE CULVERT - SEC. 1	15	22
7.40	OUTLET OF PPE CULVERT - SEC. 1	29	43
7.47	OUTLET OF PPE CULVERT - SEC. 1	9	14
7.57	OUTLET OF PPE CULVERT - SEC. 1	9	14
7.73	OUTLET OF PPE CULVERT - SEC. 1	29	44
7.80	OUTLET OF PPE CULVERT - SEC. 1	20	30
8.14	OUTLET OF PPE CULVERT - SEC. 1	17	26
17.09	OUTLET OF PPE CULVERT - SEC. 1	15	22
17.62	OUTLET OF PPE CULVERT - SEC. 1	32	49
18.23	OUTLET OF PPE CULVERT - SEC. 1	11	16
22.48	OUTLET OF PPE CULVERT - SEC. 1	17	25
24.69	OUTLET OF PPE CULVERT - SEC. 1	31	46
0.68	OUTLET OF PPE CULVERT - SEC. 2	14	21
<b>TOTALS:</b>		<b>515</b>	<b>770</b>

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

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

**EARTHWORK**

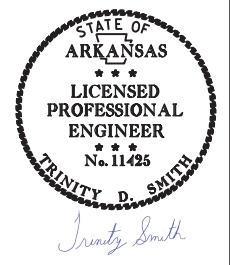
STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION CU. YD.	COMPACTED EMBANKMENT CU. YD.	*SHAPING DITCH LIN. FT.	*BCRROW CU. YD.	*SOIL STABILIZATION TON
ENTIRE PROJECT		STAGE 1-SITE 1	5566	1034			
ENTIRE PROJECT		STAGE 2-SITE 1	3469	1370			
ENTIRE PROJECT		OBLITERATION OF EXISTING ROADWAY	236				
ENTIRE PROJECT		APPROACHES	30	540			
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1000	300	300
<b>TOTALS:</b>			<b>9301</b>	<b>2944</b>	<b>1000</b>	<b>300</b>	<b>300</b>

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

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

QUANTITIES

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**TRENCHING AND SHOULDER PREPARATON**

LOG MILE	LOG MILE	LOCATION	LENGTH
			STATION
0.02	1.92	HWY. 36 (SEC. 1) - SHOULDER WIDENING	100
1.94	3.37	HWY. 36 (SEC. 1) - SHOULDER WIDENING	76
3.80	4.01	HWY. 36 (SEC. 1) - SHOULDER WIDENING	11
4.27	5.26	HWY. 36 (SEC. 1) - SHOULDER WIDENING	52
6.09	8.44	HWY. 36 (SEC. 1) - SHOULDER WIDENING	124
17.00	24.50	HWY. 36 (SEC. 1) - SHOULDER WIDENING	396
0.34	2.00	HWY. 36 (SEC. 2) - SHOULDER WIDENING	88
<b>TOTAL:</b>			<b>847</b>

**EROSION CONTROL MATTING**

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
296+80.00	299+50.00	HWY. 36 - SITE 1 - LT.	270.00	240.00
<b>TOTAL:</b>				<b>240.00</b>

NOTE: AVERAGE WMDH = 8'-0"

**CONCRETE DITCH PAVING**

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
296+25.00	296+80.00	HWY. 36 - SITE 1 - LT.	55.00	6.00	36.67	24.44	0.31
304+65.00	305+00.00	HWY. 36 - SITE 1 - LT.	35.00	6.00	23.33	15.56	0.20
309+00.00	309+27.00	HWY. 36 - SITE 1 - RT.	27.00	6.00	18.00	12.00	0.15
<b>TOTALS:</b>					<b>78.00</b>	<b>52.00</b>	<b>0.66</b>

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

**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			1000	4
<b>TOTALS:</b>			<b>1000</b>	<b>4</b>

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

**GUARDRAIL**

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH
1.89	1.92	HWY. 36 - LT.	100	1
1.88	1.92	HWY. 36 - RT.	150	1
1.94	1.98	HWY. 36 - LT.	150	1
1.94	1.97	HWY. 36 - RT.	100	1
12.61	12.63	HWY. 36 - LT.	100	1
12.59	12.63	HWY. 36 - RT.	175	1
12.64	12.68	HWY. 36 - LT.	175	1
12.64	12.66	HWY. 36 - RT.	100	1
12.71	12.73	HWY. 36 - LT.	100	1
12.69	12.73	HWY. 36 - RT.	175	1
12.74	12.78	HWY. 36 - LT.	175	1
12.74	12.76	HWY. 36 - RT.	100	1
12.87	12.90	HWY. 36 - LT.	100	1
12.88	12.90	HWY. 36 - RT.	175	1
12.92	12.96	HWY. 36 - LT.	175	1
12.92	12.94	HWY. 36 - RT.	100	1
21.39	21.40	HWY. 36 - LT.	50	1
21.39	21.40	HWY. 36 - RT.	150	1
21.43	21.47	HWY. 36 - LT.	175	1
21.43	21.45	HWY. 36 - RT.	100	1
<b>TOTALS:</b>			<b>2625</b>	<b>20</b>

NOTE: WHERE NECESSARY TO ALLOW THE GUARDRAIL TO BE LAPPED ONTO THE EXISTING BRIDGE RAILING, THE EXISTING BRIDGE TERMINAL POSTS SHALL BE MODIFIED BY SAWING A NOTCH AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK.

**EROSION CONTROL**

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL			
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.			
ENTIRE PROJECT		CLEARING AND GRUBBING																	
ENTIRE PROJECT		STAGE 1	1.48	2.96	1.48	151.0	1.48				418	33	2420						120
ENTIRE PROJECT		STAGE 2	1.57	3.14	1.57	160.1	1.57				242	18							17
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			2.00	4.00	2.00	204.0	2.00	2.00	2.00	40.8	220	30	2000	1000	1000				1094
<b>TOTALS:</b>			<b>5.05</b>	<b>10.10</b>	<b>5.05</b>	<b>515.1</b>	<b>5.05</b>	<b>7.74</b>	<b>7.74</b>	<b>157.9</b>	<b>1078</b>	<b>99</b>	<b>4420</b>	<b>1000</b>	<b>1000</b>				<b>1246</b>

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

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

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



**SELECTED PIPE BEDDING**

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	325
<b>TOTAL:</b>	<b>325</b>

NOTE: QUANTITY ESTIMATED.  
 SEE SECTION 104.03 OF THE STD. SPECS.  
 NOTE: TO BE USED TO BACKFILL CROSS DRAINS FOR THE FULL WIDTH OF THE ROADWAY AND SHOULDER.  
 SELECT PIPE BACKFILL SHALL MEET THE MATERIAL AND GRADATION REQUIREMENTS OF AGGREGATE  
 BASE COURSE (CLASS 7). DENSITY REQUIREMENTS SHALL BE AS SPECIFIED IN 606.03(f).

**STRUCTURES - CURVE REALIGNMENT**

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT		FLARED END SECTIONS FOR R.C. PIPE CULVERTS	STD. DWG. NOS.
		(CLASS IV)			
		24"	LIN. FT.	24"	
304+65	24" X 68' R.C. PIPE CULVERT	68		2	PCC-1, FES-1, FES-2
309+27	24 X 67' R.C. PIPE CULVERT	67		2	PCC-1, FES-1, FES-2
<b>TOTALS:</b>		<b>135</b>		<b>4</b>	

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

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

**STRUCTURES - SHOULDER WIDENING**

LOG MILE	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT									FLARED END SECTIONS FOR R.C. PIPE CULVERTS					JUNCT. BOXES (TYPE E)	STD. DWG. NOS.	
		(CLASS III)			(CLASS IV)			(CLASS V)										
		18"	24"	30"	36"	24"	30"	36"	42"	48"	24"	18"	24"	30"	36"	42"		48"
<b>SECTION 1</b>																		
1.05	EXTEND DBL. 30" R.C. PIPE CULVERT RT.				6											2		PCC-1, FES-1, FES-2
1.32	EXTEND 36" R.C. PIPE CULVERT RT.					3										2		PCC-1, FES-1, FES-2
1.51	EXTEND 36" R.C. PIPE CULVERT RT.					4										2		PCC-1, FES-1, FES-2
2.49	24" X 28' R.C. PIPE CULVERT							28							2			PCC-1, FES-1, FES-2
2.58	DBL. 24" X 32' R.C. PIPE CULVERT							64							4			PCC-1, FES-1, FES-2
3.00	DBL. 24" X 28' R.C. PIPE CULVERT		56												4			PCC-1, FES-1, FES-2
4.49	24' X 34' R.C. PIPE CULVERT							34							2			PCC-1, FES-1, FES-2
5.07	24" X 30' R.C. PIPE CULVERT							30							2			PCC-1, FES-1, FES-2
5.79	EXTEND 18" R.C. PIPE CULVERT LT.	3													2			PCC-1, FES-1, FES-2
5.88	ADD FES LT. & RT.														2			PCC-1, FES-1, FES-2
6.12	DBL. 48" X 52' R.C. PIPE CULVERT																4	PCC-1, FES-1, FES-2
6.69	24' X 49' R.C. PIPE CULVERT							49							2			PCC-1, FES-1, FES-2
7.40	DBL. 42" X 44' R.C. PIPE CULVERT									88							4	PCC-1, FES-1, FES-2
7.47	24" X 27' R.C. PIPE CULVERT														2			PCC-1, FES-1, FES-2
7.57	24" X 27' R.C. PIPE CULVERT														27			PCC-1, FES-1, FES-2
7.73	TRI. 30" X 42' R.C. PIPE CULVERT														27			PCC-1, FES-1, FES-2
7.80	DBL. 36" X 38' R.C. PIPE CULVERT																6	PCC-1, FES-1, FES-2
8.14	36" X 40' R.C. PIPE CULVERT															4		PCC-1, FES-1, FES-2
17.09	24" X 36' R.C. PIPE CULVERT							36							2			PCC-1, FES-1, FES-2
17.62	EXTEND DBL. 18" R.C. PIPE CULVERT LT.	4													4			PCC-1, FES-1, FES-2
18.23	24" X 36' R.C. PIPE CULVERT							36							2			PCC-1, FES-1, FES-2
22.48	DBL. 30" X 39' R.C. PIPE CULVERT									78							4	PCC-1, FES-1, FES-2
24.69	24" X 24' R.C. PIPE CULVERT															1		PCC-1, FES-1, FES-2
24.69	CONSTRUCT TYPE E JUNCTION BOX W/ 18" X 4" STUB OUT IN BACK ON RT.	4	24												1			PCC-1, FES-1, FES-2
<b>SECTION 2</b>																		
0.68	24" X 31' R.C. PIPE CULVERT							31							2			PCC-1, FES-1, FES-2
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER		85				60	30	28										PCC-1, FES-1, FES-2
<b>TOTALS:</b>		<b>96</b>	<b>80</b>	<b>132</b>	<b>67</b>	<b>338</b>	<b>106</b>	<b>116</b>	<b>88</b>	<b>104</b>	<b>54</b>	<b>9</b>	<b>27</b>	<b>12</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>1</b>

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

NOTE: SLOPES SHALL BE DRESSED AROUND INLET AND OUTLETS OF PIPES WITH MATERIAL EXCAVATED DURING THE PIPE INSTALLATION OR WITH OTHER SUITABLE MATERIAL IN A MANNER SO AS TO CREATE A SMOOTH TRANSITION TO THE EXISTING SLOPE.  
 THIS WORK WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK.  
 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.  
 \* NOTE: QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	012290
								24
								42

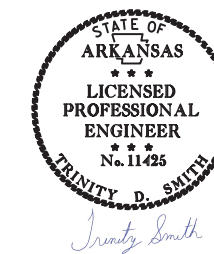
2 QUANTITIES

**PAVEMENT REPAIR OVER CULVERTS (CONCRETE)**

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
0.68	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
2.49	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
2.58	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
3.00	HWY. 36 - SHOULDER WIDENING	14.00	26	13.5
4.49	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
5.07	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
6.12	HWY. 36 - SHOULDER WIDENING	19.67	26	18.9
6.69	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
7.40	HWY. 36 - SHOULDER WIDENING	18.50	26	17.8
7.47	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
7.57	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
7.73	HWY. 36 - SHOULDER WIDENING	22.25	26	21.4
7.80	HWY. 36 - SHOULDER WIDENING	17.33	26	16.7
8.14	HWY. 36 - SHOULDER WIDENING	9.67	26	9.3
17.09	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
18.23	HWY. 36 - SHOULDER WIDENING	8.50	26	8.2
22.48	HWY. 36 - SHOULDER WIDENING	15.67	26	15.1
<b>TOTAL:</b>				<b>244.7</b>

\* ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

AVG. DEPTH = 12"  
 \* NOTE: QUANTITY ESTIMATED.  
 SEE SECTION 104.03 OF THE STD. SPECS.



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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.	012290	25	42	

**COLD MILLING ASPHALT PAVEMENT**

STATION/ LOG MILE	STATION/ LOG MILE	LOCATION	AVG. WIDTH	TOTAL LENGTH	COLD MILLING ASPHALT PAVEMENT
			FEET		SQ. YD.
	0.02	HWY. 36 (SEC. 1) - TURNOUT	VAR.	100.00	396.79
1.90	1.92	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	100.00	277.78
1.94	1.96	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	100.00	277.78
3.35	3.37	HWY. 36 (SEC. 1) - SHOULDER WIDENING	32.75	100.00	363.89
3.80	3.82	HWY. 36 (SEC. 1) - SHOULDER WIDENING	32.75	100.00	363.89
3.99	4.01	HWY. 36 (SEC. 1) - SHOULDER WIDENING	32.75	100.00	363.89
4.27	4.29	HWY. 36 (SEC. 1) - SHOULDER WIDENING	32.75	100.00	363.89
25+50.00	296+50.00	HWY. 36 (SEC. 1) - SITE 1	40.00	100.00	444.44
318+50.00	319+50.00	HWY. 36 (SEC. 1) - SITE 1	26.00	100.00	288.89
8.42	8.44	HWY. 36 (SEC. 1) - SHOULDER WIDENING	30.75	100.00	341.67
12.60	12.63	HWY. 36 (SEC. 1) - SHOULDER WIDENING	23.00	150.00	383.33
12.64	12.67	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	150.00	416.67
12.71	12.73	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	150.00	416.67
12.74	12.76	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	150.00	416.67
12.87	12.90	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	150.00	416.67
12.92	12.95	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.00	150.00	416.67
17.00	17.02	HWY. 36 (SEC. 1) - SHOULDER WIDENING	24.50	100.00	272.22
21.38	21.40	HWY. 36 (SEC. 1) - SHOULDER WIDENING	25.33	100.00	281.44
21.43	21.45	HWY. 36 (SEC. 1) - SHOULDER WIDENING	26.83	100.00	298.11
0.34	0.36	HWY. 36 (SEC. 2) - SHOULDER WIDENING	32.75	100.00	363.89
1.10	1.12	HWY. 36 (SEC. 2) - SHOULDER WIDENING	28.00	100.00	311.11
1.17	1.19	HWY. 36 (SEC. 2) - SHOULDER WIDENING	28.00	100.00	311.11
1.98	2.00	HWY. 36 (SEC. 2) - SHOULDER WIDENING	32.75	100.00	363.89
<b>TOTAL:</b>					<b>8151.36</b>

NOTE: AVERAGE MILLING DEPTH 1".

**DRIVEWAYS & TURNOUTS - SHOULDER WIDENING**

LOCATION	AVG. WIDTH	ACHM SURFACE COURSE (3/8") 220 LBS. PER SQ. YD. (PG 64-22)		TACK COAT	
	FEET	SQ. YD.	TON	GALLONS/SQ. YD.	GALLON
HWY. 36 - LT. & RT. ( 182 - DRIVEWAYS)	20	6660.10	732.50	0.17	630.22
HWY. 36 - LT. & RT. ( 39 - SIDE STREETS)	24	4852.46	533.74	0.17	494.96
<b>TOTALS:</b>		<b>11512.56</b>	<b>1266.24</b>		<b>1125.18</b>

BASIS OF ESTIMATE:  
 ACHM SURFACE COURSE (3/8").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER  
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22  
 TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES.  
 REFER TO SS 400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

**DRIVEWAYS & TURNOUTS - CURVE REALIGNMENT**

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (3/8") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			STANDARD DRAWINGS
				FEET	SQ. YD.		TON	18"	24"	
296+60	LT.	HWY. 36	16	88.73	9.76	36.23			112	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
306+00	LT.	HWY. 36	16	78.06	8.59	31.87	36			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
307+30	LT.	HWY. 36	26	124.74	13.72	50.94				
311+75	LT.	HWY. 36	16	88.73	9.76	36.23				
312+45	LT.	HWY. 36	16	88.73	9.76	36.23	40			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
312+45	RT.	HWY. 36	16	104.73	11.52	42.76		34		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
<b>* ENTIRE PROJECT TEMPORARY DRIVES</b>						<b>30.00</b>				
<b>TOTALS:</b>				<b>573.72</b>	<b>63.11</b>	<b>264.26</b>	<b>76</b>	<b>34</b>	<b>112</b>	

BASIS OF ESTIMATE:  
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER  
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

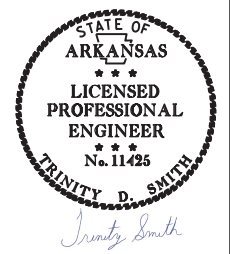
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.  
 NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

**QUANTITIES**

**ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC**

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	625	1250
<b>TOTALS:</b>	<b>625</b>	<b>1250</b>

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



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**CENTERLINE MUMBLE STRIPES**

STATION/ LOG MILE	STATION/ LOG MILE	LOCATION	*CENTERLINE MUMBLE STRIPES IN ASPHALT ROADWAYS
			LIN. FT.
0.00	1.92	HWY. 36 (SEC.1) - SHOULDER WIDENING	10140
1.94	5.26	HWY. 36 (SEC.1) - SHOULDER WIDENING	17530
296+50	318+50	HWY. 36 (SEC. 1) - SITE 1	2200
5.98	10.24	HWY. 36 (SEC.1) - SHOULDER WIDENING	22495
10.97	12.63	HWY. 36 (SEC.1) - SHOULDER WIDENING	8765
12.64	12.73	HWY. 36 (SEC.1) - SHOULDER WIDENING	475
12.74	12.90	HWY. 36 (SEC.1) - SHOULDER WIDENING	845
12.92	16.41	HWY. 36 (SEC.1) - SHOULDER WIDENING	18425
17.40	21.40	HWY. 36 (SEC.1) - SHOULDER WIDENING	21120
21.43	24.59	HWY. 36 (SEC.1) - SHOULDER WIDENING	16685
0.00	0.89	HWY. 36 (SEC.2) - SHOULDER WIDENING	4700
<b>TOTAL:</b>			<b>123380</b>

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

**RUMBLE & MUMBLE STRIPS & STRIPES IN ASPHALT SHOULDERS**

STATION/ LOG MILE	STATION/ LOG MILE	LOCATION	*RUMBLE STRIPES IN ASPHALT SHOULDERS	*RUMBLE STRIPS IN ASPHALT SHOULDERS	*MUMBLE STRIPES IN ASPHALT SHOULDERS
			LIN.FT.		
0.00	1.92	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.	20275		
1.94	3.35	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.	14890		
3.82	3.99	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.	1795		
4.29	5.26	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.	10243		
296+50	318+50	HWY. 36 (SEC. 1) - SITE 1 LT. & RT.		4400	
5.98	8.44	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.	25978		
8.50	10.24	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			18374
10.96	12.63	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			17635
12.64	12.73	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			950
12.74	12.90	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			1690
12.92	16.41	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			36854
17.40	21.40	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			42240
21.43	24.59	HWY. 36 (SEC.1) - SHOULDER WIDENING LT. & RT.			33370
0.00	0.89	HWY. 36 (SEC.2) - SHOULDER WIDENING LT. & RT.			9398
<b>TOTALS:</b>			<b>73181</b>	<b>4400</b>	<b>160511</b>

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











SURVEY CONTROL COORDINATES

Project Name: s012290  
 Date: 7/18/2018  
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,  
 PROJECTED TO GROUND.  
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	291332.7342	1234587.1968	387.191	CTL	ARDOT STD. MON. STAMPED PN: 1
2	291686.4506	1234912.3876	392.008	CTL	ARDOT STD. MON. STAMPED PN: 2
3	291979.8238	1235311.2763	397.577	CTL	ARDOT STD. MON. STAMPED PN: 3
4	292096.3208	1235882.2529	378.933	CTL	ARDOT STD. MON. STAMPED PN: 4
5	292313.6301	1236359.9347	375.729	CTL	ARDOT STD. MON. STAMPED PN: 5
100	292921.6697	1229735.1221	345.150	GPS	ARDOT GPS #230029
101	294677.6497	1229777.6343	341.431	GPS	ARDOT GPS #230029A
900	290545.8574	1233836.9839	405.124	TBM	ARDOT CAP
902	290802.0927	1232744.4732	412.366	TBM	SQ. CUT IN HDWL 16' N OF

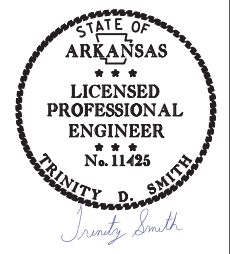
\*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped  
 \*(standard markings common to all caps), or as indicated  
 (other markings indicated in the point description of the individual point).  
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT  
 A PROJECT CAF OF 0.9999481375 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.  
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.  
 GRID DISTANCE = GROUND DISTANCE X CAF.  
 GRID COORDINATES ARE STORED UNDER FILE NAME s012290gi.ctl  
 HORIZONTAL DATUM: NAD 83 (2011)  
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE  
 AT A SPECIFIC POINT.

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

BASIS OF BEARING:  
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE  
 DETERMINED FROM GPS CONTROL POINTS: 230029 - 230029A  
 CONVERGENCE ANGLE: 00 09 00.08 LEFT AT LT: N 35-08-06.7157 LG: W 092-15-28.1352  
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012290	29	42

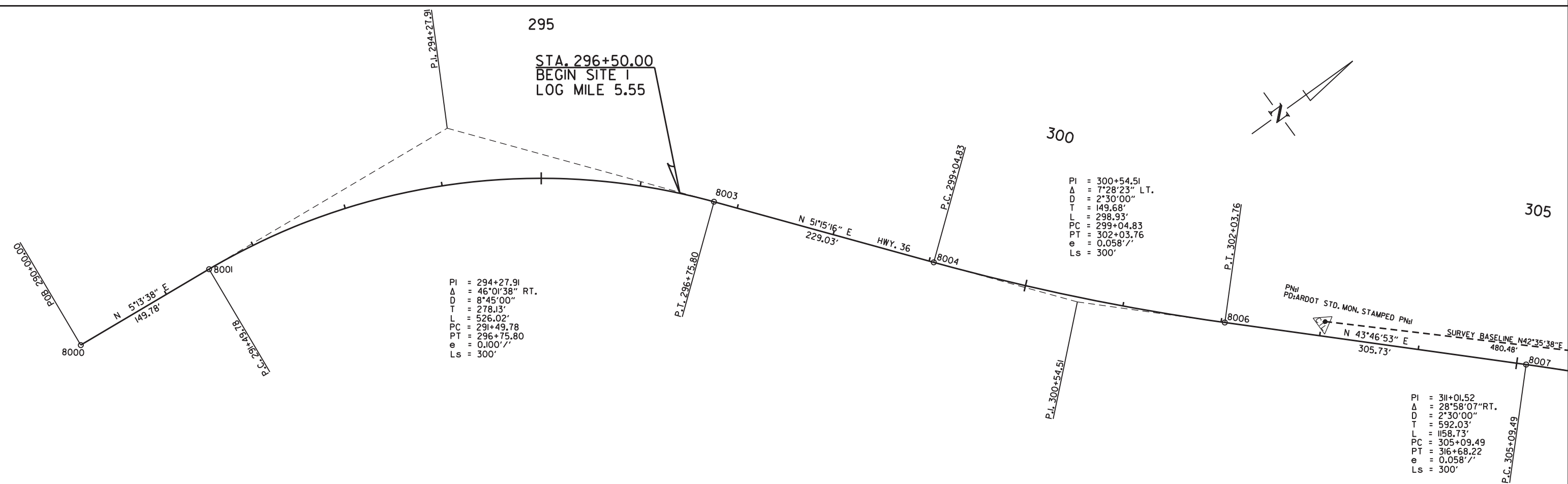
2 SURVEY CONTROL DETAILS



Jun 26 2020 2:24 PM  
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**HWY. 36 - SITE 1**

POINT NAME	TYPE	STATION	NORTHING	EASTING
8000	POB	290+00.00	290305.1345	1233874.0287
8001	P.C.	291+49.78	290454.2887	1233887.6743
8003	P.T.	296+75.80	290905.3394	1234123.9403
8004	P.C.	299+04.83	291048.6815	1234308.5699
8006	P.T.	302+03.76	291250.4186	1234528.8664
8007	P.C.	305+09.49	291471.1490	1234740.4022
8009	P.T.	316+68.22	292074.1524	1235715.4419
8010	P.C.	321+49.51	292216.8748	1236175.0813
8012	P.T.	325+25.97	292387.7032	1236508.4505
8013	POE	334+73.00	292957.8254	1237264.6477

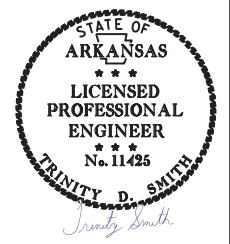


SURVEY CONTROL DETAILS

1w39665 4/22/2020 R012290.DGN

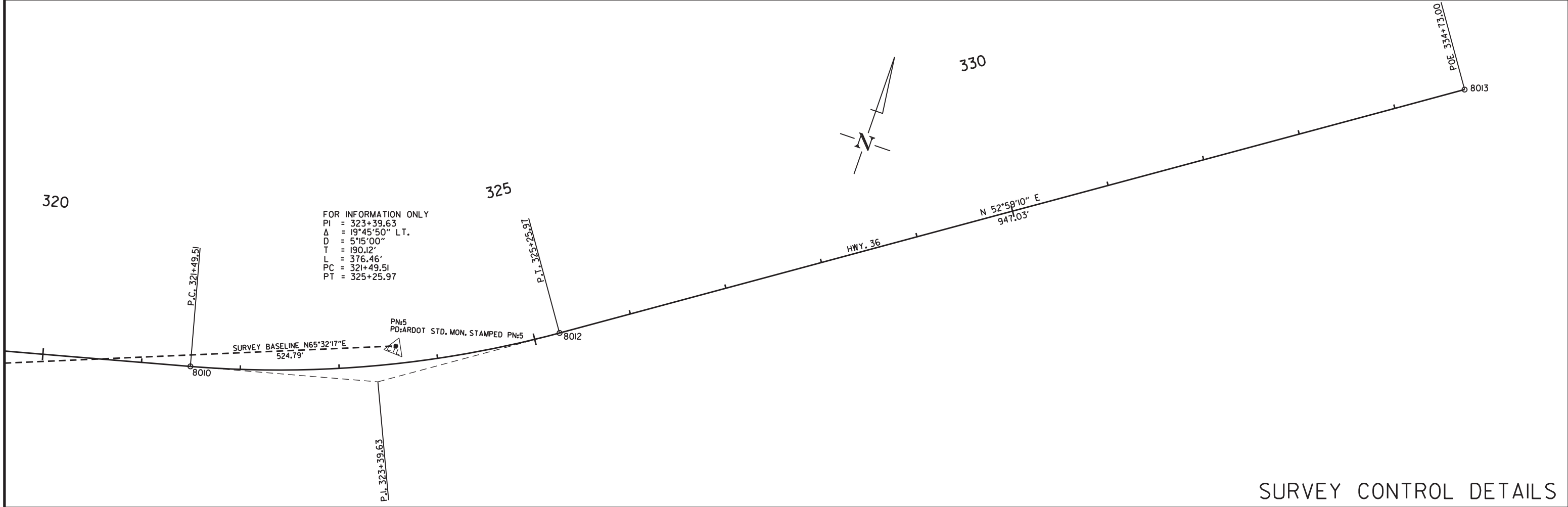
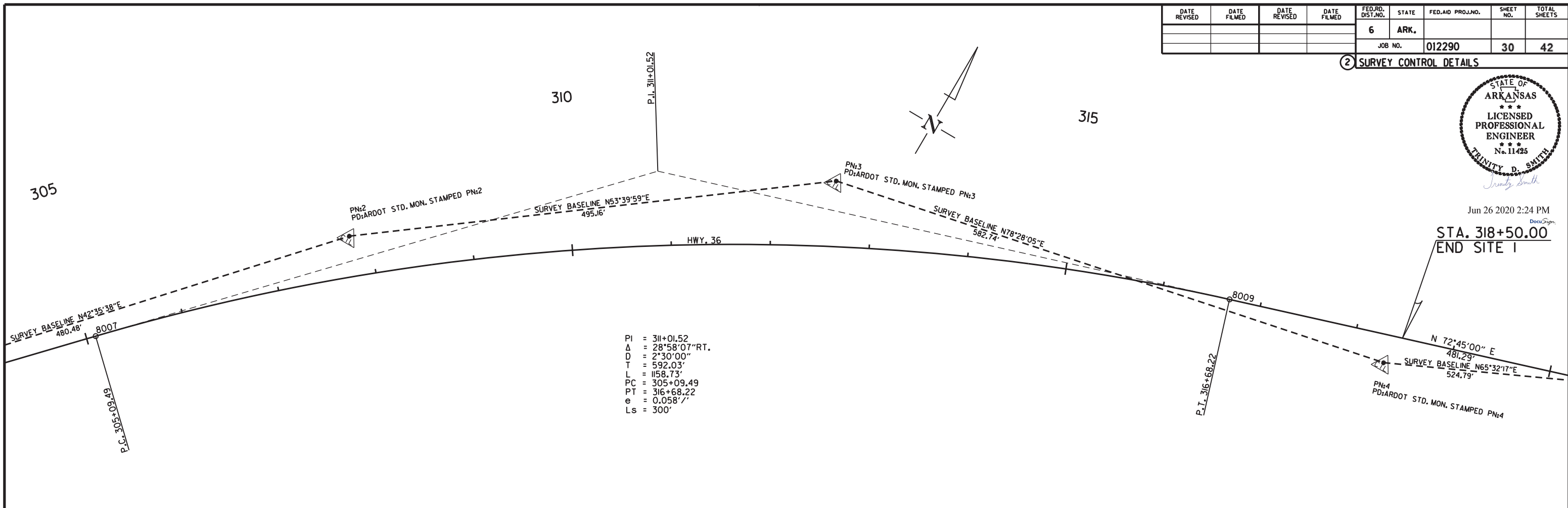
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012290		30	42

② SURVEY CONTROL DETAILS



Jun 26 2020 2:24 PM  
DocuSign

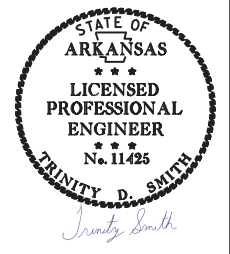
STA. 318+50.00  
END SITE 1



SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
07/28/2020				6	ARK.		31	42
JOB NO. 012290							31	42

2 PLAN AND PROFILE SHEET



STA. 296+60 IN PLACE  
DBL. 36" X 40' C.M. PIPE CULVERT  
LT. SIDE DRAIN  
REMOVE & INSTALL  
DBL. 36" X 56' PIPE CULVERT  
LT. SIDE DRAIN  
CONST. APPRS. = 90 CU.YD.

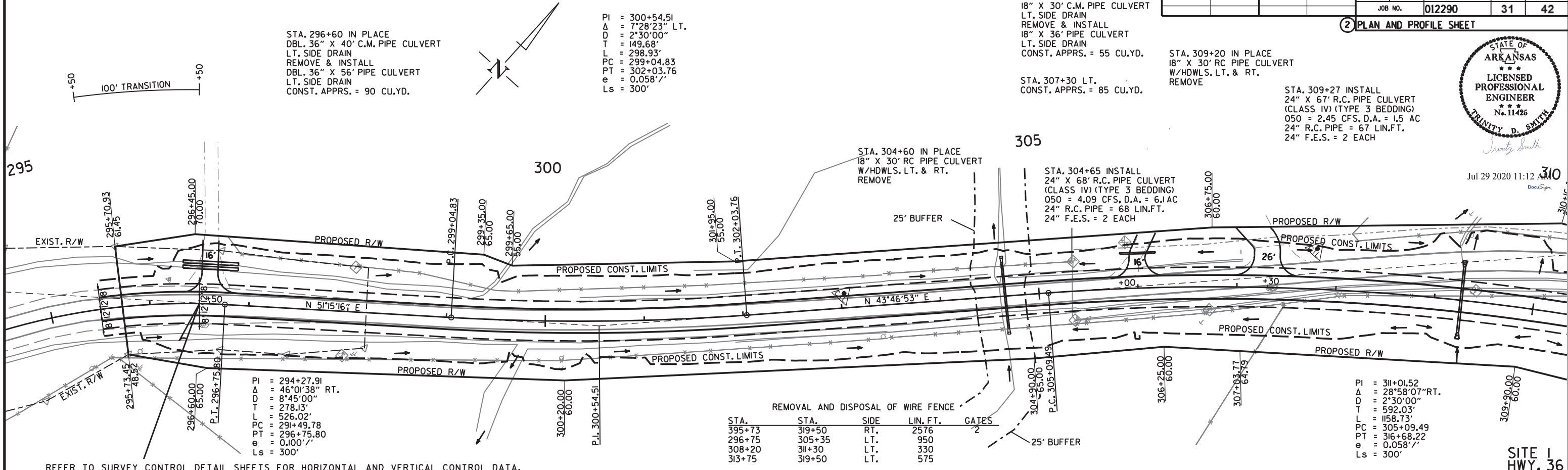
PI = 300+54.51  
Δ = 7°28'23" LT.  
D = 2°30'00"  
T = 149.68'  
L = 298.93'  
PC = 299+04.83  
PT = 302+03.76  
e = 0.058'/'  
Ls = 300'

STA. 306+00 IN PLACE  
18" X 30' C.M. PIPE CULVERT  
LT. SIDE DRAIN  
REMOVE & INSTALL  
18" X 36' PIPE CULVERT  
LT. SIDE DRAIN  
CONST. APPRS. = 55 CU.YD.

STA. 309+20 IN PLACE  
18" X 30' RC PIPE CULVERT  
W/HDWLS. LT. & RT.  
REMOVE

STA. 309+27 INSTALL  
24" X 67' R.C. PIPE CULVERT  
(CLASS IV) (TYPE 3 BEDDING)  
050 = 2.45 CFS, D.A. = 1.5 AC  
24" R.C. PIPE = 67 LIN.FT.  
24" F.E.S. = 2 EACH

STA. 307+30 LT.  
CONST. APPRS. = 85 CU.YD.

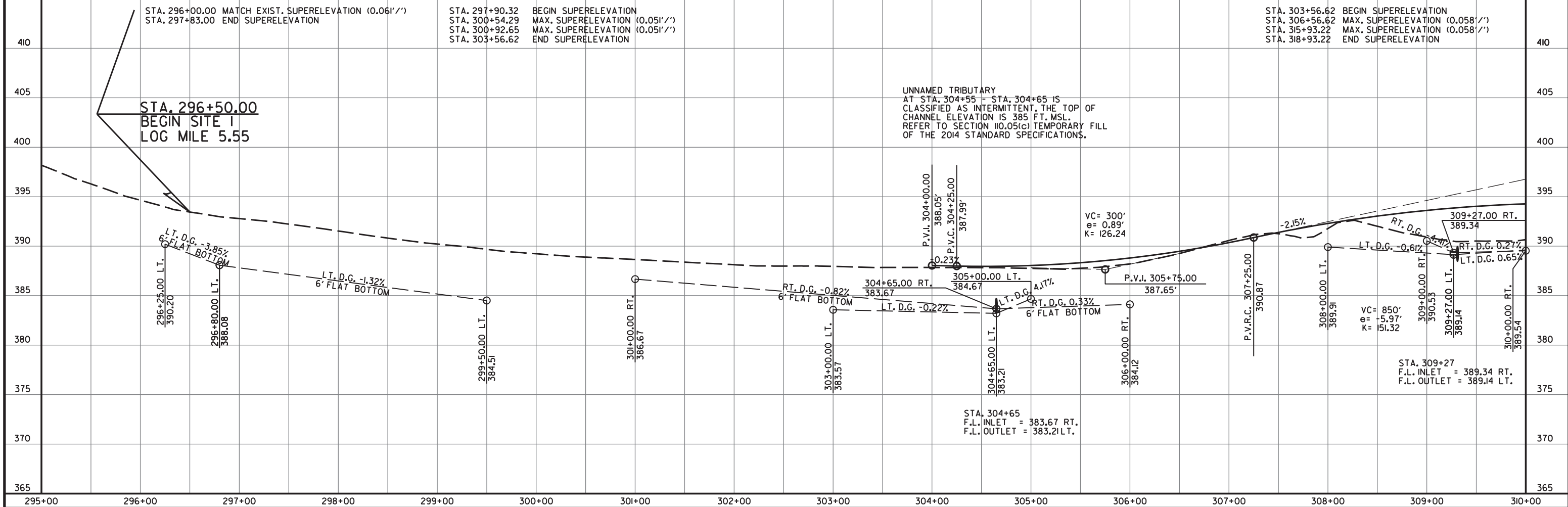


PI = 294+27.91  
Δ = 46°01'38" RT.  
D = 8°45'00"  
T = 278.13'  
L = 526.02'  
PC = 291+49.78  
PT = 296+75.80  
e = 0.100'/'  
Ls = 300'

PI = 311+01.52  
Δ = 28°58'07" RT.  
D = 2°30'00"  
T = 592.03'  
L = 1158.73'  
PC = 305+09.49  
PT = 316+68.22  
e = 0.058'/'  
Ls = 300'

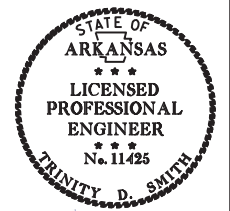
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

SITE 1 HWY. 36



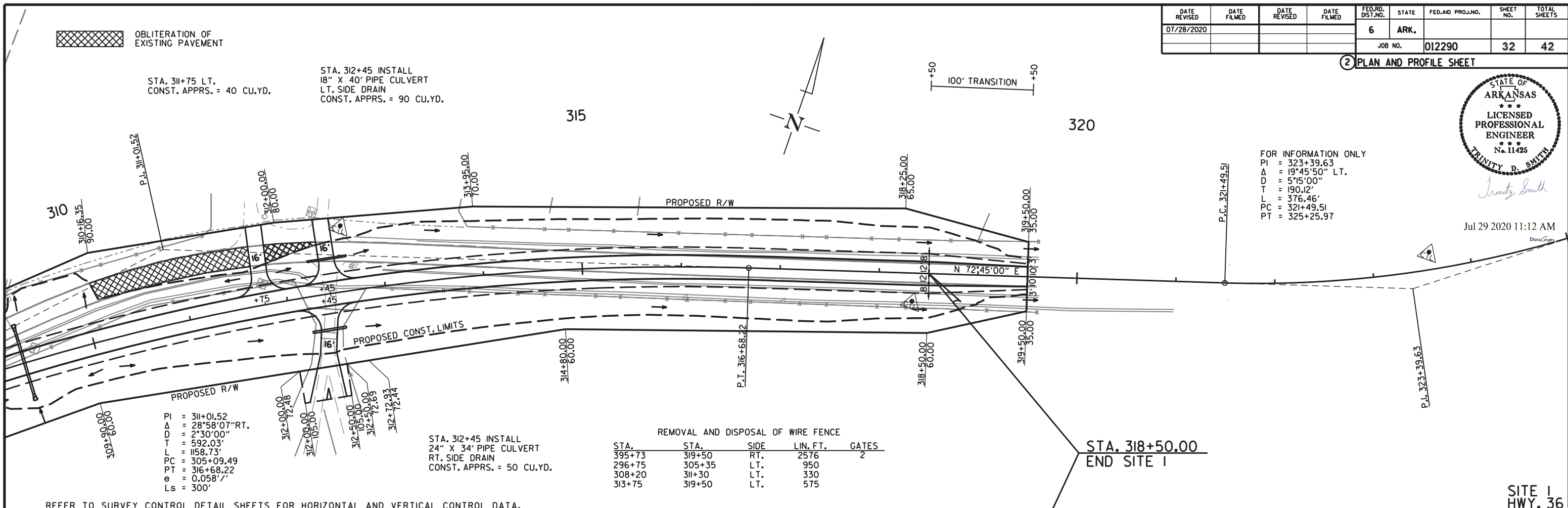
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
07/28/2020				6	ARK.		32	42
JOB NO. 012290							32	42

2 PLAN AND PROFILE SHEET



FOR INFORMATION ONLY  
 PI = 323+39.63  
 Δ = 19°45'50" LT.  
 D = 5'15'00"  
 T = 190.12'  
 L = 376.46'  
 PC = 321+49.51  
 PT = 325+25.97

Jul 29 2020 11:12 AM  
 DocuSign

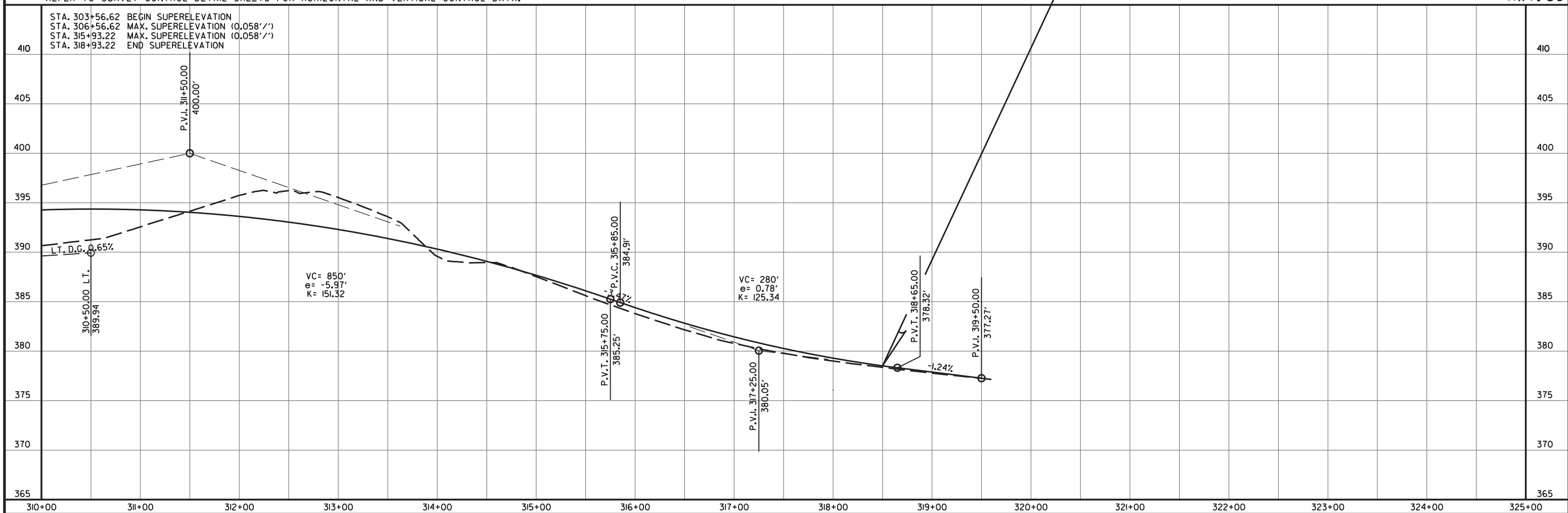


REMOVAL AND DISPOSAL OF WIRE FENCE

STA.	STA.	SIDE	LIN. FT.	GATES
395+73	319+50	RT.	2576	2
296+75	305+35	LT.	950	
308+20	311+30	LT.	330	
313+75	319+50	LT.	575	

STA. 318+50.00  
 END SITE 1

SITE 1  
 HWY. 36



STA. 303+56.62 BEGIN SUPERELEVATION  
 STA. 306+56.62 MAX. SUPERELEVATION (0.058'/'')  
 STA. 315+93.22 MAX. SUPERELEVATION (0.058'/'')  
 STA. 318+93.22 END SUPERELEVATION

PI = 311+01.52  
 Δ = 28°58'07" RT.  
 D = 2'30'00"  
 T = 592.03'  
 L = 1158.73'  
 PC = 305+09.49  
 PT = 316+68.22  
 e = 0.058'/''  
 Ls = 300'

STA. 312+45 INSTALL  
 24" X 34' PIPE CULVERT  
 RT. SIDE DRAIN  
 CONST. APPRS. = 50 CU.YD.

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

OBLITERATION OF EXISTING PAVEMENT

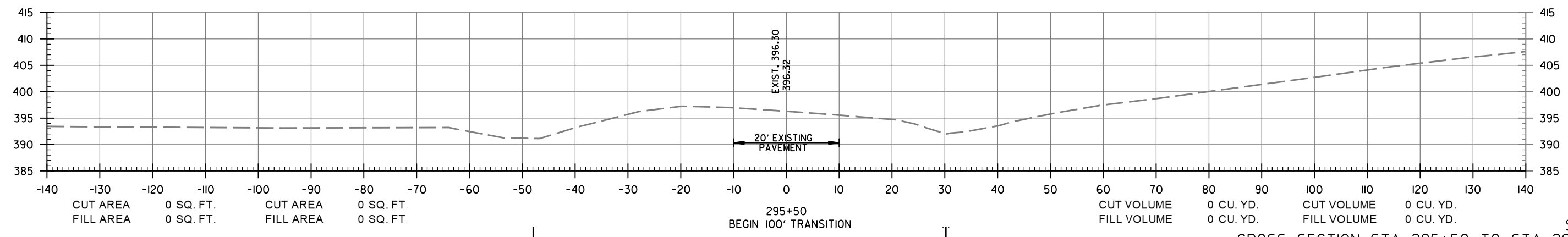
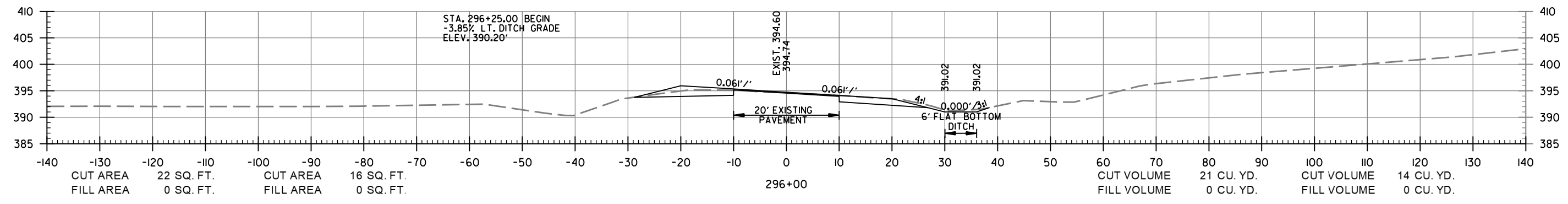
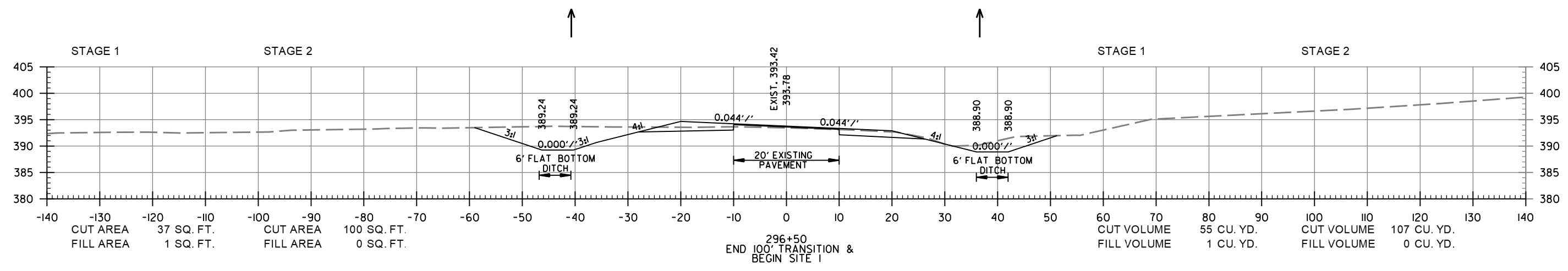
STA. 311+75 LT.  
 CONST. APPRS. = 40 CU.YD.

STA. 312+45 INSTALL  
 18" X 40' PIPE CULVERT  
 LT. SIDE DRAIN  
 CONST. APPRS. = 90 CU.YD.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	33	42

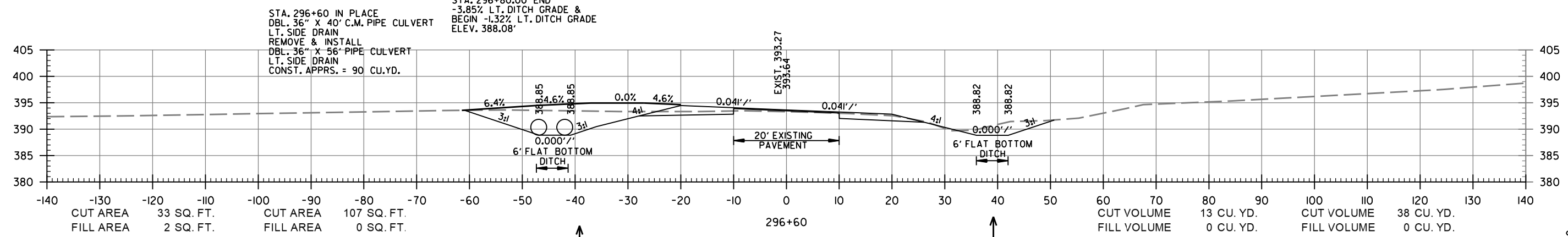
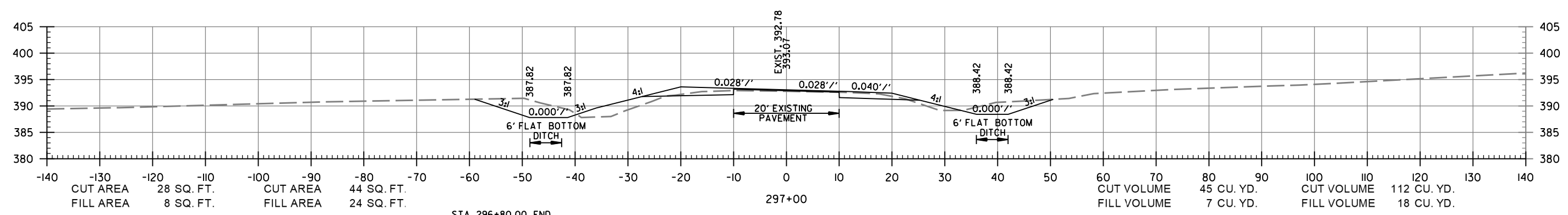
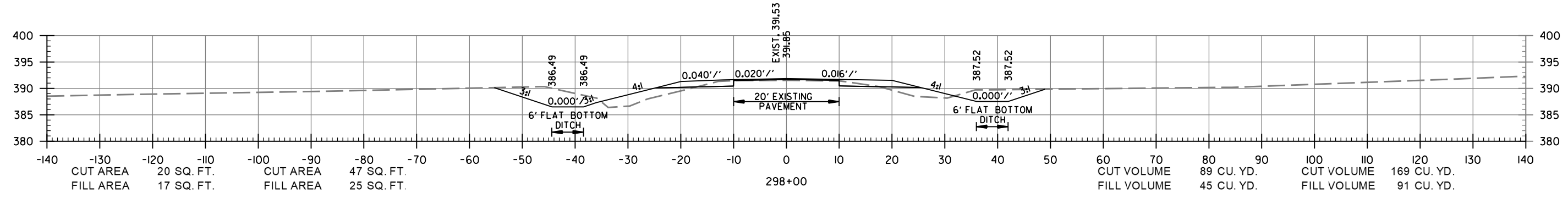
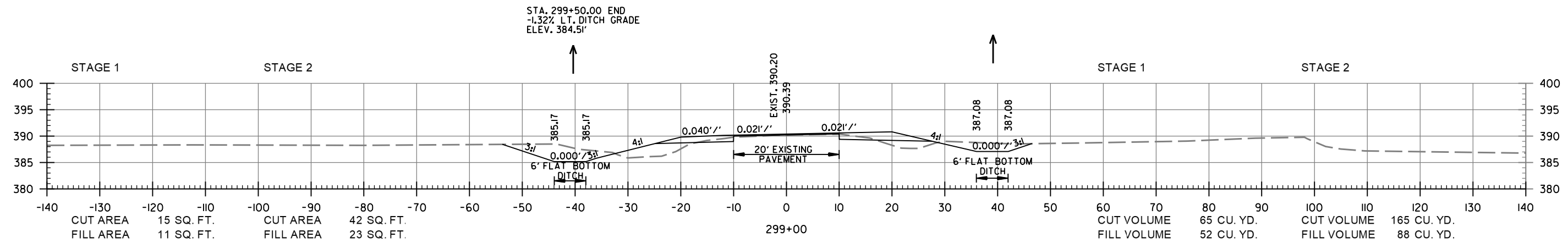
② CROSS SECTIONS



SITE I  
CROSS SECTION STA. 295+50 TO STA. 296+50

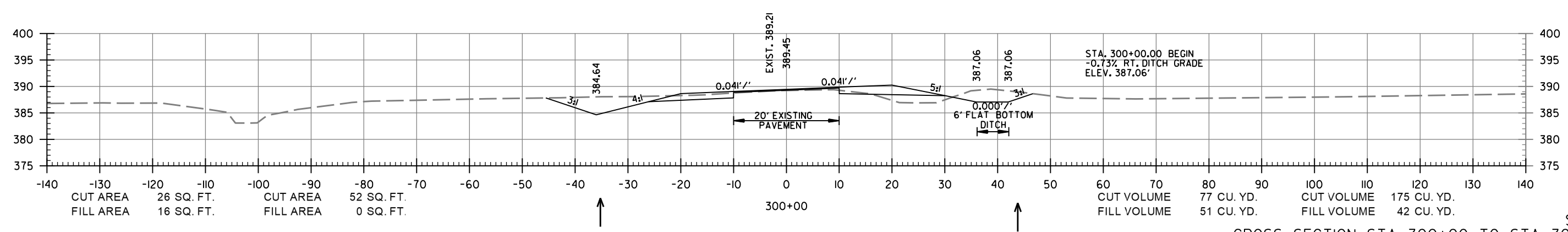
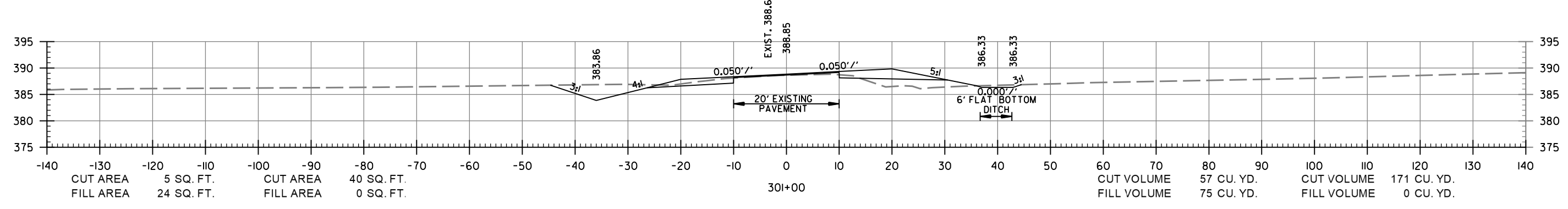
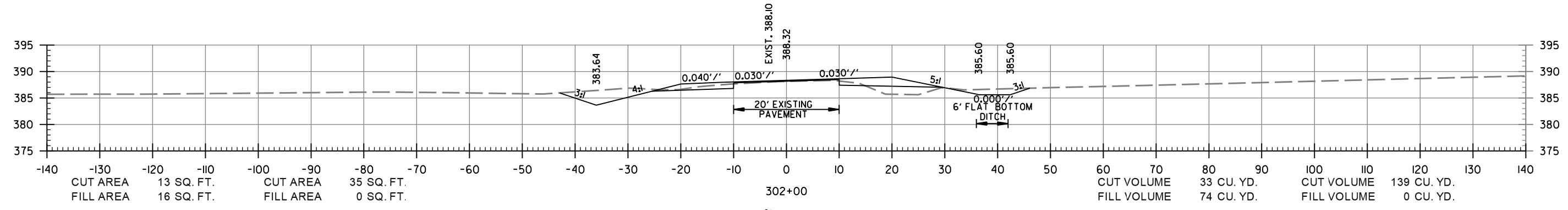
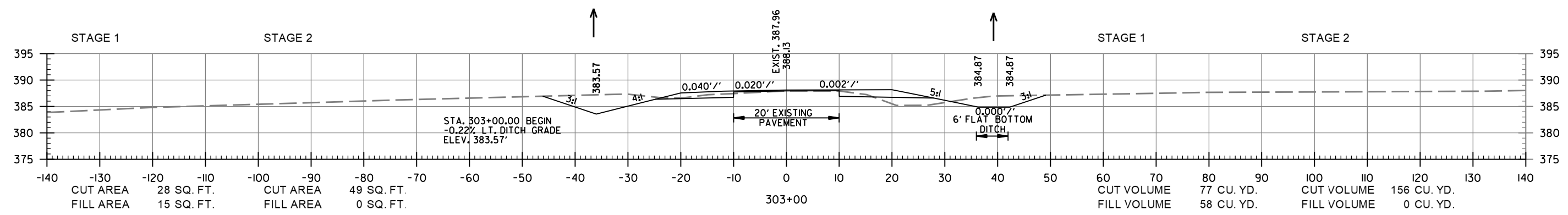
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	34	42

② CROSS SECTIONS



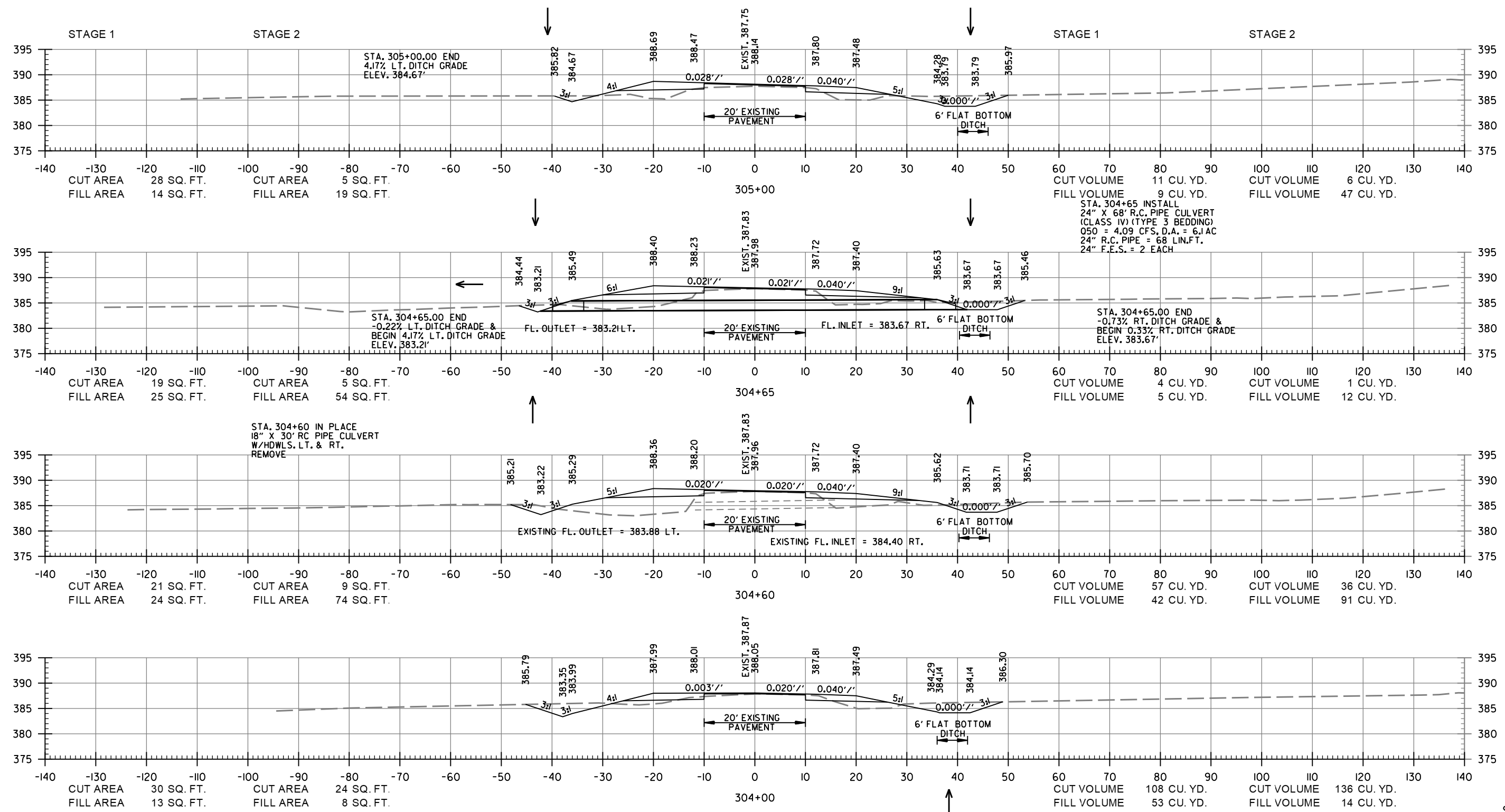
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	35	42

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	36	42

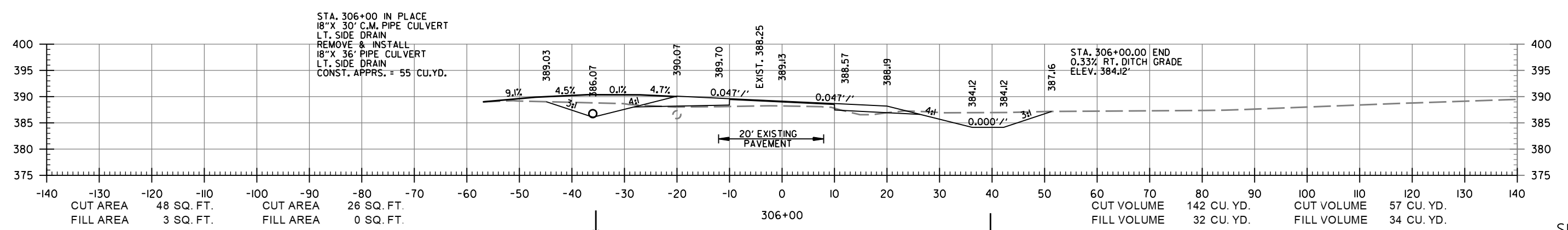
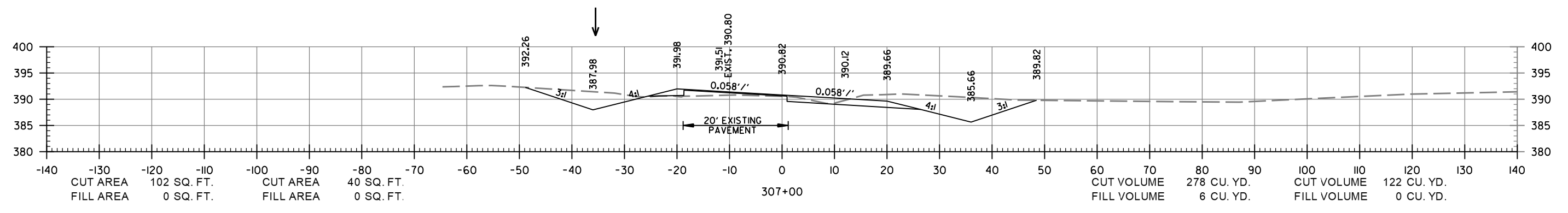
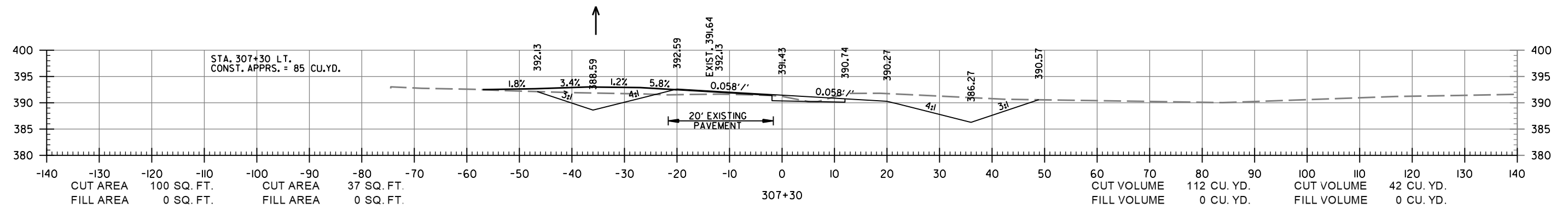
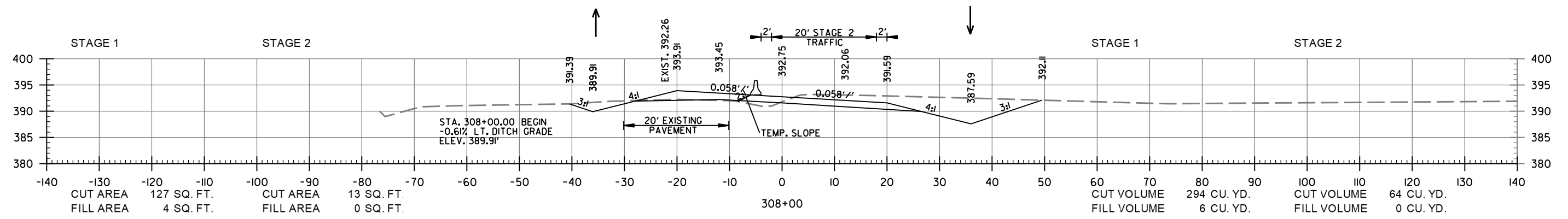
② CROSS SECTIONS





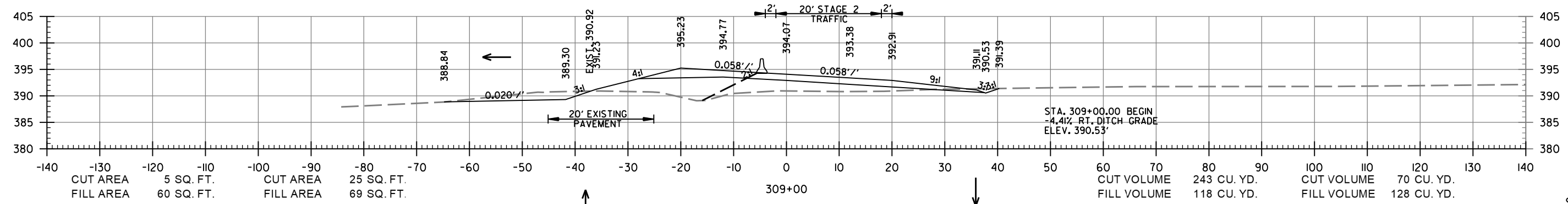
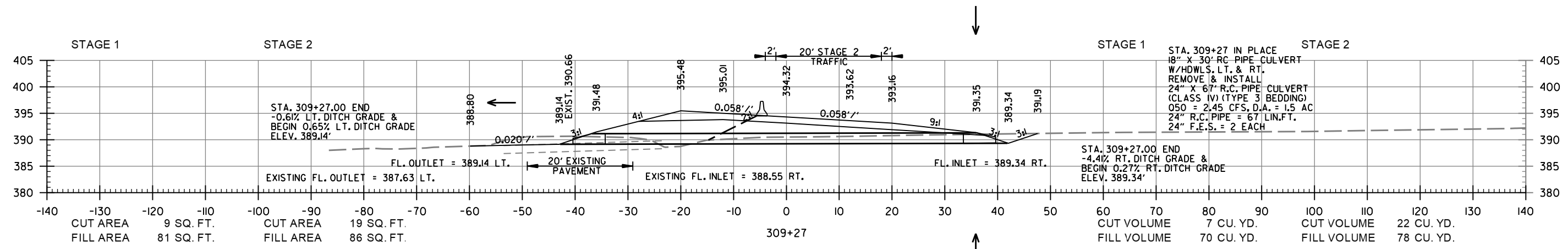
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	37	42

2 CROSS SECTIONS



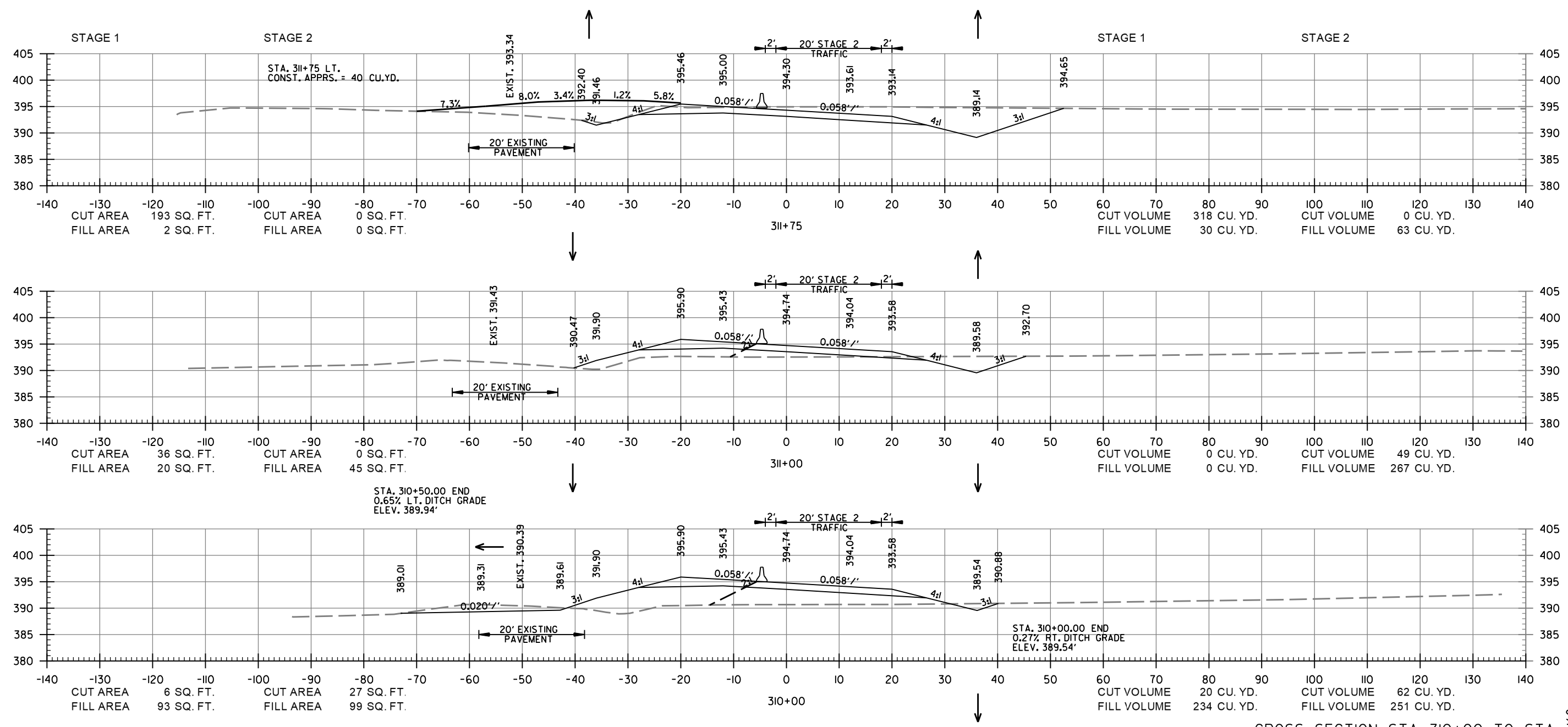
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	38	42

② CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	39	42

2 CROSS SECTIONS



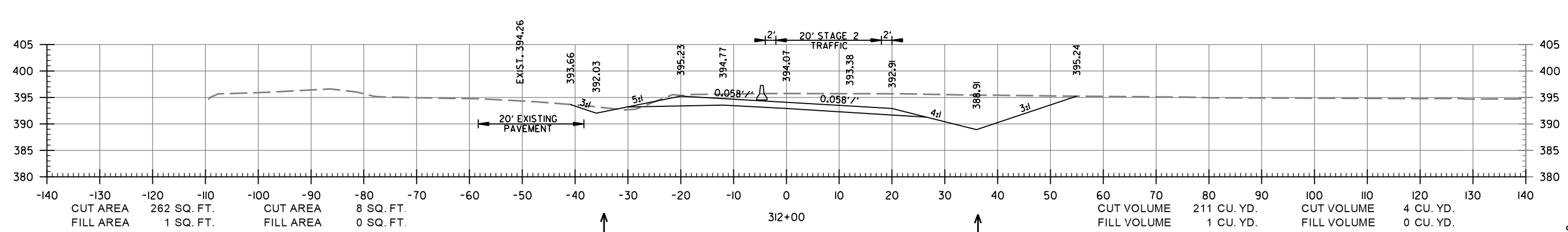
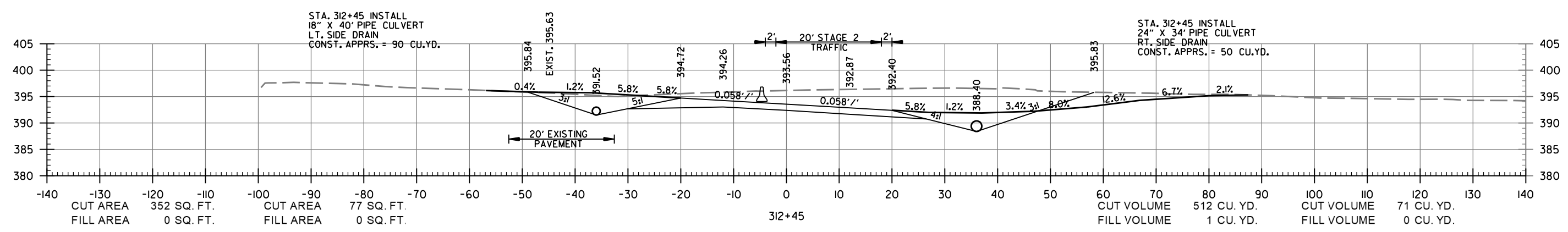
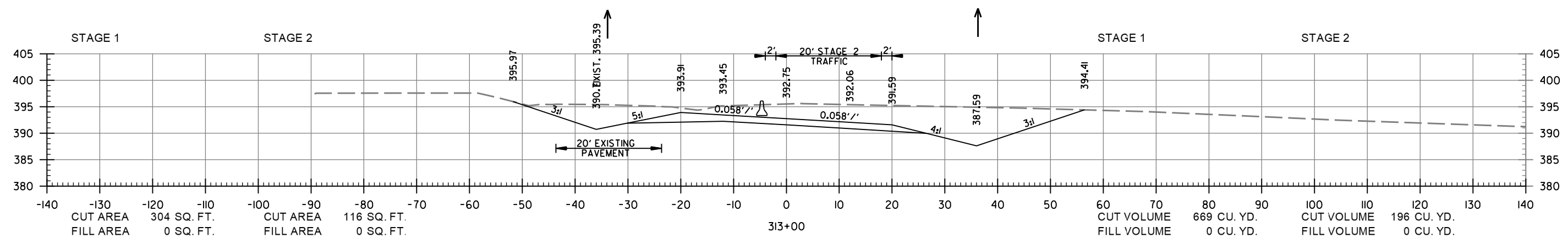
SITE I  
CROSS SECTION STA. 310+00 TO STA. 311+75

1w39665 3/26/2020 R012290.DGN



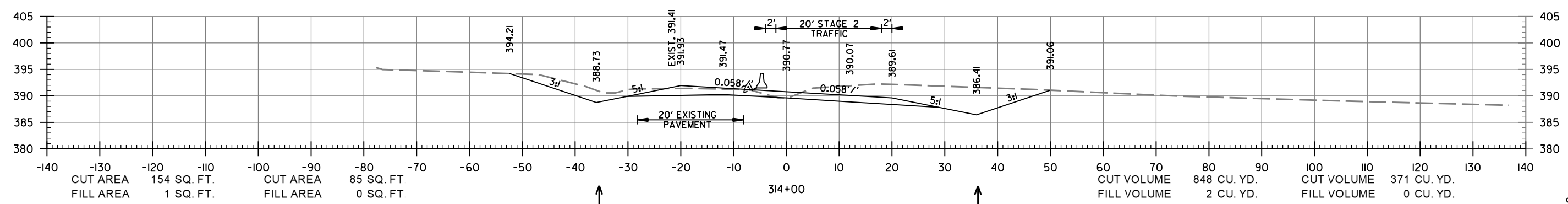
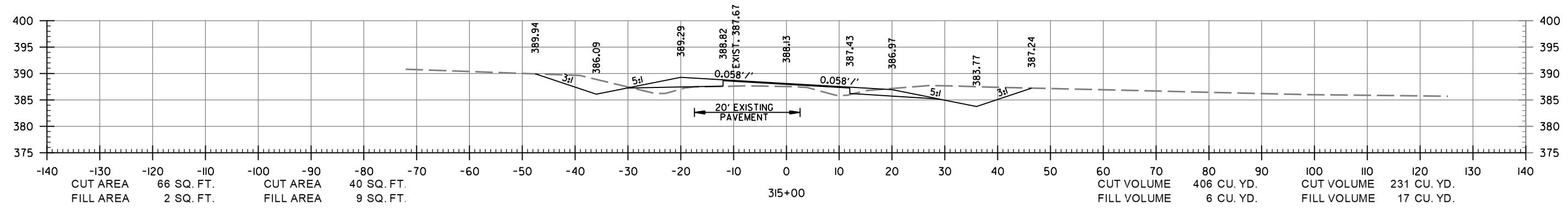
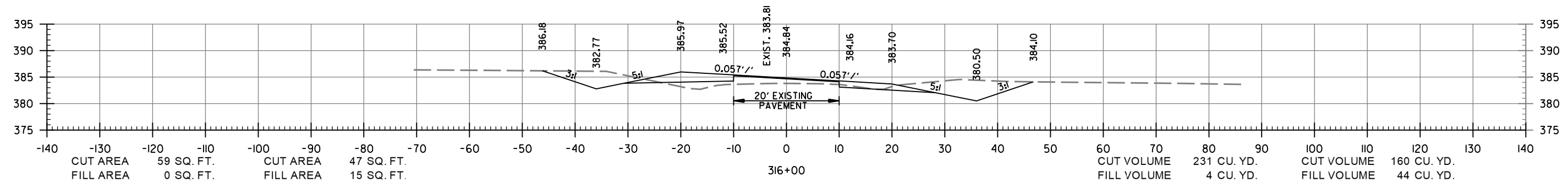
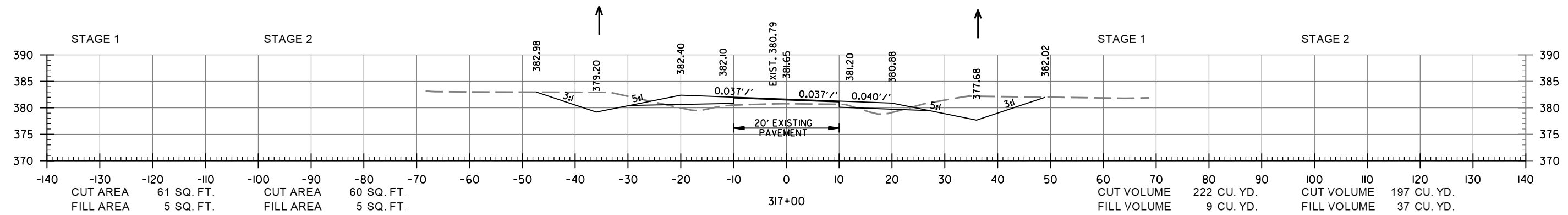
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	40	42

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	41	42

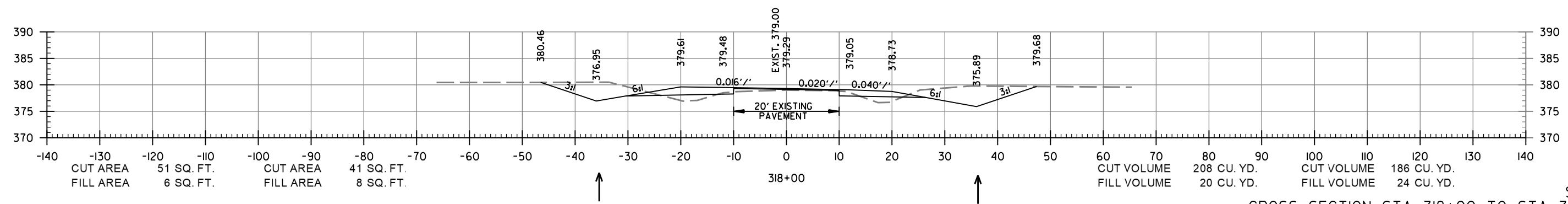
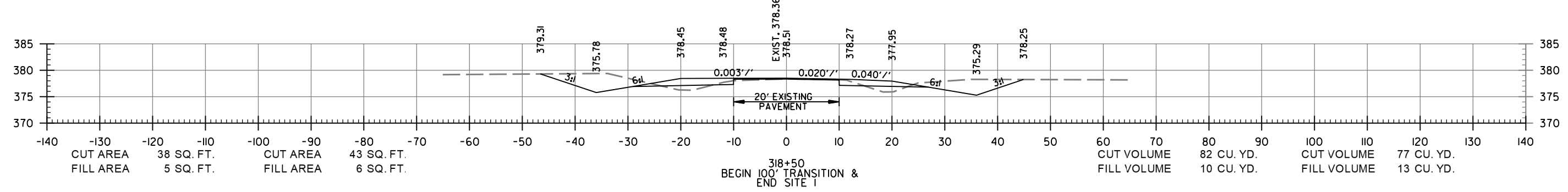
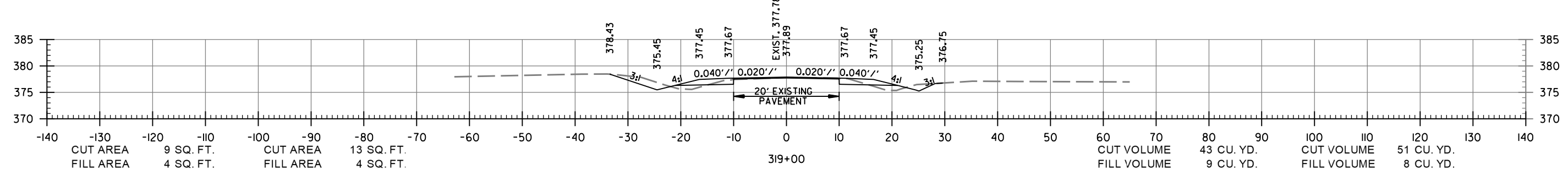
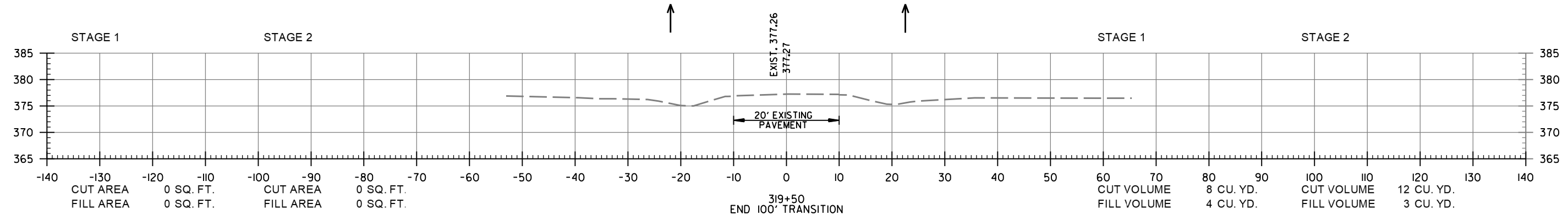
② CROSS SECTIONS



SITE I  
CROSS SECTION STA. 314+00 TO STA. 317+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012290	42	42

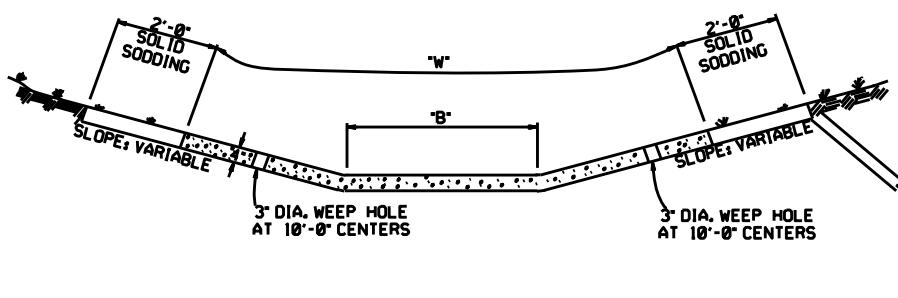
② CROSS SECTIONS



SITE 1  
CROSS SECTION STA. 318+00 TO STA. 319+50

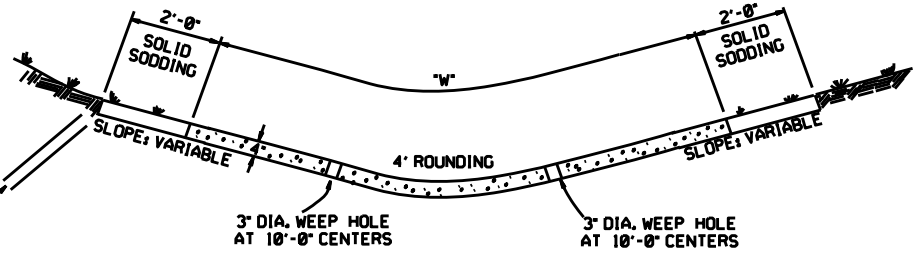


REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS



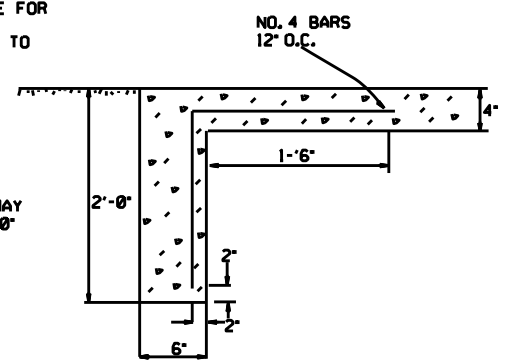
TYPE A

REFER TO TABULATION OF QUANTITIES FOR "W" DIMENSIONS



TYPE B

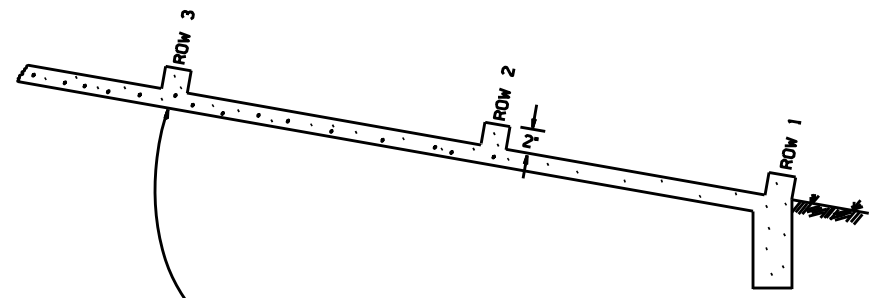
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING

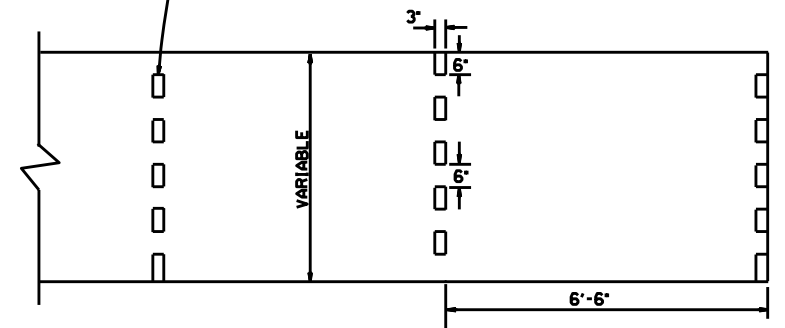
GENERAL NOTES:

- THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.
- TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.
- SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.
- 1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



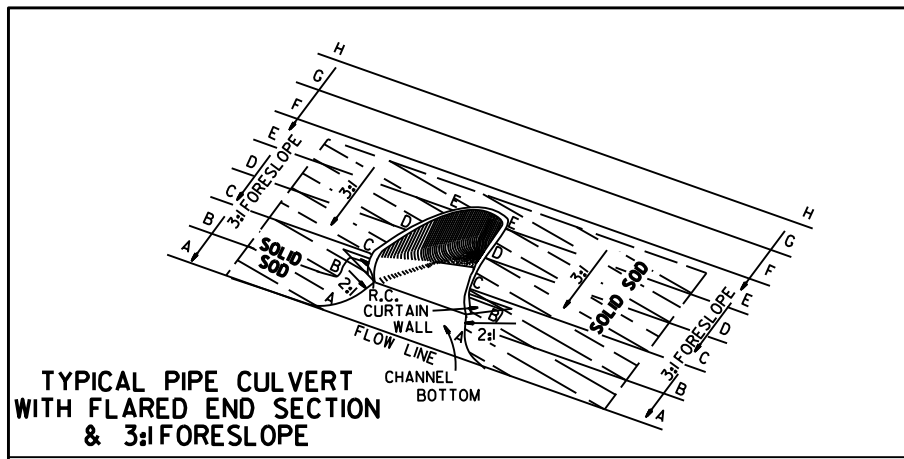
ENERGY DISSIPATORS (NO SCALE)

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	632-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	639-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72
	DATE	REVISION
		DATE FILM'D

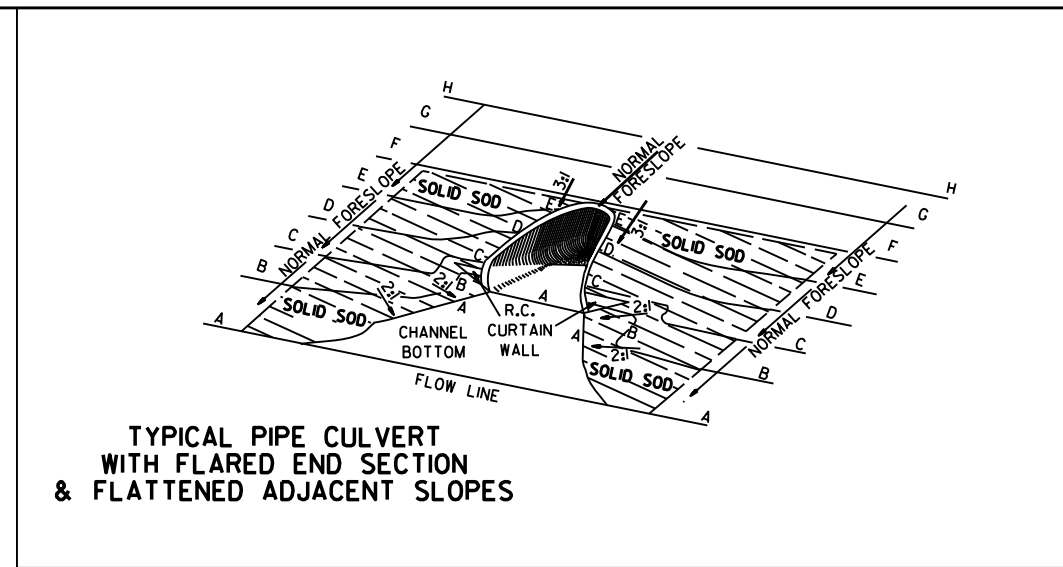
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

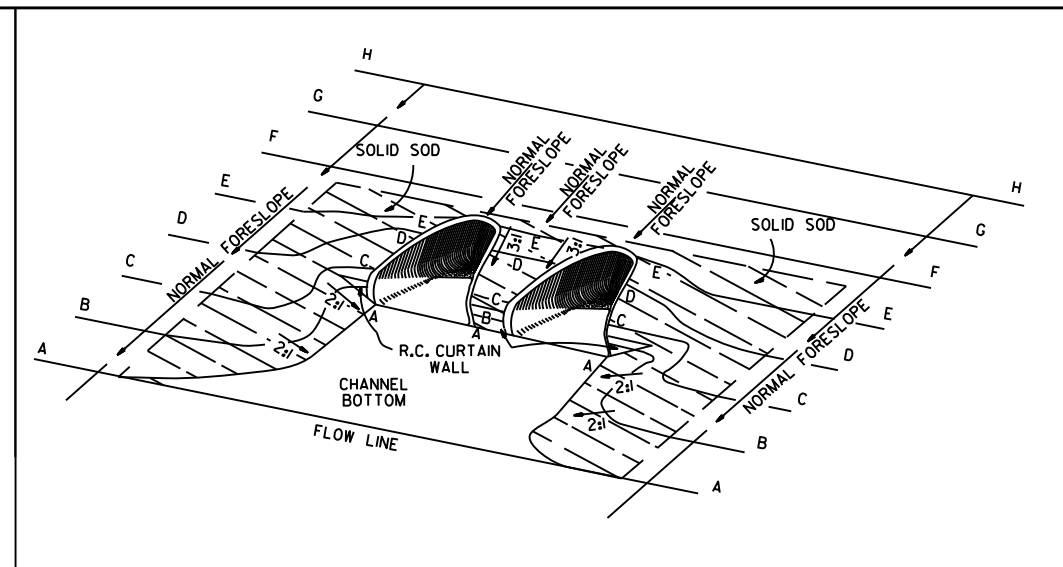
STANDARD DRAWING CDP-1



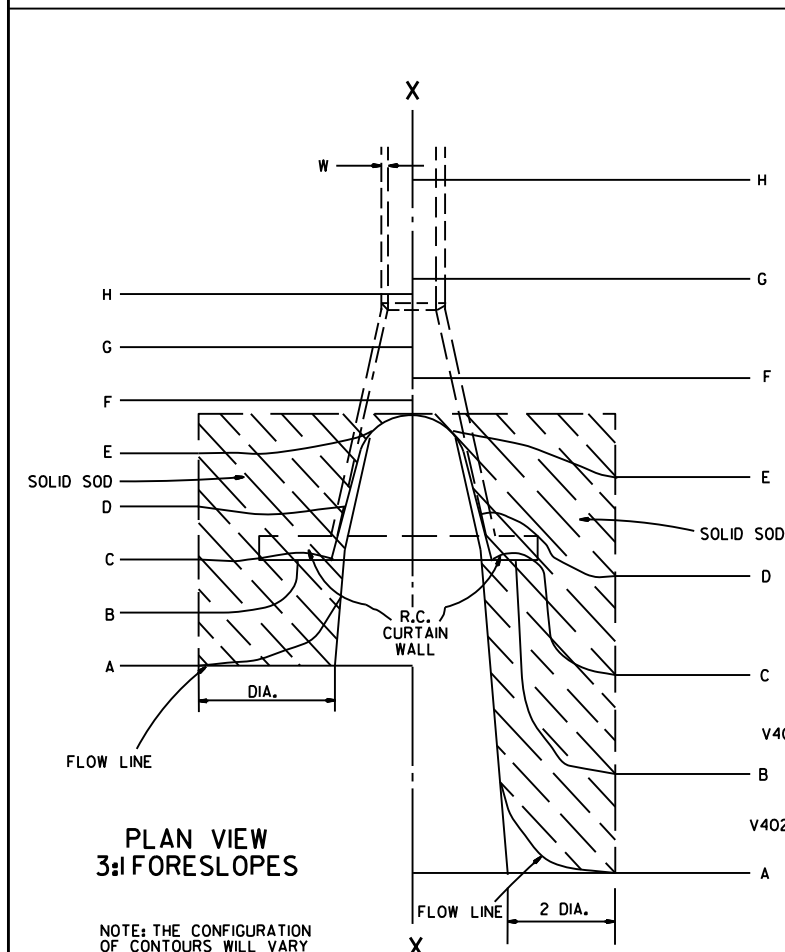
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES

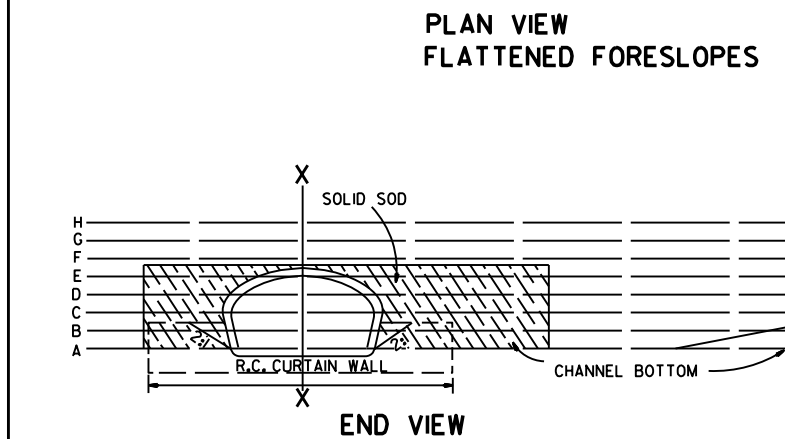


TYPICAL MULTIPLE PIPE CULVERT WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES



PLAN VIEW 3:1 FORESLOPES

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

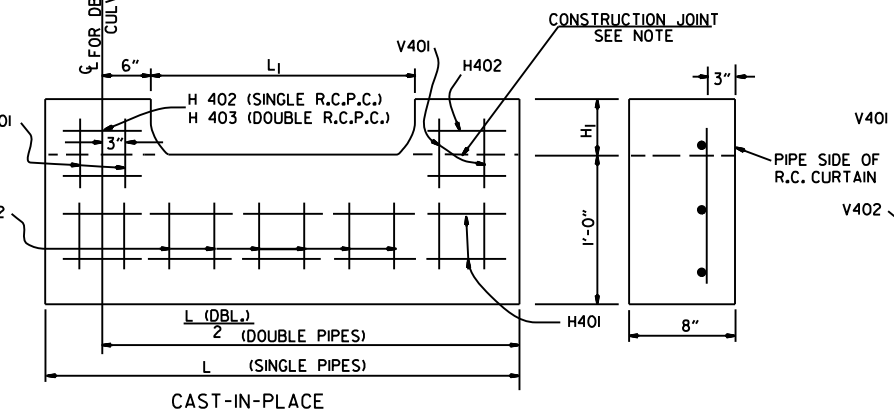


PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

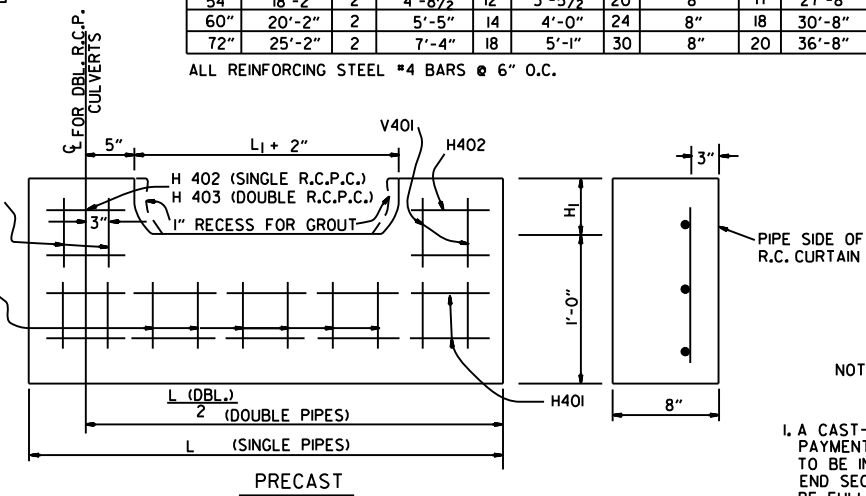
PIPE DIA.	H <sub>1</sub>	L <sub>1</sub>	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC. CU. YDS.	REINF. STEEL LBS.	CONC. CU. YDS.	REINF. STEEL LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	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.



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.

R.C. CURTAIN WALL DETAILS



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

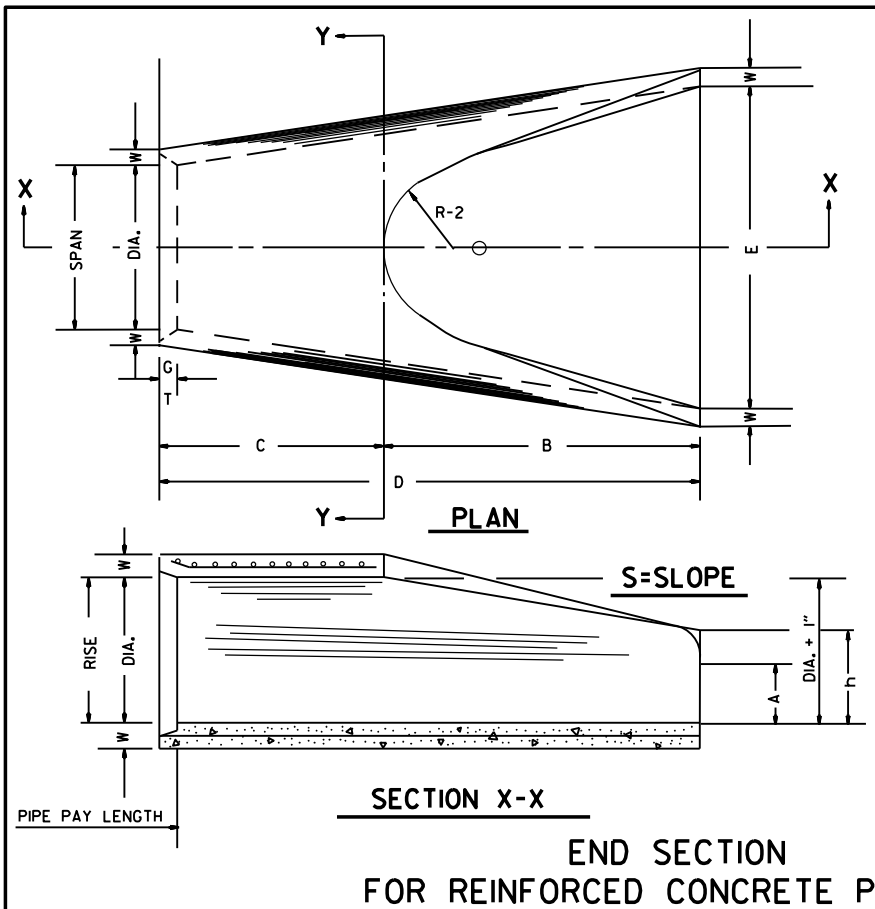
PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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

GENERAL NOTES

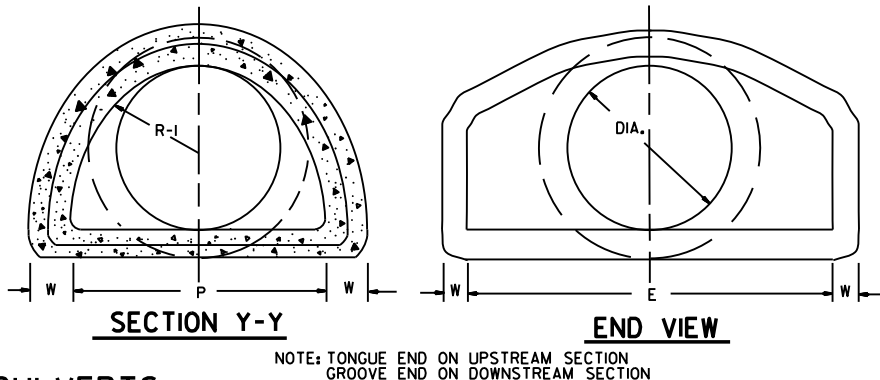
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL; AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 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.

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



### TABLE OF DIMENSIONS

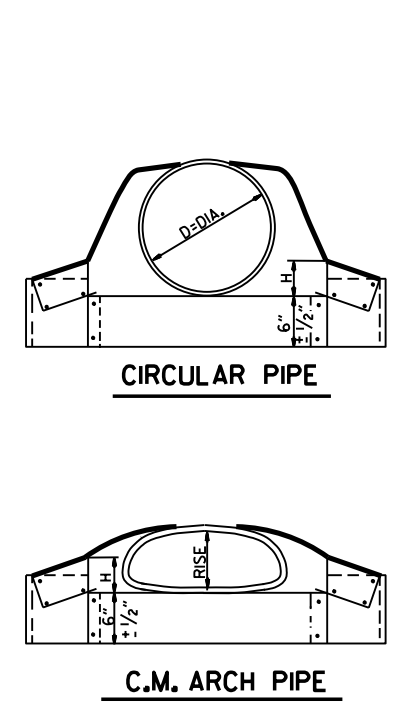
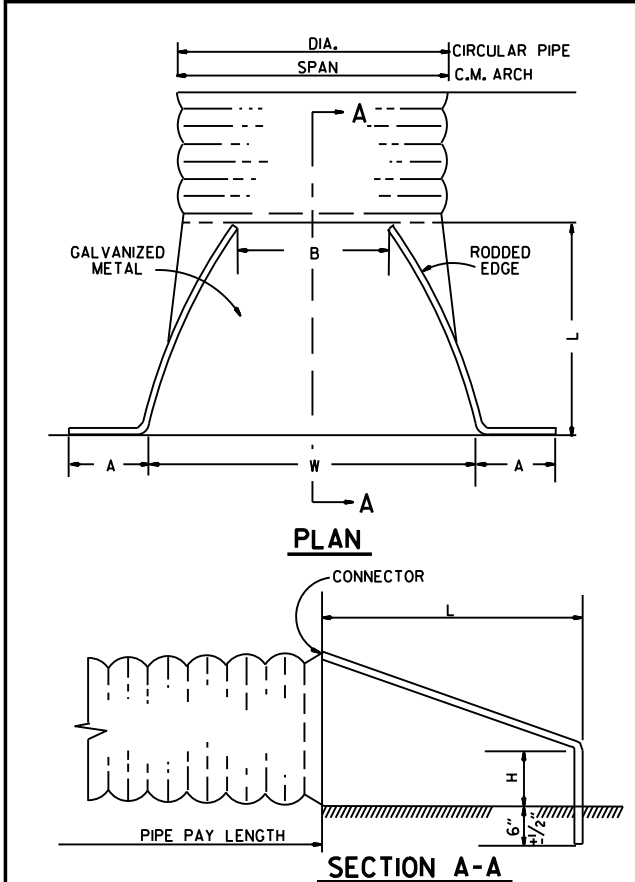
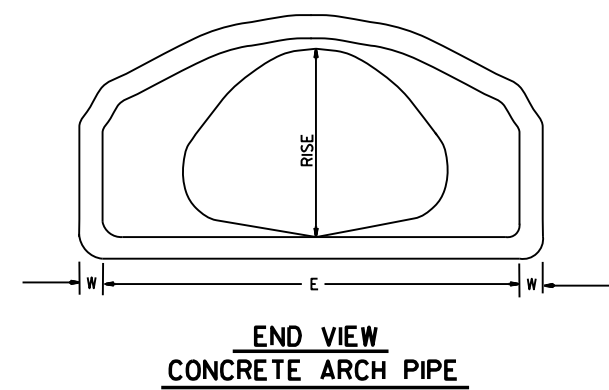
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 1/8"	24 1/8"	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 3/8"	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 3/8"	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 3/8"	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'-11 1/2"	6'-1 1/2"	6'-6"	54 3/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 3/8	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.

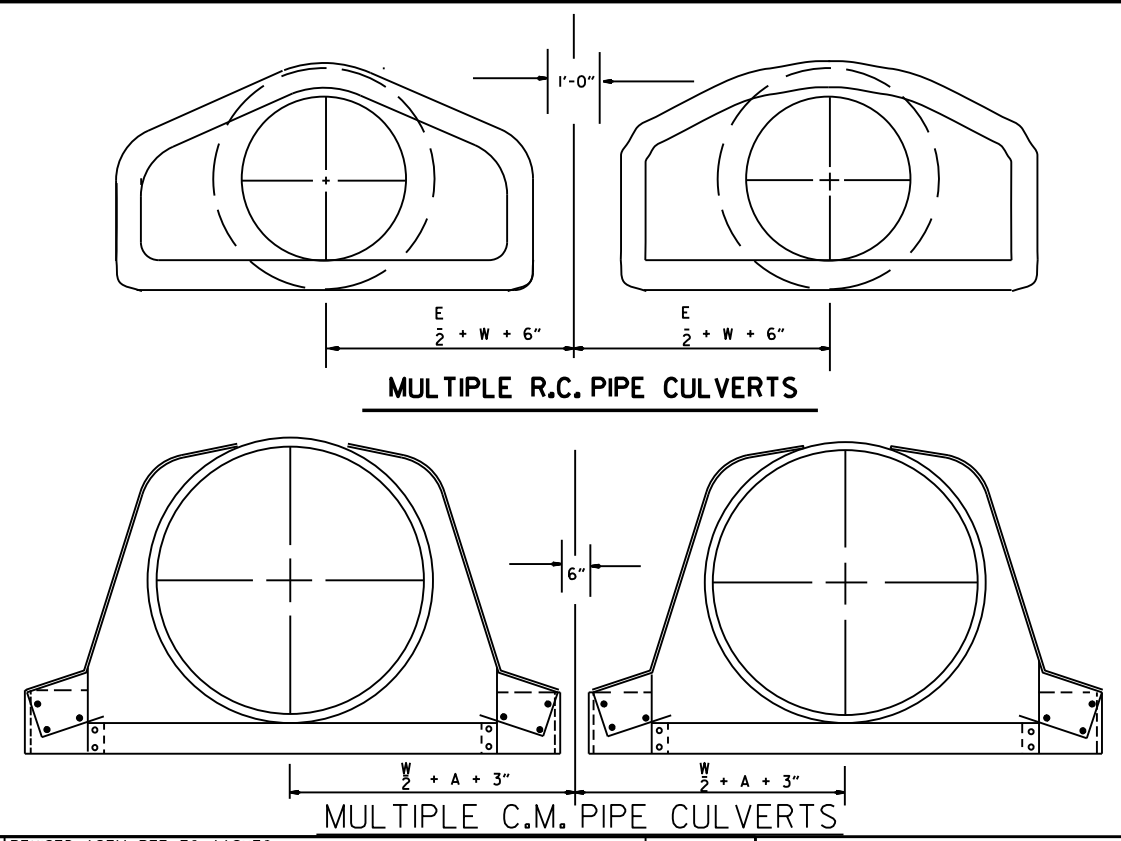


### CIRCULAR PIPE

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	INCHES				S	GAUGE	
			A	B MAX.	H	L			
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

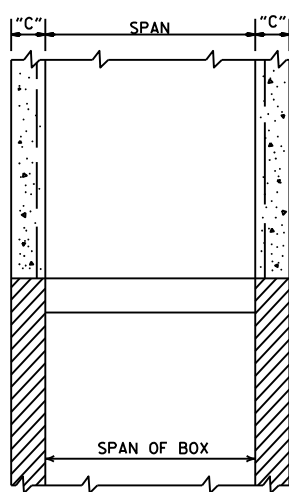


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

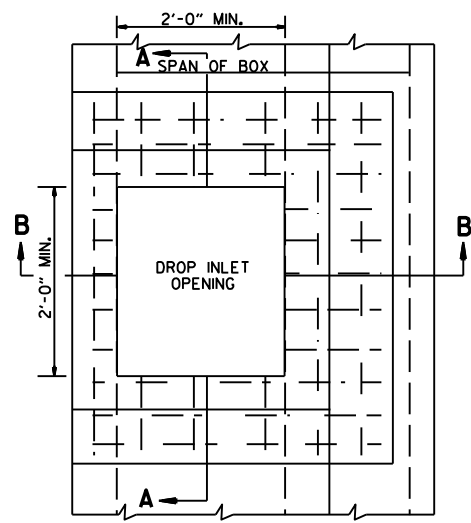
### END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO		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	FILMEN	

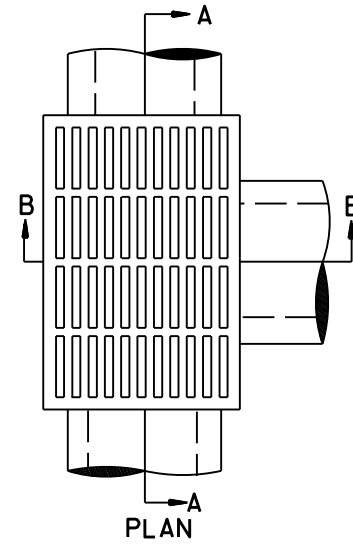




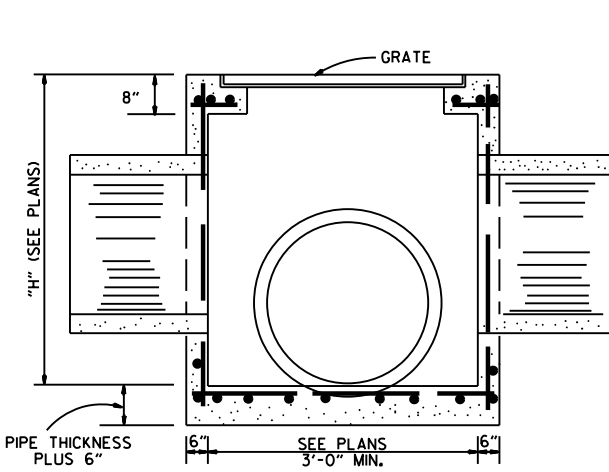
SECTION B-B



PLAN



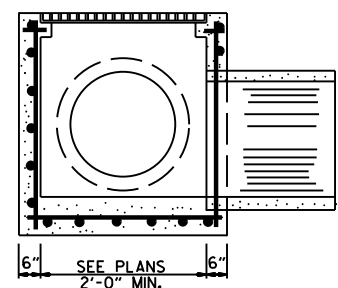
PLAN



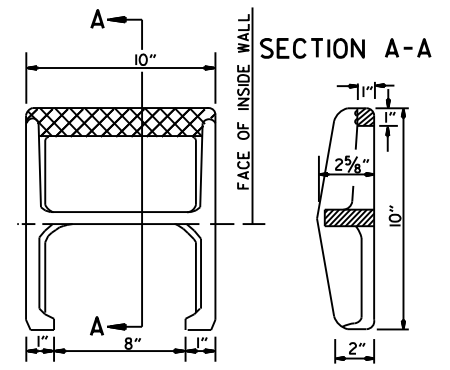
SECTION A-A

DROP INLET (TYPE E)

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1/2" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

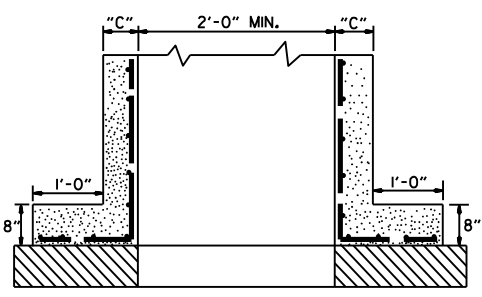


APPROX. WEIGHT = 11 LBS. (CAST IRON)

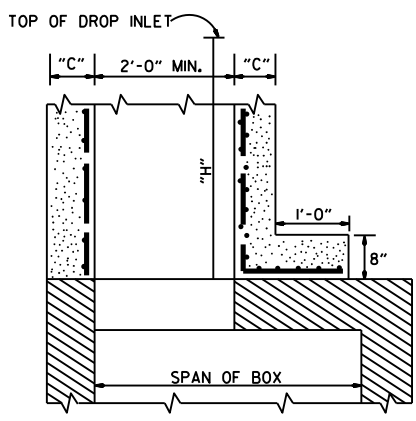
PLAN

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

DETAIL OF STEP FOR DROP INLET

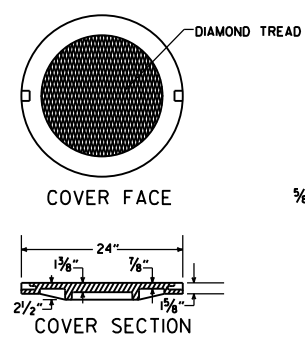


SECTION A-A



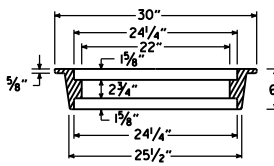
SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



COVER FACE

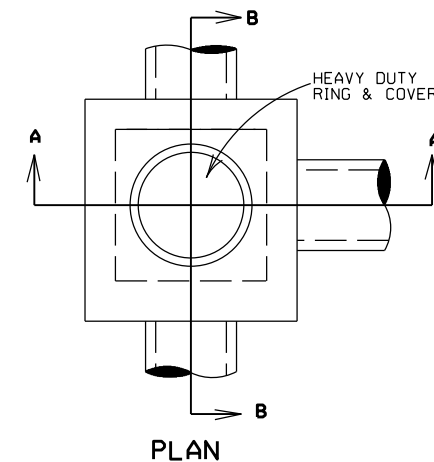
COVER SECTION



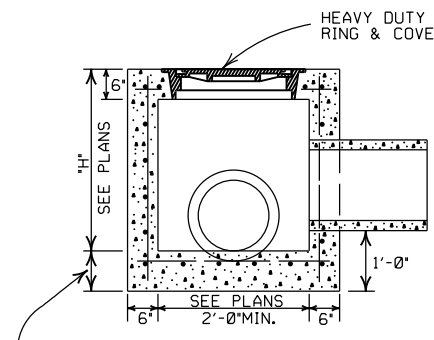
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



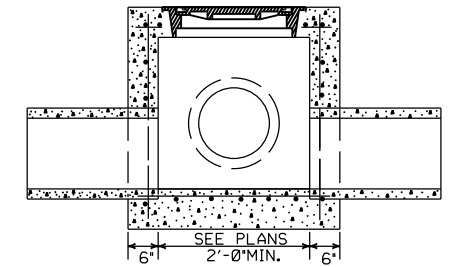
PLAN



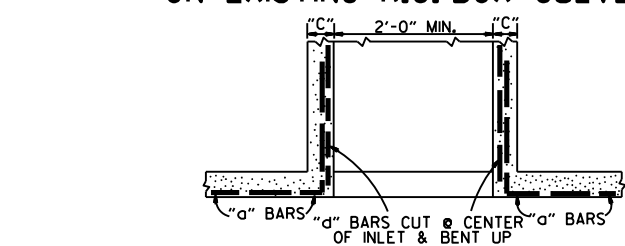
SECTION A-A

JUNCTION BOX (TYPE E)

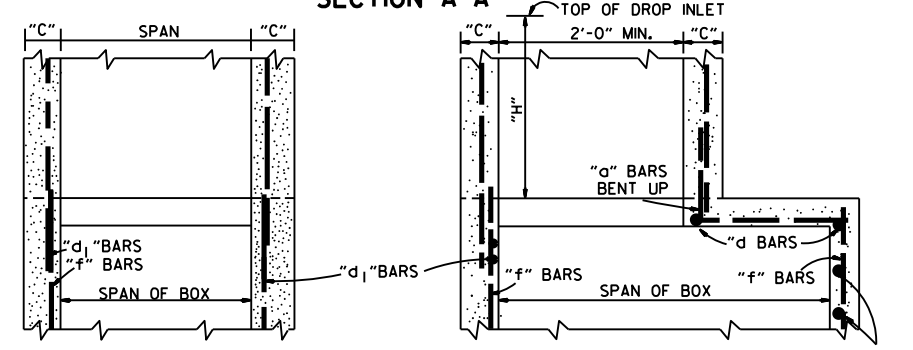
NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1/2" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B



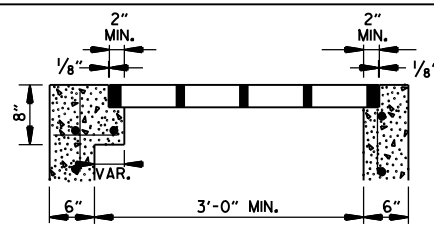
SECTION A-A



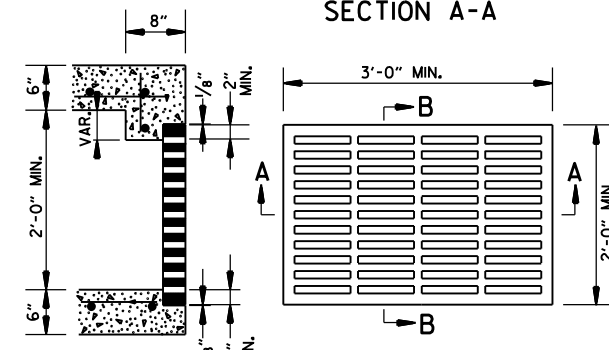
SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.



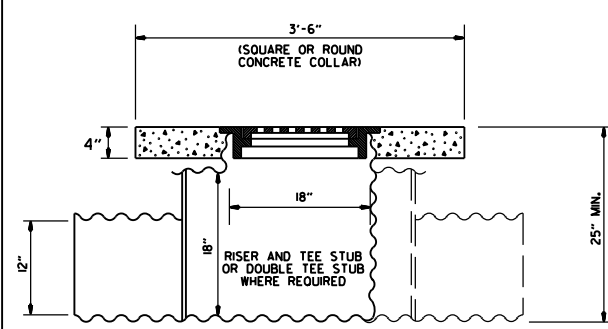
SECTION A-A



SECTION B-B

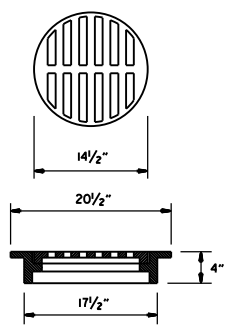
GRATE FOR TYPE E DROP INLET

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.



DETAIL OF YARD DRAIN

NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS "12" SIDE DRAIN".

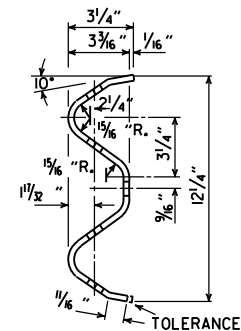
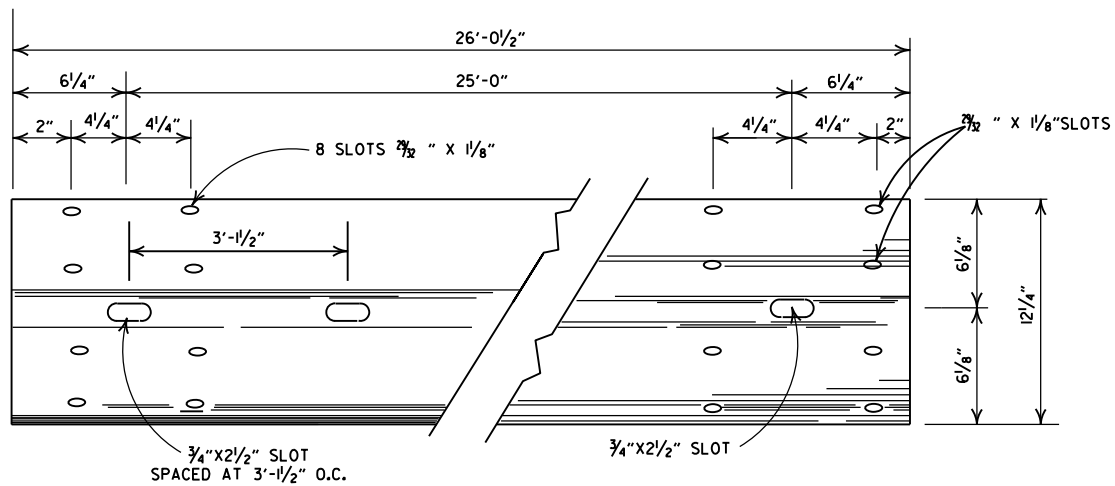


USE NEENAH R-590I-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

- GENERAL NOTES:
1. ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
  2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
  3. EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
  4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
  5. GRATE AND FRAME SHALL NOT BE PAINTED.
  6. GRATE SHALL BE BICYCLE SAFE.
  7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
  9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

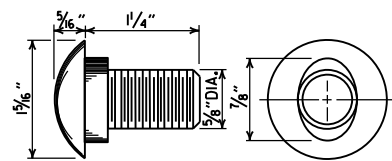
DATE	REV.	REVISION	DATE FILMED
11-16-01		ADDED NOTE 10	
1-12-00		REVISED HEAVY DUTY RING & COVER	
7-02-98		CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97		ADDED DIMENSION TO TYPE IV-A	
10-18-96		ADDED DETAIL OF YARD DRAIN	
8-15-91		DELETE TYPE IV GRATE	
7-15-88		REVISED STEP DETAIL	
5-20-83		REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83		ADDED GENERAL NOTE NO. 4	
3-2-81		ADDED TYPE IV-A GRATE	
5-22-74		DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72		REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION  
 DETAILS OF DROP INLETS  
 & JUNCTION BOXES  
 STANDARD DRAWING FPC-9

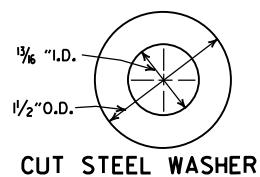


### DETAILS OF W-BEAM GUARDRAIL

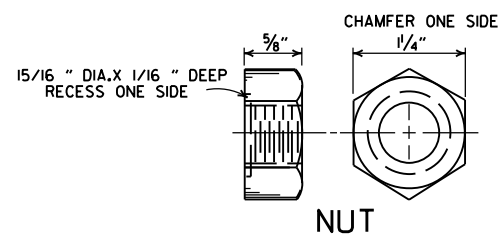
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



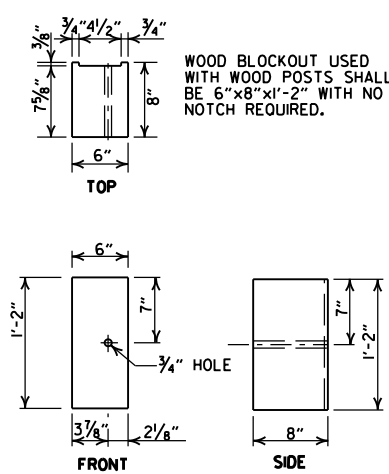
### SPLICE BOLT POST BOLT - SAME EXCEPT LENGTH



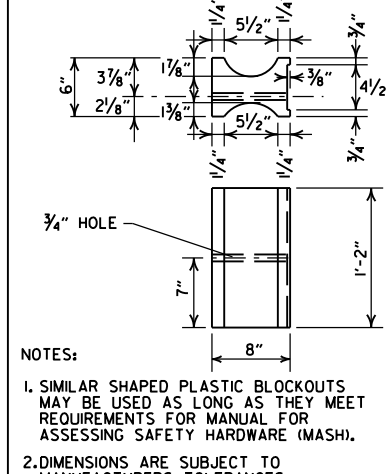
CUT STEEL WASHER



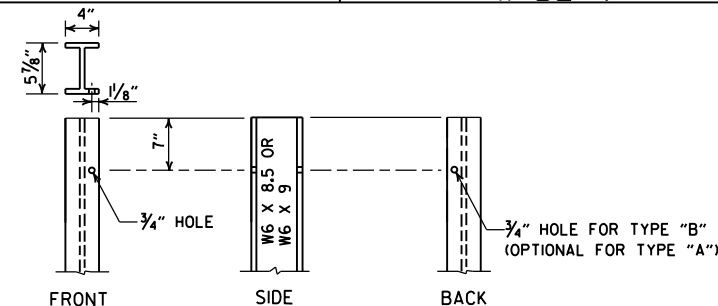
NUT



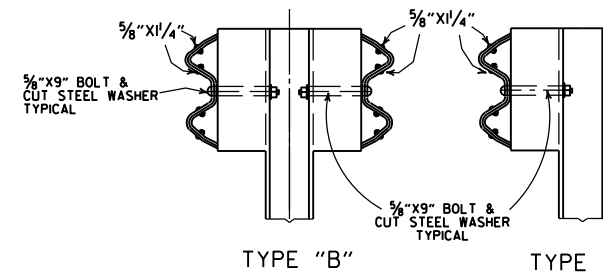
### WOOD BLOCKOUT (W-BEAM)



### PLASTIC BLOCKOUT (W-BEAM)



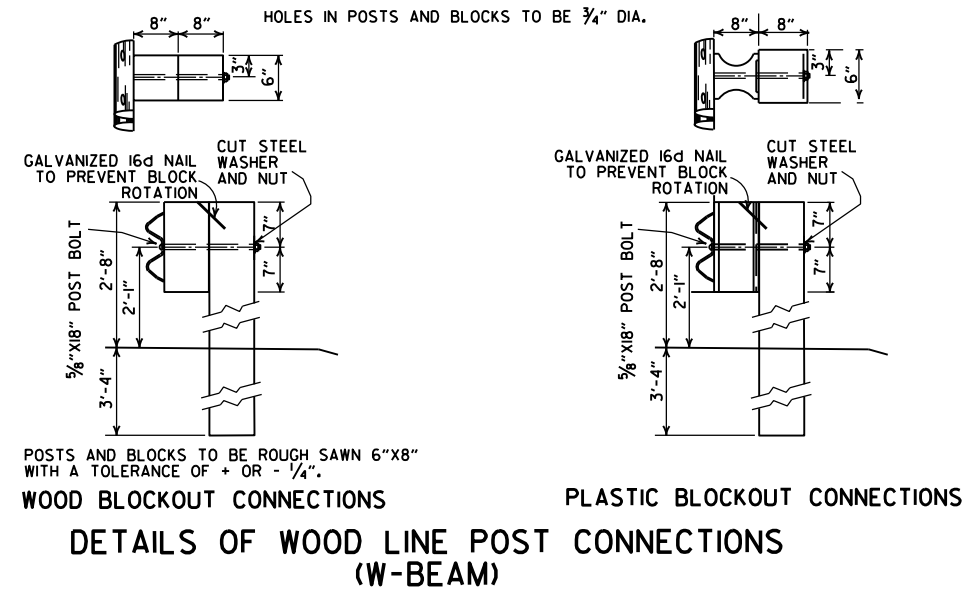
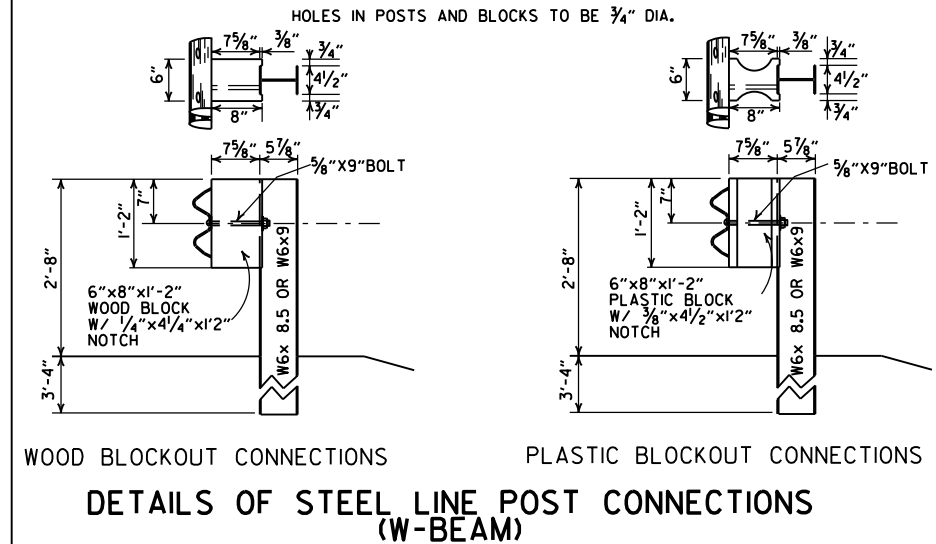
### STEEL POST



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

#### -GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.  
WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.  
W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.  
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.  
ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.  
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.  
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

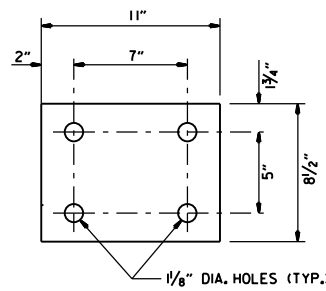


11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARDRAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARDRAIL 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	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	FILMED

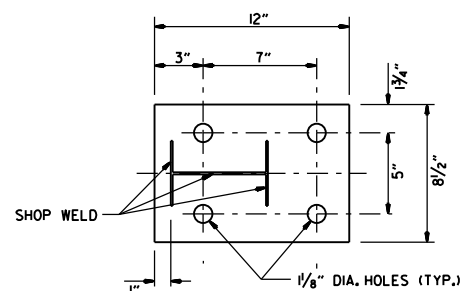
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-6

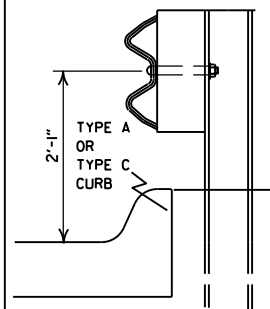


WASHER PLATE



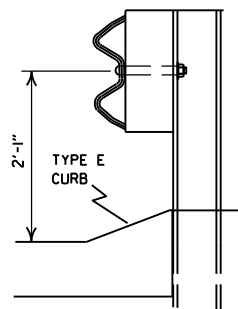
BASE PLATE

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 GUARDRAIL WITH FACE OF CURB.

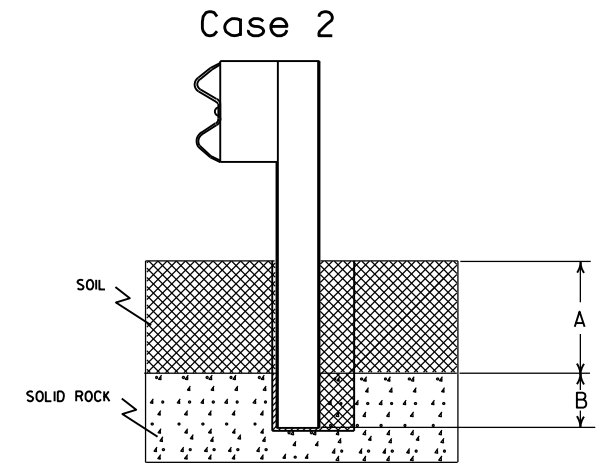
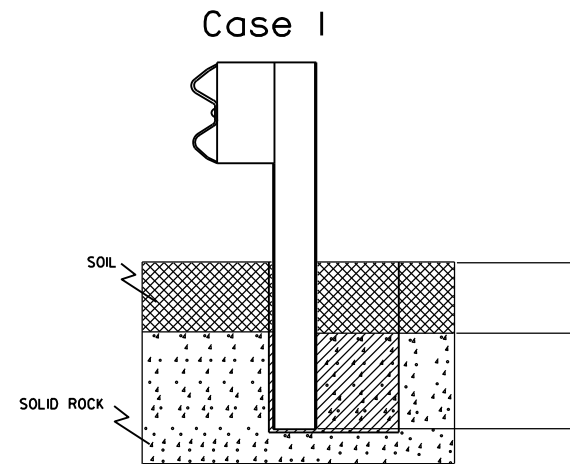


FOR DESIGN SPEEDS OF 55 MPH OR MORE

PLACE GUARDRAIL POSTS AGAINST BACK OF CURB.

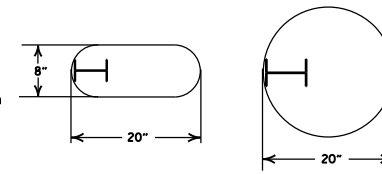
**DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)**

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.



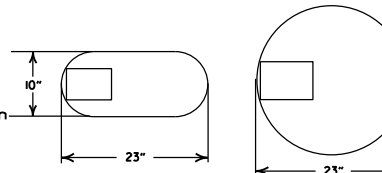
**Plan View Steel Posts**

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".

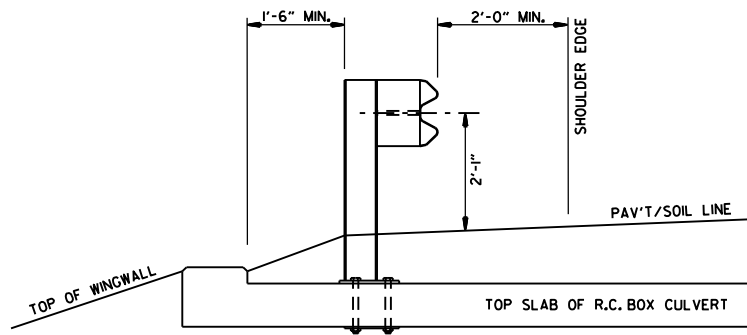
Zone A: Backfill according to Section 617.03(a).

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.

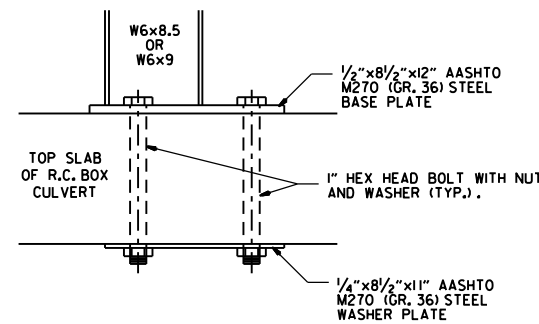
Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

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

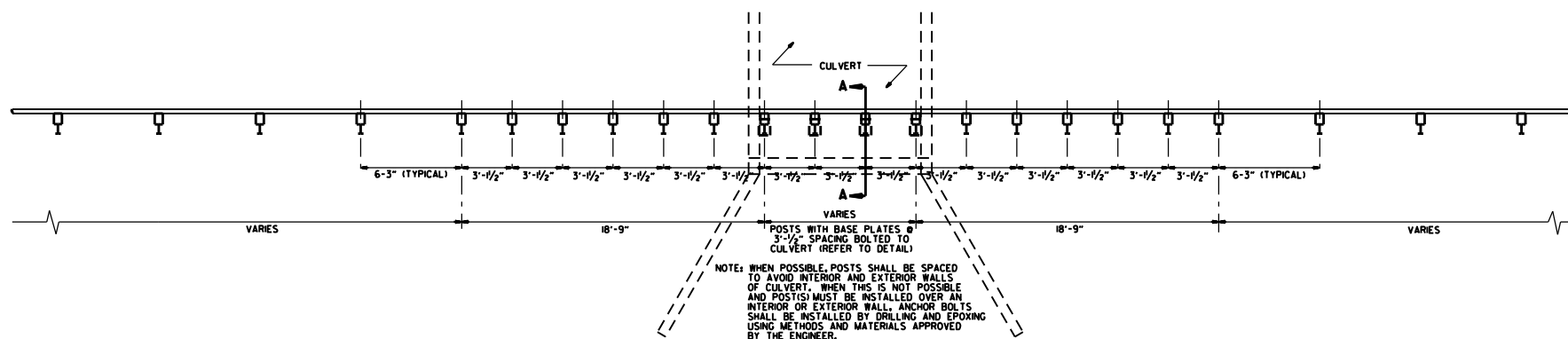
**DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)**



SECTION A-A



DETAIL OF CONNECTION



**PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS**

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRWG. GR-6.

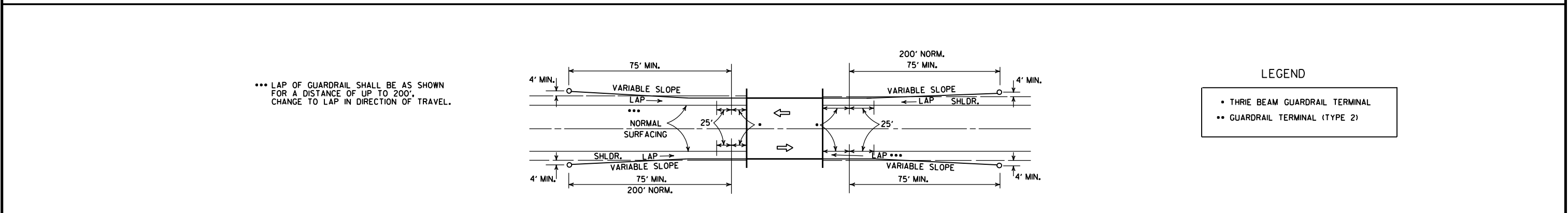
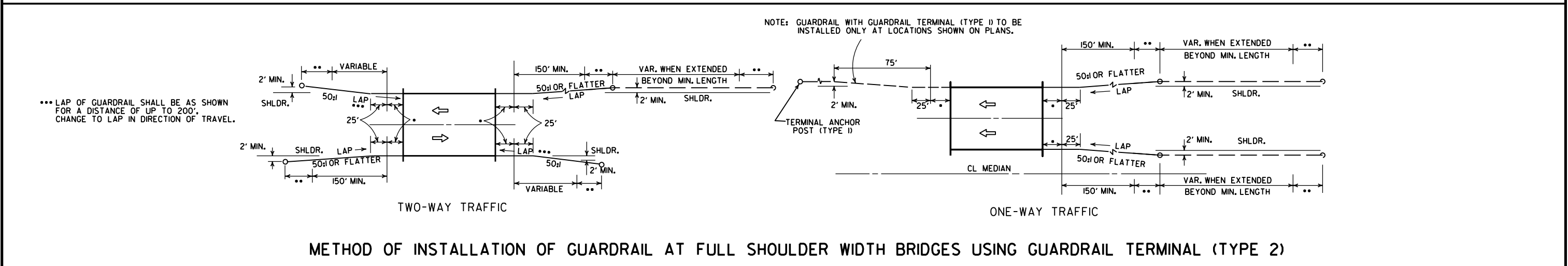
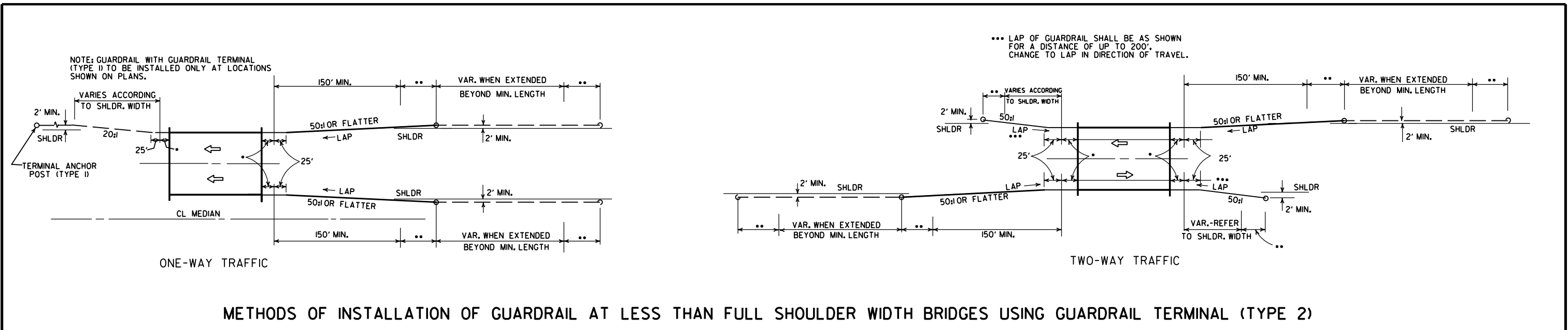
NOTE: WHEN POSSIBLE, POSTS SHALL BE SPACED TO AVOID INTERIOR AND EXTERIOR WALLS OF CULVERT. WHEN THIS IS NOT POSSIBLE AND POSTS MUST BE INSTALLED OVER AN INTERIOR OR EXTERIOR WALL, ANCHOR BOLTS SHALL BE INSTALLED BY DRILLING AND EPOXYING USING METHODS AND MATERIALS APPROVED BY THE ENGINEER.

DATE	REVISION	FILED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULVERT, DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-7



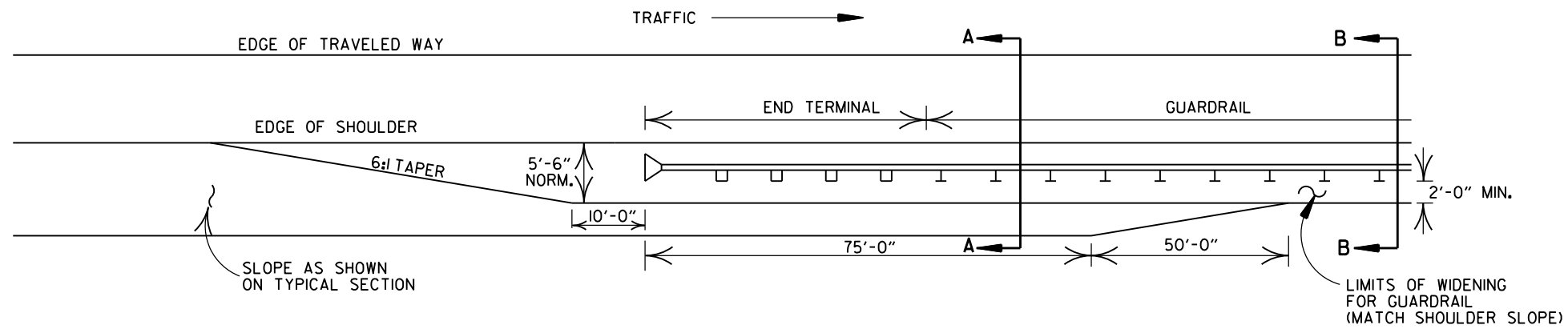
DATE	REVISION	DATE	FILM
11-07-19	RENUMBERED AND RENAMED		
4-17-08	REVISED LAYOUTS		
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS		
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)		
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00	
6-26-97	REVISED LAYOUT		
10-1-92	REDRAWN & REVISED	10-1-92	
10-9-87	ADDED NOTE		
10-9-87	REDRAWN & REVISED		

ARKANSAS STATE HIGHWAY COMMISSION

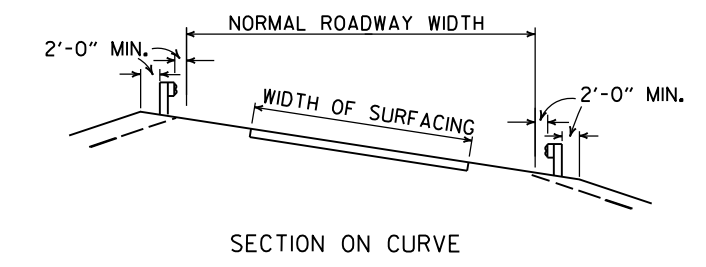
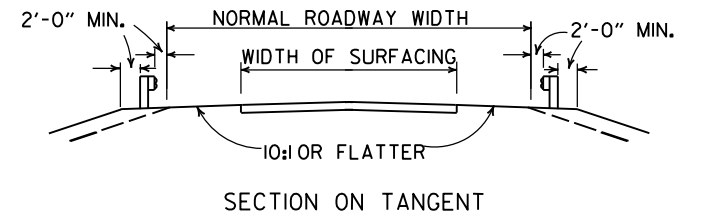
GUARDRAIL DETAILS

STANDARD DRAWING GR-8

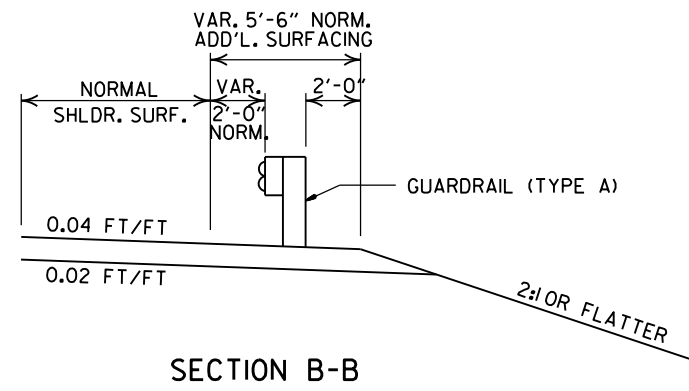
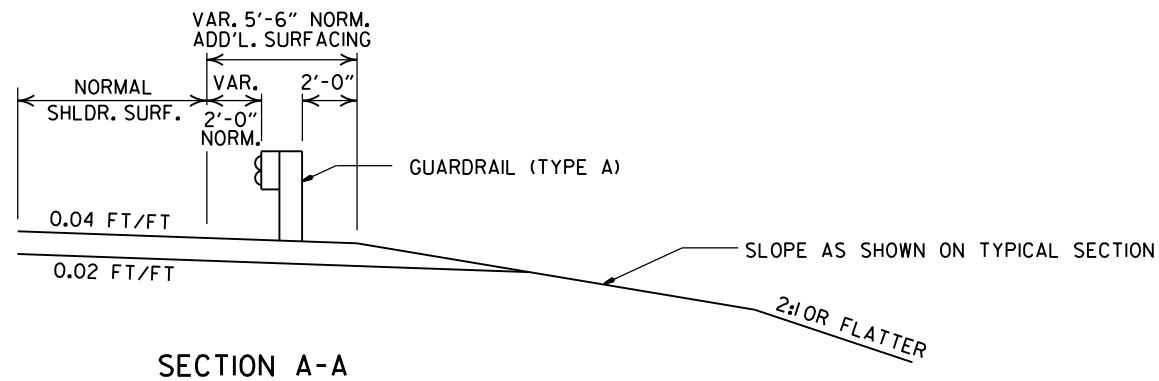




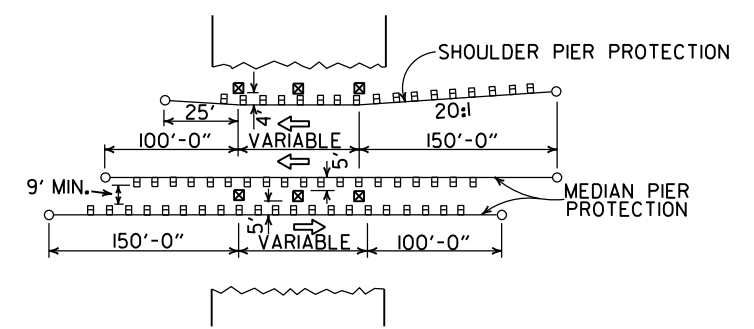
NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARDRAIL.



DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

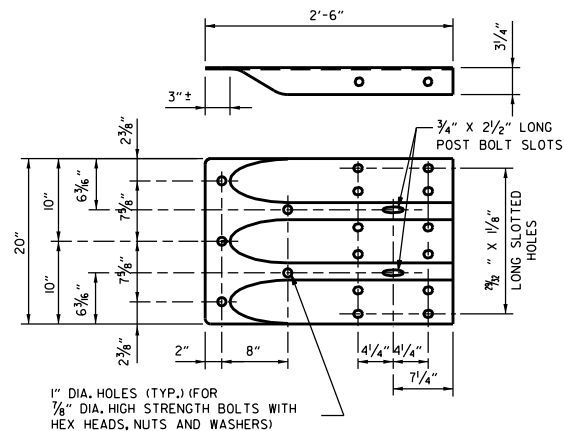


DETAILS OF WIDENING FOR GUARDRAIL

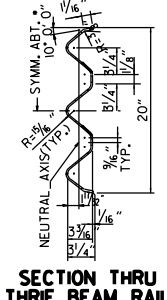


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

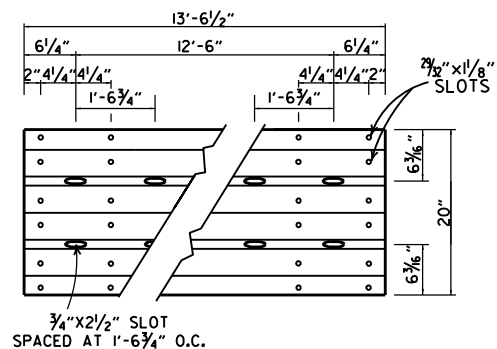
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-9
II-07-19	RENUMBERED AND RENAMED		
4-17-08	MINOR REVISION		
II-10-05	DRAWN		
DATE	REVISION	DATE	FILM



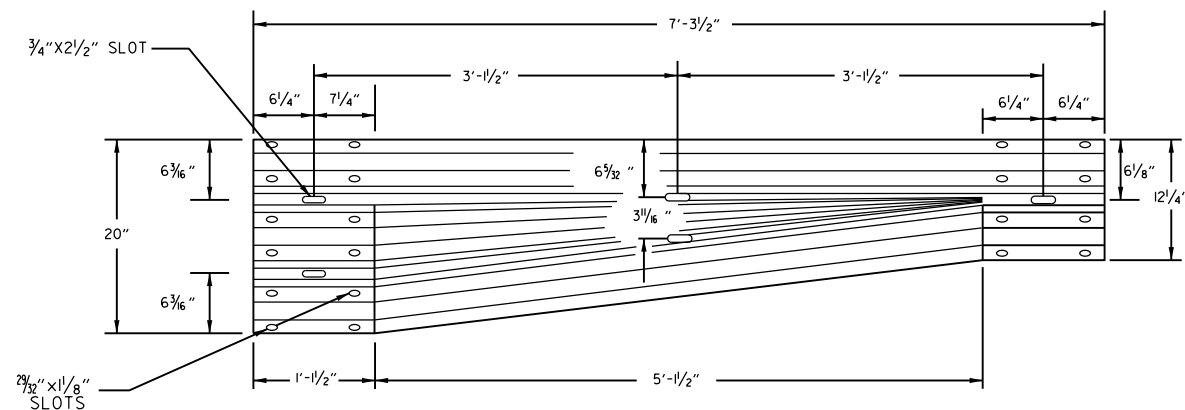
**SPECIAL END SHOE**



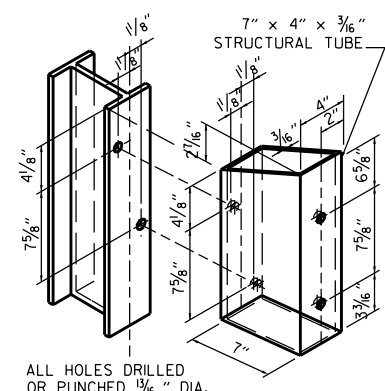
**SECTION THRU THRIE BEAM RAIL**



**THRIE BEAM RAIL**

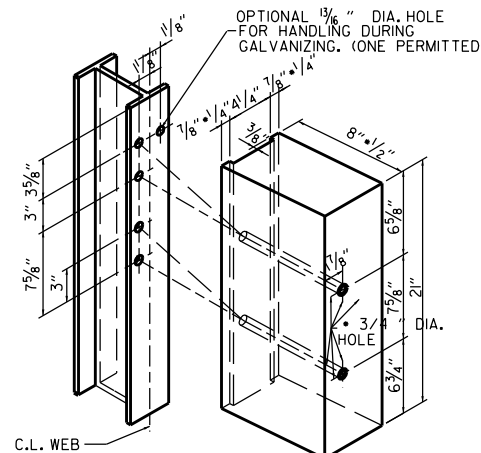


**TRANSITION SECTION**



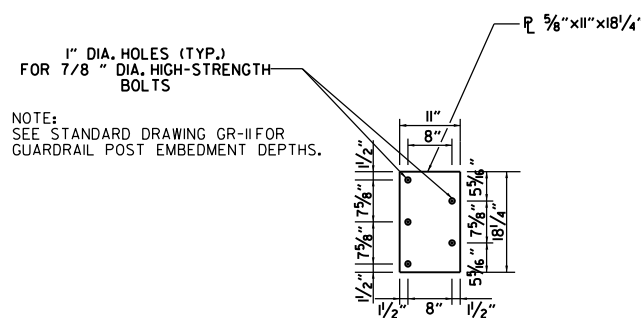
ATTACH BLOCKOUT TO POST USING 3/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

**STRUCTURAL STEEL TUBING BLOCKOUT DETAIL**



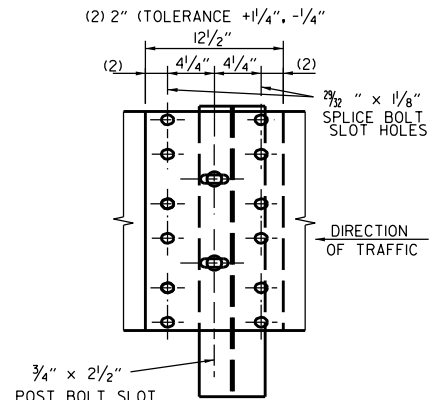
**HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS**

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



**CONNECTOR PLATE**

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8" 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.

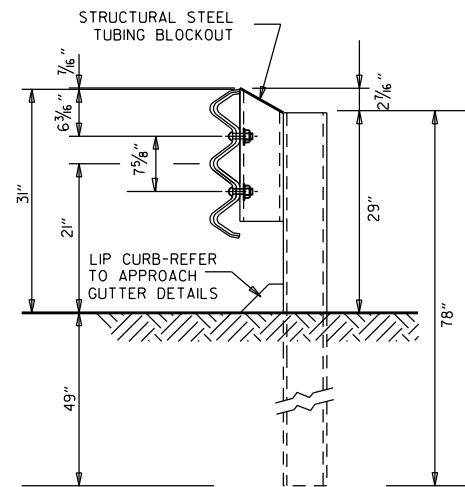


**THRIE BEAM RAIL SPLICE AT POST**

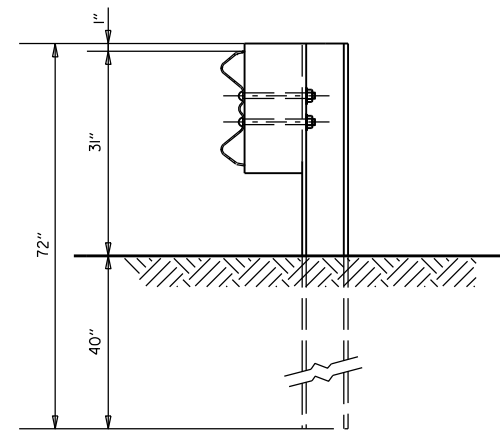
**GENERAL NOTES:**  
 THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.  
 RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.  
 ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3"4" BEYOND IT.  
 ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.  
 REFER TO STD. DRWG. GR-II FOR POST DETAILS.  
 USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.  
 THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.  
 WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7F (1400 F) OR NO. 1 1350 F SOUTHERN PINE.

DATE	REVISION	FILMED
03-30-00	DRAWN & ISSUED	
05-18-00	ADDED NOTE	
06-29-00	MOVED DIMENSION LINES	
08-22-02	REVISED NOTE (2)	
04-10-03	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
11-18-04	REVISED GENERAL NOTES	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-29-07	ADDED PLASTIC BLOCKOUTS	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGE ENDS TO STD. DRWG. GR-12	
11-07-19	RENAMED AND REVISED REFERENCES	

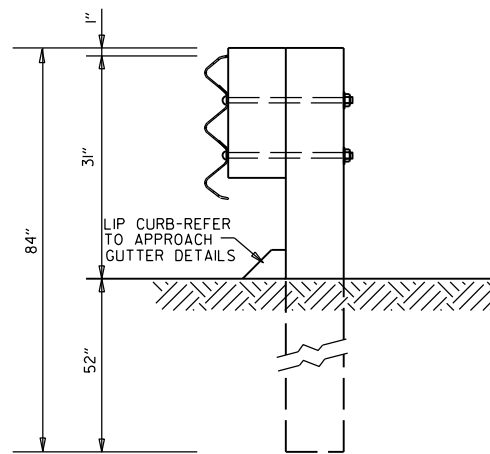
ARKANSAS STATE HIGHWAY COMMISSION  
**GUARDRAIL DETAILS**  
 STANDARD DRAWING GR-10



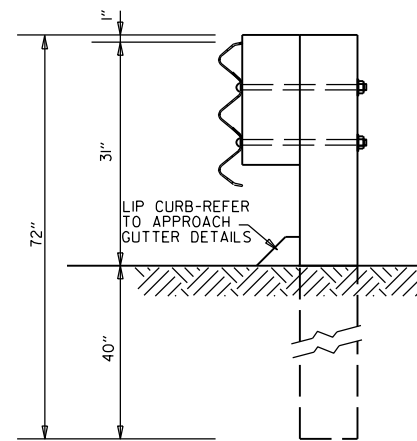
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT  
AND STEEL POST  
POSTS 1-7



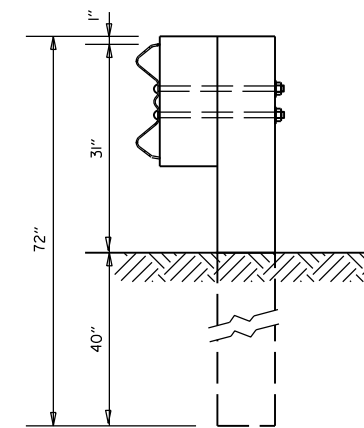
W-BEAM TO THRIE BEAM TRANSITION RAIL  
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST  
POST 8



THRIE BEAM RAIL  
WITH WOOD OR PLASTIC  
BLOCKOUTS & WOOD POSTS  
POSTS 1-6



THRIE BEAM RAIL  
WITH WOOD OR PLASTIC  
BLOCKOUT & WOOD POST  
POST 7

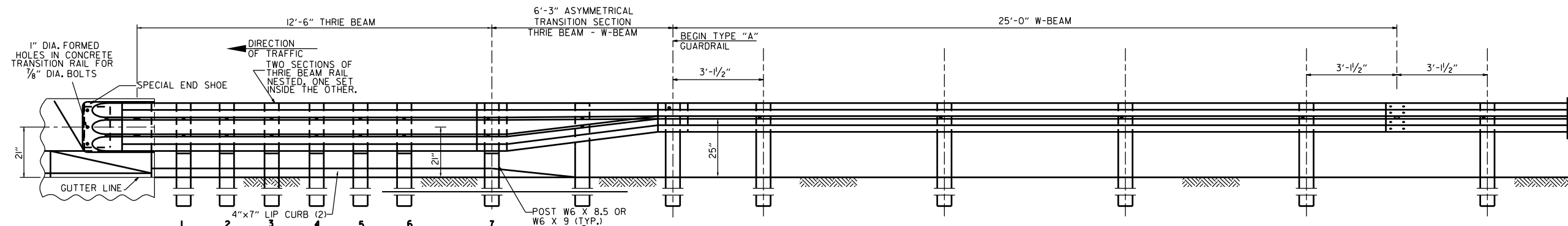


W-BEAM TO THRIE BEAM  
TRANSITION RAIL WITH WOOD OR  
PLASTIC BLOCKOUT & WOOD POST  
POST 8

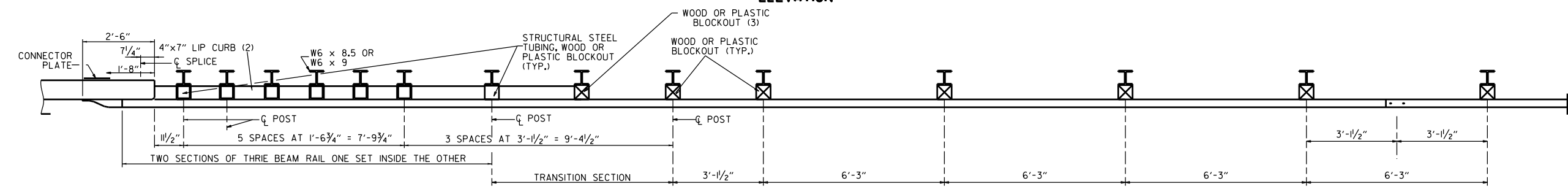
GENERAL NOTES:  
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

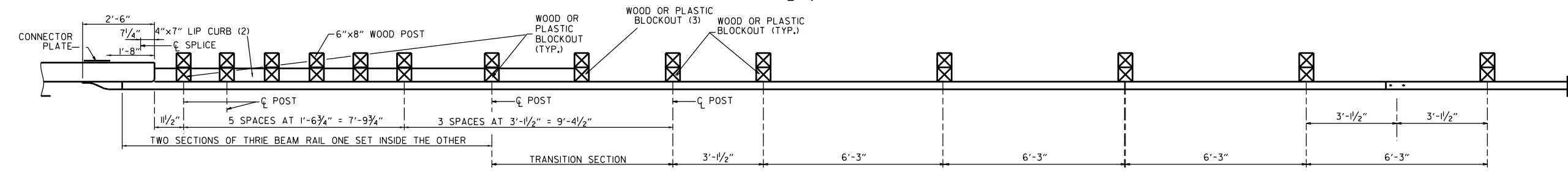
DATE	REVISION	FILMED	ARKANSAS STATE HIGHWAY COMMISSION
11-07-19	RENAMED		GUARDRAIL DETAILS
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		
07-14-10	REVISED POST 8 DIMENSIONS		STANDARD DRAWING GR-II
11-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		
03-30-00	DRAWN & ISSUED		



ELEVATION



PLAN



PLAN

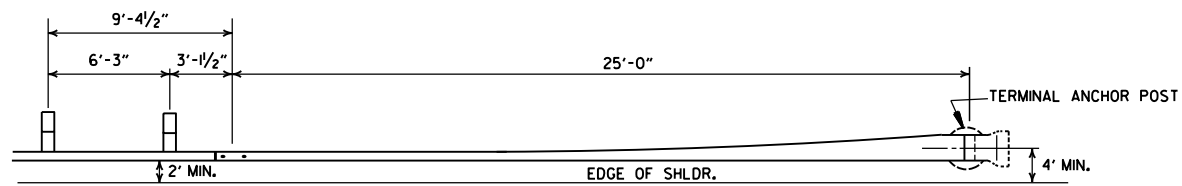
- (1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
- (2) REFER TO APPROACH GUTTER DETAILS.
- (3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

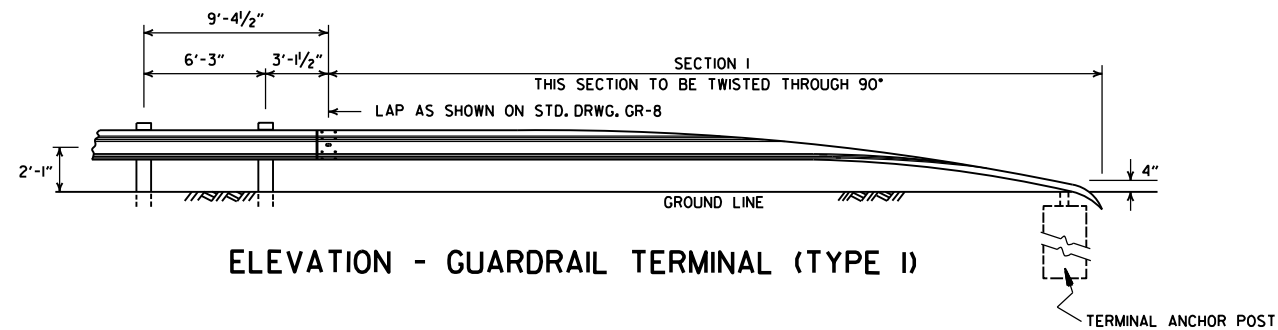
GENERAL NOTES:  
 THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.  
 RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.  
 ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.  
 ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.  
 REFER TO STD. DRWG. GR-II FOR POST DETAILS.  
 USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.  
 THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.  
 POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.  
 WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7F (1400 F) OR NO. 1 1350 F SOUTHERN PINE.

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
05-14-20	REVISED NOTES		STANDARD DRAWING GR-12
11-07-19	RENAMED & REVISED REFERENCES		
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED		
DATE	REVISION	FILMED	



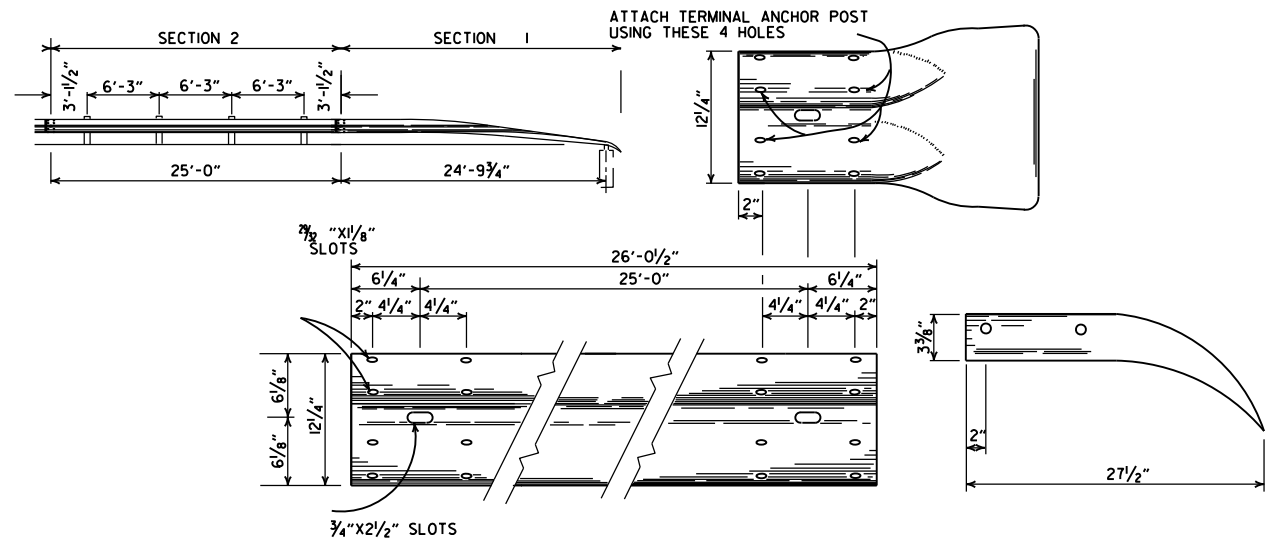


PLAN - GUARDRAIL TERMINAL (TYPE I)



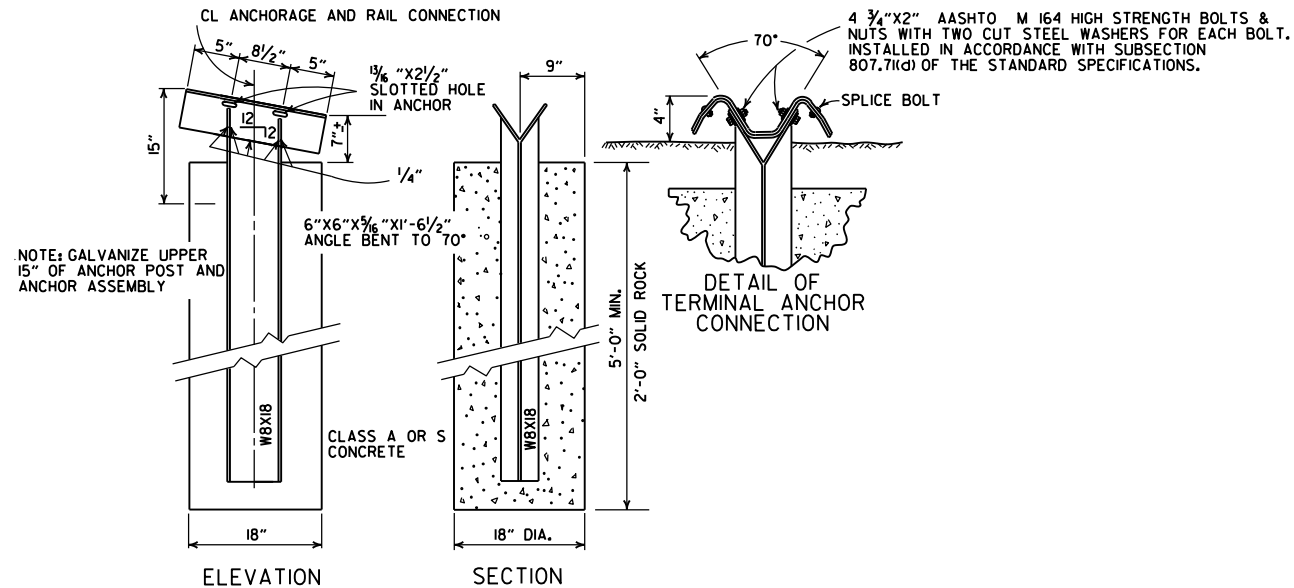
ELEVATION - GUARDRAIL TERMINAL (TYPE I)

NOTE:  
SECTIONS 1 AND 2 OF GUARDRAIL TERMINAL  
SHALL BE PAID FOR AT THE PRICE BID PER  
LINEAR FOOT OF THE TYPE OF GUARDRAIL SPECIFIED.



SECTION 1

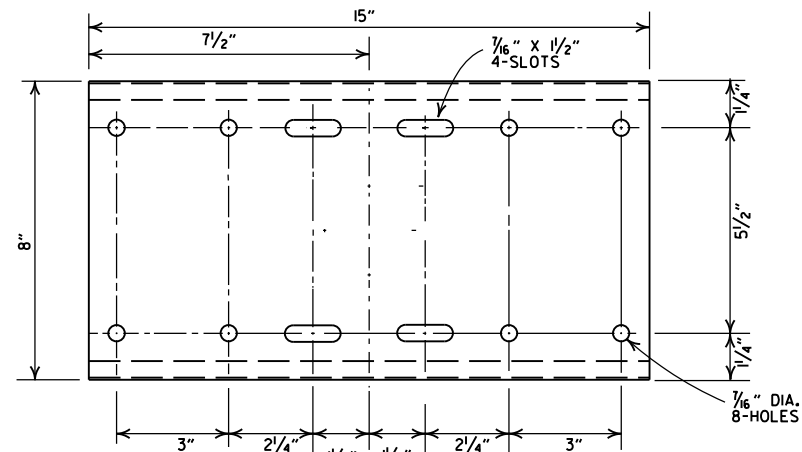
TERMINAL SECTION



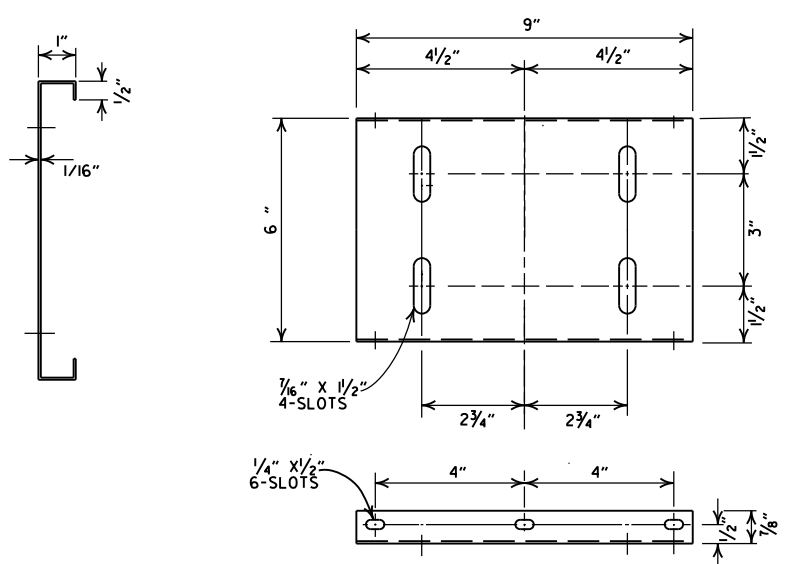
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 W/ 17 POST IF CONTRACTOR SO DESIRES.

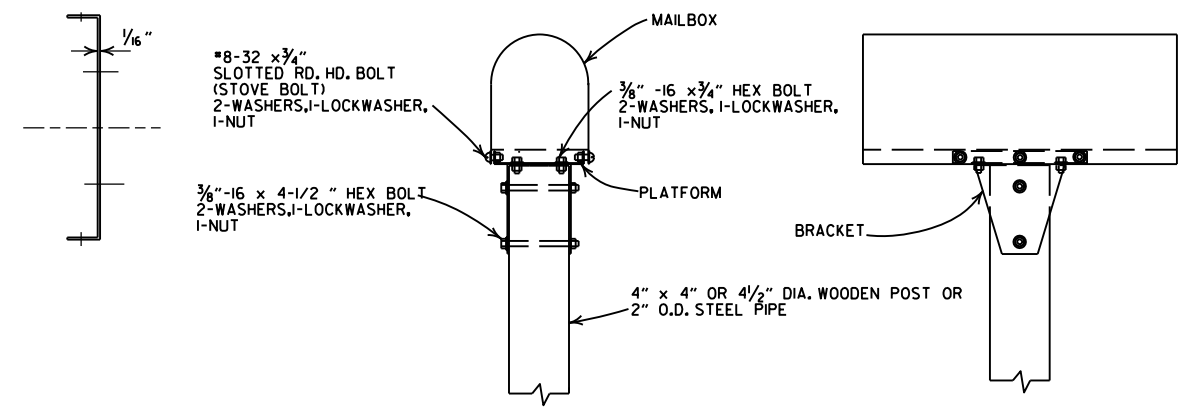
11-07-19	RENAMED & REVISED REFERENCE.		ARKANSAS STATE HIGHWAY COMMISSION
11-16-17	REVISED GUARDRAIL HEIGHT AND LOCATION OF POSTS		GUARDRAIL DETAILS
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"		
06-26-97	REVISED LAP NOTE		STANDARD DRAWING GRT-1
10-18-96	REVISED ASTM REF. TO AASHTO		
11-03-94	DIMENSION TERMINAL DETAIL		
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92	
10-01-92	DRAWN & ISSUED	10-1-92	
DATE	REVISION	FILMED	



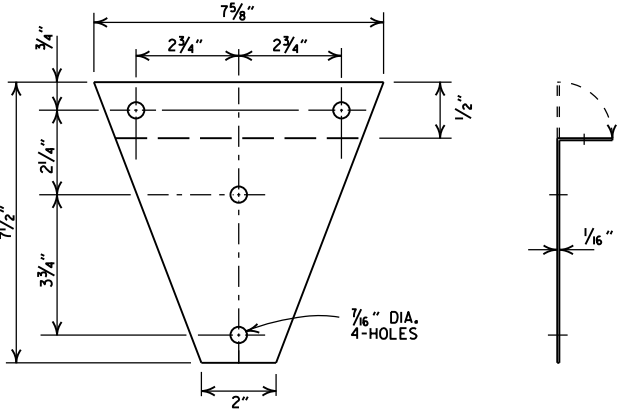
SHELF



PLATFORM

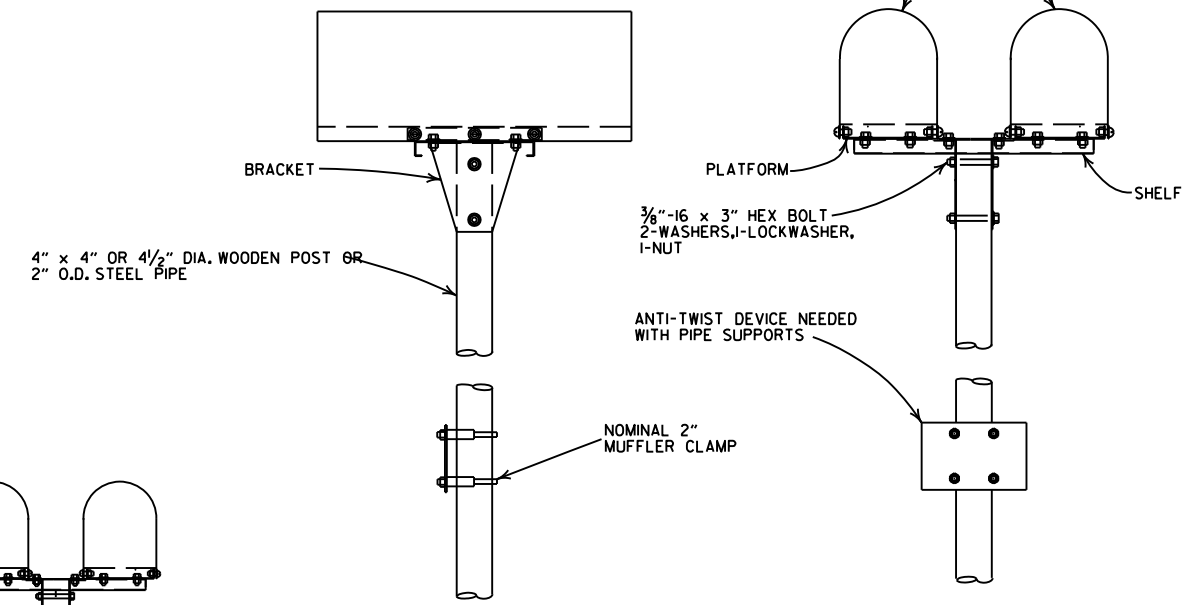


SINGLE INSTALLATION

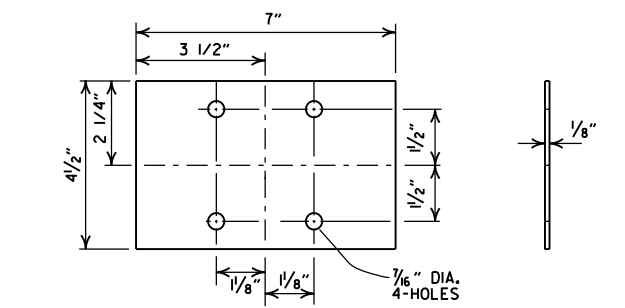


BRACKET

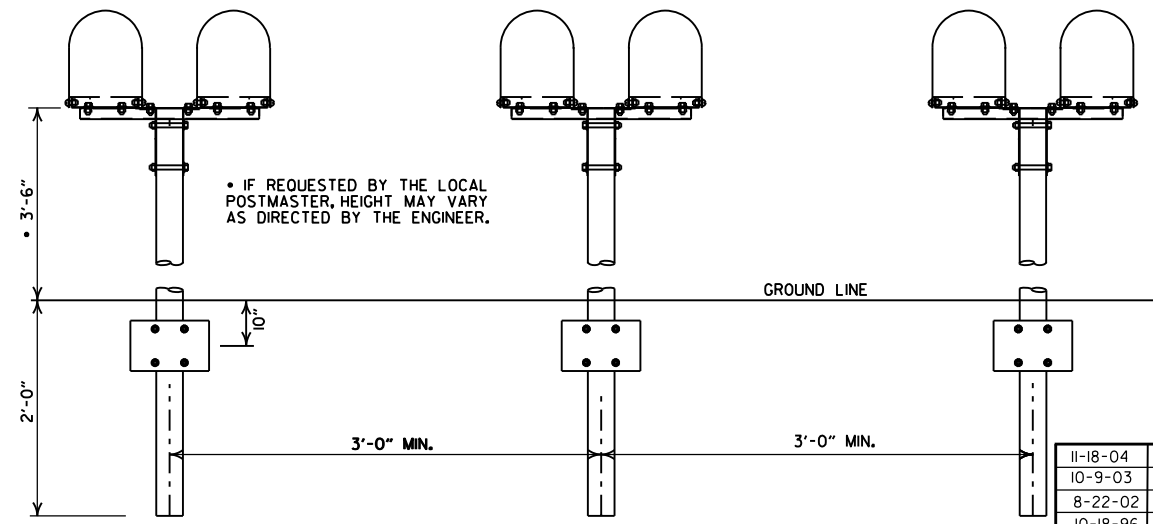
- GENERAL NOTES**
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
  2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
  3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED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



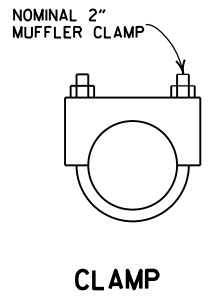
DOUBLE INSTALLATION



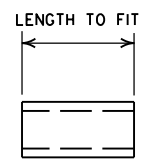
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



SPACER

NOMINAL 1/2" STD. WT. PIPE

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	ARDDOT NOMINAL	AASHTO M 206	ARDDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

**REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS**

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

**CONSTRUCTION SEQUENCE**

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

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

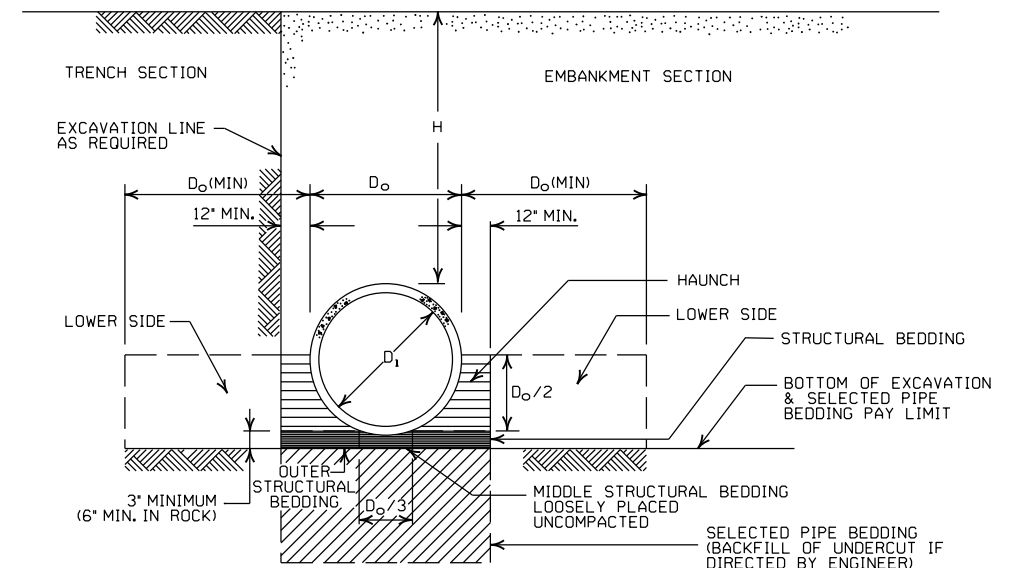
**- LEGEND -**

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

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

\* SM-3 WILL NOT BE ALLOWED.

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



**EMBankment AND TRENCH INSTALLATIONS**

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

**GENERAL NOTES**

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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	13	21
TYPE 3	10	16

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

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

**ARKANSAS STATE HIGHWAY COMMISSION**

**CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING**

STANDARD DRAWING PCC-1



**CORRUGATED STEEL PIPE (ROUND)**

PIPE DIAMETER (INCHES)	① 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	73
42	2		43	67	70	
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.

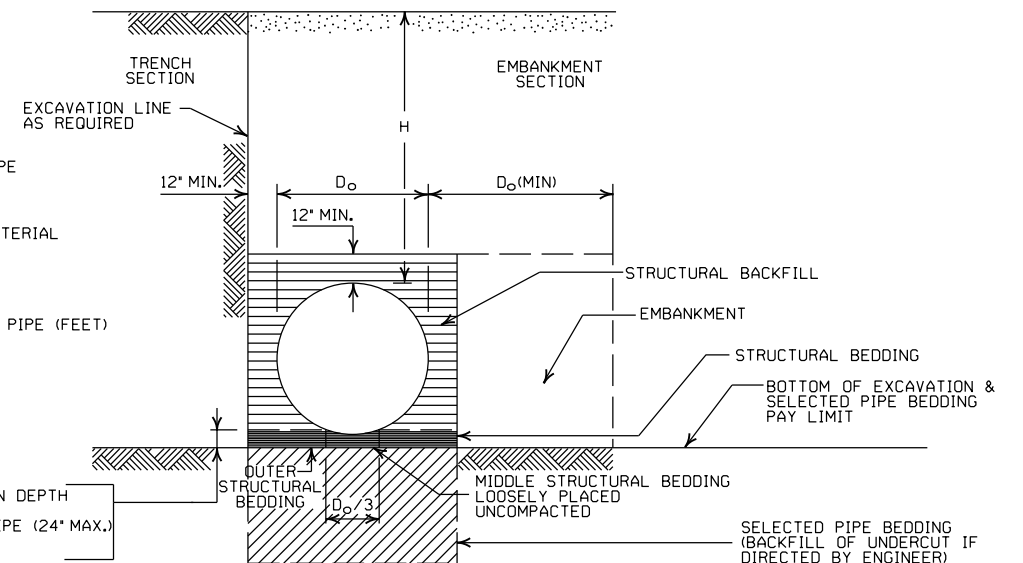
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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.

**- LEGEND -**

- D<sub>o</sub> = 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.

**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			
18	2	30	30	52		
24	2	22	22	39	41	34
30	2		18	31	32	
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

**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

**GENERAL NOTES**

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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."

**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			INSTALLATION			
				TYPE 1	TYPE 1		TYPE 1	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	0.135	3	14		
66	77x52	8	0.168	3	15	0.164	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		INSTALLATION					
			TYPE 2	TYPE 1	TYPE 2	TYPE 1				
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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.

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"

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

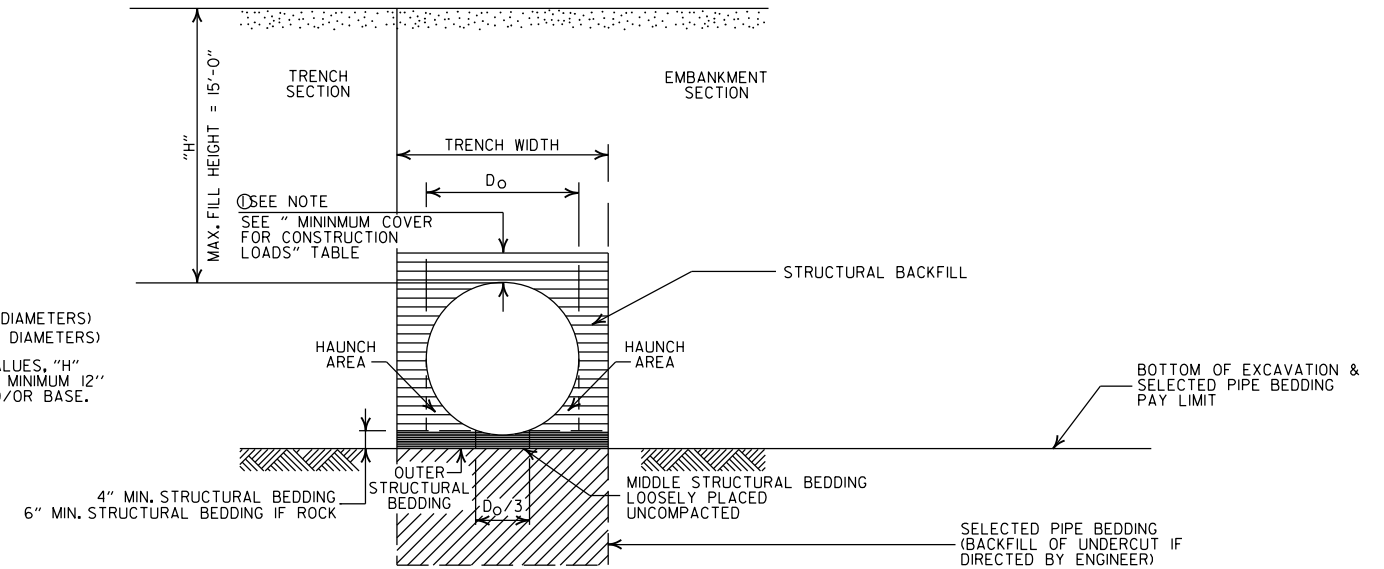
### MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

### MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



### TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

### CONSTRUCTION SEQUENCE

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

### - LEGEND -

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

### GENERAL NOTES

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 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 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

### MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" > OR = 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

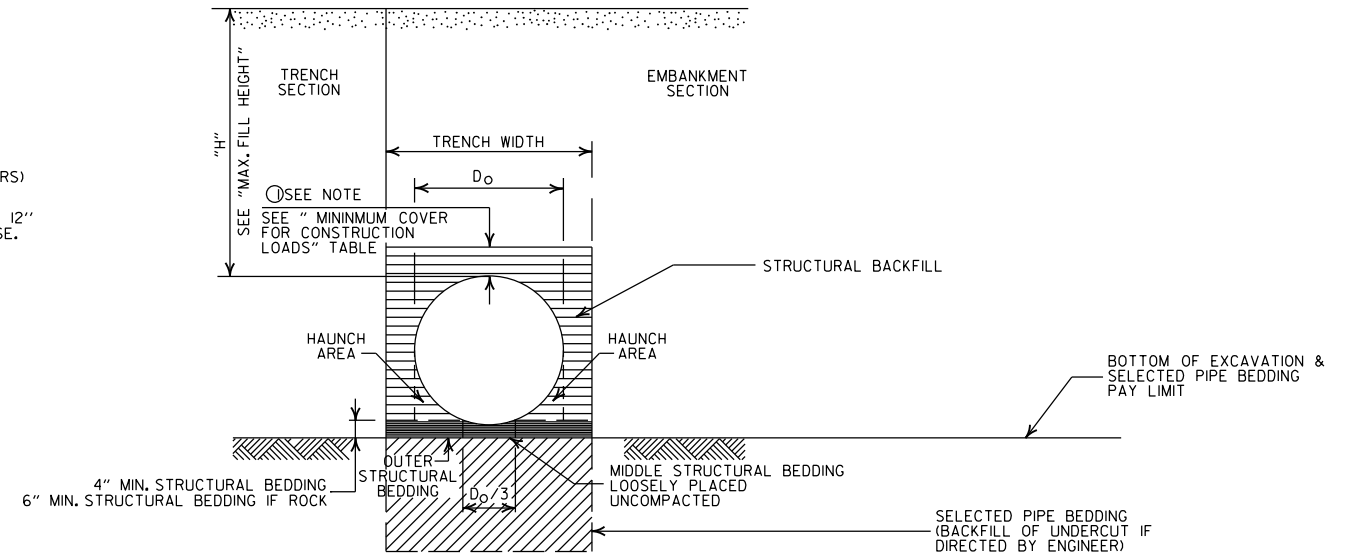
### MULTIPLE INSTALLATION OF PVC PIPES

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

### MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

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

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



### TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

### CONSTRUCTION SEQUENCE

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

### - LEGEND -

H = FILL HEIGHT (FT.)  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL  
|||||| = UNDISTURBED SOIL

### GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS I2454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
- WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATED OR PROFILE VALLEY.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(PVC F949)

STANDARD DRAWING PCP-2



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

\* SM3 WILL NOT BE ALLOWED.

\*\* STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF POLYPROPYLENE 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"
60"	10'-0"	15'-0"

①NOTE:  
12" MIN. (18" - 42" DIAMETERS)  
24" MIN. (60" DIAMETER)  
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

### MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (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.

### MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

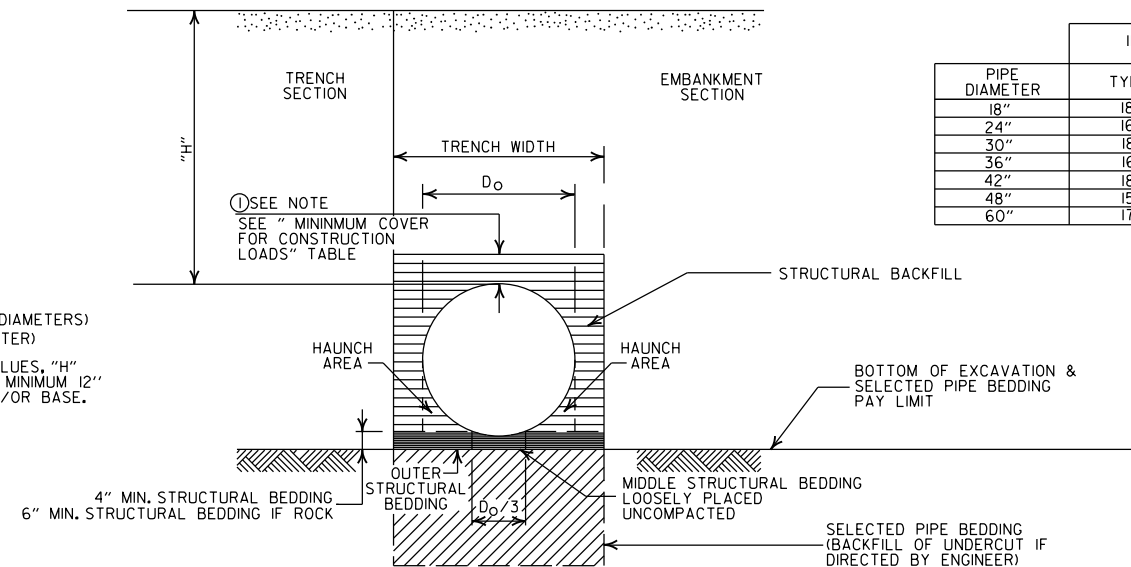
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

### GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M330, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
- WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

### MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE	
	TYPE 1	TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'



### EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

### CONSTRUCTION SEQUENCE

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

### - LEGEND -

H = FILL HEIGHT (FT.)  
Do = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL  
===== = UNDISTURBED SOIL

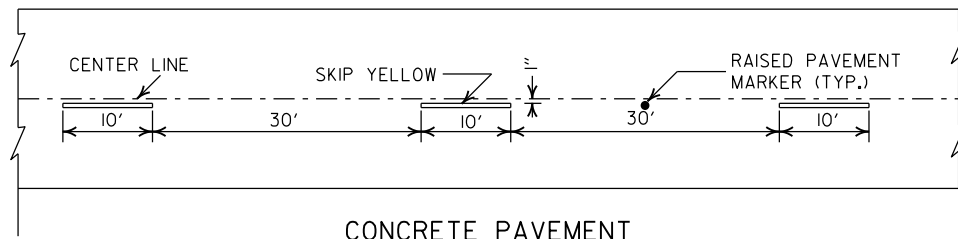
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

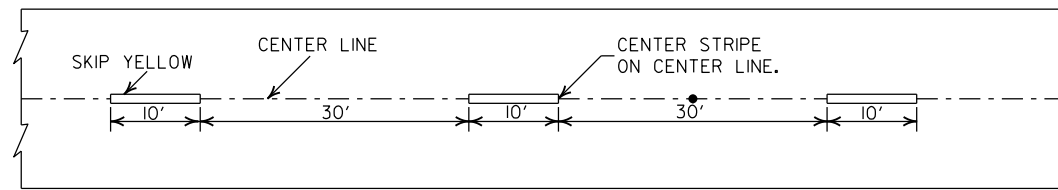
PLASTIC PIPE CULVERT  
(POLYPROPYLENE)

STANDARD DRAWING PCP-3



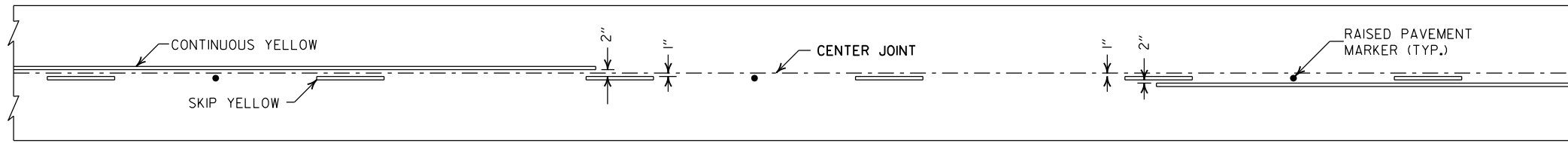


CONCRETE PAVEMENT

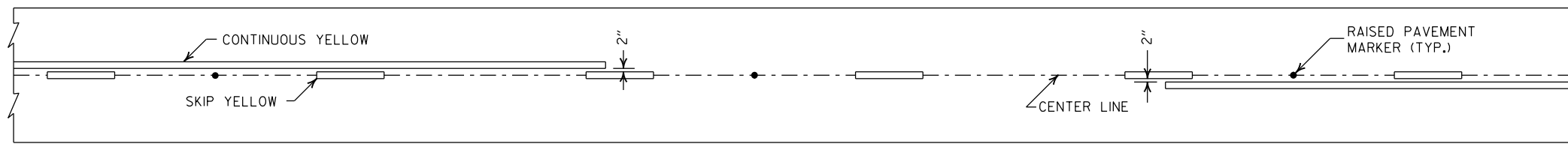


ASPHALT PAVEMENT

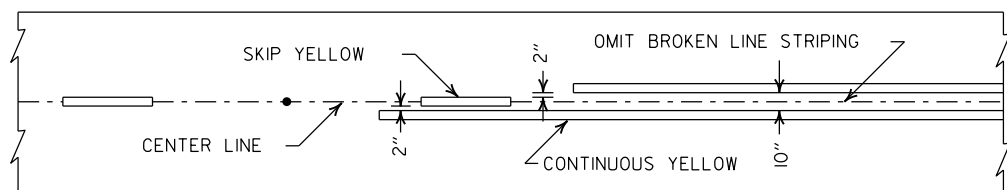
**BROKEN LINE STRIPING**



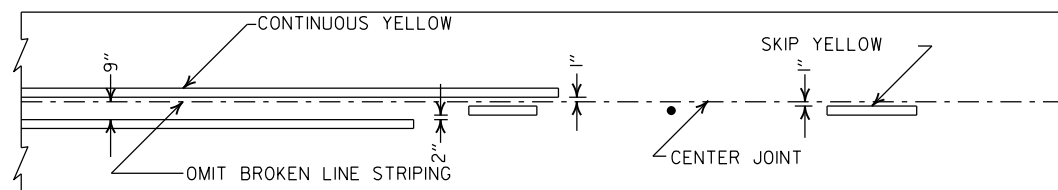
**SOLID LINE STRIPING ON CONCRETE PAVEMENT**



**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

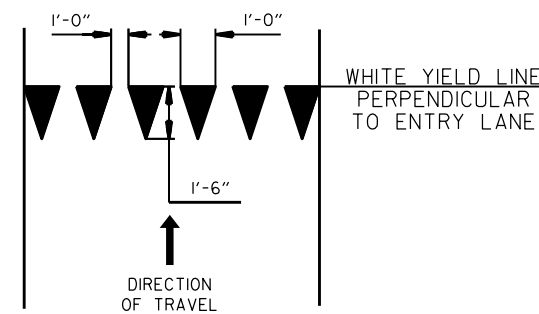


ASPHALT PAVEMENT

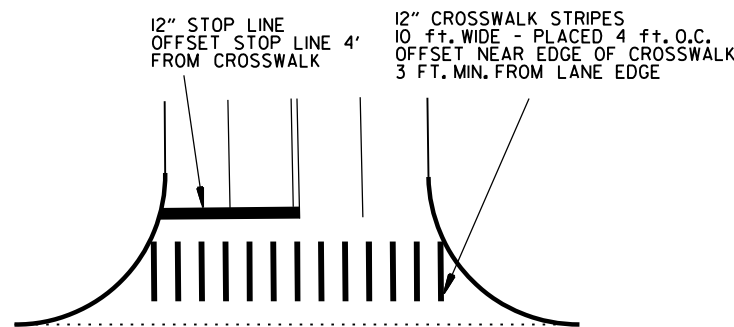


CONCRETE PAVEMENT

**STRIPING AT ADJACENT NO PASSING LANES**



**YIELD LINE DETAIL**

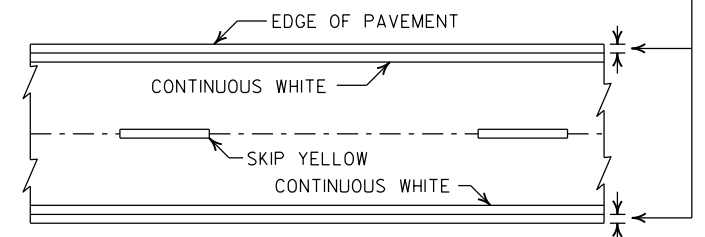


**CROSSWALK AND STOP LINE DETAILS**

**NOTES:**

1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

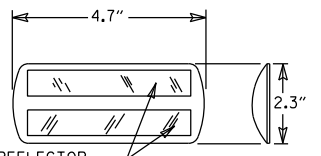
2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT



**PAVEMENT EDGE LINE MARKING**

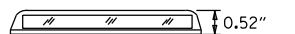
NOTE:  
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II  
RED/CLEAR OR  
YELLOW/YELLOW



PRISMATIC REFLECTOR

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 ARDOT QUALIFIED PRODUCTS LIST.



**DETAIL OF STANDARD RAISED PAVEMENT MARKERS**

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTL.	
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

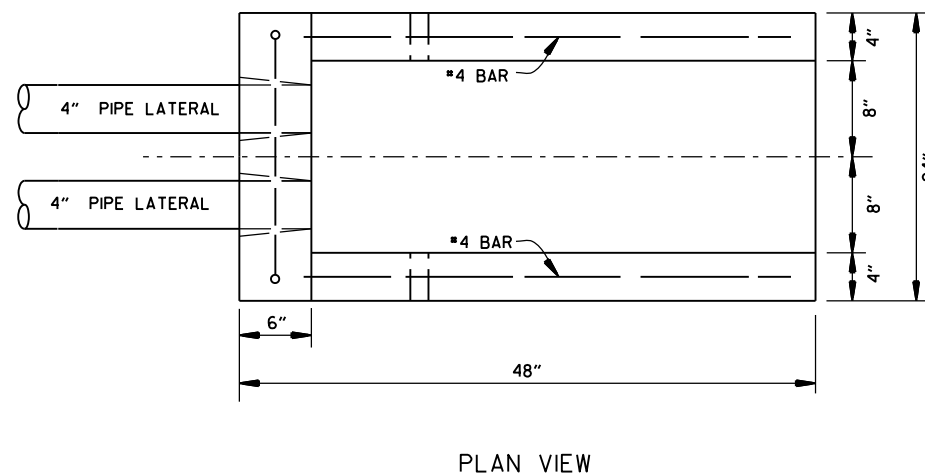
ARKANSAS STATE HIGHWAY COMMISSION

**PAVEMENT MARKING DETAILS**

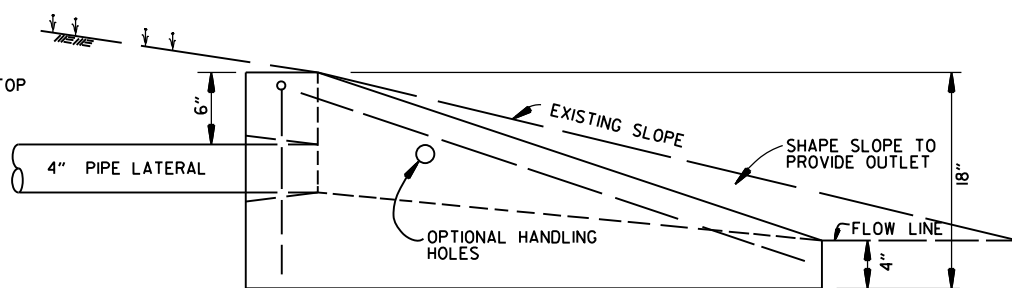
STANDARD DRAWING PM-1



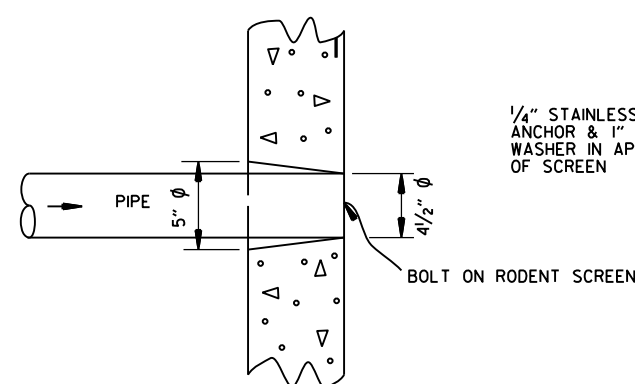
NOTE:  
 1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.  
 2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW

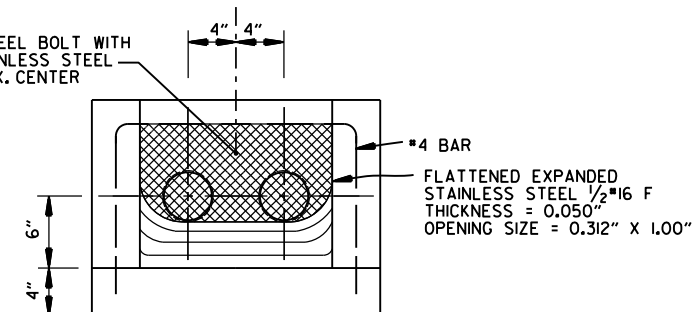


SIDE VIEW

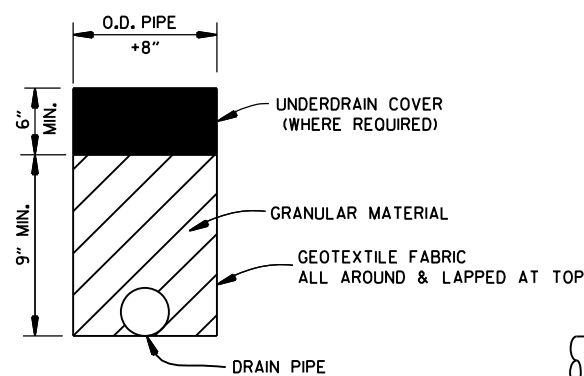


DETAIL OF HOLE FOR 4" PIPE

1/4" STAINLESS STEEL BOLT WITH ANCHOR & 1" STAINLESS STEEL WASHER IN APPROX. CENTER OF SCREEN



FRONT VIEW (DETAIL OF RODENT SCREEN)

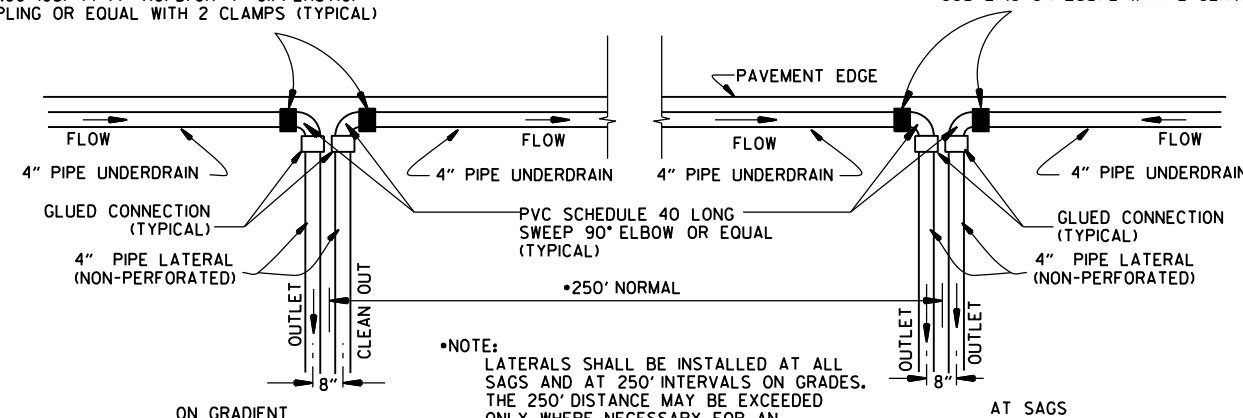


DETAILS OF PIPE UNDERDRAIN

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/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.

NOTES FOR PIPE UNDERDRAINS

- GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
- 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
- EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
- THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
- PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
- ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
- AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 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

Table with columns for Speed (30-75 MPH) and Degree of Curve (0° 15' to 25° 00'). Sub-columns include 'e', 'Ls (FT)', 'MINIMUM', and 'DESIRABLE'. Includes diagonal notes for 'D MAX' values.

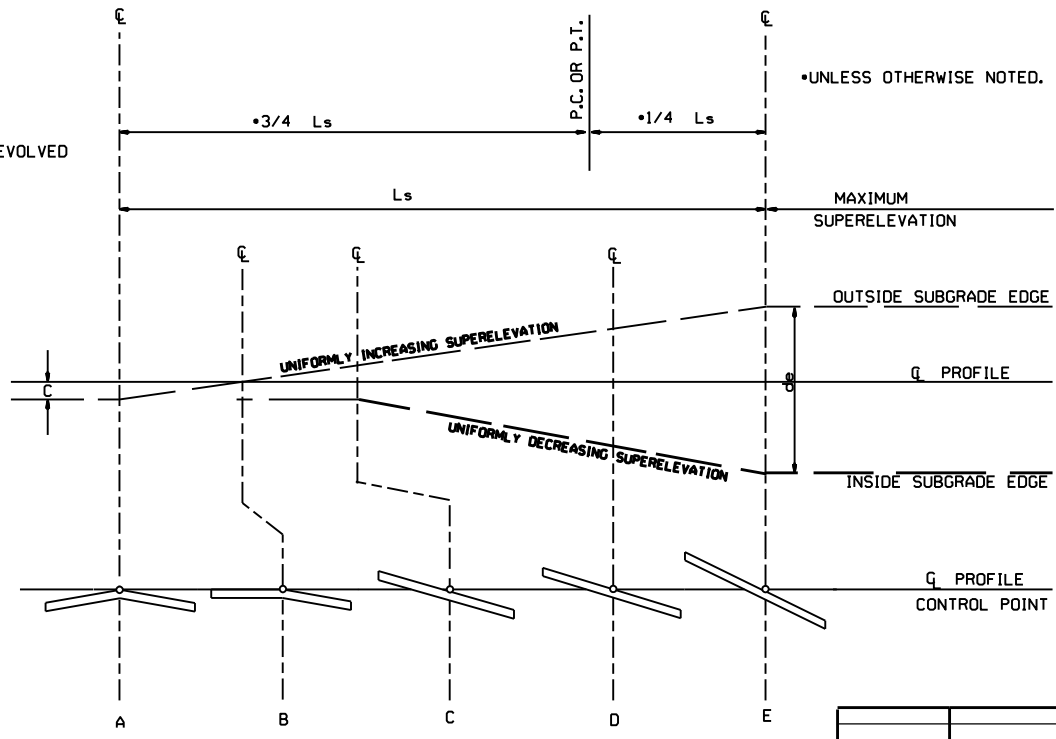
ABBREVIATIONS

- 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.)

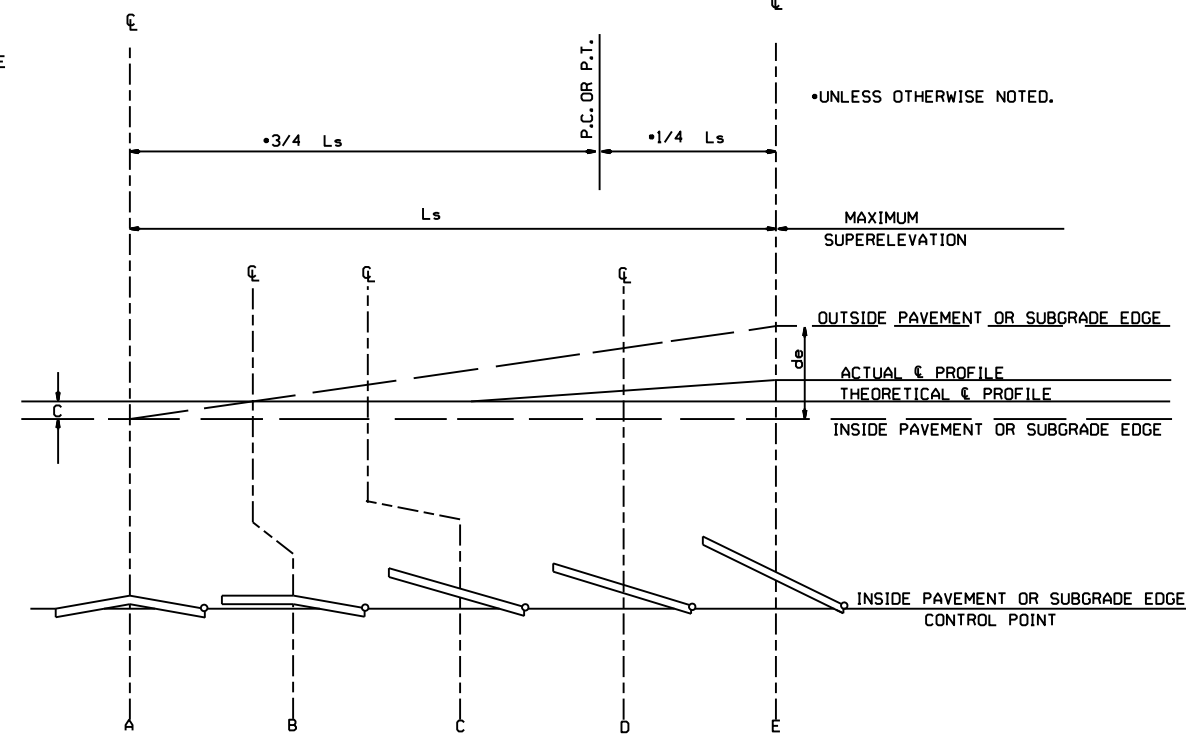
- GENERAL NOTES
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:
3 LANE UNDIVIDED - - - - +20%
4 LANE UNDIVIDED - - - - +50%
5 LANE UNDIVIDED - - - - +80%
6 LANE UNDIVIDED - - - - +100%

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

SUPERELEVATION FORMULA = Lde / Ls



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

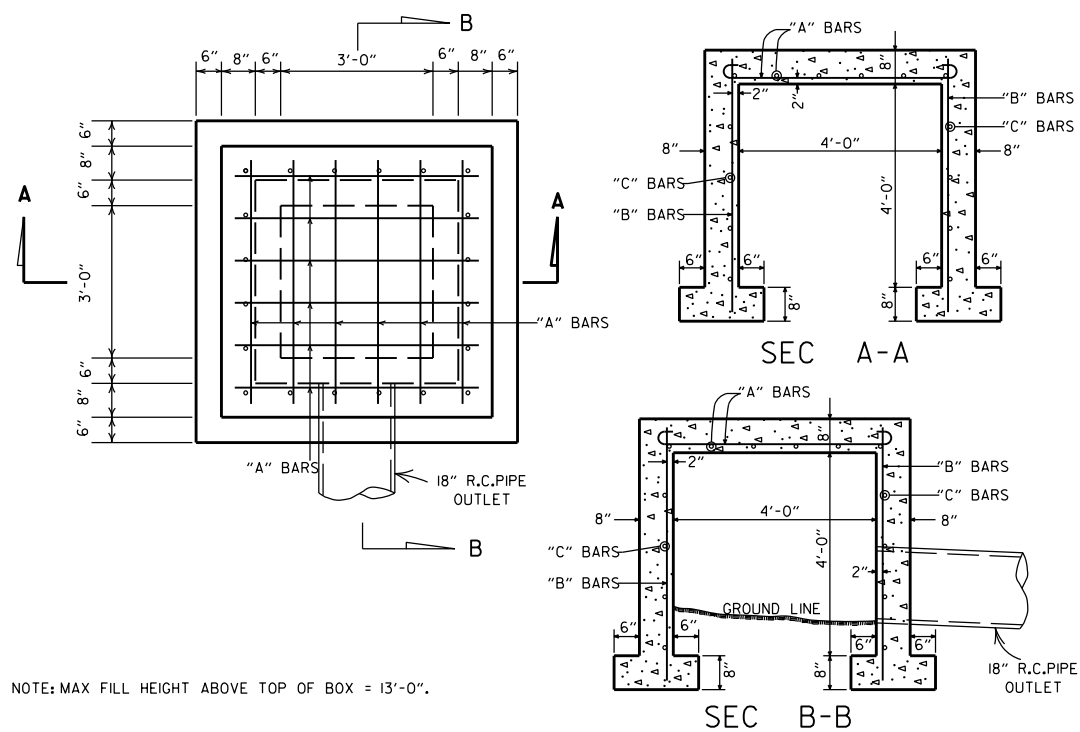


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

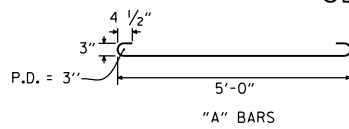
Revision table with columns for DATE, REVISION, and DATE FILMED. Includes entries for 11-07-19 (REVISED SUPERELEVATION TABLE), 10-18-96 (ADDED FORMULA), and 01-09-87 (ISSUED).

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



NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

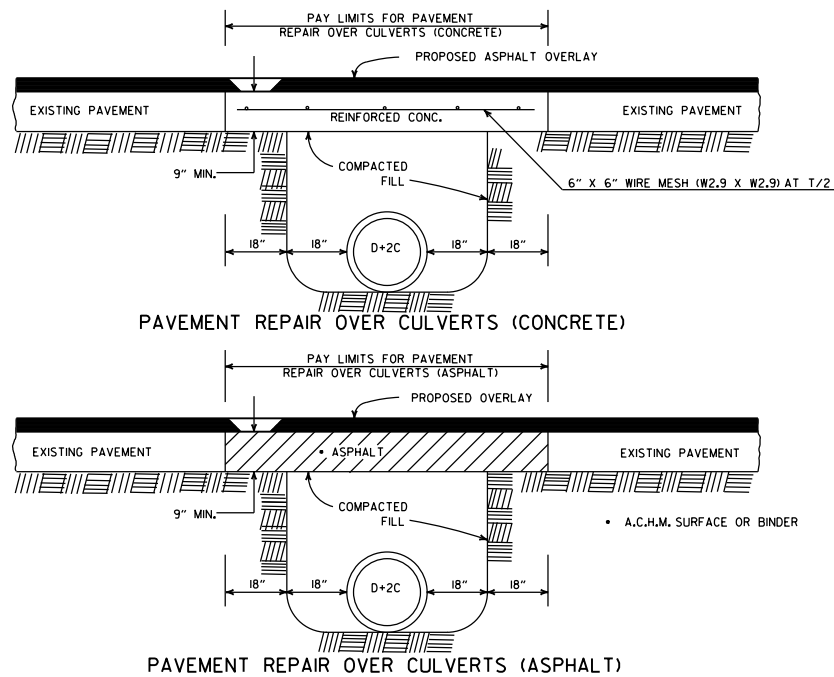
STEEL SCHEDULE			
BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 1/2"
"C"	16	5'-0"	12"



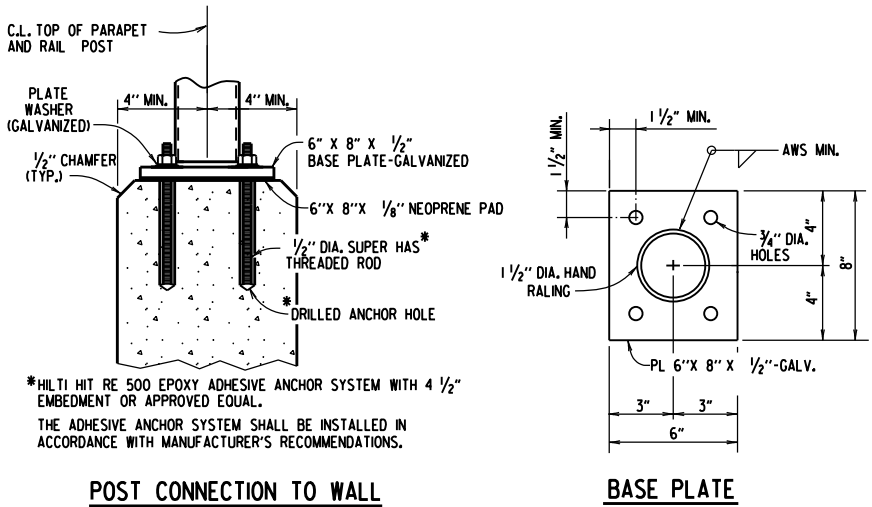
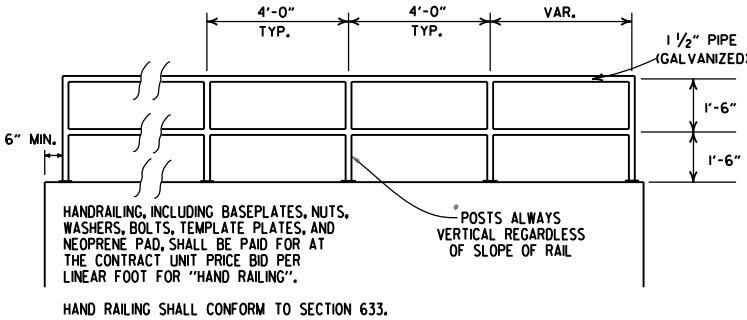
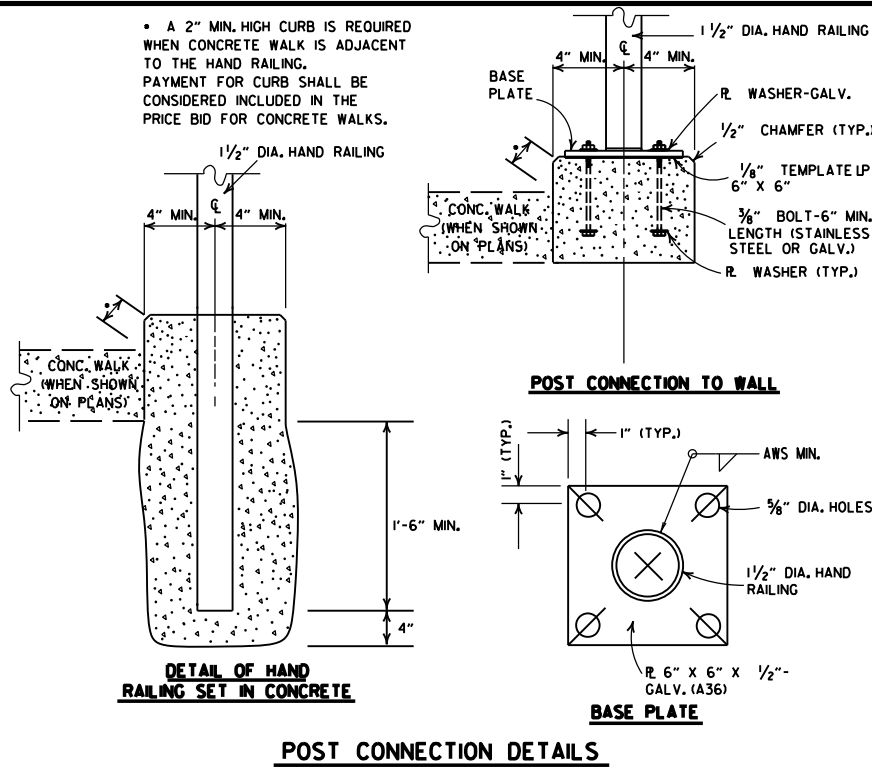
QUANTITIES  
 "A" BARS  
 CONCRETE 3.31 CU. YDS.  
 REINFORCING STEEL 168 LB.

GENERAL NOTE:  
 THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

**REINFORCED CONCRETE SPRING BOX**

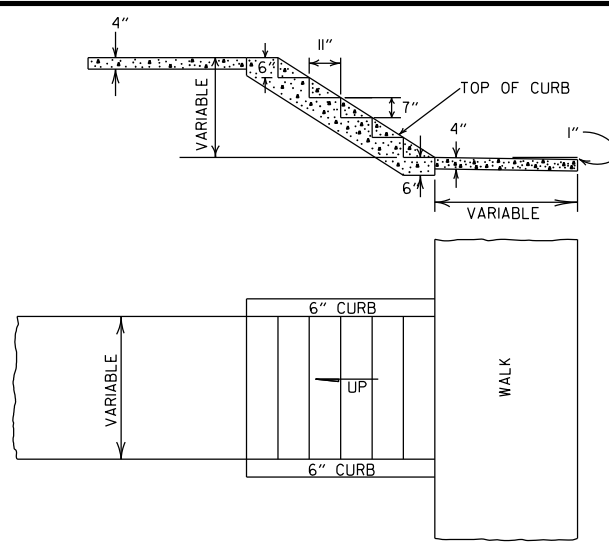


**DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS**



**DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)**

**HAND RAILING DETAILS**



**DETAILS OF CONCRETE STEPS & WALKS**


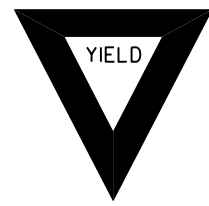
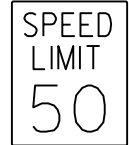






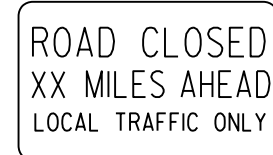
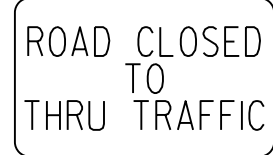

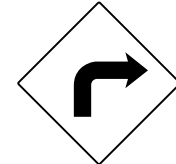


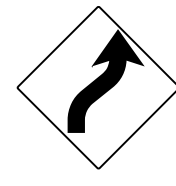
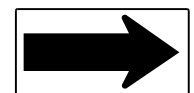
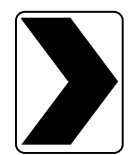
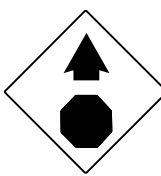
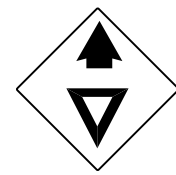
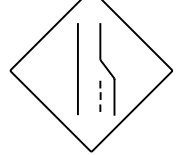

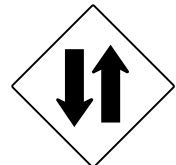

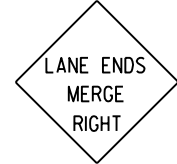









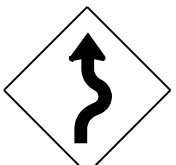



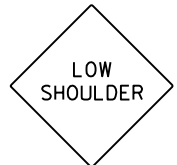

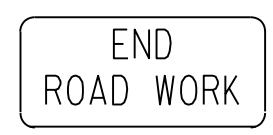
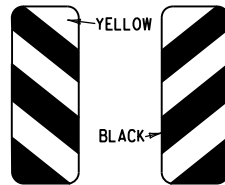
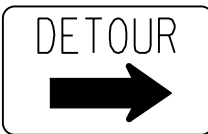

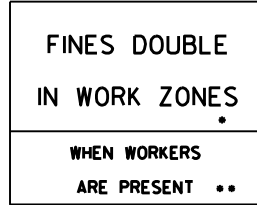
GENERAL NOTES  
 1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.  
 2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONG SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR	649-7-15-88
11-1-84	ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	
1-4-83	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
	ELIMINATED CONG. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET & PAVEMENT REPAIR	674-4-20-79
2-2-76	12" MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

**DETAILS OF SPECIAL ITEMS**

STANDARD DRAWING SI - 1

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>18" 500 FEET 24" W16-2</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>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

ADVANCE DISTANCES  
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

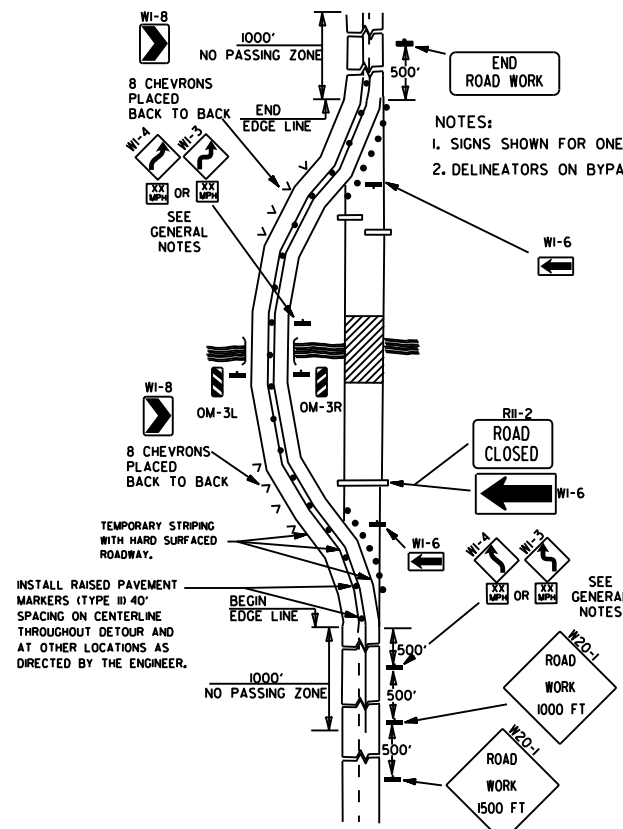
GENERAL NOTES:

- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
- EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
- POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
- ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

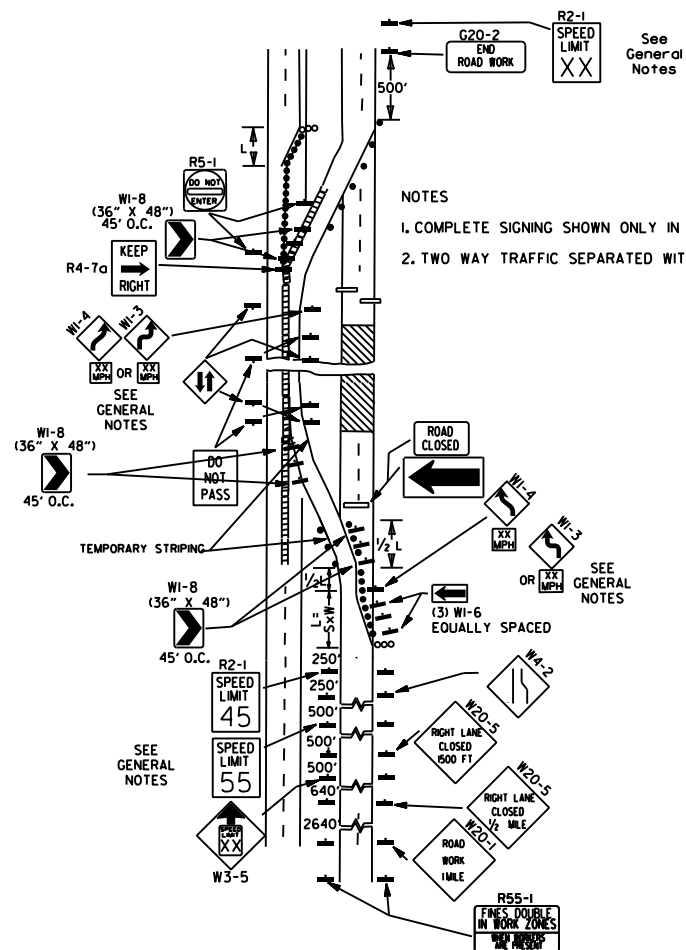
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

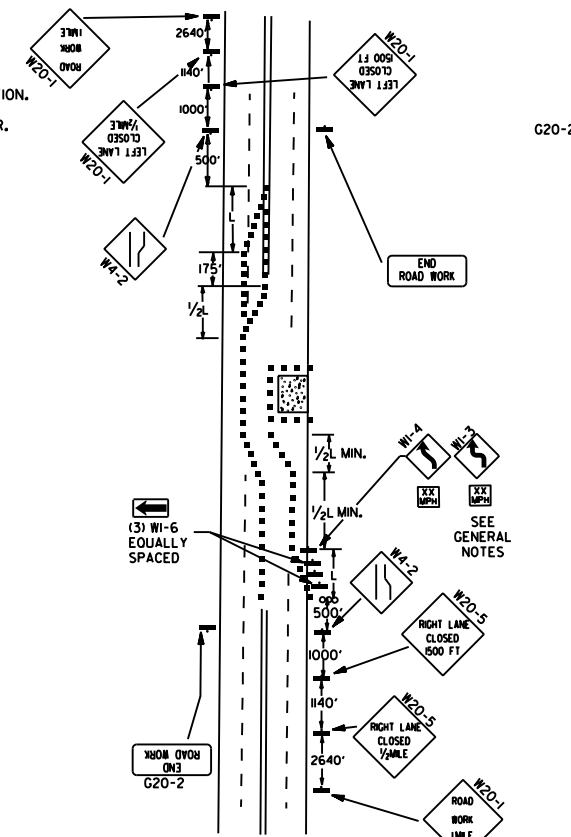
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-1



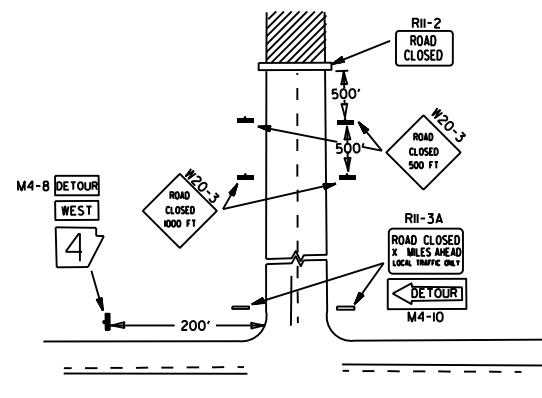
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



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

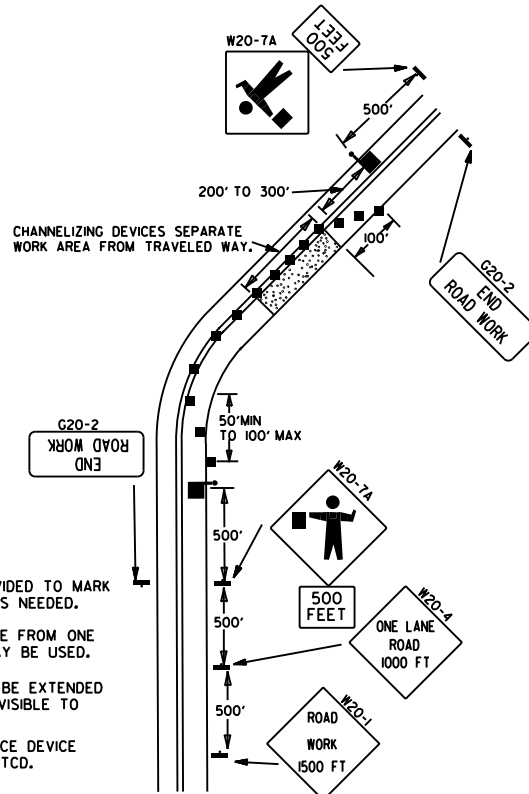


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



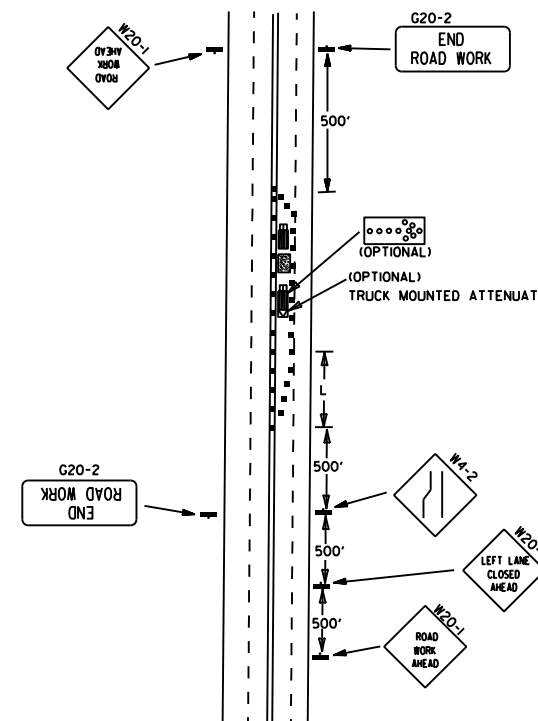
- NOTES:
- REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
  - STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



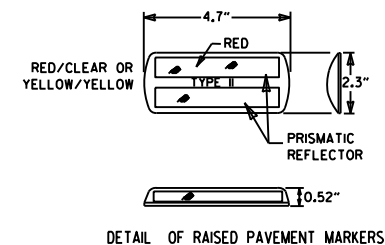
- NOTES:
- FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
  - IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
  - CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
  - AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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



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

- KEY:
- FLAGGER
  - POSITIVE BARRIER
  - ARROW PANEL (IF REQUIRED)
  - TYPE III BARRICADE
  - CHANNELIZING DEVICE
  - TRAFFIC DRUM
  - RAISED PAVEMENT MARKER



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

$L = S \times W$  FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{W \times S^2}{60}$  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.

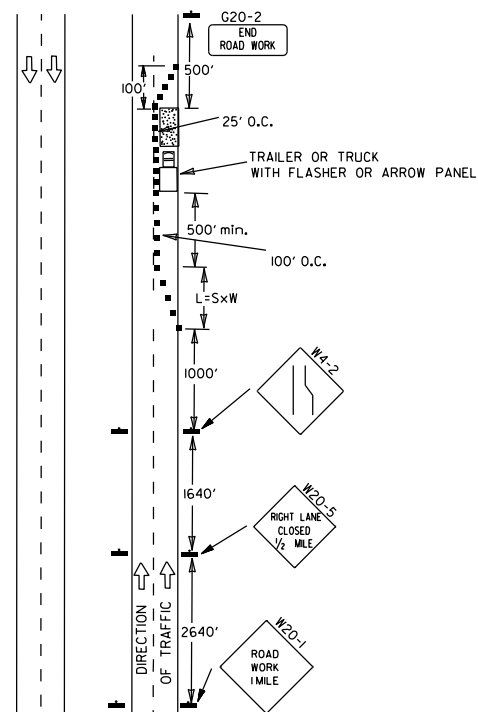
W = WIDTH OF OFFSET.

- GENERAL NOTES:
- THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
  - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45) SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55) SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
  - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
  - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
  - TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
  - DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ADOT QUALIFIED PRODUCTS LIST.
  - ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

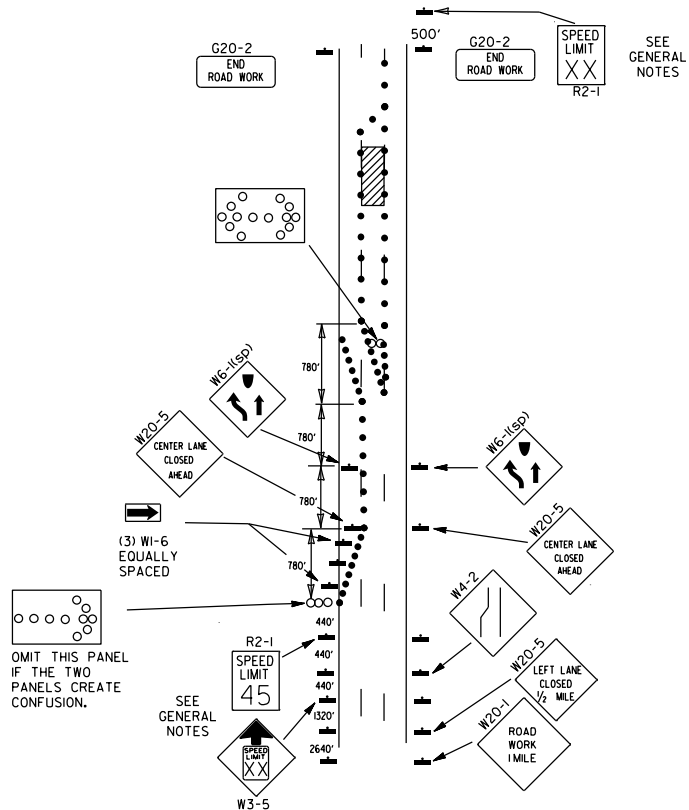
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION



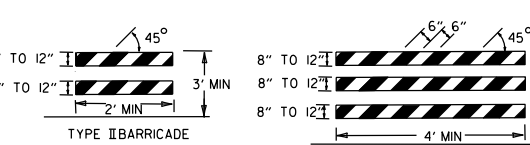
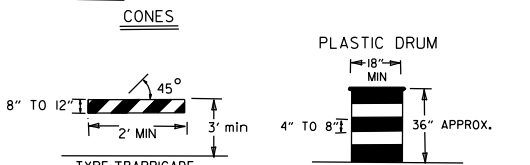
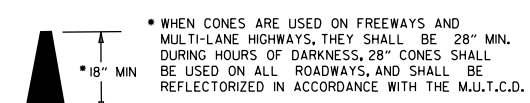


(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

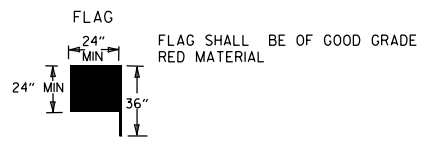
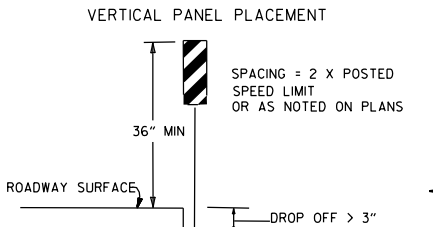


(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

CHANNELIZING DEVICES



NOTE: FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



KEY:

- ○ ○ ARROW PANEL (IF REQUIRED)
- CHANNELIZING DEVICE
- TRAFFIC DRUM

GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45) SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 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(65) SHALL BE OMITTED. ADDITIONAL R2-1(55) 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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

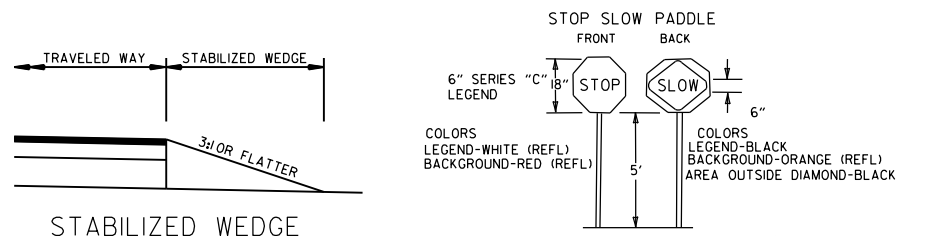
TRAFFIC CONTROL DEVICES

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS <sup>(1)</sup>
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER <sup>(4)</sup> & EDGE LINES	PRECAST CONCRETE BARRIER <sup>(4)</sup> & EDGE LINES

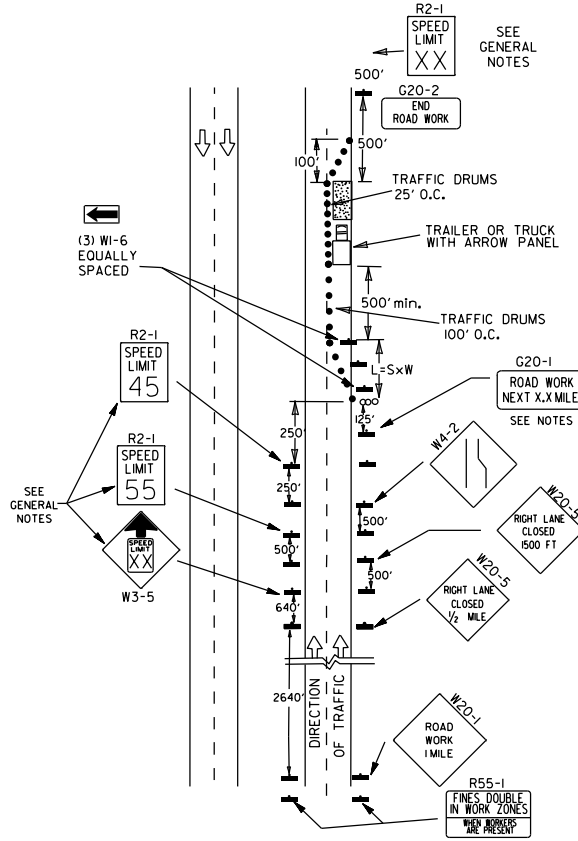
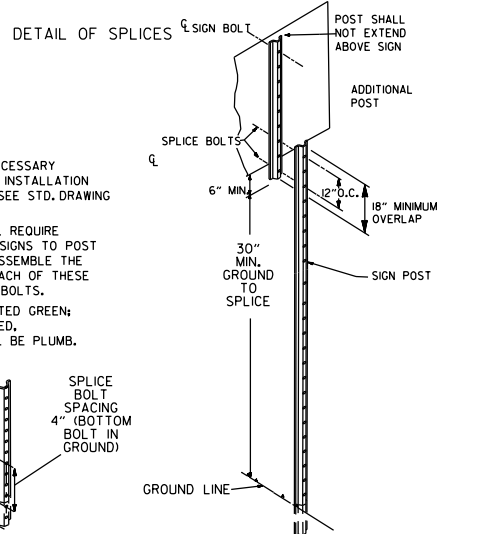
INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

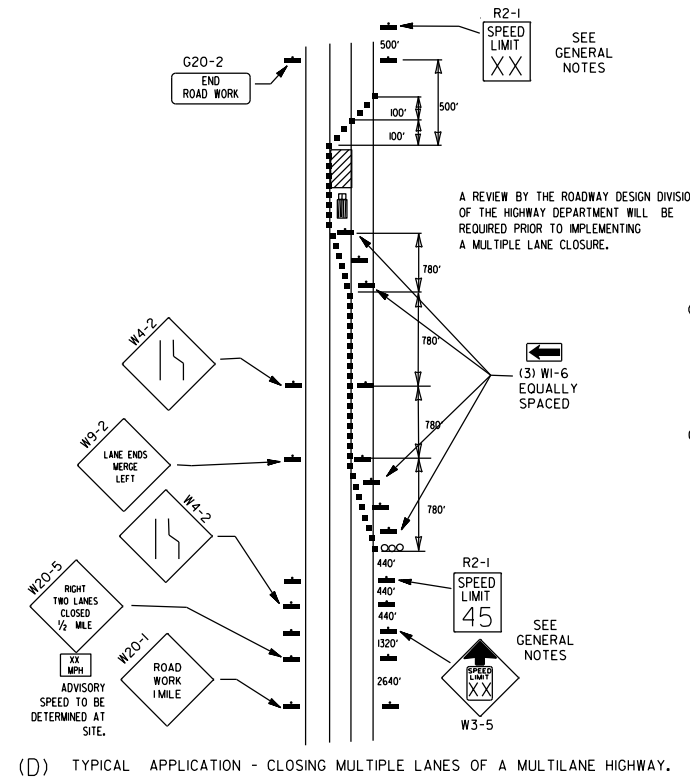
- GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
  2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS.
  3. IF AND WHERE DIRECTED BY THE ENGINEER, A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL.
  4. IF AND WHERE DIRECTED BY THE ENGINEER, W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



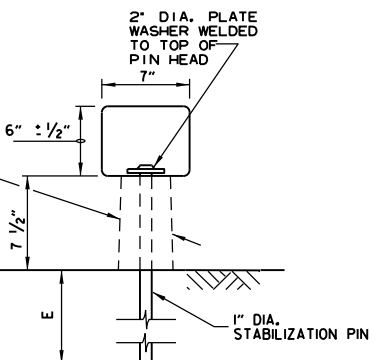
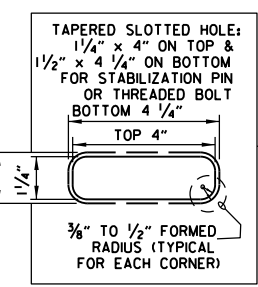
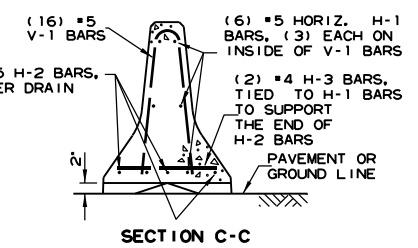
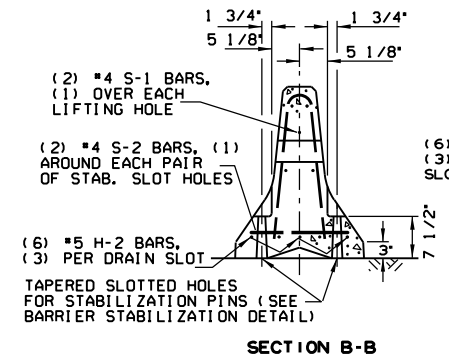
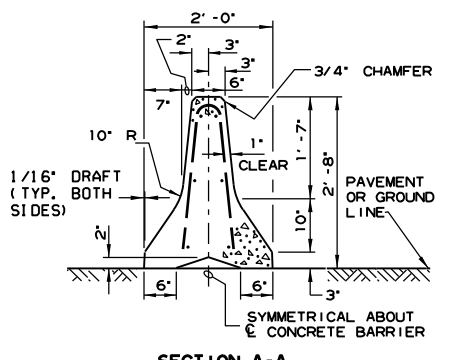
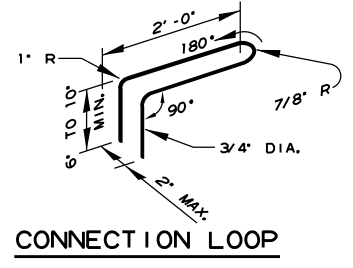
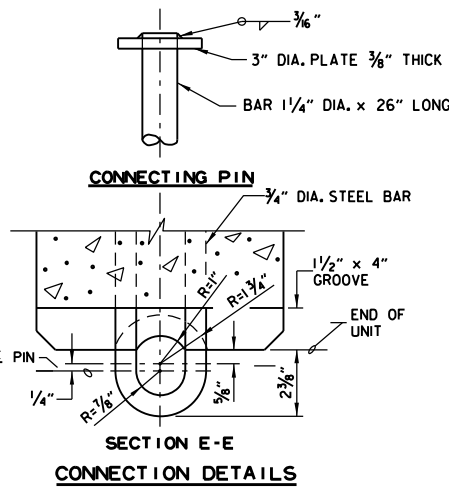
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



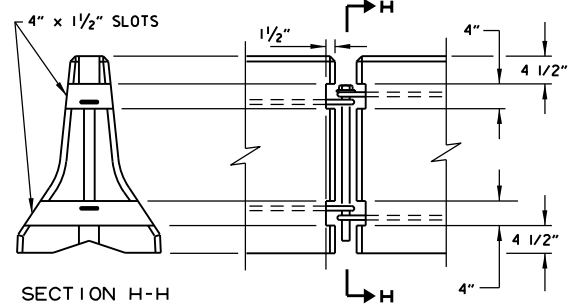
(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE II	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
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 W6-18 & 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	

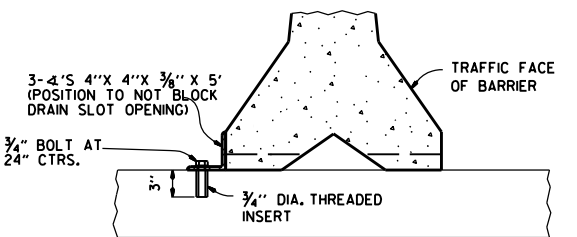
REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN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



**BARRIER STABILIZATION DETAIL**  
ROADWAY SECTION  
E 4" - CONCRETE PAVEMENT  
8" - ASPHALT PAVEMENT  
12" - SHOULDER AREAS

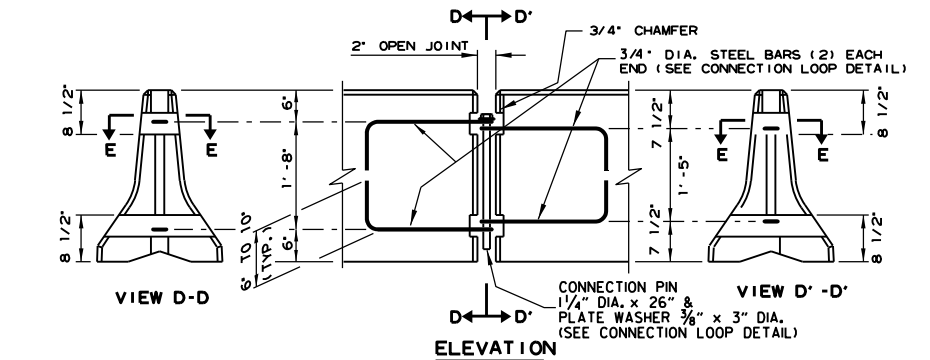


**BARRIER REMOVAL SLOT DETAILS**

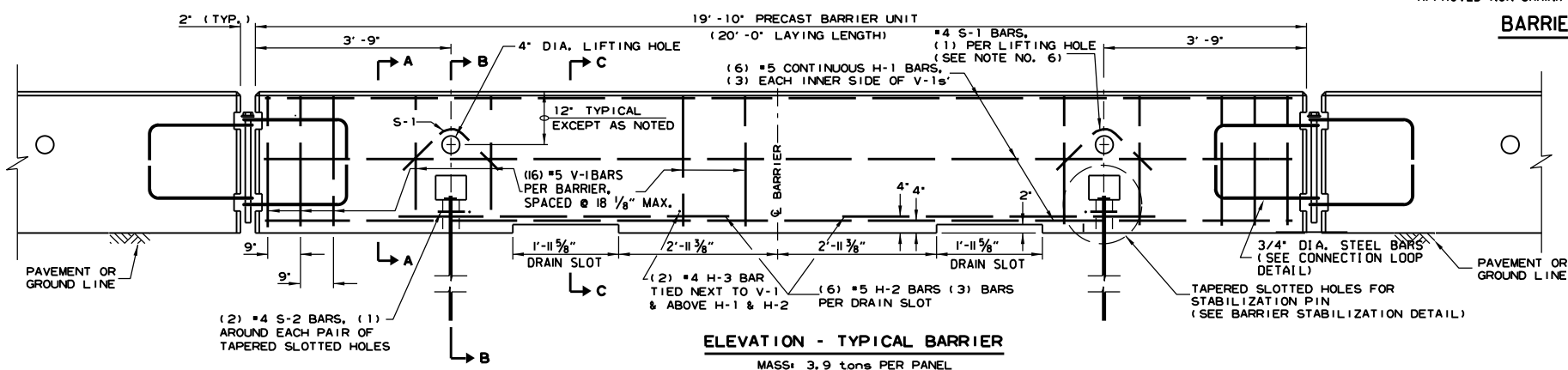


NOTE: THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

**BARRIER STABILIZATION DETAIL**  
BRIDGE DECKS



**ELEVATION**



**ELEVATION - TYPICAL BARRIER**  
MASS: 3.9 tons PER PANEL

- 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 WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS. DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.
  - OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF 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 MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). 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.

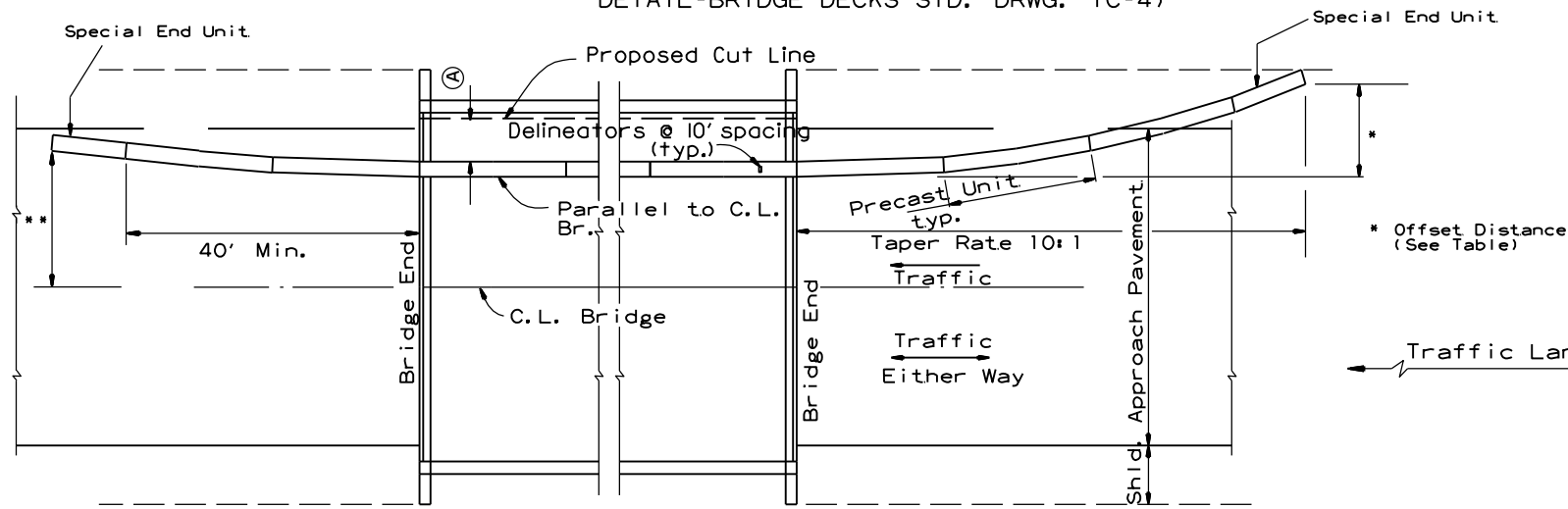
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION -  
TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

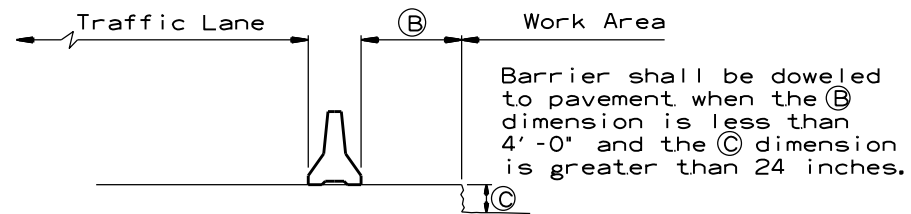
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



**BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET**

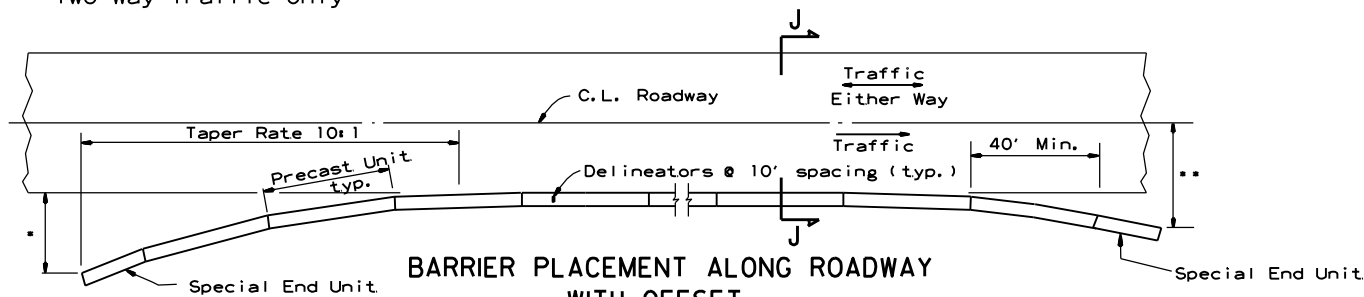
No Scale

\*\* Offset Distance for Two Way Traffic Only



**SECTION J-J**

No Scale



**BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET**

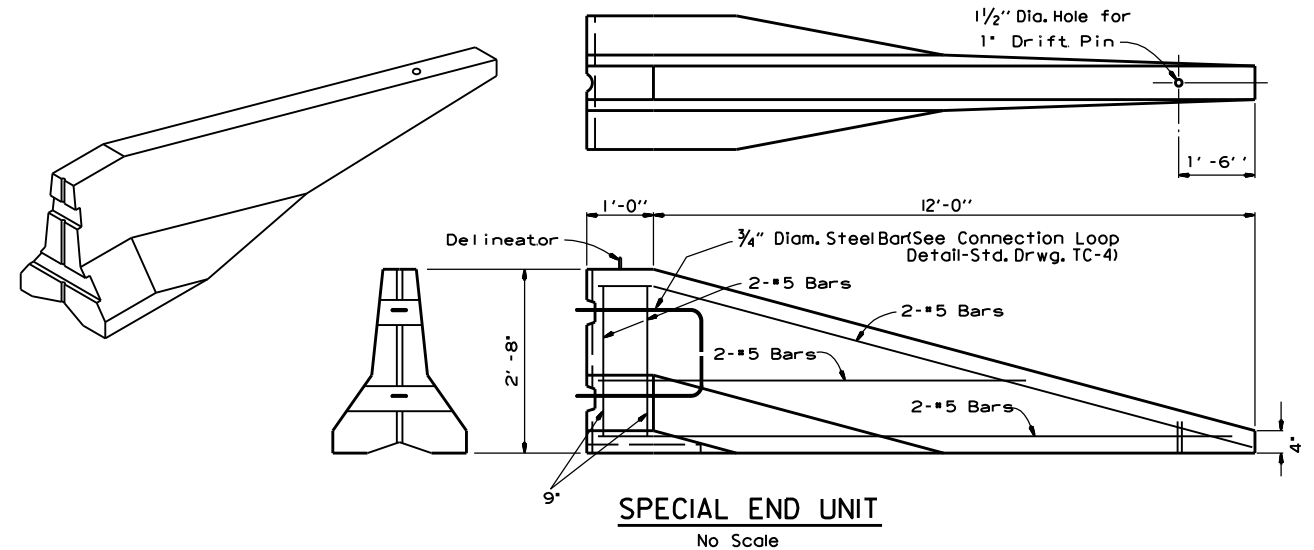
No Scale

\* Offset Distance (See Table)

\*\* Offset Distance For Two Way Traffic Only

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

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

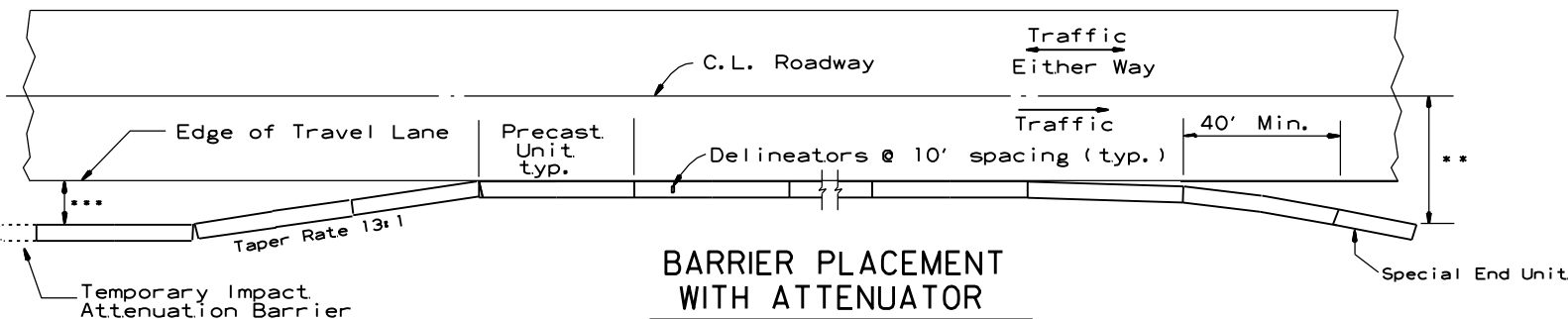


**SPECIAL END UNIT**

No Scale

**General Notes**

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with a 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
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

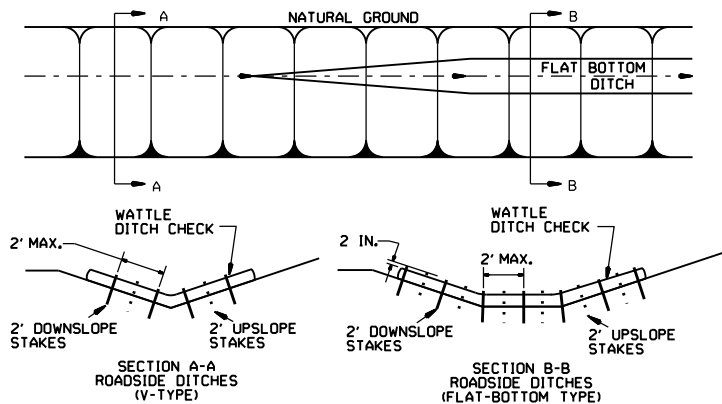
**ARKANSAS STATE HIGHWAY COMMISSION**

**STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION -  
TEMPORARY PRECAST BARRIER**

**STANDARD DRAWING TC-5**

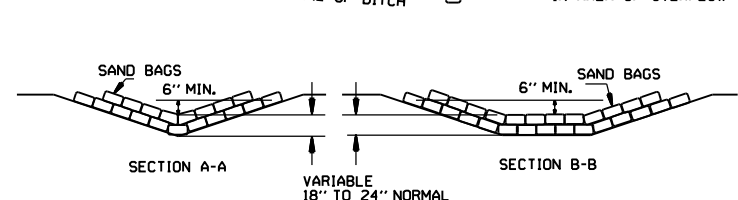
**GENERAL NOTES**

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

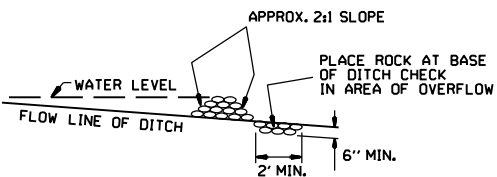


**WATTLE DITCH CHECK (E-1)**

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

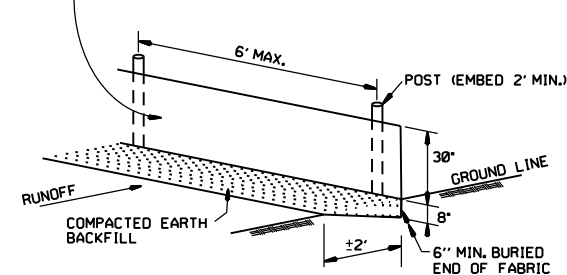


**SAND BAG DITCH CHECK (E-5)**

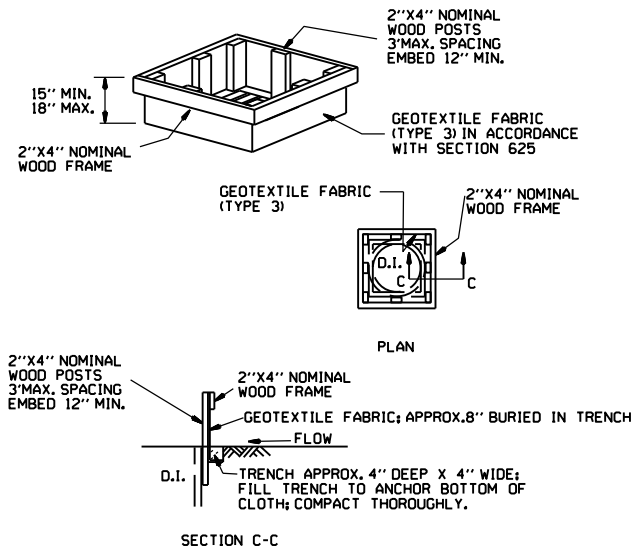


**ROCK DITCH CHECK (E-6)**

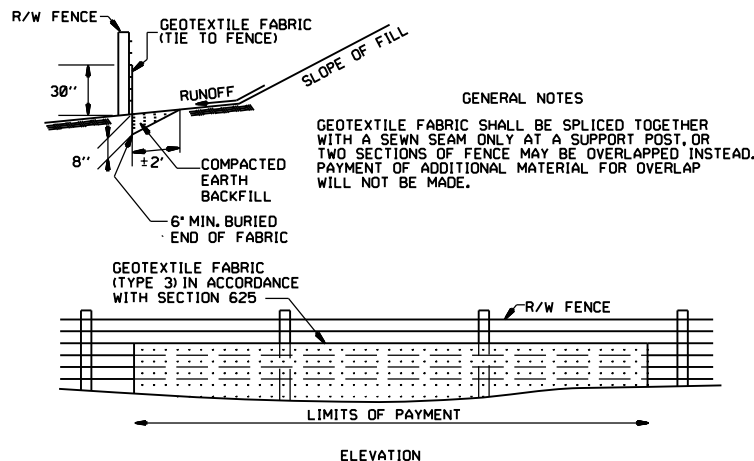
**GENERAL NOTES**  
 GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625  
 GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



**SILTS FENCE (E-11)**

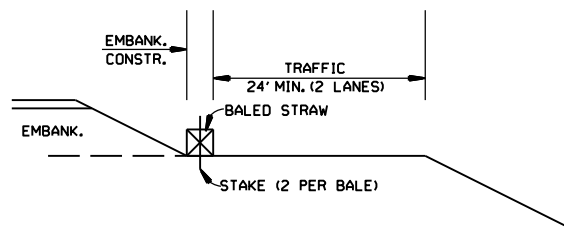


**DROP INLET SILTS FENCE (E-7)**

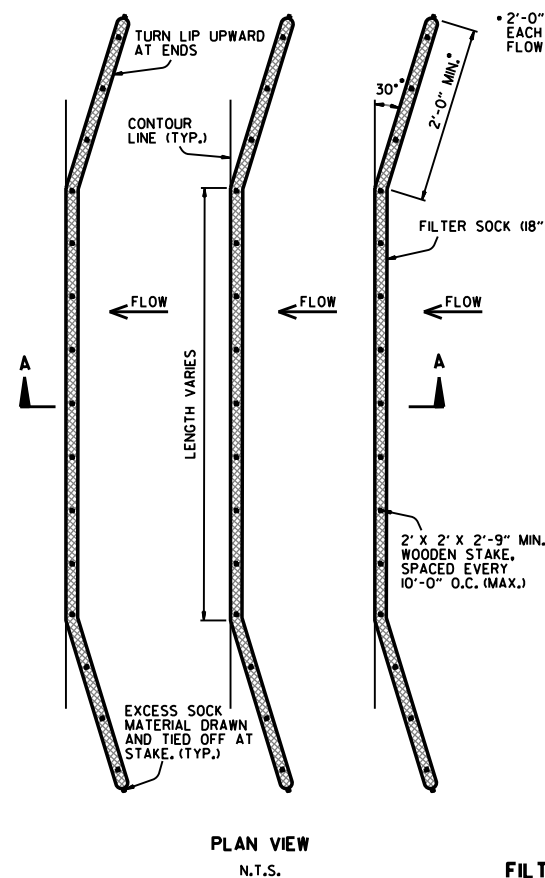


**SILTS FENCE ON R/W FENCE (E-4)**

**GENERAL NOTES**  
 1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.  
 2. NO GAPS SHALL BE LEFT BETWEEN BALES.  
 3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



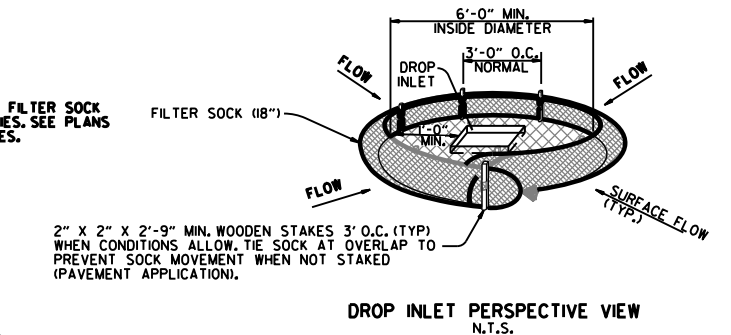
**BALED STRAW FILTER BARRIER (E-2)**



**FILTER SOCK ALONG SLOPE (E-3)**

**NOTES:**

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.
3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBSIDIARY TO "FILTER SOCK (18")".
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.
5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.



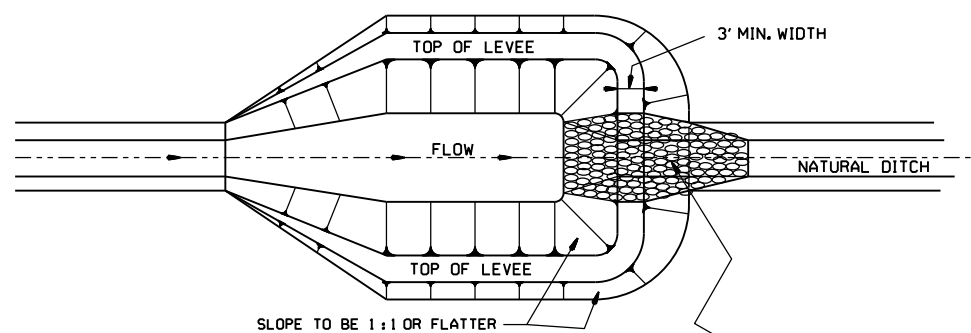
**COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)**

**NOTES:**

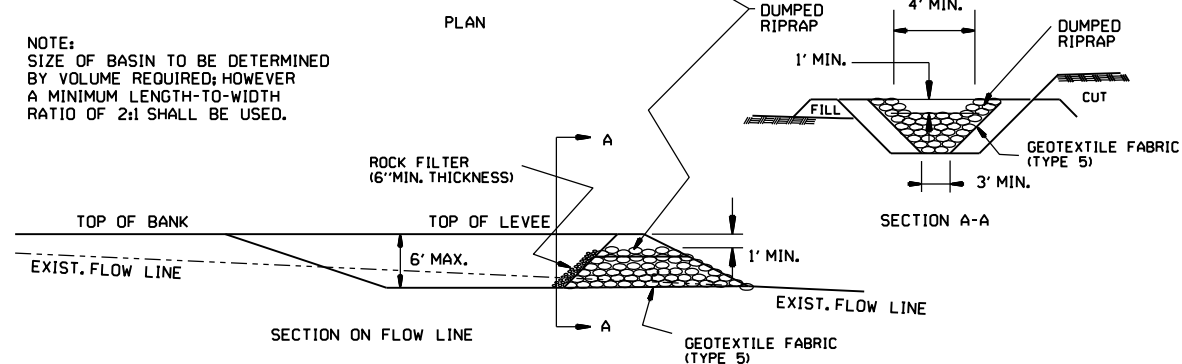
1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).
2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

DATE	REVISION
11-16-17	ADDED FILTER SOCK E-3 AND E-13
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK
11-18-98	ADDED NOTES
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)
07-20-95	REVISED SILTS FENCE E-4 AND E-11
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC
06-02-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3
04-01-93	REDRAWN
10-01-92	REDRAWN
08-02-76	ISSUED R.D.M.

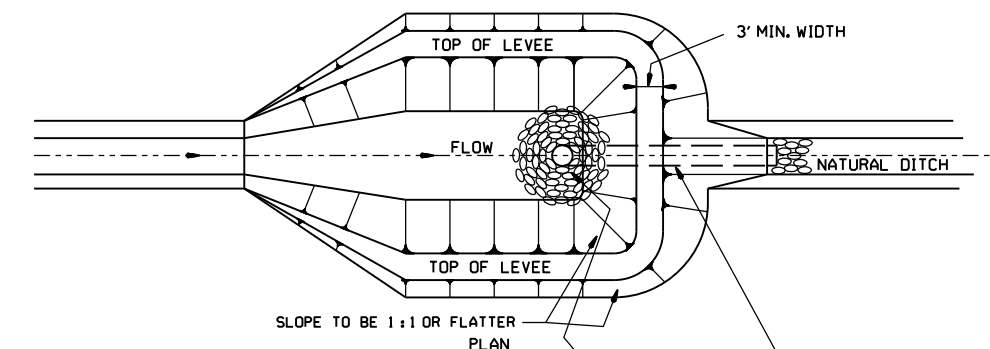
ARKANSAS STATE HIGHWAY COMMISSION  
 TEMPORARY EROSION CONTROL DEVICES  
 STANDARD DRAWING TEC-1



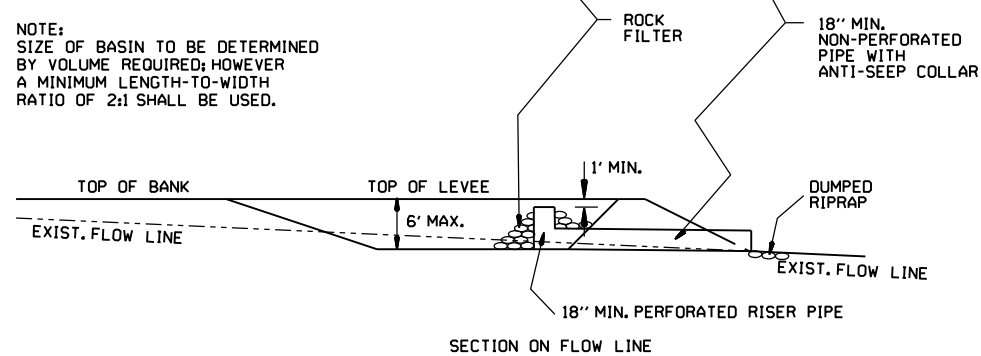
NOTE:  
SIZE OF BASIN TO BE DETERMINED  
BY VOLUME REQUIRED; HOWEVER  
A MINIMUM LENGTH-TO-WIDTH  
RATIO OF 2:1 SHALL BE USED.



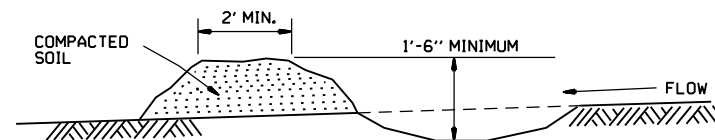
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



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

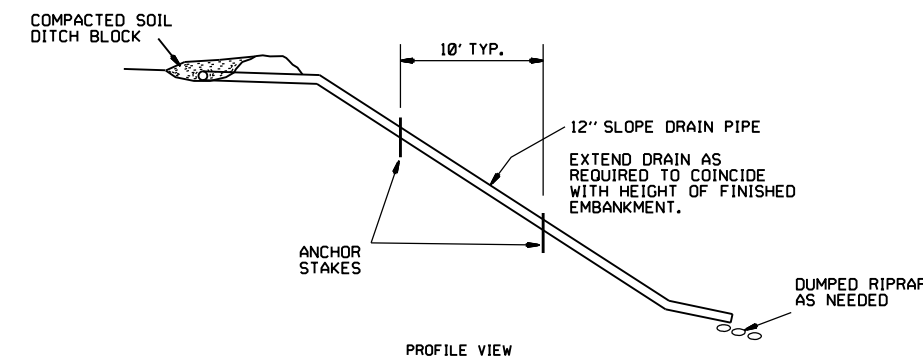
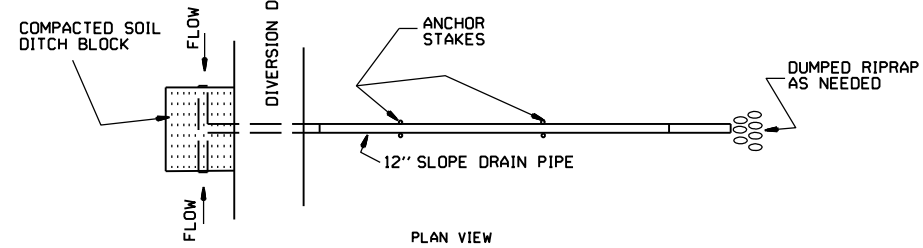


SEDIMENT BASIN WITH PIPE OUTLET (E-10)

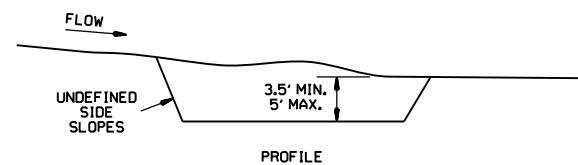
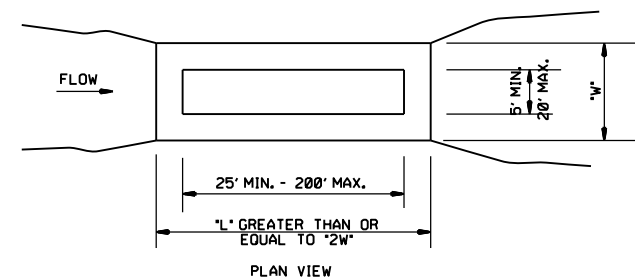


DIVERSION DITCH (E-8)

NOTE:  
A T-SECTION SHALL BE USED AT THE INLET  
FOR TWO-DIRECTIONAL FLOW.  
AN ELBOW SHALL BE USED FOR  
ONE-DIRECTIONAL FLOW.



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

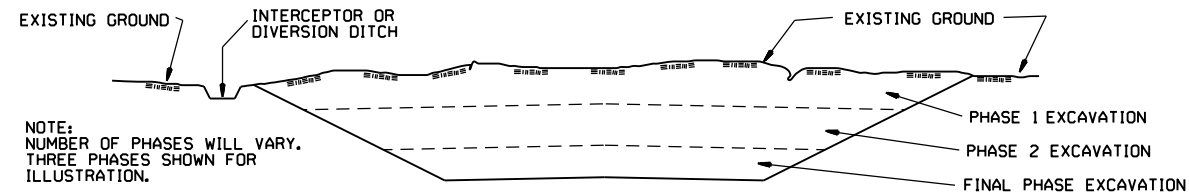


## CLEARING AND GRUBBING

### 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.

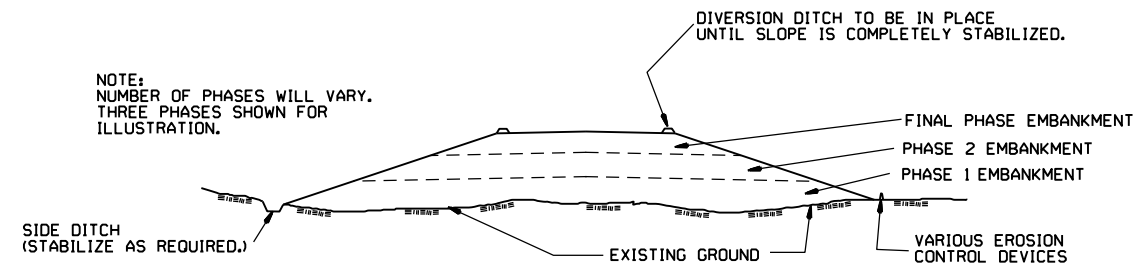
### GENERAL NOTE

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
11-03-94	CORRECTED SPELLING		
6-2-94	Drawn & Issued		6-2-94
DATE	REVISION		FILMED
			STANDARD DRAWING TEC-3