

PROJECT LOCATION VICINITY MAP

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

LITTLE SUGAR & TANYARD
CREEKS STRS. & APPRS.
(BELLA VISTA) (S)

BENTON COUNTY

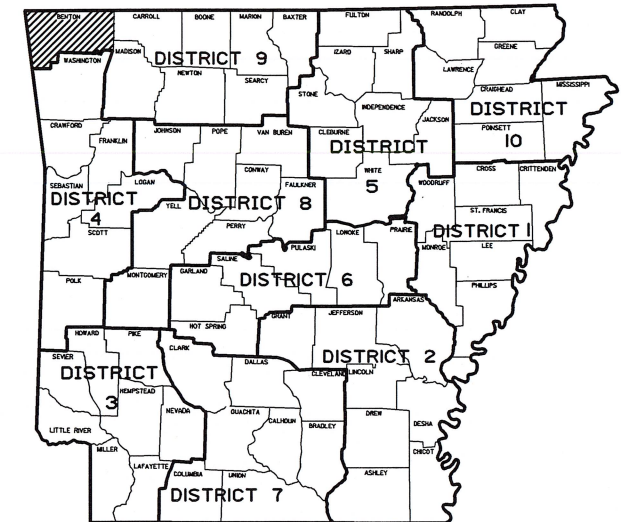
ROUTE 340 SECTION I

JOB 090472

FED. AID PROJ. NHPP-0004(807)
& 9030

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 090472	I	110

2 LITTLE SUGAR & TANYARD CREEKS STRS. & APPRS. (BELLA VISTA) (S)

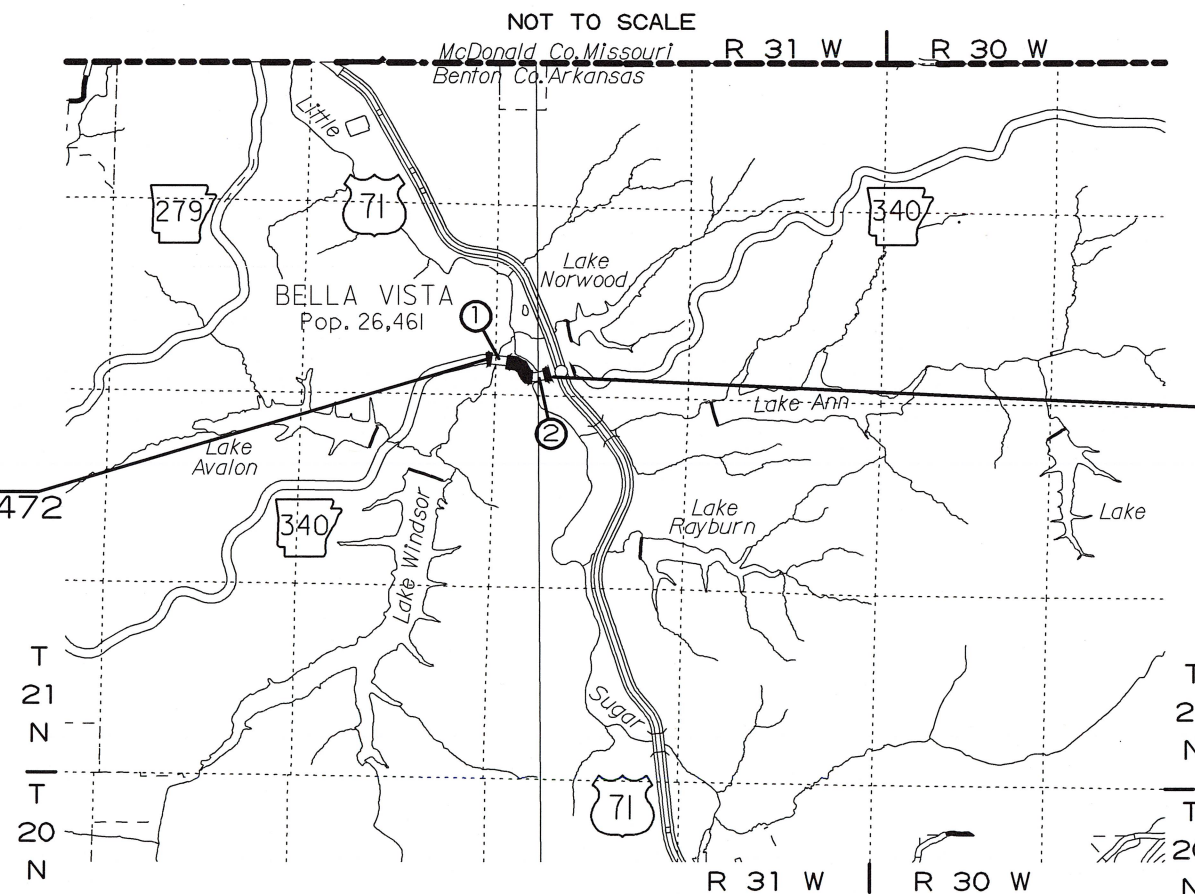


ARK. HWY. DIST. NO. 9

BRIDGE DATA

- ① STA. 11+45.00 BRIDGE END - CONSTRUCT
BRIDGE NO. 07480
120'-0" CONT. INTEGRAL W-BEAM UNIT (37'-46'-37')
30'-0" CLEAR ROADWAY
121'-0" BRIDGE LENGTH
STA. 12+66.50 BRIDGE END
- ② STA. 24+63.69 BRIDGE END - CONSTRUCT
BRIDGE NO. 07481
238'-0" CONT. W-BEAM UNIT (76'-86'-76')
59'-0" CLEAR ROADWAY
240'-13/4" BRIDGE LENGTH
STA. 27+03.84 BRIDGE END

STA. 10+00.00
BEGIN JOB 090472
LOG MILE 3.83



STA. 30+50.00
END JOB 090472

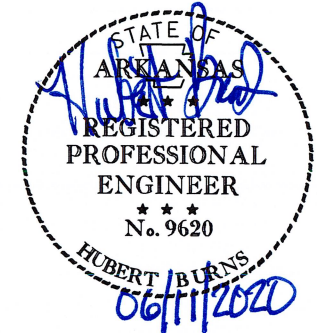
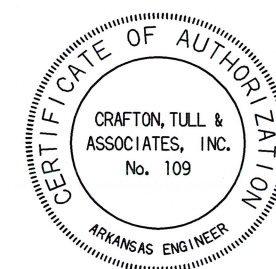
• DESIGN TRAFFIC DATA •

DESIGN YEAR ————— 2040
2020 ADT ————— 14,000
2040 ADT ————— 18,000
2040 DHV ————— 1980
DIRECTIONAL DISTRIBUTION ————— 60%
TRUCKS ————— 3%
DESIGN SPEED ————— 30 MPH

BEGINNING OF PROJECT MID-POINT OF PROJECT END OF PROJECT
LAT. = N 36°28'36" LAT. = N 36°28'33" LAT. = N 36°28'32"
LONG. = W 94°15'18" LONG. = W 94°15'06" LONG. = W 94°14'54"

LENGTH COMPUTED ALONG CENTERLINE OF HWY. 340					
GROSS LENGTH OF PROJECT	2050.00	FEET	OR	0.388	MILES
NET " " ROADWAY	1688.35	"	"	0.320	"
NET " " BRIDGES	361.65	"	"	0.068	"
NET " " PROJECT	2050.00	"	"	0.388	"

P.E. JOB 090472



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

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2 INDEX OF SHEETS & STANDARD DRAWINGS



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55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR POURED SILICONE JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	03-24-20
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16

ROADWAY STANDARD DRAWINGS

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CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
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
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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 (POLYETHYLENE)	02-27-20
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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:

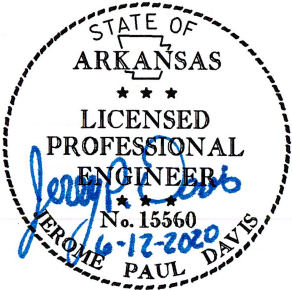
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
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108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
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210-1	UNCLASSIFIED EXCAVATION
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632-1	CONCRETE ISLAND
633-1	CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1	CURBING
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807-2	STEEL STRUCTURES
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JOB 090472	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090472	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090472	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090472	CAVE DISCOVERY
JOB 090472	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 090472	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 090472	CORRUGATED METAL ELLIPTICAL PIPE CULVERT
JOB 090472	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 090472	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 090472	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 090472	DRILLED SHAFT FOUNDATIONS
JOB 090472	ELASTOMERIC BEARINGS
JOB 090472	EXTENSION FOR PIPE CULVERTS
JOB 090472	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB 090472	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090472	MAINTENANCE OF TRAFFIC
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JOB 090472	NESTING SITES OF MIGRATORY BIRDS
JOB 090472	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 090472	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 090472	PARTNERING REQUIREMENTS
JOB 090472	PLASTIC PIPE
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JOB 090472	SOIL STABILIZATION
JOB 090472	STORM WATER POLLUTION PREVENTION PLAN
JOB 090472	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090472	TEMPORARY RETAINING WALLS
JOB 090472	UTILITY ADJUSTMENTS
JOB 090472	VALUE ENGINEERING
JOB 090472	WARM MIX ASPHALT
JOB 090472	WELLHEAD PROTECTION

GENERAL NOTES

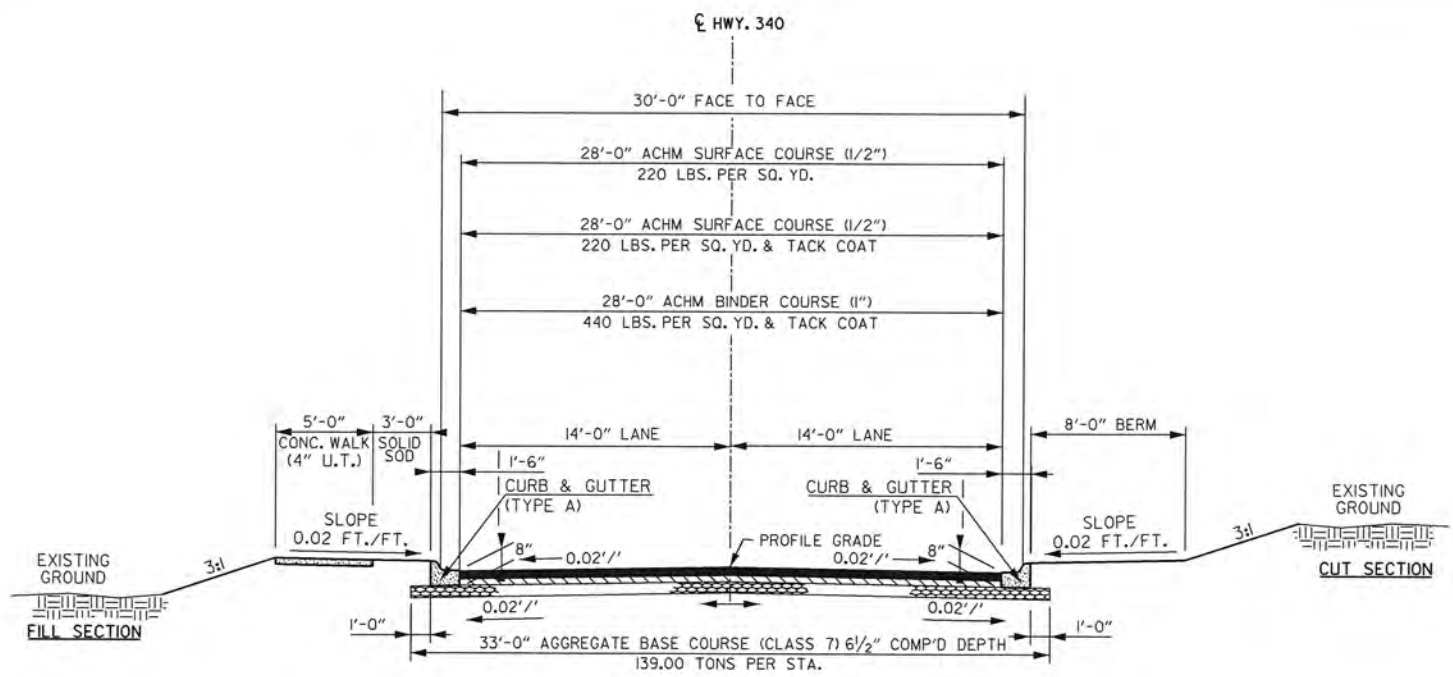
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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 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.



GOVERNING SPECIFICATIONS & GENERAL NOTES

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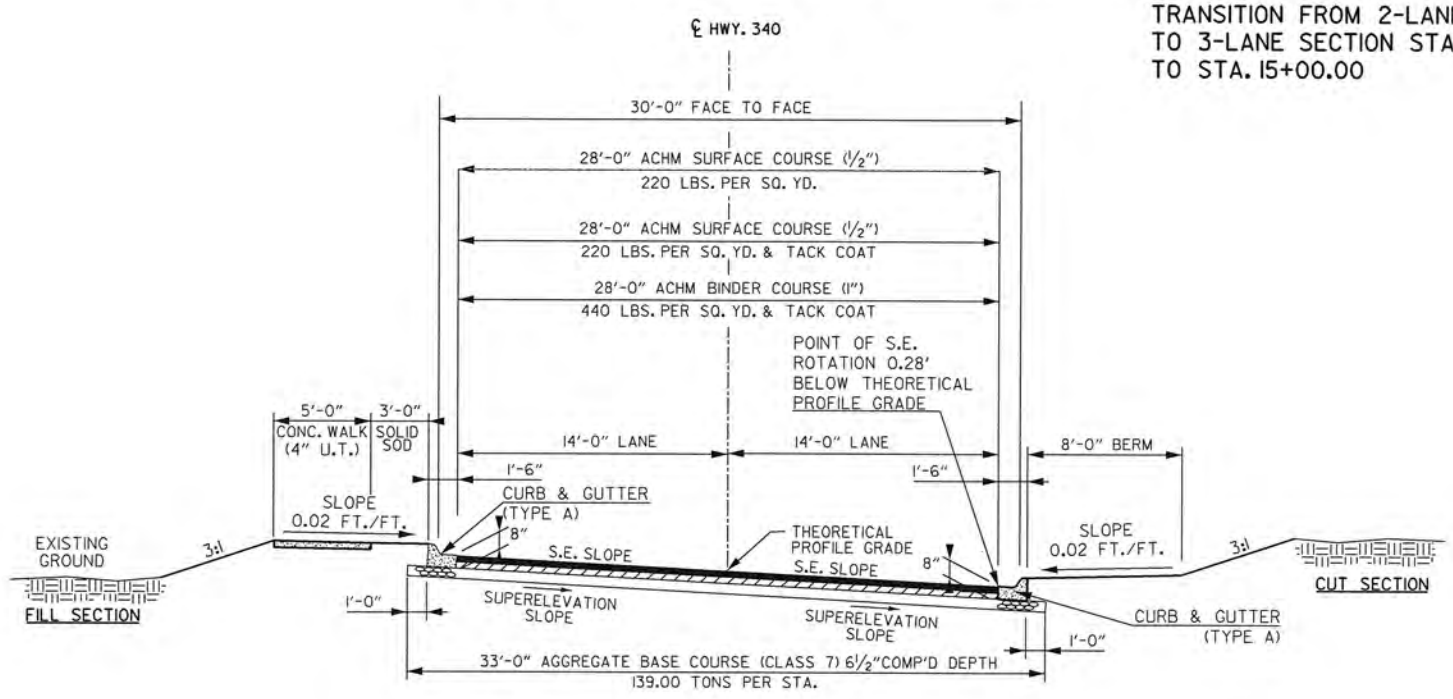
2 TYPICAL SECTIONS OF IMPROVEMENT



**TANGENT SECTION
HWY. 340 - TANYARD CREEK
2 - LANE**

STA. 10+00.00 TO STA. 11+09.00
STA. 13+03.00 TO STA. 13+51.46

TRANSITION FROM 2-LANE SECTION
TO 3-LANE SECTION STA. 13+51.46
TO STA. 15+00.00



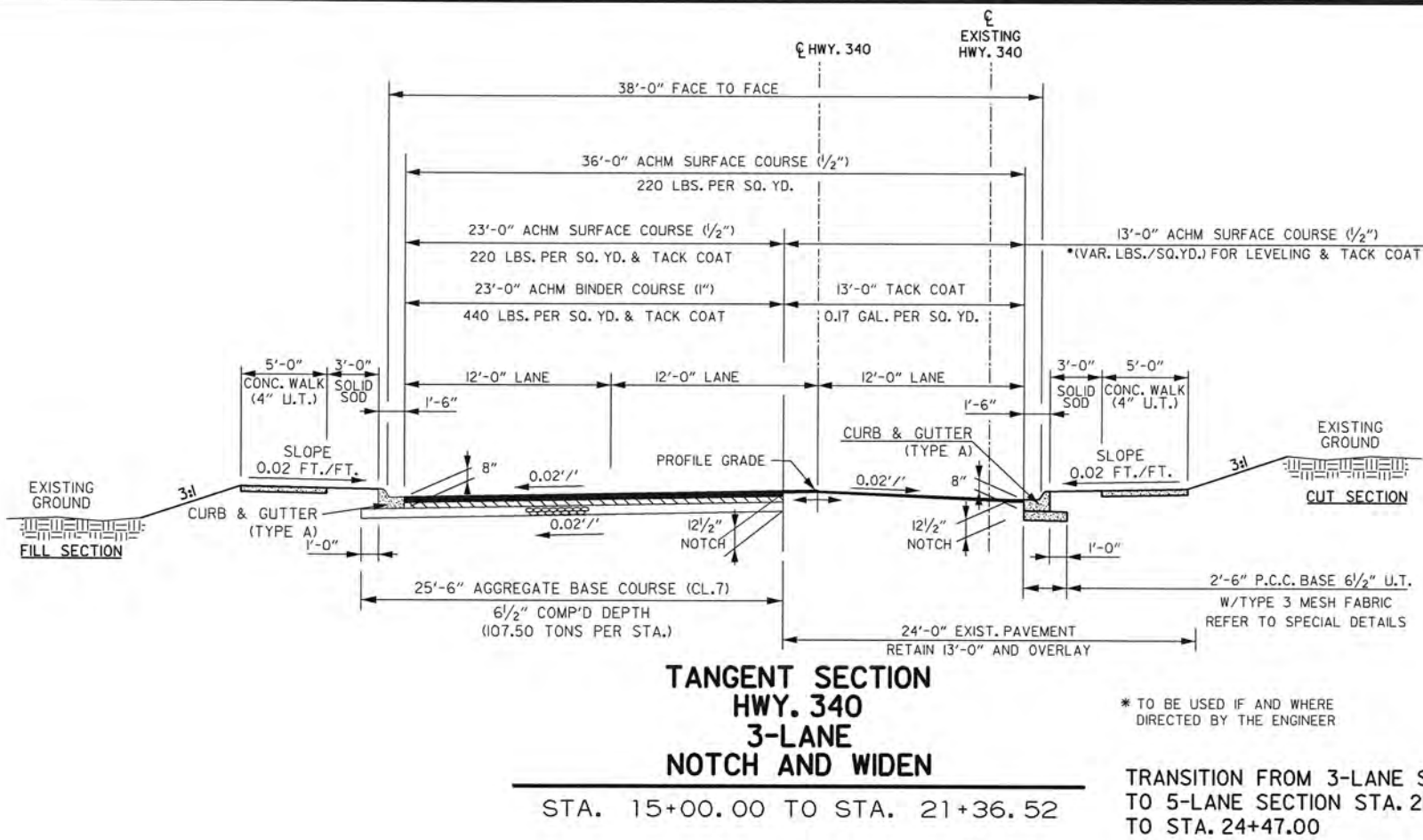
**SUPERELEVATION SECTION
HWY. 340 - TANYARD CREEK
2 LANE**

NOTES:

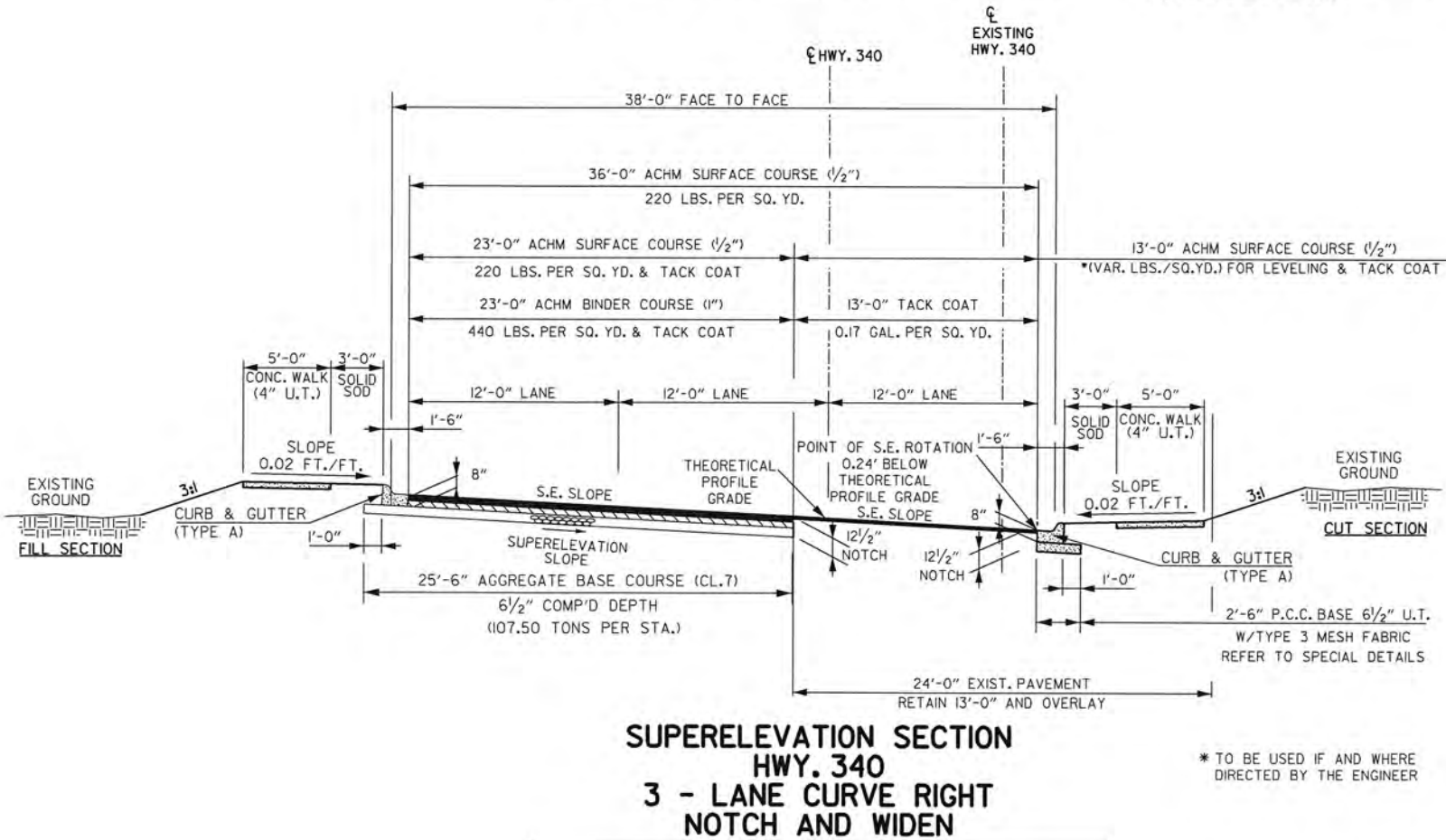
1. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
2. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

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2 TYPICAL SECTIONS OF IMPROVEMENT



- NOTES:
1. 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.
 2. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND 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.
 4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
 5. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
 6. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

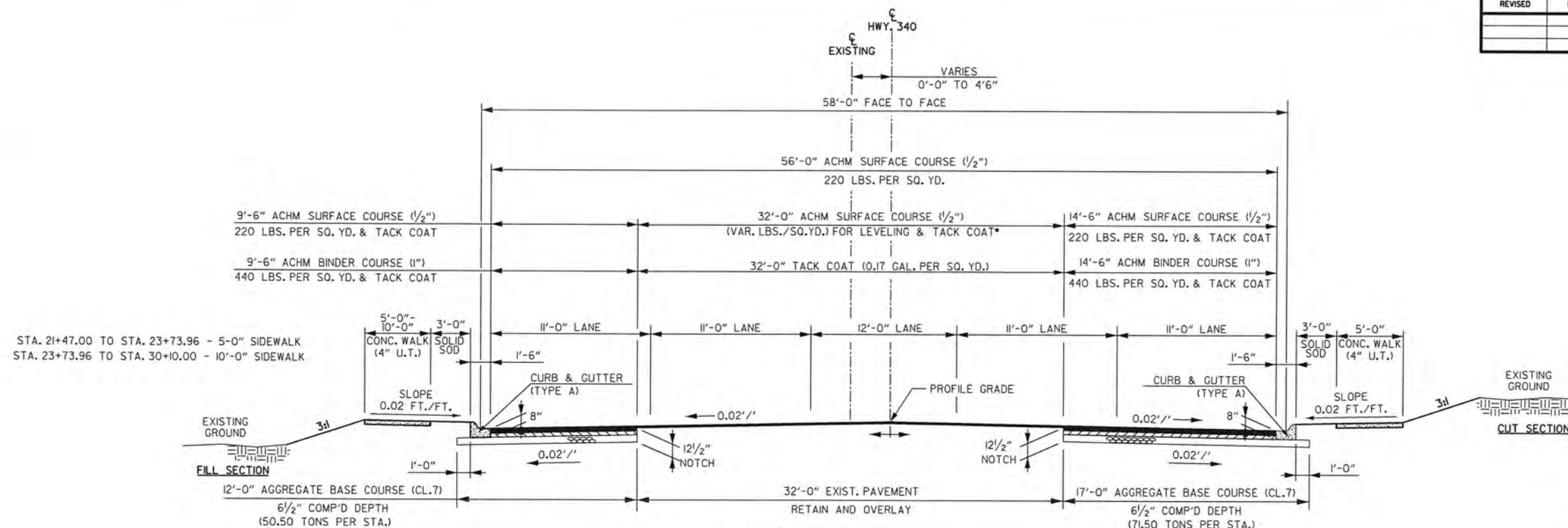


TYPICAL SECTIONS OF IMPROVEMENT

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SCALE: 1/10

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 090472	7	110

2 TYPICAL SECTIONS OF IMPROVEMENT



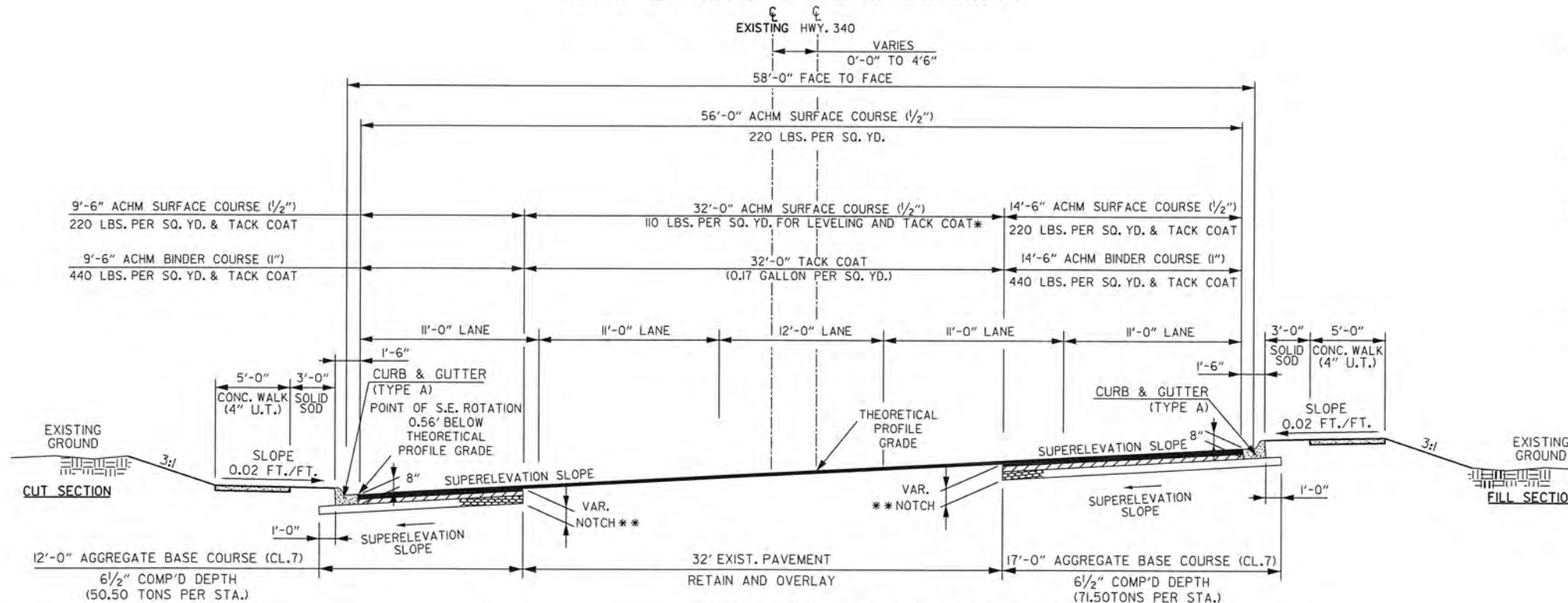
TANGENT SECTION HWY. 340 - LITTLE SUGAR CREEK 5 - LANE NOTCH AND WIDEN

STA. 21+47.00 TO STA. 24+27.19
STA. 27+40.34 TO STA. 28+03.71

* TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER

NOTES:

1. 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.
2. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND 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.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
5. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
6. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.



SUPERELEVATION SECTION HWY. 340 - LITTLE SUGAR CREEK 5 - LANE NOTCH AND WIDEN

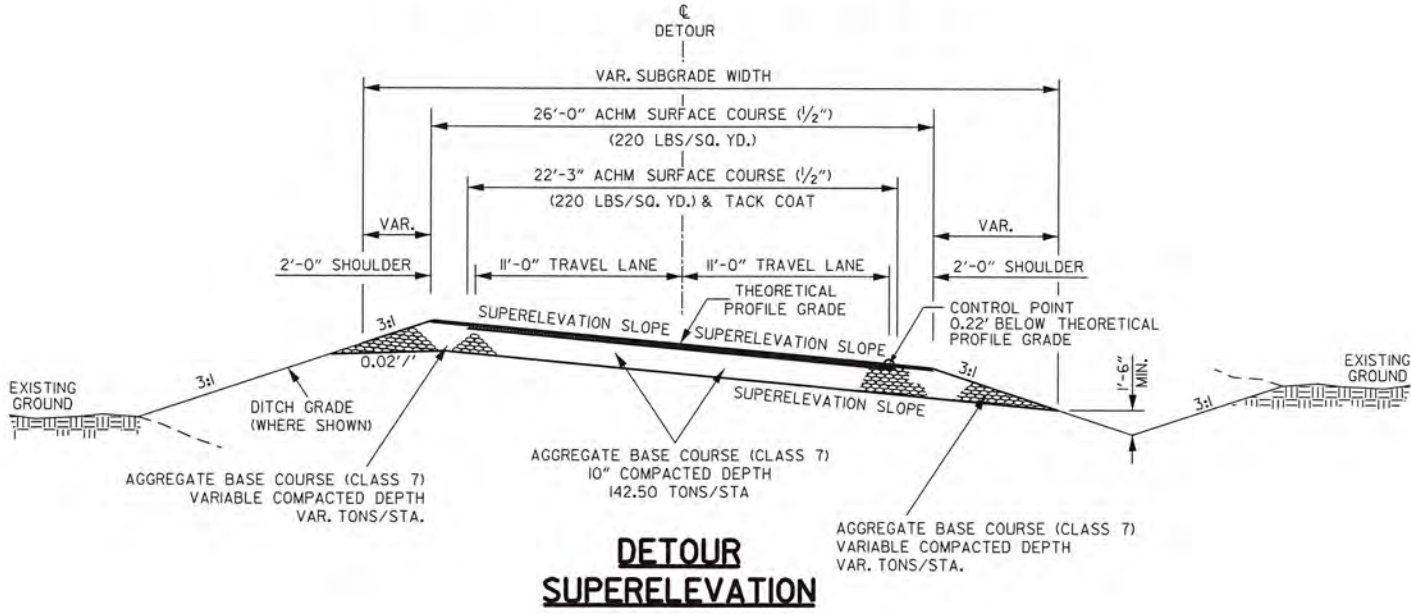
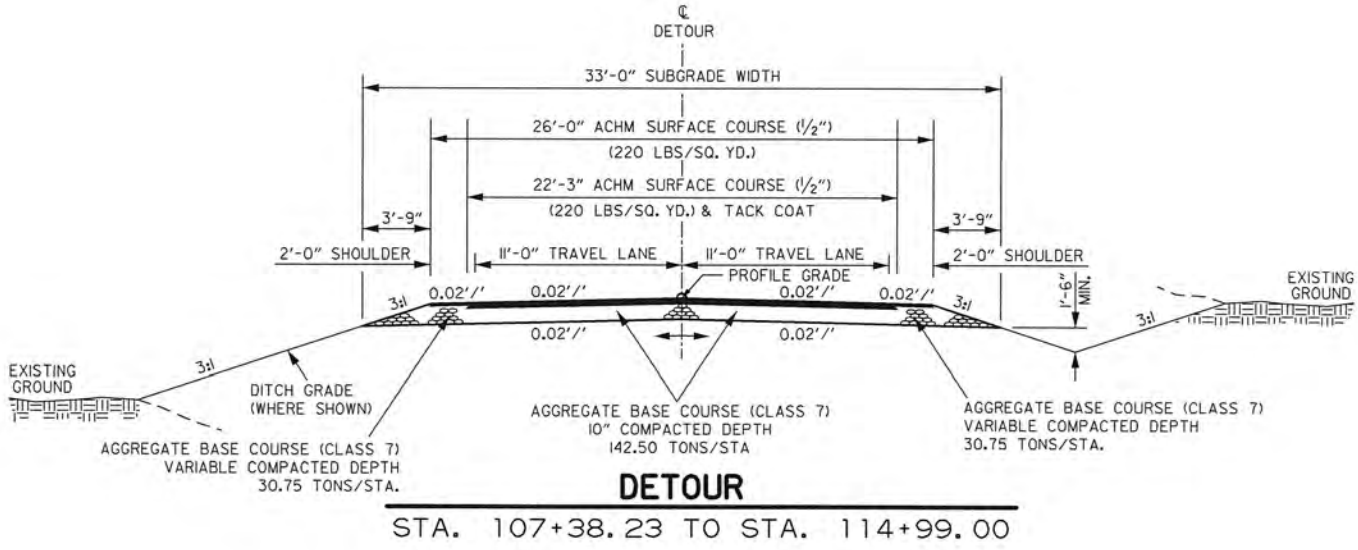
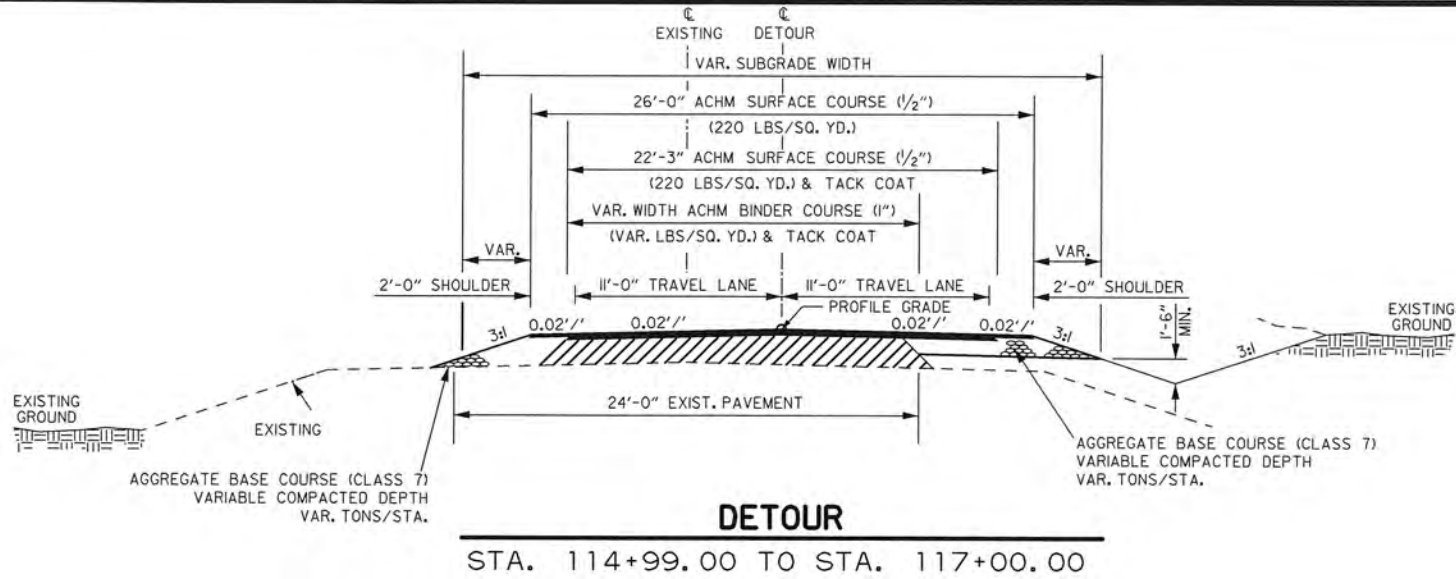
* TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER
** OVERLAY NOTCH = 12 1/2"

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 090472	8	110

2

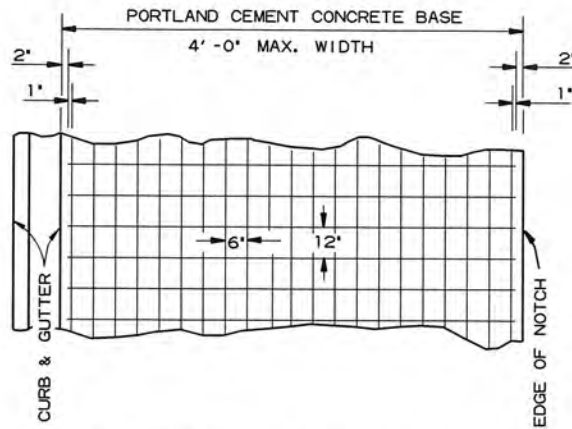
TYPICAL SECTIONS OF IMPROVEMENT



- NOTES:
1. 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.
 2. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 090472	9	110

2 SPECIAL DETAILS

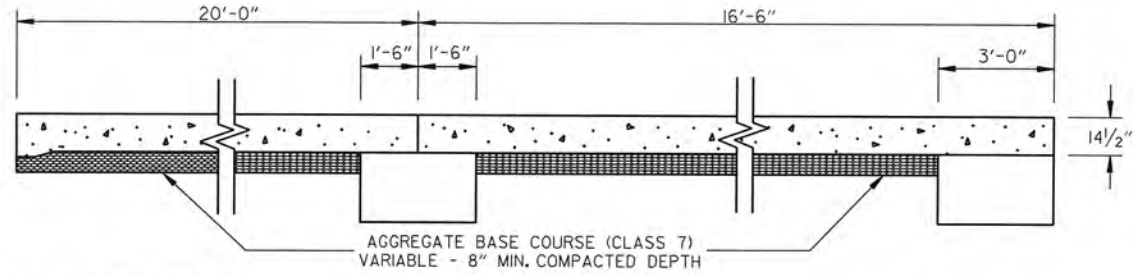


6' X 12' MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ. YD.

NOTES:

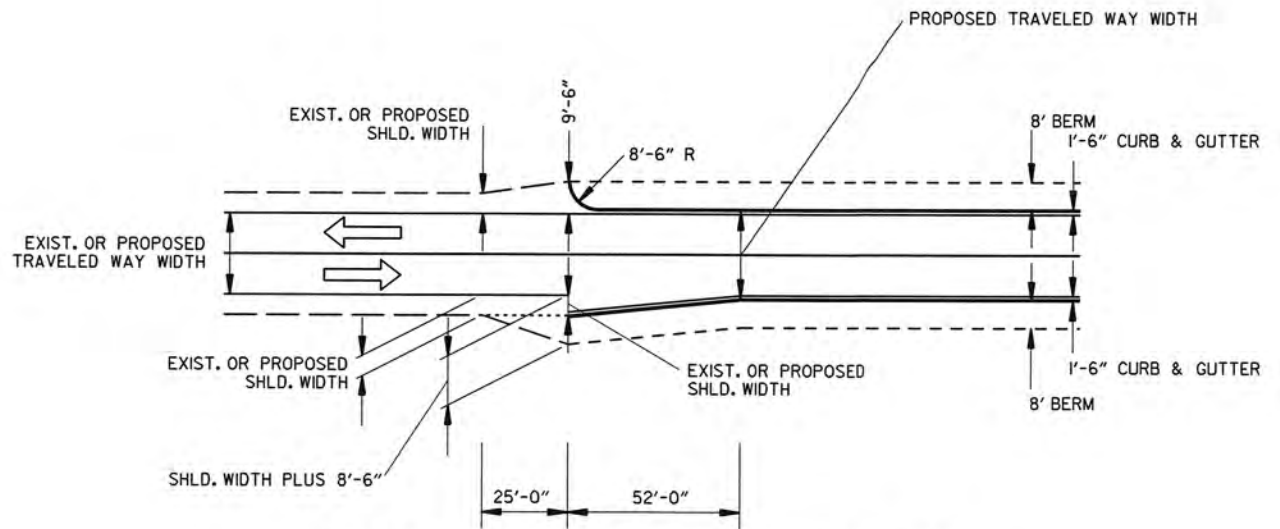
1. LAP MESH FABRIC MIN. 12' LONGITUDINALLY AND MIN. 6' TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12'.
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (4' U.T. & 6 1/2' U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

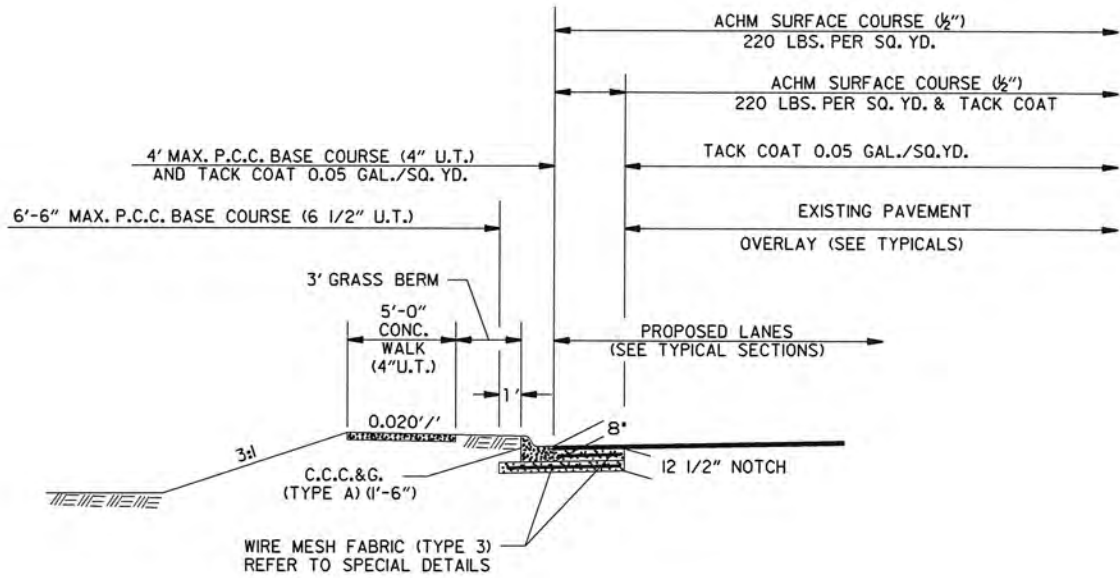


NOTE: REFER TO BRIDGE DRAWINGS 61557, 61558, 61595 & 61596 FOR ADDITIONAL INFORMATION.

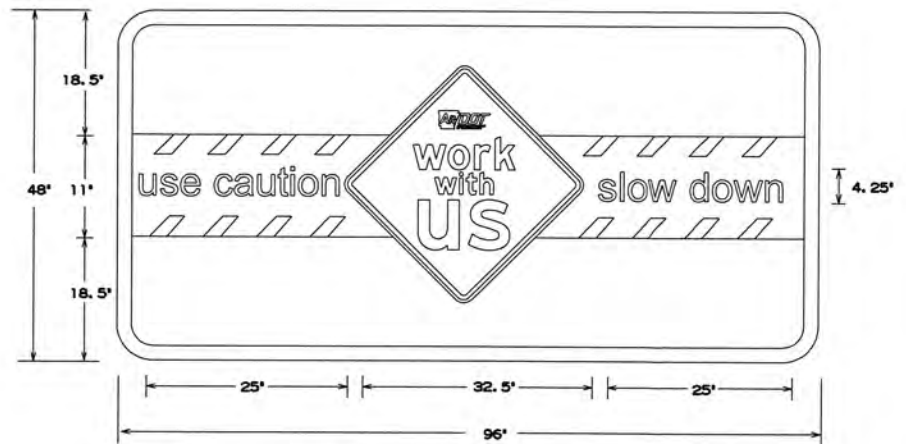
DETAIL OF APPROACH SLAB (NOT TO SCALE)



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION



P.C.C. BASE WIDENING DETAIL
P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

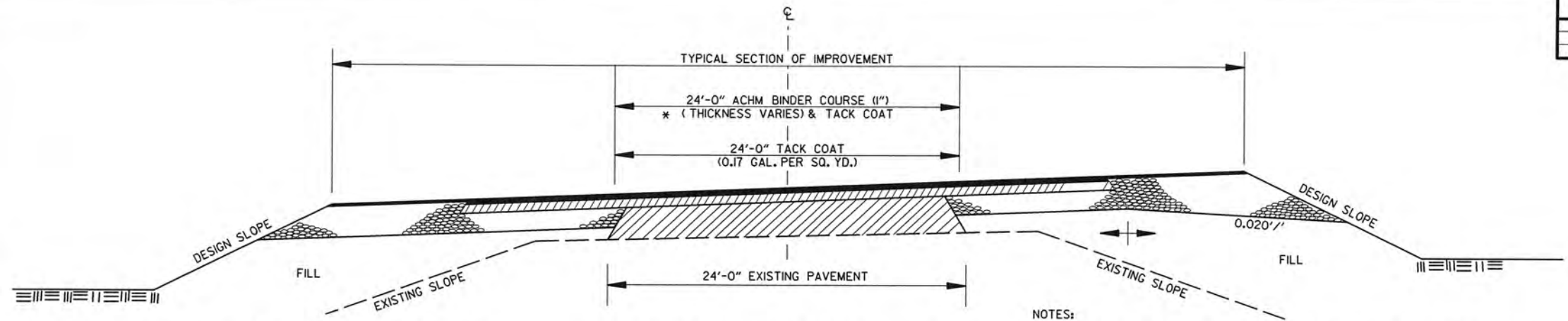


1.5' WHITE BORDER, 1.5' RADIUS, GREEN BACKGROUND
use caution/slow down 4.25' NIVEAU GROTESK, REGULAR FONT
work with us FRUTIGER LT 75 BLACK FONT

NOTE: DIGITAL ART WORK FILE AVAILABLE FROM ARDOT MAINTENANCE DIVISION SIGN SHOP 501-569-2665.
THIS SIGN SHALL BE PLACED 500' PRECEDING THE FIRST ADVANCE WARNING SIGN, IN THE DIRECTION OF TRAFFIC.

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				6	ARK.			
						JOB NO.	090472	10
								110

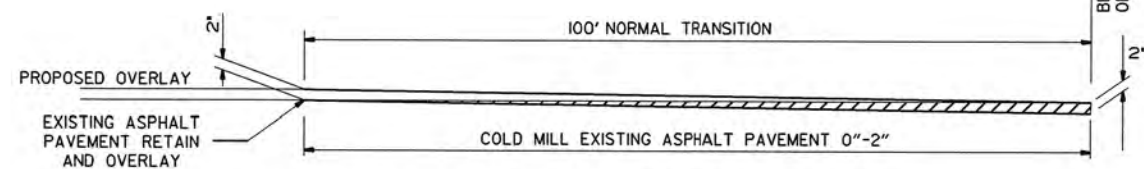
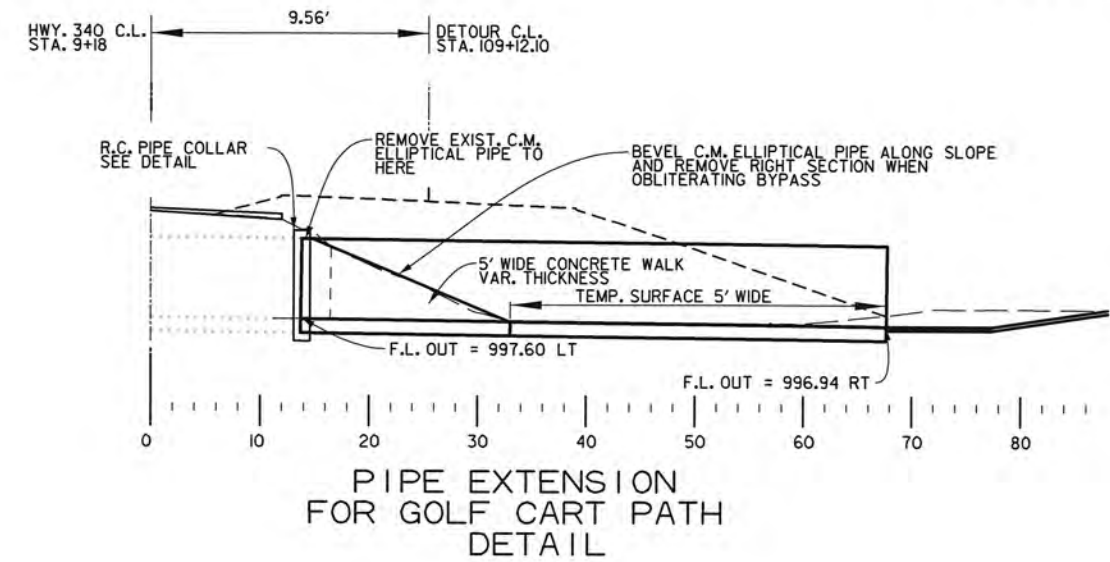
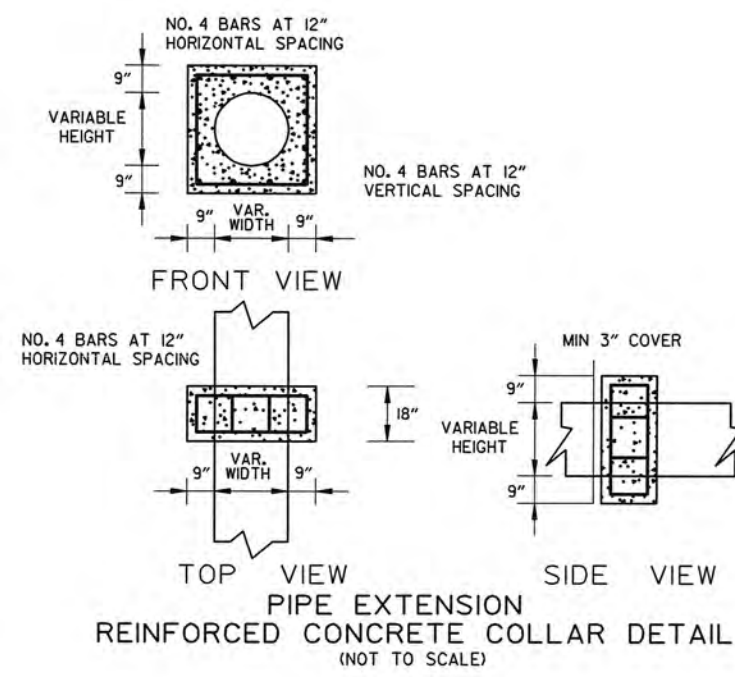
2 SPECIAL DETAILS



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

METHOD OF RAISING GRADE

- NOTES:
- (1) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.
 - (2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
 - (3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014.

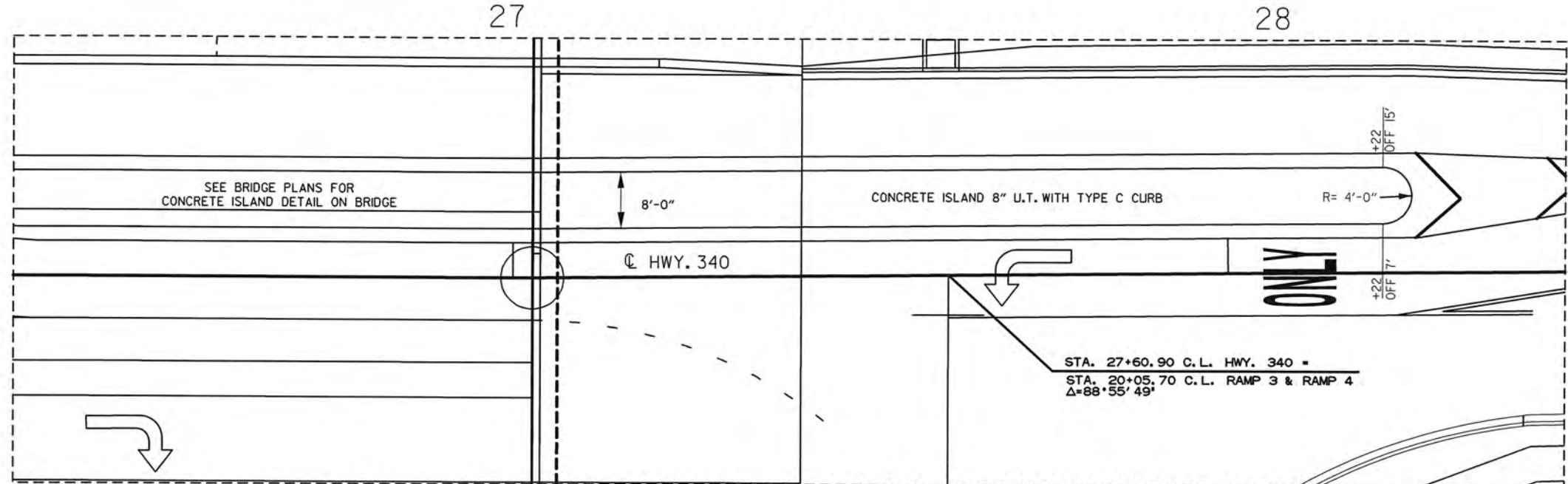


DETAIL FOR TRANSITIONS

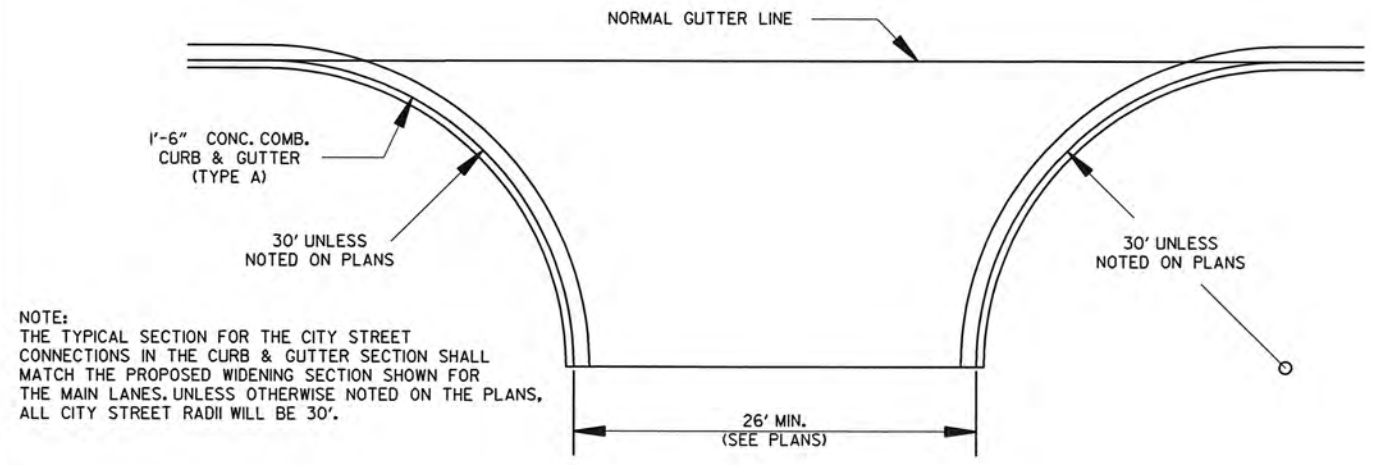
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PLOTTER: 3/20/2020 09:09
SCALE: 1:10

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	II	II O

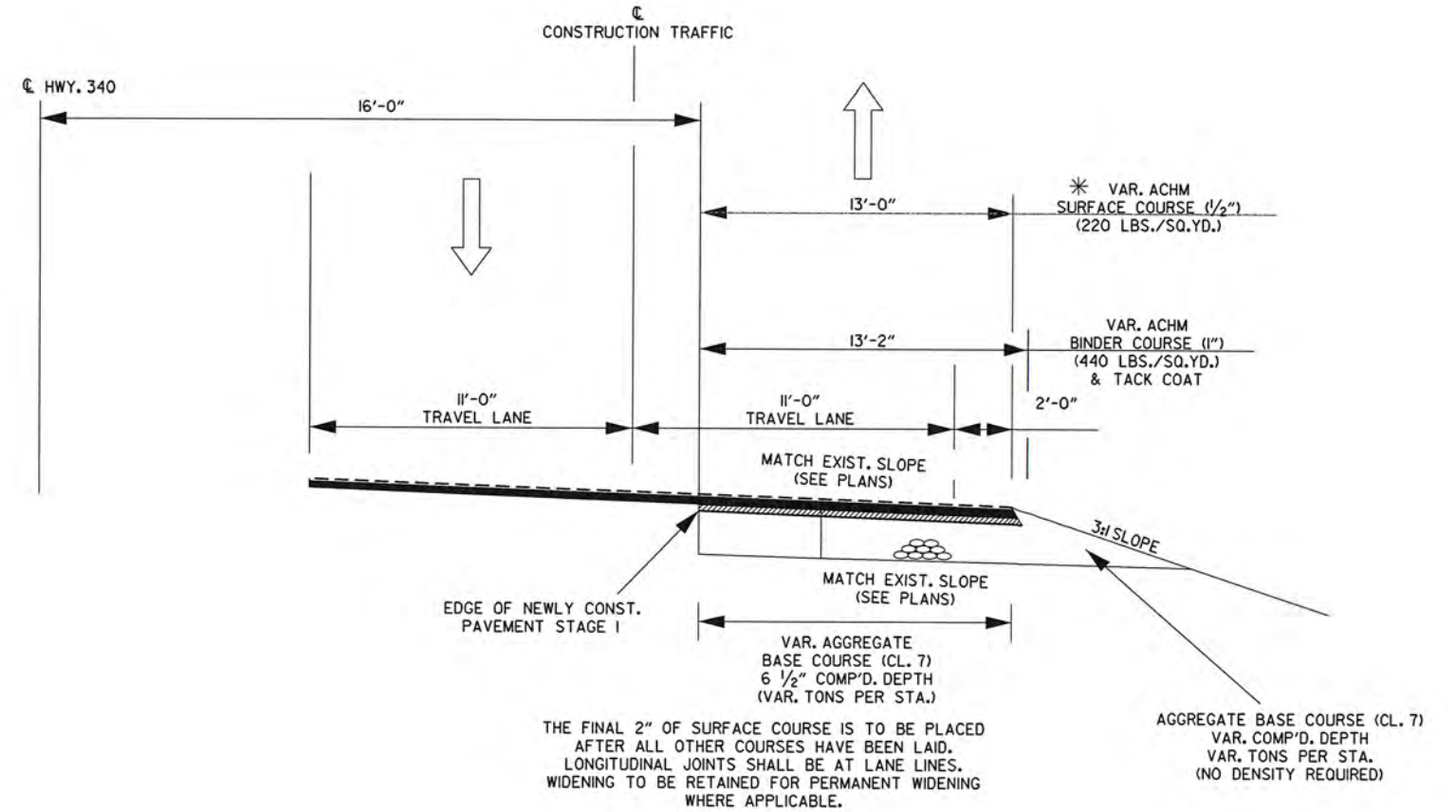
2 SPECIAL DETAILS



DETAIL OF CONCRETE ISLAND



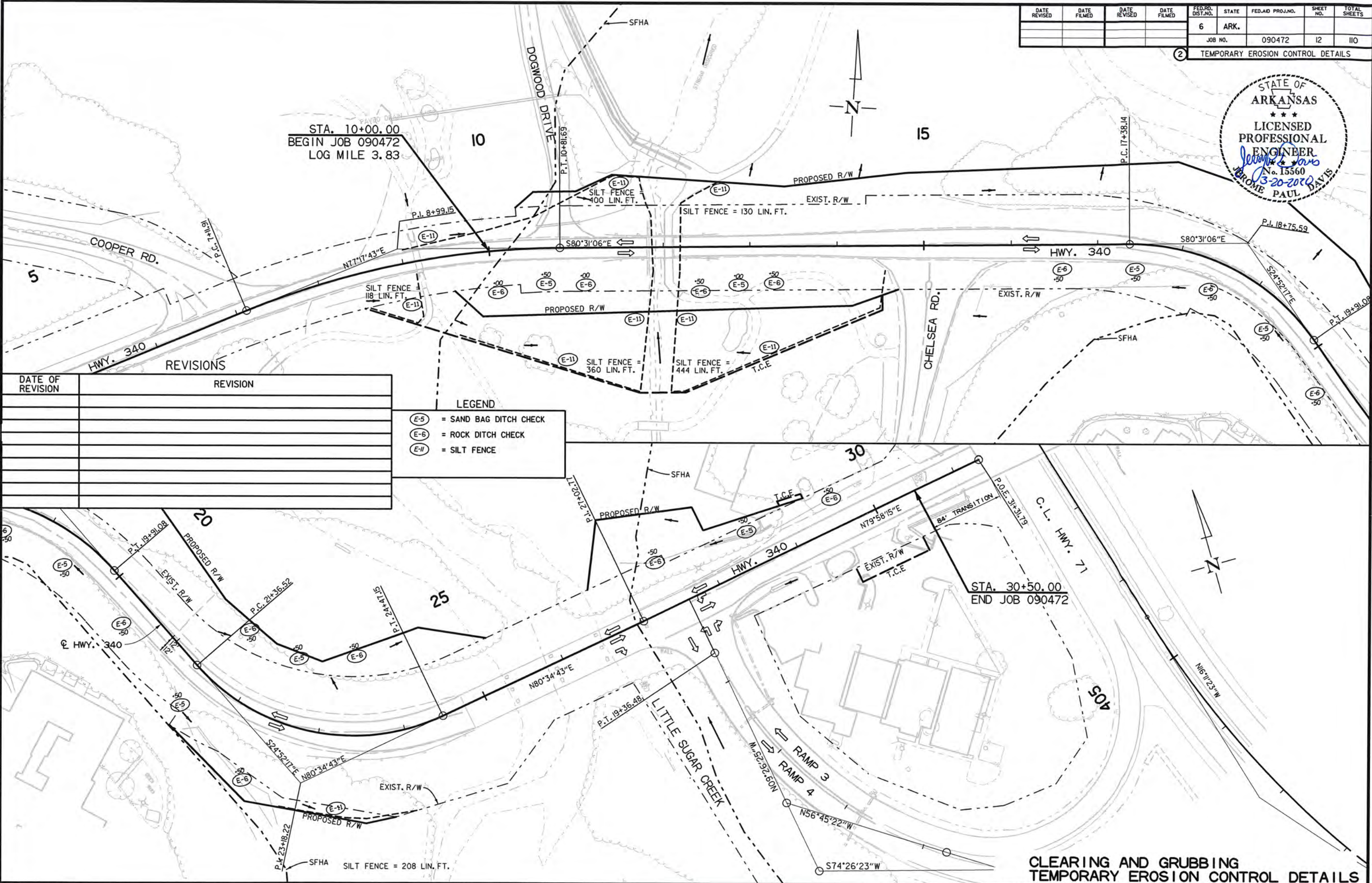
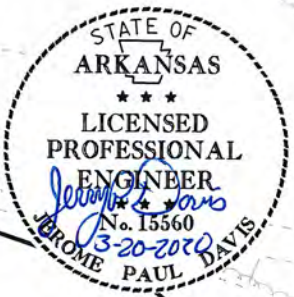
DETAIL OF TURNOUTS
ASPHALT STREETS, COUNTY ROADS,
& STATE HIGHWAYS
(NOT TO SCALE)



WIDENING FOR MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472	12	110	

2 TEMPORARY EROSION CONTROL DETAILS



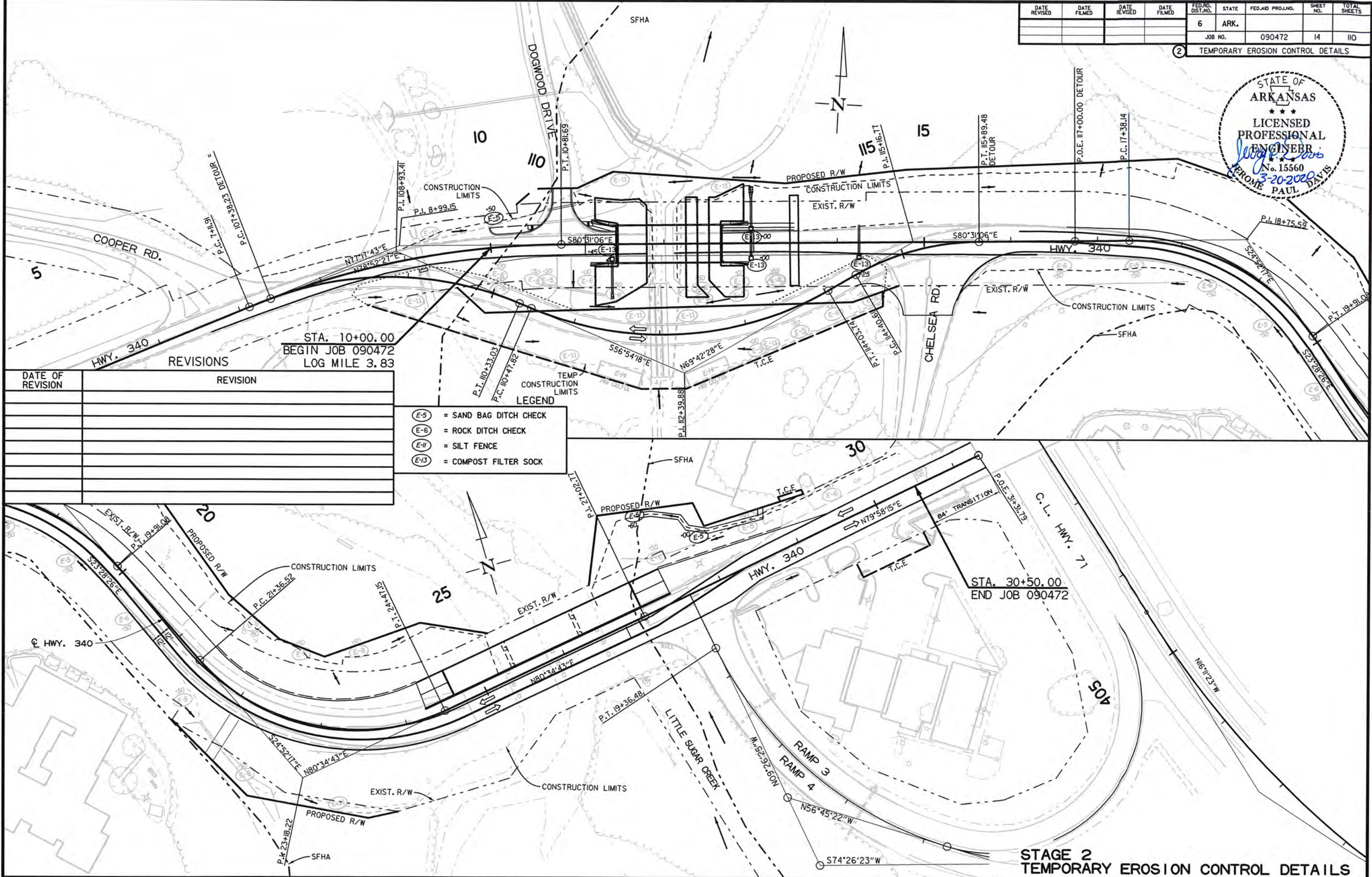
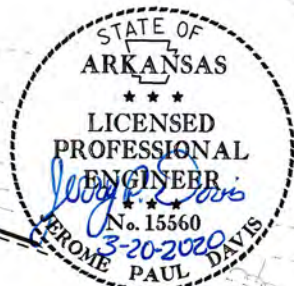
DATE OF REVISION	REVISION

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

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

USER: jh595
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472	14	110	
2 TEMPORARY EROSION CONTROL DETAILS								



DATE OF REVISION	REVISION

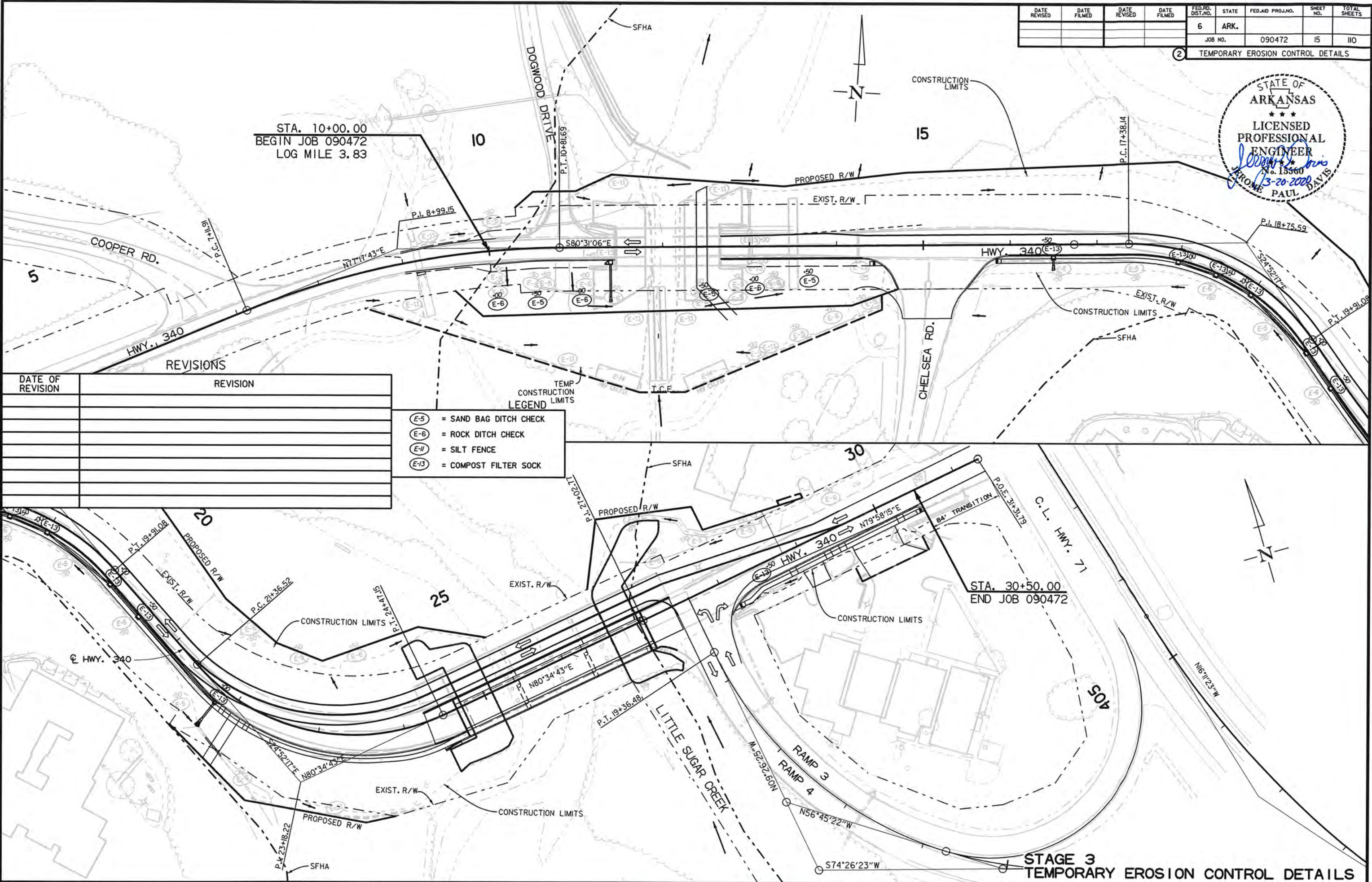
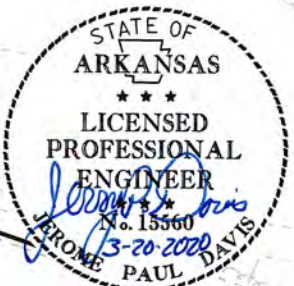
- LEGEND
- (E-5) = SAND BAG DITCH CHECK
 - (E-6) = ROCK DITCH CHECK
 - (E-11) = SILT FENCE
 - (E-13) = COMPOST FILTER SOCK

USER: jhs95
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STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		15	110
				JOB NO.	090472		15	110

2 TEMPORARY EROSION CONTROL DETAILS

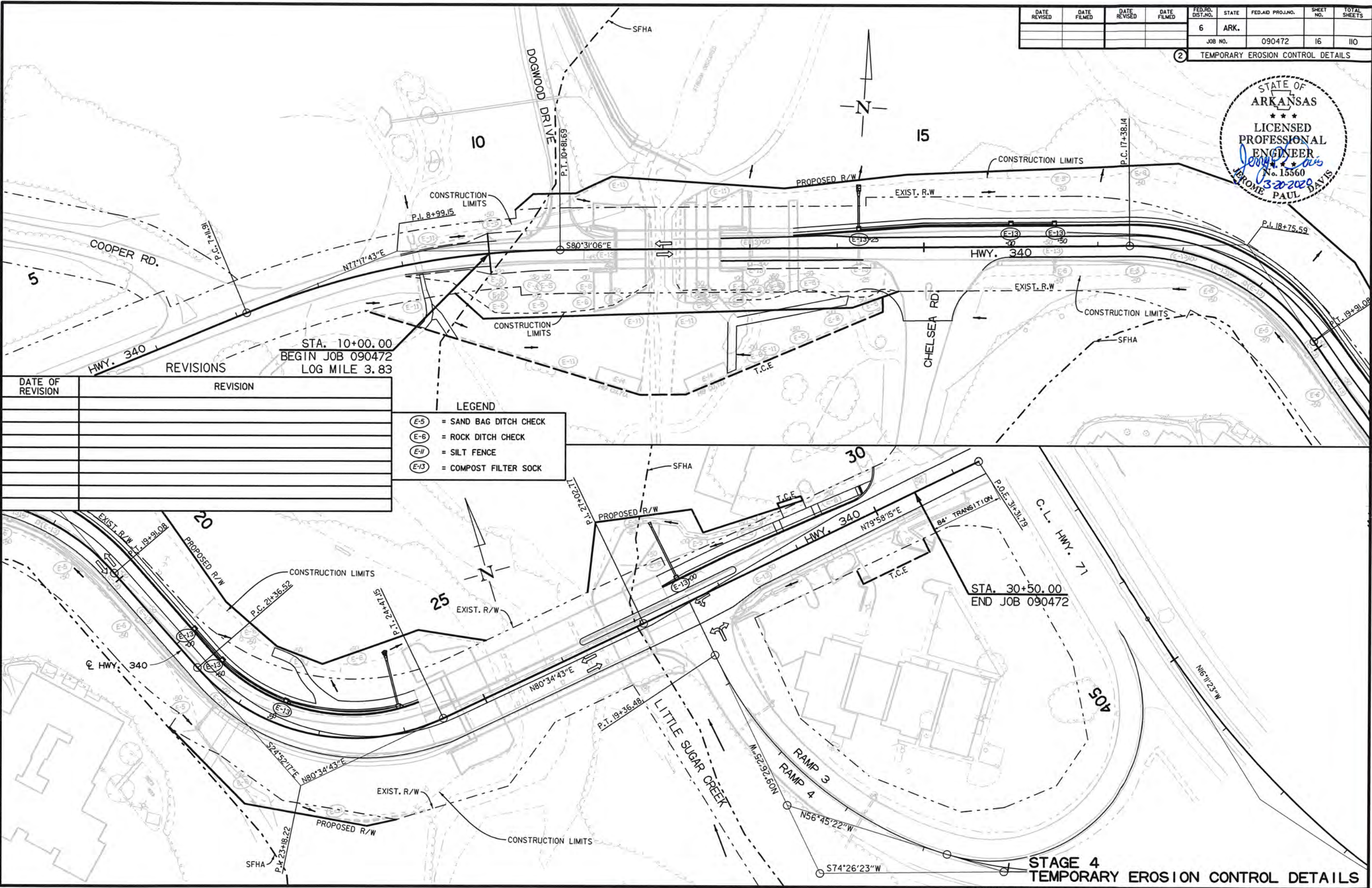


DATE OF REVISION	REVISION

- LEGEND
- (E-5) = SAND BAG DITCH CHECK
 - (E-6) = ROCK DITCH CHECK
 - (E-11) = SILT FENCE
 - (E-13) = COMPOST FILTER SOCK

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		16	110

2 TEMPORARY EROSION CONTROL DETAILS



DATE OF REVISION	REVISION

- LEGEND
- E-5 = SAND BAG DITCH CHECK
 - E-6 = ROCK DITCH CHECK
 - E-11 = SILT FENCE
 - E-13 = COMPOST FILTER SOCK

STAGE 4
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	17	110
				MAINTENANCE OF TRAFFIC DETAILS				



DO
NOT
PASS

(4) R4-1
(24" X 30")
ALL STAGES



(4) W8-9a
(36" X 36")
ALL STAGES



(5) W21-5a
(36" X 36")
ALL STAGES



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

R4-1, W8-9a, & W21-5a TO BE USED
IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 1:

- 1) INSTALL ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) CONSTRUCT PAVEMENT WIDENING WEST OF EXISTING BRIDGE OVER LITTLE SUGAR CREEK ON RIGHT SIDE.
- 4) CONSTRUCT DETOUR AT TANYARD CREEK.

STAGE 2:

- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO RIGHT SIDE OF BRIDGE & ON DETOUR AT TANYARD CREEK.
- 4) CONSTRUCT 1/2 BRIDGE ON LEFT SIDE OF EXISTING OVER LITTLE SUGAR CREEK AND WIDEN PAVEMENT ON LEFT SIDE. CONSTRUCT PAVEMENT WIDENING STA. 16+37 LT. TO STA. 24+74 LT. & STA. 27+18 LT. TO STA. 28+87 LT.
- 5) CONSTRUCT NEW BRIDGE AT TANYARD CREEK AND TRAIL CROSSING EAST OF TANYARD CREEK.
- 6) CONSTRUCT PAVEMENT FOR BRIDGE AT TANYARD CREEK.

STAGE 3A:

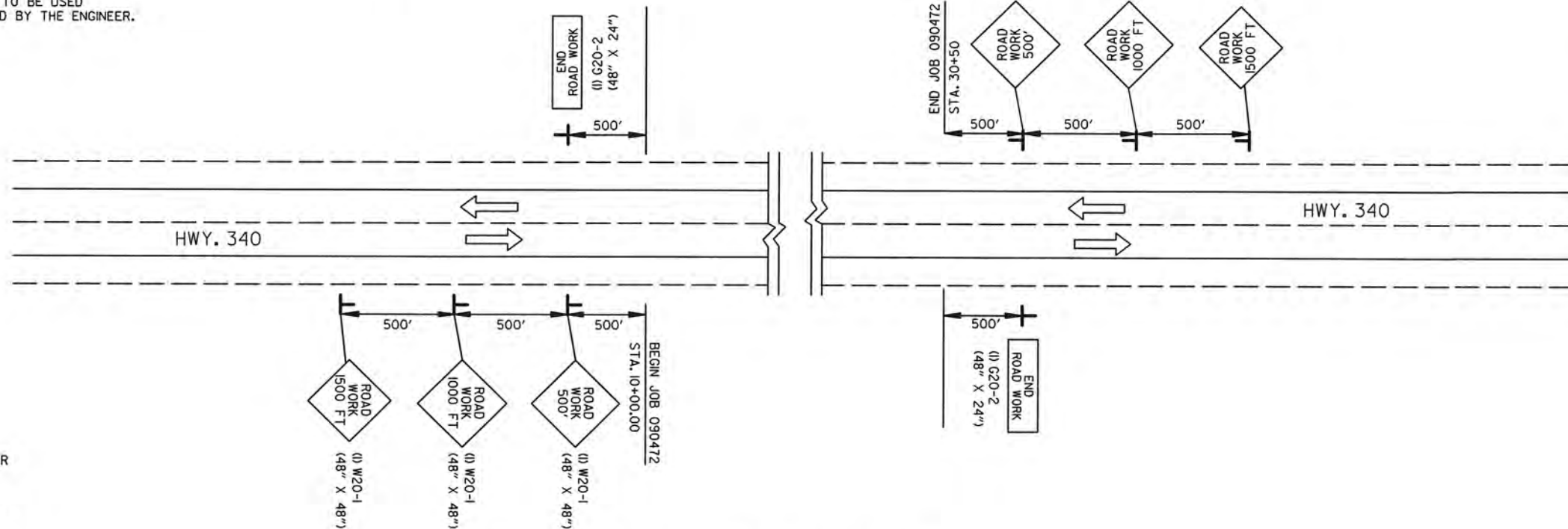
- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT WESTBOUND TRAFFIC TO LEFT SIDE OF NEW BRIDGE OVER LITTLE SUGAR CREEK.
- 4) MAINTAIN EASTBOUND TRAFFIC ON RIGHT SIDE OF EXIST. BRIDGE.
- 5) REMOVE EXIST. BRIDGE DECK STA. 27+03 TO STA. 27.63 & CONSTRUCT APPROACH PAVEMENT IN SAME LOCATION.

STAGE 3:

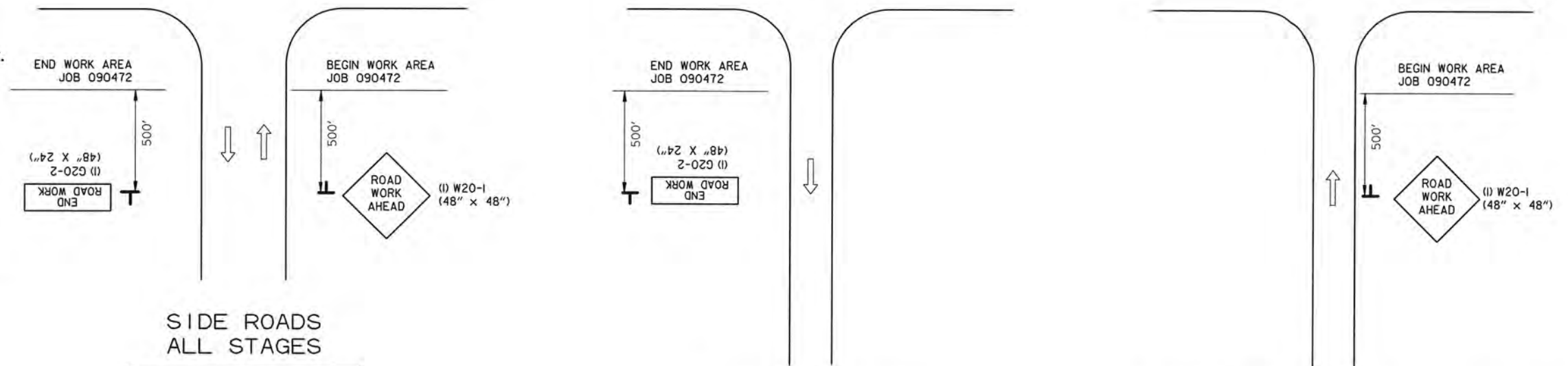
- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO LEFT SIDE OF BRIDGE & OFF OF DETOUR AT TANYARD CREEK.
- 4) CONSTRUCT 1#2 BRIDGE ON RIGHT SIDE OF EXISTING OVER SUGAR CREEK.
- 5) CONSTRUCT CURB AND GUTTER AND DRAINAGE ON RIGHT SIDE OF HWY. 340.
- 6) OBLITERATE DETOUR AND TEMPORARY CULVERTS AT TANYARD CREEK.

STAGE 4:

- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO RIGHT SIDE OF ROADWAY.
- 4) CONSTRUCT CURB AND GUTTER AND DRAINAGE ON LEFT SIDE OF HWY. 340.
- 5) INSTALL FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKINGS.



ADVANCE SIGNS AT BEGINNING
AND END OF JOB



SIDE ROADS
ALL STAGES

TOTAL NEEDED = 3 SITES
7+11 LT.
10+82 LT.
15+07 RT.

ADVANCE SIGNS AT
ENTRANCE RAMPS

ADVANCE SIGNS AT EXIT RAMPS

MAINTENANCE OF TRAFFIC
ADVANCE SIGNS AT JOB ENDS

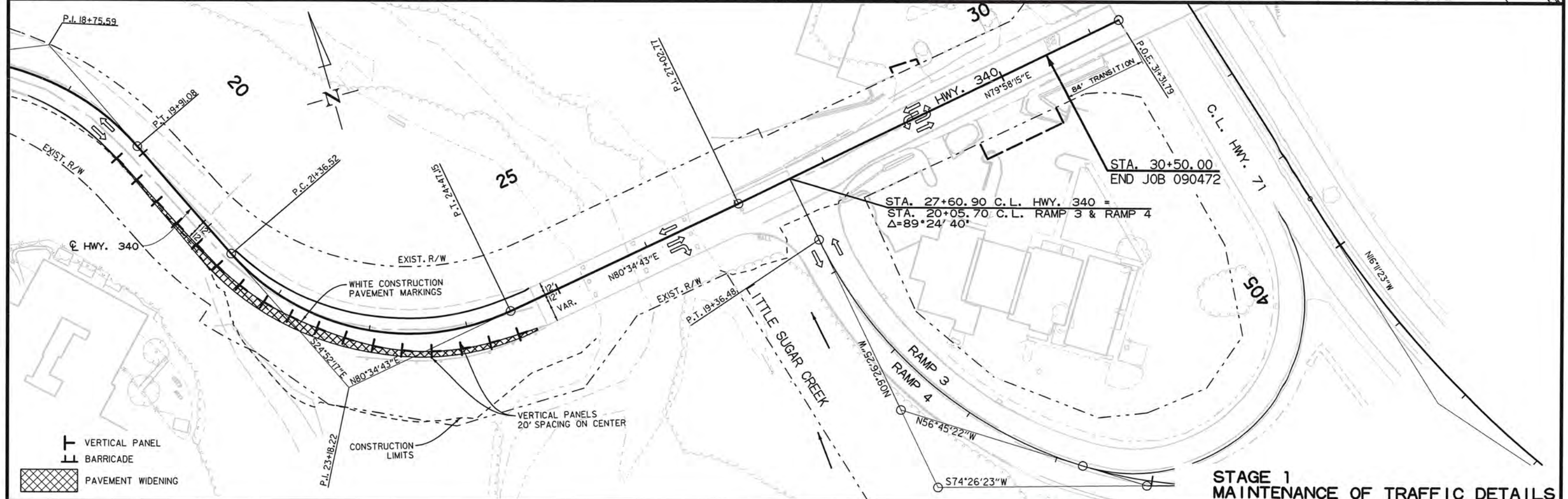
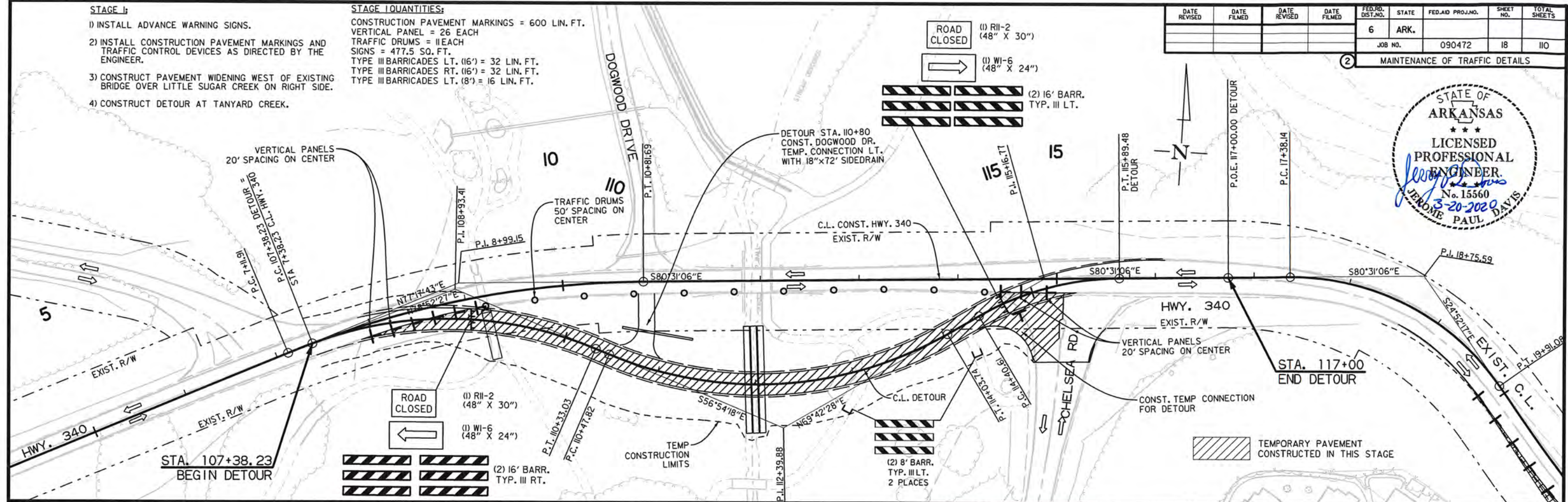
- 1) INSTALL ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) CONSTRUCT PAVEMENT WIDENING WEST OF EXISTING BRIDGE OVER LITTLE SUGAR CREEK ON RIGHT SIDE.
- 4) CONSTRUCT DETOUR AT TANYARD CREEK.

CONSTRUCTION PAVEMENT MARKINGS = 600 LIN. FT.
VERTICAL PANEL = 26 EACH
TRAFFIC DRUMS = 11 EACH
SIGNS = 477.5 SQ. FT.
TYPE III BARRICADES LT. (16') = 32 LIN. FT.
TYPE III BARRICADES RT. (16') = 32 LIN. FT.
TYPE III BARRICADES LT. (8') = 16 LIN. FT.

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				JOB NO.		090472	18	110

STATE OF
ARKANSAS

LICENSED
PROFESSIONAL
ENGINEER
No. 15560
3-20-2020
JEROME PAUL DAVIS



STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

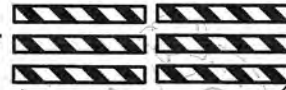
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STAGE 2:

- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO RIGHT SIDE OF BRIDGE & ON DETOUR AT TANYARD CREEK.
- 4) CONSTRUCT 1/2 BRIDGE ON LEFT SIDE OF EXISTING OVER LITTLE SUGAR CREEK AND WIDEN PAVEMENT ON LEFT SIDE. CONSTRUCT TEMP. PAVEMENT STA. 16+37 LT. TO STA. 24+74 LT. & STA. 27+48 LT. TO STA. 28+87 LT.
- 5) CONSTRUCT NEW BRIDGE AT TANYARD CREEK AND TRAIL CROSSING CULVERT EAST OF TANYARD CREEK.

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

10

DOGWOOD DRIVE

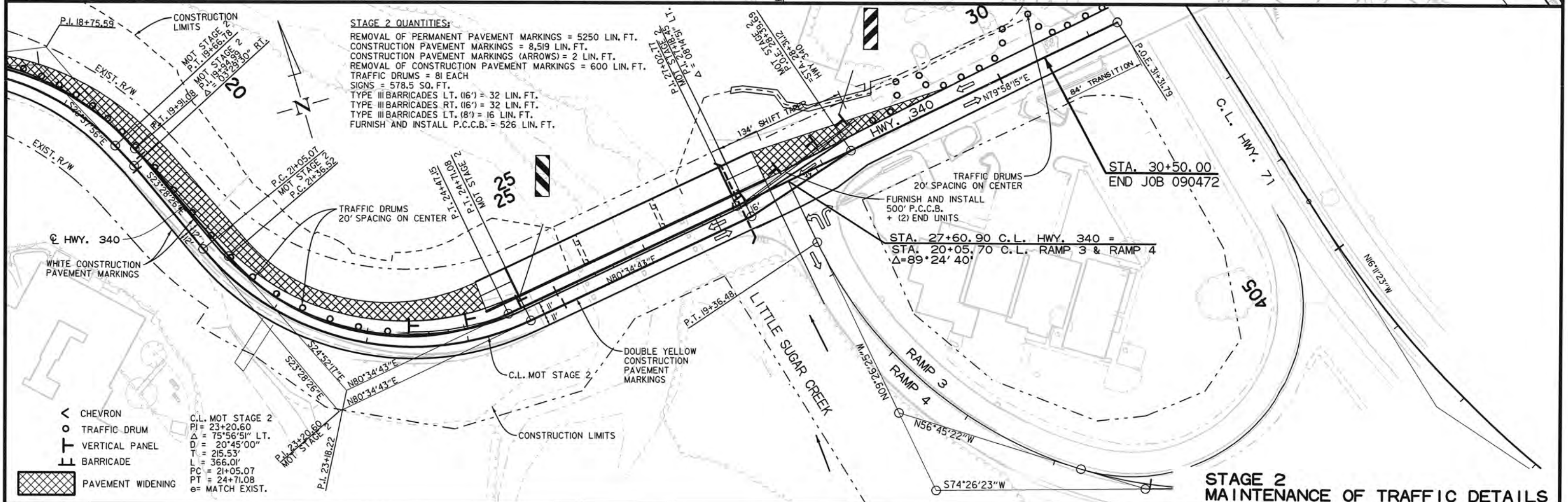
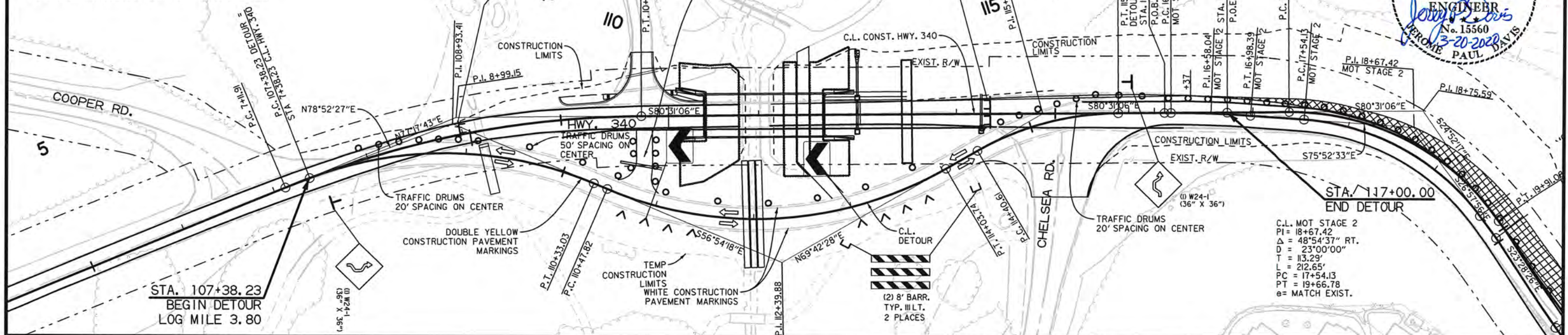
110

MAINTAIN
DOGWOOD DR.
TEMP. CONNECTIONROAD
CLOSED(1) RII-2
(48" X 30")(2) 16' BARR.
TYP. III RT.

15

C.L. MOT STAGE 2
PI = 16+58.04
Δ = 04°38'33" RT.
D = 5'45'00"
T = 40.39'
L = 80.74'
PC = 16+17.65
PT = 16+98.39
e = MATCH EXIST.

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 MAINTENANCE OF TRAFFIC DETAILS								



STAGE 2 QUANTITIES:

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 5250 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 8,519 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 2 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 600 LIN. FT.
TRAFFIC DRUMS = 81 EACH
SIGNS = 578.5 SQ. FT.
TYPE III BARRICADES LT. (16') = 32 LIN. FT.
TYPE III BARRICADES RT. (16') = 32 LIN. FT.
TYPE III BARRICADES LT. (8') = 16 LIN. FT.
FURNISH AND INSTALL P.C.C.B. = 526 LIN. FT.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

STAGE 3A:

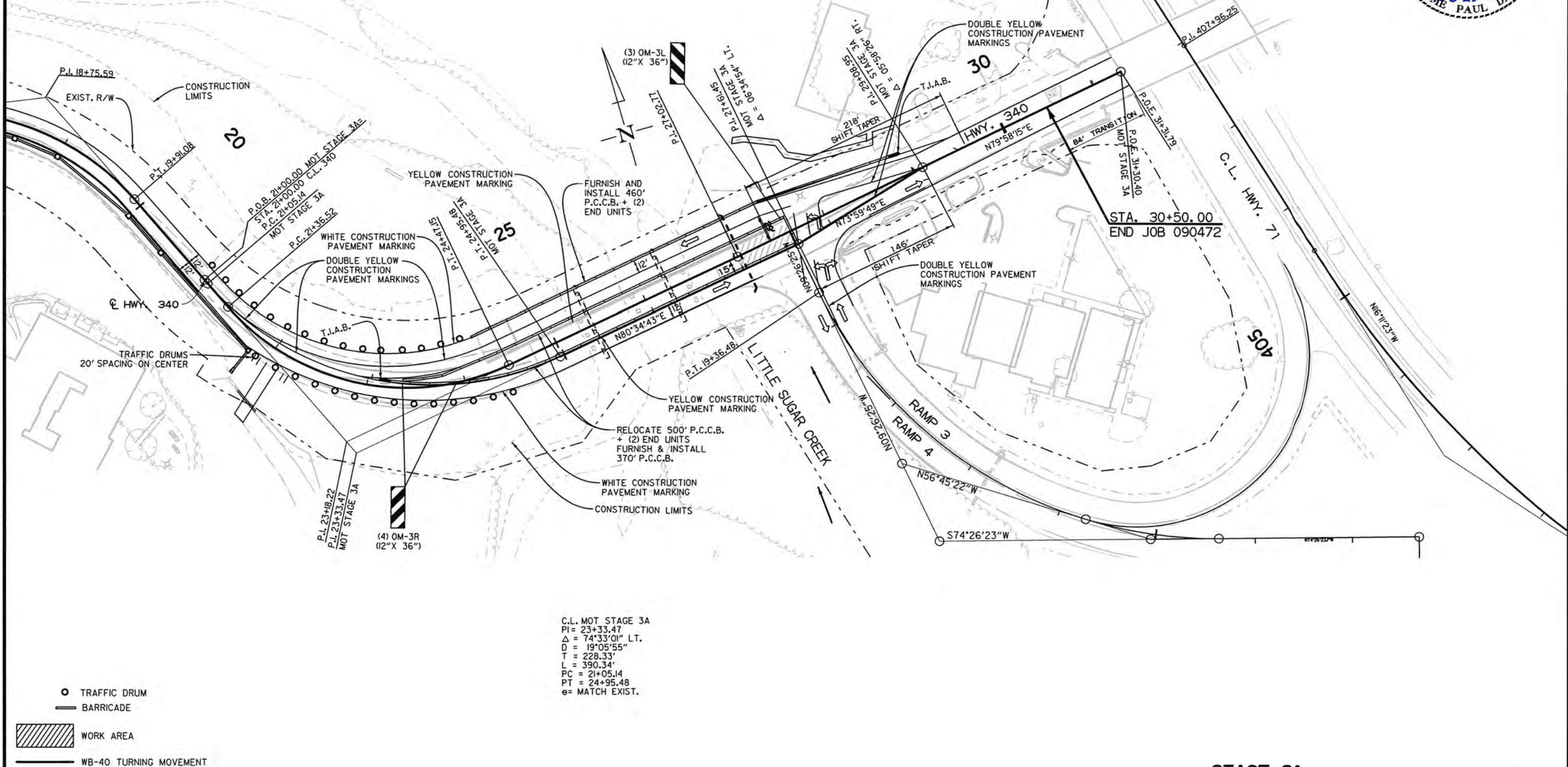
- 1) MAINTAIN ADVANCE WARNING SIGNS AND INSTALL "NO TRUCKS" SIGNING FOR THIS STAGE.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT WESTBOUND TRAFFIC TO LEFT SIDE OF NEW BRIDGE OVER LITTLE SUGAR CREEK.
- 4) MAINTAIN EASTBOUND TRAFFIC ON RIGHT SIDE OF EXIST. BRIDGE.
- 5) REMOVE EXIST. BRIDGE DECK STA. 27+03 TO STA. 27.63 & CONSTRUCT APPROACH PAVEMENT IN SAME LOCATION.

STAGE 3A QUANTITIES:

CONSTRUCTION PAVEMENT MARKINGS = 3,874 LIN. FT.
REMOVAL CONSTRUCTION PAVEMENT MARKINGS = 790 LIN. FT.
SIGNS = 481.8 SQ. FT.
TRAFFIC DRUMS = 29 EACH
FURNISH AND INSTALL P.C.C.B. = 856 LIN. FT.
RELOCATE P.C.C.B. = 526 LIN. FT.

WEST (1) M3-1
(24" X 12")340 (1) M1-5 (MODIFIED)
(24" X 24")NO
TRUCKS (1) R5-2a
(30" X 30")

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	20	110
				2 MAINTENANCE OF TRAFFIC DETAILS				

STAGE 3A
MAINTENANCE OF TRAFFIC DETAILS

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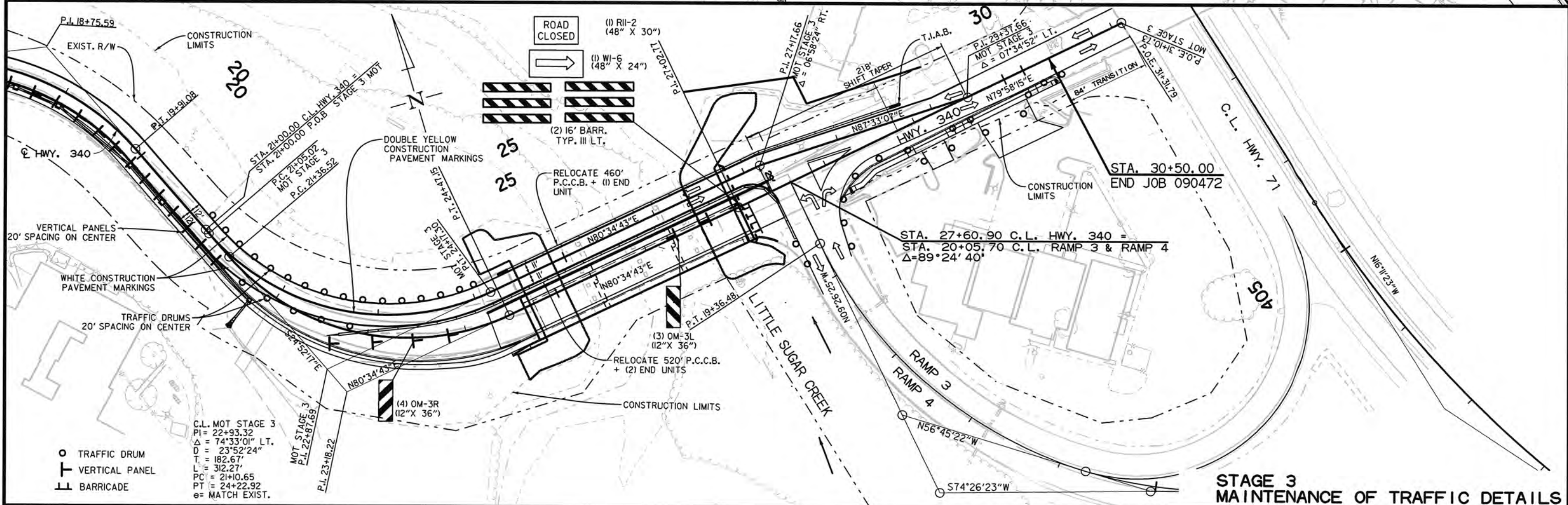
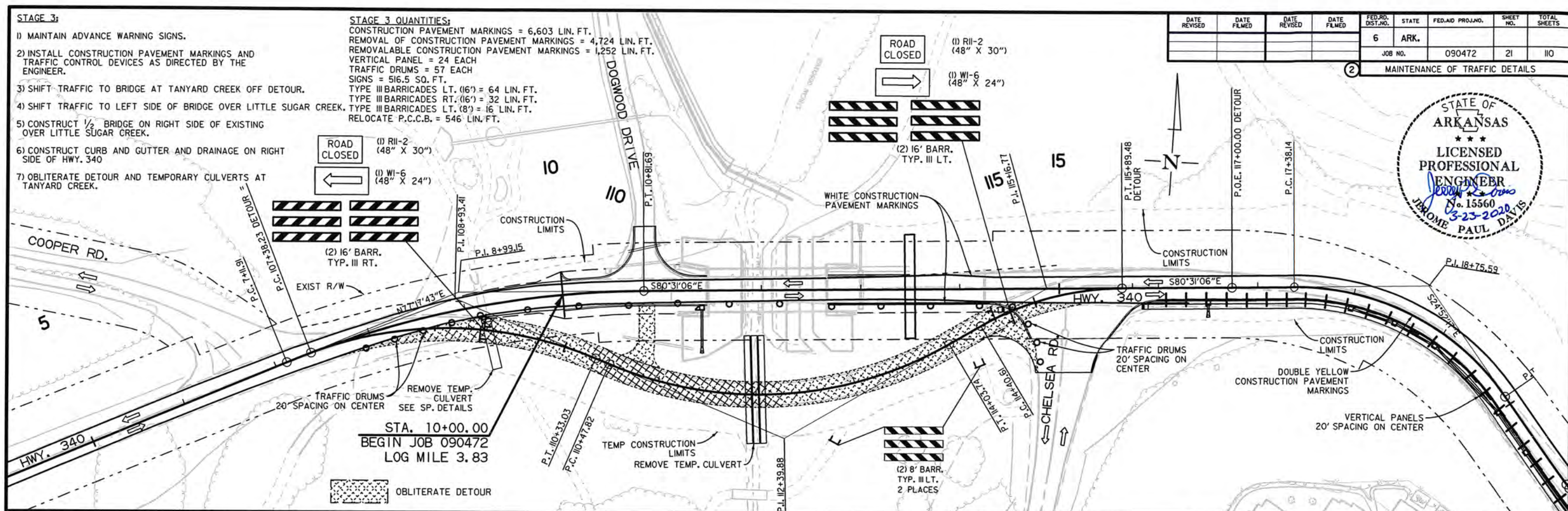
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STAGE 3:

- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO BRIDGE AT TANYARD CREEK OFF DETOUR.
- 4) SHIFT TRAFFIC TO LEFT SIDE OF BRIDGE OVER LITTLE SUGAR CREEK.
- 5) CONSTRUCT 1/2 BRIDGE ON RIGHT SIDE OF EXISTING OVER LITTLE SUGAR CREEK.
- 6) CONSTRUCT CURB AND GUTTER AND DRAINAGE ON RIGHT SIDE OF HWY. 340
- 7) OBLITERATE DETOUR AND TEMPORARY CULVERTS AT TANYARD CREEK.

STAGE 3 QUANTITIES:

CONSTRUCTION PAVEMENT MARKINGS = 6,603 LIN. FT.
 REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 4,724 LIN. FT.
 REMOVALABLE CONSTRUCTION PAVEMENT MARKINGS = 1,252 LIN. FT.
 VERTICAL PANEL = 24 EACH
 TRAFFIC DRUMS = 57 EACH
 SIGNS = 516.5 SQ. FT.
 TYPE III BARRICADES LT. (16') = 64 LIN. FT.
 TYPE III BARRICADES RT. (16') = 32 LIN. FT.
 TYPE III BARRICADES LT. (8') = 16 LIN. FT.
 RELOCATE P.C.C.B. = 546 LIN. FT.

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

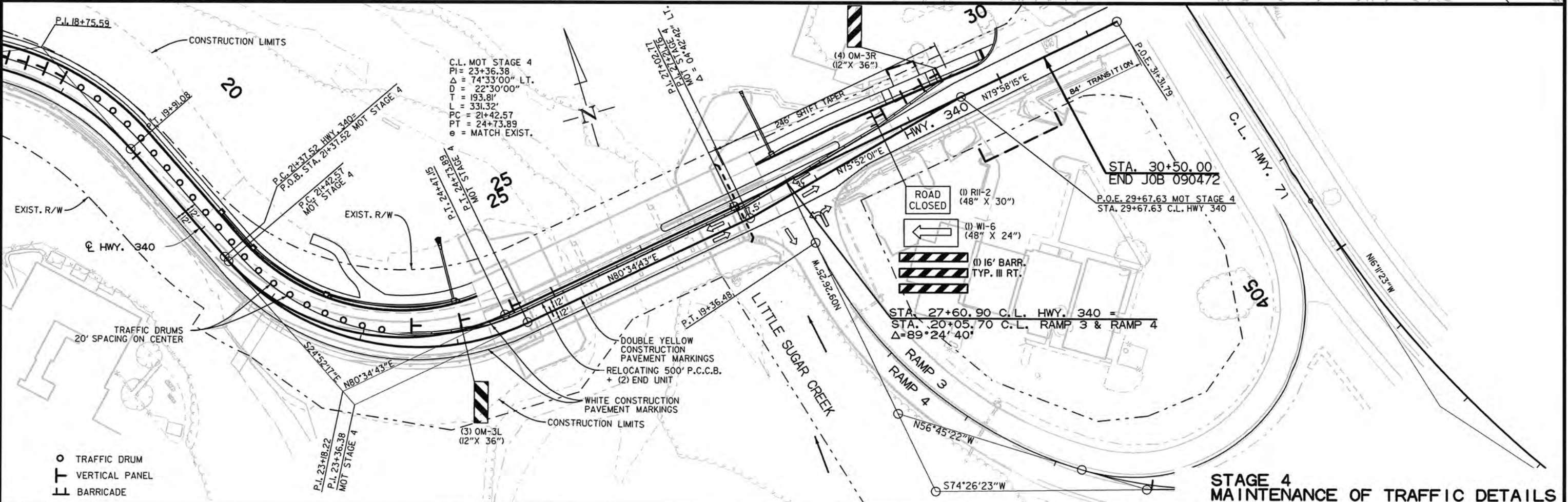
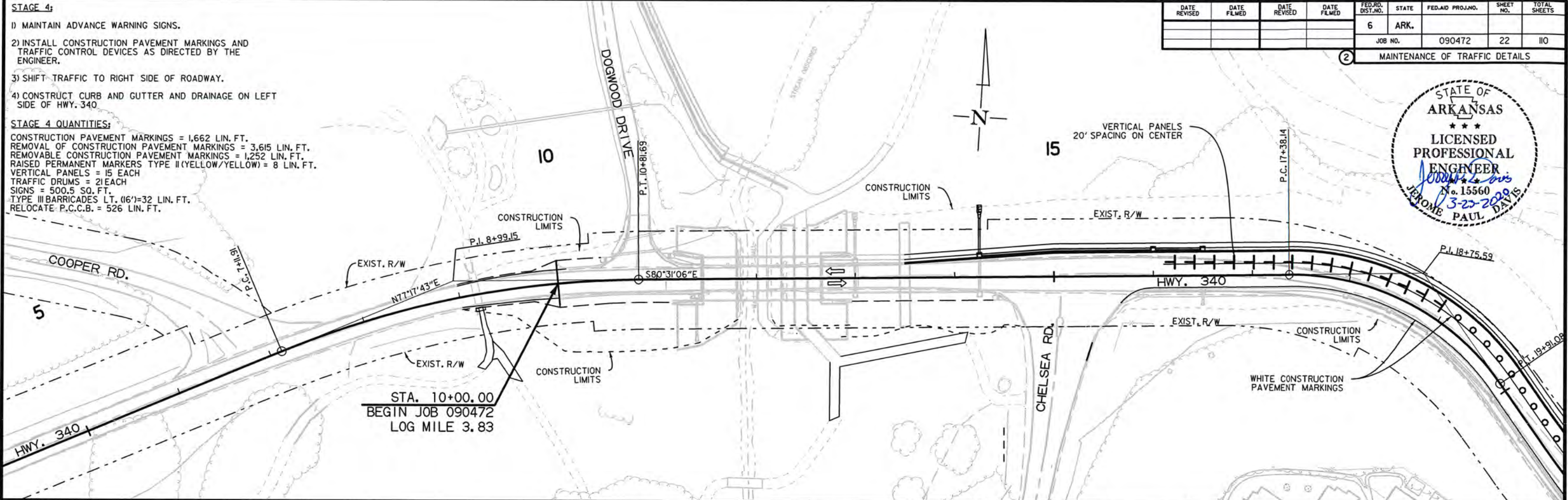
STAGE 4:

- 1) MAINTAIN ADVANCE WARNING SIGNS.
- 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- 3) SHIFT TRAFFIC TO RIGHT SIDE OF ROADWAY.
- 4) CONSTRUCT CURB AND GUTTER AND DRAINAGE ON LEFT SIDE OF HWY. 340.

STAGE 4 QUANTITIES:

CONSTRUCTION PAVEMENT MARKINGS = 1,662 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 3,615 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 1,252 LIN. FT.
RAISED PERMANENT MARKERS TYPE II (YELLOW/YELLOW) = 8 LIN. FT.
VERTICAL PANELS = 15 EACH
TRAFFIC DRUMS = 21 EACH
SIGNS = 500.5 SQ. FT.
TYPE III BARRICADES LT. (16') = 32 LIN. FT.
RELOCATE P.C.C.B. = 526 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	110
				JOB NO.	090472			
				MAINTENANCE OF TRAFFIC DETAILS				



STAGE 4
MAINTENANCE OF TRAFFIC DETAILS

THERMOPLASTIC PAVEMENT MARKING DOTTED WHITE (6")
STA. 21+37 - 24+47 RT. TURN LANE = 82 LIN. FT.
STA. 27+03 - 27+61 RT. TURN LANE = 18 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (6")
STA. 15+29 - 16+49 LT. TURN LANE = 120 LIN. FT.
STA. 18+09 - 19+63 RAMP 3 = 150 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE SKIP (6")
STA. 19+91 - 24+47 LML = 114 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW SKIP LINE (6") CENTER LANE
STA. 29+40 - 31+32 TURN LANE = 96 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") CENTER LANE
STA. 10+00 - 14+75 = 950 LIN. FT.
STA. 15+29 - 19+91 = 930 LIN. FT.
STA. 19+91 - 26+33 = 1281 LIN. FT.
STA. 26+33 - 27+03 = 140 LIN. FT.
STA. 27+60 - 31+32 = 985 LIN. FT.

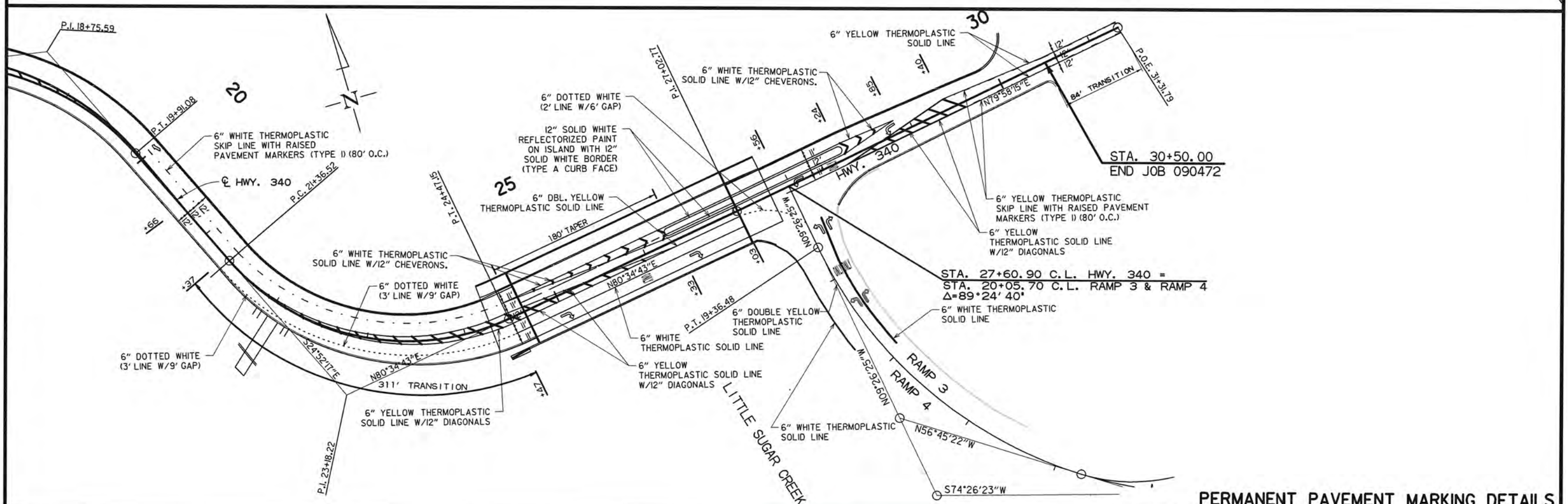
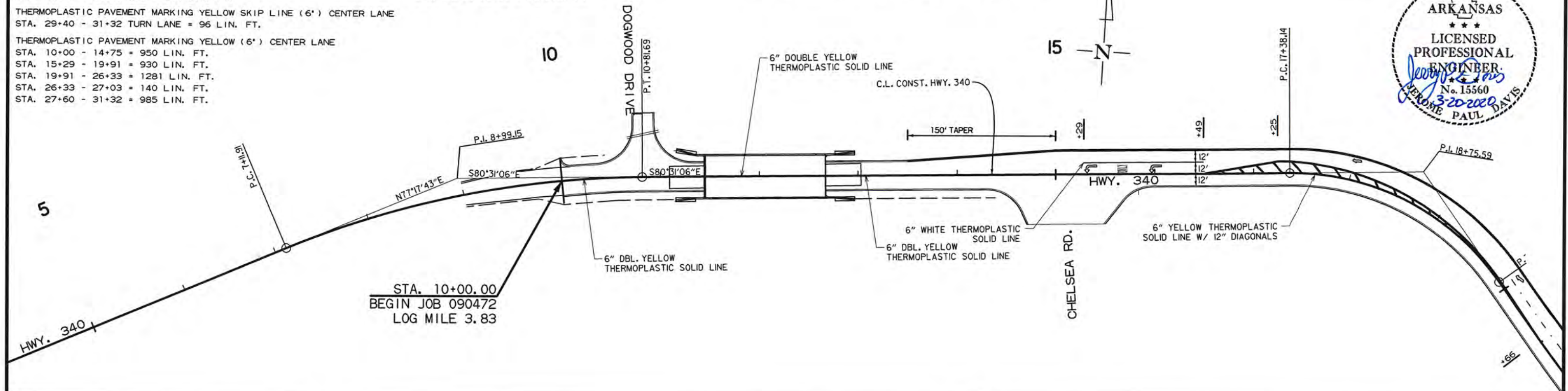
THERMOPLASTIC PAVEMENT MARKING WHITE (12")
STA. 24+38 - 28+85 TURN LANE = 886 LIN. FT.
STA. 24+47 - 26+27 = 97 LIN. FT.
STA. 28+24 - 28+85 = 36 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (12")
STA. 16+49 - 19+91 = 134 LIN. FT.
STA. 21+36 - 26+33 = 216 LIN. FT.
STA. 28+24-29+40 = 88 LIN. FT.

RAISED PAVEMENT MARKERS (TYPE 1) (80' O.C.)
STA. 16+11 - 17+25 LML = 2 EACH
STA. 19+91 - 24+47 LML = 6 EACH

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10") = 382 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (ARROW) = 12 EACH
THERMOPLASTIC PAVEMENT MARKING (WORDS) = 5 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		23	110

2 PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

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2	QUANTITIES
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ADVANCE WARNING SIGNS AND DEVICES

ADVANCE WARNING SIGNS AND DEVICES																		
SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3A	STAGE 3	STAGE 4	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
									RIGHT	LEFT			NO.	SQ. FT.				
			W20-1	ROAD WORK 1500 FT.	48"x48"	2	2		2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	2	32.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	2	32.0								
W20-1	ROAD WORK AHEAD	48"x48"	7	7	7	7	7	7	7	112.0								
G20-2	END ROAD WORK	48"x24"	7	7	7	7	7	7	7	56.0								
R11-2	ROAD CLOSED	48"x30"	2	2		3	1	3	3	30.0								
OM-3L	OBJECT MARKER	12"x36"		3	3	3	3	3	3	9.0								
OM-3R	OBJECT MARKER	12"x36"		4	4	4	4	4	4	12.0								
W1-6	LARGE ARROW	48"x24"	2	2		3	1	3	3	24.0								
W1-8	CHEVRONS	18"x24"		16				16	16	48.0								
R4-1	DO NOT PASS	24"x30"	4	4	4	4	4	4	4	20.0								
W21-5A	RIGHT SHOULDER CLOSED	36"x36"	5	5	5	5	5	5	5	45.0								
M3-1	WEST	24"x12			1			1	1	4.0								
M1-5	STATE HWY 340 (MODIFIED)	24"x24"			1			1	1	9.0								
R5-2a	NO TRUCKS	30"x30"			1			1	1	6.3								
W8-9a	SHOULDER DROP-OFF	36"x36"	4	4	4	4	4	4	4	36.0								
W8-1	BUMP	30"x30"	2	2	2	2	2	2	2	12.5								
W24-1R	DOUBLE REVERSE CURVE RT.	48"x48"		1				1	1	16.0								
W24-1L	DOUBLE REVERSE CURVE LT.	48"x48"		1				1	1	16.0								
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	96"x48"	2	2	2	2	2	2	2	64.0								
	TEMPORARY IMPACT ATTENUATION BARRIER				1			1									1	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)				1			1										1
	VERTICAL PANELS		26			24	15	26			26							
	TRAFFIC DRUMS		11	81	29	55	21	81				81						
	TYPE III BARRICADE-LT. (8')		2	2		2		2						16				
	TYPE III BARRICADE-RT. (16')		2	2		2		2					32					
	TYPE III BARRICADE-LT. (16')		2	2		4	1	4						64				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			526	856			1382							1382			
	RELOCATING PRECAST CONCRETE BARRIER				526	546	526	1598								1598		
TOTALS:										615.8	26	81	32	80	1382	1598	1	1

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

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

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.	090472	25
								110

② QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	RETAINING WALLS	WALKS	SIGN FOUNDATIONS	GUARDRAIL	SIGNS	PLANTERS
			LIN. FT.	LIN. FT.	SQ. YD.	EACH	LIN. FT.	EACH	EACH
9+14	9+21	HWY. 340 RT.			58				
11+34	12+63	HWY. 340 - LT.					129		
11+31	12+64	HWY. 340 - RT.					133		
12+01		HWY. 340 - LT. & RT.		108					
12+02	12+10	HWY. 340 -LT. & RT.			100				
12+11		HWY. 340 - RT.		26					
12+68	12+97	HWY. 340 - RT.							1
22+08		HWY. 340 - RT.				1		1	
22+92	23+77	HWY. 340 - RT.					85		
26+87	27+51	HWY. 340 - RT.							
27+03	27+25	HWY. 340 - RT.		31					
27+62	28+37	HWY. 340 - LT.					75		
27+80		HWY. 340 - LT.				1		1	
27+93	28+51	HWY. 340 - RT.	58						
28+65	28+72	HWY. 340 - LT. PARKING LOT	10						
28+76	29+00	HWY. 340 - LT. PARKING LOT	25						
29+19	29+57	HWY. 340 - RT. PARKING LOT	70						
29+67		HWY. 340 - LT.				1		1	
30+07	30+11	HWY. 340 - RT. PARKING LOT	18						
30+29	30+97	HWY. 340 - RT.					68		
TOTALS:			181	165	158	3	490	3	1

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 FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
15+60	15+99	HWY. 340 - RT.	61	
21+77		HWY. 340 - RT.		1
TOTALS:			61	1

REMOVAL OF CONCRETE DITCH PAVING

STATION	STATION	LOCATION	MEASURED LN. FT.	AREA
				SQ. YD.
28+00	28+85	HWY. 340 - LT.	85	38
27+52	27+84	HWY. 340 - RT.	32	14
TOTAL				52

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
10+00	11+65	HWY. 340	2	2
15+20	25+64	HWY. 340	11	11
26+59	29+00	HWY. 340	3	3
TOTALS:			16	16



CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3A	STAGE 3	STAGE 4	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING						REFLECTORIZED PAINT PAVEMENT MARKING
									ARROWS			TYPE II (YELLOW/YELLOW)	6"		12"		WORDS	ARROWS	12" WHITE
													WHITE	YELLOW	WHITE	YELLOW			
LIN. FT. - EACH							LIN. FT.		EACH	LIN. FT.		EACH	LIN. FT.				LIN. FT.		
REMOVAL OF PERMANENT PAVEMENT MARKINGS		5250					5250						LIN. FT.				EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	600	8519	3874	6603	1662			21258											
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		2							2										
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		600	790	4724	3615					9729									
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS				1252	1252						2504								
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)					8							8							
THERMOPLASTIC PAVEMENT MARKING WHITE (6")						4734							4734						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")						2367								2367					
THERMOPLASTIC PAVEMENT MARKING YELLOW (12")																438			
THERMOPLASTIC PAVEMENT MARKING WHITE (12")															966				
THERMOPLASTIC PAVEMENT MARKING (WORDS)						5											5		
THERMOPLASTIC PAVEMENT MARKING (ARROWS)						12												12	
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")						382												382	
TOTALS:							5250	21258	2	9729	2504	8	4734	2367	966	438	5	12	382
NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.																			

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.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	26	110

2 QUANTITIES



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.
27+47.00	28+81.00	HWY. 340 LT.	165.00	6.00	110.00	73	0.92
TOTALS:					110.00	73	0.92

BASIS OF ESTIMATE:

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	FILTER SOCK 12"	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN. FT.	(E-13) LIN. FT.	(E-14) CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING							1.40	1.40	28.6	154	36	1660				87
ENTIRE	PROJECT	STAGE 1							0.75	0.75	15.3	88	18			298	298	308
ENTIRE	PROJECT	STAGE 2				0.4		32	0.09	0.09	1.8	66			36			3
ENTIRE	PROJECT	STAGE 3	0.72	1.44	0.72	77.3	0.72	310	0.47	0.47	9.6				81			1
ENTIRE	PROJECT	STAGE 4	1.34	2.68	1.34	144.6	1.34	630				66	9		63			6
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.50	3.00	1.50	156.9	1.50	310	1.00	1.00	20.4	94	16	415	45	74	74	89
TOTALS:			3.56	7.12	3.56	379.2	3.56	1282	3.71	3.71	75.7	468	79	2075	225	372	372	494

BASIS OF ESTIMATE:

LIME2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION
FILTER SOCK (12").....9 LIN. FT./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.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
9+00.00	10+00.00	MAIN LANES	22.00	244.44
30+50.00	31+50.00	MAIN LANES	36.00	400.00
TOTAL:				644.44

NOTE: AVERAGE MILLING DEPTH 1".

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
11+40	TOP DROP INLET ON RT.	1
27+60	TOP OF DROP INLET ON LT.	1
TOTAL:		2

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	60
TOTAL:	60

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

ASPHALT CONCRETE PATCHING FOR
MAINTENANCE OF TRAFFIC

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

BASIS OF ESTIMATE:

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

EARTHWORK					
STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	121	11016	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	69	21667	
ENTIRE	PROJECT	STAGE 3-MAIN LANES	9903	1877	
ENTIRE	PROJECT	STAGE 4-MAIN LANES	46	5269	
ENTIRE	PROJECT	APPROACHES		250	
ENTIRE	PROJECT	TEMPORARY APPROACHES		50	
24+64	27+04	BRIDGE EMBANKMENT		643	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			50
TOTALS:			10139	40772	50

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

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
27+91	HWY. 340 - LT.	1-2	29	8	A-2-6	BROWN
27+91	HWY. 340 - LT.	4.5-5.5	65	43	A-7-6	REDDISH BROWN
26+48	HWY. 340 - RT.	0.5-1.5	38	9	A-2-4	BROWN
26+48	HWY. 340 - RT.	4.5-5.5	-	-	A-1-a	BROWN
25+20	HWY. 340 - LT.	0.5-1.5	32	12	A-2-6	DARK BROWN
25+20	HWY. 340 - LT.	9-10	-	-	A-4	DARK BROWN
24+55	HWY. 340 - LT.	0.5-1.5	33	12	A-2-6	DARK BROWN
24+55	HWY. 340 - LT.	9-10	30	8	A-2-4	DARK BROWN
22+30	HWY. 340 - RT.	0.5-1.5	NP	NP	A-1-b	BROWN
14+34	HWY. 340 - RT.	0.5-1.5	NP	NP	A-1-a	DARK BROWN
14+34	HWY. 340 - RT.	4.5-5.5	36	19	A-6	REDDISH BROWN

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-28-2020				6	ARK.			
						JOB NO.	090472	27
								110
QUANTITIES								

WHEELCHAIR RAMPS		
STATION	LOCATION	TYPE 3
		SQ.YD.
10+50	HWY. 340 - LT.	6.0
11+18	HWY. 340 - LT.	6.0
14+45	HWY. 340 - RT.	6.0
15+85	HWY. 340 - RT.	4.0
28+11	HWY. 340 - RT.	6.0
29+96	HWY. 340 - LT.	15.0
30+48	HWY. 340 - RT.	4.0
TOTAL:		47.0



STATION	DESCRIPTION	PIPE CULVERTS
		EACH
9+18	BEVELED END 88" X 105' ELLIPTICAL PIPE RT.	1
9+18	END 88" X 105' ELLIPTICAL R.C PIPE RT.	1
10+82	24" X 49' R.C. PIPE CULVERT LT.	1
28+27	18" X 24' PIPE CULVERT INLET	1
TOTAL:		4

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

STATION	STATION	LOCATION	APPROACH GUTTER		APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)		AGGREGATE BASE CRS. (CLASS 7)	
			FAP NHPP-0004(807)	FAP 9030	FAP NHPP-0004(807)	FAP NHPP-0004(807)	FAP 9030	FAP NHPP-0004(807)	FAP 9030
			CU.YD.		CU.YD.	POUND		TON	
11+09.00	11+45.50	APPROACH SLAB (TYPE 1 SPECIAL)			61.33	12022		56.78	
12+66.50	13+03.00	APPROACH SLAB (TYPE 2 SPECIAL)			61.28	11974		56.78	
24+27.19	24+63.69	APPROACH SLAB (TYPE 3 SPECIAL)			116.70	16126		90.28	
24+27.19	24+63.69	APPROACH GUTTER ON LT.(TYPE 1 SPECIAL)	13.60	13.60		1427	1428	14.36	14.36
27+03.84	27+40.34	APPROACH SLAB (TYPE 4 SPECIAL)			116.30	15135		93.96	
27+03.84	27+40.34	APPROACH GUTTER ON LT.(TYPE 2 SPECIAL)	14.25	14.25		1988	1989	15.34	15.34
TOTALS:			27.85	27.85	355.61	58672	3417	327.50	29.70

NOTE: USE T=14.5" FOR 8' SHOULDER.

SELECTED PIPE BEDDING	
LOCATION	SELECTED PIPE BEDDING
	CU.YD.
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
13+00	OUTLET OF PIPE CULVERT HWY 340 LT.	2	3
14+25	OUTLET OF PIPE CULVERT HWY 340 LT.	2	3
24+00	OUTLET OF PIPE CULVERT HWY 340 LT.	2	3
21+80	OUTLET OF PIPE CULVERT HWY 340 RT.	2	3
*	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10	13
TOTALS:		18	25

*QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

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

STATION	STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
				SQ.YD.
27+03.84	28+26.00	HWY. 340	C	108
TOTAL:				108

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS		HAND RAILING
				FAP NHPP-0004(807)	FAP 0930	FAP 9030
			LIN. FT.	SQ.YD.	SQ.YD.	LIN. FT.
11+17	11+46	HWY. 340 - LT.	29	15		
12+66	22+89	HWY. 340 - LT.	1023	568		
22+00	24+27	HWY. 340 - LT.	227	66	191	
27+40	28+87	HWY. 340 - LT.	147	87	87	
29+43	29+90	HWY. 340 - LT.	43	26	26	
22+74	24+24	HWY. 340 - LT.				121
27+50	28+99	HWY. 340 - LT.				146
29+42	29+90	HWY. 340 - LT.				47
9+04	9+45	HWY. 340 - RT.	96		85	
12+39	14+12	HWY. 340 - RT.	345	432		
15+89	21+98	HWY. 340 - RT.	585	325		
22+21	24+64	HWY. 340 - RT.	234	152		
28+17	30+42	HWY. 340 - RT.	89	50		
TOTALS:				1721	389	314

STATION	STATION	LOCATION	TYPE A (1' 6")	TYPE D
			LIN. FT.	LIN. FT.
10+00	10+59	HWY. 340 - LT.	112	
11+07	11+45	HWY. 340 - LT.	86	
12+67	24+22	HWY. 340 - LT.	1112	
27+40	30+15	HWY. 340 - LT.	286	
10+00	11+45	HWY. 340 - RT.	136	
12+67	14+71	HWY. 340 - RT.	214	
15+48	24+30	HWY. 340 - RT.	878	
27+98	30+50	HWY. 340 - RT.	256	
28+10	28+74	HWY. 340 - LT.		64
28+81	29+02	HWY. 340 - LT.		21
TOTALS:			3080	85

PAVEMENT REPAIR OVER
CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
13+00	HWY. 340	7.92	28	17
13+50	HWY. 340	13.17	28	28
14+25	HWY. 340	7.92	33	20
TOTAL:				65

AVG. DEPTH = 12.5"

AVG. DEPTH = 12.5"

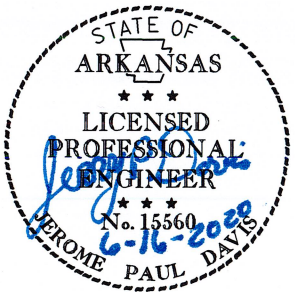
STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
10+00	11+45	HWY. 340	185	2
12+67	24+47	HWY. 340	1380	6
27+03	30+50	HWY. 340	427	3
TOTALS:			2191	13

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

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

USER: J05206
DESIGN FILE: G:\710700L.Hwy340\TRANSP\dgn\quantities\R090472_QUANTITIES.dgn
PLOTTED: 6/16/2020 11:44
SCALE: 1:2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	28	110
				2	QUANTITIES			



DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	AGGREGATE BASE COURSE	TACK COAT			ACHM BINDER COURSE (1")			ACHM SURFACE COURSE (1/2")								SIDE DRAINS	STANDARD DRAWINGS
								(0.05 GAL. PER SQ. YD.)															
			TOTAL WIDTH	SQ. YD.	GALLON			SQ. YD.	POUND/ SQ. YD.	PG 64-22	SQ. YD.	POUND/ SQ. YD.	PG 64-22	TOTAL PG 64-22									
			FEET	STATION	STATION			SQ. YD.	TON	FEET			TON			TON			TON	TON	24"		
10+82	LT.	DOGWOOD DRIVE	20				77.50	VAR.	126.58	6.3	63.29	440.00	13.92	63.29	220.00	6.96	63.29	220.00	6.96	13.92	33	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3	
15+07	RT.	CHELSEA RD.	80				164.0	VAR.	419.90	21.0	209.95	440.00	46.19	209.95	220.00	23.09	209.95	220.00	23.09	46.18			
22+07	RT.	HWY. 340	12	21+87	22+27	35.56	30.0										74.00	220.00	8.14	8.14	72	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3	
29+06	RT.	HWY. 340	37	28+74	29+39	148.22																	
29+16	LT.	HWY. 340	40	28+82	29+50	113.77																	
29+84	RT.	HWY. 340	67	29+37	30+32	84.44																	
* ENTIRE PROJECT TEMPORARY DRIVES							50.0		70.00	3.5				70.00	220.00	7.70	70.00	220.00	7.70	15.40			
110+76	LT.	TEMP. CONNECTION	16	110+54	110+98				39.11	2.0	39.11	440.00	8.60				39.11	220.00	4.30	4.30			
TOTALS:						381.99	321.50		655.59	32.80	312.35		68.71	343.24		37.75	456.35		50.19	87.94	105		

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE
ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITONAL COST TO THE DEPARTMENT.
* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT	C.M. PIPE CULVERT		PIPE CULVERT STORM DRAIN	TEMPORARY CULVERT		FLARED END SECTIONS FOR R.C. PIPE	DROP INLETS			JUNCT. BOXES	SOLID SODDING	WATER	STD. DWG. NOS.	
		(CLASS III)		FAP 9030	ALTERNATES 1 & 2	18"	72"	18"	TYPE		EXT.	(TYPE E)				
		18"	105"x88"	120"					E	MO	4'					
		LIN. FT.							EACH	EACH						SQ.YD.
9+18	C.M. ELLIPTICAL PIPE 105"x88"		54												SPECIAL DETAILS	
110+76	TEMP. CULVERT ON DETOUR LT.					72									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3	
11+40	DROP INLET ON RT. W/ FES RT.	40						1			1		5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
13+00	DROP INLET ON LT. W/ FES LT.	34						1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
13+00	DROP INLET ON RT.	31								1					FPC-9E, FPC-9M, PCC-1	
13+50	CROSSROAD CULVERT			106											PCM-1	
14+25	DROP INLET ON LT. W/ FES LT.	36						1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
14+25	DROP INLET ON RT.	36								1					FPC-9E, FPC-9M, PCC-1, PCM-1	
16+00	DROP INLET ON LT.						171			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
16+50	DROP INLET ON LT.						46			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
16+50	DROP INLET ON RT. W/ FES RT.	7						1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
18+00	DROP INLET ON RT.						43			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
18+50	DROP INLET ON RT.						43			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
19+00	DROP INLET ON RT.						90			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
20+00	DROP INLET ON RT.						48			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
20+50	DROP INLET ON RT.						131			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
21+00	DROP INLET ON LT.						45			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
21+80	JUNC BOX ON RT. W/ FES RT.	34						1				1	5	0.06	FES-1, FES-2, FPC-9, PCC-1	
21+50	DROP INLET ON LT.						84			1	1				FPC-9E, FPC-9M, PCC-1, PCM-1	
22+50	DROP INLET ON LT.						126			1	1				FPC-9E, FPC-9M, PCC-1, PCM-1	
24+00	DROP INLET ON LT. W/ FES LT.	50						1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
27+60	DROP INLET ON LT. W/ FES LT.	62						1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1	
28+50	DROP INLET ON RT.						9			1					FPC-9E, FPC-9M, PCC-1, PCM-1	
28+50	DROP INLET ON RT.						50			1					FPC-9, PCC-1, PCM-1	
112+00.00	TRIPLE 72"x110" TEMP PIPE CULVERT						330								PCM-1	
TOTALS:		330	54	106		886	72	330	7	1	18	3	1	35	0.42	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	090472	29	110

2 QUANTITIES



CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE		
				AVG. WID.	6.5" U.T.	4.0" U.T.
			FEET	FEET	SQ. YD.	SQ. YD.
15+48.17	21+90.43	HWY. 340 LANE - RT.	649.93	2.50	180.54	
27+97.45	30+50.25	HWY. 340 LANE - RT.	261.95	2.50	72.76	
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.					50.00	100.00
TOTALS:					303.30	100.00

RETAINING WALLS

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SELECT GRANULAR BACKFILL	TEMPORARY RETAINING WALL
			CU.YDS.	CU. YD	SQ. FT.
27+04	27+42	WALL A	195	641	897
27+22		WALL B	115	282	418
TOTALS:			310	923	1315

BASIS OF ESTIMATE:
CEMENT STABILIZED CRUSHED STONE BASE COURSE = 94.0% AGGR. 6.0% CEMENT

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")															
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	PG 70-22 TON	TOTAL PG 64-22 TON	TOTAL PG 70-22 TON			
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON																				
MAIN LANES																															
10+00.00	10+36.21	FULL DEPTH HWY. 340 2-LANE	36.21	152.75	55.31	61.92	249.12	12.46				12.46	30.96	124.56	440.00	27.40	30.96	124.56	220.00			13.70	30.96	124.56	220.00			13.70		27.40	
10+36.21	10+52.00	FULL DEPTH HWY. 340 2-LANE	15.79	131.00	20.68	57.20	100.35	5.02				5.02	28.60	50.18	440.00	11.04	28.60	50.18	220.00			5.52	28.60	50.18	220.00			5.52		11.04	
10+52.00	11+09.06	FULL DEPTH HWY. 340 2-LANE	57.06	128.50	73.32	56.00	355.04	17.75				17.75	28.00	177.52	440.00	39.05	28.00	177.52	220.00			19.53	28.00	177.52	220.00			19.53		39.06	
13+03.06	13+50.00	FULL DEPTH HWY. 340 2-LANE	46.94	139.00	65.25	56.00	292.07	14.60				14.60	28.00	146.04	440.00	32.13	28.00	146.04	220.00			16.06	28.00	146.04	220.00			16.06		32.12	
13+50.00	14+29.63	FULL DEPTH HWY. 340 2-LANE TO 3-LANE	79.63	150.25	119.64	61.30	542.37	27.12				27.12	30.65	271.18	440.00	59.66	30.65	271.18	220.00			29.83	30.65	271.18	220.00			29.83		59.66	
14+29.63	15+00.00	NOTCH AND WIDEN HWY. 340	70.37	125.00	87.96	62.35	487.51	24.38				24.38	27.11	211.97	440.00	46.63	27.11	211.97	220.00			23.32	35.24	275.54	220.00			30.31		53.63	
15+00.00	15+98.52	NOTCH AND WIDEN HWY. 340 3-LANE	98.52	67.75	66.75	50.12	548.65	27.43				27.43	13.54	148.22	440.00	32.61	13.54	148.22	220.00			16.30	36.58	400.43	220.00			44.05		60.35	
15+98.52	16+65.42	NOTCH AND WIDEN HWY. 340 3-LANE	66.90	65.50	43.82	49.00	364.23	18.21				18.21	13.00	96.63	440.00	21.26	13.00	96.63	220.00			10.63	36.00	267.60	220.00			29.44		40.07	
16+65.42	20+63.80	NOTCH AND WIDEN HWY. 340 3-LANE	398.38	101.00	402.36	57.82	2559.37	127.97				127.97	21.29	942.39	440.00	207.33	21.29	942.39	220.00			103.66	36.53	1616.98	220.00			177.87		281.53	
20+63.80	21+90.44	NOTCH AND WIDEN HWY. 340 3-LANE	126.64	88.50	112.08	54.94	773.07	38.65				38.65	18.57	261.30	440.00	57.49	18.57	261.30	220.00			28.74	36.37	511.77	220.00			56.29		85.03	
21+90.44	24+27.18	NOTCH AND WIDEN HWY. 340 3-LANE	236.74	89.25	211.29	62.82	1652.45	82.62				82.62	16.23	426.92	440.00	93.92	16.23	426.92	220.00			46.96	46.59	1225.52	220.00			134.81		181.77	
27+40.34	27+61.97	FULL DEPTH HWY. 340	21.63	248.25	53.70	112.84	271.19	13.56				13.56	56.42	135.60	440.00	29.83	56.42	135.60	220.00			14.92	56.42	135.60	220.00			14.92		29.84	
27+61.97	28+41.15	NOTCH AND WIDEN HWY. 340	79.18	74.50	58.99	66.99	589.36	29.47				29.47	15.14	133.20	440.00	29.30	15.14	133.20	220.00			14.65	51.85	456.16	220.00			50.18		64.83	
28+41.15	29+80.94	NOTCH AND WIDEN HWY. 340	139.79	50.25	70.24	53.29	827.71	41.39				41.39	9.42	146.31	440.00	32.19	9.42	146.31	220.00			16.09	43.87	681.40	220.00			74.95		91.04	
29+80.94	30+50.00	NOTCH AND WIDEN HWY. 340	69.06	21.00	14.50	44.64	342.54	17.13				17.13	4.96	38.06	440.00	8.37	4.96	38.06	220.00			4.19	39.68	304.48	220.00			33.49		37.68	
ADDITIONAL FOR LEVELING & METHOD OF RAISING GRADE																															
15+00.00	15+98.52	NOTCH AND WIDEN HWY. 340 3-LANE	98.52						23.04	252.21	42.88	42.88					23.04	252.21	VAR			22.38								22.38	
15+98.52	16+65.42	NOTCH AND WIDEN HWY. 340 3-LANE	66.90						23.00	170.97	29.06	29.06	23.00	170.97	VAR	42.82															
16+65.42	20+63.80	NOTCH AND WIDEN HWY. 340 3-LANE	398.38						15.23	674.15	114.61	114.61	15.23	674.15	VAR	188.44															
20+63.80	21+90.44	NOTCH AND WIDEN HWY. 340 3-LANE	126.64						17.80	250.47	42.58	42.58	17.80	250.47	VAR	147.33															
21+90.44	24+27.18	NOTCH AND WIDEN HWY. 340 3-LANE	236.74						30.36	798.60	135.76	135.76	30.36	798.60	VAR	585.62															
27+60.00	30+50.00	NOTCH AND WIDEN HWY. 340	290.00						34.85	1122.94	190.90	190.90	34.85	1122.94	VAR	443.03															
TEMPORARY PAVEMENT FOR M.O.T.																															
107+38.23	108+57.69	DETOUR NOTCH AND WIDEN - CURVE RT.	119.46	103.75	123.94	11.00	146.01	7.30				7.30					11.00	146.01	220.00	16.06		13.00	172.55	220.00	18.98		35.04				
108+57.69	109+09.19	DETOUR NOTCH AND WIDEN - CURVE RT.	51.50	144.25	74.29	17.23	98.59	4.93				4.93					17.23	98.59	220.00	10.84		17.23	98.59	220.00	10.84		21.68				
109+09.19	109+57.10	DETOUR FULL DEPTH - CURVE RT.	47.91	205.50	98.46	22.25	118.44	5.92				5.92					22.25	118.44	220.00	13.03		26.00	138.41	220.00	15.23		28.26				
109+57.10	111+28.94	DETOUR FULL DEPTH - CURVE RT.	171.84	206.50	354.85	22.25	424.83	21.24				21.24					22.25	424.83	220.00	46.73		26.00	496.43	220.00	54.61		101.34				
111+28.94	112+25.78	DETOUR FULL DEPTH - CURVE LT.	96.84	207.25	200.70	22.25	239.41	11.97				11.97					22.25	239.41	220.00	26.34		26.00	279.76	220.00	30.77		57.11				
112+25.78	113+22.62	DETOUR FULL DEPTH - CURVE LT.	96.84	207.25	200.70	22.25	239.41	11.97				11.97					22.25	239.41	220.00	26.34		26.00	279.76	220.00	30.77		57.11				
113+22.62	114+11.13	DETOUR FULL DEPTH - CURVE LT.	88.51	206.50	182.77	22.25	218.82	10.94				10.94					22.25	218.82	220.00	24.07		26.00	255.70	220.00	28.13		52.20				
114+11.13	114+68.93	DETOUR - CURVE RT.	57.80	190.75	110.25	22.25	142.89	7.14				7.14					22.25	142.89	220.00	15.72		26.00	166.98	220.00	18.37		34.09				
114+68.93	115+43.73	DETOUR - CURVE RT.	74.80	94.50	70.69	9.55	79.37	3.97	13.14	109.21	18.57	22.54					9.55	79.37	220.00	8.73		26.00	216.09	220.00	23.77		32.50				
115+43.73	116+36.28	DETOUR - CURVE RT.	92.55			32.42	333.39	16.67	32.42	333.39	56.68	73.35					32.42	333.39	220.00	36.67		32.42	333.39	220.00	36.67		73.34				
18+63.70	24+63.69	MOT STAGE 1 FULL DEPTH- SHLDR. RT.	599.99			10.60							5.30	353.33	440.00	77.73	5.30	353.33	220.00	38.87		5.30	353.33	220.00	38.87		77.74				
16+36.97	24+63.69	MOT STAGE 2 FULL DEPTH- SHLDR. LT.	826.72			79.56							39.78	3654.10	440.00	803.90	39.78	3654.10	220.00	401.95		39.78	3654.10	220.00	401.95		803.90				
27+03.19	28+86.79	MOT STAGE 2 FULL DEPTH- SHLDR. LT.	183.60			18.18							9.09	185.44	440.00	40.80	9.09	185.44	220.00	20.40		9.09	185.44	220.00	20.40		40.80				
TOTALS:					2872.54		11996.19	599.81		3775.51	631.04	1230.85		10520.08		3057.88		9796.32		685.75	386.48		13275.49		729.36	730.95	1415.11	1117.43			

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SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090472

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-28-2020				6	ARK.			
				JOB NO.		090472	30	110

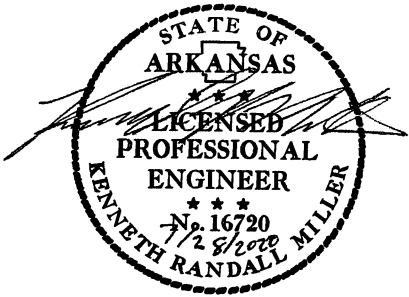
07480, 07481 BRIDGE QUANTITIES 61538

BRIDGE NO.	NAME PLATE TITLE	ITEM NO.	205	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	806	806	806	806	SP, SS, & 807				
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE	CLASS S (AE) CONCRETE -BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12X53)	STEEL PILING (HP 14X89)	PREBORING	METAL BRIDGE RAILING (TYPE H)	METAL BRIDGE RAILING (TYPE H2)	METAL BRIDGE RAILING (TYPE H3)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (ASTM A709, GR. 50W)				
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LB.				
07480	HWY. 340 OVER TANYARD CREEK	BENT NO. 1		580	35.90	19.00		1517	4334	192		194			2						
		BENT NO. 2			71.40	34.40		-10720	5947												
		BENT NO. 3			72.60	33.00		-10777	5700												
		BENT NO. 4		1086	35.70	19.00		1516	4334	186		170			2						
		120'-0" CONT. INTEGRAL W-BEAM UNIT				205.60	236.30	611.7		49703			228			94760					
		SITE NO. 1 (EXIST. BR. NO. M3230)	I																		
		TOTALS FOR BRIDGE NO. 07480		1666	215.60	105.40	205.60	236.30	611.7	24530	14680	58370	378		364	228	4	94760			
07481	HWY. 340 OVER LITTLE SUGAR CREEK	BENT NO. 1		1480	60.62			6317		270					1	5800					
		BENT NO. 2			156.61	109.08		-26071	17762												
		BENT NO. 3			173.24	116.98		-28422	18911												
		BENT NO. 4		1148	35.13			43061		198	342	87	493			5800					
		238'-0" CONT. W-BEAM UNIT				435.10	599.20	2140.9		184940			220	228	309	490240					
		SITE NO. 2 (EXIST. BR. NO. 05155)	I																		
		SUBTOTAL (F.A.P. 9030)		420	118.70	102.09	69.60	95.85	342.5	16620	13768	29590	75	55	14	79	35	36	309		80290
		SUBTOTAL (F.A.P. NHPP-0004(807))	I	2208	622.90	535.72	365.50	503.35	1798.4	87250	72283	155350	393	287	73	414	185	192		1	421550
		TOTALS FOR BRIDGE NO. 07481		2628	741.60	637.81	435.10	599.20	2140.9	103870	86051	184940	468	342	87	493	220	228	309	1	501840
		TOTAL (F.A.P. 9030)		420	118.70	102.09	69.60	95.85	342.5	16620	13768	29590	75	55	14	79	35	36	309		80290
TOTAL (F.A.P. NHPP-0004(807))			3874	838.50	641.12	571.10	739.65	2410.1	11780	86963	213720	771	287	437	778	413	192		5	516310	
TOTALS FOR JOB NO. 090472			4294	957.20	743.21	640.70	835.50	2752.6	128400	100731	243310	846	342	451	857	448	228	309	5	596600	

Quantity Revisions
07-28-2020

BRIDGE NO.	NAME PLATE TITLE		ITEM NO.	SP, SS & 808	SS & 809	812	816	816	816	SP JOB 090472	SP JOB 090472	SP JOB 090472	SP JOB 090472	SP JOB 090472	SP JOB 090472	SP JOB 090472	SP JOB 090472
			ITEM	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET	FOUNDATION PROTECTION RIPRAP	DRILLED SHAFT (48" DIA.)	DRILLED SHAFT (54" DIA.)	PERMANENT STEEL CASING (54" DIA.)	PERMANENT STEEL CASING (60" DIA.)	CROSSHOLE SONIC LOGGING (48" DIA.)	CROSSHOLE SONIC LOGGING (54" DIA.)	CORING DRILLED SHAFTS	SHORING (SITE NO..)
			UNIT	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.	TON	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	LUMP SUM
07480	HWY. 340 OVER TANYARD CREEK	BENT NO. 1					354	573									
		BENT NO. 2	435.0						69		39		3		23		
		BENT NO. 3	435.0						74		44		3				
		BENT NO. 4				337	466										
		120'-0" CONT. INTEGRAL W-BEAM UNIT															
		SITE NO. 1 (BRIDGE NO. M3230)			1												
		TOTALS FOR BRIDGE NO. 07480	870.0		1	691	1039		143		83		6		23		
07481	HWY. 340 OVER LITTLE SUGAR CREEK	BENT NO. 1	8208.0	81			1763	2140									
		BENT NO. 2	10206.0						57	76		20		4	19		
		BENT NO. 3	10206.0						66	88		32		4			
		BENT NO. 4	8208.0	81			2045	2311									1
		238'-0" CONT. W-BEAM UNIT															
		SITE NO. 2 (EXIST. BR. NO. 05155)			1												
		SUBTOTAL (F.A.P. 9030)	5892.0	26			609	712	20	26		8		1	3		
		SUBTOTAL (F.A.P. NHPP-0004(807))	30936.0	136	1		3199	3739	103	138		44		7	16		1
		TOTALS FOR BRIDGE NO. 07481	36828.0	162	1		3808	4451	123	164		52		8	19		
		TOTAL (F.A.P. 9030)	5892.0	26			609	712	20	26		8		1	3		
TOTAL (F.A.P. NHPP-0004(807))		31806.0	136	2	691	4238	3739	143	103	138	83	44	6	7	39		
TOTALS FOR JOB NO. 090472		37698.0	162	2	691	4847	4451	143	123	164	83	52	6	8	42		

① All piling shall be ASTM A709, Grade 50. Steel piling shall have special driving points which shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling (HP ...X...).".



SCHEDULE OF BRIDGE QUANTITIES
LITTLE SUGAR & TANYARD CREEKS
STRS. & APPRS. (BELLA VISTA) (S)
BENTON COUNTY
ROUTE 340 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 02-04-20 FILENAME: b090472.qldgn
CHECKED BY: CAW DATE: 02-12-20 SCALE: NOT TO SCALE
DESIGNED BY: KRM DATE: 01-28-20
BRIDGE NOS. 07480, 07481 DRAWING NO. 61538

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SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	FAP NHPP- 0004(807)	FAP 9030	TOTAL	UNIT
201	CLEARING	16		16	STATION
201	GRUBBING	16		16	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	181		181	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	61		61	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1		1	EACH
202	REMOVAL AND DISPOSAL OF RETAINING WALLS	165		165	LIN. FT.
202	REMOVAL AND DISPOSAL OF WALKS	158		158	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	3		3	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING	52		52	SQ. YD.
202	REMOVAL AND DISPOSAL OF GUARDRAIL	490		490	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS	3		3	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS	1		1	EACH
SP & 202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	4		4	EACH
SS & 210	UNCLASSIFIED EXCAVATION	10139		10139	CU. YD.
SP	SELECT GRANULAR BACKFILL	923		923	CU. YD.
210	COMPACTED EMBANKMENT	40772		40772	CU. YD.
SP & 210	SOIL STABILIZATION	50		50	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	3522	30	3552	TON
309	PORTLAND CEMENT CONCRETE BASE (4" UNIFORM THICKNESS)	100		100	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (6 1/2" UNIFORM THICKNESS)	303		303	SQ. YD.
SS & 401	TACK COAT	1284		1284	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	2992		2992	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	135		135	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2481		2481	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	80		80	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	59		59	TON
412	COLD MILLING ASPHALT PAVEMENT	644		644	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	10		10	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	60		60	TON
504	APPROACH SLABS	355.61		355.61	CU. YD.
504	APPROACH GUTTERS	27.85	27.85	55.70	CU. YD.
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	381.99		381.99	SQ. YD.
601	MOBILIZATION	1.00		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1		1	EACH
SP, SS, & 603	MAINTENANCE OF TRAFFIC	1.00		1.00	LUMP SUM
603	18" TEMPORARY CULVERT	72		72	LIN. FT.
603	72" TEMPORARY CULVERT	330		330	LIN. FT.
SS & 604	SIGNS	616		616	SQ. FT.
SS & 604	BARRICADES	112		112	LIN. FT.
SS & 604	TRAFFIC DRUMS	81		81	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1382		1382	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	1598		1598	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	21258		21258	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	2		2	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2504		2504	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	9729		9729	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	5250		5250	LIN. FT.
SS & 604	VERTICAL PANELS	26		26	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	110		110	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	330		330	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	886		886	LIN. FT.
606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE (ALTERNATE NO. 2)	886		886	LIN. FT.
SP & 606	105" X 88" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (12 GAUGE)	54		54	LIN. FT.
606	120" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (12 GAUGE)		106	106	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	105		105	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	7		7	EACH
606	SELECTED PIPE BEDDING	100		100	CU. YD.
SS & 609	DROP INLETS (TYPE E)	1		1	EACH
SS & 609	DROP INLETS (TYPE MO)	18		18	EACH
SS & 609	JUNCTION BOXES (TYPE E)	1		1	EACH
SS & 609	DROP INLET EXTENSIONS (4')	3		3	EACH
SS & 611	4" PIPE UNDERDRAINS	2191		2191	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	13		13	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	65		65	TON
620	LIME	7		7	TON
620	SEEDING	3.56		3.56	ACRE
SS & 620	MULCH COVER	7.27		7.27	ACRE
620	WATER	456.2		456.2	M. GAL.
621	TEMPORARY SEEDING	3.71		3.71	ACRE
621	SILT FENCE	2075		2075	LIN. FT.
621	SAND BAG DITCH CHECKS	468		468	BAG
621	SEDIMENT BASIN	372		372	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	372		372	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	494		494	CU. YD.
621	ROCK DITCH CHECKS	79		79	CU. YD.
SS & 621	FILTER SOCK (12")	225		225	LIN. FT.
623	SECOND SEEDING APPLICATION	3.56		3.56	ACRE
624	SOLID SODDING	1390		1390	SQ. YD.

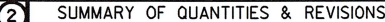
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-28-2020				6	ARK.			
					JOB NO.	090472	31	110

2 SUMMARY OF QUANTITIES



SUMMARY OF QUANTITIES

2 SUMMARY OF QUANTITIES & REVISIONS



ITEM NUMBER	ITEM	FAP NHPP- 0004(807)	FAP 9030	TOTAL	UNIT
SS & 632	CONCRETE ISLAND	108		108	SQ. YD.
SS & 633	CONCRETE WALKS	1721	389	2110	SQ. YD.
SS & 633	HAND RAILING		314	314	LIN. FT.
SS & 634	CONCRETE CURB (TYPE D)	85		85	LIN. FT.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	3080		3080	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
641	WHEELCHAIR RAMPS (TYPE 3)	47		47	SQ. YD.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")	382		382	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	4734		4734	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	966		966	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	2367		2367	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	438		438	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	5		5	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	12		12	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	8		8	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	1		1	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	1		1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	310		310	CU. YD.
SP	TEMPORARY RETAINING WALL	1315		1315	SQ. FT.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	58672	3417	62089	POUND
816	FILTER BLANKET	25		25	SQ. YD.
816	DUMPED RIPRAP	18		18	CU. YD.
	STRUCTURES OVER 20' SPAN				
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	3874	420	4294	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	641.12	102.09	743.21	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	739.65	95.85	835.50	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	2410.1	342.5	2752.6	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	86963	13768	100731	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	213720	29590	243310	POUND
SS & 805	STEEL PILING (HP 12X53)	771	75	846	LIN. FT.
SS & 805	STEEL PILING (HP 14X89)	287	55	342	LIN. FT.
SP	CORING DRILLED SHAFT	39	3	42	LIN. FT.
SP	DRILLED SHAFT (48" DIAMETER)	143		143	LIN. FT.
SP	DRILLED SHAFT (54" DIAMETER)	138	26	164	LIN. FT.
SP	PERMANENT STEEL CASING (54" DIAMETER)	83		83	LIN. FT.
SP	PERMANENT STEEL CASING (60" DIAMETER)	44	8	52	LIN. FT.
SS & 805	PREBORING	778	79	857	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (48" DIAMETER)	6		6	EACH
SP	CROSSHOLE SONIC LOGGING (54" DIAMETER)	7	1	8	EACH
806	METAL BRIDGE RAILING (TYPE H)	413	35	448	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H2)	192	36	228	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H3)		309	309	LIN. FT.
806	TRANSITIONAL APPROACH RAILING	5		5	EACH
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	516310	80290	596600	POUND
SP, SS, & 808	ELASTOMERIC BEARINGS	31806.0	5892.0	37698.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT	136	26	162	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2		2	EACH
816	FILTER BLANKET	4238	609	4847	SQ. YD.
816	DUMPED RIPRAP	691		691	CU. YD.
816	FOUNDATION PROTECTION RIPRAP	3739	712	4451	TON
SP	SHORING (SITE NO. 1)	1.00		1.00	LUMP SUM

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SURVEY CONTROL COORDINATES

Project Name: s090472
Date: 10/10/2016
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	787371.2394	651280.1608	1024.692	CTL	AHTD STD. MON. STAMPED PN: 1
2	787302.9735	650944.2304	1006.397	CTL	AHTD STD. MON. STAMPED PN: 2
3	786911.0058	651086.1094	1013.776	CTL	AHTD STD. MON. STAMPED PN: 3
4	787198.2090	650564.1162	993.155	CTL	AHTD STD. MON. STAMPED PN: 4
5	787352.9253	650338.0290	988.292	CTL	AHTD STD. MON. STAMPED PN: 5
6	787589.9720	650244.2006	988.481	CTL	AHTD STD. MON. STAMPED PN: 6
7	787636.3523	649960.1050	987.020	CTL	AHTD STD. MON. STAMPED PN: 7
8	787719.5385	649548.4396	988.647	CTL	AHTD STD. MON. STAMPED PN: 8
9	787724.3175	649121.3820	1017.123	CTL	AHTD STD. MON. STAMPED PN: 9
10	787665.8380	648481.5093	1041.934	CTL	AHTD STD. MON. STAMPED PN: 10
11	787910.5402	648808.7918	1062.002	CTL	AHTD STD. MON. STAMPED PN: 11
12	787968.8430	649462.9455	1000.811	CTL	AHTD STD. MON. STAMPED PN: 12
13	787422.7743	649823.2306	988.851	CTL	AHTD STD. MON. STAMPED PN: 13
14	787887.9014	649670.2135	979.360	CTL	AHTD STD. MON. STAMPED PN: 14
15	788244.6328	650158.6331	977.016	CTL	AHTD STD. MON. STAMPED PN: 15
16	787981.4352	650204.6599	982.863	CTL	AHTD STD. MON. STAMPED PN: 16
17	787516.0353	650548.6914	971.362	CTL	AHTD STD. MON. STAMPED PN: 17
18	786740.1078	650641.6709	972.638	CTL	AHTD STD. MON. STAMPED PN: 18
19	786629.7630	650844.3794	977.905	CTL	AHTD STD. MON. STAMPED PN: 19
100	787371.8316	647773.9304	1097.117	GPS	AHTD GPS # 040042
101	787780.3066	649195.3398	1013.203	GPS	AHTD GPS # 040042A
999	706442.9353	683986.5955	1342.953	BM	NGS 1ST ORDER BM V 26

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 1.000013490210 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 s090472gi.ctb
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: 040042 - 040042A
CONVERGENCE ANGLE: 01 18 39.32 LEFT AT LT: 36-28-34 LG: 094-15-10
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

090472 CL - HIGHWAY 340				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8100	P.O.B.	0+00.00	787583.4993	648402.1759
8101	P.C.	7+11.91	787740.0688	649096.6595
8103	P.T.	10+81.69	787750.4035	649483.9807
8104	P.C.	17+38.14	787642.2660	650111.4649
8106	P.T.	19+91.08	787494.9229	650304.8445
8107	P.C.	21+36.52	787362.9733	650366.0132
8109	P.T.	24+47.14	787227.8691	650621.6814
8110	P.I.	27+02.77	787269.7142	650873.8593
8111	P.O.E.	31+31.79	787344.4278	651296.3258

090472 CL - HIGHWAY 340 DETOUR				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8112	P.C.	107+38.23	787745.5019	649122.4065
8114	P.T.	110+33.03	787690.7122	649404.6804
8115	P.C.	110+47.82	787682.6380	649417.0686
8117	P.T.	114+03.74	787644.3757	649758.1074
8118	P.C.	114+40.61	787657.1637	649792.6921
8120	P.T.	115+89.48	787671.0298	649939.2381
8121	P.O.E.	117+00.00	787652.8234	650048.2480

090472 CL - HIGHWAY 340 MOT STAGE 2				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8126	P.O.B.	16+11.00	787663.2965	649985.5436
8127	P.C.	16+17.64	787662.2019	649992.0974
8129	P.T.	16+98.39	787645.6913	650071.1095
8130	P.C.	17+54.12	787632.0898	650125.1629
8132	P.T.	19+66.78	787503.4700	650286.4019
8133	P.I.	19+94.99	787478.3230	650299.1960
8134	P.C.	21+05.07	787377.3530	650343.0441
8136	P.T.	24+71.08	787214.9420	650641.5175
8137	P.I.	27+18.45	787255.4349	650885.5468
8138	P.O.E.	28+39.69	787292.2130	651001.0781

090472 CL - HIGHWAY 340 MOT STAGE 3A				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8139	P.O.B.	21+00.00	787396.1035	650350.6551
8152	P.C.	21+05.14	787391.4408	650352.8166
8154	P.T.	24+95.48	787221.6623	650674.1018
8155	P.I.	27+61.45	787265.2004	650936.4827
8156	P.I.	29+08.95	787305.8632	651078.2624
8111	P.O.E.	31+30.40	787344.4278	651296.3258

090472 CL - HIGHWAY 340 MOT STAGE 3				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8139	P.O.B.	21+00.00	787396.1035	650350.6551
8157	P.C.	21+05.02	787391.5467	650352.7674
8159	P.T.	24+17.30	787255.7239	650609.7956
8160	P.I.	27+17.66	787304.8925	650906.1086
8161	P.I.	29+37.66	787314.2894	651125.9078
8111	P.O.E.	31+10.73	787344.4278	651296.3258

090472 CL - HIGHWAY 340 MOT STAGE 4				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8107	P.O.B.	21+36.52	787362.9733	650366.0132
8145	P.C.	21+42.56	787357.4927	650368.5539
8147	P.T.	24+73.90	787213.3803	650641.2693
8148	P.I.	27+21.76	787253.9552	650885.7924
8149	P.O.E.	29+67.63	787313.9909	651124.2200

090472 CL - RAMPS 3&4				
POINT NO.	TYPE	STATION	NORTHING	EASTING
8122	P.O.B.	12+32.07	786804.4918	651455.9051
8123	P.C.	14+36.48	786859.3251	651258.9870
8150	P.C.C.	15+72.51	786915.3012	651135.6004
8125	P.T.	19+36.48	787211.6213	650942.4451
8151	P.O.E.	20+05.70	787279.9039	650931.0916

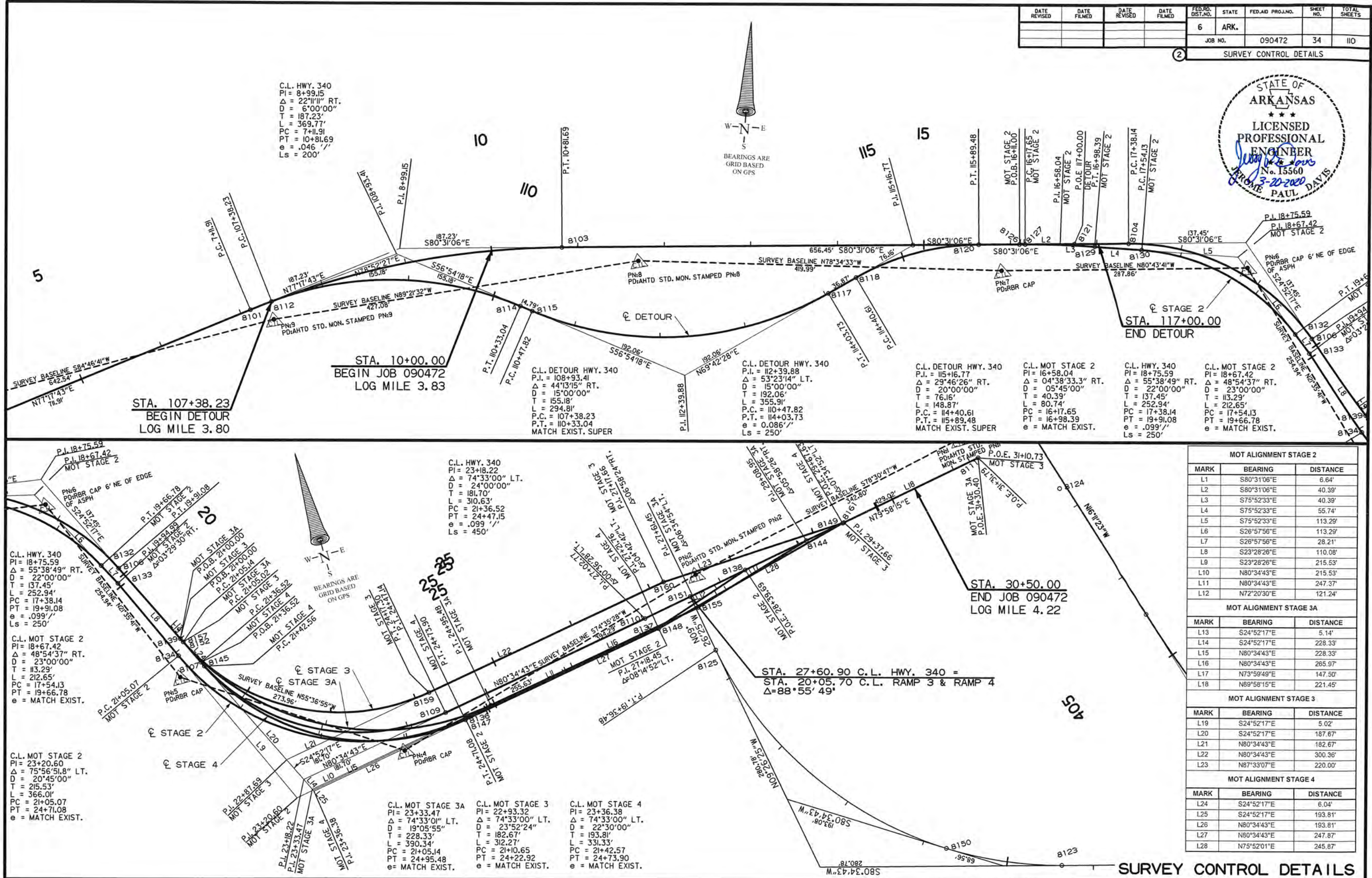
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	33	110

2 SURVEY CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	34	110

2 SURVEY CONTROL DETAILS



MOT ALIGNMENT STAGE 2		
MARK	BEARING	DISTANCE
L1	S80°31'06"E	6.64'
L2	S80°31'06"E	40.39'
L3	S75°52'33"E	40.39'
L4	S75°52'33"E	55.74'
L5	S75°52'33"E	113.29'
L6	S26°57'56"E	113.29'
L7	S26°57'56"E	28.21'
L8	S23°28'26"E	110.08'
L9	S23°28'26"E	215.53'
L10	N80°34'43"E	215.53'
L11	N80°34'43"E	247.37'
L12	N72°20'30"E	121.24'
MOT ALIGNMENT STAGE 3A		
MARK	BEARING	DISTANCE
L13	S24°52'17"E	5.14'
L14	S24°52'17"E	228.33'
L15	N80°34'43"E	228.33'
L16	N80°34'43"E	265.97'
L17	N73°59'49"E	147.50'
L18	N89°58'15"E	221.45'
MOT ALIGNMENT STAGE 3		
MARK	BEARING	DISTANCE
L19	S24°52'17"E	5.02'
L20	S24°52'17"E	187.67'
L21	N80°34'43"E	182.67'
L22	N80°34'43"E	300.36'
L23	N87°33'07"E	220.00'
MOT ALIGNMENT STAGE 4		
MARK	BEARING	DISTANCE
L24	S24°52'17"E	6.04'
L25	S24°52'17"E	193.81'
L26	N80°34'43"E	193.81'
L27	N80°34'43"E	247.87'
L28	N75°52'01"E	245.87'

SURVEY CONTROL DETAILS

REMOVAL AND DISPOSAL OF GUARDRAIL			
STA.	STA.	SIDE	LIN.FT.
11+31	12+64	R.M.L.-RT.	133
11+34	12+63	L.M.L.-LT.	129

STA. 10+50 LT. CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 6 SQ. YD.

STA. 11+8 LT. CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 6 SQ. YD.

STA. 10+82 - INSTALL
24" X 33" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 30 CU. YD.

STA. 10+82 IN PLACE
24" X 49" R.C. PIPE CULVERT LT. SIDE
DRAIN - REMOVE

C.L. HWY. 340
PI = 8+99.15
 $\Delta = 22^\circ 11' 11''$ RT.
D = 6'00'00"
T = 187.23'
L = 369.77'
PC = 7+11.91
PT = 10+81.69
e = .046
Ls = 200'

STA. 10+00.00
BEGIN JOB 090472
LOG MILE 3.83

STA. 9+18 - IN PLACE
88" X 105" X 37' C.M. ELLIPTICAL PIPE
GOLF CART UNDERPASS
(20' RT. FWD. SKEW)
WITH BEVELED ENDS RETAIN
REMOVE BEVELED END RT. & EXTEND
RT. WITH CONCRETE PIPE COLLAR &
88" X 105" X 54' C.M. ELLIPTICAL PIPE
(20' RT. FWD. SKEW)
SEE SPECIAL DETAILS

STA. 9+12 TO STA. 9+21 - CONSTRUCT
7' CONCRETE WALK 4" U.T. RT.

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

STA. 11+81.13 - STA. 12+11.95 - IN PLACE
BR. NO. M3230
28'-4" CONCRETE CHANNEL BEAM SPAN
24'-0" CLEAR ROADWAY
31'-0" BRIDGE LENGTH
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM
STA. 11+45.00 BRIDGE END - CONSTRUCT
BRIDGE NO. 07480
120'-0" CONT. INTEGRAL W-BEAM UNIT
(37'-46"-37')
30'-0" CLEAR ROADWAY
121'-0" BRIDGE LENGTH
STA. 12+66.50 BRIDGE END

STA. 13+00 CONSTRUCT
DROP INLET ON LT. H= 4'-4"
18" X 34" R.C. PIPE CULVERT OUTLET
(CLASS III)(TYPE 3 BEDDING)
W/ FES LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
DUMPED RIPRAP = 2 CU. YD.
STA. 14+25 CONSTRUCT
DROP INLET ON LT. H= 6'-11"
18" X 36" R.C. PIPE CULVERT OUTLET
(CLASS III)(TYPE 3 BEDDING)
W/ FES LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
DUMPED RIPRAP = 2 CU. YD.

STA. 16+00 CONSTRUCT
DROP INLET ON LT. H= 3'-9"
18" X 17" PIPE CULVERT
TO D.I. 15+25 LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
STA. 16+50 CONSTRUCT
DROP INLET ON LT. H= 2'-9"
18" X 46" PIPE CULVERT
TO D.I. 16+00 LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'

STA. 13+00 CONSTRUCT
DROP INLET ON RT. H= 3'-11"
18" X 31" R.C. PIPE CULVERT
(TYPE III)(CLASS 3 BEDDING)
TO D.I. 13+00 LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
STA. 14+25 CONSTRUCT
DROP INLET ON RT. H= 6'-6"
18" X 36" R.C. PIPE CULVERT
(TYPE III)(CLASS 3 BEDDING)
TO D.I. 14+25 LT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'

STA. 16+50 CONSTRUCT
DROP INLET ON RT. H= 3'-8"
18" X 7' R.C. PIPE CULVERT OUTLET
(TYPE III)(CLASS 3 BEDDING)
W/ FES RT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'

STA. 18+00 CONSTRUCT
DROP INLET ON RT. H= 3'-6"
18" X 43" PIPE CULVERT
TO D.I. STA. 18+50 RT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
STA. 18+50 CONSTRUCT
DROP INLET ON RT. H= 2'-7"
18" X 43" PIPE CULVERT
TO D.I. STA. 19+00 RT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'

STA. 19+00 CONSTRUCT
DROP INLET ON RT. H= 3'-2"
18" X 90" PIPE CULVERT
TO D.I. STA. 20+00 RT.
TYPE MO DROP = 4' DIA.
TYPE C DROP INLET = 4'X4'
STA. 15+84 RT. CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 6 SQ. YD.
STA. 14+45 RT. CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 6 SQ. YD.

C.L. HWY. 340
PI = 18+75.59
 $\Delta = 55^\circ 38' 49''$ RT.
D = 22'00'00"
T = 137.45'
L = 252.94'
PC = 17+38.14
PT = 19+91.08
e = .099
Ls = 250'

STATE OF
ARKANSAS

LICENSED
PROFESSIONAL
ENGINEER
K. P. DAVIS
No. 15560
4-15-2020
PAUL DAVIS

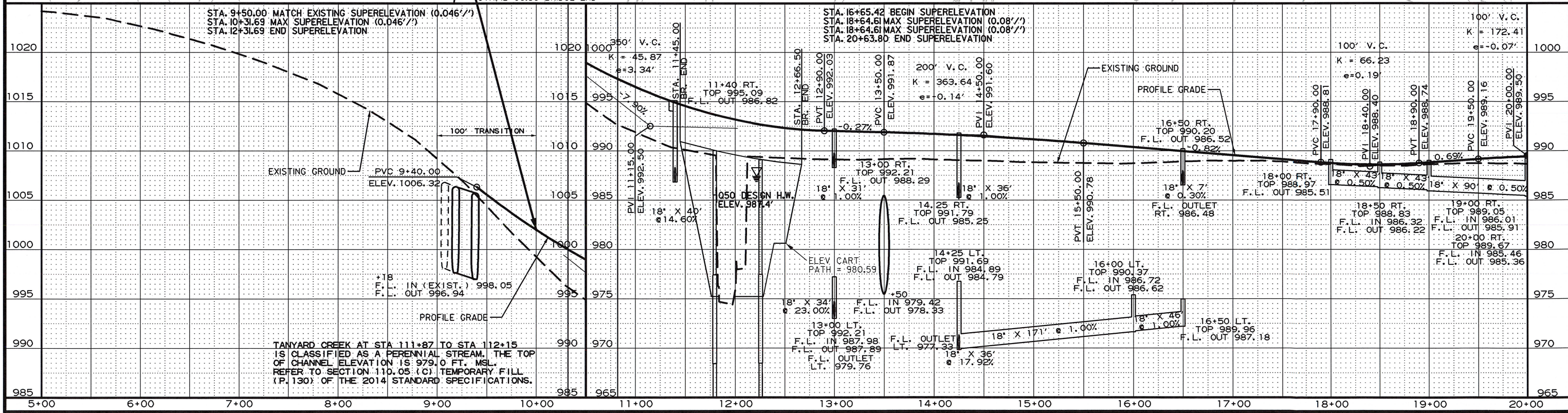
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	35	110

PLAN AND PROFILE SHEETS

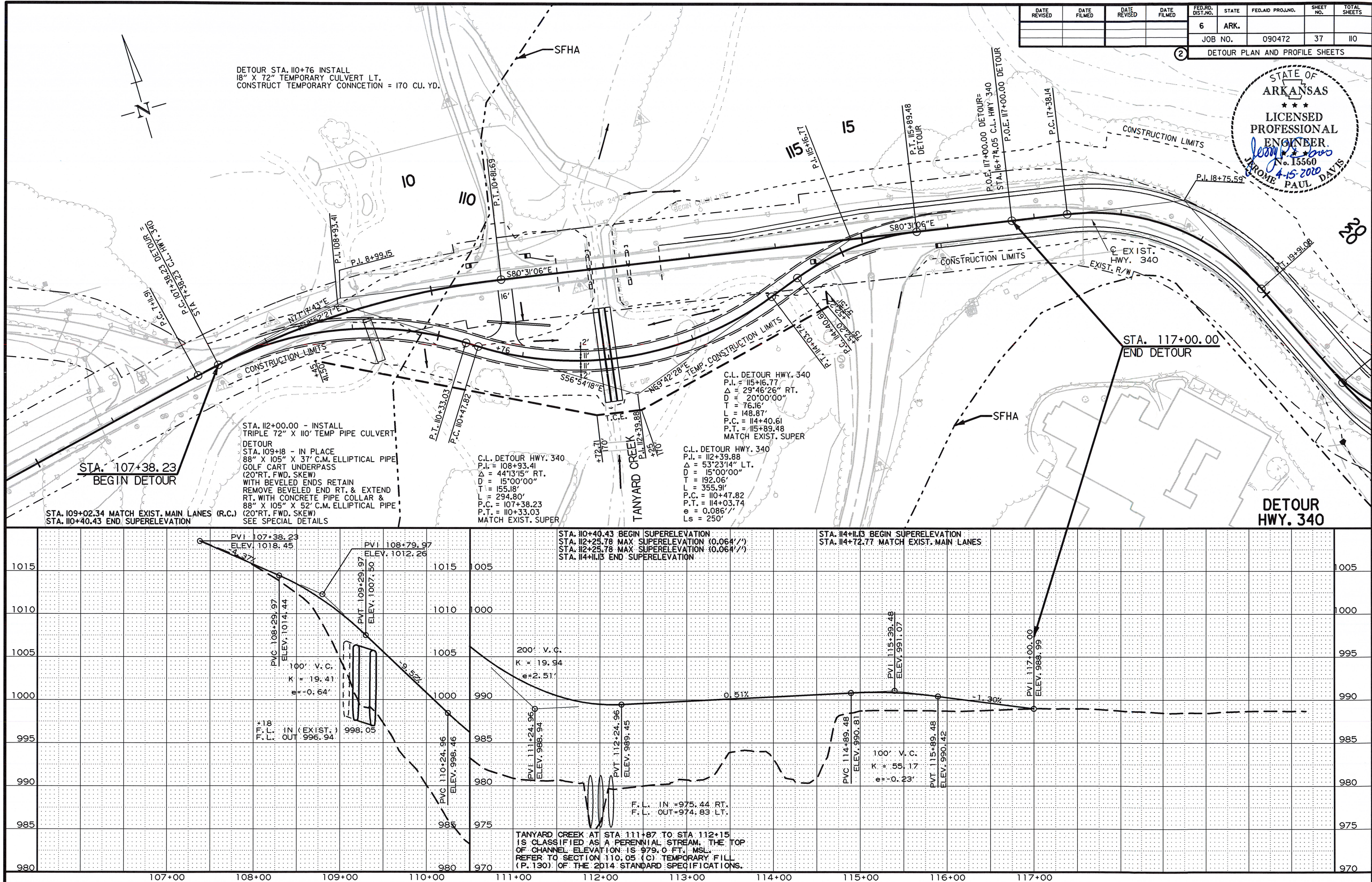
HWY. 340

STA. 9+50.00 MATCH EXISTING SUPERELEVATION (0.046'/'')
STA. 10+31.69 MAX SUPERELEVATION (0.046'/'')
STA. 12+31.69 END SUPERELEVATION

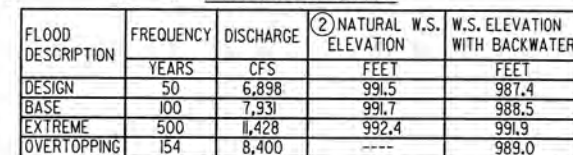
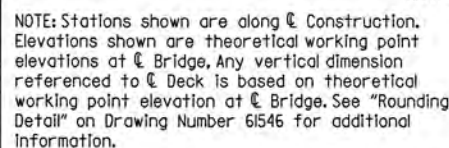
STA. 16+65.42 BEGIN SUPERELEVATION
STA. 18+64.61 MAX SUPERELEVATION (0.08'/'')
STA. 20+63.80 END SUPERELEVATION



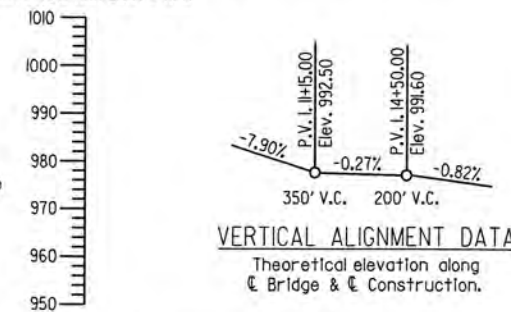
TANYARD CREEK AT STA 111+87 TO STA 112+15
IS CLASSIFIED AS A PERENNIAL STREAM, THE TOP
OF CHANNEL ELEVATION IS 979.0 FT. MSL.
REFER TO SECTION 110.05 (C) TEMPORARY FILL
(P. 130) OF THE 2014 STANDARD SPECIFICATIONS.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	38	110
				07480	LAYOUT			61539



- ② Unconstricted water surface elevation without structure or roadway approaches.
100 yr. backwater elevation for existing structure = 991.7 feet
- ③ Proposed Low Bridge Chord Elev. = 988.80 feet at Station 12+64
Drainage Area = 14.4 sq. miles
Historical H.W. Elev. = N/A



① See "SUPERELEVATION TRANSITION SKETCH" on Dwg. No. 61540.

For Soil Boring Information, see Dwg. No. 61540

BENCH MARK: Vertical Control Data are shown on Survey Control Details.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design specifications (7th Edition) with 2015 Interim specifications.

LIVE LOADING: HL-93 SEISMIC PERFORMANCE ZONE: I S_{DI} : 0.085 SITE CLASS: C

MATERIALS AND STRENGTHS:	
Class 5(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class 5 Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi

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

STEEL PILING: Piling In End Bents shall be HP 12x53 (Gr. 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 97 tons per pile and into the material designated as moderately hard gray shale on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. Piles in end bents to be driven after excavation to bottom of cap is complete. On all piles, the Contractor shall use approved steel H-Pile driving points.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Preboring shall be to a minimum depth of 15' into material designated as moderately hard gray shale on the boring legend or to a minimum depth of 15' below the bottom of the cap, whichever is lower. Prebored holes shall have a diameter 6" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' of the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts in Bents 2 and 3 shall be constructed in accordance with Special Provision Job No. 090472 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 10' into competent rock designated as moderately hard gray shale on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 090472 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. The sidewalk shall be given a Class 6, Broomed Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of parapet rails in accordance with Section 803.

DETAIL DRAWINGS:
End Bents
Intermediate Bents
Elastomeric Bearings
120'-0" Continuous Composite Integral W-Beam Unit
Type H-Rolling
Steel H-Piles
Transitional Approach Rolling
Type 1 Special Approach Slab
Type 2 Special Approach Slab
General Notes for Steel Bridge Structures
Details for Steel Bridge Structures

DRAWING NUMBER
61541-61542
61543-61544
61545
61546-61554
61555
55020
61556
61557
61558
55006
55007

For Additional General Notes see Dwg. No. 61540

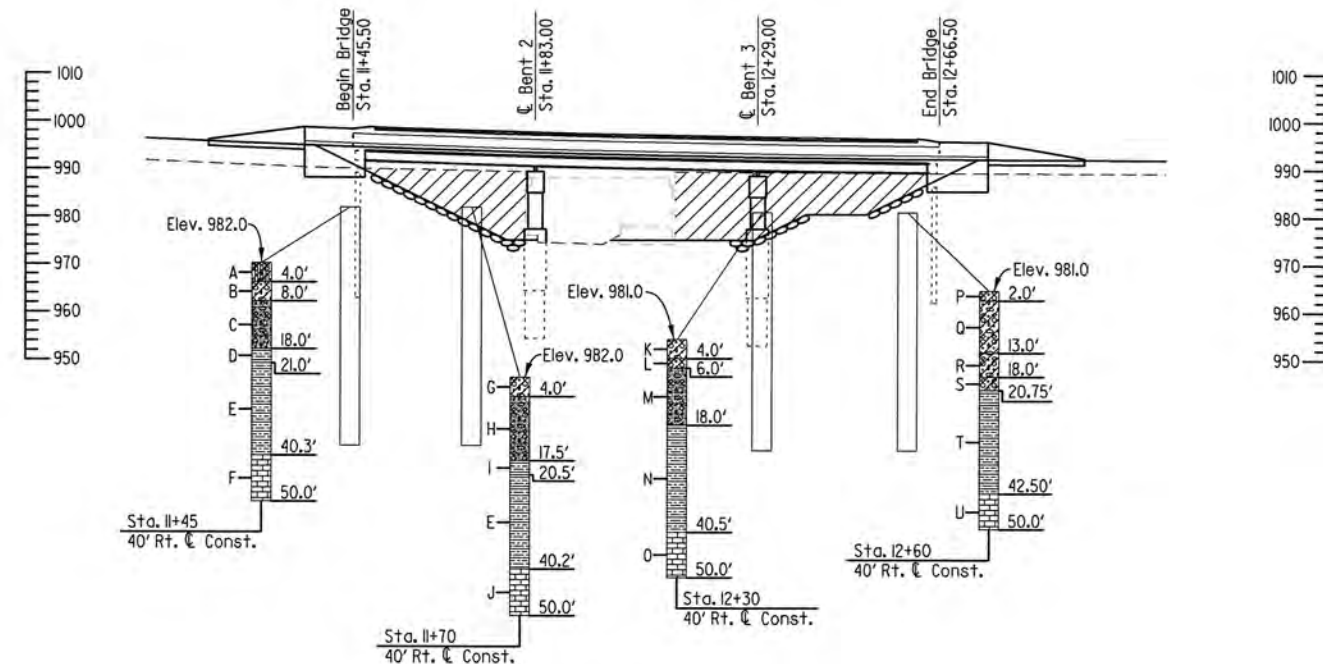
SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 340 OVER TANYARD CREEK
LITTLE SUGAR & TANYARD CREEKS
STRS. & APPRS. (BELLA VISTA) (S)
BENTON COUNTY
ROUTE 340 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 12-27-18 FILENAME: b090472x1.lldgn
CHECKED BY: CAW DATE: 01-07-19 SCALE: 1" = 20'
DESIGNED BY: KRM DATE: 12-18-18
BRIDGE NO. 07480 DRAWING NO. 61539

G:\17107001_Hwy340\TRANSP\dan\bridge\b090472xl-ll.dan 3/20/2020 1:41:03 PM

USER: CTAUSER
DESIGN FILE: G:\710700L\Hwy340\TRANSP\dgn\bridge\b090472xl.ll.dgn
PLOTTED: 3/20/2020 1:41:03 PM SCALE: 40.0000' / in.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090472	39
							07480	LAYOUT
								61540



"N" VALUES

Sta. 11+45 - 40' Right of Const. C.L.	Sta. 11+70 - 40' Right of Const. C.L.	Sta. 12+30 - 40' Right of Const. C.L.	Sta. 12+60 - 40' Right of Const. C.L.
0.5-1.5, N=20	0.5-1.5, N=27	0.5-1.5, N=25	0.5-1.5, N=18
2.5-3.5, N=12	2.5-3.5, N=26	2.5-3.5, N=16	2.5-3.5, N=13
4.5-5.5, N=7	4.5-5.5, N=31	4.5-5.5, N=18	4.5-5.5, N=8
6.5-7.5, N=15	9.0-10.0, N=17	9.0-10.0, N=29	6.5-7.5, N=12
9.0-10.0, N=18	14.0-15.0, N=11	14.0-15.0, N=11	9.0-10.0, N=21
14.0-15.0, N=21	19.0-20.0, N=50/2"	19.0-20.0, N=50/3"	14.0-15.0, N=19
19.0-20.0, N=50/2"			19.0-20.0, N=50/3"

Bent No. 1 2 3 4

ELEVATION OF SOIL BORINGS

BORING LEGEND

- Stiff brown silty clay w/some fine to coarse gravel (fill)
- Loose brown clayey fine to coarse gravel, sandy, wet
- Medium dense reddish tan sandy fine to coarse gravel
- Moderately hard to hard dark gray w/tan slightly weathered shale, flat bedded
- Hard dark gray shale, flat bedded
- Hard gray dolostone, flat bedded with numerous chert inclusions
- Medium dense reddish brown and brown clayey fine to coarse gravel, sandy
- Dense reddish tan sandy fine to coarse gravel
- Moderately hard to hard gray and dark gray with tan slightly weathered shale, flat bedded
- Hard gray dolostone, flat bedded, limy w/very close mudstone partings and seams
- Medium dense brown and red clayey fine to coarse gravel w/chert fragments (fill)
- Medium dense brown and tan clayey fine to coarse gravel, sandy
- Medium dense light tan, reddish tan and gray sandy fine to coarse gravel
- Moderately hard to hard dark gray shale, flat bedded
- Hard gray dolostone, oolitic, limy, flat bedded
- Medium dense brown clayey fine to coarse gravel w/trace organics (fill)
- Medium dense reddish brown and tan clayey fine to coarse gravel
- Medium dense reddish tan sandy fine to coarse gravel w/a little cobbles
- Moderately hard gray and dark gray with tan slightly weathered shale, flat bedded
- Hard dark gray shale, flat bedded with close pyrite nodules and inclusions
- Hard gray dolostone, flat bedded

GENERAL NOTES (Cont'd)

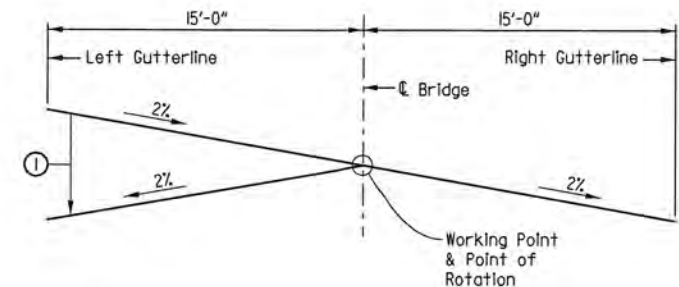
EXISTING BRIDGE: Existing Bridge No. M3230 (Log Mile 3.89) is a 26.3' wide (24.3' clear roadway) and 31.0' long single span structure consisting of concrete channel beams supported by reinforced concrete wall abutments on steel piles. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After traffic has switched to the detour, the Contractor shall remove existing Bridge No. M3230 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the State:

- All precast channel beam units
- All salvageable hardware for re-erection of the precast channel beam units
- Metal Rolling

The Contractor shall provide temporary storage and on site loading onto ARDOT equipment for removal of salvage items from the site. This work shall be considered incidental to the item "Removal of Existing Bridge Structure (Site No. 1)".

MAINTENANCE OF TRAFFIC: See Roadway Plans and Special Provisions for more information.



STATION 11+10.48 TO 12+31.69

(Looking Ahead)

SUPERELEVATION TRANSITION METHOD OF ROTATION

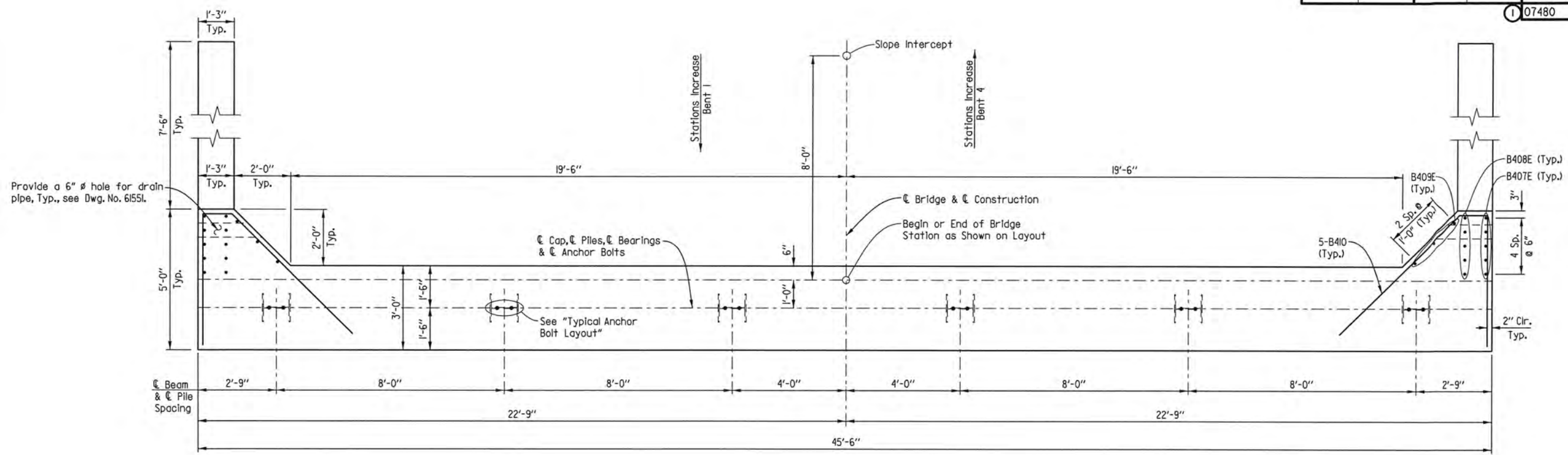
- Cross slope varies from 2% up from Profile Grade (Sta. 11+10.48) to 2% down from Profile Grade (Sta. 12+31.69).



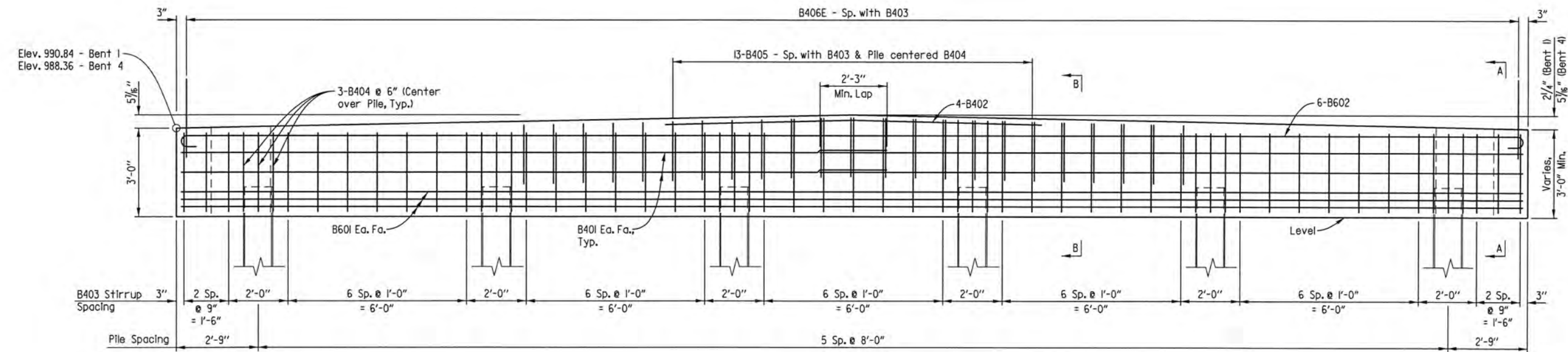
SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 340 OVER TANYARD CREEK
LITTLE SUGAR & TANYARD CREEKS
STRS. & APPRS. (BELLA VISTA) (S)
BENTON COUNTY
ROUTE 340 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 12-27-18 FILENAME: b090472x1.12.dgn
 CHECKED BY: CAN DATE: 01-07-19 SCALE: 1" = 20'
 DESIGNED BY: KRM DATE: 12-18-18
 BRIDGE NO. 07480 DRAWING NO. 61540

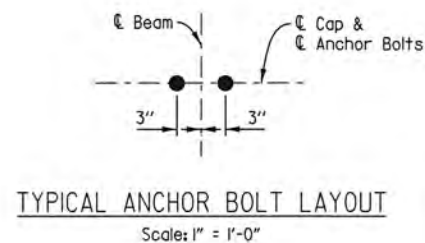
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	40	110
				07480	END BENTS		61541	



PLAN
Scale: 1/2" = 1'-0"



ELEVATION
(Looking Back Bent 1, Looking Ahead Bent 4)
Scale: 1/2" = 1'-0"



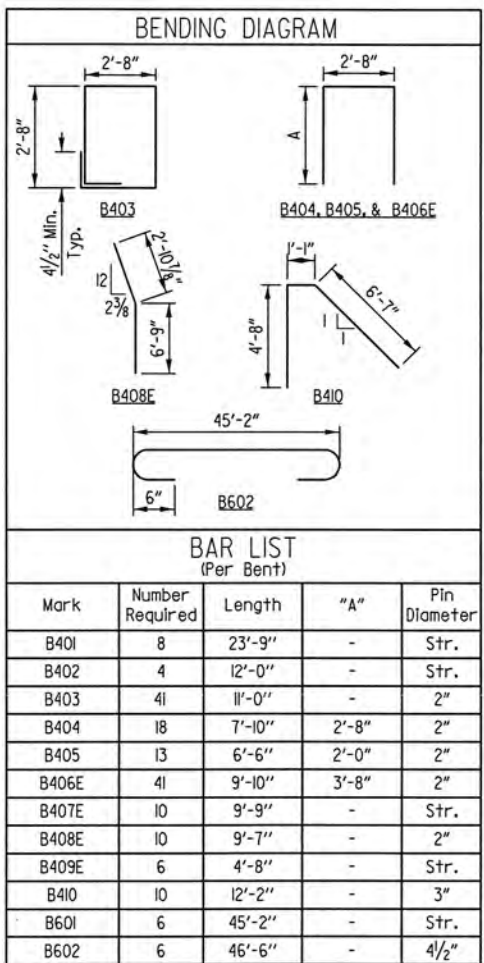
TYPICAL ANCHOR BOLT LAYOUT
Scale: 1" = 1'-0"

For "Section A-A", "Section B-B", and Bar List, See Dwg. No. 61542.
For General Notes, see Std. Dwg. No. 55006.
Notes:
Bars B407E, B408E, and B409E shall have a 2'-10" minimum embedment into the end bent cap.
Granular Backfill and Pipe Underdrain required behind Cap. See Dwg. No. 61552.



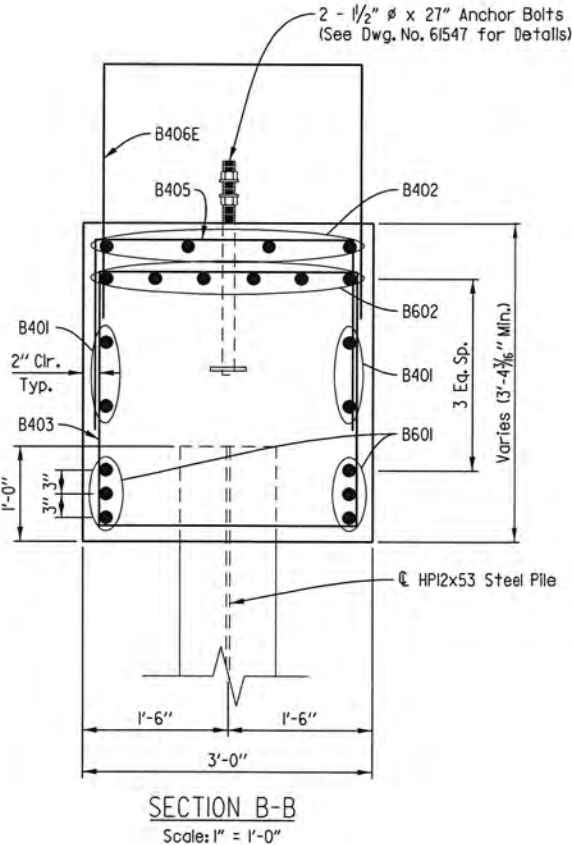
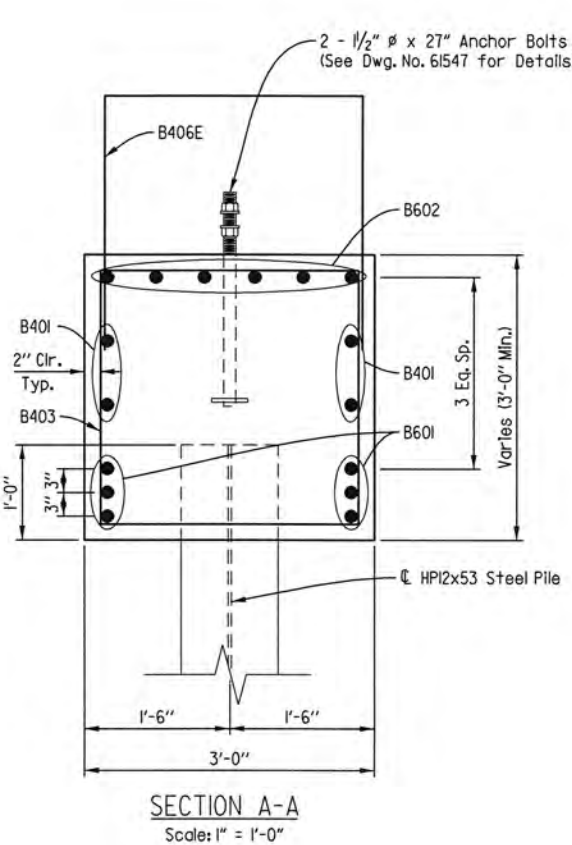
SHEET 1 OF 2
DETAILS OF BENTS 1 & 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-12-19
CHECKED BY: CAW DATE: 11-13-19
DESIGNED BY: KRM DATE: 11-05-19
BRIDGE NO. 07480 DRAWING NO. 61541
FILENAME: b090472xl.bl.dgn
SCALE: SEE DETAILS

USER: CTAUSER
DESIGN FILE: G:\17107001_Hwy340\TRANSP\dgn\bridge\b090472xl.bl.dgn
PLOTTER: 3/20/2020 1:41:05 PM SCALE: 4.0000' / 1" /



Note:
Dimensions of bars are out-to-out.

Bar designations ending with "E" indicate
epoxy-coated bars.

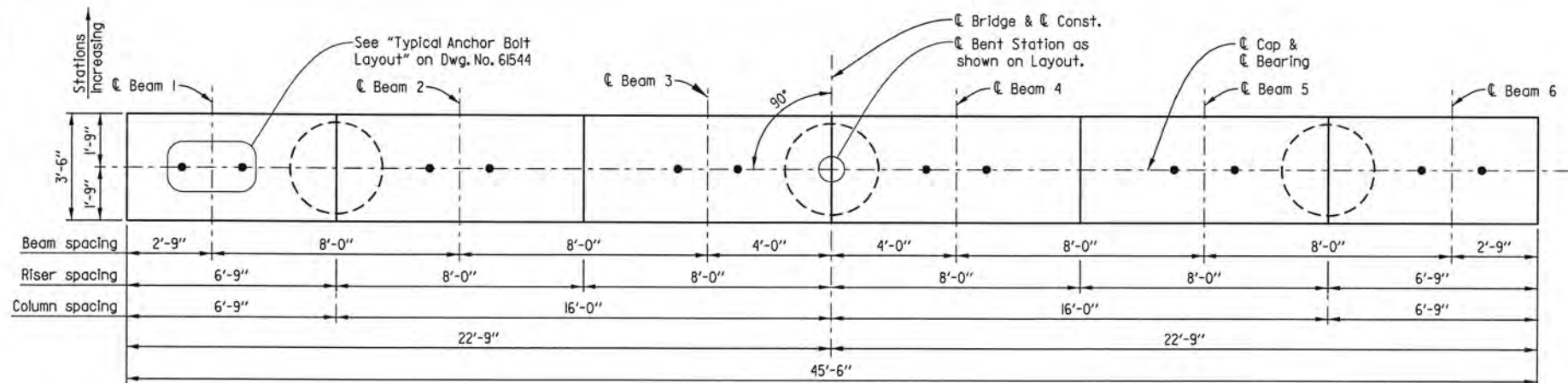


SHEET 2 OF 2
DETAILS OF BENTS 1 & 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

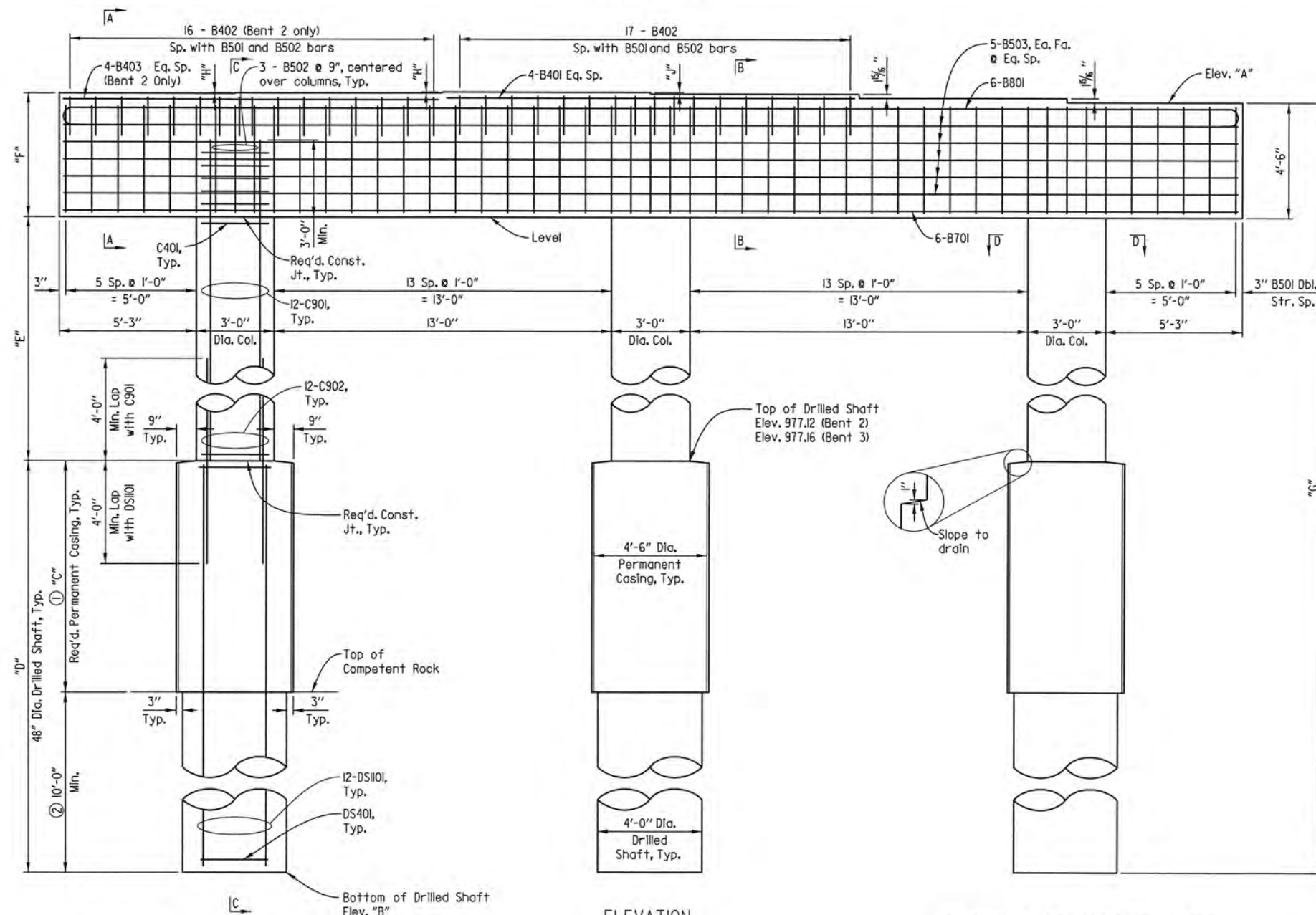
DRAWN BY: BWC DATE: 11-12-19
CHECKED BY: CAW DATE: 11-19-19
DESIGNED BY: KRM DATE: 11-05-19

BRIDGE NO. 07480 DRAWING NO. 61542

USER: CTAUSER
DESIGN FILE: G:\7107001.Hwy340\TRANSP\dwg\bridge\b090472x1.b2.dgn
PLOTTED: 3/20/2020 1:40:05 PM SCALE: 5/32" = 1'-0"



PLAN
Scale: 3/8" = 1'-0"



ELEVATION
(Looking Ahead)
Scale: 3/8" = 1'-0"

For Sections and Bar List, See Dwg. No. 61544.

GENERAL NOTES

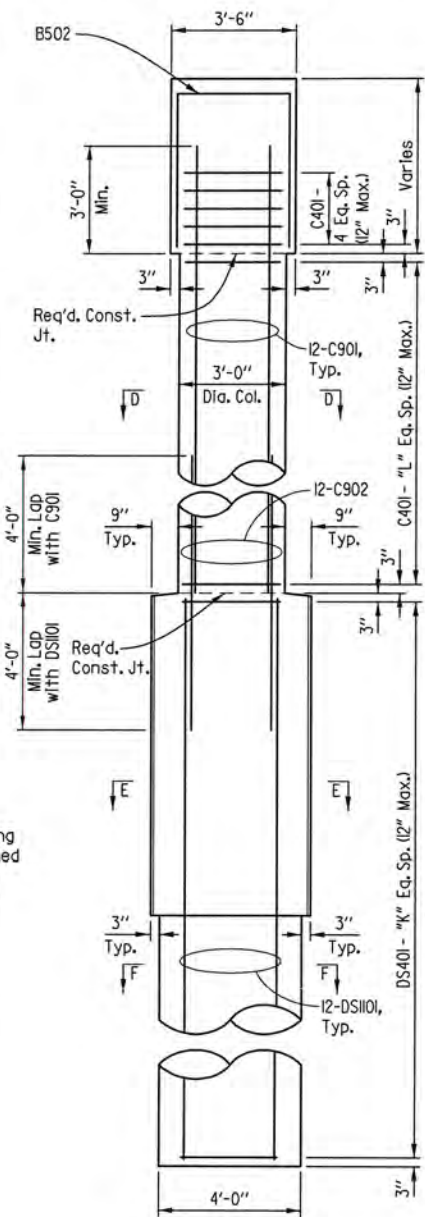
For additional General Notes, See Std. Dwg. No. 55006.

Concrete and Reinforcing Steel placed in the Drilled Shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "Drilled Shaft (48" Dia.)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 090472 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (48" Dia.)" and Permanent Steel Casing (54" Dia.)".

For additional information, See Layout.

- Length of permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 090472 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.
- Minimum penetration into competent rock below permanent casing.



SECTION C-C
Scale: 3/8" = 1'-0"

TABLE OF VARIABLES

Location	A	B	C	D	E	F	G	H	J	K	L
Bent 2	989.62	954.12	13'-0"	23'-0"	8'-0"	4'-9 1/8"	35'-6"	3/8"	3/4"	23	8
Bent 3	988.66	952.66	14'-6"	24'-6"	7'-0"	4'-6"	36'-0"	1 5/8"	0"	24	7

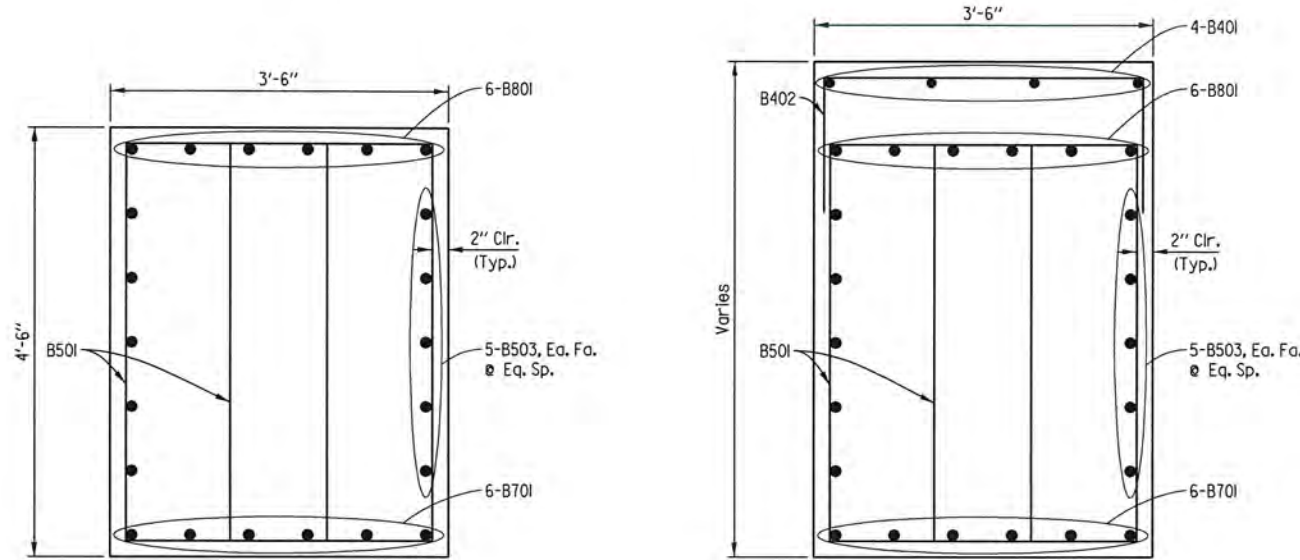


SHEET 1 OF 2
DETAILS OF BENTS 2 & 3
ROUTE SEC.
ARIZONA STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 12-28-18
CHECKED BY: CAW DATE: 11-20-19
DESIGNED BY: KRM DATE: 12-21-18
BRIDGE NO. 07480 DRAWING NO. 61543
FILENAME: b090472x1.b2.dgn
SCALE: 3/8" = 1'-0"

BAR LIST

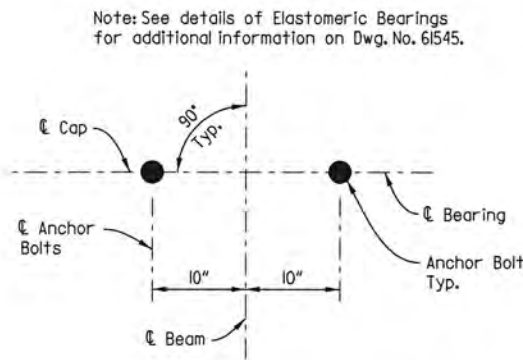
Mark	No. Req'd.	Length	P.D.	Bending Diagrams (Dimensions are Out to Out of Bars)
Bent 2				
B401	4	15'-8"	Str.	
B402	33	7'-2"	2"	
B403	4	14'-5"	Str.	
B501	80	13'-0"	2 1/2"	
B502	9	11'-4"	2 1/2"	
B503	10	45'-2"	Str.	
B701	6	45'-2"	Str.	
B801	6	47'-0"	6"	
C401	42	9'-2"	3"	
C901	36	11'-11"	Str.	
C902	36	8'-4"	Str.	
DS401	72	9'-2"	3"	
DS1101	36	22'-8"	Str.	
Bent 3				
B401	4	15'-8"	Str.	
B402	17	7'-2"	2"	
B501	80	13'-0"	2 1/2"	
B502	9	11'-4"	2 1/2"	
B503	10	45'-2"	Str.	
B701	6	45'-2"	Str.	
B801	6	47'-0"	6"	
C401	39	9'-2"	3"	
C901	36	10'-11"	Str.	
C902	36	8'-4"	Str.	
DS401	75	9'-2"	3"	
DS1101	36	24'-2"	Str.	

① Payment for these items shall be subsidiary to the bid item "Drilled Shafts (48" Dia.)".

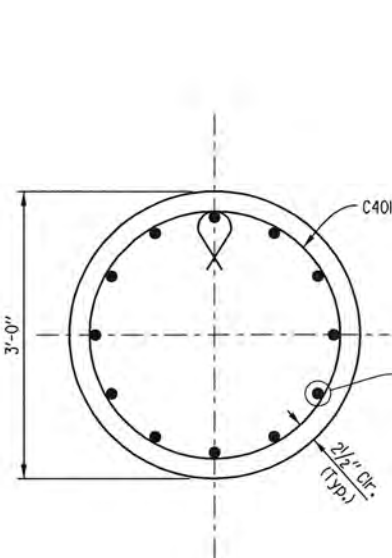


SECTION A-A
Scale: 1" = 1'-0"

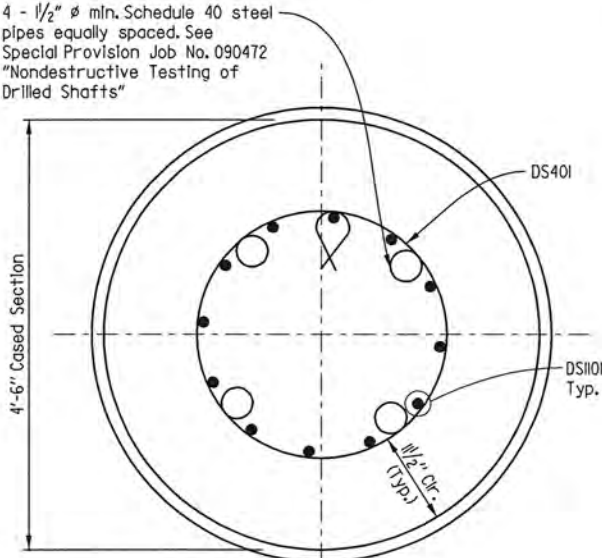
SECTION B-B
Scale: 1" = 1'-0"



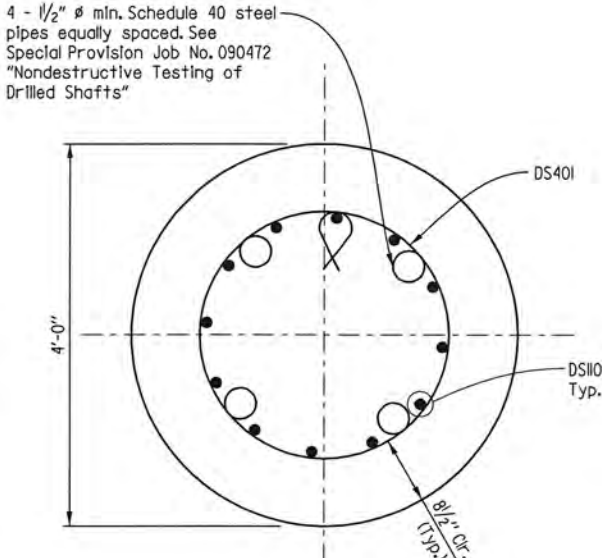
TYPICAL ANCHOR BOLT LAYOUT
No Scale



SECTION D-D
Scale: 1" = 1'-0"



SECTION E-E
Scale: 1" = 1'-0"



SECTION F-F
Scale: 1" = 1'-0"



SHEET 2 OF 2
DETAILS OF BENTS 2 & 3
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-12-19
CHECKED BY: CAW DATE: 11-20-19
DESIGNED BY: KRM DATE: 11-05-19
BRIDGE NO. 07480 DRAWING NO. 61544

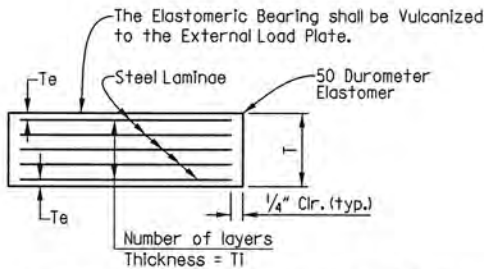
TABLE OF FABRICATOR VARIABLES

Brg. No.	Location		Bearing Type	No. of Bearings Each Bent	(3) Maximum Design Load (Kips)	G	H	Elastomeric Pad						External Load Plate										Anchor Bolt				
								A	B	N	T _I	T _B	No. & Thickness of Steel Laminæ	T	C	D	E	F	J	K	M	T _a	T _b	Anchor Bolt		Pipe Sleeve Size (ø X L)	Sheet Metal Sleeve Size (ø X L)	Steel Washer Size (O.D.)
	Bent No.	Beam or Glrder No.	ø X L	Grade																								
07480	2	I-6	Fix	6	178	10 1/8"	6 3/8"	14"	14"	7	1/16"	1/4"	8 @ 12 Ga.	4 1/16"	15"	27"	3 3/4"	3 3/4"	N/A	1/2"	10"	1.81"	2.20"	2 1/2" X 39"	55	3" X 6 5/8"	4" X 9"	4 1/2"
	3	I-6	Fix	6	178	10 1/8"	6 3/8"	14"	14"	7	1/16"	1/4"	8 @ 12 Ga.	4 1/16"	15"	27"	3 3/4"	3 3/4"	N/A	1/2"	10"	1.88"	2.12"	2 1/2" X 38"	55	3" X 6 5/8"	4" X 8"	4 1/2"

- ① Care shall be taken to ensure that the External Load plate is in full and complete contact with the Beam or Girder Flange before welding begins.
- ② Center line of Beam or Girder shall be aligned with center line of Elastomeric pad.
- ③ Maximum Design Load = Service I Limit State

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in TABLE OF FABRICATOR VARIABLES.

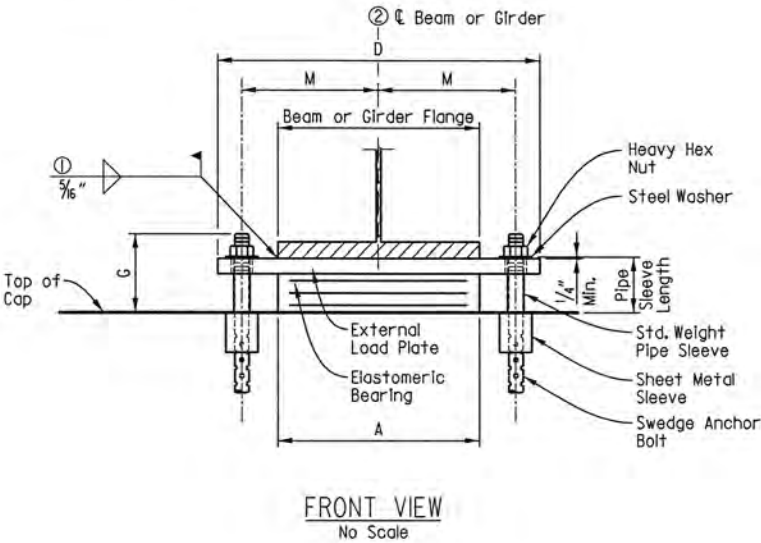
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the external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



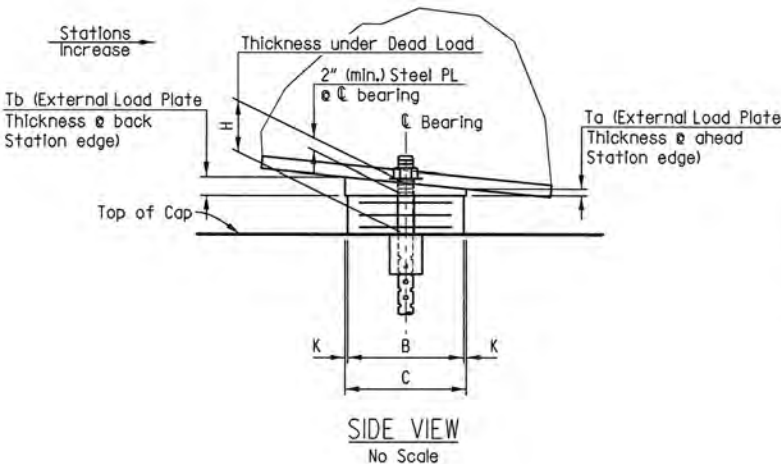
T_e = thickness of Elastomer cover on top and bottom of pad
T₁ = thickness of Elastomer between Steel Laminæ
N = number of Elastomer layers of thickness T₁

ELASTOMERIC BEARING

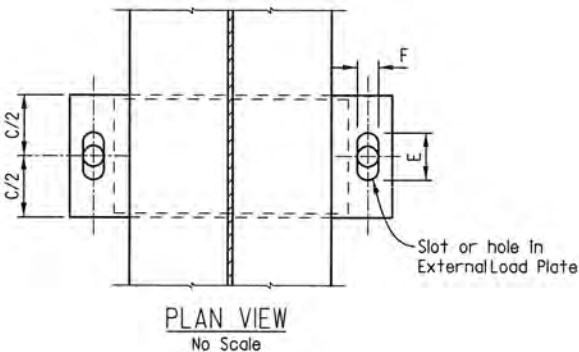
No Scale



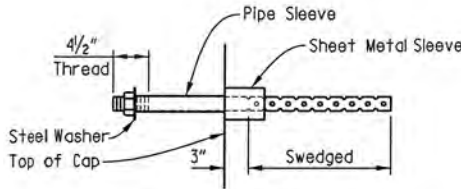
FRONT VIEW
No Scale



SIDE VIEW
No Scale



PLAN VIEW
No Scale



ANCHOR BOLT DETAIL
No Scale

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

If Anchor Bolts are to be drilled and grouted in place, the galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gauge thickness, and be galvanized according to ASTM B695, Class 50. Galvanized sheet metal sleeves will not be paid for directly, but will be considered subsidiary to the items "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)".

GENERAL NOTES

Elastomeric bearings shall conform to Special Provision Job 090472 "Elastomeric Bearings" and Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is not required.

External load plates shall conform to ASTM A709, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor bolts, Washers, and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

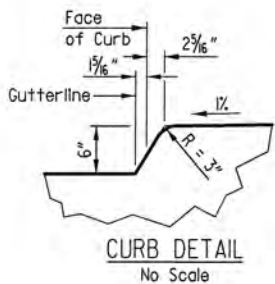
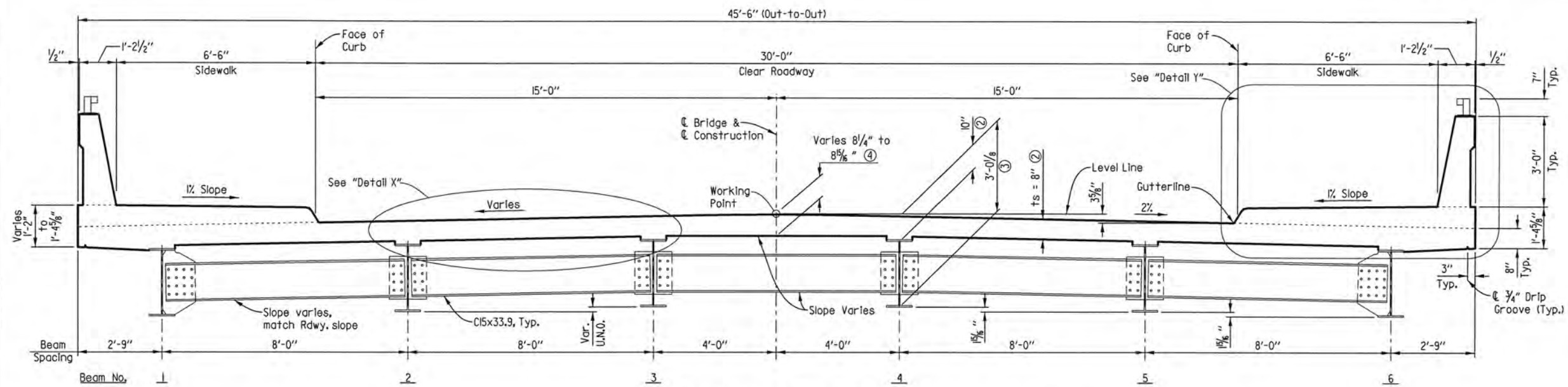
Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

Prior to erection of the Beams or Girders, the Contractor shall verify the orientation of the bearings with respect to T_a and T_b



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

DRAWN BY: BWC DATE: 11-13-19 FILENAME: b090472xl.eidgm
CHECKED BY: CAW DATE: 11-20-19 SCALE: NO SCALE
DESIGNED BY: KRM DATE: 11-6-19
BRIDGE NO. 07480 DRAWING NO. 61545



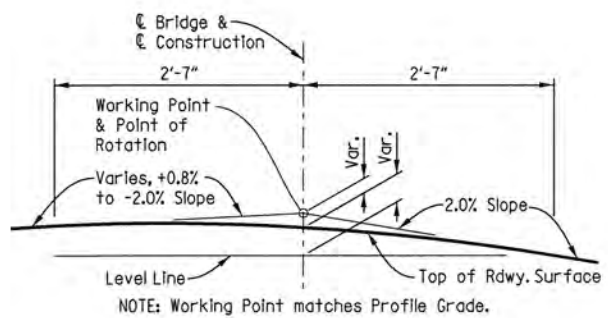
- ① Tolerances: Minus = $\frac{1}{4}$ "
Plus = Amount of slab thickening used to meet slab thickness tolerance
See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007
- ② See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007
- ③ Measured at \perp Bearing and \perp Beam, Typ.
- ④ To Working point - See "Rounding Detail"

TYPICAL ROADWAY SECTION
(Looking Ahead)
(Reinforcement not shown for clarity)
Scale: $\frac{1}{2}$ " = 1'-0"

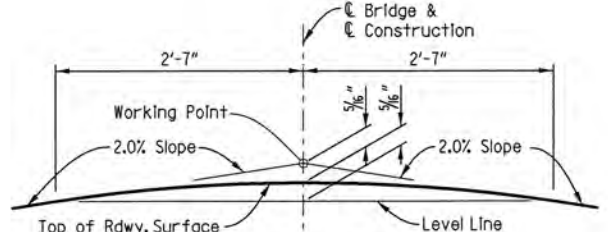
Slab Reinforcing:
Longitudinal: S401E in Top (placed as shown)
S601E placed as shown over interior supports
(See Reinf. Plan and Pouring Sequence on Dwg. No. 61550)
S501E in Bottom @ 7" o.c. between Beams
Transverse: S602E placed as shown at end of unit
(See Reinf. Plan and Pouring Sequence on Dwg. No. 61550)
S502E @ 12" o.c. in bottom
S502E @ 12" o.c. in top
S503E @ 12" o.c. (Alternate w/S502E)
S504E @ 12" o.c. in top, in overhang

See Dwg. No. 55007 for additional information.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

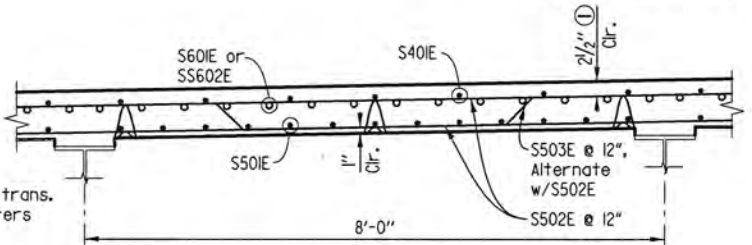


ROUNDING DETAIL
(from Sta. 11+45.50 to Sta. 12+31.69)
No Scale

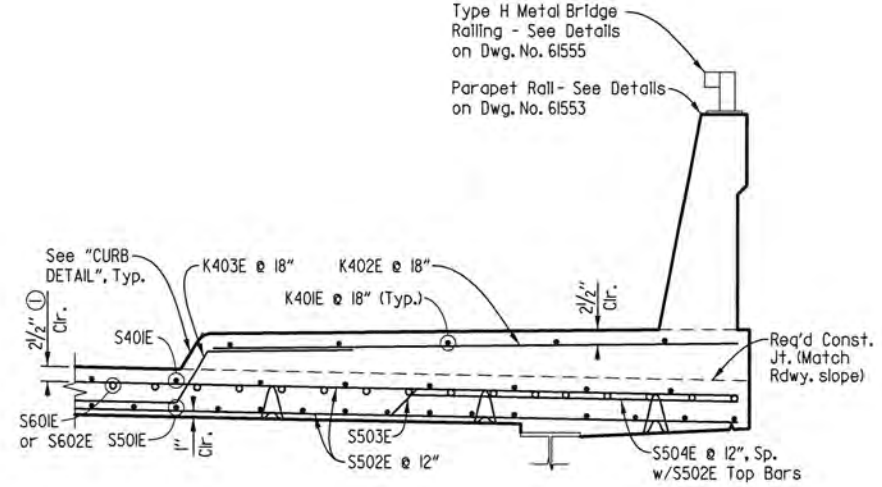


ROUNDING DETAIL
(from Sta. 12+31.69 to End Bridge, Sta. 12+66.50)
No Scale

Note: Space Hi-Chairs as shown trans.
4'-0" o.c. longit. Space slab bolsters
4'-0" max. sp.



DETAIL X
Scale: $\frac{3}{4}$ " = 1'-0"



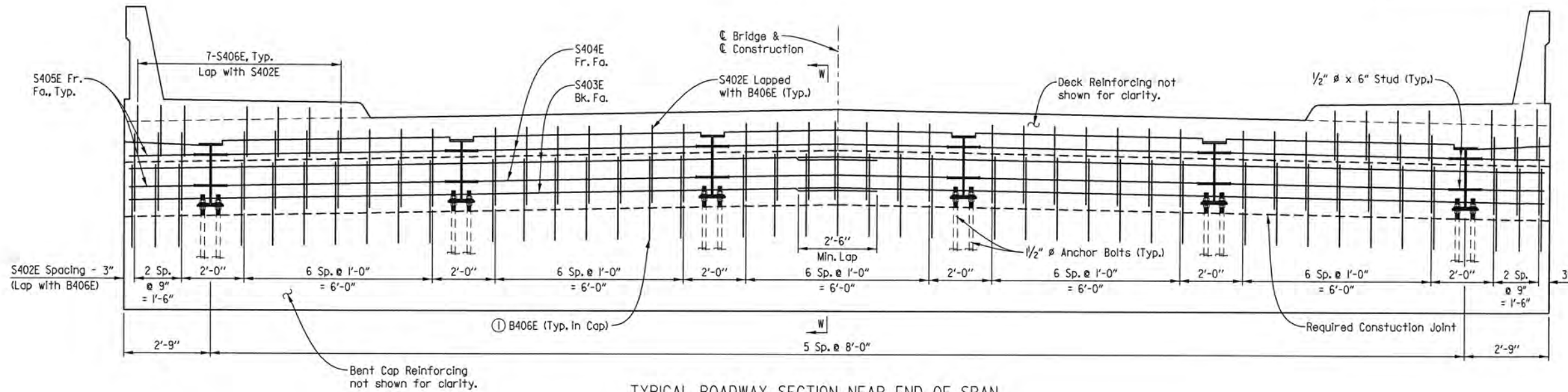
DETAIL Y
Scale: $\frac{3}{4}$ " = 1'-0"



SHEET 1 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-13-19
CHECKED BY: CAW DATE: 11-20-19
DESIGNED BY: KRM DATE: 11-6-19
BRIDGE NO. 07480 DRAWING NO. 61546

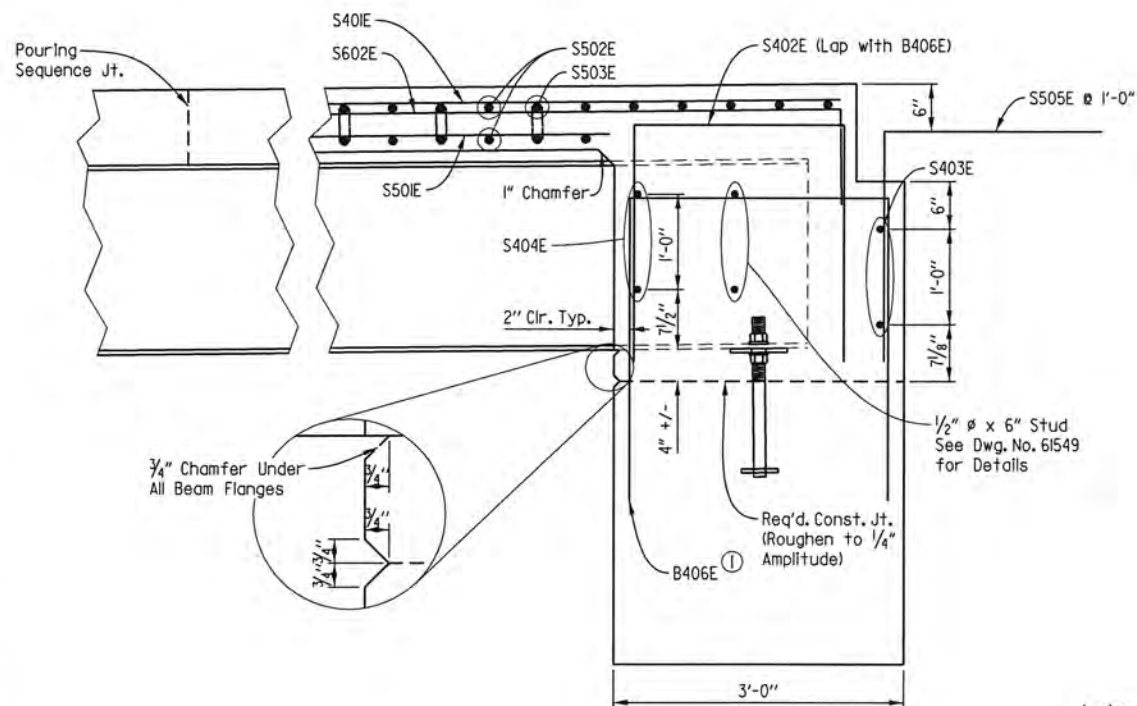
① See End Bent Details on Dwg. No's 61541 & 61542 for reinforcing and additional details.

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.	090472	46	110	
				07480	SPAN DETAILS	61547		

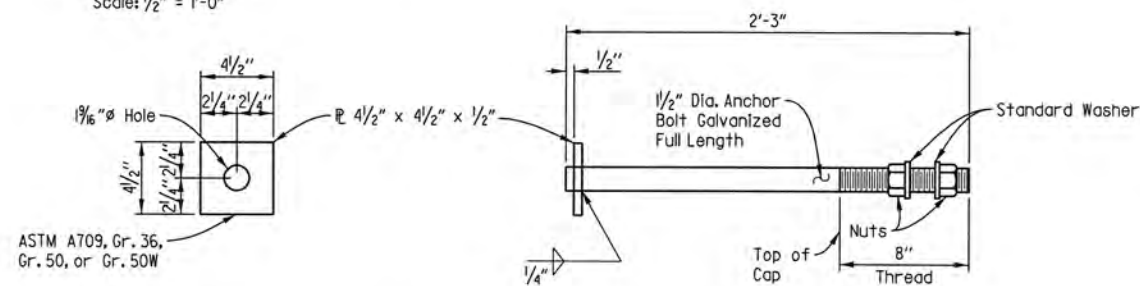


TYPICAL ROADWAY SECTION NEAR END OF SPAN

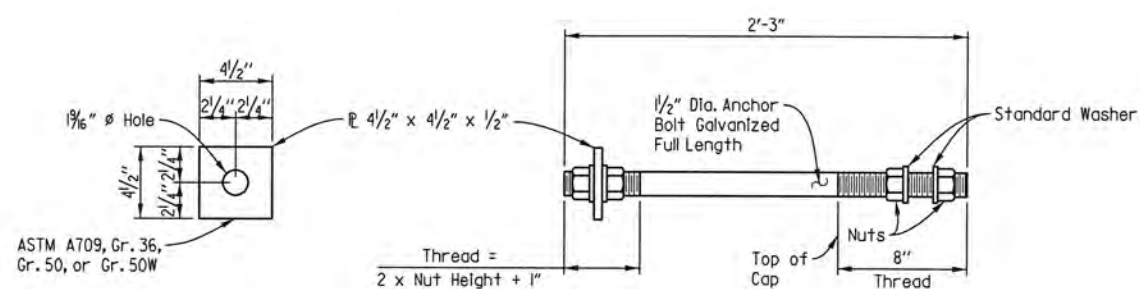
(Looking Ahead - Bent 4
Bent 1 Similar)
Scale: 1/2" = 1'-0"



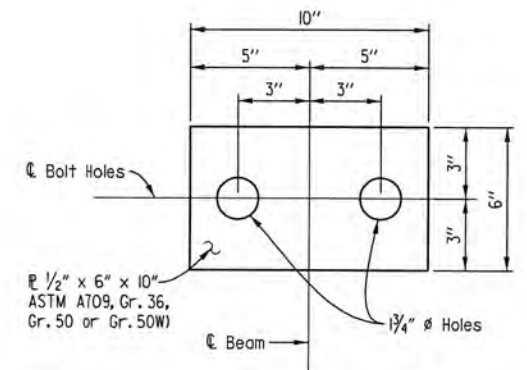
SECTION W-W
Scale: 1" = 1'-0"



ANCHOR BOLT DETAIL
Scale: 2" = 1'-0"



ALTERNATE ANCHOR BOLT DETAIL
Scale: 2" = 1'-0"



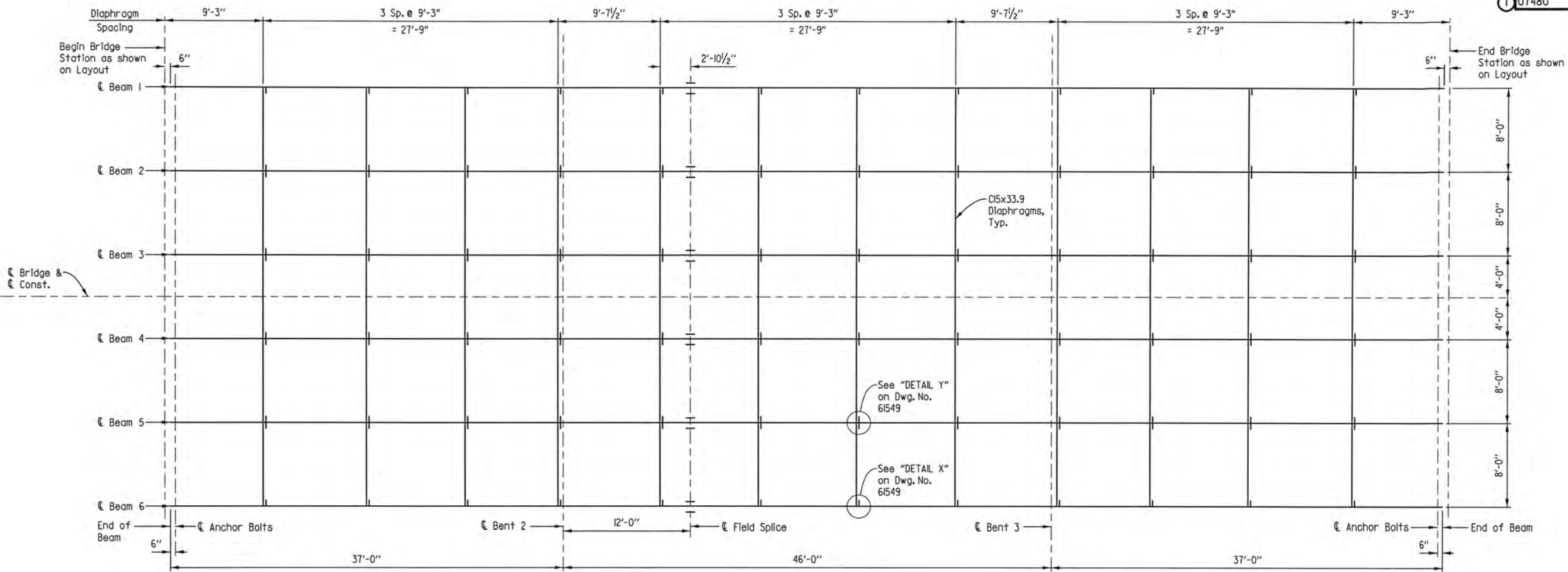
BEARING PLATE DETAIL
Scale: 3" = 1'-0"

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07. Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted. Bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)".

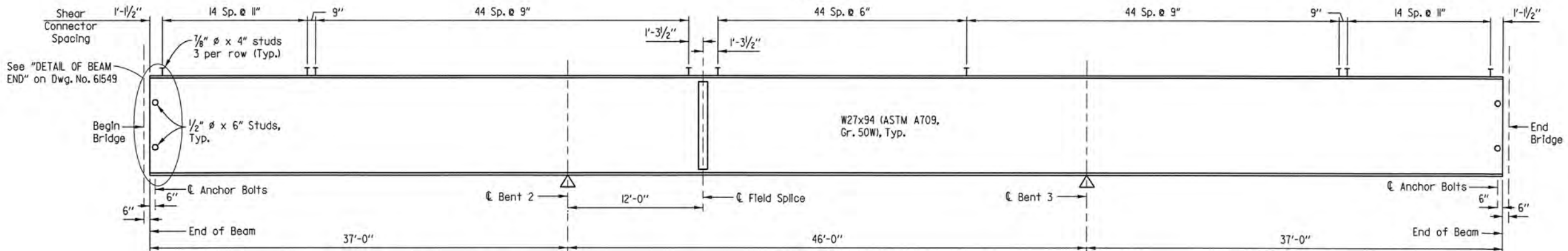


SHEET 2 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-14-19 FILENAME: b090472xl.s2.dgn
CHECKED BY: CAW DATE: 11-21-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-7-19
BRIDGE NO. 07480 DRAWING NO. 61547

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	47	110
				07480		SPAN DETAILS		61548



FRAMING PLAN
SCALE: 3/16" = 1'-0"



BEAM ELEVATION
No Scale

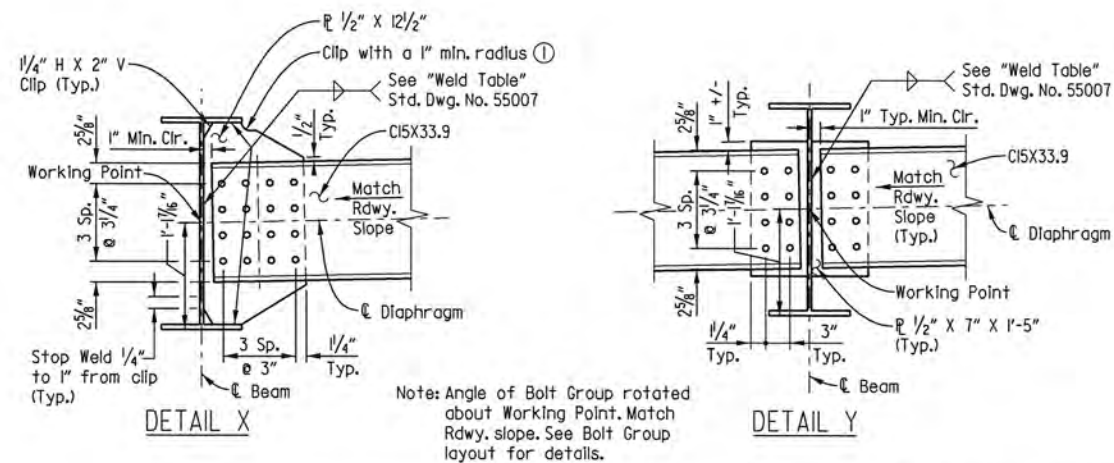
Note: All structural steel shall be ASTM A709, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

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



SHEET 3 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-14-19
CHECKED BY: CAW DATE: 11-21-19
DESIGNED BY: KRM DATE: 11-7-19
BRIDGE NO. 07480 DRAWING NO. 61548
FILENAME: b090472xl.s3.dgn
SCALE: SEE DETAILS

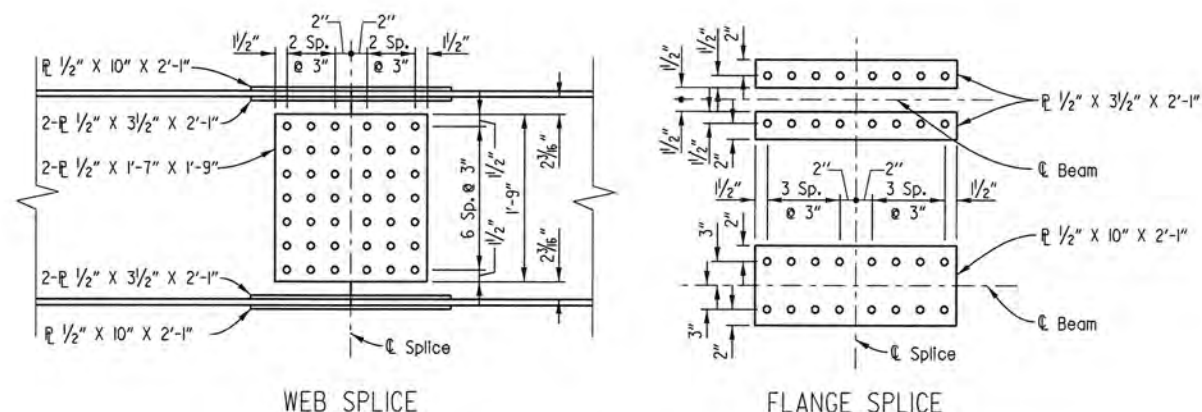
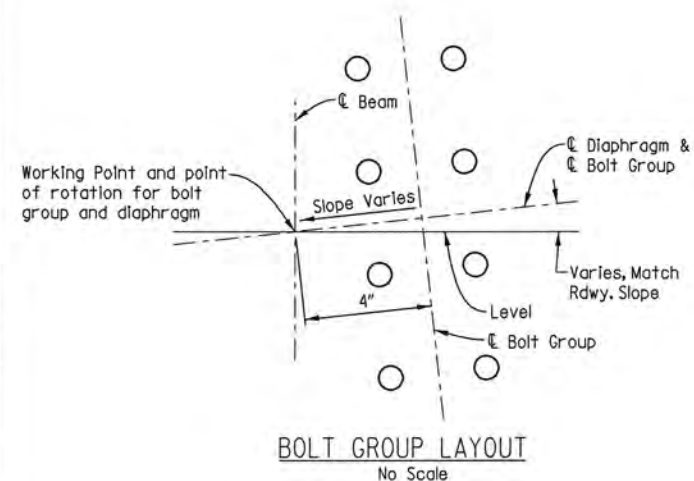
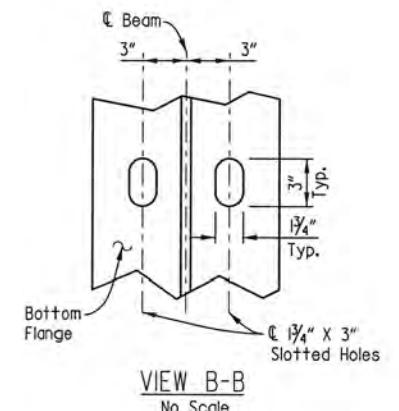
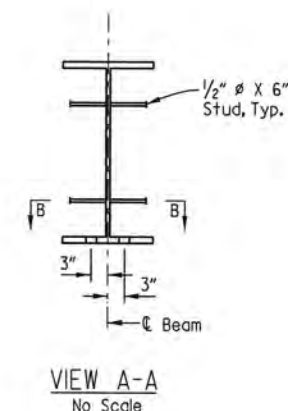
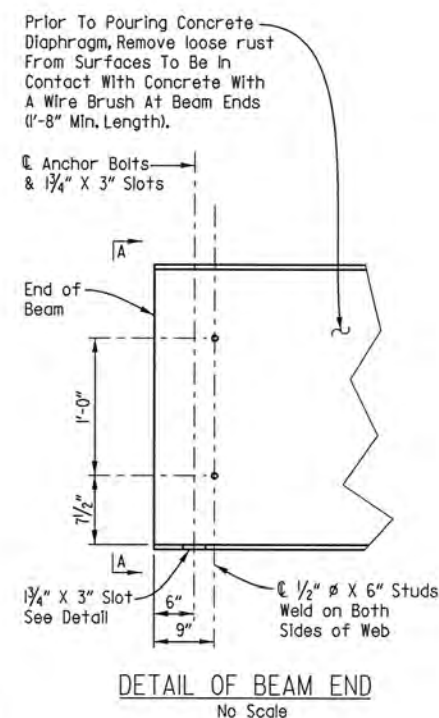
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	48	110
				07480		SPAN DETAILS		61549



DIAPHRAGM & CONNECTION PLATE DETAILS
Scale: 1" = 1'-0"

Note: Bolts shall be 3/4" ϕ H.S. Bolts. All holes shall be 1/2" ϕ .

① If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accommodate the deck form supports.



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

Note: Bolts shall be 7/8" ϕ H.S. Bolts. All holes shall be 15/16" ϕ .

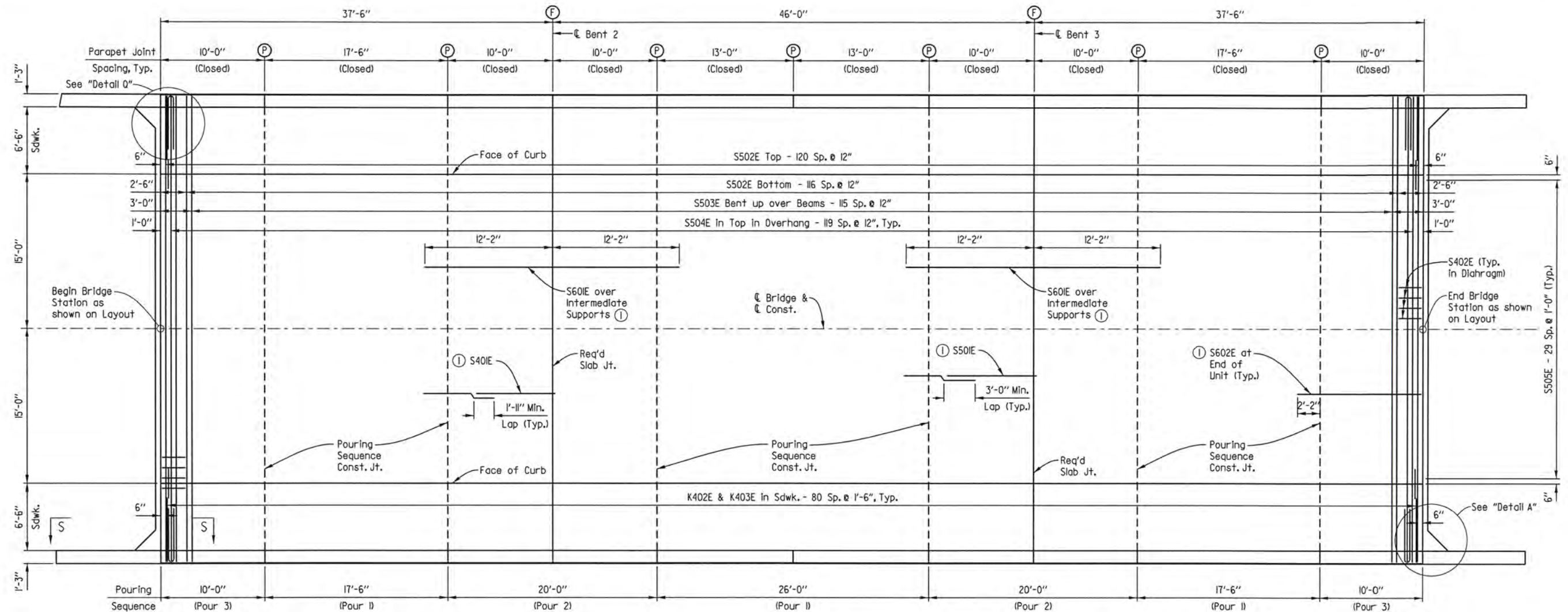


SHEET 4 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-14-19 FILENAME: b090472xl_s4.dgn
CHECKED BY: CAW DATE: 11-21-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 8-7-19
BRIDGE NO. 07480 DRAWING NO. 61549

Ⓔ Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab. See Details of Parapet Railing.

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		49	110
				07480	SPAN DETAILS		61550	



REINFORCING PLAN AND POURING SEQUENCE
SCALE: 3/16" = 1'-0"

Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete diaphragms at the end of unit shall be poured monolithically with the deck. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Removable forms shall be used for concrete diaphragms.

Note:
Parapet rail spacing and joint depth shown are typical for both sides of roadway. For Parapet reinforcing details, see Dwg. No. 61553.

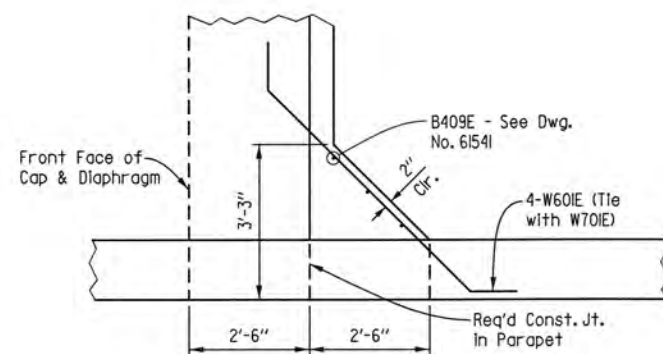
Rails and wings are included in span construction and are included in span quantities.

Required slab joints and pouring sequence joints shall align with parapet open joints at the Rdwy. face of parapet.

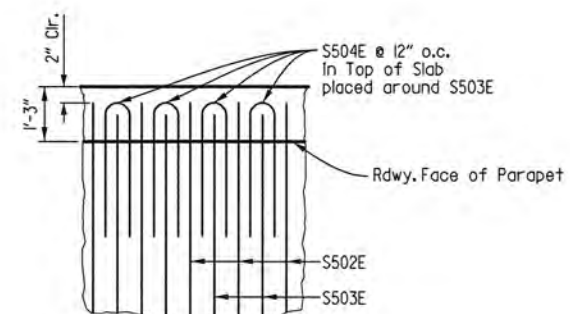
For "Transverse Slab Joint Detail", See Std. Dwg. No. 55007.

For "View R-R" and "View S-S", see Dwg. No. 61551.

① Place as shown in "Detail X" and "Detail Y", see Dwg. No. 61546.



DETAIL A
Scale: 1/2" = 1'-0"

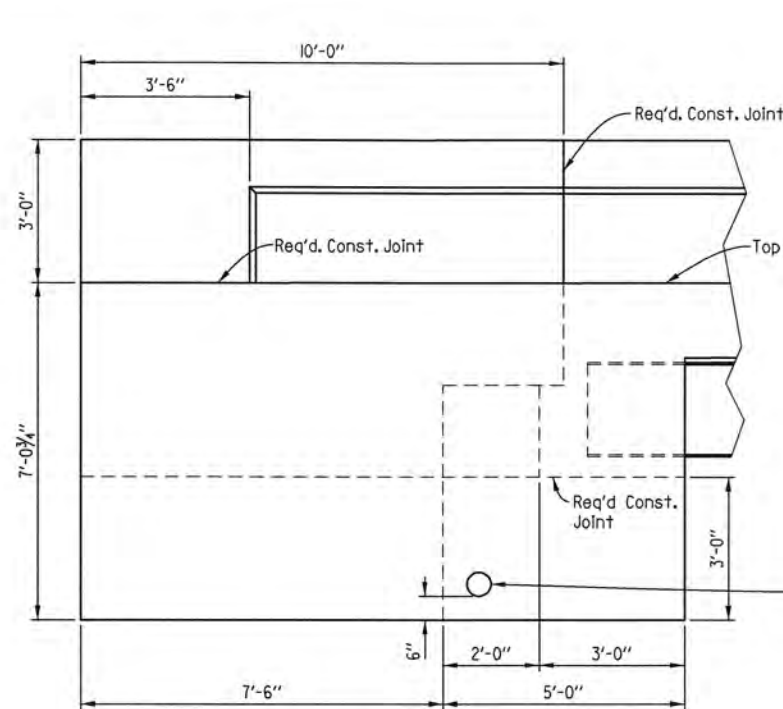


DETAIL Q
No Scale



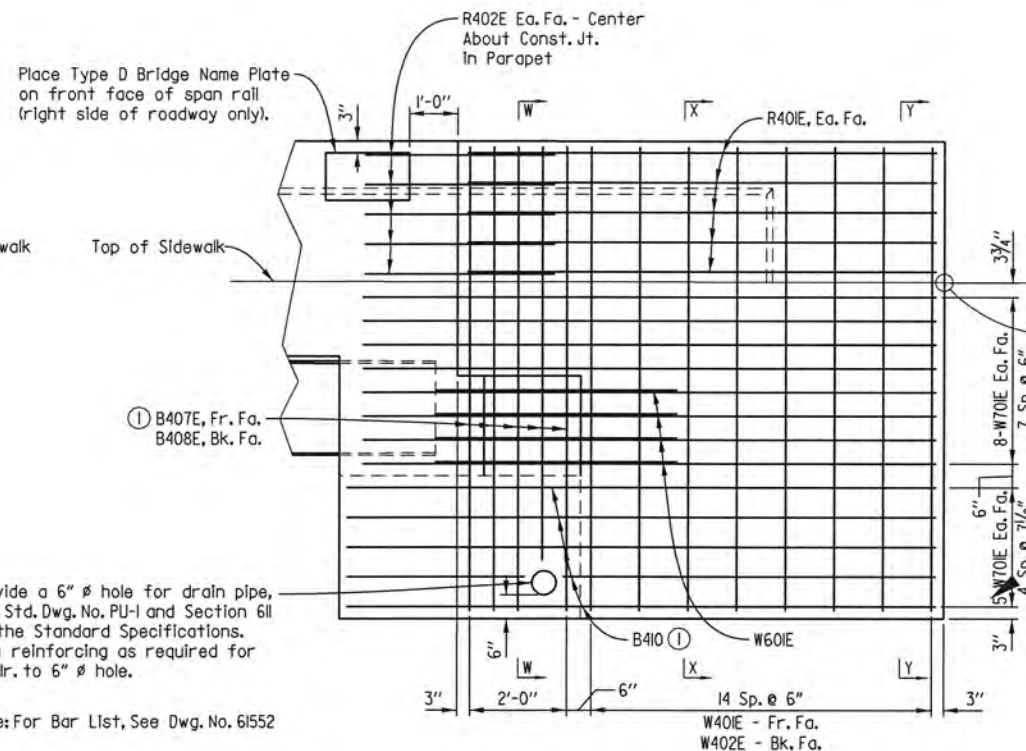
SHEET 5 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-14-19
CHECKED BY: CAW DATE: 11-21-19
DESIGNED BY: KRM DATE: 11-07-19
BRIDGE NO. 07480 DRAWING NO. 61550
FILENAME: b090472xl.s5.dgn
SCALE: SEE 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.	090472		50	110
				07480	SPAN DETAILS		61551	

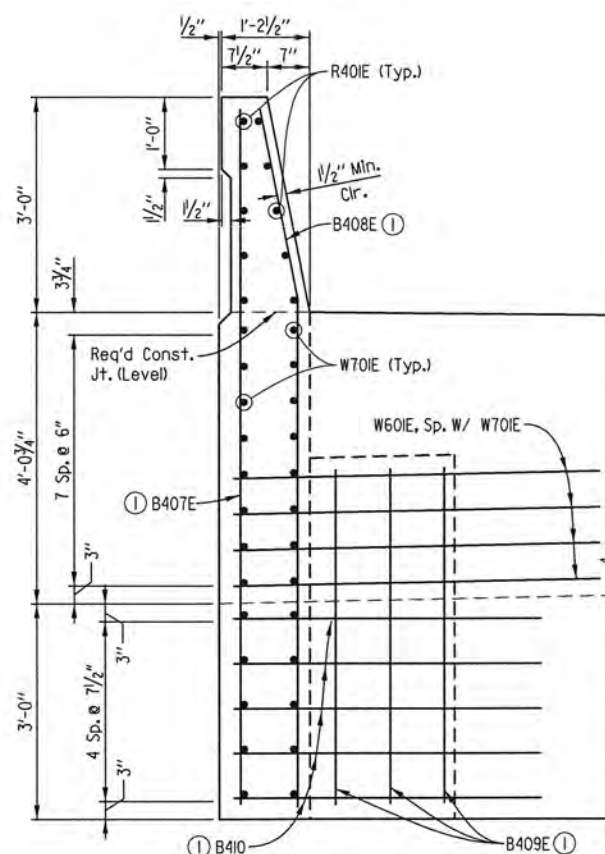


VIEW R-R
Scale: 1/2" = 1'-0"

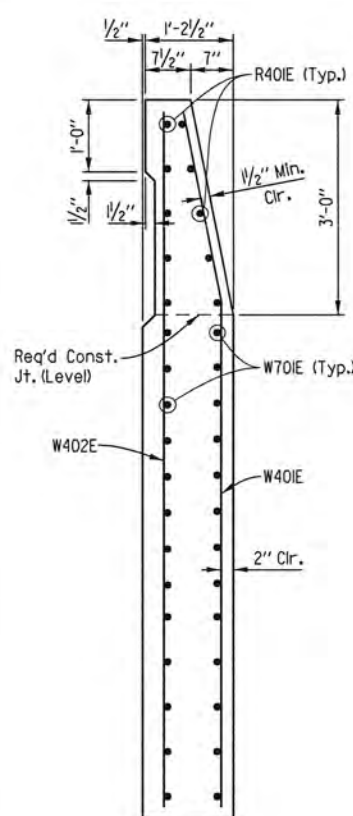
① See End Bent Details on Dwg.
Nos. 61541 & 61542 for reinforcing
and additional details.



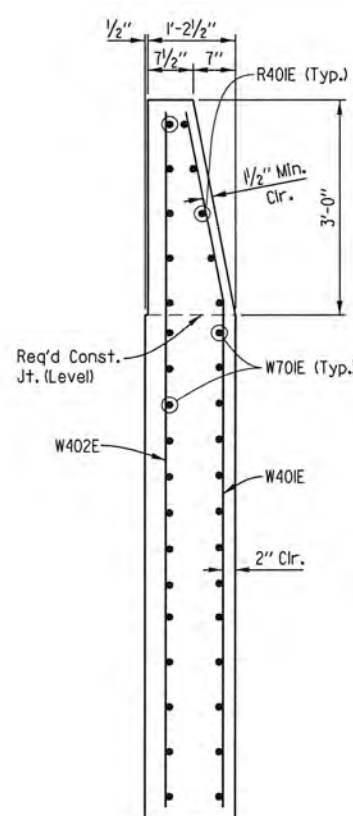
VIEW S-S
Scale: 1/2" = 1'-0"



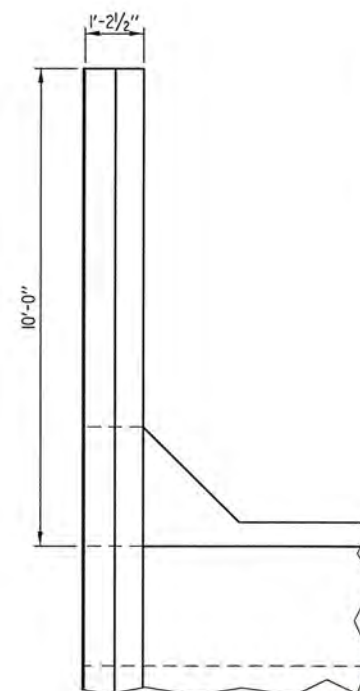
SECTION W-W
Scale: 3/4" = 1'-0"



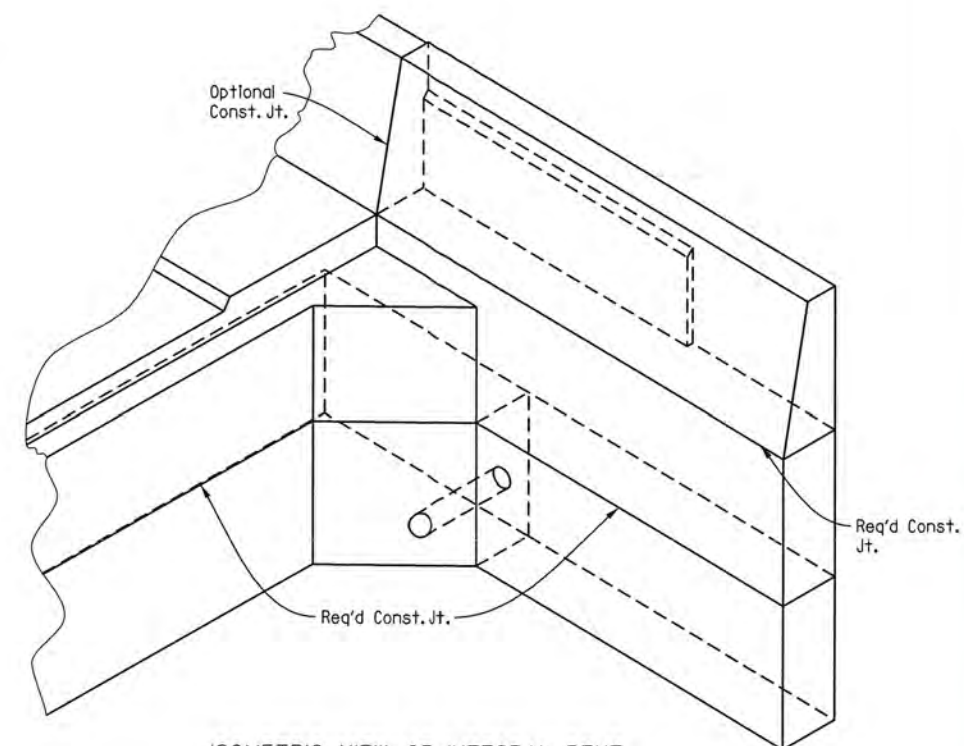
SECTION X-X
Scale: 3/4" = 1'-0"



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



PLAN OF RAIL
Scale: 1/2" = 1'-0"



ISOMETRIC VIEW OF INTEGRAL BENT
No Scale

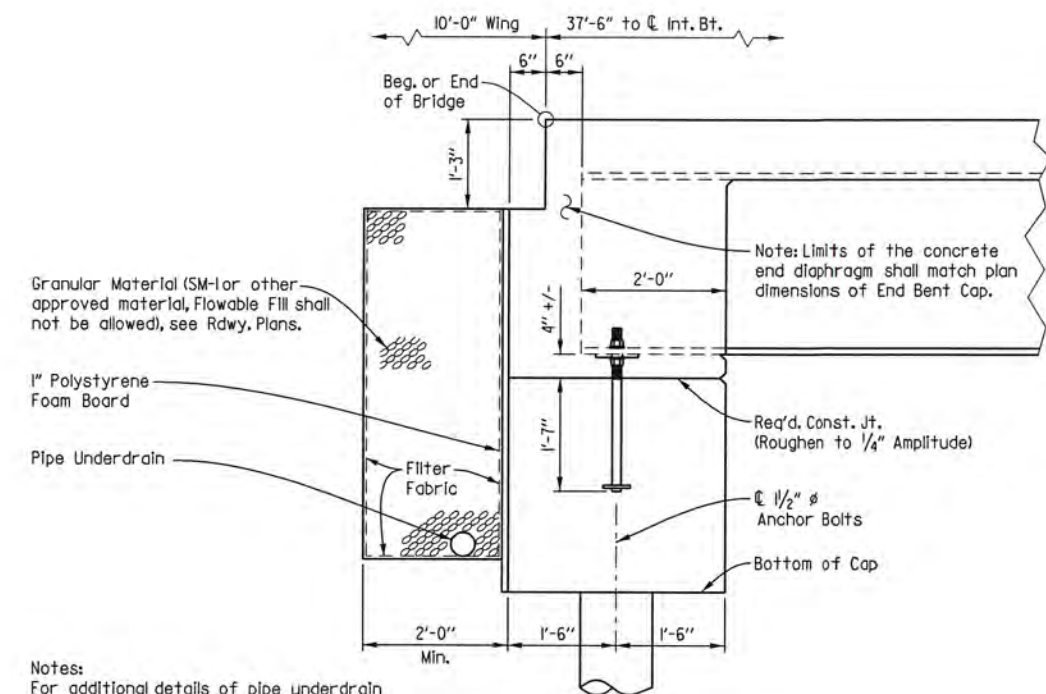


SHEET 6 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-13-19
CHECKED BY: CAW DATE: 11-20-19
DESIGNED BY: KRM DATE: 11-06-19
BRIDGE NO. 07480 DRAWING NO. 61551

BAR LIST

Mark	Number Required	Length	Pin Diameter	Bending Diagrams (Dimensions are Out to Out of Bars)
S401E	156	31'-8"	Str.	
S402E	82	8'-0"	2"	
S403E	8	23'-11"	Str.	
S404E	20	7'-8"	Str.	
S405E	8	2'-5"	Str.	
S406E	28	7'-6"	2"	
S501E	219	42'-3"	Str.	
S502E	238	45'-2"	Str.	
S503E	116	45'-9"	3"	
S504E	120	9'-10"	3 3/4"	
S505E	60	4'-11"	3 3/4"	
S601E	160	24'-4"	Str.	
S602E	160	12'-11"	4 1/2"	
K401E	40	31'-8"	Str.	
K402E	162	6'-2"	Str.	
K403E	162	4'-9"	3"	
P401E	484	5'-11"	2"	
P402E	64	4'-2"	Str.	
P403E	120	9'-8"	Str.	
P404E	40	17'-2"	Str.	
P405E	40	12'-8"	Str.	
P406E	8	4'-7"	3"	
P407E	12	4'-2"	2"	
P501E	484	5'-10"	2 1/2"	
R401E	40	9'-8"	Str.	
R402E	40	4'-2"	Str.	
W401E	60	10'-0"	3"	
W402E	60	9'-8"	Str.	
W601E	16	7'-3"	4 1/2"	
W701E	104	12'-2"	Str.	

Note:
Bar designations ending with "E" indicate epoxy-coated bars.



Notes:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611 of the Standard Specifications. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

1" Polystyrene Foam Board, Filter Fabric, and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.

SECTION AT END BENT
Scale: 1/4" = 1'-0"



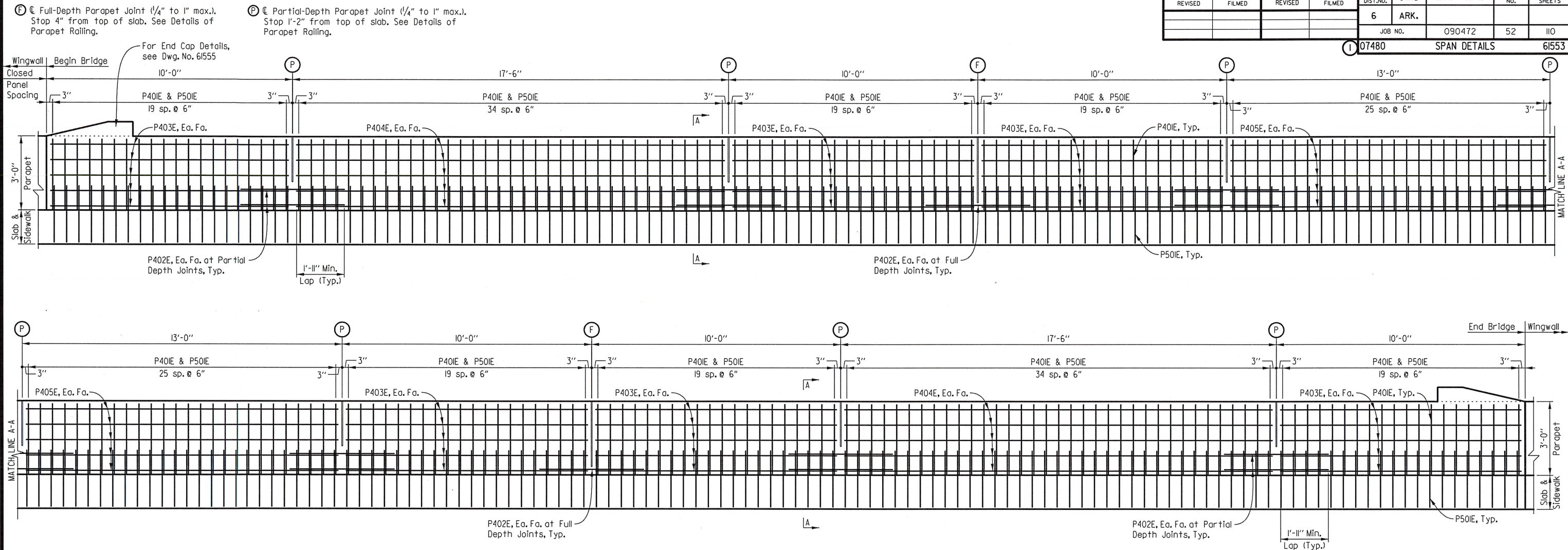
SHEET 7 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-15-19 FILENAME: b090472xl.s7.dgn
CHECKED BY: CAW DATE: 11-22-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-08-19

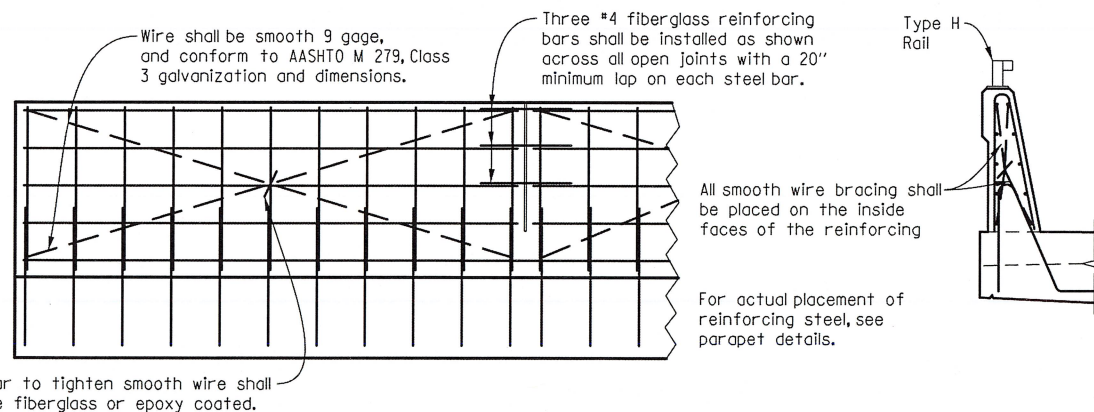
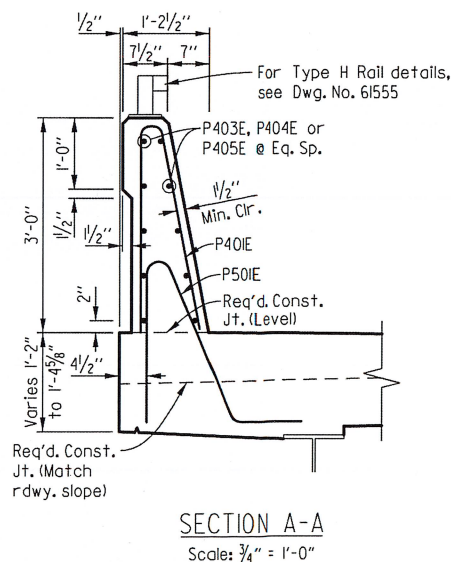
BRIDGE NO. 07480 DRAWING NO. 61552

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	52	110

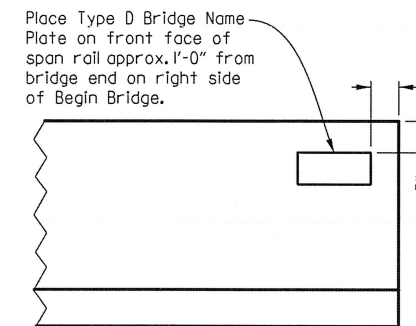
07480 SPAN DETAILS 61553



ELEVATION - CONCRETE PARAPET RAIL
 (Left Parapet Shown, Right Parapet Similar)
 Scale: 1/2" = 1'-0"

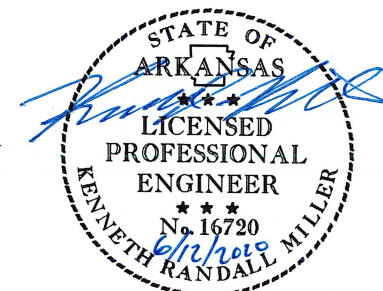


DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL
 No Scale



NAME PLATE DETAIL
 No Scale

Note:
 For additional parapet details, see Dwg. No. 61555.



For General Notes, see Std. Dwg. No. 55007.

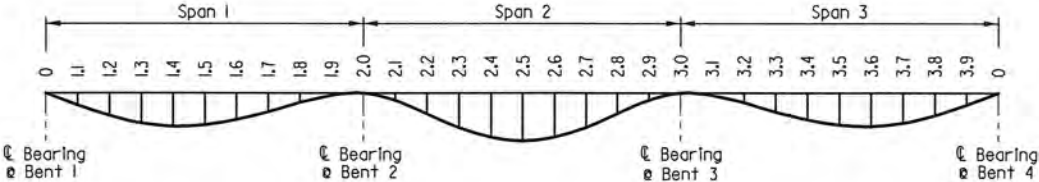
SHEET 8 OF 9
 DETAILS OF 120'-0" CONTINUOUS
 COMPOSITE INTEGRAL W-BEAM UNIT
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: BWC DATE: 11-14-19 FILENAME: b090472xl.s8.dgn
 CHECKED BY: CAW DATE: 11-21-19 SCALE: SEE DETAILS
 DESIGNED BY: KRM DATE: 11-07-19
 BRIDGE NO. 07480 DRAWING NO. 61553

See Bridge Standard Dwg. Nos. 55005, 55006, and 55007 for additional details and notes.

TABLE OF DEAD LOAD DEFLECTIONS - INCHES							
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.009	0.009	0.064	0.056	0.066	0.059
	1.2	0.016	0.016	0.118	0.102	0.123	0.107
	1.3	0.021	0.021	0.155	0.134	0.163	0.142
	1.4	0.023	0.023	0.170	0.148	0.181	0.159
	1.5	0.022	0.022	0.163	0.142	0.173	0.153
	1.6	0.018	0.018	0.136	0.118	0.144	0.128
	1.7	0.013	0.013	0.097	0.084	0.102	0.089
	1.8	0.007	0.007	0.052	0.045	0.053	0.046
	1.9	0.002	0.002	0.015	0.013	0.013	0.012
2	2.0	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.004	0.004	0.029	0.025	0.039	0.036
	2.2	0.012	0.012	0.088	0.076	0.113	0.103
	2.3	0.020	0.020	0.149	0.129	0.186	0.169
	2.4	0.026	0.026	0.193	0.168	0.240	0.218
	2.5	0.028	0.028	0.209	0.181	0.259	0.234
	2.6	0.026	0.026	0.193	0.168	0.240	0.218
	2.7	0.020	0.020	0.149	0.129	0.186	0.169
	2.8	0.012	0.012	0.088	0.076	0.113	0.103
	2.9	0.004	0.004	0.029	0.025	0.039	0.036
3	3.0	0.000	0.000	0.000	0.000	0.000	0.000
	3.1	0.002	0.002	0.015	0.013	0.013	0.012
	3.2	0.007	0.007	0.052	0.045	0.053	0.046
	3.3	0.013	0.013	0.097	0.084	0.102	0.089
	3.4	0.018	0.018	0.136	0.118	0.144	0.128
	3.5	0.022	0.022	0.163	0.142	0.173	0.153
	3.6	0.023	0.023	0.170	0.148	0.181	0.159
	3.7	0.021	0.021	0.155	0.134	0.163	0.142
	3.8	0.016	0.016	0.118	0.102	0.123	0.107
	3.9	0.009	0.009	0.064	0.056	0.066	0.059
	0	0.000	0.000	0.000	0.000	0.000	0.000

Notes:
Camber for Dead Load Deflection plus Vertical Curve $\pm \frac{1}{4}$ " tolerance.
Deflections shown are off a chord from $\text{\textcircled{C}}$ bearing to $\text{\textcircled{C}}$ bearing
Vertical curve corrections not included.

Dead Load Deflections based on use of removable forms.



DEAD LOAD DEFLECTION DIAGRAM
No Scale



SHEET 9 OF 9
DETAILS OF 120'-0" CONTINUOUS
COMPOSITE INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-14-19 FILENAME: b090472xl.s9.dgn
CHECKED BY: CAW DATE: 11-21-19 SCALE: NO SCALE
DESIGNED BY: KRM DATE: 11-07-19
BRIDGE NO. 07480 DRAWING NO. 61554

USER: CTAUSER
DESIGN FILE: G:\710700L.Hwy340\TRANSP\dwg\bridge\b090472xl.r2.dgn
PLOT FILE: 3/20/2020 1:41:10 PM
SCALE: 4.0000' / 1" = 1'-0"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		55	110
				07480	TRANS. APPR. RAIL		61556	

GENERAL NOTES

Transitional Approach Railing shall be placed at locations shown in the plans.

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

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or concrete barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating finish or Subsections 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Payment for surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing".

When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

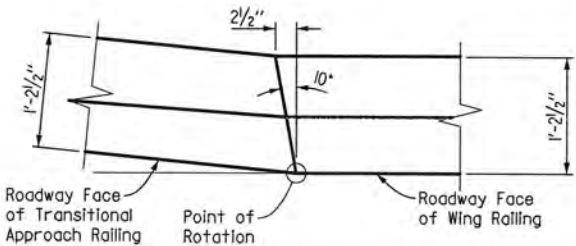
Transitional Approach Railing shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagram Dimensions Are Out To Out Of Bars.
F401	8	19'-8"			Str.	
F402	40	3'-8"			Str.	
R401	2	4'-0"	10"	1'-0"	2"	
R402	2	19'-8"			Str.	
R403	2	18'-6"			Str.	
R404	2	13'-0"			Str.	
R405 to R422	1 Ea.	3'-7" to 8'-3"	1'-4" to 3'-8"	1'-4" to 3'-8"	2"	
R423	2	3'-0"			Str.	

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

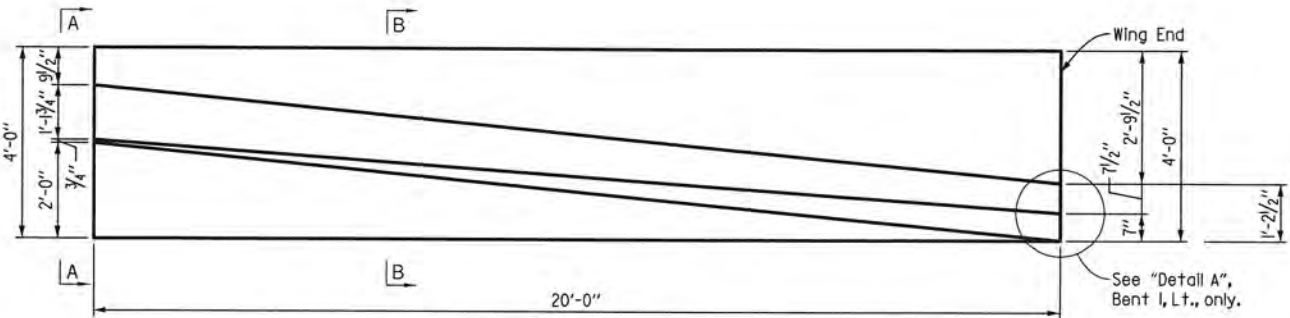
Class "S(AE)" Concrete	Reinforcing Steel (Grade 60)	Class 2 Protective Surface Treatment
4.2 Cu. Yds.	370 Lbs.	10 Sq. Yd.



Note: Rotate Transitional Approach Railing about point of rotation to provide 6'-6" minimum clear sidewalk to face of Type A curb, Bent 1, Lt. Transitional Approach Railing only. Adjust reinforcement to provide 2" clr.

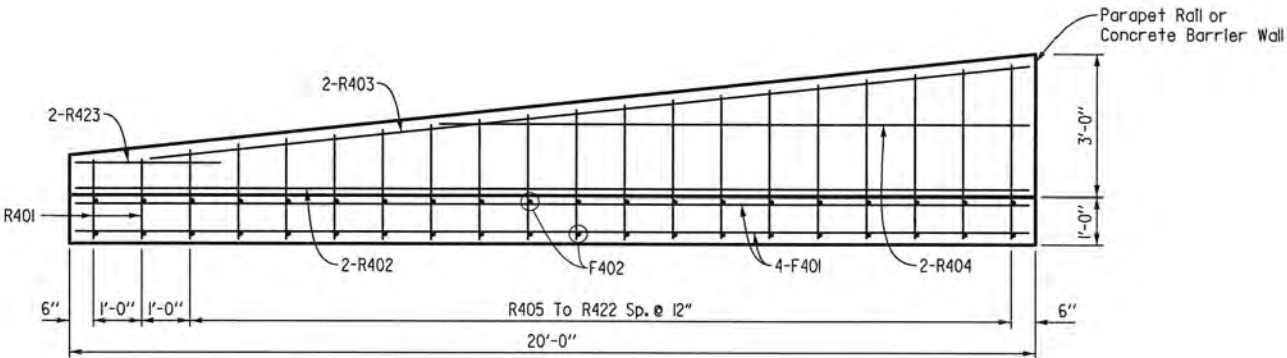
DETAIL A

Scale: 1" = 1'-0"



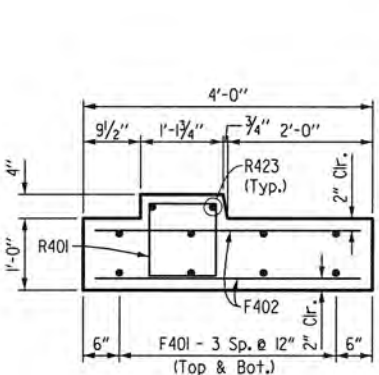
PLAN OF TRANSITIONAL APPROACH RAILING

Note: Railings on opposite side are opposite hand to each other.
Scale: $\frac{1}{2}$ " = 1'-0"



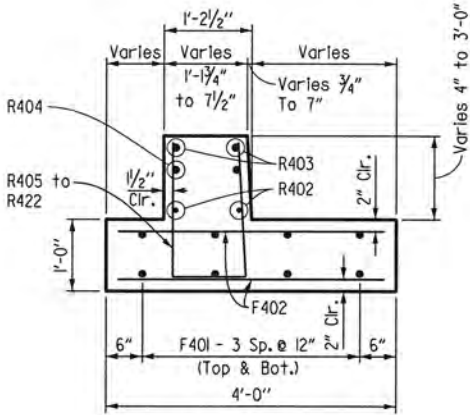
ELEVATION OF TRANSITIONAL APPROACH RAILING

Scale: $\frac{1}{2}$ " = 1'-0"



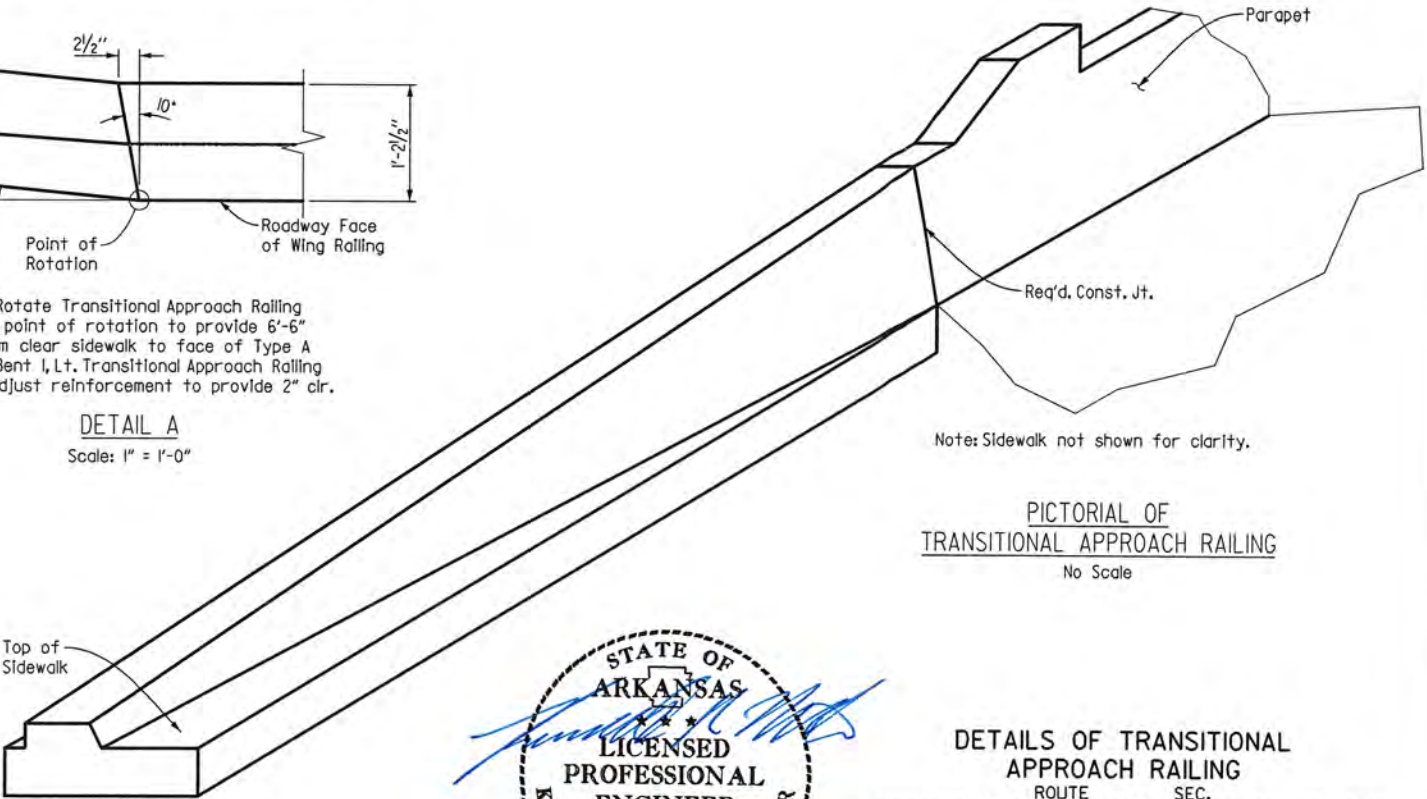
VIEW A-A

Scale: $\frac{3}{4}$ " = 1'-0"



SECTION B-B

Scale: $\frac{3}{4}$ " = 1'-0"



PICTORIAL OF
TRANSITIONAL APPROACH RAILING
No Scale



DETAILS OF TRANSITIONAL
APPROACH RAILING
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

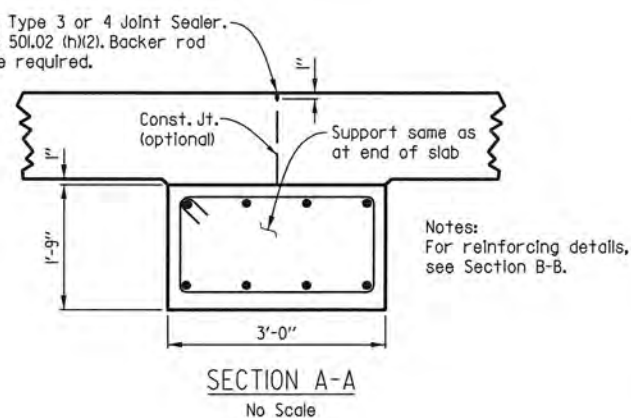
DRAWN BY: BWC DATE: 12-9-19 FILENAME: b090472xl.r2.dgn
CHECKED BY: CAW DATE: 12-16-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 12-2-19
BRIDGE NO. 07480 DRAWING NO. 61556

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	56	110
				07480	APPR. SLAB		61557	

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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

$\frac{1}{2}$ " x 1" Poured Type 3 or 4 Joint Sealer. See Subsection 501.02 (h)(2). Backer rod filler will not be required.



BAR LIST				Bending Diagrams (Dimensions are Out to Out of Bars)
Mark	Number Required	Length	Pin Diameter	
S401	16	29'-8"	Str.	<p>A bending diagram for a rectangular reinforcement bar. The bar is shown in a U-shape. The horizontal dimension is labeled 2'-8" and the vertical dimension is labeled 1'-4". A note with an arrow pointing to the lap joint indicates a minimum lap length of 1/2" min.</p>
S402	60	8'-4"	2"	
S501	30	36'-2"	Str.	
S502	37	29'-8"	Str.	
S601	73	29'-8"	Str.	
S602	6	5'-4"	Str.	
S801E	60	36'-2"	Str.	

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

GENERAL NOTES

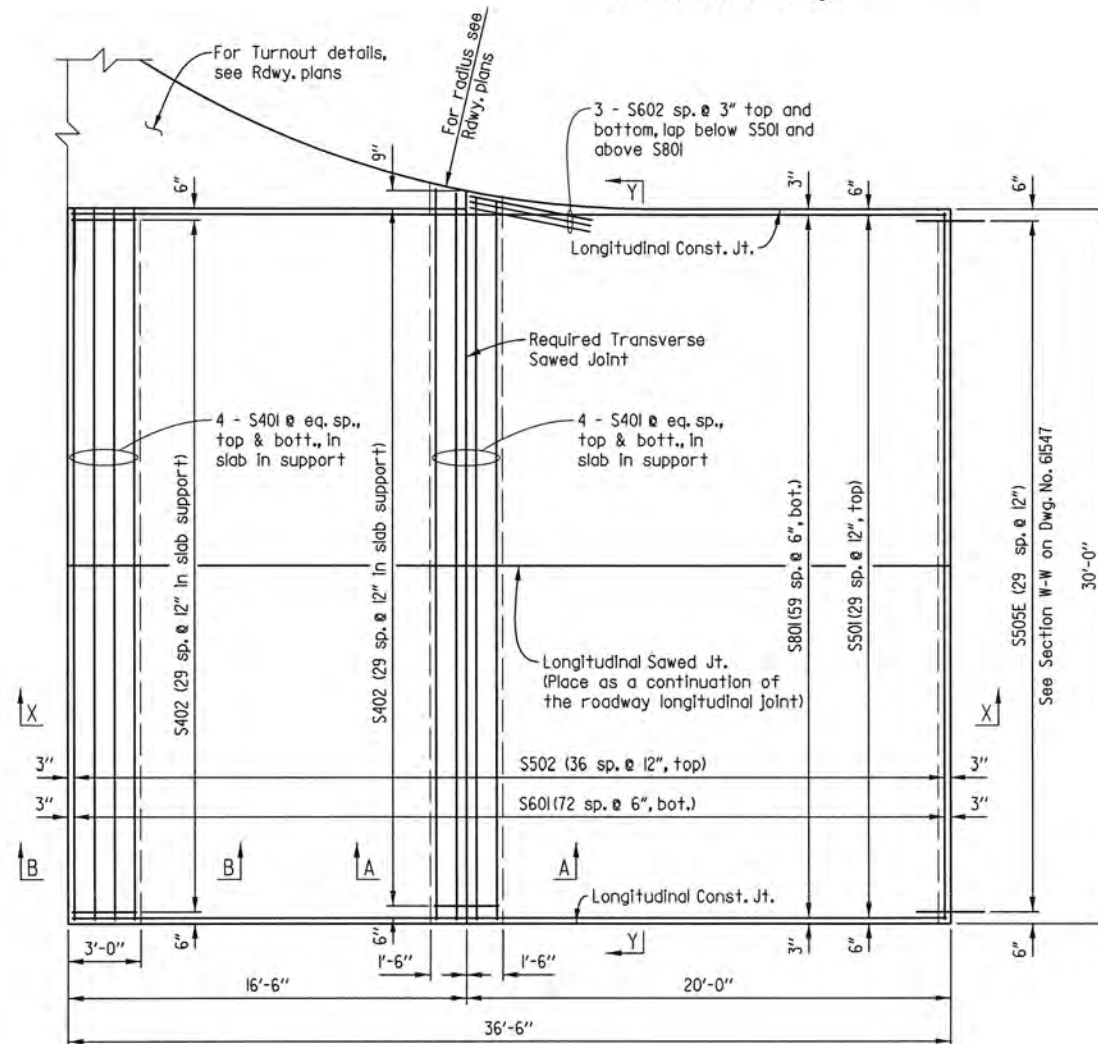
All Concrete shall be Class S(AE) with a minimum 28 day compressive strength $f'c = 4,000$ psi and shall be poured in the dry.

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

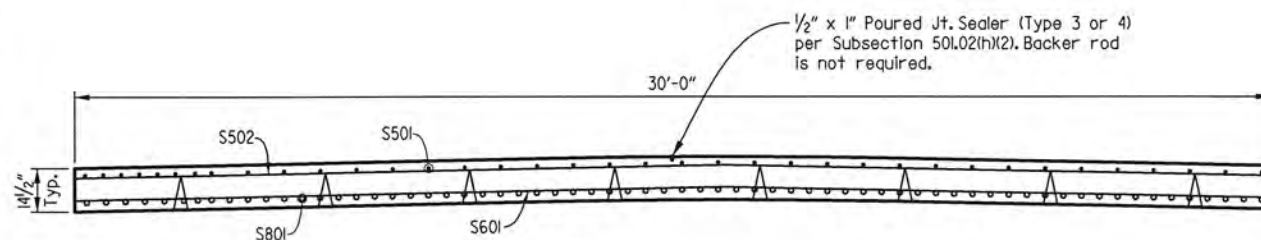
Approach Slabs will be measured and paid for in accordance with Section 504.

TABLE OF QUANTITIES FOR
TYPE I SPECIAL APPROACH SLAB
(For Information Only)

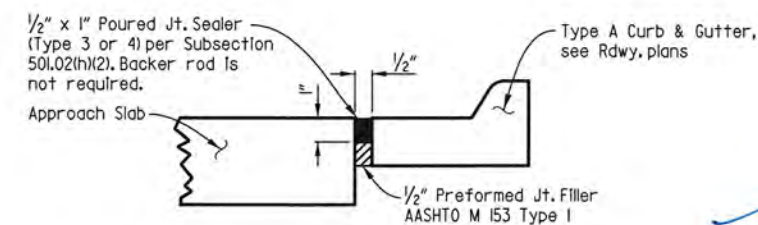
	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
Beg. of Bridge	12,022	61.33



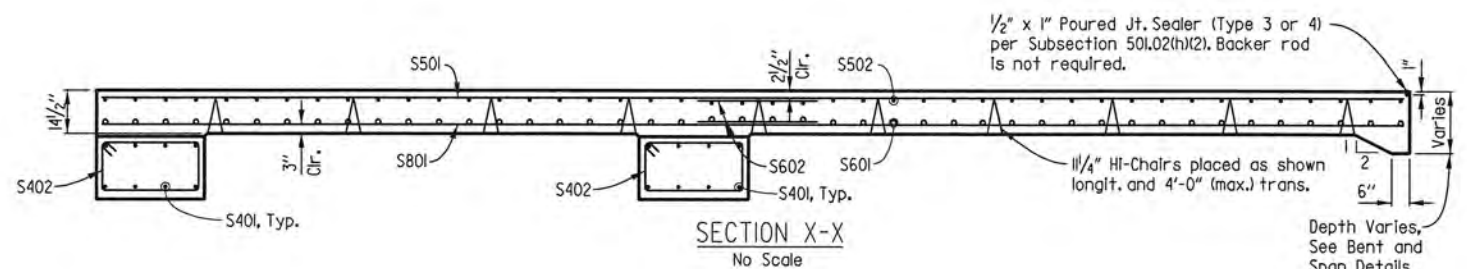
PLAN - APPROACH SLAB
(Begin Bridge)
Scale: $\frac{1}{4}$ " = 1'-0"



SECTION Y-Y
No Scale



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
No Scale



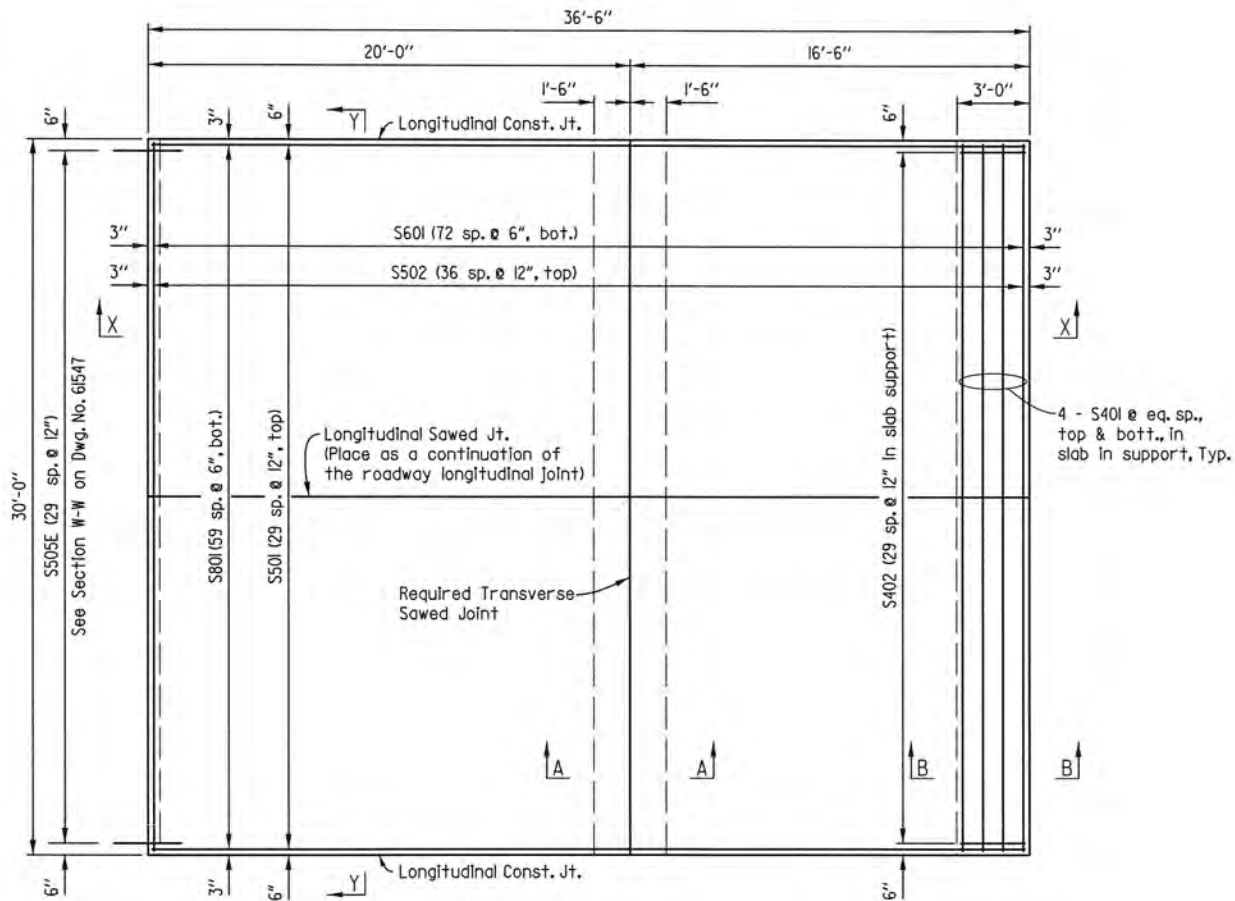
SECTION X-X
No Scale



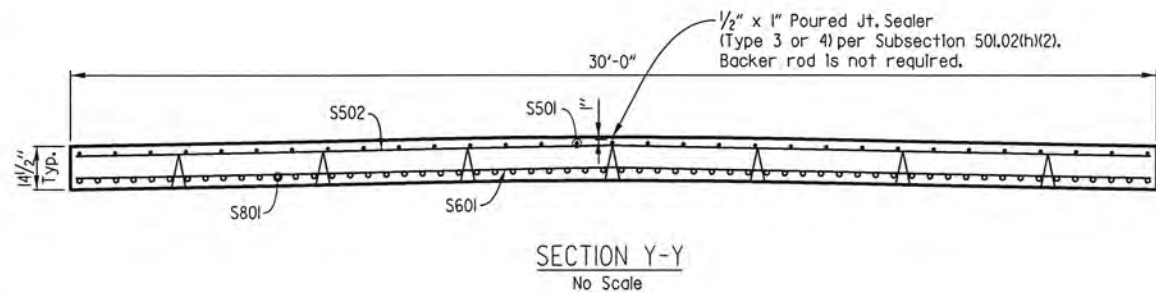
DETAILS OF TYPE I SPECIAL
APPROACH SLAB
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-15-19
CHECKED BY: CAW DATE: 11-23-19
DESIGNED BY: KRM DATE: 11-8-19
BRIDGE NO. 07480 DRAWING NO. 61557
FILENAME: b090472xl.dgn
SCALE: SEE DETAILS

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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

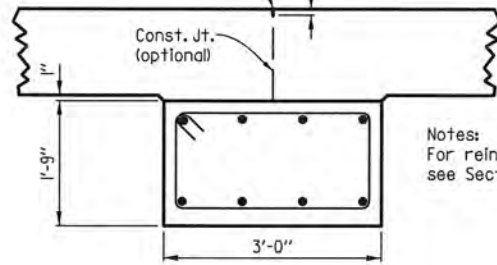


PLAN - APPROACH SLAB
(End Bridge)
Scale: 1/4" = 1'-0"

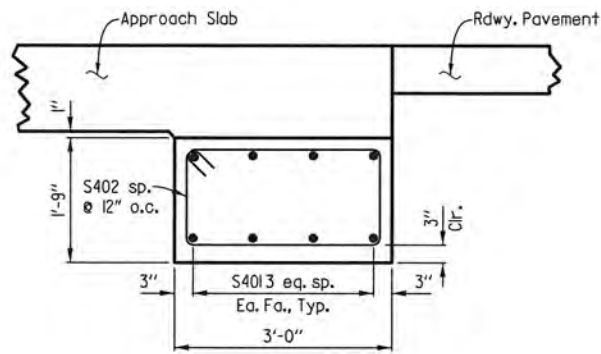


SECTION Y-Y
No Scale

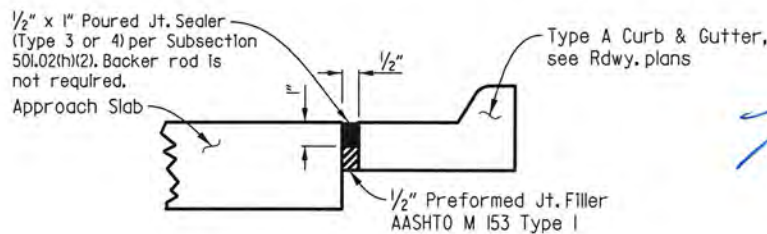
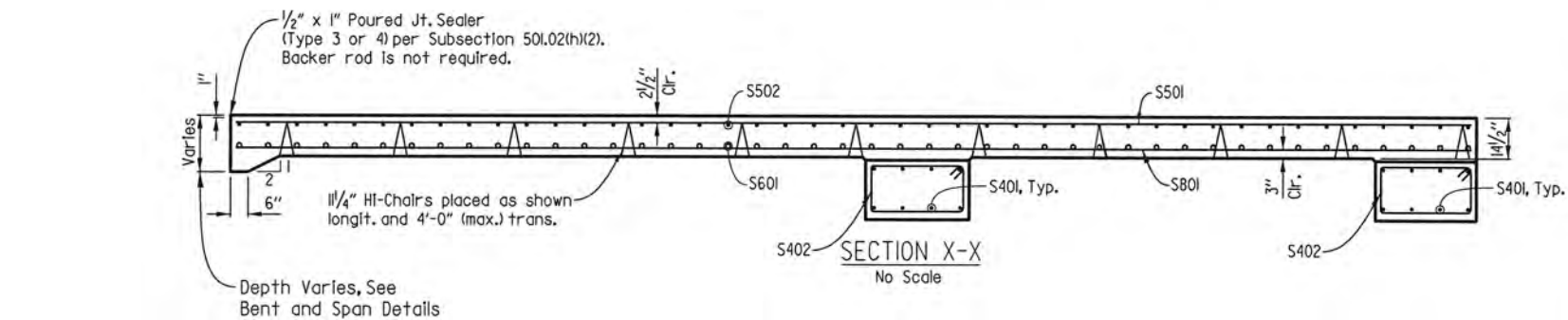
1/2" x 1" Poured Type 3 or 4 Joint Sealer. See Subsection 501.02 (h)(2). Backer rod filler will not be required.



SECTION A-A
No Scale



SECTION B-B
No Scale



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
No Scale

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	57	110
				07480		APPR. SLAB		61558

BAR LIST

Mark	Number Required	Length	Pin Diameter	Bending Diagrams (Dimensions are Out to Out of Bars)
S401	16	29'-8"	Str.	
S402	60	8'-4"	2"	
S501	30	36'-2"	Str.	
S502	37	29'-8"	Str.	
S601	73	29'-8"	Str.	
S801E	60	36'-2"	Str.	

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

GENERAL NOTES

All Concrete shall be Class S(AE) with a minimum 28 day compressive strength $f'c = 4,000$ psi and shall be poured in the dry.

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

Approach Slabs will be measured and paid for in accordance with Section 504.

TABLE OF QUANTITIES FOR TYPE 2 SPECIAL APPROACH SLAB (for information only)

	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
End of Bridge	11,974	61.28

DETAILS OF TYPE 2 SPECIAL APPROACH SLAB
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-16-19
CHECKED BY: CAW DATE: 11-23-19
DESIGNED BY: KRM DATE: 11-09-19
BRIDGE NO. 07480 DRAWING NO. 61558



For R/W Data, See Roadway Plans.

① Shoring will be required to retain the roadway embankment during construction. See SP Job No. 090472 "Shoring" for 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.	090472		58	110
				GENERAL NOTES	07481	LAYOUT	61559	

BENCH MARK: Vertical Control Data are shown on Survey Control Details.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design specifications (7th Edition) with 2015 Interim specifications.

LIVE LOADING: HL-93 SEISMIC PERFORMANCE ZONE: I $S_{DI} = 0.085$ SITE CLASS: C

MATERIALS AND STRENGTHS:
Class S(AE) Concrete (Superstructure) $f'_c = 4,000$ psi
Class S Concrete (Substructure) $f'_c = 3,500$ psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60) $f_y = 60,000$ psi
Structural Steel (ASTM A709, Gr. 36) $F_y = 36,000$ psi
Structural Steel (ASTM A709, Gr. 50W) $F_y = 50,000$ psi

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

STEEL PILING: Piling in End Bent 1 and Wing A & B of End Bent 4 shall be HP 12x53 (Gr. 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 97 tons per pile and into the material designated as limestone on the boring legend. Piling in End Bent 4 shall be HP 14x89 (Gr. 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 163 tons per pile and into the material designated as shale on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Piles in end bents to be driven after excavation to bottom of cap or footing are complete. On all piles, the Contractor shall use approved steel H-pile driving points.

PREBORING: Preboring is required for all piles in Bent 4. Preboring shall be to a minimum 3' depth into material designated as shale on the boring legend. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring."

DRILLED SHAFTS: Drilled shafts in Bents 2 and 3 shall be constructed in accordance with Special Provision Job No. 090472 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 10' into competent rock designated as moderately hard to hard shale on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 090472 "Nondestructive Testing of Drilled Shafts".

PAINTING: All Grade 50W structural steel, except galvanized members and surfaces in contact with concrete, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

For Additional General Notes see Dwg. No. 61560.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	③ NATURAL W.S. ELEVATION		W.S. ELEVATION WITH BACKWATER	
			FEET	FEET	FEET	FEET
DESIGN	50	29,681	988.4		988.0	
BASE	100	33,771	989.6		989.1	
EXTREME	500	47,749	993.8		992.5	
OVERTOPPING	82	32,299	---		988.5	

③ Unconstricted water surface elevation without structure or roadway approaches.

100 yr. backwater elevation for existing structure = 989.6 feet

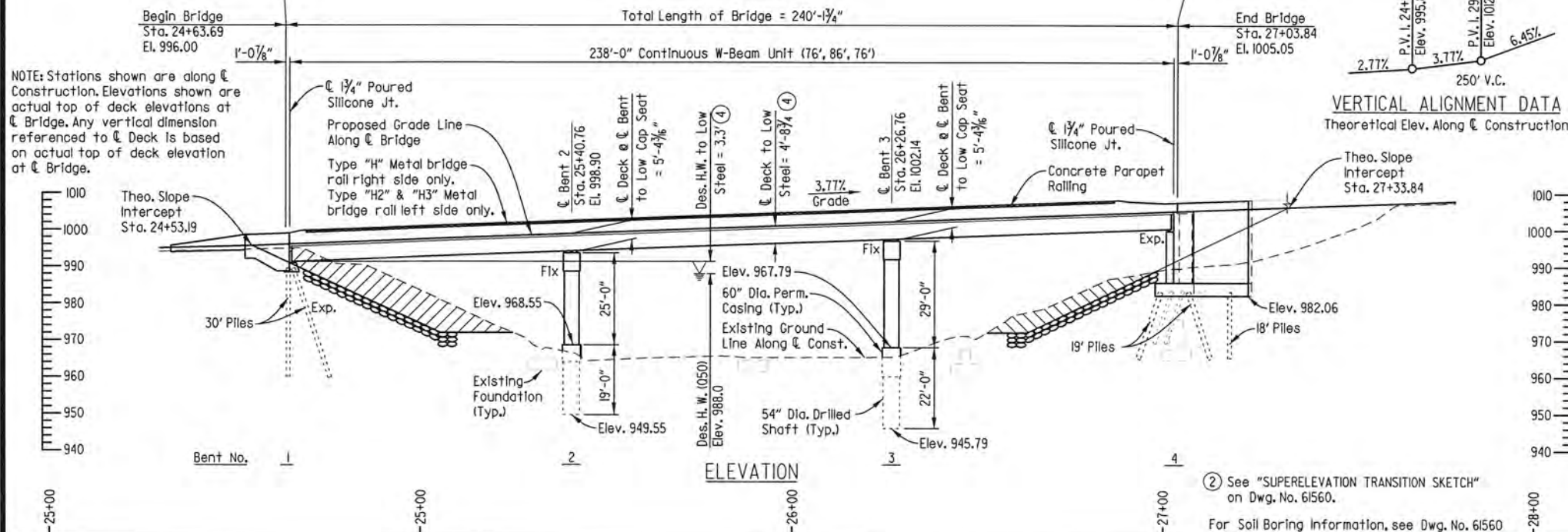
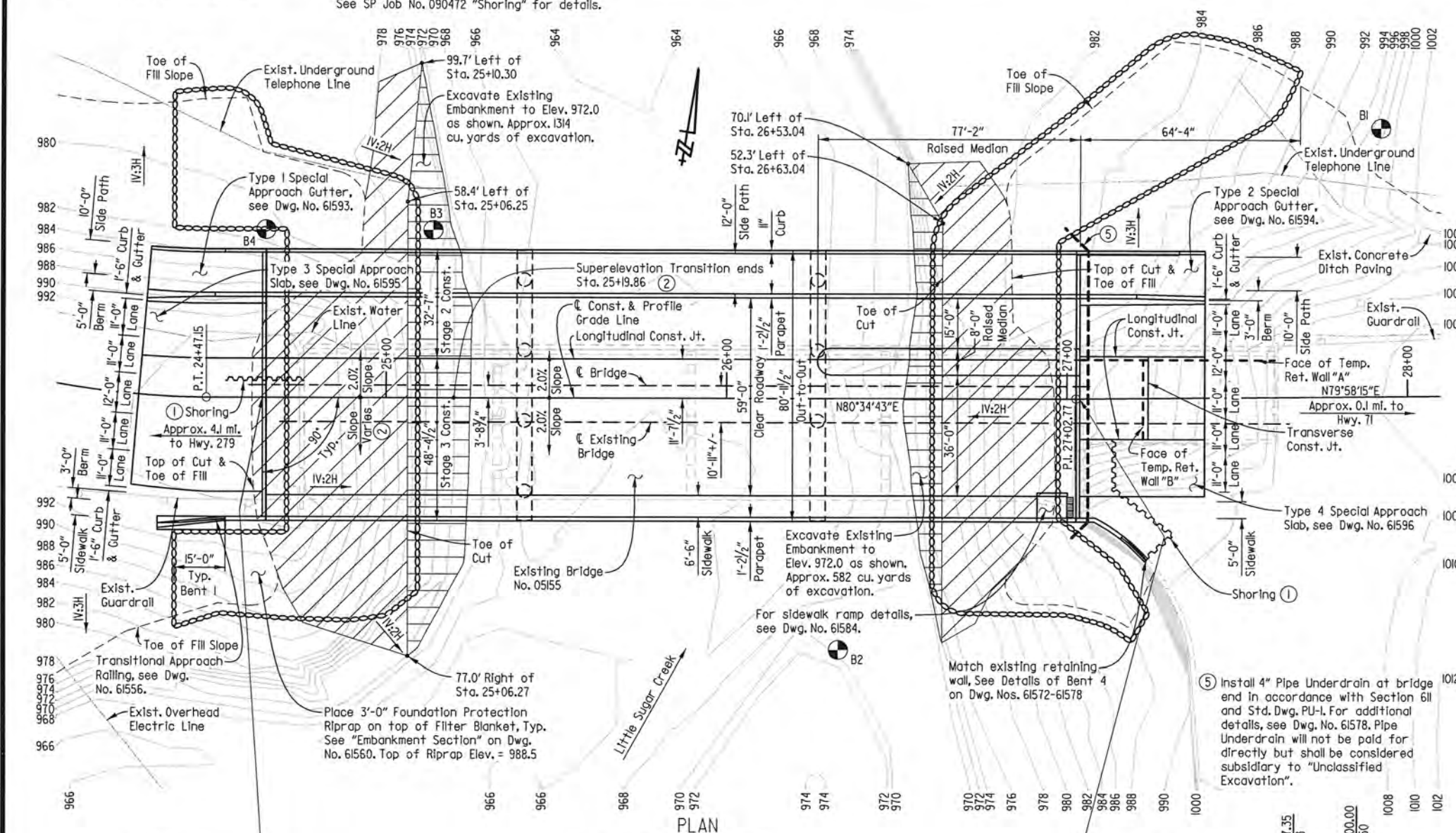
④ Proposed Low Bridge Chord Elev. = 991.34 feet at Station 24+65.76
Drainage Area = 102.8 sq. miles
Historical H.W. Elev. = N/A

SHEET 1 OF 2

LAYOUT OF BRIDGE
HIGHWAY 340 OVER LITTLE SUGAR CREEK
LITTLE SUGAR & TANYARD CREEKS
STRS. & APPRS. (BELLA VISTA) (S)
BENTON COUNTY
ROUTE 340 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.



DRAWN BY: BWC DATE: 11-20-18 FILENAME: b090472x2.11.dgn
CHECKED BY: CAW DATE: 12-03-18 SCALE: 1" = 20'
DESIGNED BY: KRM DATE: 11-12-18
BRIDGE NO. 07481 DRAWING NO. 61559

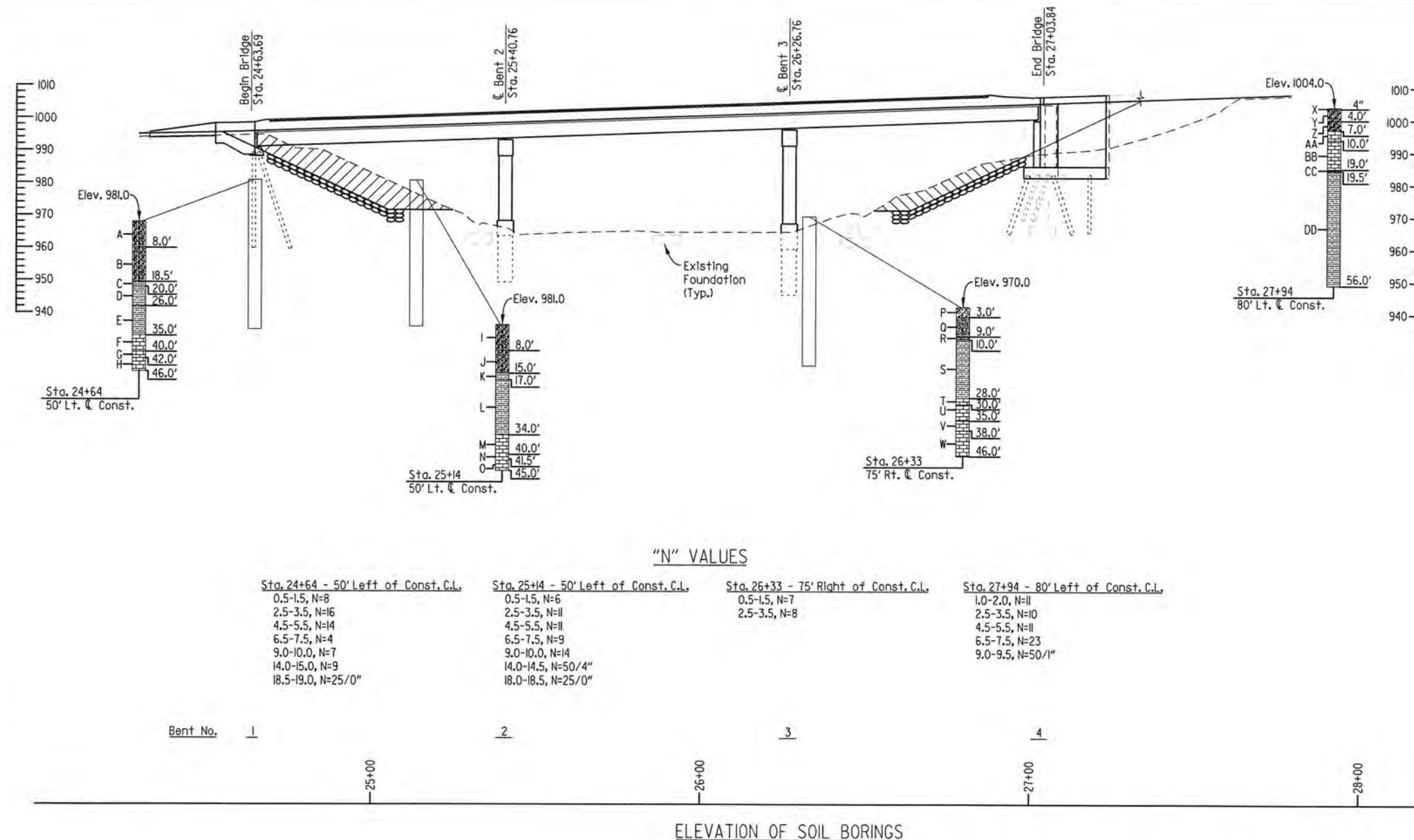


② See "SUPERELEVATION TRANSITION SKETCH" on Dwg. No. 61560.

For Soil Boring Information, see Dwg. No. 61560

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090472	59
								110

07481 LAYOUT 61560



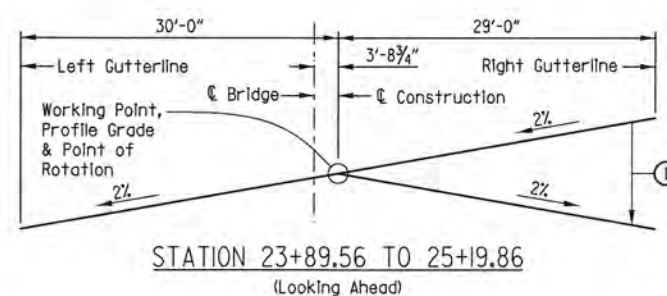
"N" VALUES

Sta. 24+64 - 50' Left of Const. C.L.	Sta. 25+14 - 50' Left of Const. C.L.	Sta. 26+33 - 75' Right of Const. C.L.	Sta. 27+94 - 80' Left of Const. C.L.
0.5-1.5, N=8	0.5-1.5, N=6	0.5-1.5, N=7	1.0-2.0, N=11
2.5-3.5, N=16	2.5-3.5, N=11	2.5-3.5, N=8	2.5-3.5, N=10
4.5-5.5, N=14	4.5-5.5, N=11		4.5-5.5, N=11
6.5-7.5, N=4	6.5-7.5, N=9		6.5-7.5, N=23
9.0-10.0, N=7	9.0-10.0, N=14		9.0-9.5, N=50/1"
14.0-15.0, N=9	14.0-14.5, N=50/4"		
18.5-19.0, N=25/0"	18.0-18.5, N=25/0"		

ELEVATION OF SOIL BORINGS

BORING LEGEND

- Loose dark brown clayey fine sand w/a little fine to coarse gravel (fill)
- Loose brown clayey fine to coarse gravel
- Moderately hard dark gray highly weathered shale, carbonaceous
- Moderately hard dark brownish gray slightly weathered shale, carbonaceous, horizontal bedding w/occasional pyrite inclusions and close jointing
- Moderately hard dark brownish gray shale, carbonaceous, thin bedded, flat bedded w/occasional pyrite inclusions
- Moderately hard to hard light gray and gray limestone w/some fossils, close sandy limestone layers and occasional calcite inclusions
- Hard light gray dolostone
- Hard light gray and gray limestone, slightly sandy, flat bedded w/occasional chert nodules, and some calcite inclusions
- Loose dark brown clayey fine to coarse gravel, sandy (fill)
- Medium dense brown clayey fine to coarse gravel
- Moderately hard dark gray highly weathered shale, carbonaceous
- Moderately hard dark brownish gray slightly weathered shale, flat bedded, carbonaceous w/occasional pyrite inclusions
- Moderately hard light gray and gray limestone w/some chert nodules and occasional fossils
- Hard light grayish tan dolostone w/occasional pyrite inclusions
- Hard light gray and gray limestone w/occasional chert nodules and pyrite inclusions
- Loose brown clayey fine to coarse gravel
- Loose brown sandy fine to coarse gravel
- Stiff brown silty clay w/some fine coarse gravel
- Moderately hard to hard dark brownish gray slightly weathered shale, carbonaceous, flat bedded w/some pyrite inclusions
- Hard gray limestone
- Hard light gray and gray limestone, flat bedded w/close to very close bluish green mudstone laminations
- Hard light gray dolostone, flat bedded w/close arenaceous dolostone zones
- Hard light gray and gray limestone, arenaceous, flat bedded w/some calcite inclusions and calcite crystal filled vugs
- Asphalt Concrete
- Stiff brown silty clay w/numerous chert fragments (fill)
- Stiff gray, reddish brown and brown clay w/occasional shale fragments and ferrous stains (fill)
- Low hardness gray and yellowish gray highly weathered limestone w/silty clay seams
- Moderately hard light gray and gray slightly weathered limestone, flat bedded w/occasional pyrite inclusions
- Low hardness greenish gray calcareous mudstone
- Moderately hard dark brownish gray shale, carbonaceous and flat bedded, w/occasional pyrite inclusions



SUPERELEVATION TRANSITION METHOD OF ROTATION

- ① Cross slope varies from 2% up from Profile Grade (Sta. 23+89.56) to 2% down from Profile Grade (Sta. 25+19.86).

GENERAL NOTES (Cont'd)

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. The shared use path and sidewalk shall be given a Class 6, Broomed Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface, roadway face and top of parapet rails, median, side path surface, sidewalk surface, and face of curb.

DETAIL DRAWINGS:
 Stage Construction
 End Bent 1
 Intermediate Bent 2 and 3
 End Bent 4
 Elastomeric Bearings
 238'-0" Continuous Composite W-Beam Unit
 Type 1 Special Approach Gutters
 Type 2 Special Approach Gutters
 Type 3 Special Approach Slab
 Type 4 Special Approach Slab
 General Notes for Steel Bridge Structures
 Details for Steel Bridge Structures
 Standard Details for Poured Silicone Joints
 Steel H-Piles

DRAWING NUMBER
 61561-61565
 61566-61569
 61570-61571
 61572-61578
 61579
 61580-61589
 61593
 61594
 61595
 61596
 55006
 55007
 55008
 55020

EXISTING BRIDGE: Existing Bridge No. 05155 (Log Mile 4.14) is 47.0' wide (42.0' clear roadway) and 287.0' long and consists of comp. W-beam units supported by a concrete pile cap end bent, concrete column intermediate bents on spread footings, and a deep concrete abutment on pile footings. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

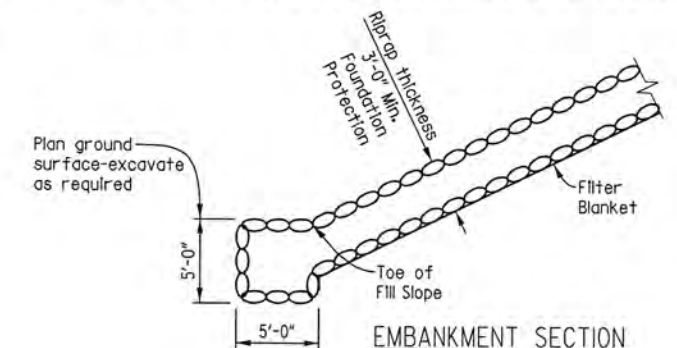
REMOVAL AND SALVAGE: After Stage 3A construction is complete and open to traffic, the Contractor shall remove existing Bridge No. 05155, including existing riprap, in accordance with Section 205. Removal of existing riprap will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No.)". All material from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the State:

Type B Steel Bridge Rail and connecting hardware

The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on site loading onto ARDOT equipment for removal of salvage items from the site. This work shall be considered incidental to the item "Removal of Existing Bridge Structure".

The existing concrete pile footings at Bent 4 shall be removed entirely. The top of existing piles at Bent 4 shall be cut off 0.5' below the bottom of proposed pile footing. The Contractor shall compare the locations of the existing piling to the plan location of the proposed piling. The Contractor shall notify the Engineer of any conflicts prior to driving piling.

MAINTENANCE OF TRAFFIC: See Roadway Plans and Special Provisions for more information.

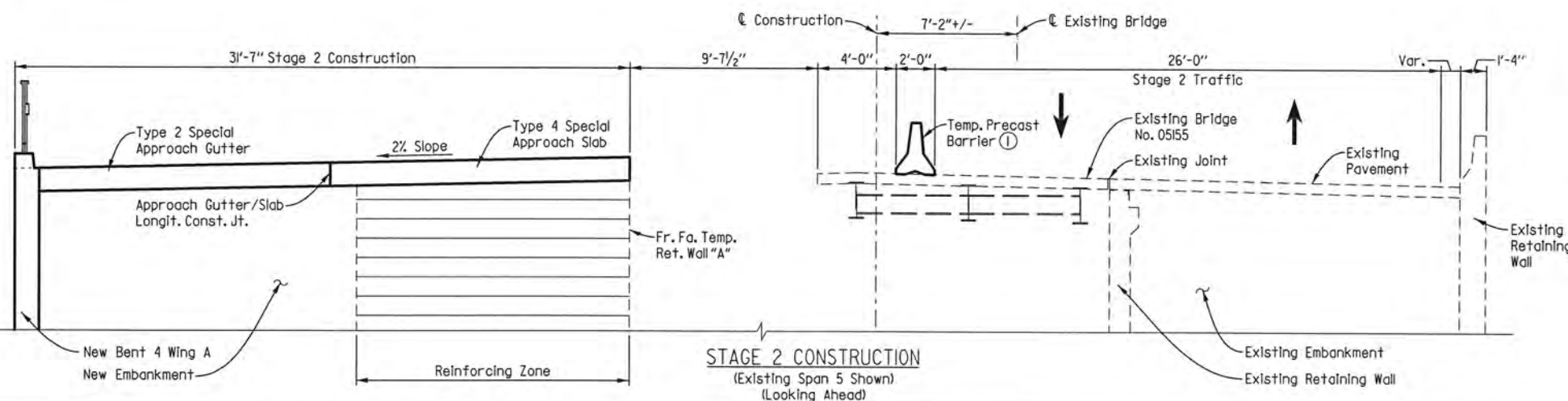
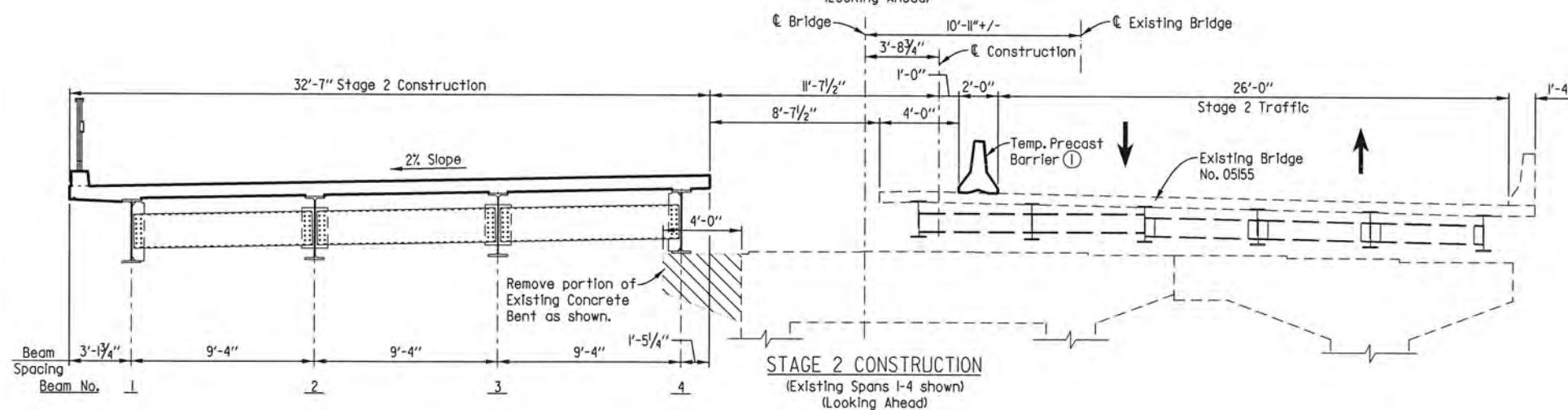
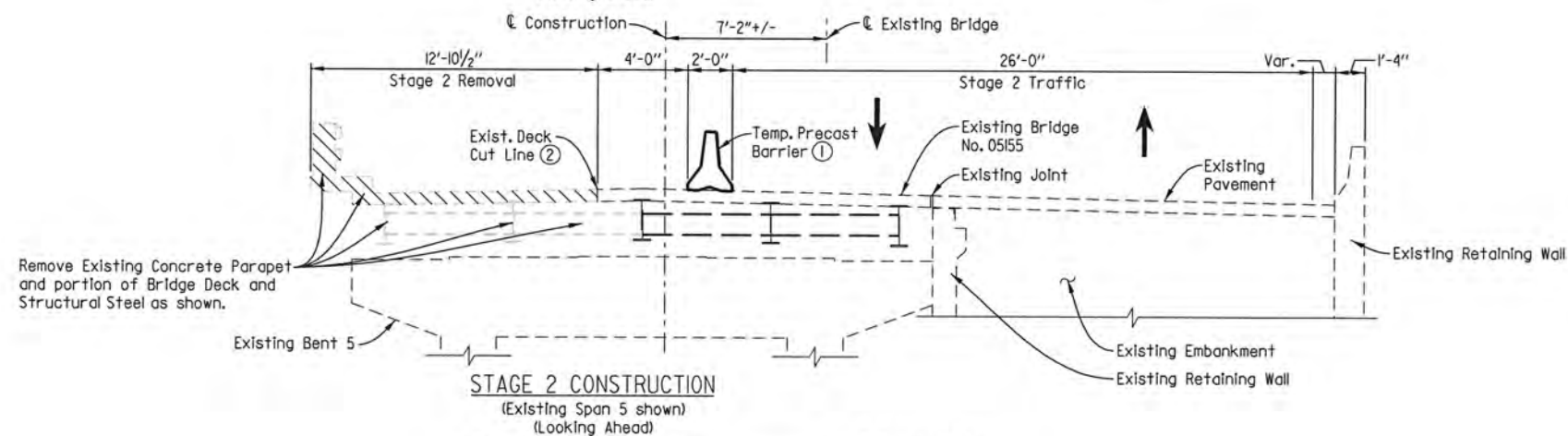
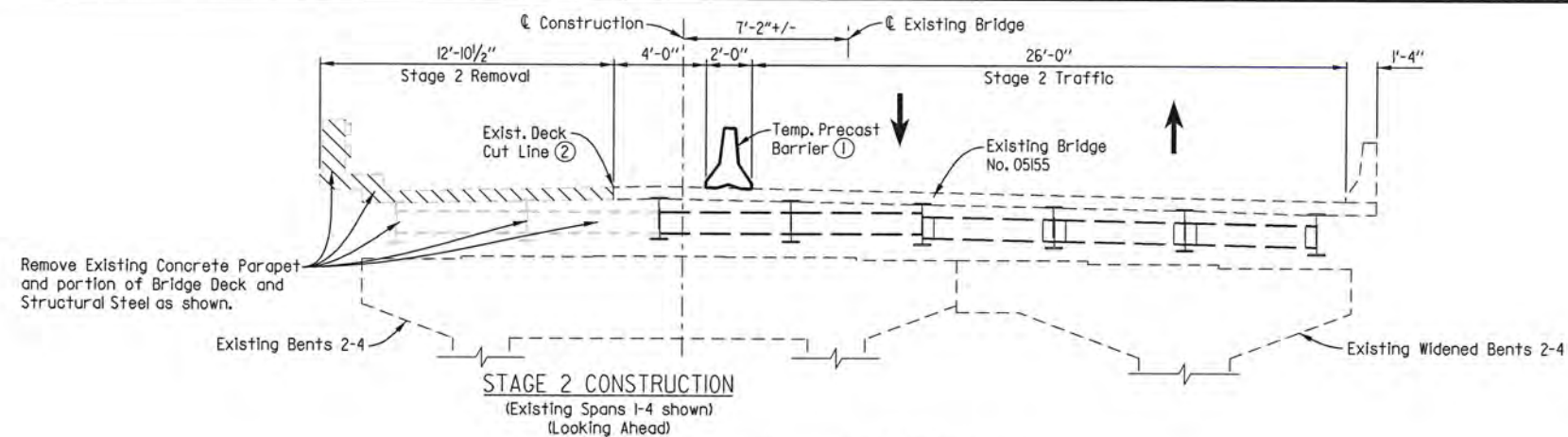


EMBANKMENT SECTION (At End of Bridge Only) No Scale



SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 340 OVER LITTLE SUGAR CREEK
LITTLE SUGAR & TANYARD CREEKS
STRS. & APPRS. (BELLA VISTA) (S)
BENTON COUNTY
ROUTE 340 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 8-20-18 FILENAME: b090472x2.12.dgn
CHECKED BY: CAW DATE: 12-03-18 SCALE: 1" = 20'
DESIGNED BY: KRM DATE: 11-12-18
BRIDGE NO. 07481 DRAWING NO. 61560

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	60	110
				07481		STAGE CONST.		61561



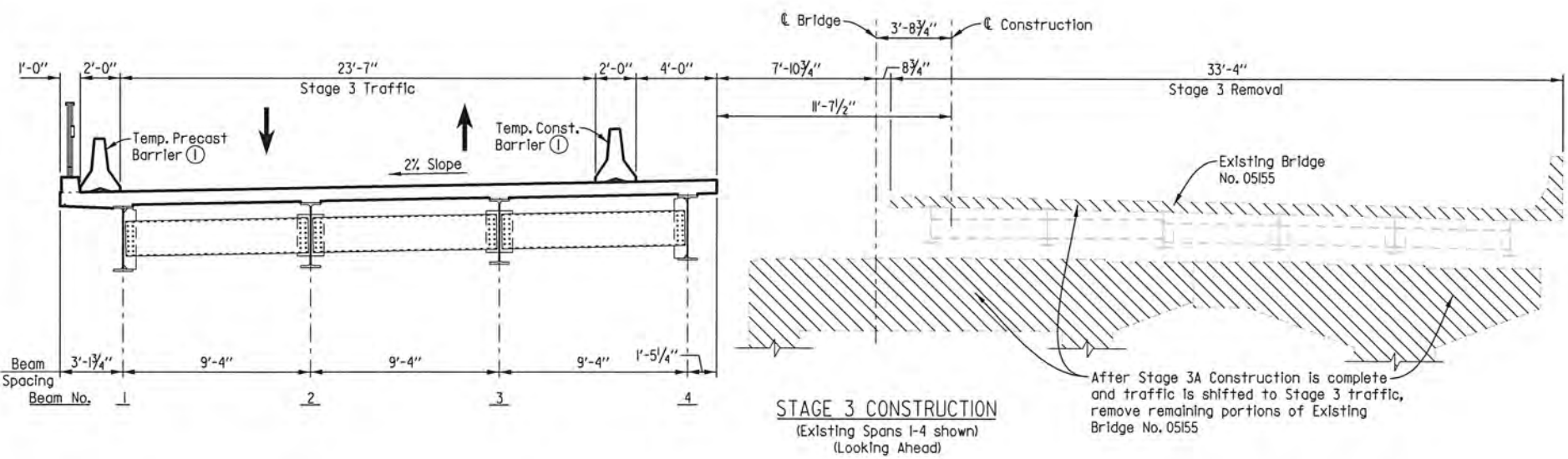
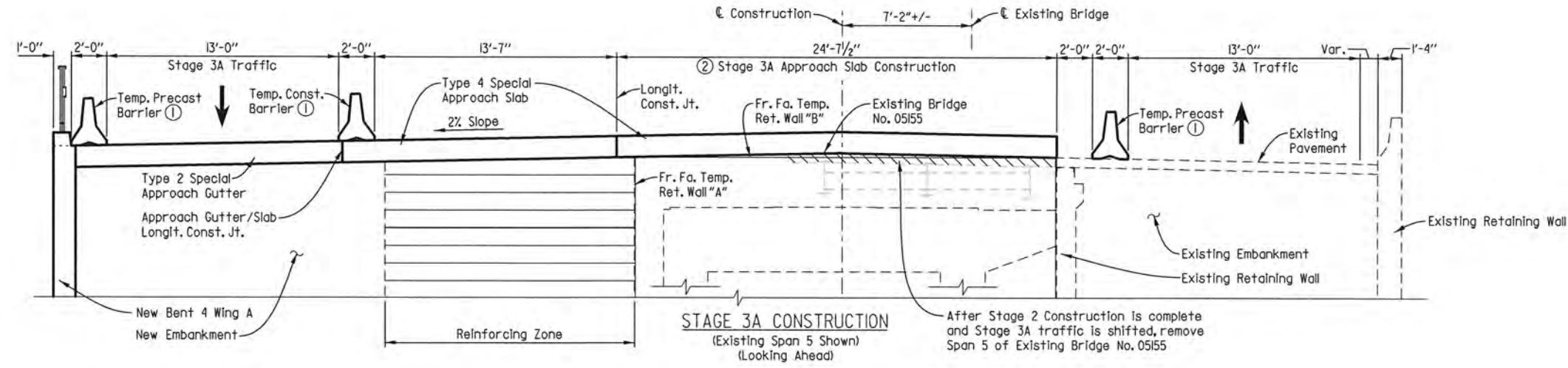
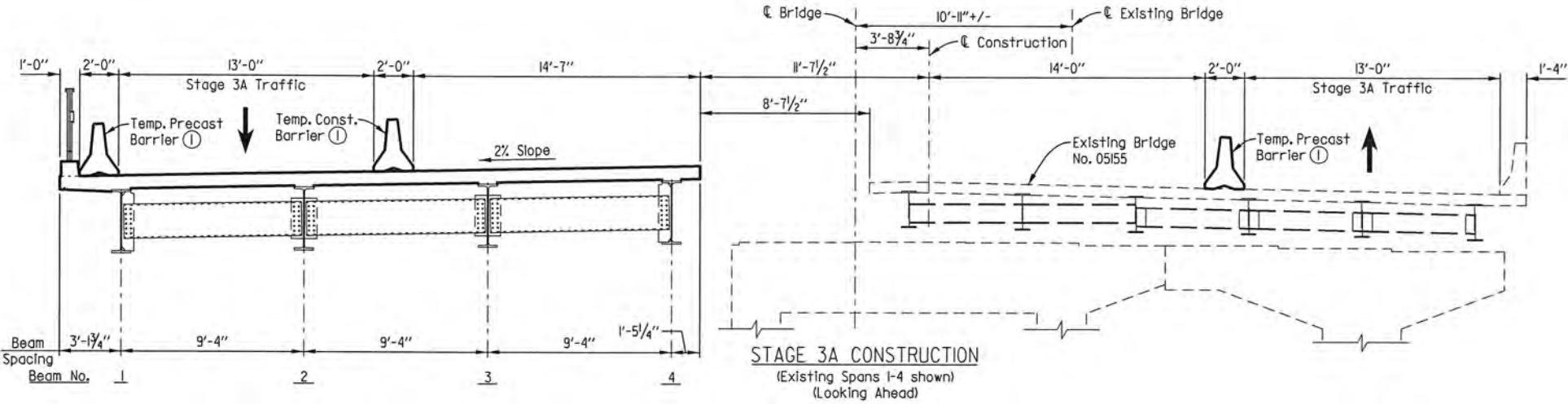
Notes:

- ① For Details of Temporary Precast Barrier, See Std. Dwg. TC-4. Do not attach Temporary Precast Barrier to new or existing deck.
- ② Full Depth Saw Cut.



SHEET 1 OF 5
 DETAILS OF STAGE CONSTRUCTION
 HIGHWAY 340 OVER LITTLE SUGAR CREEK
 BENTON COUNTY
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: BWC DATE: 11-20-18 FILENAME: b090472x2.13.dgn
 CHECKED BY: CAW DATE: 11-29-18 SCALE: 1/4" = 1'-0"
 DESIGNED BY: KRM DATE: 11-12-18
 BRIDGE NO. 07481 DRAWING NO. 61561

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472	61	110	
				07481	STAGE CONST.	61562		



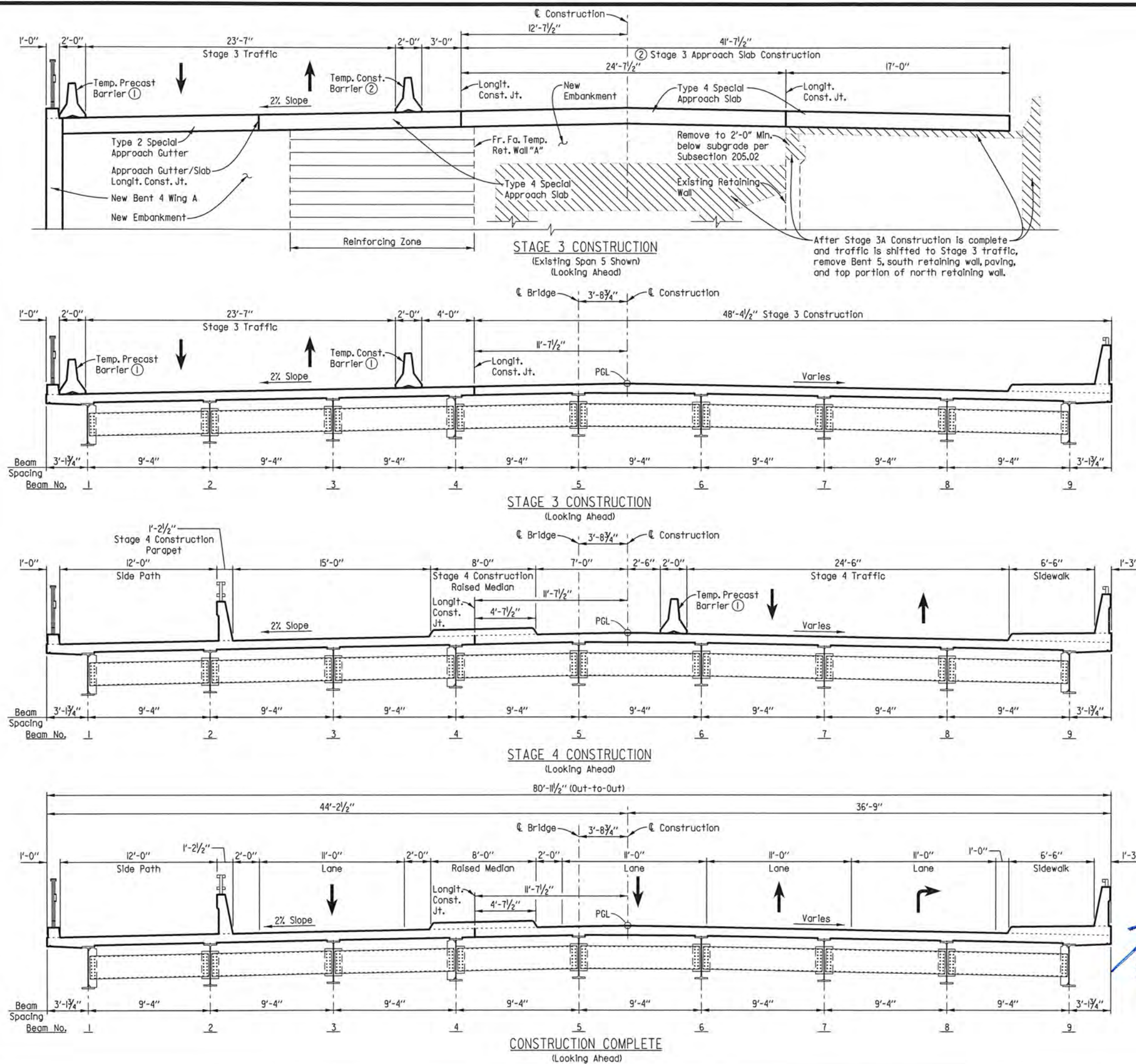
- Notes:
- ① For Details of Temporary Precast Barrier, See Std. Dwg. TC-4. Do not attach Temporary Precast Barrier to new deck.
 - ② Portions of approach slab to be constructed in Stage 3A and Stage 3. See Dwg. No. 61564 for details.



SHEET 2 OF 5
DETAILS OF STAGE CONSTRUCTION
HIGHWAY 340 OVER LITTLE SUGAR CREEK
BENTON COUNTY
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-20-18 FILENAME: b090472x2.14.dgn
CHECKED BY: CAW DATE: 11-29-18 SCALE: 1/4" = 1'-0"
DESIGNED BY: KRM DATE: 11-12-18
BRIDGE NO. 07481 DRAWING NO. 61562

USER: CTAUSER
DESIGN FILE: G:\17107001.Hwy340\TRANSP\dwg\bridge\b090472x2.14.dgn
PLOTTER: 3/20/2020 1:41:16 PM SCALE: 8.0000 ' / 1" = 1'-0"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	62	110
				① 07481		STAGE CONST.		61563



- Notes:
- ① For Details of Temporary Precast Barrier, See Std. Dwg. TC-4. Do not attach Temporary Precast Barrier to new deck.
 - ② Portions of approach slab to be constructed in Stage 3A and Stage 3. See Dwg. No. 61564 for details.



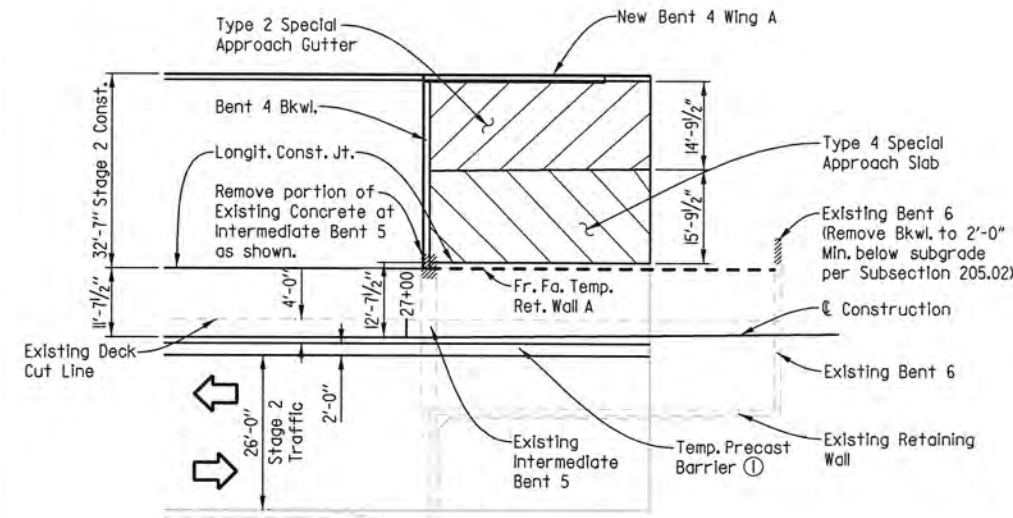
SHEET 3 OF 5
 DETAILS OF STAGE CONSTRUCTION
 HIGHWAY 340 OVER LITTLE SUGAR CREEK
 BENTON COUNTY
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-20-18
 CHECKED BY: CAW DATE: 11-29-18
 DESIGNED BY: KRM DATE: 11-12-18

BRIDGE NO. 07481 DRAWING NO. 61563

FILENAME: b090472x2.15.dgn
 SCALE: 1/4" = 1'-0"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	090472	63	110
					07481	STAGE CONST.		61564



STAGE 2 CONSTRUCTION
(Plan View at Bent 4)
Scale: 1/16" = 1'-0"

STAGE 2 BENT 4 CONSTRUCTION SEQUENCE

- 2.1 Remove left exterior girder and adjacent interior girder and portions of existing bridge deck
- 2.2 Remove portion of Existing Backwall on Bent 6
- 2.3 Construct Bent 4 to Longit. Const. Jt.
- 2.4 Construct Temporary Retaining Wall "A"
- 2.5 Construct Type 2 Special Approach Gutter and Type 4 Special Approach slab to Longit. Const. Jt.

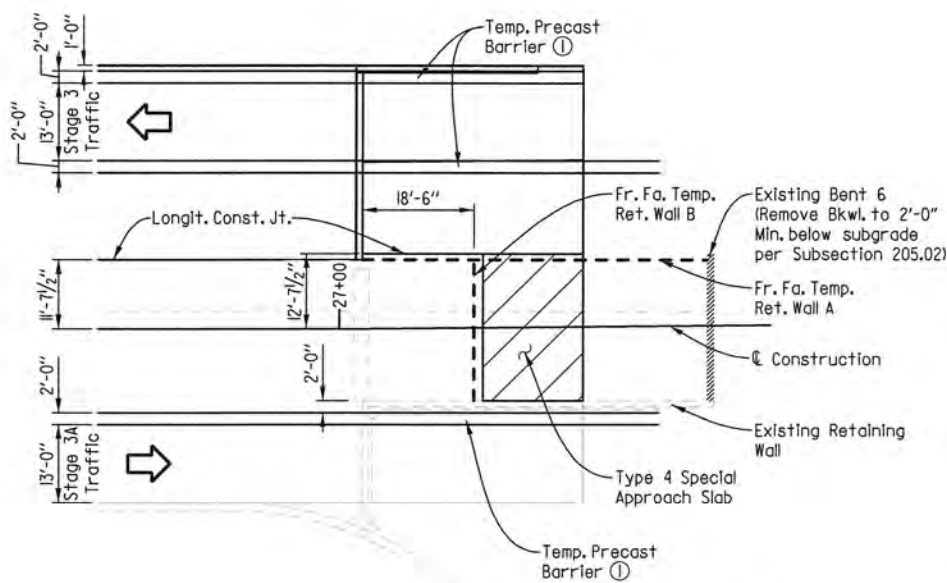
STAGE 3A BENT 4 CONSTRUCTION SEQUENCE

- 3A.1 Shift west bound traffic
- 3A.2 Remove portions of existing bridge deck, Bent 5 to Existing wall, and remove portion of Existing Backwall on Bent 6
- 3A.3 Construct Temporary Retaining Wall "B"
- 3A.4 Construct ahead portion of Type 4 Special Approach Slab to transverse Const. Jt.

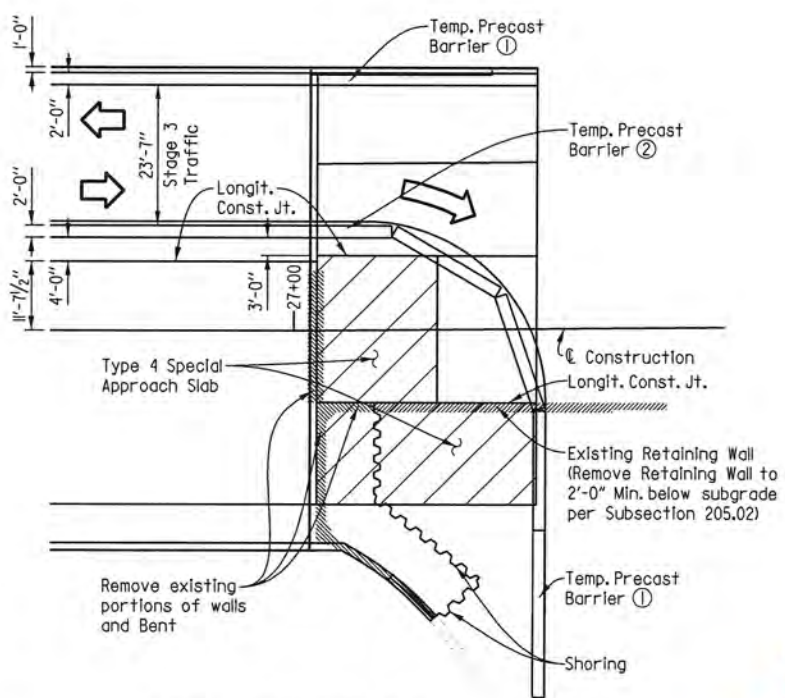
STAGE 3 BENT 4 CONSTRUCTION SEQUENCE

- 3.1 Shift east bound traffic
- 3.2 Remove remaining Existing Bent 5, Existing Retaining wall, and remove portion of Existing North Retaining wall
- 3.3 Construct remaining Bent 4, Retaining wall, and remaining portion of Type 4 Special Approach Slab

Note: The Contractor may submit a different stage construction sequence for approval by the Engineer.



STAGE 3A CONSTRUCTION
(Plan View at Bent 4)
Scale: 1/16" = 1'-0"



STAGE 3 CONSTRUCTION
(Plan View at Bent 4)
Scale: 1/16" = 1'-0"

For additional information, see Dwg. Nos. 61561-61563.

Notes:

- ① For Details of Temporary Precast Barrier, See Std. Dwg. TC-4. Do not attach Temporary Precast Barrier to new deck.
- ② For Details of Temporary Precast Barrier, See Std. Dwg. TC-4. Do not attach Temporary Precast Barrier to new deck. Attach Temporary Precast Barrier to new Approach Slab.



SHEET 4 OF 5
DETAILS OF STAGE CONSTRUCTION
HIGHWAY 340 OVER LITTLE SUGAR CREEK
BENTON COUNTY
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-29-19 FILENAME: b090472x2.16.dgn
CHECKED BY: CAW DATE: 12-06-19 SCALE: 1/4" = 1'-0"
DESIGNED BY: KFM DATE: 11-22-19
BRIDGE NO. 07481 DRAWING NO. 61564

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	64	110

GENERAL NOTES: 07481 RETAINING WALLS 61565

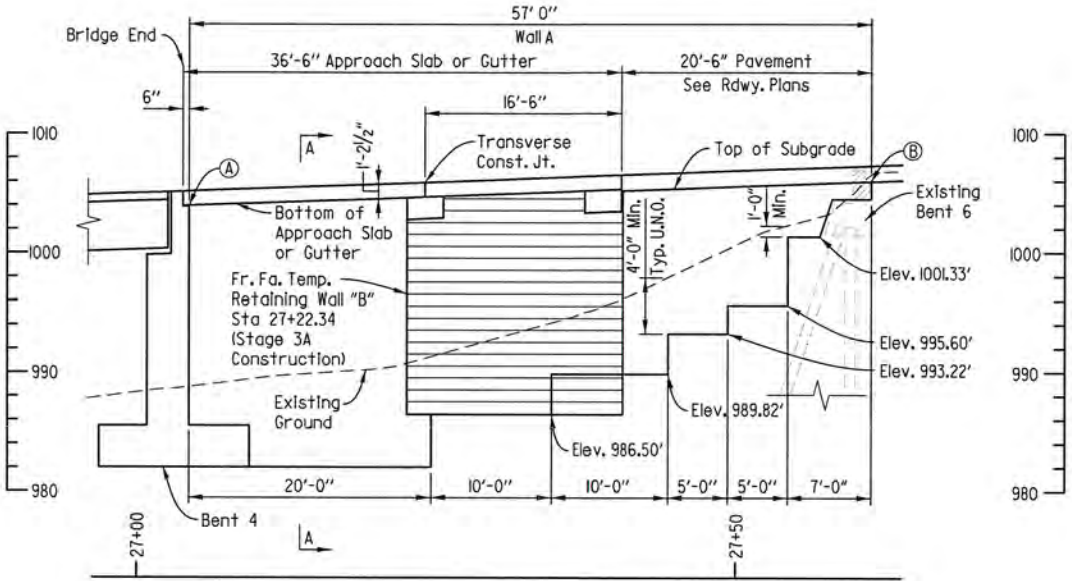
FOUNDATION MATERIAL: The bottom of Reinforcement Zone shall be set a minimum of 4'-0" into the material designated as compact Stiff Cherty Clay (fill) on the boring legend. A factored bearing resistance of 5.0 ksf is recommended for the existing foundation material based on an estimated width of the reinforcement zone. See Job SP No. 090472 "Temporary Retaining Walls" for more information.

UNDERCUTTING & BACKFILL: Large scale undercut is not anticipated. However, if soft or unstable material is encountered beneath the retaining wall and reinforcement zone, it shall be removed and backfilled with Select Granular Backfill (Class 7 Aggregate Base Course). Depth and area of any required undercutting shall be determined by the Engineer.

Any excavation and backfill required for undercutting shall be paid for as "Unclassified Excavation" and "Select Granular Backfill" in accordance with SP Job No. 090472 "Temporary Retaining Walls".

See SP Job No. 090472 "Temporary Retaining Walls" for additional information.

- The Contractor has the option of using a cut slope or shoring to maintain stability of the cut. Any excavation beyond the limits of the reinforcement zone or any shoring used will not be paid for directly, but shall be considered incidental to the item "Temporary Retaining Wall". See SP Job No. 090472 "Temporary Retaining Walls" for additional information.
- Excavation within the reinforcement zone will be paid for as Unclassified Excavation in accordance with SP Job No. 090472 "Temporary Retaining Walls".
- 4" underdrain and pipe lateral (non-perforated) in accordance with Section 611 and Std. Dwg. PU-1. Lateral underdrains shall be spaced at 50'-0" o.c., max., and placed at the ends of walls. This work and material shall be considered subsidiary to the item "Temporary Retaining Walls" and shall not be paid for directly.



ELEVATION OF TEMPORARY RETAINING WALL "A" AT BENT 4
(Looking Left)
Scale: 1/8" = 1'-0"

For additional information, see Details of Staged Construction on Dwg. Nos. 61561-61564.



SHEET 5 OF 5
DETAILS OF STAGE CONSTRUCTION
HIGHWAY 340 OVER LITTLE SUGAR CREEK
BENTON COUNTY
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-29-19
CHECKED BY: CAW DATE: 12-07-19
DESIGNED BY: KRM DATE: 11-22-19
BRIDGE NO. 07481 DRAWING NO. 61565

TABLE OF VARIABLES
FOR TEMPORARY RETAINING WALLS AT BENT 4

POINT	STATION	OFFSET	TOP OF WALL ELEVATION	BOTTOM OF WALL ELEVATION
A	27+04.34	12.58' LT. (4)	1003.68	985.50
B	27+61.34	12.58' LT. (4)	1005.83	1004.45
C	27+22.34 (4)	12.58' LT.	1004.36	986.44
D	27+22.34 (4)	0.00'	1004.61	986.44
E	27+22.34 (4)	12.00' RT.	1004.37	986.44

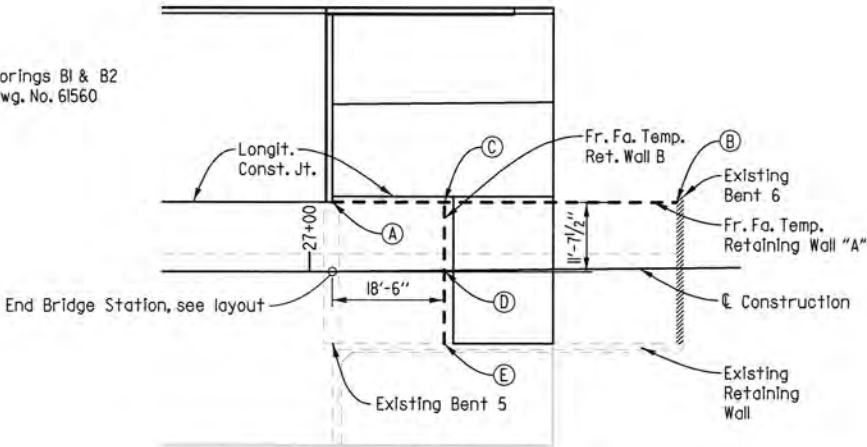
Stations shown are along E Construction Hwy. 340. Stations and offsets are measured to the outside face of Temporary Retaining Wall. Elevations shown are to top of Temporary Retaining Wall.

- Actual offset from edge of approach slab shall be determined by the temporary retaining wall manufacturer. The Contractor shall adjust the wall layout accordingly.

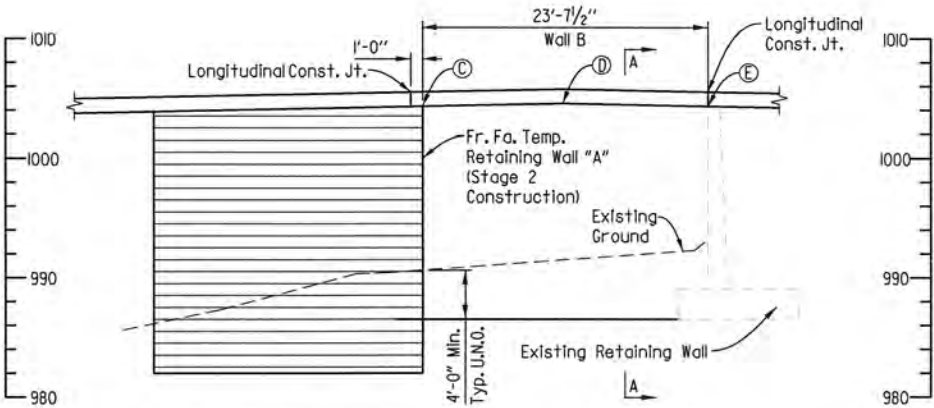
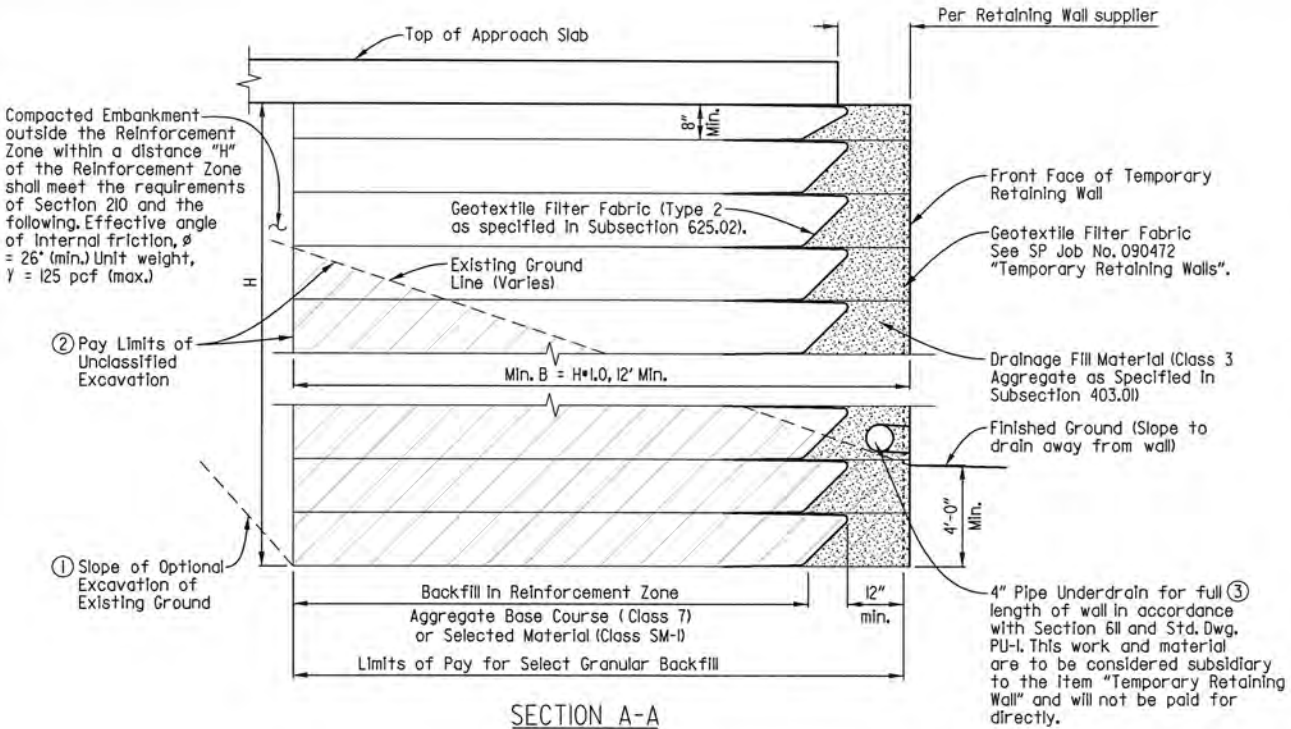
TABLE OF QUANTITIES
(FOR INFORMATION ONLY)

ITEM NO.	210	SP JOB 090472	SP JOB 090472
ITEM	UNCLASSIFIED EXCAVATION	SELECT GRANULAR BACKFILL	TEMPORARY RETAINING WALL
LOCATION	UNT	CU. YD.	SO. FT.
Bent 4			
WALL A - B	195	641	897
WALL C - D	57	139	209
WALL D - E	58	143	209
TOTALS	310	923	1315

For Borings B1 & B2 see Dwg. No. 61560

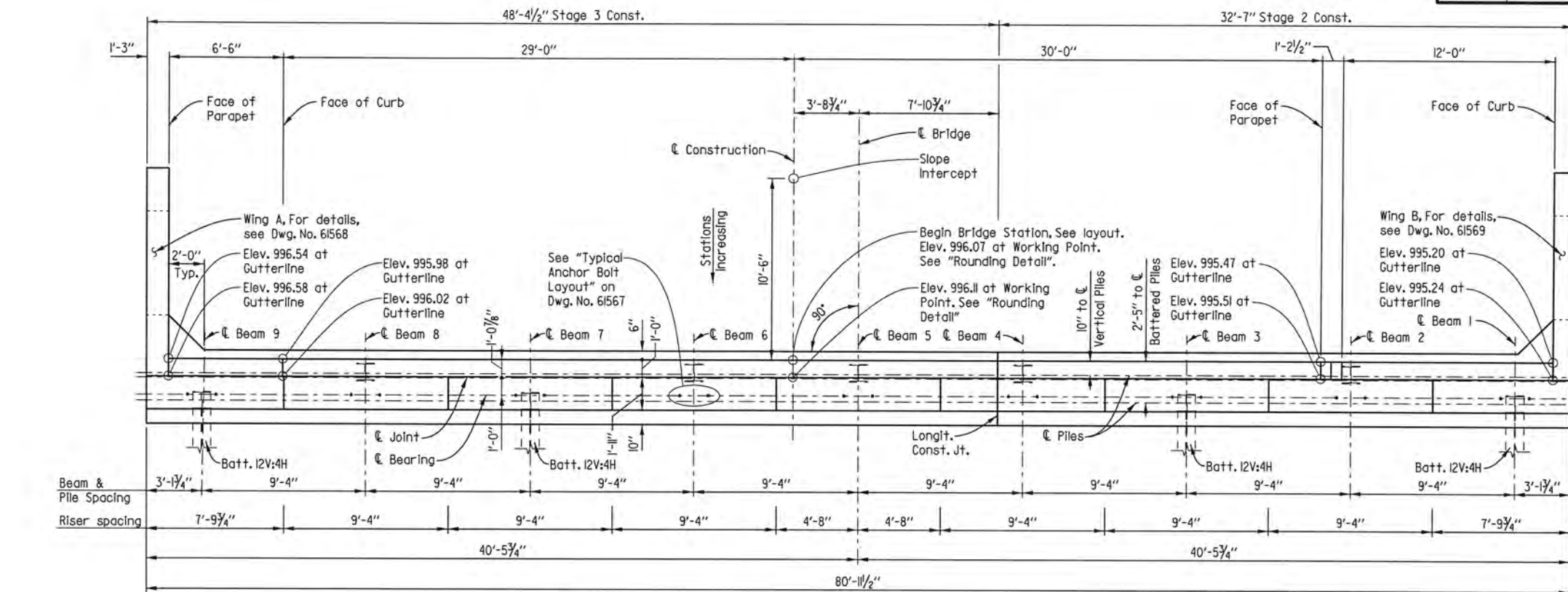


PLAN OF TEMPORARY WALLS "A" & "B" AT BENT 4
Scale: 1/8" = 1'-0"

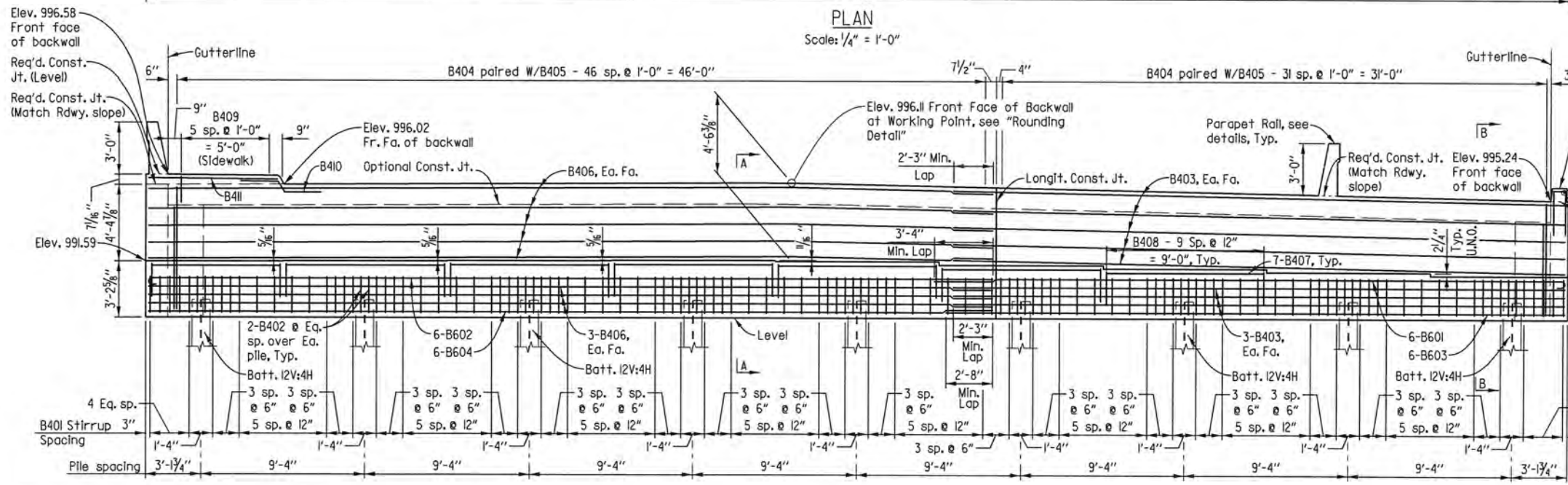


ELEVATION OF TEMPORARY RETAINING WALL "B" AT BENT 4
(Looking Ahead @ Sta. 27+22.34)
Scale: 1/8" = 1'-0"

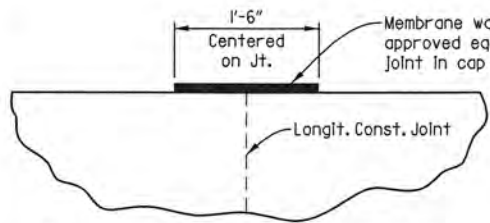
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	65	110
				07481	END BENT DETAILS			61566



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

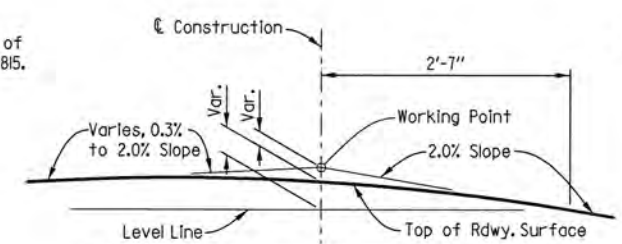


ELEVATION
Scale: 1/4" = 1'-0"
(Looking Back)



Note: Payment for membrane to be considered subsidiary to Class 5 Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
No Scale



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
(from Begin Bridge, Sta. 24+63.69 to Sta. 25+19.86)
No Scale

GENERAL NOTES

Class 2 Protective Surface Treatment shall be applied to the roadway surface, roadway face, shared use face, and top of parapet rolls, median, side path surface, sidewalk surface, and face of curb.

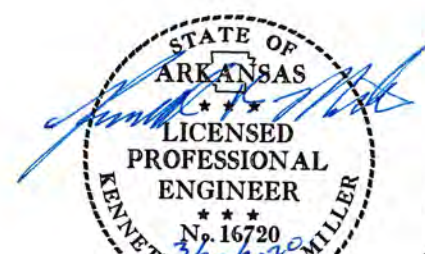
No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation at End Bents" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacement span has been completed. See "Detail Z" on Dwg. No. 61567 for additional information.

Structural steel in End Bents may be ASTM A709, Gr. 36 and shall be included in the bid item "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)."

See bridge layout for additional information.

For details of wing and rolls, see Dwg. Nos. 61568 and 61569.

See Std. Dwg. No. 55006 for additional notes.



SHEET 1 OF 4
DETAILS OF BENT 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-22-19
CHECKED BY: CAW DATE: 11-30-19
DESIGNED BY: KRM DATE: 11-15-19
BRIDGE NO. 07481 DRAWING NO. 61566

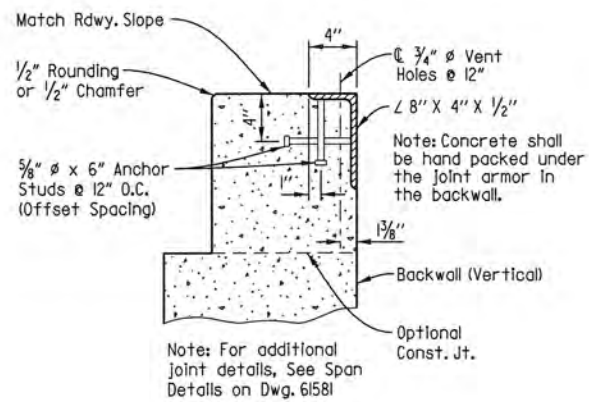
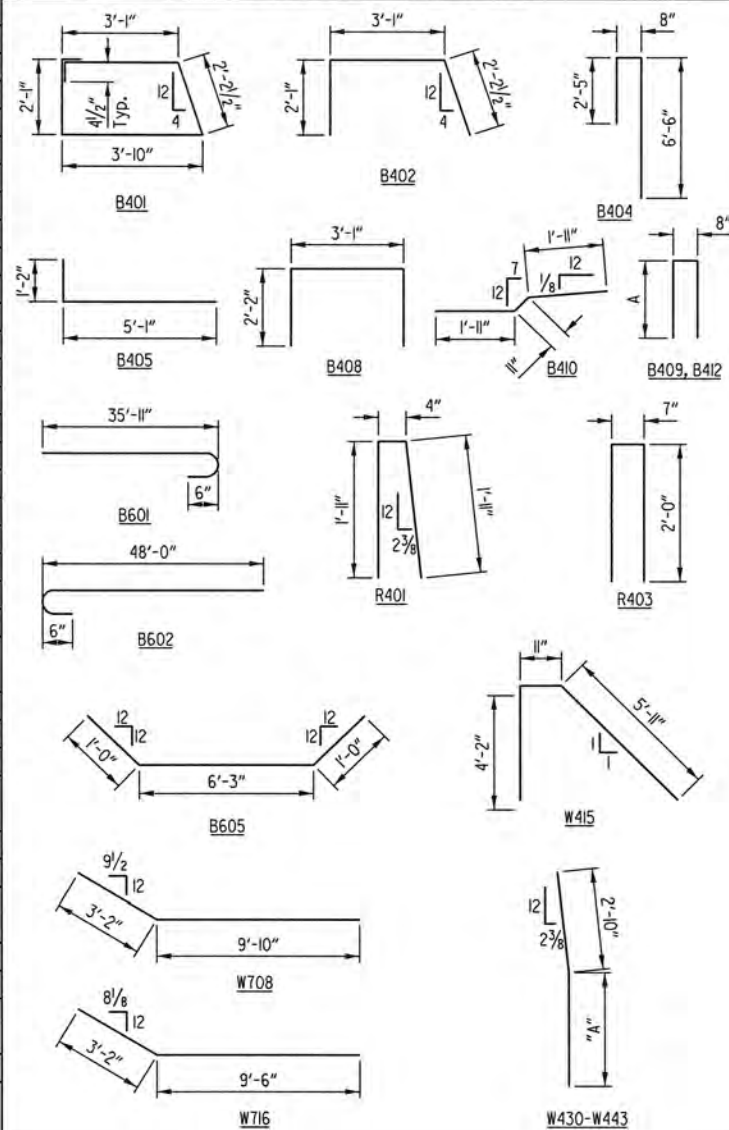
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SCALE: 1/4" = 1'-0"

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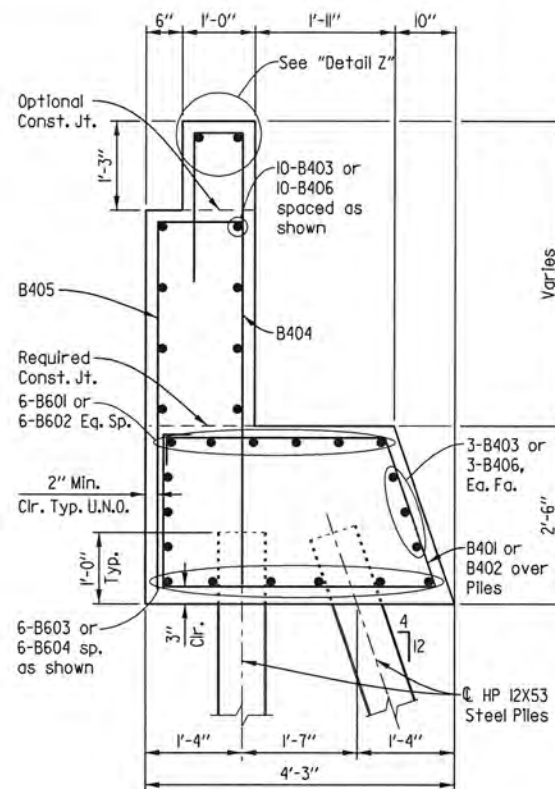
BAR LIST - BENT 1

Mark	No. Req'd.	Length	A	Pin Diameter
B401	106	11'-7"		2"
B402	18	7'-3"		2"
B403	16	34'-10"		Str.
B404	79	9'-5"		2"
B405	79	6'-2"		2"
B406	16	48'-0"		Str.
B407	28	9'-0"		Str.
B408	70	7'-3"		2"
B409	6	4'-0"	1'-9"	2"
B410	2	4'-0"		2"
B411	2	7'-5"		Str.
B412	2	4'-6"	2'-0"	2"
B413	2	0'-8"		Str.
B414	6	5'-1"		Str.
B601	6	36'-7"		4½"
B602	6	48'-8"		4½"
B603	6	35'-11"		Str.
B604	6	48'-0"		Str.
B605	10	8'-2"		4½"
R401	24	4'-1"		3"
R402	14	11'-8"		Str.
R403	24	4'-5"		2"
W401	7	10'-8"		Str.
W402 to W413	1 Ea.	Var. 10'-5" to 6'-0"		Str.
W414	5	5'-11"		Str.
W415	8	10'-10"		3"
W416	14	8'-5"		Str.
W417 to W428	2 Ea.	Var. 8'-2" to 3'-10"		Str.
W429	10	3'-8"		Str.
W430	7	10'-7"	7'-9"	2"
W431 to W442	1 Ea.	Var. 10'-4" to 6'-0"	Var. 7'-6" to 3'-2"	2"
W443	5	5'-10"	3'-0"	2"
W701	18	11'-8"		Str.
W702 to W707	2 Ea.	Var. 8'-6" to 4'-0"		Str.
W708	2	13'-0"		5¼"
W709 to W715	2 Ea.	Var. 8'-10" to 4'-1"		Str.
W716	2	12'-8"		5¼"

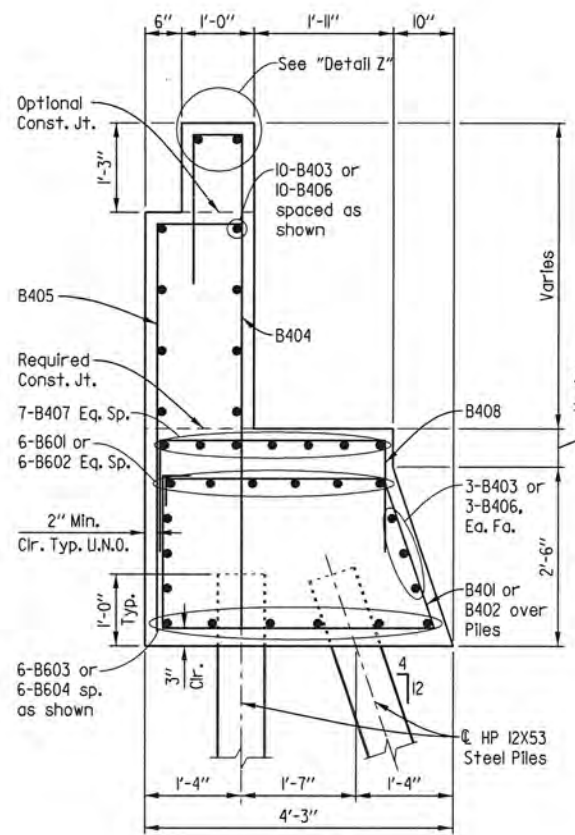
Bending Diagrams
(Dimensions are out to out of Bars)



DETAIL Z
No Scale

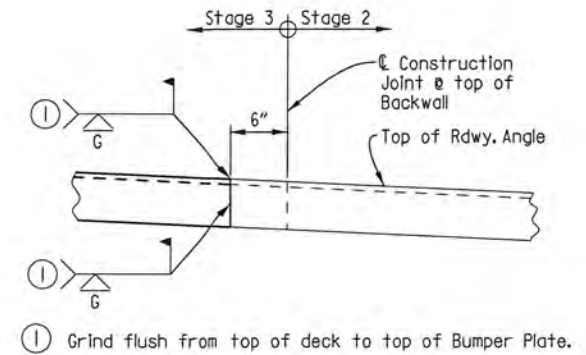


SECTION B-B
Scale: $\frac{3}{4}" = 1'-0"$

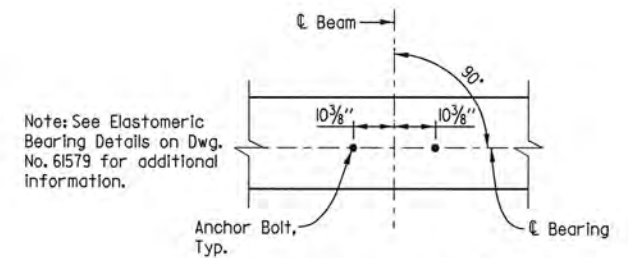


SECTION A-A
Scale: $\frac{3}{4}" = 1'-0"$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472	66	110	
				07481	END BENT DETAILS			61567



DETAIL OF WELD LOCATION
FOR JOINT ARMOR
Looking Back - Bent I
No Scale



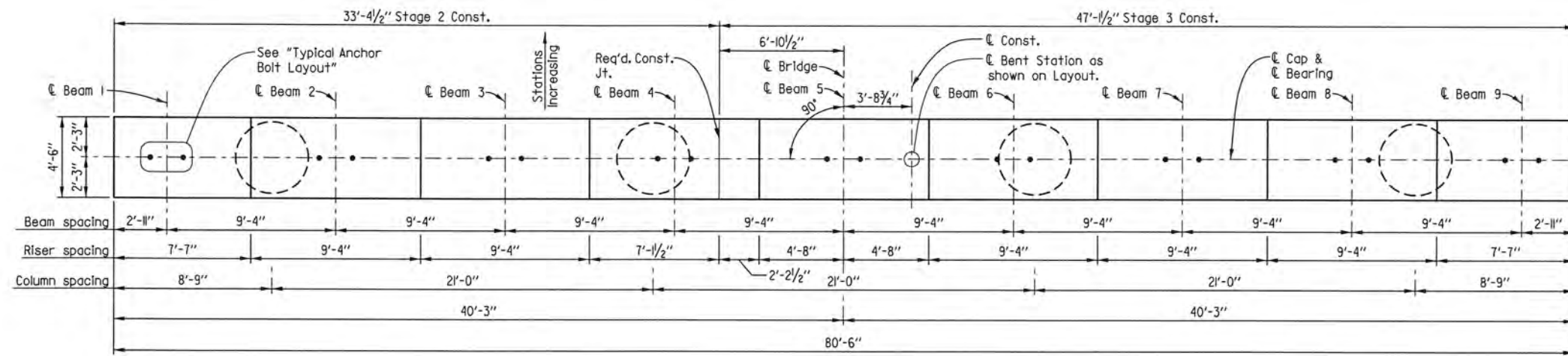
TYPICAL ANCHOR
BOLT LAYOUT
Scale: $\frac{1}{2}" = 1'-0"$



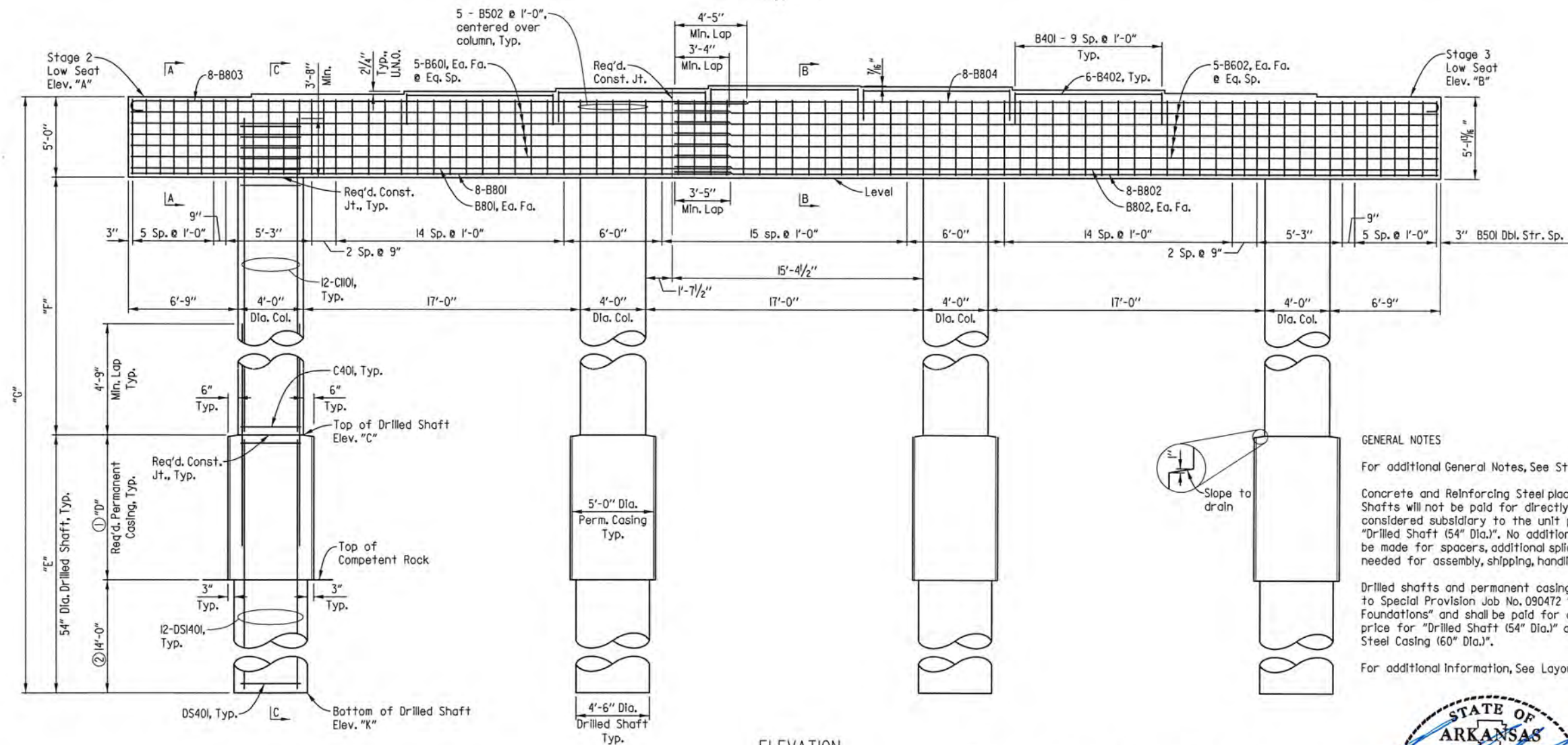
SHEET 2 OF 4
DETAILS OF BENT 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-23-19 FILENAME: b090472x2.bl2.dgn
CHECKED BY: CAW DATE: 11-30-19 SCALE: 1/4" = 1'-0"
DESIGNED BY: KRM DATE: 11-16-19

BRIDGE NO. 07481 DRAWING NO. 61567



PLAN
Scale: $\frac{1}{4}" = 1'-0"$



ELEVATION
(Looking Ahead)
Scale: $\frac{1}{4}" = 1'-0"$

Location	A	B	C	D	E	F	G	H	J	K
Bent 2	993.55	993.70	968.55	5'-4 $\frac{1}{4}$ "	19'-0"	20'-0"	44'-0"	19	20	949.55
Bent 3	996.79	996.94	967.79	8'-1 $\frac{3}{4}$ "	22'-0"	24'-0"	51'-0"	22	24	945.79

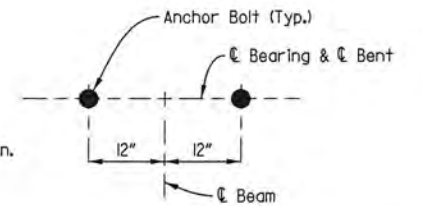
GENERAL NOTES

For additional General Notes, See Std. Dwg. No. 55006.

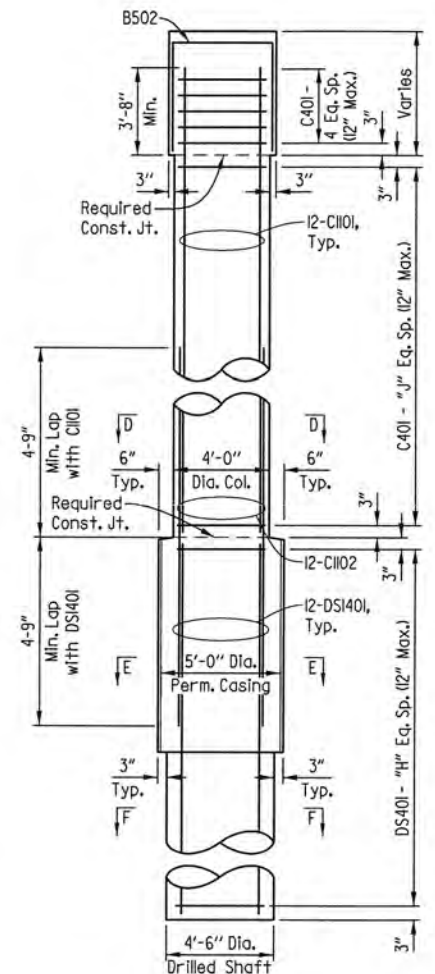
Concrete and Reinforcing Steel placed in the Drilled Shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "Drilled Shaft (54" Dia.)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 090472 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (54" Dia.) and Permanent Steel Casing (60" Dia.)."

For additional information, See Layout.



TYPICAL ANCHOR BOLT LAYOUT
No Scale



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

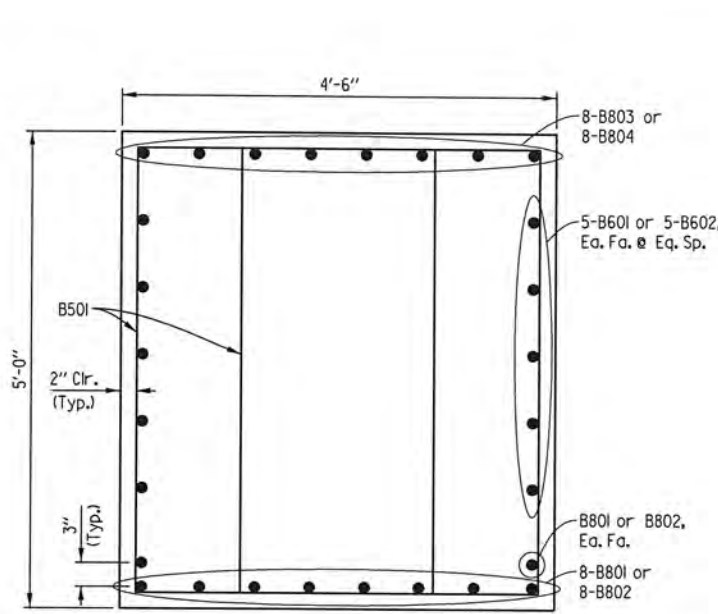
SHEET 1 OF 2
DETAILS OF BENTS 2 & 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

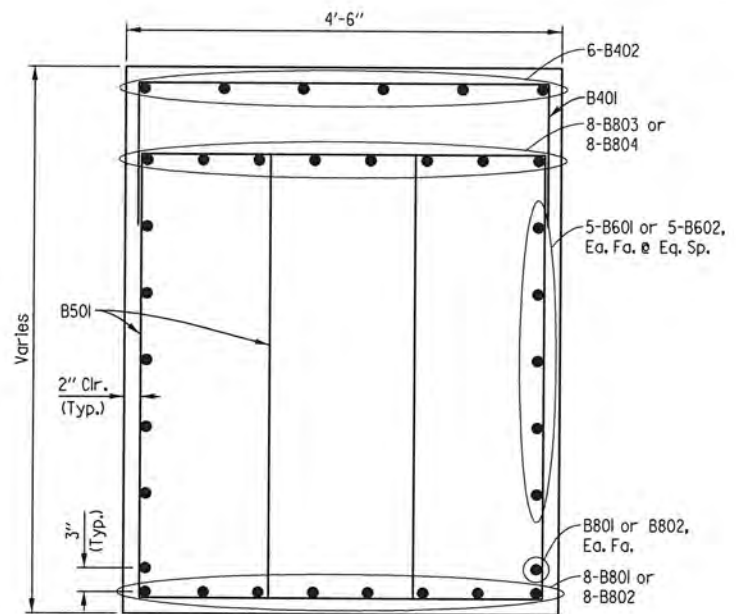
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CHECKED BY: CAW	DATE: 12-02-19	SCALE: 1/4" = 1'-0"
DESIGNED BY: KRM	DATE: 11-18-19	

BRIDGE NO. 07481 DRAWING NO. 61570

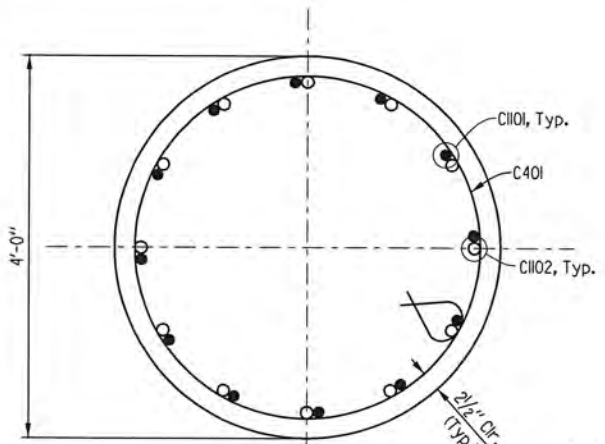
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PLOTTED: 3/20/2020 1:4:20 PM SCALE: 8.0000 ' / In



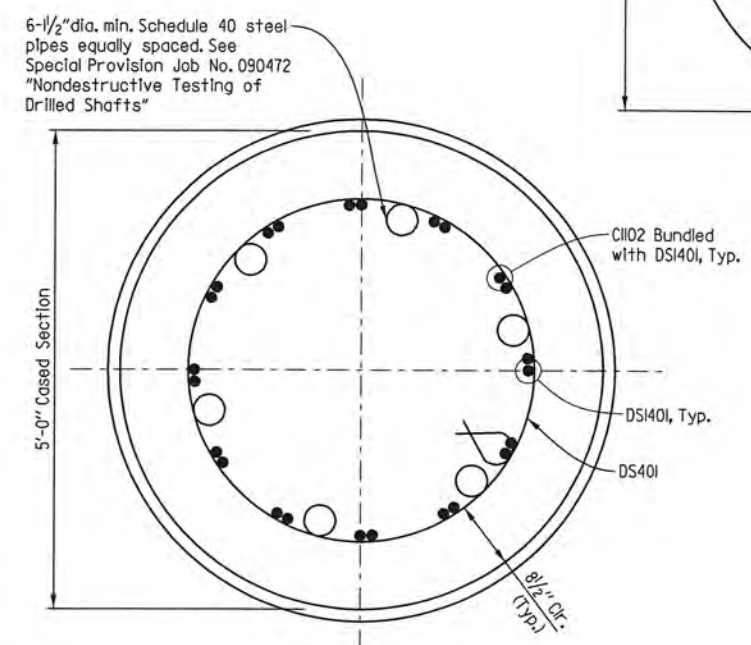
SECTION A-A
Scale: 1" = 1'-0"



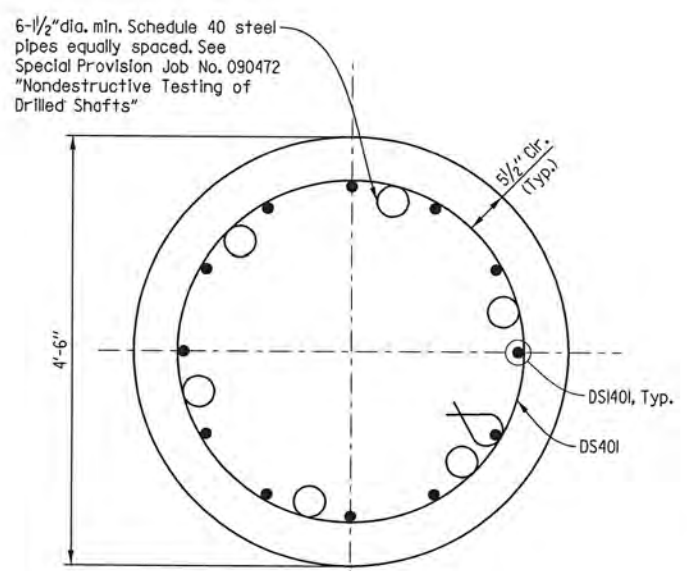
SECTION B-B
Scale: 1" = 1'-0"



SECTION D-D
Scale: 1" = 1'-0"



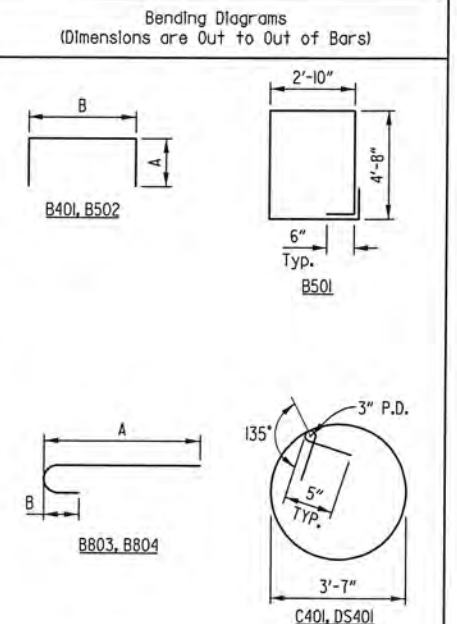
SECTION E-E
Scale: 1" = 1'-0"



SECTION F-F
Scale: 1" = 1'-0"

BAR LIST - BENT 2

Mark	No. Req'd.	Length	A	B	P.D.
B401	50	7'-10"	1'-11"	4'-2"	2"
B402	30	9'-0"			Str.
B501	128	15'-6"			2 1/2"
B502	20	13'-4"	4'-8"	4'-2"	2 1/2"
B601	10	36'-10"			Str.
B602	10	46'-10"			Str.
B801	10	36'-10"			Str.
B802	10	46'-10"			Str.
B803	8	38'-9"	37'-10"	8"	6"
B804	8	47'-9"	46'-10"	8"	6"
C401	104	12'-4"			3"
C1101	48	24'-7"			Str.
C1102	48	9'-10"			Str.
DS401	80	12'-4"			3"
DS1401	48	18'-7"			Str.



BAR LIST - BENT 3

Mark	No. Req'd.	Length	A	B	P.D.
B401	50	7'-10"	1'-11"	4'-2"	2"
B402	30	9'-0"			Str.
B501	128	15'-6"			2 1/2"
B502	20	13'-4"	4'-8"	4'-2"	2 1/2"
B601	10	36'-9"			Str.
B602	10	46'-10"			Str.
B801	10	36'-10"			Str.
B802	10	46'-10"			Str.
B803	8	38'-9"	37'-10"	8"	6"
B804	8	47'-9"	46'-10"	8"	6"
C401	120	12'-4"			3"
C1101	48	28'-7"			Str.
C1102	48	9'-10"			Str.
DS401	92	12'-4"			3"
DS1401	48	21'-7"			Str.

① Payment for these items shall be subsidiary to the bid item "Drilled Shafts (54" Dia.)".



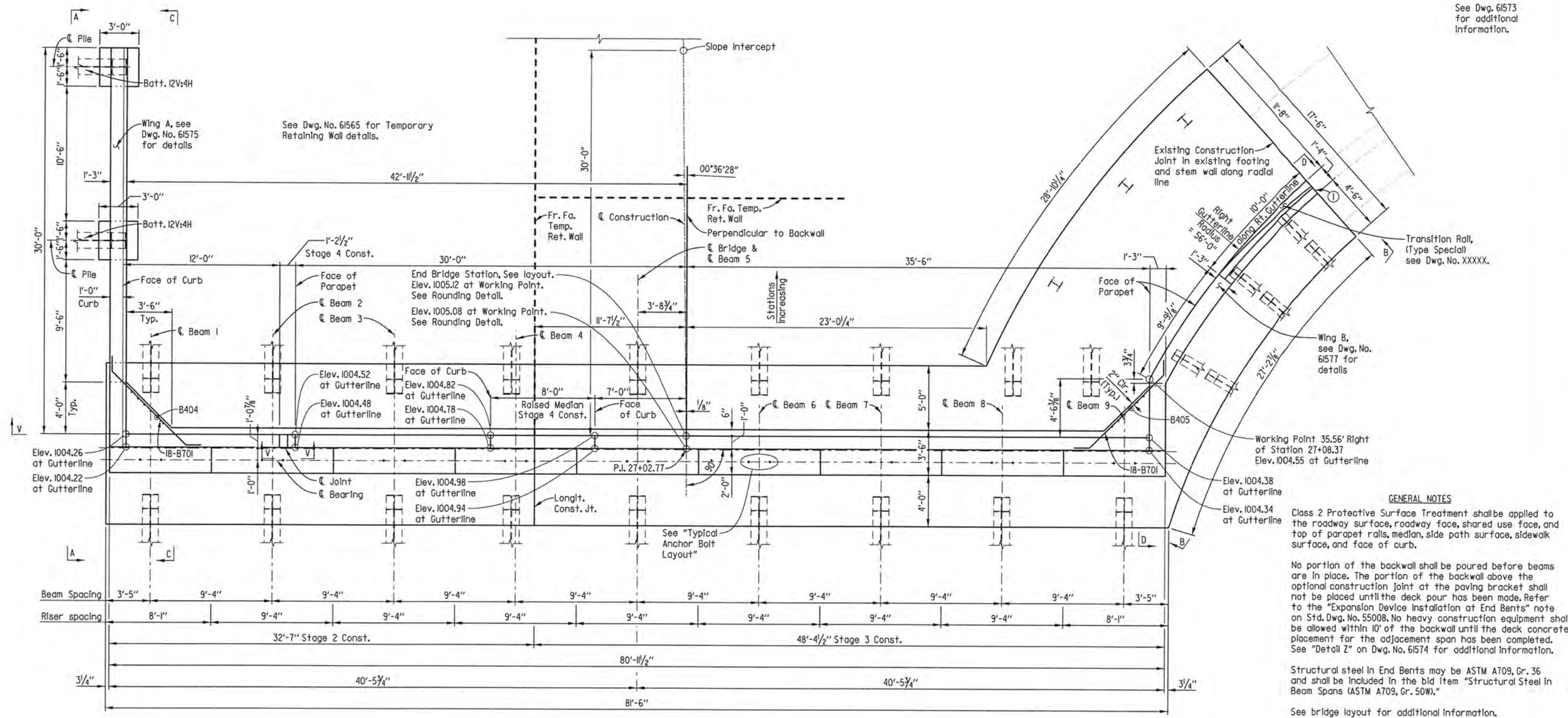
SHEET 2 OF 2
DETAILS OF BENTS 2 & 3
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-25-19 FILENAME: b090472x2.b22.dgn
CHECKED BY: CAW DATE: 12-02-19 SCALE: 1/4" = 1'-0"
DESIGNED BY: KRM DATE: 11-18-19
BRIDGE NO. 07481 DRAWING NO. 61571

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	71	110

07481 END BENT DETAILS 61572

① Req'd. Const. Jt., Match Exist.

See Dwg. 61573 for additional information.



GENERAL NOTES

Class 2 Protective Surface Treatment shall be applied to the roadway surface, roadway face, shared use face, and top of parapet rails, median, side path surface, sidewalk surface, and face of curb.

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation at End Bents" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed. See "Detail 2" on Dwg. No. 61574 for additional information.

Structural steel in End Bents may be ASTM A709, Gr. 36 and shall be included in the bid item "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)."

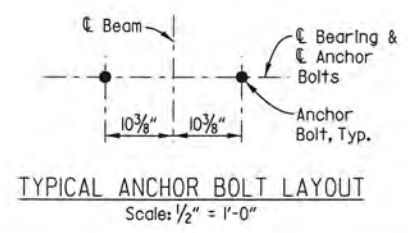
See bridge layout for additional information.

For details of wing and rails, see Dwg. Nos. 61575 and 61577.

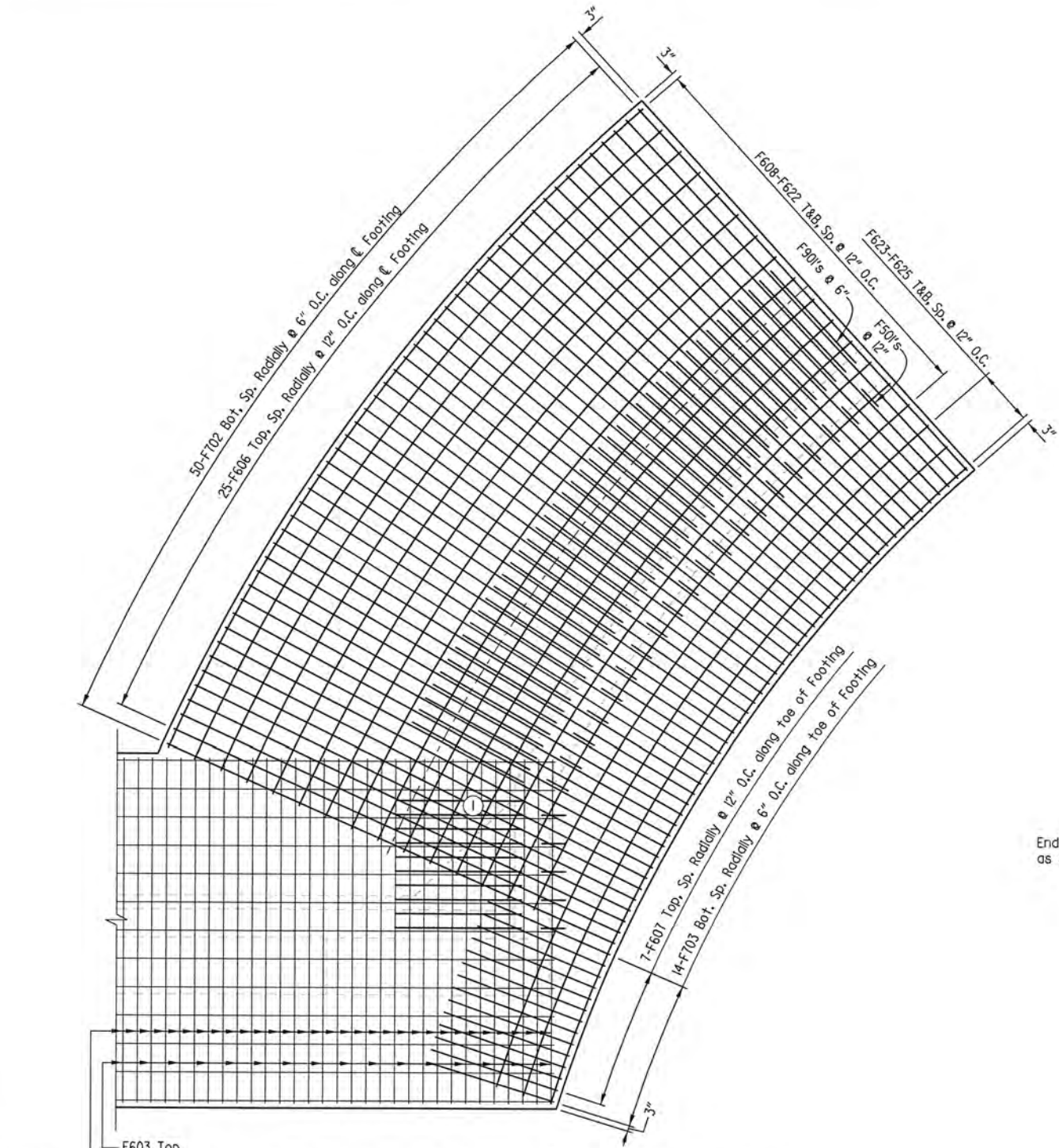
See Std. Dwg. No. 55006 for additional notes.

SHEET 1 OF 7
DETAILS OF BENT 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BNC DATE: 12-31-19 FILENAME: b090472x2.b4.dgn
CHECKED BY: CAW DATE: 01-07-20 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 12-24-19
BRIDGE NO. 07481 DRAWING NO. 61572

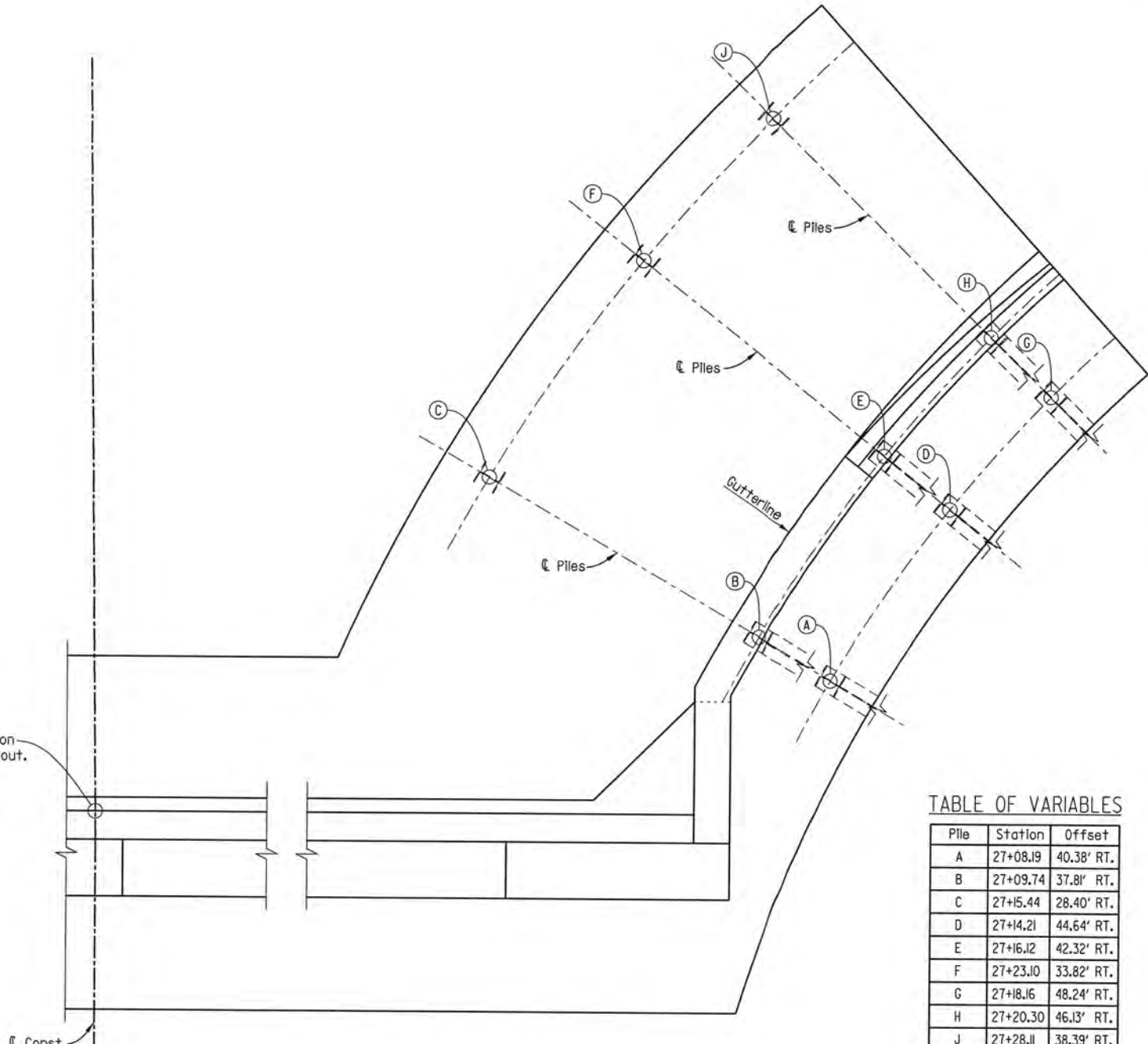


USER: CTAUSER
DESIGN FILE: G:\17107001\hwy340\TRANSP\dwg\bridge\b090472x2.b4.dgn
PLOTTER: 3/20/2020 14:20 PM SCALE: 8.0000 ' / in.



WING B FOOTING REINFORCING PLAN
Scale: 3/8" = 1'-0"

- ① Top & Bottom Mat Overlap Area
- Top Mat:
Maintain 2" concrete cover. Field adjust
F606 & F609 to lap underneath F603 bars.
- Bottom Mat:
Maintain 12" concrete cover. Field adjust
F702 & F703 to lap over F701 bars.



WING B PILE LOCATIONS
Scale: 3/8" = 1'-0"

TABLE OF VARIABLES

Pile	Station	Offset
A	27+08.19	40.38' RT.
B	27+09.74	37.81' RT.
C	27+15.44	28.40' RT.
D	27+14.21	44.64' RT.
E	27+16.12	42.32' RT.
F	27+23.10	33.82' RT.
G	27+18.16	48.24' RT.
H	27+20.30	46.13' RT.
J	27+28.11	38.39' RT.

Note:
Stations and Offsets are to
Piles at Bottom of Foundation

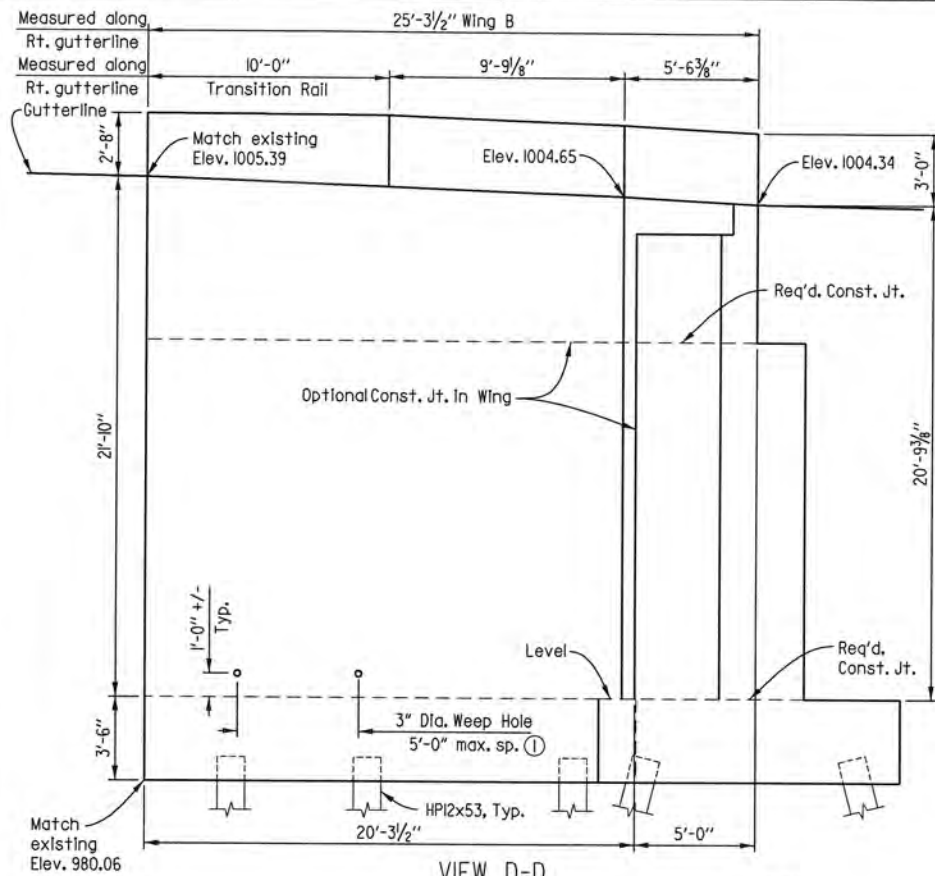
See Dwg No. 61573 for additional
Information



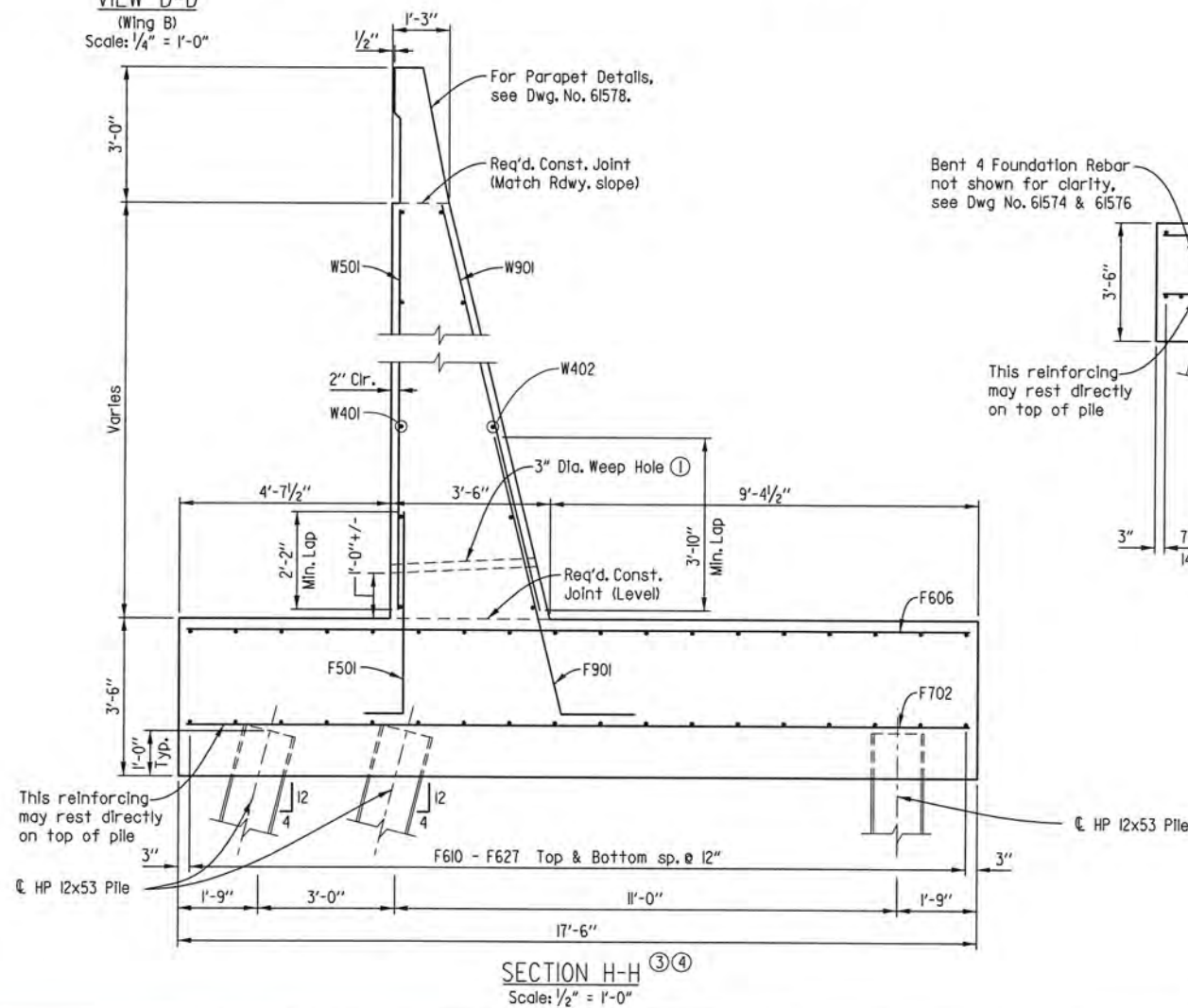
SHEET 5 OF 7
DETAILS OF BENT 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 01-06-20 FILENAME: b090472x2.b45.dgn
CHECKED BY: CAW DATE: 01-13-20 SCALE: 3/8" = 1'-0"
DESIGNED BY: KRM DATE: 12-30-19

BRIDGE NO. 07481 DRAWING NO. 61576

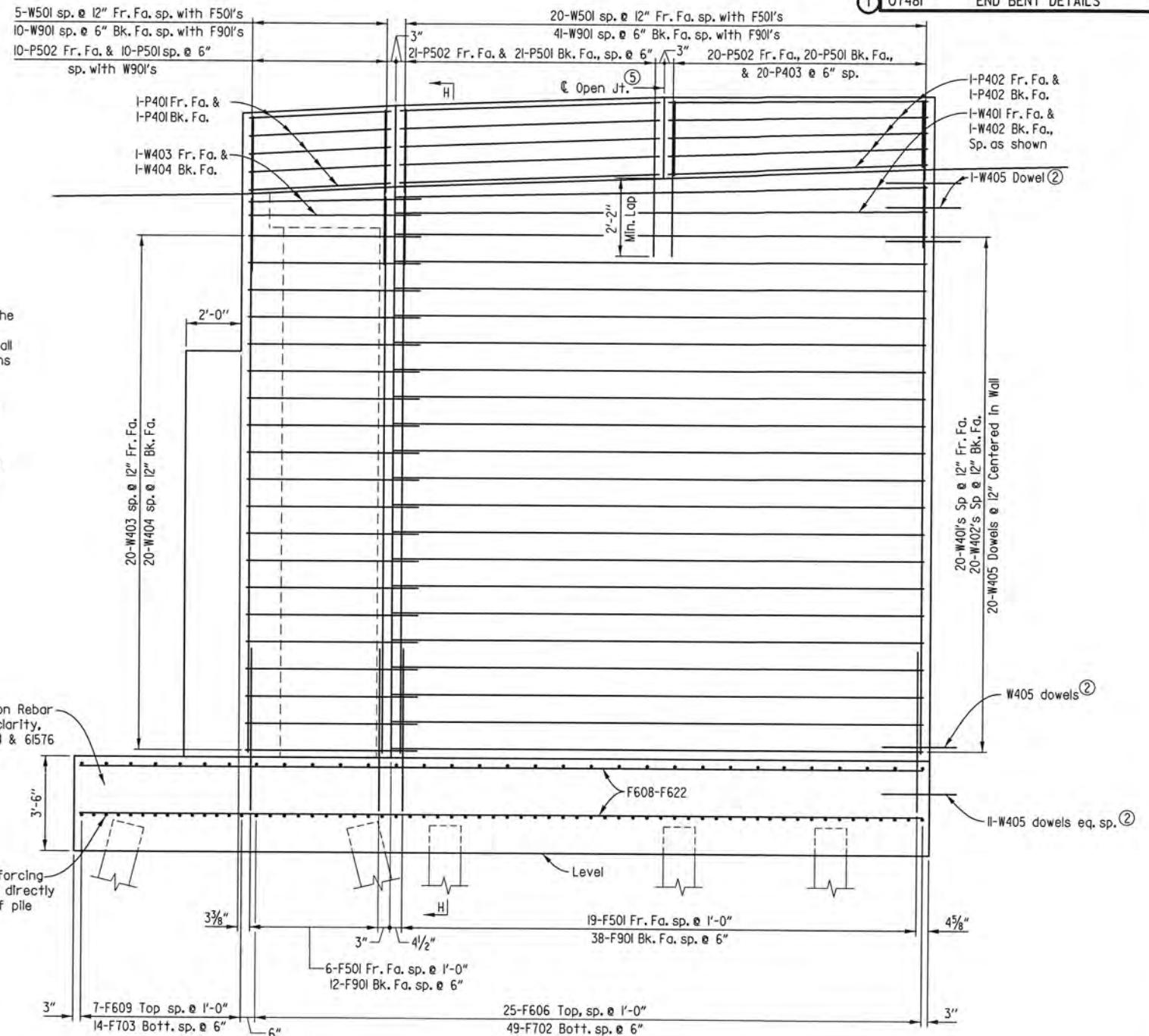


VIEW D-D
(Wing B)
Scale: 1/4" = 1'-0"



SECTION H-H ③④
Scale: 1/2" = 1'-0"

- ① 3" Ø Weep Hole (Schedule 40 PVC) through wall at 5'-0" max. spacing. See "Details of Backfill and Drainage", Dwg. No. 61578.
- ② Drill and grout bars where shown using an approved cement or epoxy system from the OPL. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.
- ③ Except as noted, longitudinal lines are arcs concentric with gutterline. All longitudinal dimensions are measured along gutterline.
- ④ Transverse reinforcing steel shall be placed on radial lines to the gutterline. Spacing shown is measured along the gutterline.
- ⑤ Open Joint in Rail (1/4" to 1" max.) Stop 4" from Gutterline.



VIEW B-B
(Wing B)
Scale: 3/8" = 1'-0"



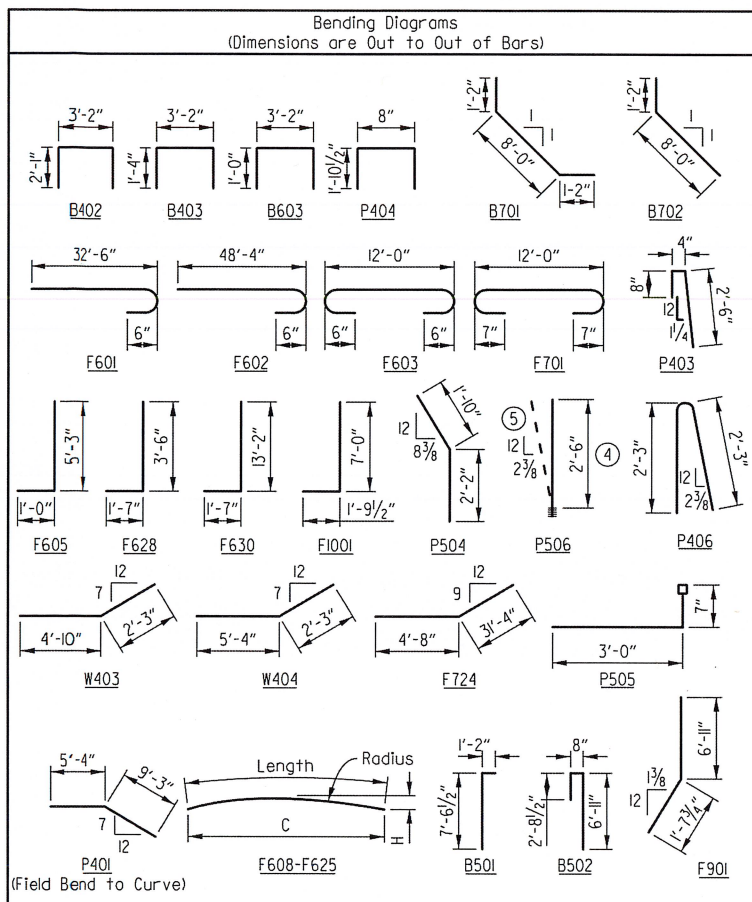
SHEET 6 OF 7
DETAILS OF BENT 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 01-07-20 FILENAME: b090472x2.b46.dgn
CHECKED BY: CAW DATE: 01-14-20 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 12-31-19
BRIDGE NO. 07481 DRAWING NO. 61577

BAR LIST - BENT 4

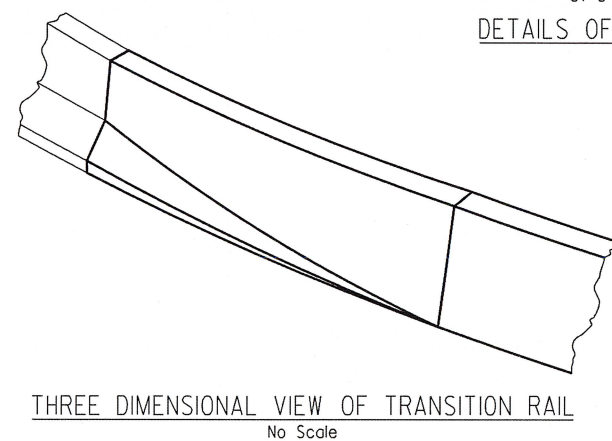
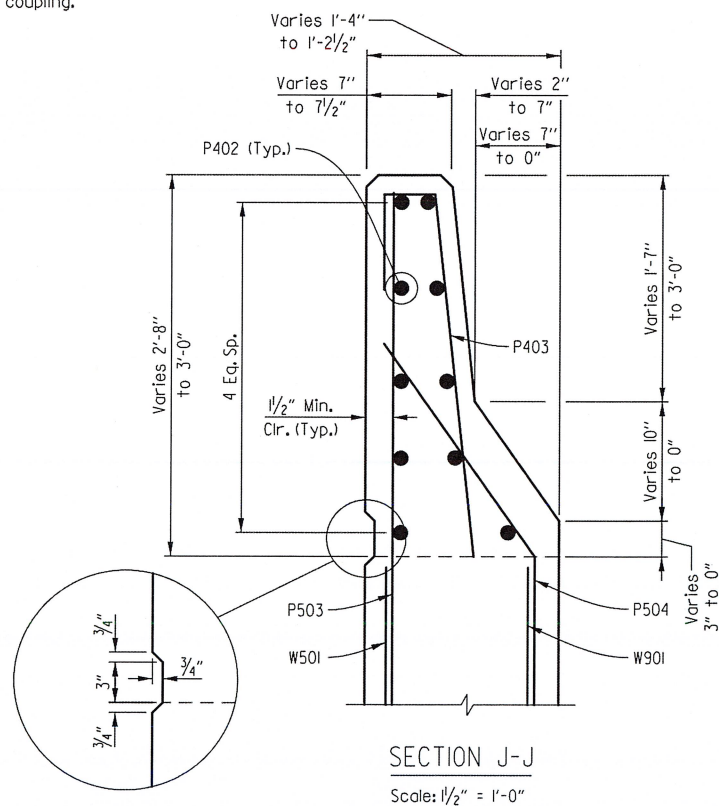
Mark	No. Req'd.	Length	Pin Diameter
B401	20	9'-0"	Str.
B402	45	7'-2"	2"
B403	82	5'-8"	2"
B404	6	17'-4"	Str.
B405	6	19'-7"	Str.
B501	82	8'-8"	3 3/4"
B502	82	9'-2"	2 1/2"
B503	10	32'-3"	Str.
B504	10	6'-0"	Str.
B505	10	48'-1"	Str.
B601	82	13'-11"	Str.
B602	28	32'-3"	Str.
B603	14	4'-10"	4 1/2"
B604	28	7'-0"	Str.
B605	28	48'-1"	Str.
B701	33	10'-2"	5 1/4"
B702	2	9'-0"	5 1/4"
B1001	82	17'-2"	Str.
F501	25	6'-8"	2 1/2"
F601	26	33'-0"	4 1/2"
F602	26	48'-9"	4 1/2"
F603	82	13'-4"	4 1/2"
F604	26	7'-0"	Str.
F605	82	6'-2"	4.5"
F606	25	17'-2"	Str.
F607	7	4'-8"	Str.
F608 to F622	30	Var. 28'-3" to 22'-5"	Str.
F623 to F625	6	Var. 28'-2" to 27'-1"	Str.
F626	12	4'-11"	4 1/2"
F627	12	2'-6"	Str.
F628	12	14'-6"	4 1/2"
F701	161	13'-8"	5 1/4"
F702	49	17'-2"	Str.
F703	14	4'-8"	Str.
F901	51	8'-3"	9"
F1001	82	8'-6"	10"
P401	10	14'-7"	3"
P402	10	9'-8"	Str.
P403	19	3'-3"	3"
P404	31	4'-3"	2"
P405	4	14'-7"	Str.
P406	2	4'-4"	2"
P407	10	0'-8"	Str.
P501	31	4'-6"	Str.
P502	31	5'-1"	3 3/4"
P503	20	5'-0"	Str.
P504	20	3'-11"	3 3/4"
P505	4	3'-6"	2 1/2"
P506	4	2'-6"	Str.
W401	22	19'-0"	Str.
W402	22	19'-5"	Str.
W403	22	7'-0"	3"
W404	22	7'-6"	3"
W405	33	2'-10"	Str.
W406	12	18'-3"	Str.
W407 to W415	18	Var. 17'-10" to 12'-2"	Str.
W416 to W425	20	Var. 8'-11" to 2'-6"	Str.
W501	25	20'-6"	Str.
W701	8	30'-6"	Str.
W702 to W723	44	Var. 26'-8" to 5'-10"	Str.
W724	2	35'-10"	5 1/4"
W901	51	20'-11"	Str.

TABLE OF VARIABLES

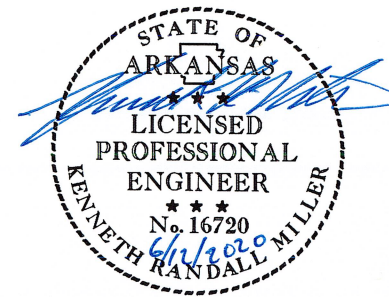
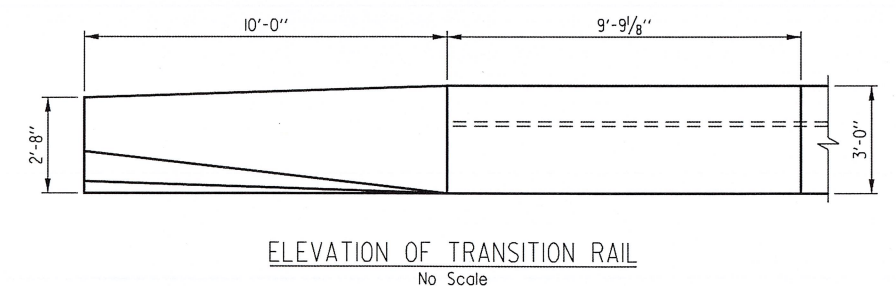
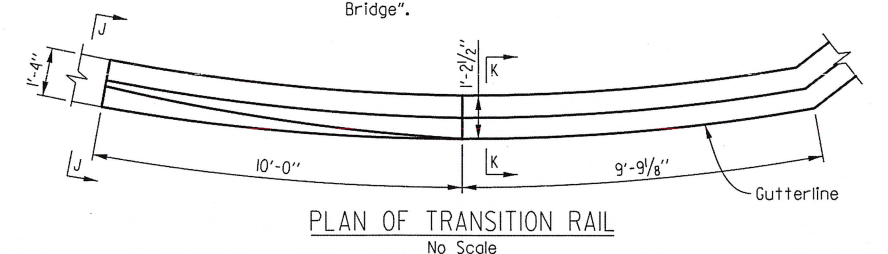
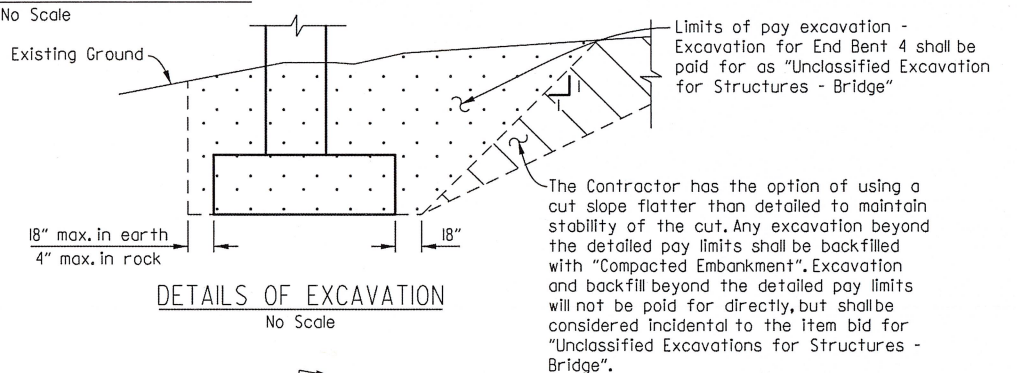
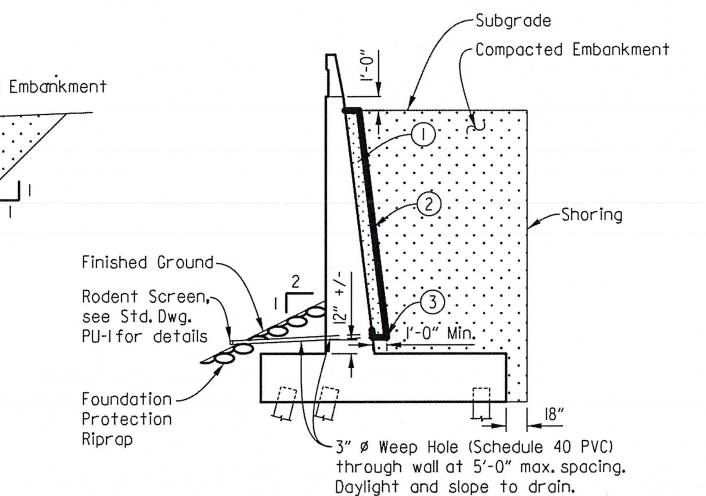
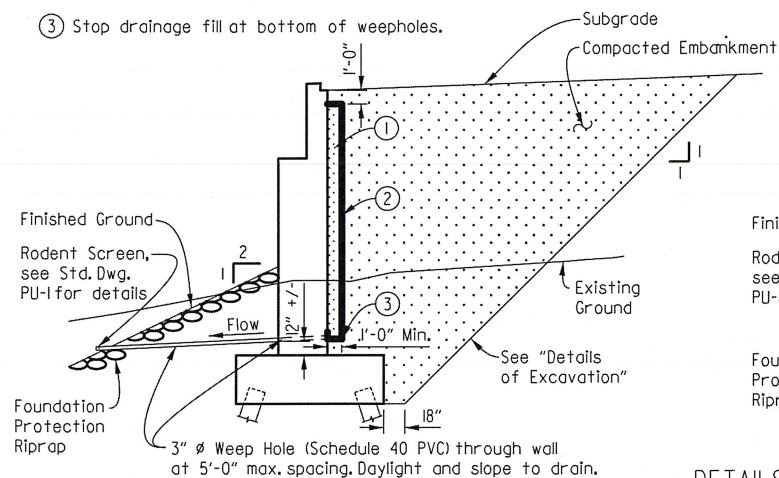
Mark	Length	Radius	"C"	"H"
F608	28'-3"	67'-5 1/8"	28'-0 1/2"	1'-5 3/4"
F609	27'-11"	66'-7 1/2"	27'-8 1/2"	1'-5 1/2"
F610	27'-6 7/8"	65'-10"	27'-4 1/2"	1'-5 3/8"
F611	27'-2 1/8"	65'-3 3/8"	27'-0 1/2"	1'-5"
F612	26'-10 1/8"	64'-2 3/4"	26'-8 1/2"	1'-4 7/8"
F613	26'-6 3/4"	63'-5 1/8"	26'-4 3/8"	1'-4 5/8"
F614	26'-2 3/4"	62'-7 1/2"	26'-0 1/2"	1'-4 1/2"
F615	25'-10 5/8"	61'-10"	25'-8 3/8"	1'-4 1/4"
F616	25'-6 5/8"	61'-0 3/8"	25'-4 3/8"	1'-4"
F617	25'-2 5/8"	60'-2 3/4"	25'-0 3/8"	1'-3 3/4"
F618	24'-10 1/2"	59'-5 1/8"	24'-8 3/8"	1'-3 1/2"
F619	24'-6 1/2"	58'-7 1/2"	24'-4 3/8"	1'-3 3/8"
F620	24'-2 1/2"	57'-10"	24'-0 3/8"	1'-3 1/8"
F621	23'-10 3/8"	57'-0 3/8"	23'-8 1/4"	1'-3"
F622	23'-2 1/4"	55'-5 1/8"	23'-0 1/4"	1'-2 1/2"
F623	28'-2"	52'-5 1/8"	27'-9 7/8"	1'-10 5/8"
F624	27'-7 1/2"	51'-5 1/8"	27'-3 1/2"	1'-10 1/8"
F625	27'-1"	50'-5 1/8"	26'-9 7/8"	1'-9 3/4"



- ④ Ends threaded for Mechanical coupler. Length of bar does not include any additional length for engagement into Mechanical coupler. The actual length of bar engagement into the Mechanical coupler shall be determined by the Mechanical coupler Manufacturer, and the length of the bar shall be adjusted accordingly.
- ⑤ Field bend P506 bars in roadway face of Parapet after installing into coupling.



- ① Drainage fill material (Class 3 as specified in Subsection 403.01 or other approved material). Full length of wall.
- ② Place Type 2 Geotextile Fabric between drainage fill material and compacted embankment as shown and at all 3" ϕ drains per Subsection 625.02.
- ③ Stop drainage fill at bottom of weepholes.



SHEET 7 OF 7
DETAILS OF BENT 4
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 01-07-20 FILENAME: b090472x2.b47.dgn
CHECKED BY: CAW DATE: 01-14-20 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 12-31-19
BRIDGE NO. 07481 DRAWING NO. 61578

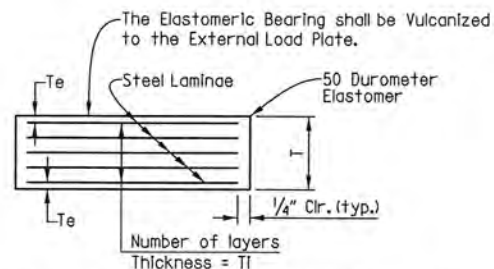
TABLE OF FABRICATOR VARIABLES

Brg. No.	Location		Bearing Type	No. of Bearings Each Bent	③ Maximum Design Load (Kips)	G	H	Elastomeric Pad						External Load Plate								Anchor Bolt						
								A	B	N	T _I	T _E	No. & Thickness of Steel Laminæ	T	C	D	E	F	J	K	M	T _a	T _b	Anchor Bolt		Pipe Sleeve Size (ø X L)	Sheet Metal Sleeve Size (ø X L)	Steel Washer Size (O.D.)
	Bent No.	Beam or Girder No.						ø X L	Grade	Sleeve Size (ø X L)	Sleeve Size (ø X L)	Washer Size (O.D.)																
07481	1, 4	I-9	Exp.	9	127	8⅜"	5⅝"	16"	9"	5	½"	¼"	6 @ 12 Ga.	3⅞"	10"	26¼"	4⅜"	2¼"	N/A	½"	10⅜"	2.19"	1.81"	1½" X 26"	55	1½" X 5⅞"	3" X 6"	3"
	2, 3	I-9	Fix	9	290	11⅜"	7⅞"	18"	14"	8	½"	¼"	9 @ 12 Ga.	5½"	15"	3"	3¾"	3¾"	N/A	½"	12"	2.28"	1.72"	2½" X 39"	55	3" X 7⅞"	4" X 6"	4½"

- ① Care shall be taken to ensure that the External Load plate is in full and complete contact with the Beam or Girder Flange before welding begins.
- ② Center line of Beam or Girder shall be aligned with center line of Elastomeric pad.
- ③ Maximum Design Load = Service I Limit State

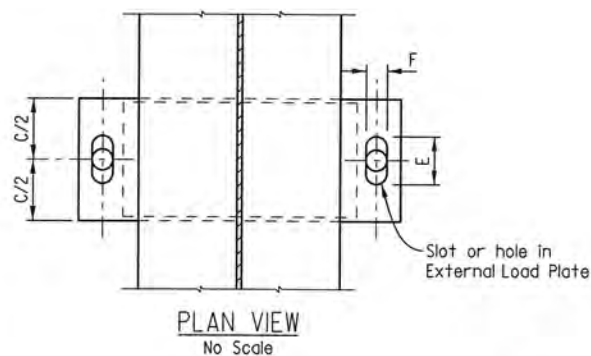
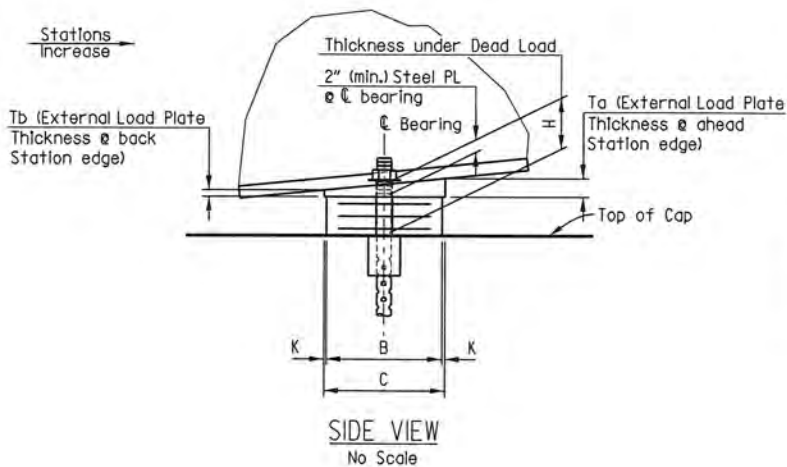
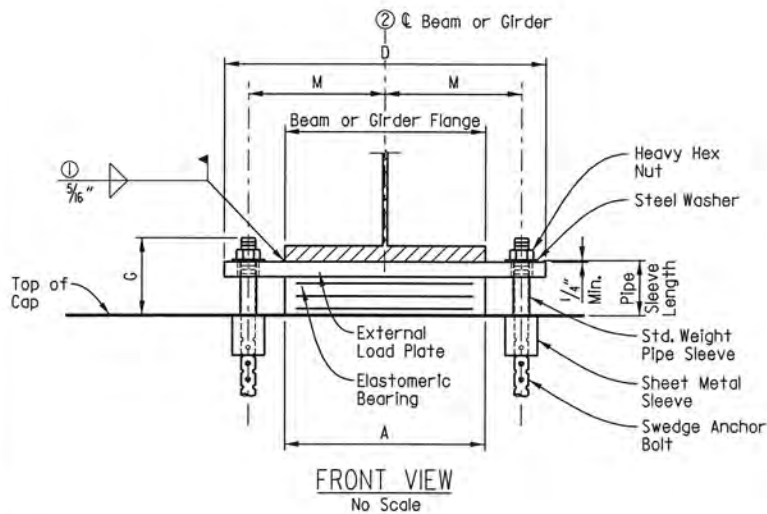
Unless otherwise approved by the Engineer, welding of the External Load Plate at expansion bearings to the Beam or Girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F, and 2) the slots in the External Load Plate are positioned to center on the Anchor Bolts, and 3) no horizontal deformation at the Elastomeric pad is evident. If welding at another temperature is required, the Engineer will provide adjustment data.

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in TABLE OF FABRICATOR VARIABLES.

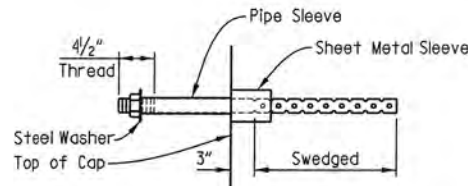
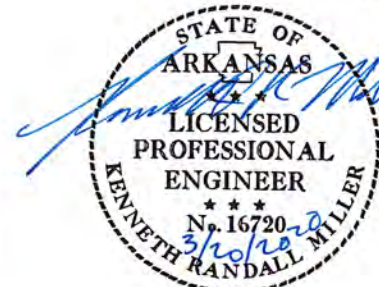


T_e = thickness of Elastomer cover on top and bottom of pad
T_i = thickness of Elastomer between Steel Laminæ
N = number of Elastomer layers of thickness T_i

ELASTOMERIC BEARING
No Scale



Prior to erection of the Beam or Girders, the Contractor shall verify the orientation of the bearings with respect to T_a and T_b



ANCHOR BOLT DETAIL
No Scale

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

If Anchor Bolts are to be drilled and grouted in place, the galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gauge thickness, and be galvanized according to ASTM B695, Class 50. Galvanized sheet metal sleeves will not be paid for directly, but will be considered subsidiary to the items "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)".

GENERAL NOTES

Elastomeric bearings shall conform to Special Provision Job 090472 "Elastomeric Bearings" and Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is not required.

External load plates shall conform to ASTM A709, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor bolts, Washers, and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

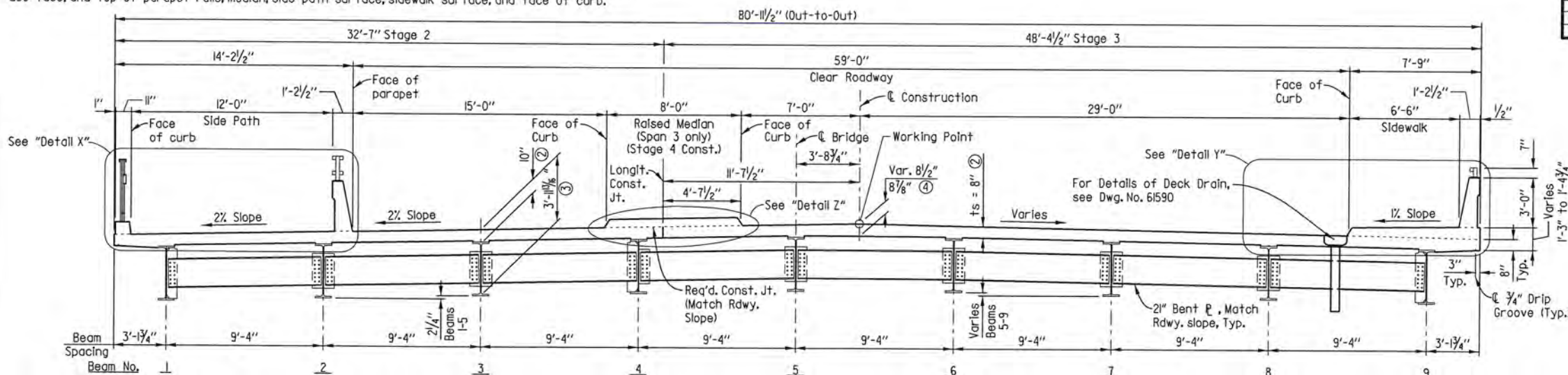
Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

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

DRAWN BY: BWC DATE: 11-25-19 FILENAME: b090472x2.el.dgn
CHECKED BY: CAW DATE: 12-02-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 12-18-19
BRIDGE NO. 07481 DRAWING NO. 61579

Class 2 Protective Surface Treatment shall be applied to the roadway surface, roadway face, shared use face, and top of parapet rails, median, side path surface, sidewalk surface, and face of curb.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	79	110
				07481		SPAN DETAILS		61580



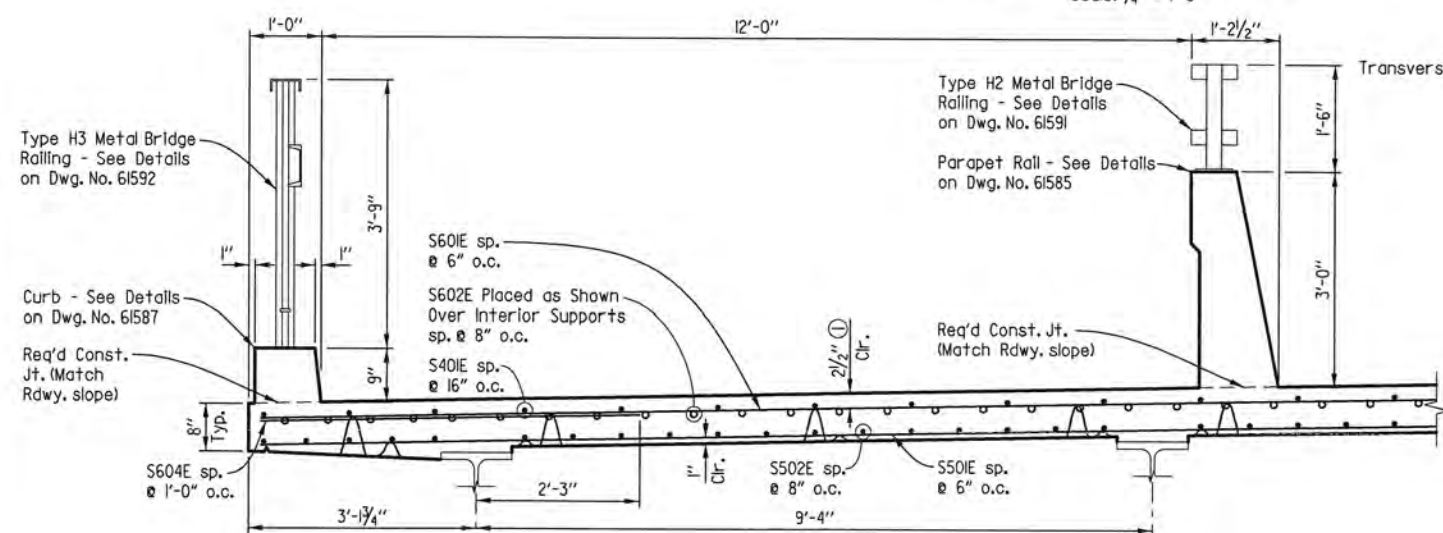
TYPICAL ROADWAY SECTION

(Looking Ahead)
(Span 3 shown, Spans 1 and 2 similar)
(Reinforcement not shown for clarity)
Scale: 1/4" = 1'-0"

Slab Reinforcing:

Longitudinal: S401E in top (spaced as shown)
S602E Placed as shown over interior supports (See Reinf. Plan and Pouring Sequence on Dwg. No. 61584)
S502E in bottom @ 8" o.c. between Beams
M404E in top (spaced as shown) (Stage 4)
S501E @ 6" o.c. in bottom (Stage 2)
S503E @ 6" o.c. in bottom (Stage 3)
S601E @ 6" o.c. in top (Stage 2)
S603E @ 6" o.c. in top (Stage 3)
S604E @ 12" o.c. in top, in overhang
M401E @ 18" o.c. in bottom (Stage 2)
M401E @ 18" o.c. in bottom (Stage 3)
M402E @ 18" o.c. in top (Stage 4)
M403E @ 18" o.c. in top (Stage 4)

- ① Tolerances: Minus = 1/4"
Plus = Amount of slab thickening used to meet slab thickness tolerance
See "Adjustment for Slab Thickness Tolerance"
- ② See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007
- ③ Measured at ℓ Bearing and ℓ Beam, Typ.
- ④ To Working point - See "Rounding Detail"



DETAIL X

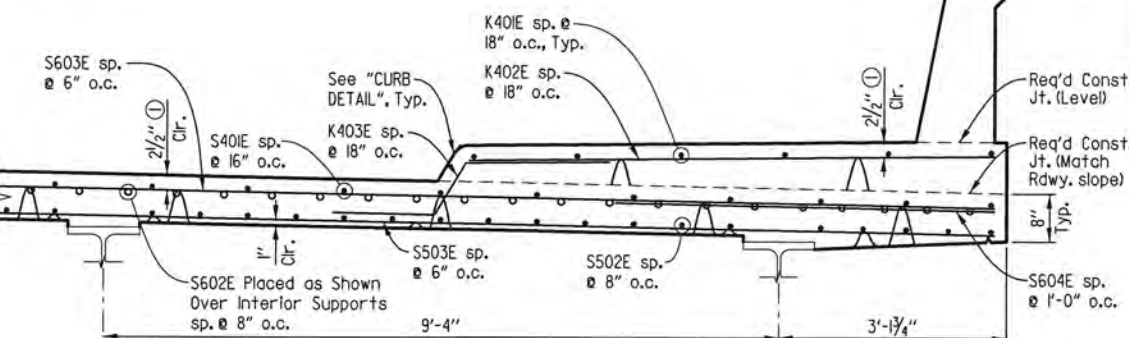
Scale: 3/4" = 1'-0"

See Dwg. No. 55007 for additional information.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

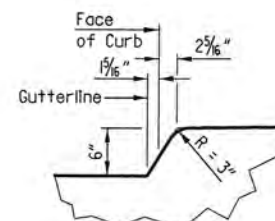
Type H Metal Bridge Railing - See Details on Dwg. No. 61555

Parapet Rail - See Details on Dwg. No. 61586



DETAIL Y

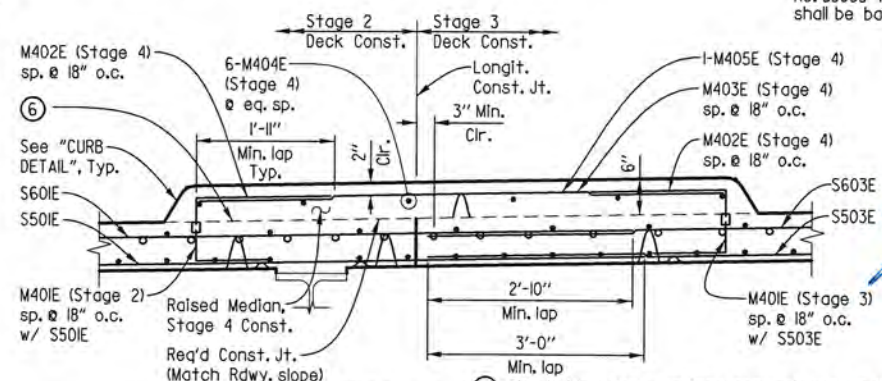
Scale: 3/4" = 1'-0"



CURB DETAIL

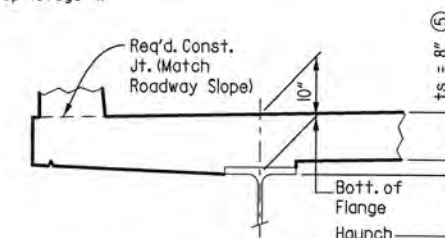
No Scale

Note: Space HI-Chairs as shown trans. 4'-0" o.c. longit. Space slab bolsters 4'-0" max. sp.

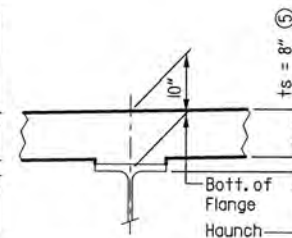


DETAIL Z

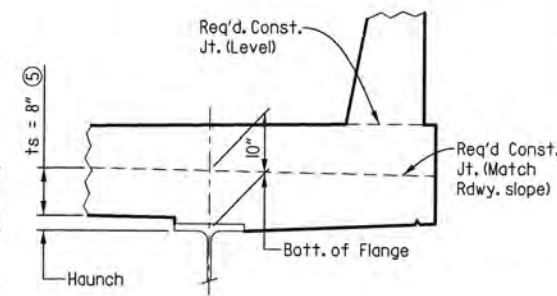
Scale: 3/4" = 1'-0"



EXTERIOR BEAM NO. 1



INTERIOR BEAM



EXTERIOR BEAM NO. 9

- ⑤ Tolerance when removable deck forming is used is +1/2", -1/4".
Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note: ts = slab thickness as shown in "Typical Roadway Section".

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale



SHEET 1 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

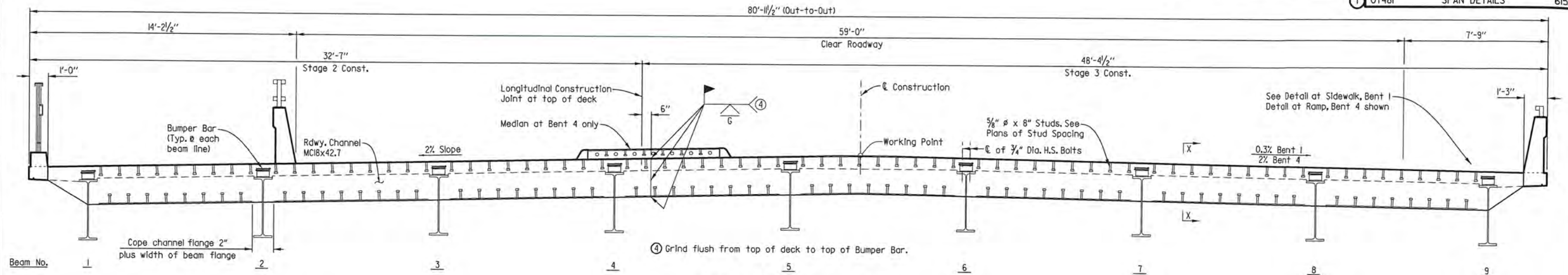
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CHECKED BY: CAW DATE: 12-03-19 SCALE: SEE DETAILS

DESIGNED BY: KRM DATE: 11-19-19

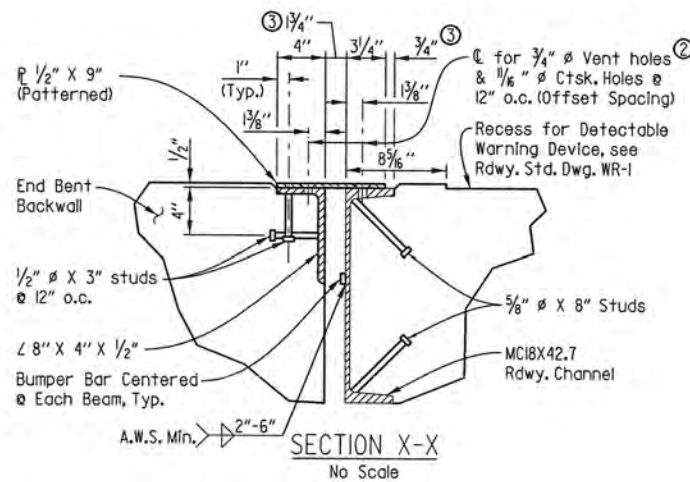
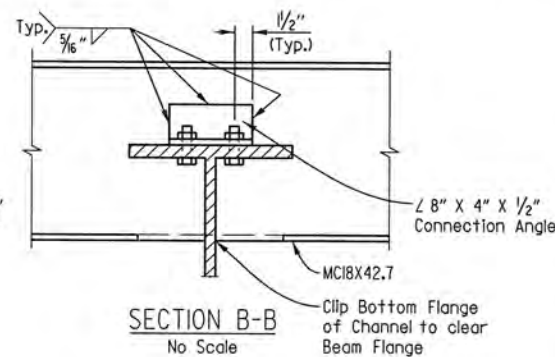
BRIDGE NO. 07481 DRAWING NO. 61580

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		80	110
				07481	SPAN DETAILS		61581	



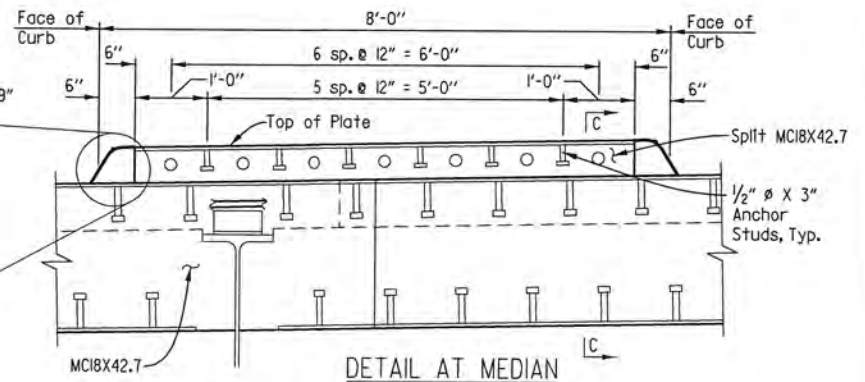
TYPICAL SECTION THROUGH JOINT
(Looking Ahead at Bent 4, Bent 1 opposite hand except as noted)
Scale: 3/8" = 1'-0"

Expansion Device:
Rdwy. Channel: MC18x42.7
Conn. Angle: L 8" X 4" X 1/2"
Detail Device: 1/8" high & provide 1/4" shims using 1-1/8" & 2-1/16" Plate

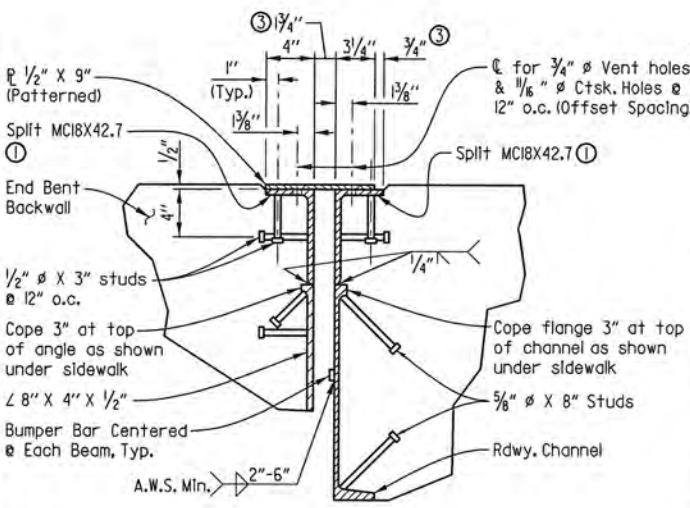


Bend Horizontal Leg of angle and patterned plate to conform to curb. Trim Vertical Leg of angle as needed.

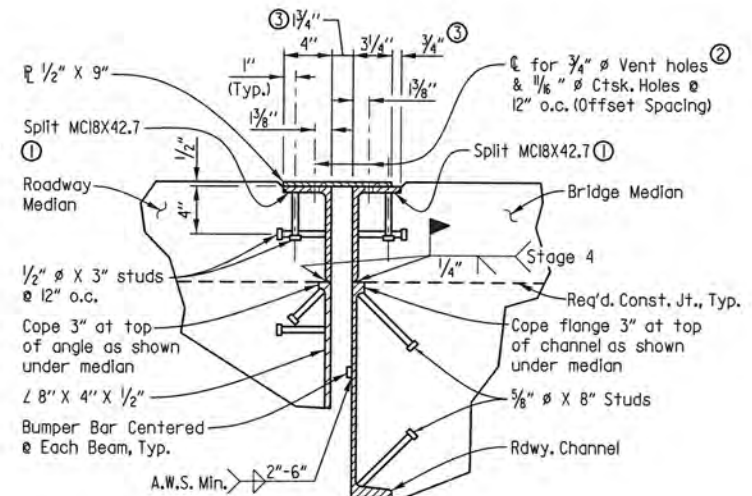
Stop Patterned 1/2" Short of Gutter Line.



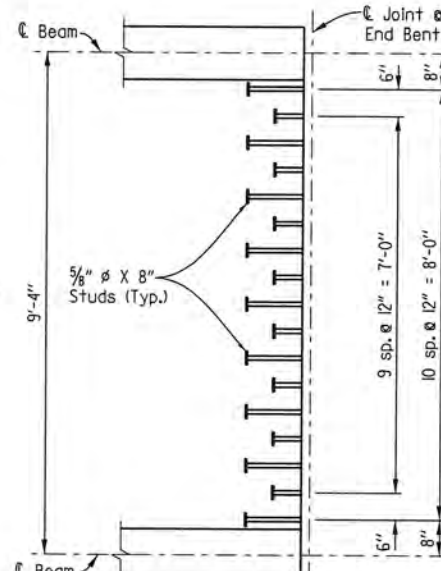
DETAIL AT MEDIAN
(Looking Ahead)
Scale: 3/4" = 1'-0"



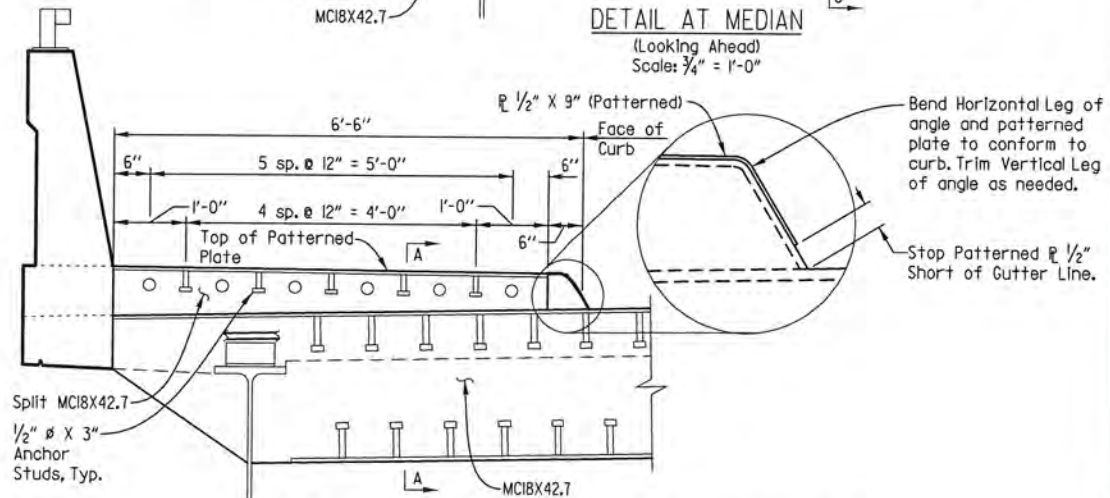
SECTION A-A
No Scale



SECTION C-C
No Scale



PLAN OF STUD SPACING
No Scale



DETAIL AT SIDEWALK
(Looking Back, Bent 1 Only)
Scale: 3/4" = 1'-0"

For additional details, see Dwg. Nos. 55008.

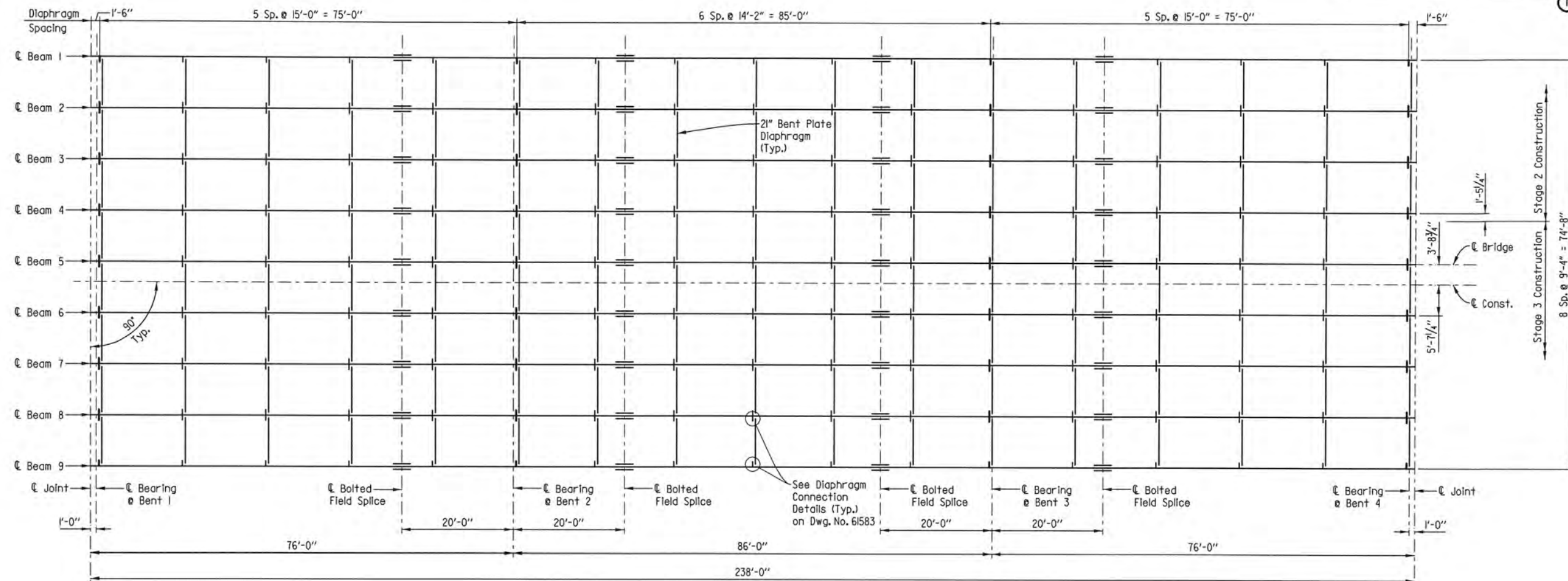
Note: Concrete shall be hand packed under the Joint Armor in the sidewalk. For expansion joint detail See "Detail of Poured Silicone Joint" Dwg. No. 55008.

- Trim Vertical Leg as needed.
- Ctsk. 1/8" x 1/8" holes in 1/2" patterned plate. Top 4" Leg for ASTM A449 5/8" x 8" screws in the shop and ship as a unit. Screws on the span side to be removed. Screws on backwall side to remain in place after erection. See "Expansion Device Installation" See Dwg. No. 55008.
- Dimensions Shown @ 60° F.
- At Rt. Sidewalk only.

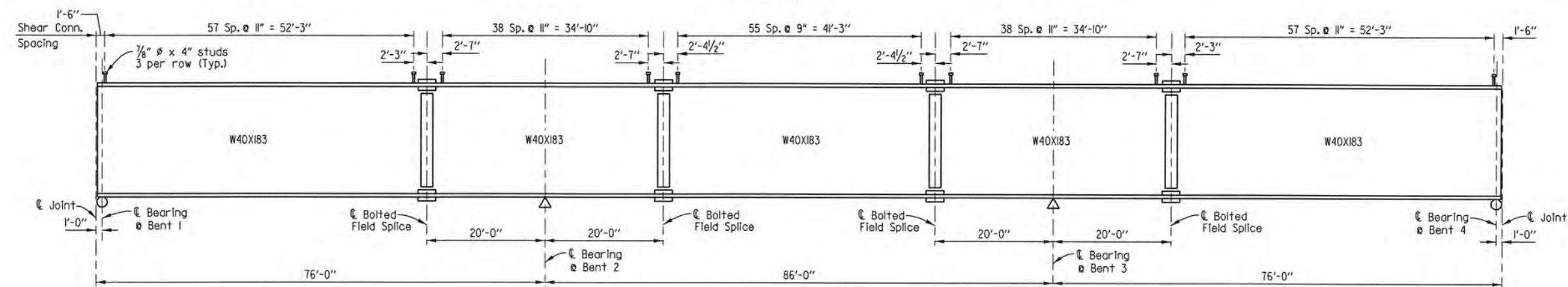


SHEET 2 OF 10
DETAILS OF 238'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-26-19 FILENAME: b090472x2.s2.dgn
CHECKED BY: CAW DATE: 12-03-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-19-19
BRIDGE NO. 07481 DRAWING NO. 61581

07481	SPAN DETAILS	61582
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FRAMING PLAN
Scale: $\frac{3}{8}'' = 1'-0''$



BEAM ELEVATION
No Scale

Note: All structural steel shall be ASTM A709, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.



SHEET 3 OF 10

DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT

ROUTE SEC.

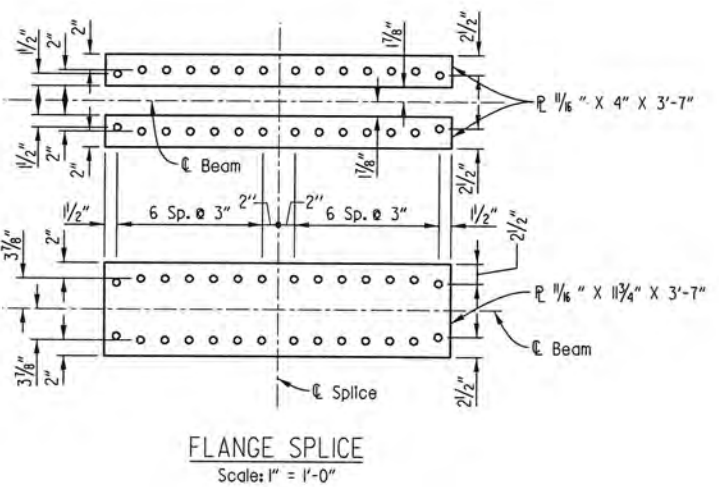
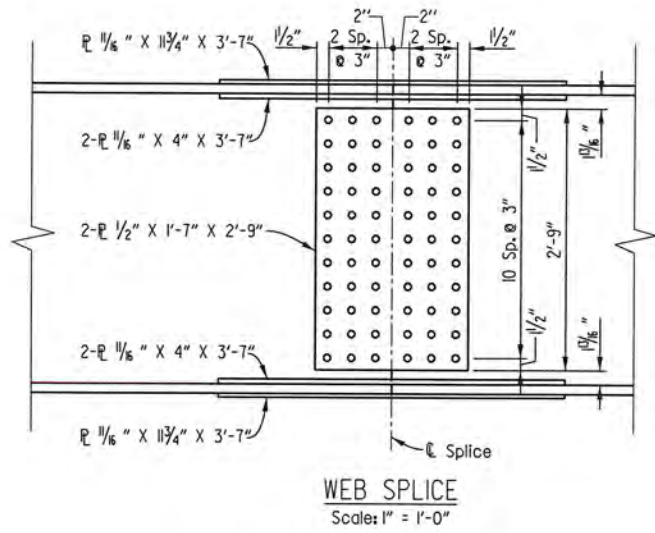
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	BWC	DATE:	11-26-19	FILENAME:	b090472x2_s3.dgn
CHECKED BY:	CAW	DATE:	12-03-19	SCALE:	SEE DETAILS
DESIGNED BY:	KRM	DATE:	11-19-19		

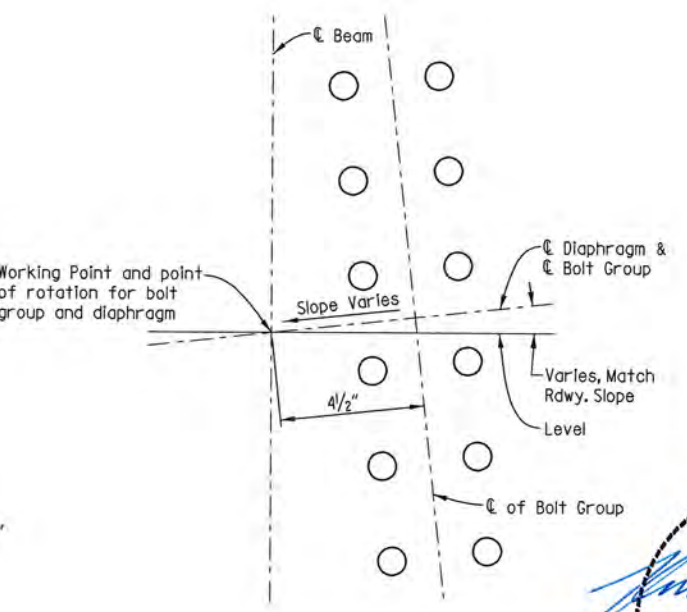
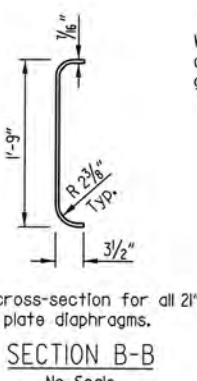
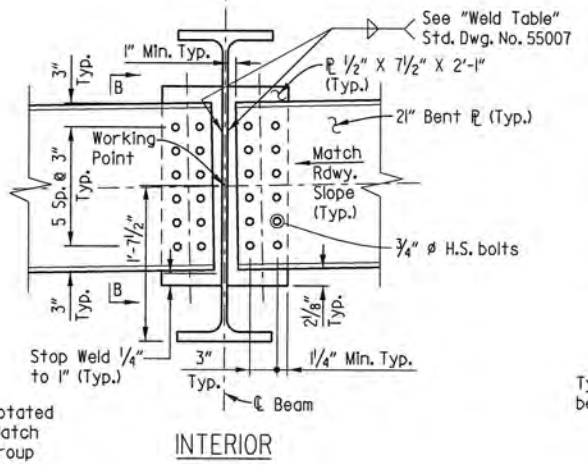
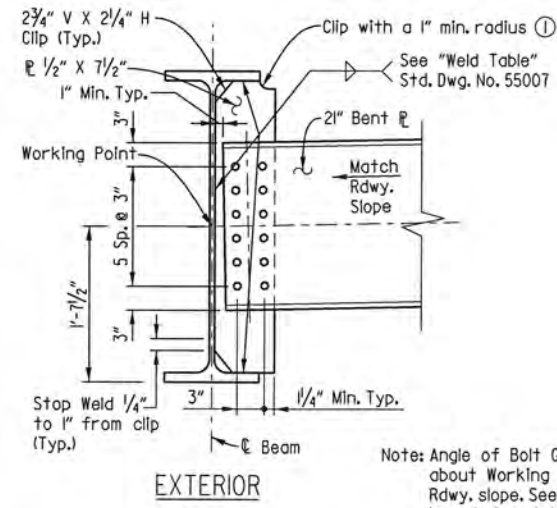
BRIDGE NO. 07481 DRAWING NO. 61582

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	82	110
				07481	SPAN DETAILS		61583	



FIELD SPLICE DETAILS

Note: All field splice bolts shall be 7/8" ϕ H.S. Bolts. All holes shall be 15/16" ϕ . All field splice plates shall be ASTM A709, Grade 50W.



DIAPHRAGM & CONNECTION PLATE DETAILS

Scale: 1" = 1'-0"

Note: Bolts shall be 3/4" ϕ H.S. Bolts. All holes shall be 15/16" ϕ . All connection plates shall be ASTM A709, Grade 50W.

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

① If permanent steel bridge deck forms are used, the fabricator shall clip plate as necessary to accommodate the deck form supports.

Note: All structural steel shall be ASTM A709, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (ASTM A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.



SHEET 4 OF 10

DETAILS OF 238'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 8-27-19 FILENAME: b090472x2.s4.dgn

CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS

DESIGNED BY: KRM DATE: 11-20-19

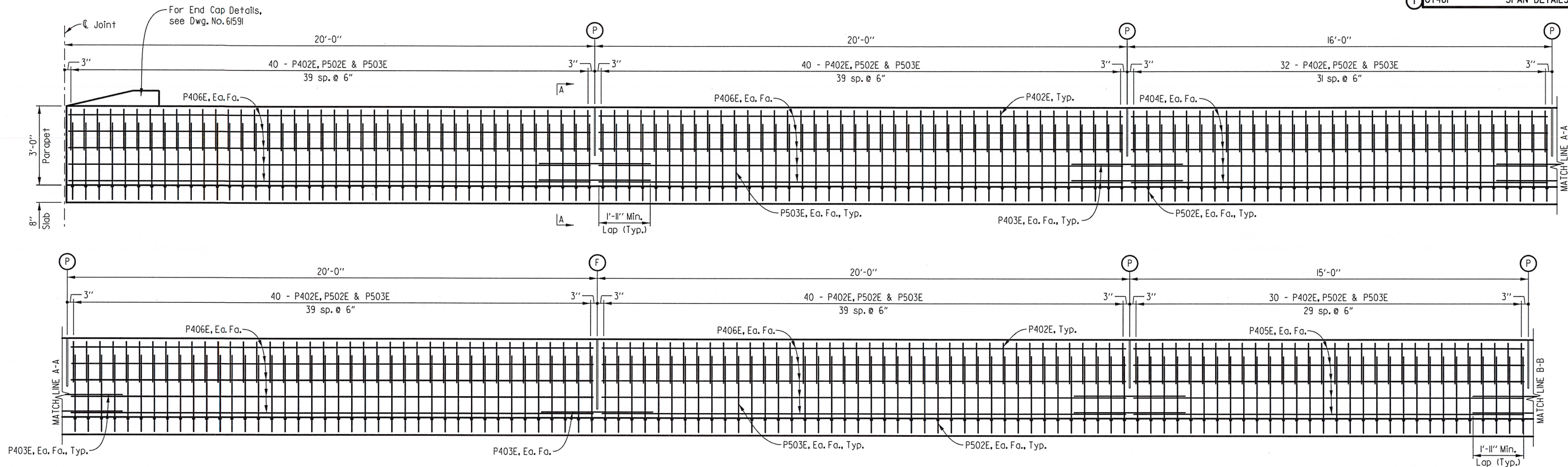
BRIDGE NO. 07481 DRAWING NO. 61583

3/20/2020 1:41:26 PM

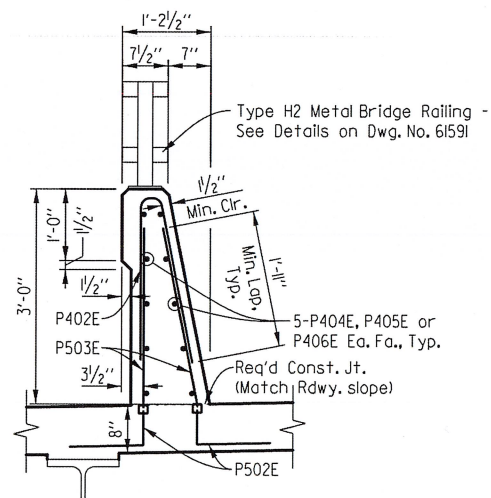
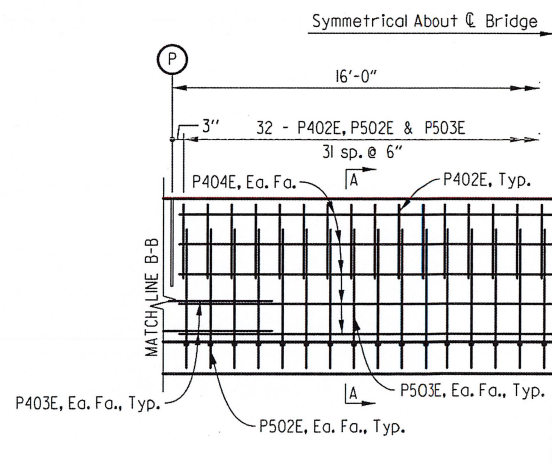
Ⓕ Full-Depth Parapet Joint (1/4" to 1" max.).
Stop 4" from top of slab. See Details of
Parapet Railing.

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		84	110
				07481	SPAN DETAILS		61585	



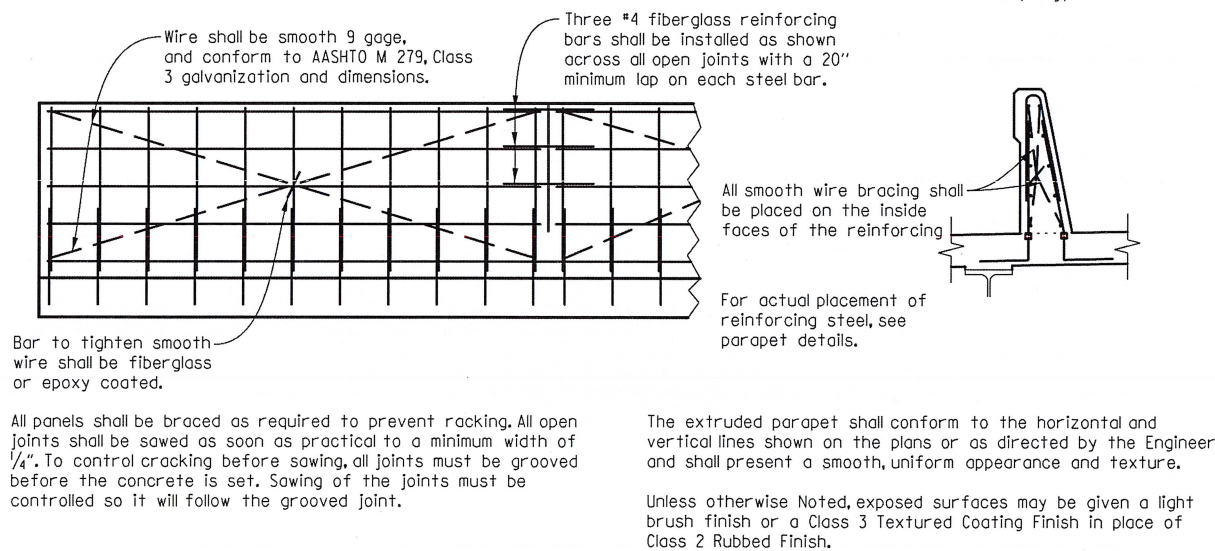
ELEVATION - CONCRETE PARAPET RAIL
(Left Parapet)
Scale: 1/2" = 1'-0"



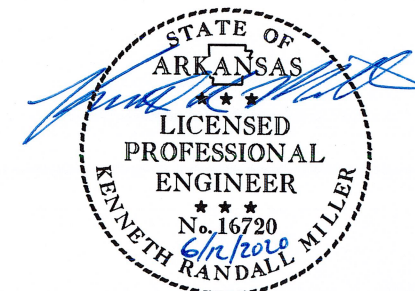
SECTION A-A
Scale: 3/4" = 1'-0"

Notes: Field bend P503E bars in roadway face of Parapet after installing into coupling.

For additional details of Parapet Railing, see Dwg. No. 61555.



DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL
No Scale

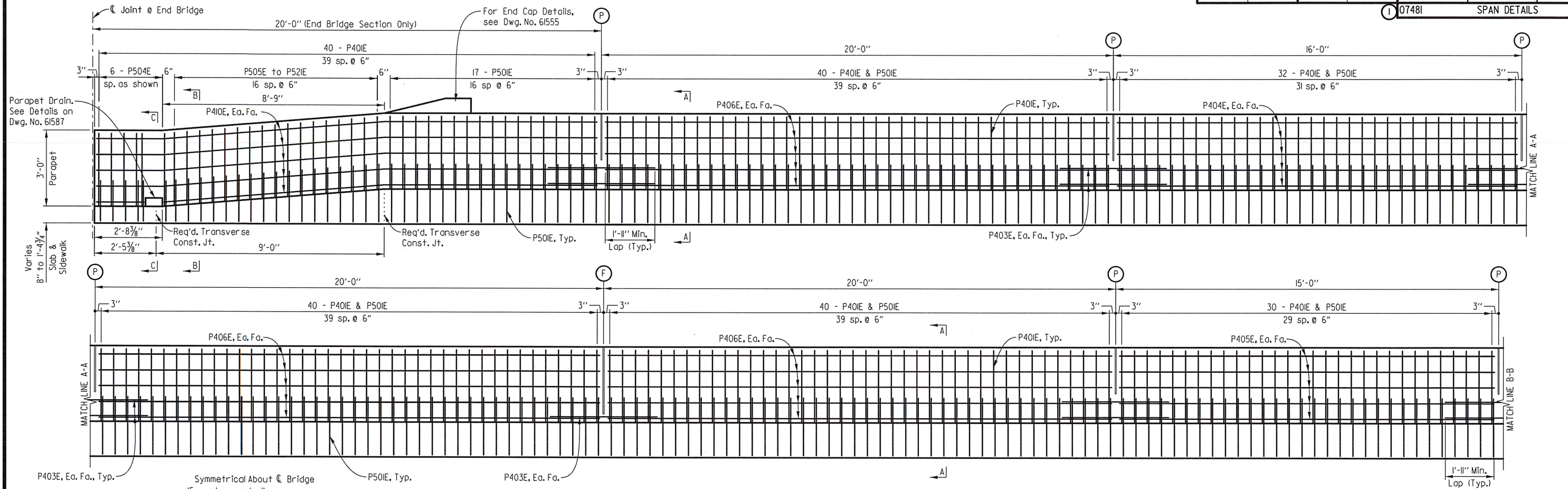


SHEET 6 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-27-19 FILENAME: b090472x2.s6.dgn
CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-20-19
BRIDGE NO. 07481 DRAWING NO. 61585

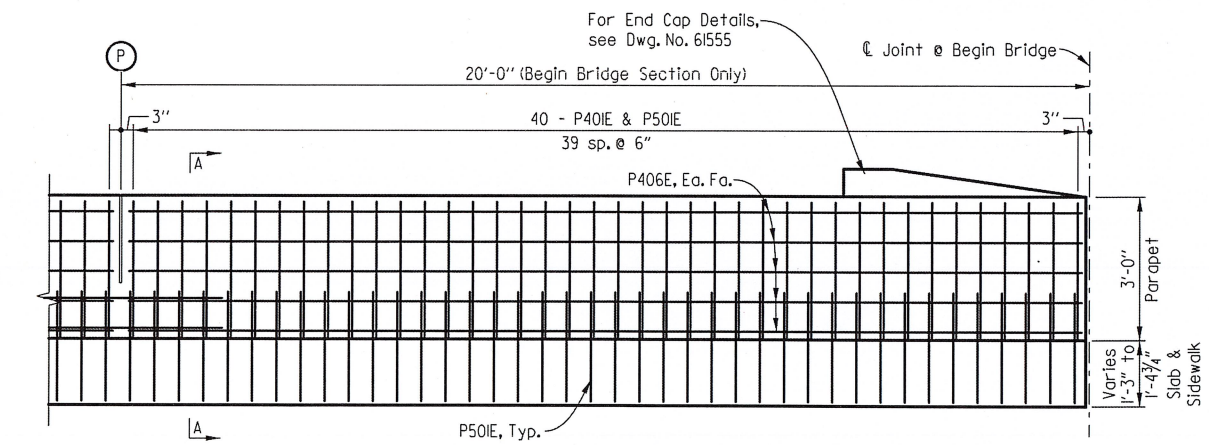
- F Full-Depth Parapet Joint (1/4" to 1" max.).
Stop 4" from top of slab. See Details of
Parapet Railing.
- P Partial-Depth Parapet Joint (1/4" to 1" max.).
Stop 1'-2" from top of slab. See Details of
Parapet Railing.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		85	110
				07481	SPAN DETAILS		61586	



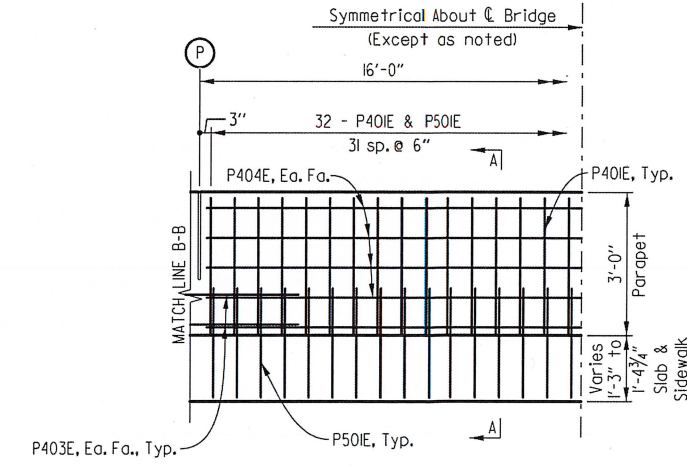
ELEVATION - CONCRETE PARAPET RAIL

(Right Parapet)
Scale: 1/2" = 1'-0"



ELEVATION - CONCRETE PARAPET RAIL @ BEGIN BRIDGE

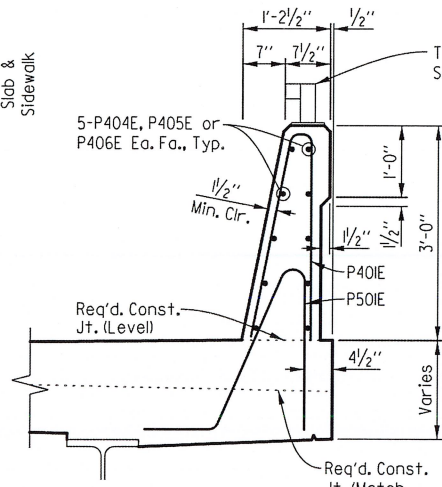
(Right Parapet)
Scale: 1/2" = 1'-0"



NAME PLATE DETAIL

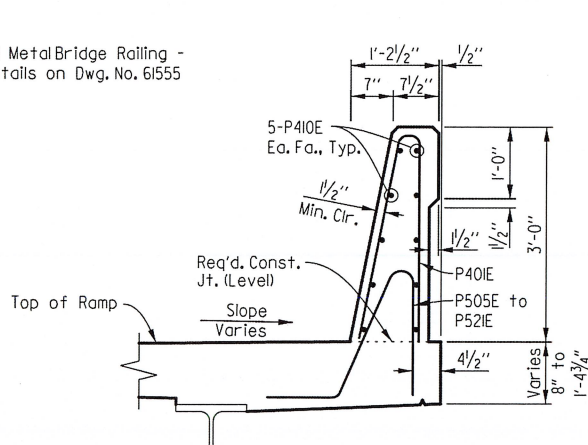
No Scale

For additional details of Parapet Railing,
see Dwg. No. 61555.



SECTION A-A

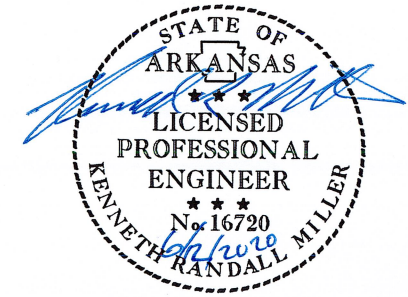
Scale: 3/4" = 1'-0"



SECTION B-B

Scale: 3/4" = 1'-0"

See Dwg. No. 61587 for Section C-C.

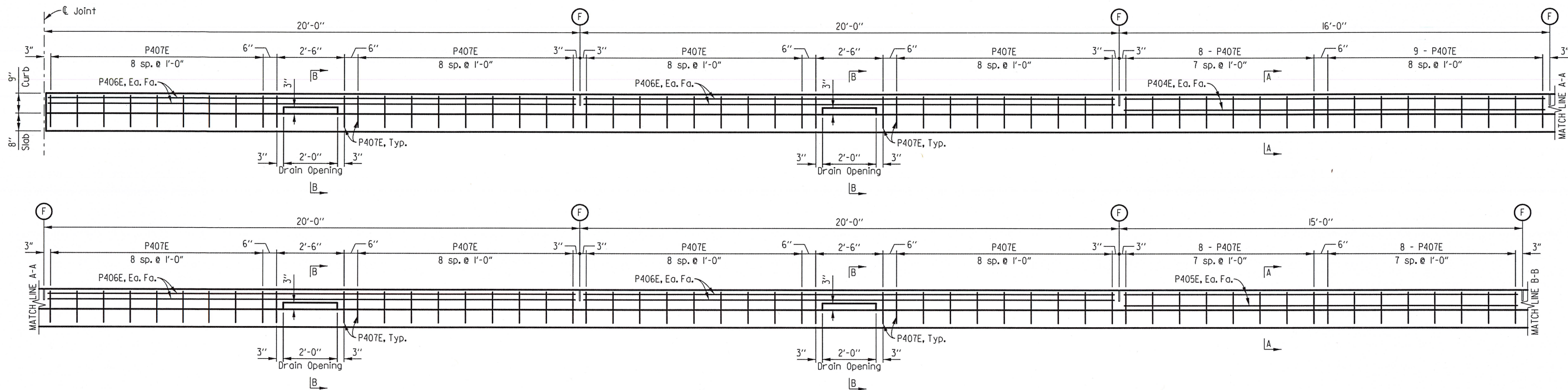


SHEET 7 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

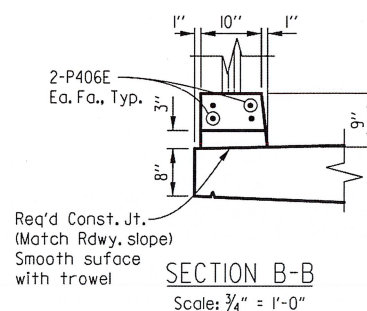
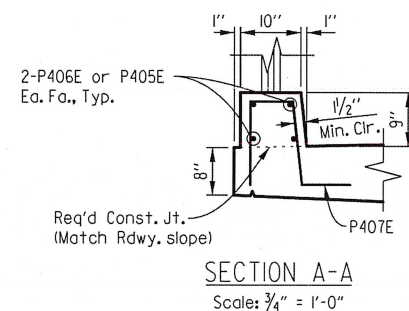
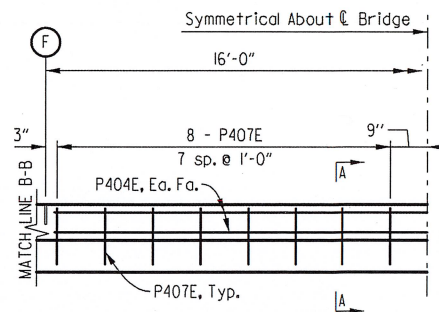
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CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-20-19
BRIDGE NO. 07481 DRAWING NO. 61586

Ⓢ Full-Depth Parapet Joint (1/4" to 1" max.).
Stop 4" from top of slab. See Details of
Reinforcing Plan.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090472		86	110
				07481	SPAN DETAILS		61587	



ELEVATION - CONCRETE CURB
Scale: 1/2" = 1'-0"



GENERAL NOTES

Reinforcing steel shall be shifted to clear drain.
Shop drawings will not be required for the slab drain.

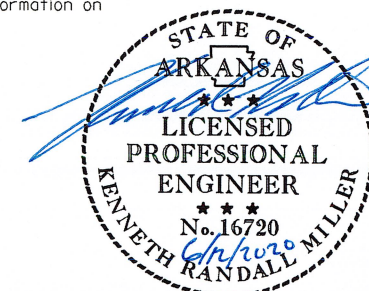
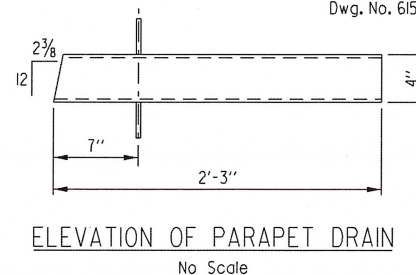
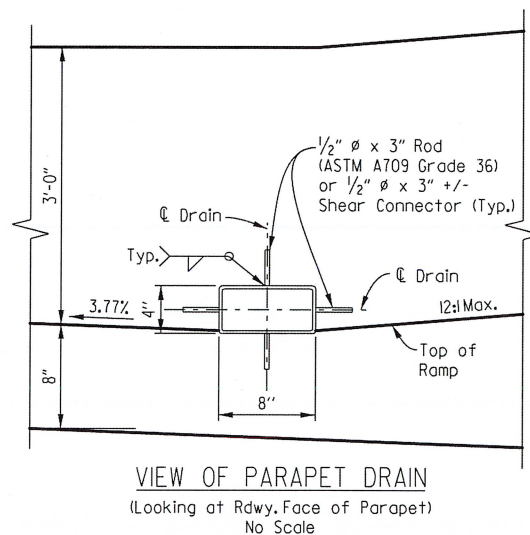
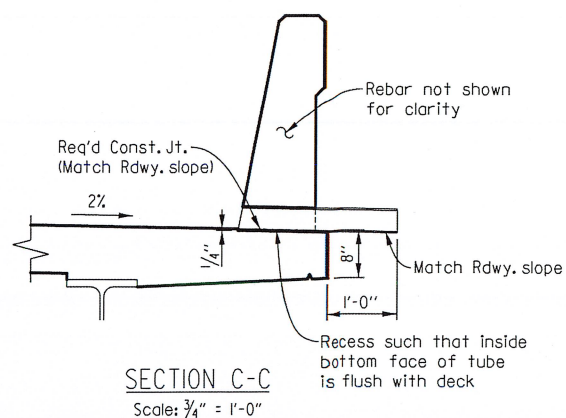
NOTES FOR STEEL DRAIN

Parapet drain may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Outside dimensions of drain are 8" x 4".

The drain shall be galvanized in accordance with ASTM A123.

See Parapet Drain Information on Dwg. No. 61586



SHEET 8 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-27-19 FILENAME: b090472x2.s8.dgn
CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-20-19
BRIDGE NO. 07481 DRAWING NO. 61587

USER: CTAUSER
DESIGN FILE: G:\1710700L\Hwy340\TRANSP\ dgn\bridge\b090472x2.s9.dgn
PLOTED: 3/20/2020 1:41:28 PM SCALE: 21.3333' / 1in.

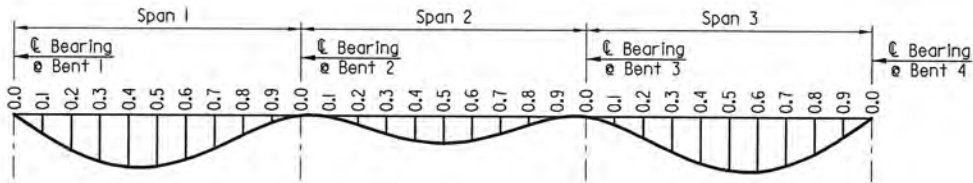
GENERAL NOTES

See Std. Dwg. No. 55006 for General Notes.

TABLE OF DEAD LOAD DEFLECTIONS - INCHES							
SPAN	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk + Median	
		Interior Beam	Exterior Beam	Interior Beam	Exterior Beam	Interior Beam	Exterior Beam
1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.073	0.073	0.394	0.343	0.411	0.387
	0.2	0.136	0.136	0.730	0.636	0.762	0.716
	0.3	0.179	0.179	0.964	0.840	1.008	0.948
	0.4	0.200	0.200	1.075	0.936	1.124	1.057
	0.5	0.196	0.196	1.054	0.918	1.103	1.038
	0.6	0.170	0.170	0.913	0.796	0.957	0.901
	0.7	0.127	0.127	0.682	0.594	0.715	0.674
	0.8	0.076	0.076	0.407	0.355	0.428	0.403
	0.9	0.028	0.028	0.151	0.132	0.160	0.151
2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.005	0.005	0.029	0.025	0.028	0.029
	0.2	0.035	0.035	0.188	0.163	0.191	0.185
	0.3	0.069	0.069	0.373	0.325	0.383	0.367
	0.4	0.096	0.096	0.515	0.448	0.526	0.503
	0.5	0.105	0.105	0.566	0.493	0.578	0.551
	0.6	0.096	0.096	0.515	0.448	0.522	0.498
	0.7	0.069	0.069	0.373	0.325	0.375	0.359
	0.8	0.035	0.035	0.188	0.163	0.182	0.175
	0.9	0.005	0.005	0.029	0.025	0.021	0.021
3	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.028	0.028	0.151	0.132	0.171	0.162
	0.2	0.076	0.076	0.407	0.355	0.450	0.427
	0.3	0.127	0.127	0.682	0.594	0.748	0.708
	0.4	0.170	0.170	0.913	0.796	0.997	0.943
	0.5	0.196	0.196	1.054	0.918	1.146	1.084
	0.6	0.200	0.200	1.075	0.936	1.166	1.102
	0.7	0.179	0.179	0.964	0.840	1.045	0.987
	0.8	0.136	0.136	0.730	0.636	0.789	0.745
	0.9	0.073	0.073	0.394	0.343	0.426	0.402
	0.0	0.000	0.000	0.000	0.000	0.000	0.000

Note:
Camber for Dead Load Deflection plus Vertical Curve $\pm 1/4"$ tolerance.
Deflections shown are off a chord from C Bearing to C Bearing
Vertical curve corrections not included.

Dead Load Deflections based on use of removable forms.

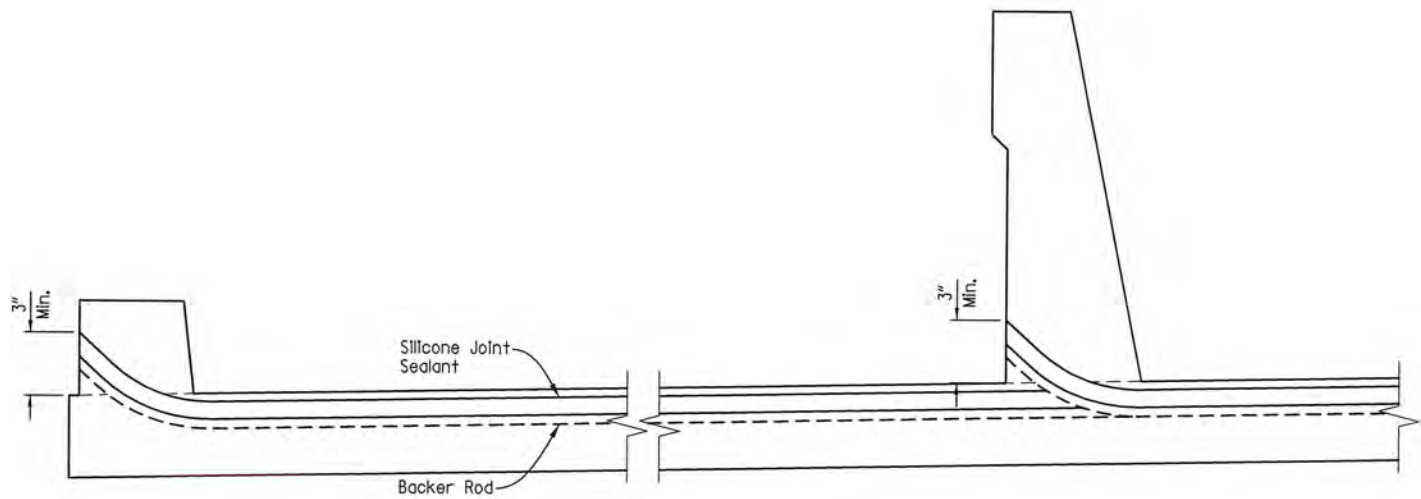


DEAD LOAD DEFLECTION DIAGRAM
No Scale

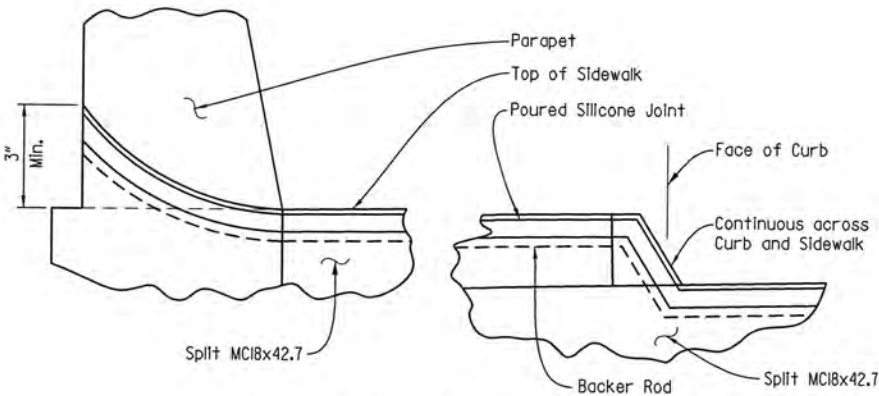


SHEET 9 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

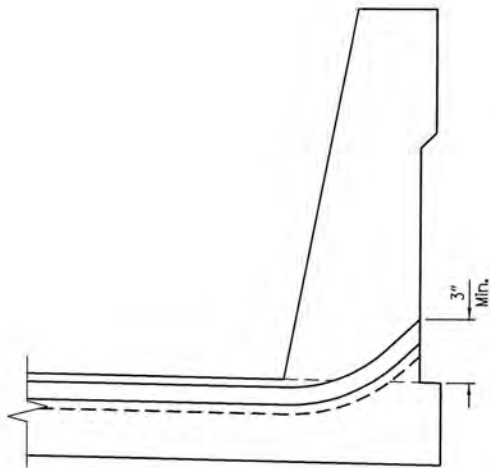
DRAWN BY: BWC DATE: 8-27-19 FILENAME: b090472x2.s9.dgn
CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-20-19
BRIDGE NO. 07481 DRAWING NO. 61588



JOINT SEAL PLACEMENT AT SIDE PATH
(Looking Ahead Bent 4, Bent 1 Opposite Hand)
No Scale



JOINT SEAL PLACEMENT AT CURB
(Looking Back, Bent 1 Only)
No Scale



JOINT SEAL PLACEMENT AT PARAPET
(Looking Ahead, Bent 4)
No Scale

TABLE OF SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature ①			"B" Perpendicular to Joint @ 60°F	Bumper Plate Size
40°F	60°F	80°F		
1 1/8"	1 3/4"	1 9/16"	2 7/8"	7/8" x 1"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature.
Installation is limited to 40°F, min. and 80°F, max. Interpolation of the table may be necessary.

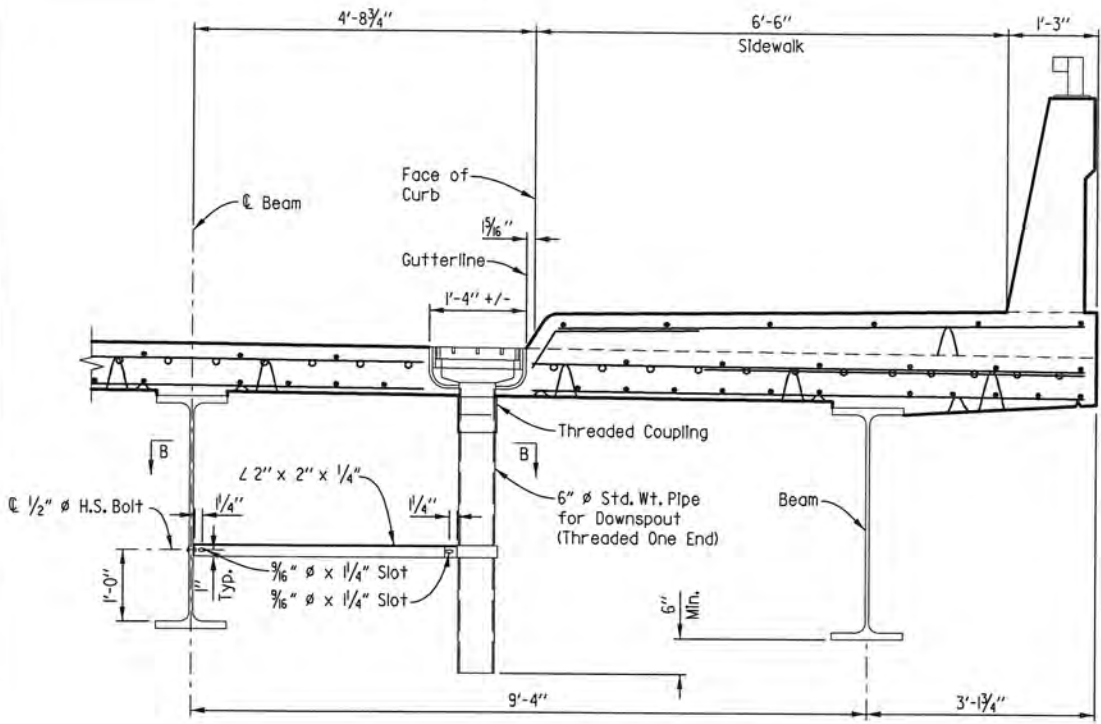
For additional details, see Std. Dwg. No. 55008



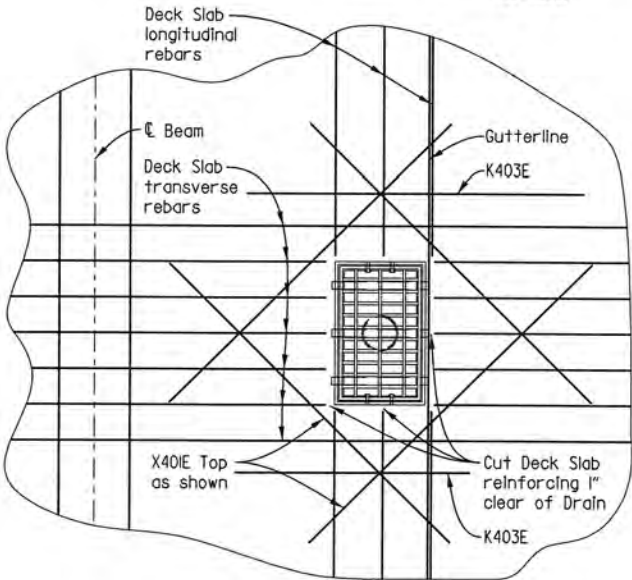
SHEET 10 OF 10
DETAILS OF 238'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 8-27-19 FILENAME: b090472x2.s10.dgn
CHECKED BY: CAW DATE: 12-04-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 8-20-19
BRIDGE NO. 07481 DRAWING NO. 61589

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	89	110
						07481	SPAN DETAILS	61590

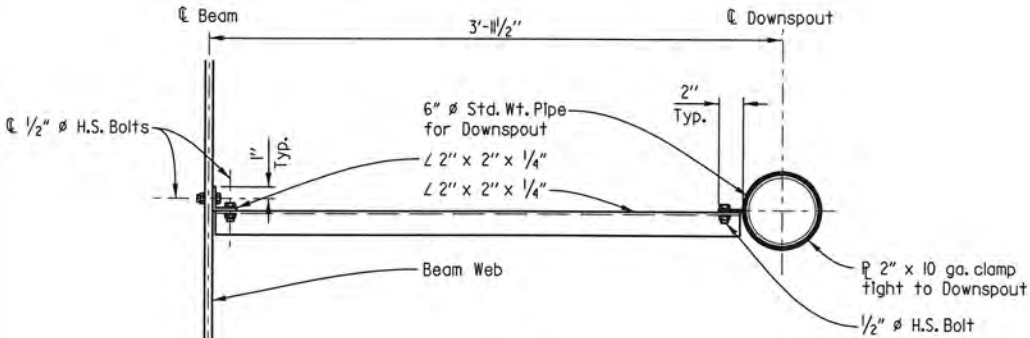
NOTE:
A Pre-Manufactured Grate or Grate and Frame may be submitted for approval of the Engineer in place of the steel fabrication shown in the Plans. Grate shall have an AASHTO-AGC-ARTBA Type 5 or 6 Configuration and shall be designed for a 16,000 lb. wheel load.



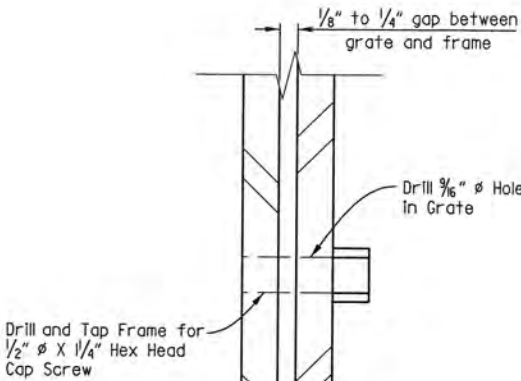
SECTION AT DECK DRAIN
No Scale



PLAN OF REINFORCING AT DECK DRAINS
No Scale



SECTION B-B
No Scale



DETAIL A
No Scale

GENERAL NOTES:

For Location of Deck Drains, see Superstructure Dwg. Nos. 61584

Drain location may be adjusted to clear diaphragm connections.

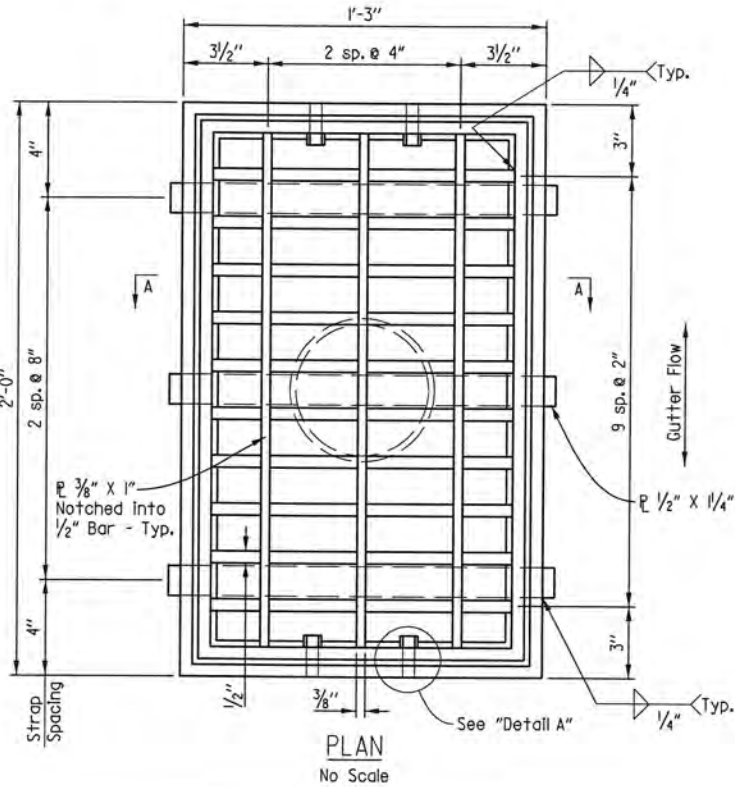
Standard Weight Pipe for Deck Drains shall conform to ASTM A500 or A501. All other structural steel shall be ASTM A709, Grade 36. After fabrication, all structural steel in drains shall be Galvanized in accordance with AASHTO M 113. Steel fasteners shall be Galvanized in accordance with AASHTO M 232, Class C, or ASTM B695, Class 50.

Structural Steel in Deck Drains shall not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (ASTM A709, Grade 50W)".

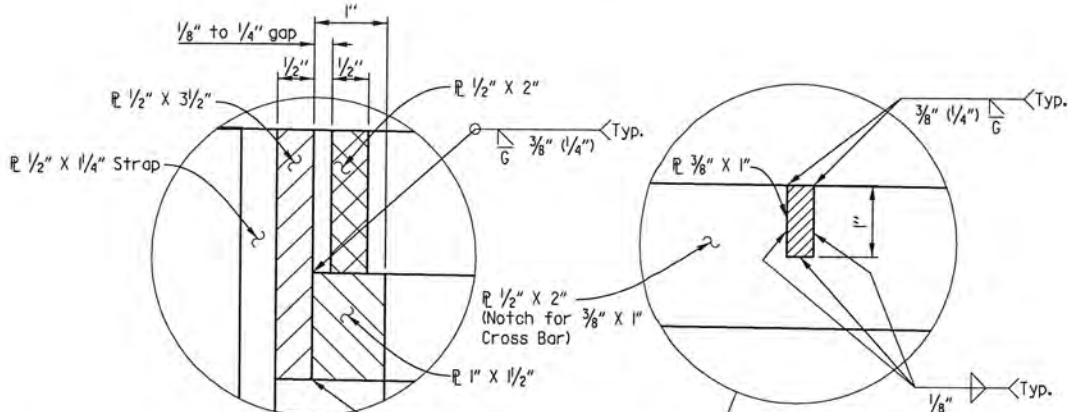
Reinforcing steel in the slab shall be cut as shown to install the deck drains. Eight additional No. 4 x 5'-6" straight bars shall be placed as shown.

Repair all cut or damaged epoxy bars in accordance with the Standard Specifications.

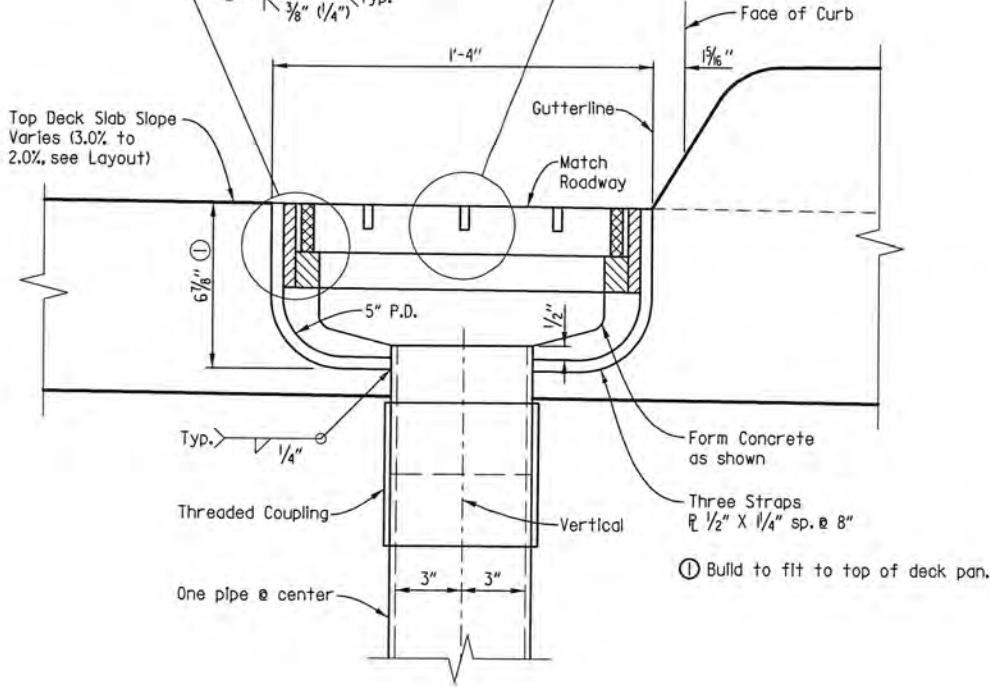
All additional Reinforcing Steel placed around deck drains shall be epoxy-coated and shall be paid for at the unit price bid for "Epoxy Coated Reinforcing Steel (Grade 60)".



PLAN
No Scale



SECTION A-A
No Scale



DETAILS OF DECK DRAIN
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-27-19 FILENAME: b090472x2.sldgn
CHECKED BY: CAW DATE: 12-05-19 SCALE: NO SCALE
DESIGNED BY: KRM DATE: 11-20-19
BRIDGE NO. 07481 DRAWING NO. 61590

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	090472	90	110

GENERAL NOTES

Rail layout shall conform to vertical and horizontal alignment of bridge.
All posts shall be vertical.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

Structural tubing shall be ASTM A709 Gr. 36 or ASTM A500-Grade B. Rolling, Base Plates, End Cap Plates and Misc. Steel shall be ASTM A709 Gr. 36.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M 164 or A354-Grade BC, galvanized in accordance with AASHTO M 232 or M 298, Class 40 or 50.

Bolts shall conform to the requirements of ASTM A193 Grade B8, B8N or B8C, Class 2 (Stainless steel).

Nuts shall conform to AASHTO M 292 Gr. 8A (Stainless Steel) or AASHTO M 232 or M 298, Class 40 or 50 (Galvanized). Panel connection nuts for metal Bridge Railing (Type H) shall be nylon insert lock nuts that meet or exceed the requirements of AASHTO M 292 Grade 8A (Stainless Steel).

Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 with dimensions meeting ASTM F436 or high-strength steel conforming to AASHTO M 293 and galvanized in accordance with AASHTO M 232 or M 298, Class 40 or 50.

Splice Set Screws shall conform to the requirements of ASTM A193 or A320-GR. B8 (Stainless Steel) or ASTM A709, Gr. 36 (Galvanized).

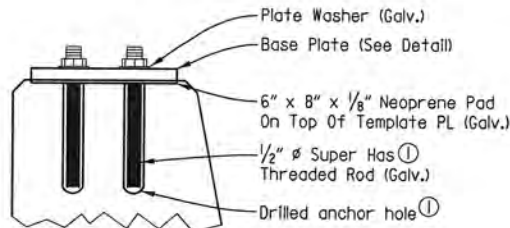
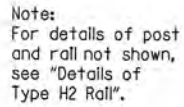
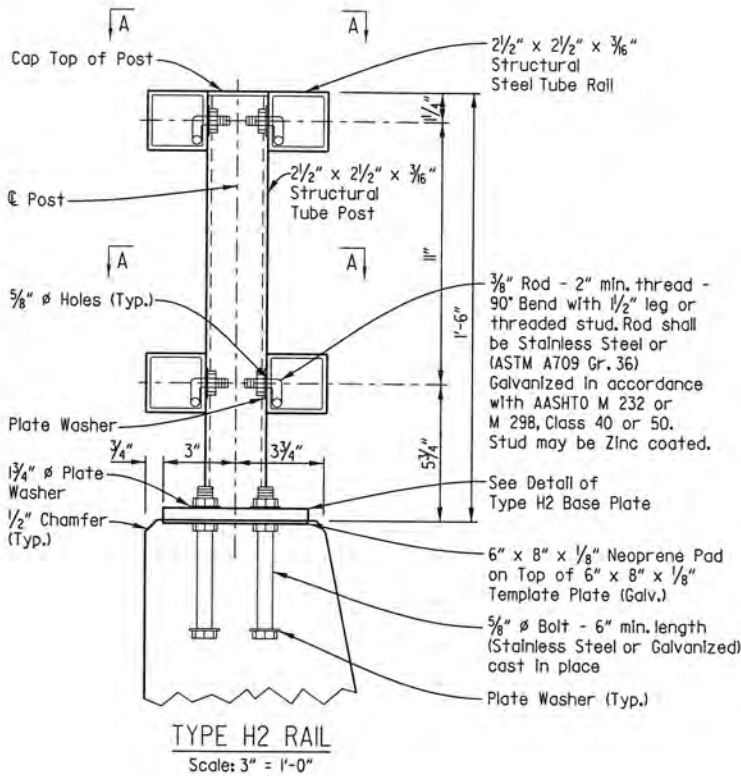
Plate Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 or ASTM A709, GR.36, galvanized in accordance with AASHTO M 232 or M 258, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Threads for bolts, screws and nuts shall conform to American Standard Course Series, Class 2 FIT, ASA specification B1.1.

Mixing of Stainless Steel and Galvanized fasteners will not be permitted.

Steel roll members shall be galvanized in accordance with AASHTO M 111 after fabrication and shall receive a powder coating process after galvanizing. Galvanizing shall not interfere with the powder coating process. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the powder coating manufacturer's recommendations before application of the powder coating process. The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 - 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 - 4 mils. Color shall be Bronze and as approved by the Engineer. Coated galvanized framework shall have a salt spray resistance of 3000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with Manufacturer recommendations.

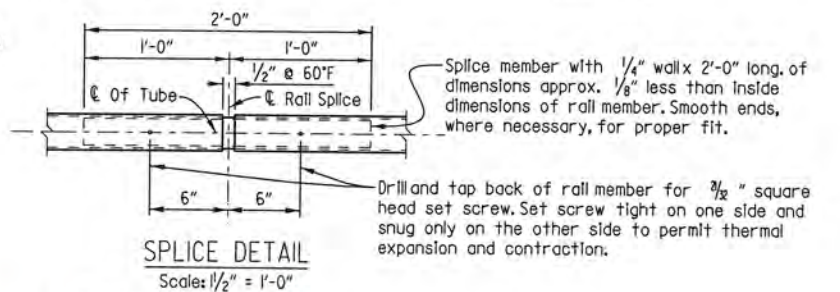
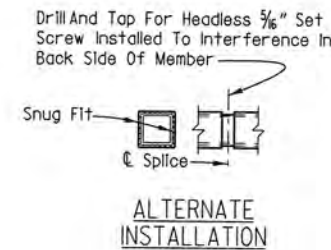
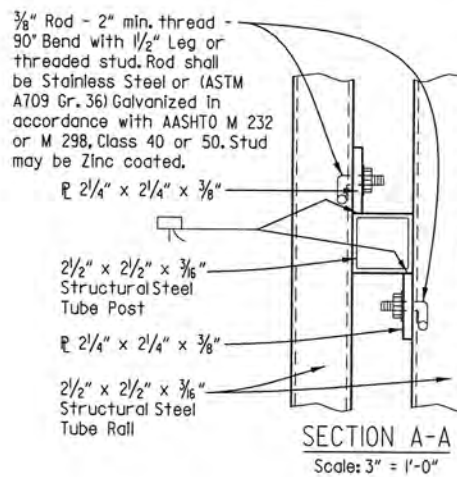
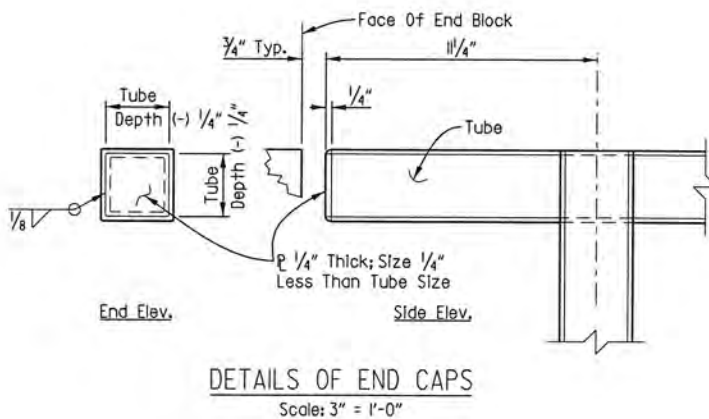
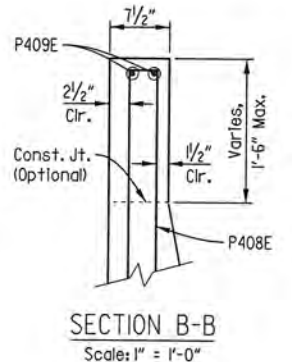
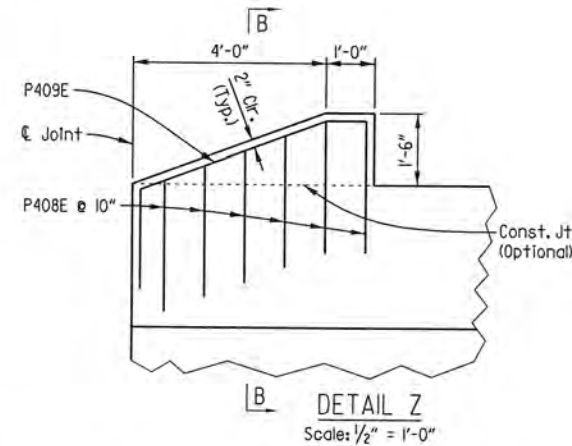
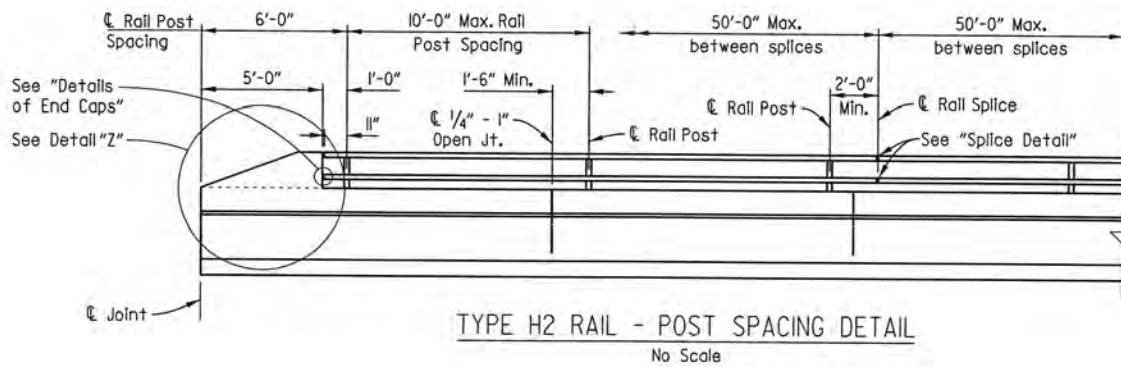
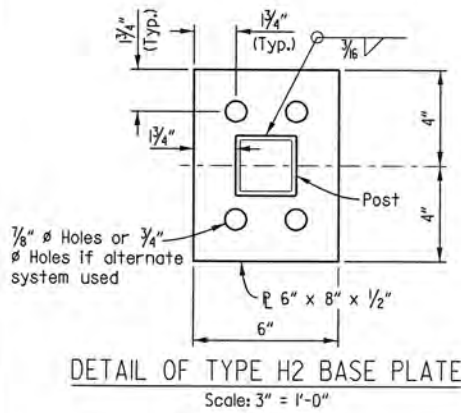
Metal Bridge Railing, including posts, fasteners, base plates, template plates, anchor bolts, neoprene pad, galvanizing and powder coatings; fabrication and erection; and all incidentals necessary to complete the work shall be paid for in accordance with Section 807 at the contract unit price per linear foot bld for "Metal Bridge Railing (Type H2)" or "Metal Bridge Railing (Type H3)".



ALTERNATE POST ANCHOR SYSTEM

Scale: 3" = 1'-0"

① Hilti HIT RE 500 V3 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal. The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

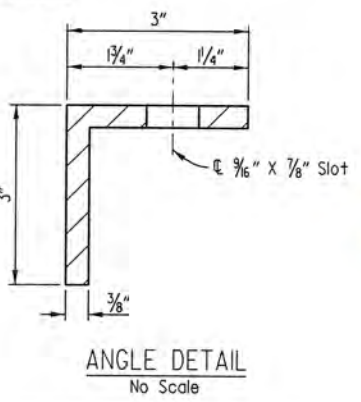
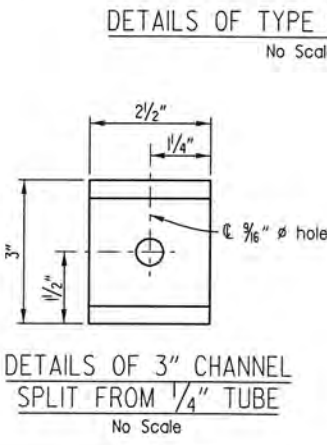
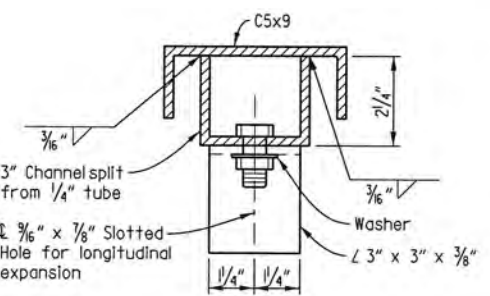
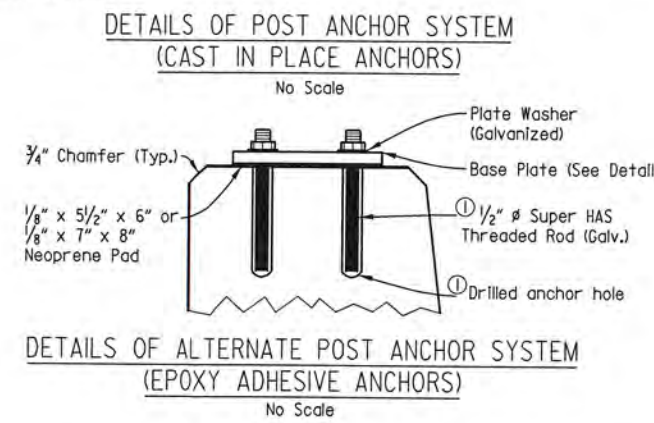
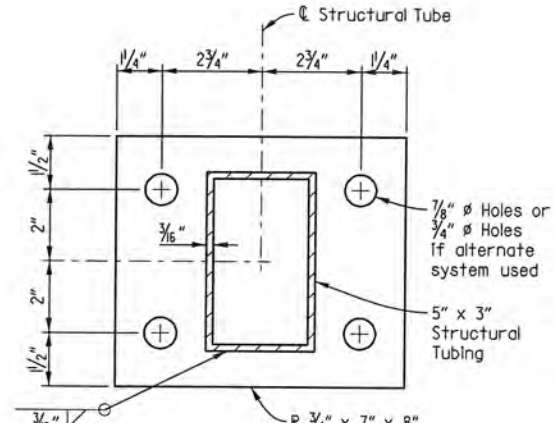
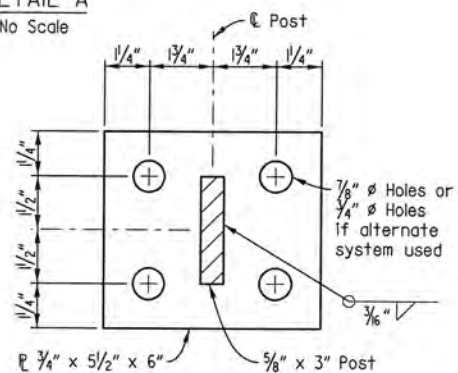
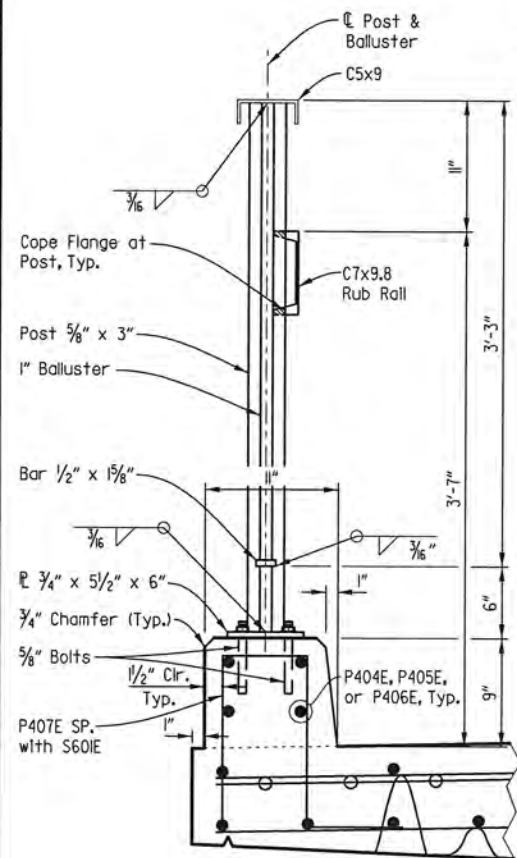
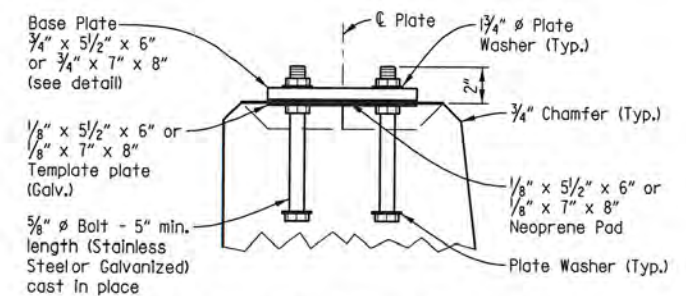
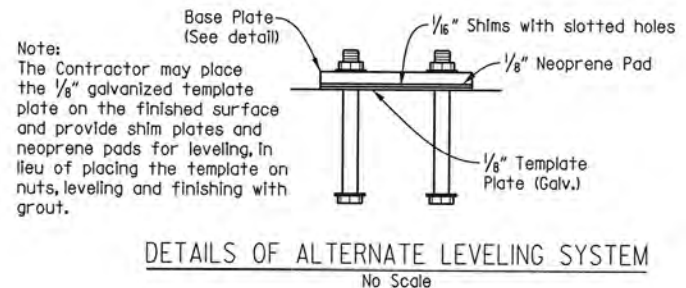
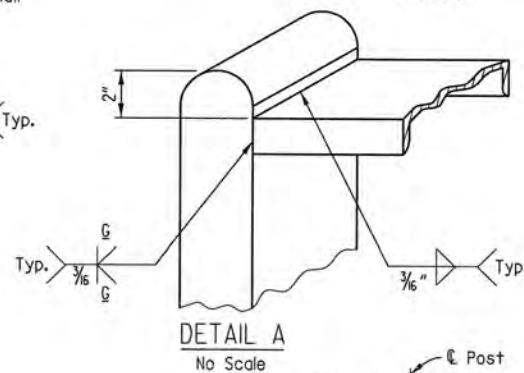
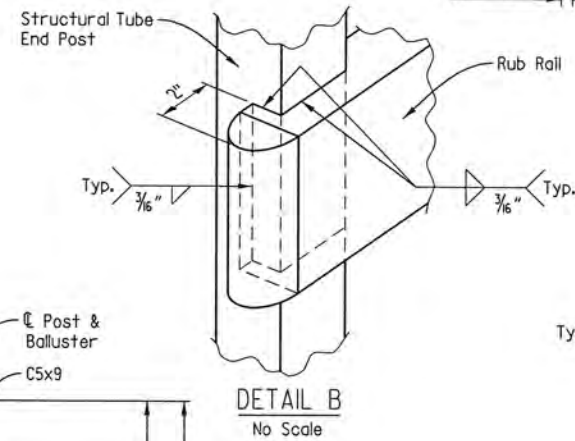
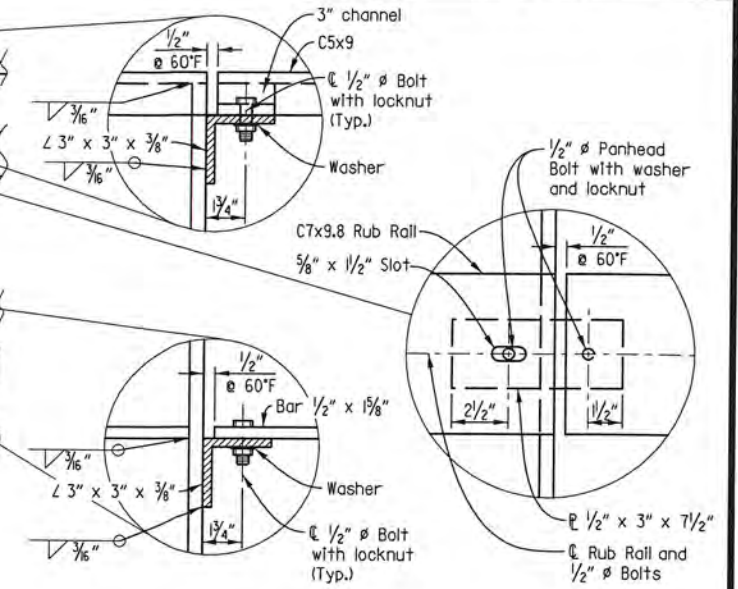
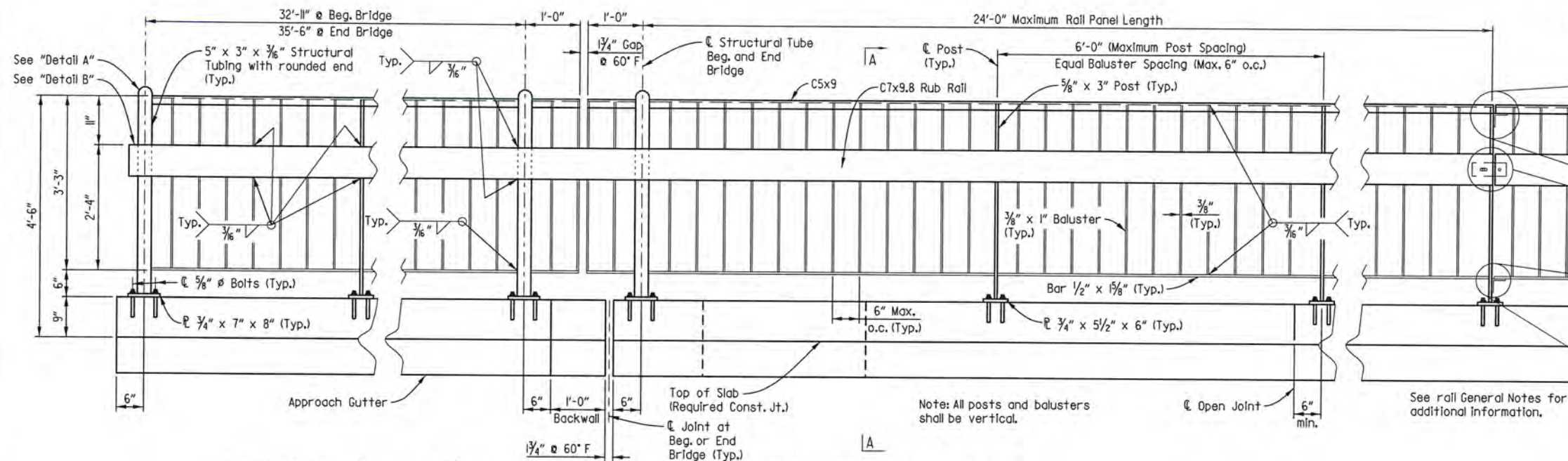


DETAILS OF TYPE H2 RAIL
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

DRAWN BY: BWC DATE: 11-28-19 FILENAME: b09047x2.r3.dgn
CHECKED BY: CAW DATE: 12-05-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-21-19
BRIDGE NO. 07481 DRAWING NO. 61591

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090472	91	110

07481 SPAN DETAILS 61592

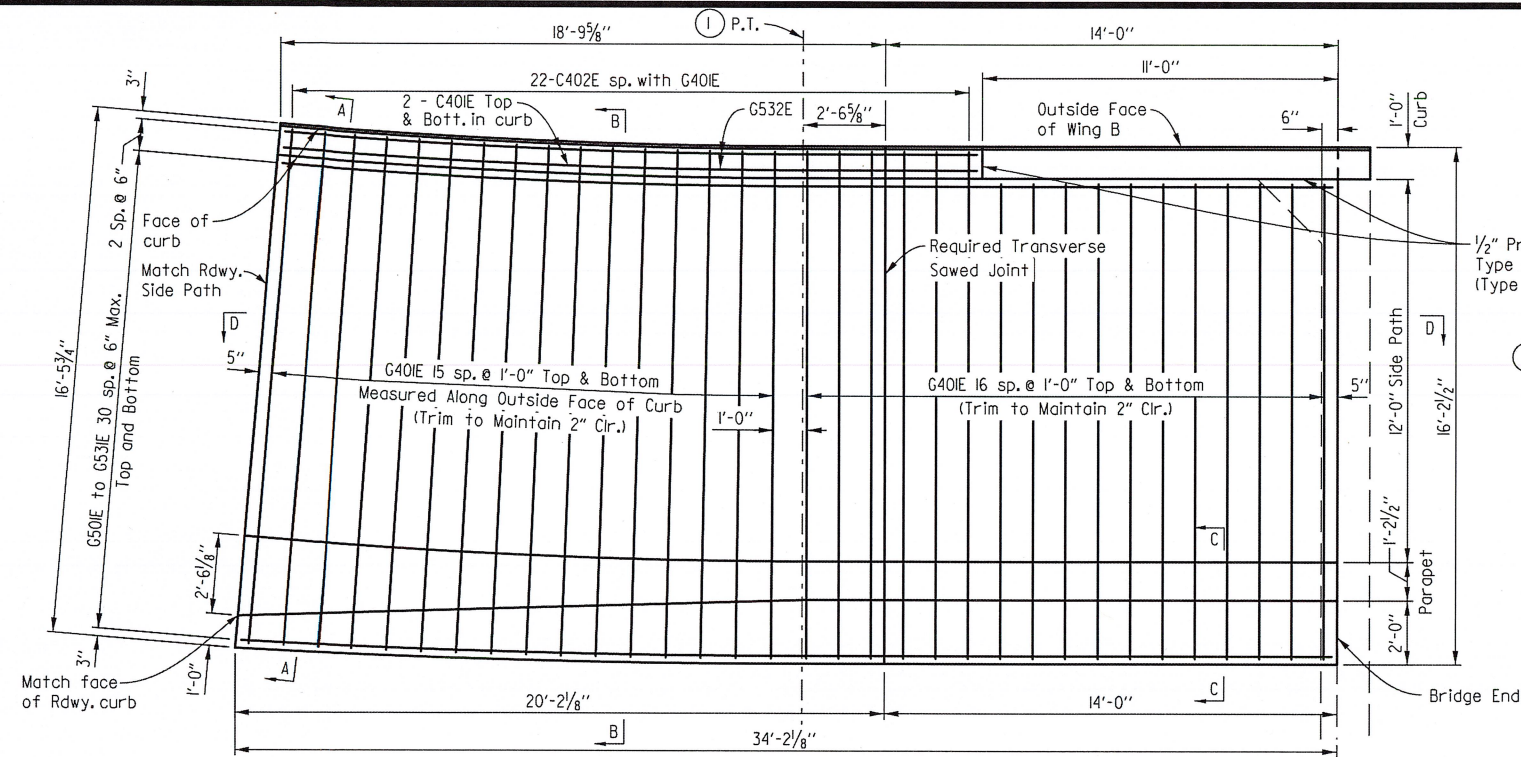


① Hilti HIT RE 500 V3 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal. The Hilti Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

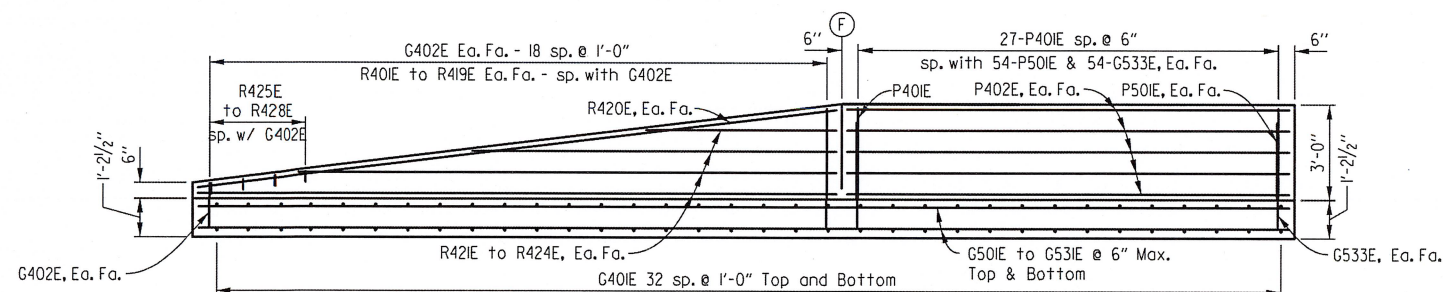
For General Notes, see Dwg. No. 61591.



DETAILS OF TYPE H3 RAIL
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BWC DATE: 11-28-19
CHECKED BY: CAW DATE: 12-05-19
DESIGNED BY: KRM DATE: 11-21-19
BRIDGE NO. 07481 DRAWING NO. 61592

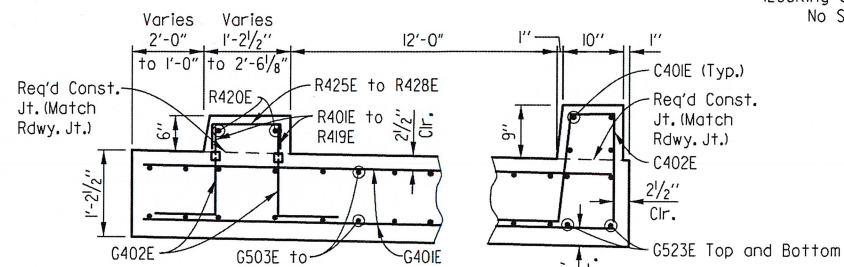


PLAN - TYPE I SPECIAL APPROACH GUTTER
No Scale

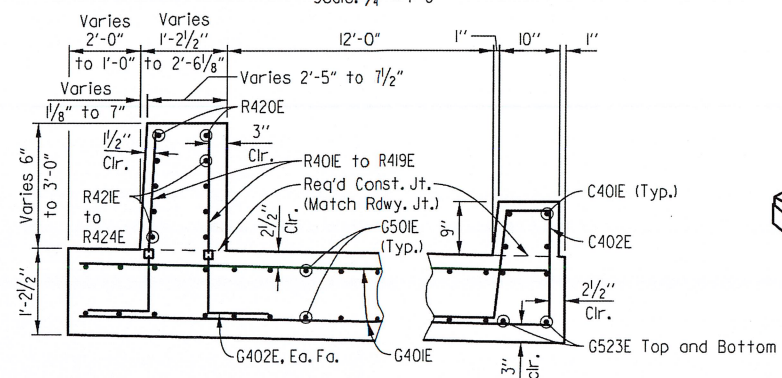


ELEVATION - TYPE I SPECIAL APPROACH GUTTER
(Looking at Fr. Fa.)
No Scale

⑦ ⑧ Full-depth joint 1/4" to 1" max.,
Stop 4" from top of slab.



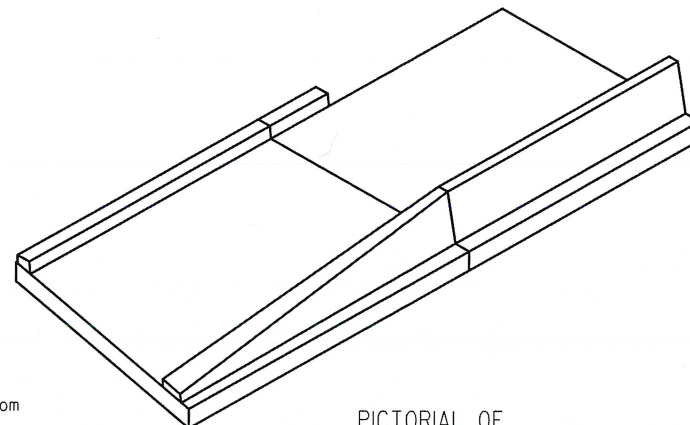
SECTION A-A
Scale: $\frac{3}{4}" = 1'-0"$



SECTION B-B
Scale: $\frac{3}{4}" = 1'-0"$

QUANTITIES FOR
TYPE I SPECIAL APPROACH GUTTER
(For Information Only)

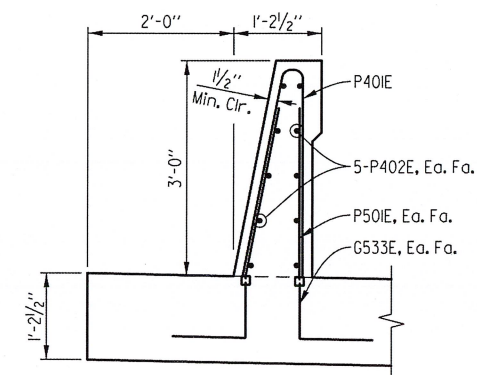
Reinf. Steel (lbs.)	Concrete (Cu. Yds.)
2855	27.2



PICTORIAL OF
TYPE I SPECIAL APPROACH GUTTER
No Scale

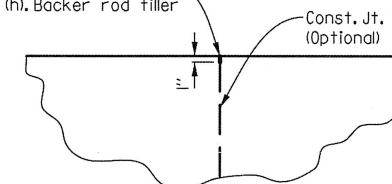
Note: All longitudinal lines within the limits of horizontal curves shall be on curves concentric to \odot bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to \odot bridge.

① See Dwg. No. 61559 for horizontal curve data.

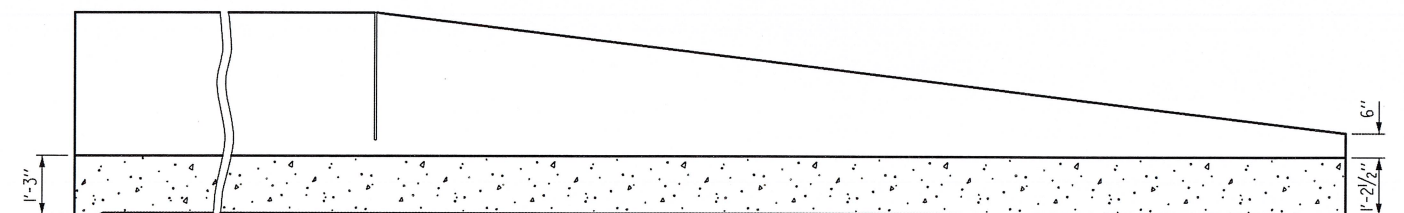


SECTION C-C
Scale: $\frac{3}{4}'' = 1'-0''$

1/2" x 1" poured Type 3 or 4 joint sealer. -
See Subsection 501.02 (h). Backer rod filler
will not be required.



DETAILS OF REQUIRED
TRANSVERSE SAWED JOINT
No Scale



VIEW D - D
Scale: $\frac{1}{2}" = 1'-0"$

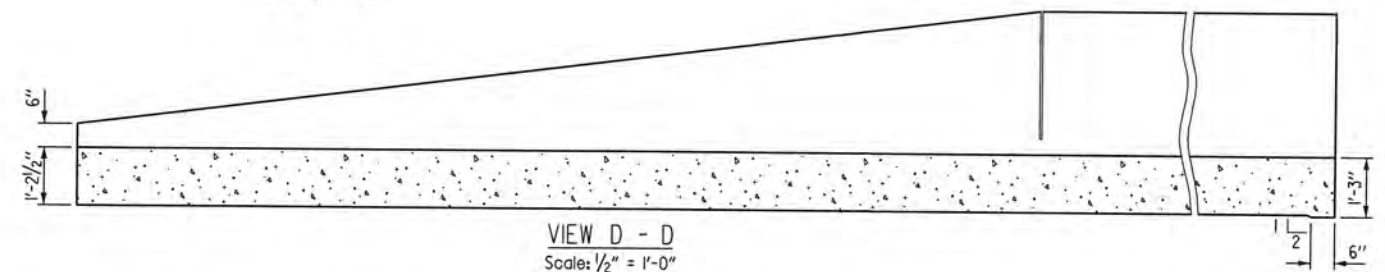
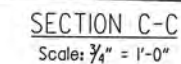


DETAILS OF TYPE I SPECIAL
APPROACH GUTTER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 11-19-19 FILENAME: b090472x2.dwg
 CHECKED BY: CAW DATE: 11-26-19 SCALE: SEE DETAILS
 DESIGNED BY: KRM DATE: 11-12-19
 BRIDGE NO. 07481 DRAWING NO. 61593

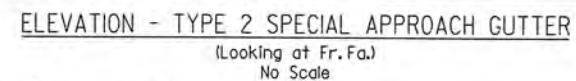
Note: All bars designated with an "E" suffix shall be epoxy coated.

Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.



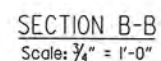
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 CHECKED BY: CAW DATE: 11-26-19 SCALE: SEE DETAILS
 DESIGNED BY: KRM DATE: 11-12-19
 BRIDGE NO. 07481 DRAWING NO. 61594

DRAWING NO. 61594



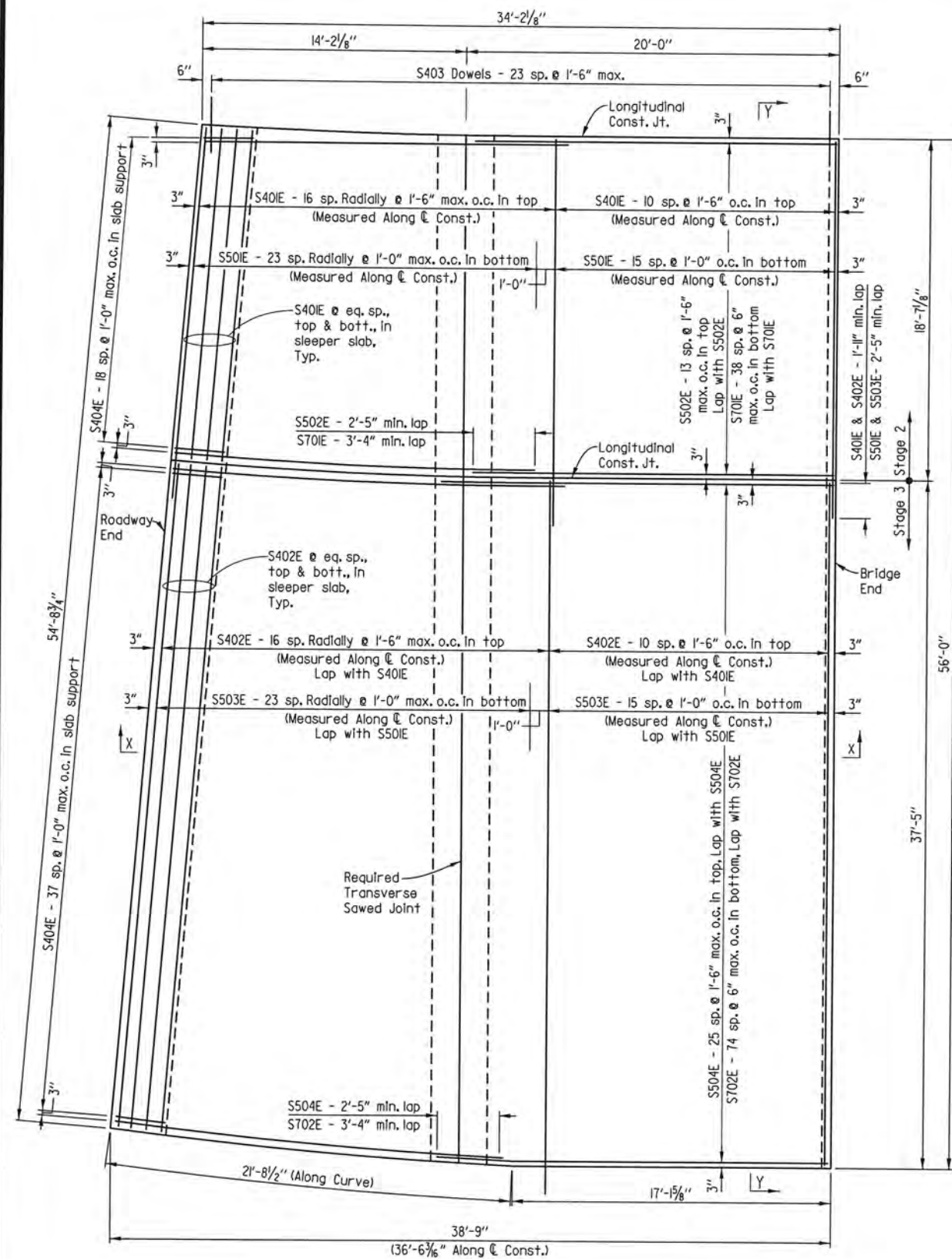
QUANTITIES FOR
TYPE 2 SPECIAL APPROACH GUTTER
(For Information Only)

SECTION A-A
Scale: $\frac{3}{4}" = 1'-0"$



1/2" Preformed Joint
AASHTO M 153 Type I





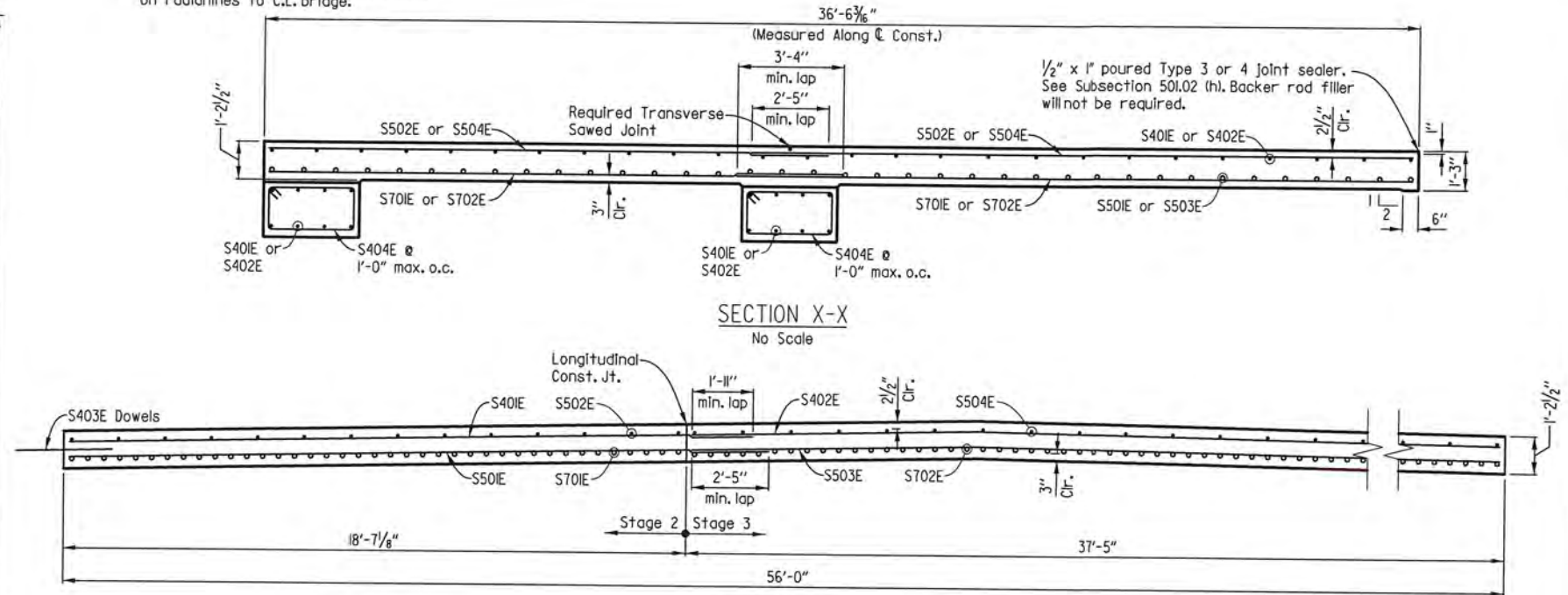
PLAN - APPROACH SLAB
Scale: 1/4" = 1'-0"

TABLE OF QUANTITIES FOR
TYPE 3 SPECIAL APPROACH SLAB
(For Information Only)

Reinf. Steel (lbs.)	Concrete (Cu. Yds.)
16,126	116.7

Notes:
The surface finish for approach slabs
shall match that used on the bridge deck.

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



SECTION X-X
No Scale

SECTION Y-Y
(Looking Ahead)
No Scale

BAR LIST FOR - TYPE 3 SPECIAL APPROACH SLAB

Mark	No. Req'd	Length	P.D.	Bending Diagrams (Dimensions are Out to Out of Bars)
S401E	43	20'-6"	Str.	
S402E	43	38'-7"	Str.	
S403E	24	3'-0"	Str.	
S404E	116	8'-4"	2"	
S501E	39	21'-0"	Str.	
S502E	28	18'-11"	Str.	
S503E	39	38'-7"	Str.	
S504E	54	20'-7"	Str.	
S701E	78	19'-5"	Str.	
S702E	156	21'-0"	Str.	

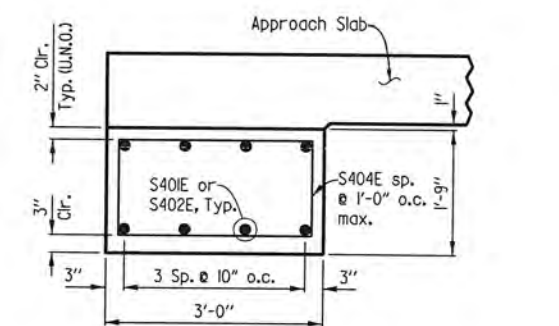
Note: All bars designated with an "E" suffix shall be epoxy coated.

GENERAL NOTES

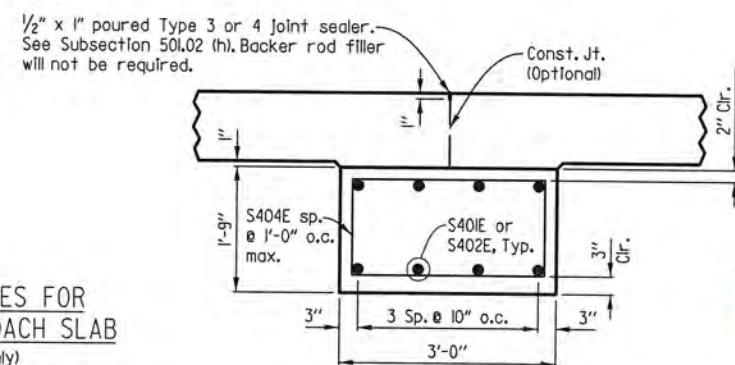
All concrete shall be class S (AE) with a minimum 28 day compressive strength
f'c = 4000 psi and shall be poured in the dry.

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

Approach slabs will be measured and paid for in accordance with Section 504.



DETAILS OF SUPPORT
AT END OF SLAB
No Scale



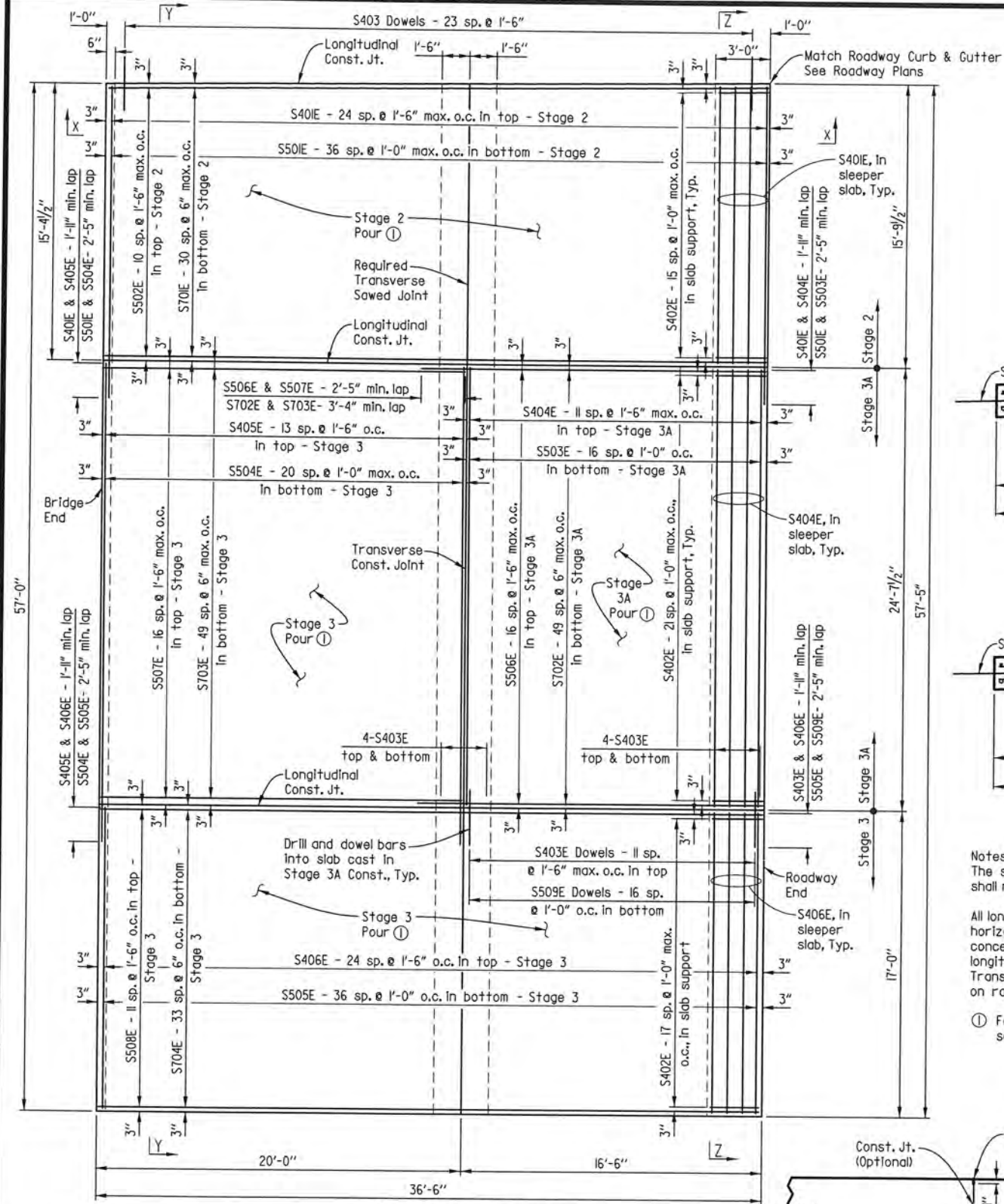
DETAILS OF REQUIRED
TRANSVERSE SAWED JOINT
No Scale



DETAILS OF TYPE 3 SPECIAL APPROACH SLAB

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

DRAWN BY: BWC DATE: 11-19-19 FILENAME: b090472x2.a3.dgn
CHECKED BY: LDG DATE: 11-26-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-12-19
BRIDGE NO. 07481 DRAWING NO. 61595



PLAN - APPROACH SLAB
Scale: 1/4" = 1'-0"

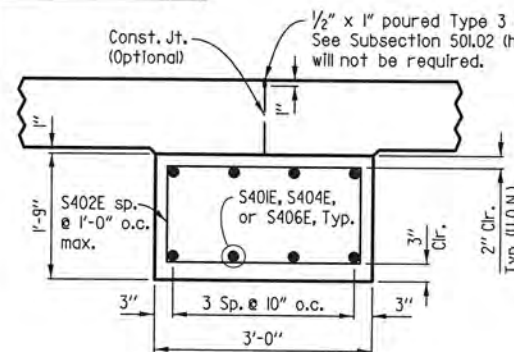
GENERAL NOTES

All concrete shall be class S (AE) with a minimum 28 day compressive strength $f'_c = 4000$ psi and shall be poured in the dry.

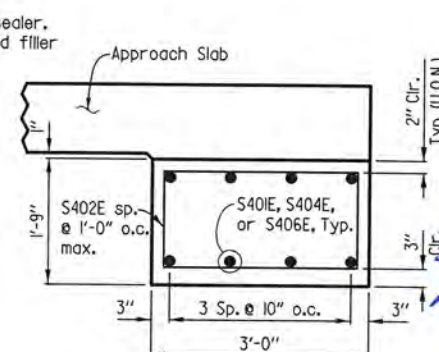
All Reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322 type A with milltest reports.

Approach slabs will be measured and paid for in accordance with Section 504.

Drill and grout bars where shown using an approved cement or epoxy system from the OPL. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.



DETAILS OF REQUIRED
TRANSVERSE SAWED JOINT
No Scale



DETAILS OF SUPPORT
AT END OF SLAB
No Scale

Notes:
The surface finish for approach slabs shall match that used on the bridge deck.

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

① For Stage Construction details, see Sheet No. 61564

TABLE OF QUANTITIES FOR
TYPE 4 SPECIAL APPROACH SLAB
(For Information Only)

Reinf. Steel (lbs.)	Concrete (Cu. Yds.)
15,135	116.3

BAR LIST FOR - TYPE 4 SPECIAL APPROACH SLAB

Mark	No. Req'd	Length	P.D.	Bending Diagrams (Dimensions are Out to Out of Bars)	Mark	No. Req'd	Length	P.D.
S401E	41	17'-9"	Str.		S505E	37	16'-8"	Str.
S402E	112	8'-0"	2"		S506E	17	18'-11"	Str.
S403E	20	4'-2"	Str.		S507E	17	19'-8"	Str.
S404E	28	24'-4"	Str.		S508E	12	36'-2"	Str.
S405E	14	26'-7"	Str.		S509E	17	5'-2"	Str.
S406E	41	16'-8"	Str.		S701E	31	36'-2"	Str.
S501E	37	18'-3"	Str.		S702E	50	19'-9"	Str.
S502E	11	36'-2"	Str.		S703E	50	19'-8"	Str.
S503E	17	24'-4"	Str.		S704E	34	36'-2"	Str.
S504E	21	27'-11"	Str.					

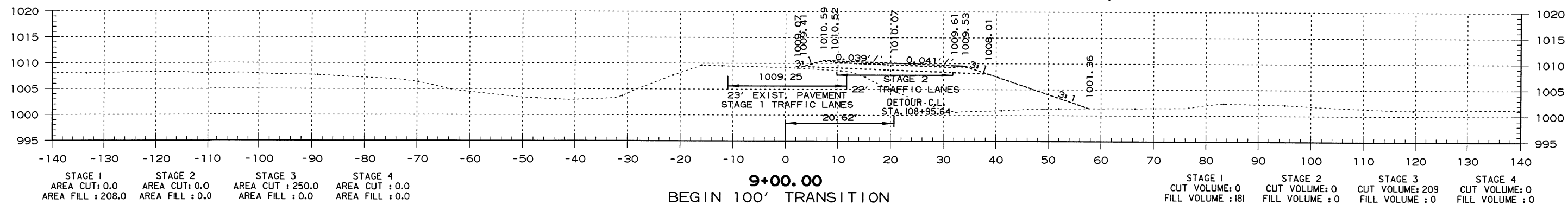
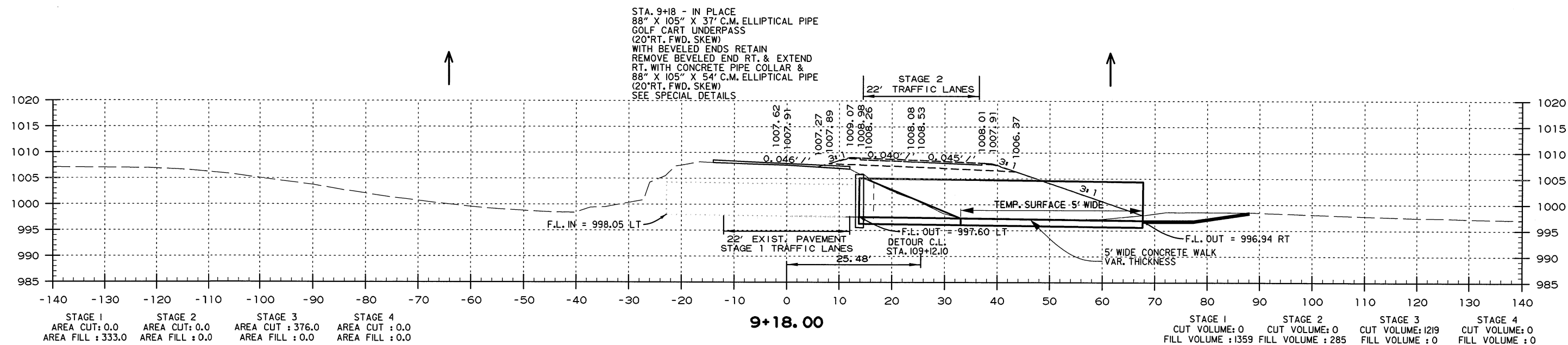
Note: All bars designated with an "E" suffix shall be epoxy coated.



DETAILS OF TYPE 4 SPECIAL
APPROACH SLAB
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: BNC DATE: 11-19-19 FILENAME: b090472x2-a4.dgn
CHECKED BY: CAW DATE: 11-26-19 SCALE: SEE DETAILS
DESIGNED BY: KRM DATE: 11-12-19
BRIDGE NO. 07481 DRAWING NO. 61596

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-28-2020				6	ARK.			
				JOB NO.		090472	96	110

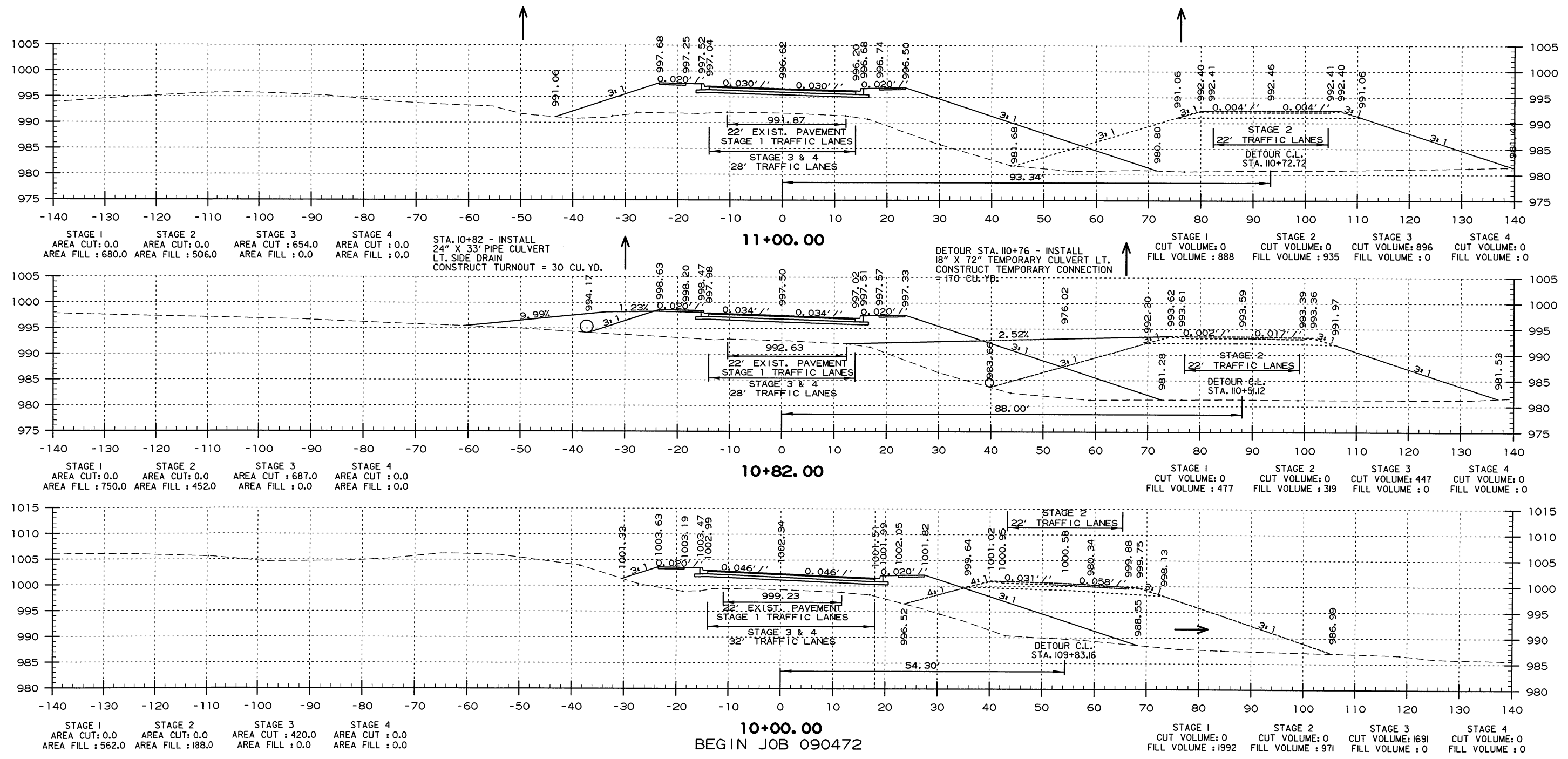
2 CROSS SECTIONS



STA. 9+00 TO STA. 9+18

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-28-2020				6	ARK.			
						JOB NO.	090472	97
								110

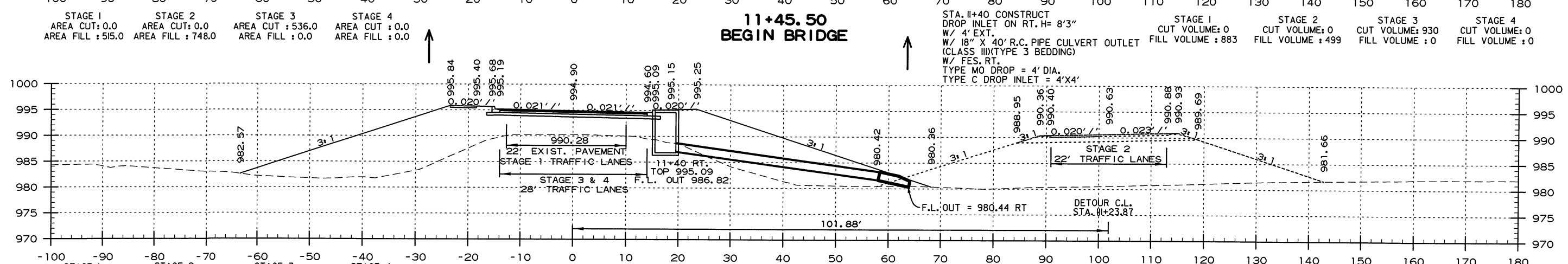
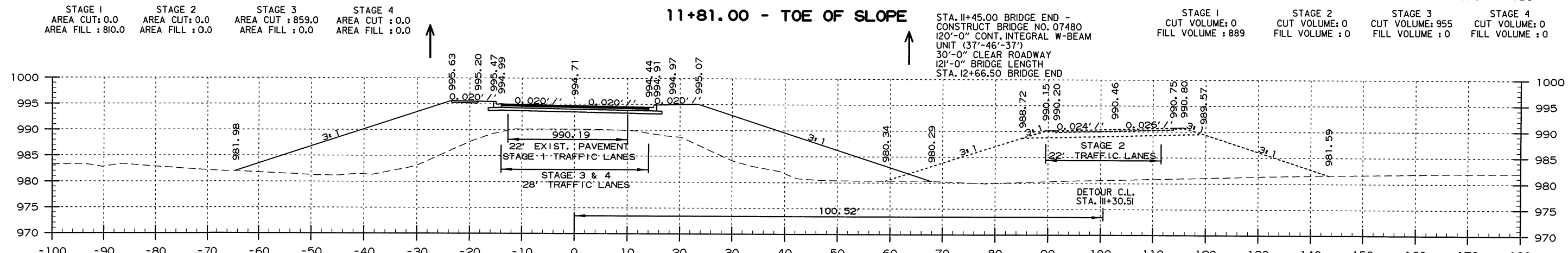
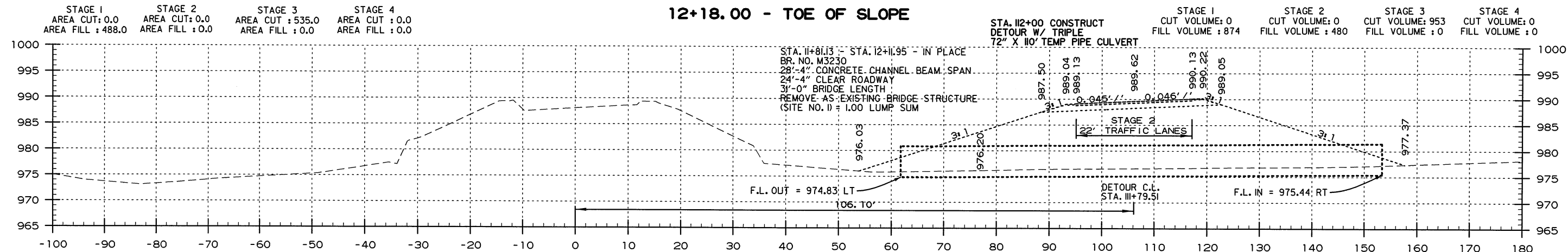
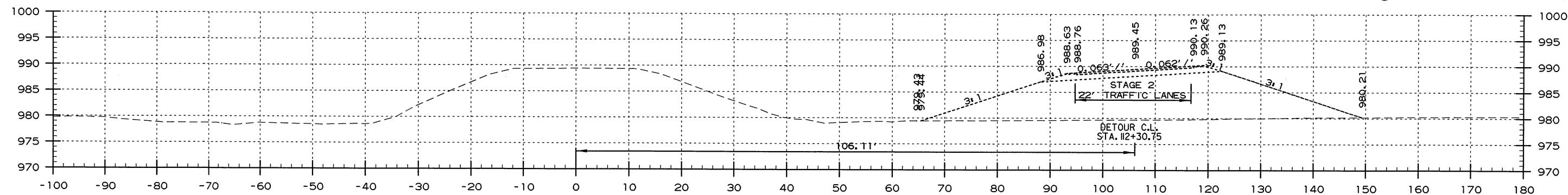
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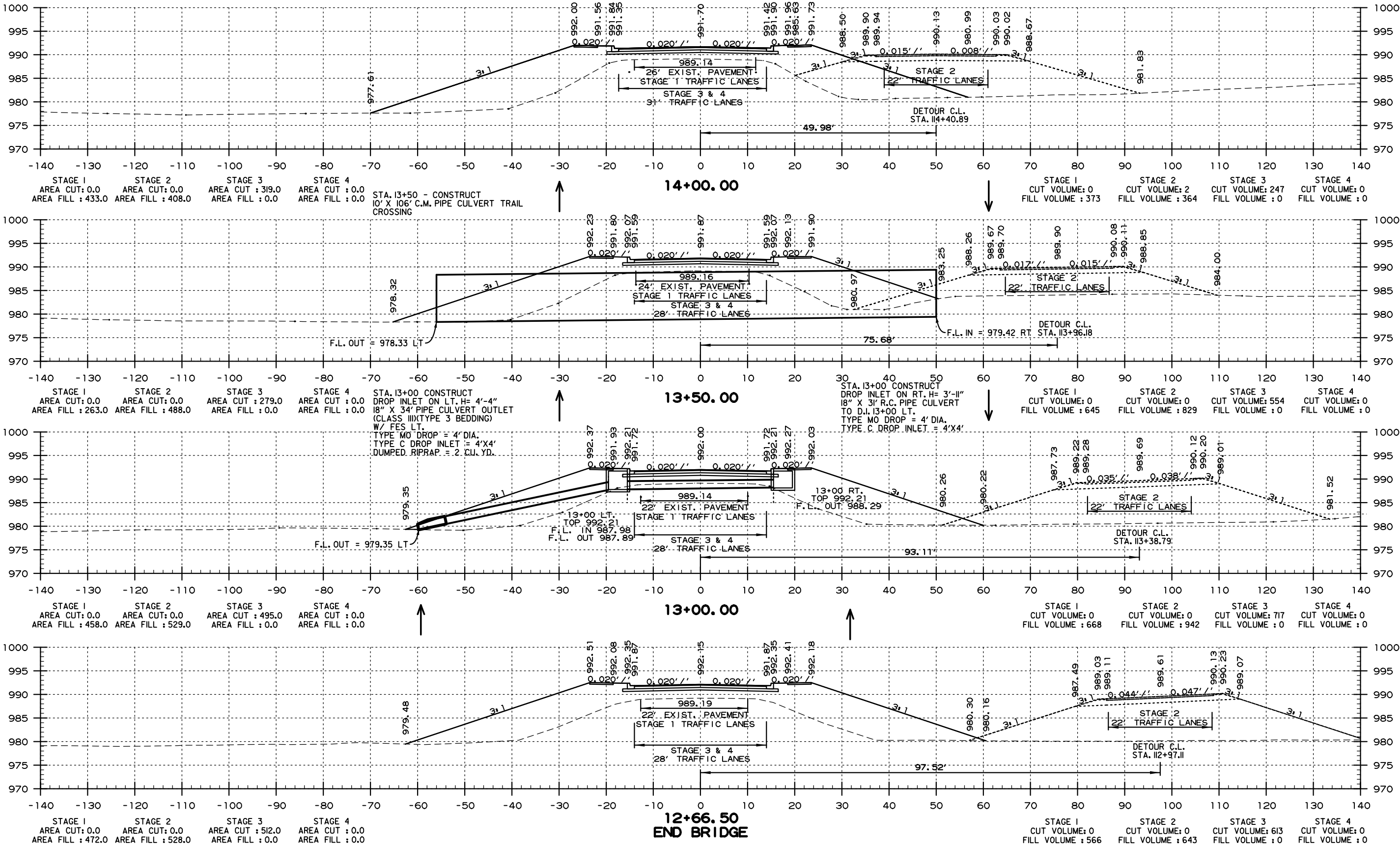
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7-28-2020				6	ARK.			
						090472	98	110

2 CROSS SECTIONS



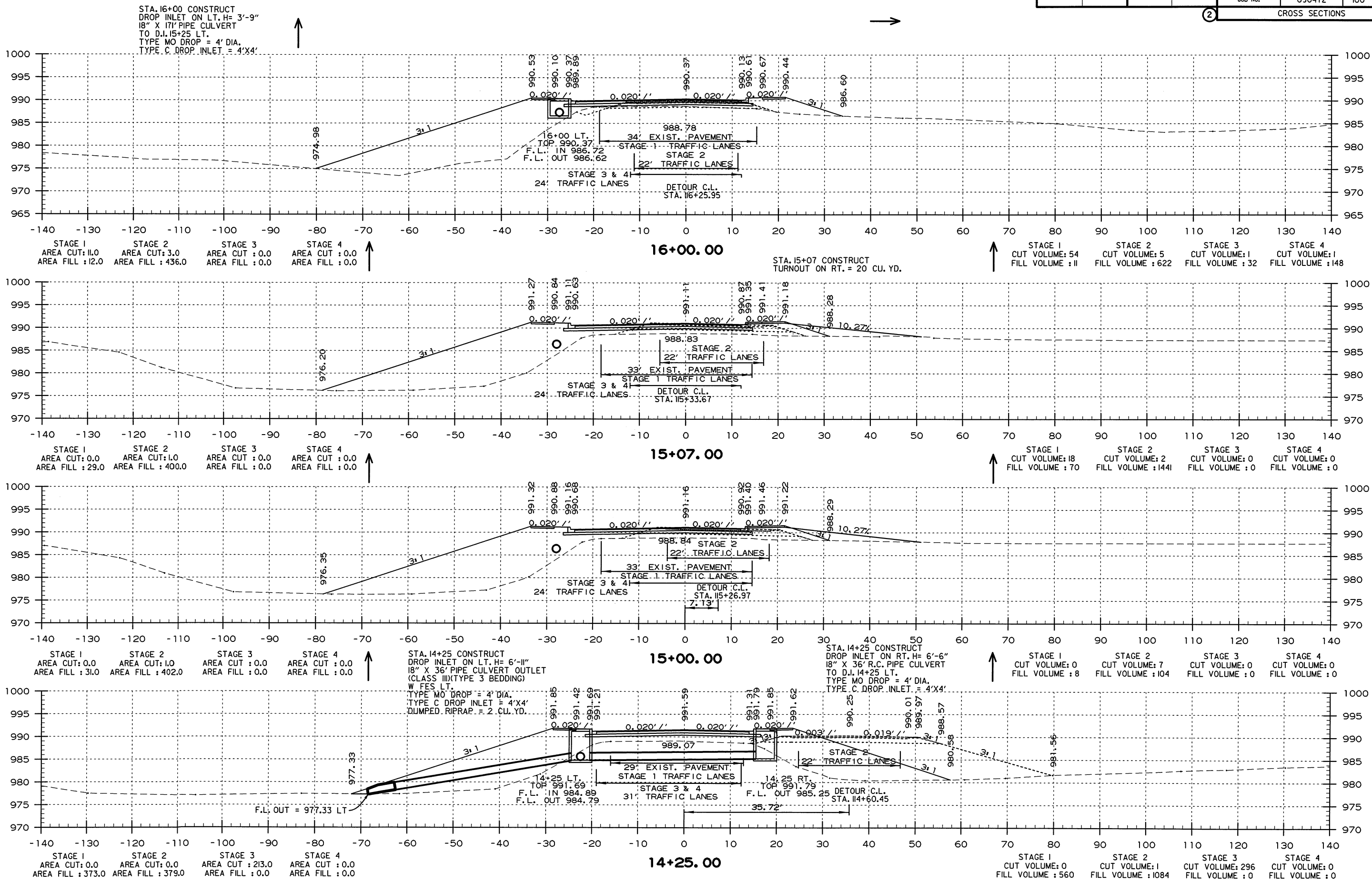
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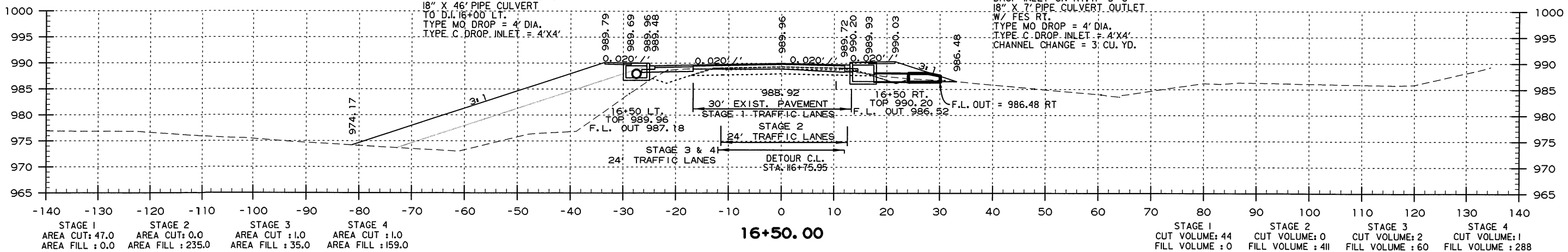
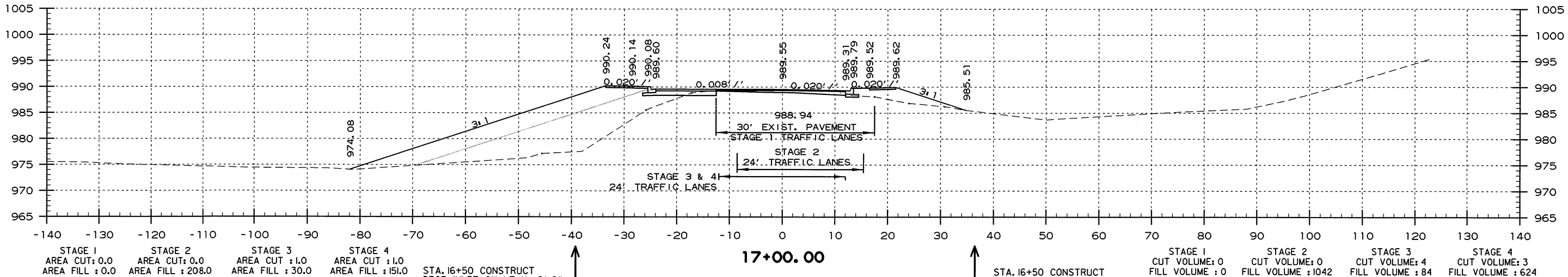
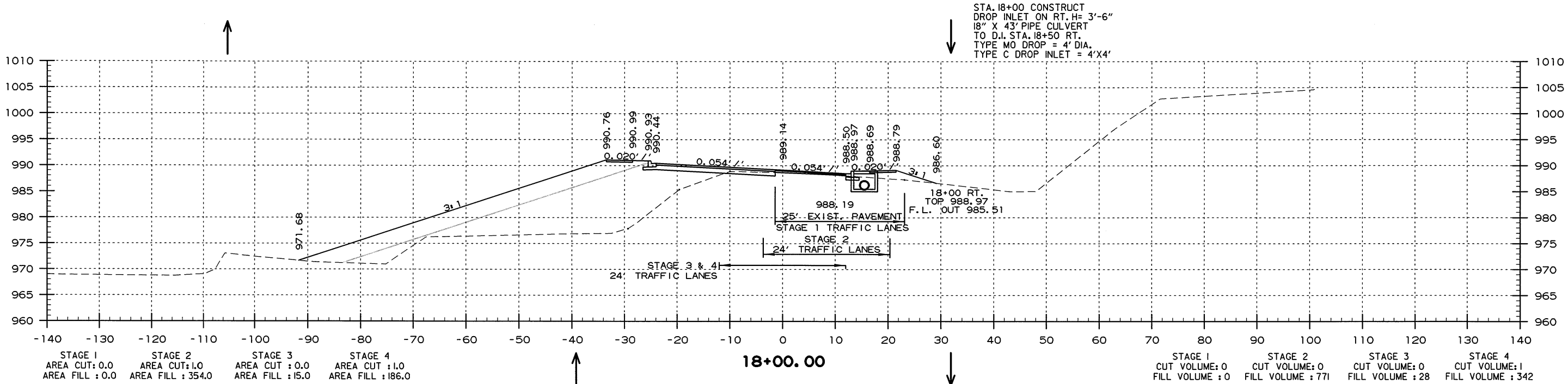
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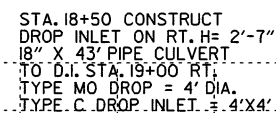
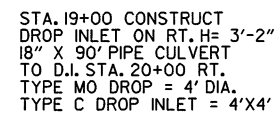
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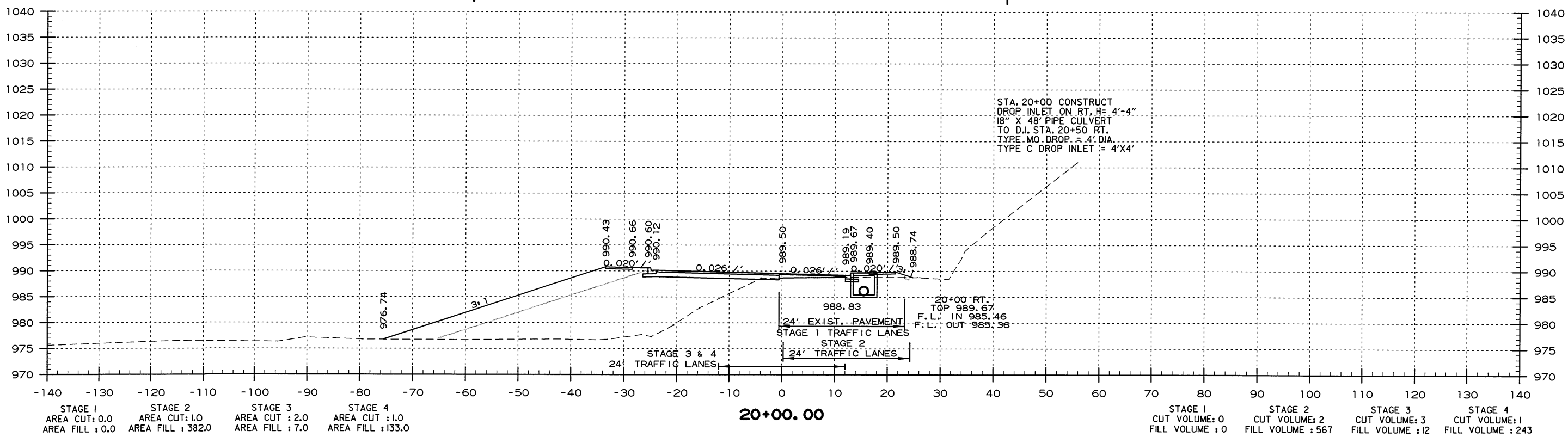
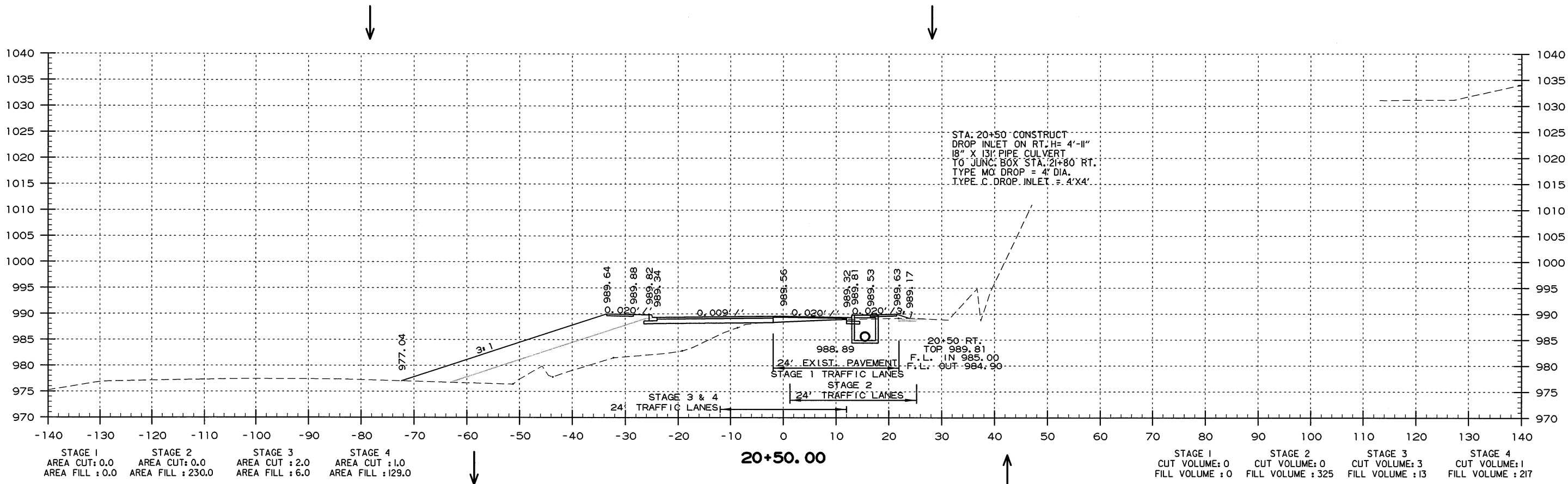
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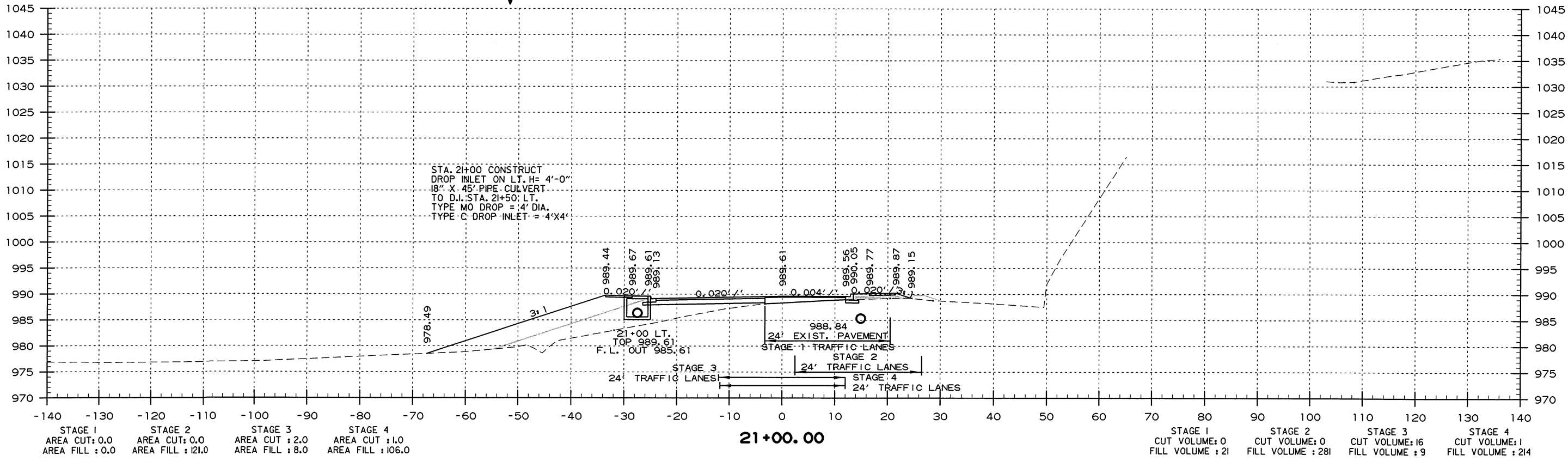
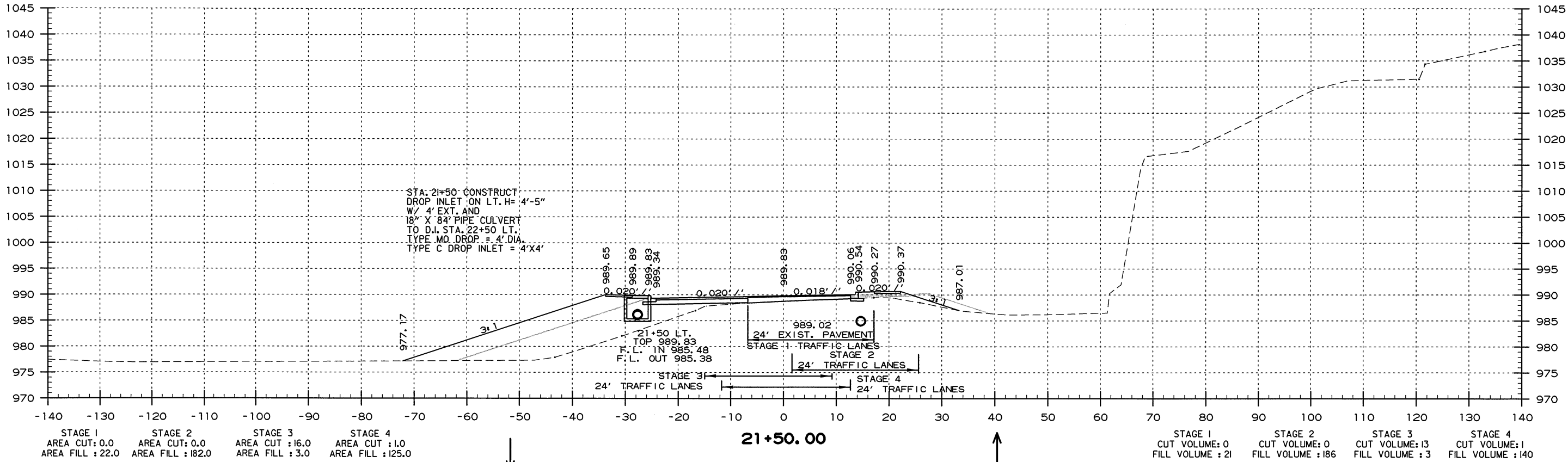
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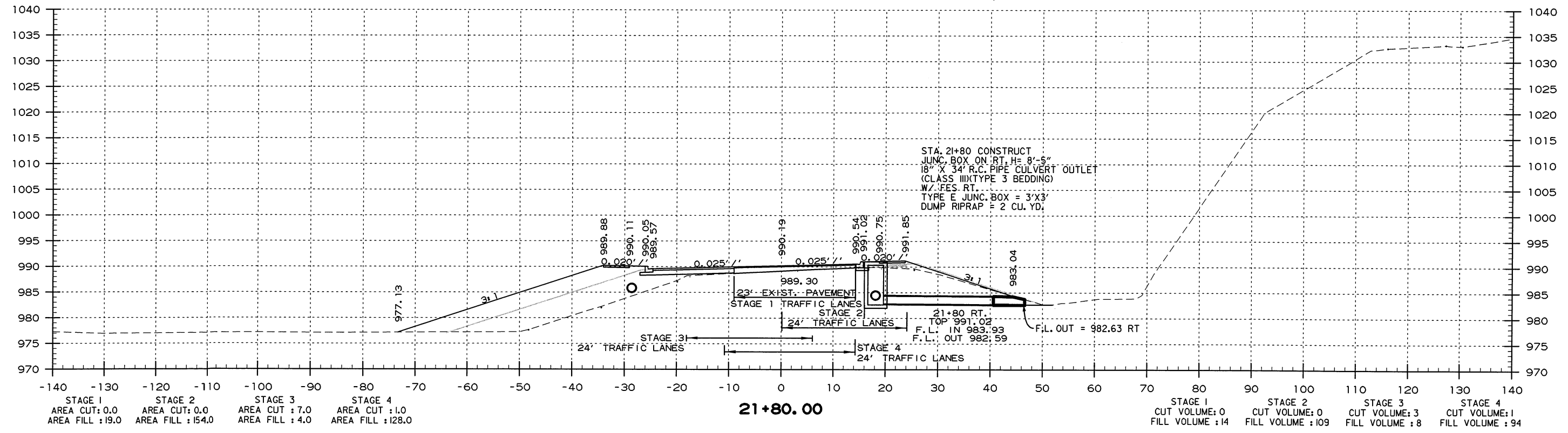
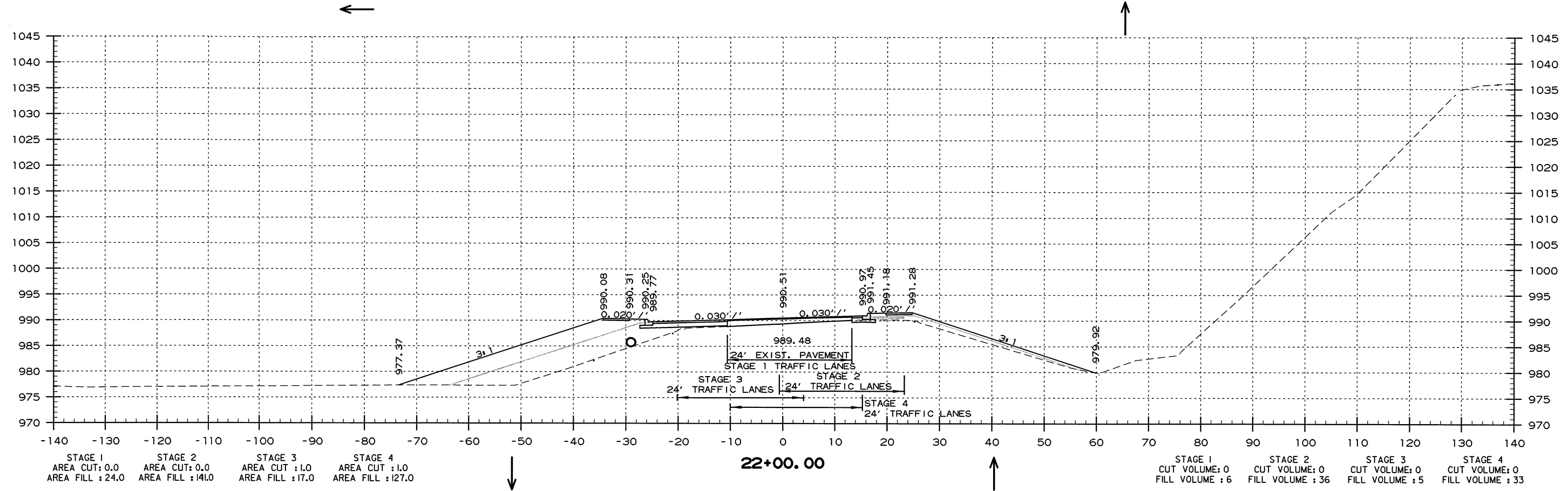
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2 CROSS SECTIONS								



STA. 21+00 TO STA. 21+50

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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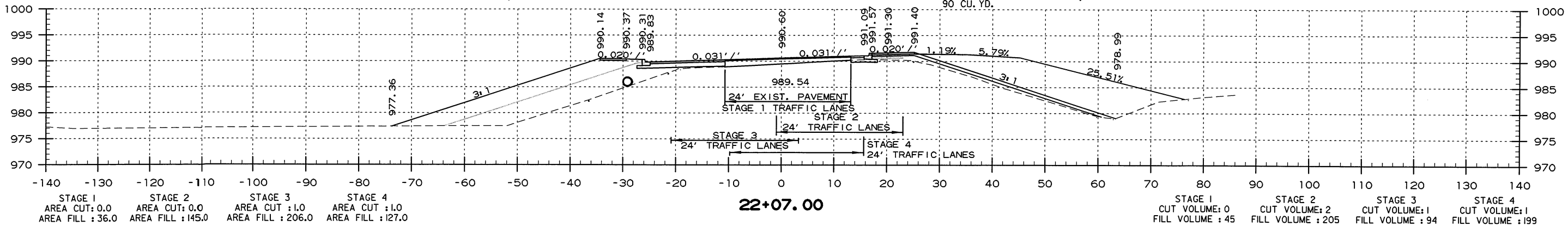
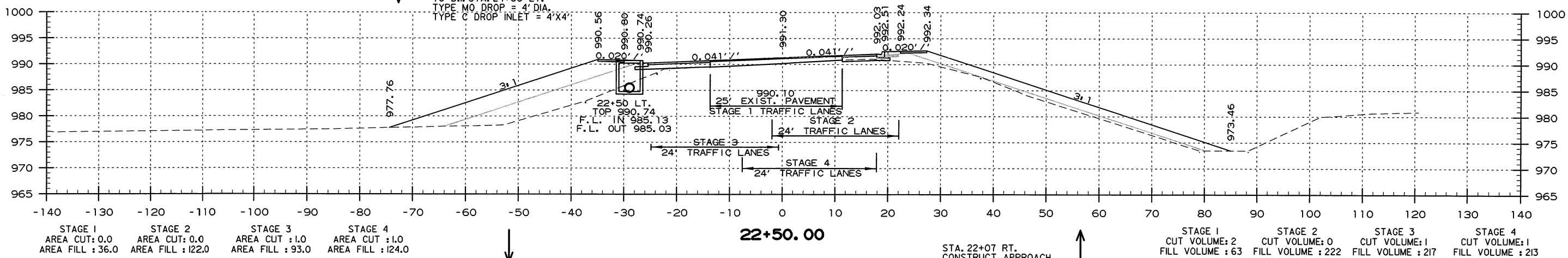
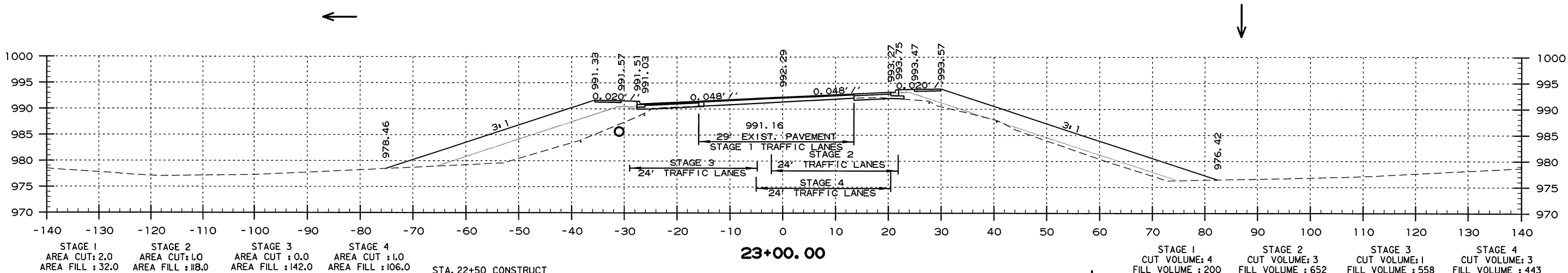
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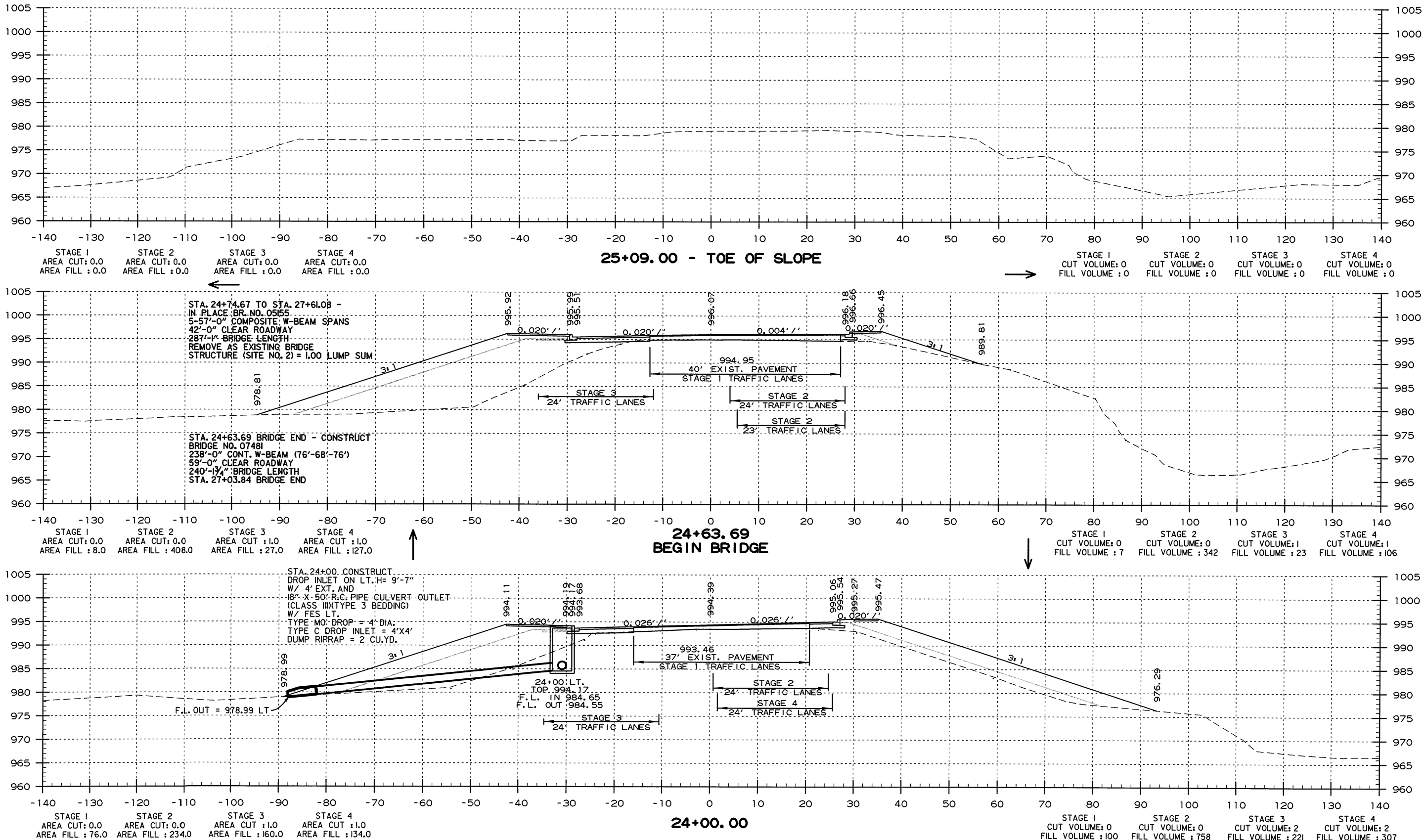
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2 CROSS SECTIONS

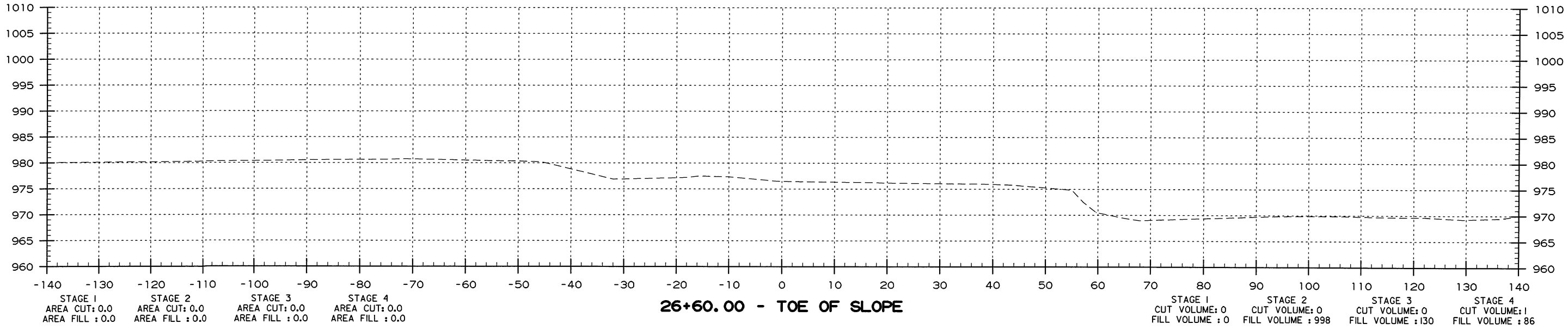
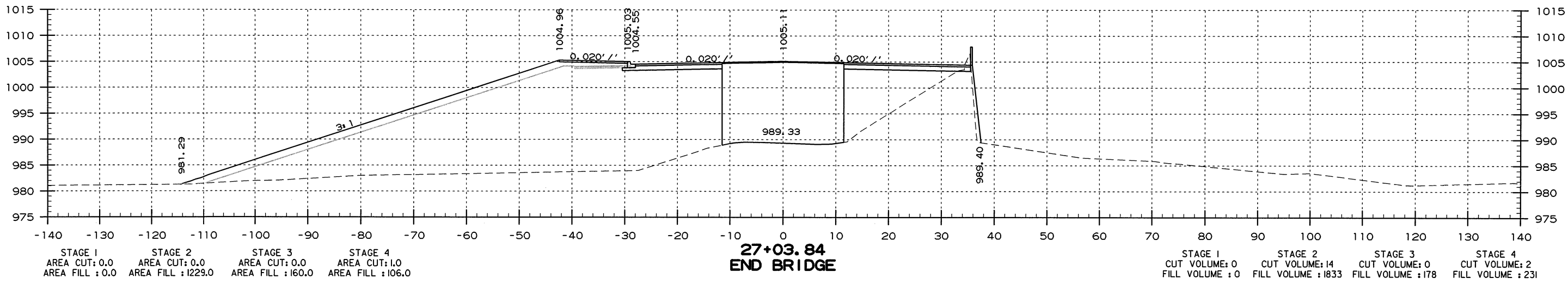
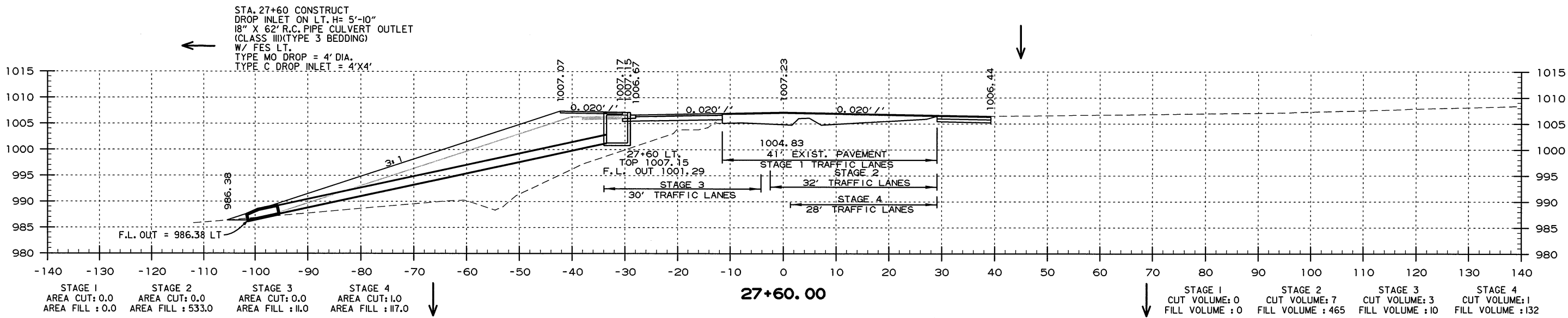


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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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						JOB NO. 090472	108	110

2

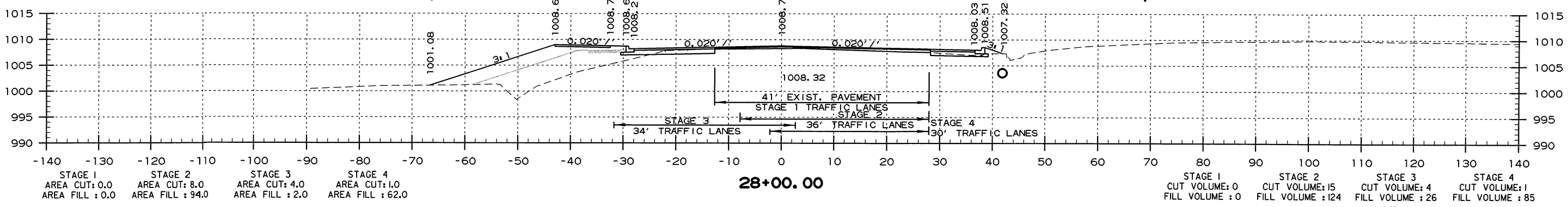
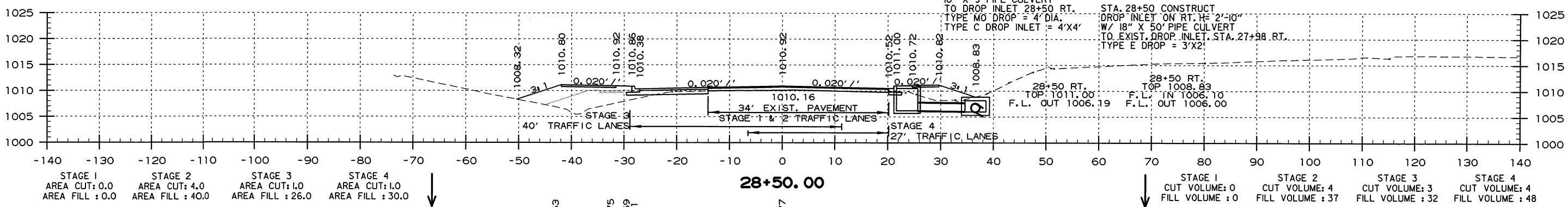
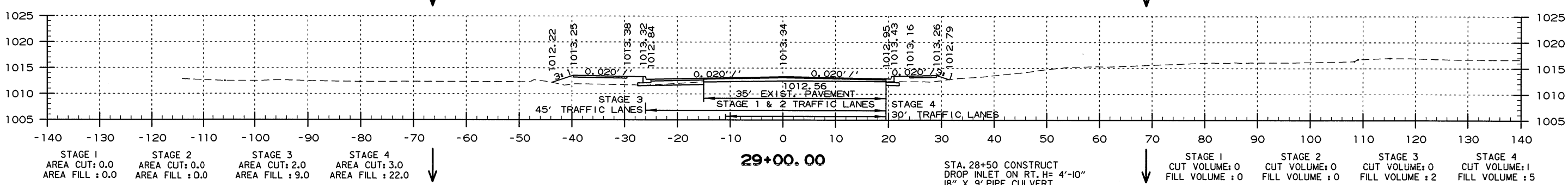
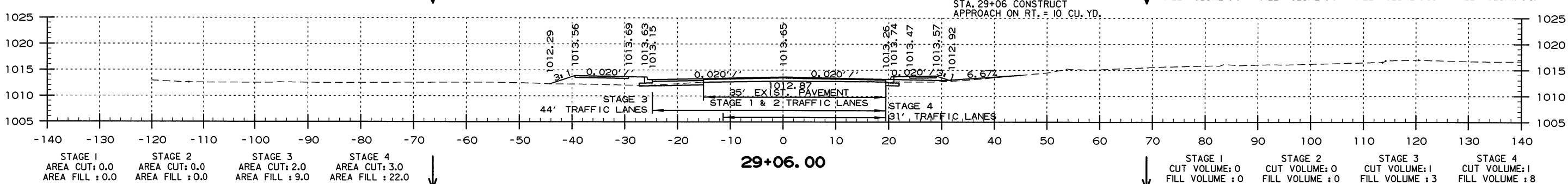
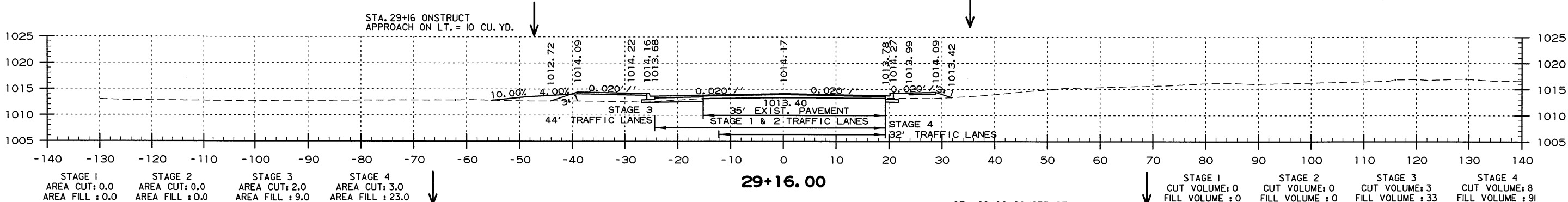
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				JOB NO.		090472	109	110

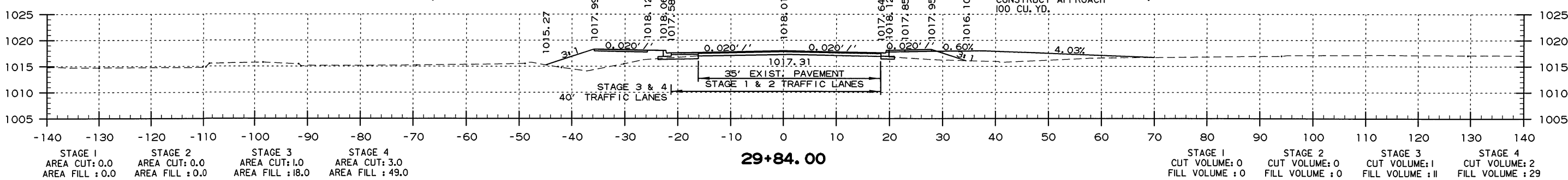
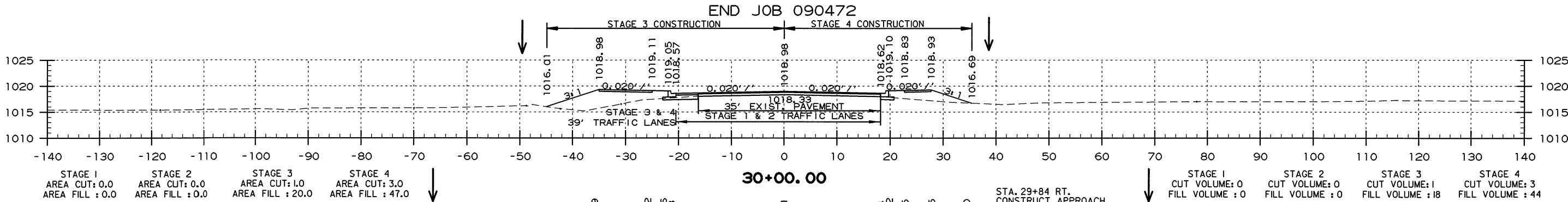
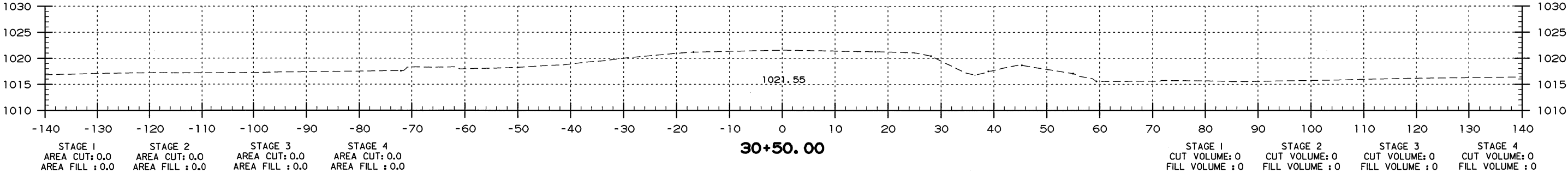
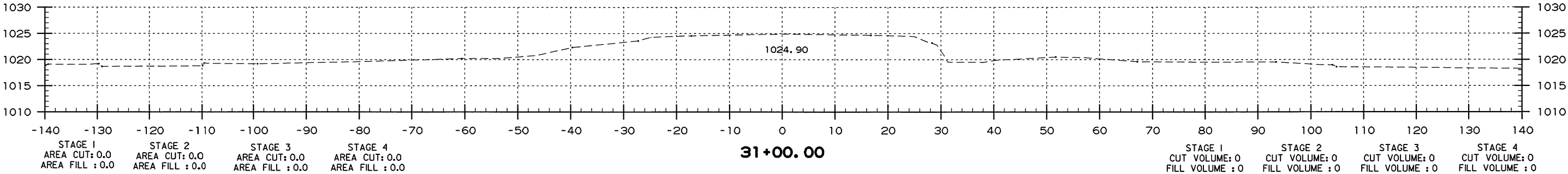
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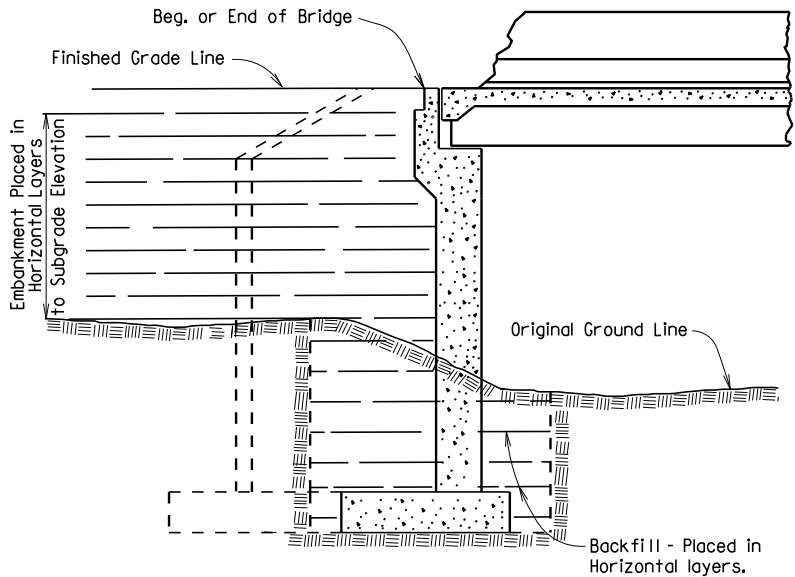
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					JOB NO.	090472	110	110

2 CROSS SECTIONS

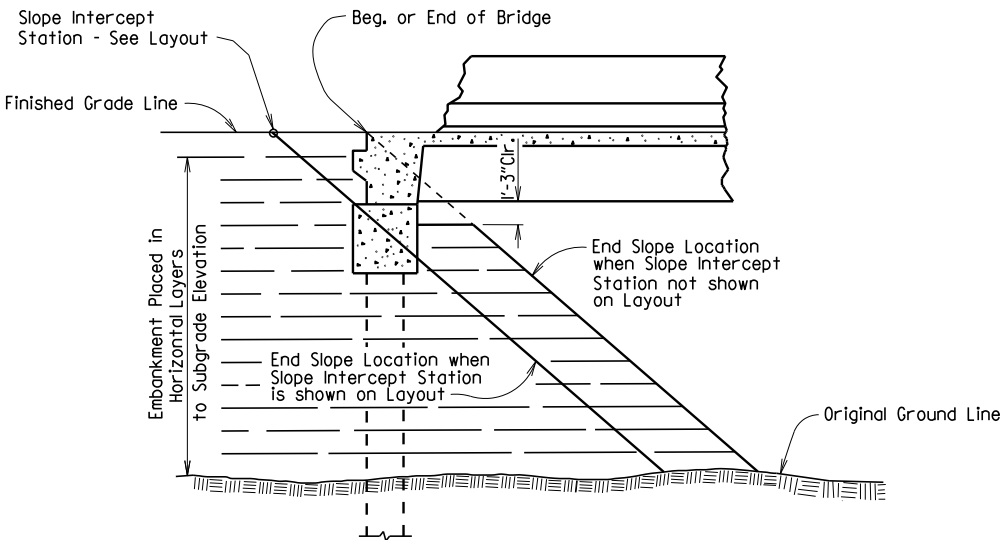


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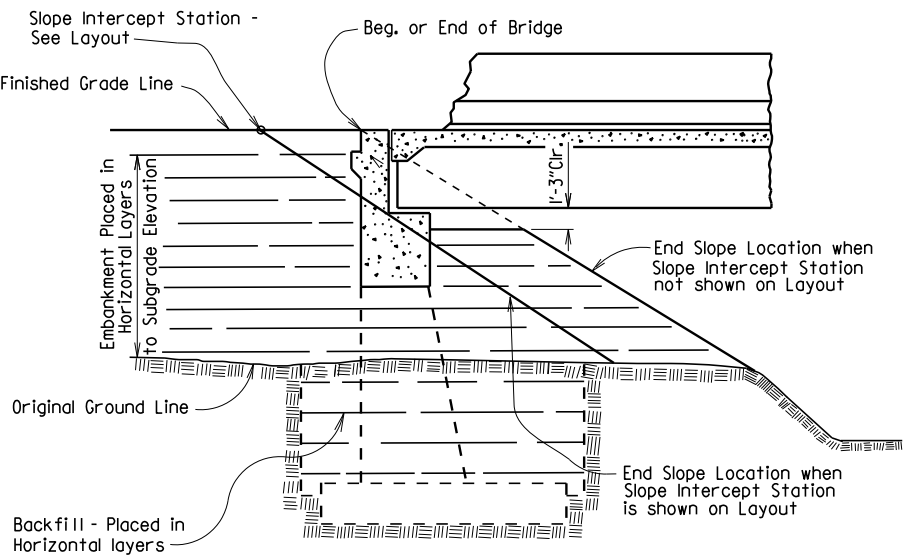
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				JOB NO.				
				1 EMBANKMENT & BACKFILL			55000	



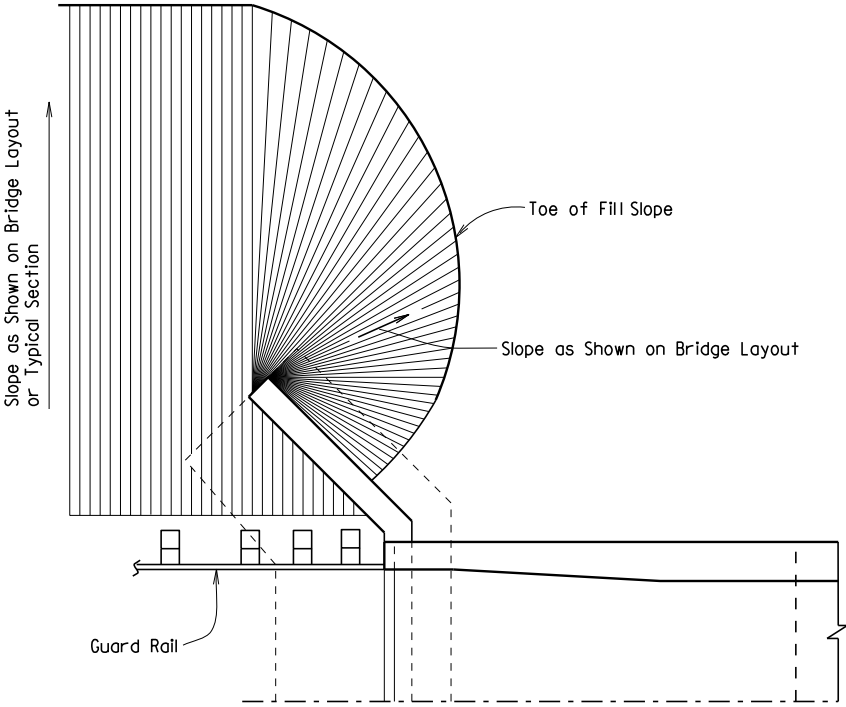
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT VERTICAL WALL ABUTMENTS



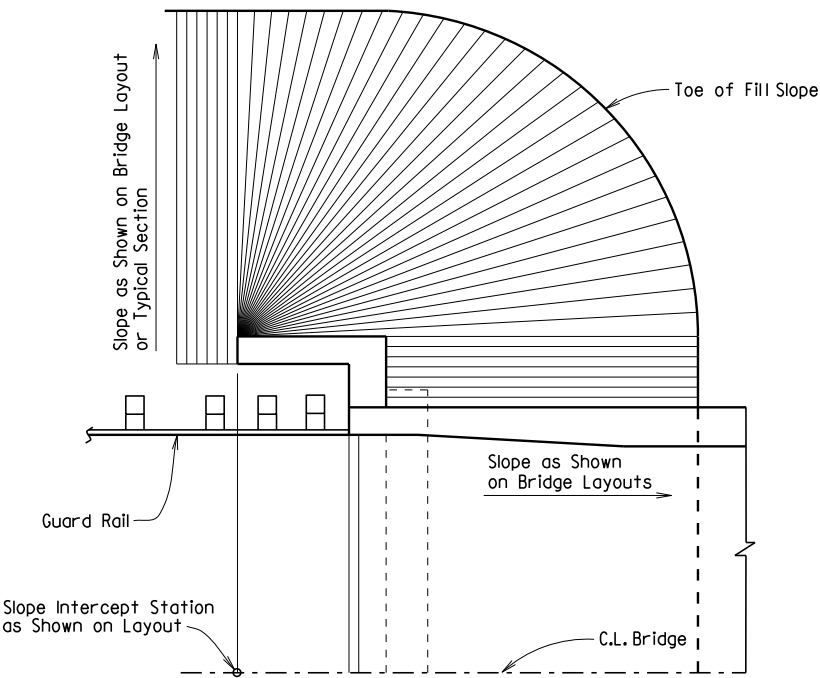
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
PILE END BENTS



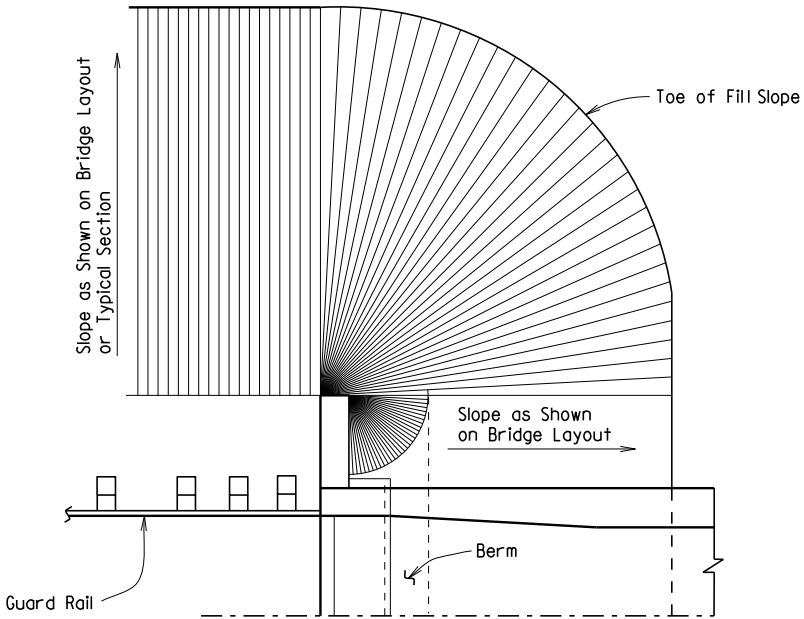
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT SPILL-THROUGH END BENTS



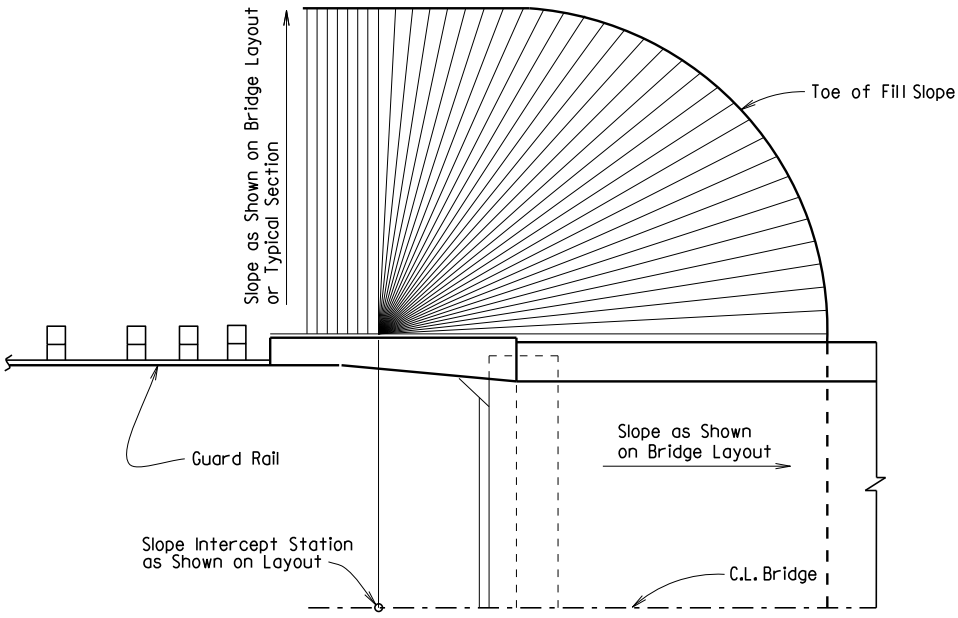
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

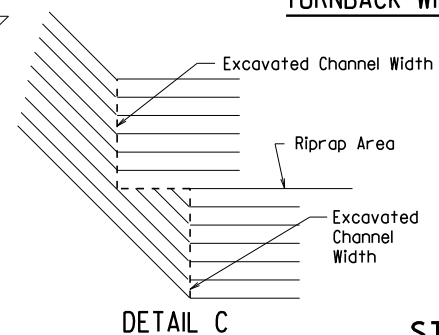
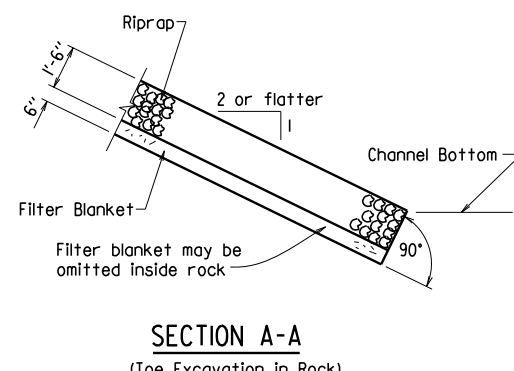
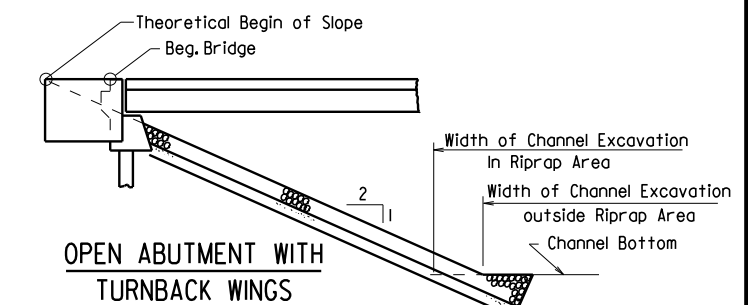
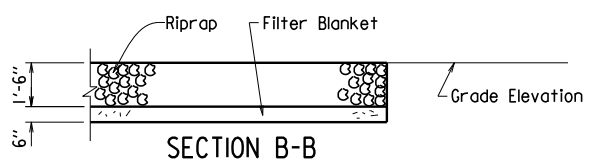
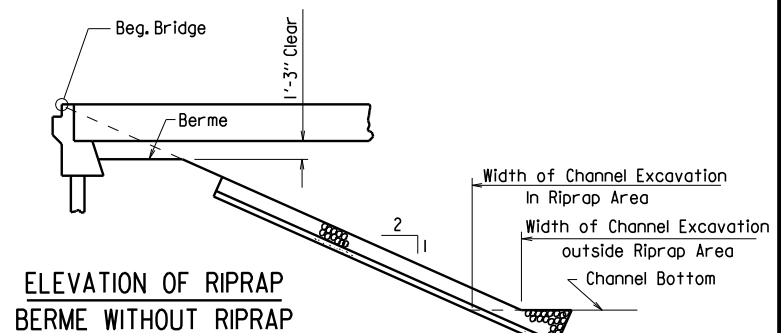
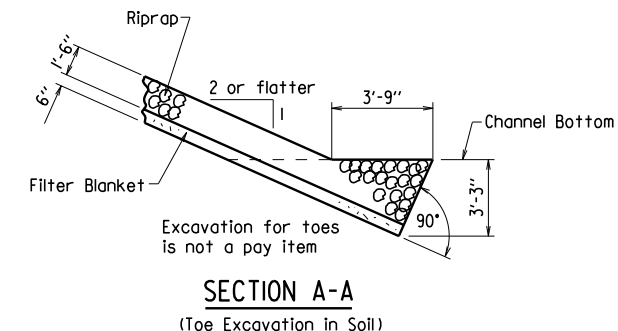
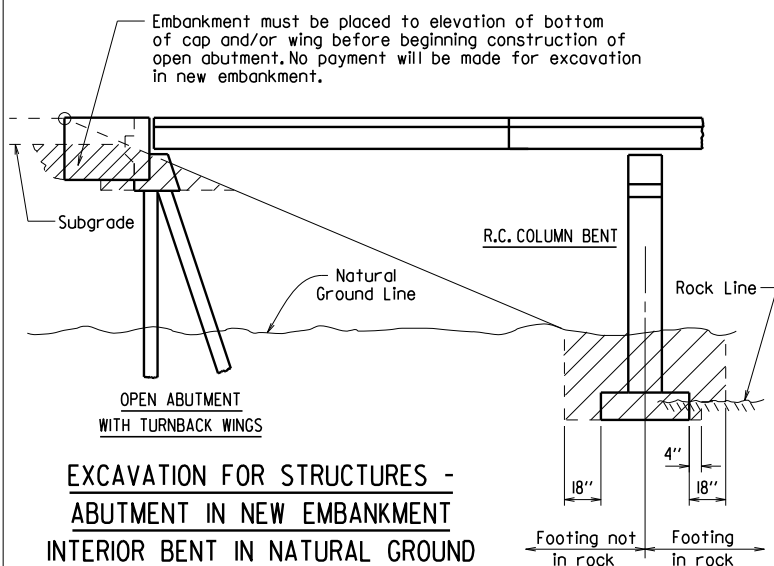
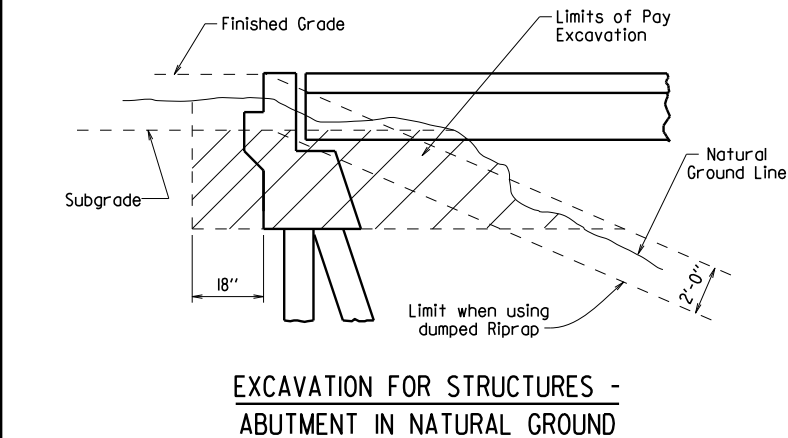
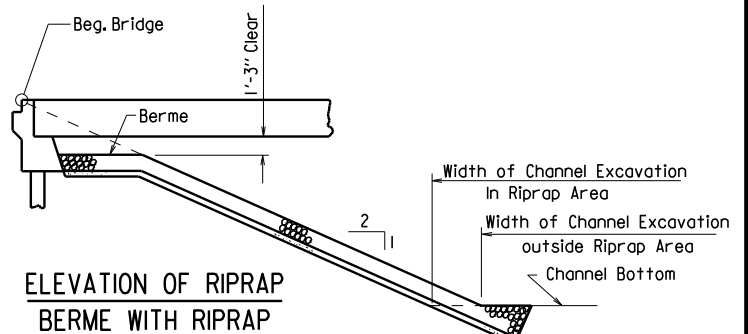
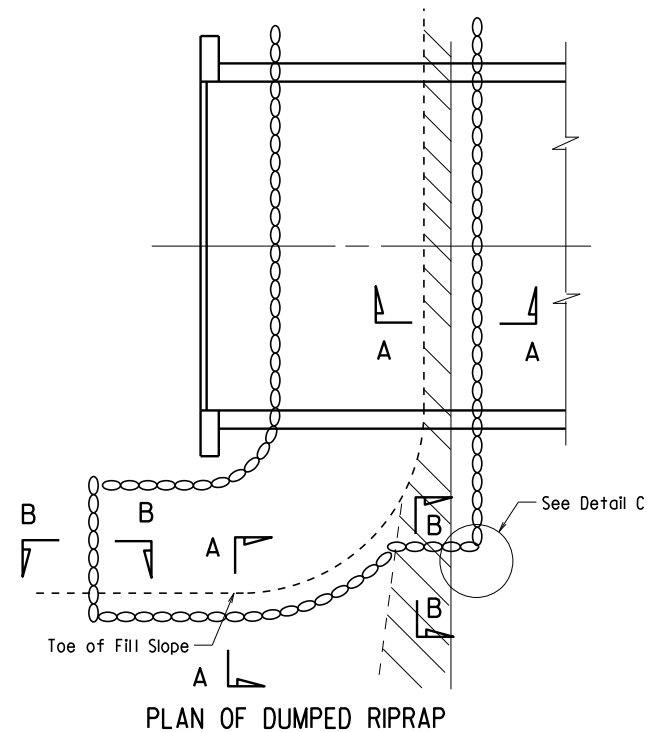
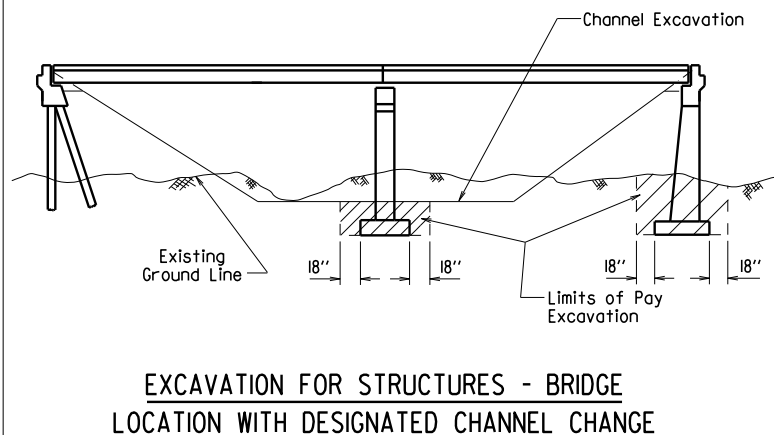
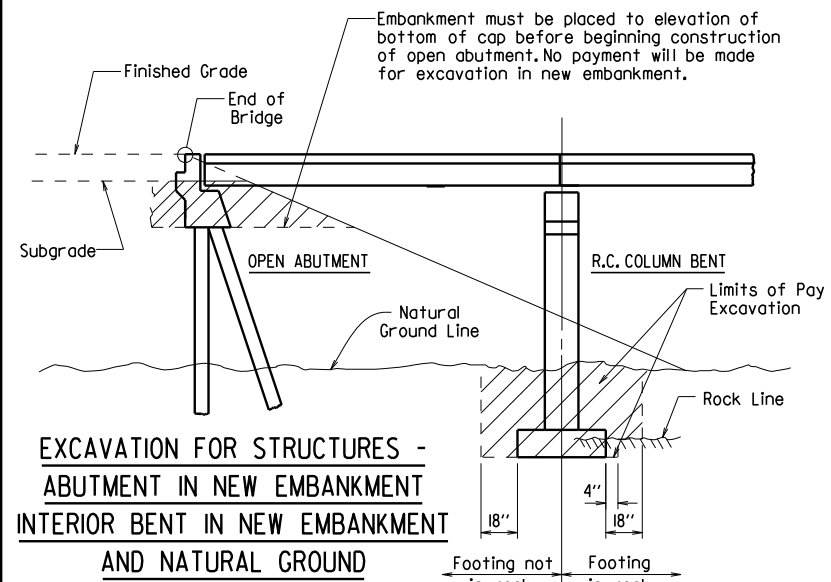
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	RIPRAP & EXCAV. 5500I			



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

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

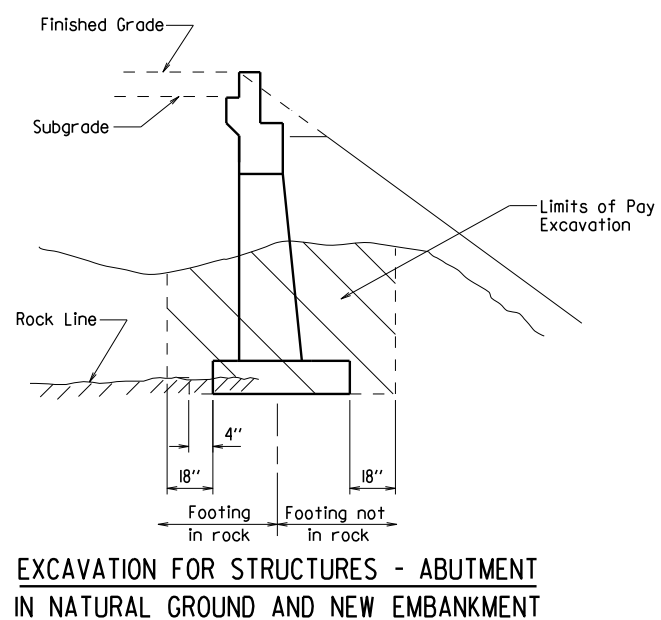
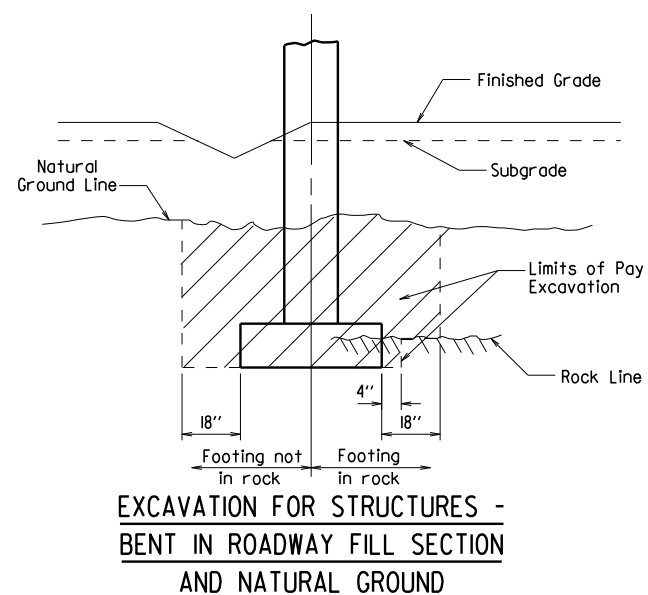
Note: Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES ARKANSAS STATE HIGHWAY COMMISSION

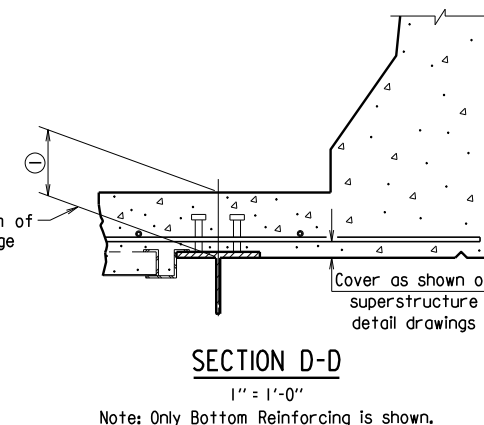
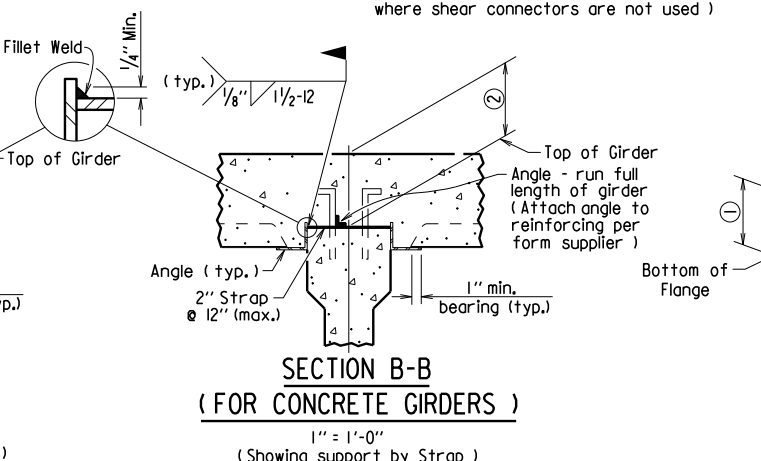
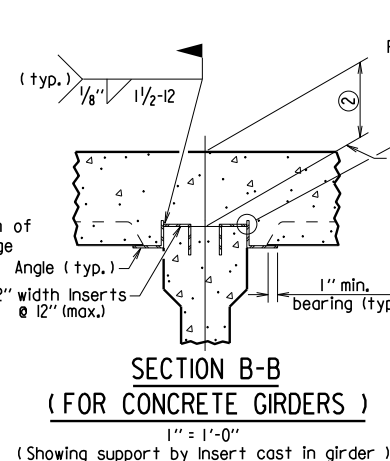
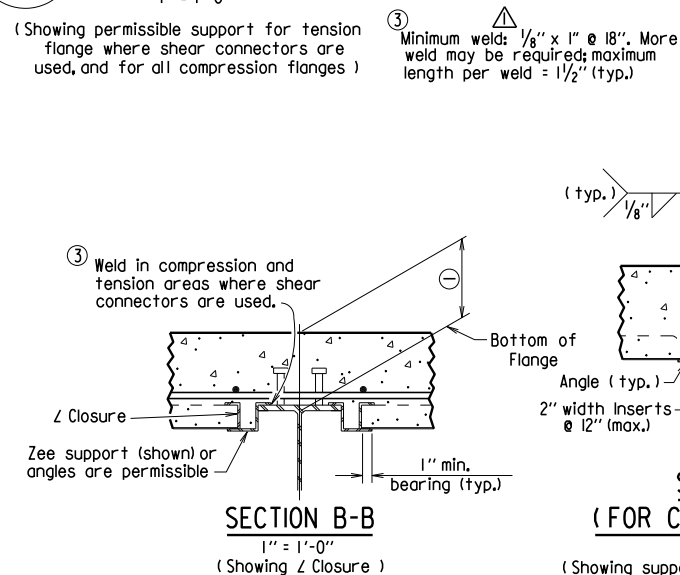
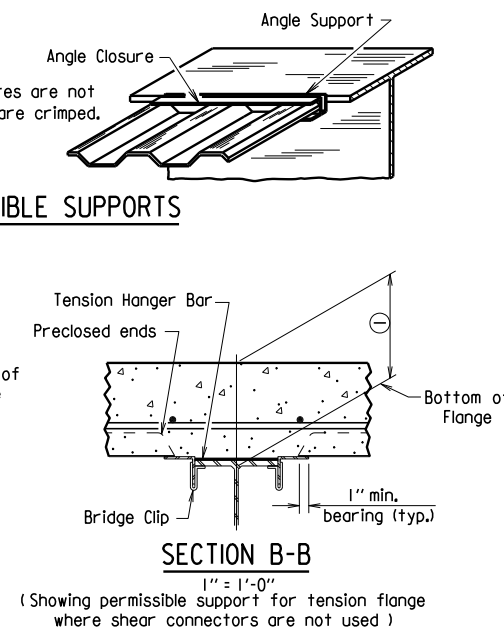
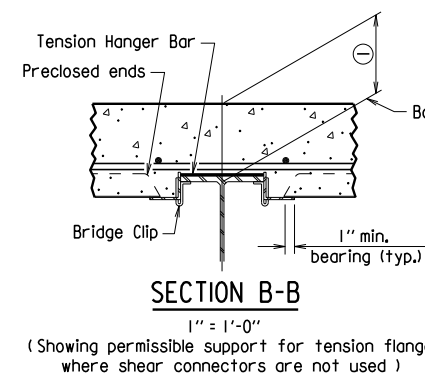
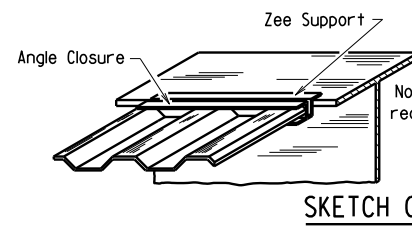
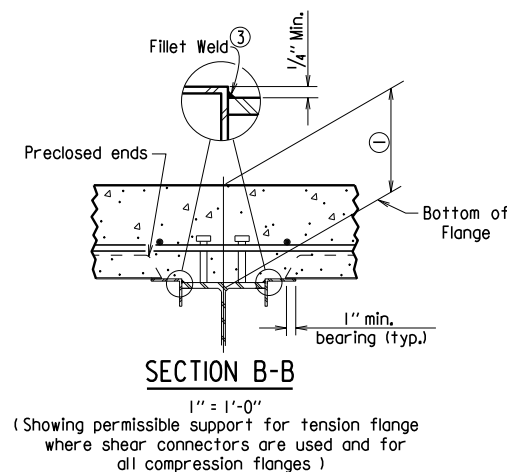
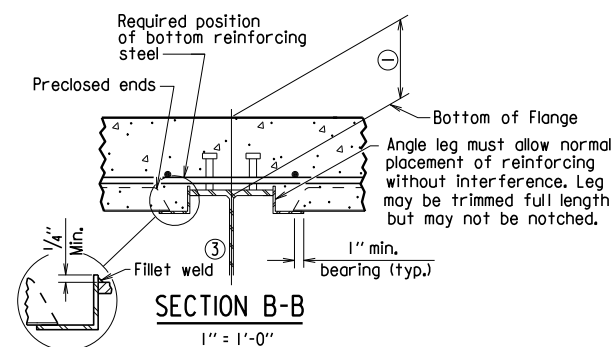
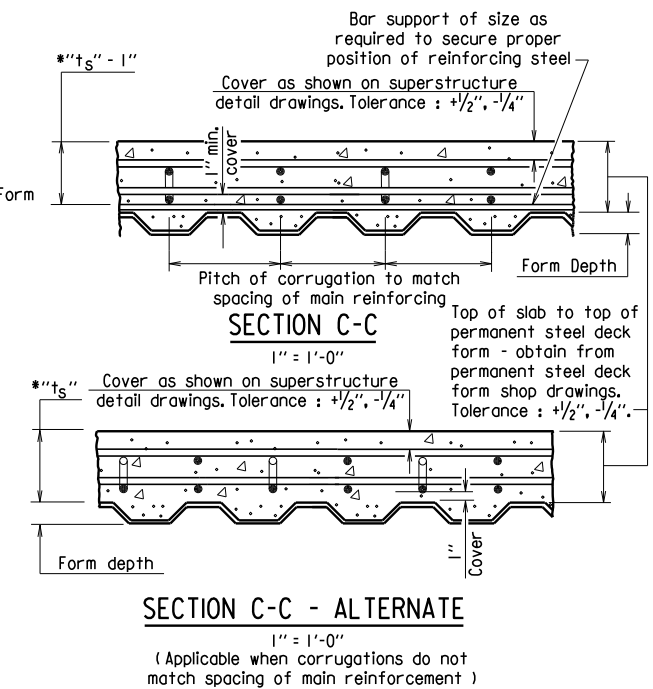
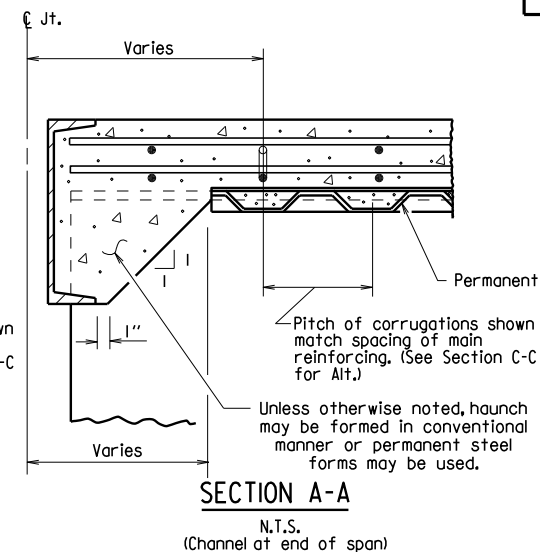
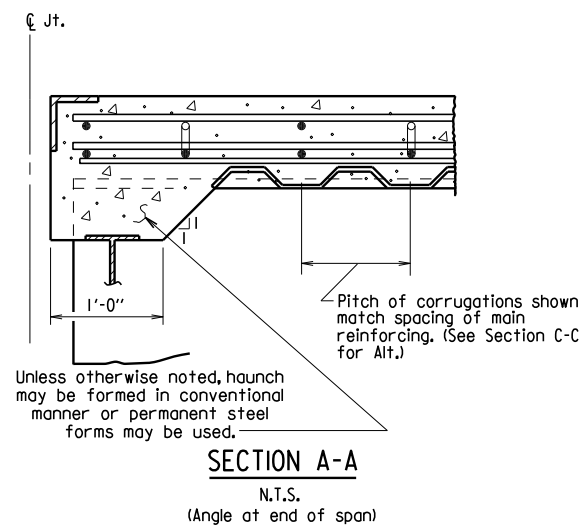
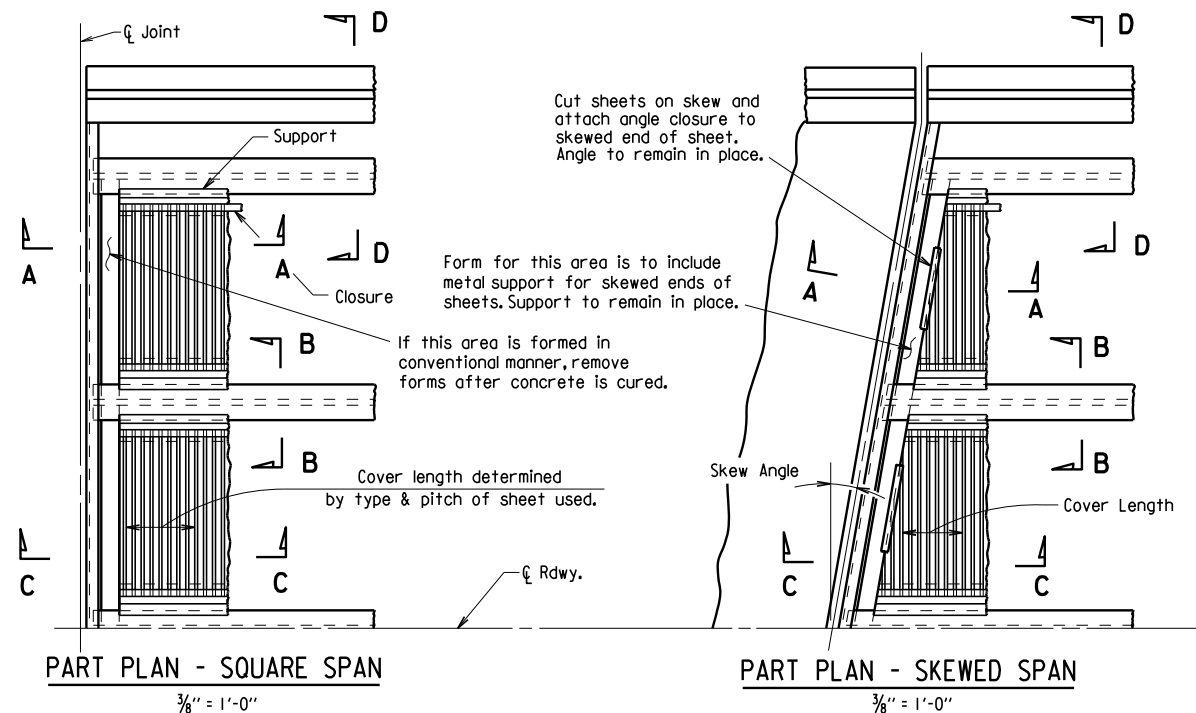
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500I.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 5500I



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				BRIDGE DECK FORMS		55005		



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

Permanent steel deck forms shall conform to Subsection 802.4(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

⚠ Revised weld dimension by K.W.Y. Ck'd. by B.E.F. 3/24/16.

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

See Plan Details for Gradet(s) of Structural Steel required.

CONCRETE:

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

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

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

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

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

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

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

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

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

Unless otherwise noted, field connections shall be bolted with 3/4" Ø high-strength bolts using 1/6" Ø open holes. Holes for 3/4" Ø high-strength bolts may be 1/6" Ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

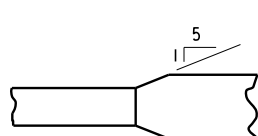
STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

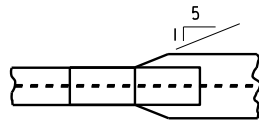
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CHECKED BY:	B.E.F.	DATE:	9-2-2015	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55006

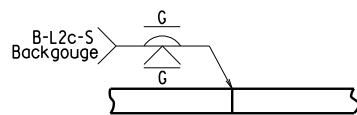


Plan-Unequal Width (Fig.)

FLANGE SPLICE

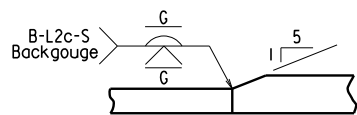


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

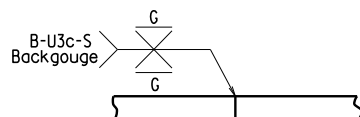
WEB & FLANGE SPLICE



Unequal Thickness

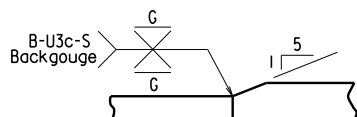
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

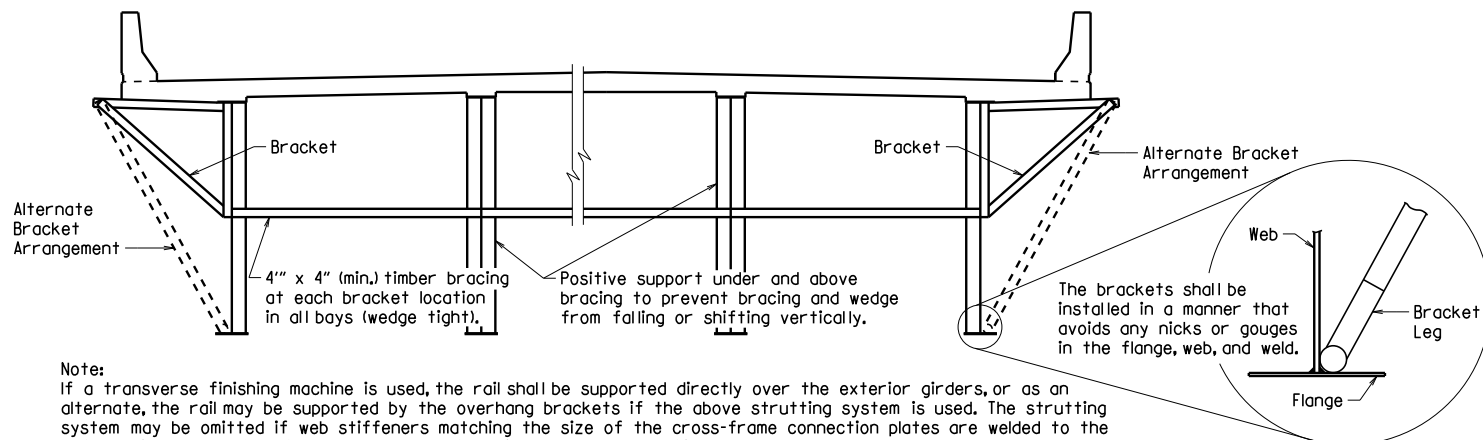


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

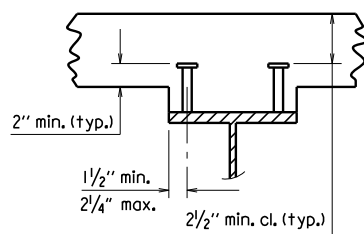
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



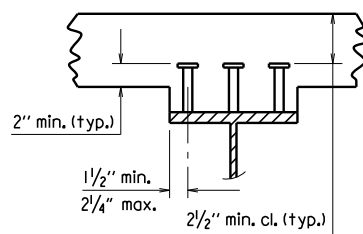
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans ()".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



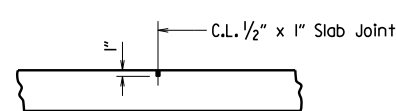
2 STUDS PER ROW



3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

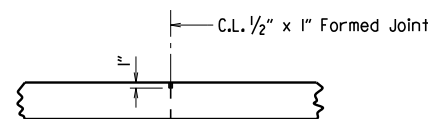
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

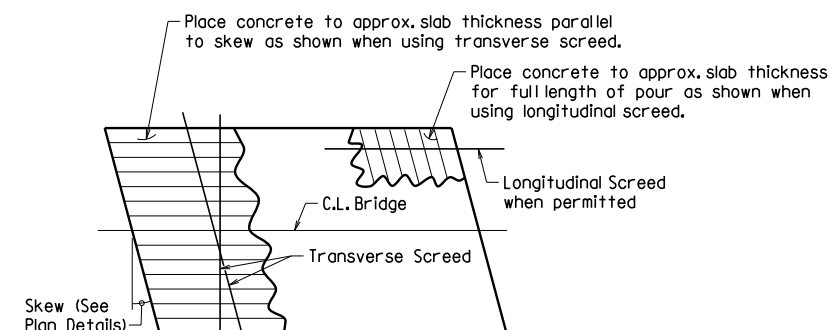
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidewalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



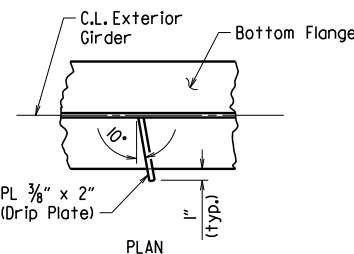
Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

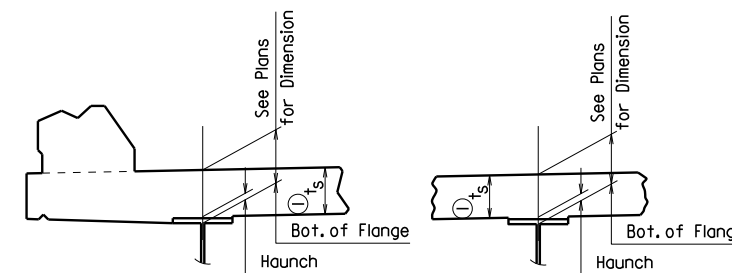
Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
STEEL BRIDGE STRUCTURES								55007

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER

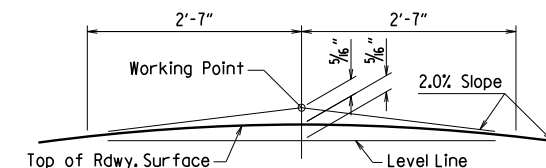
INTERIOR BEAM OR GIRDER

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

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

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

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

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

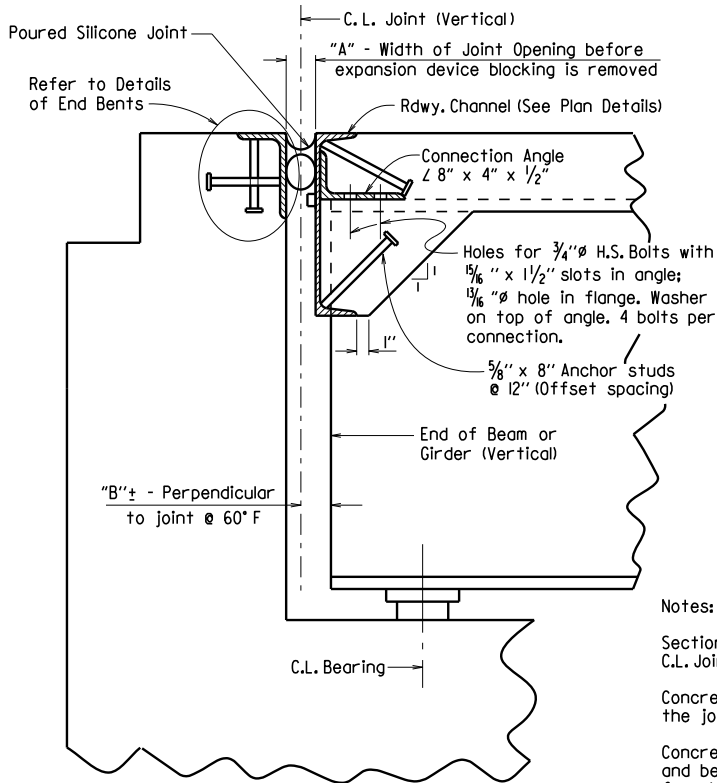
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

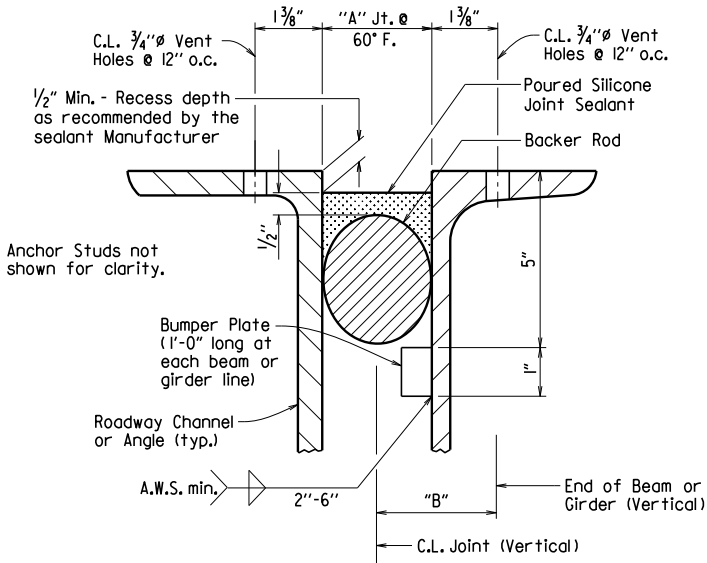
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DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
POURED SILICONE JOINT								55008



SECTION THRU JOINT AT END BENT



DETAIL OF POURED SILICONE JOINT

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

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

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

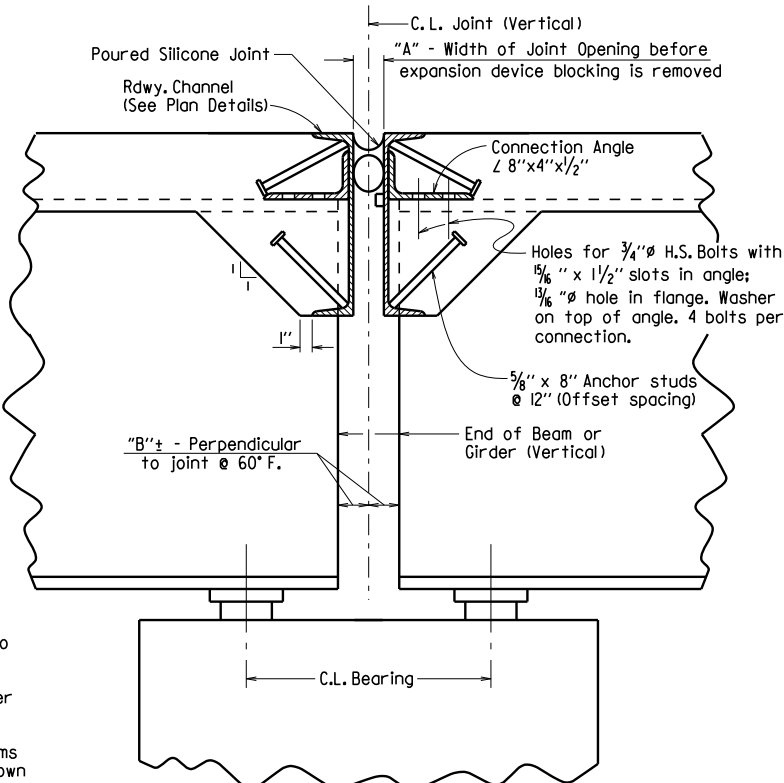
When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.

Notes:

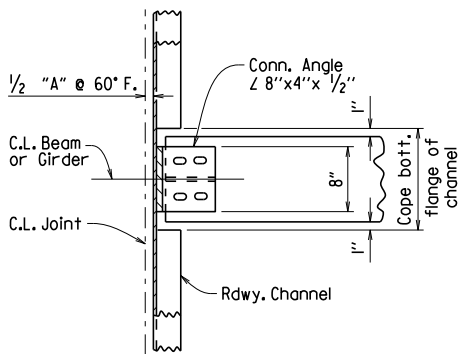
Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.

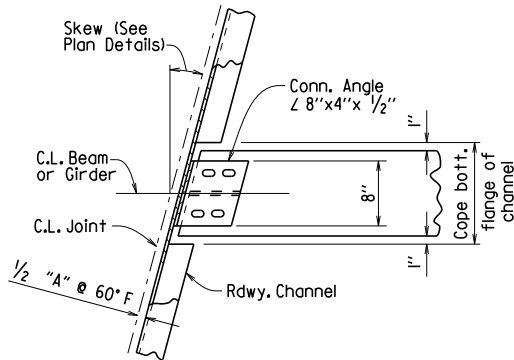


SECTION THRU JOINT AT INTERMEDIATE BENT



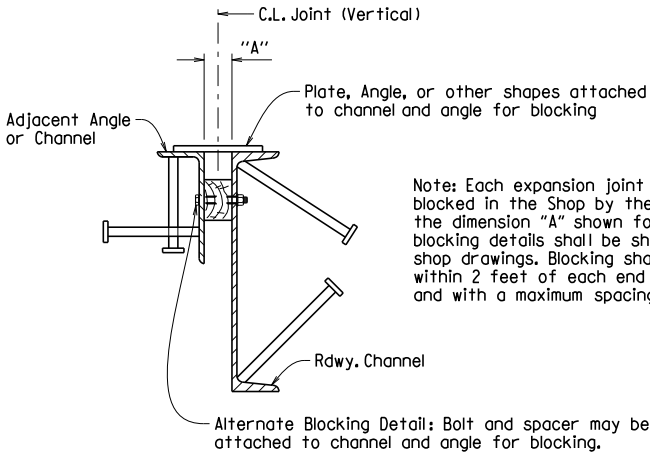
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

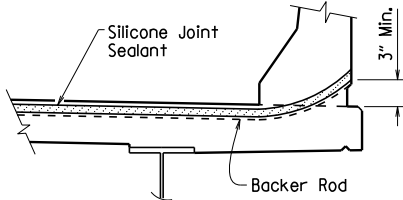
The Contractor may elect to install the expansion device using one of the following two alternatives:

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

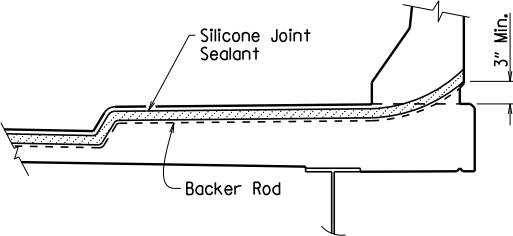
EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

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

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



JOINT SEAL PLACEMENT AT RAIL



JOINT SEAL PLACEMENT AT SIDEWALK

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR
POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

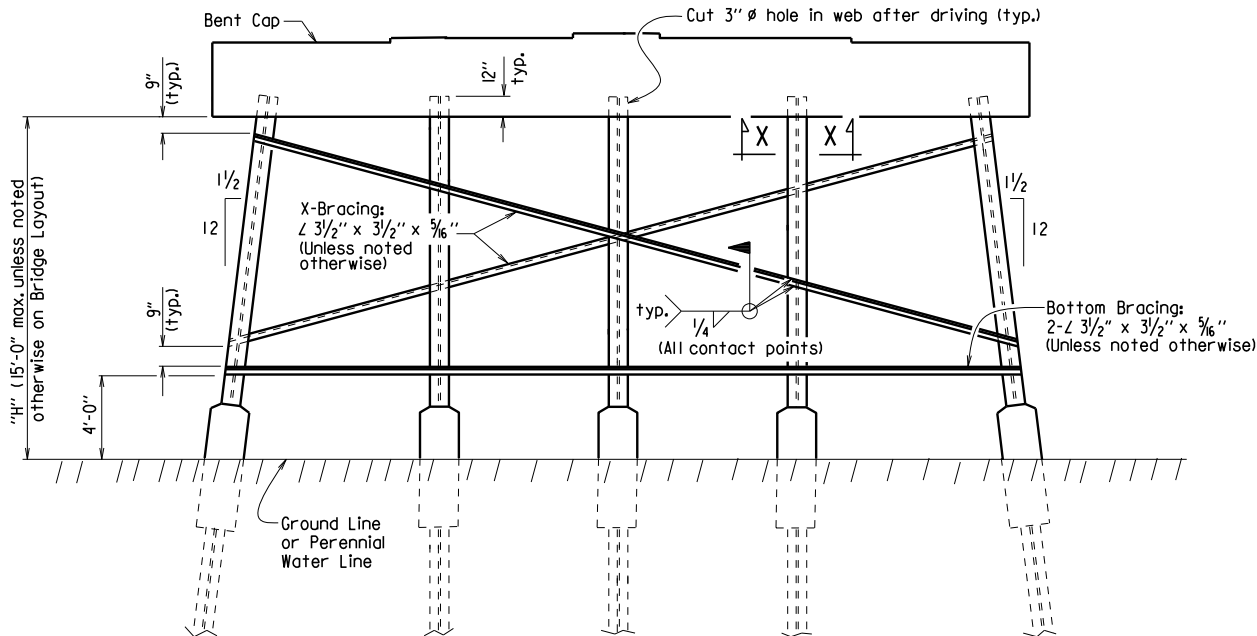
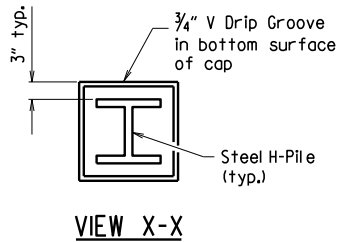
GENERAL NOTES FOR STEEL H-PILES:

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

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

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

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



Notes:

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

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

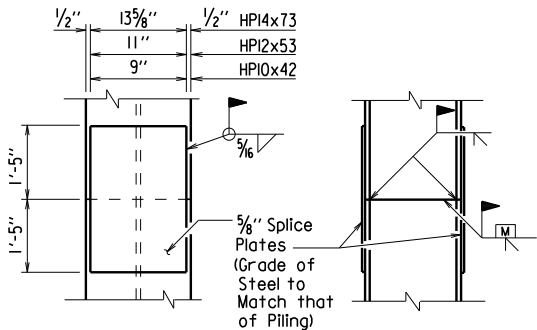
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

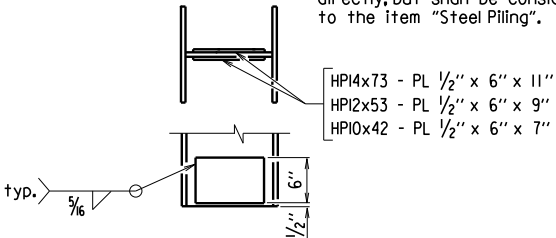
(Shown with Partial Height Encasement)



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

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16 inch fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

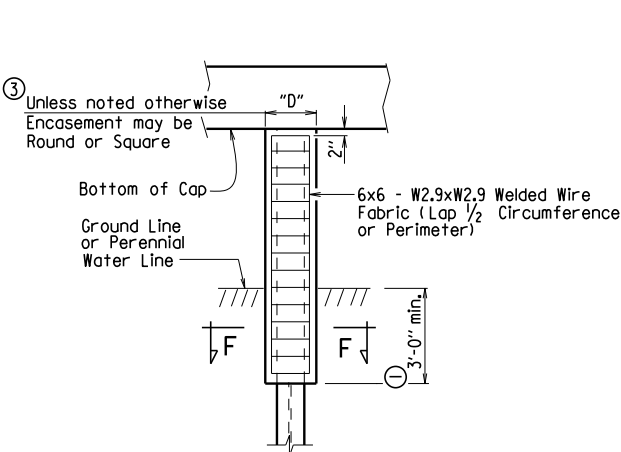
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

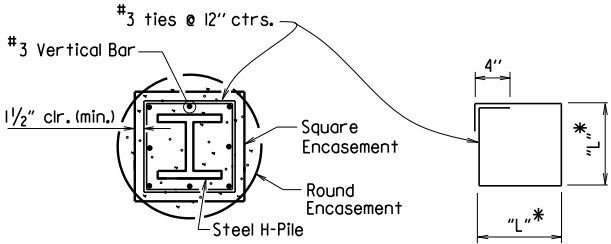
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

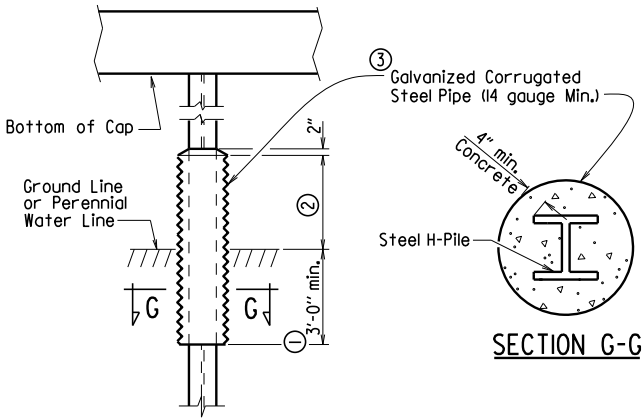


SECTION F-F

* Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

Added alternate method of splicing H-piles and revised pile encasement note. 3/24/2016 AMS



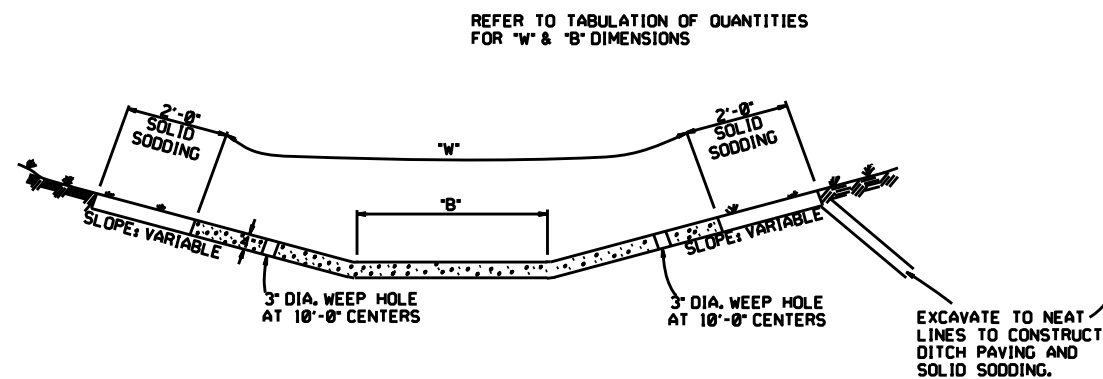
STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

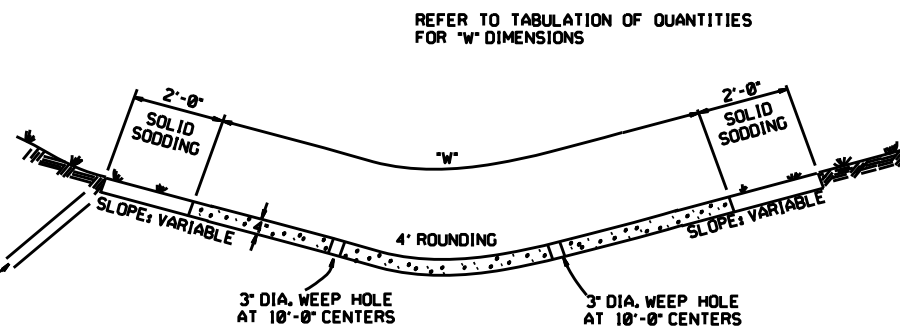
LITTLE ROCK, ARK.

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

DRAWING NO. 55020

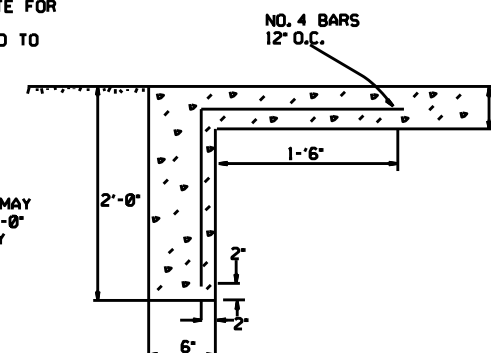


TYPE A

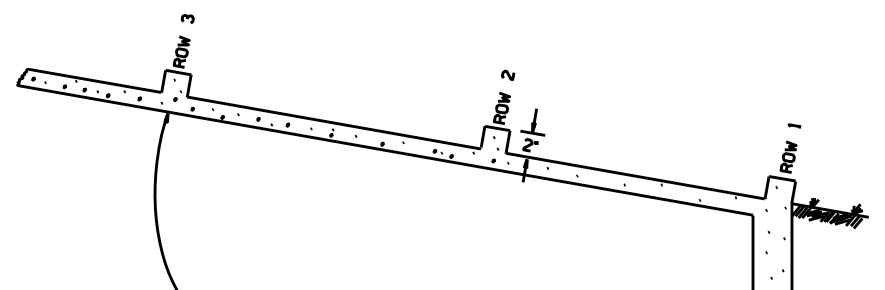


TYPE B

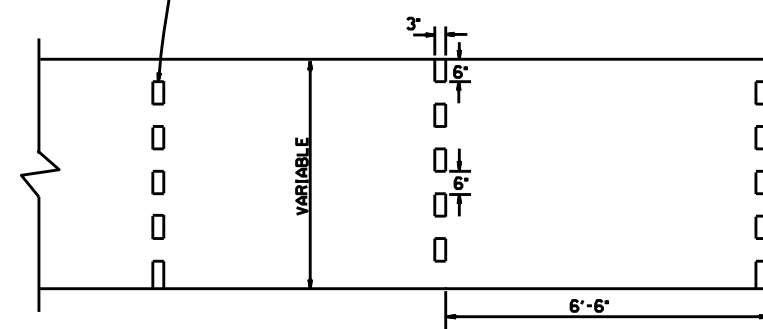
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

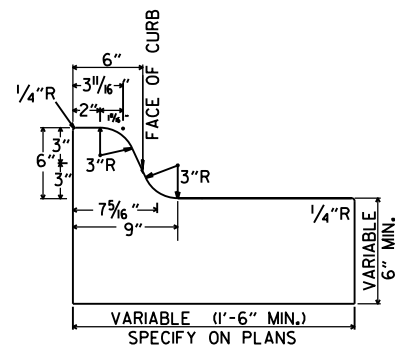
1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-88	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	
10-2-72	TYPED A & B	
	REVISED AND REDRAWN	508-10-2-72

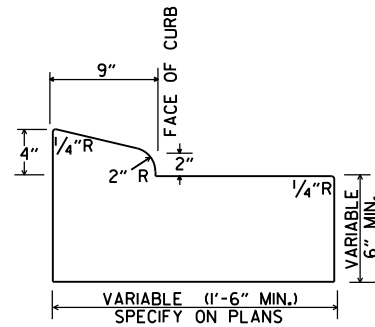
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

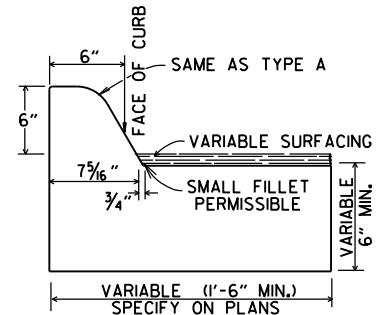
STANDARD DRAWING CDP-1



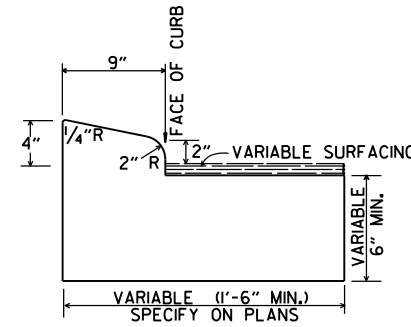
TYPE A



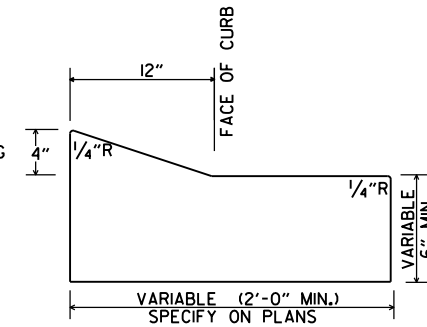
TYPE B-1



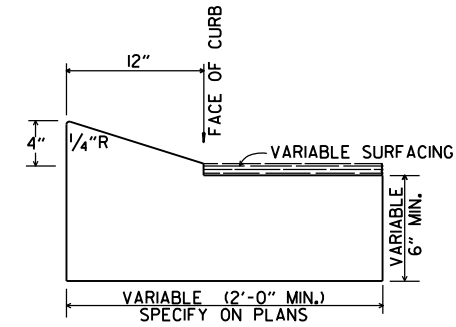
TYPE C



TYPE B-2

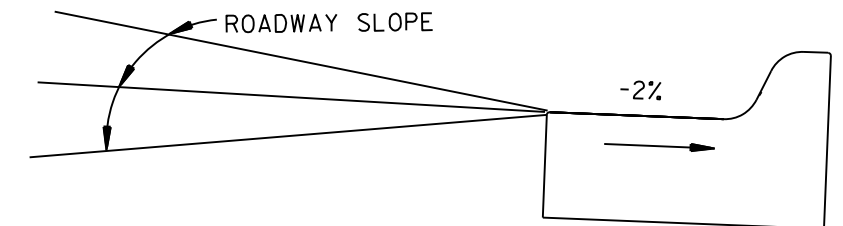


TYPE E-1

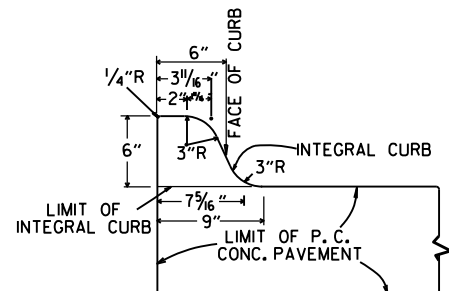


TYPE E-2

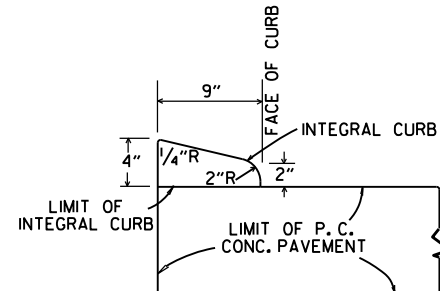
CONCRETE COMBINATION CURB AND GUTTER



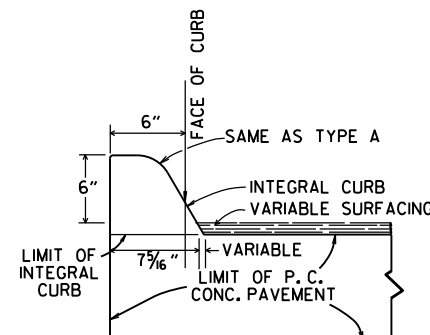
DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

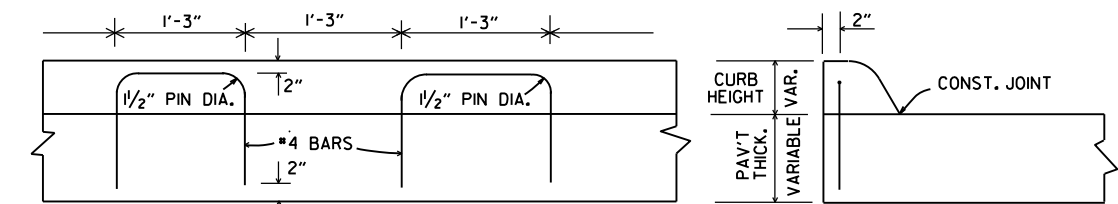


TYPE B



TYPE C

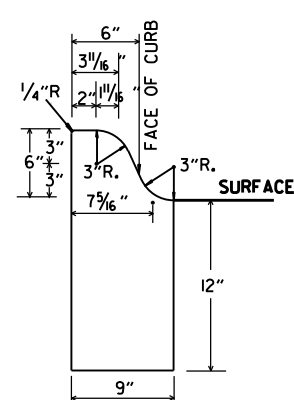
INTEGRAL CURB



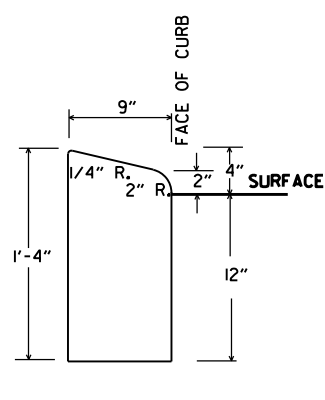
LONGITUDINAL SECTION

ELEVATION

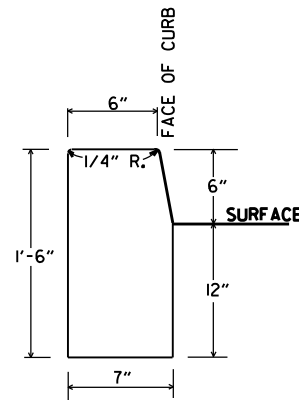
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



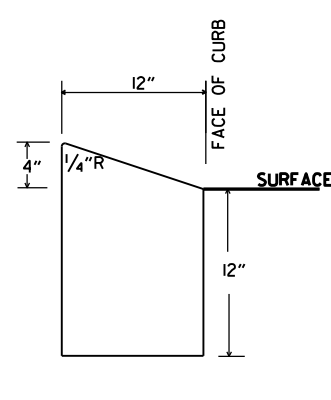
TYPE A



TYPE B

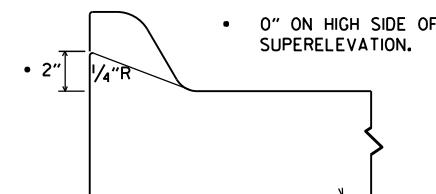


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

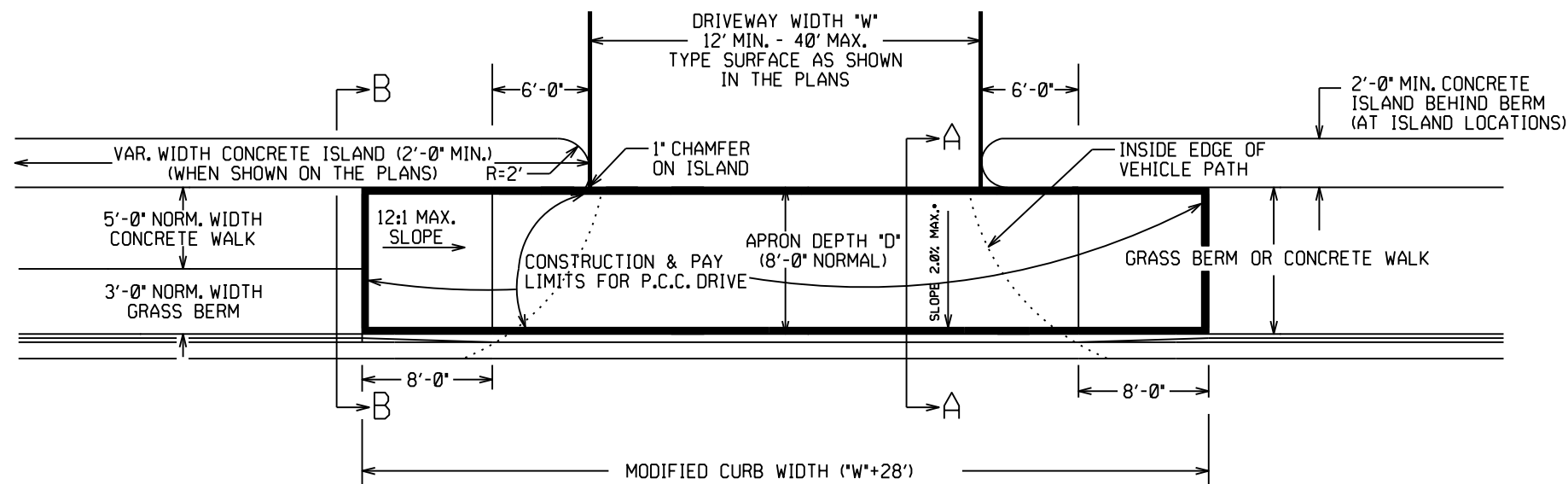
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIABLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
1-1-73	REVISED MODIFIED CURB	500-1-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

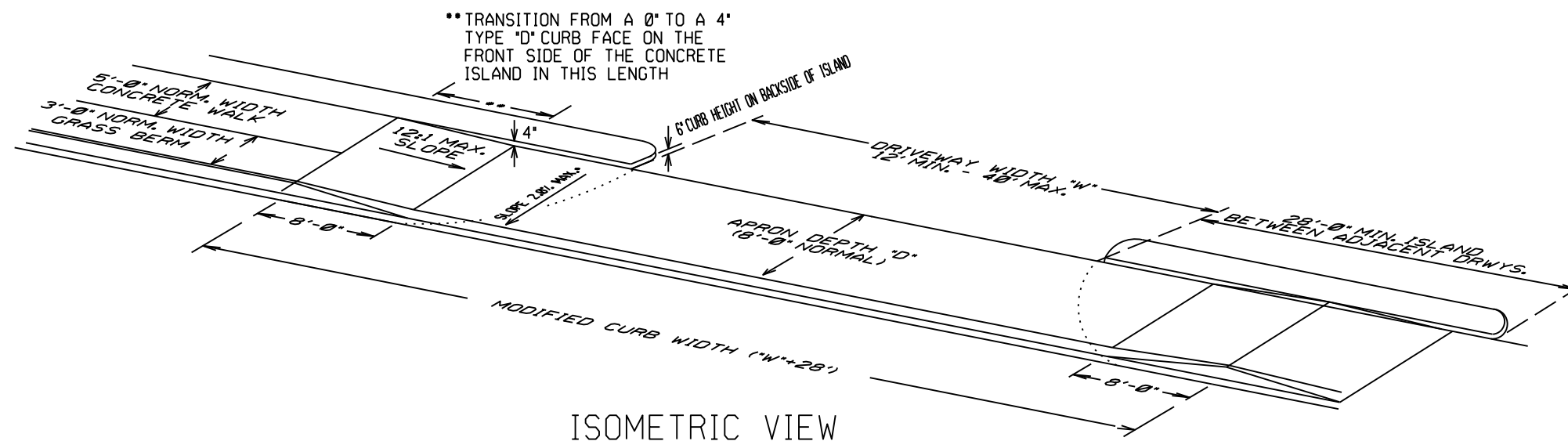
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

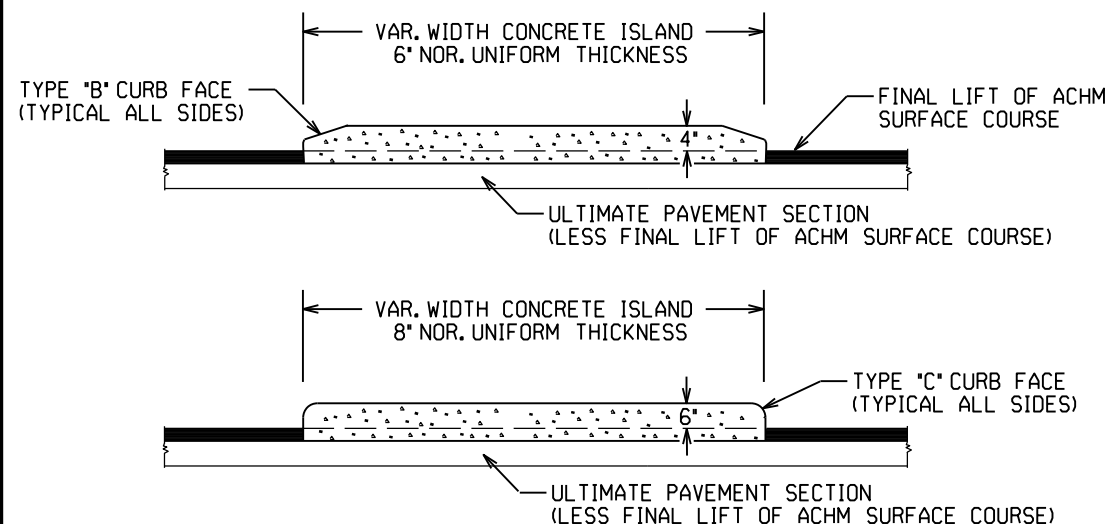
STANDARD DRAWING CG-1



PLAN VIEW

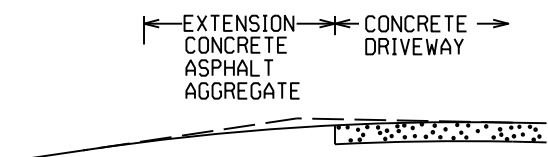


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED.
NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES
SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB
FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE
ITEM "CONCRETE ISLAND".

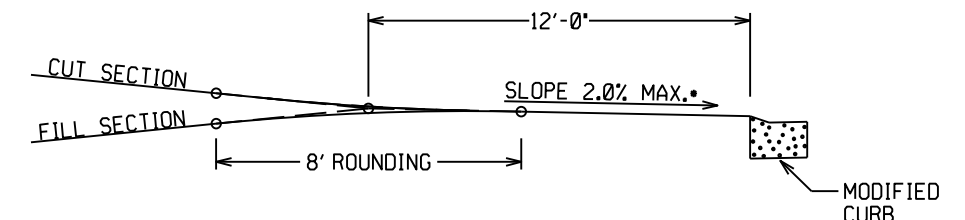


EXTENSION TYPICAL SECTIONS

- 1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY
- 2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")
- 3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE
- 4: AGGREGATE - 6" AGGREGATE BASE COURSE

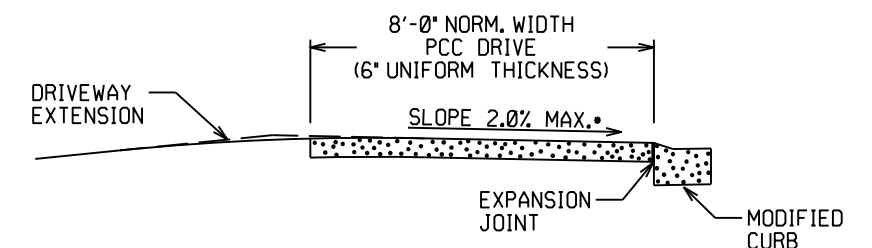
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS.
THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER,
SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU
OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL
COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

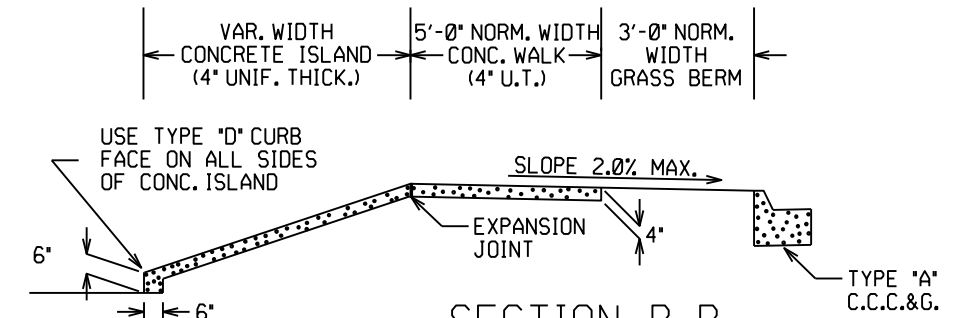


DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY
FROM THE ROADWAY UNLESS APPROVED
BY THE ENGINEER.



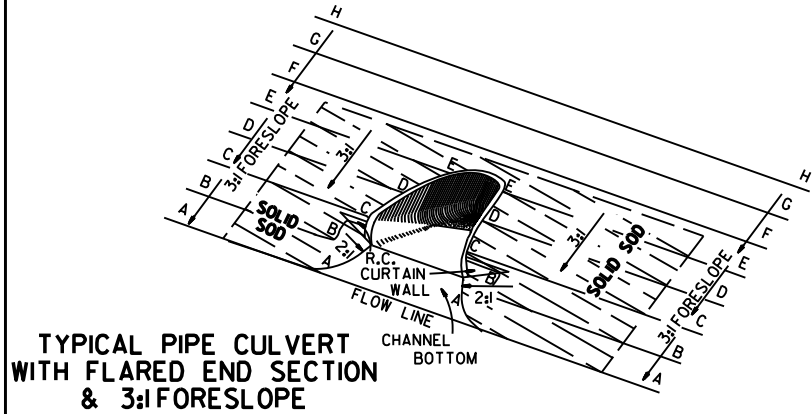
SECTION A-A



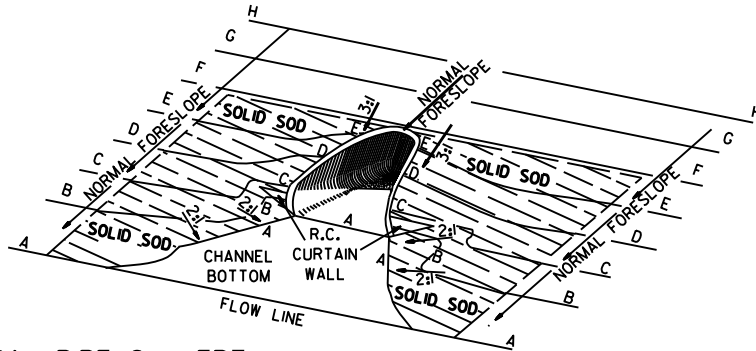
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE	REV	DATE FILMED	DESCRIPTION
11-07-19			REVISED WALK DETAILS
2-27-14			REVISED PLAN & ISOMETRIC VIEW
11-29-07			ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05			REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02			ADDED ISLAND DETAILS & NOTES
3-30-00			REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98			REVISED NOTES
11-18-98			REDRAWN AND REISSUED

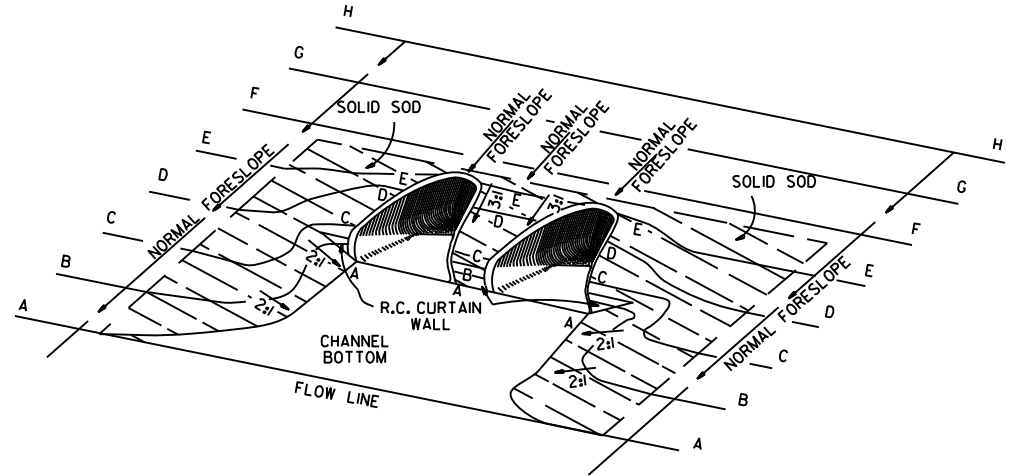
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

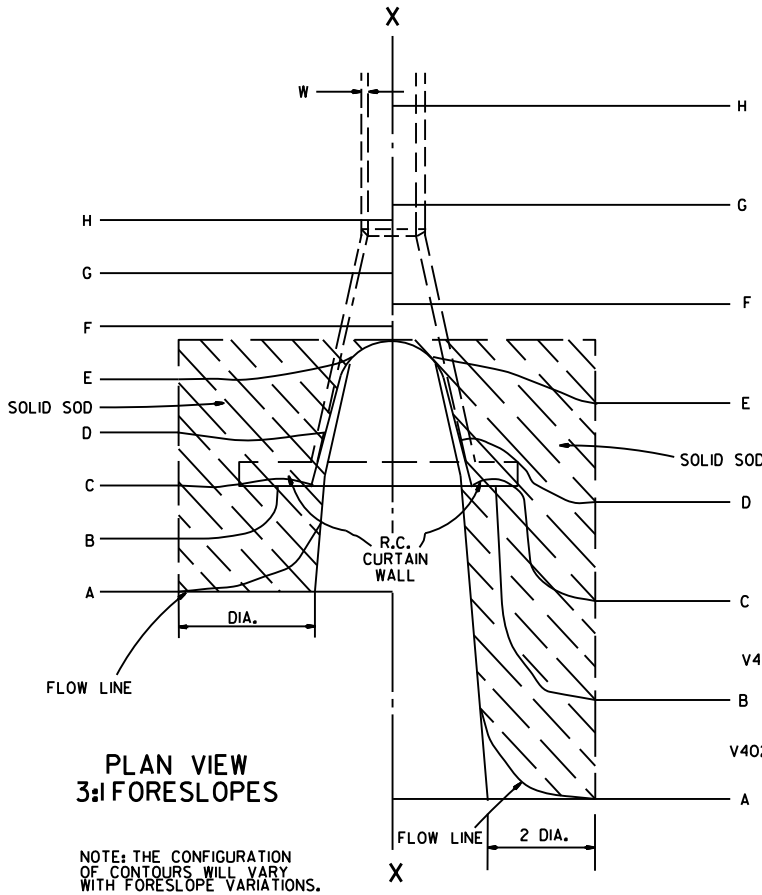
PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	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.

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'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

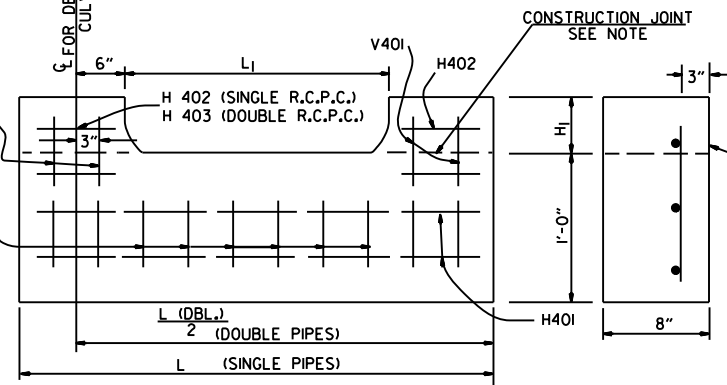
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

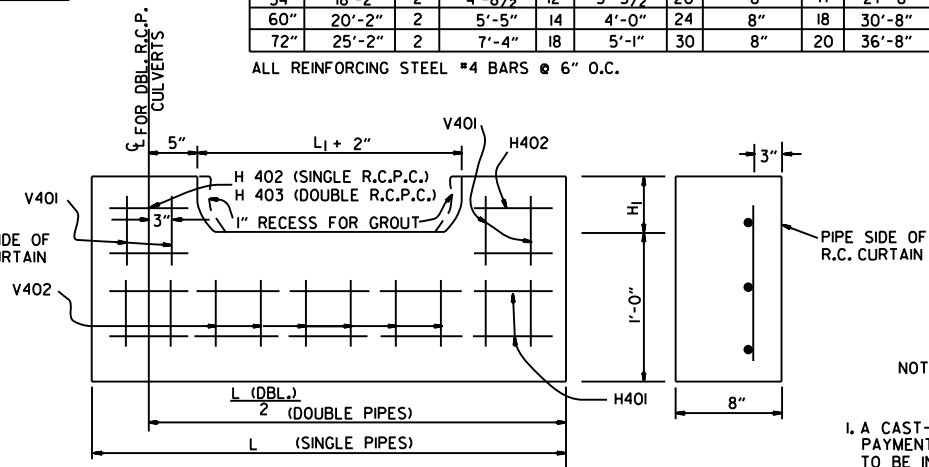
NOTE: THE CONFIGURATION
OF CONTOURS WILL VARY
WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



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.

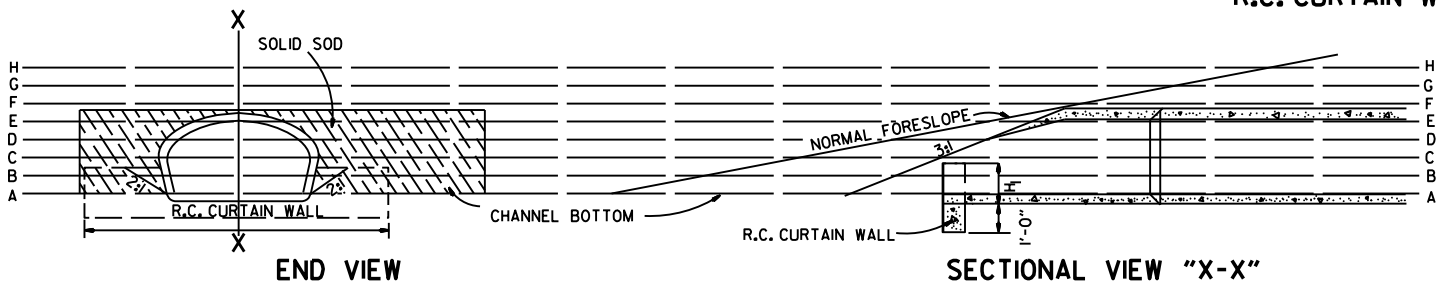
SOLID SODDING

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

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

GENERAL NOTES

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



END VIEW

SECTIONAL VIEW "X-X"

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

FLARED END SECTION

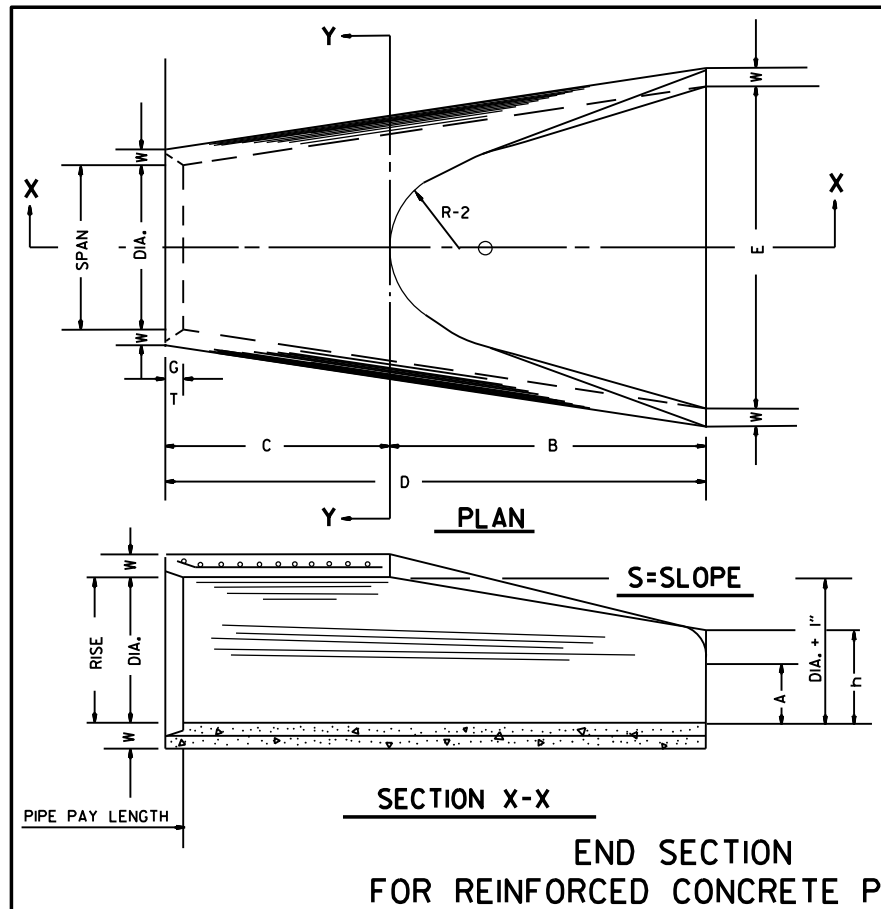
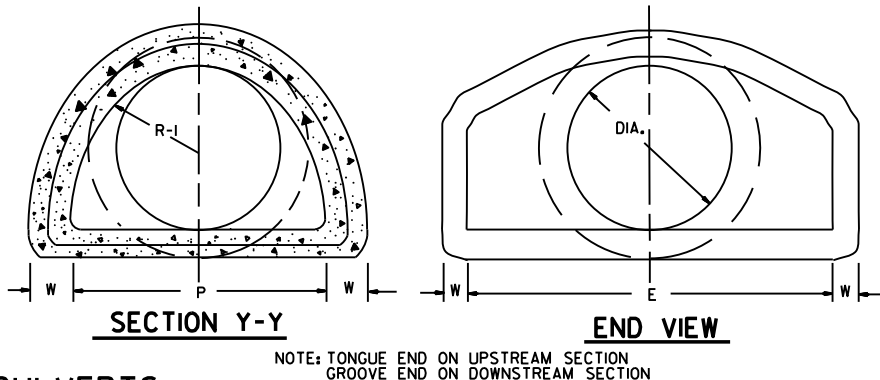
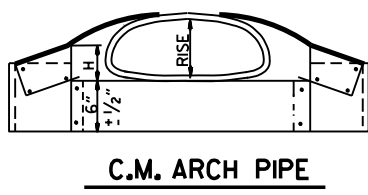
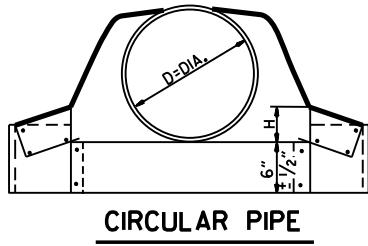
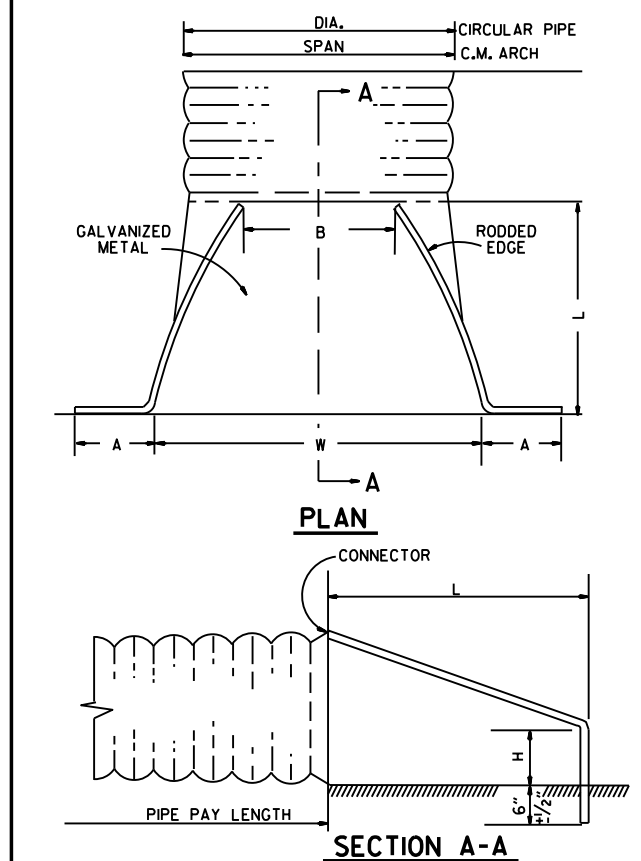
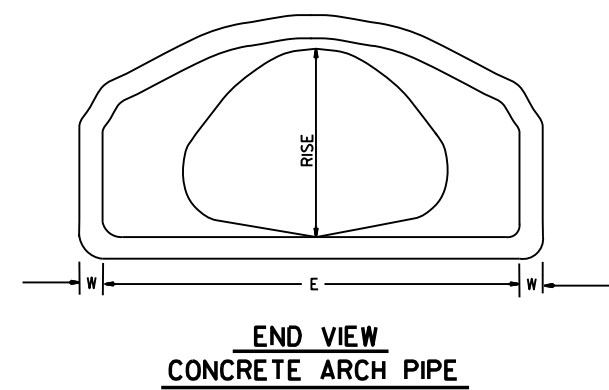


TABLE OF DIMENSIONS														
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 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 5/8"	24 5/8"	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 7/8"	27 7/2"	22"	3 3/2"	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"



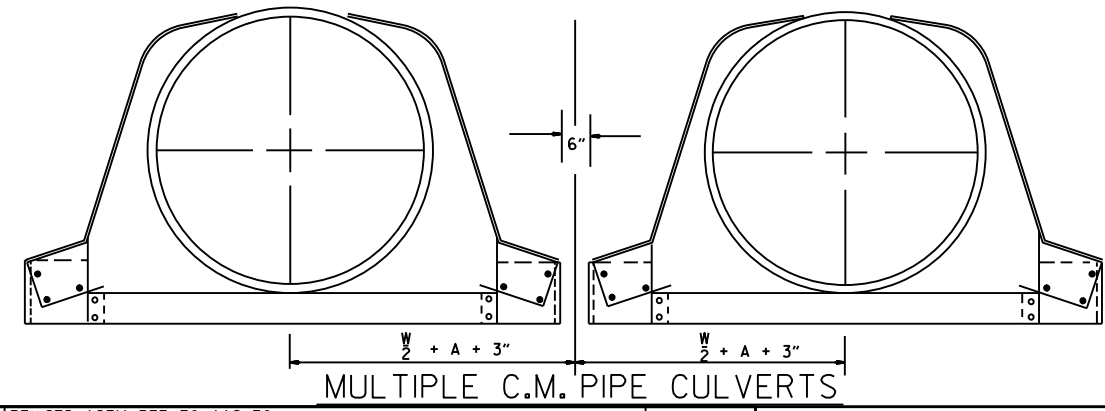
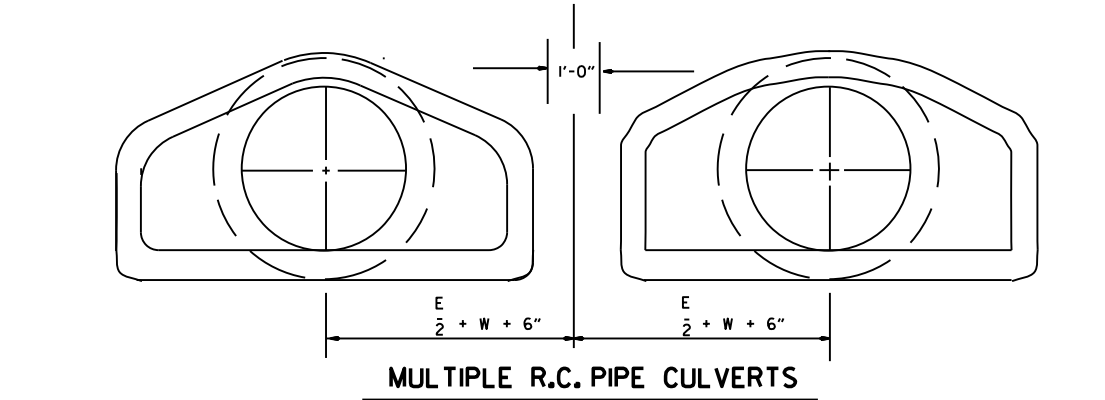
ARCH PIPE														
EQUIV. DIA.	• SPAN		• RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	II	II	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2:1
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 5/8"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 5/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 5/8	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 5/8"	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 1/4:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/8"	24"	5"	2 1/4:1

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

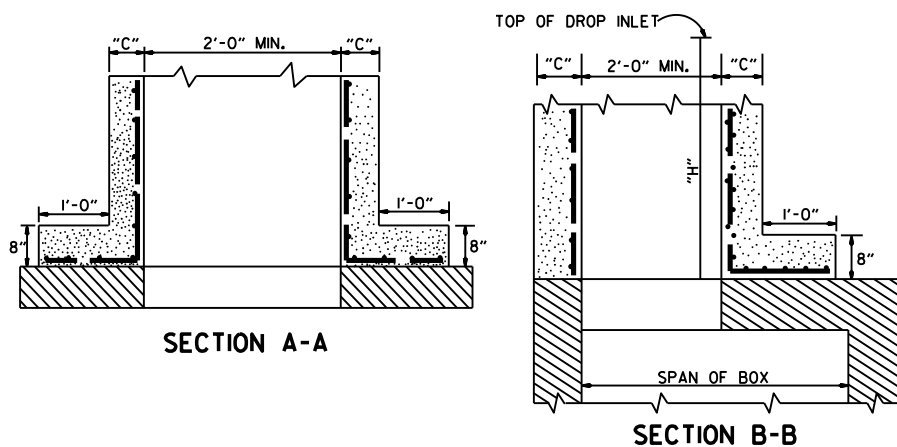
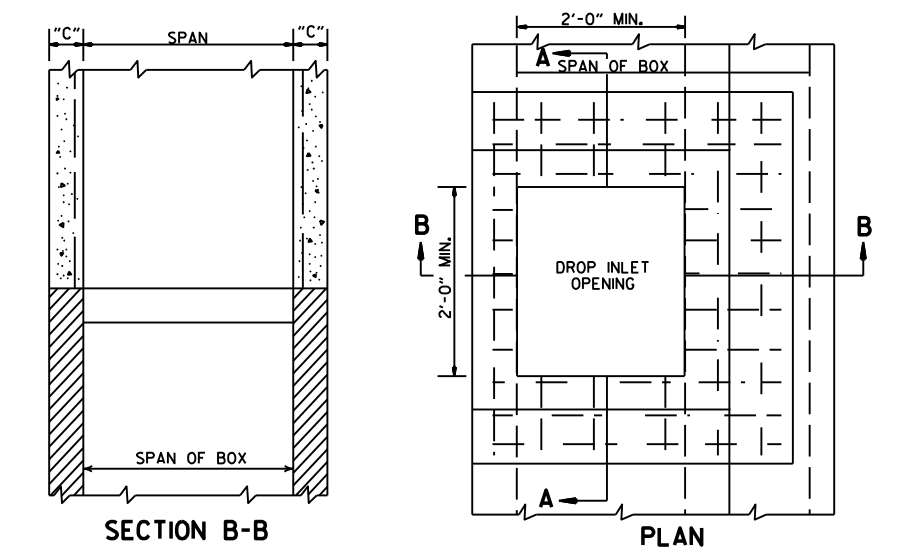


CIRCULAR PIPE								
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	
INCHES								
12	16	6	6	6	21	24	2 1/2:1	
15	16	7	8	6	26	30	2 1/2:1	
18	16	8	10	6	31	36	2 1/2:1	
21	16	9	12	6	36	42	2 1/2:1	
24	16	10	13	6	41	48	2 1/2:1	
30	14	12	16	8	51	60	2 1/2:1	
36	14	14	19	9	60	72	2 1/2:1	
42	12	16	22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

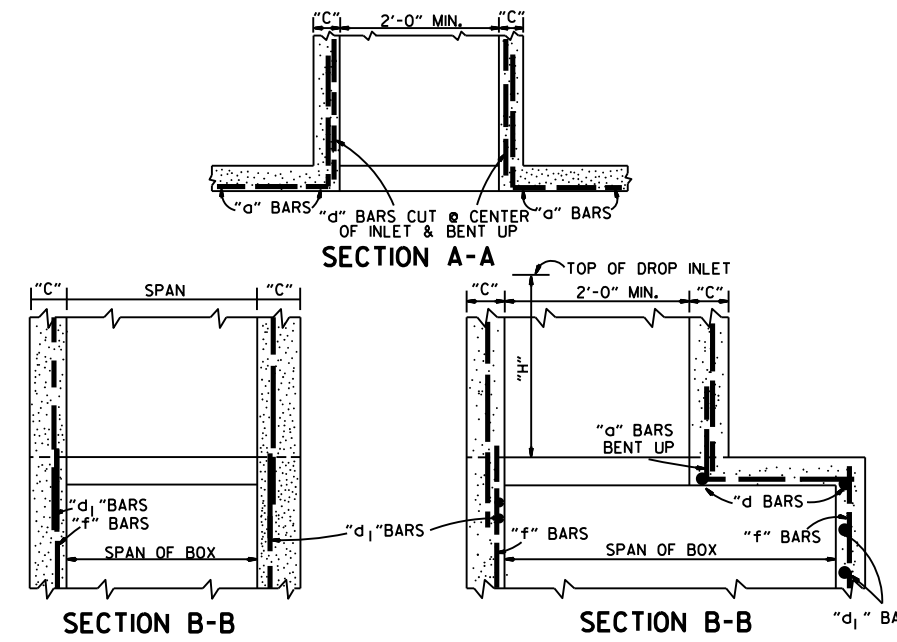
C.M. ARCH PIPE									
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
INCHES									
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	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



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	
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	
DATE	REVISION	FILMED	STANDARD DRAWING FES-2

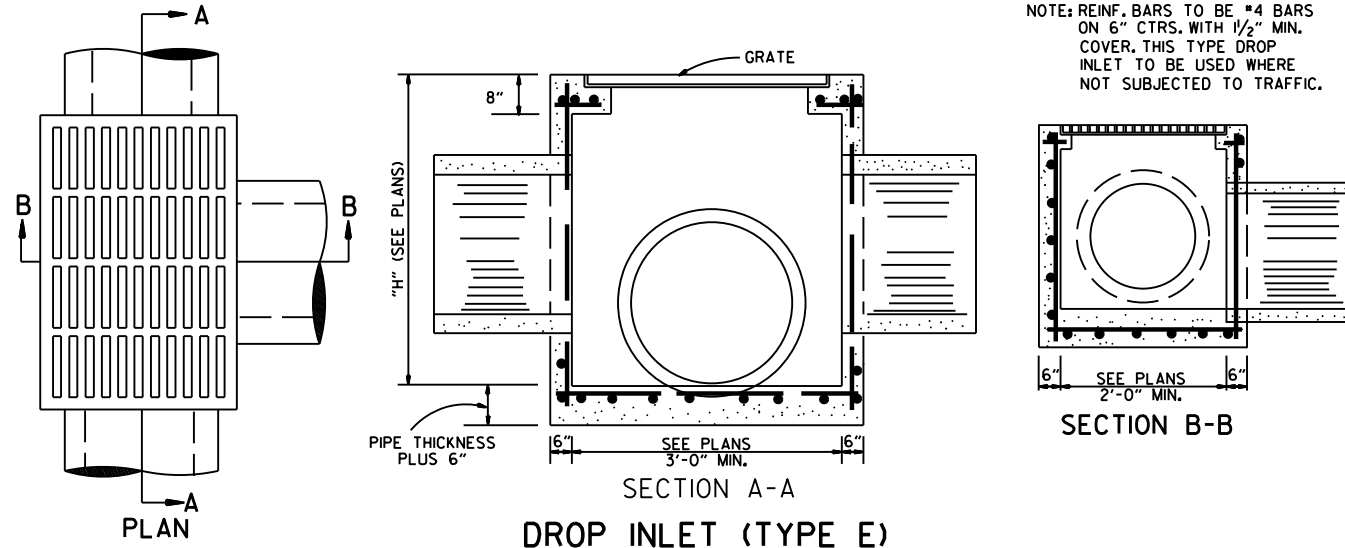


METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT

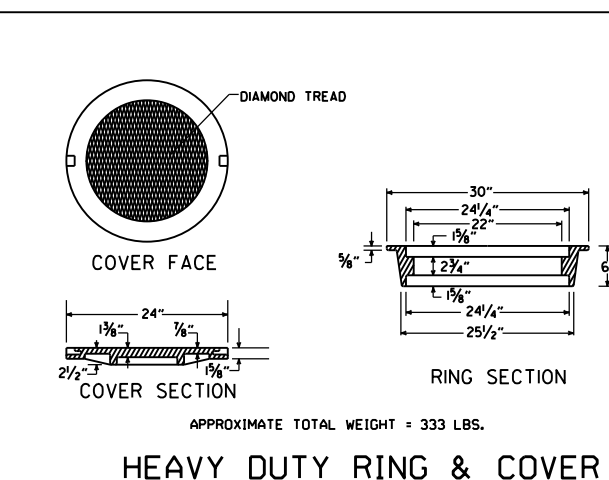


METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

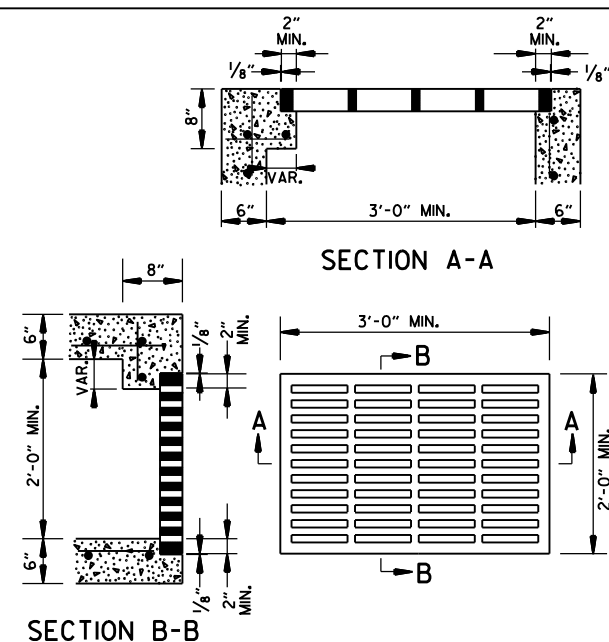
NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.



DROP INLET (TYPE E)

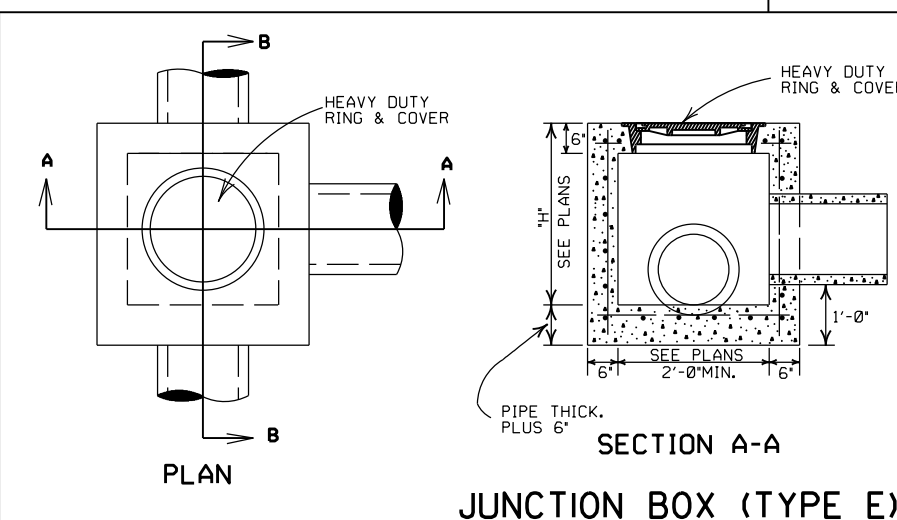


HEAVY DUTY RING & COVER

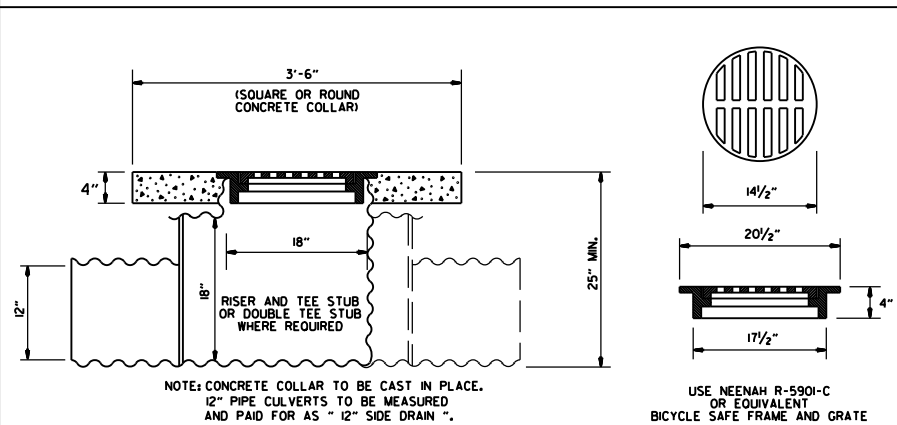


APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

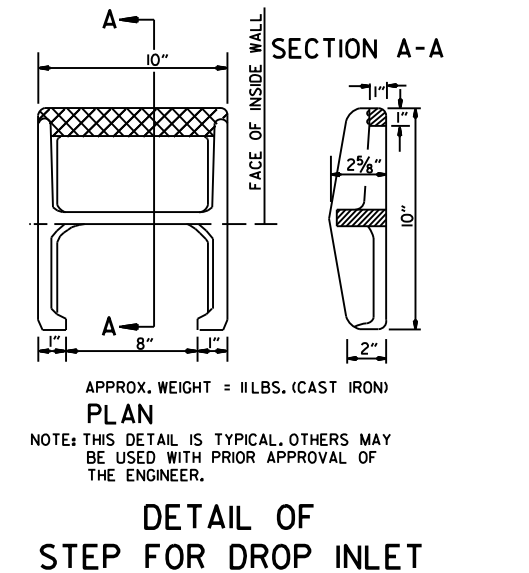
GRATE FOR TYPE E DROP INLET



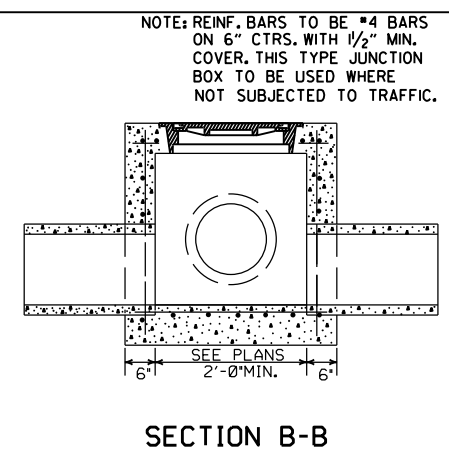
JUNCTION BOX (TYPE E)



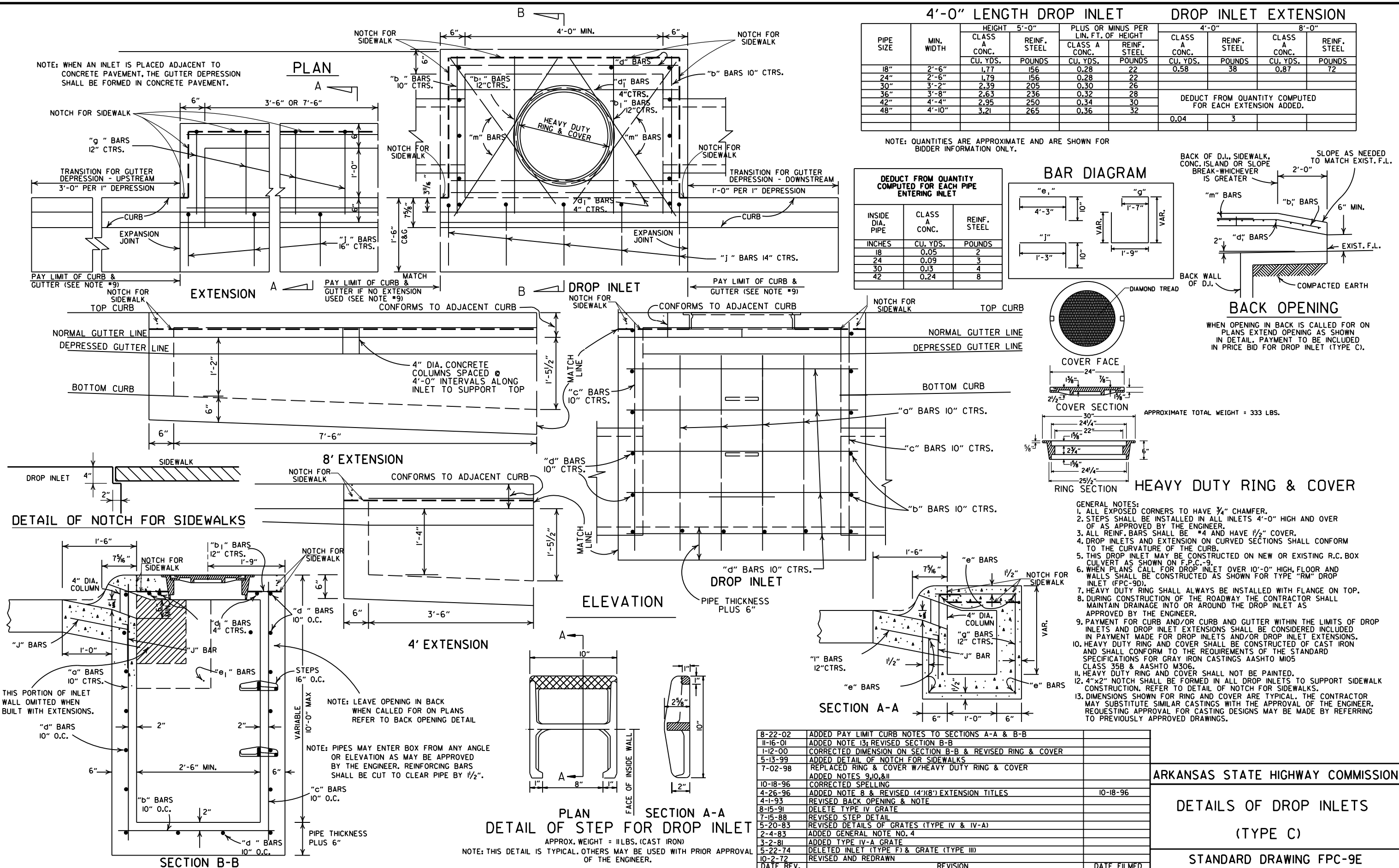
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED D (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	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	
DATE REV.	REVISION	DATE FILMED

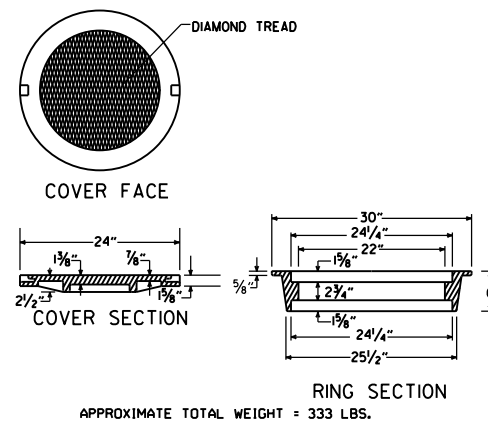
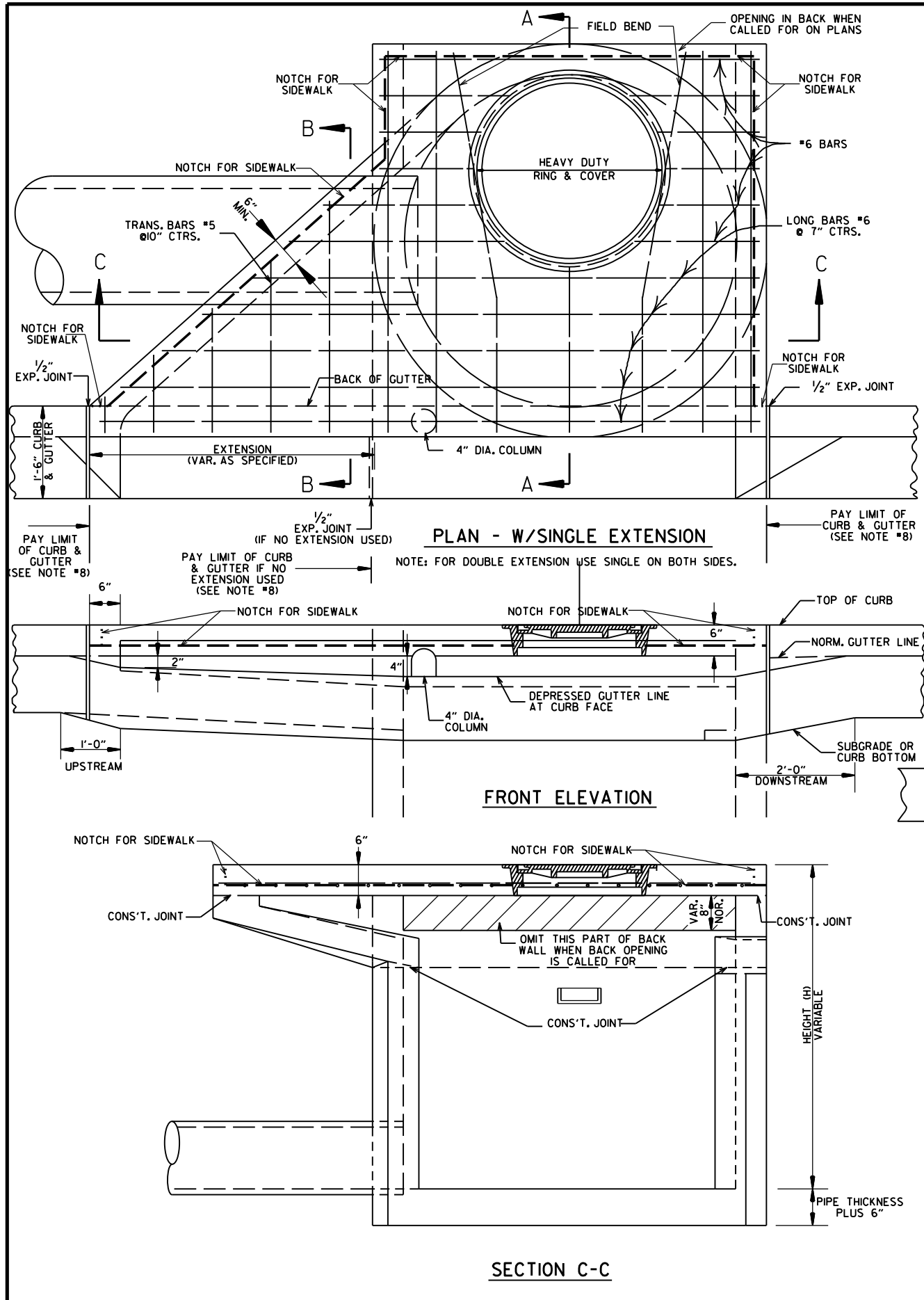


DETAIL OF STEP FOR DROP INLET



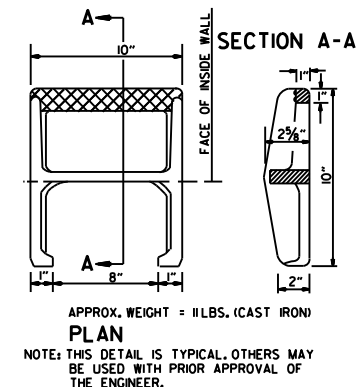
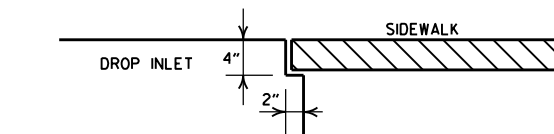
- GENERAL NOTES:**
1. ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
 2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
 3. EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
 4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND 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.





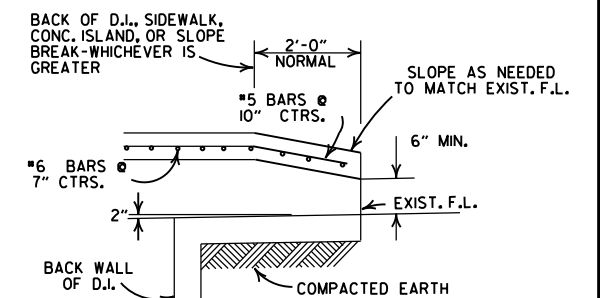
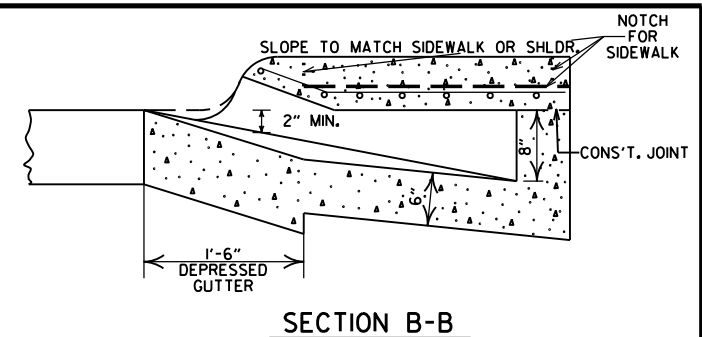
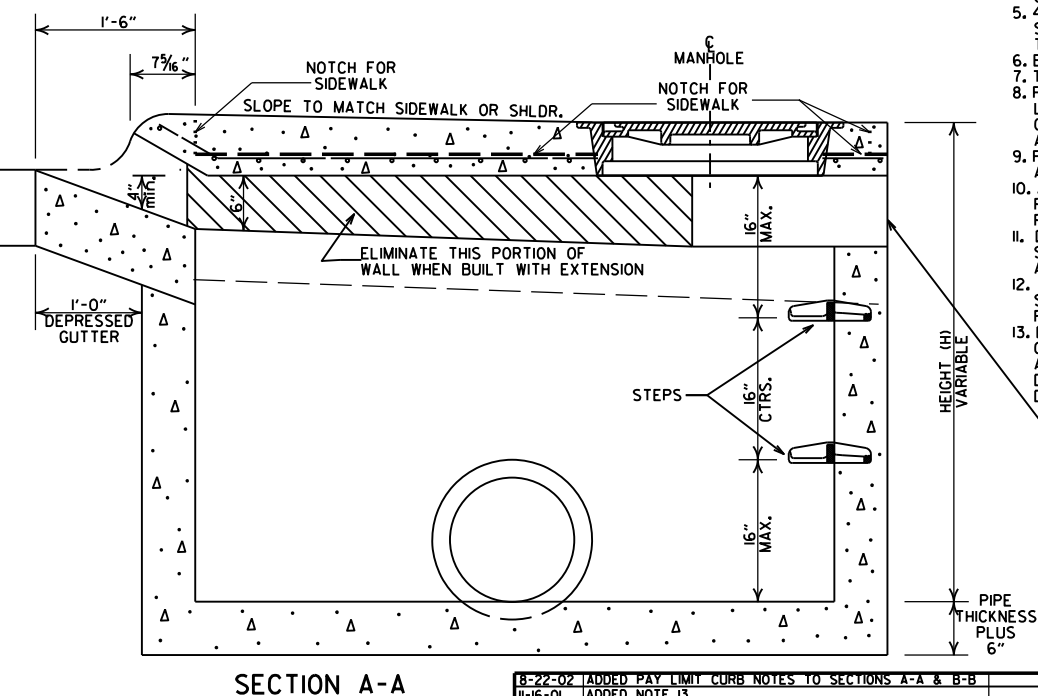
HEAVY DUTY RING & COVER

1. 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 M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

DETAIL OF STEP FOR DROP INLET



- GENERAL NOTES:**
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
 2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
 3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1/2" COVER.
 4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
 5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
 6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
 7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
 8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
 9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
 10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
 11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
 12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
 13. 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.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

MINIMUM WALL THICKNESS			
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4" I.D.	12" THRU 27"	6"	5"
5" I.D.	30" THRU 42"	8"	6"
6" I.D.	48" THRU 54"	8"	7"

8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REV. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11, ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
7-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11/2" & ADDED BK. OPEN DETAIL	8-15-91
11-10-89	ADDED NOTE NO. 12	11-10-89
5-23-89	ADDED NOTE 8 MINIMUM WALL THICKNESS	5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	6-15-88
11-14-87	MODIFIED WALL THICKNESS	7-15-88
6-22-87	ISSUED	7-15-88
DATE	REVISIONS	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET
(TYPE MO)

STANDARD DRAWING FPC-9M

REINFORCED CONCRETE
ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT 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.

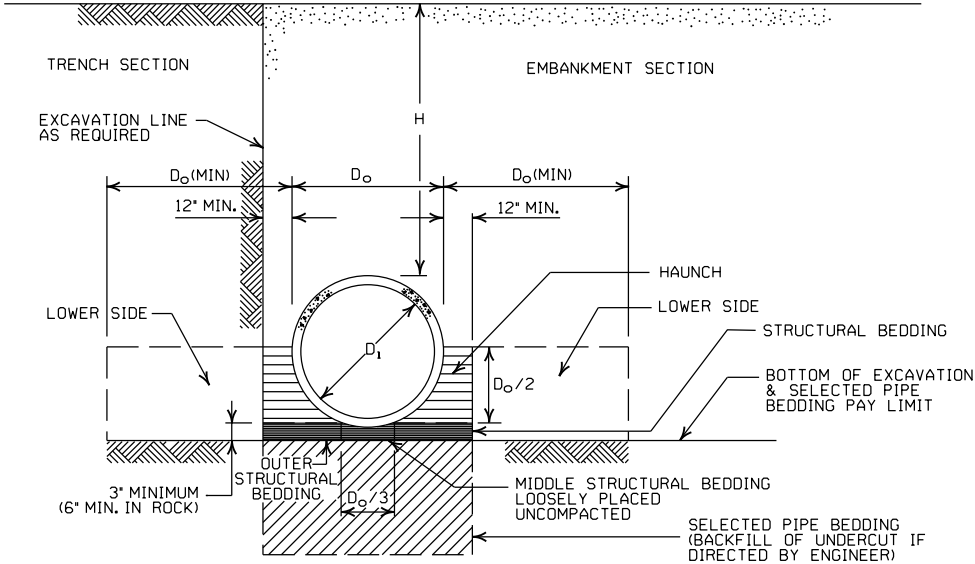
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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

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

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

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

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

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

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

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

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

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

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

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

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

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	
DATE	REVISION	DATE FILMED

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 3/4 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

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 3/4 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	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION		
				TYPE 1	TYPE 1		TYPE 1	TYPE 1		
			2 ¾ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ¾ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2	15	0.060	2	15		
18	21x15	3	0.064	2	15	0.060	2	15		
21	24x18	3	0.064	2,25	15	0.060	2,25	15		
24	28x20	3	0.064	2,5	15	0.075	2,5	15		
30	35x24	3	0.079	3	12	0.075	3	12		
36	42x29	3½	0.079	3	12	0.105	3	12		
42	49x33	4	0.079	3	12	0.105	3	12		
48	57x38	5	0.109	3	13	0.135	3	13		
54	64x43	6	0.109	3	14	0.135	3	14		
60	71x47	7	0.138	3	15	0.135	3	15		
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				① FOR MINIMUM COVER VALUES, "H" SHALL ② WHERE THE STANDARD 2 2/3" x ½" COR WITH A 3' x 1' OR 5' x 1' CORRUGATION OR GREATER THAN THE MAXIMUM FILL			
			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			

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

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

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

③ SM-3 WILL NOT BE ALLOWED.

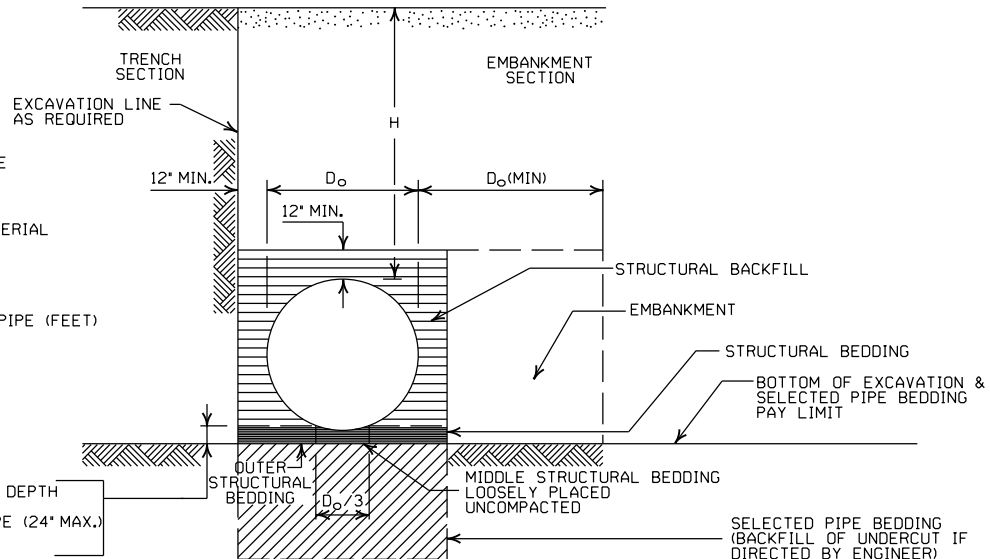
EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

- D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
===== = STRUCTURAL BACKFILL MATERIAL
||||||| = UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)

IN SOIL-MIN. EQUALS TWICE CORRUGATION DEPTH
IN ROCK-MIN. EQUALS GREATER OF:
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)
TWICE CORRUGATION DEPTH



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 3/4" X 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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."

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.

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

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" ≥ 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

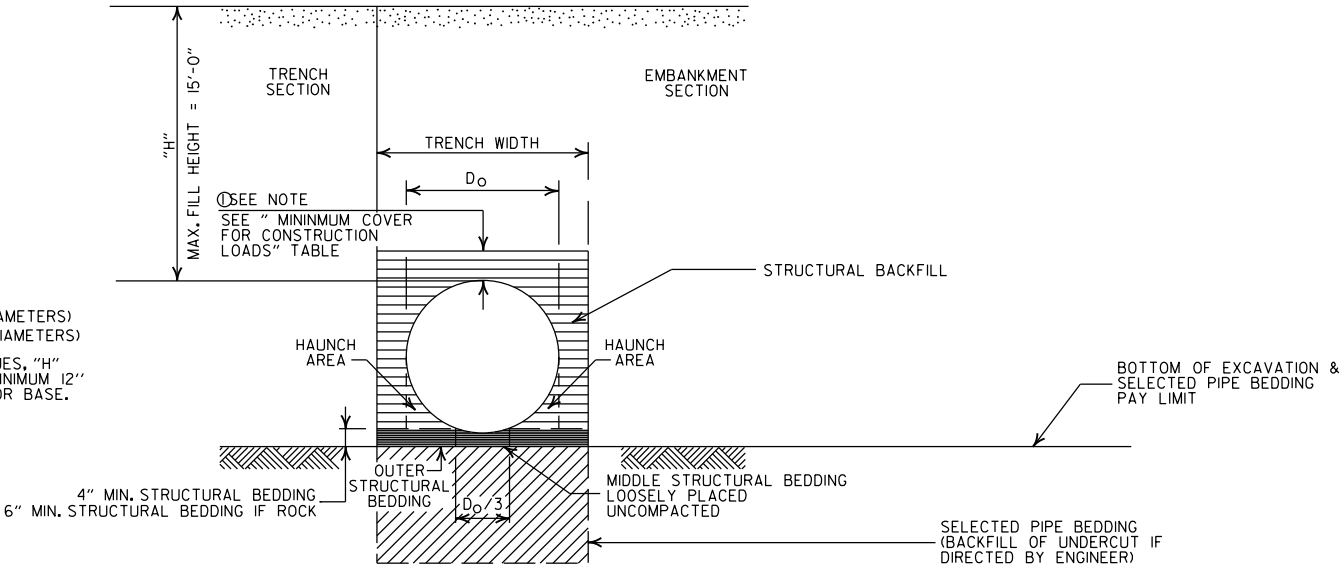
MINIMUM COVER VALUES, "H"
SHALL INCLUDE A MINIMUM 12"
OF PAVEMENT AND/OR BASE.

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"

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

GENERAL NOTES

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

			ARKANSAS STATE HIGHWAY COMMISSION
			PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)
			STANDARD DRAWING PCP-1
2-27-14	REVISED GENERAL NOTE 1.		
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE		
11-17-10	ISSUED		
DATE	REVISION	DATE FILMED	

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 1/4 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" ≥ 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

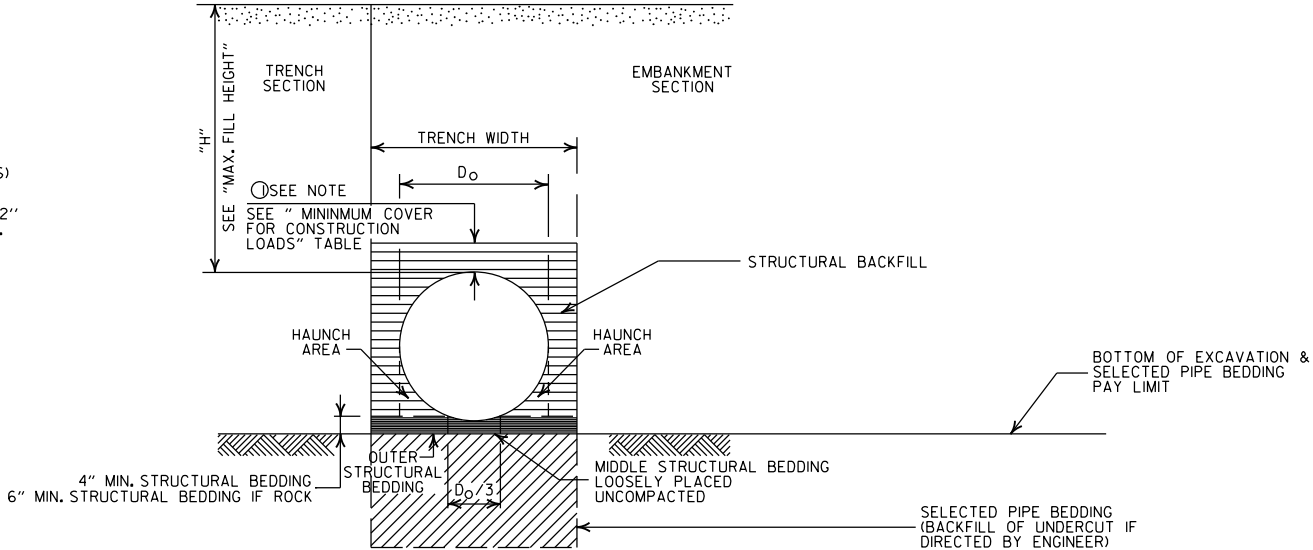
MULTIPLE INSTALLATION OF
PVC PIPES

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

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

- LEGEND -

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

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2



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.

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"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

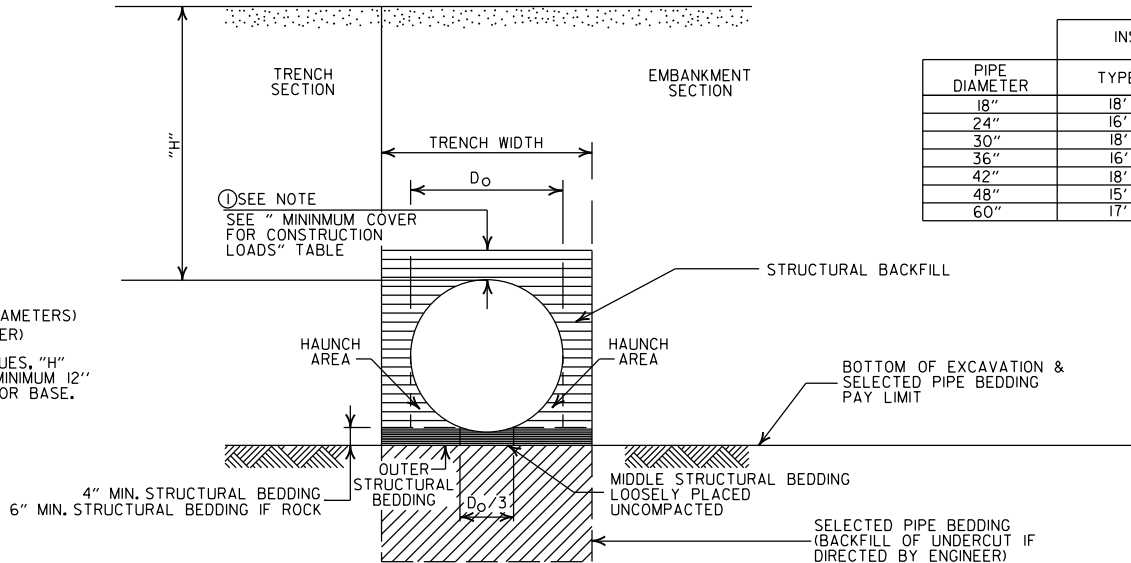
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

① NOTE:
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"

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES


1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE, IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. 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.

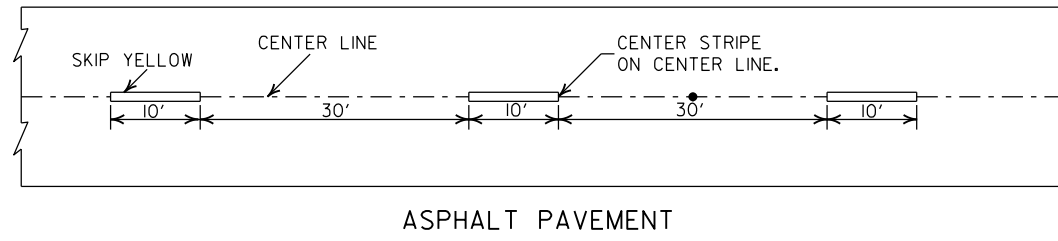
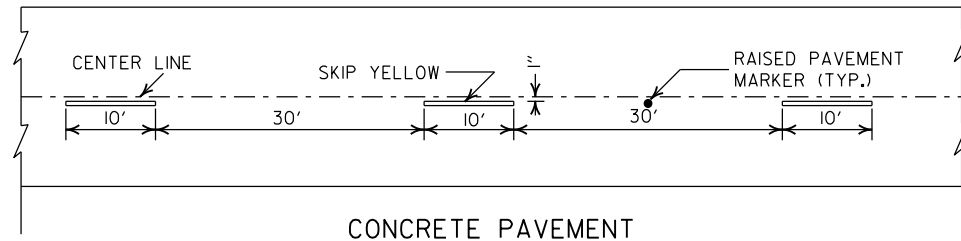
- LEGEND -

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

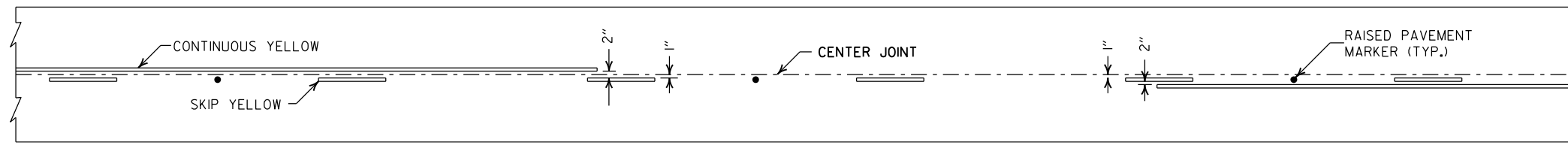
===== STRUCTURAL BACKFILL MATERIAL
XXXXXXXXXX UNDISTURBED SOIL

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

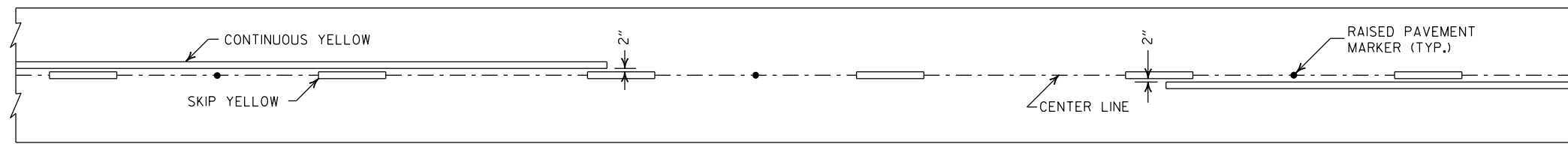
ARKANSAS STATE HIGHWAY COMMISSION
PLASTIC PIPE CULVERT (POLYPROPYLENE)
STANDARD DRAWING PCP-3 



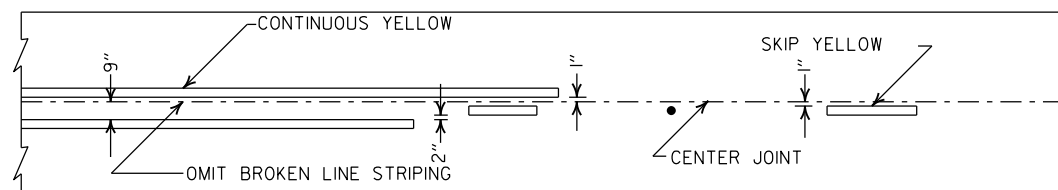
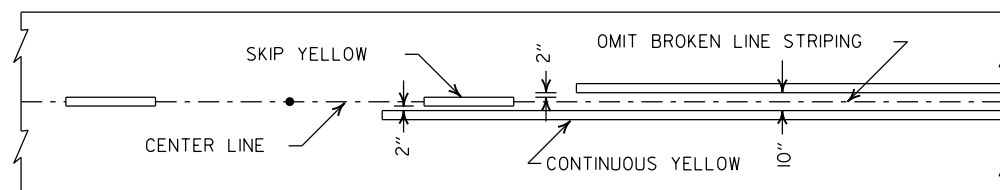
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



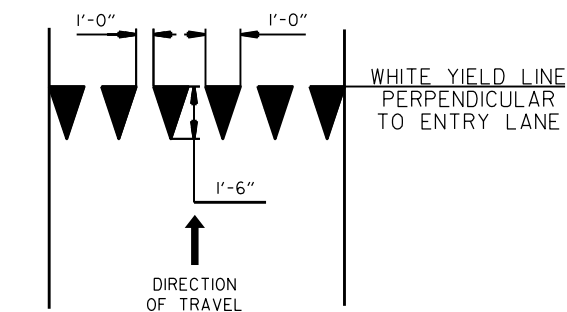
SOLID LINE STRIPING ON ASPHALT PAVEMENT



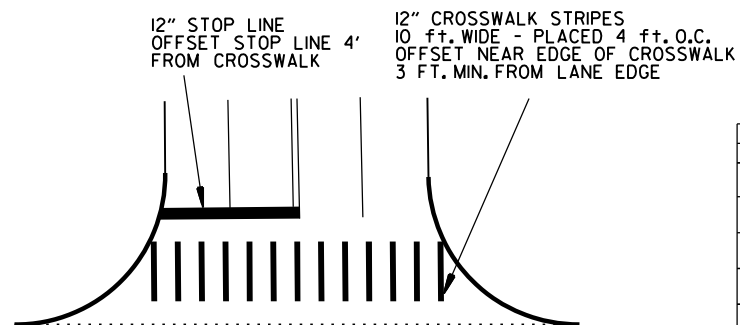
ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

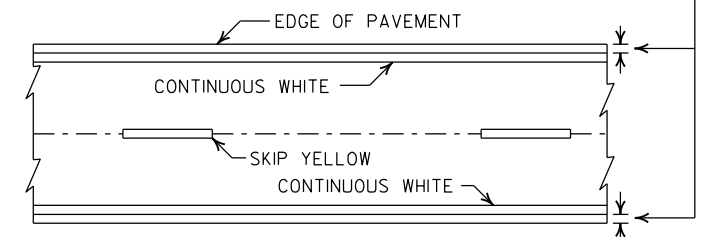


CROSSWALK AND STOP LINE DETAILS

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

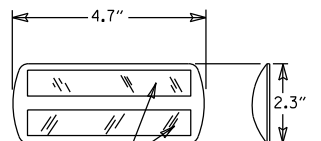


PAVEMENT EDGE LINE MARKING

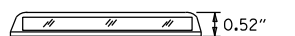
NOTE:
THE RED LENS OF THE
TYPE II R.P.M. SHALL
FACE THE INCORRECT
TRAFFIC MOVEMENT.

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

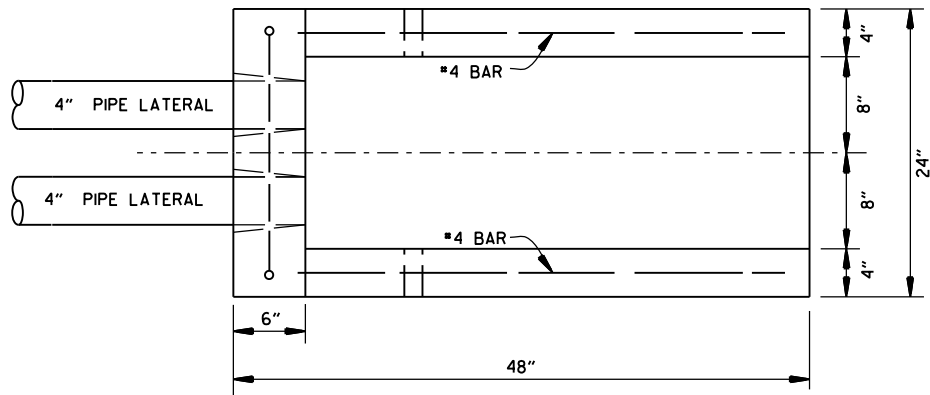
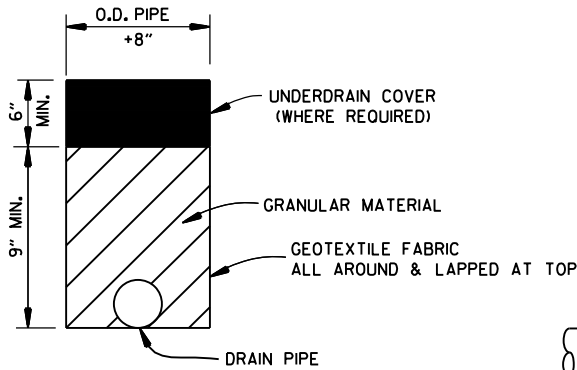
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

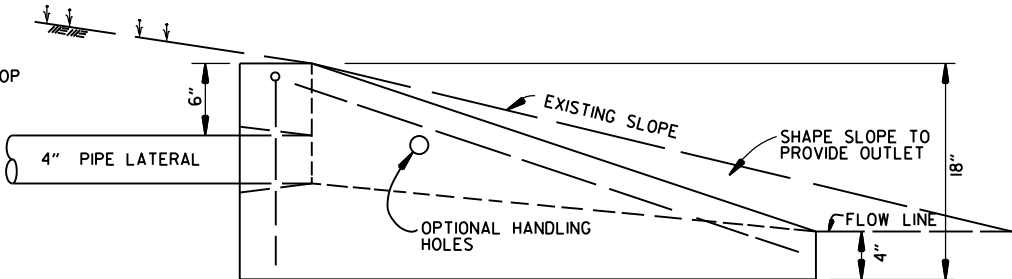
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

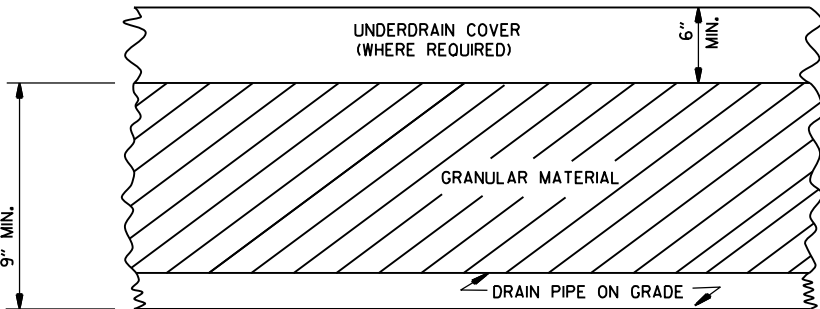
NOTE:
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



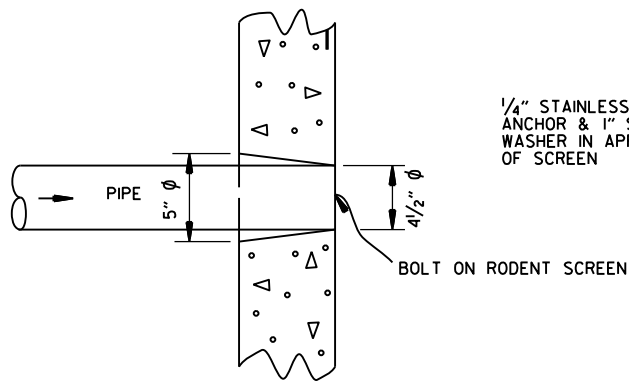
SIDE VIEW



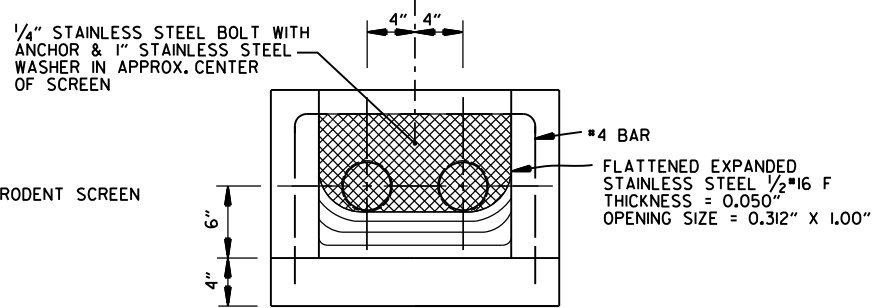
DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

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



DETAIL OF HOLE FOR 4" PIPE

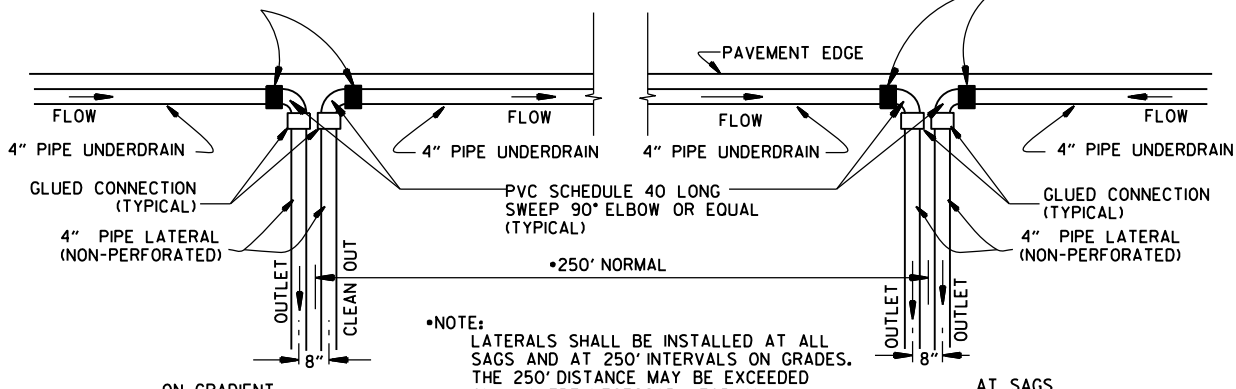


FRONT VIEW
(DETAIL OF RODENT SCREEN)

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.

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 ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH			
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE	MINIMUM
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC			
0° 30'	NC			NC			NC			NC			NC			NC			RC	115		RC	115		RC	115		RC	115	0.022	121
0° 45'	NC			NC			NC			NC			RC	115		RC	115		0.024	127		0.026	132		0.030	144		0.030	144	0.032	150
1° 00'	NC			NC			NC			RC	108		0.022	121		0.026	132		0.030	144		0.034	156		0.038	167		0.038	167	0.042	179
1° 15'	NC			NC			RC	101		0.022	114		0.028	138		0.032	150		0.038	167		0.042	179		0.046	190		0.046	190	0.052	208
1° 30'	NC			RC	94		0.022	106		0.028	130		0.032	150		0.038	167		0.044	185		0.050	202		0.056	218		0.056	218	0.062	236
1° 45'	RC	86		RC	94		0.026	116		0.030	136		0.036	161		0.044	185		0.050	202		0.056	218		0.064	242		0.064	242	0.070	259
2° 00'	RC	86		0.024	103		0.028	121		0.034	146		0.042	179		0.048	196		0.054	214		0.062	236		0.070	259		0.070	259	0.078	282
2° 15'	RC	86		0.026	108		0.032	131		0.038	157		0.046	190		0.054	214		0.062	236		0.070	259		0.078	282		0.078	282	0.088	311
2° 30'	0.022	90		0.028	113		0.034	136		0.042	168		0.050	202		0.058	224		0.068	253		0.076	276		0.086	305		0.086	305	0.096	334
2° 45'	0.024	95		0.030	118		0.038	146		0.046	179		0.054	214		0.064	242		0.072	265		0.082	294		0.092	323		0.092	323	0.100	346
3° 00'	0.026	100		0.034	126		0.040	151		0.050	190		0.058	224		0.068	253		0.078	282		0.088	311		0.098	340		0.098	340	0.100	346
3° 15'	0.028	103		0.036	131		0.044	161		0.052	194		0.062	236		0.072	265		0.082	294		0.092	323		0.100	346		0.092	323		
3° 30'	0.030	108		0.038	136		0.046	167		0.056	205		0.066	247		0.076	276		0.086	305		0.096	334		0.100	346		0.096	334		
3° 45'	0.032	112		0.040	140		0.050	176		0.058	211		0.070	259		0.080	288		0.090	317		0.098	340		0.100	346		0.098	340		
4° 00'	0.034	116		0.042	145		0.052	181		0.062	222		0.072	265		0.084	300		0.094	329		0.096	334		0.100	346		0.094	329		
4° 15'	0.036	120		0.044	150		0.054	186		0.064	227		0.076	276		0.086	305		0.096	334		0.098	340		0.100	346		0.096	334		
4° 30'	0.036	120		0.046	155		0.056	192		0.068	238		0.078	282		0.088	311		0.098	340		0.098	340		0.100	346		0.098	340		
4° 45'	0.038	125		0.048	160		0.060	202		0.070	244		0.082	294		0.092	323		0.094	329		0.098	340		0.100	346		0.094	329		
5° 00'	0.040	130		0.050	164		0.062	206		0.072	248		0.084	300		0.094	329		0.098	340		0.098	340		0.100	346		0.098	340		
5° 30'	0.044	138		0.054	173		0.066	217		0.078	265		0.088	311		0.098	340		0.098	340		0.098	340		0.100	346		0.098	340		
6° 00'	0.046	143		0.058	182		0.070	227		0.082	276		0.092	323		0.096	334		0.096	334		0.096	334		0.100	346		0.096	334		
6° 30'	0.050	151		0.062	192		0.074	238		0.086	287		0.096	334		0.096	334		0.096	334		0.096	334		0.100	346		0.096	334		
7° 00'	0.052	156		0.064	197		0.078	247		0.090	298		0.098	340		0.098	340		0.098	340		0.098	340		0.100	346		0.098	340		
7° 30'	0.054	160		0.068	206		0.080	252		0.092	302		0.092	302		0.092	302		0.092	302		0.092	302		0.100	346		0.092	302		
8° 00'	0.058	168		0.070	211		0.084	263		0.094	308		0.094	308		0.094	308		0.094	308		0.094	308		0.100	346		0.094	308		
8° 30'	0.060	173		0.072	215		0.088	268		0.096	313		0.096	313		0.096	313		0.096	313		0.096	313		0.100	346		0.096	313		
9° 00'	0.062	178		0.076	224		0.092	282		0.098	319		0.098	319		0.098	319		0.098	319		0.098	319		0.100	346		0.098	319		
9° 30'	0.064	181		0.078	229		0.092	282		0.092	282		0.092	282		0.092	282		0.092	282		0.092	282		0.100	346		0.092	282		
10° 00'	0.066	186		0.080	234		0.094	288		0.094	288		0.094	288		0.094	288		0.094	288		0.094	288		0.100	346		0.094	288		
11° 00'	0.070	194		0.084	244		0.096	293		0.096	293		0.096	293		0.096	293		0.096	293		0.096	293		0.100	346		0.096	293		
12° 00'	0.074	203		0.088	253		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.100	346		0.098	298		
13° 00'	0.076	208		0.090	258		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.100	346		0.098	298		
14° 00'	0.080	216		0.094	266		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.100	346		0.098	298		
15° 00'	0.082	221		0.096	271		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.100	346		0.098	298		
16° 00'	0.086	229		0.098	276		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.098	298		0.100	346		0.098	298		
17° 00'	0.088	233		0.100	281		0.100	324		0.100	324		0.100	324		0.100	324		0.100	324		0.100	324		0.100	346		0.100	324		
18° 00'	0.090	238																													
19° 00'	0.092	242																													
20° 00'	0.094	246																													
21° 00'	0.096	251																													
22° 00'	0.096	251																													
23° 00'	0.098	254																													
24° 00'	0.098	254																													
25° 00'	0.100	259																													
D MAX = 28° 30'																															

ABBREVIATIONS

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

P.C. OR P.T.

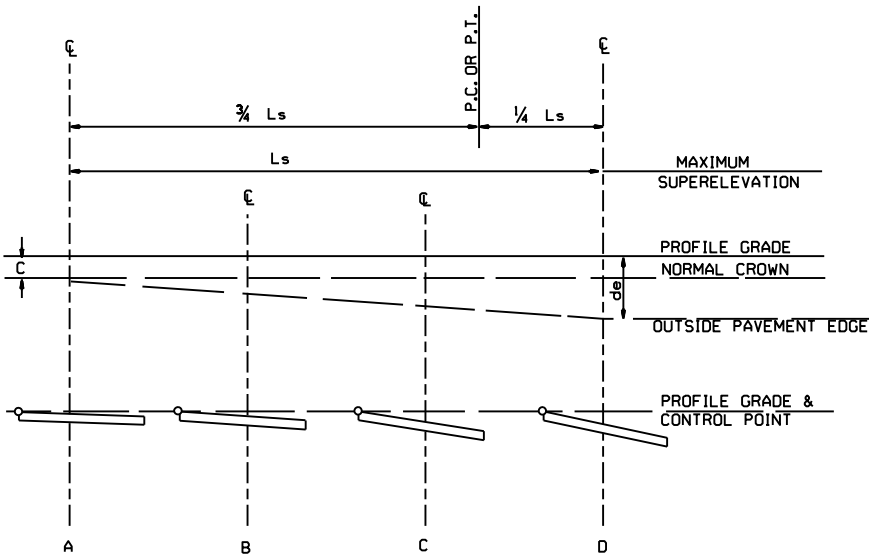
P.C. OR P.T.

P.C. OR P.T.

GENERAL NOTES

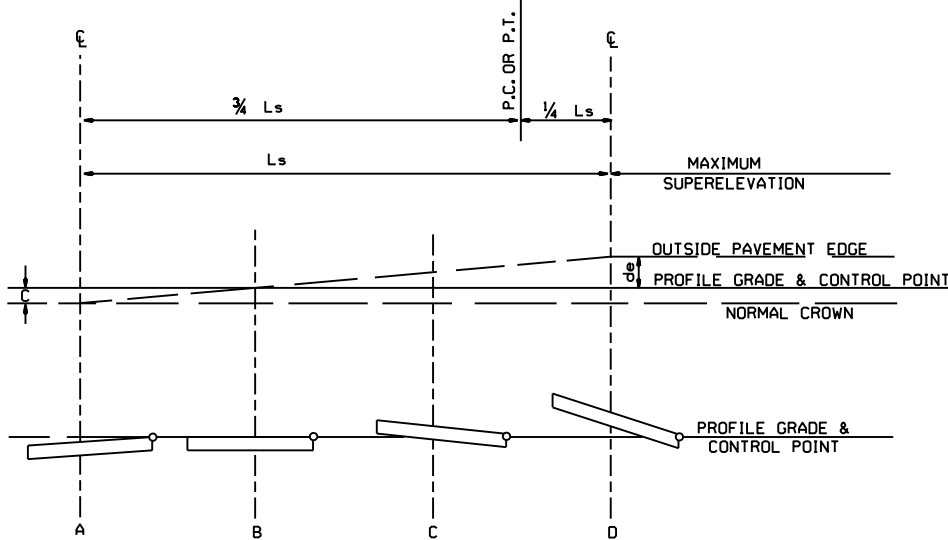
1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

6 LANE DIVIDED-----+20%
8 LANE DIVIDED-----+50%



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = - \frac{L(ds-C)}{L_s} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = + \frac{L(ds+C)}{L_s} - C$

ABBREVIATIONS

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

11-07-19	REVISED SUPERELEVATION TABLE	
01-09-87	ISSUED	578-1-15-87
DATE	REVISION	DATE FILLED

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION
FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH			
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE	MINIMUM
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC			
0° 30'	NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96		RC	96	0.022	101
0° 45'	NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96		RC	96		RC	96	0.026	110
1° 00'	NC			NC			NC			NC			RC	96		0.026	110		0.026	110		0.030	120		0.034	130		0.038	139	0.042	149
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.050	168	0.052	173
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.048	163		0.054	178		0.062	197	0.068	211
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	0.078	235
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.076	230	0.082	245
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.068	211		0.072	221		0.078	235	0.086	254
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.082	245		0.088	259	0.096	278
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.098	283	0.100	288
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		0.100	288		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288		0.096	278		
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		0.100	288		0.098	283		
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283		0.100	288		0.099	284		
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		0.100	288					0.096	278		
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278		0.100	288					0.098	283		
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283		0.100	288					0.099	284		
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288								0.099	284		
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		0.100	288								0.099	284		
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	259		0.098	283		0.100	288								0.099	284		
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288											0.099	284		
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		0.100	288											0.099	284		
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283														0.099	284		
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288														0.099	284		
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257																	0.099	284		
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261																	0.099	284		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																	0.099	284		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																	0.099	284		
10° 00'	0.066	155		0.080	195		0.094	240																				0.099	284		
11° 00'	0.070	162		0.084	203		0.096	244																				0.099	284		
12° 00'	0.074	169		0.088	211		0.098	248																				0.099	284		
13° 00'	0.076	173		0.090	215		0.100	252																				0.099	284		
14° 00'	0.080	180		0.094	222																							0.099	284		
15° 00'	0.082	184		0.096	226																							0.099	284		
16° 00'	0.086	191		0.098	230																							0.099	284		
17° 00'	0.088	194		0.100	234																							0.099	284		
18° 00'	0.090	198																										0.099	284		
19° 00'	0.092	202																										0.099	284		
20° 00'	0.094	205																										0.099	284		
21° 00'	0.096	209																										0.099	284		
22° 00'	0.096	209																										0.099	284		
23° 00'	0.098	212																										0.099	284		
24° 00'	0.098	212																										0.099	284		
25° 00'	0.100	216																										0.100	216		

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.)

ABBREVIATIONS

P.T.

D MAX = 28° 30'

GENERAL NOTES

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

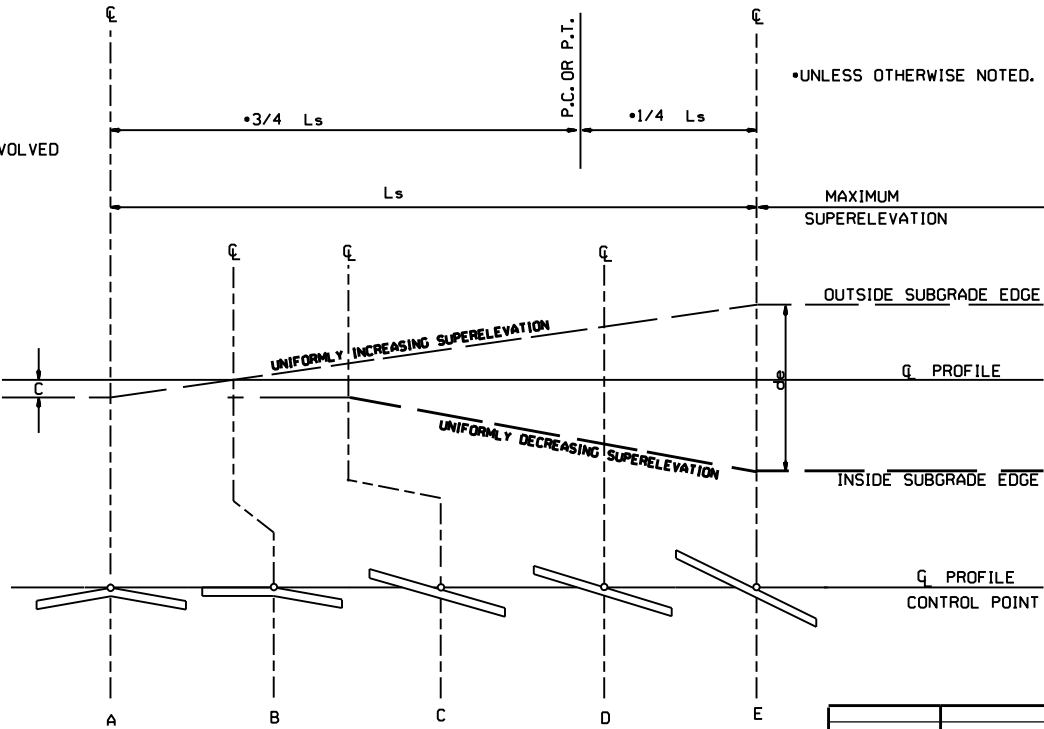
3 LANE UNDIVIDED - - - - +20%
4 LANE UNDIVIDED - - - - +50%
5 LANE UNDIVIDED - - - - +80%
6 LANE UNDIVIDED - - - - +100%

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

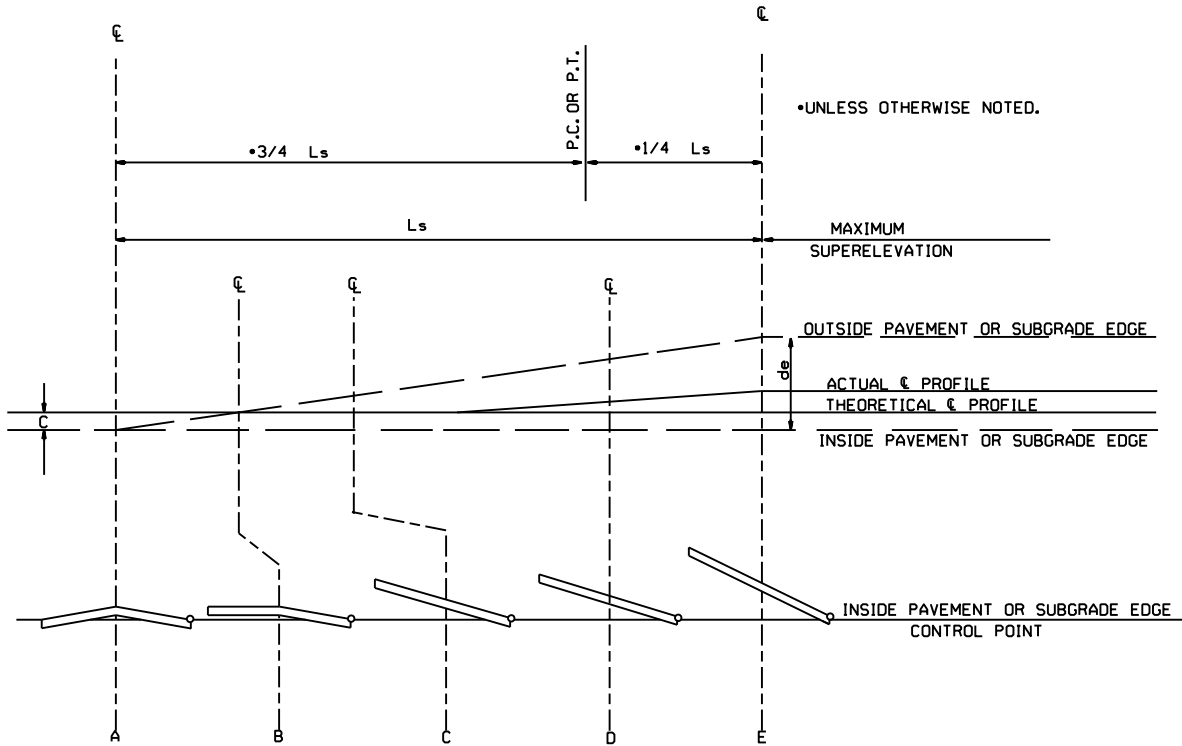
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

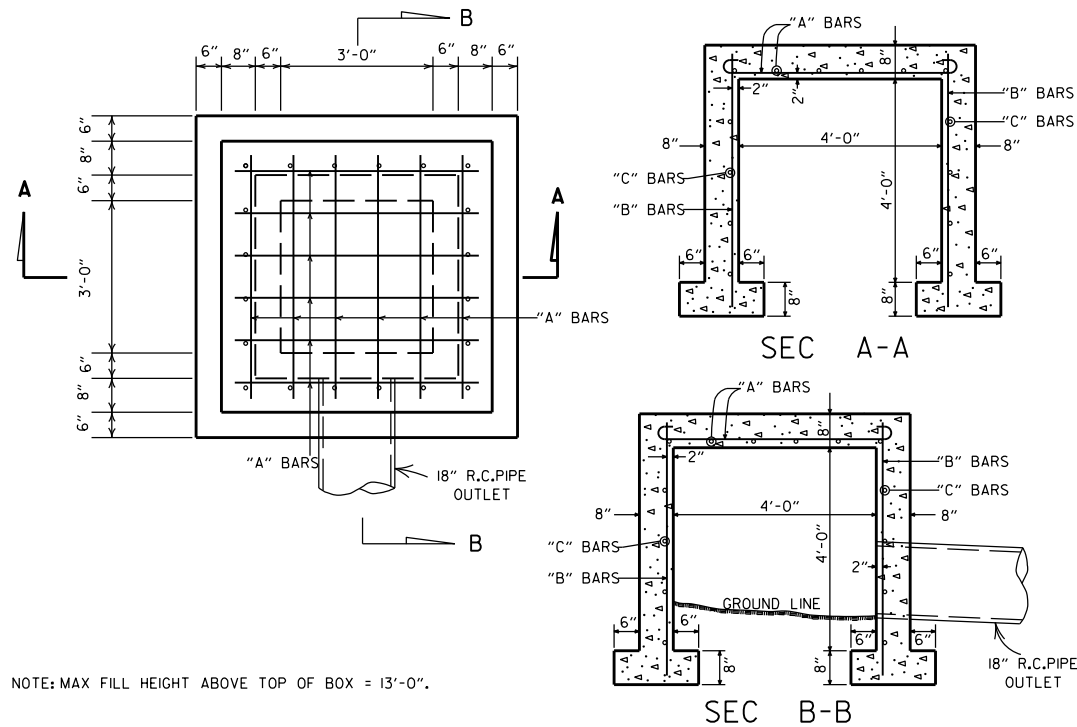


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

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

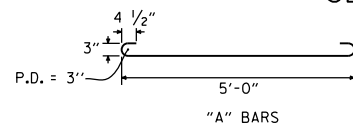
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILMED

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



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

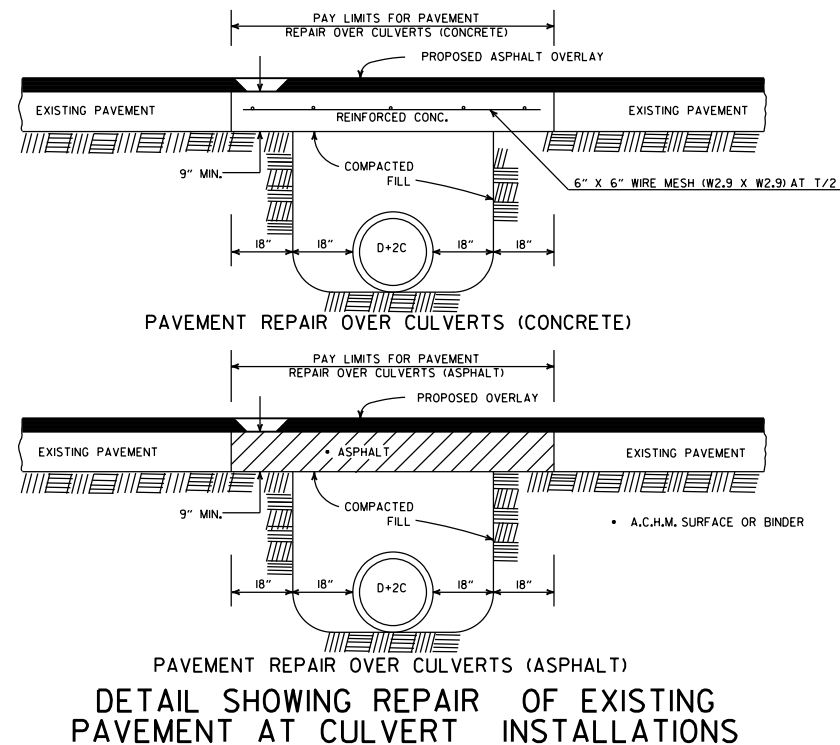
ALL STEEL TO BE #4 BARS



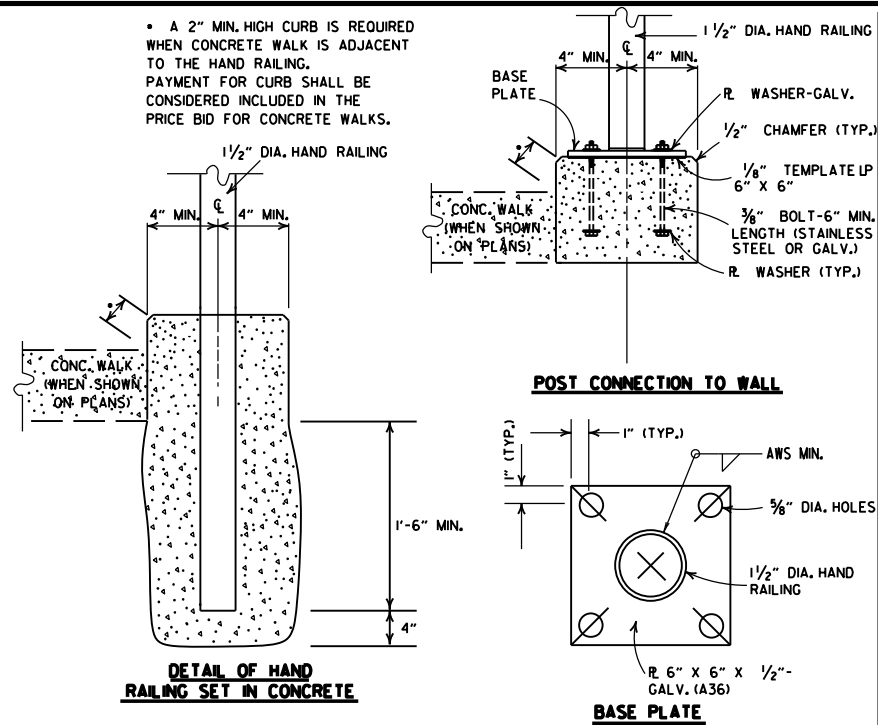
QUANTITIES
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

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.

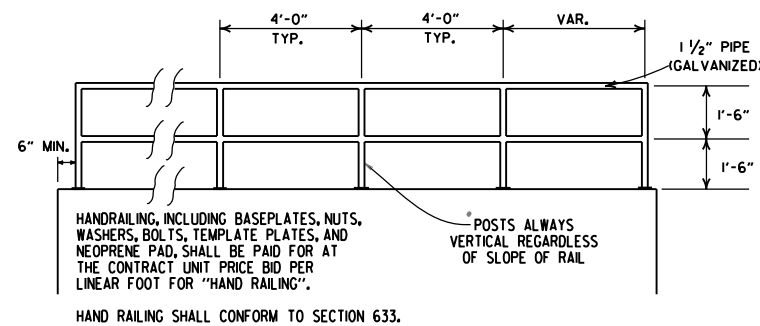
REINFORCED CONCRETE SPRING BOX



DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS



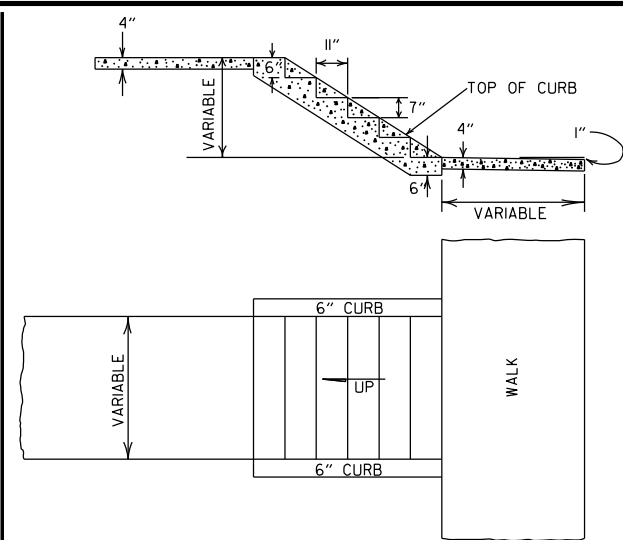
POST CONNECTION DETAILS



POST CONNECTION TO WALL

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS




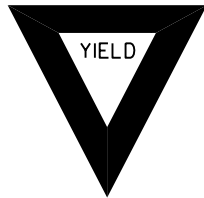

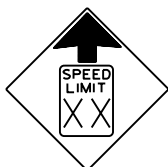

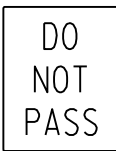



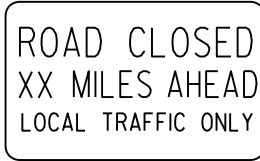


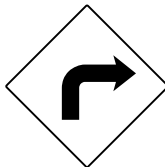




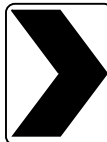
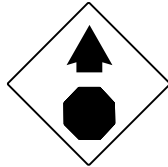
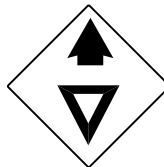
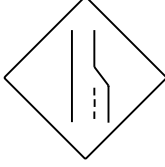



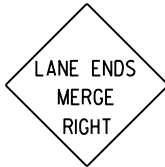


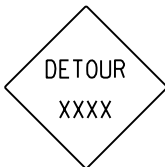










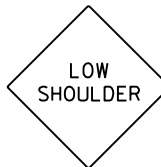

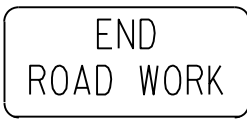
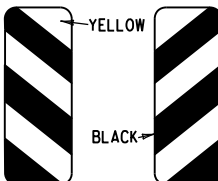


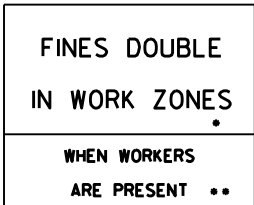
DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

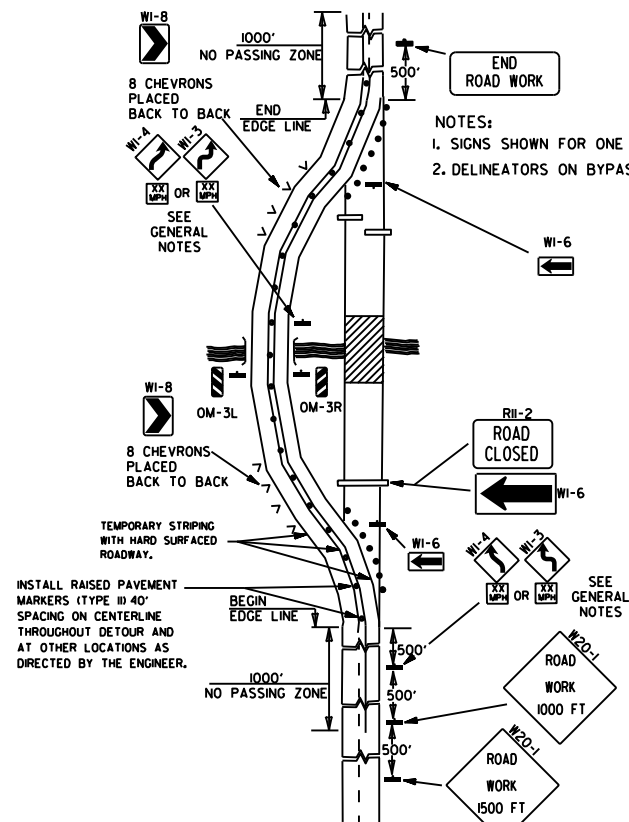
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

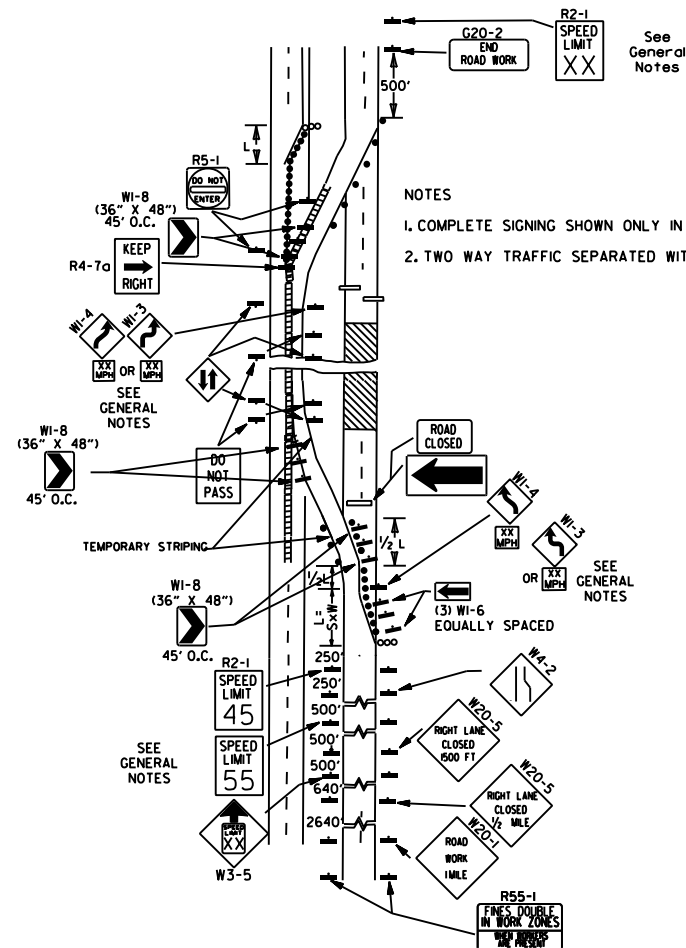
<div>RI-I</div> <div></div> <div>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</div>	<div>RI-2</div> <div></div> <div>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</div>	<div>R2-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>W3-5</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>W3-5a</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>R4-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>R4-2</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</div> <div>GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. • NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF 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.</div>
<div>R5-I</div> <div></div> <div>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>R1I-2</div> <div></div> <div>48"x30"</div>	<div>R1I-3A</div> <div></div> <div>60"x30"</div>	<div>R1I-4</div> <div></div> <div>60"x30"</div>	<div>W2I-5a</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-I</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>WI-3</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-4</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-6</div> <div></div> <div>STD. 48"x24" SPECIAL 60"x30"</div>	<div>WI-8</div> <div></div> <div>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</div>	<div>W3-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W3-2</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W4-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>W5-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W6-3</div> <div></div> <div>EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>W8-7</div> <div></div> <div>EXPWY. 36"x36" FWY. 48"x48"</div>	<div>W9-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W13-I</div> <div></div> <div>STD. 24"x24"</div>	<div>W20-I</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-2</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-3</div> <div></div> <div>STD. 48"x48"</div>
<div>W20-4</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-5</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-7a</div> <div><div>18" 500 FEET 24" W16-2</div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W2I-2</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W2I-5</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W24-I</div> <div></div> <div>STD. 36"x36"</div>	<div>WI-4b</div> <div></div> <div>STD. 48"x48"</div>	<div>R56-I</div> <div></div> <div>STD. 18"x18"</div>
<div>W8-II</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W8-9</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>G20-I</div> <div></div> <div>60"x24"</div>	<div>G20-2</div> <div></div> <div>48"x24"</div>	<div>OM-3L OM-3R</div> <div></div> <div>12"x36"</div>	<div>M4-9</div> <div></div> <div>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</div>	<div>M4-10</div> <div></div> <div>48"x18"</div>	<div>R55-I</div> <div></div> <div>36"x60" • USE 6" C LETTERS •• USE 4" D LETTERS</div>

11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W2I-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	
DATE	REVISION	FILMED

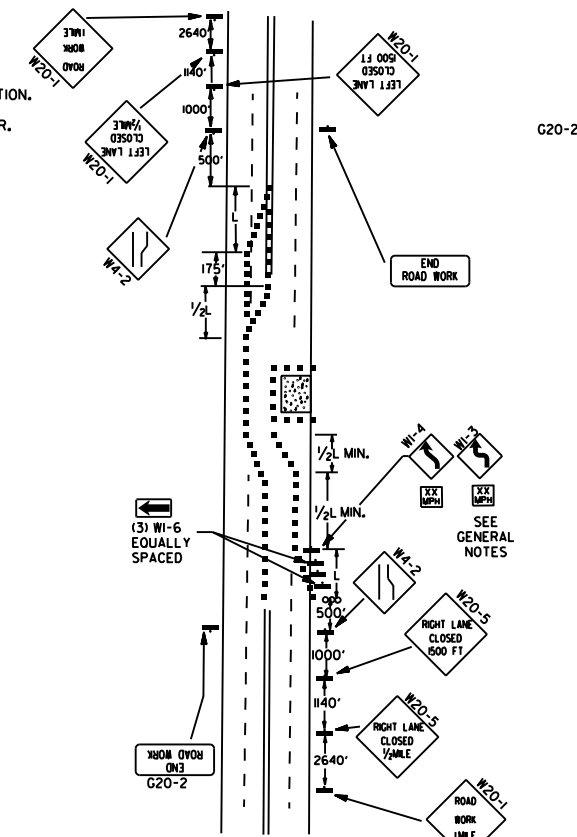
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



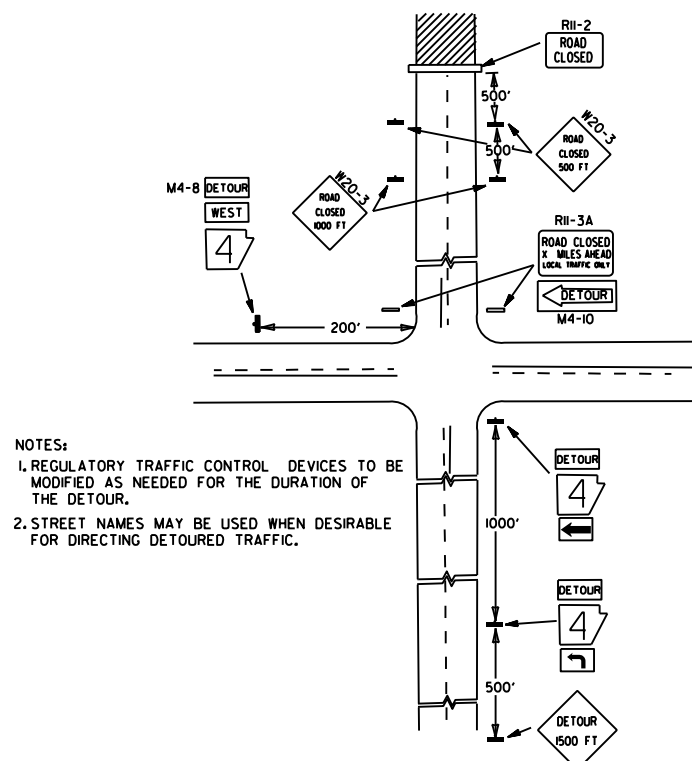
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



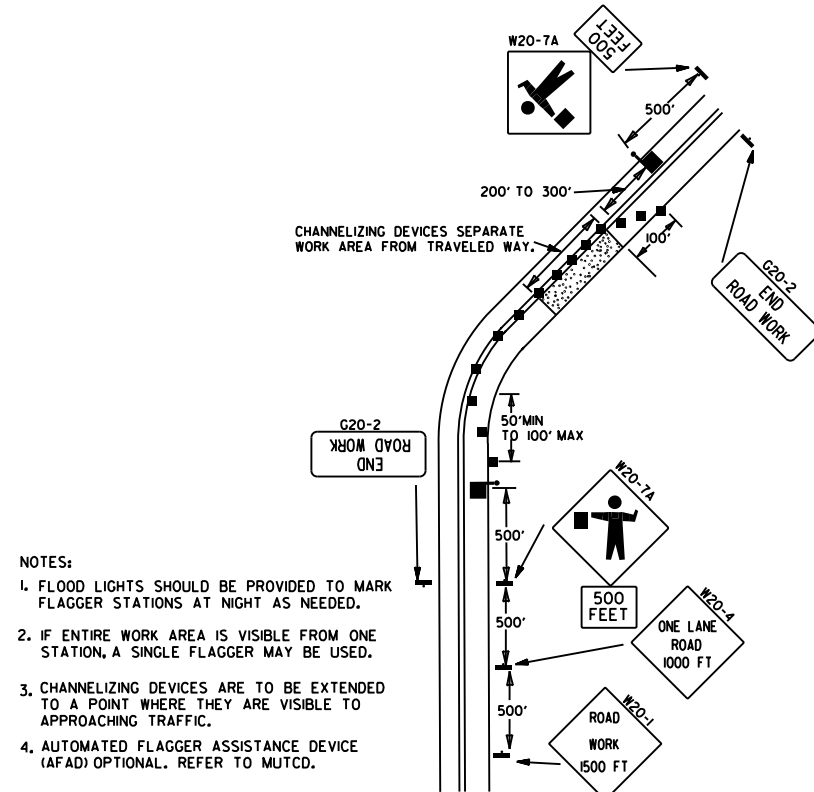
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



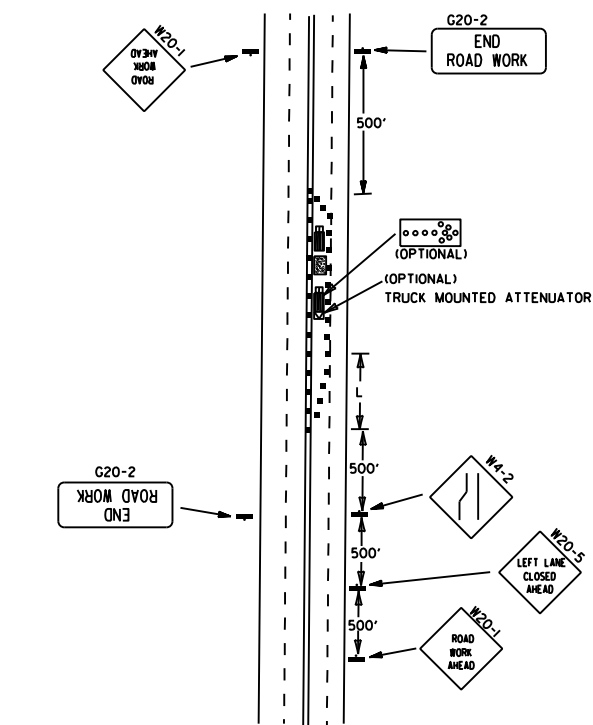
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



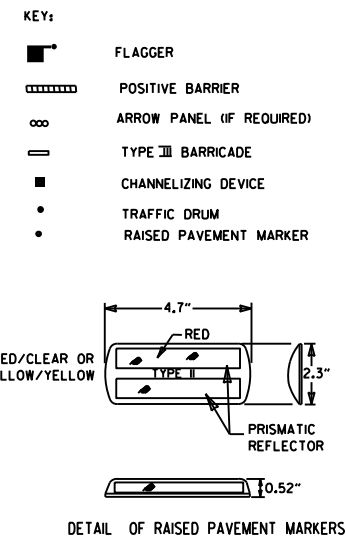
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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



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



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.

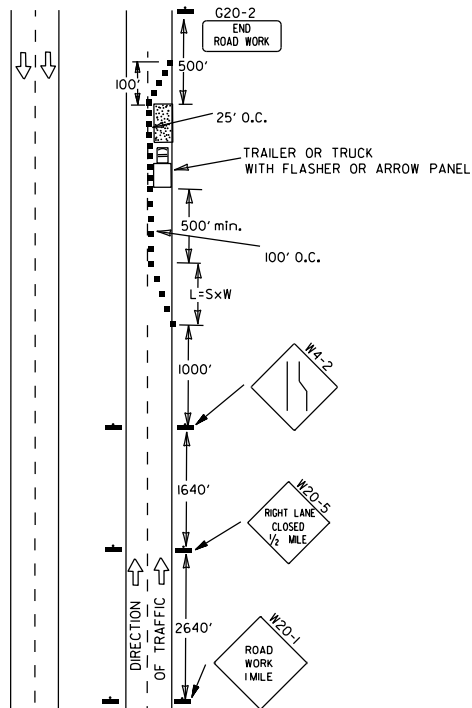
W = WIDTH OF OFFSET.

- 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, THE R2-145 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS.
 - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-145 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1XX SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-145 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1XX SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 - TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 - DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT 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).

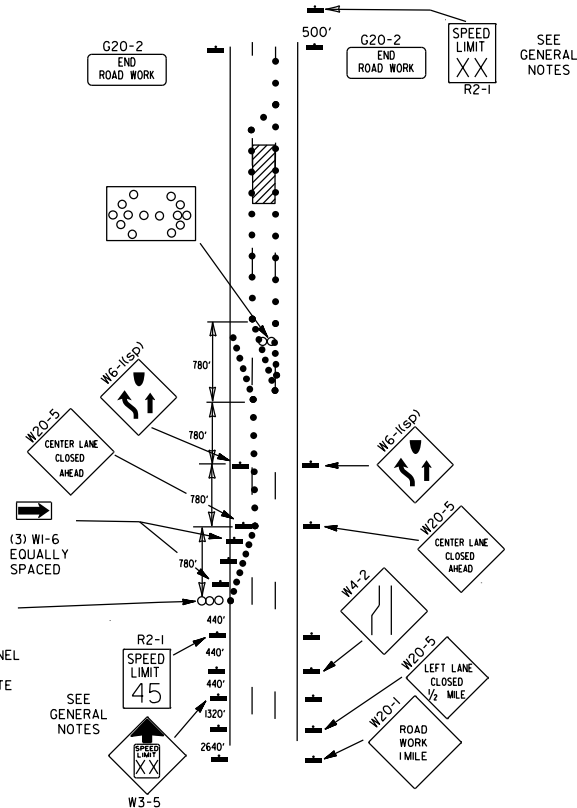
DATE	REVISION	FILED
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
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

STANDARD DRAWING TC-2



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



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

KEY:

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

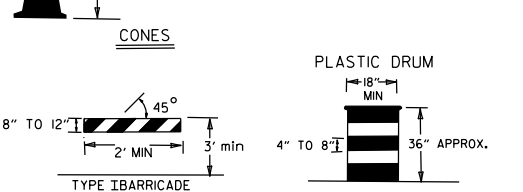
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1(1/2 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF 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).

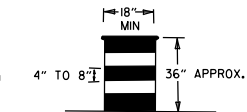
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES

• WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

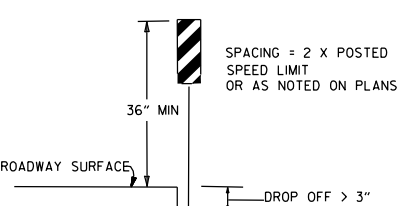


PLASTIC DRUM

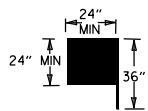


NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.

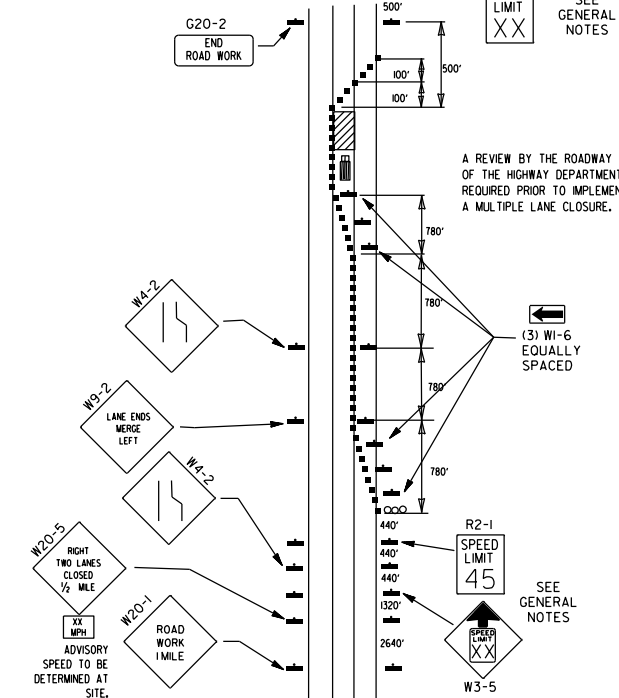
VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL



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

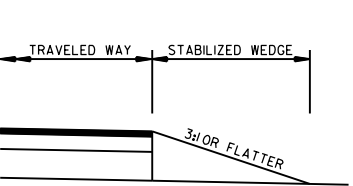
TRAFFIC CONTROL DEVICES

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 ⁽¹⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS ⁽³⁾
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES	PRECAST CONCRETE BARRIER & EDGE LINES

FORESLOPE	HEIGHT	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
1:1	> 2 FT	PRECAST CONCRETE BARRIER	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS	TRAFFIC DRUMS

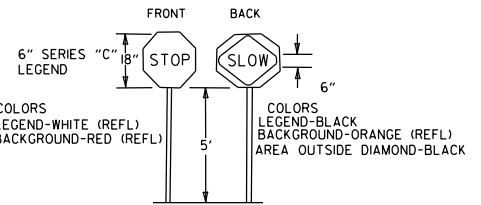
- GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
 2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED 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, W21-5G, AND/OR W21-5D SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



STABILIZED WEDGE

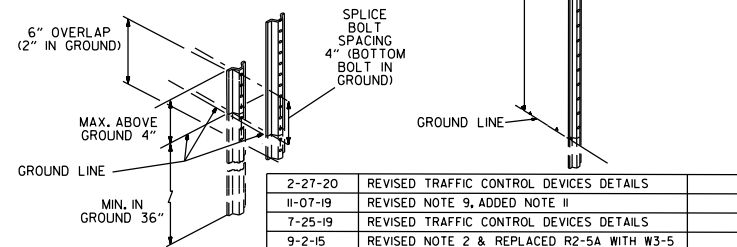
NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

STOP SLOW PADDLE



DETAIL OF SPLICES

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

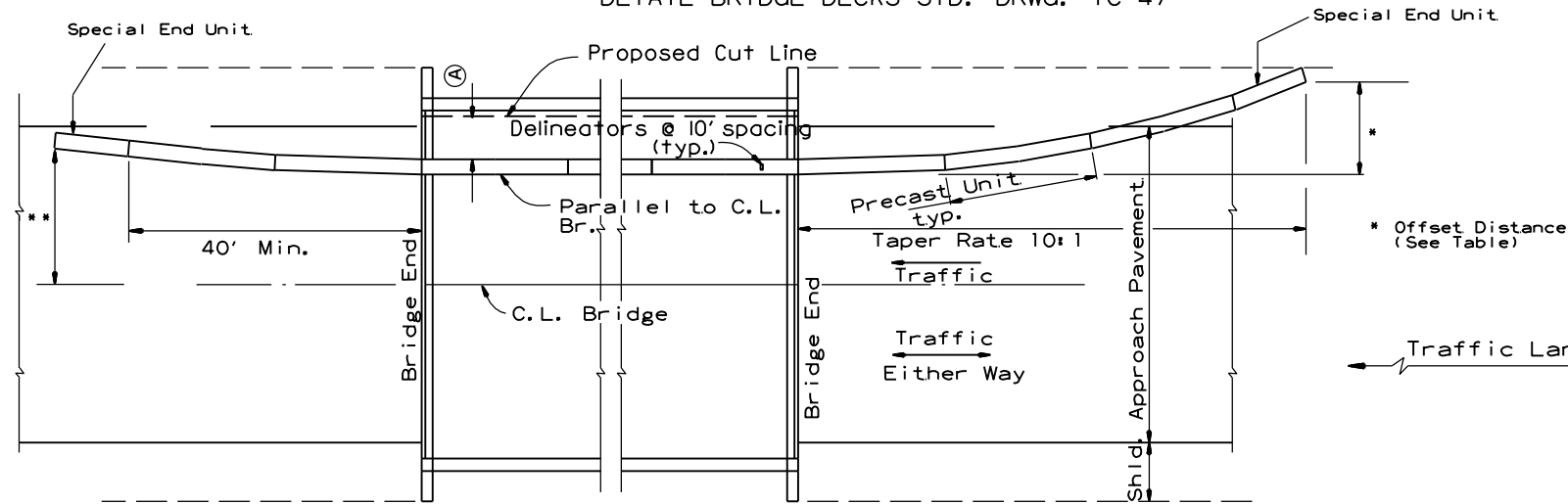


DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE II	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

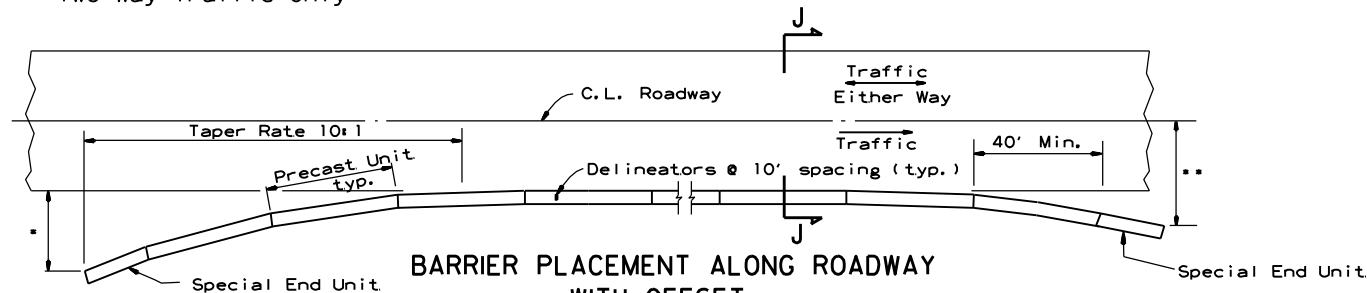
- (A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

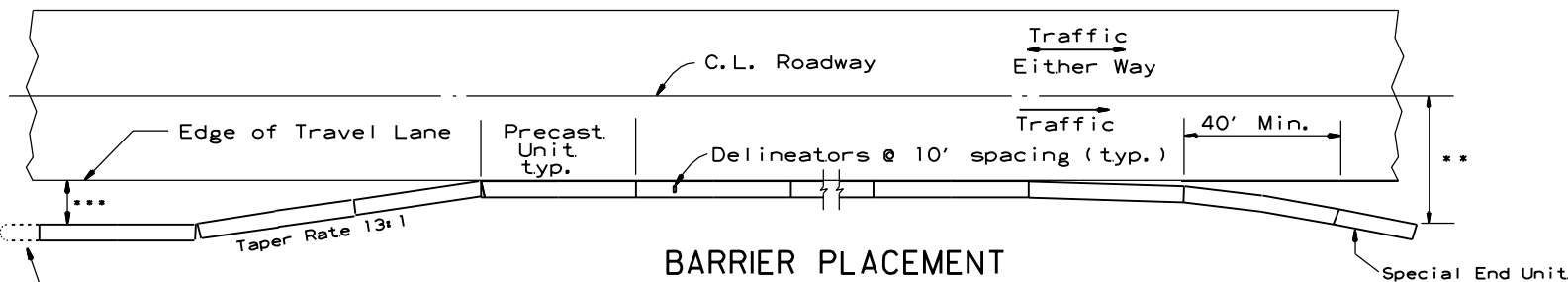
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

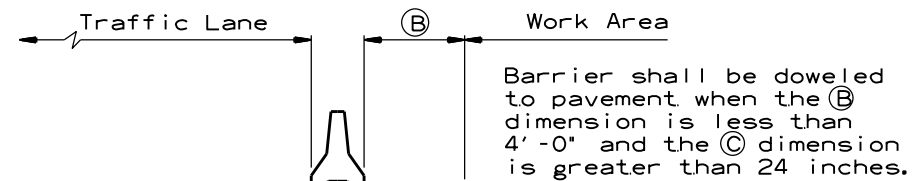


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

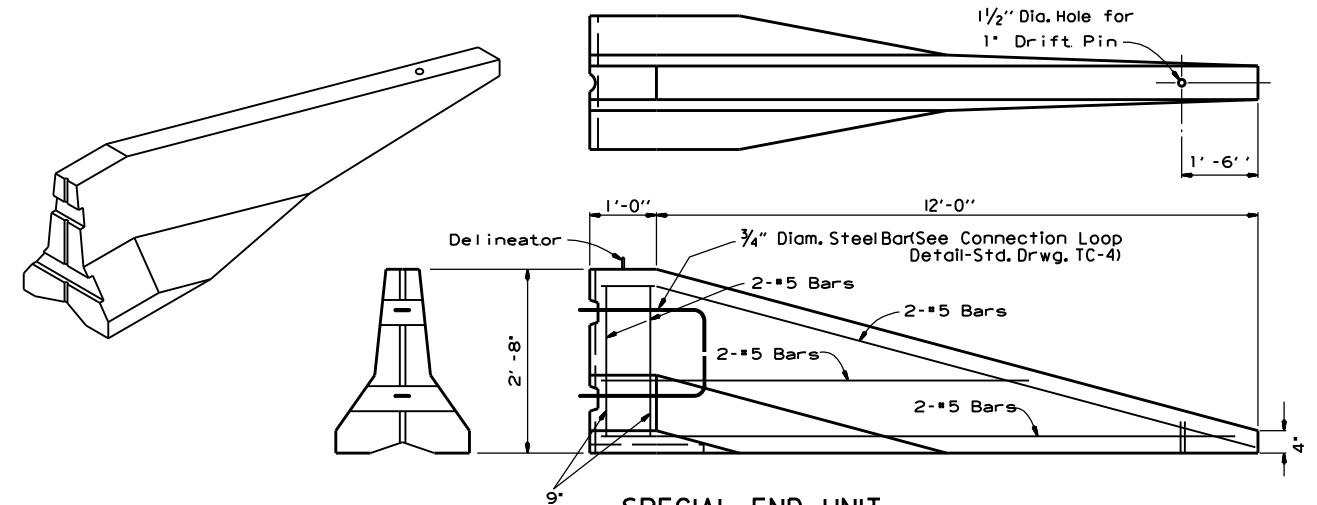
***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SECTION J-J

No Scale

Barrier shall be doweled to pavement when the B dimension is less than 4'-0" and the C dimension is greater than 24 inches.



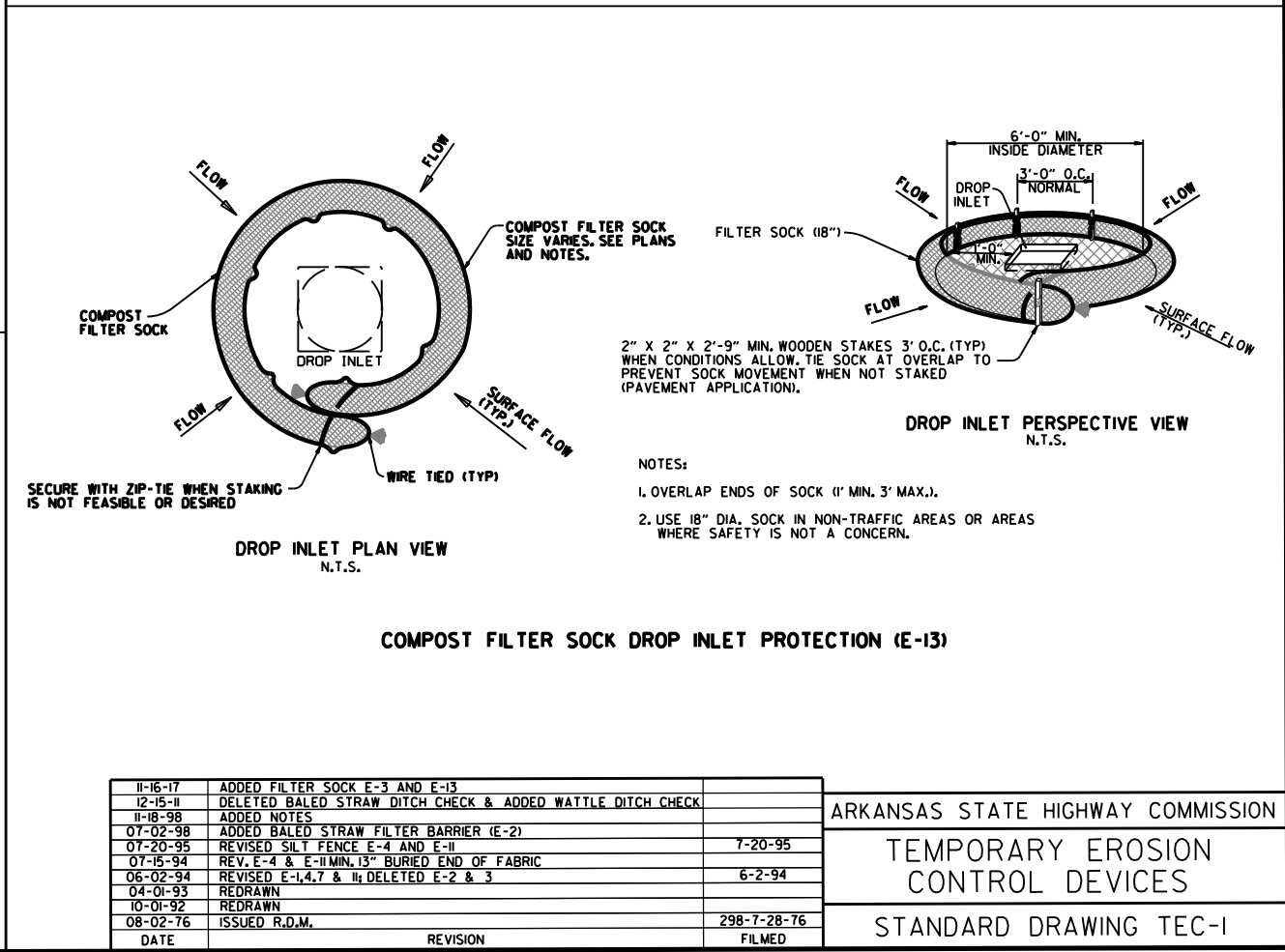
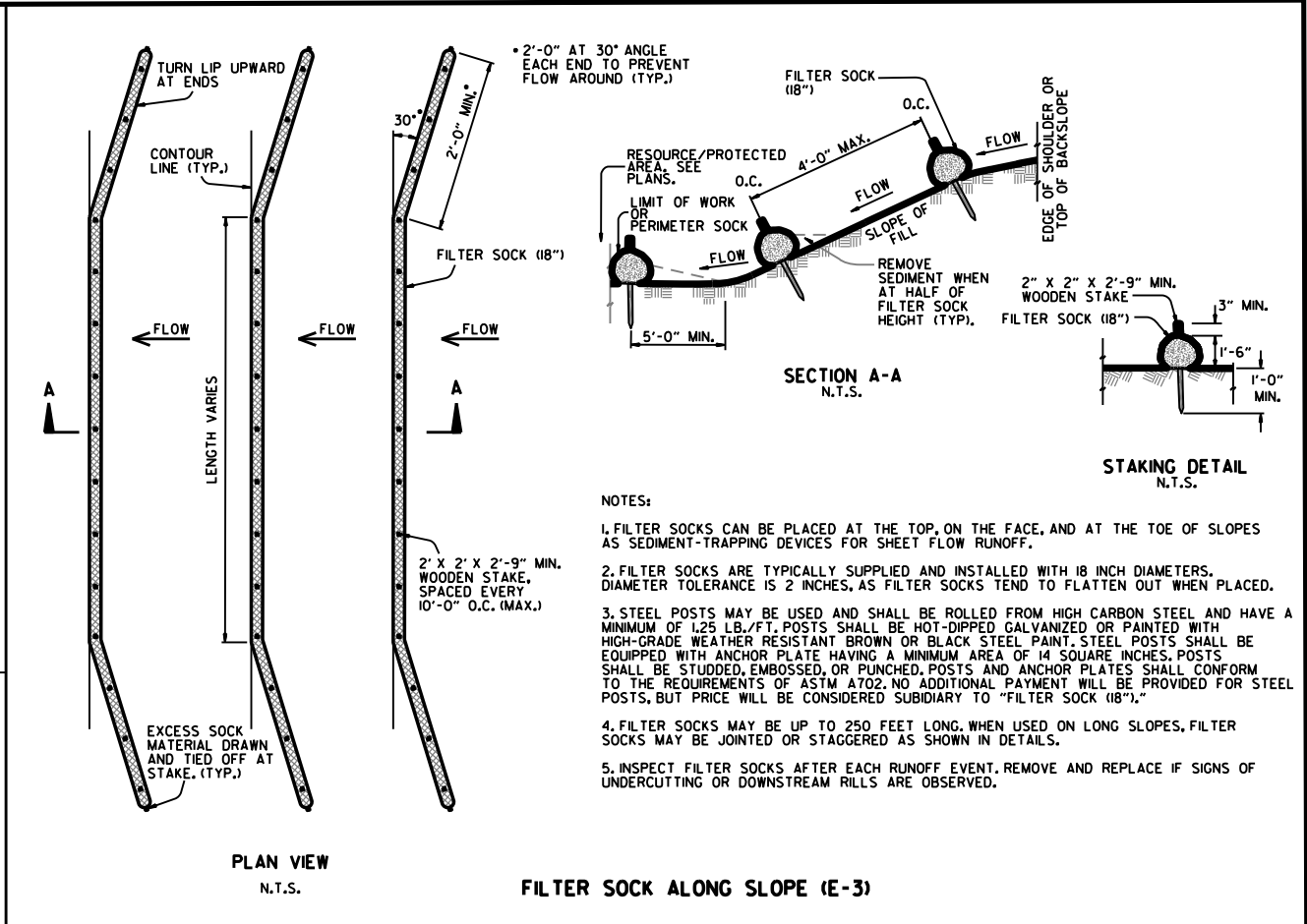
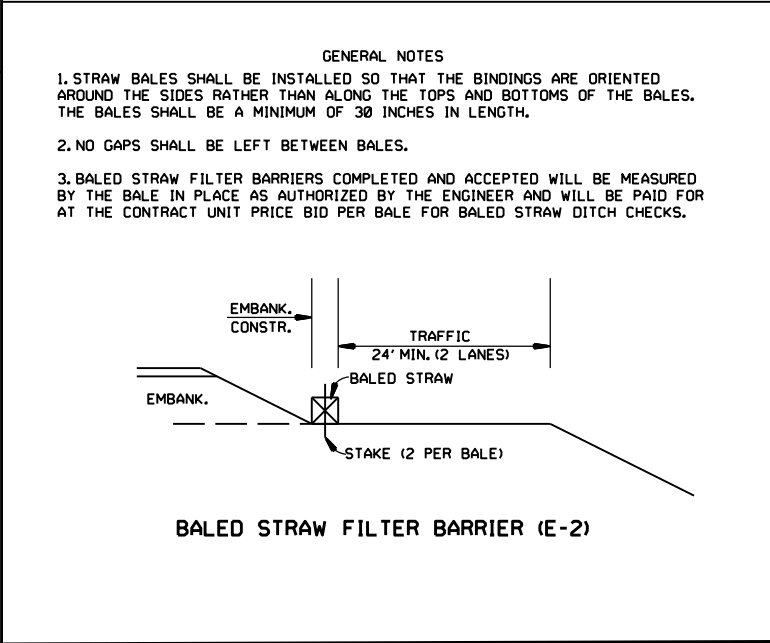
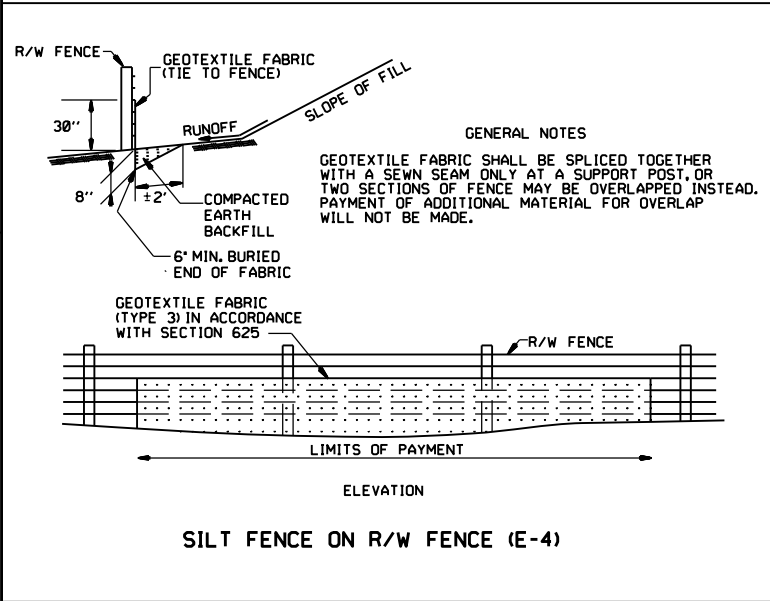
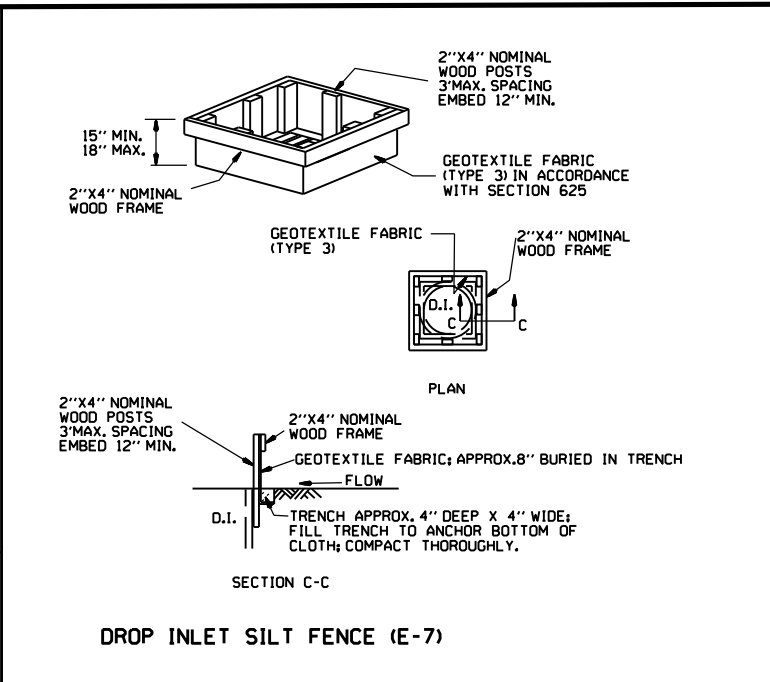
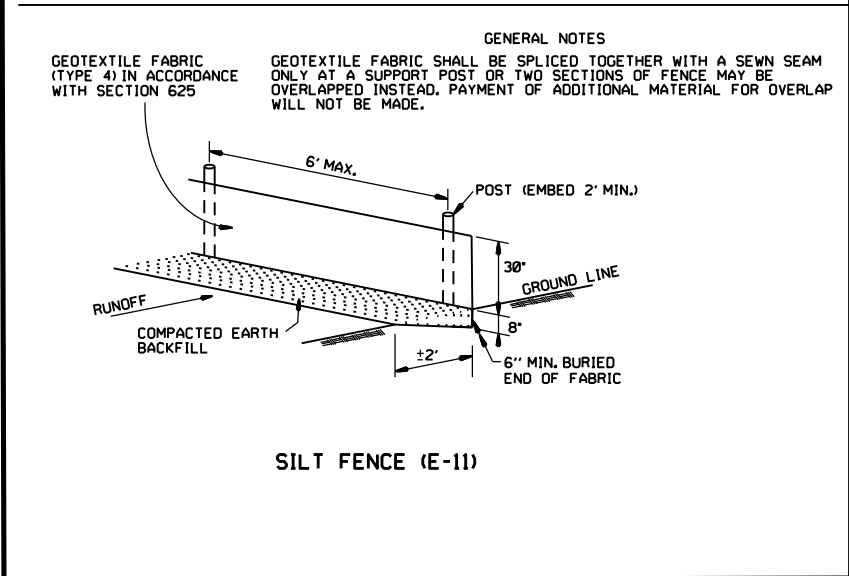
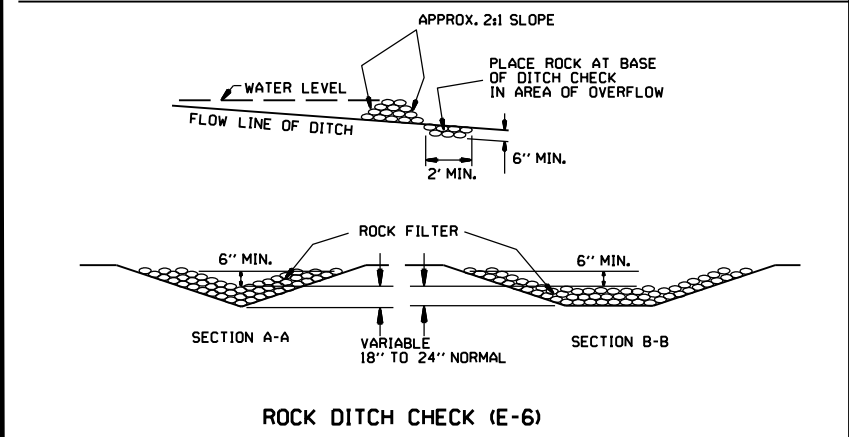
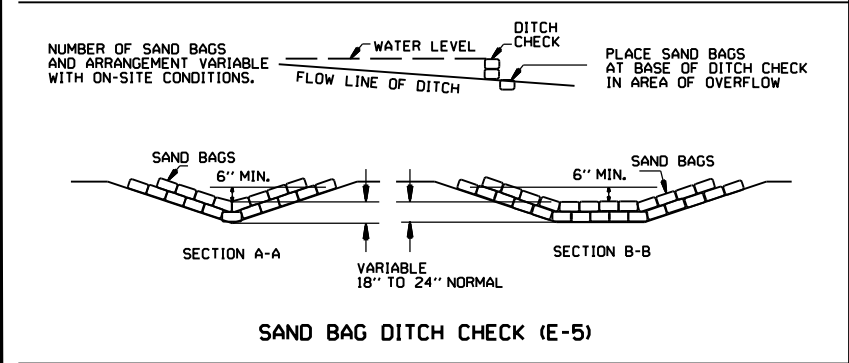
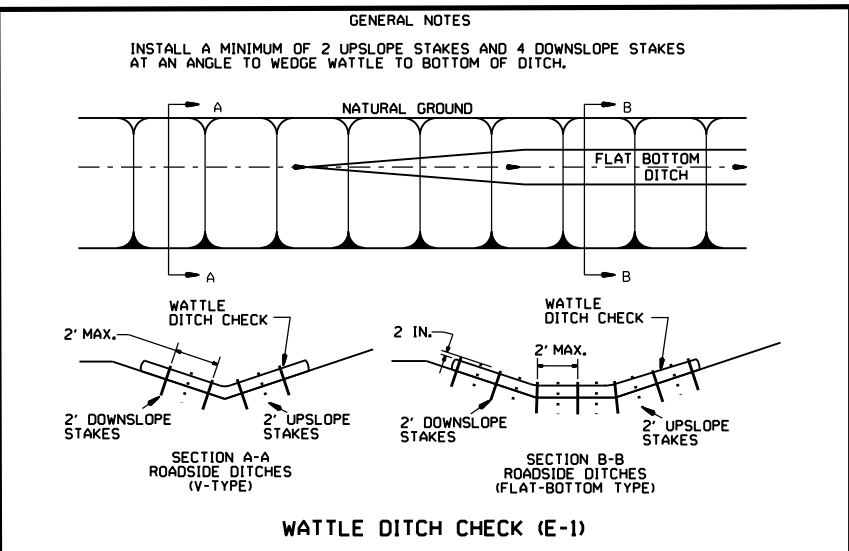
SPECIAL END UNIT

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."

			ARKANSAS STATE HIGHWAY COMMISSION	
			STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	
11-07-19	REVISED NOTE		STANDARD DRAWING TC-5	
10-15-09	ADDED REFERENCE TO MASH			
5-25-06	REVISED BARRIER PLACEMENT			
8-22-02	ISSUED NEW DRAWING			
DATE	REVISION	FILMED		

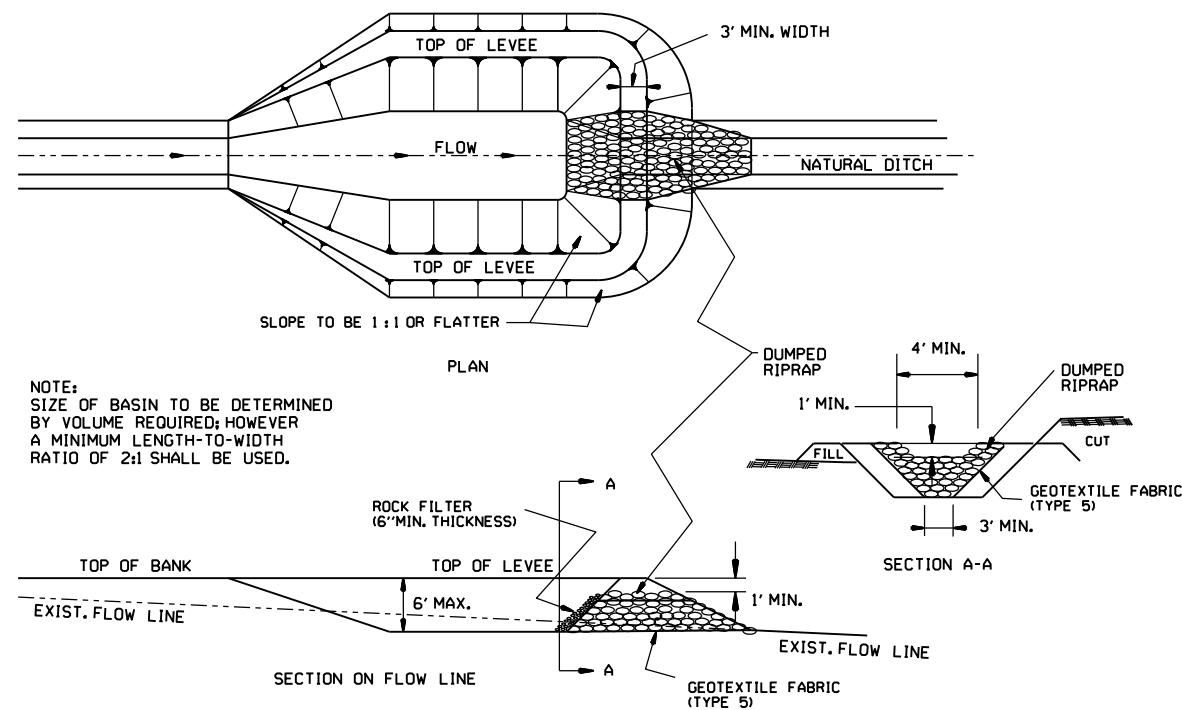


11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILTS FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76
DATE	REVISION	FILMED

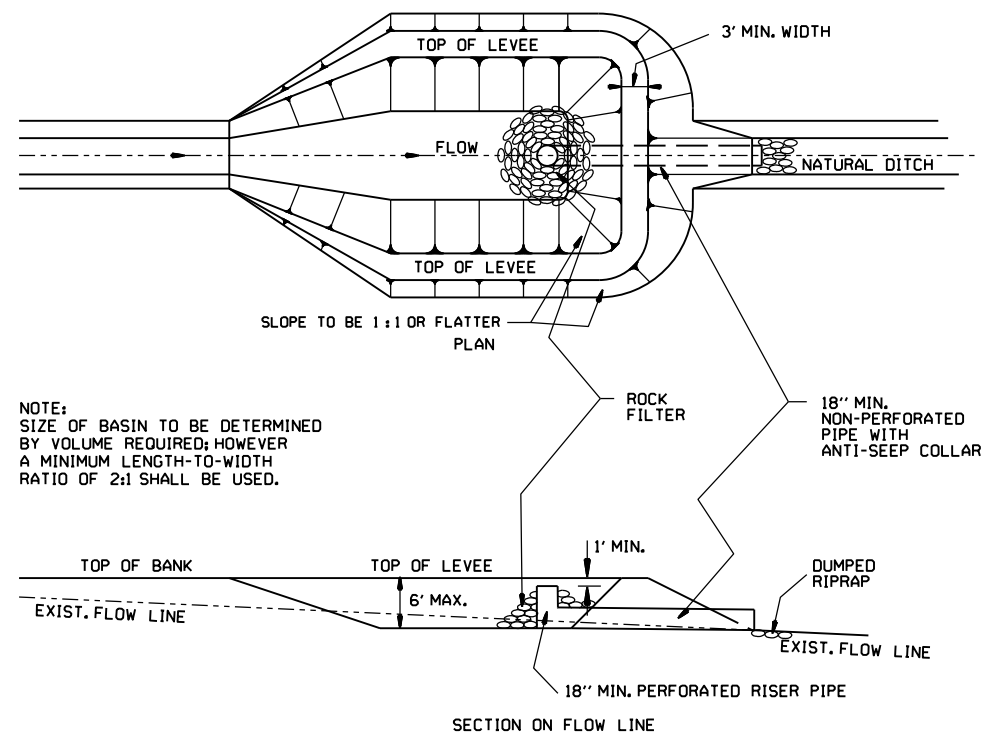
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

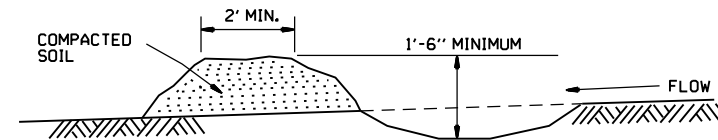
STANDARD DRAWING TEC-1



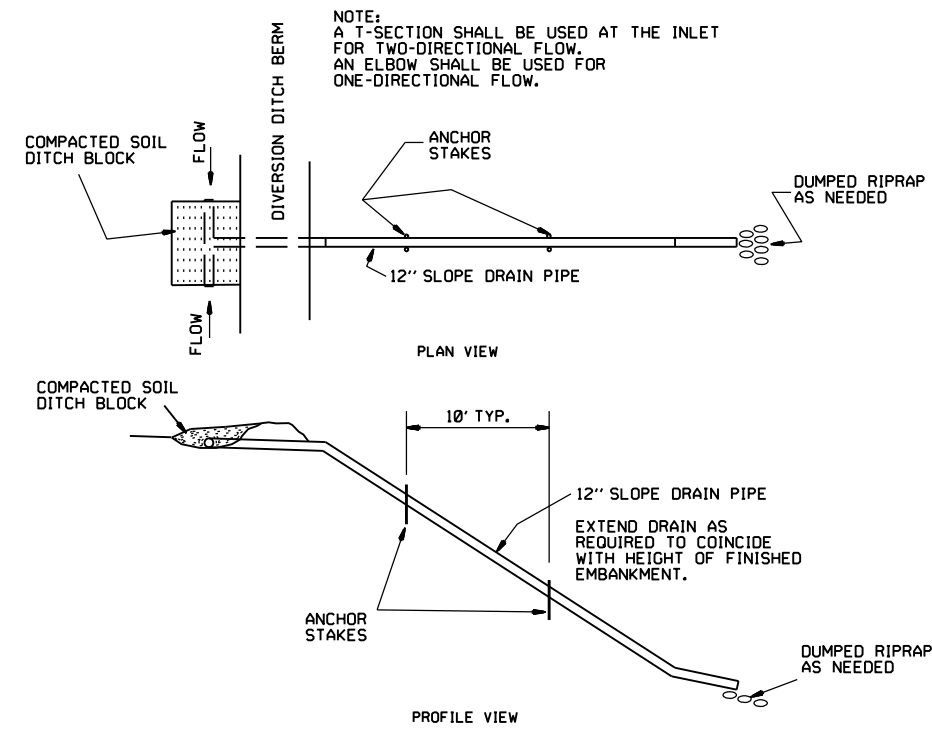
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



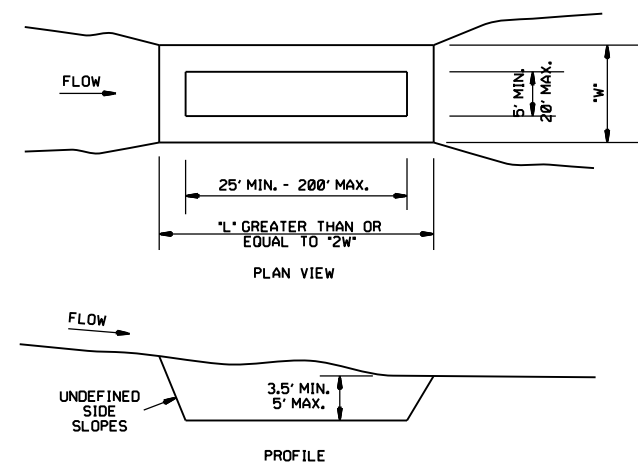
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



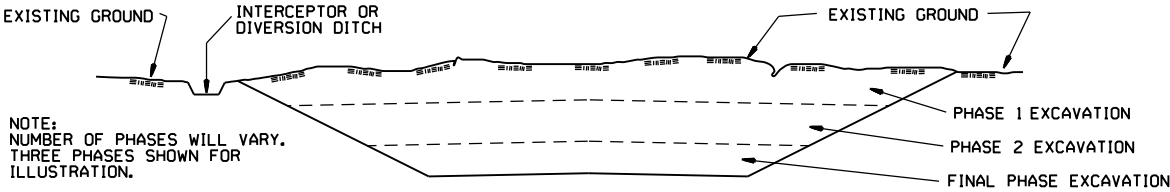
SEDIMENT BASIN (E-14)

			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
			STANDARD DRAWING TEC-2
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION	FILMED	

CLEARING AND GRUBBING

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

EXCAVATION

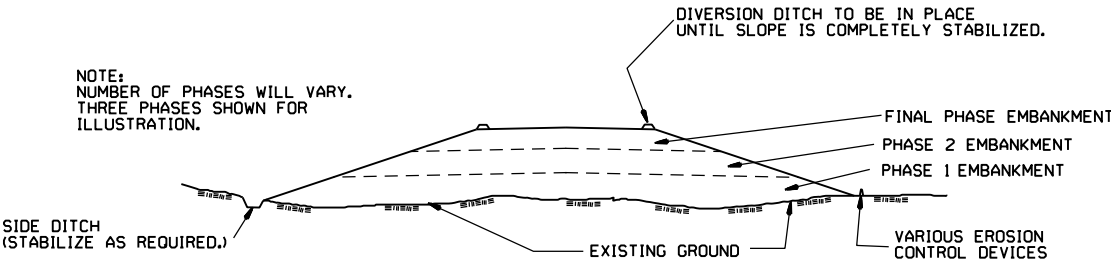


GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

- CONSTRUCTION SEQUENCE
- 1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
 - 2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
 - 3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
 - 4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT

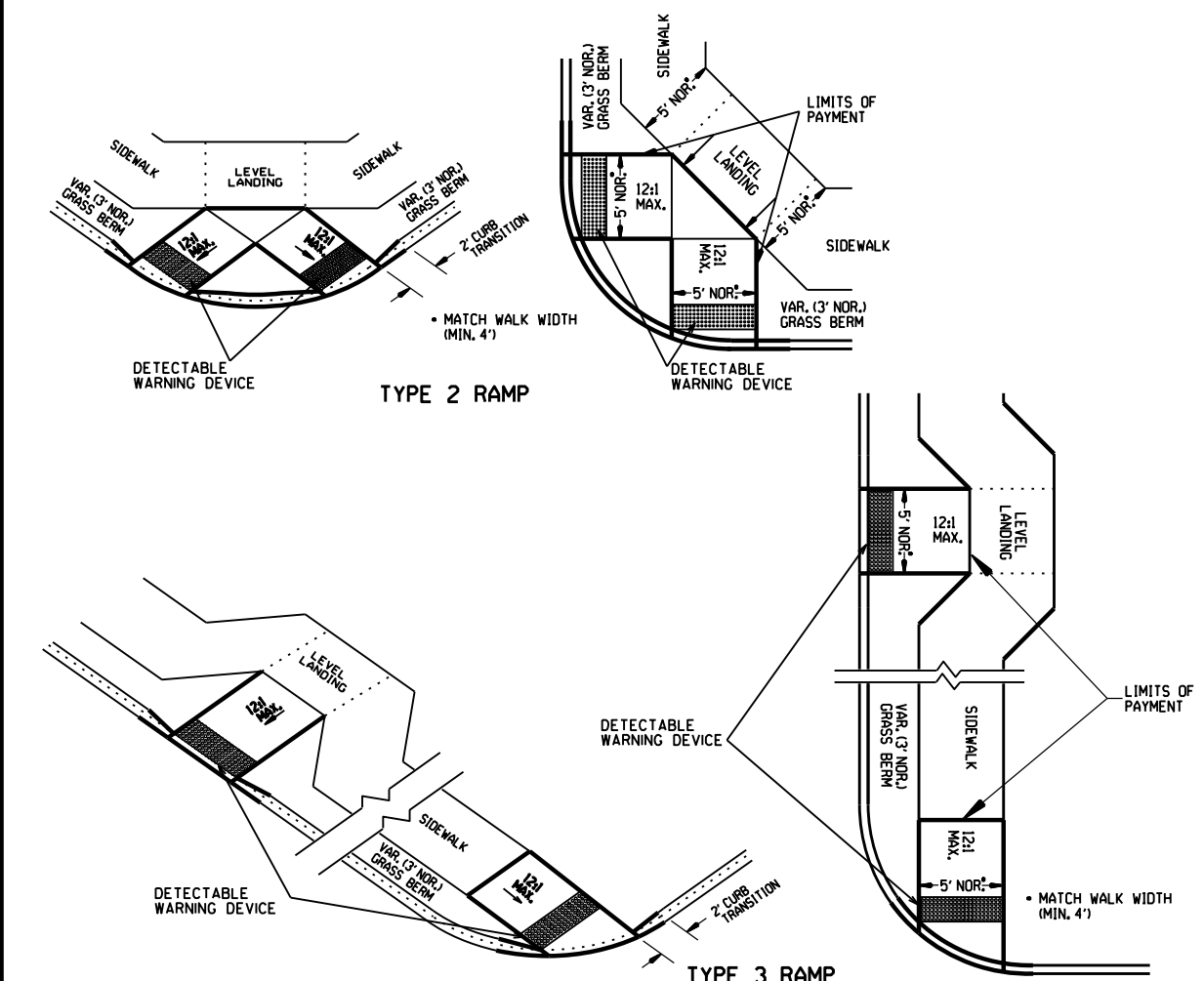
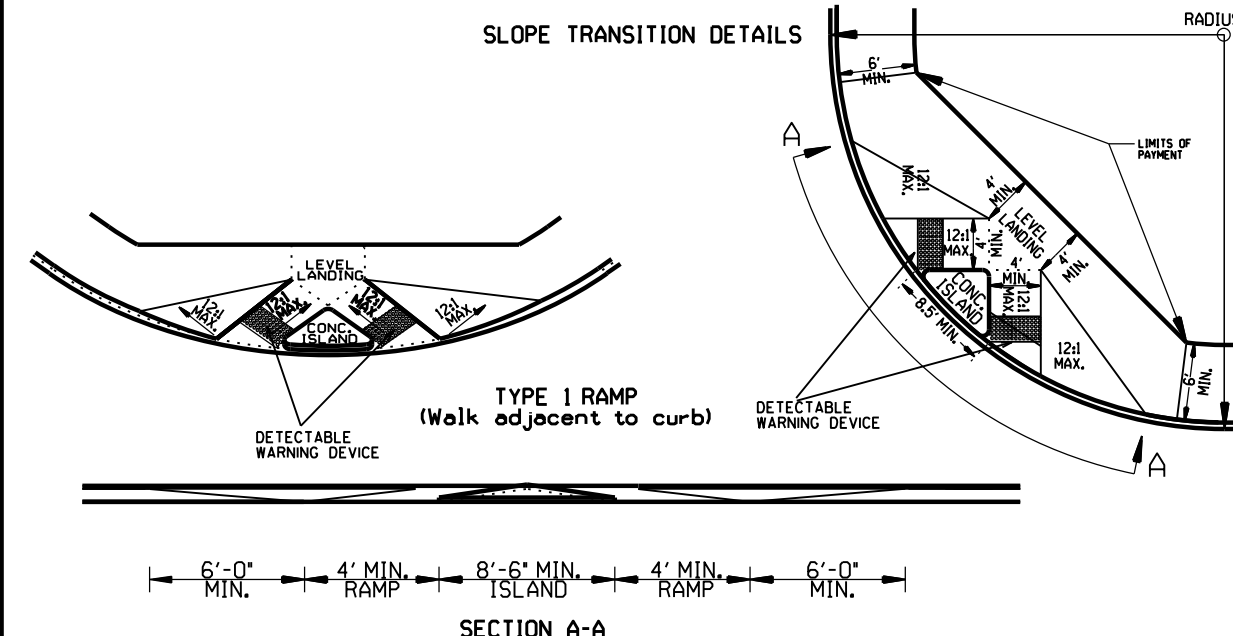
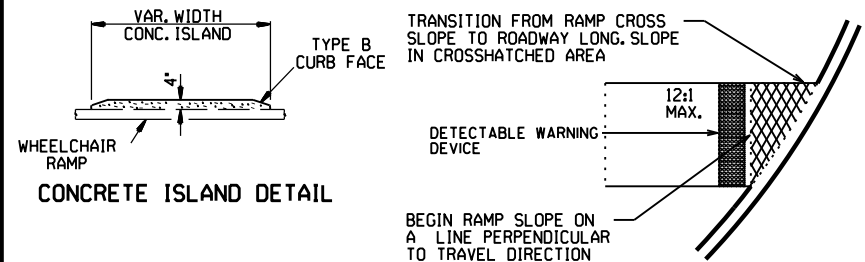


GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

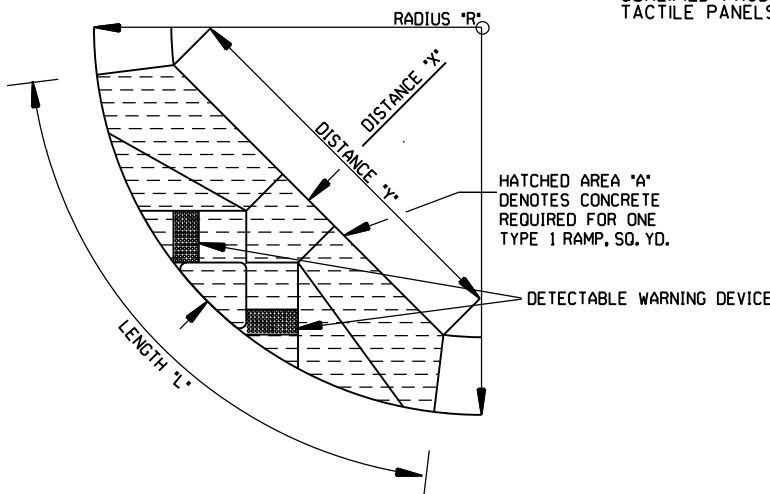
- CONSTRUCTION SEQUENCE
- 1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
 - 2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 - 3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 - 4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
11-03-94	CORRECTED SPELLING		STANDARD DRAWING TEC-3
6-2-94	Drawn & Issued	6-2-94	
DATE	REVISION	FILMED	

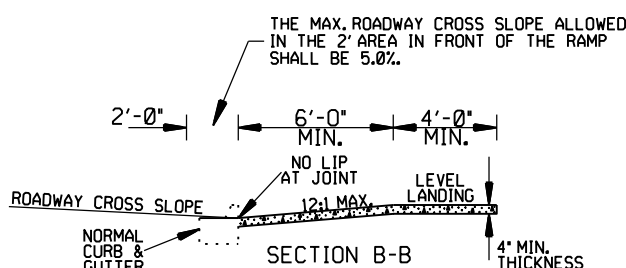
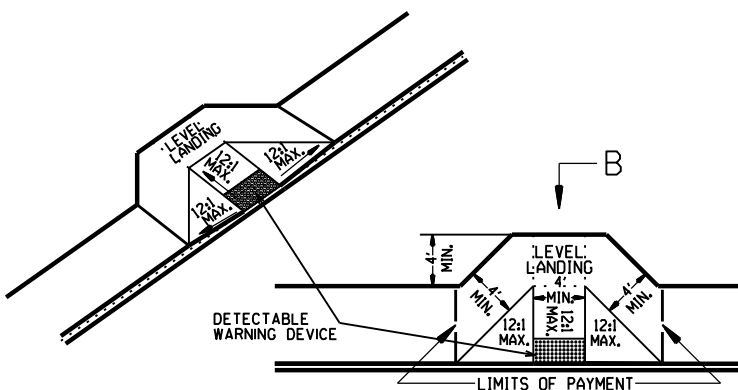


TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS "R"	DISTANCE "X"	DISTANCE "Y"	LENGTH "L"	RAMP AREA "A"
FEET	FEET	FEET	FEET	SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80



NOTE: THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGITUDINAL GRADE.



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

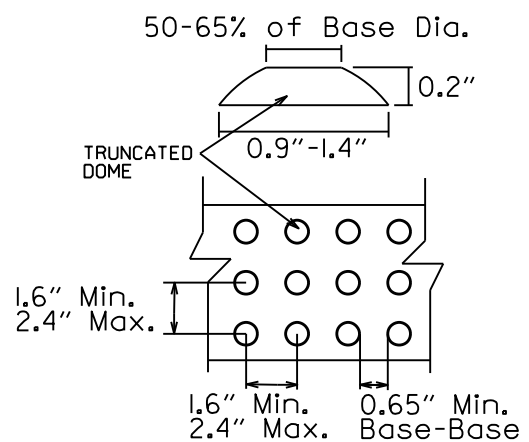
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.

TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.

DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.

DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.

DETECTABLE WARNING DEVICE SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.

IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.

THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.

THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.

ALL PAYEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.

THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".

THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.

RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.

THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.).

THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD SLOPE TRANS. & REV. ISL. DIMS.	
11-8-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM 8:1 TO 12:1 MAX. SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD. "CONC. ISLD." IN PAY ITEM	-----
6-02-76	ISSUED-P.H.D.	299-7-28-76