DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	1	124
		SHIPMAN & BIG CREEKS STRS. & APPRS.(S)				

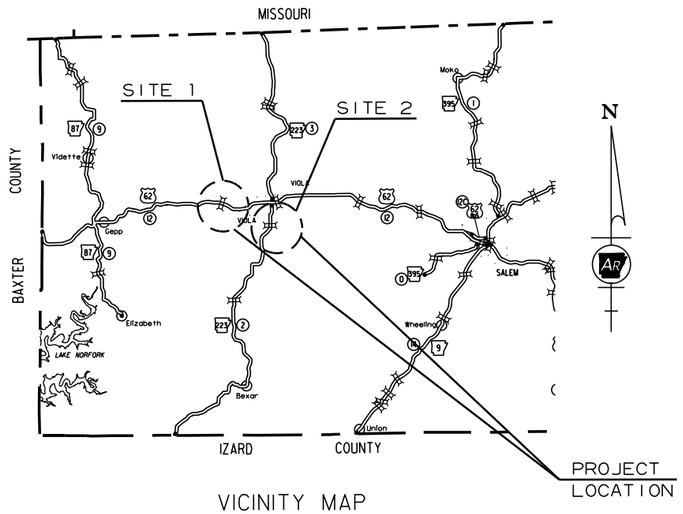
ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

SHIPMAN & BIG CREEKS STRS. & APPRS.(S)

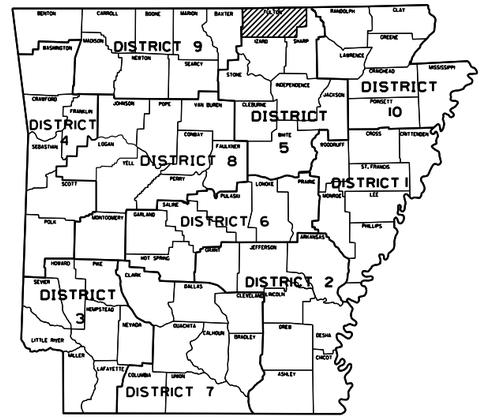
FULTON COUNTY
ROUTE 62 SECTION 12
ROUTE 223 SECTION 2

JOB 050422

FED. AID PROJ. BFP-NHPP-0025(22)



VICINITY MAP



ARK. HWY. DIST. NO. 5

STRUCTURES OVER 20'-0" SPAN

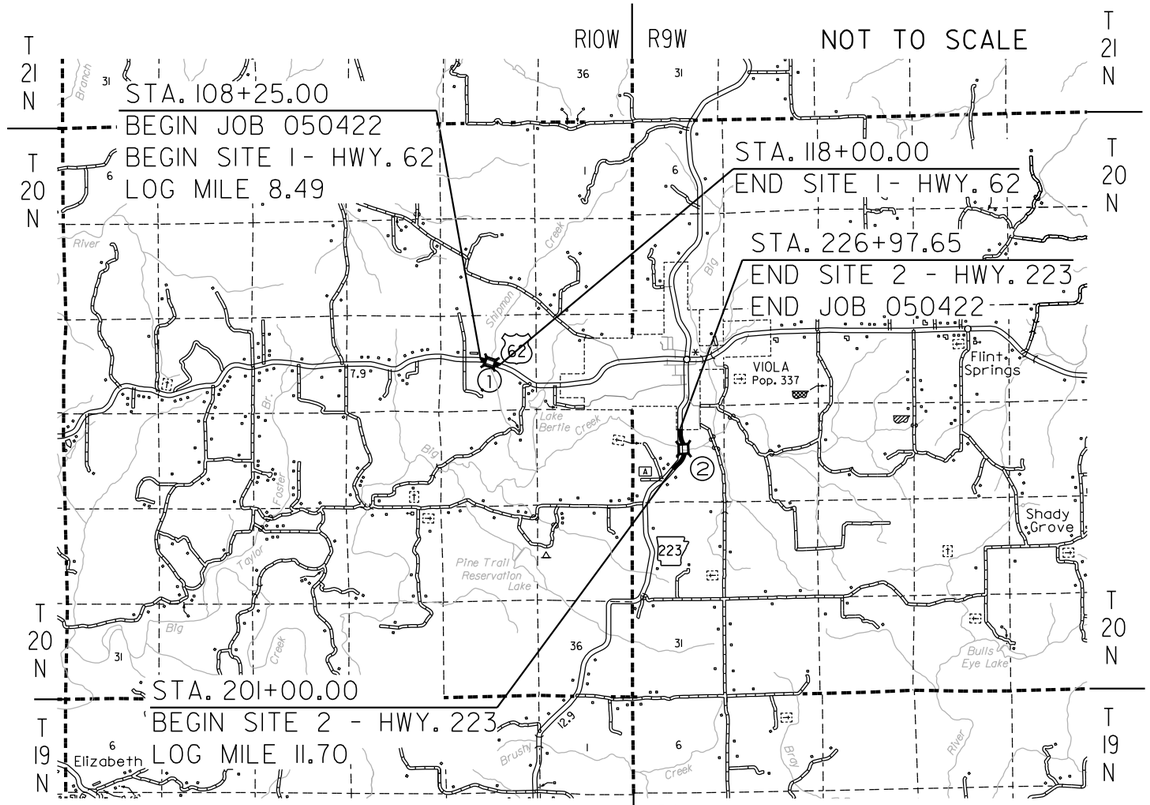
SITE 1 - HWY. 62

① STA. 112+50.00 CONSTRUCT
QUAD. 11' X 9' X 130'-4" R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
Q25 = 1410 CFS, D.A. = 2.63 SQ. MI.
ROADWAY SPAN = 50'-3½"

BRIDGE DATA

SITE 2 - HWY. 223

② HWY. 223 STA. 213+13.90 BR. END
BRIDGE NO. 07599
370'-0" CONT. W-BEAM
UNIT (65'-80'-80'-80'-65')
30'-0" CLEAR ROADWAY
372'-2½" TOTAL LENGTH
HWY. 223 STA. 216+86.11 BR. END



SITE 1 - HWY. 62	SITE 2 - HWY. 223
BEGINNING OF PROJECT	BEGINNING OF SITE 2
LAT. = N 36°23'50"	LAT. = N 36°22'47"
LONG.= W 92°01'14"	LONG.= W 91°59'08"
MID-POINT OF SITE 1	MID-POINT OF SITE 2
LAT. = N 36°23'48"	LAT. = N 36°22'57"
LONG.= W 92°01'09"	LONG.= W 91°58'59"
END OF SITE 1	END OF PROJECT
LAT. = N 36°23'47"	LAT. = N 36°23'10"
LONG.= W 92°01'03"	LONG.= W 91°59'01"

GROSS LENGTH OF PROJECT	3572.65	FEET	OR	0.677	MILES
NET " " BRIDGES	422.50	"	"	0.080	"
NET " " ROADWAY	3150.15	"	"	0.597	"
NET " " PROJECT	3572.65	"	"	0.677	"

• DESIGN TRAFFIC DATA •

	SITE 1 HWY. 62	SITE 2 HWY. 223
DESIGN YEAR	2044	2044
2024 ADT	3600	570
2044 ADT	4400	670
2044 DHV	484	74.0
DIRECTIONAL DISTRIBUTION	60%	60%
TRUCKS	11%	8%
DESIGN SPEED	55 MPH	55 MPH

BURNS & McDONNELL ENGINEERING COMPANY, INC. CERTIFICATE OF AUTHORIZATION No.17 ARKANSAS ENGINEER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 13832 RYAN W. CASTOR

04-12-2024

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	2	124
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
04-15-2024

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 7	TYPICAL SECTIONS OF IMPROVEMENT		
8 - 18	SPECIAL DETAILS		
19 - 30	TEMPORARY EROSION CONTROL DETAILS		
31 - 44	MAINTENANCE OF TRAFFIC DETAILS		
45 - 46	PERMANENT PAVEMENT MARKING DETAILS		
47 - 50	QUANTITIES		
51	SCHEDULE OF BRIDGE QUANTITIES	07599	65815
52	SUMMARY OF QUANTITIES AND REVISIONS		
53 - 55	SURVEY CONTROL DETAILS		
56 - 59	PLAN AND PROFILE SHEETS		
60	DRIVEWAY PROFILES		
61	CULVERT DIAGRAM		
62	LAYOUT OF BRIDGE HWY. 223 OVER BIG CREEK (SHEET 1 OF 3)	07599	65816
63	LAYOUT OF BRIDGE HWY. 223 OVER BIG CREEK (SHEET 2 OF 3)	07599	65817
64	LAYOUT OF BRIDGE HWY. 223 OVER BIG CREEK (SHEET 3 OF 3)	07599	65818
65	DETAILS OF BENT 1 (SHEET 1 OF 4)	07599	65819
66	DETAILS OF BENT 1 (SHEET 2 OF 4)	07599	65820
67	DETAILS OF BENT 1 (SHEET 3 OF 4)	07599	65821
68	DETAILS OF BENT 1 (SHEET 4 OF 4)	07599	65822
69	DETAILS OF BENTS 2 & 3	07599	65823
70	DETAILS OF BENTS 4 & 5	07599	65824
71	DETAILS OF BENT 6 (SHEET 1 OF 4)	07599	65825
72	DETAILS OF BENT 6 (SHEET 2 OF 4)	07599	65826
73	DETAILS OF BENT 6 (SHEET 3 OF 4)	07599	65827
74	DETAILS OF BENT 6 (SHEET 4 OF 4)	07599	65828
75	DETAILS OF ELASTOMERIC BEARINGS	07599	65829
76	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 1 OF 7)	07599	65830
77	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 2 OF 7)	07599	65831
78	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 3 OF 7)	07599	65832
79	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 4 OF 7)	07599	65833
80	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 5 OF 7)	07599	65834
81	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 6 OF 7)	07599	65835
82	DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT (SHEET 7 OF 7)	07599	65836
83 - 124	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
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	04-14-23
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030F	STANDARD DETAILS FOR TYPE F APPROACH GUTTERS	09-07-23
55040F1	STANDARD DETAILS FOR TYPE F APPROACH SLAB	09-07-23
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	05-19-22
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
FES-1	FLARED END SECTION	10-18-96
GR-5	GUARDRAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLATION	11-07-19
GR-6	GUARDRAIL DETAILS	05-19-22
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-4	WIRE FENCE TYPE C AND D	08-22-02

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	3	124
		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
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
FHWA-1273__ SUPPLEMENT - TRAINING PROGRAM - JOB NUMBER 050422
100-3_____ CONTRACTOR'S LICENSE
100-4_____ DEPARTMENT NAME CHANGE
102-2_____ ISSUANCE OF PROPOSALS
103-2_____ CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4_____ MAINTENANCE DURING CONSTRUCTION
107-2_____ RESTRAINING CONDITIONS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____ UNCLASSIFIED EXCAVATION
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
307-1_____ CEMENT
308-1_____ CEMENT
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
400-7_____ TRACKLESS TACK
404-3_____ DESIGN OF ASPHALT MIXTURES
409-2_____ ASPHALT LABORATORY FACILITY
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4_____ EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1_____ RECYCLED ASPHALT PAVEMENT
501-2_____ CEMENT
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____ CONCRETE DITCH PAVING
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
617-2_____ GUARDRAIL DELINEATORS
620-1_____ MULCH COVER
621-1_____ FILTER SOCKS
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
802-4_____ CEMENT
804-2_____ REINFORCING STEEL FOR STRUCTURES
807-2_____ STEEL STRUCTURES
808-1_____ INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____ ELASTOMERIC BEARINGS
JOB 050422__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 050422__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050422__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050422__ BUY AMERICA - CONSTRUCTION MATERIALS
JOB 050422__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 050422__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 050422__ COLD MILLING – COUNTY PROPERTY
JOB 050422__ CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 050422__ CULVERT CLEAN OUT
JOB 050422__ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 050422__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 050422__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050422__ ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
JOB 050422__ EXPLORATORY HOLES
JOB 050422__ FLEXIBLE BEGINNING OF WORK
JOB 050422__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050422__ LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 050422__ LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES
JOB 050422__ MANDATORY ELECTRONIC CONTRACT
JOB 050422__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 050422__ NESTING SITES OF MIGRATORY BIRDS
JOB 050422__ OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 050422__ PARTNERING REQUIREMENTS
JOB 050422__ PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 050422__ PLASTIC PIPE
JOB 050422__ PORTABLE TRAFFIC SIGNAL SYSTEM (WEEK)
JOB 050422__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 050422__ PRICE ADJUSTMENT FOR FUEL
JOB 050422__ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 050422__ SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 050422__ SHORING FOR CULVERTS
JOB 050422__ STORM WATER POLLUTION PREVENTION PLAN
JOB 050422__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050422__ UTILITY ADJUSTMENTS
JOB 050422__ VALUE ENGINEERING
JOB 050422__ WARM MIX ASPHALT
JOB 050422__ WATER POLLUTION CONTROL
JOB 050422__ WATTLES
JOB 050422__ WELLHEAD PROTECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
04-16-2024

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. 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.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

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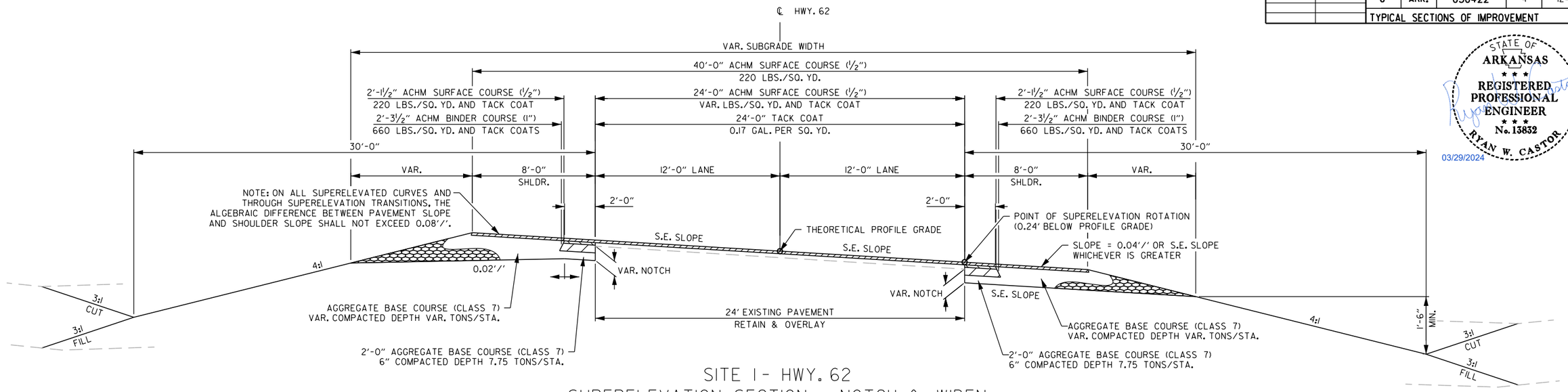
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	4	124
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



SITE 1 - HWY. 62
SUPERELEVATION SECTION - NOTCH & WIDEN

STA. 108+25.00 TO STA. 110+10.00

NOTES:

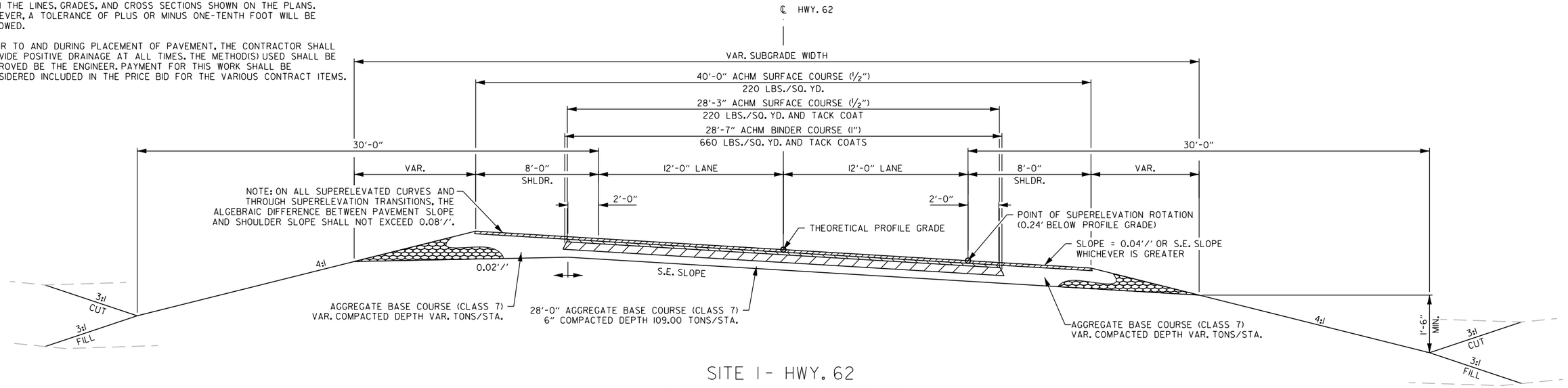
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BE THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



SITE 1 - HWY. 62
SUPERELEVATION SECTION

STA. 110+10.00 TO STA. 111+93.00

SITE 1 - HWY. 62
TYPICAL SECTIONS OF IMPROVEMENT

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	5	124
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
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RYAN W. CASTOR
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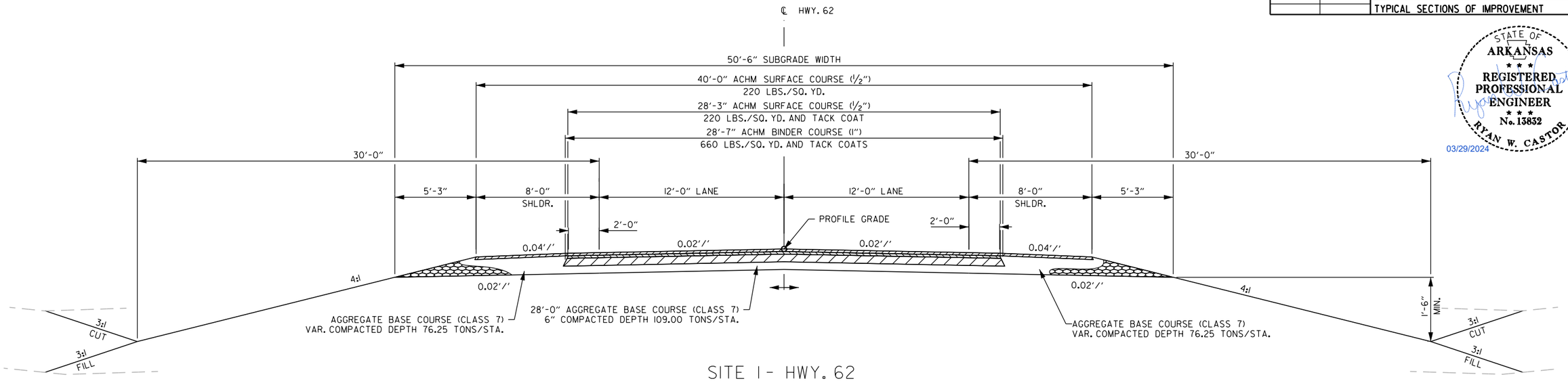

SITE 1 - HWY. 62
TANGENT SECTION

STA. 111+93.00 TO STA. 112+86.00

NOTES:

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

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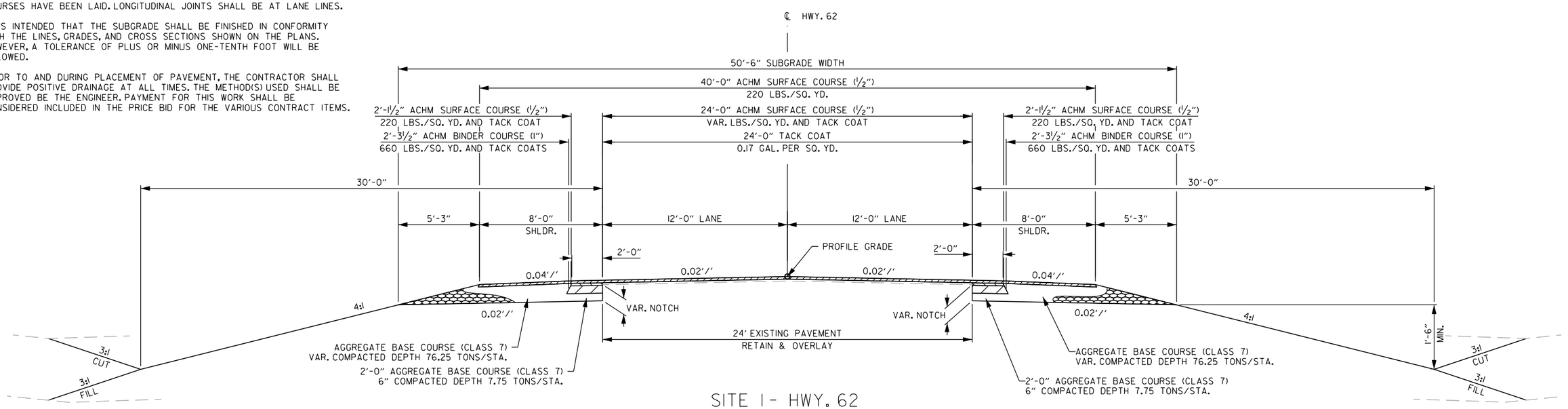

SITE 1 - HWY. 62
TANGENT SECTION - NOTCH & WIDEN

STA. 112+86.00 TO STA. 118+00.00

SITE 1 - HWY. 62
TYPICAL SECTIONS OF IMPROVEMENT

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	6	124
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
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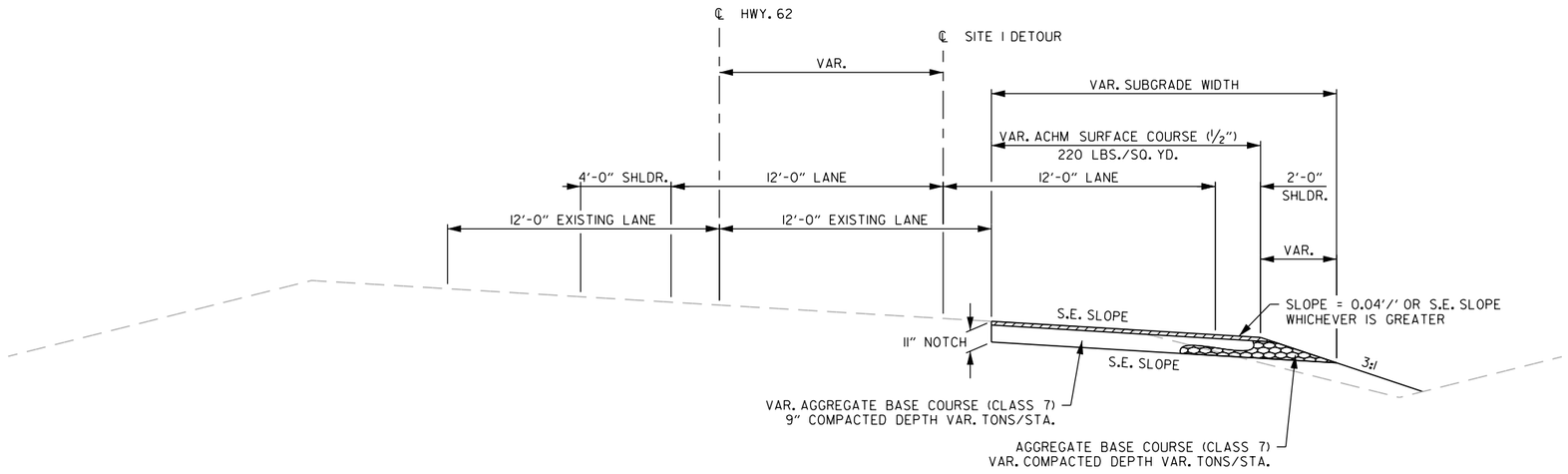
No. 13832
RYAN W. CASTOR
03/29/2024



NOTES:

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

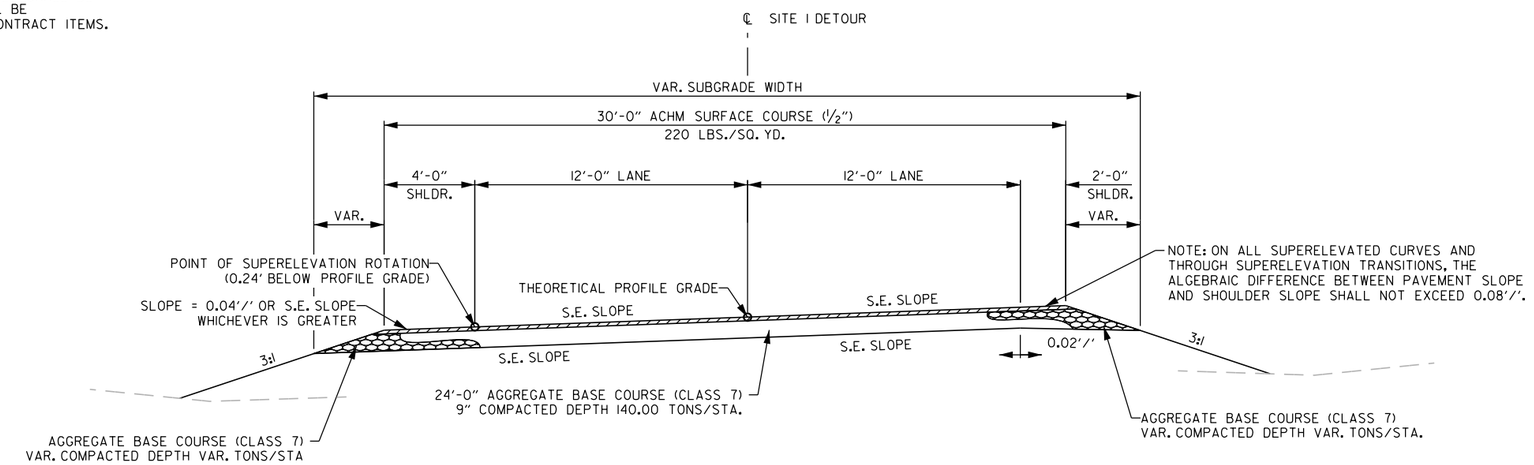
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BE THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

SITE I DETOUR
SUPERELEVATION SECTION - NOTCH & WIDEN

STA. 310+00.00 TO STA. 312+11.56
STA. 316+13.47 TO STA. 318+18.63



SITE I DETOUR
SUPERELEVATION SECTION

STA. 312+11.56 TO STA. 316+13.47

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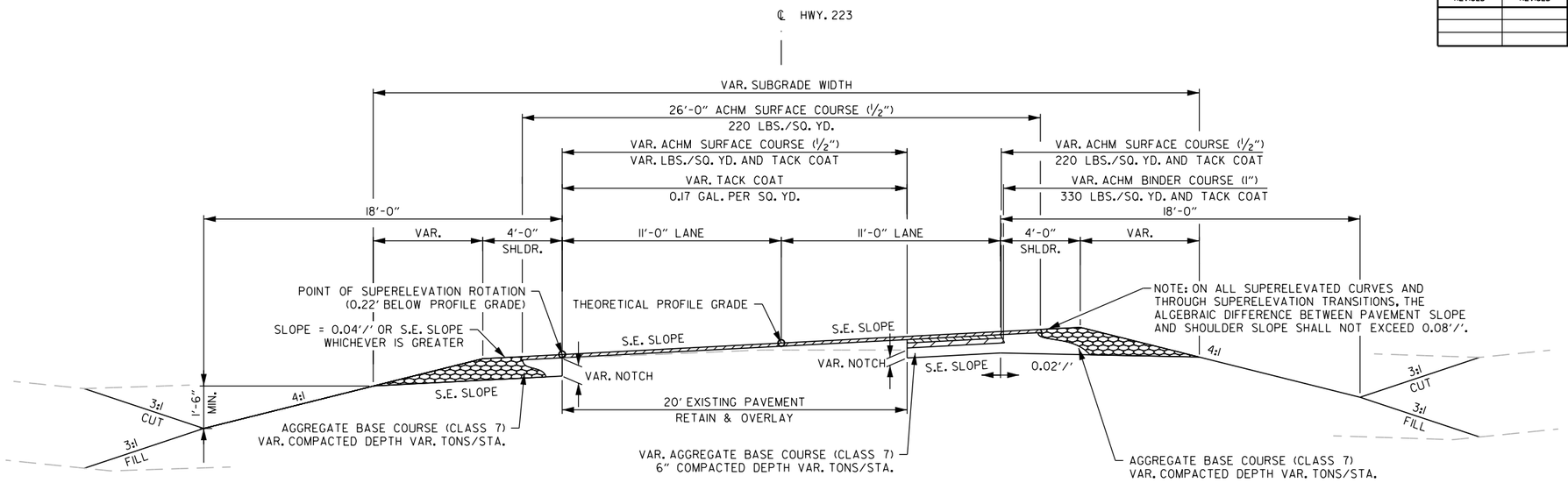
SITE I - HWY. 62
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	7	124
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



SITE 2 - HWY. 223
SUPERELEVATION SECTION - NOTCH & WIDEN

STA. 201+00.00 TO STA. 204+30.00
STA. 222+70.00 TO STA. 226+97.65

NOTES:

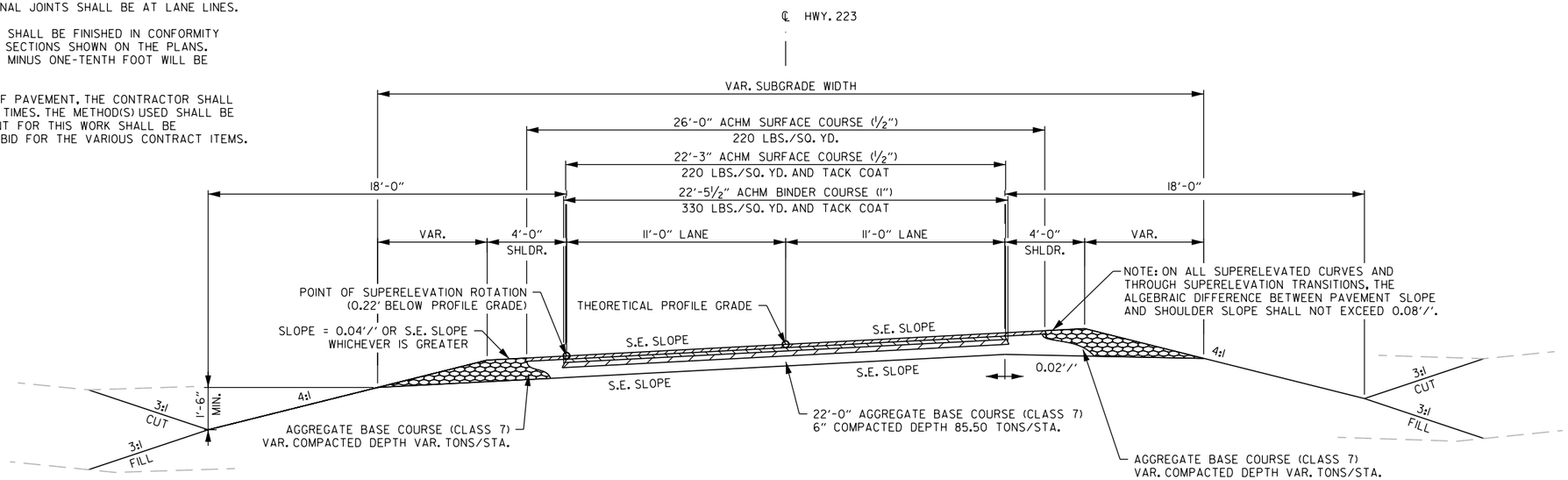
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BE THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



SITE 2 - HWY. 223
SUPERELEVATION SECTION

STA. 204+30.00 TO STA. 213+13.90
STA. 216+86.11 TO STA. 222+70.00

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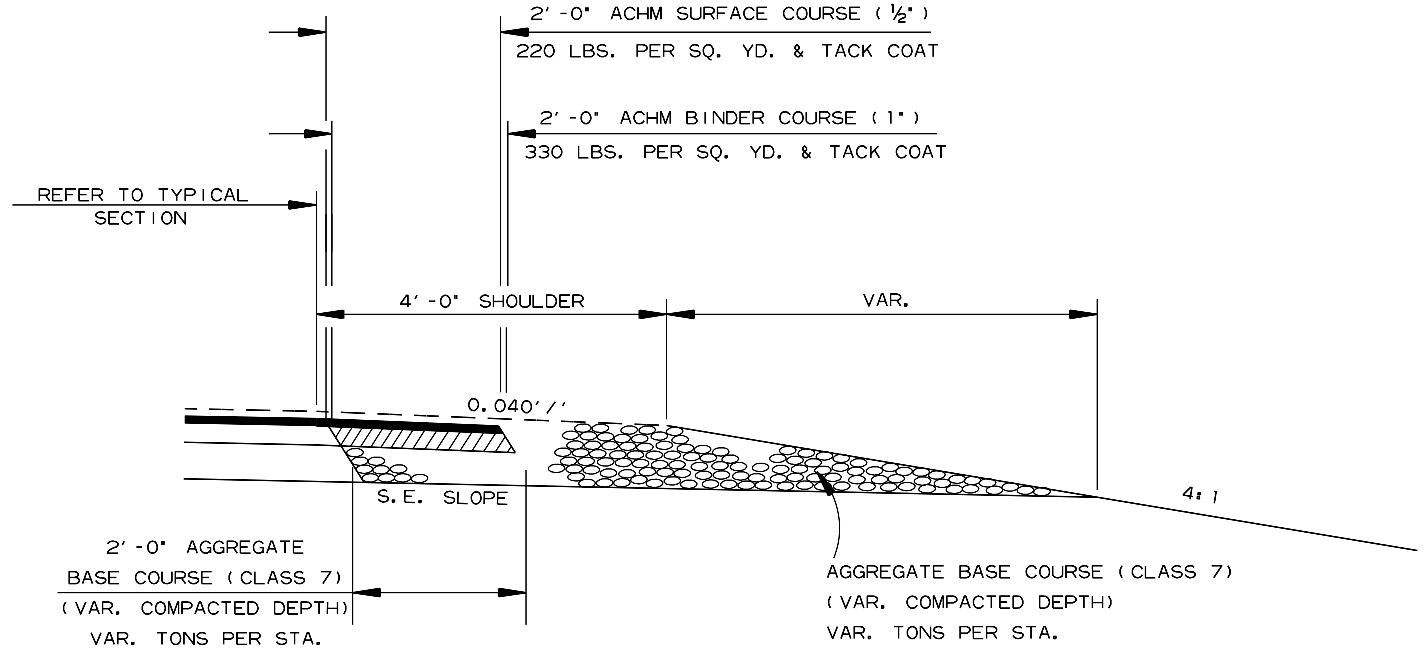
SITE 2 - HWY. 223
TYPICAL SECTIONS OF IMPROVEMENT

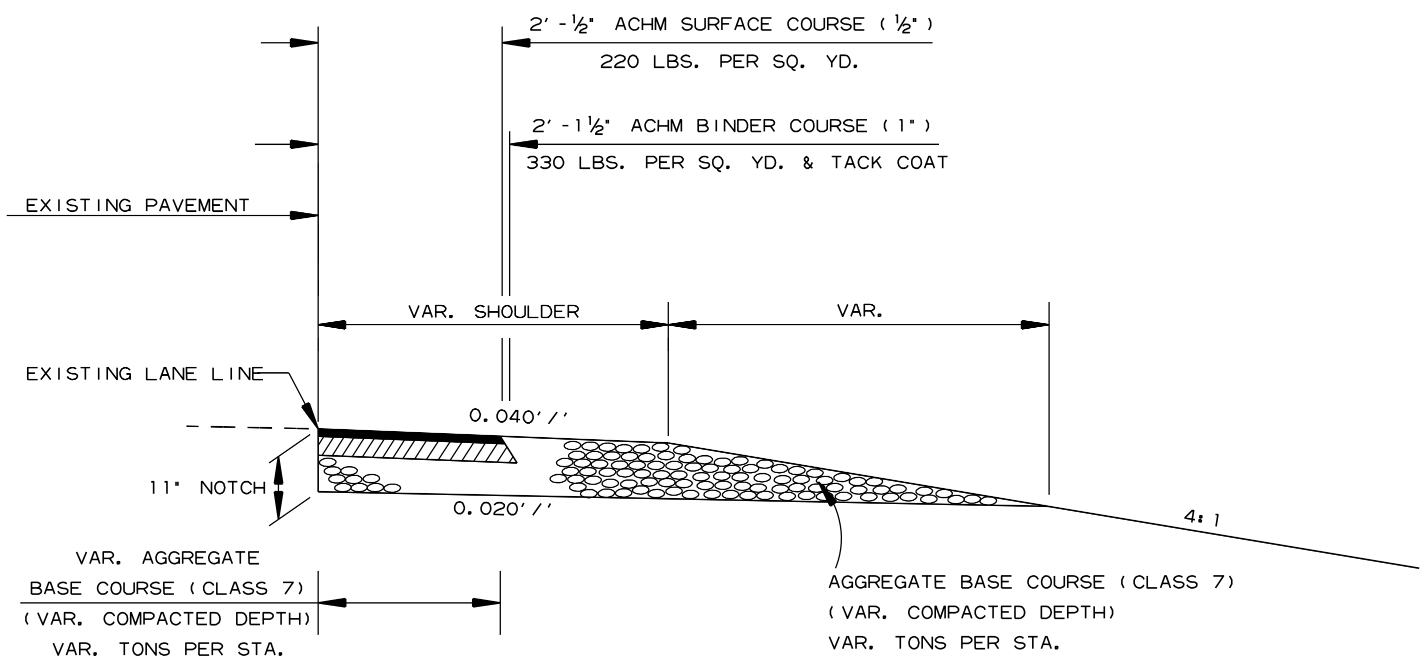
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	8	124
		SPECIAL DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024



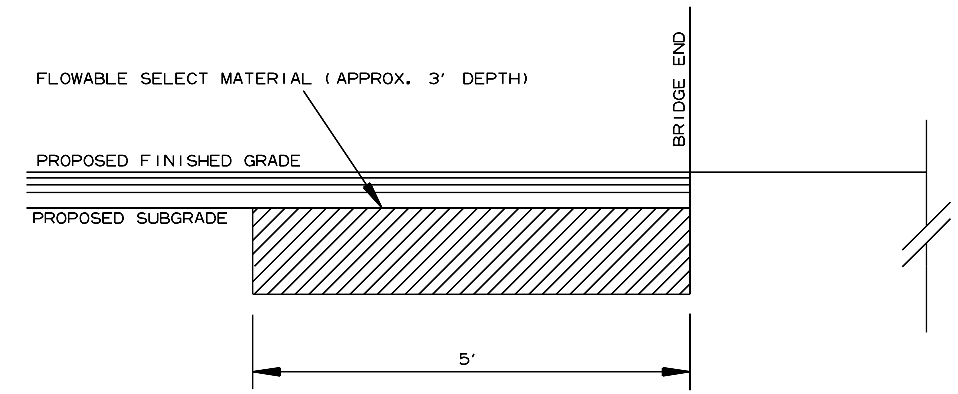
FULL DEPTH SHOULDER FOR MAINTENANCE OF TRAFFIC (SITE 2 - HWY. 223)

STA. 201+00.00 TO STA. 204+00.00
STA. 223+00.00 TO STA. 226+97.65



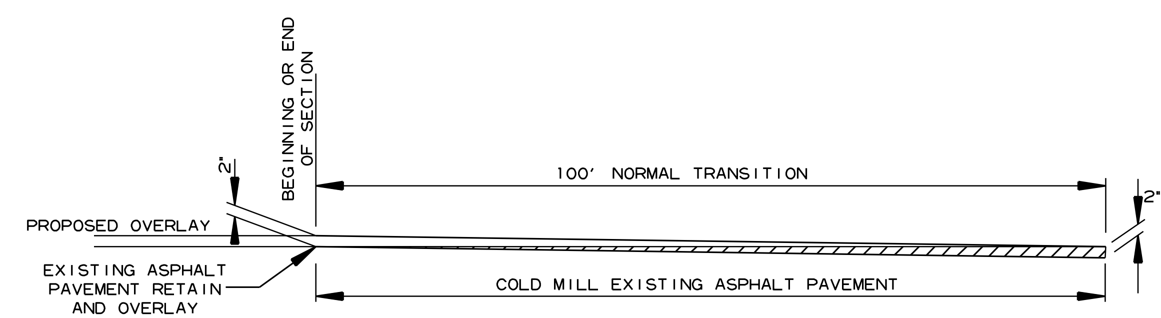
ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC (SITE 2 - HWY. 223)

STA. 200+00.00 TO STA. 201+00.00
STA. 226+97.65 TO STA. 227+97.65

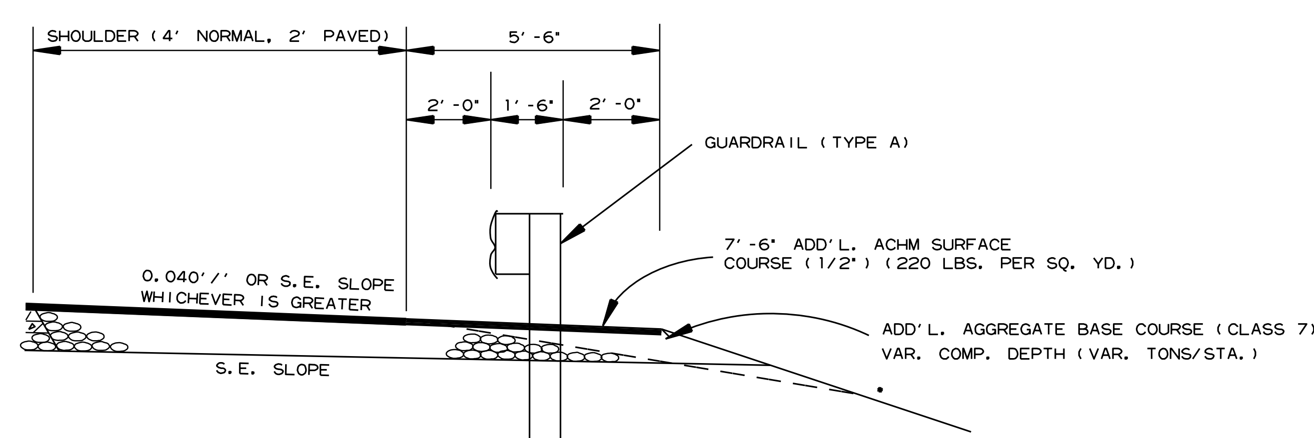


NOTE: EXCAVATION FOR PLACING FLOWABLE SELECT MATERIAL WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT SHALL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS BID ITEMS.

FLOWABLE SELECT MATERIAL AT BRIDGE ENDS



DETAIL FOR TRANSITIONS



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

WIDENING FOR GUARDRAIL (SITE 2 - HWY. 223)

SPECIAL DETAILS

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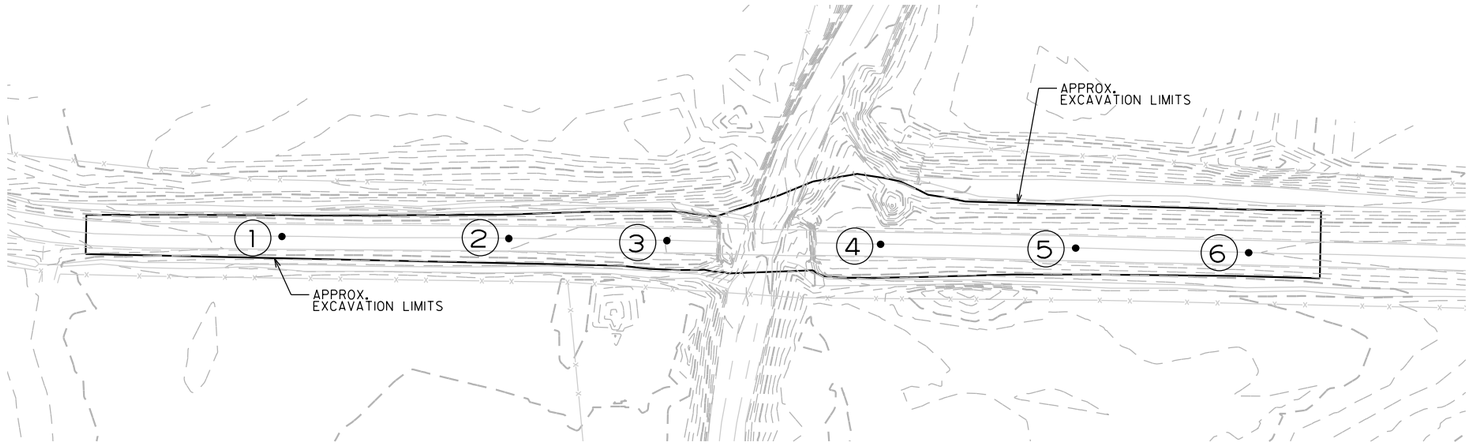
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	9	124
		SPECIAL DETAILS				



EMBANKMENT REMOVAL SITE 2 (HWY. 223)

(1) STA. 210+77
OFFSET 187.5' LT.
ELEV. 789.00'

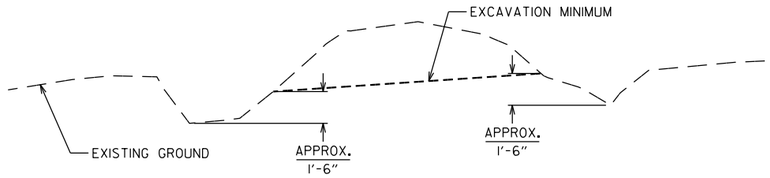
(2) STA. 213+05
OFFSET 231.5' LT.
ELEV. 788.50'

(3) STA. 214+74
OFFSET 235.0' LT.
ELEV. 788.00'

(4) STA. 216+94
OFFSET 204.0' LT.
ELEV. 787.50'

(5) STA. 218+58
OFFSET 148.0' LT.
ELEV. 788.75'

(6) STA. 219+87
OFFSET 95.0' LT.
ELEV. 789.25'



NOTES:

(1) EXISTING ROADWAY EMBANKMENT SHALL BE REMOVED TO OR BELOW ORIGINAL GROUND ELEVATION.

(2) QUANTITY ESTIMATED BASED ON EXCAVATION MINIMUM.

(3) FINAL GRADING SHALL HAVE POSITIVE DRAINAGE.

STATE OF ARKANSAS
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JESSE TYLER MONCRIEF
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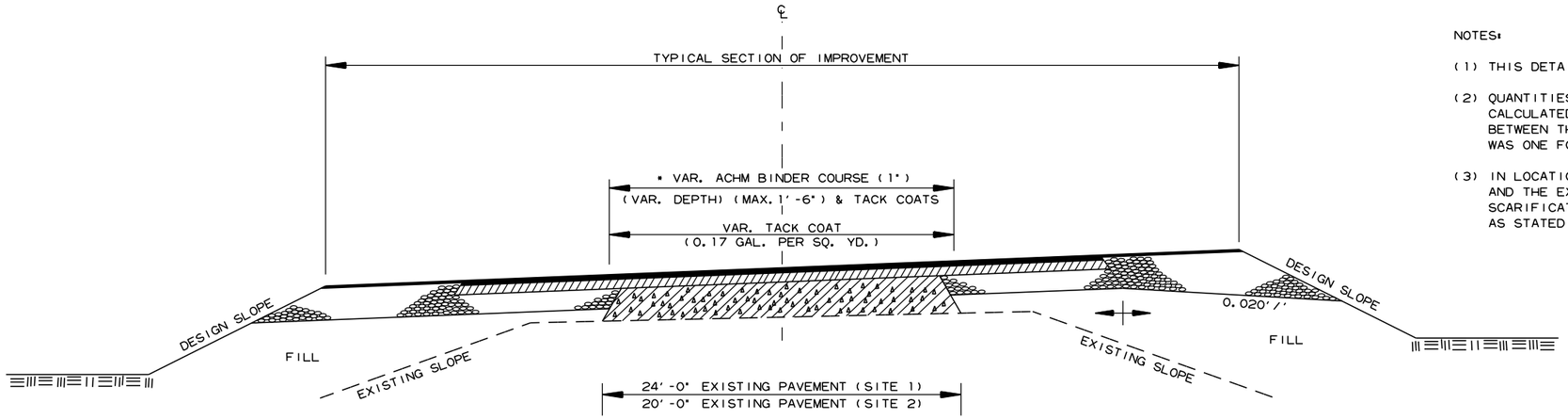

* 6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (1")

METHOD OF RAISING GRADE (M.R.G.)

NOTES:

(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.

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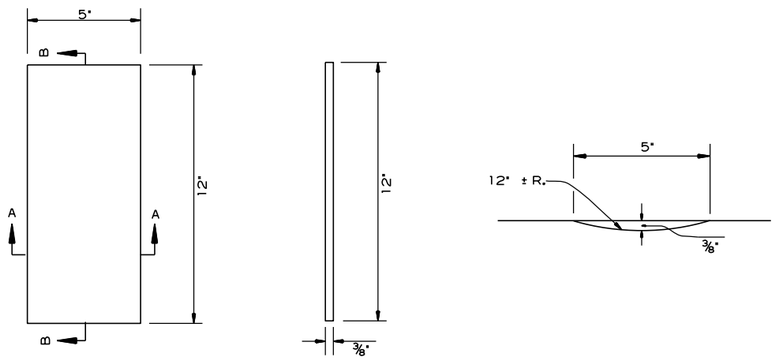
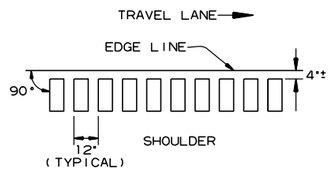
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	10	124
		SPECIAL DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024

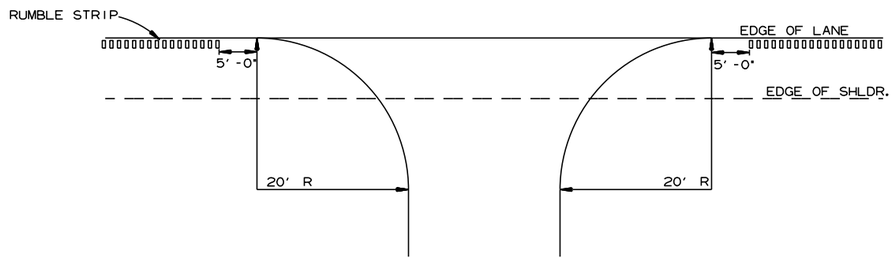


PLAN SECTION B-B SECTION A-A

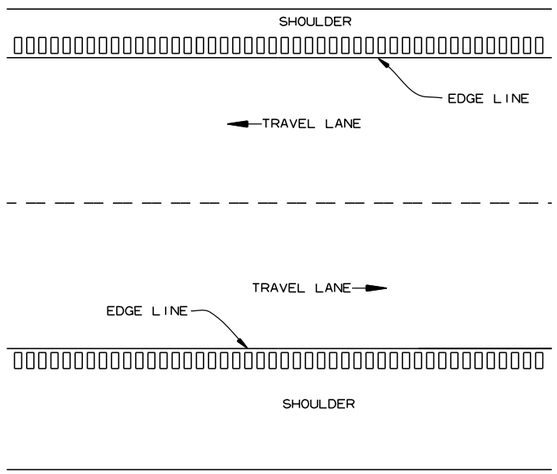
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



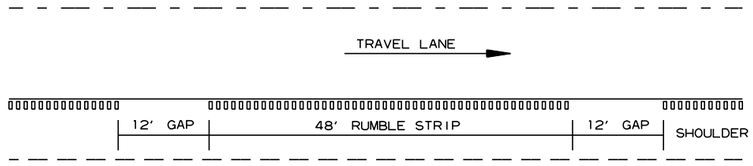
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	11	124
		SPECIAL DETAILS				

STATE OF ARKANSAS
No. 18634
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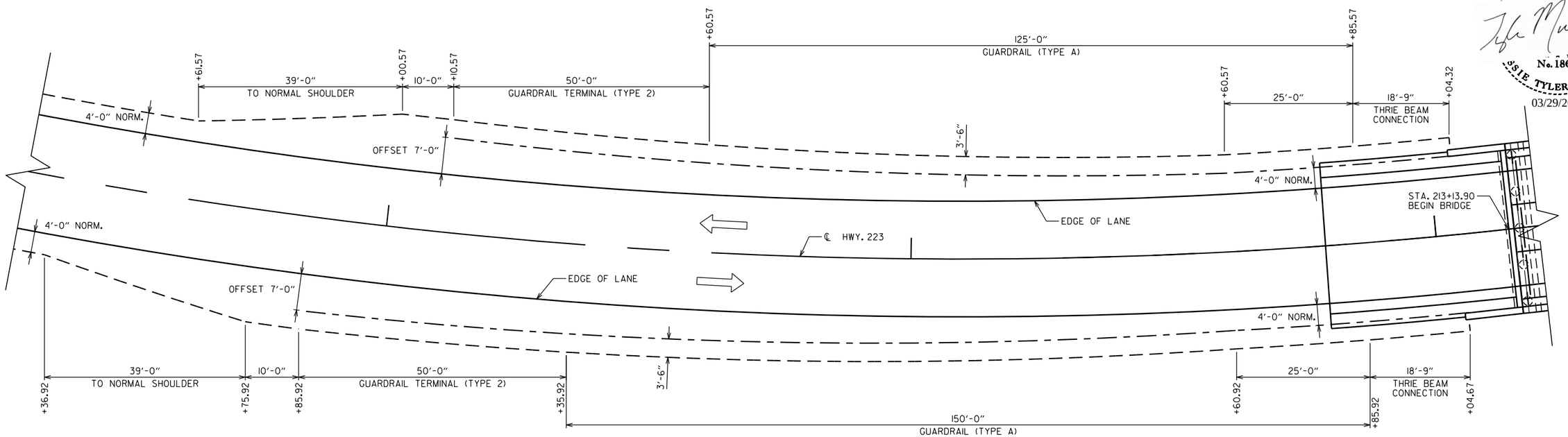

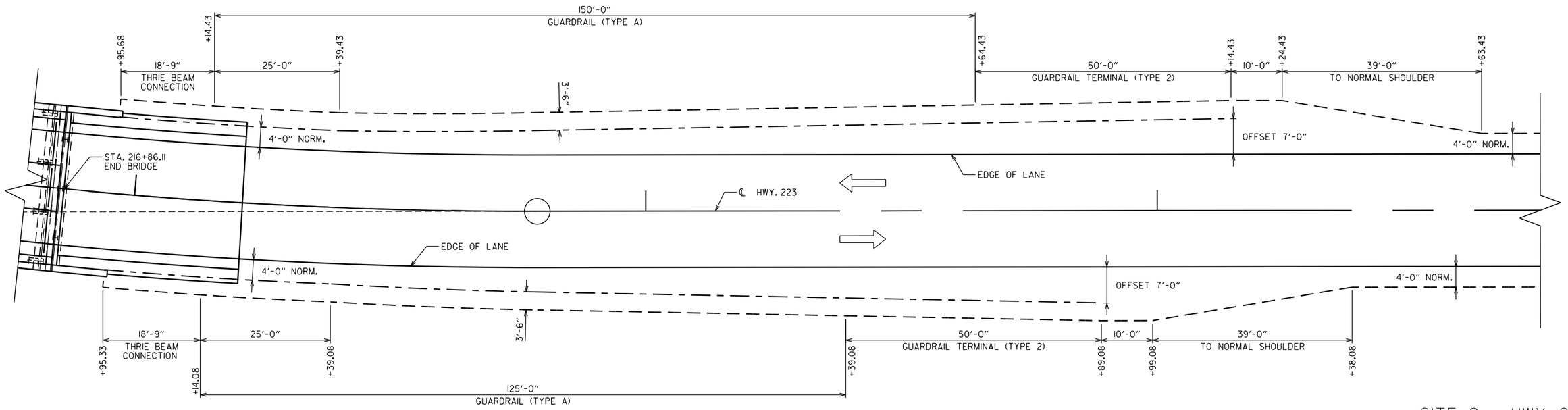

WIDENING FOR GUARDRAIL AT BRIDGE ENDS

SITE 2 - HWY. 223
SPECIAL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	12	124
		SPECIAL DETAILS				

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
48'-7"	9'-0"	0'-10"	0'-9"	15	3:1	47'-7 1/2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	1'-10"	1'-10"	23'-6"	23'-6"	24'-5 1/8"	28'-9 1/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
18.38	1641

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	24	L Min 4'-2" Max 12'-5" X Min 0'-10" Max 2'-5" Y Min 3'-5" Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"	4	8	25'-3"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	809
WING B	4	12	24	L Min 4'-2" Max 12'-5" X Min 0'-10" Max 2'-5" Y Min 3'-5" Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"	4	8	29'-7"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	832

MID-SECTION BAR LAP TABLE

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

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

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

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 17472 TRAVIS MICHAEL RAPP
3/29/2024

TABULAR DATA BY: ALG DATE: 3/27/24
CHECKED BY: TMR DATE: 3/27/24

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3	30	11	9	8'-6"	22	3	23.5	15.5	8	48'-7"	12'-9 1/2"

	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
	7	5.5	Max 48'-3" Min 6'-8"	25	8	5.5	Max 48'-3" Min 6'-8"	25	7	4.5	Max 48'-3" Min 6'-8"	30	8	6.5	Max 48'-3" Min 6'-8"	21
			48'-3"	5			48'-3"	5			48'-3"	6			48'-3"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
8	7.5	29	12'-6"	4	12	58	12'-6"	4	5	223	Max 14'-10" Min 1'-10"	6	10	119	Max 14'-10" Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	(1) REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
4	7.5	15	LONG 14'-7"	4	12	18	LONG 11'-7"	72.06	13865
		15	SHORT 2'-2"			18	MID 8'-4"		
						18	SHORT 5'-1"		

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	25'-10"	12	4	25'-10"	12	4	2'-9"	1'-9"	52

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

INLET SLOPE SECTION(S)

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

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

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

HDWL DEPTH. HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "d' SIZE	"d' L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
E	30	11	9	22	23.5	15.5	8	48'-7"	12'-9 1/2"	105.8	4	48'-3"	8	50'-11"	6	48'-3"	9	141	4	48'-3"	8	50'-11"	8	48'-3"	13	97

SIDE WALL REINFORCING STEEL "f0" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
8	7.5	338	12'-6"	4	12	630	12'-6"	4	5	223	6	10	119	5	11	20	4	12	54	883.73	126888

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
SITE 1 - HWY. 62 STA. 112+50
SPECIAL DETAILS

LRFD

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	13	124
		SPECIAL DETAILS				

TABULAR DATA BY: ALG DATE: 3/27/24
CHECKED BY: TMR DATE: 3/27/24

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
48'-2"	9'-0"	0'-10"	0'-9"	15	3:1	47'-7 1/2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	1'-10"	1'-10"	23'-6"	23'-6"	24'-8 5/8"	29'-6 7/8"

CLASS "S" CONCRETE (Includes apron) OUTLET	REINFORCING STEEL (Includes apron and laps if required) OUTLET
CU.YD	LBS.
20.10	1646

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

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY
WING A	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"
WING B	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"

WING	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS
WING A	4	8	25'-7"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"
WING B	4	8	30'-5"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"

WING	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	810
WING B	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	836

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

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

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3:1	25	11	9	8'-5"	19	3	20.5	13	8	48'-2"	12'-3 1/2"

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
7	5.5	Max 47'-10" Min 6'-6"	25	8	5.5	Max 47'-10" Min 6'-6"	25	7	5	Max 47'-10" Min 6'-6"	27	8	6.5	Max 47'-10" Min 6'-6"	21
		47'-10"	5			47'-10"	5			47'-10"	5			47'-10"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
8	8	26	12'-0"	4	12	58	12'-0"	5	9	127	Max 14'-9" Min 1'-10"	5	8	143	Max 14'-9" Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	(1) REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
4	8.5	13	LONG 14'-6"	4	12	18	LONG 11'-6"	62.38	12923
		13	SHORT 2'-1"			18	MID 8'-3"		
						18	SHORT 5'-1"		

"k1" HDWL BARS SIZE	"k1" LENGTH	"k1" NO. REQ'D	"k2" HDWL BARS SIZE	"k2" LENGTH	"k2" NO. REQ'D	"h" HDWL BARS SIZE	"h" LENGTH	"h" Y	"h" NO. REQ'D
4	25'-8"	12	4	25'-8"	12	4	2'-6"	1'-6"	51

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)
	D	S	H	T	B	C	W	OW	OH	SL
D	25	11	9	19	20.5	13	8	48'-2"	12'-3 1/2"	7.65

TOP SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	47'-10"	8	49'-0"	6	47'-10"	9	10	4	47'-10"	8	50'-1"	8	47'-10"	13	7

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
8	8	22	11'-0"	4	12	42	11'-0"	5	9	127	5	8	143

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
4	8.5	26	4	12	54	55.55	9101
					TOTAL	55.55	9101

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

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

QUADRUPLE BARREL BOX CULVERT
SITE 1 - HWY. 62 STA. 112+50

SPECIAL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	14	124
		SPECIAL DETAILS				

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
47'-6"	9'-0"	0'-10"	0'-9"	15	3:1	47'-7 1/2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	1'-10"	1'-10"	23'-6"	23'-6"	25'-2 1/4"	30'-10 3/8"	18.54	1654

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	24	L	Min 4'-2"	4	12	11	L 6'-3"	-	-	-	L -	4	18	8	Min	4	18	4	23'-2"	4	18	16	L Min 5'-11"		4	26'-0"	6	18	16	Min	4	18	2	Min	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4"	812
					Max 12'-5"												5'-7"								Max 12'-5"							2'-9"				24'-3"									
				X	Min 0'-10"				X 1'-9"				X -				Max								Min 2'-5"							Max				Max								X 1'-8"	
					Max 2'-5"																				Max 2'-5"							4'-3"				24'-3"									
				Y	Min 3'-5"				Y 4'-7"				Y -				21'-0"				23'-2"				Min 3'-7"																					
					Max 10'-1"																				Max 10'-1"																					
WING B	4	12	24	L	Min 4'-2"	4	12	11	L 6'-3"	-	-	-	L -	4	18	8	Min	4	18	4	23'-2"	4	18	16	L Min 5'-11"		4	31'-8"	6	18	16	Min	4	18	2	Min	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4"	842
					Max 12'-5"												5'-7"								Max 12'-5"							2'-9"				24'-3"									
				X	Min 0'-10"				X 1'-9"				X -				Max								Min 2'-5"							Max				Max								X 1'-8"	
					Max 2'-5"																				Max 2'-5"							4'-3"				24'-3"									
				Y	Min 3'-5"				Y 4'-7"				Y -				21'-0"				23'-2"				Min 3'-7"																					
					Max 10'-1"																				Max 10'-1"																					

MID-SECTION BAR LAP TABLE

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

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

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

TABULAR DATA BY: JTM DATE: 3/22/22
CHECKED BY: JGS DATE: 4/14/22

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																						
15	3	10	11	9	8'-4"	14	3	14	9	8	47'-6"	11'-4"	4	6	Max 47'-2" Min 6'-2" 47'-2"	22 4	4	5	Max 47'-2" Min 6'-2" 47'-2"	27 5	4	4	Max 47'-2" Min 6'-2" 47'-2"	33 6	4	5.5	Max 47'-2" Min 6'-2" 47'-2"	24 5	7	8	26	11'-0"	4	12	58	11'-0"	5	12	95	Max 14'-7" Min 1'-10"	5	12	95	Max 14'-7" Min 1'-10"	4	12	9	LONG 14'-5" SHORT 2'-0"	4	12	18	LONG 11'-5" MID 8'-2" SHORT 5'-0"

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	25'-4"	12	4	25'-4"	12	4	2'-1"	1'-1"	51

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
45.08	6027

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	10	11	9	14	14	9	8	47'-6"	11'-4"	11.39	4	47'-2"	6	48'-7"	4	47'-2"	16	8	4	47'-2"	5	48'-5"	4	47'-2"	10	13	7	8	34	11'-0"	4	12	66	11'-0"	5	12	95	5	12	95	4	12	18	4	12	54
B	15	11	9	15	15	10.5	8	47'-9"	11'-6"	11.39	4	47'-5"	7	48'-0"	5	47'-5"	16	8	4	47'-5"	6	48'-10"	6	47'-5"	11	12	6	5.5	48	11'-2"	4	12	66	11'-2"	5	11	103	5	11	103	4	10	22	4	12	54
C	20	11	9	16	17.5	11.5	8	47'-11"	11'-9 1/2"	11.39	4	47'-7"	8	49'-3"	8	47'-7"	12	11	4	47'-7"	7	49'-4"	7	47'-7"	10	13	8	8.5	32	11'-6"	4	12	66	11'-6"	4	6.5	175	4	6	183	4	9	24	4	12	54
D	25	11	9	19	20.5	13	8	48'-2"	12'-3 1/2"	11.39	4	47'-10"	8	49'-0"	6	47'-10"	9	15	4	47'-10"	8	50'-1"	8	47'-10"	13	10	8	8	34	11'-0"	4	12	66	11'-0"	5	9	127	5	8	143	4	8.5	26	4	12	54

HDWL DEPTH. HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
60.04	7418
64.60	8846
71.30	12292
82.70	13206
TOTAL	
278.54	41761

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
E	30	11	9	22	23.5	15.5	8	48'-7"	12'-9 1/2"	134.9	4	48'-3"	8	50'-11"	6	48'-3"	9	179	4	48'-3"	8	50'-11"	8	48'-3"	13	124	8	7.5	430	12'-6"	4	12	804	12'-6"	4	5	223	6	10	119	5	11	20	4	12	54

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
1126.14	162069

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
SITE 1 - HWY. 62 STA. 112+50
ULTIMATE CONDITIONS
SPECIAL DETAILS

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OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
47'-6"	9'-0"	0'-10"	0'-9"	15	3:1	47'-7 1/2"	2'-0"	9'-10"	3'-0"	30	30	3'-3"	4'-10"	4'-10"	1'-10"	1'-10"	23'-6"	23'-6"	25'-2 1/4"	30'-10 3/8"

CLASS "S" CONCRETE (Includes apron) OUTLET	REINFORCING STEEL (Includes apron and laps if required) OUTLET
CU.YD	LBS.
20.21	1654

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	24	L Min 4'-2" Max 12'-5" X Min 0'-10" Max 2'-5" Y Min 3'-5" Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"	4	8	26'-0"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	812
WING B	4	12	24	L Min 4'-2" Max 12'-5" X Min 0'-10" Max 2'-5" Y Min 3'-5" Max 10'-1"	4	12	11	L 6'-3" X 1'-9" Y 4'-7"	-	-	-	L - X - Y -	4	18	8	Min 5'-7" Max 21'-0"	4	18	4	23'-2"	4	18	16	L Min 5'-11" Max 12'-5" X Min 2'-5" Max 2'-5" Y Min 3'-7" Max 10'-1"	4	8	31'-8"	6	18	16	Min 2'-9" Max 4'-3"	4	18	2	Min 24'-3" Max 24'-3"	4	2	24'-0"	4	2	25'-8"	6	12	9	L 3'-4" X 1'-8"	842

TABULAR DATA BY: JTM DATE: 3/22/22
CHECKED BY: JGS DATE: 4/14/22

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

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

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3:1	10	11	9	8'-4"	14	3	14	9	8	47'-6"	11'-4"

	SIZE	SPACING	LENGTHS VARY / LENGTH	NO. REQ'D
TOP SLAB REINFORCING STEEL "a"	4	6	Max 47'-2" Min 6'-2"	22
			47'-2"	4
TOP SLAB REINFORCING STEEL "c"	4	5	Max 47'-2" Min 6'-2"	27
			47'-2"	5
BOTTOM SLAB REINFORCING STEEL "d"	4	4	Max 47'-2" Min 6'-2"	33
			47'-2"	6
BOTTOM SLAB REINFORCING STEEL "f"	4	5.5	Max 47'-2" Min 6'-2"	24
			47'-2"	5
SIDE WALL REINFORCING STEEL "f0"	7	8	11'-0"	26
INTERIOR WALL REINFORCING STEEL "f1"	4	12	11'-0"	58
TOP SLAB DISTRIBUTION REINFORCING STEEL "g"	5	12	Max 14'-7" Min 1'-10"	95
BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"	5	12	Max 14'-7" Min 1'-10"	95
SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"	4	12	LONG 14'-5"	9
			SHORT 2'-0"	9
INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"	4	12	LONG 11'-5"	18
			MID 8'-2"	18
			SHORT 5'-0"	18

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
45.08	6027

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	25'-4"	12	4	25'-4"	12	4	2'-1"	1'-1"	51

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
A	10	11	9	14	14	9	8	47'-6"	11'-4"	11.39	4	47'-2"	6	48'-7"	4	47'-2"	16	8	4	47'-2"	5	48'-5"	4	47'-2"	10	13
B	15	11	9	15	15	10.5	8	47'-9"	11'-6"	11.39	4	47'-5"	7	48'-0"	5	47'-5"	16	8	4	47'-5"	6	48'-10"	6	47'-5"	11	12
C	20	11	9	16	17.5	11.5	8	47'-11"	11'-9 1/2"	11.39	4	47'-7"	8	49'-3"	8	47'-7"	12	11	4	47'-7"	7	49'-4"	7	47'-7"	10	13
D	25	11	9	19	20.5	13	8	48'-2"	12'-3 1/2"	11.39	4	47'-10"	8	49'-0"	6	47'-10"	9	15	4	47'-10"	8	50'-1"	8	47'-10"	13	10

TOP SLAB REINFORCING STEEL: LENGTH = OW - 4" + BENDS
BOTTOM SLAB REINFORCING STEEL: LENGTH = OW - 4" + BENDS

R.C. BOX SECTION	SIDE WALL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DIST. "g" SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DIST. "e" SIZE	SPACING	NO. REQ'D	SIDE WALL DIST. "d1" SIZE	SPACING	NO. REQ'D	INTERIOR WALL DIST. "d2" SIZE	SPACING	NO. REQ'D	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
A	7	8	34	11'-0"	4	12	66	11'-0"	5	12	95	5	12	95	4	12	18	4	12	54	60.04	7418
B	6	5.5	48	11'-2"	4	12	66	11'-2"	5	11	103	5	11	103	4	10	22	4	12	54	64.60	8846
C	8	8.5	32	11'-6"	4	12	66	11'-6"	4	6.5	175	4	6	183	4	9	24	4	12	54	71.30	12292
D	8	8	34	11'-0"	4	12	66	11'-0"	5	9	127	5	8	143	4	8.5	26	4	12	54	82.70	13206
TOTAL																					278.64	41761

SIDE WALL REINFORCING STEEL "f0": LENGTH = OH - 4"
INTERIOR WALL REINFORCING STEEL "f1": LENGTH = OH - 4"
TOP SLAB DISTRIBUTION REINF. STEEL "g": LENGTH = SL
BOTTOM SLAB DISTRIBUTION REINF. STEEL "e": LENGTH = SL
SIDE WALL DISTRIBUTION REINF. STEEL "d1": LENGTH = SL
INTERIOR WALL DISTRIBUTION REINF. STEEL "d2": LENGTH = SL

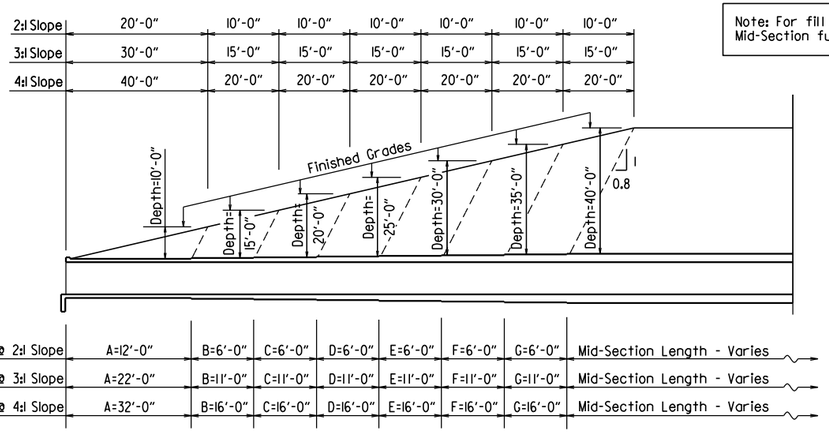
HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
SITE 1 - HWY. 62 STA. 112+50
ULTIMATE CONDITIONS
SPECIAL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	16	124
		SPECIAL DETAILS				

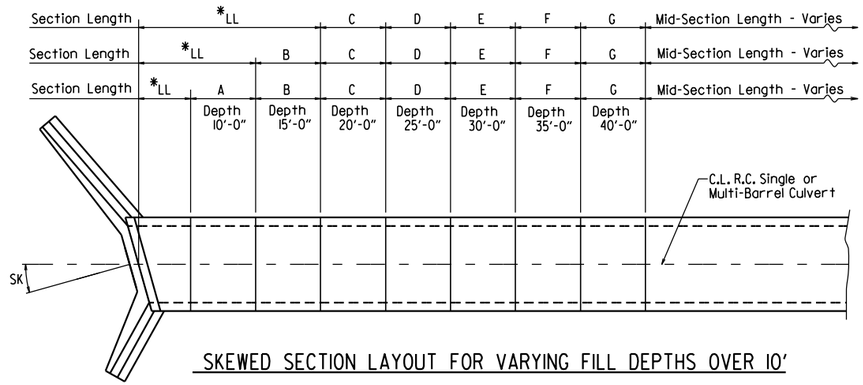


LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

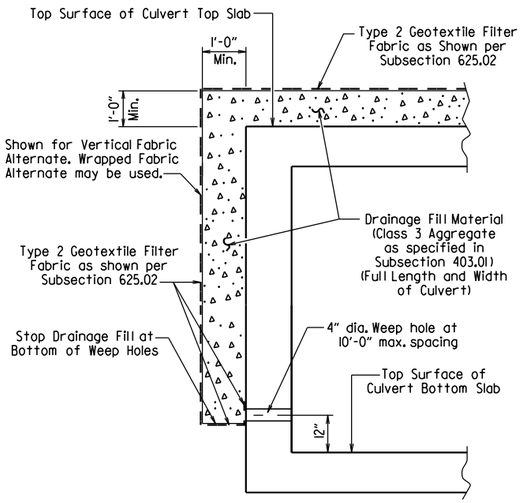
Lengths for Non-Skewed Boxes

Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

*LL = Skewed End Section Length - See "Skewed End Section Details"
Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

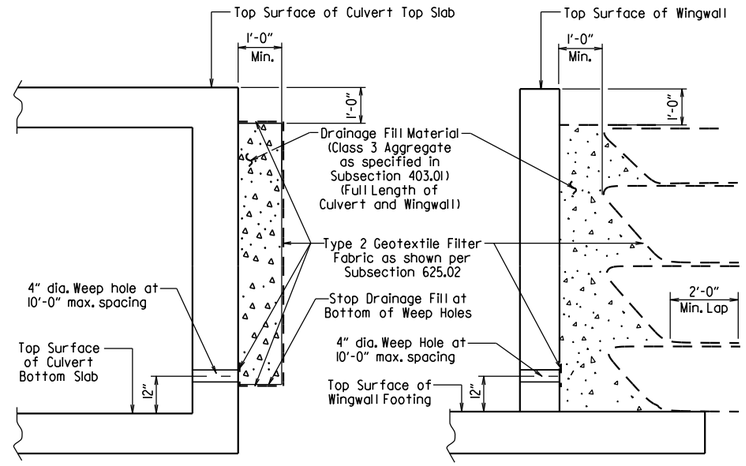


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

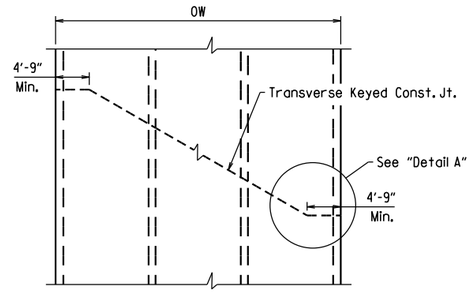


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

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

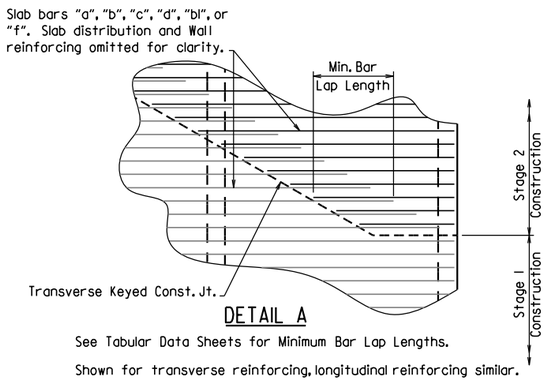
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

GENERAL NOTES:

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, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

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

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

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

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

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

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

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

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

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

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024

SHEET 1 OF 3

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

3/29/2024 8:25:07 AM
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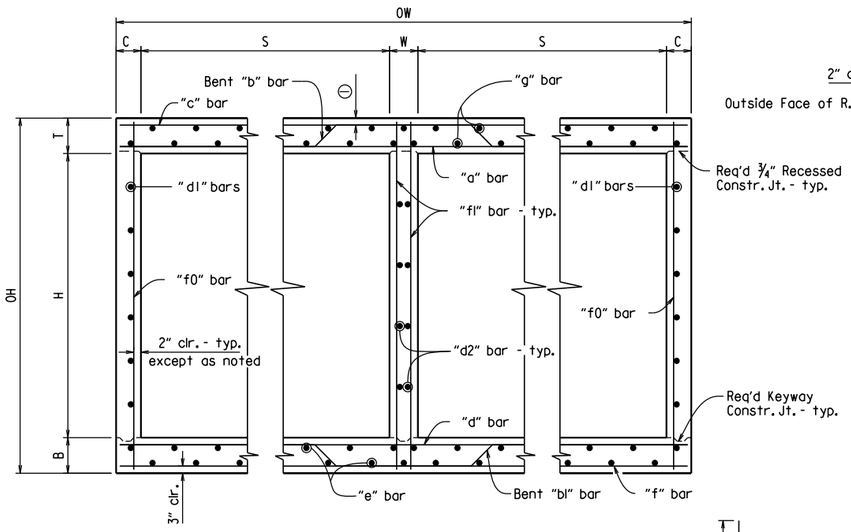
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	17	124
		SPECIAL DETAILS				

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

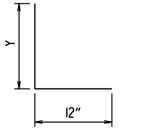
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



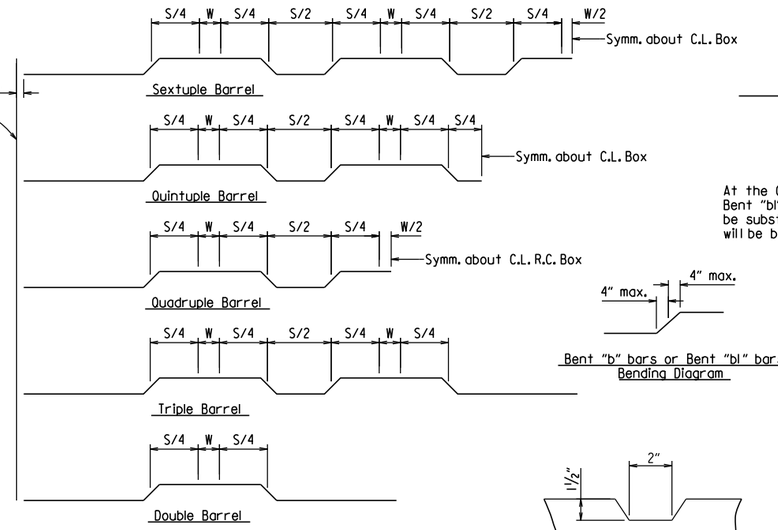
TYPICAL SECTION M-M

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

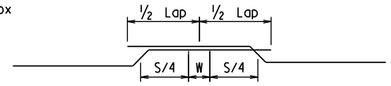
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



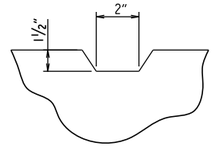
Bent "b" bars or Bent "b1" bars sketch



Lap Detail
For Bent "b" bars and Bent "b1" bars

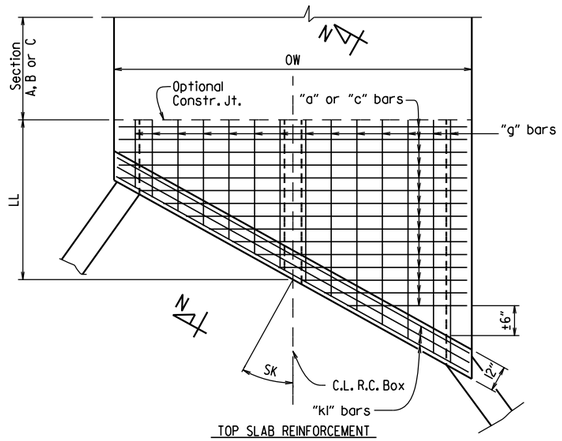
At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.

Bent "b" bars or Bent "b1" bars Bending Diagram



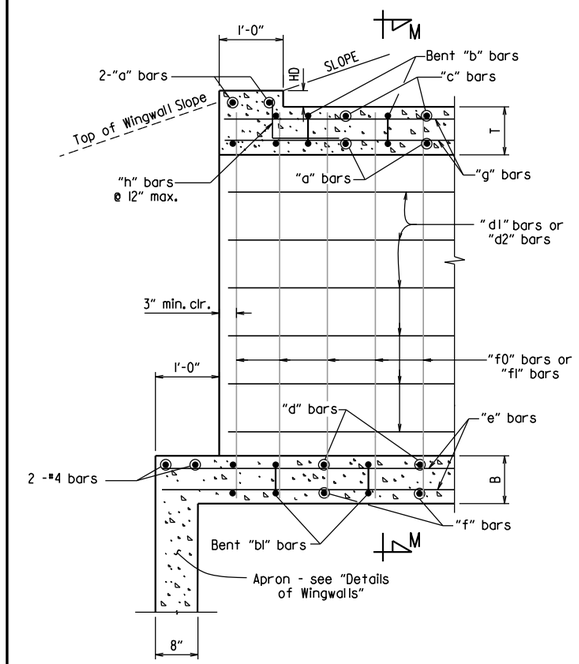
TYPICAL KEYWAY DETAIL

(All Construction Joints)



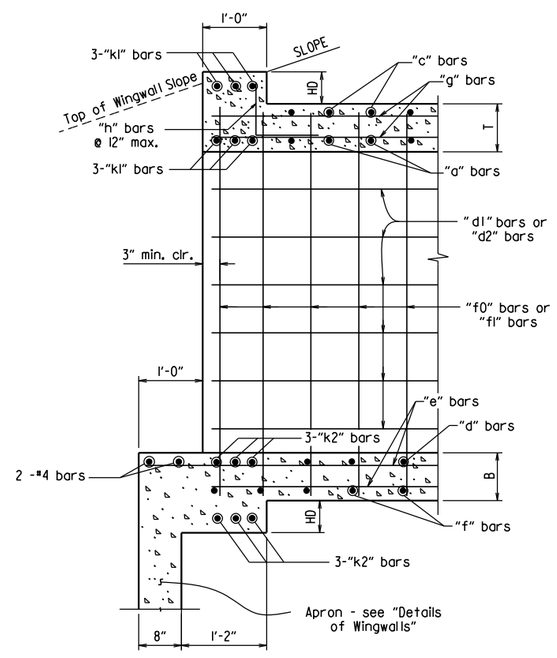
TOP SLAB REINFORCEMENT

Straight "c" bars in top.
Straight "a" bars in bottom.



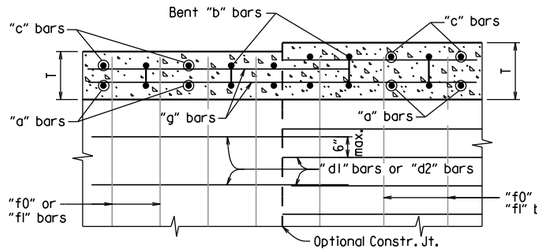
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

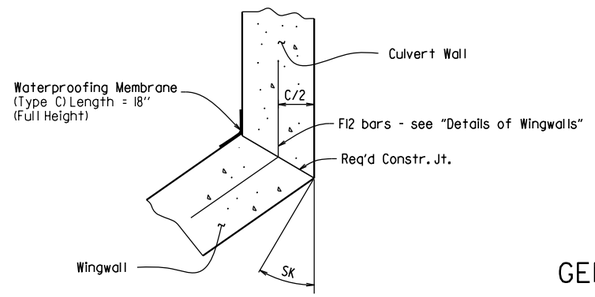
(Skewed Ends)



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

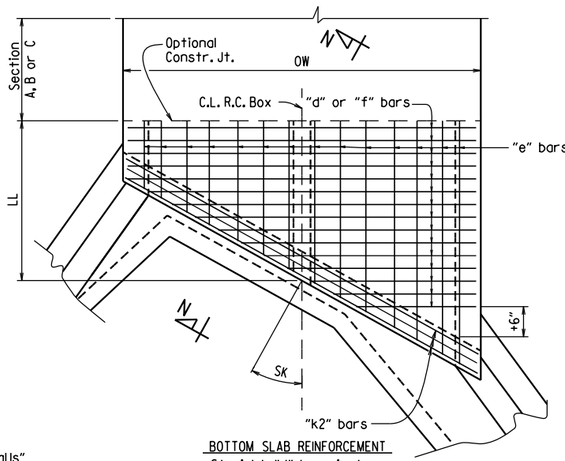
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



BOTTOM SLAB REINFORCEMENT

Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

SHEET 2 OF 3
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024

3/29/2024
8:25:03 AM
...\Road\Sheets\MS\r050422_SD.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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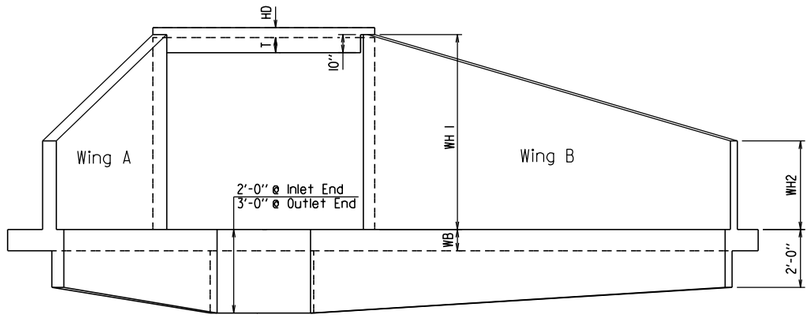
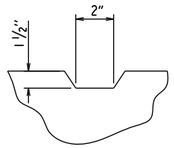
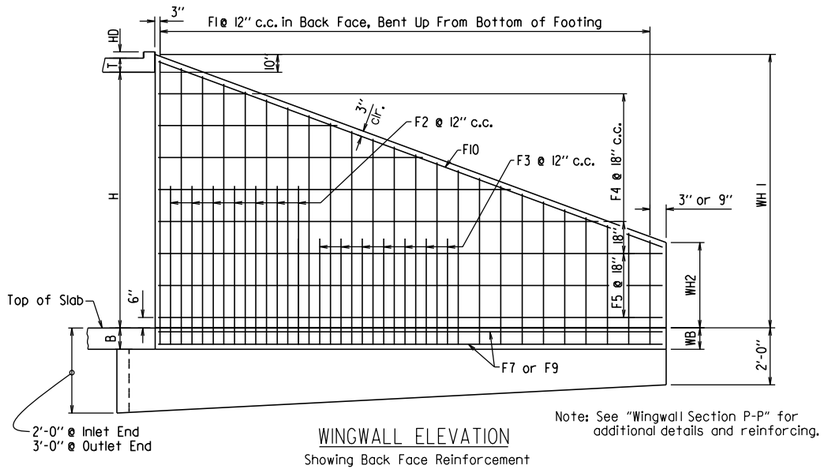
		SPECIAL DETAILS				



END ELEVATION
Flared Wingwalls Shown

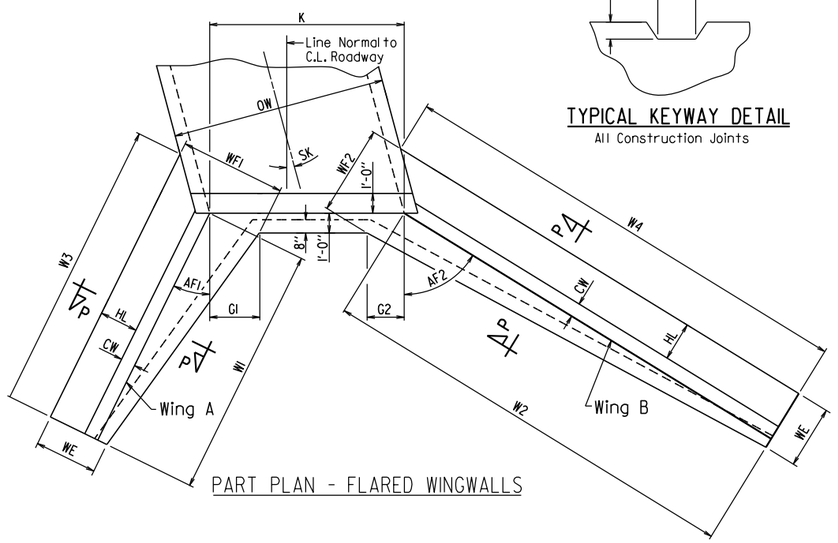


TYPICAL KEYWAY DETAIL
All Construction Joints

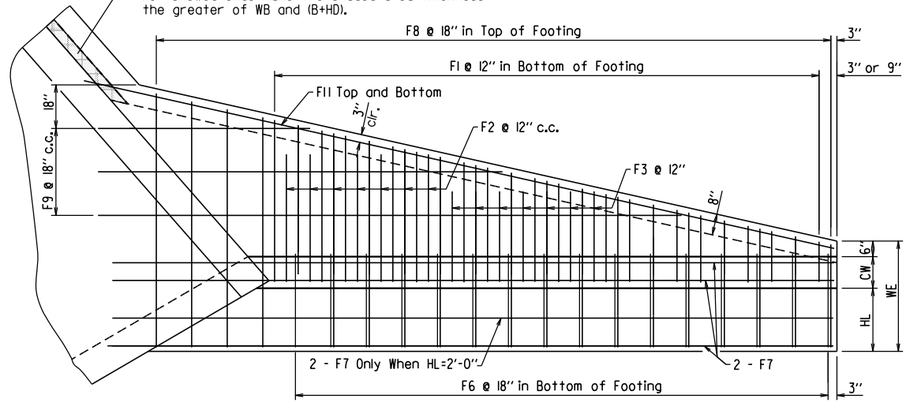


WINGWALL ELEVATION
Showing Back Face Reinforcement

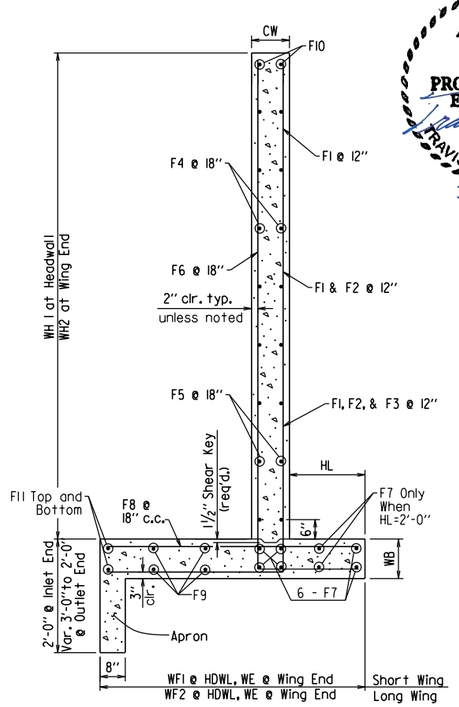
Note: See "Wingwall Section P-P" for additional details and reinforcing.



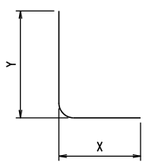
PART PLAN - FLARED WINGWALLS



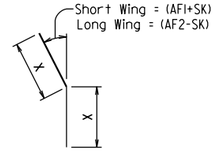
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

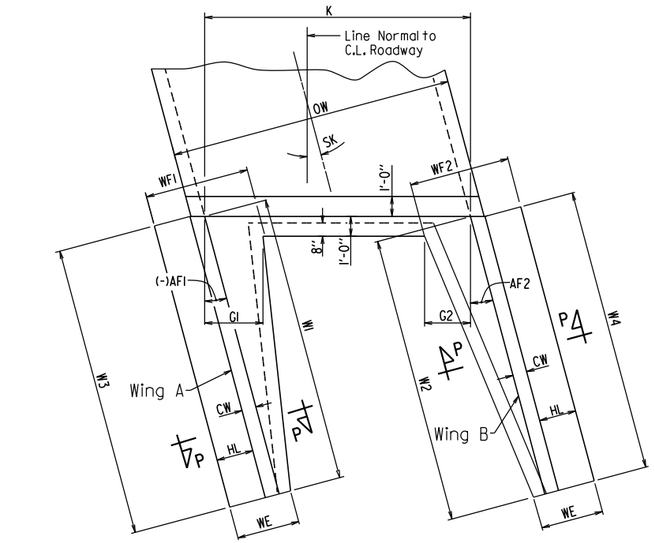


F1, F2, F3, & F6 BARS

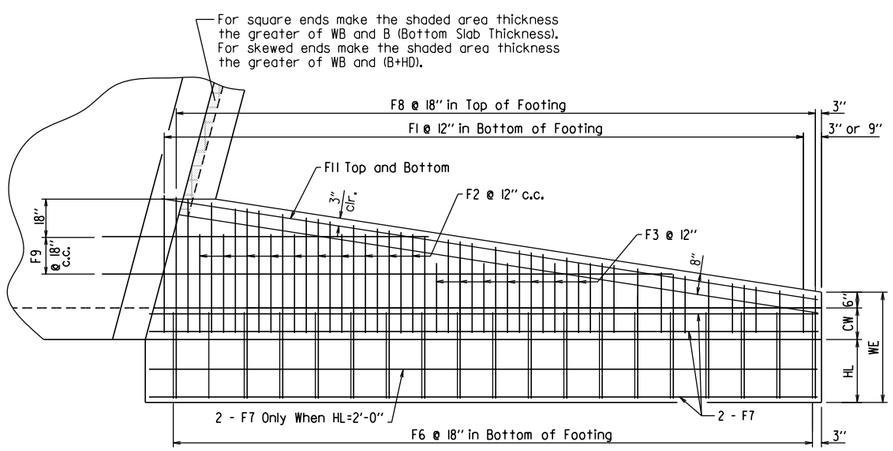


①F12 BAR

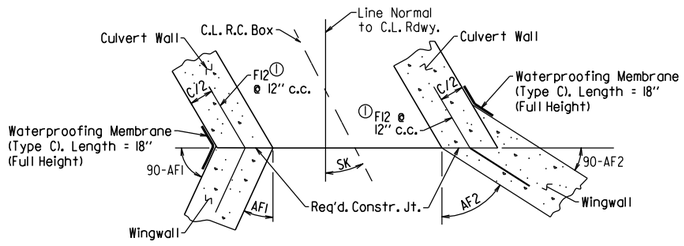
①F12 is a straight bar for parallel wingwalls



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



CONSTRUCTION JOINTS
Flared Wingwalls Shown

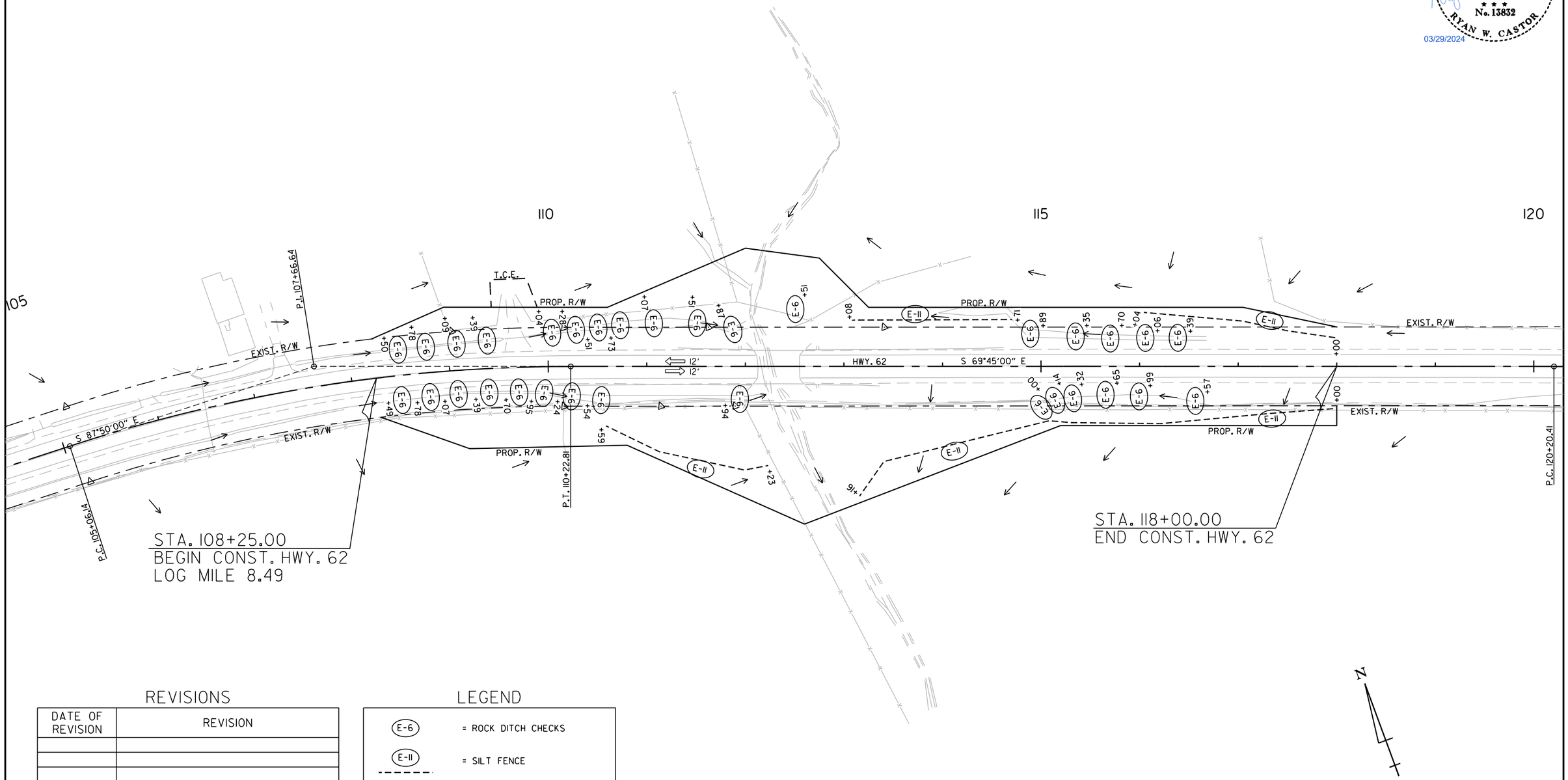
SHEET 3 OF 3
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024

3/29/2024
8:25:04 AM
...\Road_Sheets\MS\r-050422_SD.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	19	124
		EROSION CONTROL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE 1 - HWY. 62 - CLEARING AND GRUBBING
EROSION CONTROL DETAILS

3/29/2024
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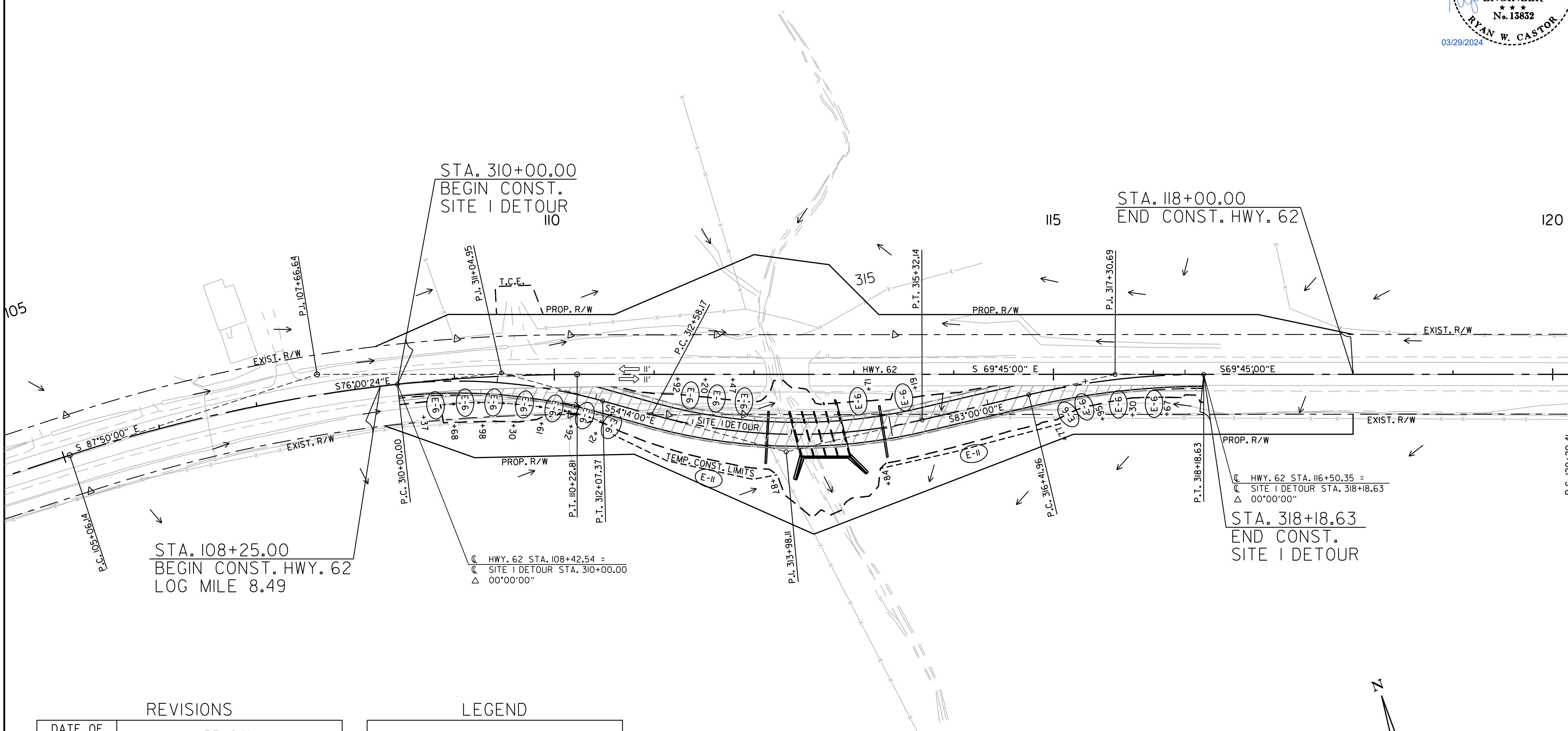
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	20	124

EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

3/29/2024
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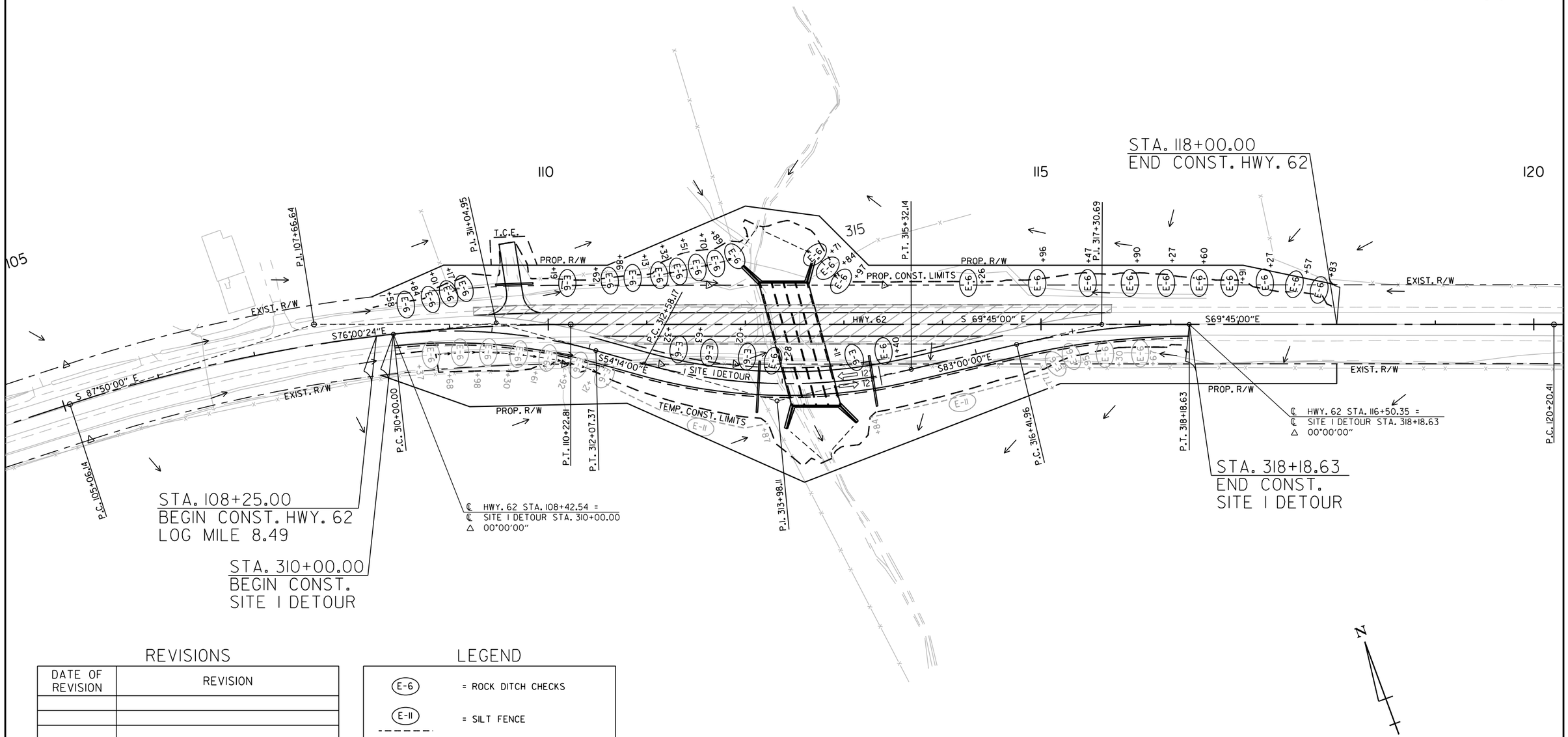
SITE 1 - HWY. 62 - STAGE 1
EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	21	124
		EROSION CONTROL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE I - HWY. 62 - STAGE 2
EROSION CONTROL DETAILS

3/29/2024
8:25:25 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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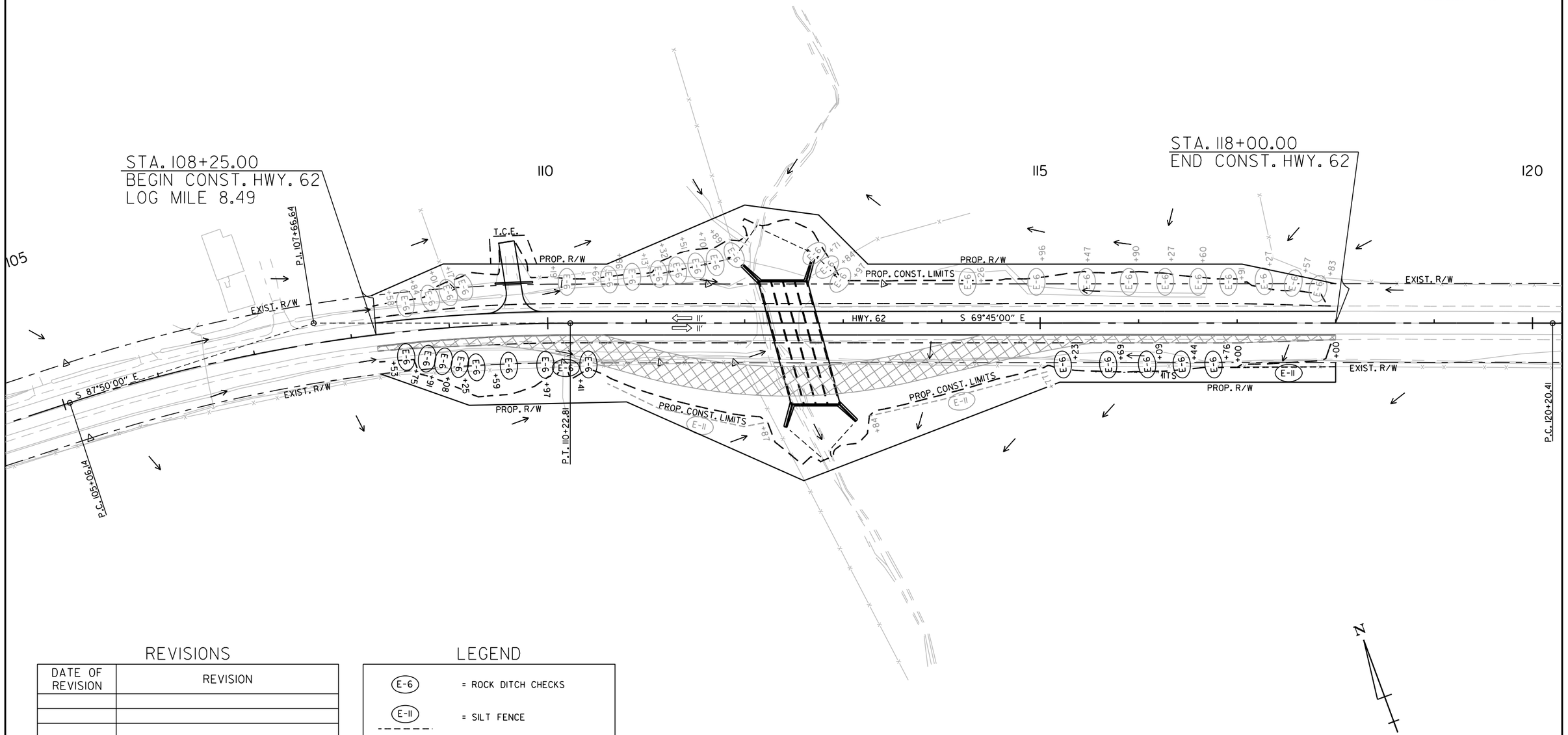
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE 1 - HWY. 62 - STAGE 3
EROSION CONTROL DETAILS

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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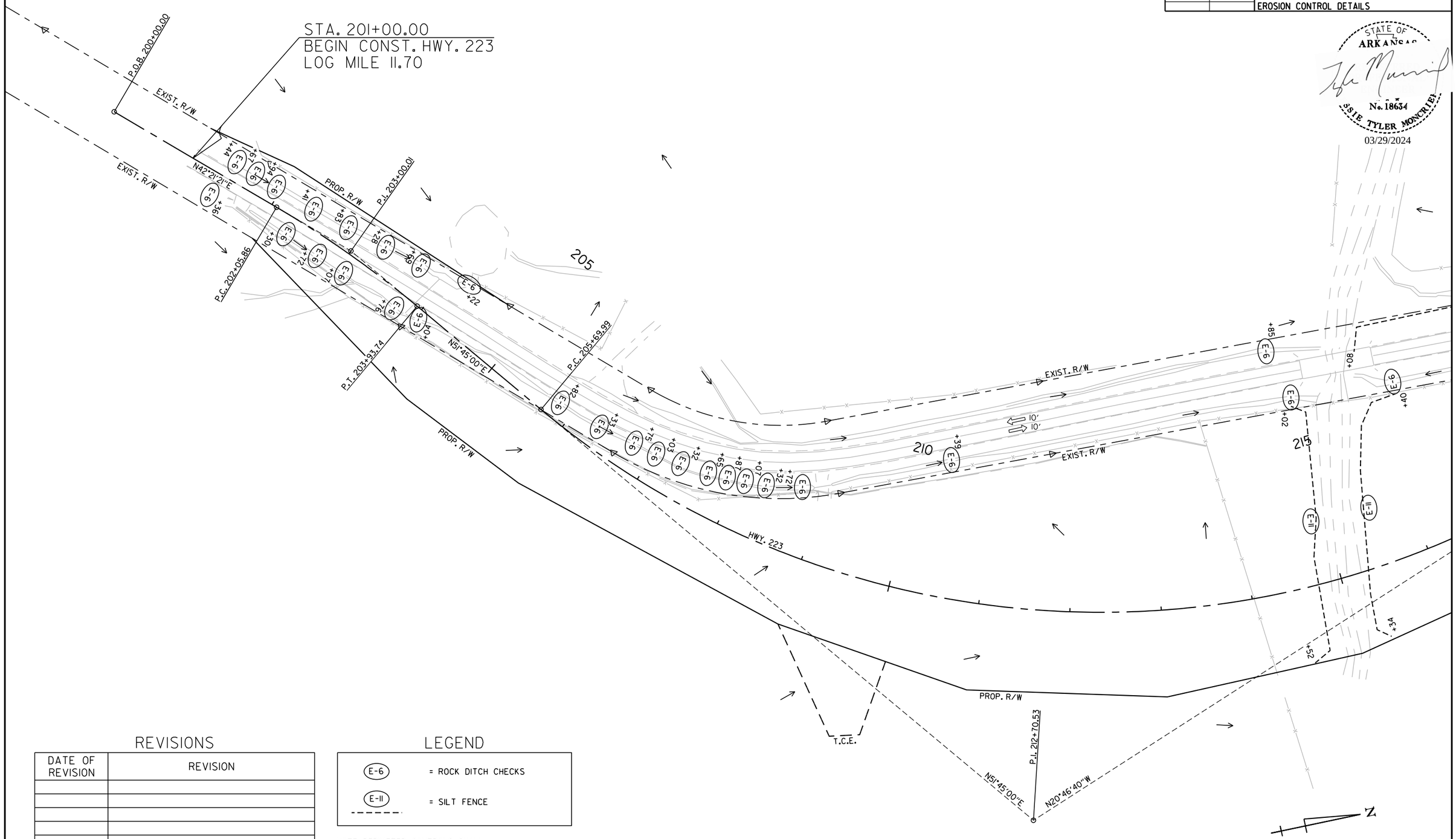
STATE OF ARKANSAS
No. 18634
JESSIE TYLER MONCRIEF
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE 2 - HWY. 223 - CLEARING AND GRUBBING
EROSION CONTROL DETAILS

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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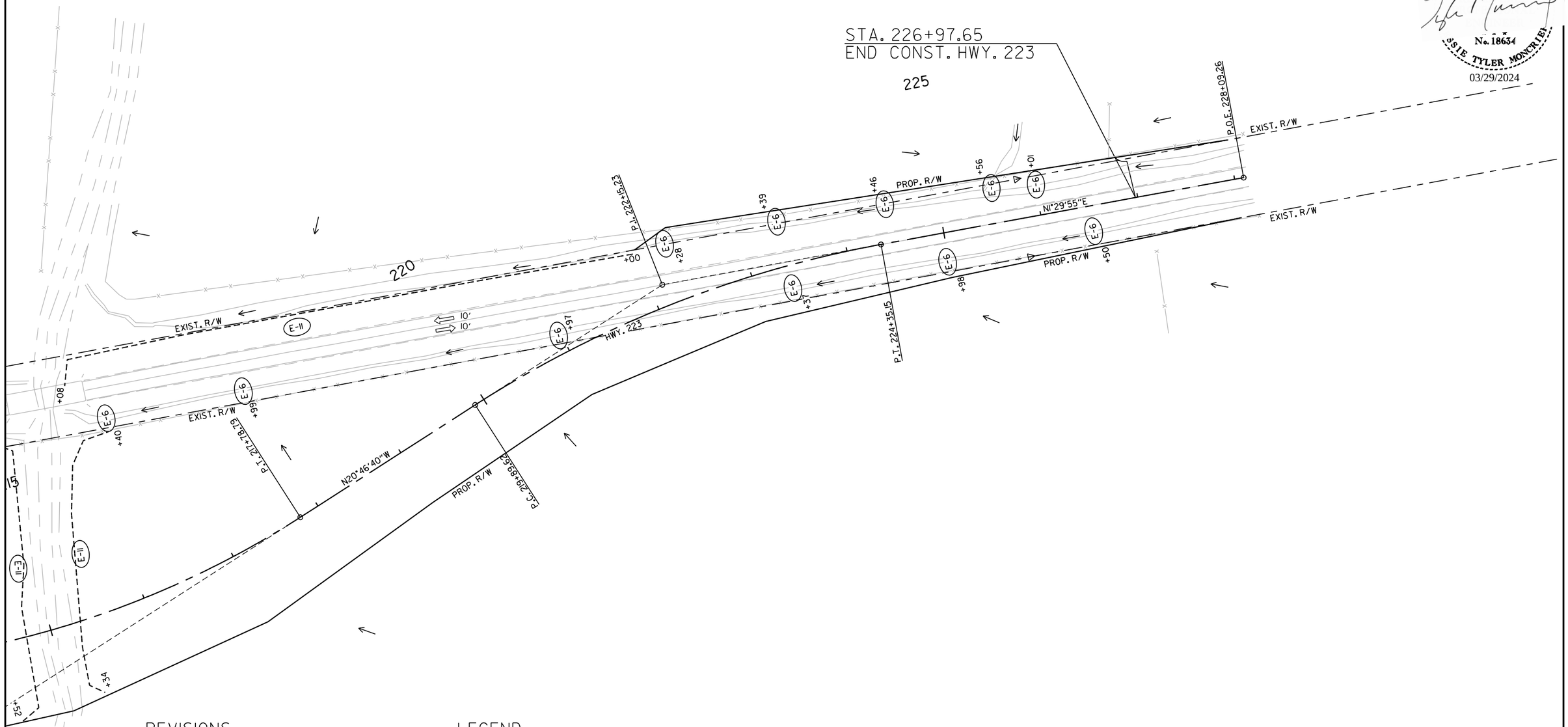
STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

N

SITE 2 - HWY. 223 - CLEARING AND GRUBBING
EROSION CONTROL DETAILS

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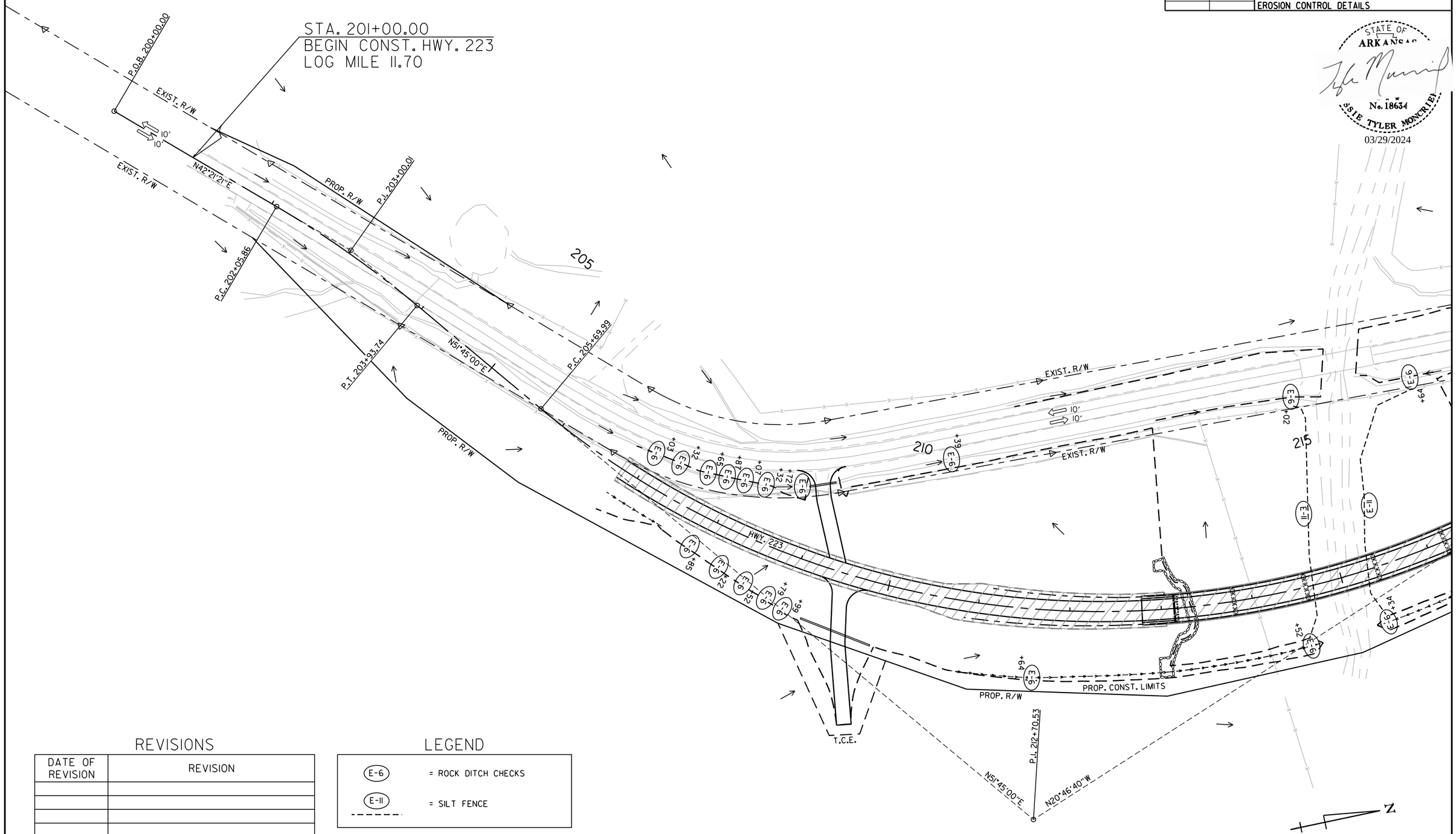
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	25	124
		EROSION CONTROL DETAILS				

STATE OF ARKANSAS
No. 18634
STATE TYLER MONCRIEF
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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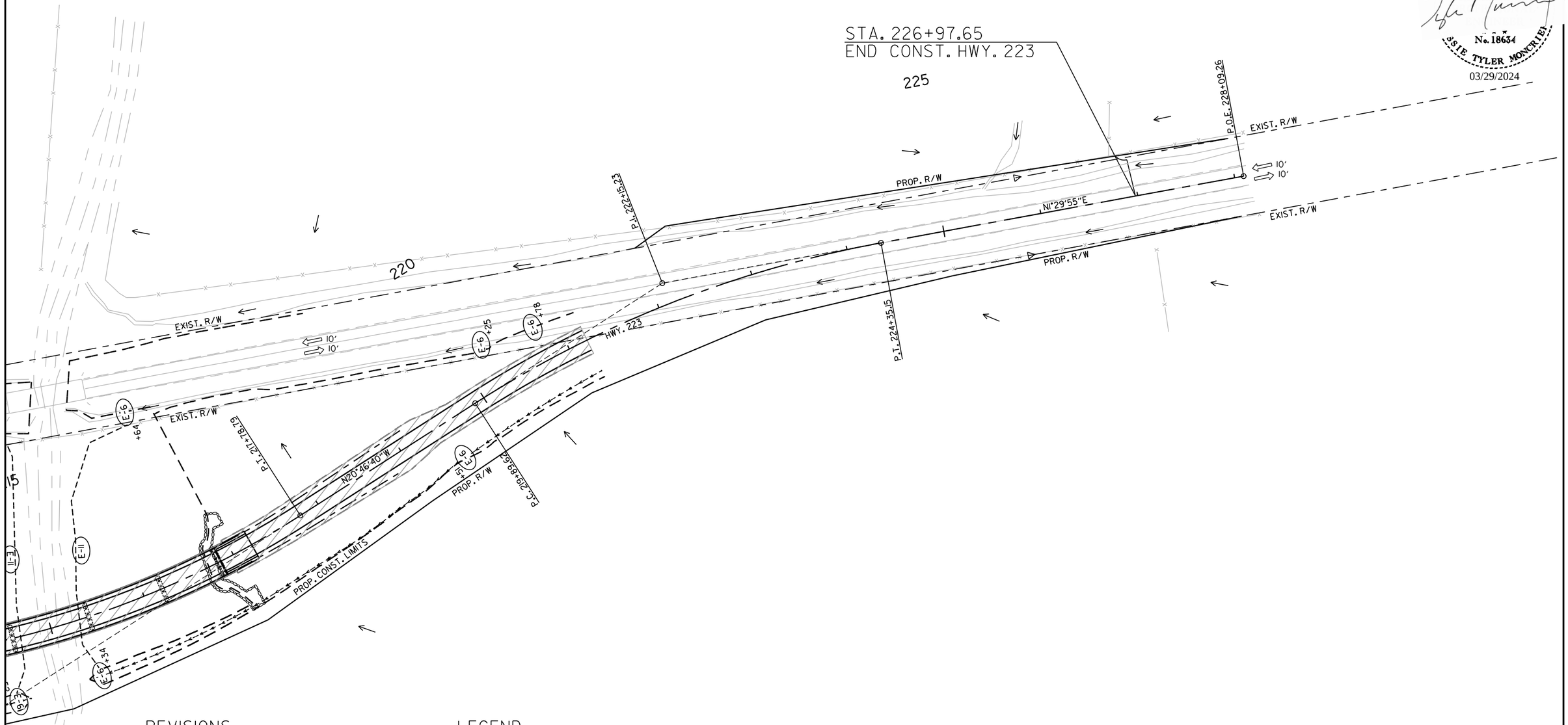
STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

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SITE 2 - HWY. 223 - STAGE I
EROSION CONTROL DETAILS

3/29/2024
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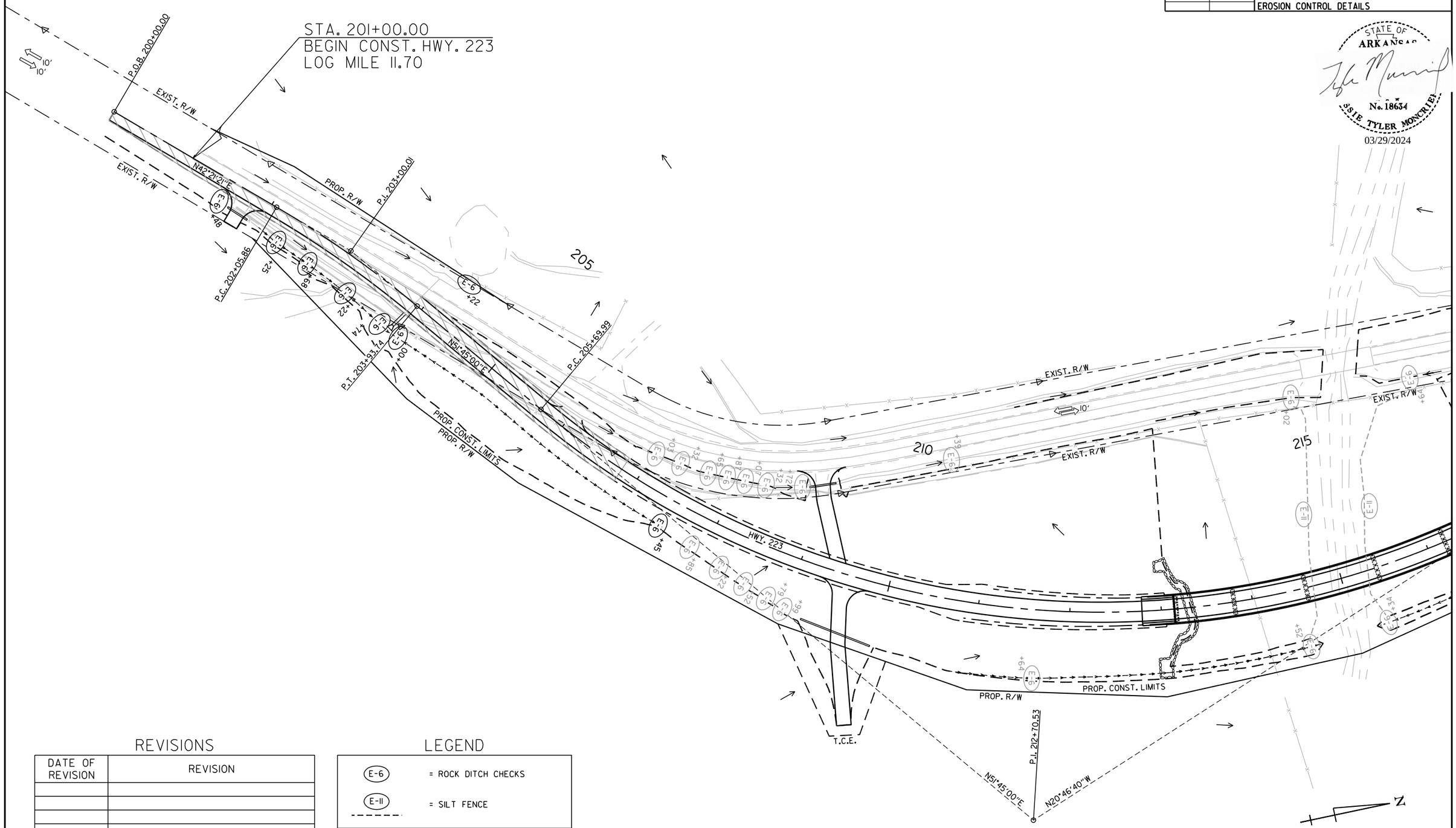
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	27	124
		EROSION CONTROL DETAILS				

STATE OF ARKANSAS
No. 18634
JESSIE TYLER MONCRIEF
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE 2 - HWY. 223 - STAGE 2
EROSION CONTROL DETAILS

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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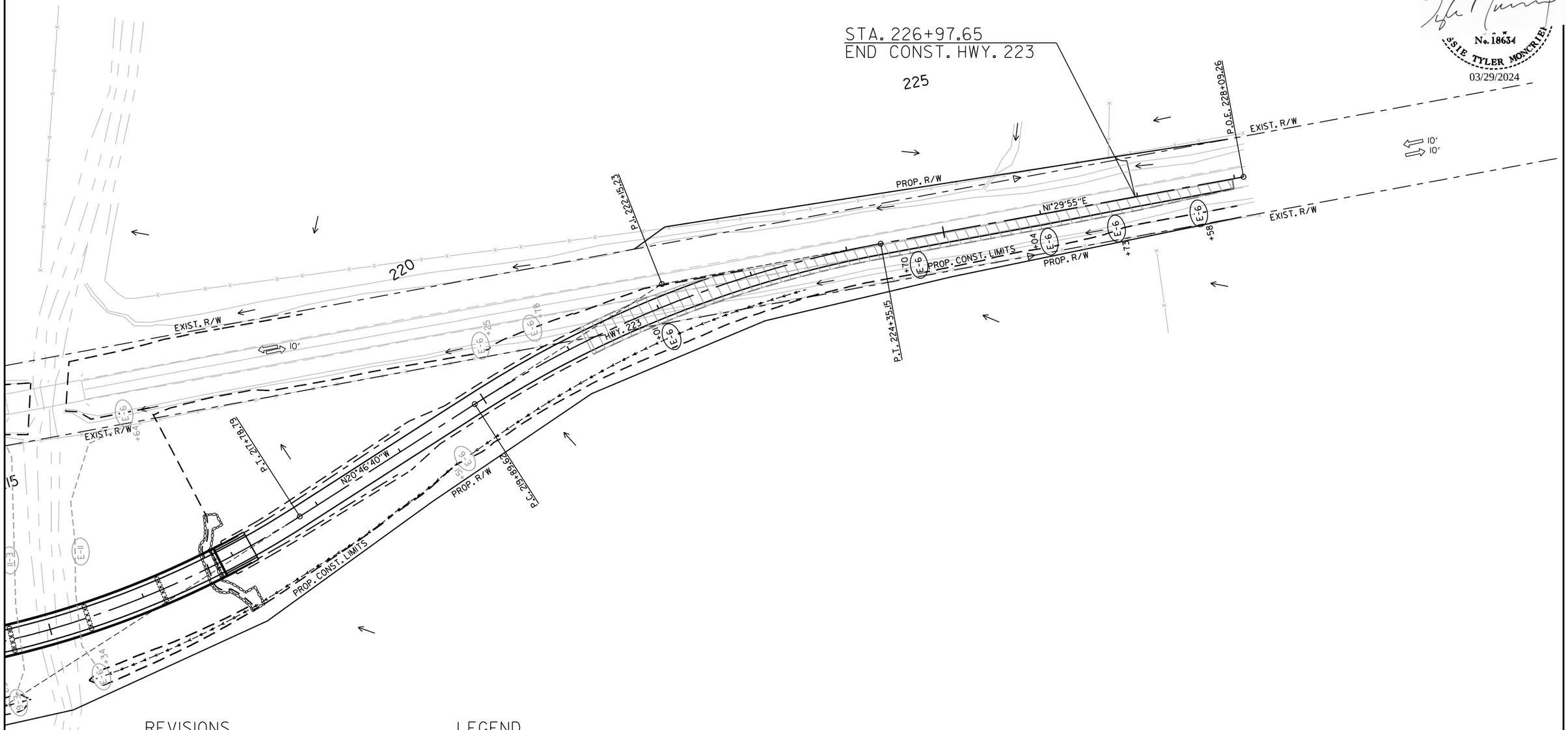
STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

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SITE 2 - HWY. 223 - STAGE 2
EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	29	124
		EROSION CONTROL DETAILS				

STATE OF ARKANSAS
No. 18634
JESSIE TYLER MONCRIEF
03/29/2024

STA. 201+00.00
BEGIN CONST. HWY. 223
LOG MILE 11.70

P.O.B. 200+00.00
EXIST. R/W
10'
10'
N47°21'41"E
P.C. 202+05.86
P.I. 203+93.14
PROP. R/W
PROP. CONST. LIMITS
N51°45'00"E
P.C. 205+69.99
205
210
215
EXIST. R/W
PROP. CONST. LIMITS
HWY. 223
T.C.E.
PROP. R/W
PROP. CONST. LIMITS
P.I. 212+70.53
N51°45'00"E
N20°46'40"W
E-6
E-11

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

SITE 2 - HWY. 223 - STAGE 3
EROSION CONTROL DETAILS

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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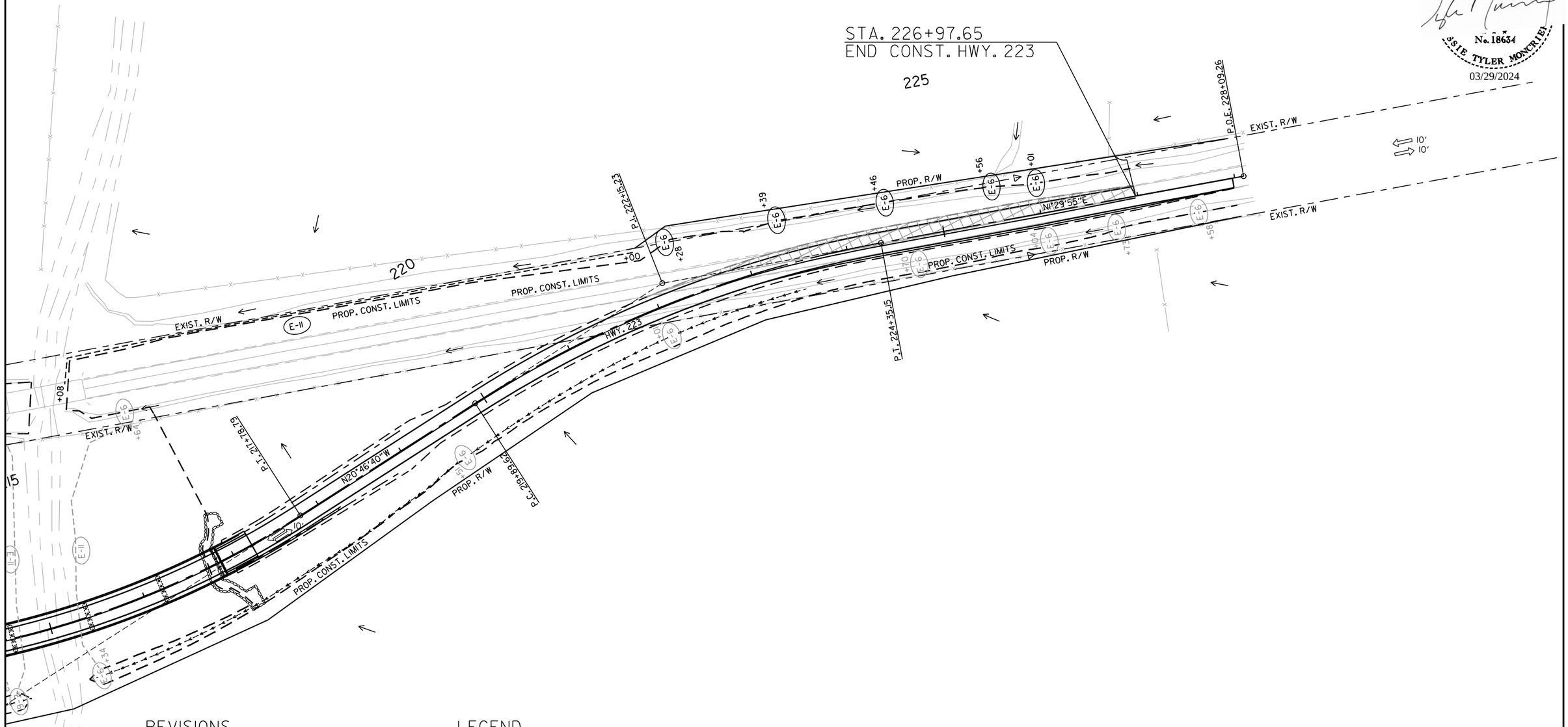
STATE OF ARKANSAS
No. 18634
STATE TYLER MONCRIEF
03/29/2024



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF JOB, UNLESS OTHERWISE SPECIFIED.

N

SITE 2 - HWY. 223 - STAGE 3
EROSION CONTROL DETAILS

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	31	124
		MAINTENANCE OF TRAFFIC DETAILS				

SEQUENCE OF CONSTRUCTION:

STAGE 1:
- PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES) AND TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT PORTION OF R.C. BOX CULVERT BENEATH DETOUR ROUTE.
- CONSTRUCT TEMPORARY WIDENING AND DETOUR ROUTE USING TEMPORARY PAVEMENT STRUCTURE.

STAGE 2:
- INSTALL TEMPORARY PRECAST CONCRETE BARRIER, AND RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- SHIFT TRAFFIC ONTO DETOUR ROUTE.
- CONSTRUCT REMAINDER OF R.C. BOX CULVERT.
- CONSTRUCT PORTION OF HWY. 62 PROPOSED PAVEMENT NOT IN CONFLICT WITH THE DETOUR ROUTE.

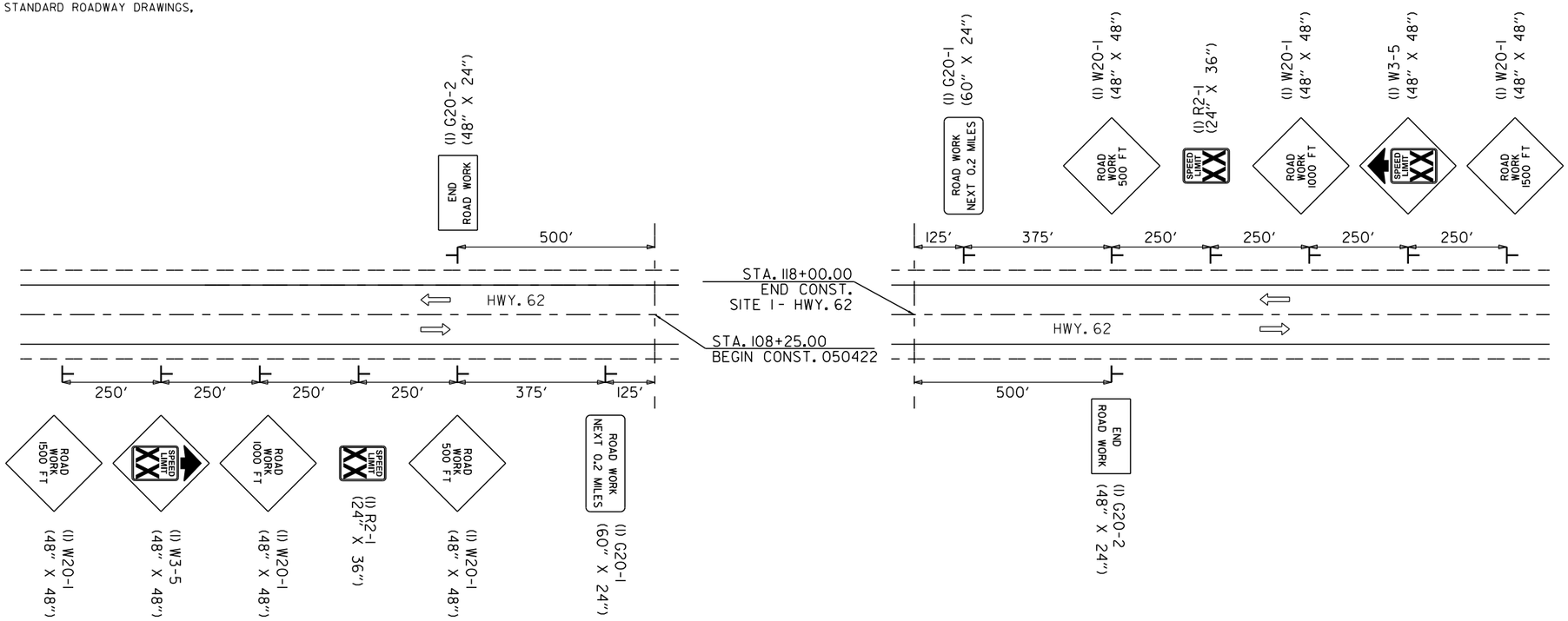
STAGE 3 - STEP A:
- REMOVE TEMPORARY PRECAST CONCRETE BARRIER, AND RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT REMAINDER OF MILL AND OVERLAY AND METHOD OF RAISING GRADE PORTIONS OF HWY. 62 PROPOSED PAVEMENT.
- SHIFT TRAFFIC ONTO HWY. 62 PROPOSED PAVEMENT.
- REMOVE DETOUR ROUTE AND CONSTRUCT HWY. 62 NOTCH AND WIDEN AND GRADING ON THE RIGHT SIDE.

STAGE 3 - STEP B:
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT REMAINDER OF HWY. 62 NOTCH AND WIDEN AND GRADING ON THE LEFT SIDE.
- CONSTRUCT FINAL DRIVEWAY CONNECTIONS.

NOTE:
MILL AND OVERLAY TRANSITIONS AND METHOD OF RAISING GRADE MAY BE CONSTRUCTED USING SHORT TERM, ONE LANE CLOSURES. FOR SHORT TERM, ONE LANE CLOSURES, SEE ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD ROADWAY DRAWINGS, STANDARD DRAWING TC-2.

6.0" Radius, 1.3" Border, Black on Orange;
"Job XXXXXX" C 2K; "Start Date Mo Year" C 2K;
"Est Completion Mo Year" C 2K; "IDRIVE " Arial;
" ARKANSAS.COM " Arial;

CONSTRUCTION PROJECT INFORMATION SIGN



ADVANCE SIGNS AT BEGINNING AND END OF SITE 1 - HWY. 62
ALL STAGES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

3/29/2024
8:25:45 AM
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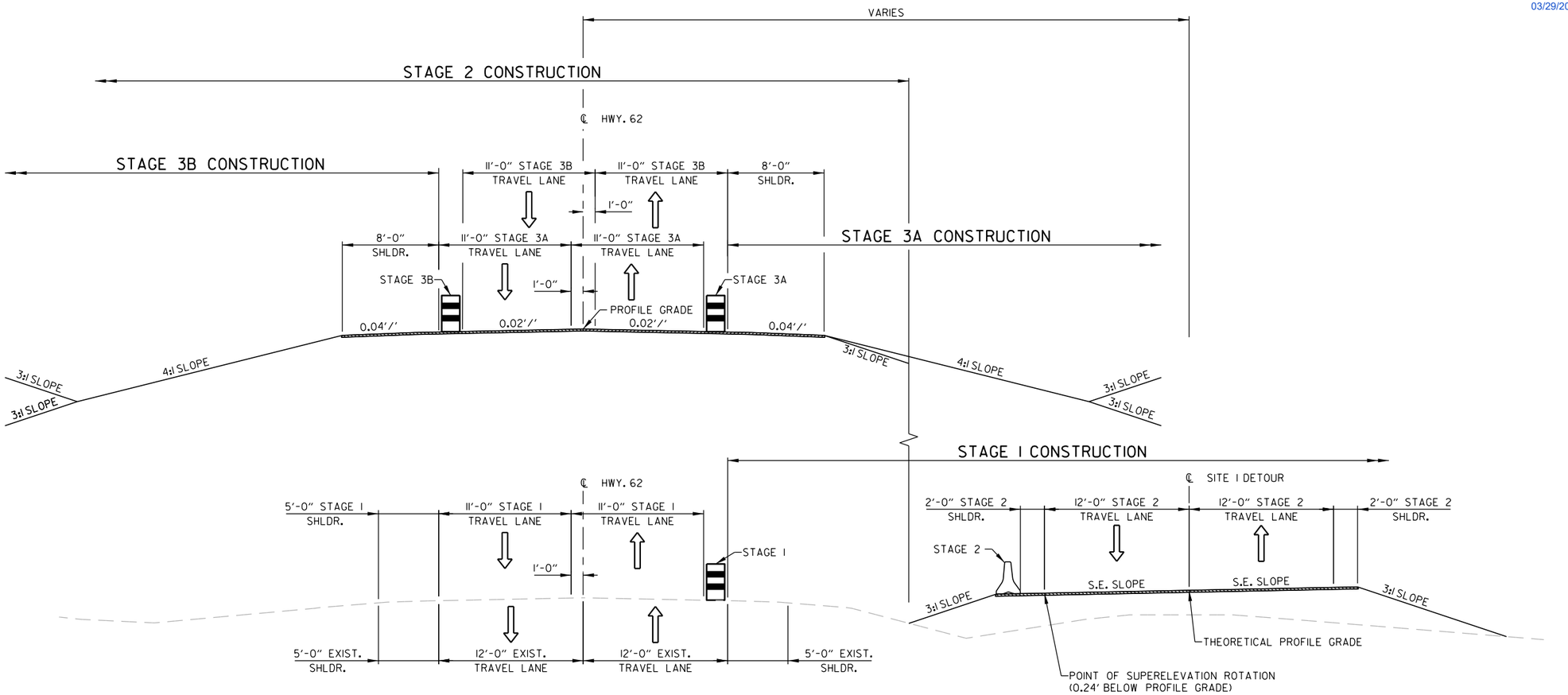
SITE 1 - HWY. 62
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	32	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
03/29/2024



TANGENT SECTION

3/29/2024
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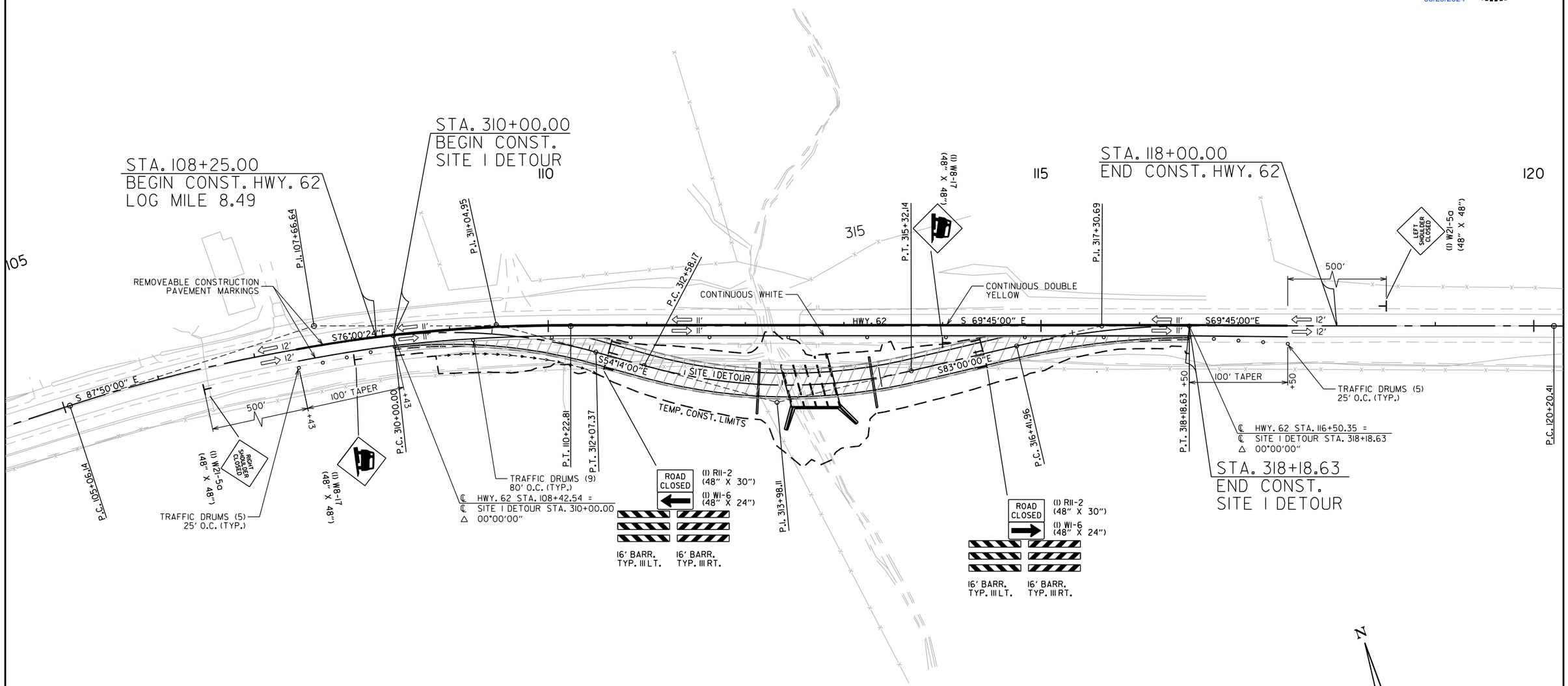
SITE 1- HWY. 62
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	33	124
		MAINTENANCE OF TRAFFIC DETAILS				

SEQUENCE OF CONSTRUCTION:

STAGE I:
- PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES) AND TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT PORTION OF R.C. BOX CULVERT BENEATH DETOUR ROUTE.
- CONSTRUCT TEMPORARY WIDENING AND DETOUR ROUTE USING TEMPORARY PAVEMENT STRUCTURE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



STAGE I - QUANTITIES

TRAFFIC DRUMS = 19 EACH
CONSTRUCTION PAVEMENT MARKINGS = 2775 LIN. FT.
REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS = 250 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 2470 LIN. FT.

LEGEND

STAGE I WORK ZONE

SITE I - HWY. 62 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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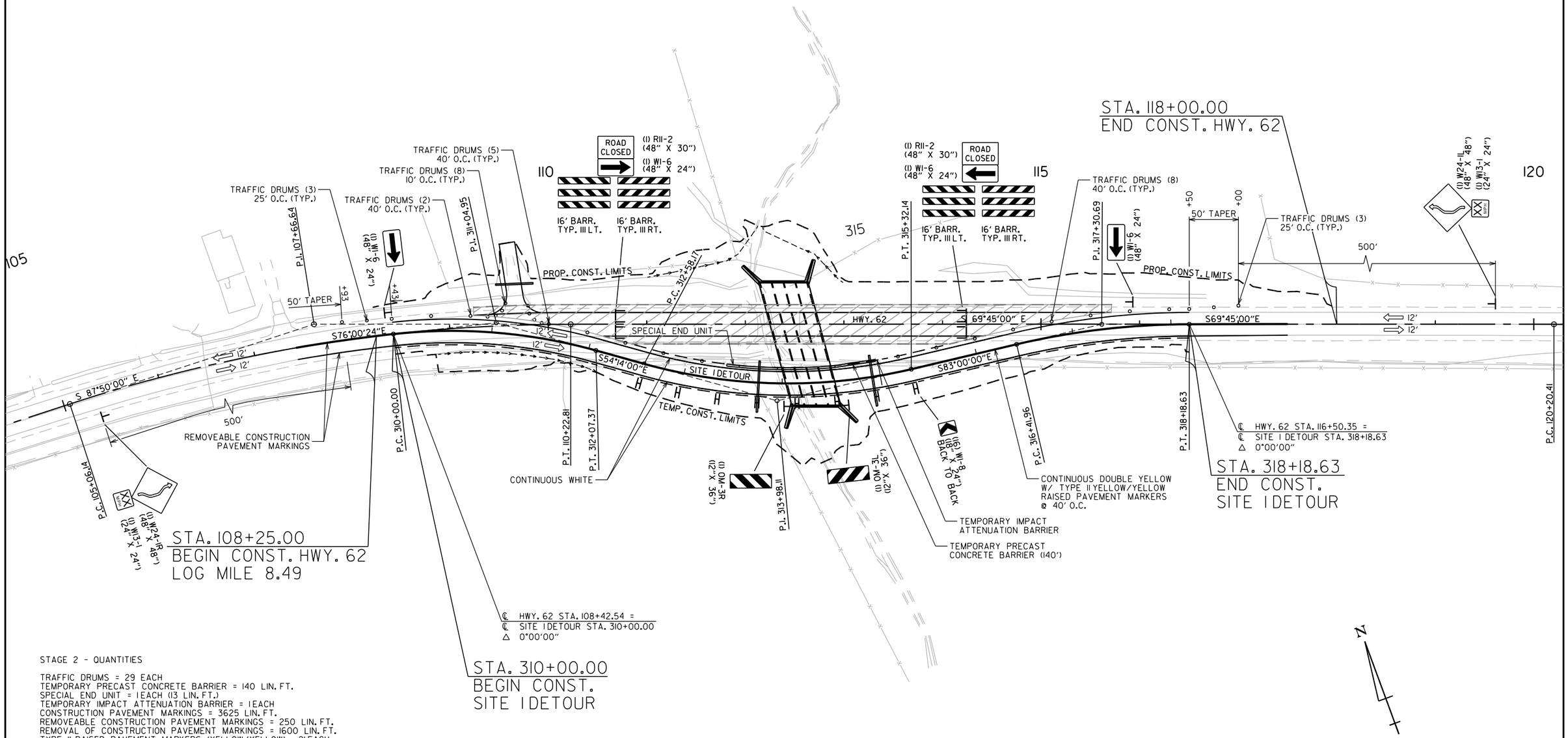
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	34	124
		MAINTENANCE OF TRAFFIC DETAILS				

SEQUENCE OF CONSTRUCTION:

STAGE 2:
- INSTALL TEMPORARY PRECAST CONCRETE BARRIER, AND RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- SHIFT TRAFFIC ONTO DETOUR ROUTE.
- CONSTRUCT REMAINDER OF R.C. BOX CULVERT.
- CONSTRUCT PORTION OF HWY. 62 PROPOSED PAVEMENT NOT IN CONFLICT WITH THE DETOUR ROUTE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



STAGE 2 - QUANTITIES

TRAFFIC DRUMS = 29 EACH
TEMPORARY PRECAST CONCRETE BARRIER = 140 LIN. FT.
SPECIAL END UNIT = 1EACH (13 LIN. FT.)
TEMPORARY IMPACT ATTENUATION BARRIER = 1EACH
CONSTRUCTION PAVEMENT MARKINGS = 3625 LIN. FT.
REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS = 250 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 1600 LIN. FT.
TYPE II RAISED PAVEMENT MARKERS (YELLOW/YELLOW) = 21EACH

LEGEND

STAGE 2 WORK ZONE

NOTE: DURING CONSTRUCTION OF THE DETOUR, MAINTENANCE DIVISION TO DETERMINE BY FIELD OBSERVATION WI3-1POSTED ADVISORY SPEED LIMIT.

SITE I - HWY. 62 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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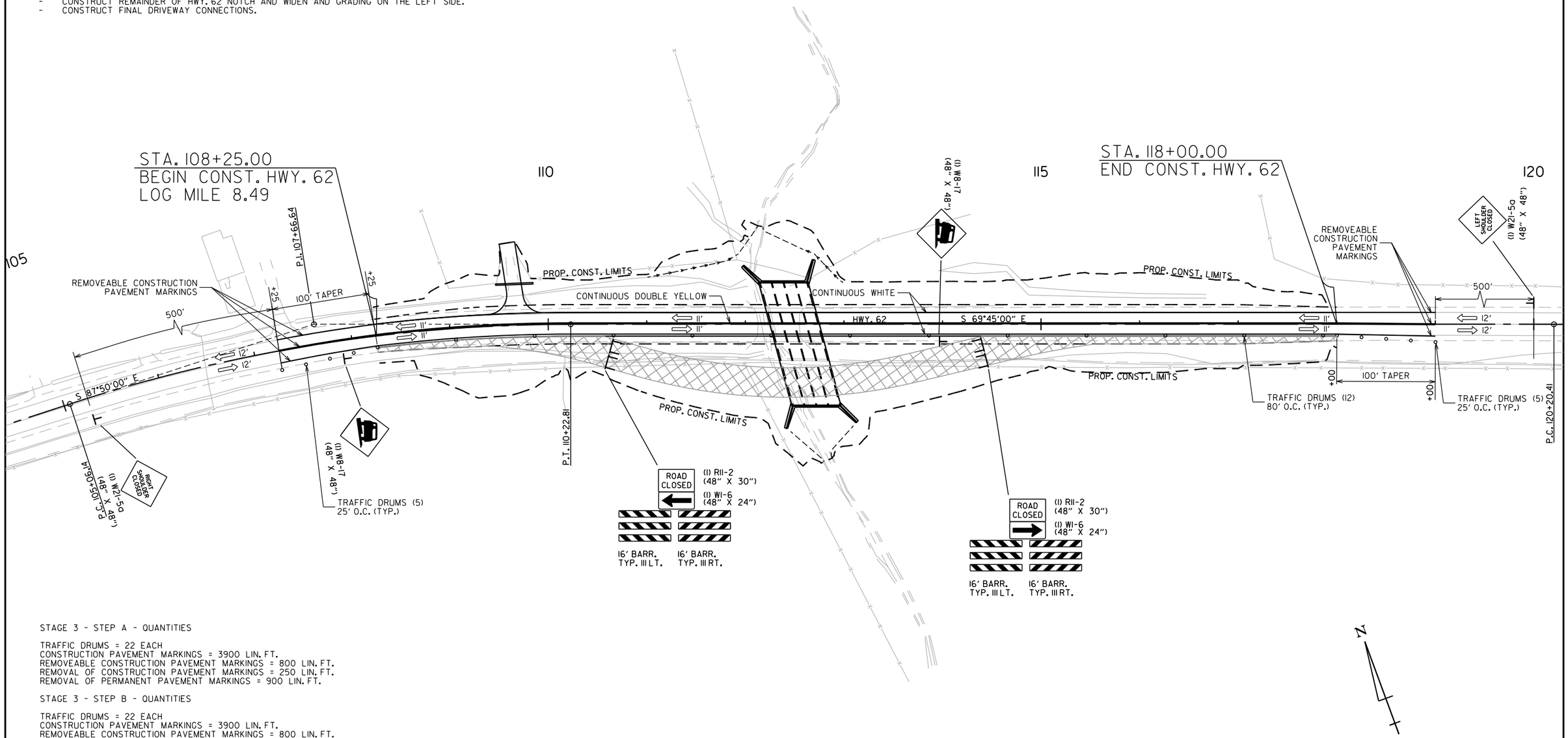
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	35	124
		MAINTENANCE OF TRAFFIC DETAILS				

SEQUENCE OF CONSTRUCTION:

STAGE 3 - STEP A:
- REMOVE TEMPORARY PRECAST CONCRETE BARRIER, AND RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT REMAINDER OF MILL AND OVERLAY AND METHOD OF RAISING GRADE PORTIONS OF HWY. 62 PROPOSED PAVEMENT.
- SHIFT TRAFFIC ONTO HWY. 62 PROPOSED PAVEMENT.
- REMOVE DETOUR ROUTE AND CONSTRUCT HWY. 62 NOTCH AND WIDEN AND GRADING ON THE RIGHT SIDE.

STAGE 3 - STEP B:
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT REMAINDER OF HWY. 62 NOTCH AND WIDEN AND GRADING ON THE LEFT SIDE.
- CONSTRUCT FINAL DRIVEWAY CONNECTIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



STAGE 3 - STEP A - QUANTITIES

TRAFFIC DRUMS = 22 EACH
CONSTRUCTION PAVEMENT MARKINGS = 3900 LIN. FT.
REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS = 800 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 250 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 900 LIN. FT.

STAGE 3 - STEP B - QUANTITIES

TRAFFIC DRUMS = 22 EACH
CONSTRUCTION PAVEMENT MARKINGS = 3900 LIN. FT.
REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS = 800 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 5500 LIN. FT.

LEGEND

STAGE 3 - STEP A WORK ZONE

SITE I - HWY. 62 - STAGE 3 - STEP A
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
8:25:44 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	36	124
		MAINTENANCE OF TRAFFIC DETAILS				

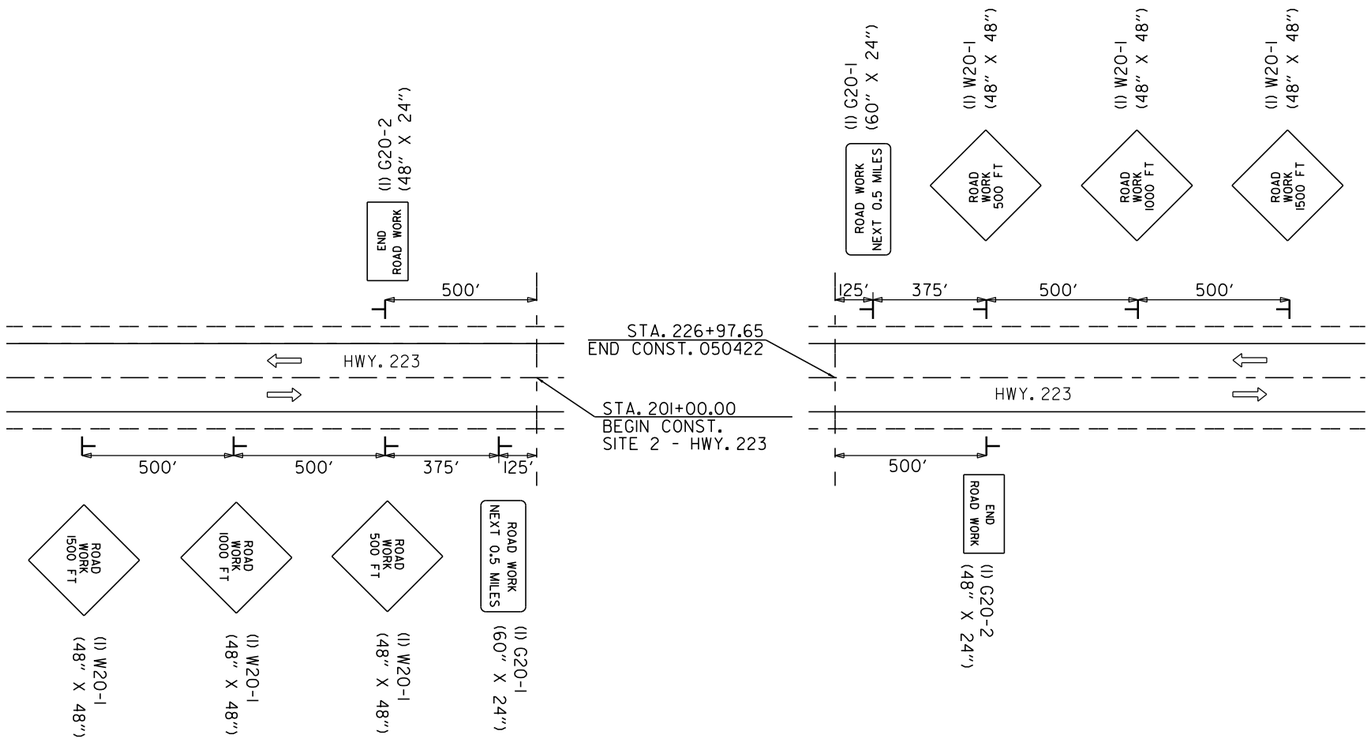
SEQUENCE OF CONSTRUCTION:

STAGE 1:
- PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES) AND TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT PROPOSED BRIDGE AND FULL DEPTH PAVEMENT RIGHT OF EXISTING HWY. 223.

STAGE 2:
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE RIGHT LANE AND SHIFT TRAFFIC TO EXISTING LEFT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT RIGHT OF EXISTING CENTERLINE.

STAGE 3
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE LEFT LANE AND SHIFT TRAFFIC TO NEWLY CONSTRUCTED RIGHT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT LEFT OF CENTERLINE.
- CONSTRUCT FINAL GRADING ON LEFT SIDE.

NOTE:
MILL AND OVERLAY TRANSITIONS MAY BE CONSTRUCTED USING SHORT TERM, ONE LANE CLOSURES. FOR SHORT TERM, ONE LANE CLOSURES, SEE ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD ROADWAY DRAWINGS, STANDARD DRAWING TC-2.



ADVANCE SIGNS AT BEGINNING AND END OF SITE 2 - HWY. 223
ALL STAGES

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
04/16/2024

4/16/2024
3:26:40 PM
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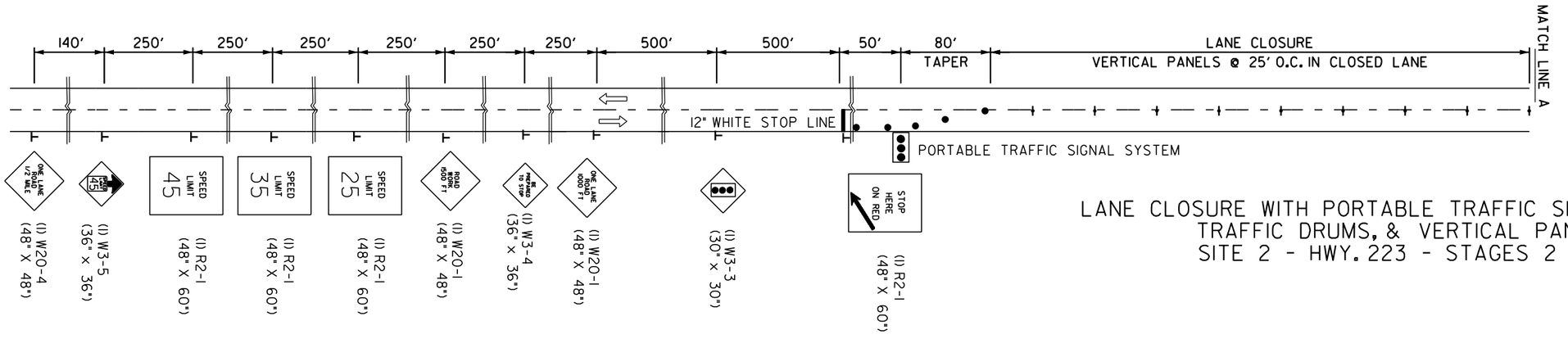
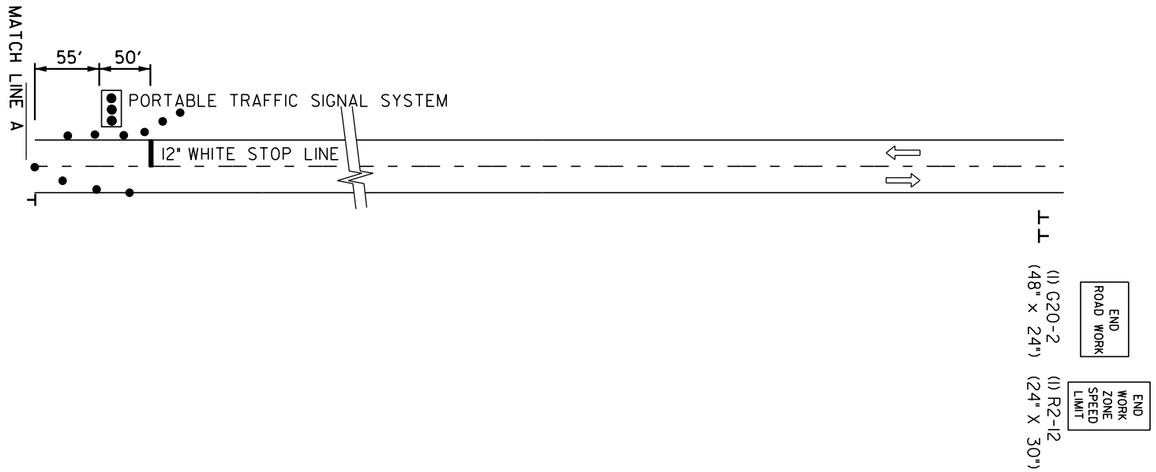
SITE 2 - HWY. 223
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	37	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024



LANE CLOSURE WITH PORTABLE TRAFFIC SIGNAL SYSTEM,
TRAFFIC DRUMS, & VERTICAL PANELS
SITE 2 - HWY. 223 - STAGES 2 & 3



SITE 2 - HWY. 223
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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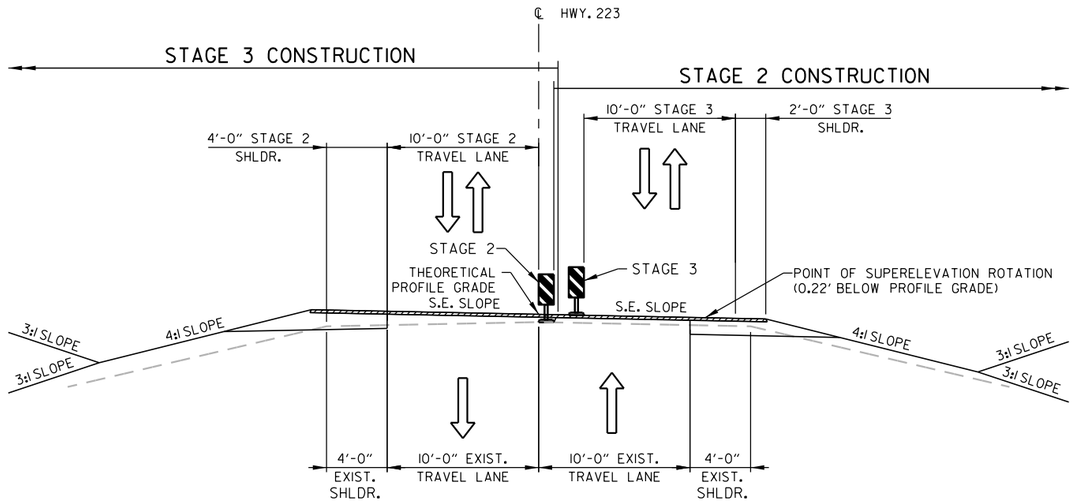
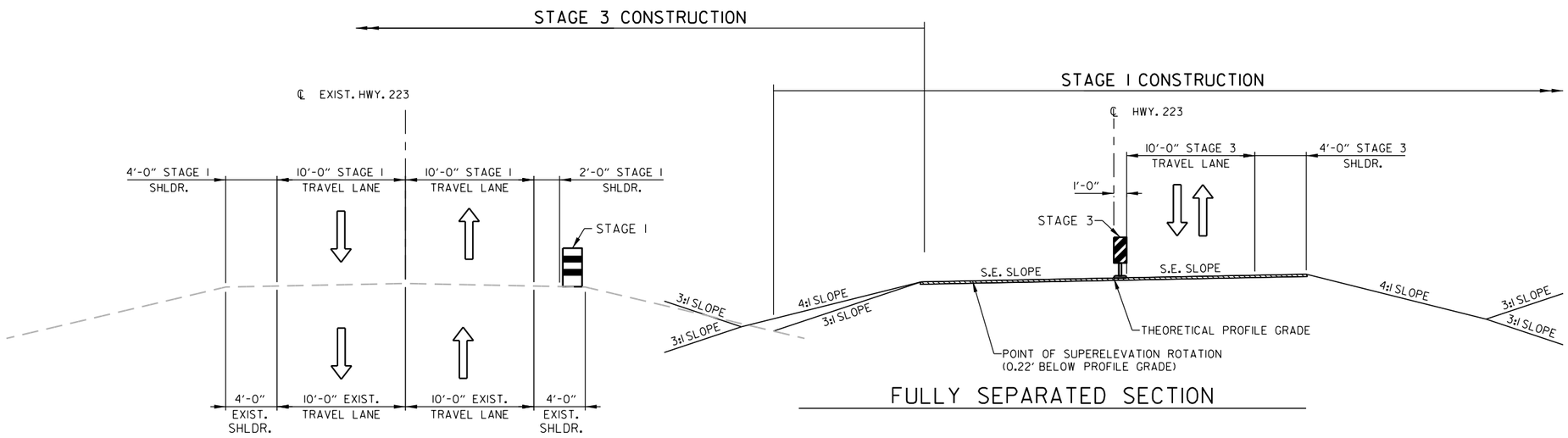
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	38	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024



NOTCH & WIDEN SECTION



FULLY SEPARATED SECTION

SITE 2 - HWY. 223
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTIONS OF IMPROVEMENT

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	39	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024

STA. 201+00.00
BEGIN CONST. HWY. 223
LOG MILE 11.70

P.O.B. 200+00.00
N42°21'21"E
P.I. 203+00.01
P.C. 202+05.86
P.I. 203+93.74
N51°45'00"E
P.C. 205+69.99
+80
100' TAPER
+80
TRAFFIC DRUMS (5)
25' O.C. (TYP.)
TRAFFIC DRUMS (1)
100' O.C. (TYP.)
205
210
215
10'
10'
TRAFFIC DRUMS (5)
100' O.C. (TYP.)
TRAFFIC DRUMS (6)
10' O.C. (TYP.)
HWY. 223
PROP. CONST. LIMITS
P.I. 212+70.53
N51°45'00"E
N20°46'40"W

STA. 209+45.00 CONSTRUCT
18" X 29' PIPE CULVERT
LT. TEMPORARY SIDE DRAIN
CONST. APPROACH = 291 CU. YDS. EMB.
6 CU. YDS. EXC.

SEQUENCE OF CONSTRUCTION:

STAGE 1:
- PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES) AND TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT PROPOSED BRIDGE AND FULL DEPTH PAVEMENT RIGHT OF EXISTING HWY. 223.

STAGE 1 - QUANTITIES

TRAFFIC DRUMS = 26 EACH

LEGEND

STAGE 1 WORK ZONE

SITE 2 - HWY. 223 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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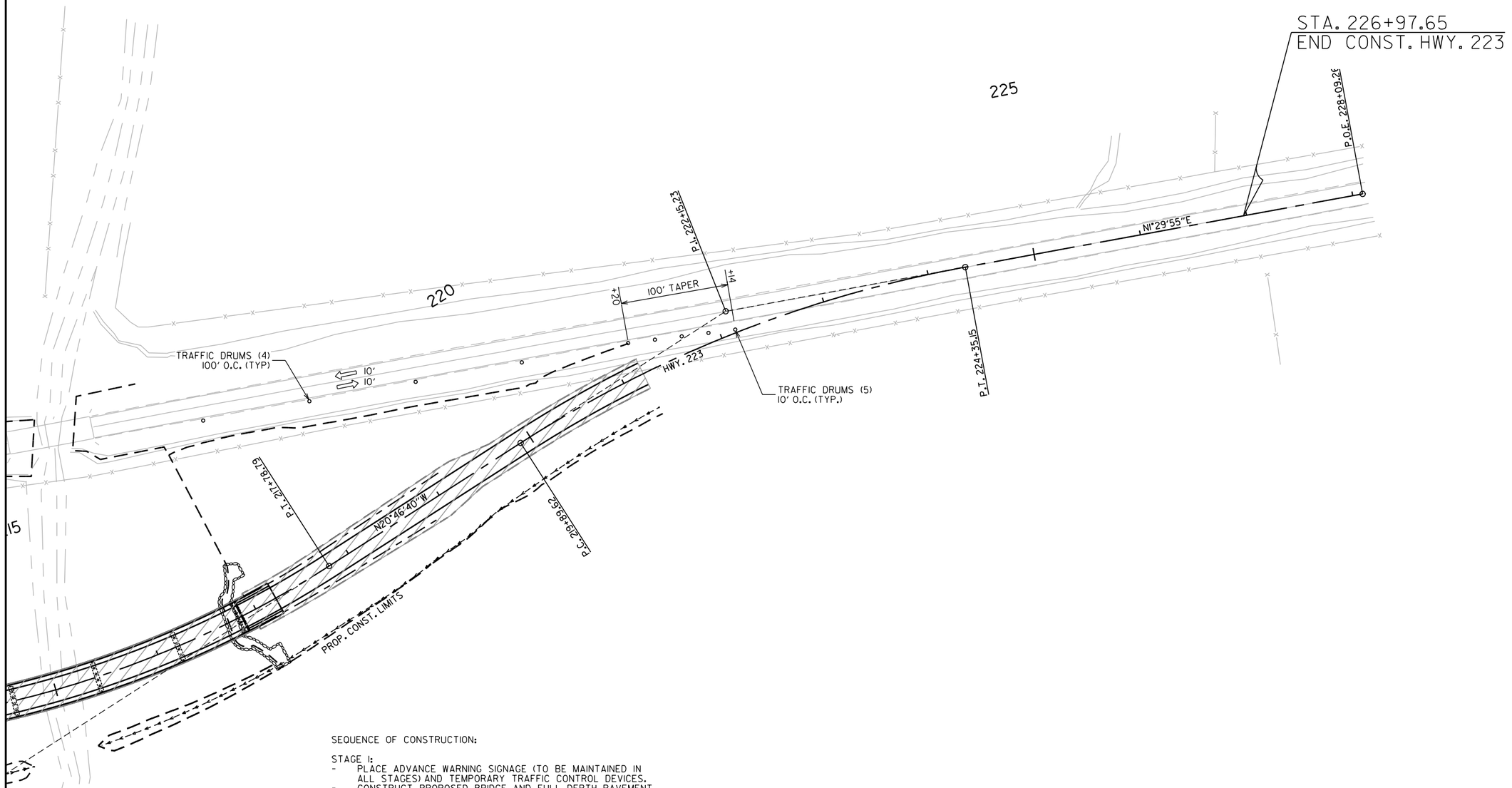
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	40	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



SEQUENCE OF CONSTRUCTION:

STAGE I:
- PLACE ADVANCE WARNING SIGNAGE (TO BE MAINTAINED IN ALL STAGES) AND TEMPORARY TRAFFIC CONTROL DEVICES.
- CONSTRUCT PROPOSED BRIDGE AND FULL DEPTH PAVEMENT RIGHT OF EXISTING HWY. 223.

LEGEND

STAGE I WORK ZONE

N

SITE 2 - HWY. 223 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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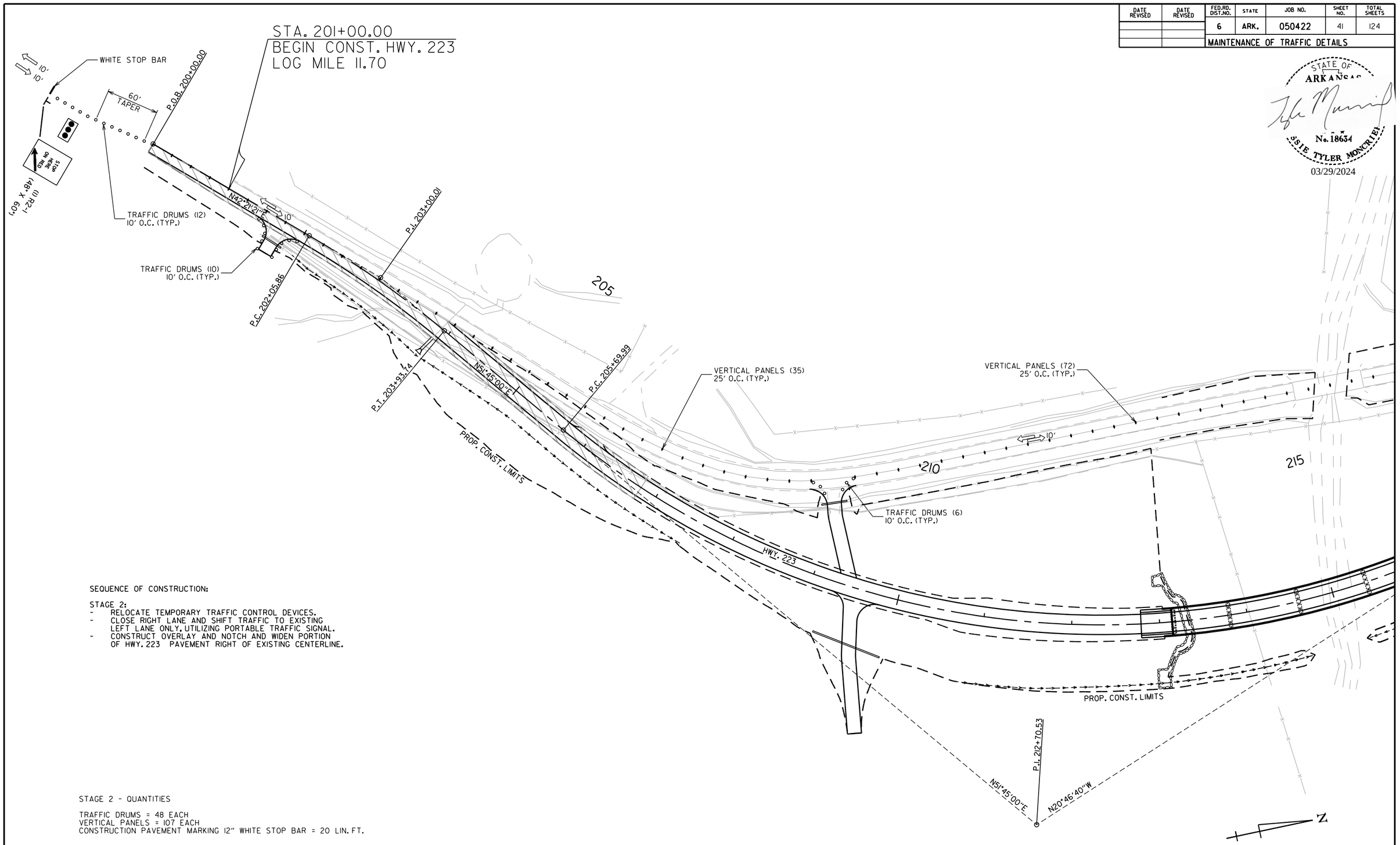
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	41	124
		MAINTENANCE OF TRAFFIC DETAILS				



SEQUENCE OF CONSTRUCTION:

STAGE 2:
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE RIGHT LANE AND SHIFT TRAFFIC TO EXISTING LEFT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT RIGHT OF EXISTING CENTERLINE.

STAGE 2 - QUANTITIES

TRAFFIC DRUMS = 48 EACH
VERTICAL PANELS = 107 EACH
CONSTRUCTION PAVEMENT MARKING 12" WHITE STOP BAR = 20 LIN. FT.

LEGEND

STAGE 2 WORK ZONE

STATE OF ARKANSAS
No. 18634
JOSIE TYLER MONCRIEF
03/29/2024

SITE 2 - HWY. 223 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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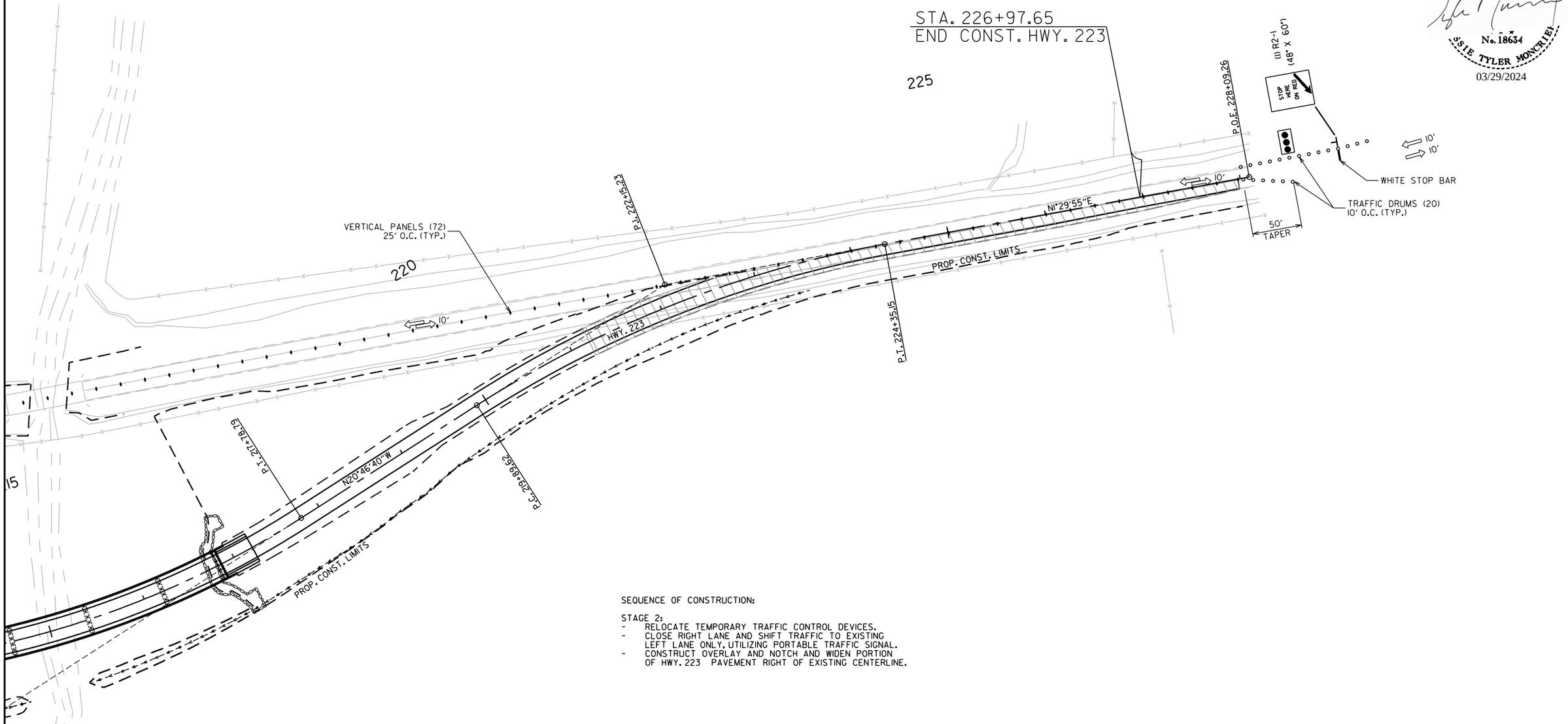
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	42	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



SEQUENCE OF CONSTRUCTION:

STAGE 2:
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE RIGHT LANE AND SHIFT TRAFFIC TO EXISTING LEFT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT RIGHT OF EXISTING CENTERLINE.

LEGEND

STAGE 2 WORK ZONE

N

SITE 2 - HWY. 223 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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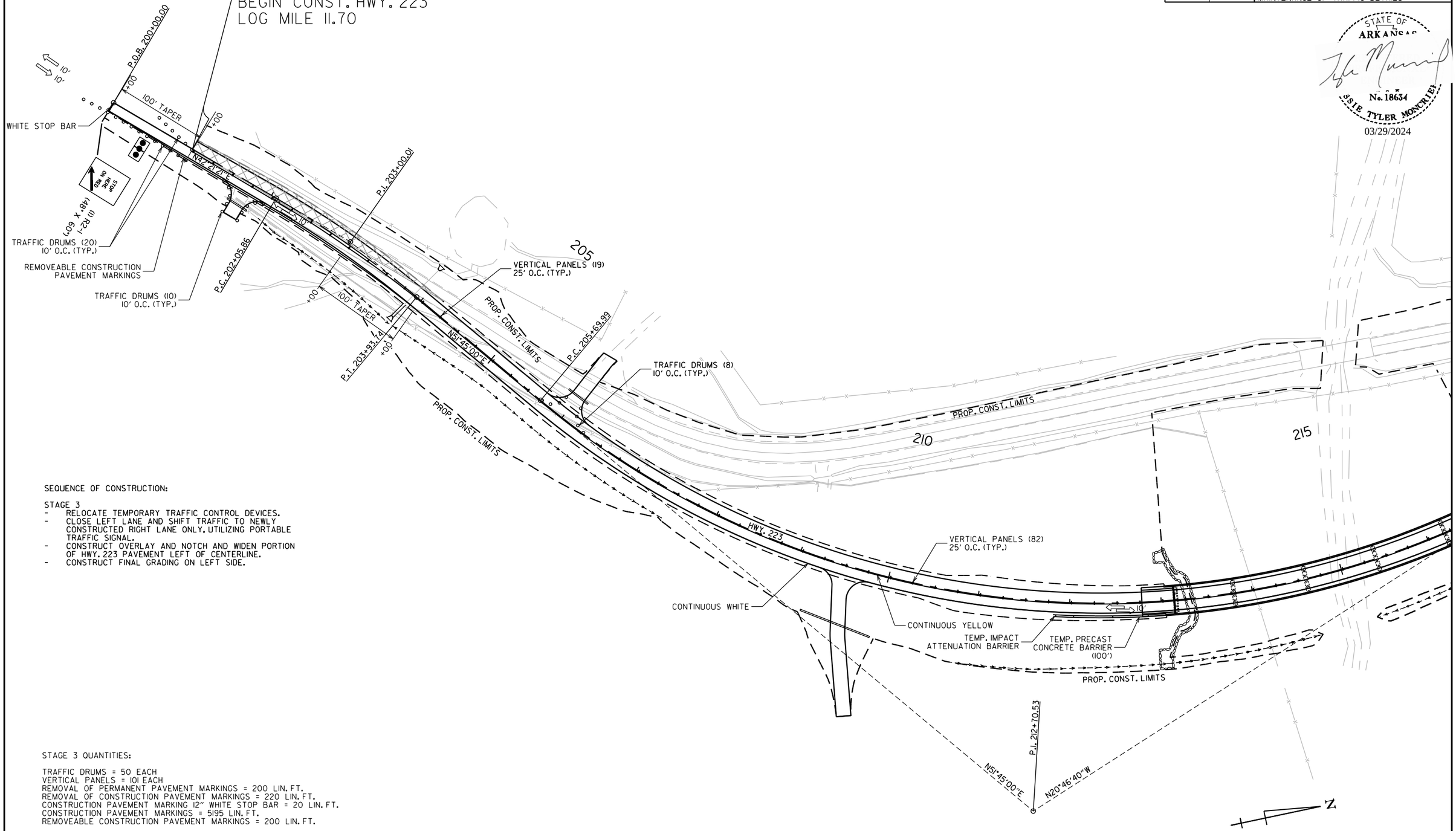
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	43	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024



SEQUENCE OF CONSTRUCTION:

STAGE 3
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE LEFT LANE AND SHIFT TRAFFIC TO NEWLY CONSTRUCTED RIGHT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT LEFT OF CENTERLINE.
- CONSTRUCT FINAL GRADING ON LEFT SIDE.

STAGE 3 QUANTITIES:

TRAFFIC DRUMS = 50 EACH
VERTICAL PANELS = 101 EACH
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 200 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 220 LIN. FT.
CONSTRUCTION PAVEMENT MARKING 12" WHITE STOP BAR = 20 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 5195 LIN. FT.
REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS = 200 LIN. FT.

LEGEND

STAGE 3 WORK ZONE

SITE 2 - HWY. 223 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
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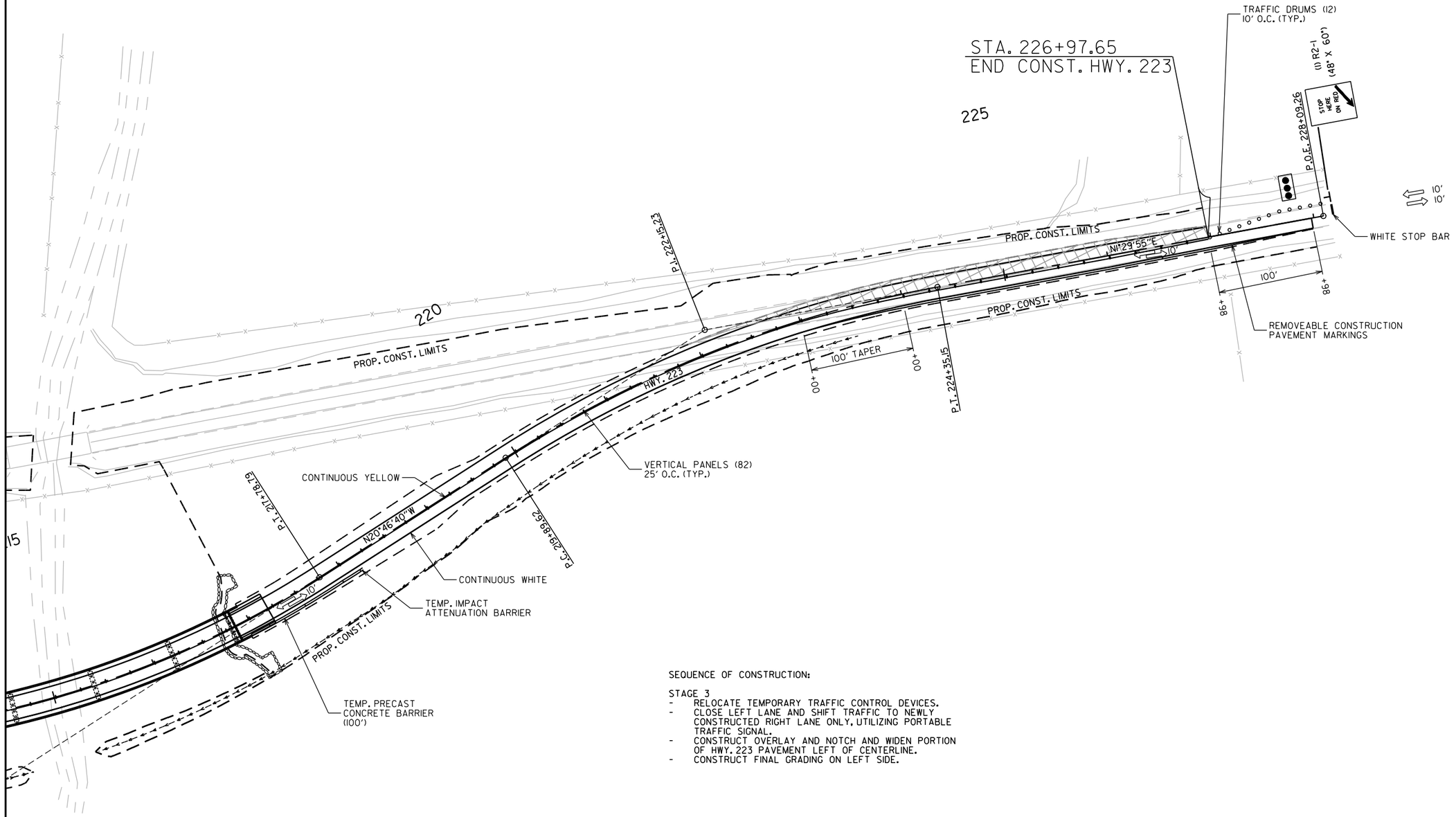
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	44	124
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
TYLER MONCRIEF
No. 18634
03/29/2024



SEQUENCE OF CONSTRUCTION:

STAGE 3
- RELOCATE TEMPORARY TRAFFIC CONTROL DEVICES.
- CLOSE LEFT LANE AND SHIFT TRAFFIC TO NEWLY CONSTRUCTED RIGHT LANE ONLY, UTILIZING PORTABLE TRAFFIC SIGNAL.
- CONSTRUCT OVERLAY AND NOTCH AND WIDEN PORTION OF HWY. 223 PAVEMENT LEFT OF CENTERLINE.
- CONSTRUCT FINAL GRADING ON LEFT SIDE.

LEGEND

STAGE 3 WORK ZONE

N

SITE 2 - HWY. 223 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

3/29/2024
8:25:46 AM
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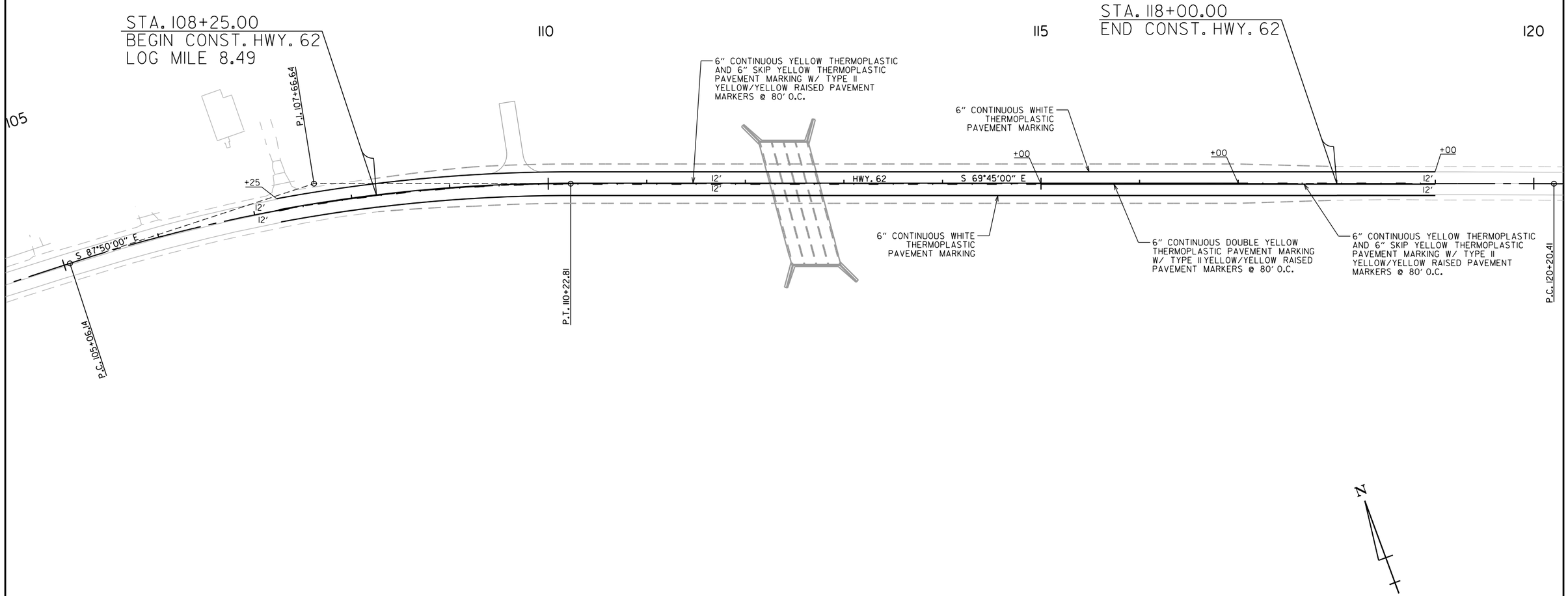
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	45	124
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024



THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 2350 LIN. FT.
6" YELLOW = 1620 LIN. FT.

RAISED PAVEMENT MARKERS
TYPE II (YELLOW/YELLOW) = 15 EACH

SITE 1 - HWY. 62
PERMANENT PAVEMENT MARKING DETAILS

3/29/2024
8:25:01 AM
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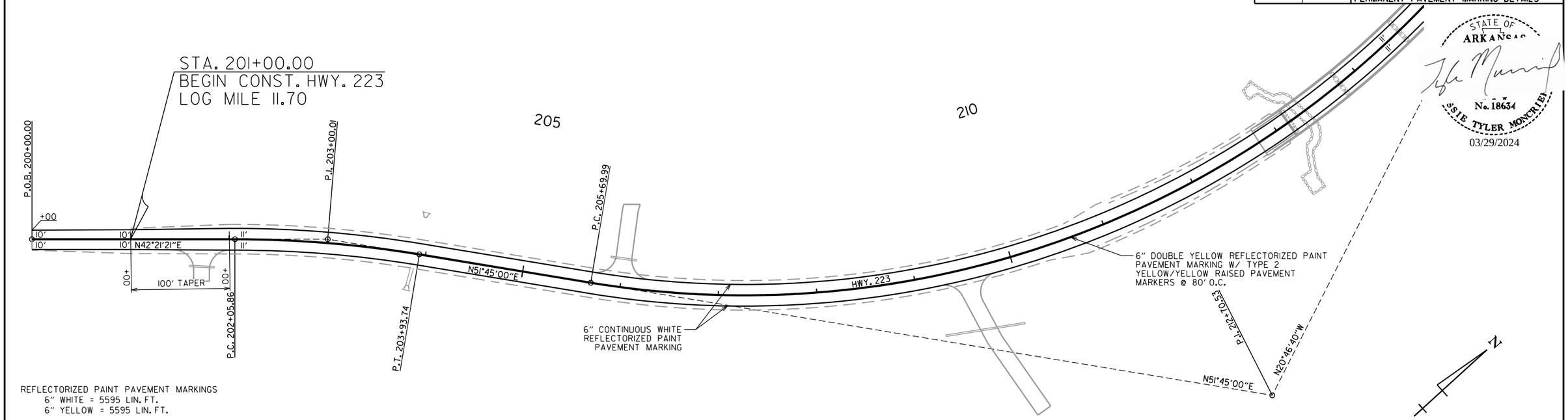
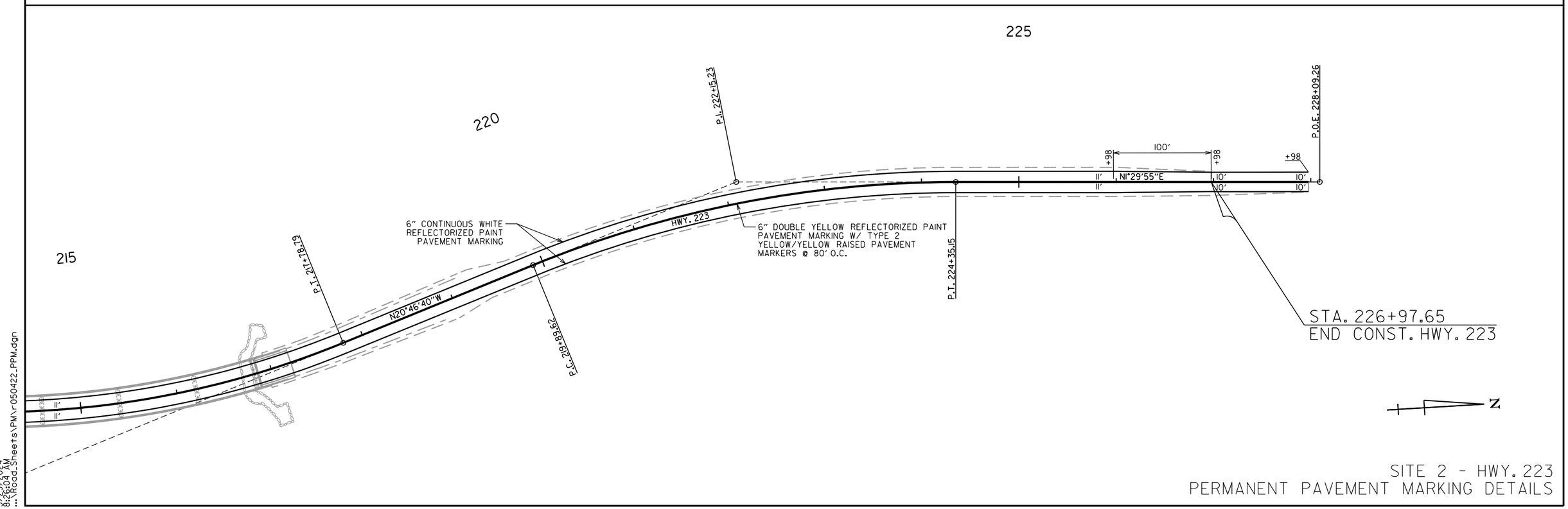
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	46	124
		PERMANENT PAVEMENT MARKING DETAILS				



REFLECTORIZED PAINT PAVEMENT MARKINGS
6" WHITE = 5595 LIN. FT.
6" YELLOW = 5595 LIN. FT.

RAISED PAVEMENT MARKERS
TYPE II (YELLOW/YELLOW) = 35 EACH



SITE 2 - HWY. 223
PERMANENT PAVEMENT MARKING DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	47	124
		QUANTITIES				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
04-16-2024

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 3A	STAGE 3B	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED
													RIGHT	LEFT				
			LIN. FT. - EACH						NO.	SQ. FT.	EACH		LIN. FT.			EACH		WEEK
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	2	2	2	4	4	64.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	2	2	2	4	4	64.0								
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	2	2	2	4	4	64.0								
W20-4	ONE LANE ROAD 1/2 MILE	48"x48"		2	2			2	2	32.0								
G20-2	END ROAD WORK	48"x24"	4	4	2	2	2	4	4	32.0								
G20-1	ROAD WORK NEXT xx MILES	60"x24"	4	4	2	2	2	4	4	40.0								
W3-5	REDUCED SPEED AHEAD	48"x48"	2	2		2	2	2	2	32.0								
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		2				2	2	8.0								
R11-2	ROAD CLOSED	48"x30"	2	2		2		2	2	20.0								
OM-3L	OBJECT MARKER	12"x36"		1				1	1	3.0								
OM-3R	OBJECT MARKER	12"x36"		1				1	1	3.0								
W24-1	DOUBLE REVERSE CURVE RT./LT.	48"x48"		2				2	2	32.0								
W1-6	LARGE ARROW	48"x24"	2	4	2			4	4	32.0								
W1-8	CHEVRONS	18"x24"		16				16	16	48.0								
R2-1	STOP HERE ON RED	48"x60"		2	2			2	2	40.0								
R2-1	SPEED LIMIT (25)	48"x60"		2	2			2	2	40.0								
R2-1	SPEED LIMIT (35)	48"x60"		2	2			2	2	40.0								
R2-1	SPEED LIMIT (45)	24"x36"	2	2		2	2	2	2	12.0								
R2-1	SPEED LIMIT (45)	48"x60"		2	2			2	2	40.0								
R2-12	END WORK ZONE SPEED LIMIT	24"x30"		2	2			2	2	10.0								
W21-5a	RIGHT/LEFT SHOULDER CLOSED	48"x48"	2			2	2	2	2	32.0								
W3-3	STOP LIGHT AHEAD	30"x30"		2	2			2	2	12.5								
W3-4	BE PREPARED TO STOP	36"X36"		2	2			2	2	18.0								
W3-5	REDUCED SPEED LIMIT AHEAD	36"X36"		2	2			2	2	18.0								
W8-17	SHOULDER DROP OFF	48"x48"	2			2	2	2	2	32.0								
	VERTICAL PANELS			107	101			107			107							
	TRAFFIC DRUMS		45	77	50	22	22	77				77						
	TYPE III BARRICADE-RT. (16')		2	2		2		2					32					
	TYPE III BARRICADE-LT. (16')		2	2		2		2						32				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			353				353							353			
	TEMPORARY IMPACT ATTENUATION BARRIER			3				3								3		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			3				3									3	
	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED			2	2			2										6
TOTALS:										**768.5**	**107**	**77**	**32**	**32**	**353**	**3**	**3**	**6**

NOTES: SITE 1 IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
SITE 2 IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
* NOTE: DURING CONSTRUCTION OF THE DETOUR, MAINTENANCE DIVISION TO DETERMINE BY FIELD OBSERVATION W13-1 POSTED ADVISORY SPEED LIMIT.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	STAGE 3A	STAGE 3B	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		REFLECTORIZED PAINT PAVEMENT MARKING	
											TYPE II	6"		6"	
											(YELLOW/YELLOW)	WHITE	YELLOW	WHITE	YELLOW
	LIN. FT. - EACH						LIN. FT.		LIN. FT.		EACH	LIN. FT.		LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2470		200	900			3570								
CONSTRUCTION PAVEMENT MARKINGS	3025	3645	5195	3900	3900			19665							
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		1600	220	250	5500				7570						
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	250	250	200	800	800					2300					
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)		21				50					71				
THERMOPLASTIC PAVEMENT MARKING WHITE (6")						2350						2350			
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")						1620							1620		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")						5595								5595	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")						5595									5595
TOTALS:							**3570**	**19665**	**7570**	**2300**	**71**	**2350**	**1620**	**5595**	**5595**

NOTES: SITE 1 IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
SITE 2 IS A LOW 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.

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	23
DIRECTED BY THE ENGINEER	
TOTAL:	**23**

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
108+25	118+00	HWY. 62	10	10
200+00	227+98	HWY. 223	28	28
TOTALS:			**38**	**38**

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN. FT.
108+25	118+00	HWY. 62 LT. & RT.	1560
TOTAL:			**1560**

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT - TO BE USED IF	
AND WHERE DIRECTED BY THE	40
ENGINEER	
TOTAL:	**40**

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	17	34
DIRECTED BY THE ENGINEER		
TOTALS:	**17**	**34**

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

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
112+12	112+55	HWY. 62	1.00
TOTAL:			1

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	48	124
		QUANTITIES				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13852
RYAN W. CASTOR
04-12-2024

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (20") DITCH CHECKS (E-1)	FILTER SOCK (18") (E-3)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M. GAL.	ACRE	ACRE	ACRE	M. GAL.	LIN. FT.	LIN. FT.	BAG	CU. YD.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	HWY. 62 CLEARING AND GRUBBING												96	1045	71
ENTIRE	PROJECT	HWY. 62 STAGE 1	0.50	1.00	0.50	51.0	0.50	0.50	0.50	10.2				48	365	30
ENTIRE	PROJECT	HWY. 62 STAGE 2	0.85	1.70	0.85	86.7	0.85	0.85	0.85	17.3				93		31
ENTIRE	PROJECT	HWY. 62 STAGE 3	1.05	2.10	1.05	107.1	1.05	1.05	1.05	21.4				39	100	17
ENTIRE	PROJECT	HWY. 223 CLEARING AND GRUBBING												114	1215	84
ENTIRE	PROJECT	HWY. 223 STAGE 1	3.15	6.30	3.15	321.3	3.15	3.20	3.20	65.3				63	550	41
ENTIRE	PROJECT	HWY. 223 STAGE 2	1.00	2.00	1.00	102.0	1.00	1.00	1.00	20.4				39		13
ENTIRE	PROJECT	HWY. 223 STAGE 3	2.35	4.70	2.35	239.7	2.35	1.30	1.30	26.5				63	615	45
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.50	1.00	0.50	51.0	0.50	0.50	0.50	10.2	500	500	440	30	100	24
TOTALS:			**9.40**	**18.80**	**9.40**	**958.8**	**9.40**	**8.40**	**8.40**	**171.3**	**500**	**500**	**440**	**585**	**3990**	**356**

BASIS OF ESTIMATE:
LIME.....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION
NOTE. THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL	SIGNS
			LIN. FT.	EACH
110+05	112+07	HWY. 62 RT.	200	
111+31	112+08	HWY. 62 LT.	75	
112+60	113+36	HWY. 62 RT.	75	
112+61	114+62	HWY. 62 LT.	200	
	110+05	HWY. 62 LT.		1
	111+31	HWY. 62 RT.		1
	112+06	HWY. 62 LT.		1
	112+05	HWY. 62 RT.		3
	112+63	HWY. 62 LT.		3
	112+65	HWY. 62 RT.		1
	113+36	HWY. 62 RT.		1
	114+62	HWY. 62 LT.		1
	115+39	HWY. 62 LT. & RT.		2
206+83	210+03	HWY. 223 LT.		5
	215+16	HWY. 223 LT.		3
	216+40	HWY. 223 LT.		3
	217+41	HWY. 223 LT.		1
	222+10	HWY. 223 LT.		1
	227+56	HWY. 223 RT.		1
TOTALS:			**550**	**28**

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
109+67	HWY. 62 LT. SIDE DRAIN	1
209+45	HWY. 223 LT. SIDE DRAIN	1
TOTAL:		**2**

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1 - HWY. 62	342	3792
ENTIRE	PROJECT	STAGE 2 - HWY. 62	1071	2086
ENTIRE	PROJECT	STAGE 3 - HWY. 62	2581	364
ENTIRE	PROJECT	STAGE 1 - HWY. 223	1470	32119
ENTIRE	PROJECT	STAGE 2 - HWY. 223	4139	1203
ENTIRE	PROJECT	STAGE 3 - HWY. 223	974	924
ENTIRE	PROJECT	EXISTING EMBANKMENT HWY. 223	4000	
ENTIRE	PROJECT	APPROACHES	5	1571
ENTIRE	PROJECT	TEMPORARY APPROACHES	6	
TOTALS:			**14588**	**42059**

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
108+32	118+00	HWY. 62 RT.	1104	
108+96	109+55	HWY. 62 LT.	105	1
109+69	113+12	HWY. 62 LT.	441	
201+56	227+57	HWY. 223 RT.	2985	2
201+59	204+04	HWY. 223 LT.	245	
222+32	226+40	HWY. 223 LT.	408	
TOTALS:			**5288**	**3**

CULVERT CLEAN OUT

STATION	LOCATION	EACH
203+90	HWY. 223	1
TOTAL:		**1**

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	49	124
		QUANTITIES				

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
210+85.92	213+04.67	HWY. 223 RT.	150	1	1
211+10.57	213+04.32	HWY. 223 LT.	125	1	1
216+95.33	218+89.08	HWY. 223 RT.	125	1	1
216+95.68	219+14.43	HWY. 223 LT.	150	1	1
TOTALS:			**550**	**4**	**4**

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
212+80	OUTFALL OF DITCH LT.	13	26
212+80	OUTFALL OF DITCH RT.	31	61
214+64	OUTFALL OF DITCH	27	55
215+25	OUTFALL OF DITCH	22	44
217+21	OUTFALL OF DITCH LT.	16	32
217+21	OUTFALL OF DITCH RT.	28	57
TOTALS:		**137**	**275**

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

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
108+25.00	109+25.00	HWY. 62	24.00	266.67
117+00.00	118+00.00	HWY. 62	24.00	266.67
200+00.00	201+00.00	HWY. 223 RT. LANE	10.00	111.11
201+00.00	202+00.00	HWY. 223	20.00	222.22
225+97.65	226+97.65	HWY. 223	20.00	222.22
226+97.65	227+97.65	HWY. 223 RT. LANE	10.00	111.11
TOTAL:				**1200.00**

NOTE: COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH DISTRICT ENGINEER.
STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM EACH SITE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
04-12-2024

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2	FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES	TEMPORARY CULVERTS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		36"	36"	18"									
		LIN. FT.	EACH	LIN. FT.		LIN. FT.		CU. YD.	FOUND	CU. YD.	SQ. YD.	M. GAL.	
313+76	SITE 1 DETOUR 18" X 52' TEMP. CULVERT			52									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
314+92	SITE 1 DETOUR 18" X 52' TEMP. CULVERT			52									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
203+90	EXTEND C.M. PIPE CULVERT W/ FES LT. & RT.	19	2								34	0.43	FES-1, PCM-1
SUBTOTALS:		**19**	**2**	**104**							**34**	**0.43**	
STRUCTURES OVER 20' - 0" SPAN													
112+50	HWY. 62 QUAD. 11' X 9' X 130'-4" R.C. BOX CULVERT				11	9	130.33	1112.20	166064	2216	42	0.53	RCB-1, RCB-2, RCB-3
SUBTOTALS:								**1112.20**	**166064**	**2216**	**42**	**0.53**	
TOTALS:		**19**	**2**	**104**				**1112.20**	**166064**	**2216**	**76**	**0.96**	

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.

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
		EACH
ENTIRE PROJECT	2	2
TOTALS:	**2**	**2**

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)	WIRE FENCE (TYPE D-2)	* 16'-0" GATES
			LIN. FT.			EACH
108+32	118+00	HWY. 62 RT.	1105			2
108+25	118+00	HWY. 62 LT.			1125	3
201+14	214+12	HWY. 223 RT.	1285			2
201+59	204+04	HWY. 223 LT.		253		
214+12	227+55	HWY. 223 RT.		1443		
222+32	226+40	HWY. 223 LT.		420		
TOTALS:			**2390**	**2116**	**1125**	**7**

* DENOTES ALTERNATE BID ITEM.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU. YD.	CU. YD.	POUND	TON
213+13.90	216+86.11	BRIDGE NO. 07599	16.80		840	
213+13.90		BEGIN BRIDGE NO. 07599		51.30	6270	30.84
216+86.11		END BRIDGE NO. 07599		51.30	6270	30.84
TOTALS:			**16.80**	**102.60**	**13380**	**61.68**

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.	
109+67	LT.	HWY. 62	16	117.17	12.89	47.84	38	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
201+72	RT.	HWY. 223	16	44.80	4.93	29.49	25	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
206+00	LT.	HWY. 223	16	44.80	4.93	68.69	26	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
209+45	RT.	HWY. 223	16	44.80	4.93	145.23	81	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
209+45	LT.	HWY. 223 TEMPORARY	16	44.80	4.93	90.16	29	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES			16			40.00		
TOTALS:				**296.37**	**32.61**	**421.41**	**199**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER

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

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

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.
108+25.00	110+75.00	HWY. 62 RT.	250.00	6.00	166.67	111.11	1.40
108+25.00	109+48.00	HWY. 62 LT.	123.00	6.00	82.00	54.67	0.69
109+85.00	111+93.00	HWY. 62 LT.	208.00	6.00	138.67	92.44	1.16
112+21.00	112+46.00	HWY. 62 RT.	25.00	6.00	19.10	11.11	0.14
112+60.00	113+00.00	HWY. 62 LT.	40.00	6.00	35.00	17.78	0.22
113+10.00	113+27.00	HWY. 62 RT.	17.00	6.00	15.10	7.56	0.10
114+65.00	117+00.00	HWY. 62 LT.	235.00	6.00	156.67	104.44	1.32
115+15.00	117+00.00	HWY. 62 RT.	185.00	6.00	123.33	82.22	1.04
200+00.00	201+60.00	HWY. 223 RT.	160.00	6.00	106.67	71.11	0.90
201+00.00	204+00.00	HWY. 223 LT.	300.00	6.00	200.00	133.33	1.68
201+85.00	204+00.00	HWY. 223 RT.	215.00	6.00	143.33	95.56	1.20
207+50.00	209+20.00	HWY. 223 RT.	170.00	6.00	113.33	75.56	0.95
212+79.00	212+80.00	HWY. 223 LT.	35.00	6.00	23.33	15.56	0.20
212+79.00	212+80.00	HWY. 223 RT.	59.00	6.00	39.33	26.22	0.33
217+21.00	217+22.00	HWY. 223 LT.	26.00	6.00	17.33	11.56	0.15
217+21.00	217+24.00	HWY. 223 RT.	41.00	6.00	27.33	18.22	0.23
TOTALS:					**1407.19**	**928.45**	**11.71**

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

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	50	124
		QUANTITIES				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
04-12-2024

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
108+25.00	110+10.00	HWY. 62 NOTCH AND WIDEN	185.00	168.00	310.80	13.41	275.65	13.78				13.78	4.58	94.14	660.00	31.07	4.25	87.36	220.00	9.61	40.00	822.22	220.00	90.44	100.05
110+10.00	112+86.00	HWY. 62 FULL DEPTH	276.00	261.50	721.74	85.41	2619.24	130.96				130.96	28.58	876.45	660.00	289.23	28.25	866.33	220.00	95.30	40.00	1226.67	220.00	134.93	230.23
112+86.00	118+00.00	HWY. 62 NOTCH AND WIDEN	514.00	168.00	863.52	13.41	765.86	38.29				38.29	4.58	261.57	660.00	86.32	4.25	242.72	220.00	26.70	40.00	2284.44	220.00	251.29	277.99
310+00.00	312+11.56	SITE 1 DETOUR NOTCH AND WIDEN	211.56	96.50	204.16																15.00	352.60	220.00	38.79	38.79
312+11.56	316+13.47	SITE 1 DETOUR FULL DEPTH	401.91	192.00	771.67																30.00	1339.70	220.00	147.37	147.37
316+13.47	318+18.63	SITE 1 DETOUR NOTCH AND WIDEN	205.16	96.50	197.98																15.00	341.93	220.00	37.61	37.61
201+00.00	204+30.00	HWY. 223 NOTCH AND WIDEN	330.00	117.75	388.58	13.21	484.37	24.22				24.22	6.71	246.03	330.00	40.59	6.50	238.33	220.00	26.22	26.00	953.33	220.00	104.87	131.09
204+30.00	213+13.90	HWY. 223 FULL DEPTH	883.90	178.00	1573.34	44.71	4391.02	219.55				219.55	22.46	2205.82	330.00	363.96	22.25	2185.20	220.00	240.37	26.00	2553.49	220.00	280.88	521.25
216+86.11	222+70.00	HWY. 223 FULL DEPTH	583.89	178.00	1039.32	44.71	2900.64	145.03				145.03	22.46	1457.13	330.00	240.43	22.25	1443.51	220.00	158.79	26.00	1686.79	220.00	185.55	344.34
222+70.00	226+97.65	HWY. 223 NOTCH AND WIDEN	427.65	117.75	503.56	13.21	627.70	31.39				31.39	6.71	318.84	330.00	52.61	6.50	308.86	220.00	33.97	26.00	1235.43	220.00	135.90	169.87
ADDITIONAL FOR GRADE RAISE																									
108+25.00	110+10.00	HWY. 62 NOTCH AND WIDEN	185.00			72.00	1480.00	74.00	24.00	493.33	83.87	157.87					24.00	493.33	VAR.	81.40					81.40
110+10.00	112+00.00	HWY. 62 METHOD OF RAISING GRADE	190.00	-93.50	-177.65				24.00	506.67	86.13	86.13	24.00	506.67	880.00	222.93									
112+86.00	118+00.00	HWY. 62 NOTCH AND WIDEN	514.00			72.00	4112.00	205.60	24.00	1370.67	233.01	438.61					24.00	1370.67	VAR.	226.16					226.16
201+00.00	204+30.00	HWY. 223 NOTCH AND WIDEN	330.00	-66.00	-217.80	51.00	1870.00	93.50	17.00	623.33	105.97	199.47	17.00	623.33	770.00	239.98	17.00	623.33	VAR.	102.85					102.85
222+70.00	226+97.65	HWY. 223 NOTCH AND WIDEN	427.65	-75.75	-323.94	58.50	2779.73	138.99	19.50	926.58	157.52	296.51	19.50	926.58	770.00	356.73	19.50	926.58	VAR.	152.89					152.89
ADDITIONAL FOR SUPERELEVATION																									
108+25.00	108+79.65	HWY. 62 MAX. SUPERELEVATION (0.086'/')	54.65	78.75	43.04																				
108+79.65	112+29.65	HWY. 62 SUPERELEVATION TRANSITION	350.00	39.38	137.83																				
310+00.00	310+40.50	SITE 1 DETOUR MATCH SUPERELEVATION (0.093'/')	40.50	4.25	1.72																				
310+40.50	311+58.20	SITE 1 DETOUR SUPERELEVATION TRANSITION	117.70	3.50	4.12																				
311+58.20	313+07.34	SITE 1 DETOUR SUPERELEVATION TRANSITION	149.14	11.50	17.15																				
313+07.34	314+97.47	SITE 1 DETOUR MAX. SUPERELEVATION (0.036'/')	190.13	7.00	13.31																				
314+97.47	316+13.47	SITE 1 DETOUR SUPERELEVATION TRANSITION	116.00	1.50	1.74																				
201+00.00	202+82.07	HWY. 223 SUPERELEVATION TRANSITION	182.07	14.13	25.73																				
202+82.07	202+99.80	HWY. 223 MAX. SUPERELEVATION (0.049'/')	17.73	28.25	5.01																				
202+99.80	204+81.87	HWY. 223 SUPERELEVATION TRANSITION	182.07	14.13	25.73																				
204+81.87	208+31.87	HWY. 223 SUPERELEVATION TRANSITION	350.00	24.13	84.46																				
208+31.87	213+13.90	HWY. 223 MAX. SUPERELEVATION (0.100'/')	482.03	48.25	232.58																				
216+86.11	218+84.20	HWY. 223 SUPERELEVATION TRANSITION	198.09	24.13	47.80																				
218+84.20	222+12.38	HWY. 223 SUPERELEVATION TRANSITION	328.18	21.25	69.74																				
222+12.38	223+69.47	HWY. 223 MAX. SUPERELEVATION (0.088'/')	157.09	42.50	66.76																				
223+69.47	226+97.65	HWY. 223 SUPERELEVATION TRANSITION	328.18	21.25	69.74																				
ADDITIONAL FOR GUARDRAIL																									
210+36.92	213+04.67	HWY. 223 RT.	267.75	21.75	58.24																6.63	197.24	220.00	21.70	21.70
210+61.57	213+04.32	HWY. 223 LT.	242.75	20.50	49.76																6.43	173.43	220.00	19.08	19.08
216+95.33	219+38.08	HWY. 223 RT.	242.75	20.50	49.76																6.43	173.43	220.00	19.08	19.08
216+95.68	219+63.43	HWY. 223 LT.	267.75	21.75	58.24																6.63	197.24	220.00	21.70	21.70
ADDITIONAL FOR MOT																									
200+00.00	201+00.00	HWY. 223 NOTCH AND WIDEN RT.	100.00	34.50	34.50	4.17	46.33	2.32	10.00	111.11	18.89	21.21	2.13	23.67	330.00	3.91	2.04	22.67	220.00	2.49	10.00	111.11	220.00	12.22	14.71
201+00.00	204+00.00	HWY. 223 FULL DEPTH SHOULDER	300.00	-6.50	-19.50	4.00	133.33	6.67				6.67	2.00	66.67	330.00	11.00	2.00	66.67	220.00	7.33					7.33
223+00.00	226+97.65	HWY. 223 FULL DEPTH SHOULDER	397.65	-6.50	-25.85	4.00	176.73	8.84				8.84	2.00	88.37	330.00	14.58	2.00	88.37	220.00	9.72					9.72
226+97.65	227+97.65	HWY. 223 NOTCH AND WIDEN RT.	100.00	34.50	34.50	4.17	46.33	2.32	10.00	111.11	18.89	21.21	2.13	23.67	330.00	3.91	2.04	22.67	220.00	2.49	10.00	111.11	220.00	12.22	14.71
TOTALS:					**6941.39**		**22708.93**	**1135.46**		**4142.80**	**704.28**	**1839.74**		**7718.94**		**1957.25**		**8986.60**		**1176.29**		**13760.16**		**1513.63**	**2689.92**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	51	124
		07599 -		QUANTITIES		- 65815

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050422

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	SP, SS & 802	SP, SS & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHEEL PILING (20" DIA.) (2)(3)	STEEL PILING (HP14X89) (1)(2)	PREBORING (2)
			UNIT	LUMP SUM	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.
07599	HIGHWAY 223 OVER BIG CREEK	BENT NO. 1			28.90		12.3	4,560	450	470		353
		BENT NO. 2			21.90			3,450		715		442
		BENT NO. 3			21.90			3,450		711		438
		BENT NO. 4			22.60			3,450			280	249
		BENT NO. 5			22.30			3,440			251	221
		BENT NO. 6			28.90		12.3	4,660	450		292	240
		370'-0" CONTINUOUS W-BEAM UNIT				391.70	1,535.0		121,230			
		EXISTING BRIDGE NO. M2381 (SITE NO. 2)		1								
		TOTALS FOR JOB NO. 050422			146.50	391.70	1,559.6	23,010	122,130	1,896	823	1,943

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SS & 805	SP, SS & 807	SS & 807	SS & 808	SS & 809	812	SS & 816	SS & 816	SP
			ITEM	PILE ENCASEMENT	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET	EXPLORATORY HOLES
			UNIT	LIN. FT.	LB.	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.	LIN. FT.
07599	HIGHWAY 223 OVER BIG CREEK	BENT NO. 1			630	0.2	2,090.0		1	117	210	
		BENT NO. 2		40			1,857.0					
		BENT NO. 3		36			1,702.0					342
		BENT NO. 4		31			1,702.0					
		BENT NO. 5		30			1,857.0					
		BENT NO. 6			630	0.2	2,090.0			113	208	
		370'-0" CONTINUOUS W-BEAM UNIT			349,470	44.0		65				
		EXISTING BRIDGE NO. M2381 (SITE NO. 2)										
		TOTALS FOR JOB NO. 050422		137	350,730	44.4	11,298.0	65	1	230	418	342

(1) These steel piles shall be Grade 50 and are required to have special driving points which will not be paid for directly but shall be considered subsidiary to the items "STEEL PILING (HP14X89)".

(2) The quantities shown for steel piling and preboring are for estimates and bidding purposes only. Actual quantities will be determined in the field.

(3) These steel piles shall be ASTM A252, Grade 3 and are required to have steel pile tips which will not be paid for directly but shall be considered subsidiary to the items "STEEL SHELL PILING (20" DIA.)".

TABLE OF APPROACH SLAB QUANTITIES

(FOR INFORMATION ONLY)

BRIDGE NO.	ITEM	REINFORCING STEEL	CONCRETE
	UNIT	LB.	CU. YDS.
07599	BEGIN BRIDGE	6,270	51.30
	END BRIDGE	6,270	51.30

QUANTITIES FOR ONE APPROACH GUTTER

(FOR INFORMATION ONLY)

BRIDGE NO.	REINFORCING STEEL	CONCRETE
	LB.	CU. YDS.
07599	210	4.20
	210	4.20

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
SHIPMAN & BIG CREEK STRS. & APPRS. (S)
FULTON COUNTY
ROUTE 223 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 10/2022 FILENAME: b050422x2_q1.dgn
CHECKED BY: JGS DATE: 12/2022 SCALE: NONE
DESIGNED BY: HRA DATE: 10/2022

BRIDGE NO. 07599 DRAWING NO. 65815

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SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	38	STATION
201	GRUBBING	38	STATION
202	REMOVAL AND DISPOSAL OF FENCE	5288	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	3	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	550	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS	28	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	14588	CU. YD.
SP & 210	COMPACTED EMBANKMENT	42059	CU. YD.
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	7424	TON
SS & 401	TACK COAT	1874	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1871	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	86	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2579	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	144	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	1200	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	17	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	23	TON
SP, SS, & 504	APPROACH SLABS	102.60	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.80	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	104	LIN. FT.
SS & 604	SIGNS	769	SQ. FT.
SS & 604	BARRICADES	64	LIN. FT.
SS & 604	TRAFFIC DRUMS	77	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	353	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	19665	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2300	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	7570	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	3570	LIN. FT.
SS & 604	VERTICAL PANELS	107	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	1407	SQ. YD.
SS & 606	36" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	19	LIN. FT.
SP	CULVERT CLEAN OUT	1	EACH
SP, SS & 606	18" SIDE DRAIN	199	LIN. FT.
SS & 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	2	EACH
SS & 606	SELECTED PIPE BEDDING	40	CU. YD.
SS & 617	GUARDRAIL (TYPE A)	550	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
SS & 619	WIRE FENCE (TYPE C)	2390	LIN. FT.
SS & 619	WIRE FENCE (TYPE D-1)	2116	LIN. FT.
SS & 619	WIRE FENCE (TYPE D-2)	1125	LIN. FT.
* SS & 619	16' STEEL GATES (ALTERNATE NO. 1)	7	EACH
* SS & 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	7	EACH
620	LIME	19	TON
620	SEEDING	9.40	ACRE
SS & 620	MULCH COVER	17.80	ACRE
620	WATER	1142.8	M. GAL.
621	TEMPORARY SEEDING	8.40	ACRE
621	SILT FENCE	3990	LIN. FT.
621	SAND BAG DITCH CHECKS	440	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	356	CU. YD.
621	ROCK DITCH CHECKS	585	CU. YD.
SS & 621	FILTER SOCK (18")	500	LIN. FT.
SP & 621	WATTLE (20")	500	LIN. FT.
623	SECOND SEEDING APPLICATION	9.40	ACRE
624	SOLID SODDING	1004	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	1560	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	5595	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	5595	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	2350	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	1620	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	71	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	3	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	13380	POUND
SS & 816	FILTER BLANKET	275	SQ. YD.
SS & 816	DUMPED RIPRAP	137	CU. YD.
SP	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	6	WEEK
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	2216	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	1112.20	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	146.50	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	391.70	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	1559.6	SQ. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	166064	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	23010	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	122130	POUND
SS & 805	STEEL SHELL PILING (20" DIAMETER)	1896	LIN. FT.
SS & 805	STEEL PILING (HP 14X89)	823	LIN. FT.
SS & 805	PREBORING	1943	LIN. FT.
SS & 805	PILE ENCASEMENT	137	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	350730	POUND
SS & 807	PAINTING STRUCTURAL STEEL	44.4	TON
SS & 808	ELASTOMERIC BEARINGS	11298.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT	65	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	DUMPED RIPRAP	230	CU. YD.
SS & 816	FILTER BLANKET	418	SQ. YD.
SP	EXPLORATORY HOLES	342	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	52	124

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS ★ ★ ★ REGISTERED PROFESSIONAL ENGINEER ★ ★ ★ No. 13832 RYAN W. CASTOR

04-16-2024

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	53	124
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

SURVEY CONTROL COORDINATES

Project Name: s050422
Date: 9/8/2020
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	751338.5512	1305243.6800	884.104	CTL	ARDOT STD. MON. STAMPED PN: 1
2	751352.8329	1305929.8701	858.221	CTL	ARDOT STD. MON. STAMPED PN: 2
3	751161.9619	1306701.5736	823.160	CTL	ARDOT STD. MON. STAMPED PN: 3
4	750906.1773	1307279.7074	853.667	CTL	ARDOT STD. MON. STAMPED PN: 4
5	750714.4770	1307748.6553	887.508	CTL	ARDOT STD. MON. STAMPED PN: 5
6	750505.6486	1308108.8302	889.831	CTL	ARDOT STD. MON. STAMPED PN: 6
7	750140.0510	1308663.2132	859.158	CTL	ARDOT STD. MON. STAMPED PN: 7
8	744831.3503	1316556.7648	820.162	GPS	ARDOT STD. MON. STAMPED PN: 8
9	745182.7998	1316939.5594	810.635	CTL	ARDOT STD. MON. STAMPED PN: 9
10	745458.8198	1317092.7889	792.723	CTL	ARDOT STD. MON. STAMPED PN: 10
11	746106.1317	1317071.8674	791.039	CTL	ARDOT STD. MON. STAMPED PN: 11
12	746731.7494	1317098.3595	794.197	CTL	ARDOT STD. MON. STAMPED PN: 12
13	747220.5321	1317109.6518	799.324	GPS	ARDOT STD. MON. STAMPED PN: 13
100	751384.9740	1304707.9747	914.877	GPS	ARDOT GPS *250009
101	751305.1048	1306343.8956	840.217	GPS	ARDOT GPS *250009A
900	751148.3658	1306613.5523	824.780	TBM	AHTD DISK ON SW CRNR BR
901	749946.0405	1308857.4480	844.613	TBM	SQUARE CUT ON S END CU
902	745111.5059	1316800.9977	805.059	TBM	SQUARE CUT ON S END CU
903	746011.5732	1317104.8949	792.839	TBM	SQUARE CUT ON SE CRNR BR
999	751359.3836	1304794.4171	912.380	BM	NGS PUBLISHED 2ND ORDER BM R 38

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999958156 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 s050422gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 250009 - 250009A
CONVERGENCE ANGLE: LOC. 1 CONVERGENCE ANGLE AT PN: 3, 0°00'40.12" LEFT AT LAT N36°23'49.07" LON W92°01'08.95"
LOC. 2 CONVERGENCE ANGLE AT PN: 11, 0°00'33.68" RIGHT AT LAT N36°22'59.08" LON W91°59'02.12"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CL - HWY. 62 (SITE 1)

POINT NO.	POINT TYPE	STATION	NORTHING	EASTING
8000	P.O.B.	100+00.00	751350.1977	1305438.9966
8001	P.C.	105+06.14	751331.0622	1305944.7786
	P.I.	107+66.64	751321.2137	1306205.0917
8002	C.C.		749695.2103	1305882.8886
8003	P.T.	110+22.81	751231.0504	1306449.4900
8004	P.C.	120+20.41	750885.7626	1307385.4335
	P.I.	121+80.54	750830.3421	1307535.6573
8005	C.C.		746585.4103	1305798.9497
8006	P.T.	123+40.53	750764.5740	1307681.6476
8007	P.C.	123+70.86	750752.1140	1307709.3060
	P.I.	126+24.78	750647.8174	1307940.8208
8008	C.C.		748430.3564	1306663.3627
8009	P.T.	128+77.03	750499.8579	1308147.1819
8010	P.O.E.	129+60.45	750451.2497	1308214.9763

CL - SITE 1 DETOUR

POINT NO.	POINT TYPE	STATION	NORTHING	EASTING
8011	P.C.	310+00.00	751284.0153	1306277.2751
	P.I.	311+04.95	751258.6378	1306379.1097
8012	C.C.		750754.5345	1306145.3270
8013	P.T.	312+07.37	751197.2966	1306464.2657
8014	P.C.	312+58.17	751167.6002	1306505.4913
	P.I.	313+98.11	751085.8095	1306619.0360
8015	C.C.		751610.3623	1306824.4300
8016	P.T.	315+32.14	751068.7556	1306757.9291
8017	P.C.	316+41.96	751055.3719	1306866.9305
	P.I.	317+30.69	751044.5586	1306954.9982
8018	C.C.		750297.1225	1306773.8292
8019	P.T.	318+18.63	751013.8479	1307038.2431

CL - HWY. 223 (SITE 2)

POINT NO.	POINT TYPE	STATION	NORTHING	EASTING
8020	P.O.B.	201+00.00	744802.4379	1316548.5829
8021	P.C.	202+05.86	744954.5615	1316687.2760
	P.I.	203+00.01	745024.1380	1316750.7098
8022	C.C.		744182.5205	1317534.0789
8023	P.T.	203+93.74	745082.4274	1316824.6495
8024	P.C.	205+69.99	745191.5439	1316963.0631
	P.I.	212+70.53	745625.2436	1317513.2086
8025	C.C.		745941.4663	1316371.8720
8026	P.T.	217+78.79	746280.2223	1317264.6962
8027	P.C.	219+89.62	746477.3390	1317189.9060
	P.I.	222+15.23	746688.2802	1317109.8706
8028	C.C.		746883.8461	1318261.2951
8029	P.T.	224+35.15	746913.8176	1317115.7715
8030	P.O.E.	228+09.26	747287.8029	1317125.5565

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	54	124
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

N

BEARINGS ARE GRID BASED ON GPS

SCALE RATIO 1" = 100'

50 25 0 25 50 100

105 110 115

STA. 108+25.00
BEGIN CONST. HWY. 62
LOG MILE 8.49

HWY. 62
P.I. = 107+66.64
Δ = 18° 05'00" RT.
D = 3° 30'00"
T = 260.50'
L = 516.67'
P.C.= 105+06.14
P.T.= 110+22.81
e = 0.086 '/'
Ls = 350'

8000 P.O.B. 100+00.00

SURVEY BASELINE N88°48'28"E 686.34'

S87°50'00"E 506.14'

8001 P.C. 105+06.14

PN:2 PD:ARDOT STD. MON. STAMPED PN:2

SURVEY BASELINE S76°06'27"E 794.96'

8002 P.I. 107+66.64

S76°00'24"E

GPS PN:101 PD:ARDOT GPS #250009A

8003 P.T. 110+22.81

S69°45'00"E 997.60'

HWY. 62

PN:3 PD:ARDOT STD. MON. STAMPED PN:3

SURVEY BASELINE S66°08'02"E 632.19'

℄ HWY. 62 STA. 108+42.54 =
℄ SITE I DETOUR STA. 310+00.00
Δ 0°00'00"

STA. 310+00.00
BEGIN CONST.
SITE I DETOUR

8004 P.C. 310+00.00

P.I. 311+04.95

P.T. 312+07.37

P.C. 312+58.17

8005 S54°14'00"E 50.80'

8014

SITE I DETOUR

SITE I DETOUR
P.I. = 311+04.95
Δ = 21° 46'24" RT.
D = 10° 30'00"
T = 104.95'
L = 207.37'
P.C.= 310+00.00
P.T.= 312+07.37
e = 0.036 '/'
Ls = 116'

SITE I DETOUR
P.I. = 313+98.11
Δ = 28° 46'00" LT.
D = 10° 30'00"
T = 139.94'
L = 273.97'
P.C.= 312+58.17
P.T.= 315+32.14
e = 0.036 '/'
Ls = 116'

P.I. 313+98.11

8016 P.T. 315+32.14

S83°00'00"E 109.82'

8017 P.C. 316+41.96

SITE I DETOUR

PN:900 PD:AHTD DISK ON SW CRNR BR

315

STA. 118+00.00
END CONST. HWY. 62

115 120 125

HWY. 62
P.I. = 121+80.54
Δ = 4° 00'05" RT.
D = 1° 15'00"
T = 160.13'
L = 320.12'
P.C.= 120+20.41
P.T.= 123+40.53
e = MATCH EXISTING
Ls = MATCH EXISTING

HWY. 62
P.I. = 126+24.78
Δ = 11° 23'20" RT.
D = 2° 15'00"
T = 253.92'
L = 506.17'
P.C.= 123+70.86
P.T.= 128+77.03
e = MATCH EXISTING
Ls = MATCH EXISTING

N

BEARINGS ARE GRID BASED ON GPS

SCALE RATIO 1" = 100'

50 25 0 25 50 100

P.C. 316+41.96

P.I. 317+30.69

P.T. 318+18.63

8019

SITE I DETOUR

HWY. 62
SURVEY BASELINE S66°08'02"E 632.19'

S69°45'00"E 997.60'

8004 P.C. 120+20.41

P.I. 121+80.54

8006 P.T. 123+40.53

8007 P.C. 123+70.86

SURVEY BASELINE S67°45'57"E 506.62'

S65°44'55"E 30.33'

P.I. 126+24.78

SURVEY BASELINE S59°53'42"E 416.34'

8009 P.T. 128+77.03

P.O.E. 129+60.45

8010 S54°21'35"E 83.42'

SURVEY BASELINE S56°35'47"E 664.08'

PN:4 PD:ARDOT STD. MON. STAMPED PN:4

PN:5 PD:ARDOT STD. MON. STAMPED PN:5

PN:6 PD:ARDOT STD. MON. STAMPED PN:6

℄ HWY. 62 STA. 116+50.35 =
℄ SITE I DETOUR STA. 318+18.63
Δ 0°00'00"

STA. 318+18.63
END CONST.
SITE I DETOUR

SITE I DETOUR
P.I. = 317+30.69
Δ = 13° 15'00" RT.
D = 7° 30'00"
T = 88.73'
L = 176.67'
P.C.= 316+41.96
P.T.= 318+18.63
e = R.C.
Ls = 83'

SITE I - HWY. 62
SURVEY CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	55	124
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
No. 18634
TYLER MONCRIEF
03/29/2024

STA. 201+00.00
BEGIN CONST. HWY. 223
LOG MILE 11.70

P.O.B. 200+00.00
8020
PN:8 PD:ARDOT STD. MON. STAMPED PN:8
N42°21'21"E 205.86'
8021 P.C. 202+05.86
P.I. 203+00.01
PN:902 PD:SQUARE CUT ON S END CU
8023 P.T. 203+93.74
SURVEY BASELINE N47°26'40"E 519.66'
N51°45'00"E 176.25'
8024 P.C. 205+69.99
PN:9 PD:ARDOT STD. MON. STAMPED PN:9

P.I. = 203+00.01
Δ = 9° 23'39" RT.
D = 5° 00'00"
T = 94.15'
L = 187.88'
P.C.= 202+05.86
P.T.= 203+93.74
e = 0.094 '/'
Ls = 350'

205

SURVEY BASELINE N29°02'11"E 315.70'
PN:10 PD:ARDOT STD. MON. STAMPED PN:10

P.I. = 212+70.53
Δ = 72° 31'40" LT.
D = 6° 00'00"
T = 700.54'
L = 1208.80'
P.C.= 205+69.99
P.T.= 217+78.79
e = 0.100 '/'
Ls = 350'

210

SURVEY BASELINE N01°51'04"W 647.65'
HWY. 223
P.I. 212+70.53
N20°46'40"W
N51°45'00"E

BEARINGS ARE GRID BASED ON GPS
N
SCALE RATIO 1" = 100'
50 25 0 25 50 100

P.I. = 212+70.53
Δ = 72° 31'40" LT.
D = 6° 00'00"
T = 700.54'
L = 1208.80'
P.C.= 205+69.99
P.T.= 217+78.79
e = 0.100 '/'
Ls = 350'

220

SURVEY BASELINE N02°25'29"E 626.18'
PN:11 PD:ARDOT STD. MON. STAMPED PN:11
PN:903 PD:SQUARE CUT ON SE CRNR BR
215
8026 P.T. 217+78.79
N20°46'40"W 210.83'
8027 P.C. 219+89.62
HWY. 223

P.I. = 222+15.23
Δ = 22° 16'35" RT.
D = 5° 00'00"
T = 225.61'
L = 445.53'
P.C.= 219+89.62
P.T.= 224+35.15
e = 0.094 '/'
Ls = 350'

PN:12 PD:ARDOT STD. MON. STAMPED PN:12
P.I. 222+15.23
8029 P.T. 224+35.15

225

SURVEY BASELINE N01°19'24"E 488.91'
N1°29'55"E 374.11'
PN:13 PD:ARDOT STD. MON. STAMPED PN:13
8030 P.O.E. 228+09.26

STA. 226+97.65
END CONST. HWY. 223

BEARINGS ARE GRID BASED ON GPS
N
SCALE RATIO 1" = 100'
50 25 0 25 50 100

SITE 2 - HWY. 223
SURVEY CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	56	124
		PLAN & PROFILE STA. 105+00 - STA. 120+00				

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
108+25	110+75	RT.	6'-0"	166.7
108+25	109+48	LT.	6'-0"	82.0
109+85	111+93	LT.	6'-0"	138.7
112+21	112+46	RT.	6'-0"	19.1
112+60	113+00	LT.	6'-0"	35.0
113+10	113+27	RT.	6'-0"	15.1
114+65	117+00	LT.	6'-0"	156.7
115+15	117+00	RT.	6'-0"	123.3

HWY. 62
P.I. = 107+66.64
Δ = 18° 05'00" RT.
D = 3° 30'00"
T = 260.50'
L = 516.67'
P.C. = 105+06.14
P.T. = 110+22.81
e = 0.086 '/'
Ls = 350'

STA. 109+67.00 IN PLACE
18" X 24' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.

STA. 112+50.00 CONSTRUCT
QUAD. 11' X 9' X 130'-4" R.C. BOX CULVERT
WITH 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q25 = 1410 CFS D.A. = 2.63 SQ. MILES
ROADWAY SPAN = 50'-3½"

STA. 112+12.00 TO STA. 112+55.00 IN PLACE
44' X 36.8' BRIDGE 01927
CONCRETE CONTINUOUS
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	L.F.	GATE
108+32	118+00	RT.	1104	
108+96	109+55	LT.	105	1 EA.
109+69	113+12	LT.	441	

FENCE

STA.	STA.	SIDE	TYPE	L.F.	16' GATE
108+32	118+00	RT.	C	1105	2 EA.
108+25	118+00	LT.	D-2	1125	3 EA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

EXIST. R/W
P.I. 107+66.64
16' GATE
T.C.E.
PROP. R/W
PROP. CONST. LIMITS
100' TAPER
HWY. 62
S 69°45'00" E
S 87°50'00" E
P.C. 105+06.14
P.T. 110+22.81
P.C. 120+20.41

STA. 108+25.00
BEGIN CONST. HWY. 62
LOG MILE 8.49

STA. 118+00.00
END CONST. HWY. 62

REMOVAL & DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	L.F.
110+05	112+07	RT.	200
111+31	112+08	LT.	75
112+60	113+36	RT.	75
112+61	114+62	LT.	200

SITE 1 - HWY. 62

STA. 108+25.00 MATCH SUPERELEVATION (0.086'/')
STA. 108+79.65 MAX. SUPERELEVATION (0.086'/')
STA. 112+29.65 END SUPERELEVATION

VC = 750'
K = 58.23

P.V.I. 108+25.00 ELEV. 843.66
P.V.C. 109+25.00 ELEV. 837.31
P.V.I. 113+00.00 ELEV. 813.50
P.V.T. 116+75.00 ELEV. 837.99
P.V.I. 117+00.00 ELEV. 839.62
P.V.I. 118+00.00 ELEV. 846.08

-6.35%
-10.41%
22.32%
0.00%
6.53%
6.46%

PROFILE GRADE
EXISTING GROUND
℄ HWY. 62
100' TRANS. MILL & OVERLAY
LT. DITCH
Q25 = ELEV. 818.67

+00 822.28
+93 812.60
+69 812.60
+00 819.52

+50
F.L. INLET = 812.60
F.L. OUTLET = 812.20

FOR THE CONSTRUCTION OF DETOURS, TEMPORARY WORK RAMPS, OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM, THE STREAM BANK ELEVATION ARE 819 FEET MSL.

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

880 870 860 850 840 830 820 810 800 790

105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	57	124
		PLAN & PROFILE STA. 307+00 - STA. 321+00				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

STA. 313+76.00 CONSTRUCT
18" X 52' TEMPORARY CULVERT

STA. 314+92.00 CONSTRUCT
18" X 52' TEMPORARY CULVERT

110

115

315

P.I. 107+66.64

P.I. 311+04.95

I.C.E.

P.I. 313+98.11

P.C. 312+58.17

P.T. 315+32.14

P.I. 317+30.69

P.C. 316+41.96

P.T. 318+18.63

P.C. 120+20.41

P.C. 105+06.14

PROP. R/W

EXIST. R/W

HWY. 62

S 87°50'00" E

S76°00'24"E

S 69°45'00" E

S69°45'00"E

S54°14'00"E

S83°00'00"E

SITE I DETOUR

TEMP. CONST. LIMITS

℄ HWY. 62 STA. 108+42.54 =
℄ SITE I DETOUR STA. 310+00.00
△ 0°00'00"

P.C. 310+00.00

P.T. 110+22.81

P.T. 312+07.37

SITE I DETOUR
P.I. = 311+04.95
△ = 21° 46'24" RT.
D = 10° 30'00"
T = 104.95'
L = 207.37'
P.C.= 310+00.00
P.T.= 312+07.37
e = 0.036 '/'
Ls = 116'

SITE I DETOUR
P.I. = 313+98.11
△ = 28° 46'00" LT.
D = 10° 30'00"
T = 139.94'
L = 273.97'
P.C.= 312+58.17
P.T.= 315+32.14
e = 0.036 '/'
Ls = 116'

SITE I DETOUR
P.I. = 317+30.69
△ = 13° 15'00" RT.
D = 7° 30'00"
T = 88.73'
L = 176.67'
P.C.= 316+41.96
P.T.= 318+18.63
e = R.C.
Ls = 83'

℄ HWY. 62 STA. 116+50.35 =
℄ SITE I DETOUR STA. 318+18.63
△ 0°00'00"

STA. 310+00.00
BEGIN CONST.
SITE I DETOUR

STA. 318+18.63
END CONST.
SITE I DETOUR

SITE I - DETOUR

STA. 310+40.50 MATCH SUPERELEVATION (0.093'/')
STA. 311+58.20 MAX. SUPERELEVATION (0.036'/')
STA. 312+32.77 SUPERELEVATION RUNOUT (0.000'/' LT. & RT.)

STA. 312+32.77 SUPERELEVATION RUNOUT (0.000'/' LT. & RT.)
STA. 313+07.34 MAX. SUPERELEVATION (0.036'/')
STA. 314+97.47 MAX. SUPERELEVATION (0.036'/')
STA. 316+13.47 END SUPERELEVATION (R.C. RT.)

VC = 250'
K = 71.23

P.V.I. 312+11.55
ELEV. 828.41

P.V.C. 312+75.00
ELEV. 826.88

P.V.I. 314+00.00
ELEV. 823.85

P.V.T. 315+25.00
ELEV. 825.22

P.V.I. 316+13.47
ELEV. 826.18

RT. DITCH -6.43%

-2.42%

1.09%

PROFILE GRADE

+45
836.44

+23
824.97

+76
F.L. INLET = 821.08
F.L. OUTLET = 819.01

025 = ELEV. 818.67

+92
F.L. INLET = 822.36
F.L. OUTLET = 818.81

EXISTING GROUND
℄ ℄ SITE I DETOUR

℄ HWY. 62 STA. 112+50.00
F.L. INLET = 812.60
F.L. OUTLET = 812.20

NOTCH & WIDEN
EXISTING PAVEMENT

NOTCH & WIDEN
EXISTING PAVEMENT

880
870
860
850
840
830
820
810
800
790

307+00 308+00 309+00 310+00 311+00 312+00 313+00 314+00 315+00 316+00 317+00 318+00 319+00 320+00 321+00

FOR THE CONSTRUCTION OF DETOURS, TEMPORARY WORK RAMPS, OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM, THE STREAM BANK ELEVATION ARE 819 FEET MSL.

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

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	58	124
		PLAN & PROFILE STA. 200+00 - STA. 215+00				

REMOVAL & DISPOSAL OF FENCE				
STA.	STA.	SIDE	L.F.	GATE
201+56	227+57	RT.	2878	1 EA.
201+59	204+04	LT.	245	

FENCE					
STA.	STA.	SIDE	TYPE	L.F.	16' GATE
201+14	214+12	RT.	C	1285	2 EA.
214+12	227+55	RT.	D-1	1443	
201+59	204+04	LT.	D-1	253	

STA. 206+00.00 INSTALL
18" X 26' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 42 CU. YDS. EMB.
= 5 CU. YDS. EXC.

P.I. = 212+70.53
Δ = 72° 31'40" LT.
D = 6° 00'00"
T = 700.54'
L = 1208.80'
P.C.= 205+69.99
P.T.= 217+78.79
e = 0.100 '/'
Ls = 350'

HWY. 223 STA. 213+13.90 BR. END
BRIDGE NO. 07599
370'-0" CONT. W-BEAM
UNIT (65'-80'-80'-80'-65')
30'-0" CLEAR ROADWAY
372'-2½" TOTAL LENGTH
HWY. 223 STA. 216+86.11 BR. END

STATE OF ARKANSAS
JOHN MONCRIEF
No. 18634
JESSE TYLER MONCRIEF
03/29/2024

P.O.B. 200+00.00
EXIST. R/W
100' TAPER
PROP. R/W
P.I. 203+00.01
205
210
PROP. CONST. LIMITS
EXIST. R/W
N42°21'21"E
16' GATE
N51°45'00"E
P.C. 205+69.99
P.C. 202+05.86
P.I. = 203+00.01
Δ = 9° 23'39" RT.
D = 5° 00'00"
T = 94.15'
L = 187.88'
P.C.= 202+05.86
P.T.= 203+93.74
e = 0.094 '/'
Ls = 350'
P.T. 203+93.74
HWY. 223
DUMPED RIPRAP = 13 CU. YDS.
BEGIN BRIDGE STA. 213+13.90
DUMPED RIPRAP = 31 CU. YDS.
DUMPED RIPRAP = 27 CU. YDS. NOT TO BE PLACED LOWER THAN OHW = 785.5'

STA. 201+72.00 INSTALL
18" X 25' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 24 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)				
STA.	STA.	SIDE	"W"	SQ. YDS.
200+00	201+60	RT.	6'-0"	106.7
201+00	204+00	LT.	6'-0"	200.0
201+85	204+00	RT.	6'-0"	143.3
207+50	209+20	RT.	6'-0"	113.3
212+79	212+80	LT.	6'-0"	23.3
212+79	212+80	RT.	6'-0"	39.3

STA. 203+90.00 IN PLACE
36" X 53' C.M. PIPE CULVERT
EXTEND C.M. PIPE
19' RT. (TYPE 2 BEDDING) W/ FES
Q25 = 30.2 CFS D.A. = 22.7 ACRES
36" C.M. PIPE = 19 LIN. FT.
36" FES = 2 EA.

STA. 209+45.00 IN PLACE
18" X 18' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 81' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 1119 CU. YDS.

		GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
STA.	STA.			
210+85.92	213+04.67 RT.	150 L.F.	1 EA.	1 EA.
211+10.57	213+04.32 LT.	125 L.F.	1 EA.	1 EA.

STA. 201+00.00
BEGIN CONST. HWY. 223
LOG MILE 11.70

SITE 2 - HWY. 223

STA. 201+00.00 BEGIN SUPERELEVATION
STA. 202+82.07 MAX. SUPERELEVATION (0.049 '/')
STA. 202+99.80 MAX. SUPERELEVATION (0.049 '/')
STA. 204+81.87 END SUPERELEVATION

STA. 204+81.87 BEGIN SUPERELEVATION
STA. 208+31.87 MAX. SUPERELEVATION (0.100 '/')
STA. 215+34.20 MAX. SUPERELEVATION (0.100 '/')
STA. 218+84.20 END SUPERELEVATION

P.V.C. 201+00.00 ELEV. 818.10
P.V.I. 202+75.00 ELEV. 811.31
VC = 350'
K = 115.89
P.V.T. 204+50.00 ELEV. 809.80
RT. DITCH -9.07%
-3.88%
-0.86%
RT. DITCH -3.50%
RT. DITCH -4.20%
RT. DITCH 2.70%
RT. DITCH -0.50%
PROFILE GRADE
BEGIN BRIDGE STA. 213+13.90
-0.86%
Q25 = ELEV. 792.6
RT. DITCH -0.40%
EXISTING GROUND @ ℄ HWY. 223
200' MILL & OVERLAY
+90
F.L. INLET = 802.30
F.L. OUTLET = 801.71
EXIST. F.L. INLET = 802.13
EXIST. F.L. OUTLET = 801.71

FOR THE CONSTRUCTION OF DETOURS, TEMPORARY WORK RAMPS, OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION ARE 789.5 FEET MSL.

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

845 835 825 815 805 795 785 775 765 755

200+00 201+00 202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00

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LOG MILE 11.958 EXISTING BRIDGE M238IN PLACE
76 FT. X 21FT. CLEAR ROADWAY
BRIDGE CONSISTING OF R.C. DECK SUPPORTED BY STEEL I-BEAMS
AND CONCRETE COLUMNS ON SPREAD FOOTINGS
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

REMOVAL & DISPOSAL OF FENCE

STA.	STA.	SIDE	L.F.
222+32	226+40	LT.	408

FENCE

STA.	STA.	SIDE	TYPE	L.F.
222+32	226+40	LT.	D-1	420

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	59	124
		PLAN & PROFILE STA. 215+00 - STA. 230+00				

STATE OF ARKANSAS
No. 18634
JESSIE TYLER MONCRIEF
03/29/2024

EXIST. R/W
PROP. CONST. LIMITS
PROP. R/W
HWY. 223
215
220
225

P.I. = 212+70.53
Δ = 72° 31'40" LT.
D = 6° 00'00"
T = 700.54'
L = 1208.80'
P.C.= 205+69.99
P.T.= 217+78.79
e = 0.100 '/'
Ls = 350'

P.T. 217+78.79
END BRIDGE STA. 216+86.11
N20°46'40"W
DUMPED RIPRAP = 16 CU. YDS.
DUMPED RIPRAP = 28 CU. YDS.
DUMPED RIPRAP = 22 CU. YDS. NOT TO BE PLACED LOWER THAN OHW = 785.5'

HWY. 223 STA. 213+13.90 BR. END
BRIDGE NO. 07599
370'-0" CONT. W-BEAM
UNIT (65'-80'-80'-80'-65')
30'-0" CLEAR ROADWAY
372'-2½" TOTAL LENGTH
HWY. 223 STA. 216+86.11 BR. END

P.C. 219+89.62

P.I. = 222+15.23
Δ = 22° 16'35" RT.
D = 5° 00'00"
T = 225.61'
L = 445.53'
P.C.= 219+89.62
P.T.= 224+35.15
e = 0.094 '/'
Ls = 350'

P.I. 222+15.23
P.T. 224+35.15
N1°29'55"E
100' TAPER
P.O.T. 228+09.26
STA. 226+97.65
END CONST. HWY. 223
SITE 2 - HWY. 223

STA.	STA.		GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
216+95.33	218+89.08	RT.	125 L.F.	1EA.	1EA.
216+95.68	219+14.43	LT.	150 L.F.	1EA.	1EA.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
217+21	217+22	LT.	6'-0"	17.3
217+21	217+24	RT.	6'-0"	27.3

STA. 204+81.87 BEGIN SUPERELEVATION
STA. 208+31.87 MAX. SUPERELEVATION (0.100 '/')
STA. 215+34.20 MAX. SUPERELEVATION (0.100 '/')
STA. 218+84.20 END SUPERELEVATION

STA. 218+84.20 BEGIN SUPERELEVATION
STA. 222+12.38 MAX. SUPERELEVATION (0.088 '/')
STA. 223+69.47 MAX. SUPERELEVATION (0.088 '/')
STA. 226+97.65 END SUPERELEVATION

END BRIDGE STA. 216+86.11
PROFILE GRADE
-0.86%
Q25 = ELEV. 792.6
RT. DITCH 0.40%
EXISTING GROUND ℄ HWY. 223
P.V.C. 221+40.00 ELEV. 795.27
P.V.I. 223+15.00 ELEV. 793.77
VC = 350'
K = 155.56
P.V.T. 224+90.00 ELEV. 796.20
-0.86%
1.39%
RT. DITCH 0.96%
P.V.I. 226+97.65 ELEV. 799.08
200' MILL & OVERLAY

FOR THE CONSTRUCTION OF DETOURS, TEMPORARY WORK RAMPS, OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION ARE 789.5 FEET MSL.

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

835 825 815 805 795 785 775 765 755 745

215+00 216+00 217+00 218+00 219+00 220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00

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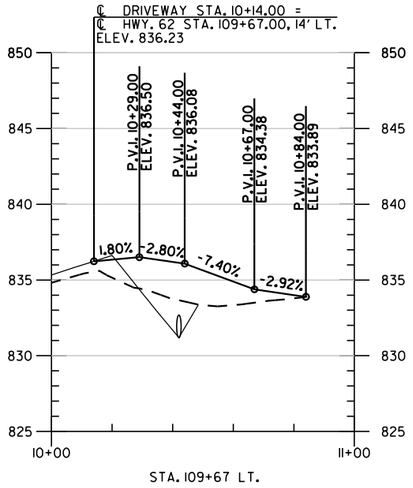
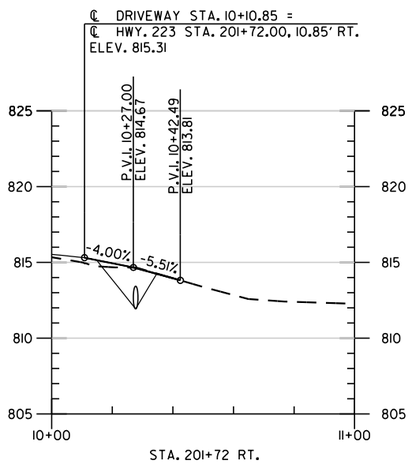
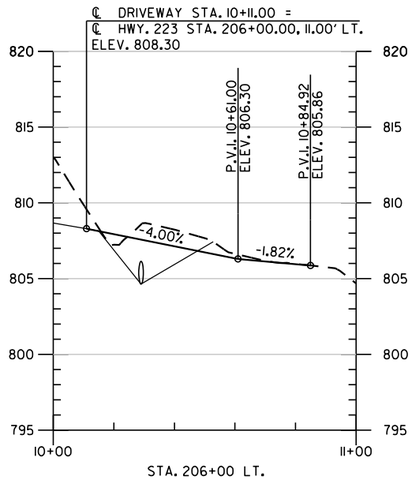
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	60	124
		DRIVEWAY PROFILES				

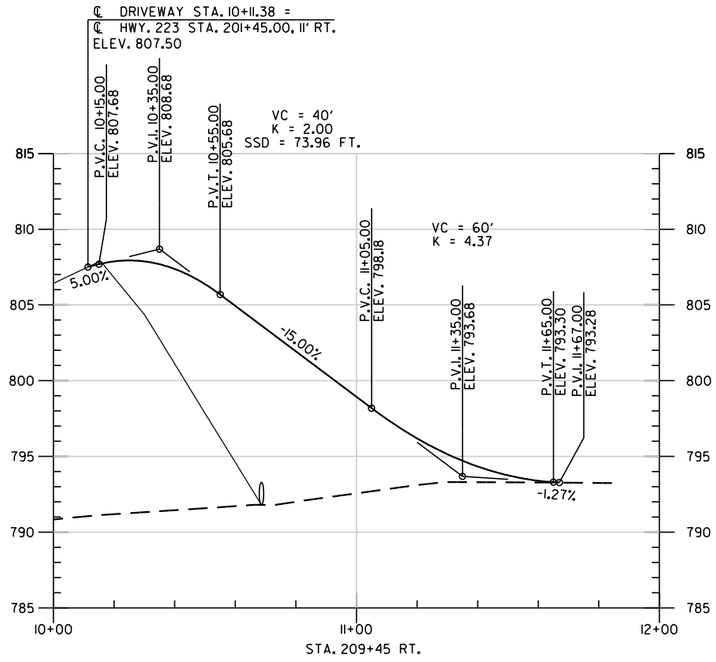
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13832
RYAN W. CASTOR
03/29/2024

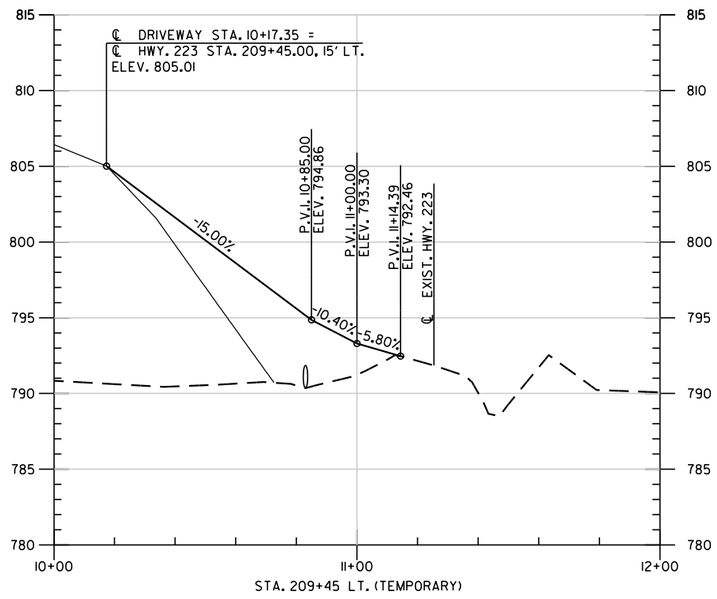
SITE 1 - HWY. 62
DRIVEWAY PROFILES











SITE 2 - HWY. 223
DRIVEWAY PROFILES

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	61	124
		CULVERT DIAGRAM				

BOX CULVERT DIAGRAM 112+50

CONCRETE:

SKEWED END	TOTAL FOR 16'-8" SKEWED LENGTH OF BARREL & HEADWALL			=	90.16
A SECTION	22.78	X	5.27	=	120.08
B SECTION	22.78	X	5.67	=	129.20
C SECTION	22.78	X	6.26	=	142.60
D SECTION	22.78	X	7.26	=	165.40
E SECTION	134.90	X	8.35	=	1126.14
APRON & WINGS (BOTH SIDES)				=	38.75
TOTAL C.Y.					1812.33

REINFORCING STEEL:

SKEWED END SECTIOI	TOTAL FOR 16'-8" SKEWED LENGTH OF BARREL & HEADWALL			=	12054
A SECTION	22.78	X	651.27	=	14836
B SECTION	22.78	X	776.65	=	17692
C SECTION	22.78	X	1079.19	=	24584
D SECTION	22.78	X	1159.44	=	26412
E SECTION	134.90	X	1201.40	=	162069
4 WINGS				=	3308
TOTAL LBS.					260955

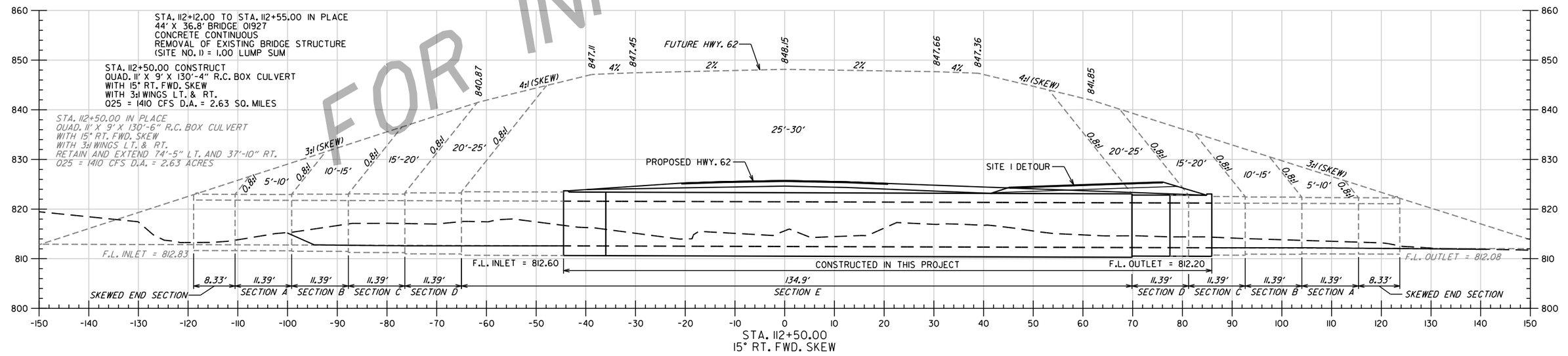
*INCLUDES HDWL., APRONS, & 1 LAP

UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

A SECTION	22.78	X	6.065	=	138.16
B SECTION	22.78	X	8.383	=	190.96
C SECTION	22.78	X	10.849	=	247.13
D SECTION	22.78	X	12.137	=	276.49
E SECTION	134.90	X	13.463	=	1816.15
V.I.				=	8.41
V.O.				=	8.41
TOTAL C.Y.					2685.72

SOLID SODDING & WATER:

(K + W-1 + W-2 +3.46)(1 SIDE)(2' WIDE) / 9 S.F./S.Y.	=	43.59
12.60 (GAL./S.Y. SOLID SODDING)/1000 = M. GAL.	=	0.55



CULVERT DIAGRAM

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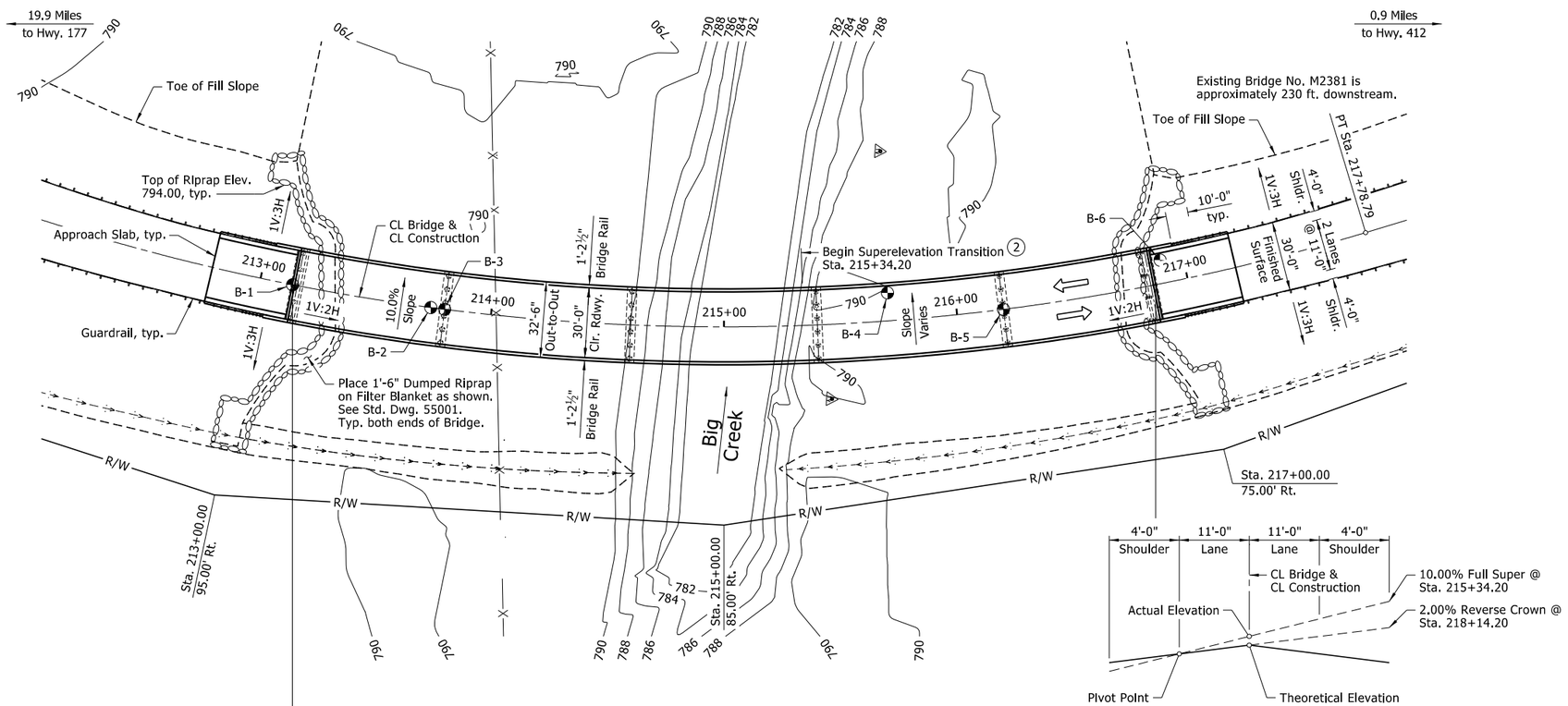
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	62	124
		07599 -		LAYOUT		- 65816



PLAN

Scale: 1" = 30'

SUPERELEVATION TRANSITION SKETCH

Looking Ahead Station
No Scale

NOTES:
For R/W data, see Roadway Plans.

For Guardrail details, see Roadway Plans.

Stations shown are along CL Construction. Elevations shown are actual top of deck elevations at CL Bridge with exception to elevations shown in "VERTICAL CURVE DATA" that are theoretical elevations along CL Construction. See "SUPERELEVATION TRANSITION SKETCH" for details.

Place Type F Approach Gutters and Type F Approach Slabs ("W" = 26'-0") at both ends of bridge. For details, see Std. Dwg. Nos. 55030F and 55040F1, respectively.

CL Bridge is on a 06°00'00" curve left. CL Beams and the longitudinal lines of both the bridge and approach gutters shall be constructed on curves concentric with CL Bridge and CL Construction. All bents shall be constructed on radial lines to CL Bridge and CL Construction located at CL Bent for Bents 2 thru 5 and at CL Joint for Bents 1 and 6.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	25	6,350	791.5	792.8
BASE	100	10,400	792.4	794.3
EXTREME	500	16,300	793.3	796.3
OVERTOPPING	>500	-	-	-

Elevations shown in "HYDRAULIC DATA" table are NAVD 88.

① Unconstricted water surface elevation without structure or roadway approaches.

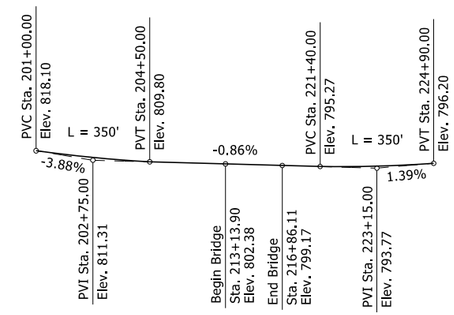
Q100 backwater elevation for existing structure = 793.2 feet
Proposed Low Bridge Chord Elevation = 794.78 feet at Sta. 216+84.00, 13.50' Lt.
Drainage Area = 13.6 square miles.
Historical High Water Elevation = 792.7 feet (From Surveys)

PI Sta. 203+00.01
Delta = 09°23'39" RT.
D = 05°00'00"
L = 187.88'
T = 94.15'

PI Sta. 212+70.53
Delta = 72°31'40" LT.
D = 06°00'00"
L = 1208.80'
T = 700.54'

PI Sta. 222+15.23
Delta = 22°16'35" RT.
D = 05°00'00"
L = 445.53'
T = 225.61'

HORIZONTAL CURVE DATA



Vertical Curve is along CL Construction

VERTICAL CURVE DATA

No Scale

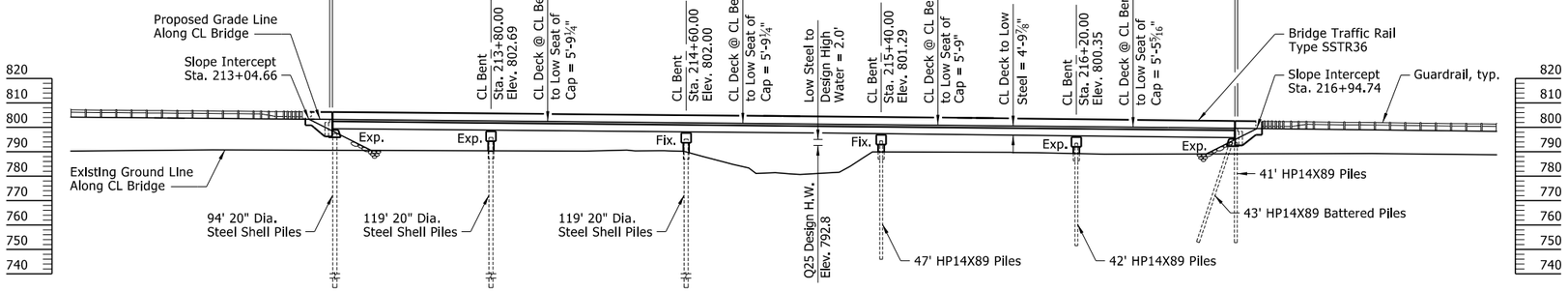
BEGIN BRIDGE
STA. 213+13.90
ELEV. 803.26

END BRIDGE
STA. 216+86.11
ELEV. 799.58

Total Length of Bridge = 372'-2½"
370'-0" Continuous W-Beam Unit (65'-80'-80'-80'-65')
1'-1¼" CL 2½" Poured Silicone Joint
1'-1¼" CL 2½" Poured Silicone Joint

Begin Superelevation: Sta. 204+81.87 (N.C.)
Max Superelevation: Sta. 208+31.87 (10.0%)
Max Superelevation: Sta. 215+34.20 (10.0%)
End Superelevation: Sta. 218+84.20 (N.C.)

SUPERELEVATION TRANSITION DATA ②



ELEVATION

Scale: 1" = 30'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HWY. 223 OVER BIG CREEK
SHIPMAN & BIG CREEKS STRS. & APPRS. (S)
FULTON COUNTY
ROUTE 223 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 3/2022 FILENAME: b050422x2_l1.dgn
CHECKED BY: JGS DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: TMR DATE: 3/2022

BRIDGE NO. 07599 DRAWING NO. 65816

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	63	124
		07599 -		LAYOUT		- 65817

GENERAL NOTES:

BENCHMARK: Vertical Control Data are shown on the Survey Control Detail Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Ninth Edition (2020).

FUTURE WEARING SURFACE DESIGN LOADING: 24 psf

LIVE LOADING: HL-93

SEISMIC ZONE: 2 S_{D1}: 0.167 SITE CLASS: C

SEISMIC OPERATIONAL CLASSIFICATION: Other

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)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 103, Gr. 65-35)	Fy = 35,000 psi
Structural Steel (ASTM A252, Gr. 3)	Fy = 45,000 psi

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

STEEL SHELL PILING: Piling in Bent 1 shall be 20" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 220 tons per pile. Piling in Bents 2 and 3 shall be 20" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 340 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to a minimum tip elevation of 720.00 or lower at Bent 1 and to a minimum tip elevation of 715.00 or lower at Bents 2 and 3. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

STEEL PILING: All piling in Bents 4 thru 6 shall be HP14x89 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 160 tons per pile and into the material designated as Dolostone on the boring legend. Minimum penetration shall be 10' below natural ground. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use QPL-approved steel H-Pile driving points on all piles.

EXPLORATORY HOLES: The Contractor shall drill a minimum of three exploratory holes at Bent 3 to a minimum elevation of 676.00 in accordance with Special Provision "EXPLORATORY HOLES". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number, and depths of exploratory holes are to be determined in the field by the Engineer.

Pending rock elevation will determine whether Bent 3 will be founded on steel shell piling per plan or modified to H-piling as determined by the Engineer.

PREBORING: All piling in Bent 1 shall be prebored to a minimum elevation of 725. All piling in Bents 2 & 3 shall be prebored to a minimum elevation of 720. Quantities of preboring shown are for bidding purposes only. The actual size and depth of preboring shall be determined in the field by the Engineer. After the piles have been driven, the holes shall be backfilled in accordance with Subsection 805.08(a). 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".

Preboring is required for all piles in Bents 4 thru 6. The depth of preboring shall be to a depth sufficient to provide the specified minimum penetration and to a minimum 3' depth into material designated as Dolostone on the boring legend, whichever is lower. 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 approved 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".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for steel shell piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)". It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles at Bent 1 will be 45,000 foot pounds per blow and all piles a Bents 2 & 3 will be 65,000 foot pounds per blow.

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural ground. See Standard Drawing Number 55021 for additional information.

Pile encasement for Bents 4 and 5 shall extend from bottom of cap to 3' below natural ground. See Standard Drawing Number 55020 for additional information.

PAINTING: The following weathering steel surfaces shall be painted as specified in Section 807: All steel surfaces within 6 feet of bridge deck expansion joints, including diaphragms, connection bolts and bearings. All three coats in accordance with Subsection 807.76 will be required. All steel surfaces exposed to the outside face of the bridge, including outside faces and bottom of the exterior beams, splice plates and bolts, and bearings. ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted. Galvanized members, the expansion device, and surfaces in contact with concrete shall not be painted. The color of paint shall be Brown equal or close to Fed. Std. 595 B, 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 occuring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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.

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

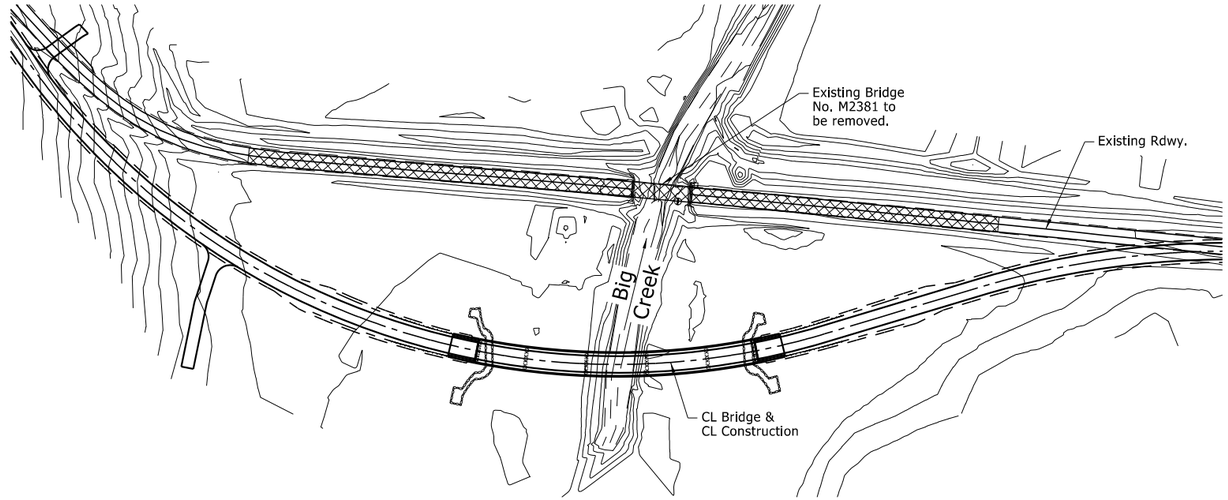
DETAIL DRAWINGS:

	DRAWING NOS.
End Bent 1	65819 - 65822
Intermediate Bents 2 & 3	65823
Intermediate Bents 4 & 5	65824
End Bent 6	65825 - 65828
Elastomeric Bearings	65829
370'-0" Continuous W-Beam Unit	65830 - 65836
Standard General Notes for Steel Bridge Structures	55006
Standard Details for Steel Bridge Structures	55007
Standard Details for Poured Silicone Joints	55008
Standard Details for Steel H-Piles and Pile Encasements	55020
Standard Details for Concrete Filled Steel Shell Piles and Pile Encasements	55021
Standard Details for Type F Approach Gutters	55030F
Standard Details for Type F Approach Slab	55040F1
Standard Details for Bridge Traffic Rail Type SSTR36	55070

EXISTING BRIDGE: Existing Bridge No. M2381 (Log Mile 11.958) is 22.2' wide (21.0' clear roadway) and 76.0' long and consists of steel I-beam spans (3 spans total) supported by concrete columns on concrete spread footings. The existing bridge is located approximately 230' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. M2381 in accordance with Section 205. Both existing embankments shall also be re-shaped. Removal of dumped riprap and re-shaping of embankments shall 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.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



LOCATION SKETCH

Scale: 1" = 100'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024

BRIDGE ENGINEER

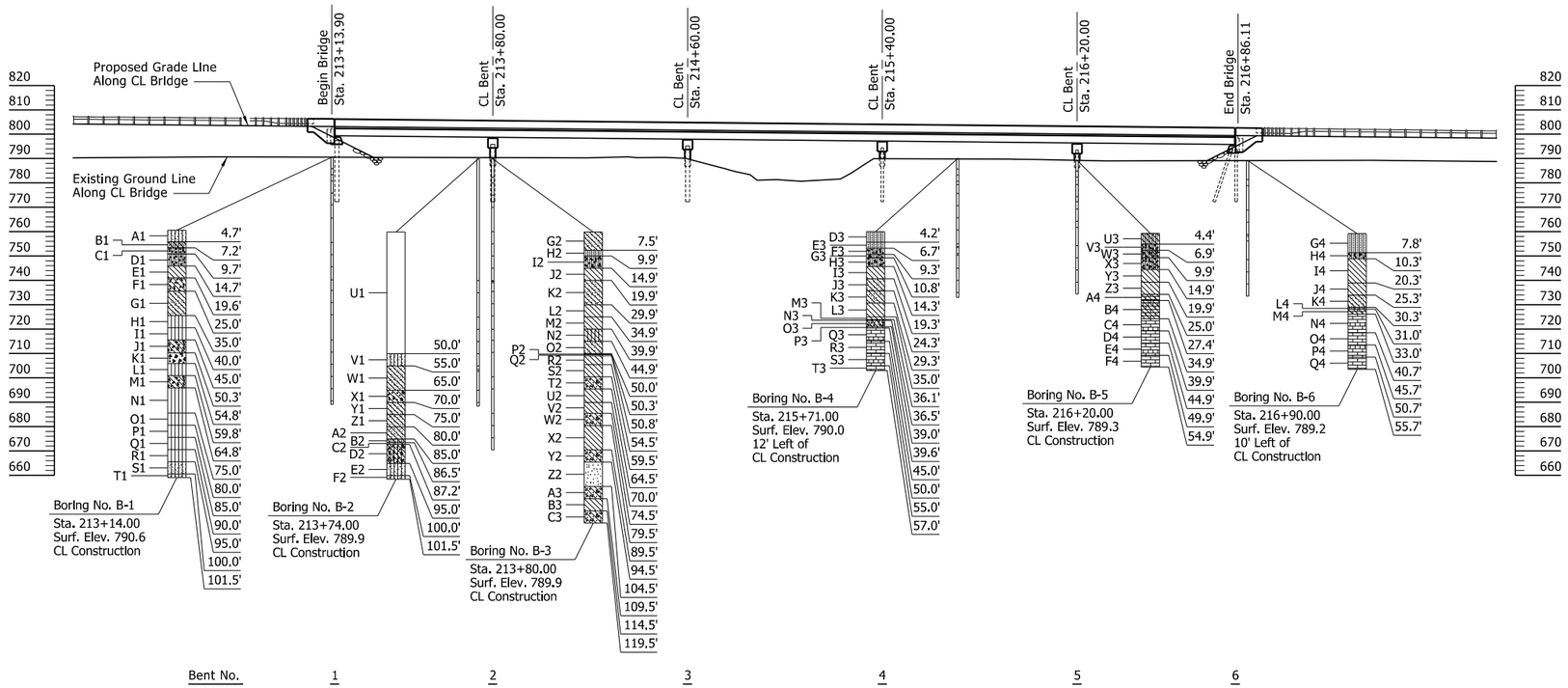
SHEET 2 OF 3
LAYOUT OF BRIDGE
HWY. 223 OVER BIG CREEK
SHIPMAN & BIG CREEKS STRS. & APPRS. (S)
FULTON COUNTY
ROUTE 223 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 10/2022 FILENAME: b050422x2_l2.dgn
CHECKED BY: JGS DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: HRA DATE: 10/2022

BRIDGE NO. 07599 DRAWING NO. 65817

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	64	124
		07599 -		LAYOUT		- 65818



ELEVATION OF SOIL BORINGS

"N" VALUES

Boring No. B-1
Sta. 213+14.00
CL Construction

3.0 - 4.0, N = 7
5.2 - 6.2, N = 8
7.7 - 8.7, N = 29
10.3 - 11.3, N = 38
15.3 - 16.3, N = 4
20.1 - 21.1, N = 2
25.5 - 26.5, N = 8
30.5 - 31.5, N = 5
35.5 - 36.5, N = 24
40.5 - 41.4, N = 73 (11")
45.0 - 45.4, N = 60 (5")
50.0 - 50.3, N = 60 (4")
75.0 - 75.4, N = 60 (5")
80.5 - 81.4, N = 90 (11")
85.5 - 86.5, N = 31
90.0 - 90.4, N = 60 (5")
95.5 - 96.5, N = 60
100.5 - 101.5, N = 105

Boring No. B-2
Sta. 213+74.00
CL Construction

50.5 - 51.5, N = 5
55.5 - 56.5, N = 7
60.5 - 61.5, N = 5
65.5 - 65.9, N = 60 (5")
70.5 - 71.5, N = 20
75.5 - 76.5, N = 11
80.5 - 81.5, N = 0
85.5 - 86.5, N = 84
90.5 - 91.5, N = 11
95.5 - 96.5, N = 13
100.5 - 101.5, N = 18

Boring No. B-3
Sta. 213+80.00
CL Construction

3.0 - 4.0, N = 7
5.3 - 6.3, N = 5
8.0 - 9.0, N = 6
10.4 - 11.4, N = 21
15.4 - 16.4, N = 3
20.4- 21.4, N = 2
25.4 - 26.4, N = 4
30.4 - 31.4, N = 41
35.4 - 36.4, N = 2
40.4 - 41.4, N = 15
45.4 - 46.4, N = 23
50.0 - 50.3, N = 60 (4")

Boring No. B-4
Sta. 215+71.00
12' Left of CL Construction

1.8 - 2.8, N = 2
4.7 - 5.7, N = 14
7.2 - 8.2, N = 45
9.8 - 10.8, N = 9
12.0 - 13.0, N = 49
14.8 - 15.8, N = 5
19.8 - 20.8, N = 1
24.8 - 25.8, N = 21
29.8 - 30.8, N = 12
35.5 - 36.5, N = 59

Boring No. B-5
Sta. 216+20.00
CL Construction

3.0 - 4.0, N = 4
4.9 - 5.9, N = 21
7.4 - 8.4, N = 30
10.4 - 11.4, N = 4
15.4 - 16.4, N = 4
20.4 - 20.8, N = 60 (5")
25.0 - 25.4, N = 60 (5")

Boring No. B-6
Sta. 216+90.00
10' Left of CL Construction

3.0 - 4.0, N = 3
5.8 - 6.8, N = 4
8.3 - 9.3, N = 10
10.8 - 11.8, N = 3
15.8 - 16.8, N = 3
20.8 - 21.8, N = 6
25.8 - 26.8, N = 8
30.8 - 31.0, N = 60 (2")

BORING LEGEND

A1 - Molst, Loose, Brown Sandy Slit
B1 - Moist, Loose, Brown Silty Clayey Sand with Some Gravel (SC-SM)
C1 - Wet, Medlum Dense, Brown Well Graded Sand with Slit and Gravel (SW-SM)
D1 - Wet, Dense, Brown Poorly Graded Sand with Silt and Gravel (SP-SM)
E1 - Wet, Soft, Light Brown Lean Clay (CL)
F1 - Wet, Soft, Light Brown Fat Clay with Rock Fragments (CH)
G1 - Wet, Medlum Stiff, Light Brown Clay with Sand and Some Rock Fragments
H1 - Wet, Medlum Dense, Light Brown and Gray Silt with Some Rock Fragments (ML)
I1 - Wet, Very Dense, Light Brown and Gray Silt with Trace Rock Fragments (ML)
J1 - Wet, Very Dense, Light Brown and Gray Gravel and Cobbles with Clay
K1 - Cobbles and Boulders
L1 - No Sample Recovered
M1 - Gravel and Cobbles
N1 - No Sample Recovered
O1 - Molst, Very Dense, Light Gray Poorly Cemented Silt
P1 - Molst, Very Dense, Light Gray Poorly Cemented Silt with Trace Chert Fragments (ML)
Q1 - Molst, Dense, Light Gray Poorly Cemented Silt (ML)
R1 - Molst, Very Dense, Light Gray Poorly Cemented Silt
S1 - Moist, Very Dense, Light Brown and Light Gray Silt with Sand and Trace Chert Fragments (ML)
T1 - Molst, Very Dense, Light Gray Poorly Cemented Silt with Sand and Some Rock Fragments (ML)
U1- Drilled to 50' before sampling
V1 - Wet, Loose, Light Brown Silt with Sand and Some Rock Fragments (ML)
W1 - Wet, Medium Stiff, Light Brown Fat Clay with Sand and Some Rock Fragments (CH)
X1 - Wet, Very Dense, Light Brown and Gray Gravel and Cobbles with Clay
Y1 - Wet, Very Stiff, Light Brown and Gray Clay with Sand and Some Rock Fragments
Z1 - Wet, Stiff, Light Brown and Gray Lean Clay with Sand and Some Rock Fragments (CL)
A2 - Wet, Very Soft, Light Brown and Gray Clay with Sand and Some Rock Fragments
B2 - Wet, Very Hard, Light Brown and Gray Silty Clay with Sand and Trace Rock Fragments (CL-ML)
C2 - Boulder - Harder layer encountered from 86.5 to 87.2 feet below ground level
D2 - Wet, Stiff, Light Brown Silty Clay with Rock Fragments (CL-ML)
E2 - Wet, Medlum Dense, Light Brown Silt with Sand and Some Rock Fragments (No Sample revovered)
F2 - Wet, Medium Dense, Brown Silt with Sand and Some Rock Fragments (ML)

G2 - Molst, Medlum Stiff, Brown Sandy Lean Clay (CL)
H2 - Wet, Loose, Brown Sand with Silt and Some Gravel (SM)
I2 - Wet, Medlum Dense, Brown Poorly Graded Gravel with Silt and Sand (GP-GM)
J2 - Wet, Soft, Light Brown and Light Gray Fat Clay (CH)
K2 - Wet, Soft, Light Brown and Light Brown Clay with Sand (CL)
L2 - Wet, Hard, Light Brown and Light Gray Clay (CL)
M2 - Wet, Soft, Light Brown and Light Gray Clay
N2 - Wet, Medlum Dense, Light Brown Sandy Silt with Some Gravel (ML)
O2 - Wet, Very Stiff, Light Brown Sandy Clay with Some Rock Fragments (CL)
P2 - Wet, Very Dense, Light Brown Rock Fragments with Clay and Sand
Q2 - Boulder
R2 - Clay
S2 - Clay with Some Rock Fragments
T2 - Clay with Boulders
U2 - Clay with Trace Rock Fragments
V2 - (No Recovery)
W2 - Clay with Boulders
X2 - Clay with Trace Rock Fragments (No Recovery)
Y2 - Clay with Gravel, Cobbles, and Boulders
Z2 - Boulders
A3 - Boulders with Clay
B3 - Clay with Some Rock Fragments
C3 - Clay with Boulders
D3 - Molst, Very Loose, Brown Silty Sand (Samples from 1.3 and 4.2 combined for testing) (SM)
E3 - Moist, Medium Dense, Brown Silty Sand with Some Gravel (SM)
F3 - Molst, Dense, Brown Silty Sand with Gravel (SM)
G3 - Wet, Loose, Brown and Gray Silty Gravel with Sand (GM)
H3 - Wet, Dense, Light Brown and Light Gray Silty Sand with Rock Fragments (SM)
I3 - Wet, Medium Stiff, Light Brown and Gray Clay (CL)
J3 - Wet, Very Soft, Reddish Brown and Light Gray Clay with Sand and Trace Rock Fragments (CH)
K3 - Wet, Very Stiff, Reddish Brown and Light Gray Lean Clay with Sand and Some Rock Fragments (CL)
L3 - Wet, Stiff, Reddish Brown and Light Gray Lean Clay (CL)
M3 - Wet, Hard, Reddish Brown and Light Gray Clay with Some Rock Fragments
N3 - Gravel and Cobbles with Clay
O3 - Clay with Boulders
P3 - Clay
Q3 - DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Gray
R3 - DOLOSTONE - Unweathered, Moderately Hard, Occasional Fractures, Occasional Vugs, Gray
S3 - DOLOSTONE - Unweathered with Slightly Weathered Layers, Moderately Hard, Occasional Fractures, Occasional Vugs, Gray
T3 - DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Occasional Chert Nodules, Gray

U3 - Molst, Soft, Brown Sandy Silty Clay (CL-ML)
V3 - Moist, Medium Dense, Brown Poorly Graded Sand with Silt and Gravel (SP-SM)
W3 - Wet, Medium Dense, Brown Poorly Graded Sand with Silty Clay and Gravel (SP-SC)
X3 - Wet, Very Loose, Gravel with Silty Sand
Y3 - Wet, Soft, Light Brown and Gray Fat Clay (CH)
Z3 - Wet, Very Hard, Light Gray Lean Clay (CL)
A4 - DOLOSTONE - Highly Weathered, Soft, Light Gray
B4 - DOLOSTONE WITH FREQUENT CLAY LAYERS - Slightly Weathered with Highly Weathered Layers, Moderately Hard with Soft Layers, Occasional Fractures, Gray
C4 - DOLOSTONE - Slightly Weathered, Moderately Hard, Gray
D4 - DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Occasional Chert Nodules, Gray
E4 - DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Occasional Vugs, Gray
F4 - DOLOSTONE - Slightly Weathered, Moderately Hard, Frequent Fractures, Occasional Chert Nodules, Gray
G4 - Molst, Very Loose, Brown Silty Sand (SM)
H4 - Wet, Loose, Poorly Graded Sand with Silt and Gravel (SP-SM)
I4 - Wet, Soft, Brown and Gray Fat Clay (Completely Weathered Dolostone) (CH)
J4 - Wet, Medlum Stiff, Brown and Gray Lean Clay (Completely Weathered Dolostone) (CL)
K4 - Wet, Medlum Stiff, Brown and Gray Sandy Lean Clay with Trace Rock Fragments (Completely Weathered Dolostone) (CL)
L4 - Molst, Very Hard, Light Gray Silty Clay with Sand (Completely Weathered Dolostone) (CL-ML)
M4 - DOLOSTONE - Highly Weathered (CL-ML)
N4 - DOLOSTONE - Slightly Weathered with Occasional Highly Weathered Layers, Moderately Hard, Gray
O4 - DOLOSTONE - Slightly Weathered with Occasional Weathered Layers, Moderately Hard, Frequent Fractures, Occasional Vugs, Gray
P4 - DOLOSTONE - Slightly Weathered with Occasional Weathered Layers, Moderately Hard, Frequent Fractures, Occasional Chert Nodules, Gray
Q4 - DOLOSTONE - Unweathered, Moderately Hard, Occasional Fractures, Occasional Chert Nodules, Gray

213+00 214+00 215+00 216+00 217+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HWY. 223 OVER BIG CREEK
SHIPMAN & BIG CREEKS STRS. & APPRS. (S)
FULTON COUNTY
ROUTE 223 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 12/2023 FILENAME: b050422x2_I3.dgn
CHECKED BY: JGS DATE: 12/2023 SCALE: 1" - 30'
DESIGNED BY: CBM DATE: 12/2023

BRIDGE NO. 07599 DRAWING NO. 65818

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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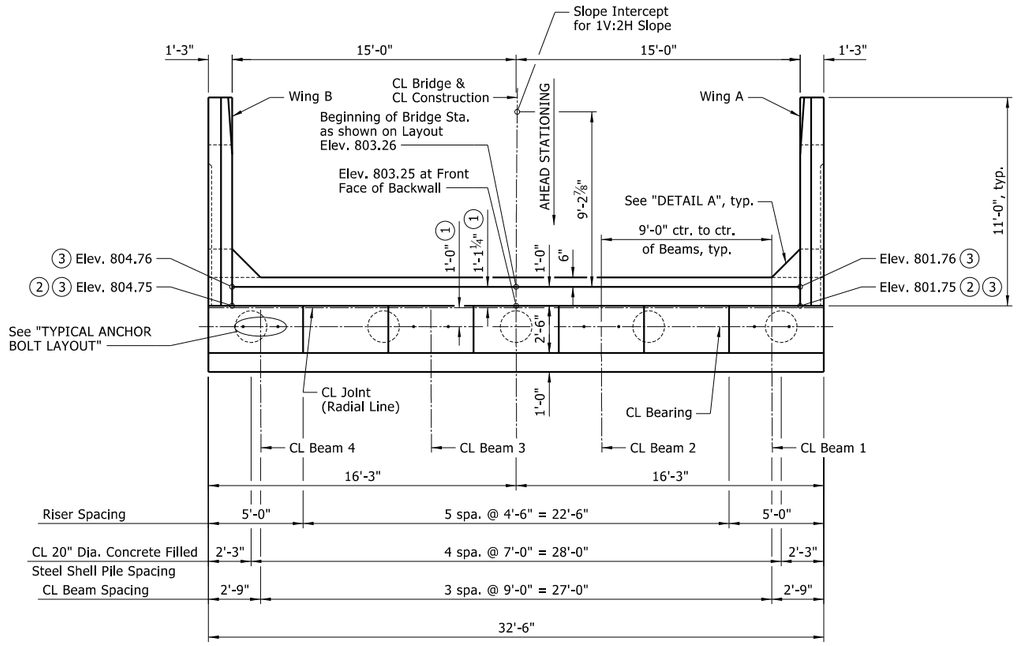
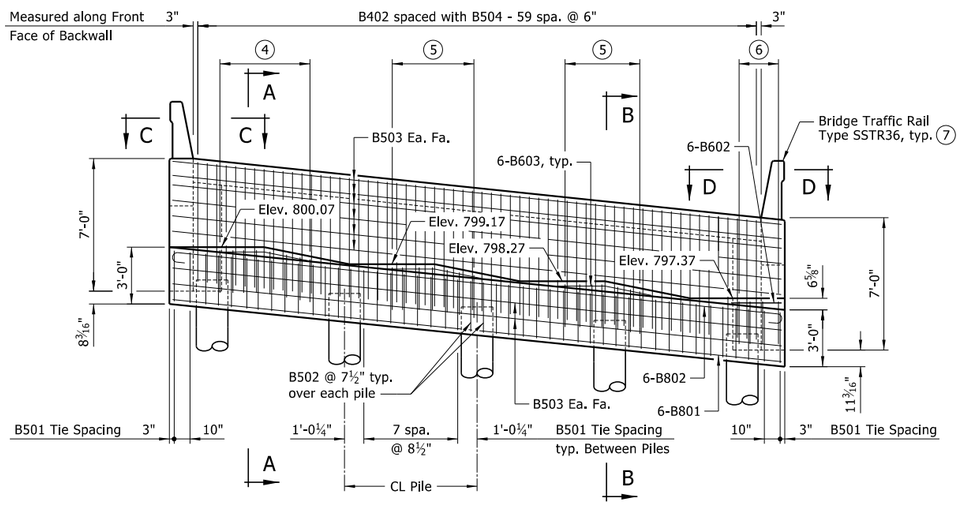
		07599 -		BENT 1		- 65819



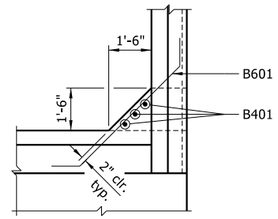
PLAN

Scale: ¼" = 1'-0"



ELEVATION

Looking Back Station
Scale: ¼" = 1'-0"



DETAIL A

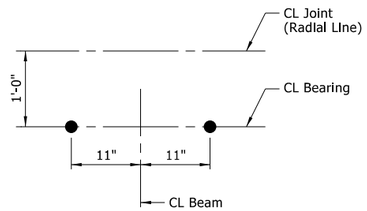
Scale: ⅜" = 1'-0"

NOTE:
CL Bridge is on a 06°00'00" curve left. CL Beam and Wings are to be constructed on curves concentric with CL Bridge and CL Construction.

For Section A-A, Section B-B, View C-C, and View D-D, see Dwg. No. 65820.

1. Measured from CL Joint.
2. At Front Face of Backwall.
3. At Top of Wing.
4. 8 - B403 spa. with B501 & B502
5. 7 - B403 spa. with B501 & B502
6. 4 - B403 spa. with B501 & B502
7. For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

Bearing seat elevations shall be ± ⅛" per the Standard Specifications.



TYPICAL ANCHOR BOLT LAYOUT

For details of Elastomeric Bearings, see Dwg. No. 65829.
Scale: 1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

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

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b11.dgn
CHECKED BY: CBM DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65819

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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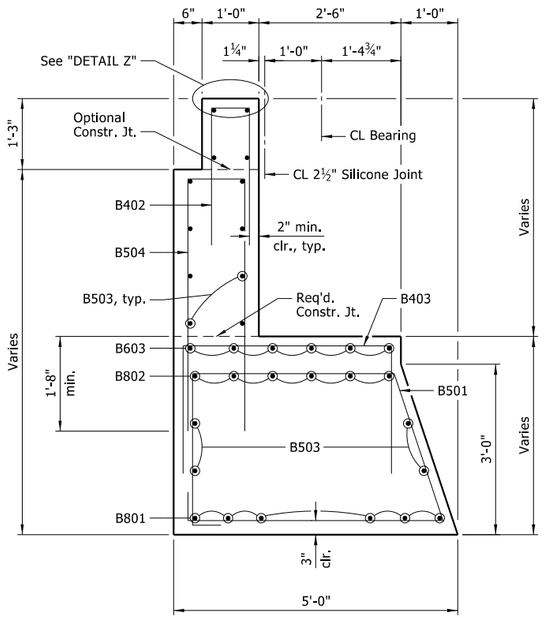
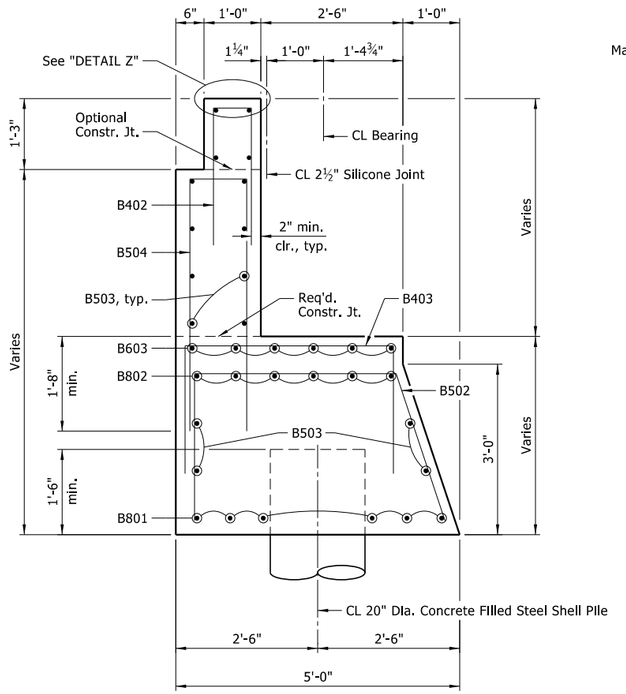
		07599 -		BENT 1		- 65820



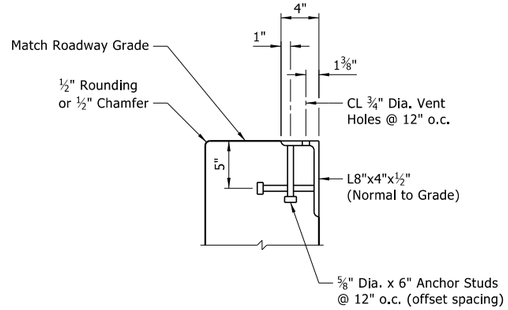
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"



DETAIL Z

No Scale

NOTES:
Transverse spacing between vertical anchor studs and vent holes shall be 6".

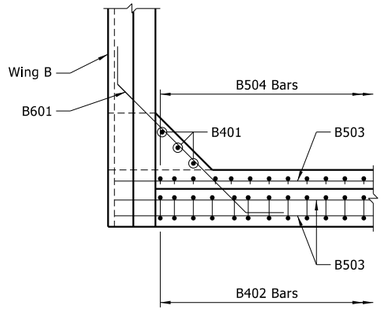
Concrete shall be hand packed under the joint armor.

The profile of the backwall angle shall be established based on the vertical tangent.

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

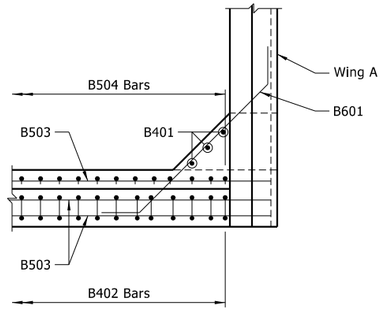
Special care shall be taken to properly and thoroughly consolidate the concrete in the vicinity of the expansion joint device in the backwall, see Subsection 802.09(a)(3).

For location of Section A-A, Section B-B, View C-C, and View D-D, see Dwg. No. 65819.



VIEW C-C

Scale: ½" = 1'-0"



VIEW D-D

Scale: ½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

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

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b12.dgn
CHECKED BY: CBM DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65820

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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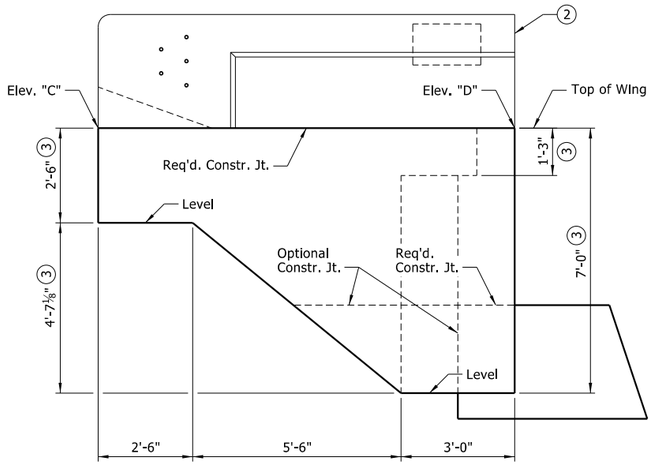
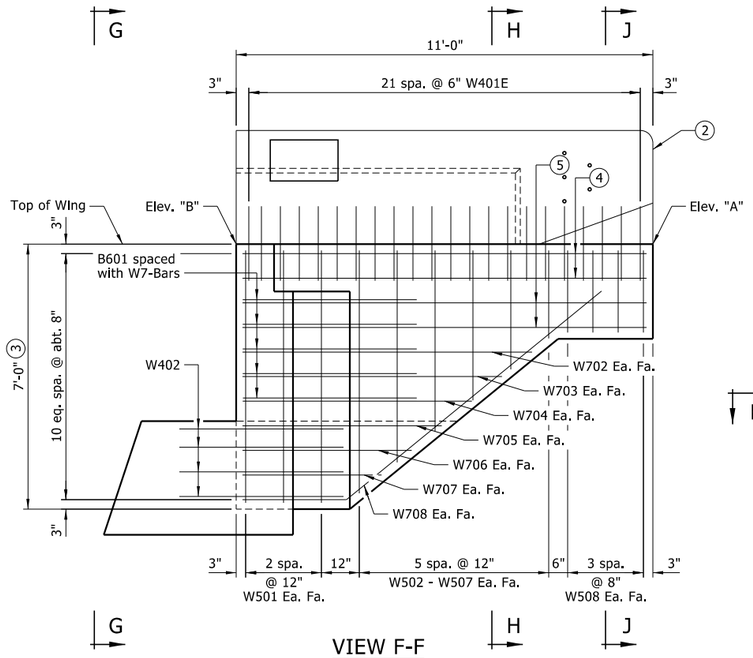
		07599 -		BENT 1		- 65821



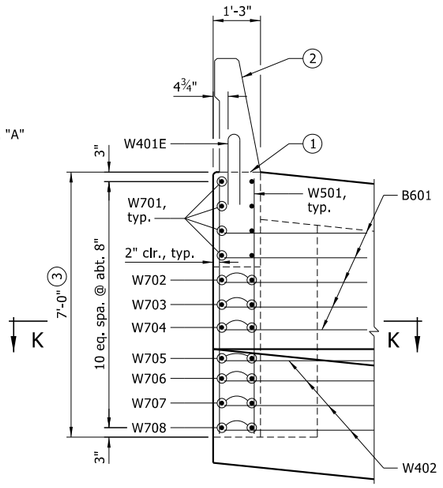
VIEW E-E

Scale: ½" = 1'-0"



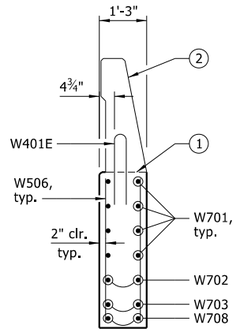
VIEW F-F

Scale: ½" = 1'-0"



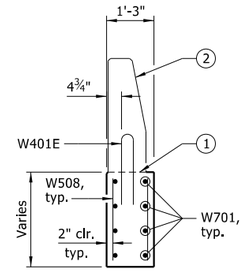
VIEW G-G

Scale: ½" = 1'-0"



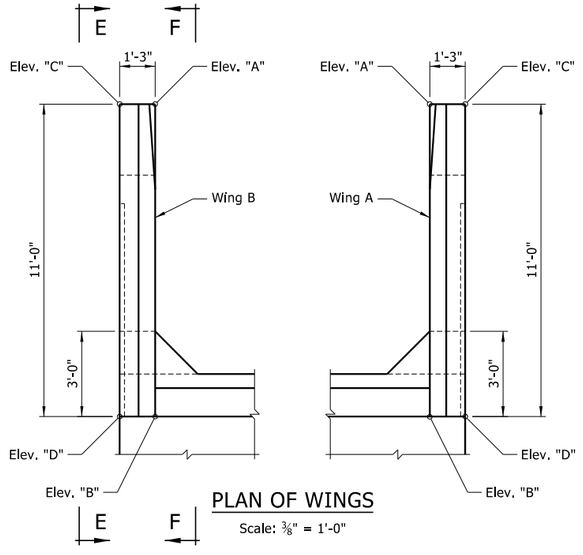
SECTION H-H

Scale: ½" = 1'-0"



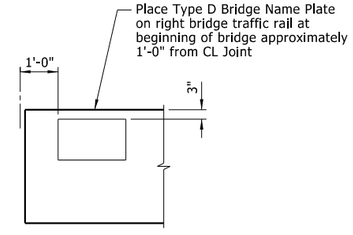
SECTION J-J

Scale: ½" = 1'-0"



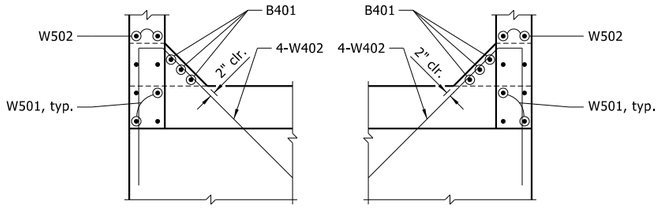
PLAN OF WINGS

Scale: ⅜" = 1'-0"



VIEW SHOWING LOCATION OF BRIDGE NAME PLATE

No Scale



SECTION K-K

Scale: ⅜" = 1'-0"

1. Required construction joint shall be level at Wing B and match roadway slope at Wing A.
2. For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070 and Dwg. No. 65835 for "TABLE OF VARIABLES".
3. Measured along inside face of wing.
4. W701 Ea. Fa. (Place Parallel to Grade).
5. W701 Ea. Fa.

TABLE OF VARIABLES

ELEVATION	WING A	WING B
"A"	801.85	804.84
"B"	801.75	804.75
"C"	801.72	804.84
"D"	801.62	804.75

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b13.dgn
CHECKED BY: CBM DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65821

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	68	124
		07599 -		BENT 1		- 65822

GENERAL NOTES:

Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "EXPANSION DEVICE INSTALLATION AT END BENTS" on Std. Dwg. No. 55008 for additional information. No heavy construction equipment or backfilling shall be allowed directly behind the backwall until the concrete for the adjacent span has been completed.

Finish top of backwall to match the bridge deck.

All piles shall be 20" Diameter Steel Shells (ASTM A252, Grade 3).

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)".

Class 2 Protective Surface Treatment shall be applied to the top of backwall and to the roadway face and top of the concrete bridge traffic rails.

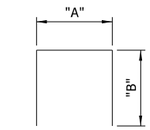
For additional General Notes, see Std. Dwg. No. 55006.

BAR LIST

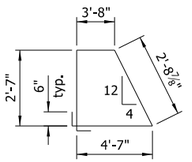
MARK	NO. REQ'D.	LENGTH	"A"	"B"	P.D.
B401	6	5'-3"			Str.
B402	60	5'-4"	8"	2'-5"	2"
B403	26	8'-0"	3'-8"	2'-3"	2"
B501	36	14'-1"			2½"
B502	10	8'-10"			2½"
B503	16	32'-4"			Str.
B504	60	11'-0"	1'-2"	5'-0"	2½"
B601	10	7'-1"			4½"
B602	6	2'-8"			Str.
B603	18	5'-0"			4½"
B801	6	32'-4"			Str.
B802	6	34'-2"			6"
(1) R401E	44	6'-4"			2½"
(1) R402E	8	5'-6"			Str.
(1) R408E	16	10'-8"			Str.
(1) W401E	44	3'-11"			3¾"
W402	8	12'-7"			2"
W501	12	6'-7"			Str.
W502 To W507	4 Ea.	6'-4" To 2'-3"			Str.
W508	16	2'-1"			Str.
W701	16	10'-8"			Str.
W702 To W707	4 Ea.	7'-6" To 3'-7"			Str.
W708	4	11'-10"			5¼"

BENDING DIAGRAMS

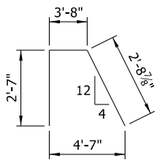
Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated.
The first bar designation number indicates the reinforcing bar size.



B402, B403, & B504



B501



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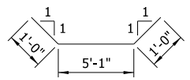
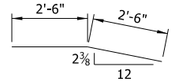
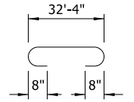


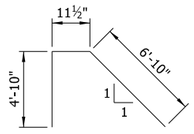
B601



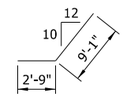
B603



B802



W402



W708

(1) For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

STATE OF ARKANSAS
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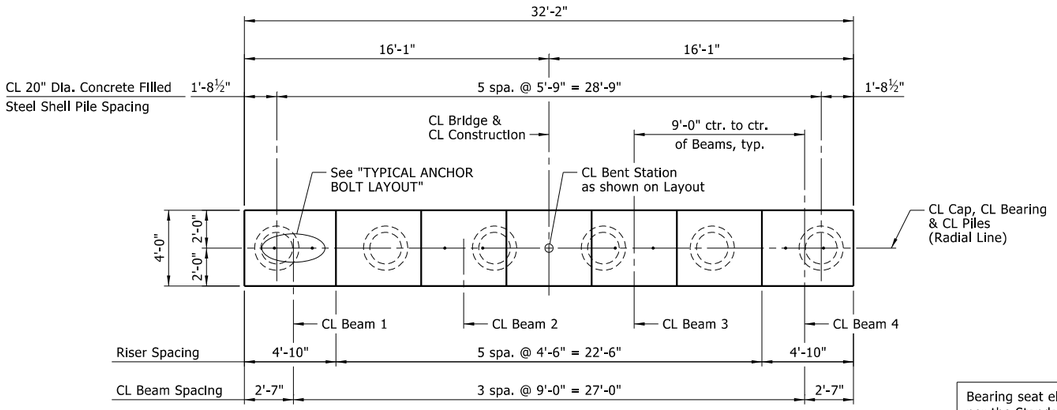
BRIDGE ENGINEER

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

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b14.dgn
CHECKED BY: CBM DATE: 12/2022 SCALE: NONE
DESIGNED BY: JGS DATE: 9/2022

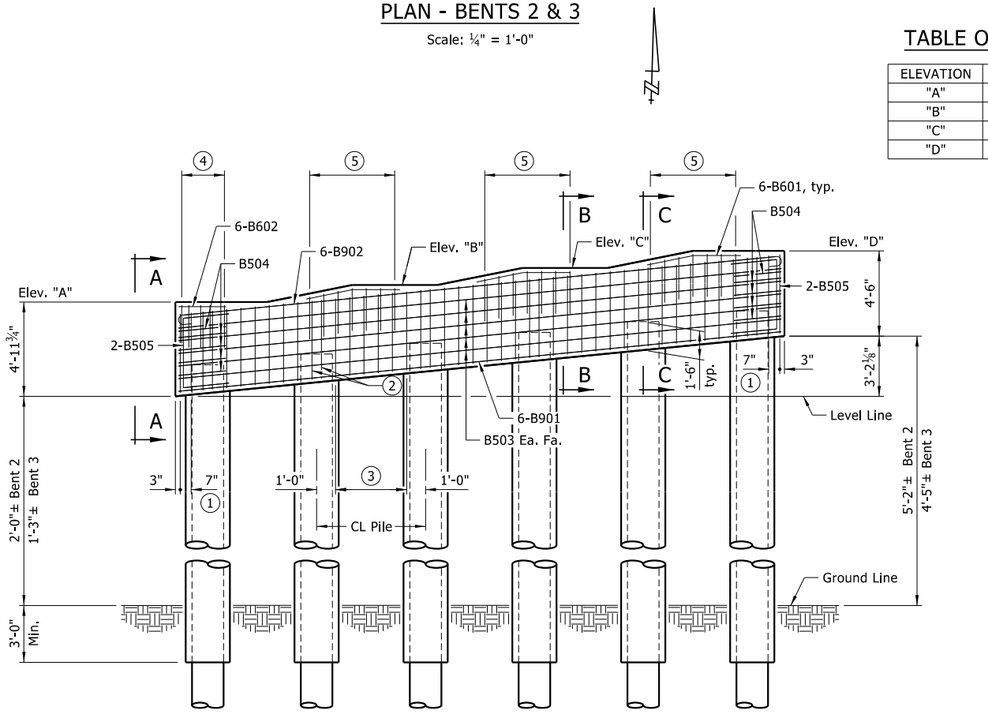
BRIDGE NO. 07599 DRAWING NO. 65822

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	69	124
		07599 -		BENTS 2 & 3		- 65823



PLAN - BENTS 2 & 3

Scale: ¼" = 1'-0"



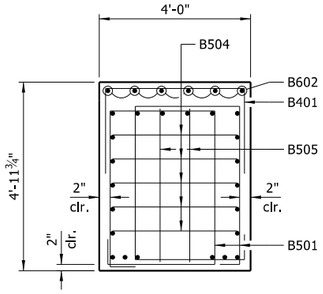
ELEVATION - BENTS 2 & 3

Looking Ahead Station
Scale: ¼" = 1'-0"

Bearing seat elevations shall be ±⅛" per the Standard Specifications.

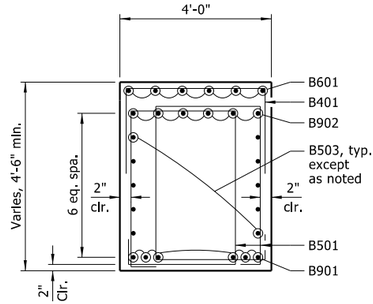
TABLE OF VARIABLES

ELEVATION	BENT 2	BENT 3
"A"	796.92	796.23
"B"	797.82	797.13
"C"	798.72	798.03
"D"	799.62	798.93



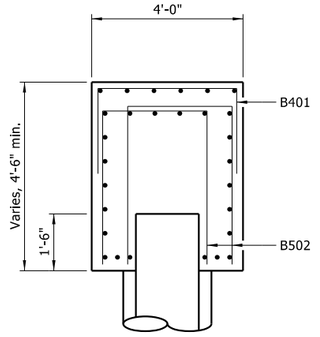
VIEW A-A

Scale: ½" = 1'-0"



SECTION B-B

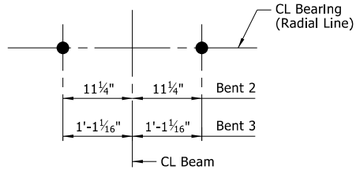
Scale: ½" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

NOTE:
Reinforcing not labeled is typical to other sections.



TYPICAL ANCHOR BOLT LAYOUT

For details of Elastomeric Bearings, see Dwg. No. 65829.
No Scale

NOTES:
CL Bridge is on a 6°00'00" curve left.

All piles will have full height round encasement. For additional details, see Layout and Std. Dwg. No. 55021.

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

Prior to construction, exploratory holes shall be drilled to determine presence of rock. See notes on Dwg. No. 65817 for further information.

(1) B501 Double Ties

(2) 2-B502 Double Ties @ 6" spa. typ. over each pile

(3) 6-B501 Double Ties @ 9" spa. typ. between piles

(4) 5 - B401 spa. with Double B501 & Double B502 Ties

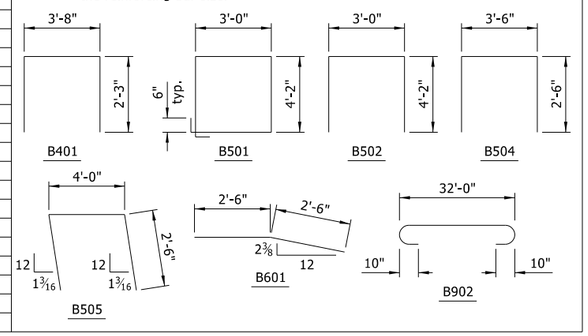
(5) 7 - B401 spa. with Double B501 & Double B502 Ties

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH BENT 2	LENGTH BENT 3	P.D.
B401	26	8'-0"	8'-0"	2"
B501	68	14'-10"	14'-10"	2½"
B502	24	11'-2"	11'-2"	2½"
B503	10	32'-0"	32'-0"	Str.
B504	10	8'-4"	8'-4"	2½"
B505	4	8'-10"	8'-10"	2½"
B601	18	5'-0"	5'-0"	4½"
B602	6	2'-8"	2'-8"	Str.
B901	6	32'-0"	32'-0"	Str.
B902	6	34'-6"	34'-6"	9"

BENDING DIAGRAMS

Bar dimensions are out-to-out. The first bar designation number indicates the reinforcing bar size.



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

DETAILS OF BENTS 2 & 3

ROUTE SEC.

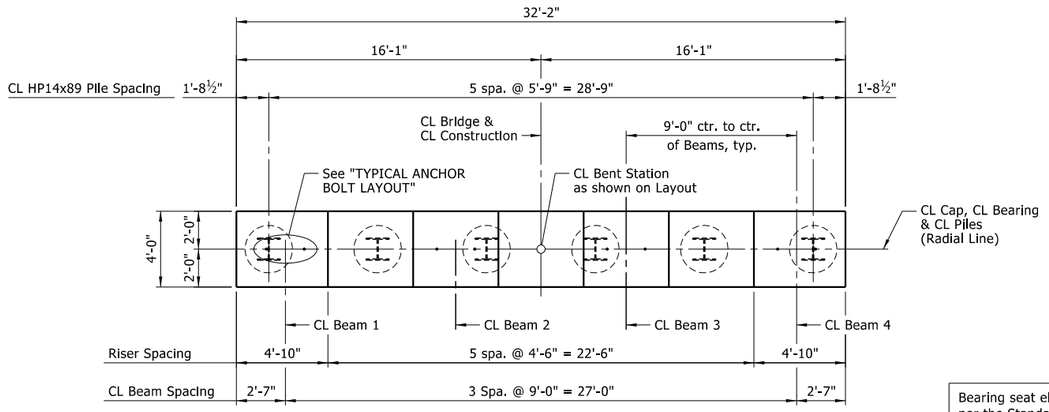
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 11/2023 FILENAME: b050422x2_b21.dgn
CHECKED BY: CBM DATE: 11/2023 SCALE: AS SHOWN
DESIGNED BY: TG DATE: 11/2023

BRIDGE NO. 07599 DRAWING NO. 65823

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	71	75
		07599 -		BENTS 4 & 5		- 65824



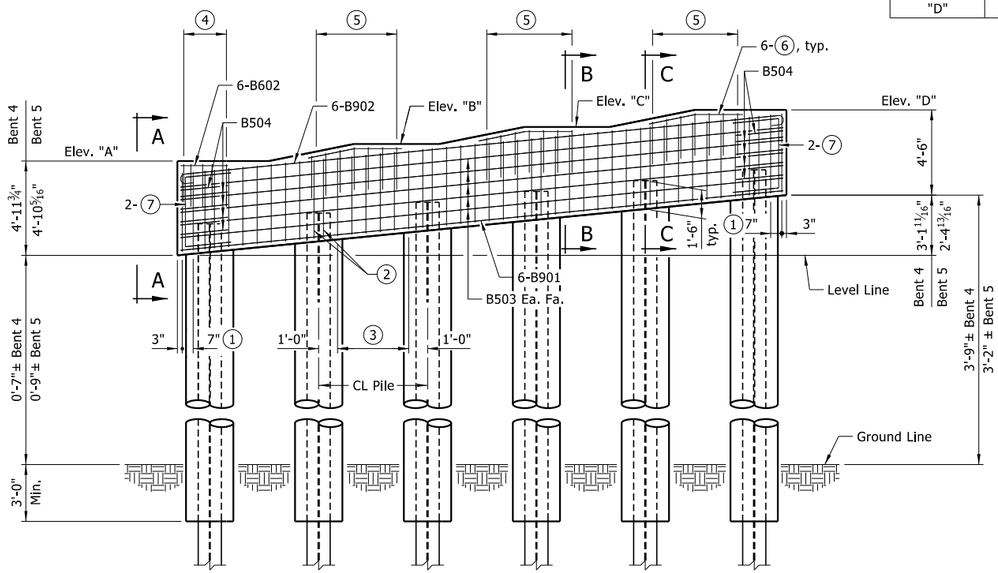
PLAN - BENTS 4 & 5

Scale: ¼" = 1'-0"

Bearing seat elevations shall be ±⅛" per the Standard Specifications.

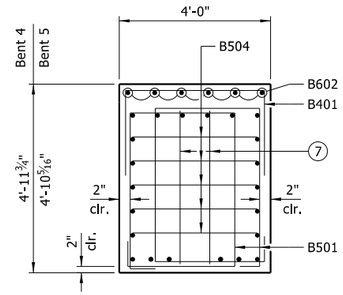
TABLE OF VARIABLES

ELEVATION	BENT 4	BENT 5
"A"	795.54	794.91
"B"	796.43	795.59
"C"	797.31	796.27
"D"	798.20	796.95



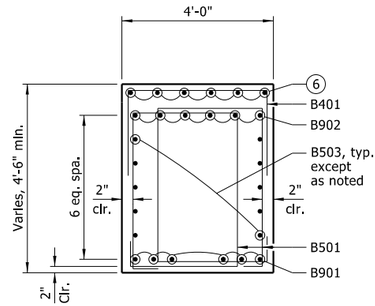
ELEVATION - BENTS 4 & 5

Looking Ahead Station
Scale: ¼" = 1'-0"



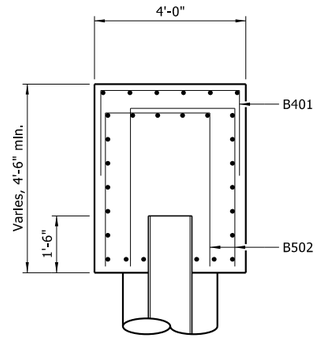
VIEW A-A

Scale: ½" = 1'-0"



SECTION B-B

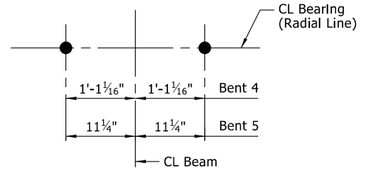
Scale: ½" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

NOTE:
Reinforcing not labeled is typical to other sections.



TYPICAL ANCHOR BOLT LAYOUT

For details of Elastomeric Bearings, see Dwg. No. 65829.
No Scale

NOTES:
CL Bridge is on a 6°00'00" curve left.

All piles will have full height 2'-6" diameter round encasement. For additional details, see Layout and Std. Dwg. No. 55020.

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

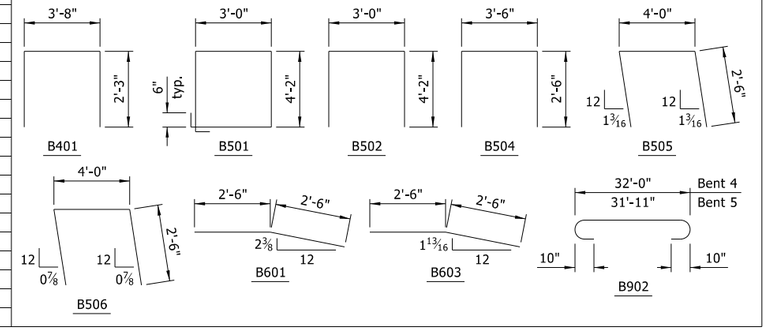
(1) B501 Double Ties
(2) 2-B502 Double Ties @ 6" spa. typ. over each pile
(3) 6-B501 Double Ties @ 9" spa. typ. between piles
(4) 5 - B401 spa. with Double B501 & Double B502 Ties
(5) 7 - B401 spa. with Double B501 & Double B502 Ties
(6) B601 - Bent 4
B603 - Bent 5
(7) B505 - Bent 4
B506 - Bent 5

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH BENT 4	LENGTH BENT 5	P.D.
B401	26	8'-0"	8'-0"	2"
B501	68	14'-10"	14'-10"	2½"
B502	24	11'-2"	11'-2"	2½"
B503	10	32'-0"	31'-11"	Str.
B504	10	8'-4"	8'-4"	2½"
B505	4	8'-10"	-	2½"
B506	4	-	8'-10"	2½"
B601	18	5'-0"	-	4½"
B602	6	2'-8"	2'-8"	Str.
B603	18	-	5'-0"	4½"
B901	6	32'-0"	31'-11"	Str.
B902	6	34'-6"	34'-5"	9"

BENDING DIAGRAMS

Bar dimensions are out-to-out. The first bar designation number indicates the reinforcing bar size.



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

DETAILS OF BENTS 4 & 5

ROUTE SEC.

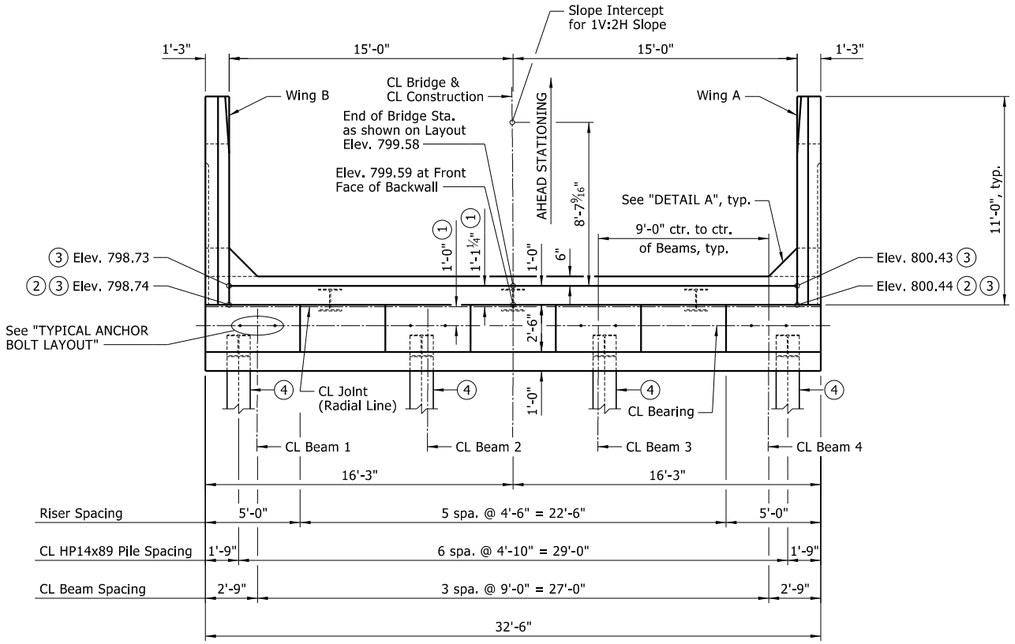
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TLW DATE: 11/2023 FILENAME: b050422x2_b41.dgn
CHECKED BY: CBM DATE: 11/2023 SCALE: AS SHOWN
DESIGNED BY: TG DATE: 11/2023

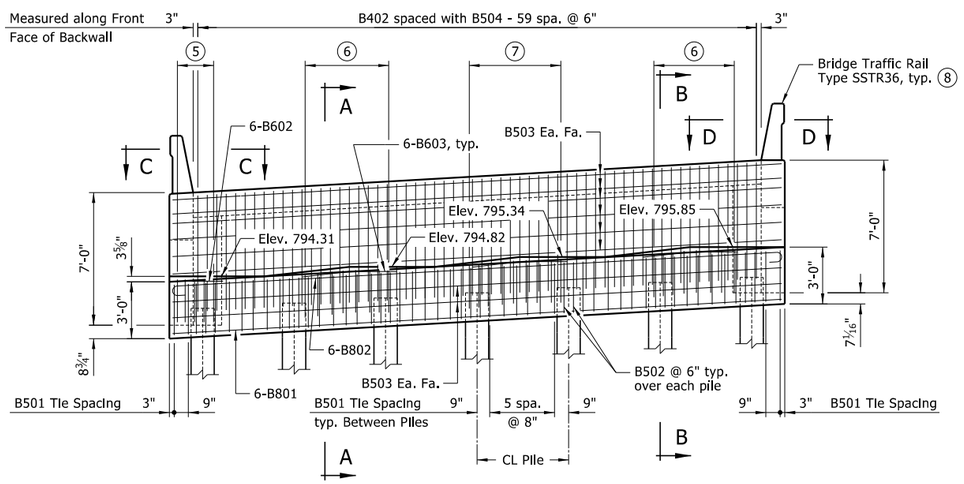
BRIDGE NO. 07599 DRAWING NO. 65824

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	71	124
		07599 -		BENT 6		- 65825



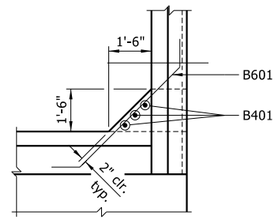
PLAN

Scale: ¼" = 1'-0"



ELEVATION

Looking Ahead Station
Scale: ¼" = 1'-0"



DETAIL A

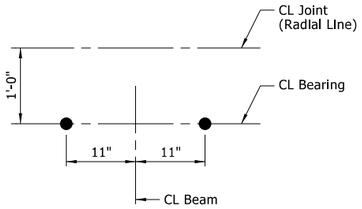
Scale: ⅜" = 1'-0"

NOTE:
CL Bridge is on a 06°00'00" curve left. CL Beam and Wings are to be constructed on curves concentric with CL Bridge and CL Construction.

For Section A-A, Section B-B, View C-C, and View D-D, see Dwg. No. 65826.

1. Measured from CL Joint.
2. At Front Face of Backwall.
3. At Top of Wing.
4. Batter 12V:4H
5. 5 - B403 spa. with B501 & B502
6. 8 - B403 spa. with B501 & B502
7. 9 - B403 spa. with B501 & B502
8. For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

Bearing seat elevations shall be ± ⅛" per the Standard Specifications.



TYPICAL ANCHOR BOLT LAYOUT

For details of Elastomeric Bearings, see Dwg. No. 65829.
Scale: 1" = 1'-0"

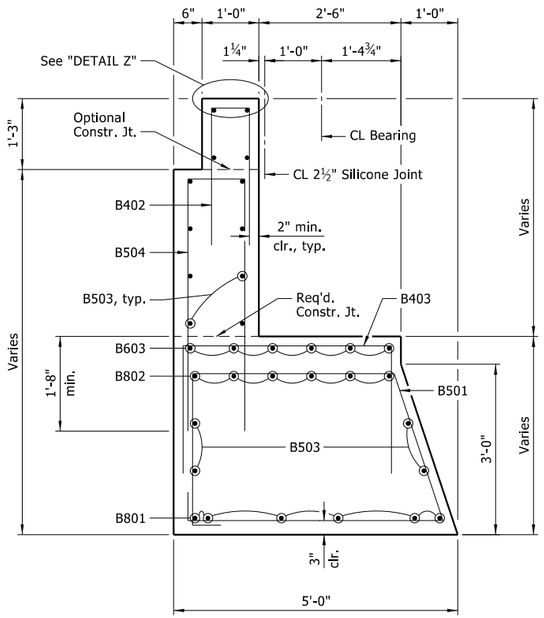
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF BENT 6
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b61.dgn
CHECKED BY: HRA DATE: 10/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

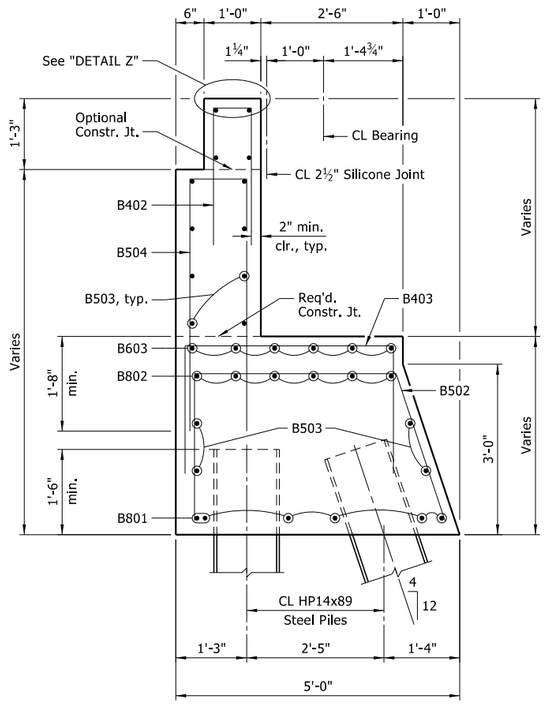
BRIDGE NO. 07599 DRAWING NO. 65825

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	72	124
		07599 -		BENT 6		- 65826



SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

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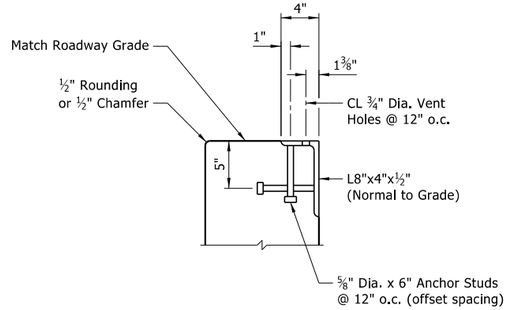


DETAIL Z

No Scale

NOTES:
Transverse spacing between vertical anchor studs and vent holes shall be 6".

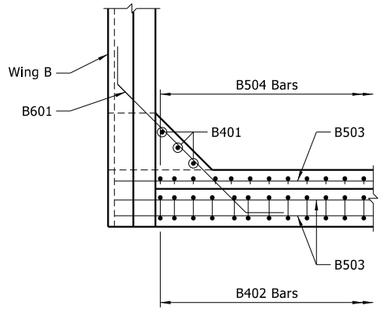
Concrete shall be hand packed under the joint armor.

The profile of the backwall angle shall be established based on the vertical tangent.

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

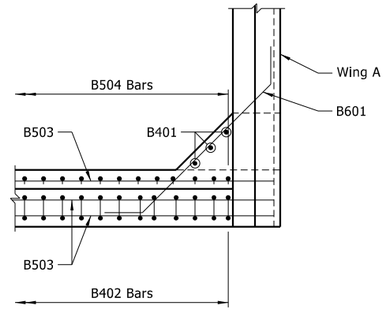
Special care shall be taken to properly and thoroughly consolidate the concrete in the vicinity of the expansion joint device in the backwall, see Subsection 802.09(a)(3).

For location of Section A-A, Section B-B, View C-C, and View D-D, see Dwg. No. 65825.



VIEW C-C

Scale: ½" = 1'-0"



VIEW D-D

Scale: ½" = 1'-0"

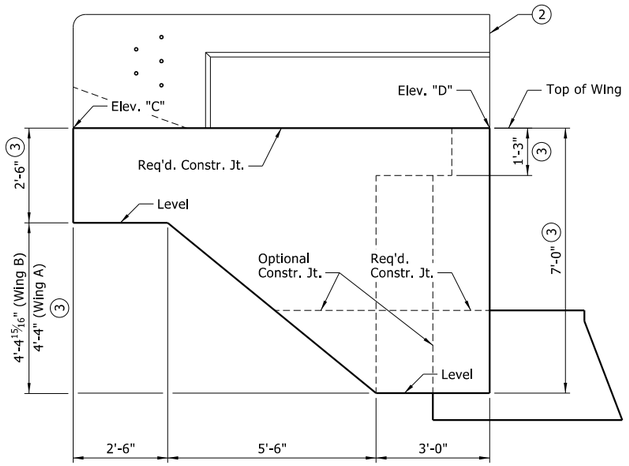
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF BENT 6
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b62.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65826

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	73	124
		07599 -		BENT 6		- 65827



VIEW E-E

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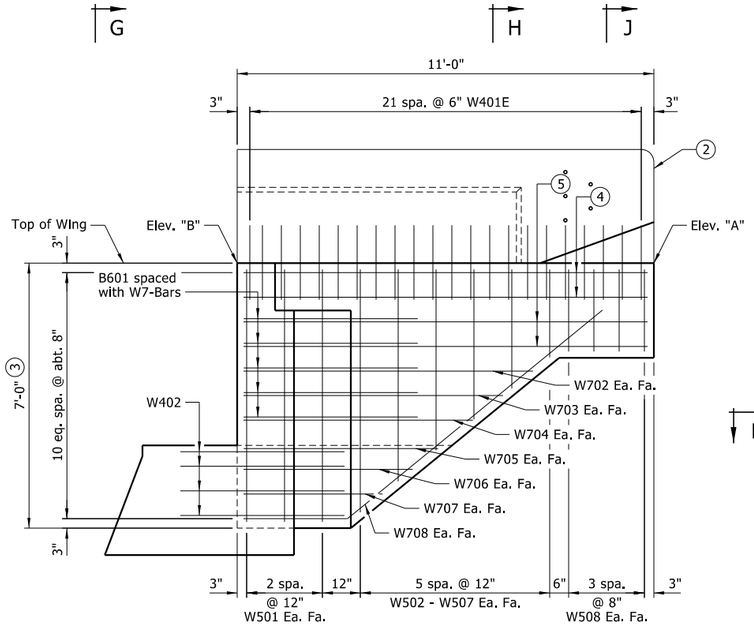

VIEW F-F

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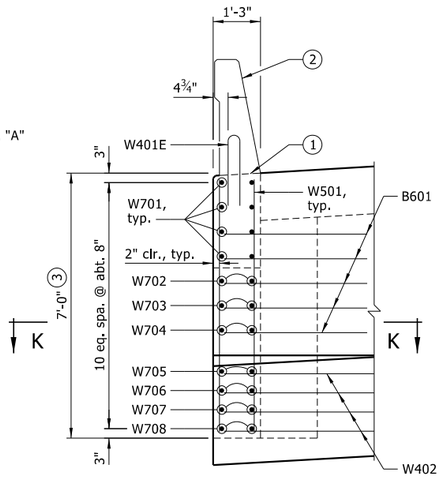
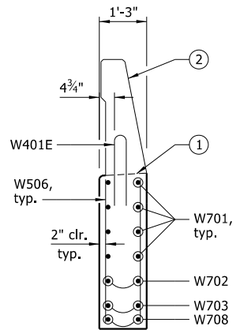


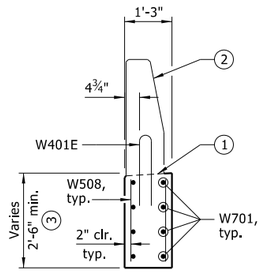
VIEW G-G

Scale: ½" = 1'-0"



SECTION H-H

Scale: ½" = 1'-0"



SECTION J-J

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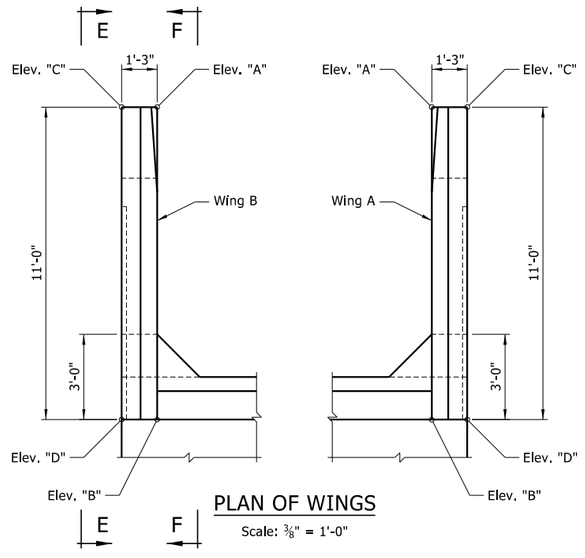
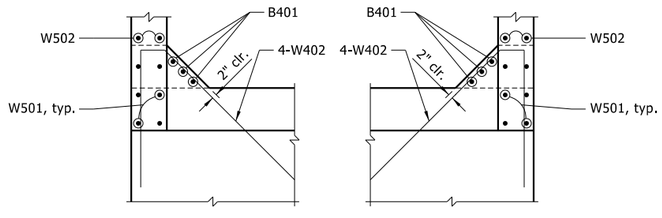


PLAN OF WINGS

Scale: ⅜" = 1'-0"



SECTION K-K

Scale: ⅜" = 1'-0"

1. Required construction joint shall be level at Wing A and match roadway slope at Wing B.
2. For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070 and Dwg. No. 65835 for "TABLE OF VARIABLES".
3. Measured along inside face of wing.
4. W701 Ea. Fa. (Place Parallel to Grade).
5. W701 Ea. Fa.

TABLE OF VARIABLES

ELEVATION	WING A	WING B
"A"	800.27	798.65
"B"	800.44	798.74
"C"	800.27	798.58
"D"	800.44	798.66

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP

3/29/2024

BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 6
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b63.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65827

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	74	124
		07599 -		BENT 6		- 65828

GENERAL NOTES:

Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See "EXPANSION DEVICE INSTALLATION AT END BENTS" on Std. Dwg. No. 55008 for additional information. No heavy construction equipment or backfilling shall be allowed directly behind the backwall until the concrete for the adjacent span has been completed.

Finish top of backwall to match the bridge deck.

All piles shall be HP14x89 (ASTM A709, Gr. 50).

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)".

Class 2 Protective Surface Treatment shall be applied to the top of backwall and to the roadway face and top of the concrete bridge traffic rails.

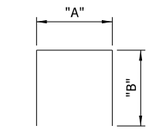
For additional General Notes, see Std. Dwg. No. 55006.

BAR LIST

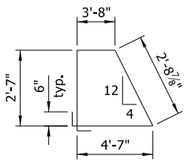
MARK	NO. REQ'D.	LENGTH	"A"	"B"	P.D.
B401	6	5'-5"			Str.
B402	60	5'-4"	8"	2'-5"	2"
B403	30	7'-8"	3'-8"	2'-1"	2"
B501	40	14'-1"			2½"
B502	14	8'-10"			2½"
B503	16	32'-3"			Str.
B504	60	10'-10"	1'-2"	4'-11"	2½"
B601	10	7'-1"			4½"
B602	6	2'-8"			Str.
B603	18	5'-0"			4½"
B801	6	32'-3"			Str.
B802	6	34'-1"			6"
(1) R401E	44	6'-4"			2½"
(1) R402E	8	5'-6"			Str.
(1) R408E	16	10'-8"			Str.
(1) W401E	44	3'-11"			3¾"
W402	8	12'-7"			2"
W501	12	6'-7"			Str.
W502 To W507	4 Ea.	6'-4" To 2'-3"			Str.
W508	16	2'-1"			Str.
W701	16	10'-8"			Str.
W702 To W707	4 Ea.	7'-6" To 3'-7"			Str.
W708	4	11'-9"			5¼"

BENDING DIAGRAMS

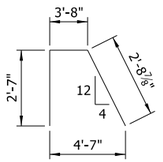
Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated.
The first bar designation number indicates the reinforcing bar size.



B402, B403, & B504



B501



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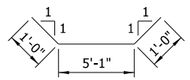

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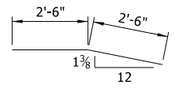
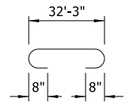


B603



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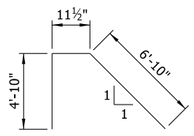
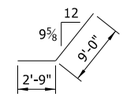


W402



W708

(1) For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF BENT 6
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_b64.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: NONE
DESIGNED BY: JGS DATE: 9/2022

BRIDGE NO. 07599 DRAWING NO. 65828

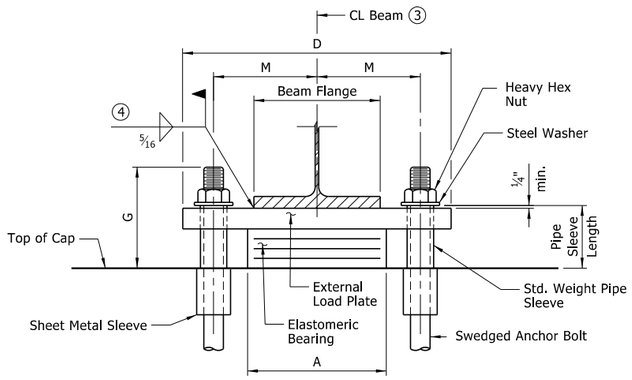
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	75	124
		07599 -	BEARING DETAILS		- 65829	

TABLE OF FABRICATOR VARIABLES

LOCATION							ELASTOMERIC PAD							EXTERNAL LOAD PLATE									ANCHOR BOLT			
BENT NO(S).	BEAM NO.	BEARING TYPE	NO. OF BEARINGS EACH BENT	①MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	J	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
1 & 6	1 - 4	Exp.	4	112	9"	5⅝"	16"	9"	5	½"	¼"	6 @ 12 Gauge	3⅝"	10"	28½"	6⅛"	3⅛"	-	½"	11"	②	②	2" x 29"	55	2½" x 6"	4" x 10"	3¾"
2 & 5	1 - 4	Exp.	4	255	8¼"	4⁷⁄₁₆"	16"	12"	3	½"	¼"	4 @ 12 Gauge	2⁷⁄₁₆"	13"	29½"	5⅞"	3¾"	-	½"	11¼"	②	②	2½" x 34"	55	3" x 4¾"	4" x 10"	4½"
3 & 4	1 - 4	Fix.	4	258	7¾"	4⁷⁄₁₆"	16"	11"	3	½"	¼"	4 @ 12 Gauge	2⁷⁄₁₆"	12"	35¼"	3⅛"	3⅛"	2"	½"	13¹⁵⁄₁₆"	②	②	2" x 28"	55	2½" x 4¾"	4" x 10"	3¾"

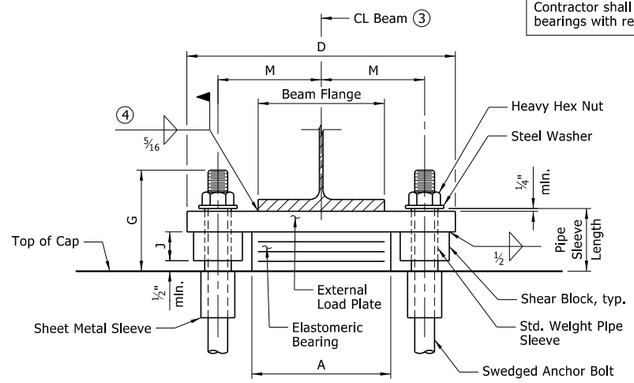
① Maximum Design Load = Service 1 Limit State

Prior to erection of the beams, the Contractor shall verify the orientation of the bearings with respect to T_a and T_b.

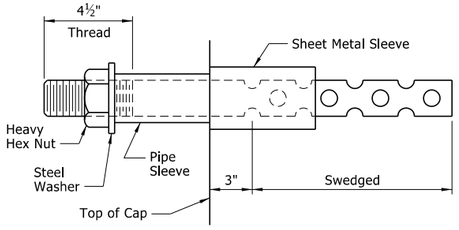


FRONT VIEW AT BENTS 1, 2, 5, & 6

③ Centerline of the elastomeric pad shall be aligned with centerline of the beam.



FRONT VIEW AT BENTS 3 & 4



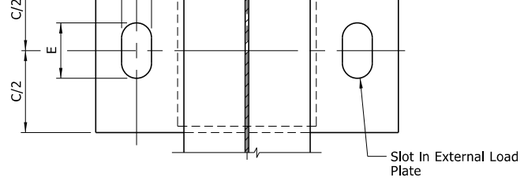
ANCHOR BOLT DETAIL

Anchor bolts may be cast in place or drilled and grouted into place. If anchor bolts are to be cast in place, the galvanized sheet metal sleeves will not be required.

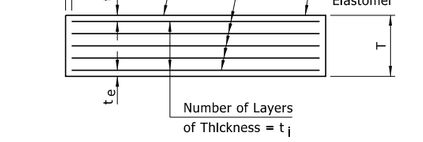
If anchor bolts are to be drilled and grouted in place, the galvanized sheet metal sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL 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 equal, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Sheet metal sleeves will not be paid for directly, but will be considered subsidiary to the Item "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)".

EXTERNAL LOAD PLATE TAPERS ②

BENT NO.	BEAM NO. 1		BEAM NO. 2		BEAM NO. 3		BEAM NO. 4	
	T_a	T_b	T_a	T_b	T_a	T_b	T_a	T_b
1	1.96"	2.04"	1.96"	2.04"	1.96"	2.04"	1.96"	2.04"
2	1.94"	2.06"	1.94"	2.06"	1.94"	2.06"	1.94"	2.06"
3	1.95"	2.05"	1.95"	2.05"	1.95"	2.05"	1.95"	2.05"
4	1.95"	2.05"	1.94"	2.06"	1.92"	2.08"	1.91"	2.09"
5	1.95"	2.05"	1.93"	2.07"	1.92"	2.08"	1.90"	2.10"
6	1.96"	2.04"	1.95"	2.05"	1.93"	2.07"	1.92"	2.08"

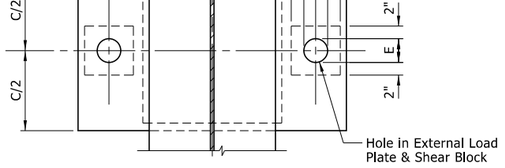


PLAN VIEW AT BENTS 1, 2, 5, & 6

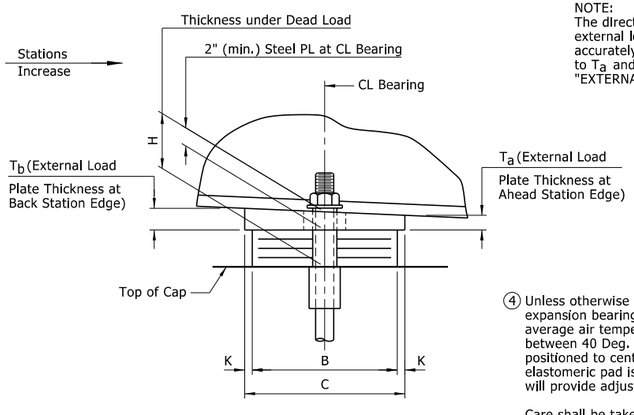


ELASTOMERIC BEARING

t_e = Thickness of Elastomer Cover on Top and Bottom of Pad
t_i = Thickness of Elastomer Between Steel Laminae
N = Number of Elastomer Layers of Thickness t_i



PLAN VIEW AT BENTS 3 & 4

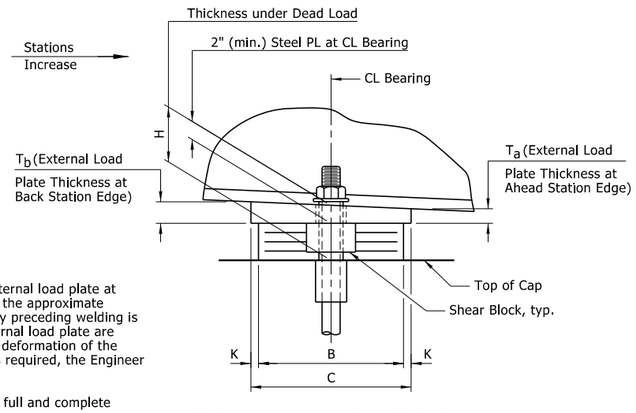


SIDE VIEW AT BENTS 1, 2, 5, & 6

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 "EXTERNAL LOAD PLATE TAPERS".

④ Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40 Deg. F and 80 Deg. F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

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



SIDE VIEW AT BENTS 3 & 4

NOTES:
Elastomeric bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "ELASTOMERIC BEARINGS".

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

Anchor bolts, washers and nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "TABLE OF FABRICATOR VARIABLES". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe sleeves, anchor bolts, washers and nuts shall be paid for at the unit price bid for "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)". External load plates and shear blocks will not be measured or paid for separately, but will be considered subsidiary to "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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

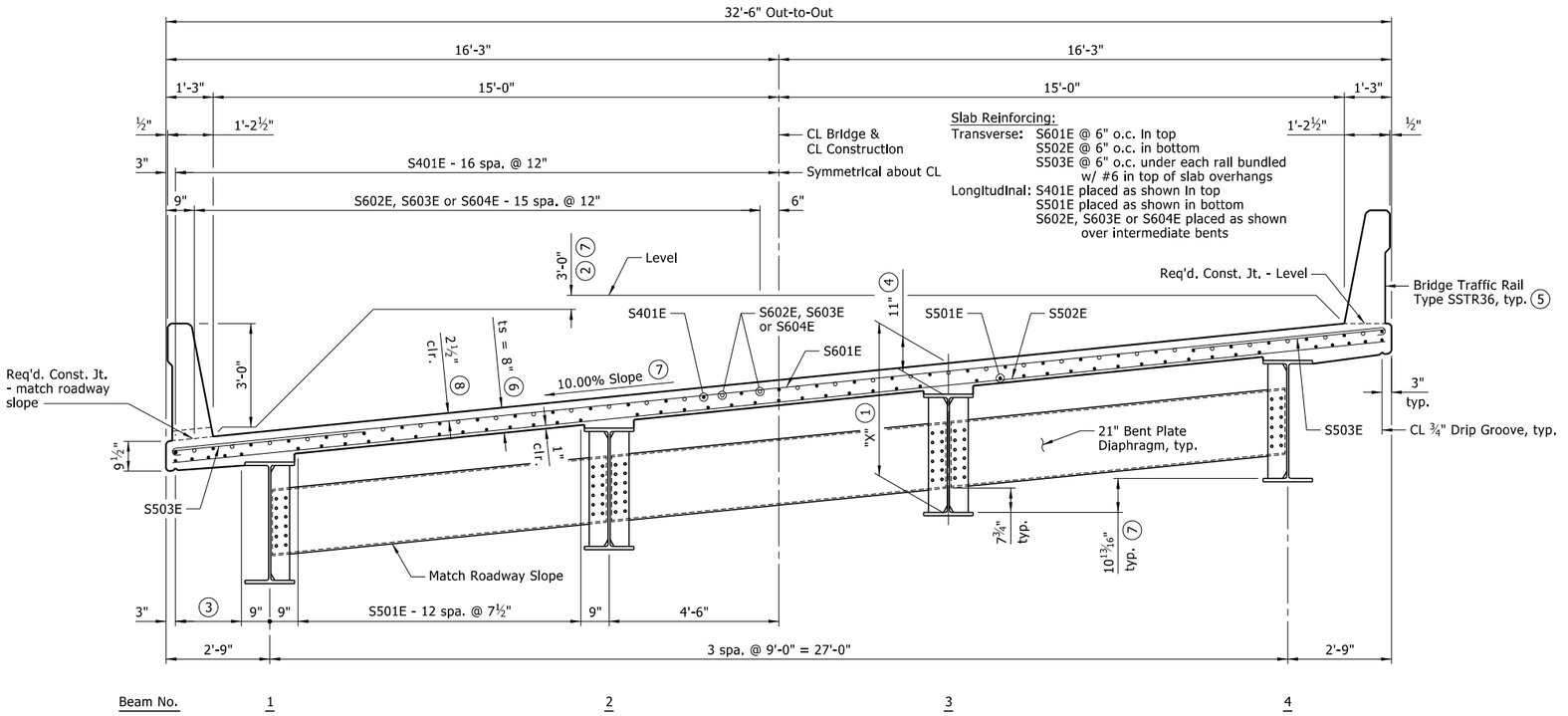
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_e1.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: NONE
DESIGNED BY: JGS DATE: 9/2022

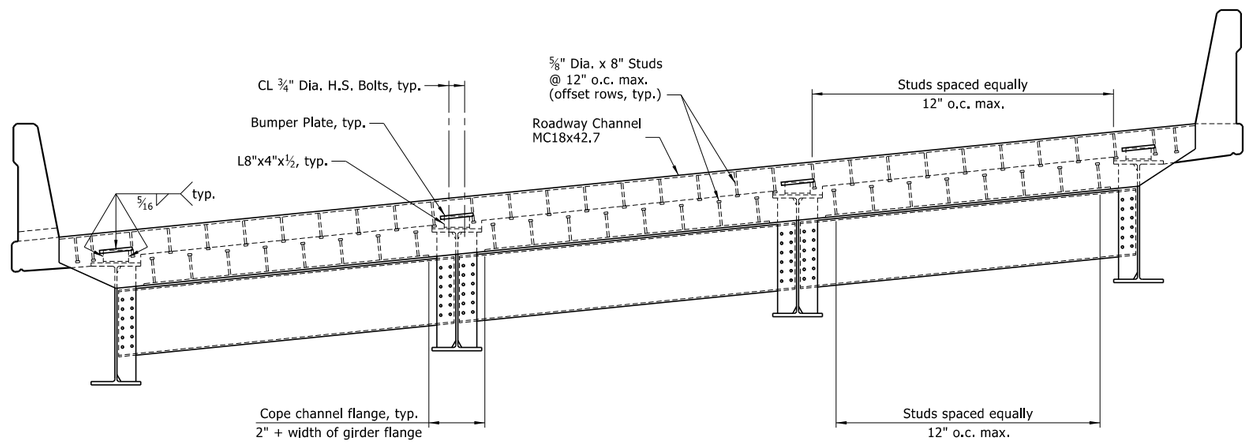
BRIDGE NO. 07599 DRAWING NO. 65829

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	76	124
		07599 -		370 FT. UNIT		- 65830



TYPICAL ROADWAY SECTION

Looking Ahead Station
Scale: ½" = 1'-0"



TYPICAL SECTION THROUGH JOINT

Looking Ahead Station - Bent 1
Bent 6 Similar
Scale: ½" = 1'-0"

NOTES:
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 hi-chairs with full-length lower runners directly on removable deck will not be allowed.

Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete bridge traffic rails.

For Expansion Joint Details, see Dwg. No. 65836 and Std. Dwg. No. 55008.

(1) "X" = 4'-0 9/16" measured at CL Bearing & CL Girder.

(2) Gutterline to gutterline.

(3) S501E - 4 equal spaces

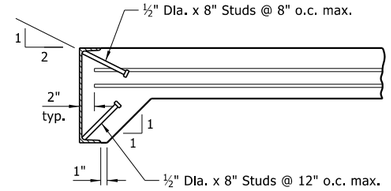
(4) Haunch dimensions may vary +1⅜", -1¾" to maintain the grade and slab thickness.

(5) For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

(6) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(7) Varies upstation from Sta. 215+34.20

(8) Tolerance: Minus = ¼", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance, see "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.



NOTE:
As an alternate to ⅝" Dia. studs, ½" Dia. x 8" studs spaced as shown may be used. Use weight of ⅝" Dia. stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS & PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

EXPANSION DEVICE:
Roadway Channel - MC18x42.7
Conn. Angle - L8"x4"x½"
Detail device ⅛" high and provide ¼" shims using 2 - 1/16" plates and 1 - ⅛" plate.

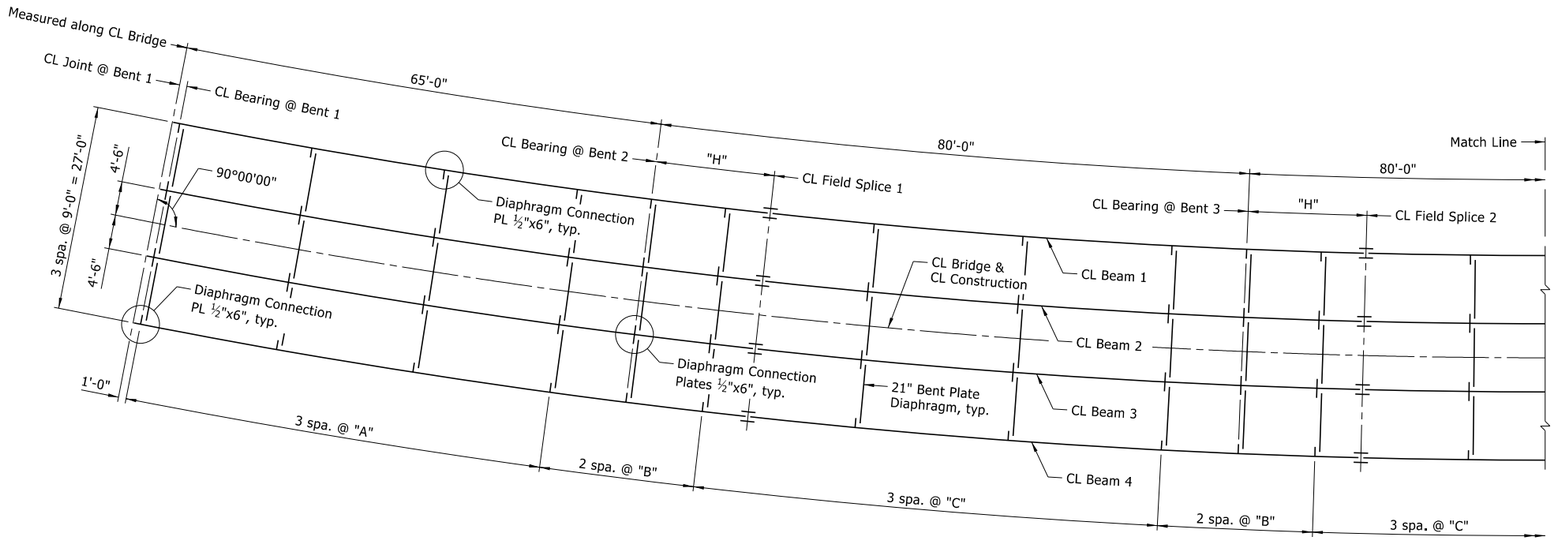
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_s1.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

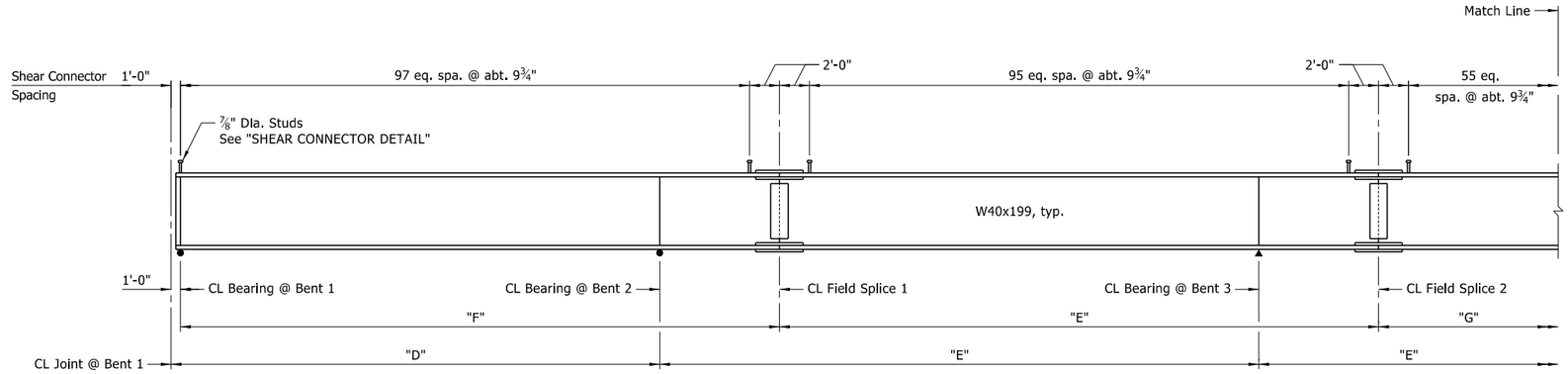
BRIDGE NO. 07599 DRAWING NO. 65830

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	77	124
		07599 -		370 FT. UNIT		- 65831



FRAMING PLAN

Scale: 1" = 10'



GIRDER ELEVATION

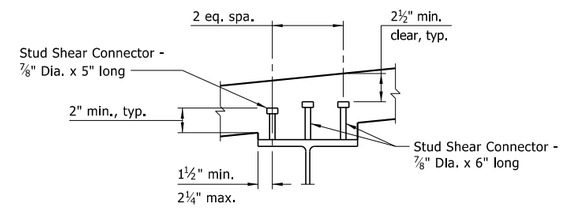
No Scale

NOTES:
All structural steel shall be ASTM A709, Gr. 50W unless otherwise noted and shall be paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W). See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

CL Joint and End of Beam are vertical, see Std. Dwg. No. 55008.

All beams are oriented along curves concentric with CL Bridge and CL Construction.

All diaphragms shall be placed radial to the curve.



Place Stud Shear Connectors as shown. Stud Shear Connectors shall be automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. See "GIRDER ELEVATION" for spacing.

SHEAR CONNECTOR DETAIL

Looking Ahead Station
No Scale

TABLE OF VARIABLES

BEAM NO.	RADIUS	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
1	941'-5⅛"	17'-8⅞"	9'-10⅝"	19'-8⅝"	64'-1"	78'-10⅞"	78'-10⅝"	47'-3⅞"	15'-9⅝"
2	950'-5⅛"	17'-10⅛"	9'-11⅞"	19'-10⅞"	64'-8⅝"	79'-7½"	79'-7⅞"	47'-9⅝"	15'-11⅛"
3	959'-5⅛"	18'-1⅛"	10'-0⅜"	20'-1⅛"	65'-3¹¹⁄₁₆"	80'-4½"	80'-4⅜"	48'-2¹¹⁄₁₆"	16'-0⅞"
4	968'-5⅛"	18'-3⅛"	10'-1¹¹⁄₁₆"	20'-3⅜"	65'-11"	81'-1⅜"	81'-1¹¹⁄₁₆"	48'-8⅛"	16'-2¹¹⁄₁₆"

Dimensions measured along CL beam.

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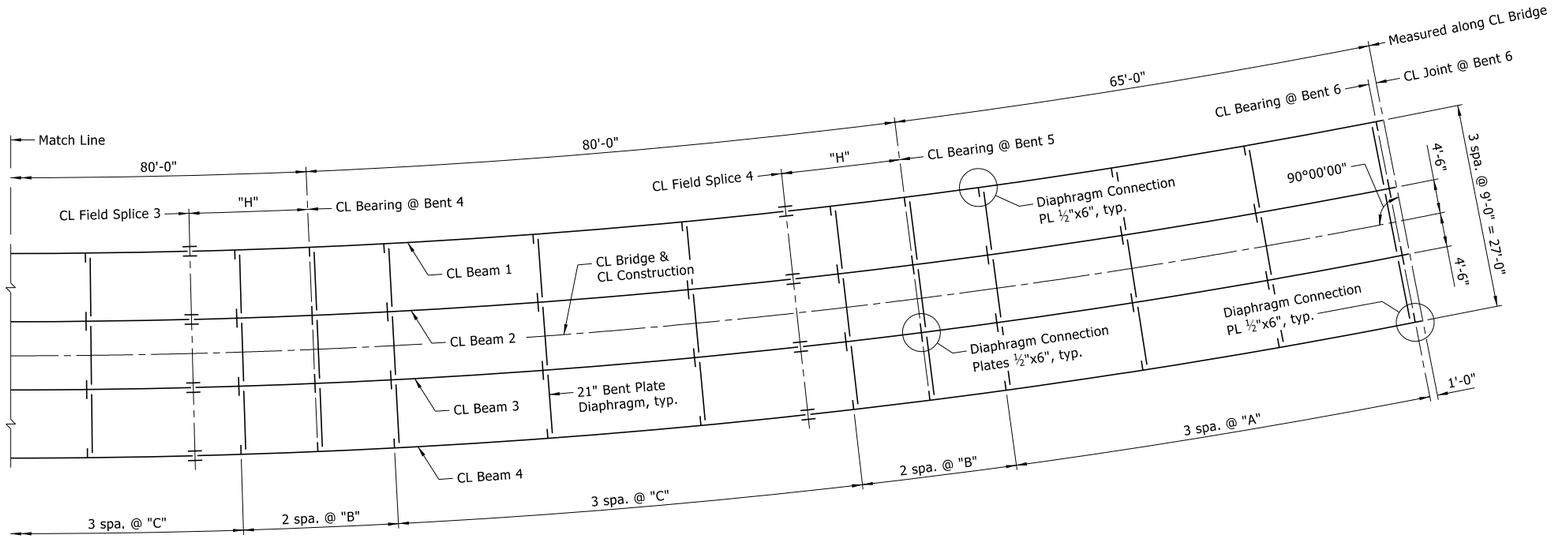
SHEET 2 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 8/2022 FILENAME: b050422x2_s2.dgn
CHECKED BY: JGS DATE: 11/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

BRIDGE NO. 07599 DRAWING NO. 65831

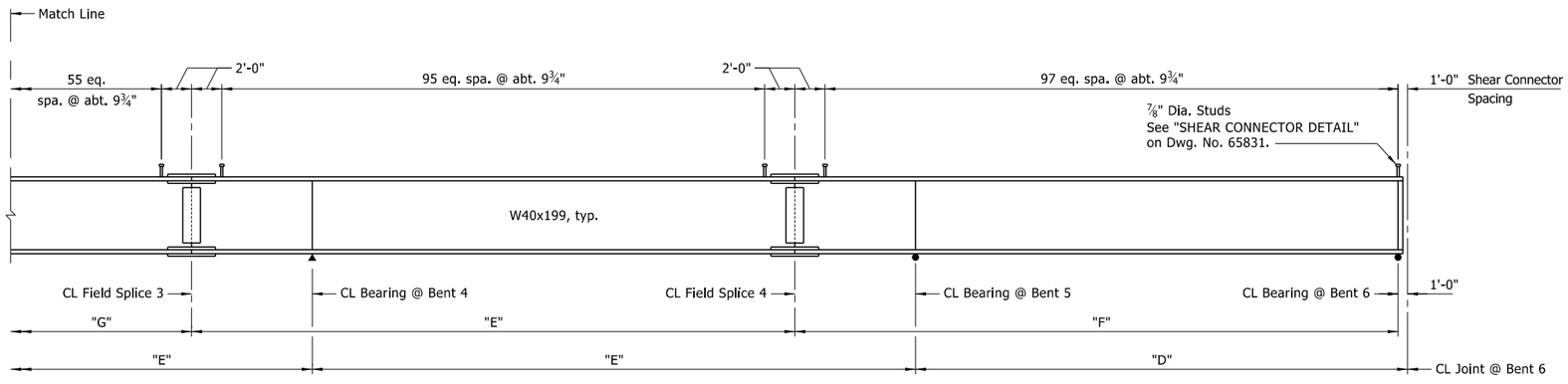
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	78	124
		07599 -		370 FT. UNIT		- 65832



FRAMING PLAN

Scale: 1" = 10'

NOTE:
For notes and table of variables pertaining to the framing plan, see Dwg. No. 65831.



GIRDER ELEVATION

No Scale

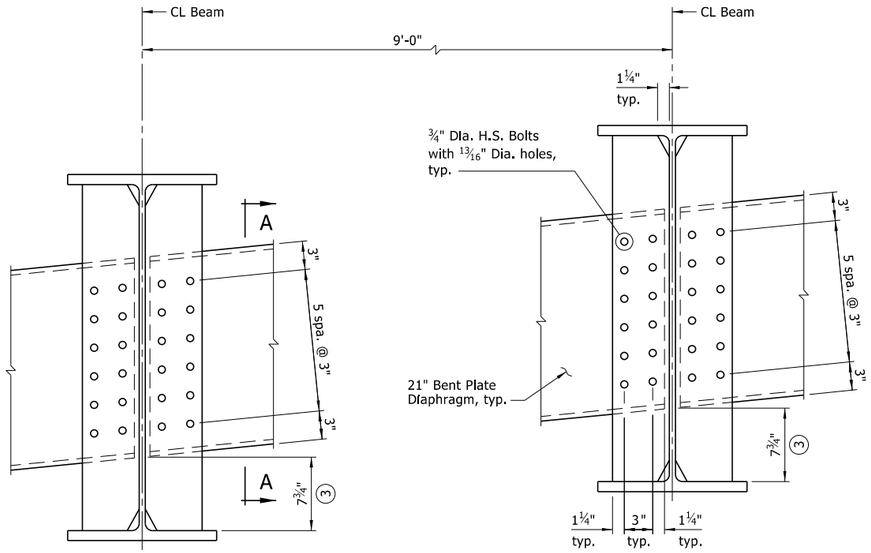
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 8/2022 FILENAME: b050422x2_s3.dgn
CHECKED BY: JGS DATE: 11/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

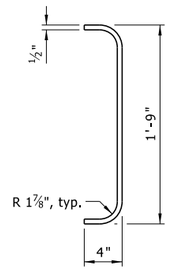
BRIDGE NO. 07599 DRAWING NO. 65832

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	79	124
		07599 -		370 FT. UNIT		- 65833



DIAPHRAGM CONNECTION DETAIL

Scale: 1½" = 1'-0"



SECTION A-A

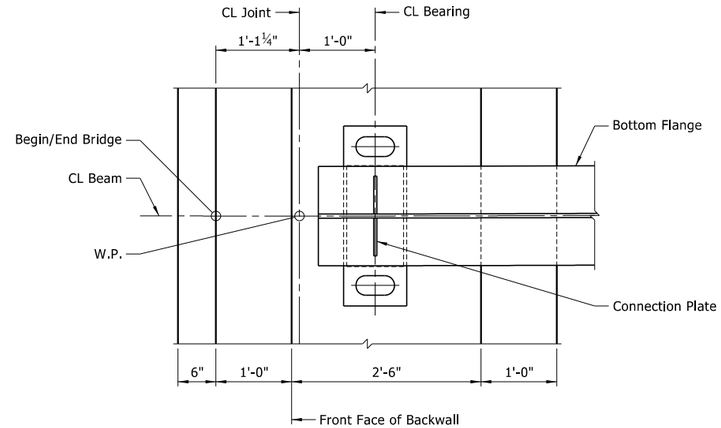
Scale: 1½" = 1'-0"

NOTE:
Connection plates at bearings shall be fabricated to be plumb in their final positions.

(1) For size, see "WELD TABLE" on Std. Dwg. No. 55007.

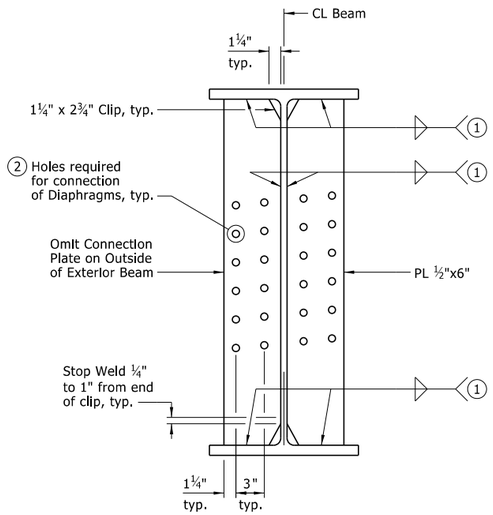
(2) For location of Diaphragms, see "FRAMING PLAN" on Dwg. Nos. 65831 and 65832.

(3) Vertical placement of Bent Plate measured at CL Beam.



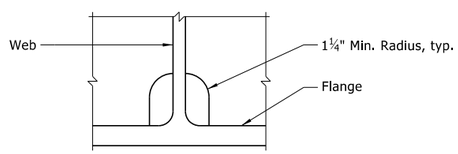
BEARING PLAN AT END BENT

Bent 1 Shown, Bent 6 Similar
Scale: 1" = 1'-0"



DIAPHRAGM CONNECTION PLATE

Scale: 1½" = 1'-0"



Height and width of clip shall be as noted in other details.

ALTERNATE CLIP DETAIL

Scale: 3" = 1'-0"

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SHEET 4 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

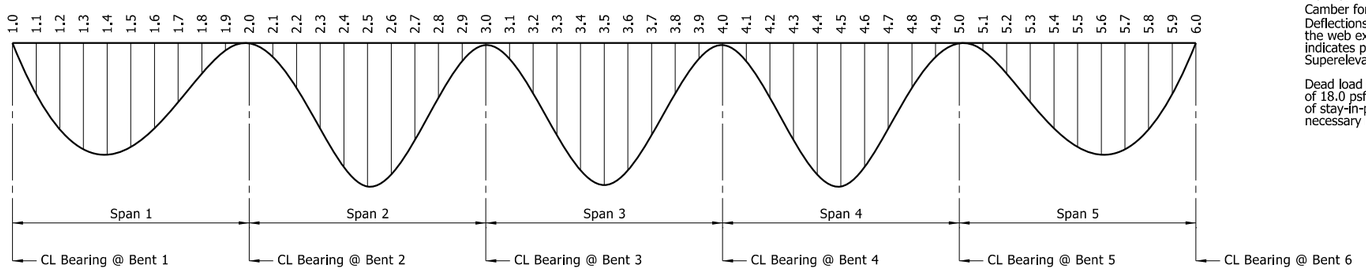
DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_s4.dgn
CHECKED BY: JGS DATE: 11/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

BRIDGE NO. 07599 DRAWING NO. 65833

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	80	124
		07599 -		370 FT. UNIT		- 65834

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	BEAM NO.	BEAM 1			BEAM 2			BEAM 3			BEAM 4		
	POINT OF DEFLECTION	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL
SPAN 1	1.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.030	0.149	0.163	0.033	0.182	0.196	0.034	0.189	0.204	0.036	0.177	0.193
	1.2	0.052	0.258	0.282	0.057	0.315	0.339	0.060	0.328	0.353	0.062	0.306	0.334
	1.3	0.066	0.327	0.357	0.072	0.399	0.430	0.076	0.415	0.447	0.078	0.387	0.423
	1.4	0.071	0.356	0.389	0.079	0.433	0.466	0.082	0.451	0.486	0.085	0.421	0.460
	1.5	0.069	0.344	0.376	0.076	0.419	0.451	0.080	0.437	0.471	0.082	0.406	0.444
	1.6	0.060	0.298	0.325	0.066	0.363	0.391	0.069	0.378	0.407	0.071	0.351	0.383
	1.7	0.046	0.227	0.248	0.050	0.277	0.298	0.053	0.289	0.311	0.054	0.267	0.292
	1.8	0.025	0.126	0.138	0.028	0.154	0.166	0.029	0.160	0.172	0.030	0.148	0.162
	1.9	0.008	0.041	0.045	0.009	0.050	0.054	0.010	0.052	0.056	0.010	0.048	0.052
SPAN 2	2.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.012	0.061	0.067	0.013	0.073	0.079	0.014	0.076	0.082	0.014	0.070	0.076
	2.2	0.033	0.168	0.183	0.036	0.201	0.217	0.038	0.209	0.225	0.039	0.195	0.213
	2.3	0.058	0.292	0.319	0.063	0.350	0.377	0.066	0.364	0.392	0.067	0.339	0.370
	2.4	0.083	0.416	0.454	0.090	0.499	0.537	0.094	0.519	0.559	0.096	0.485	0.530
	2.5	0.087	0.440	0.480	0.095	0.528	0.569	0.099	0.549	0.591	0.102	0.513	0.560
	2.6	0.082	0.413	0.451	0.090	0.496	0.534	0.093	0.516	0.556	0.096	0.482	0.526
	2.7	0.067	0.338	0.369	0.073	0.406	0.437	0.076	0.422	0.455	0.078	0.394	0.430
	2.8	0.043	0.214	0.234	0.046	0.257	0.277	0.048	0.267	0.288	0.050	0.249	0.272
	2.9	0.013	0.067	0.073	0.014	0.080	0.086	0.015	0.084	0.090	0.015	0.078	0.085
SPAN 3	3.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	3.1	0.010	0.051	0.056	0.011	0.063	0.068	0.012	0.065	0.070	0.012	0.059	0.065
	3.2	0.031	0.152	0.166	0.033	0.184	0.198	0.035	0.192	0.207	0.035	0.176	0.192
	3.3	0.054	0.272	0.297	0.059	0.329	0.354	0.062	0.342	0.368	0.063	0.317	0.346
	3.4	0.079	0.394	0.430	0.086	0.477	0.514	0.090	0.495	0.533	0.092	0.460	0.502
	3.5	0.084	0.418	0.456	0.091	0.506	0.545	0.095	0.525	0.565	0.098	0.488	0.533
	3.6	0.079	0.394	0.430	0.086	0.477	0.514	0.090	0.495	0.533	0.092	0.460	0.502
	3.7	0.065	0.322	0.352	0.071	0.390	0.420	0.074	0.405	0.436	0.075	0.376	0.411
	3.8	0.041	0.203	0.222	0.044	0.245	0.264	0.046	0.255	0.275	0.047	0.236	0.258
	3.9	0.012	0.061	0.067	0.013	0.075	0.081	0.014	0.078	0.084	0.014	0.071	0.078
SPAN 4	4.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4.1	0.011	0.057	0.062	0.012	0.068	0.073	0.013	0.071	0.077	0.013	0.066	0.072
	4.2	0.032	0.163	0.178	0.035	0.195	0.210	0.037	0.203	0.219	0.038	0.189	0.206
	4.3	0.057	0.287	0.313	0.062	0.345	0.372	0.065	0.358	0.386	0.066	0.334	0.365
	4.4	0.082	0.413	0.451	0.090	0.496	0.534	0.093	0.516	0.556	0.096	0.482	0.526
	4.5	0.087	0.439	0.479	0.095	0.527	0.568	0.099	0.548	0.590	0.102	0.512	0.559
	4.6	0.083	0.416	0.454	0.090	0.499	0.537	0.094	0.519	0.559	0.096	0.484	0.529
	4.7	0.068	0.342	0.373	0.074	0.411	0.443	0.077	0.427	0.460	0.079	0.398	0.435
	4.8	0.043	0.219	0.239	0.047	0.262	0.282	0.049	0.272	0.293	0.050	0.254	0.277
	4.9	0.014	0.071	0.078	0.015	0.085	0.092	0.016	0.088	0.095	0.016	0.081	0.089
SPAN 5	5.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.1	0.006	0.027	0.029	0.006	0.033	0.036	0.006	0.035	0.038	0.007	0.032	0.035
	5.2	0.020	0.100	0.109	0.022	0.122	0.131	0.024	0.128	0.138	0.024	0.117	0.128
	5.3	0.036	0.178	0.194	0.040	0.218	0.235	0.042	0.227	0.244	0.042	0.210	0.229
	5.4	0.055	0.275	0.300	0.061	0.335	0.361	0.064	0.349	0.376	0.065	0.324	0.354
	5.5	0.068	0.337	0.368	0.075	0.411	0.442	0.078	0.428	0.461	0.080	0.398	0.435
	5.6	0.070	0.346	0.378	0.077	0.422	0.454	0.080	0.439	0.473	0.082	0.409	0.447
	5.7	0.065	0.325	0.355	0.072	0.396	0.426	0.075	0.412	0.444	0.077	0.384	0.419
	5.8	0.052	0.258	0.282	0.057	0.315	0.339	0.060	0.327	0.352	0.062	0.306	0.334
	5.9	0.030	0.149	0.163	0.033	0.182	0.196	0.034	0.189	0.204	0.036	0.177	0.193
	6.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

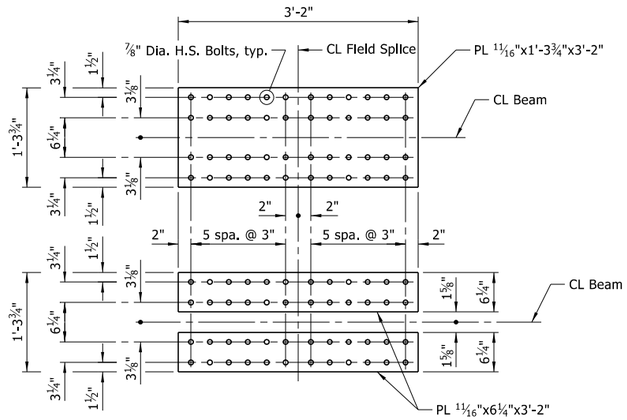
No Scale

NOTES:
All field splice bolts shall be $\frac{7}{8}$" Dia. H.S. bolts.

All holes for splice bolts shall be $\frac{15}{16}$" Dia.

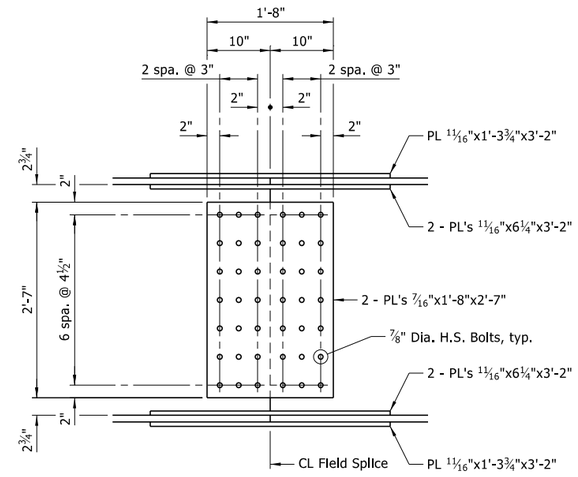
All field splice plates shall be ASTM A709, Gr. 50W steel.

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



TOP AND BOTTOM FLANGE FIELD SPLICE

Scale: 1" = 1'-0"



DETAILS OF FIELD SPLICE

Scale: 1" = 1'-0"

NOTES:
Camber for dead load deflection plus vertical curve ±¼" tolerance. Deflections shown are along CL Beam from the plane perpendicular to the web extending from CL Bearing to CL Bearing. Negative sign (-) indicates point above plane. Vertical curve corrections not included. Superelevation transition corrections not included.

Dead load deflections shown include an assumed non-composite loading of 18.0 psf to account for additional weight associated with the use of stay-in-place metal deck forms. Revisions to the table may be necessary upon review of the Contractor's submitted forming details.

STATE OF ARKANSAS
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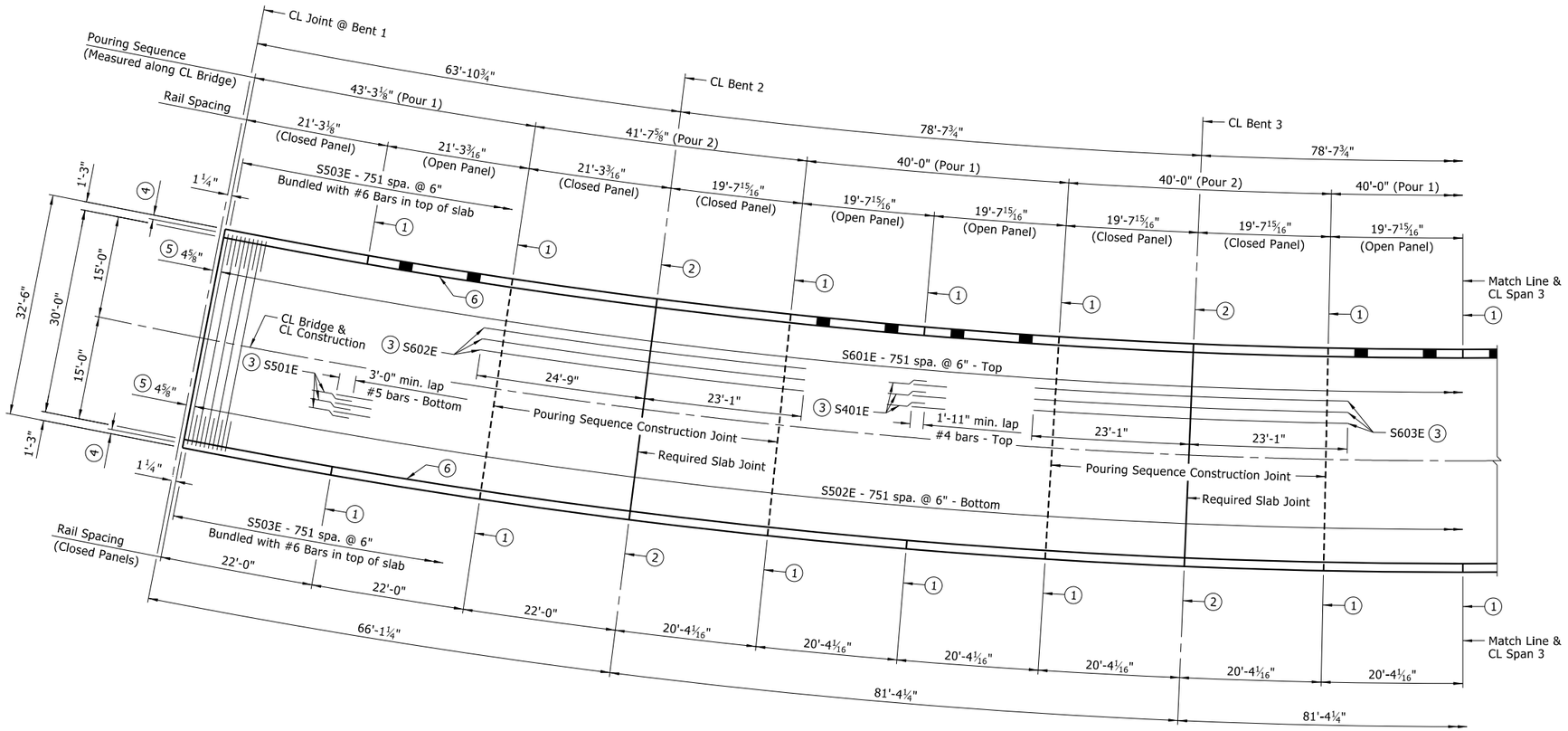
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_s5.dgn
CHECKED BY: JGS DATE: 11/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

BRIDGE NO. 07599 DRAWING NO. 65834

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	81	124
		07599 -		370 FT. UNIT		- 65835



SLAB PLAN & DECK POURING SEQUENCE

Scale: 1" = 10'

NOTES:
Rail Spacing measured from outside of slab.

All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with CL Bridge.

All transverse reinforcing steel shall be placed on radial lines and shall be measured along CL Bridge.

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

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

A minimum of 72 hours shall elapse from the completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

No deviations from the pouring sequence shown will be allowed.

(1) CL Partial-Depth Rail Joint (¼" to 1" max.).
(2) CL Full-Depth Rail Joint (¼" to 1" max.).
(3) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 65830.
(4) Typical 2" Clear Cover unless otherwise noted.
(5) Measured from CL Joint.
(6) For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

BAR LIST

	MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
(6)	R400E	64	5'-3"	2½"	Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.
(6)	R401E	1484	6'-4"	3"	
	R402E	104	5'-6"	Str.	
(6)	R403E	1484	3'-6"	3¾"	
	R404E	96	19'-4"	Str.	
	R405E	96	20'-0"	Str.	
	R406E	48	20'-11"	Str.	
	R407E	48	21'-8"	Str.	
	S401E	264	48'-8"	Str.	
	S501E	343	56'-3"	Str.	
	S502E	752	32'-2"	Str.	
	S503E	1504	3'-11"	Str.	
	S601E	752	33'-6"	4½"	
	S602E	64	47'-10"	Str.	
	S603E	32	46'-2"	Str.	
	S604E	32	46'-11"	Str.	

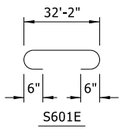


TABLE OF VARIABLES

CLOSED RAIL PANELS			OPEN RAIL PANELS					
PANEL LENGTH	A	R4XXE	PANEL LENGTH	B	C	D	E	R4XXE
19'-7¹⁵⁄₁₆"	39	R404E	19'-7¹⁵⁄₁₆"	10	3'-10"	15	8'-0"	R404E
20'-4¹⁄₁₆"	40	R405E	21'-3³⁄₁₆"	13	4'-7⅝"	15	8'-0"	R406E
21'-3³⁄₁₆"	42	R406E						
22'-0"	43	R407E						
11'-0"	21	R408E						

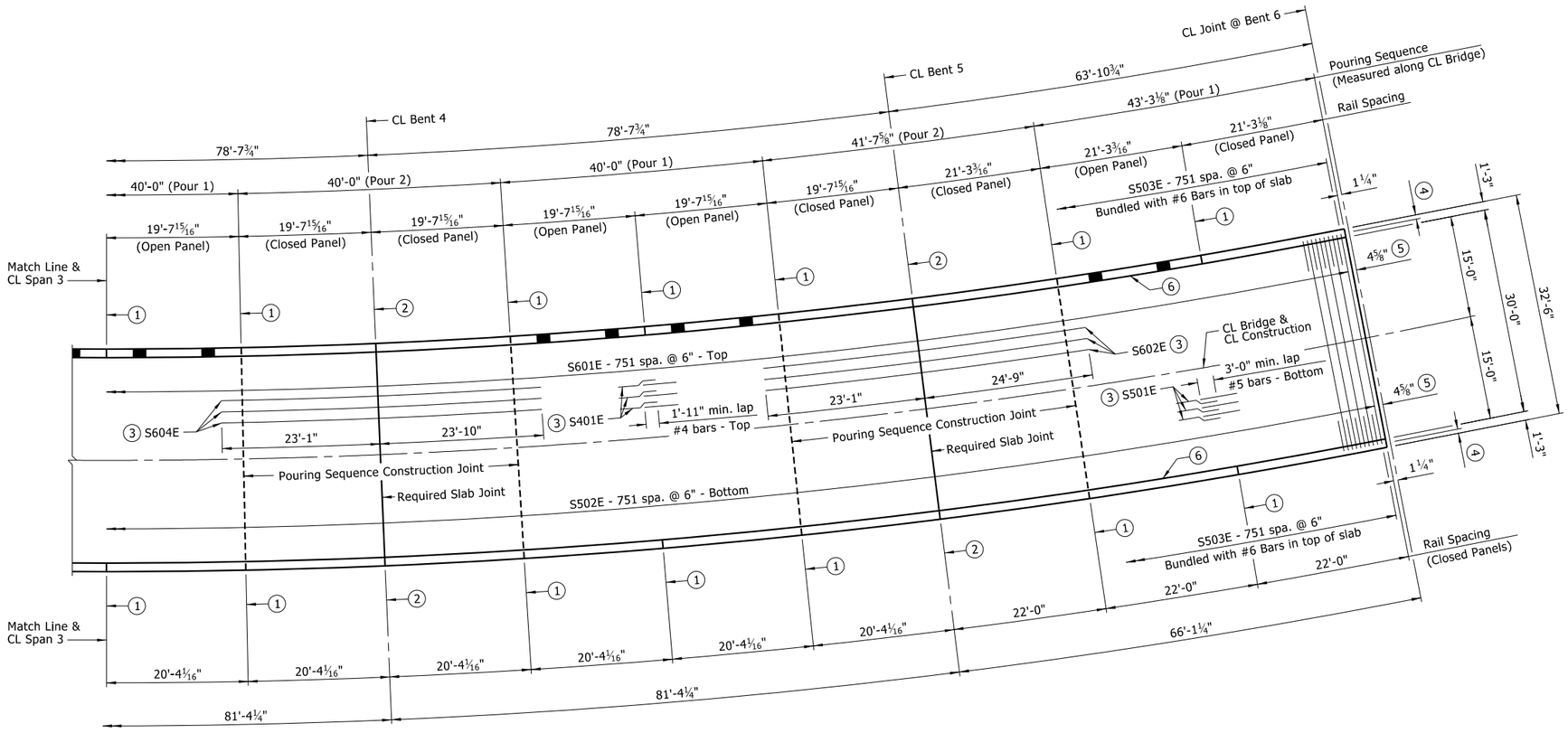
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_s6.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: AS SHOWN
DESIGNED BY: CBM DATE: 8/2022

BRIDGE NO. 07599 DRAWING NO. 65835

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	82	124
		07599 -		370 FT. UNIT		- 65836



SLAB PLAN & DECK POURING SEQUENCE

NOTES:
Rail Spacing measured from outside of slab.

All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with CL Bridge.

All transverse reinforcing steel shall be placed on radial lines and shall be measured along CL Bridge.

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

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

A minimum of 72 hours shall elapse from the completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

No deviations from the pouring sequence shown will be allowed.

(1) CL Partial-Depth Rail Joint (¼" to 1" max.).
(2) CL Full-Depth Rail Joint (¼" to 1" max.).
(3) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 65830.
(4) Typical 2" Clear Cover unless otherwise noted.
(5) Measured from CL Joint.
(6) For additional details of Bridge Traffic Rail Type SSTR36, see Std. Dwg. No. 55070.

TABLE OF SILICONE JOINT DATA

BENT NUMBER	"A" WIDTH PERPENDICULAR TO JOINT AT 24 HOUR AVERAGE TEMPERATURE (7) OF:			"B" PERPENDICULAR TO JOINT AT 60°F	BUMPER PLATE SIZE
	40°F	60°F	80°F		
1 & 6	2¹³⁄₁₆"	2½"	2³⁄₁₆"	±2½"	1" x 1¼"

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

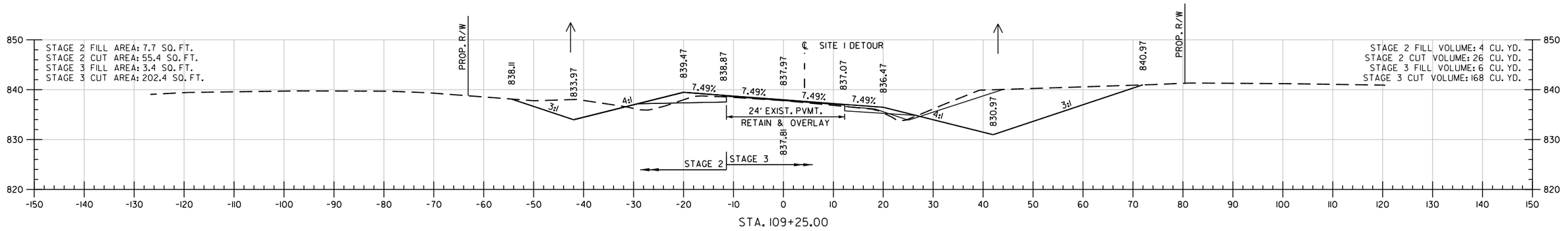
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17472
TRAVIS MICHAEL RAPP
3/29/2024
BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF 370'-0" CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TWM DATE: 9/2022 FILENAME: b050422x2_s7.dgn
CHECKED BY: HRA DATE: 12/2022 SCALE: 1" = 10'
DESIGNED BY: CBM DATE: 8/2022

BRIDGE NO. 07599 DRAWING NO. 65836

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	83	124
		CROSS SECTIONS				



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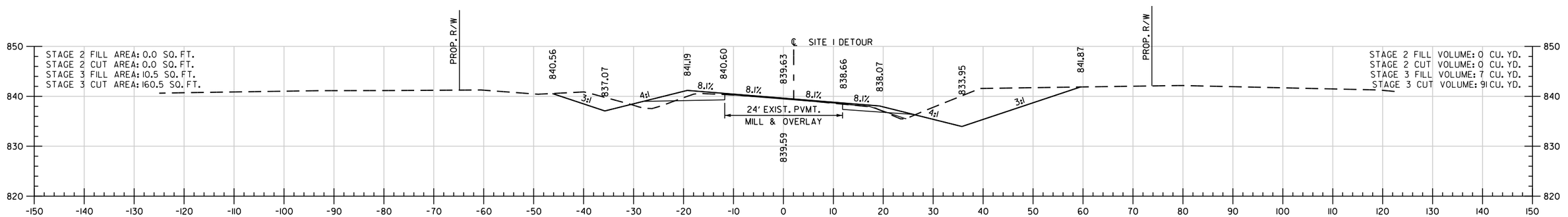

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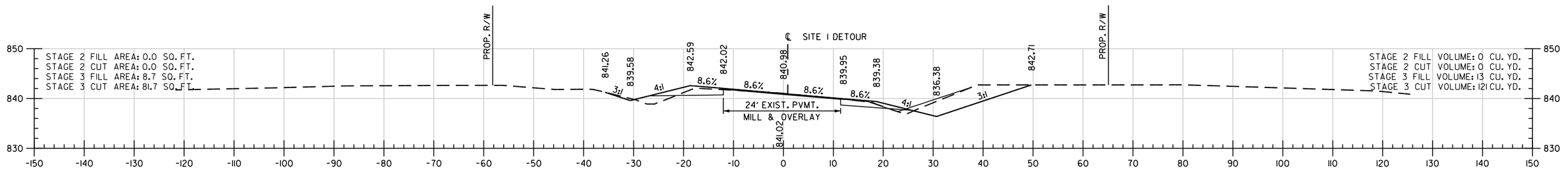

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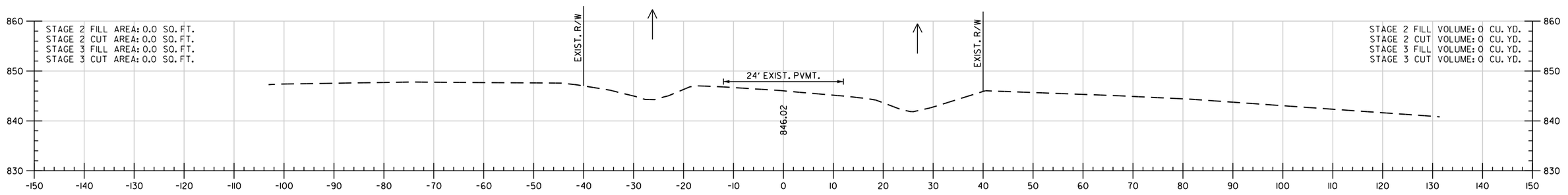

STA. 108+00.00

SITE 1 - HWY. 62
STA. 108+00.00 TO STA. 109+25.00

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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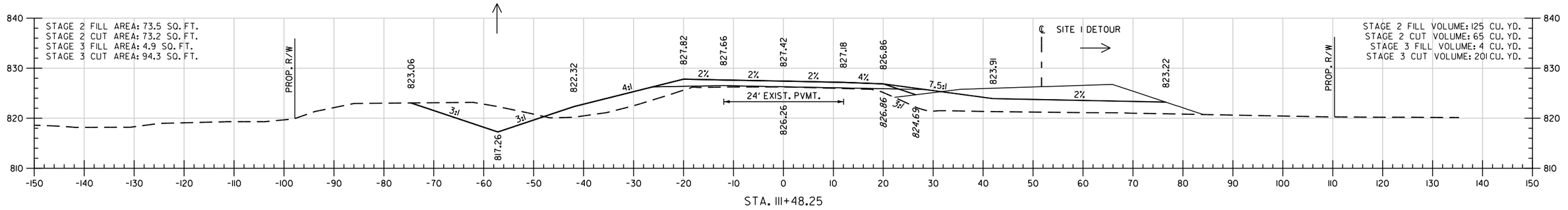
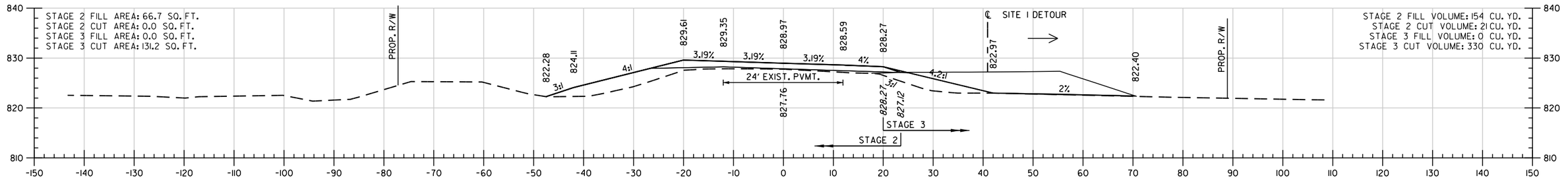


STA. 111+48.25

STA. 111+00.00 BEGIN
-10.41% LT. DITCH GRADE
ELEV. 822.28



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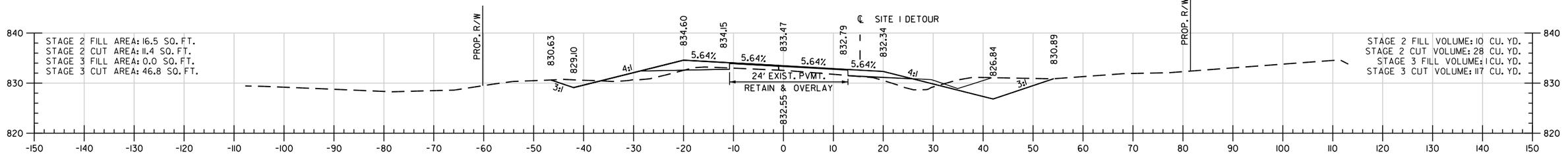
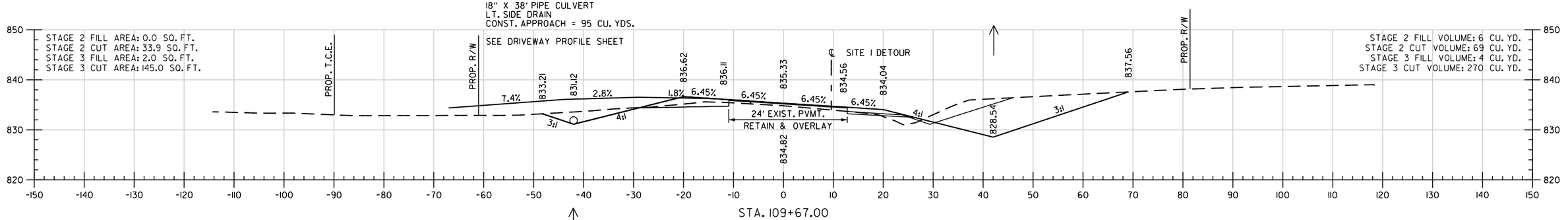


STA. 109+67.00 IN PLACE
18" X 24' CM
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 95 CU. YDS.
SEE DRIVEWAY PROFILE SHEET



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SITE 1 - HWY. 62
STA. 109+67.00 TO STA. 111+48.25

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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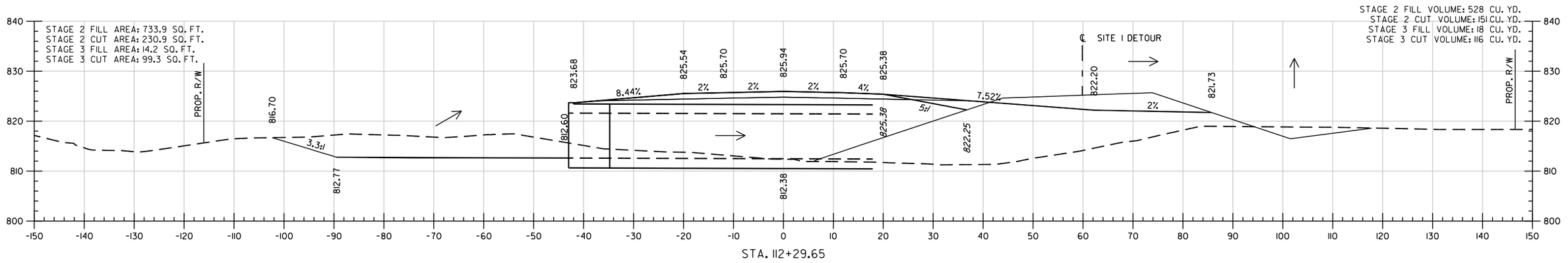

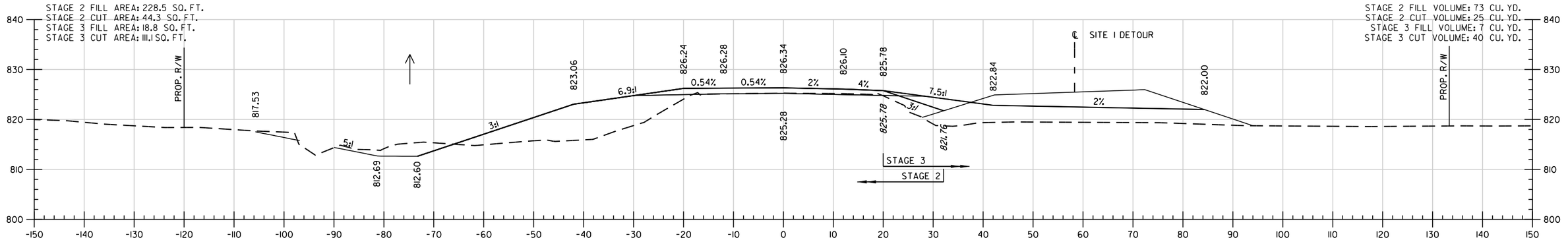

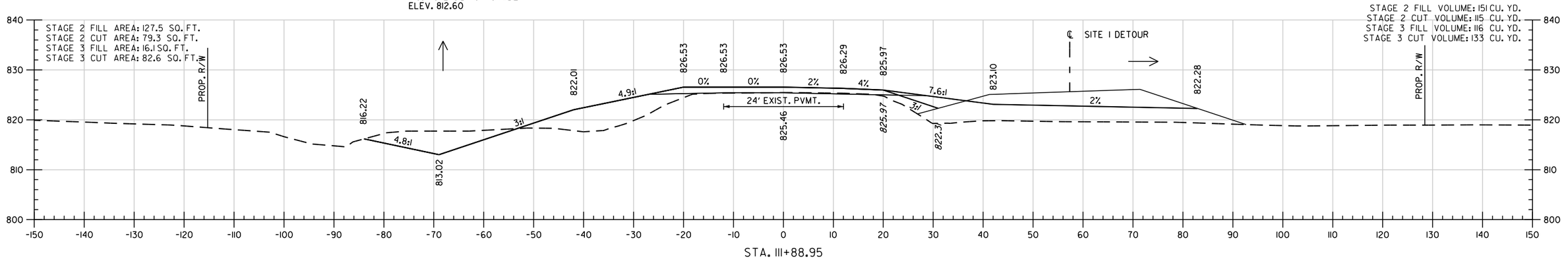

SITE 1 - HWY. 62
STA. 111+88.95 TO STA. 112+29.65

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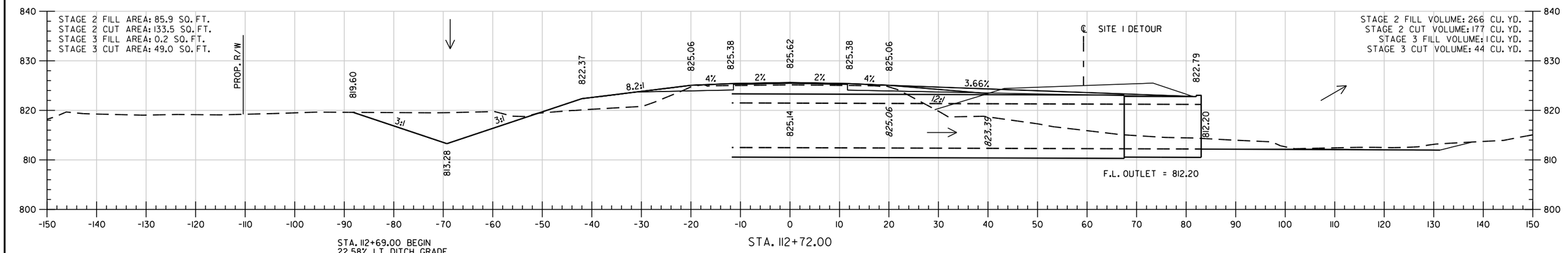
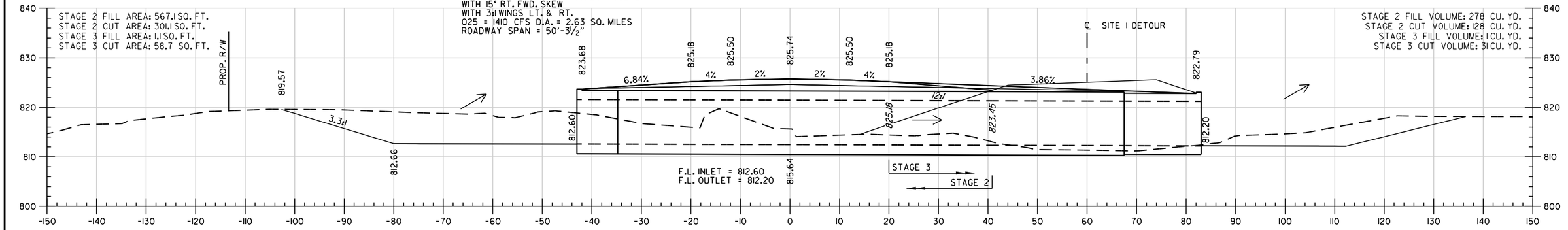
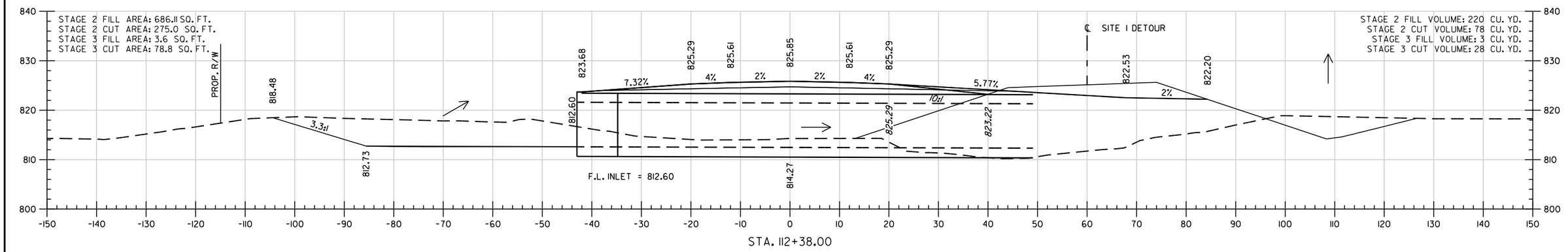
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	86	124
		CROSS SECTIONS				







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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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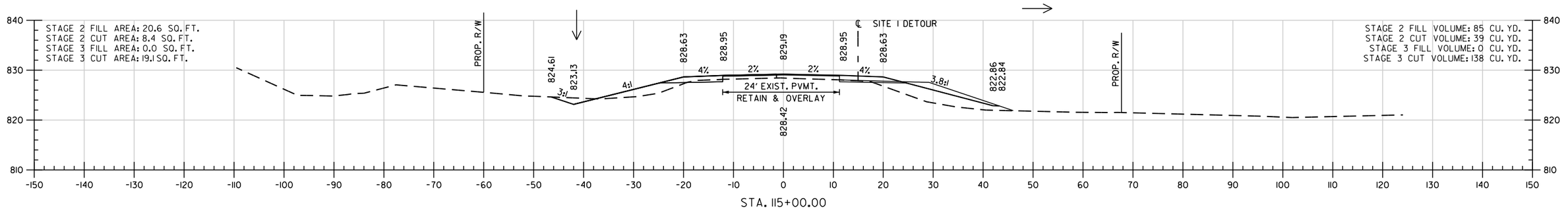

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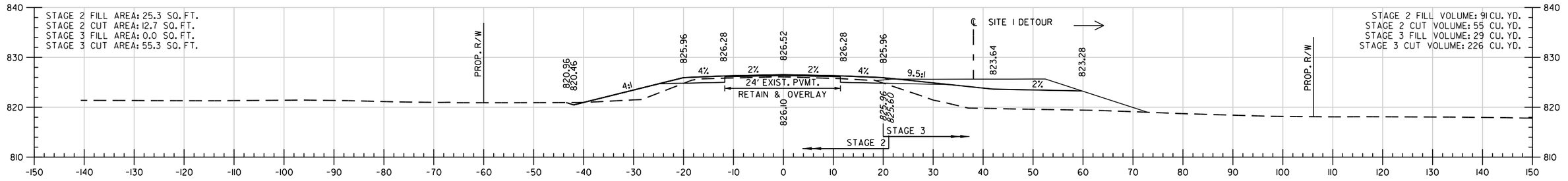

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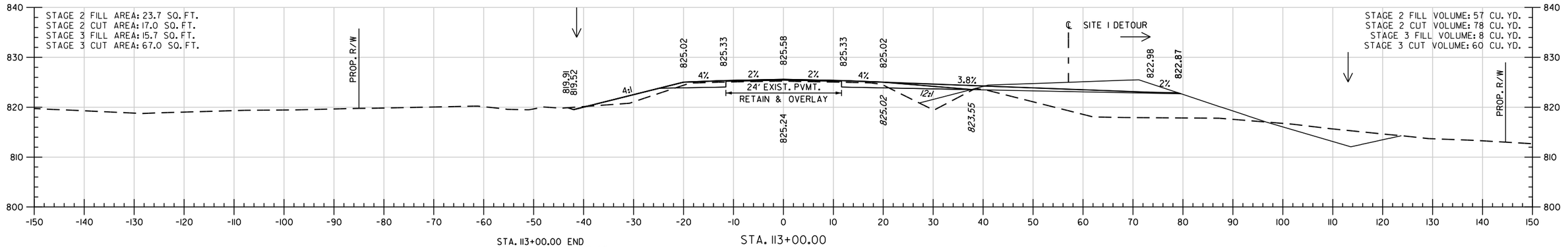

STA. 113+00.00 END
22.58% LT. DITCH GRADE
ELEV. 819.52

STA. 113+00.00

SITE 1 - HWY. 62
STA. 113+00.00 TO STA. 115+00.00

3/28/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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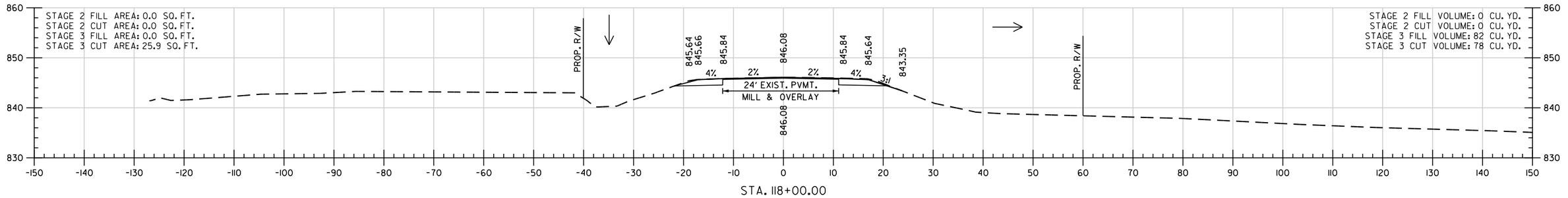
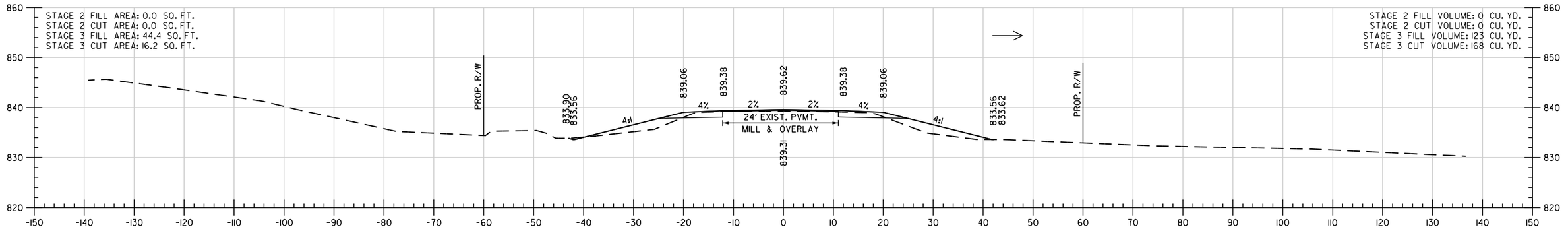
		CROSS SECTIONS				



STA. 118+00.00



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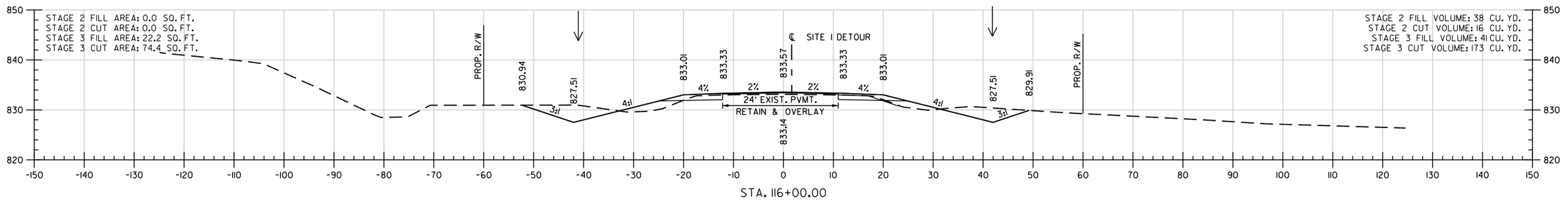

STA. 116+00.00

SITE I - HWY. 62
STA. 116+00.00 TO STA. 118+00.00

3/28/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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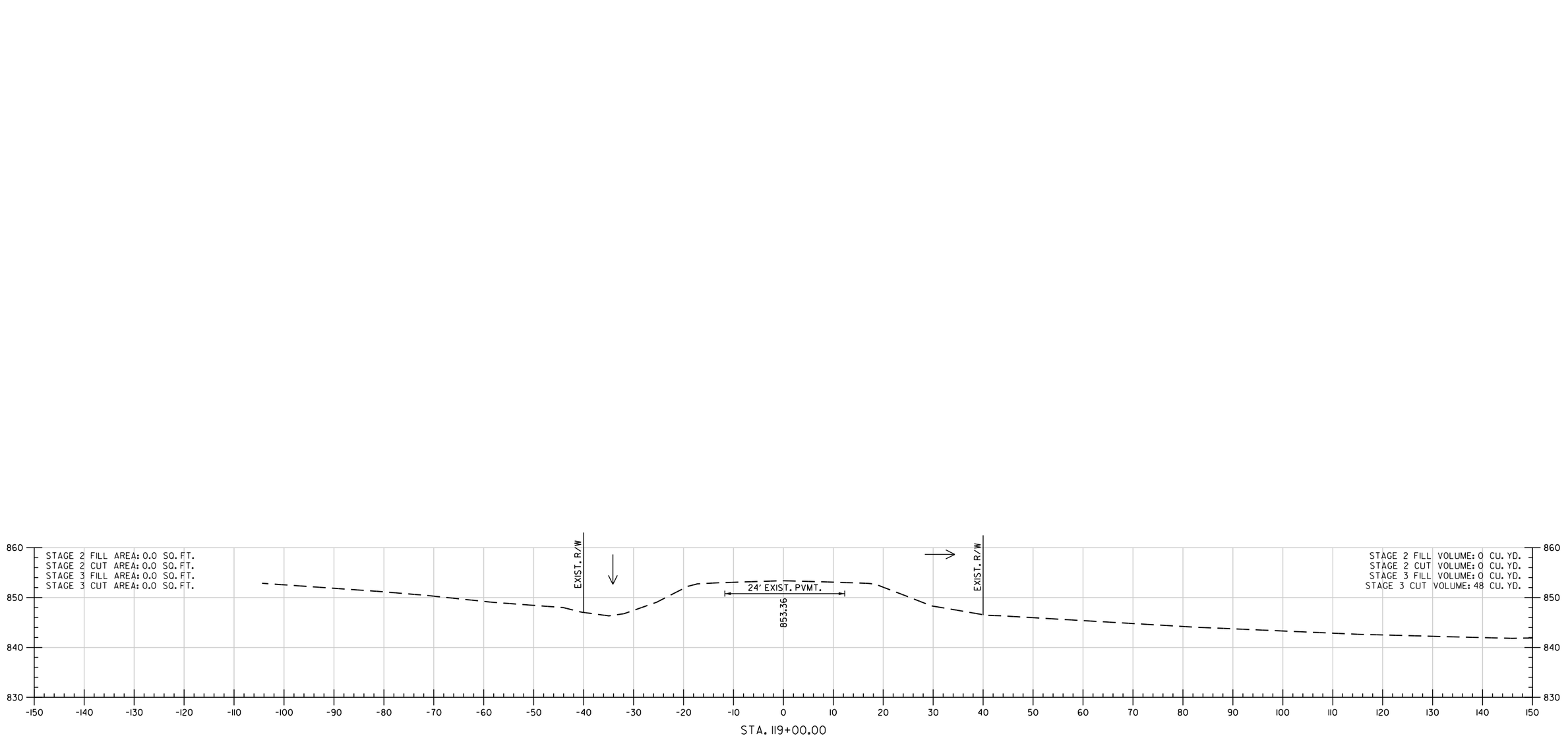
		CROSS SECTIONS				



SITE 1 - HWY. 62
STA. 119+00.00 TO STA. 119+00.00

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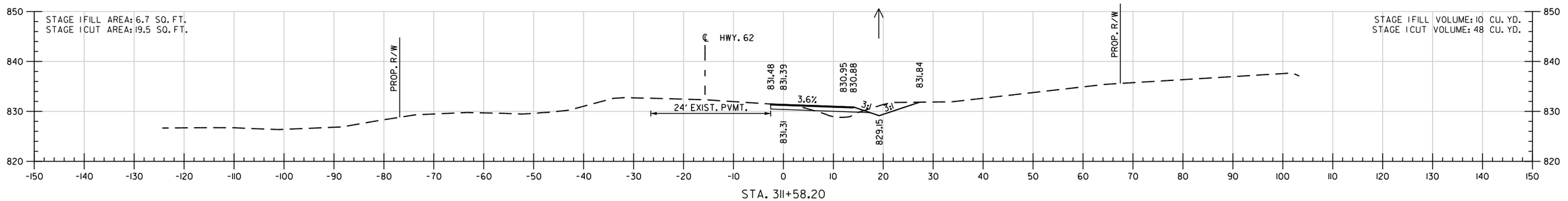
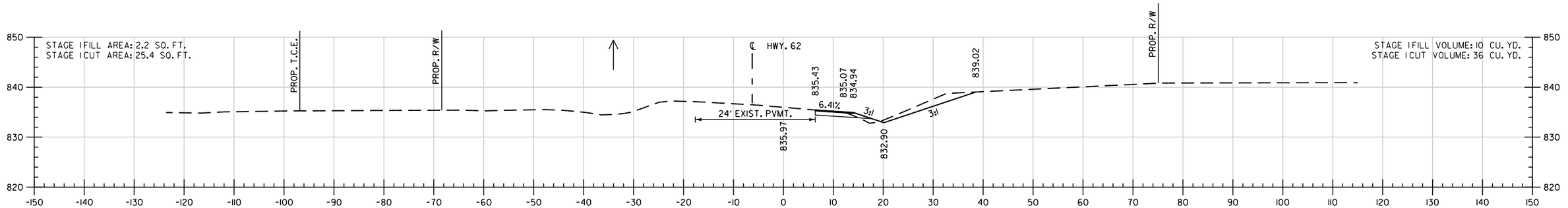
		CROSS SECTIONS				



STA. 311+58.20



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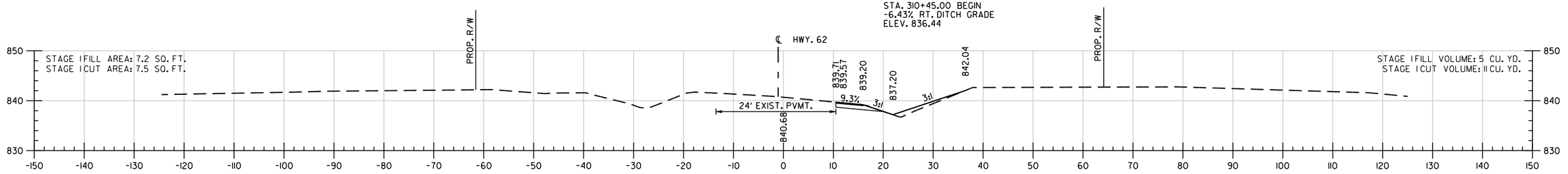

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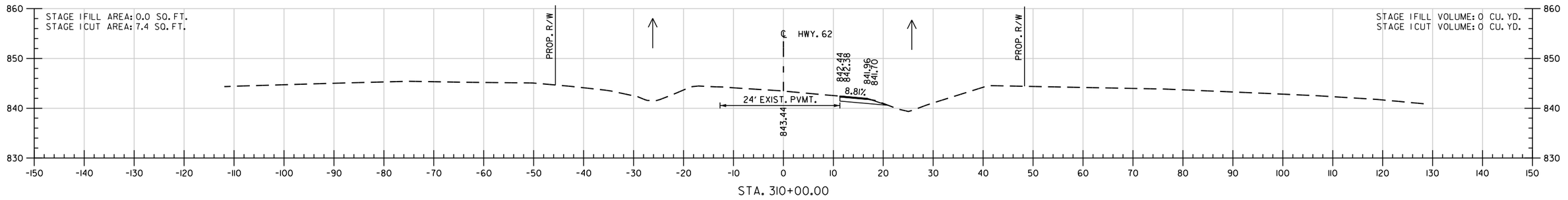

STA. 310+00.00

SITE 1 DETOUR
STA. 310+00.00 TO STA. 311+58.20

3/29/2024
8:28:02 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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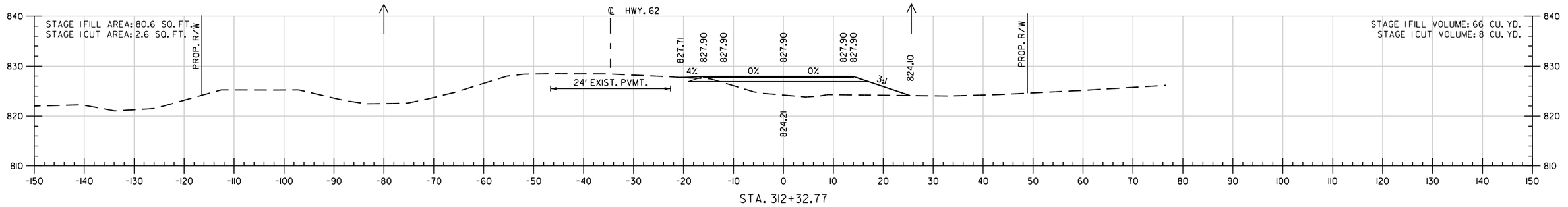
		CROSS SECTIONS				



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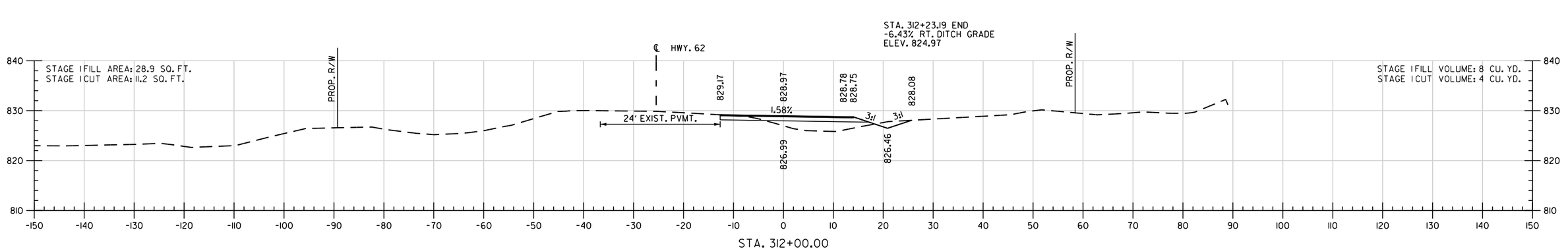

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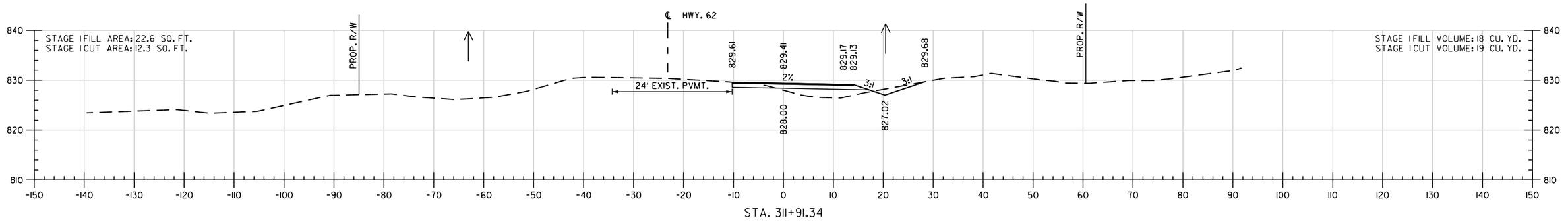

STA. 311+91.34

SITE 1 DETOUR
STA. 311+91.34 TO STA. 312+32.77

3/29/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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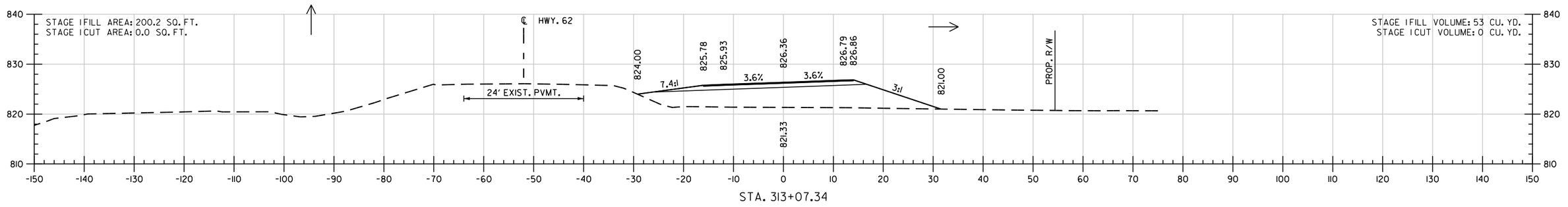
		CROSS SECTIONS				



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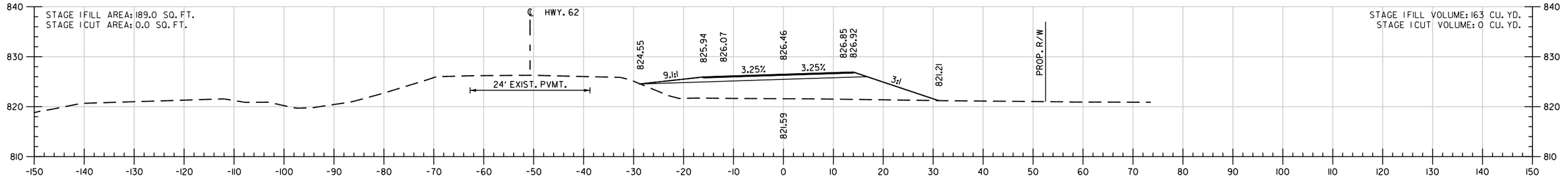

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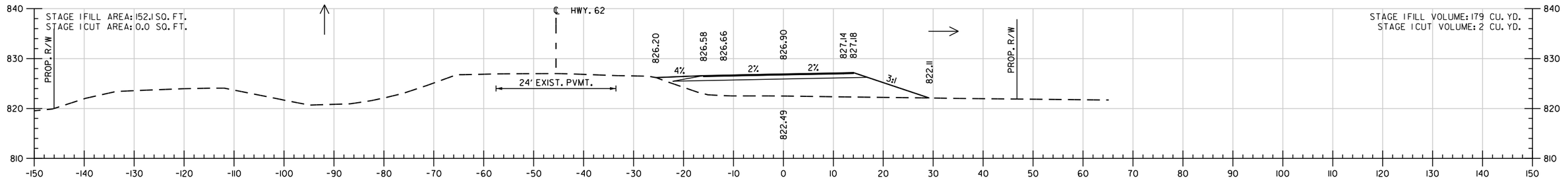

STA. 312+74.20

SITE I DETOUR
STA. 312+74.20 TO STA. 313+07.34

3/28/2024
8:28:02 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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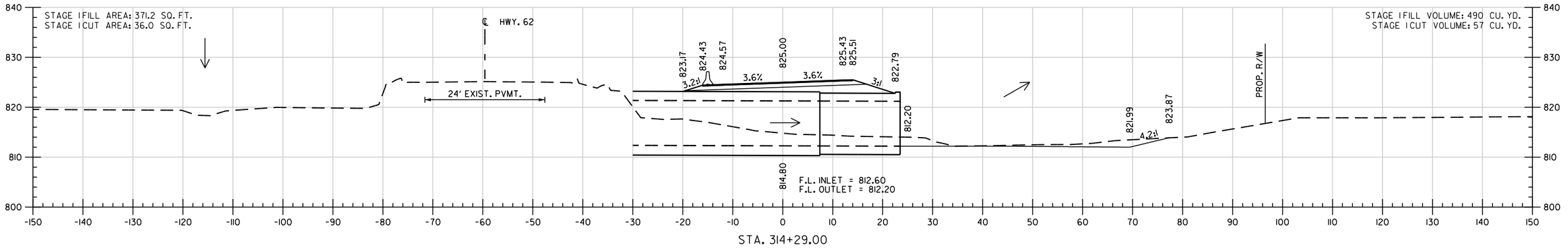

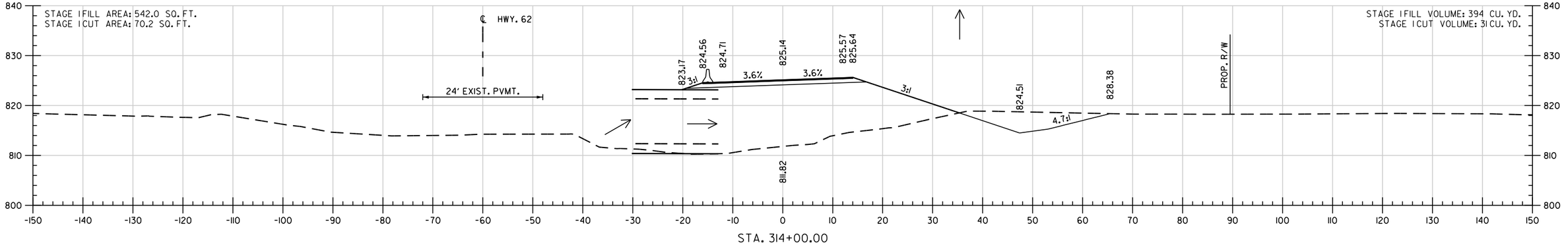

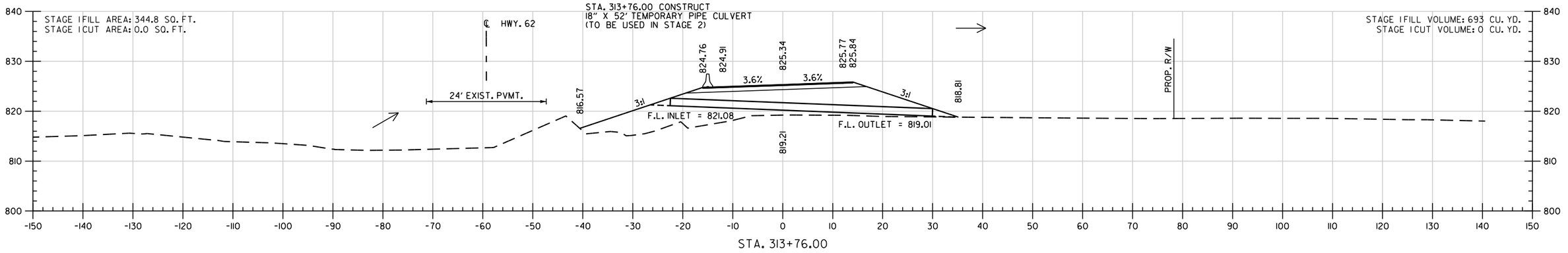

SITE 1 DETOUR
STA. 313+76.00 TO STA. 314+29.00

3/29/2024
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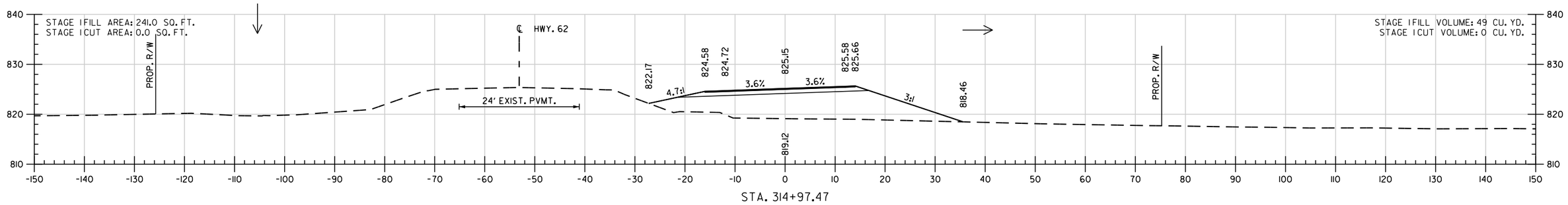
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	94	124
		CROSS SECTIONS				



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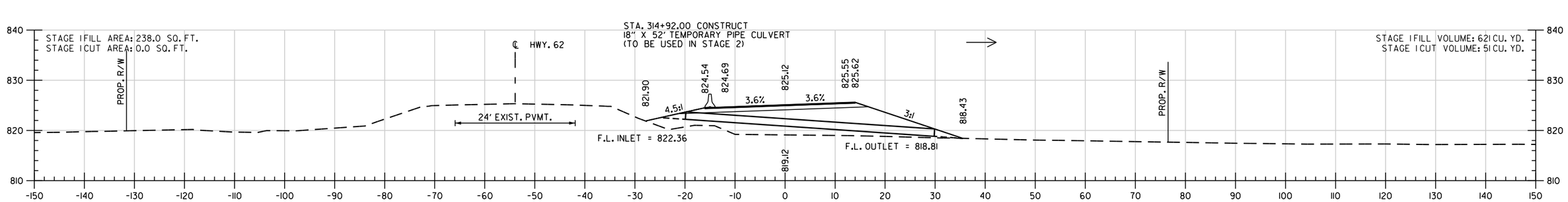
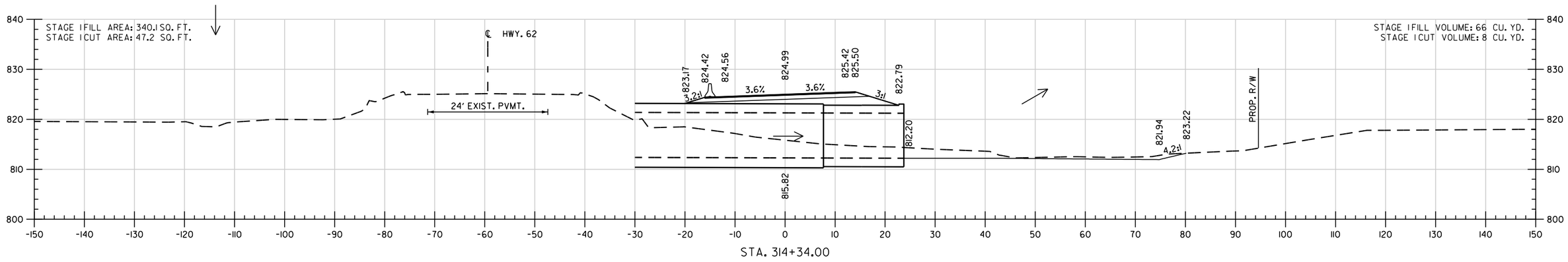


STA. 314+92.00

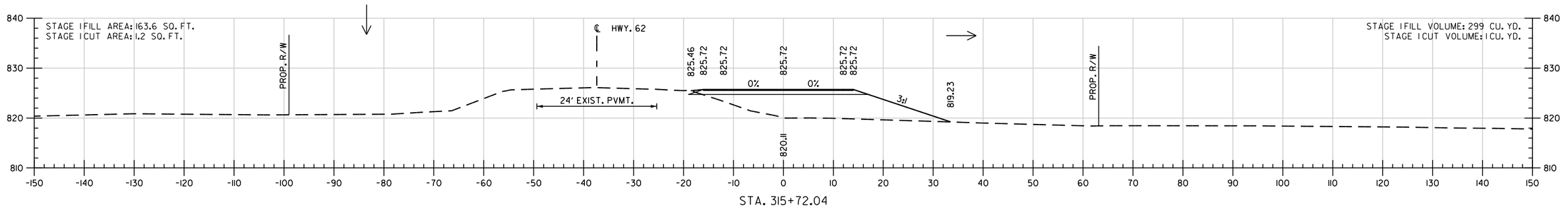


STA. 314+34.00

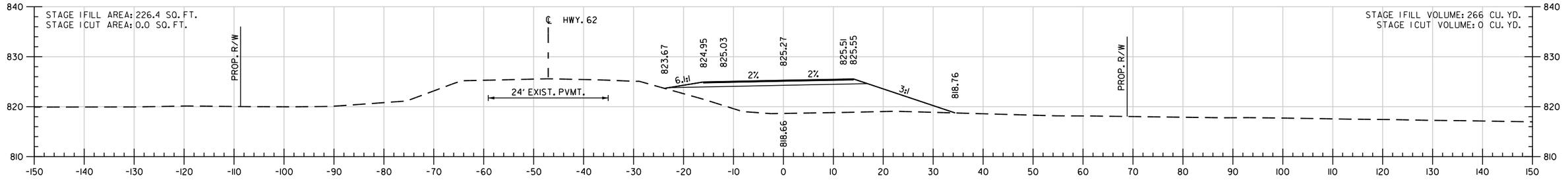
SITE I DETOUR
STA. 314+34.00 TO STA. 314+97.47

3/29/2024
8:28:05 AM
...\Road Sheets\CX\r050422_CX_SI

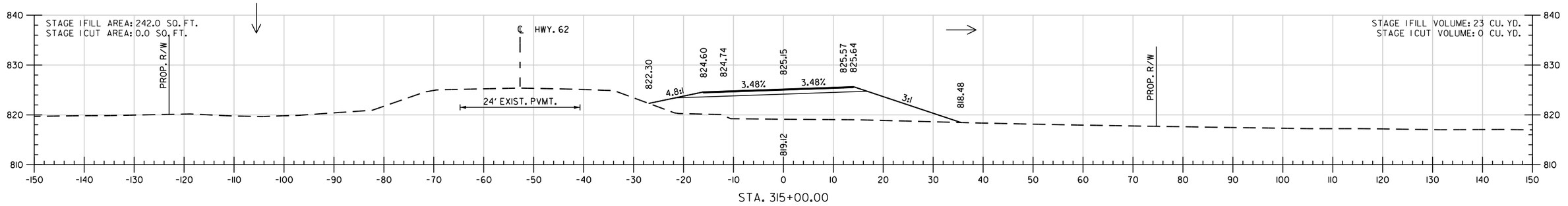
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	95	124
		CROSS SECTIONS				



STA. 315+72.04



STA. 315+30.61



STA. 315+00.00

SITE 1 DETOUR
STA. 315+00.00 TO STA. 315+72.04

3/28/2024
8:28:03 AM
...\Road\Sheets\CX\r050422_CX_SI

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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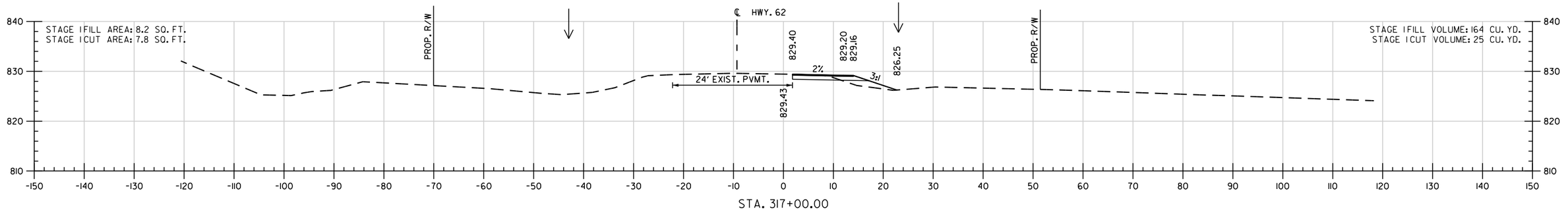
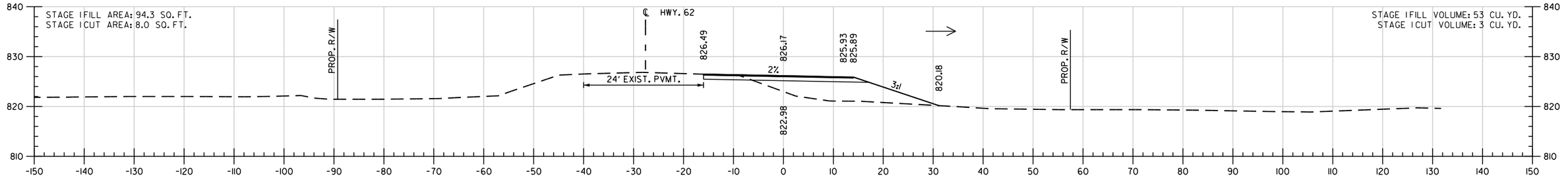
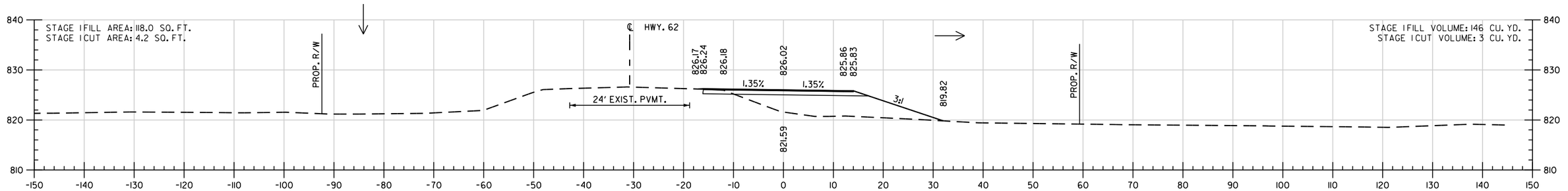
		CROSS SECTIONS				



STA. 317+00.00



STA. 316+13.47

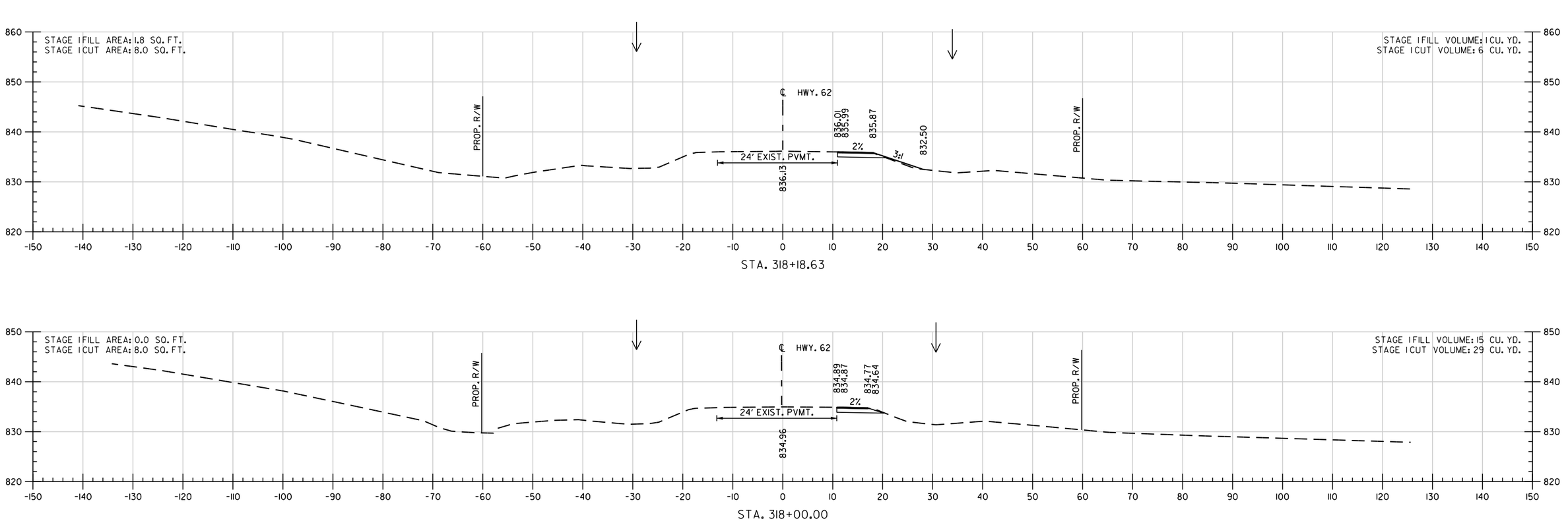


STA. 316+00.00

SITE I DETOUR
STA. 316+00.00 TO STA. 317+00.00

3/28/2024
8:28:03 AM
...\Road\Sheets\CX\r050422_CX_SI

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	97	124
		CROSS SECTIONS				



SITE 1 DETOUR
STA. 318+00.00 TO STA. 318+18.63

3/29/2024
8:28:03 AM
...\Road Sheets\CX\r050422_CX.SI

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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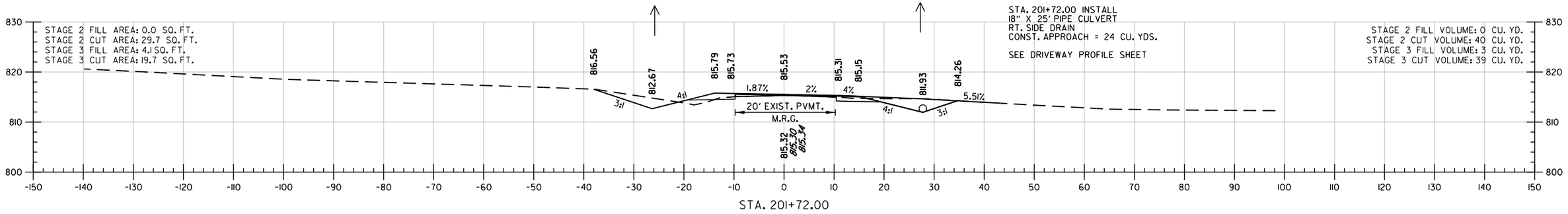
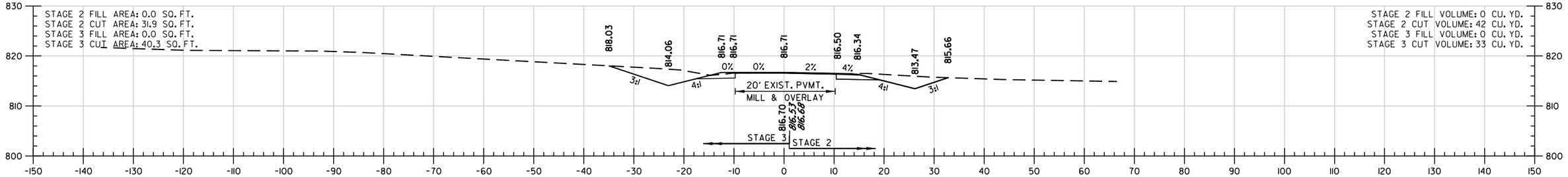
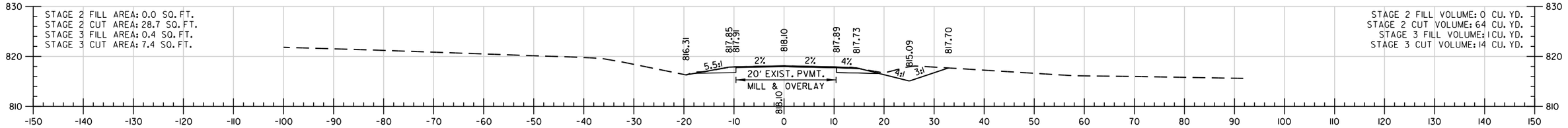
		CROSS SECTIONS				



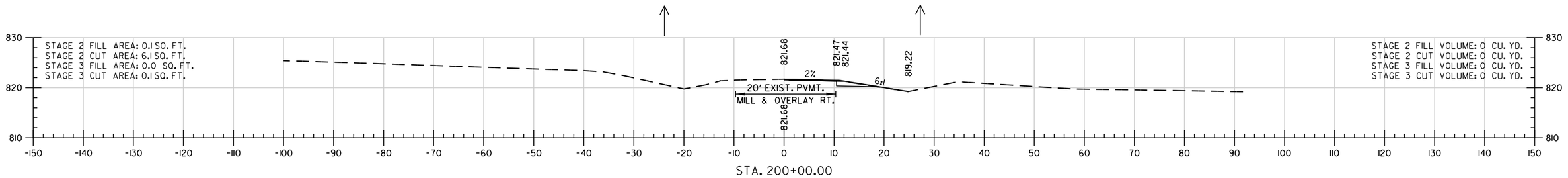
STA. 201+72.00



STA. 201+37.24



STA. 201+00.00

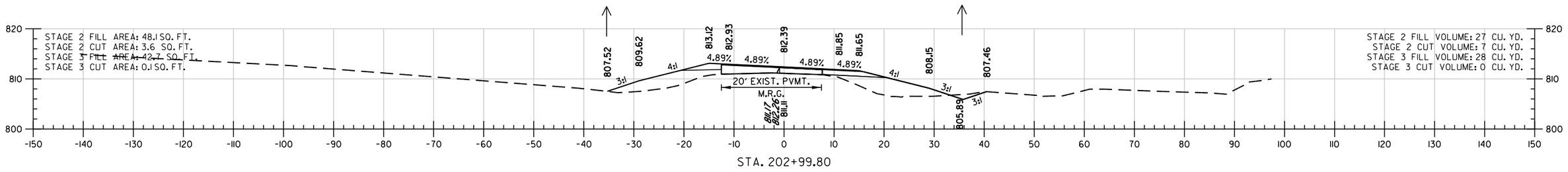


STA. 200+00.00

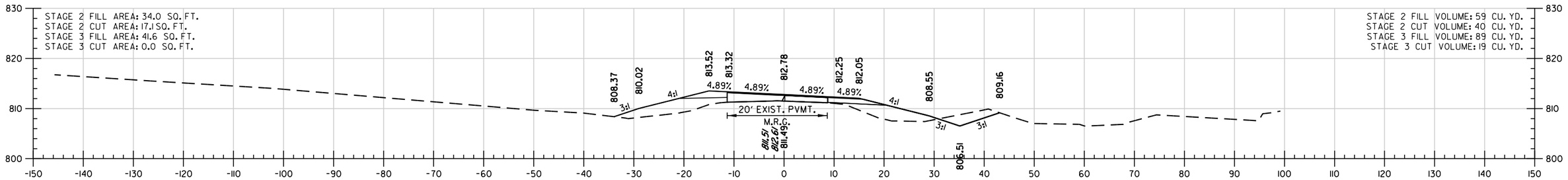
SITE 2 - HWY. 223
STA. 201+00.00 TO STA. 201+72.00

3/29/2024
8:28:11 AM
...\CX\050422_CX_S2.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	99	124
		CROSS SECTIONS				



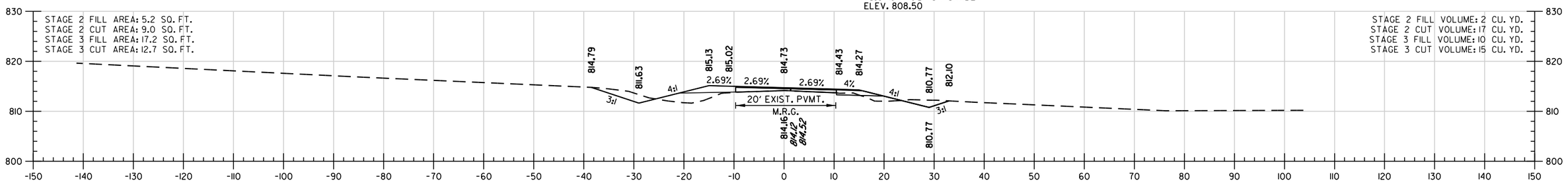
STA. 202+99.80



STA. 202+82.07

STA. 202+25 BEGIN
-3.50% RT. DITCH GRADE
ELEV. 808.50

STA. 202+25 END
-9.07% RT. DITCH GRADE
ELEV. 808.50

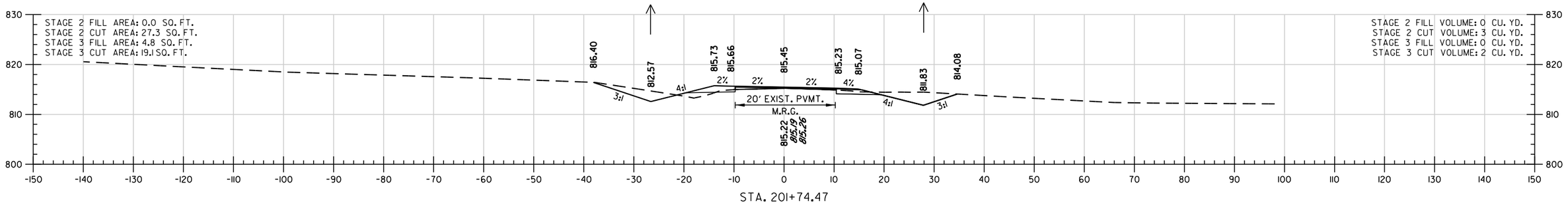


STA. 202+00.00

STAGE 3

STAGE 2

STA. 202+00 BEGIN
-9.07% RT. DITCH GRADE
ELEV. 810.77



STA. 201+74.47

SITE 2 - HWY. 223
STA. 201+74.47 TO STA. 202+99.80

3/29/2024
8:28:21 AM
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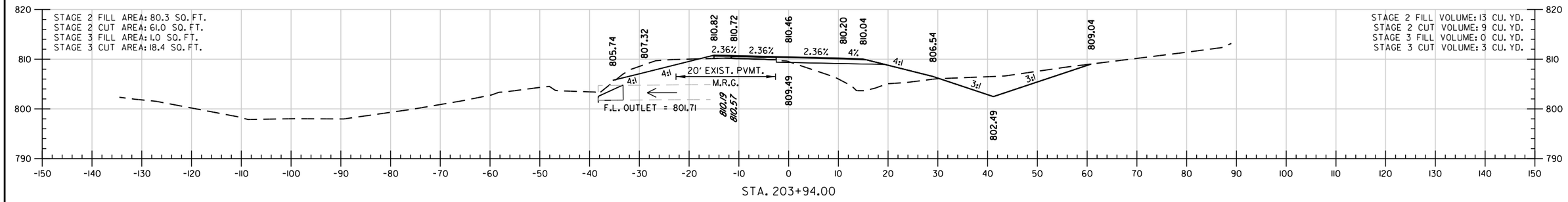
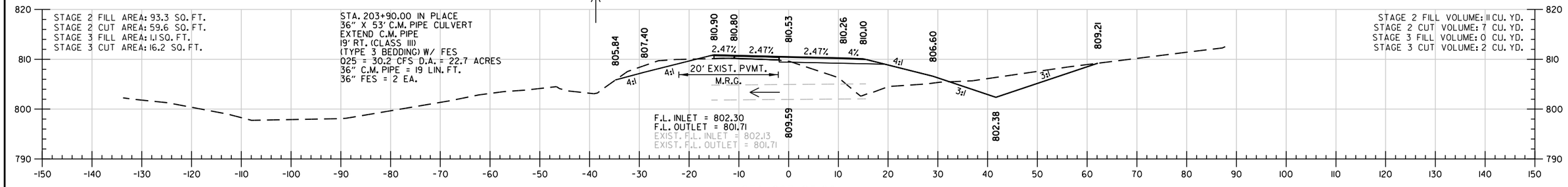
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	100	124
		CROSS SECTIONS				

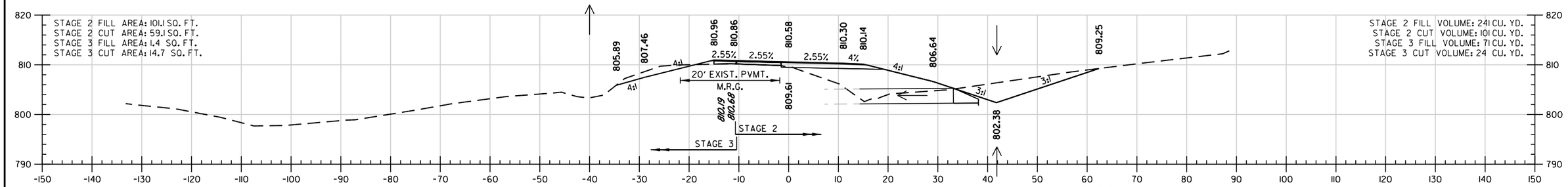


STA. 203+94.00



STA. 203+90.00

STA. 203+87 BEGIN
2.70% RT. DITCH GRADE
ELEV. 802.30

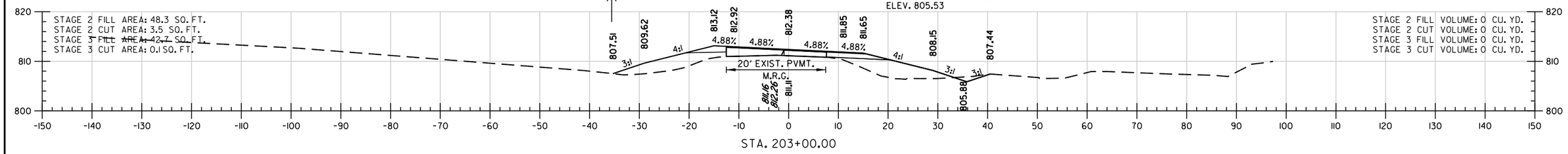


STA. 203+87.00

STA. 203+87 END
-4.20% RT. DITCH GRADE
ELEV. 802.30

STA. 203+10 BEGIN
-4.20% RT. DITCH GRADE
ELEV. 805.53

STA. 203+10 END
-3.50% RT. DITCH GRADE
ELEV. 805.53



STA. 203+00.00

SITE 2 - HWY. 223
STA. 203+00.00 TO STA. 203+94.00

3/29/2024
8:28:12 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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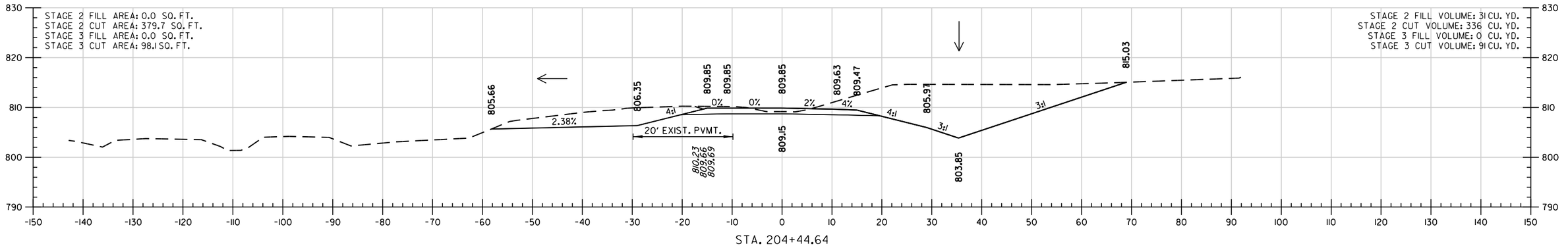
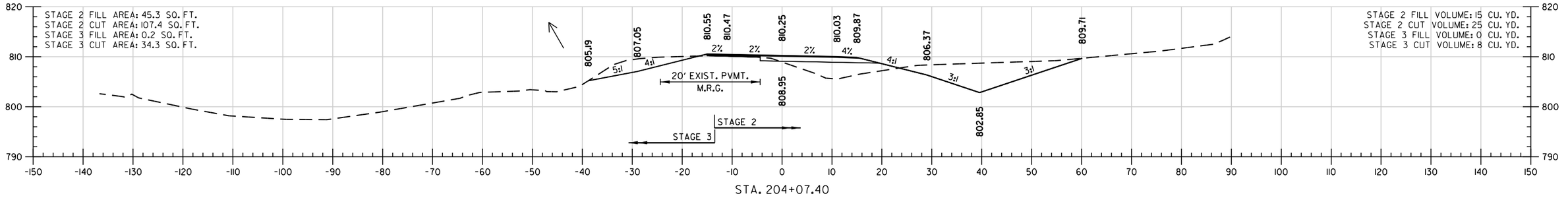
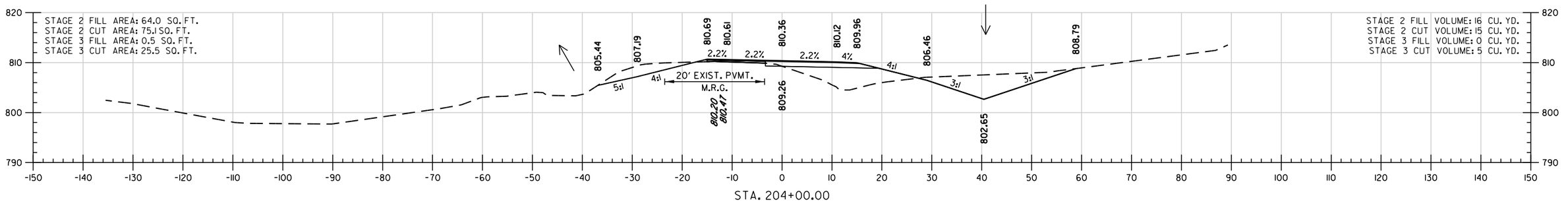
		CROSS SECTIONS				







SITE 2 - HWY. 223
STA. 204+00.00 TO STA. 204+44.64

3/29/2024
8:28:21 AM
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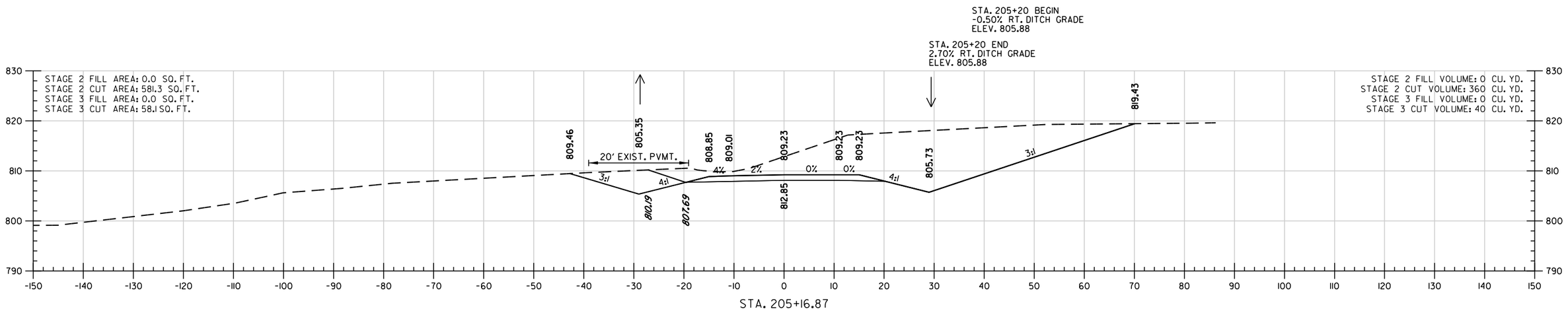
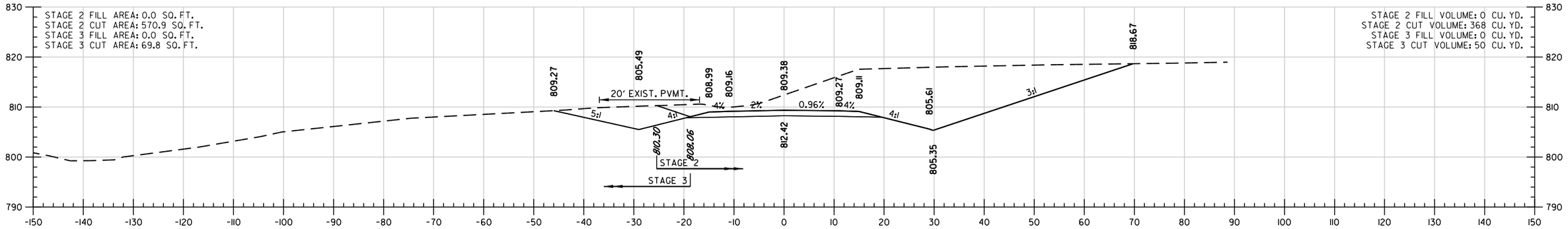
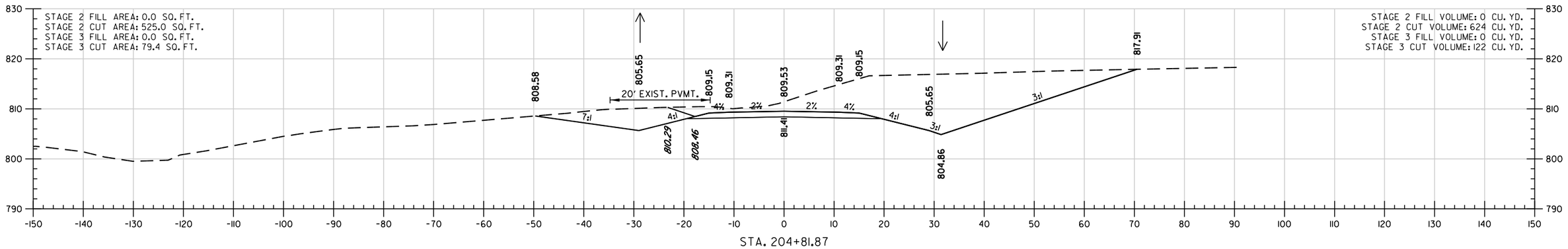
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	102	124
		CROSS SECTIONS				



STA. 205+16.87



STA. 205+00.00



STA. 204+81.87

SITE 2 - HWY. 223
STA. 204+81.87 TO STA. 205+16.87

3/29/2024
8:28:12 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	103	124
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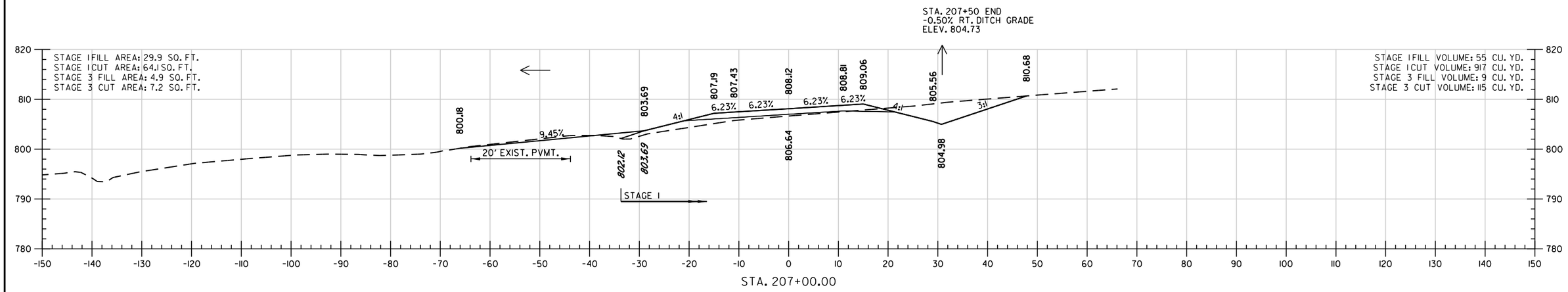

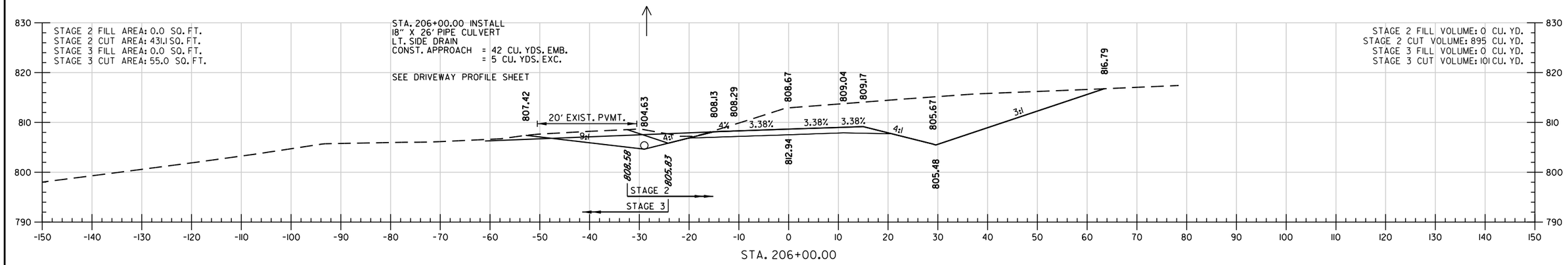

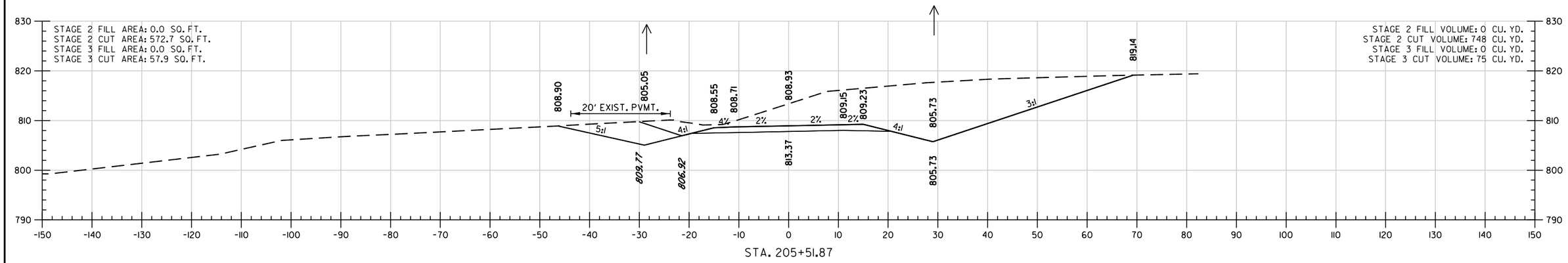

SITE 2 - HWY. 223
STA. 205+51.87 TO STA. 207+00.00

3/29/2024
8:28:12 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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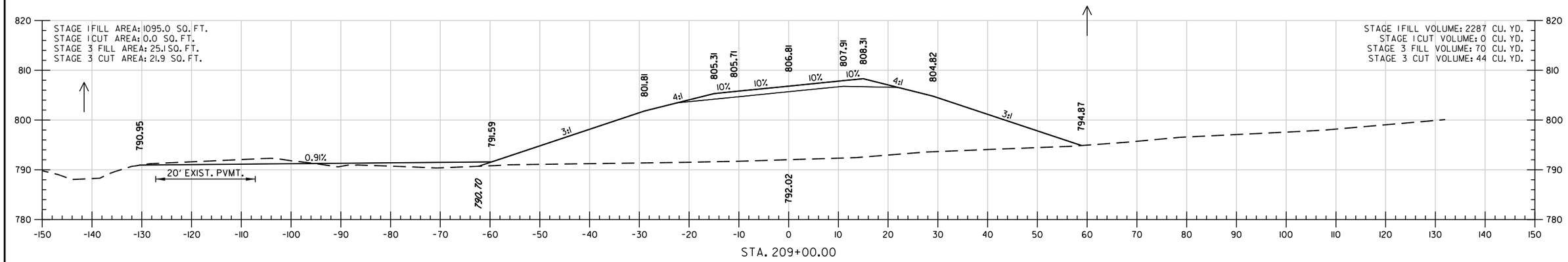
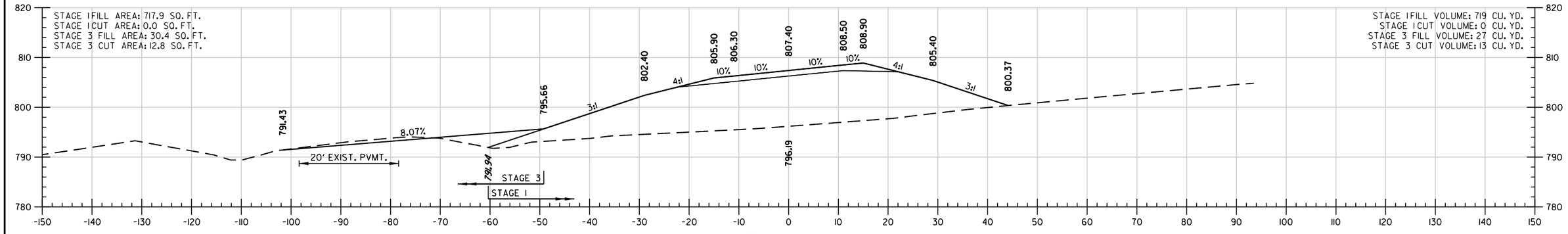
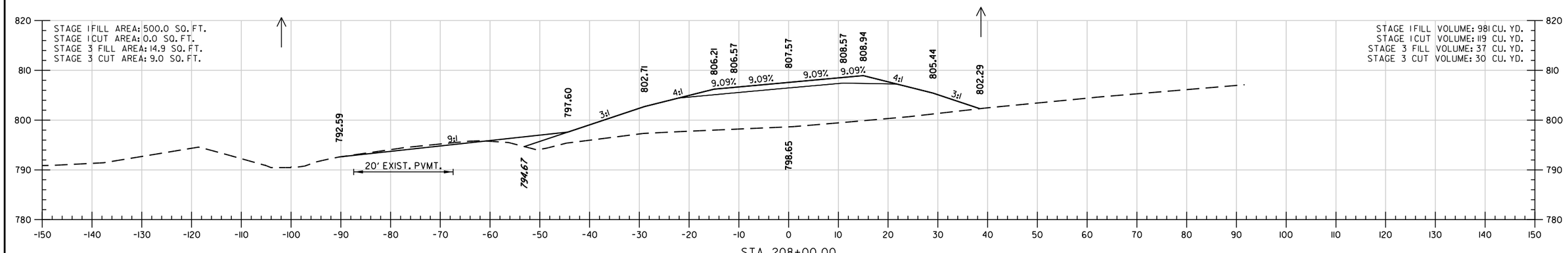
		CROSS SECTIONS				



STA. 209+00.00



STA. 208+31.87



STA. 208+00.00

SITE 2 - HWY. 223
STA. 208+00.00 TO STA. 209+00.00

3/29/2024
8:29:13 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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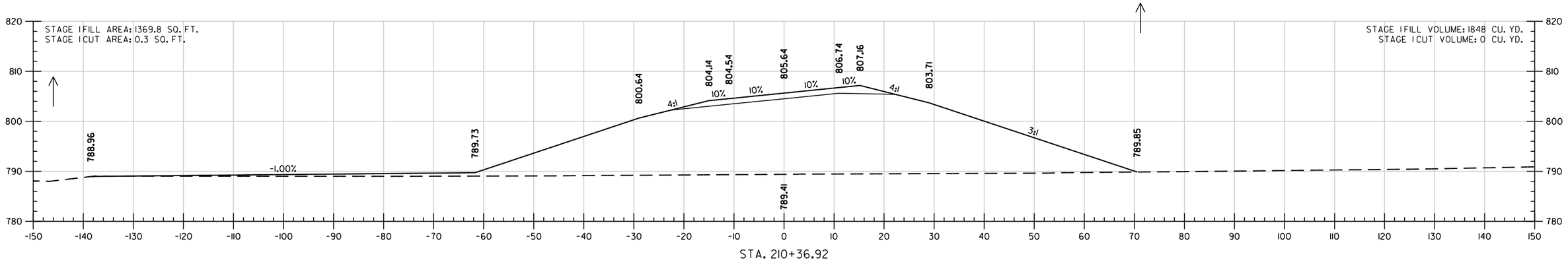
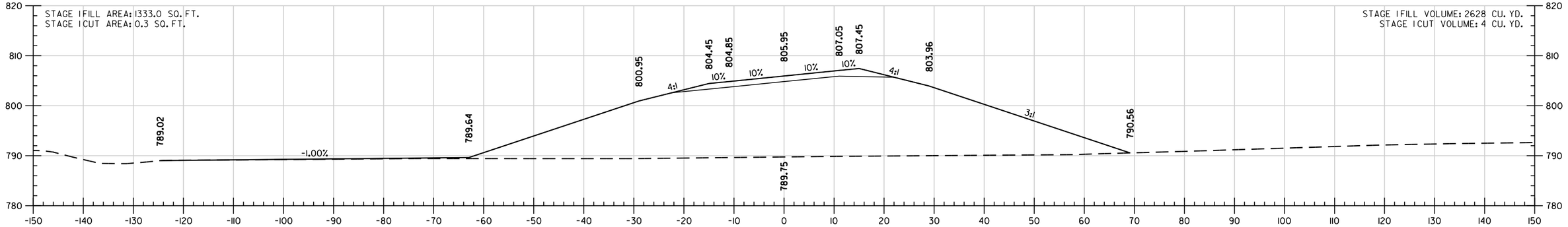


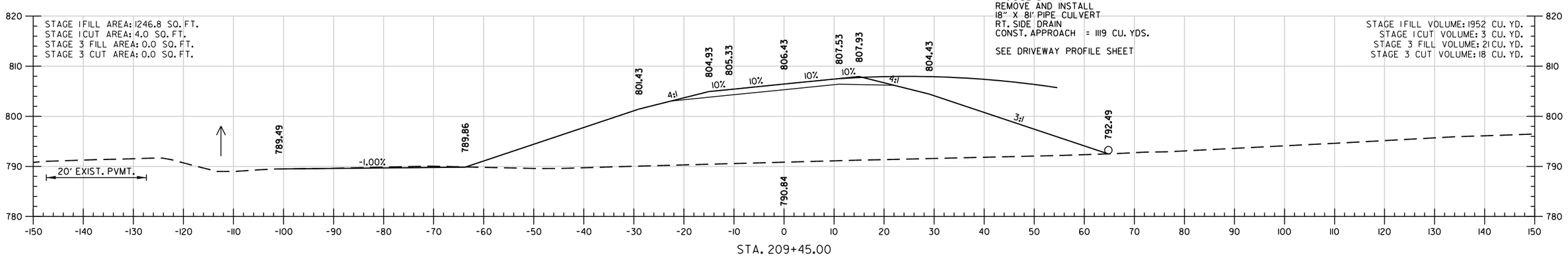
STA. 210+36.92



STA. 210+00.00

STA. 209+45.00 IN PLACE
18" X 18' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 81' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 1119 CU. YDS.

SEE DRIVEWAY PROFILE SHEET



STA. 209+45.00

SITE 2 - HWY. 223
STA. 209+45.00 TO STA. 210+36.92

3/29/2024
8:28:15 AM
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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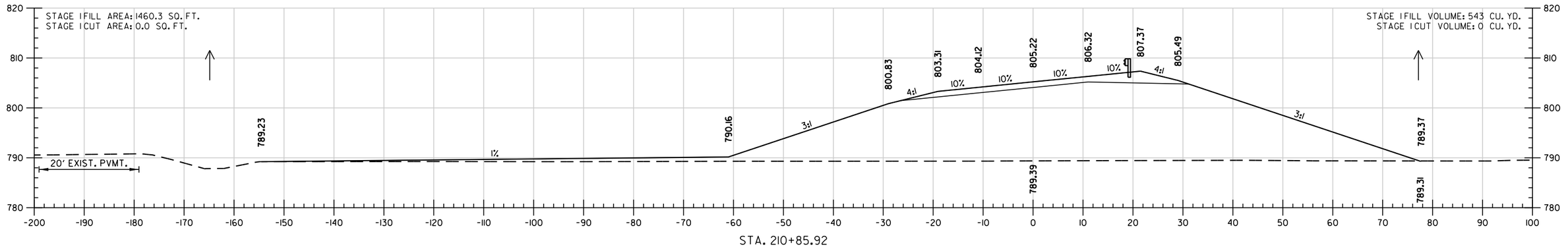
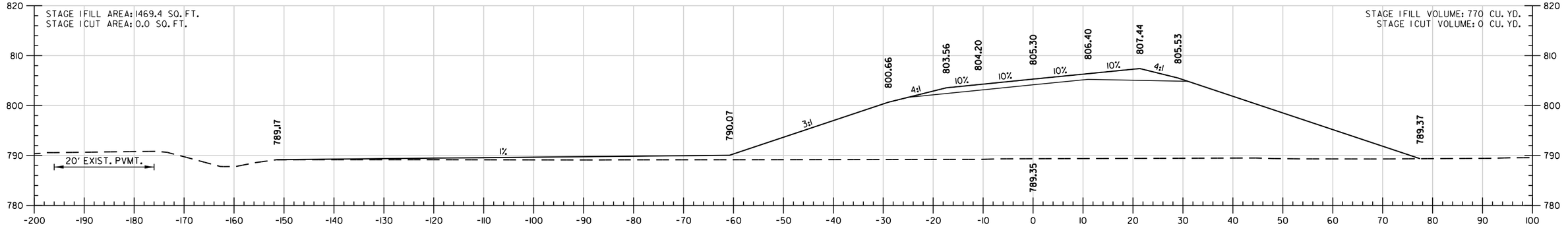
		CROSS SECTIONS				

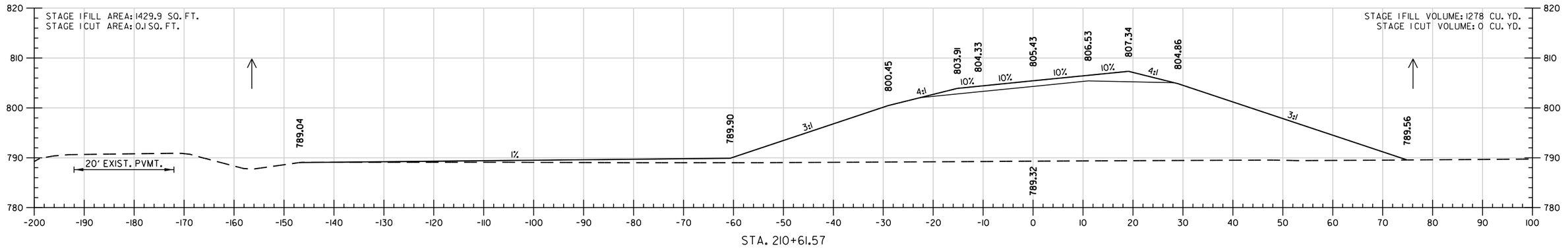


STA. 210+85.92

STA. 210+80 BEGIN
-0.40% RT. DITCH GRADE
ELEV. 789.33



STA. 210+75.92



STA. 210+61.57

SITE 2 - HWY. 223
STA. 210+61.57 TO STA. 210+85.92

3/29/2024
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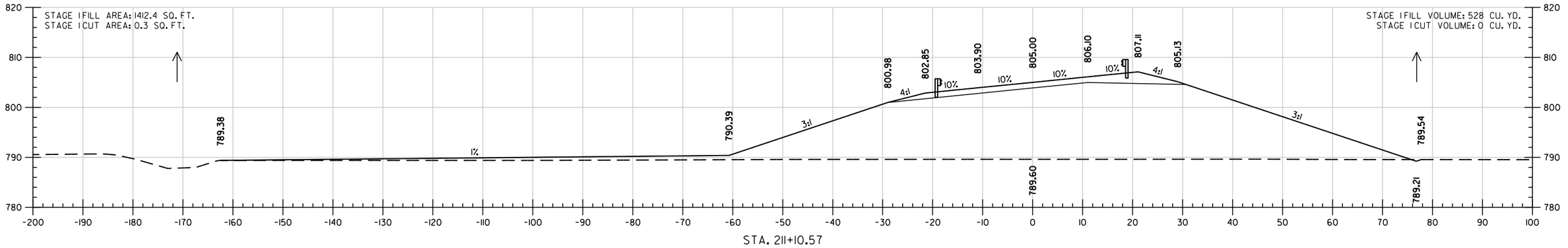
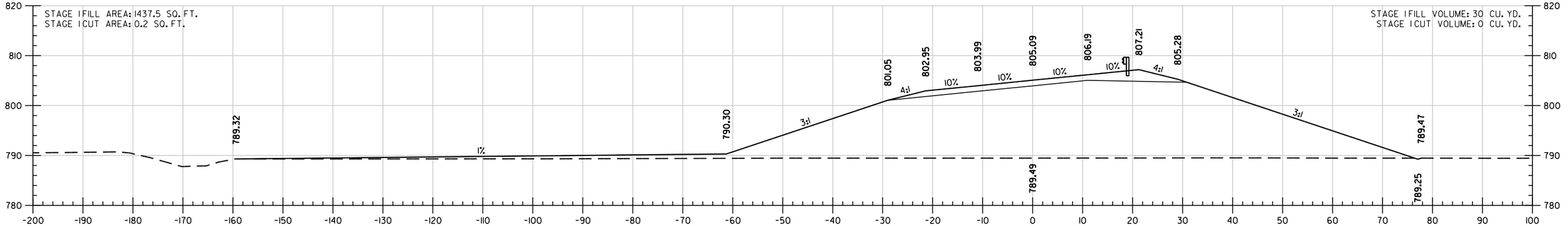
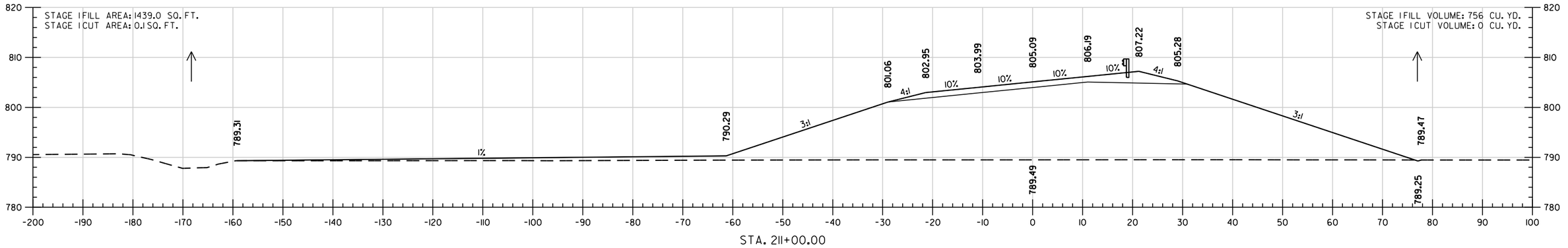
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	107	124
		CROSS SECTIONS				



STA. 211+10.57



STA. 211+00.57



STA. 211+00.00

SITE 2 - HWY. 223
STA. 211+00.00 TO STA. 211+10.57

3/29/2024
8:28:13 AM
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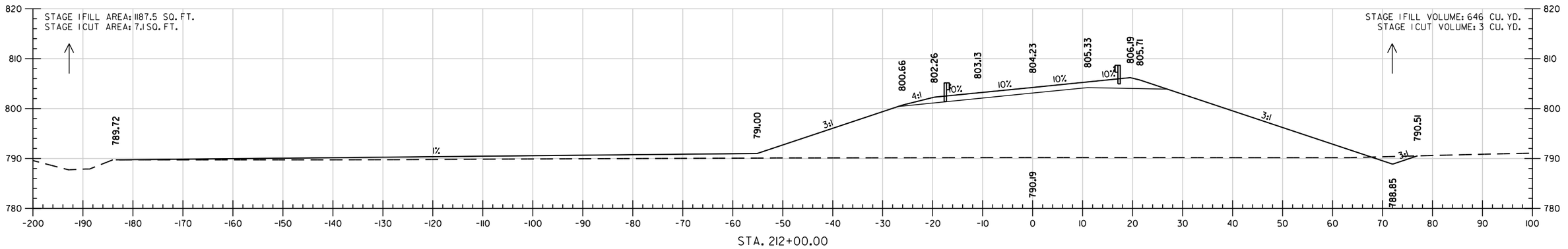
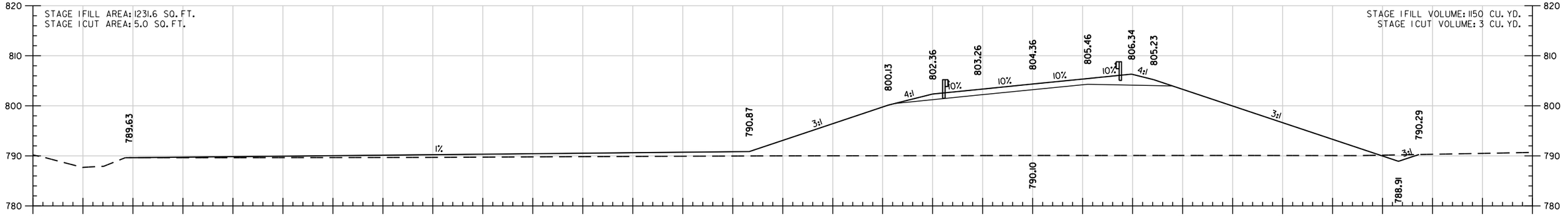
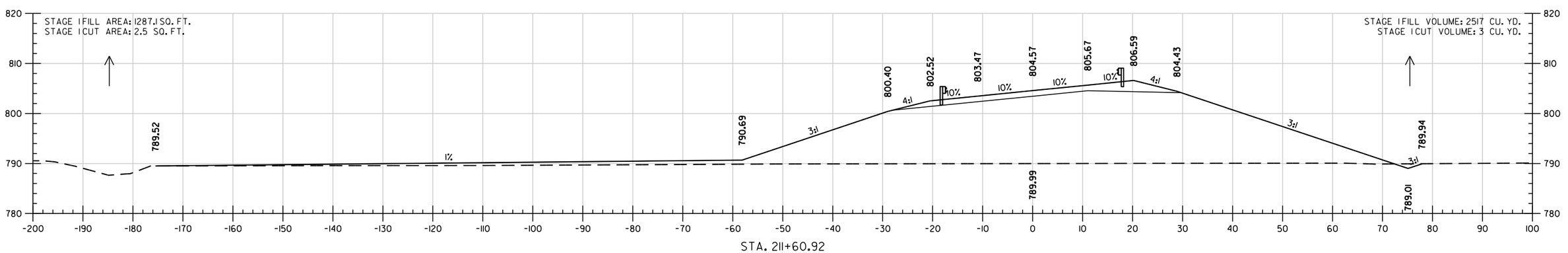
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	108	124
		CROSS SECTIONS				



STA. 212+00.00



STA. 211+85.57

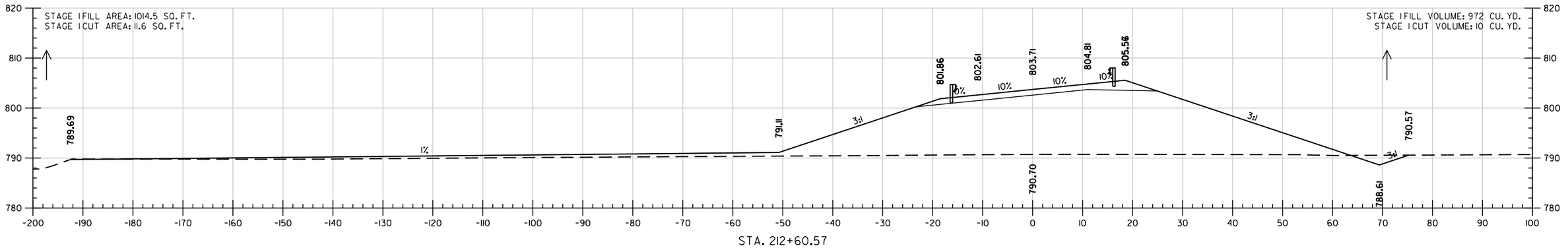


STA. 211+60.92

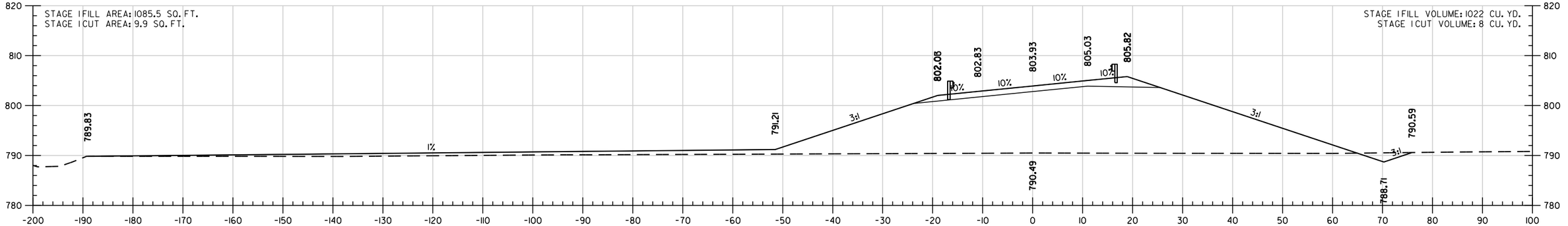
SITE 2 - HWY. 223
STA. 211+60.92 TO STA. 212+00.00

3/29/2024
3:29:13 PM
...CX\r050422_CX_S2.dgn

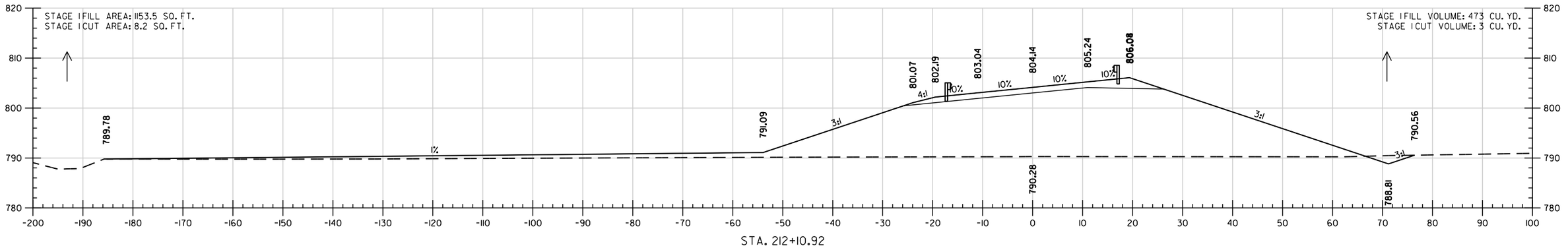
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	109	124
		CROSS SECTIONS				



STA. 212+60.57



STA. 212+35.57

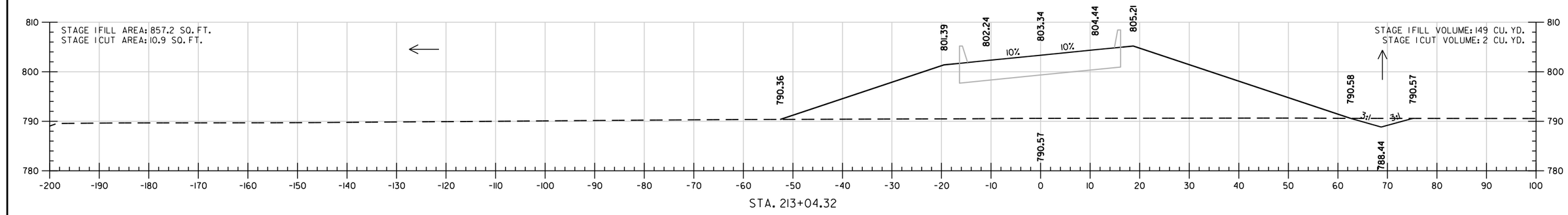


STA. 212+10.92

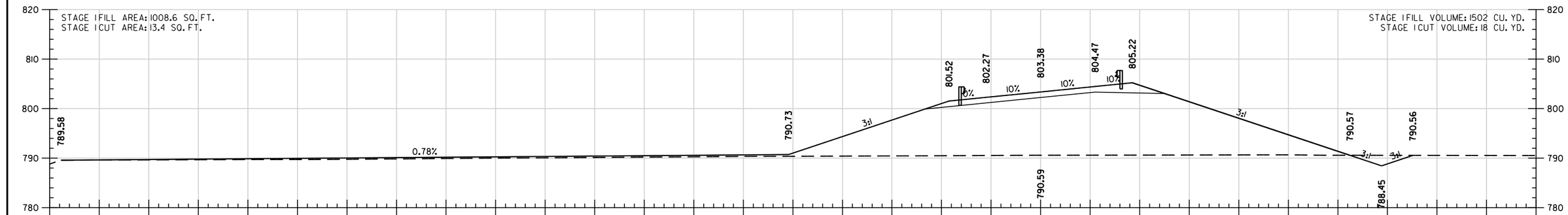
SITE 2 - HWY. 223
STA. 212+10.92 TO STA. 212+60.57

3/29/2024
8:28:47 AM
...\CX\r050422_CX_S2.dgn

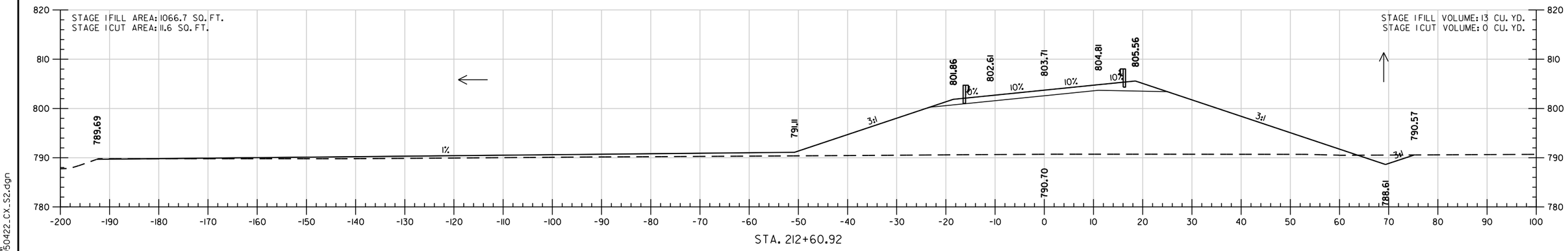
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	110	124
		CROSS SECTIONS				



STA. 213+04.32



STA. 213+00.00



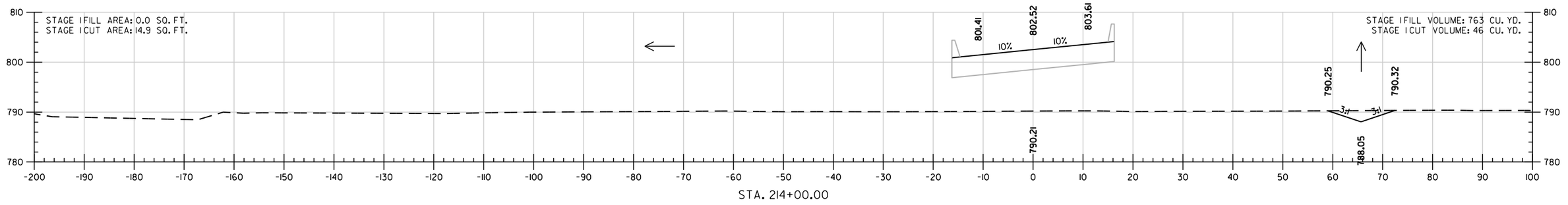
STA. 212+60.92

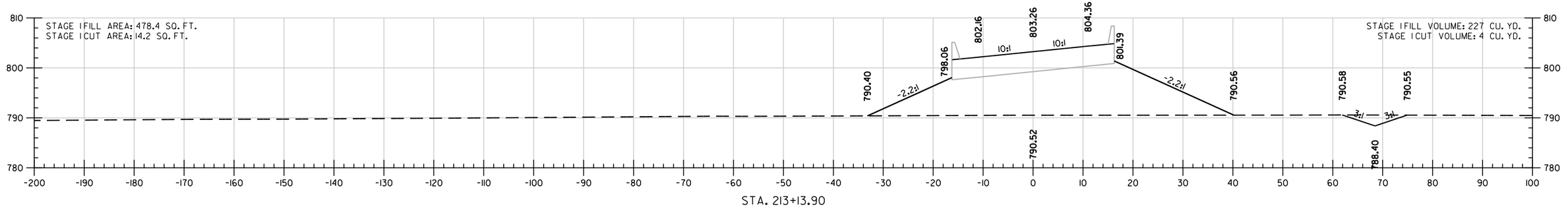
SITE 2 - HWY. 223
STA. 212+60.92 TO STA. 213+04.32

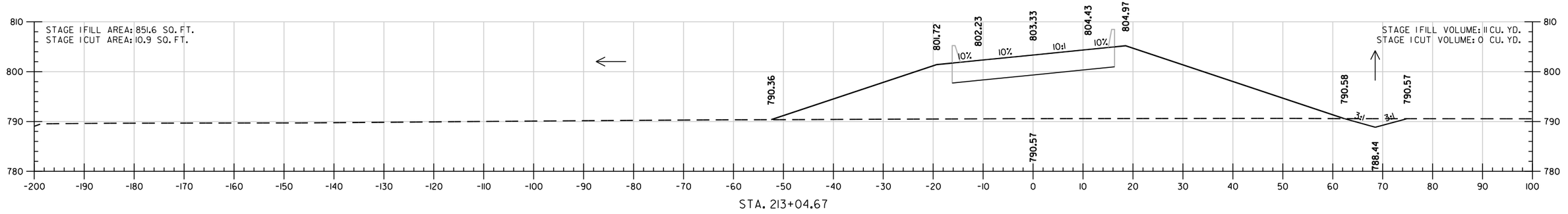
3/29/2024
8:28:14 AM
...\CX\r050422_CX_S2.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	III	124
		CROSS SECTIONS				

STA. 214+64 END
-0.40% RT. DITCH GRADE
ELEV. 787.80



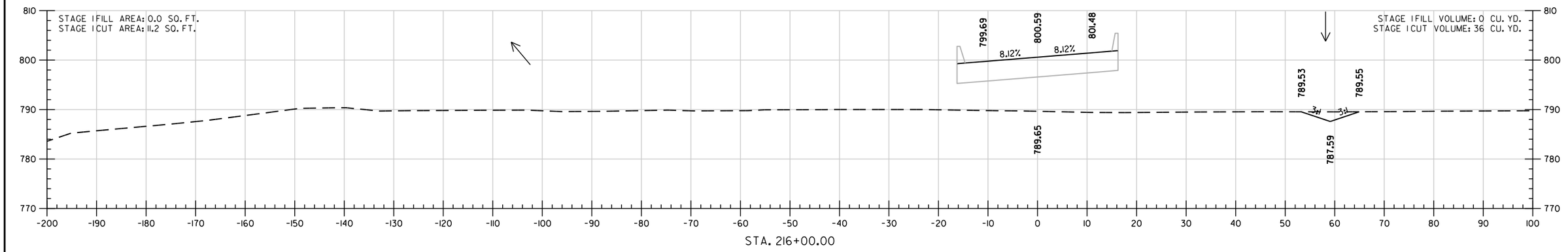




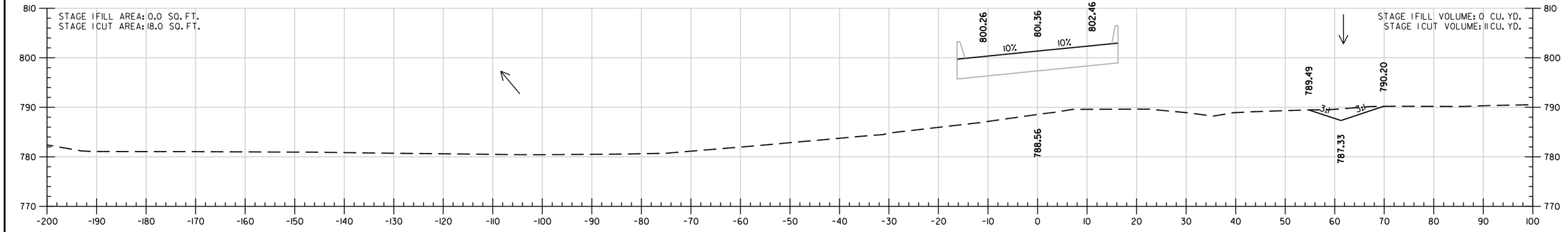
SITE 2 - HWY. 223
STA. 213+04.67 TO STA. 214+00.00

3/29/2024
8:28:14 AM
...\EXH\050422_CX_S2.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	112	124
		CROSS SECTIONS				

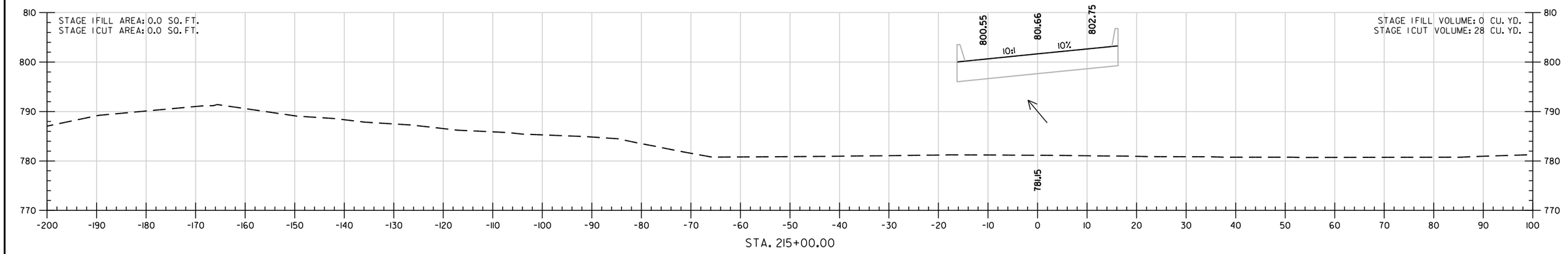


STA. 216+00.00



STA. 215+34.20

STA. 215+25 BEGIN
0.40% RT. DITCH GRADE
ELEV. 787.29

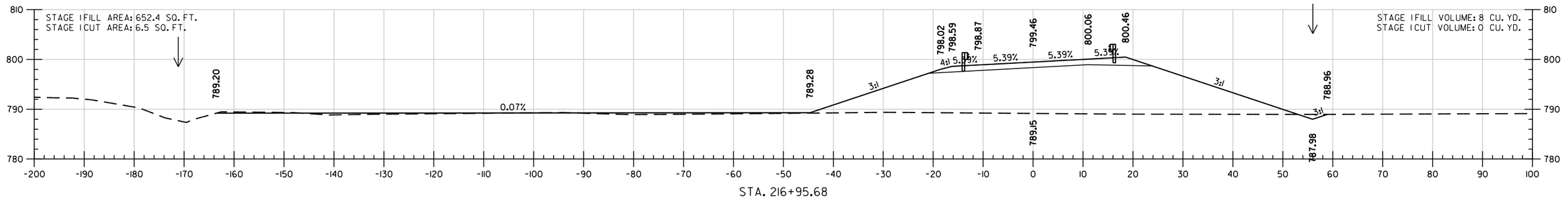


STA. 215+00.00

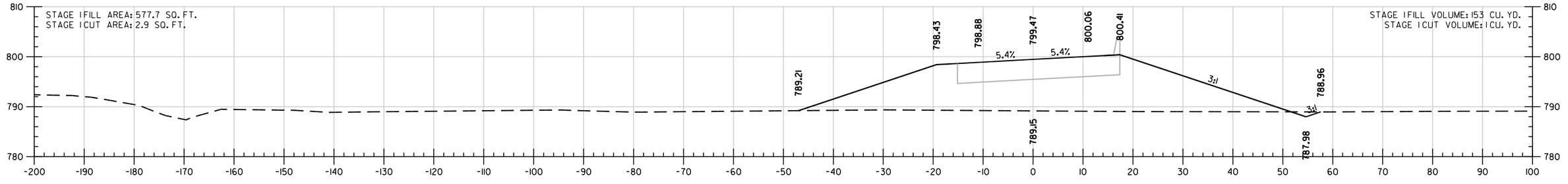
SITE 2 - HWY. 223
STA. 215+00.00 TO STA. 216+00.00

3/29/2024
8:28:14 AM
...CX\r050422_CX_S2.dgn

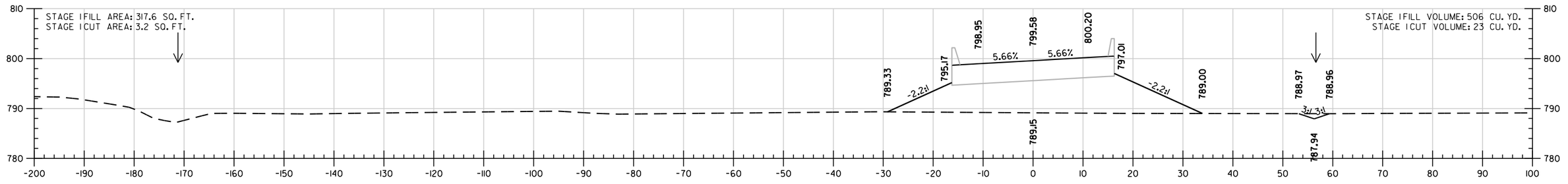
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	113	124
		CROSS SECTIONS				



STA. 216+95.68



STA. 216+95.33

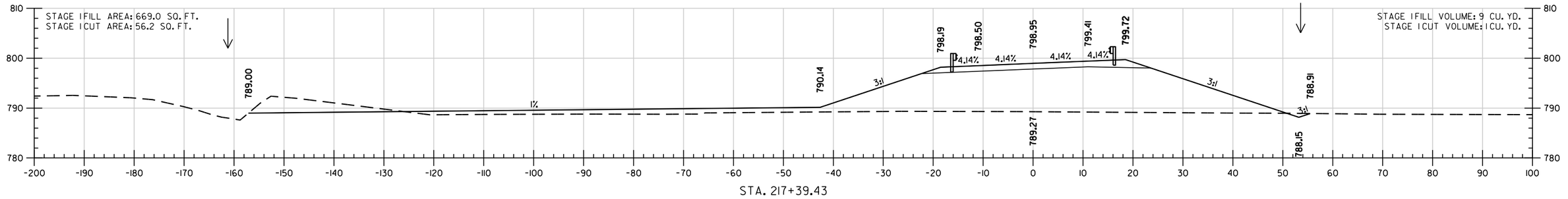


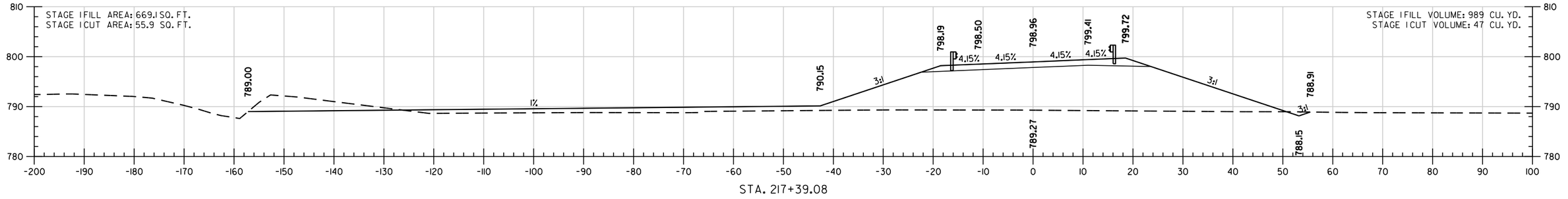
STA. 216+86.11

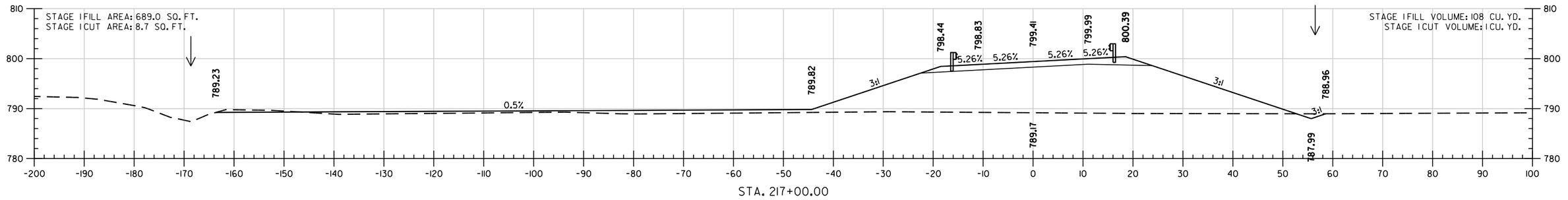
SITE 2 - HWY. 223
STA. 216+86.11 TO STA. 216+95.68

3/29/2024
8:28:44 AM
...\EXH\050422_CX_S2.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	114	124
		CROSS SECTIONS				



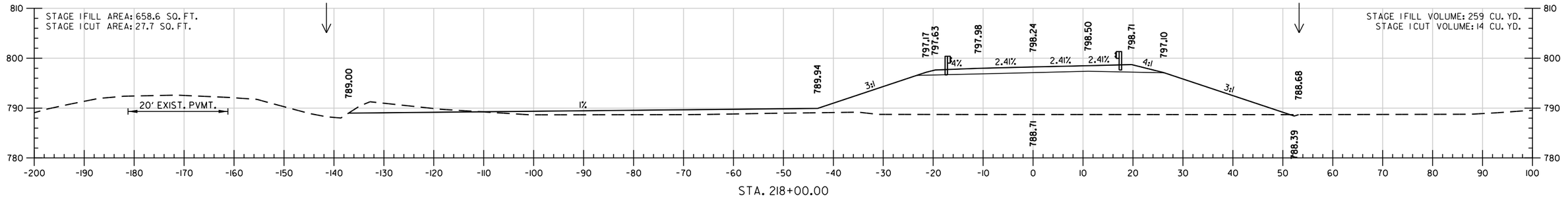




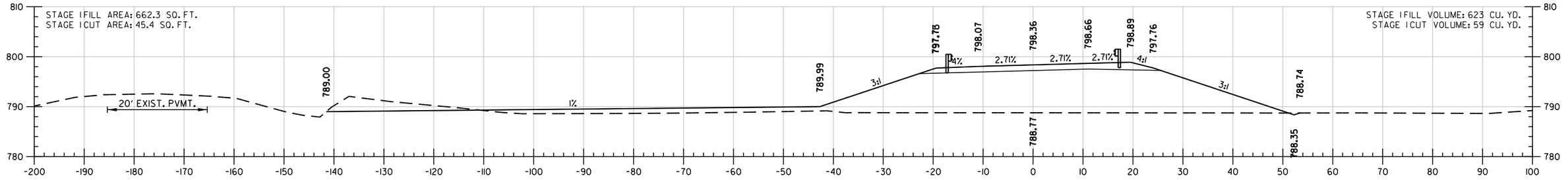
SITE 2 - HWY. 223
STA. 217+00.00 TO STA. 217+39.43

3/29/2024
8:28:45 AM
...\EXH\050422_CX_S2.dgn

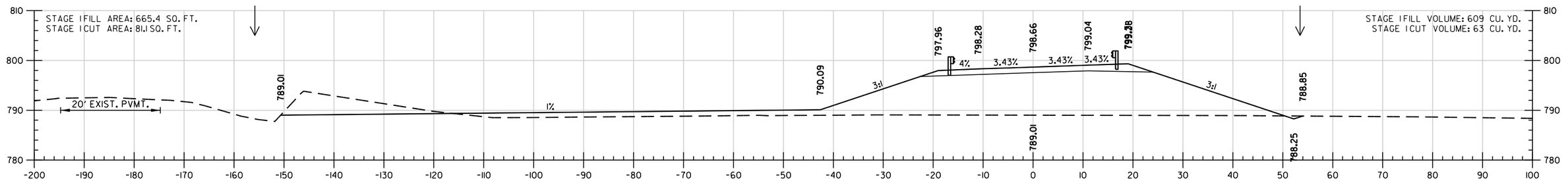
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	115	124
		CROSS SECTIONS				



STA. 218+00.00



STA. 217+89.43

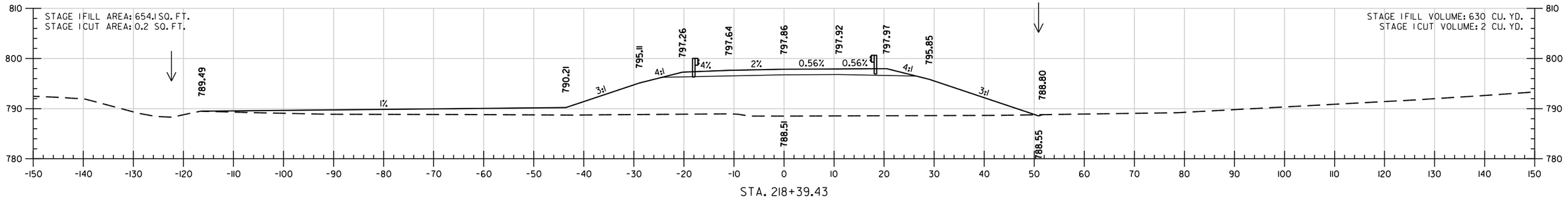


STA. 217+64.08

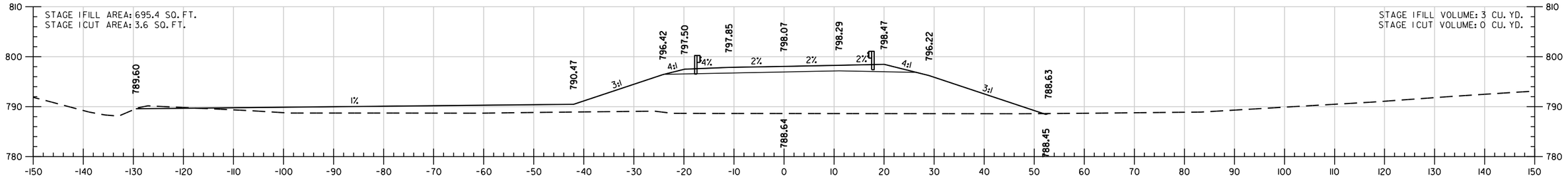
SITE 2 - HWY. 223
STA. 217+64.08 TO STA. 218+00.00

3/29/2024
8:28:15 AM
...\EXH\050422_CX_S2.dgn

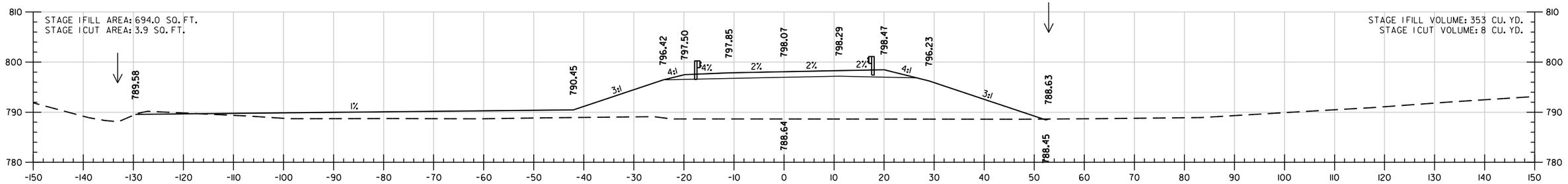
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	116	124
		CROSS SECTIONS				



STA. 218+39.43



STA. 218+14.20

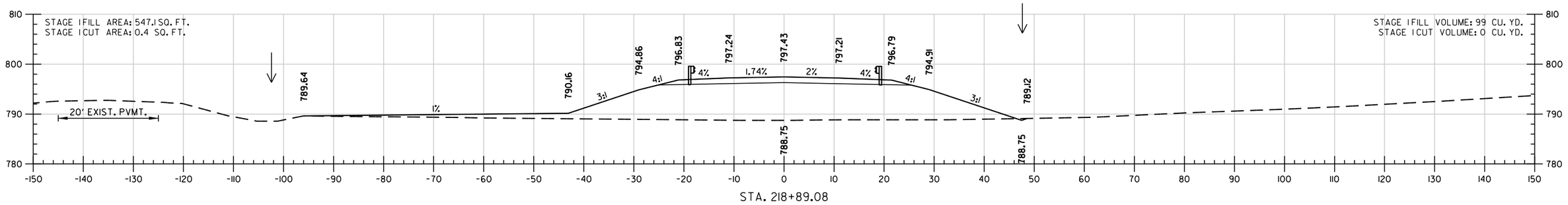


STA. 218+14.08

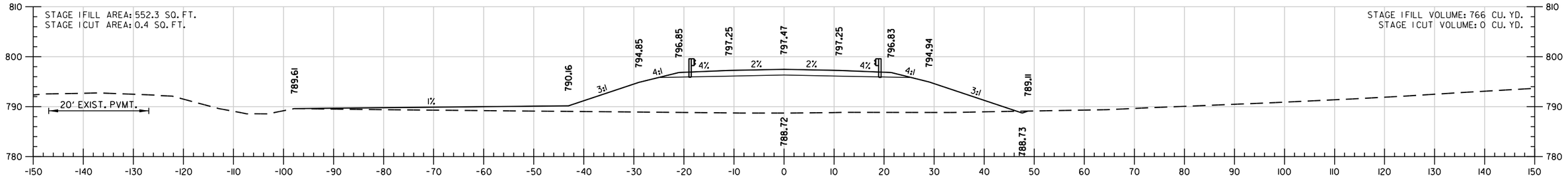
SITE 2 - HWY. 223
STA. 218+14.08 TO STA. 218+39.43

3/29/2024
8:28:15 AM
...\CX\r050422_CX_S2.dgn

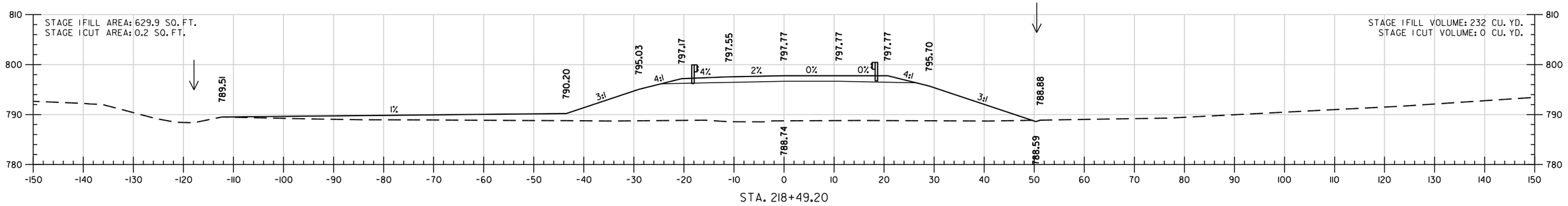
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	117	124
		CROSS SECTIONS				



STA. 218+89.08



STA. 218+84.20

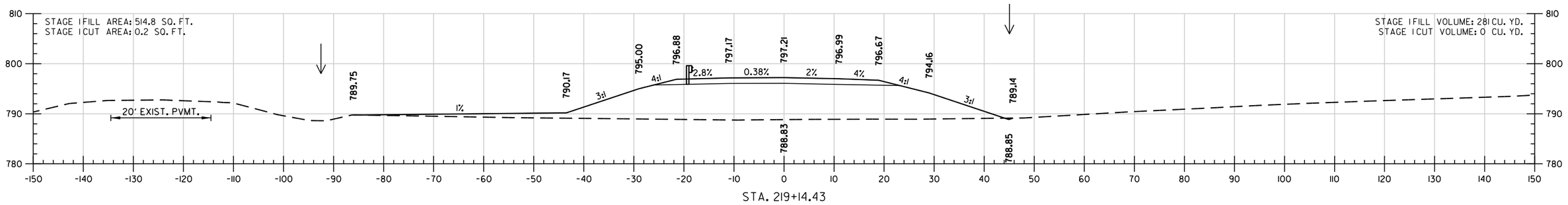


STA. 218+49.20

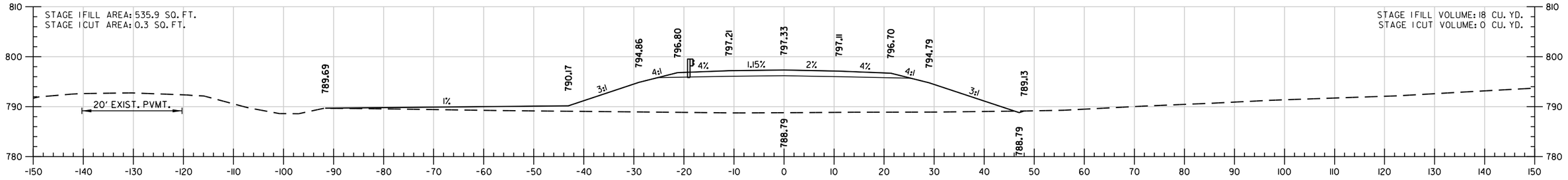
SITE 2 - HWY. 223
STA. 218+49.20 TO STA. 218+89.08

3/29/2024
8:28:15 AM
...\EXH\050422_CX_S2.dgn

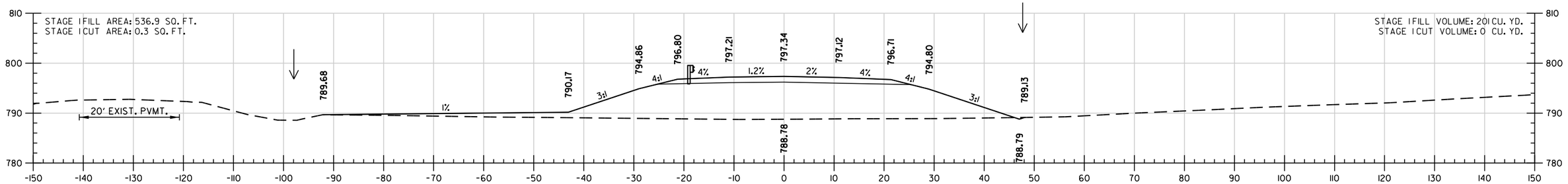
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	118	124
		CROSS SECTIONS				



STA. 219+14.43



STA. 219+00.00



STA. 218+99.08

SITE 2 - HWY. 223
STA. 218+99.08 TO STA. 219+14.43

3/29/2024
8:28:15 AM
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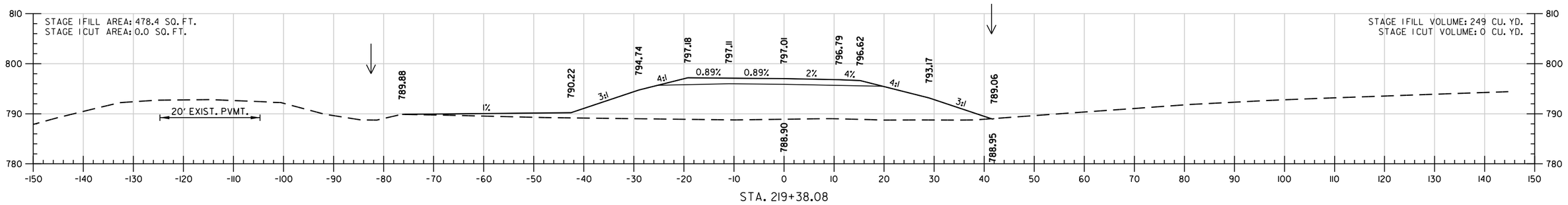
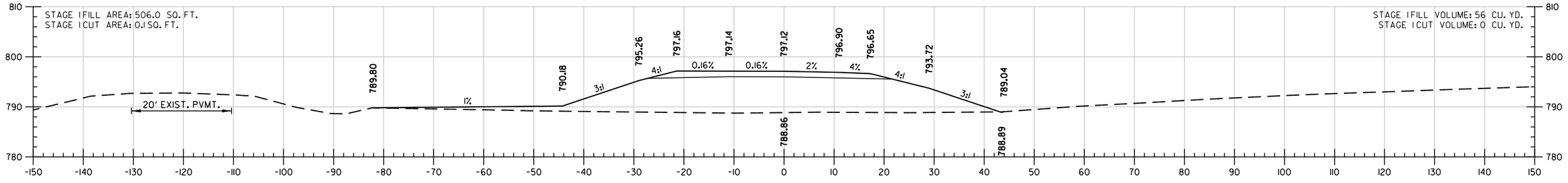
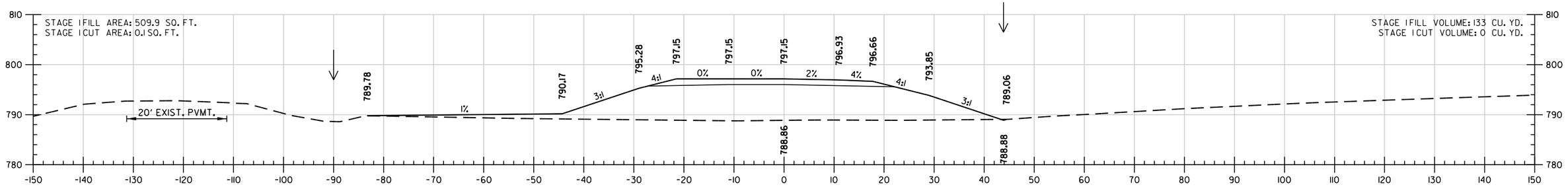
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	119	124
		CROSS SECTIONS				



STA. 219+38.08



STA. 219+24.43



STA. 219+21.44

SITE 2 - HWY. 223
STA. 219+21.44 TO STA. 219+38.08

3/29/2024
8:28:16 AM
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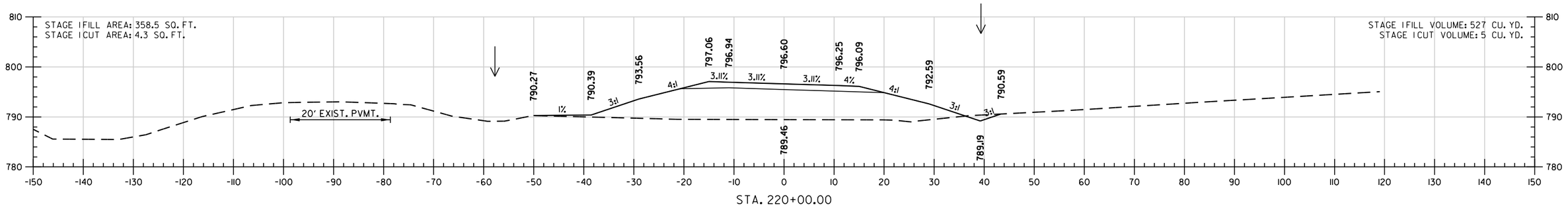
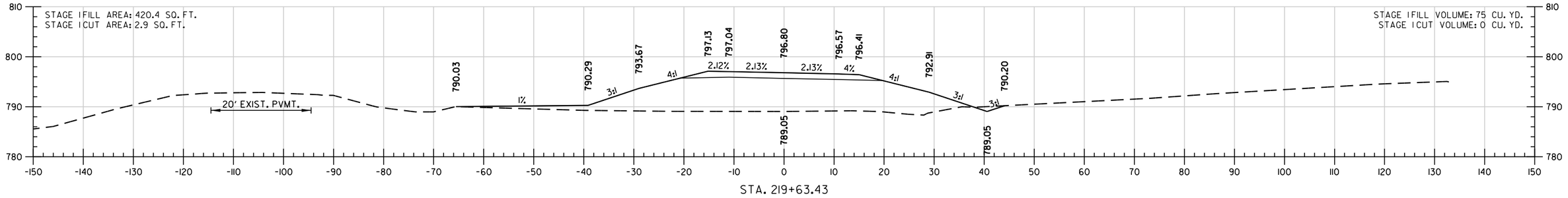
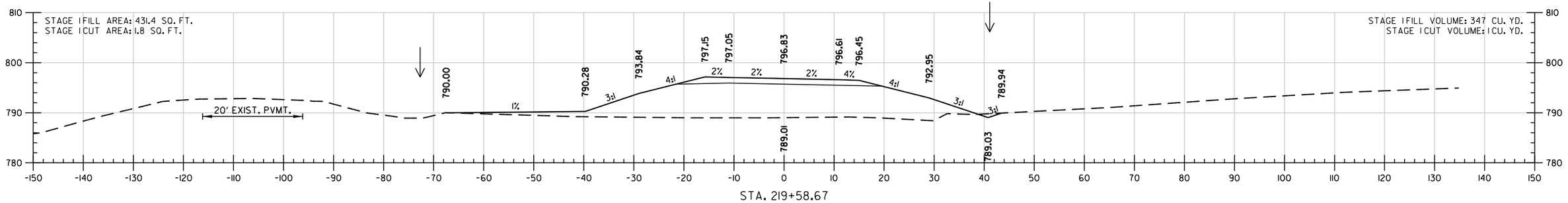
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	120	124
		CROSS SECTIONS				







SITE 2 - HWY. 223
STA. 219+58.67 TO STA. 220+00.00

3/29/2024
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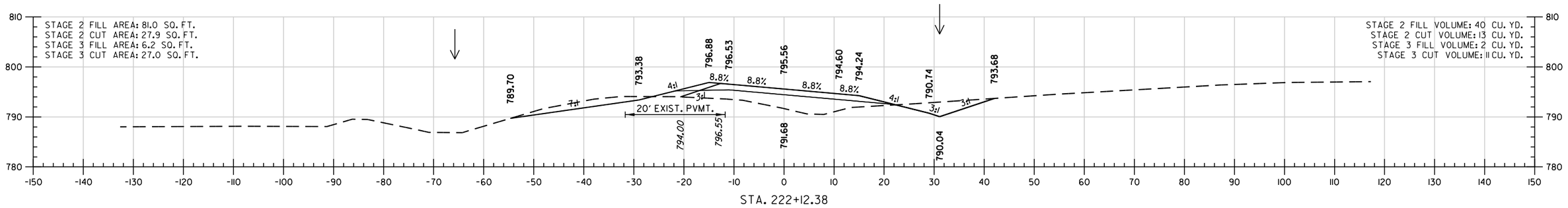
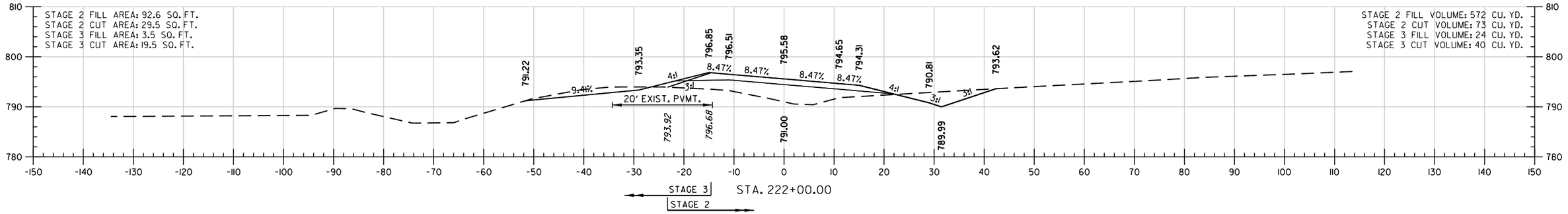
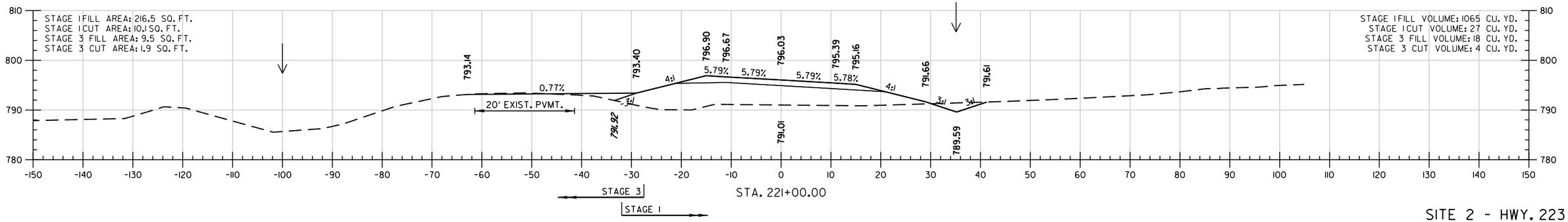
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	121	124
		CROSS SECTIONS				







SITE 2 - HWY. 223
STA. 221+00.00 TO STA. 222+12.38

3/29/2024
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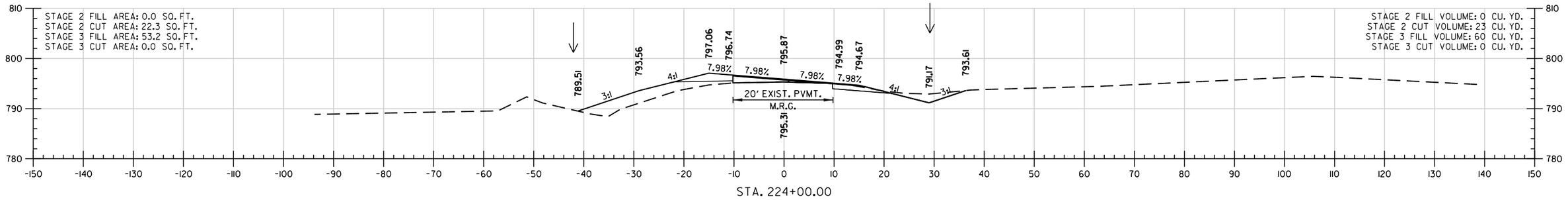
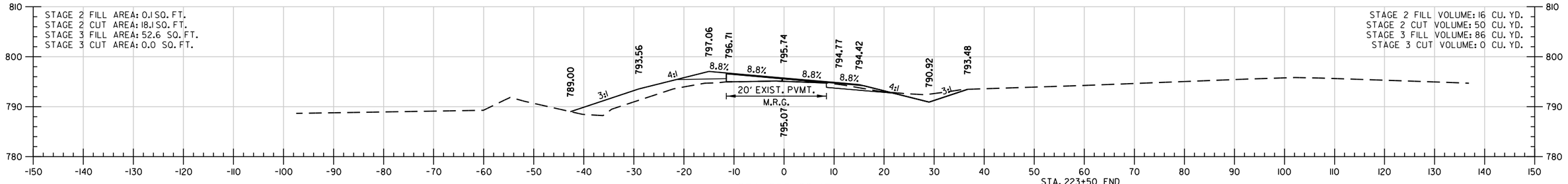
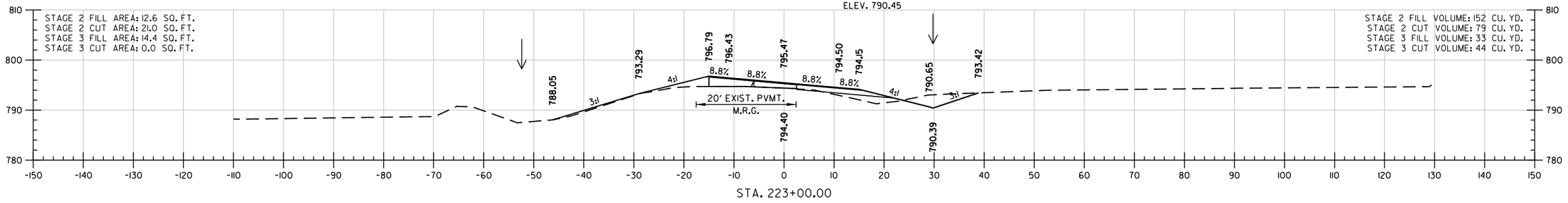
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	122	124
		CROSS SECTIONS				







SITE 2 - HWY. 223
STA. 223+00.00 TO STA. 224+00.00

3/29/2024
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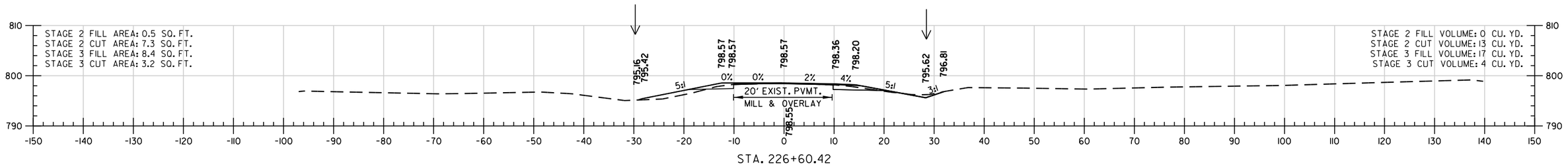
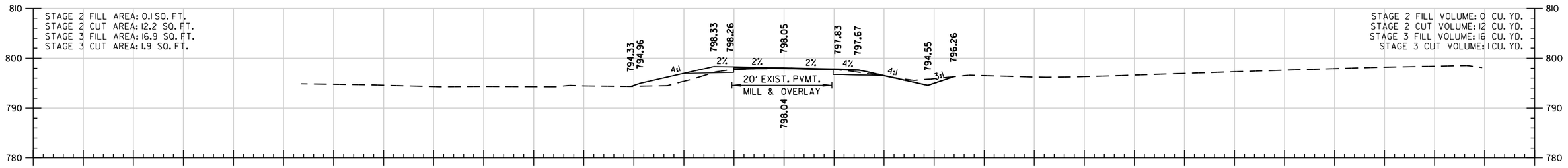
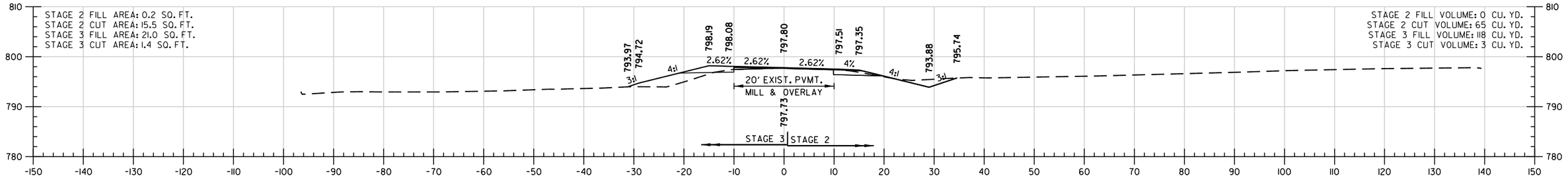
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	123	124
		CROSS SECTIONS				



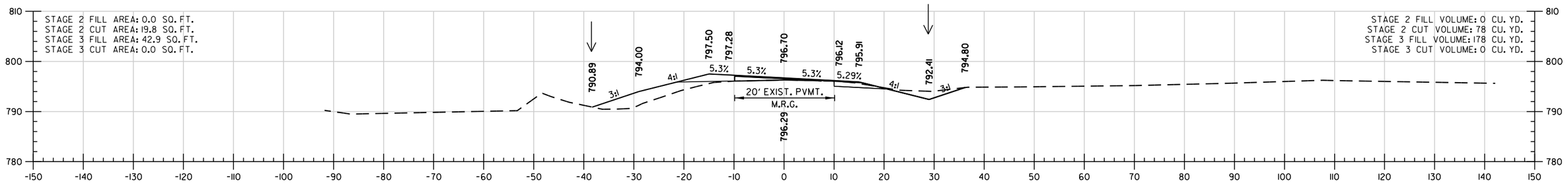
STA. 226+60.42



STA. 226+23.18



STA. 226+00.00

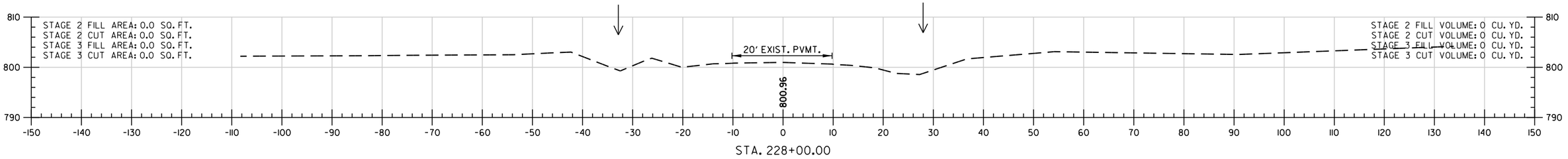


STA. 225+00.00

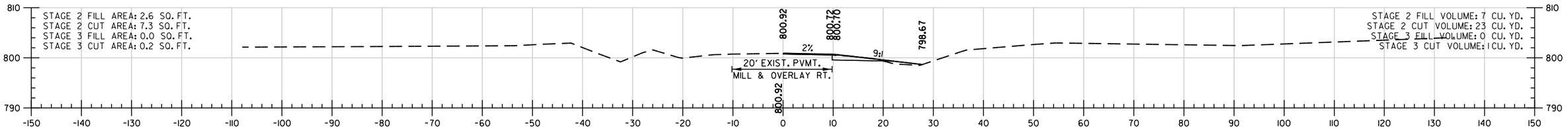
SITE 2 - HWY. 223
STA. 225+00.00 TO STA. 226+60.42

3/29/2024
8:28:16 AM
...\EXT\050422_CX_S2.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	050422	124	124
		CROSS SECTIONS				



STA. 228+00.00



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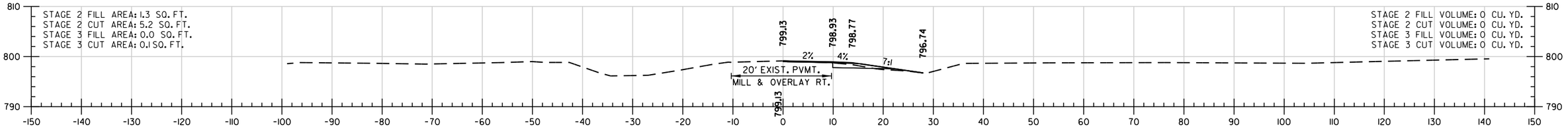

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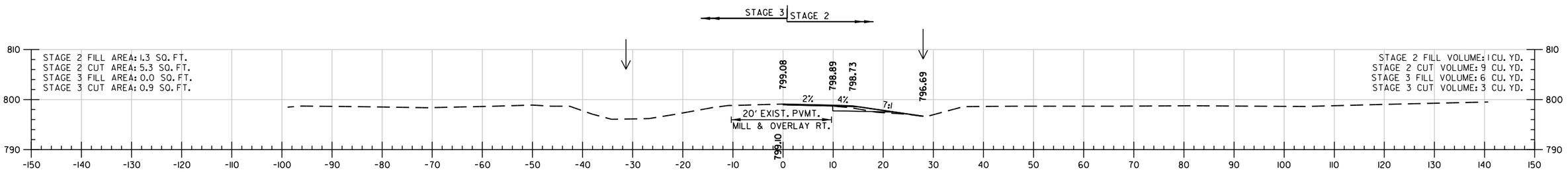

STA. 226+97.65

SITE 2 - HWY. 223
STA. 226+97.65 TO STA. 228+00.00

3/28/2024
8:28:17 AM
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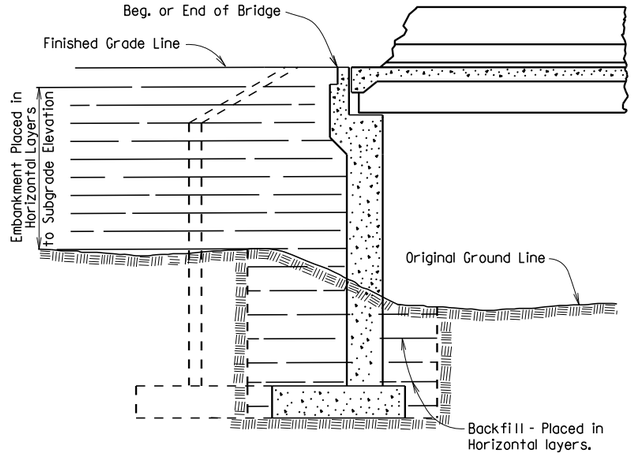
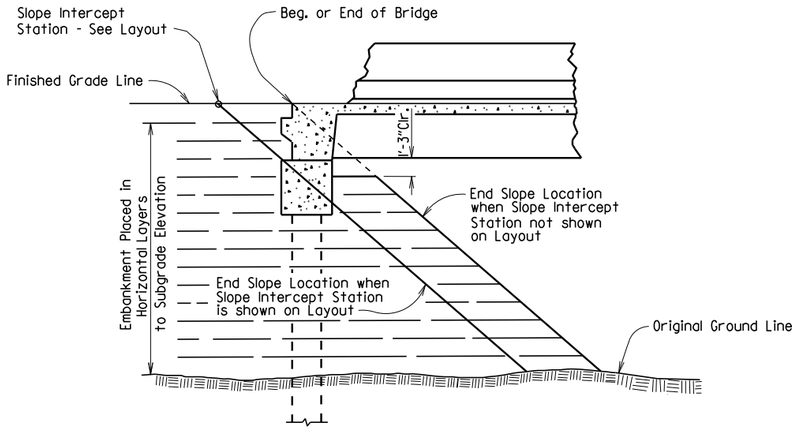
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

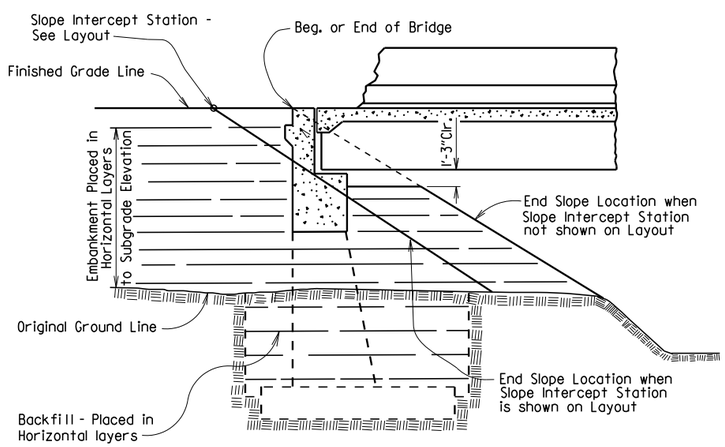
1 EMBANKMENT & BACKFILL 55000



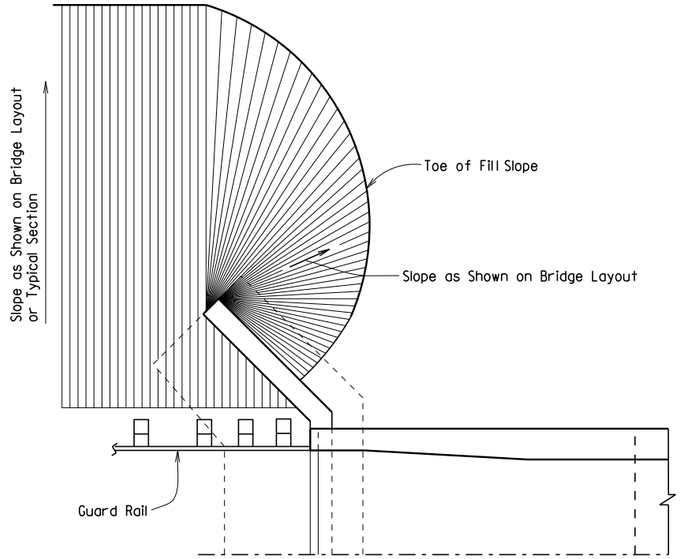
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



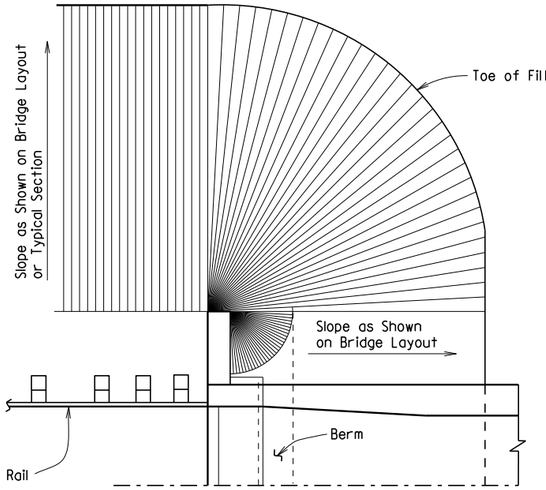
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



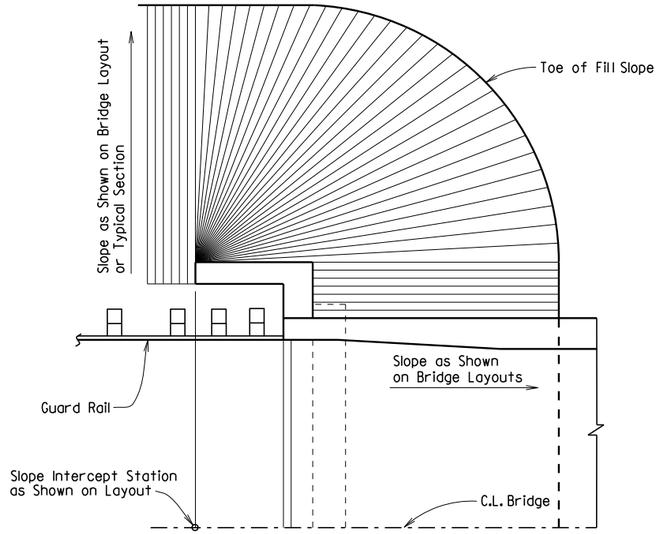
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



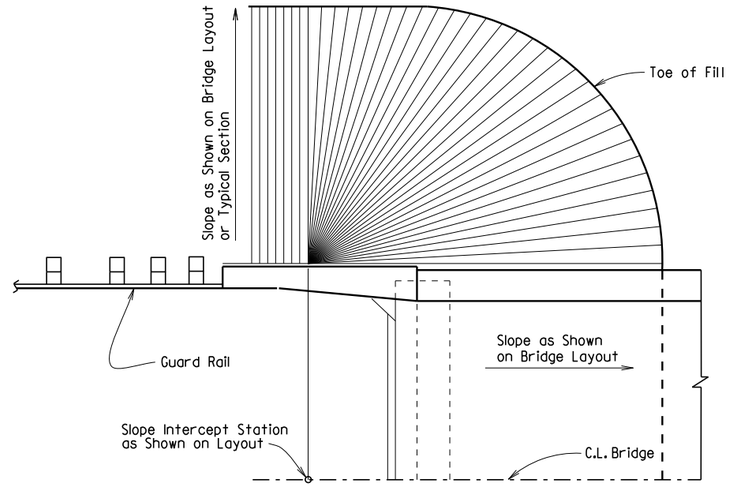
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 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

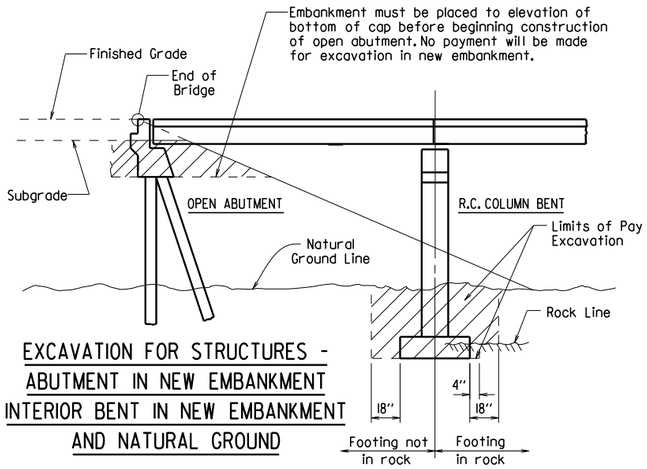
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

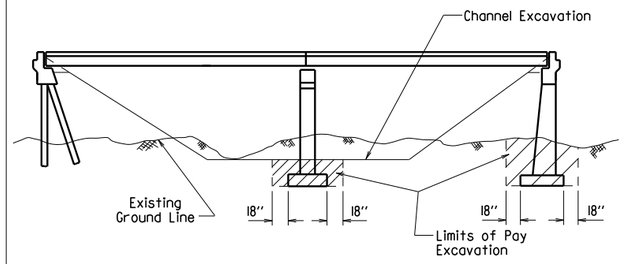
DRAWING NO. 55000

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.				

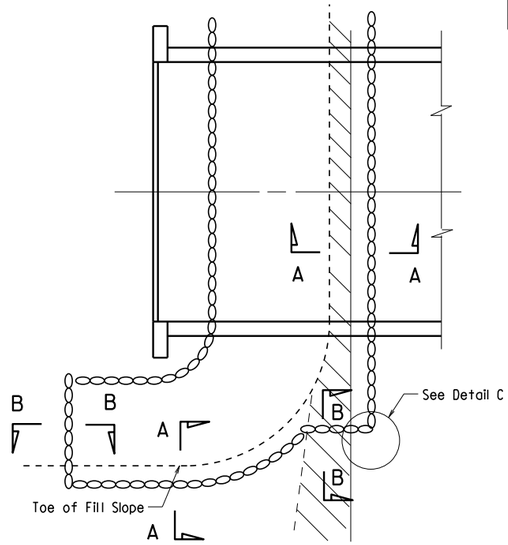
1 RIPRAP & EXCAV. 55001



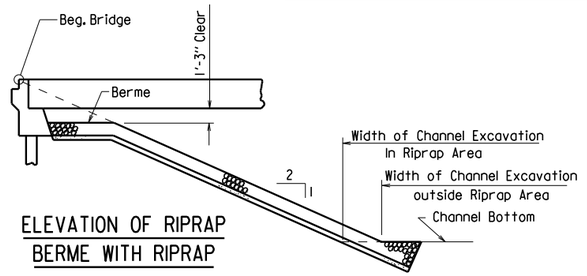
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



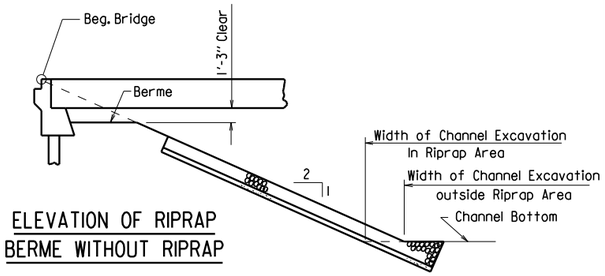
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



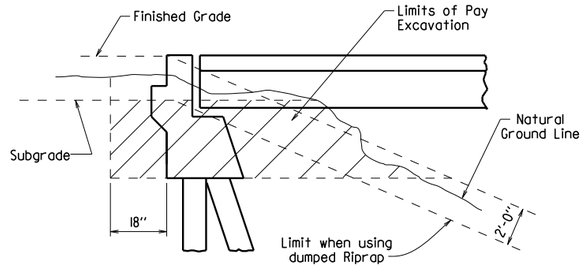
PLAN OF DUMPED RIPRAP



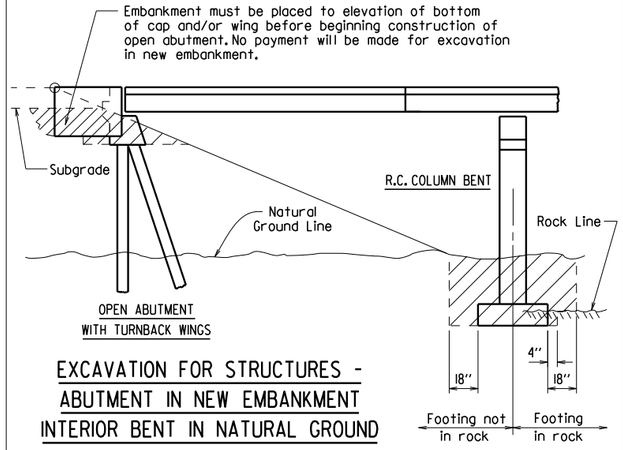
ELEVATION OF RIPRAP BERME WITH RIPRAP



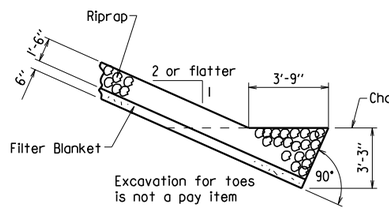
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

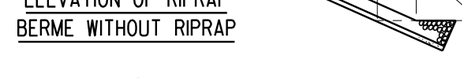


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

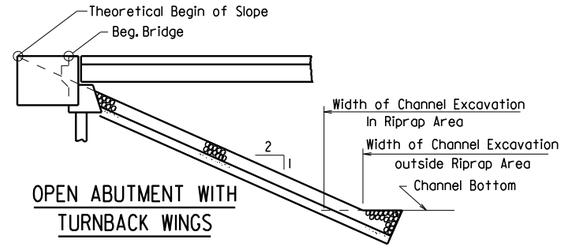


SECTION A-A

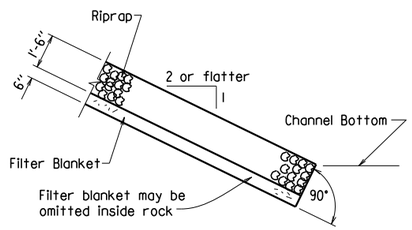
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



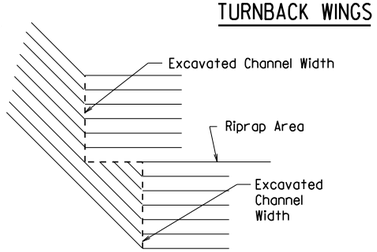
SECTION A-A

(Toe Excavation in Rock)

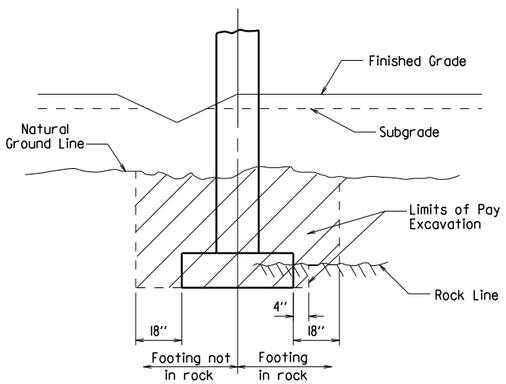
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

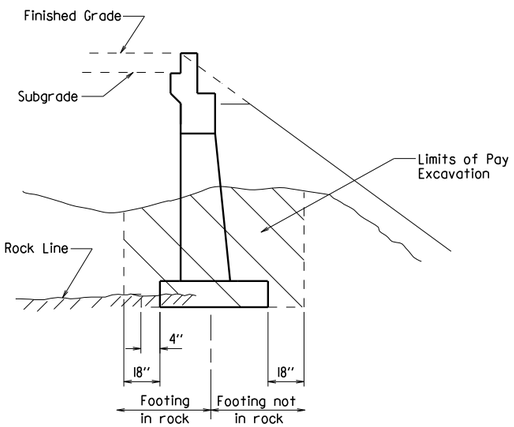
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

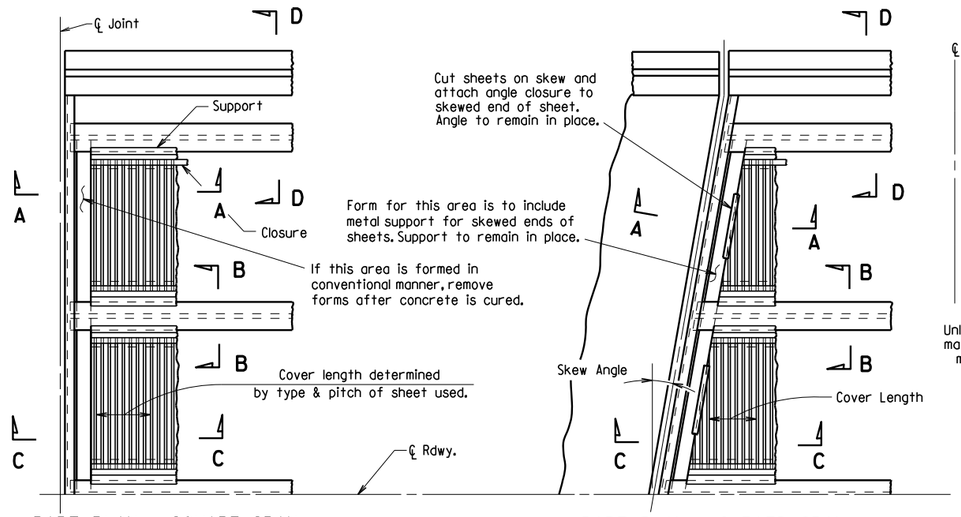
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

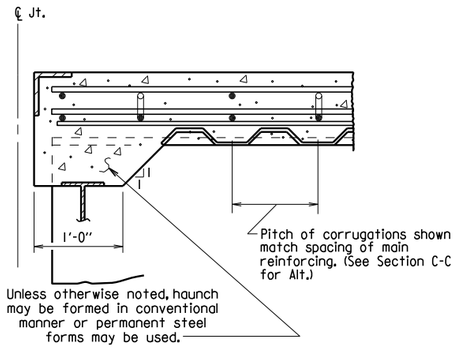


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

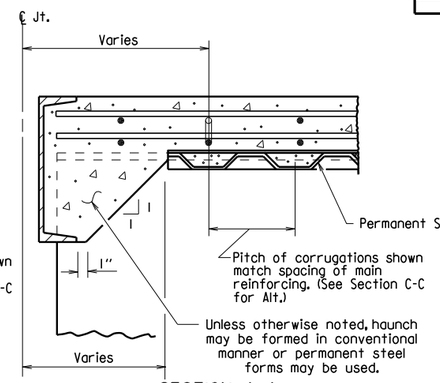
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



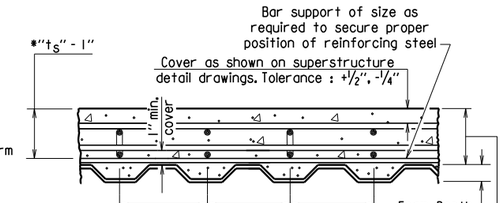
SECTION A-A

N.T.S.
(Angle at end of span)



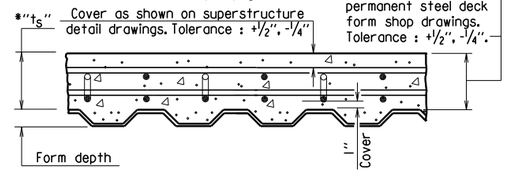
SECTION A-A

N.T.S.
(Channel at end of span)



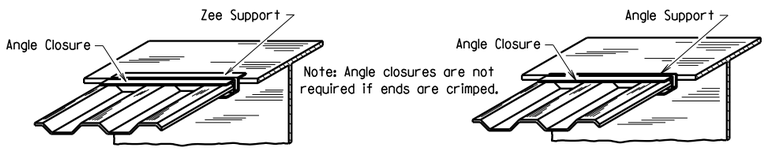
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

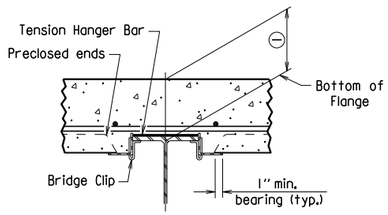
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)

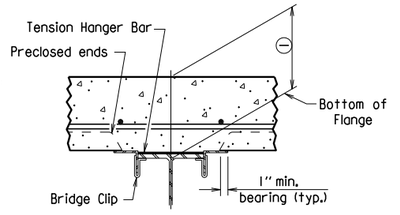
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



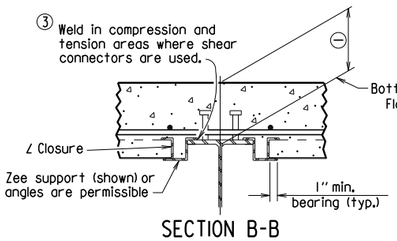
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



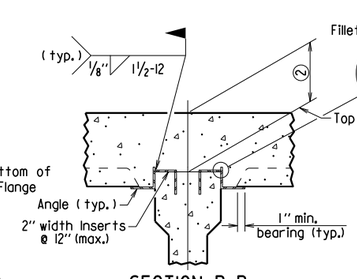
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



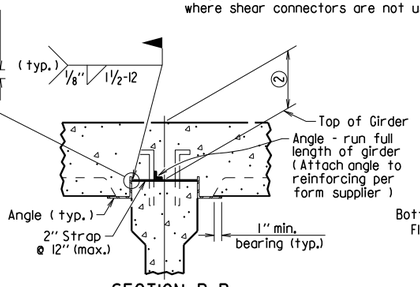
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



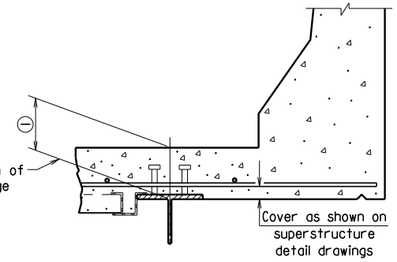
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

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

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.				
				①		GENERAL NOTES		55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	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 Grade(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 ¾" 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 ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " 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 ¼" +/- 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 ¼" +/- 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 ¾" 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.

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

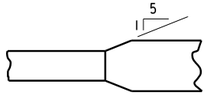
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

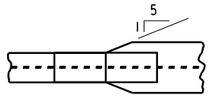
PRINT DATE: 11/7/2019

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.				
				①	STEEL BRIDGE STRUCTURES 55007			

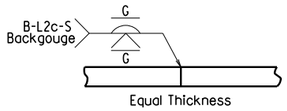


Plan-Unequal Width (Flg.)

FLANGE SPLICE

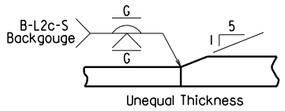


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

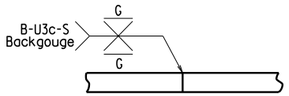
WEB & FLANGE SPLICE



Unequal Thickness

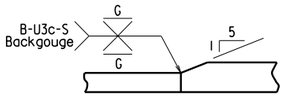
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

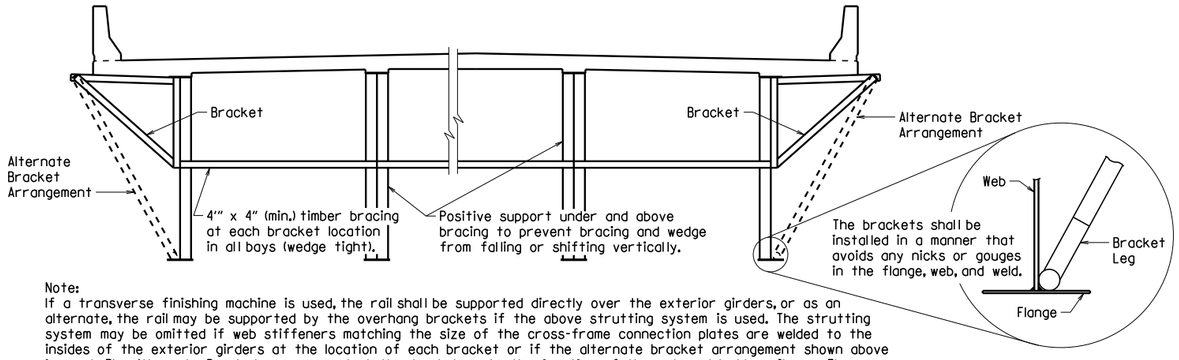


Unequal Thickness

FLANGE SPLICE

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

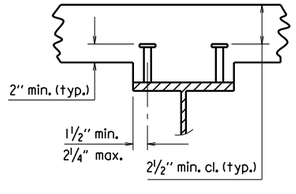
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



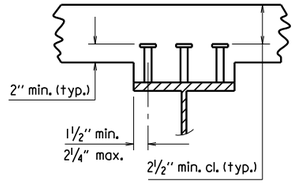
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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)



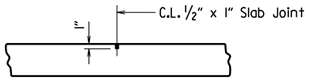
2 STUDS PER ROW



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.

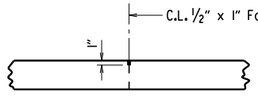
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab 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.

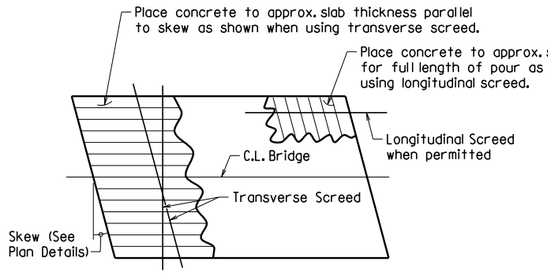
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk 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



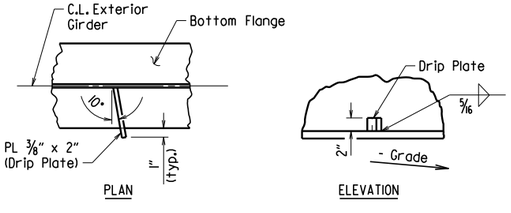
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

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



PLAN

ELEVATION

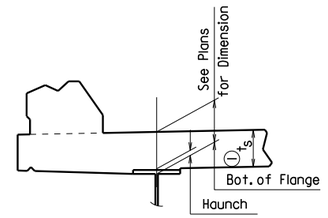
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

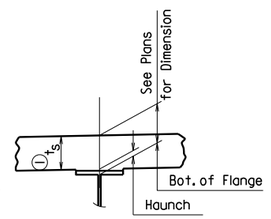
BOTTOM FLANGE DRIP PLATE

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

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 + ½", - ¼". 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 1¾" 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 ¾" Inclusive	¼"	
Over ¾"	⅝"	

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.

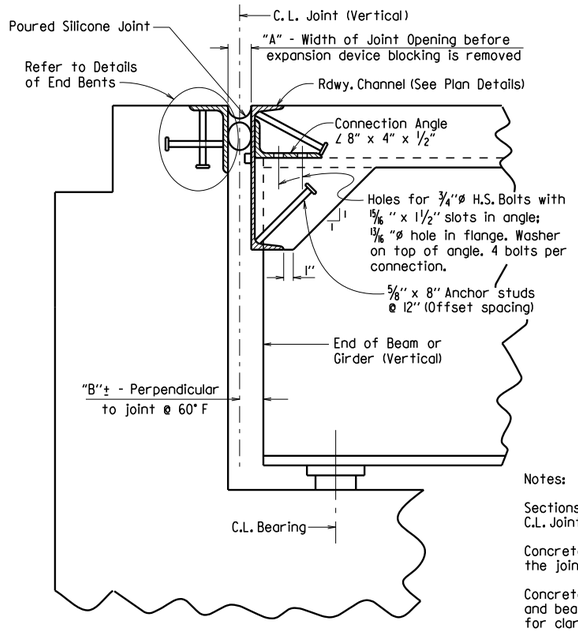
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

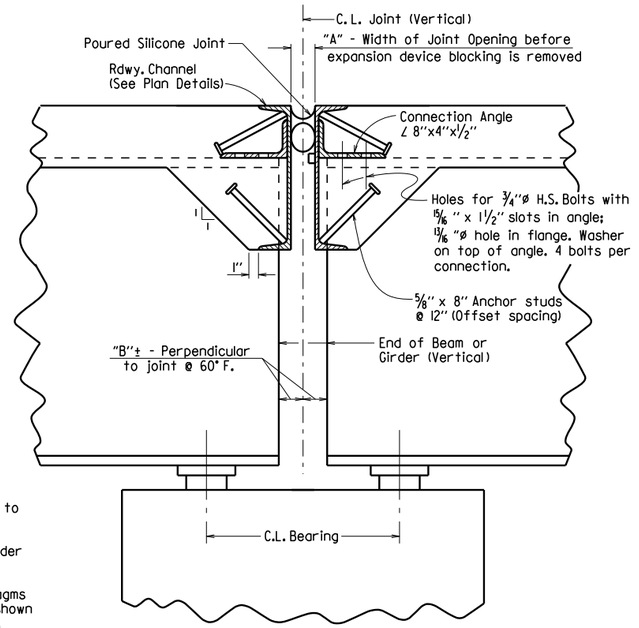
DESIGNED BY: STD. DATE: —

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.				
				①	POURED SILICONE JOINT			55008



SECTION THRU JOINT AT END BENT



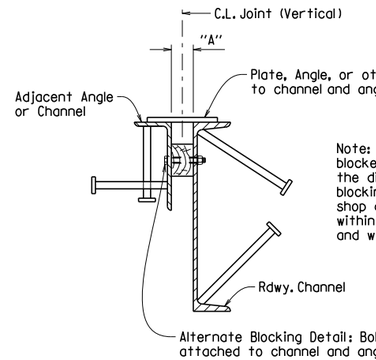
SECTION THRU JOINT AT INTERMEDIATE BENT

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.



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

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

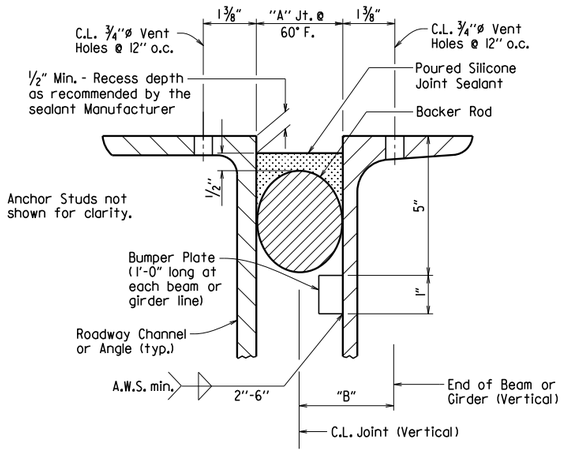
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior 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.



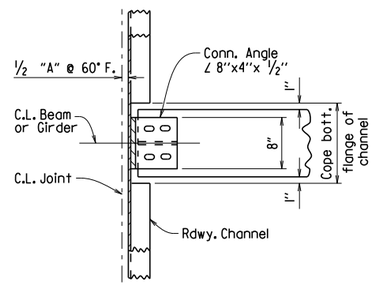
DETAIL OF POURED SILICONE JOINT

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.

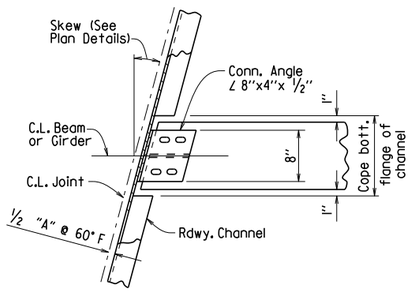
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

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.



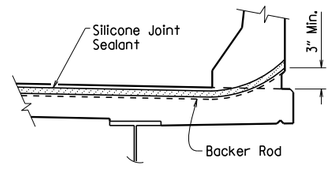
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

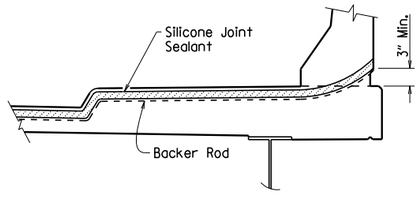


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



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.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

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

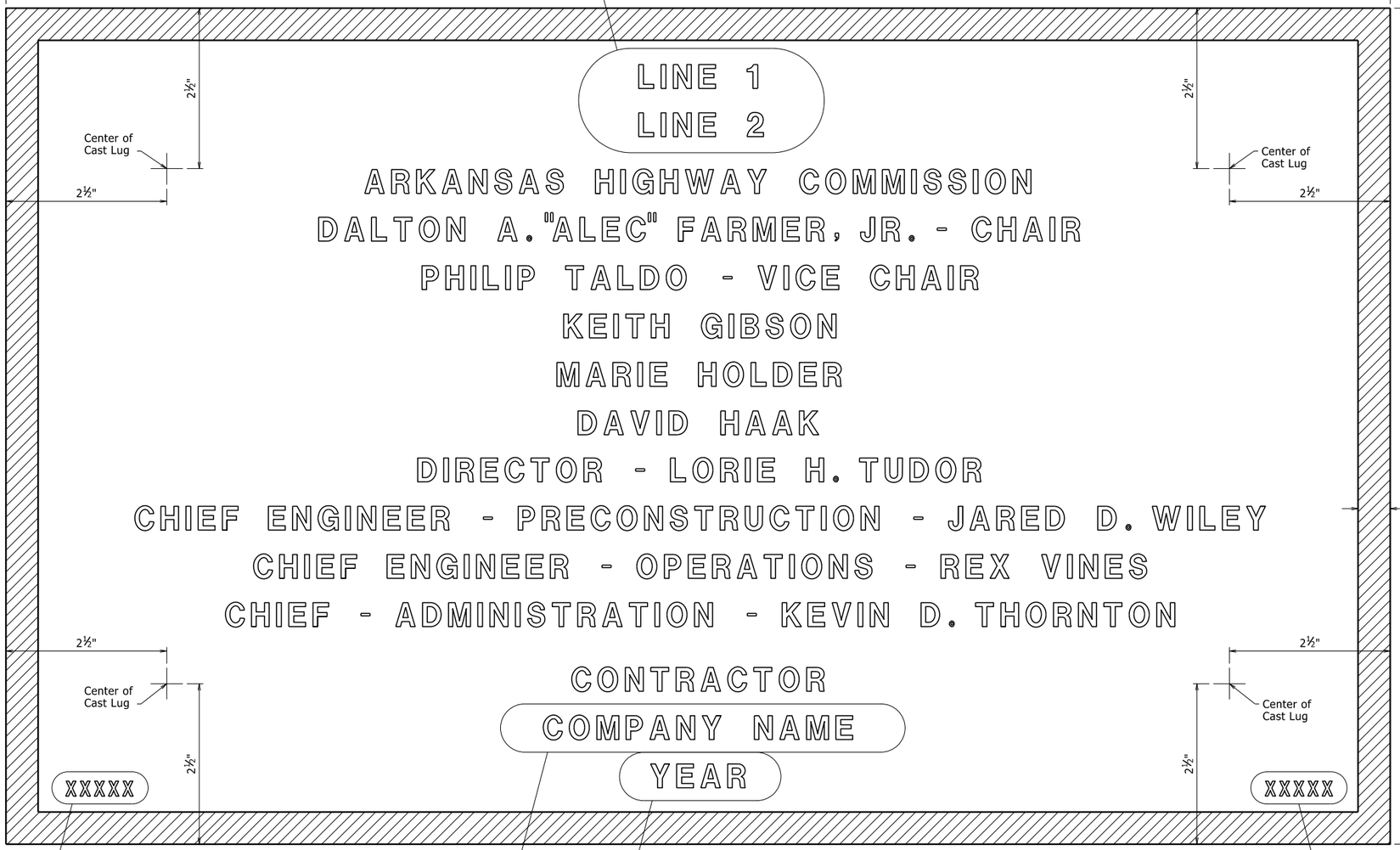
DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
4-14-23		6	ARK.			
		TYPE D NAME PLATE - 55010				

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using ⅛" raised letters and numerals ⅜" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	RED RIVER	SOUTHERN RAILROAD	SALINE RIVER	HIGHWAY 5
Line 2	RELIEF	OVERPASS	RELIEF	



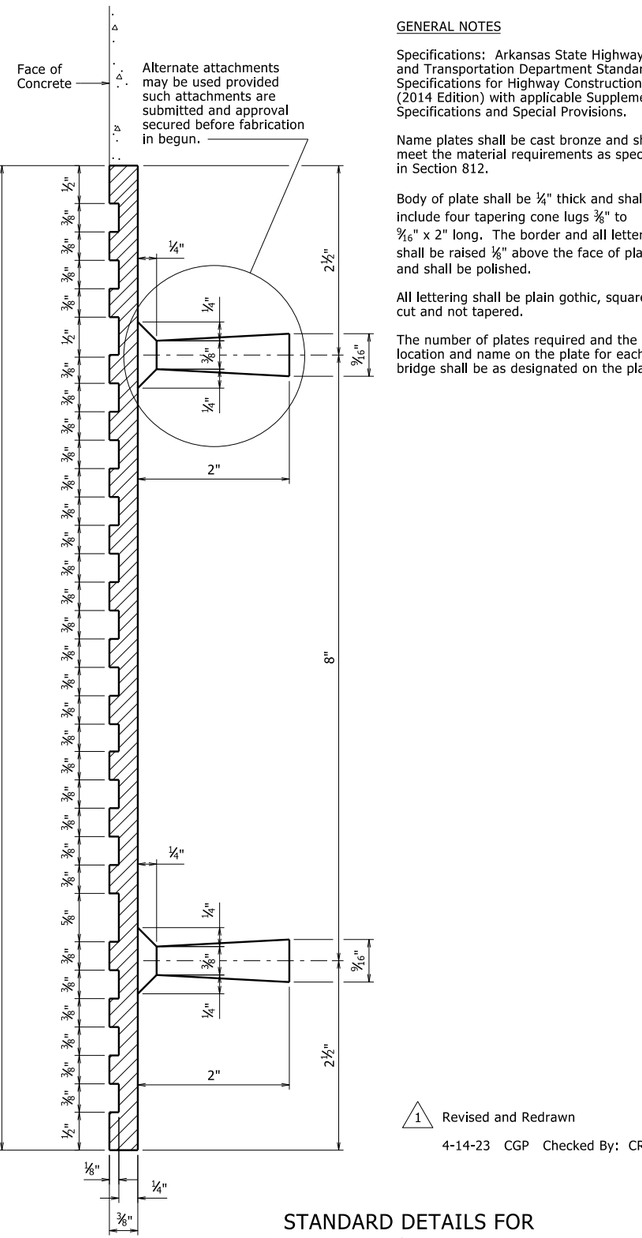
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

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

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

1 Revised and Redrawn
4-14-23 CGP Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

PRINT DATE: 4/20/2023

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.				
				①		STEEL H-PILES		55020

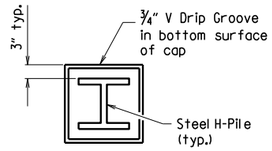
GENERAL NOTES FOR STEEL H-PILES:

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

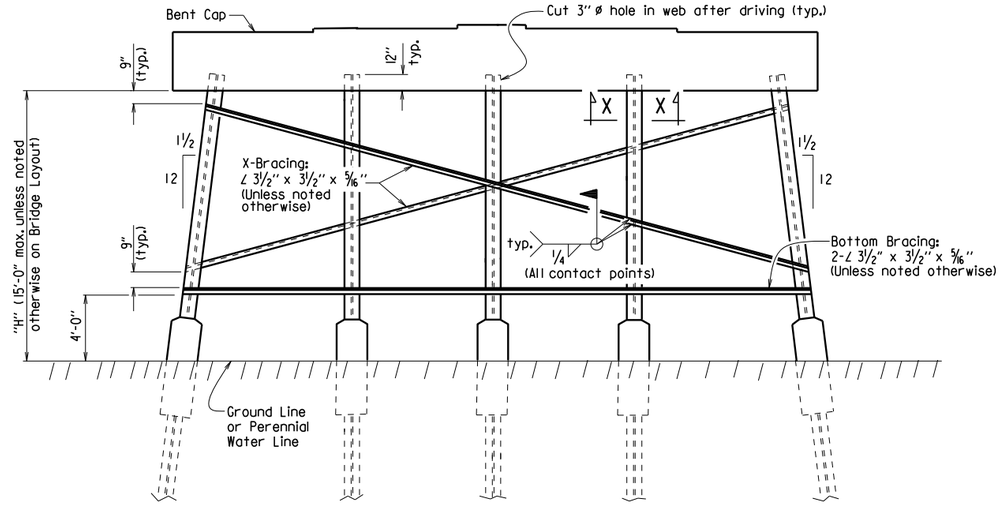
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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".



VIEW X-X



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.

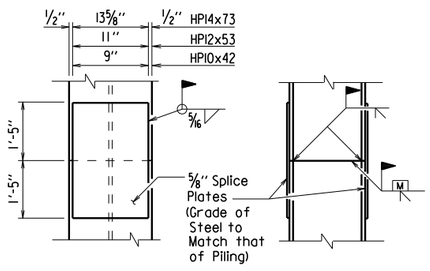
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



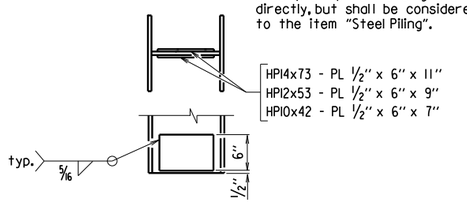
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

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" 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 Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

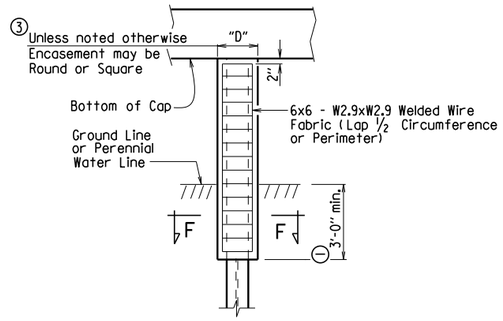
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

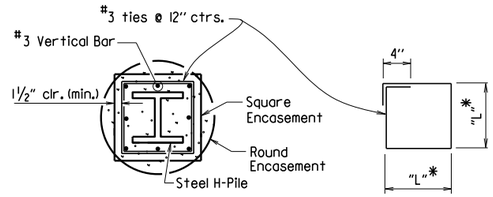
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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

④ (Shown with Encasement to Bottom of Cap)

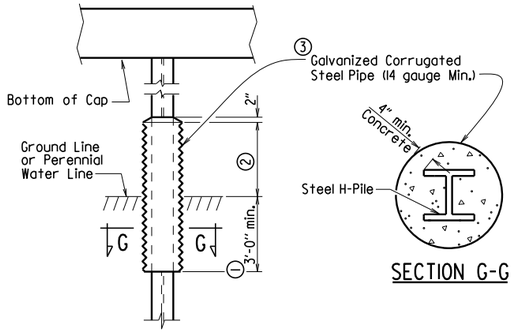


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

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

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

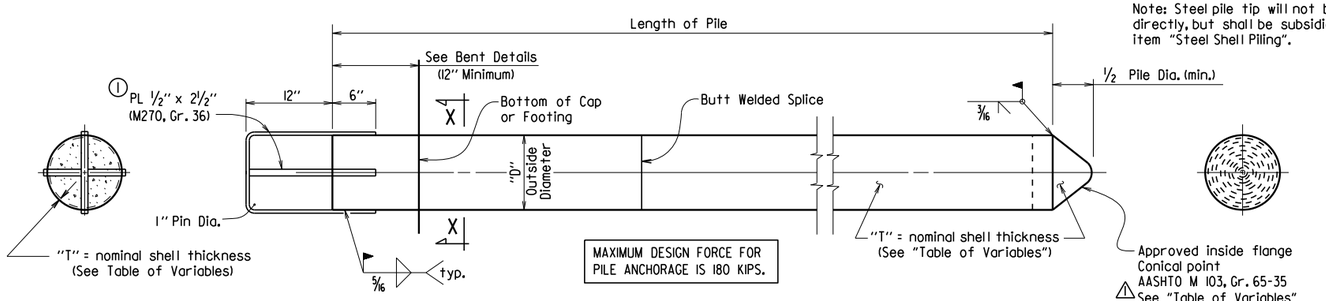
LITTLE ROCK, ARK.

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

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.				

(1) STEEL SHELL PILES 55021

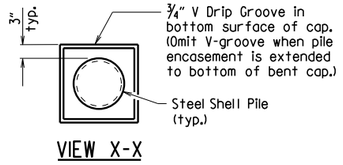


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

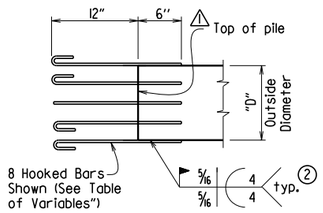
CONCRETE FILLED STEEL SHELL PILE

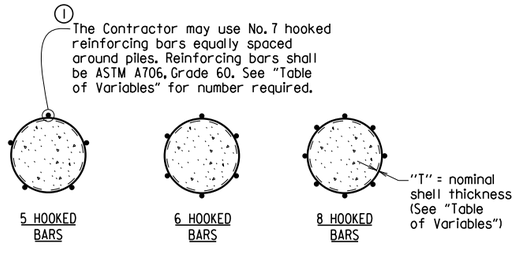
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(2) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



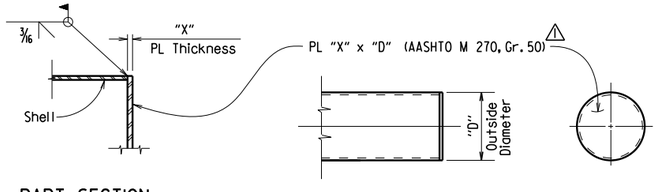
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

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

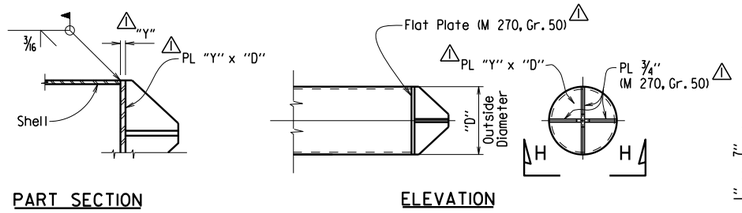


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

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

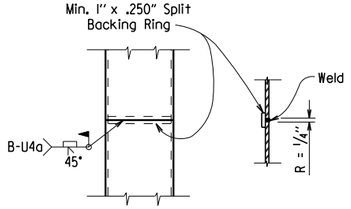


PART SECTION

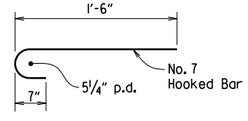
ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS



HOOKED BAR DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	(1) PLATE THICKNESS "X"	(1) PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	(1) MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2¼"	1½"	5	859
16"	0.50"	2¼"	1½"	5	986
18"	0.50"	2½"	1½"	6	1,114
20"	0.50"	2½"	1¾"	6	1,241
24"	0.50"	2¾"	1¾"	8	1,495

(1) Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for driving information.

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

GENERAL NOTES FOR PILE ENCASEMENTS:

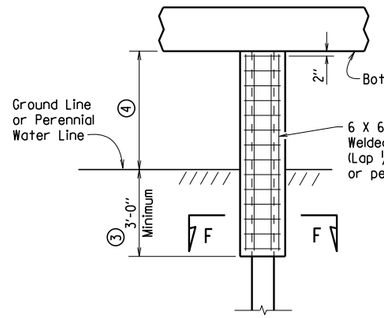
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

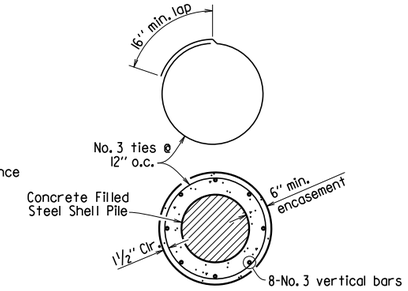
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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

Welded wire fabric shall conform to AASHTO M 55 or M 221.

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





SECTION F-F (REINF. ALTERNATE)

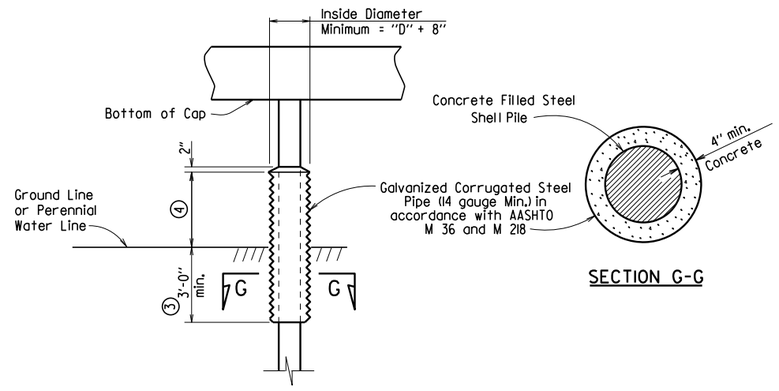
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(5) (Shown with Encasement to Bottom of Cap)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

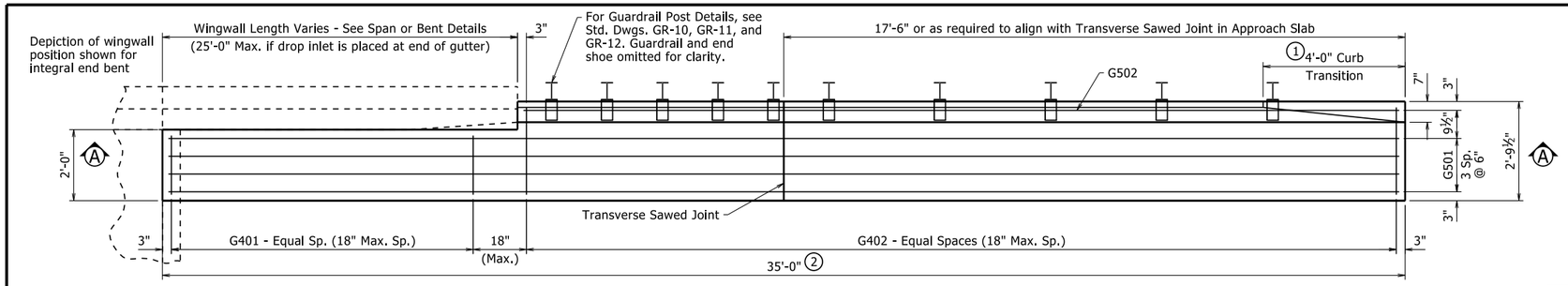
LITTLE ROCK, ARK.

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

DRAWING NO. 55021

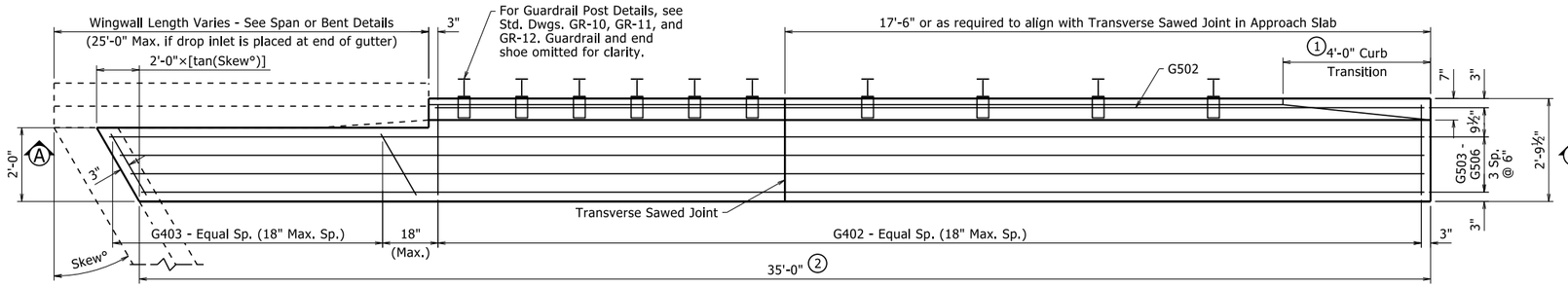
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F

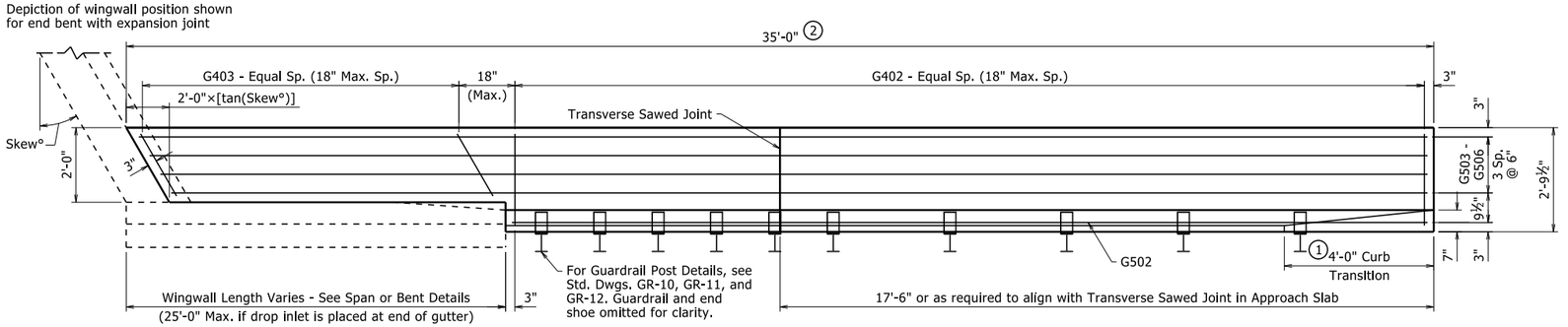


HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"

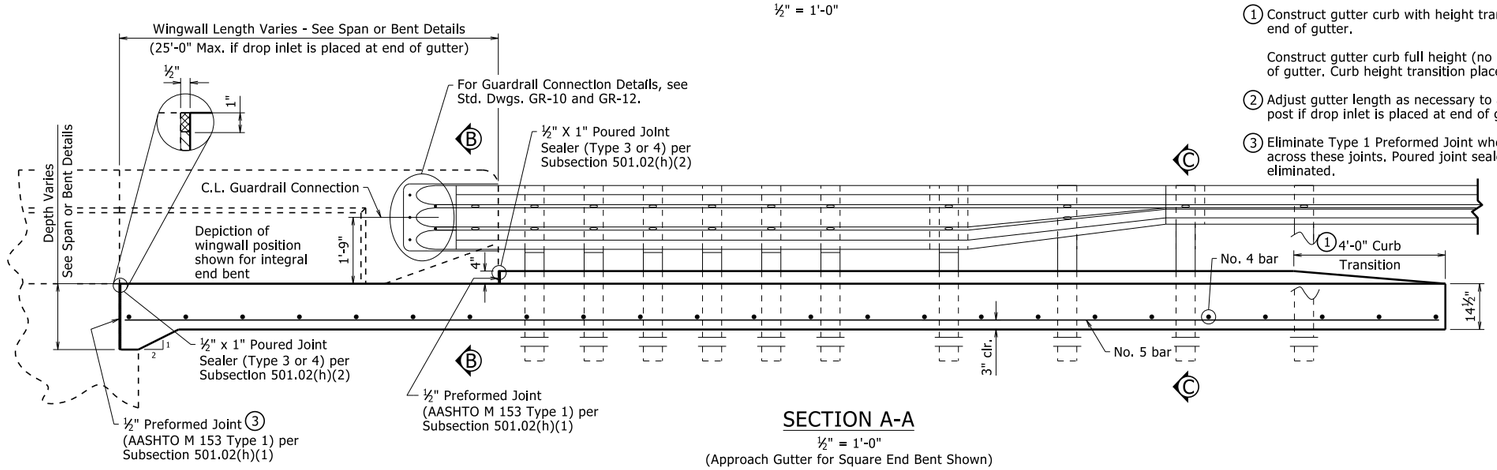


Depiction of wingwall position shown for end bent with expansion joint



PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"



SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

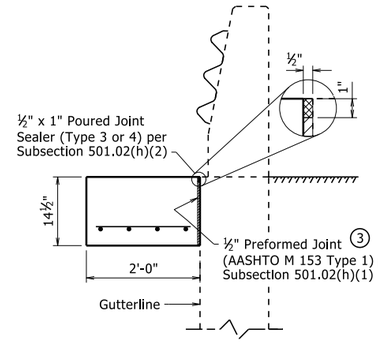
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

Quantities are based on one gutter for a square, integral end bent and a wingwall length of 10'-0"

BAR LIST FOR ONE APPROACH GUTTER

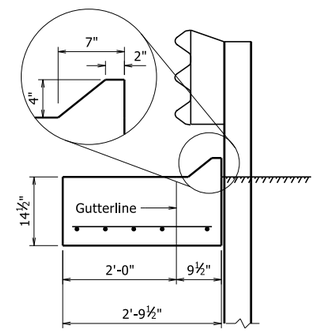
	Mark	No. Req'd.	Length
Square End Bent	G401	④	1'-8"
	G402	④	2'-5½"
	G501	4	34'-8"
	G502	1	④
Skewed End Bent	G402	④	2'-5½"
	G403	④	④
	G502	1	④
	G503 - G506	1 ea.	④

④ Varies with Skew and/or Wingwall Length



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

① Construct gutter curb with height transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet.

② Adjust gutter length as necessary to avoid outlet pipe interference with guardrail post if drop inlet is placed at end of gutter.

③ Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

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

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.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-8-2021 FILENAME: b55030f.dgn

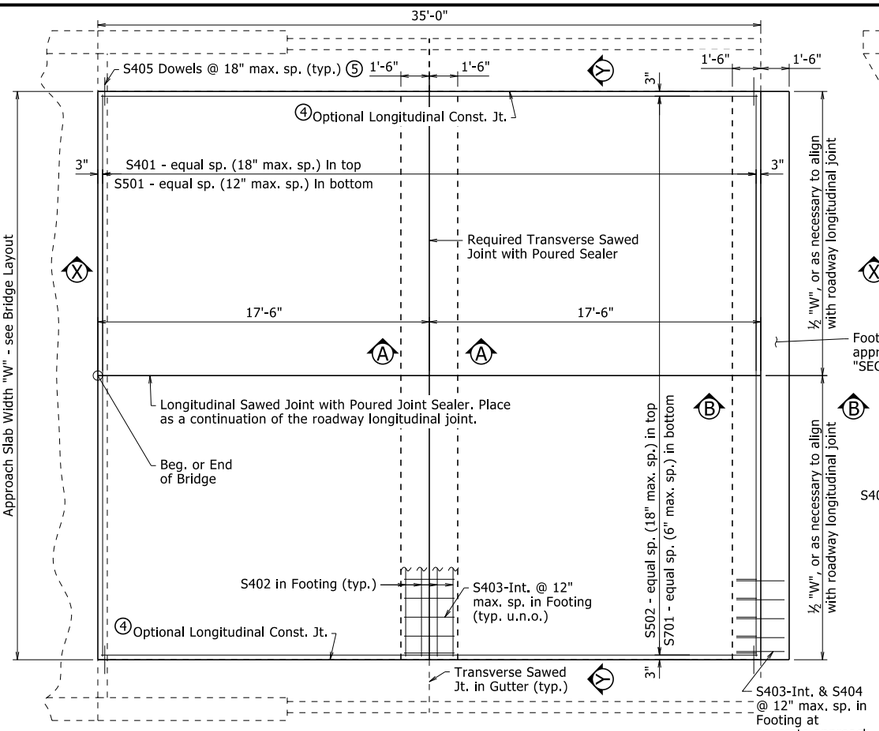
CHECKED BY: LJB DATE: 4-8-2021 SCALE: AS NOTED

DESIGNED BY: STD DATE: -

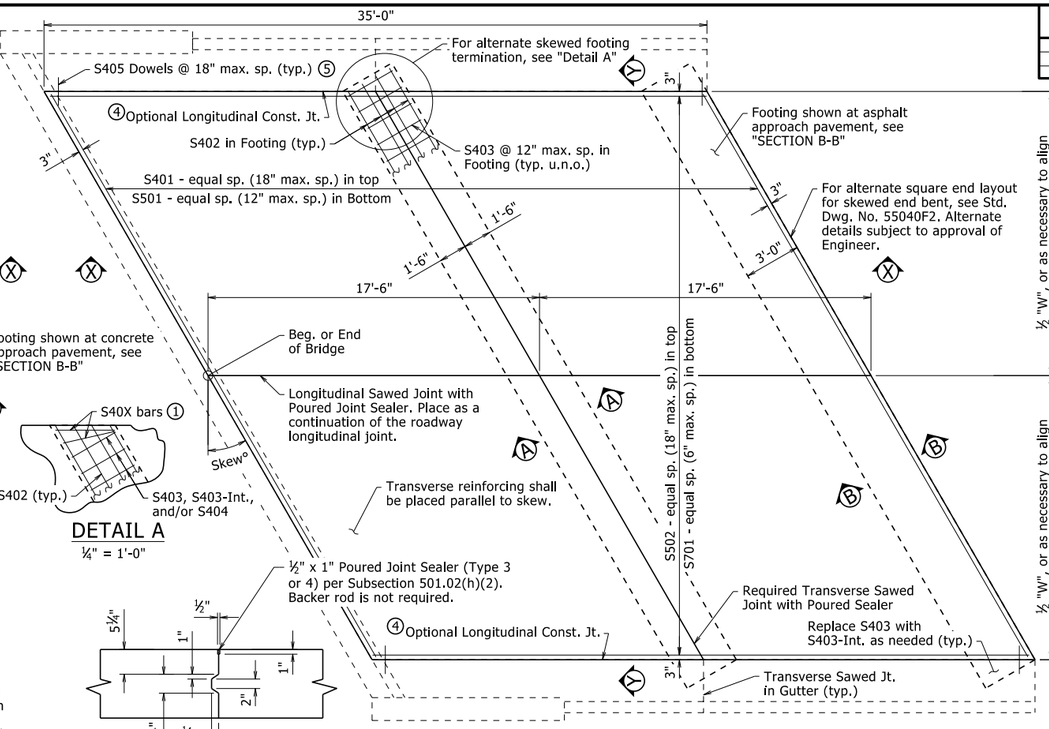
DRAWING NO. 55030F

PRINT DATE: 9/8/2023

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F1				

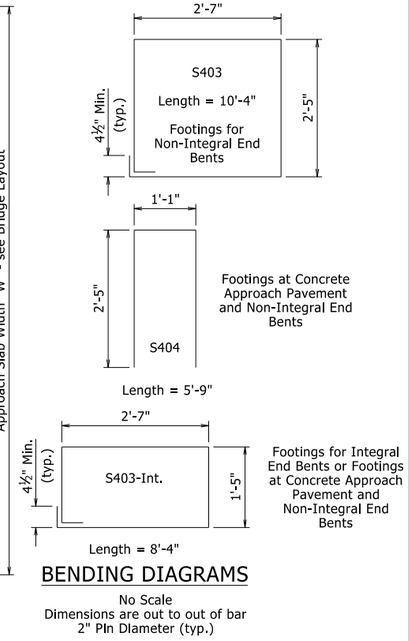


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

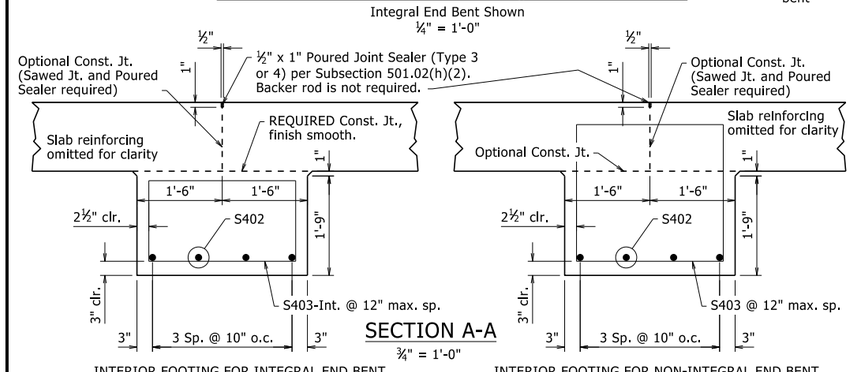


BENDING DIAGRAMS

No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

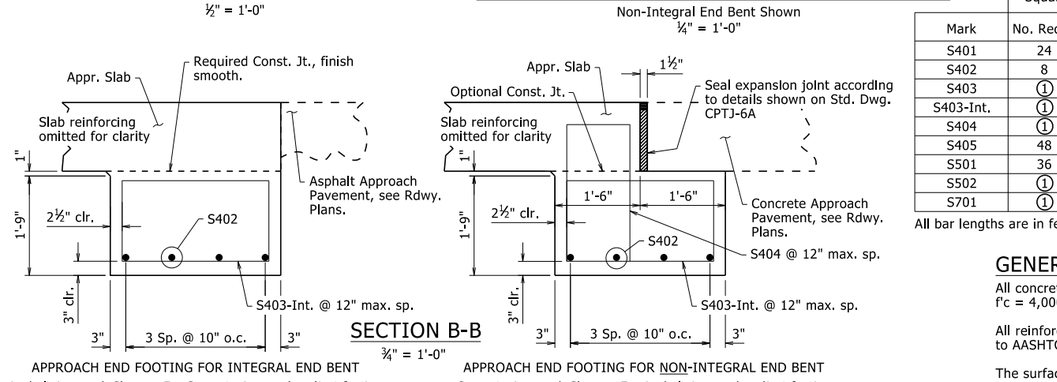
PLAN - APPROACH SLAB AT SKEWED END BENT

Non-Integral End Bent Shown
¼" = 1'-0"



INTERIOR FOOTING FOR INTEGRAL END BENT

INTERIOR FOOTING FOR NON-INTEGRAL END BENT



APPROACH END FOOTING FOR INTEGRAL END BENT

Asphalt Approach Shown. For Concrete Approach, adjust footing location by 1'-6" to add paving notch and include expansion joint.

APPROACH END FOOTING FOR NON-INTEGRAL END BENT

Concrete Approach Shown. For Asphalt Approach, adjust footing location by 1'-6", omit expansion joint, and replace bars S403-Int. & S404 with S403.

BAR LIST - PER APPROACH SLAB

	Square End Bent		Skewed End Bent	
Mark	No. Req'd.	Length	No. Req'd.	Length
S401	24	"W" - 0.33'	24	("W" - 0.33') / cos (Skew°)
S402	8	"W" - 0.33'	8	"W"/cos(Skew°) + 3.0'×tan(Skew°) - 0.33'
S403	①	②	①	②
S403-Int.	①	②	①	②
S404	①	②	①	②
S405	48	1'-6"	48	1'-6"
S501	36	"W" - 0.33'	36	("W" - 0.33') / cos (Skew°)
S502	①	34'-8"	①	34'-8"
S701	①	34'-8"	①	34'-8"

All bar lengths are in feet.

① Varies with Approach Slab Type, Width and/or Skew.
② See "BENDING DIAGRAMS"

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.

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

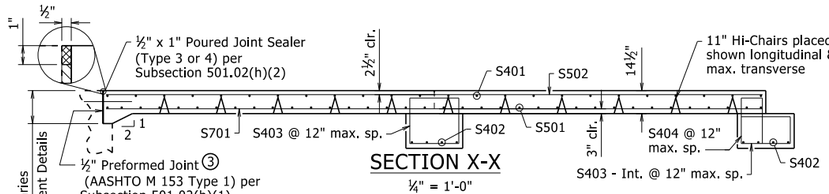
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

See Plans for actual Approach Slab Width, "W", end bent or span details, and approach pavement. Units of "W" are in Feet.

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

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

For Table of Quantities, see "SCHEDULE OF BRIDGE QUANTITIES".



Approach Slab for Square Non-Integral End Bent at Concrete Approach Shown

MINIMUM BAR LAP LENGTH

#4	1'-8"
#5	2'-0"
#7	2'-10"

③ Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

④ When construction joint is eliminated, place 1" Sawed Joint with ½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2). Backer rod is not required.

⑤ Eliminate dowels when approach slab is adjacent to curb and gutter, or as directed by the Engineer.

The document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 7, 2023. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

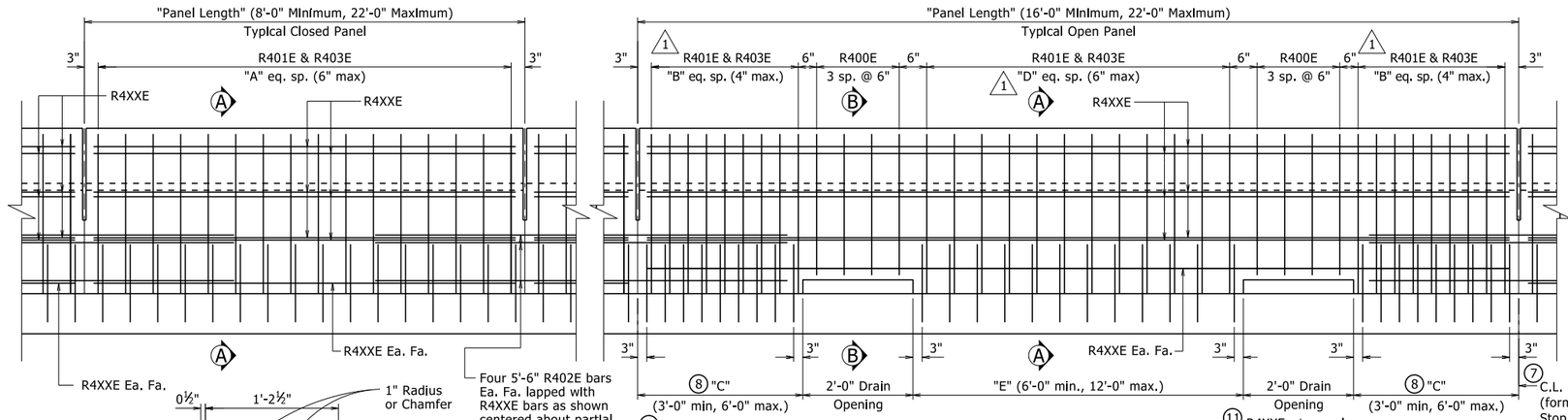
LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	05/12/2023	FILENAME:	b55040f.dgn
CHECKED BY:	JYP	DATE:	05/15/2023	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55040F1

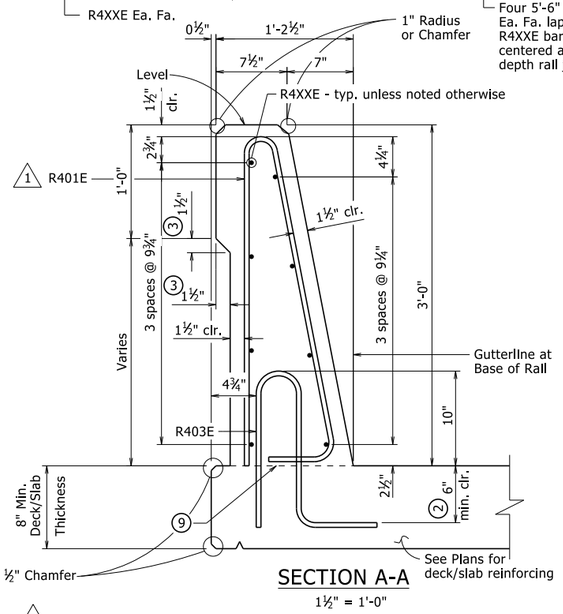
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



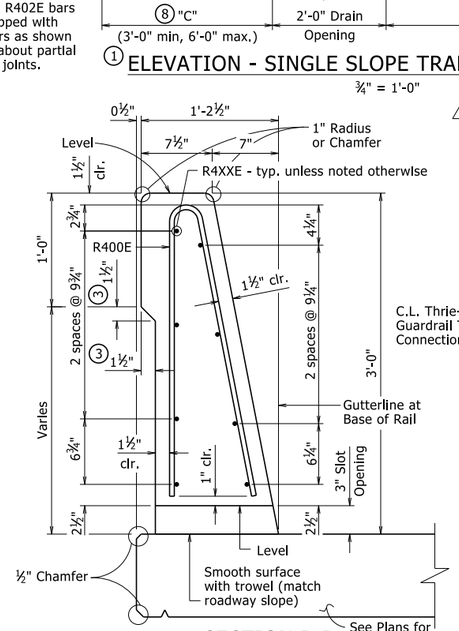
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



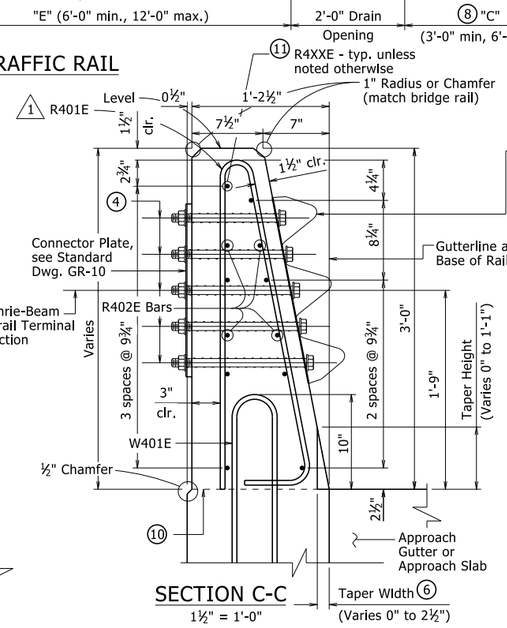
SECTION A-A

1½" = 1'-0"



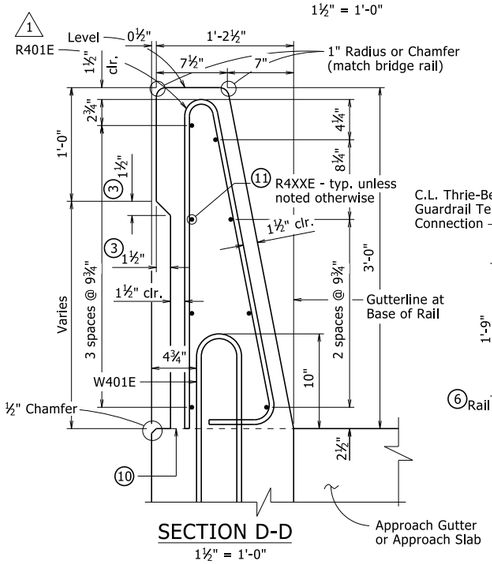
SECTION B-B

1½" = 1'-0"



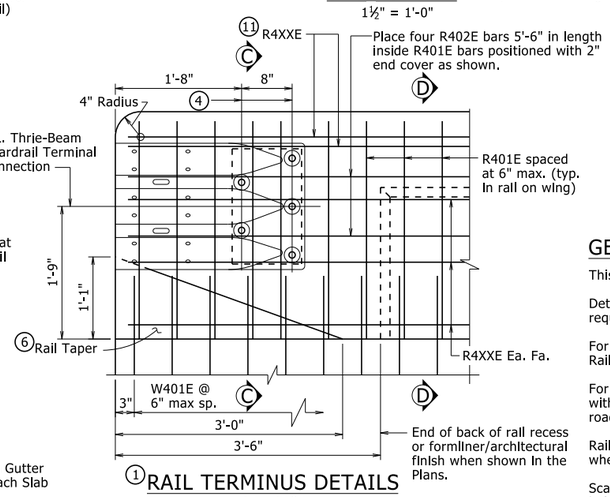
SECTION C-C

1½" = 1'-0"



SECTION D-D

1½" = 1'-0"



① RAIL TERMINUS DETAILS

1" = 1'-0"

⑦ C.L. Full-Depth Rail Joint (formed width ¼" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

⑦ C.L. Partial-Depth Rail Joint (formed width ¼" to 1" max). Stop 16" from top of deck/slab or sidewalk. Place at all remaining locations other than at intermediate bents.

① All measurements shown are along gutterline at base of rail.

② Minimum embedment into deck/slab.

③ Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

④ C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

⑤ Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.

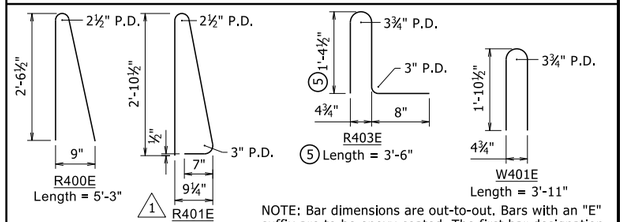
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

⑦ When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

⑧ End posts shall be the same length within a panel.

Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

BENDING DIAGRAM



NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.

⑨ Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

⑩ Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

⑪ These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE

See Plans for table with values.

GENERAL NOTES

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

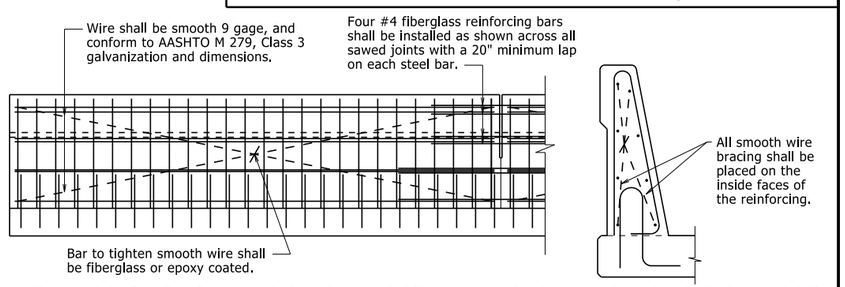
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.



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

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

△1 Modified bending diagram and spacing for R401E bar.

By: CGP, Checked by: CMW 09/27/2022

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

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

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

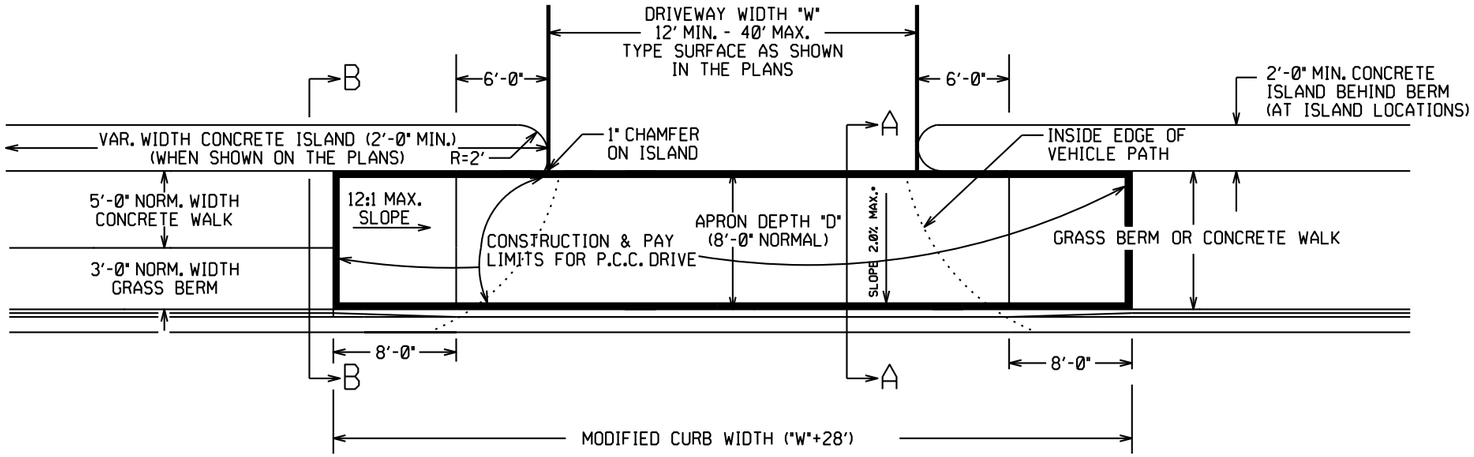
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

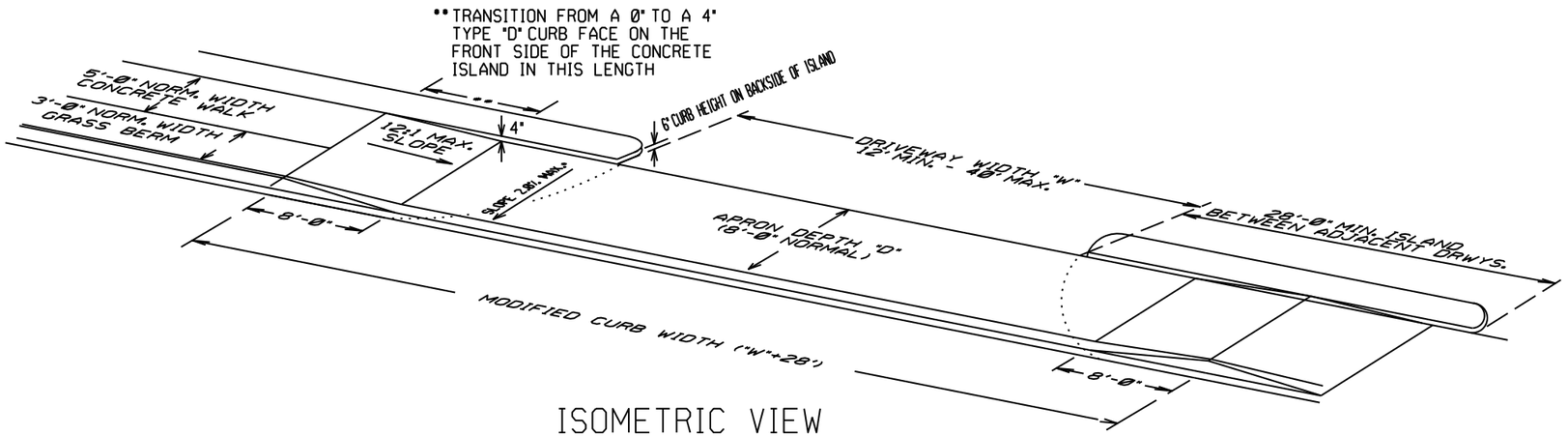
DRAWN BY: KWY DATE: 11/5/2020
CHECKED BY: LJB DATE: 11/5/2020
DESIGNED BY: STD. DATE: -----
FILENAME: b55070.dgn
SCALE: As Noted

DRAWING NO. 55070

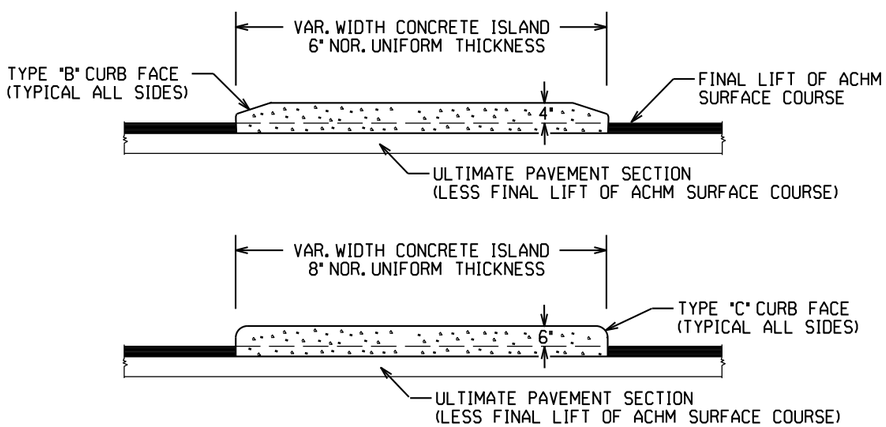
PRINT DATE: 10/6/2022



PLAN VIEW



ISOMETRIC VIEW

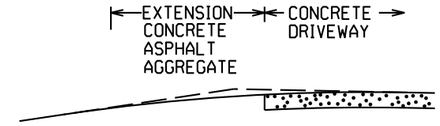


CURBED ISLANDS FOR CHANNELIZATION

CONCRETE ISLAND NOTES:

1. 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".

2. TRANSVERSE EXPANSION JOINTS, NOT LESS THAN 1/2" WIDE, SHALL BE PLACED AT MINIMUM INTERVAL OF 45'. TRANSVERSE JOINT SHALL BE CONSTRUCTED USING A JOINT FILLER COMPLYING WITH AASHTO M213.



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

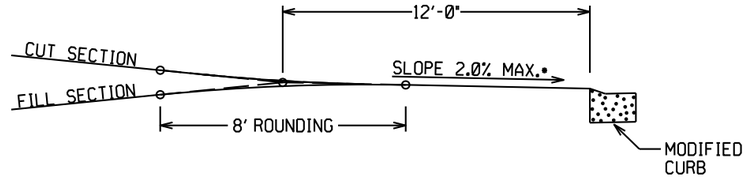
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

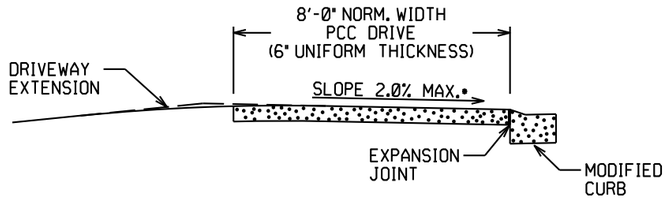
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

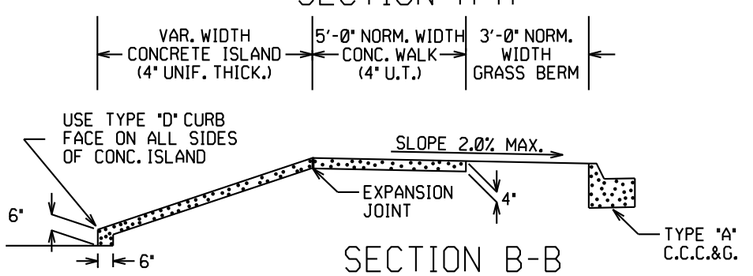


DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



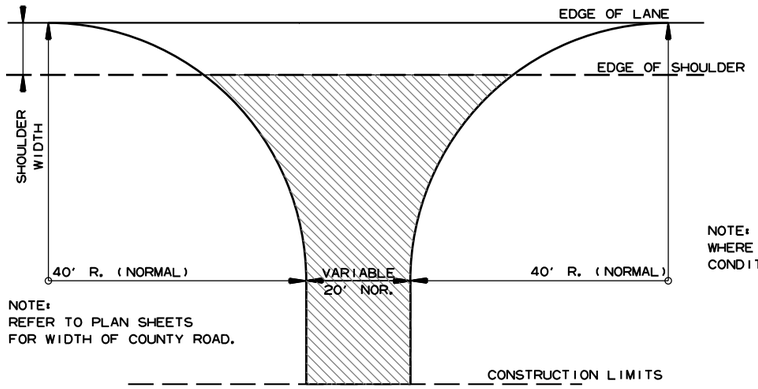
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		REVISED ISLAND NOTES
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

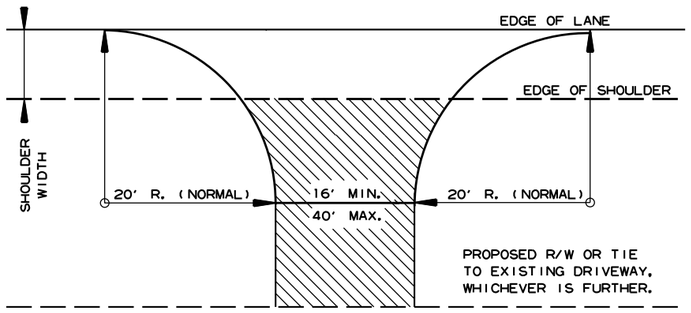


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH, UNLESS OTHERWISE SPECIFIED IN PLANS.

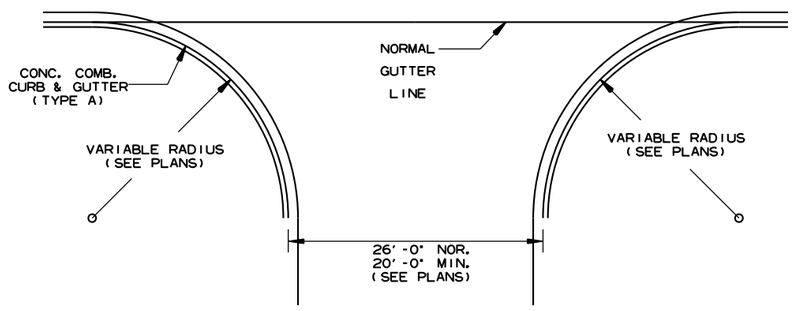
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

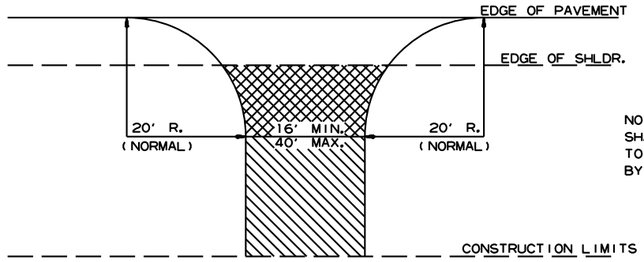
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS, & COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION



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

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

AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY

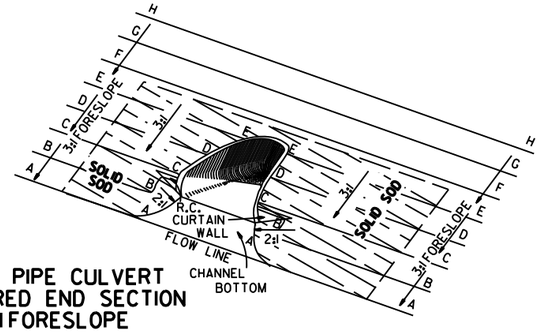
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

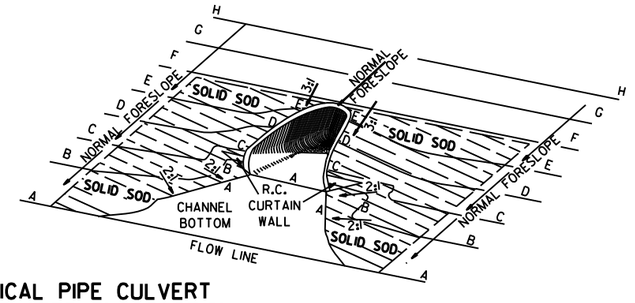
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

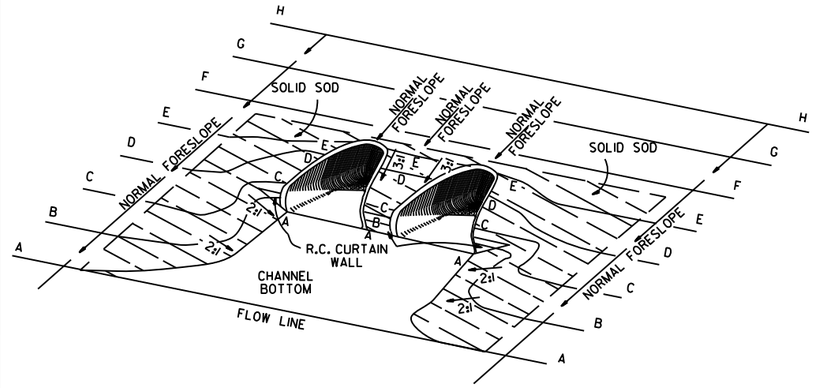
STANDARD DRAWING DR-2



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"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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

REINFORCING STEEL SCHEDULE

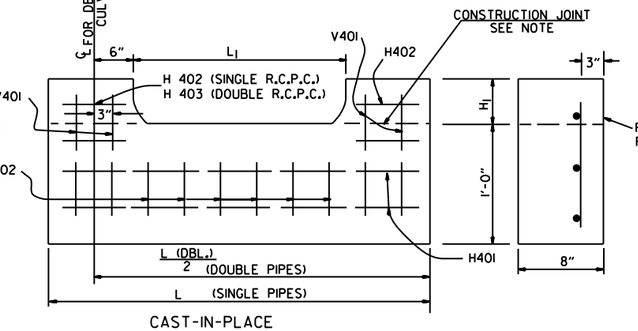
PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

PLAN VIEW
3:1 FORESLOPES

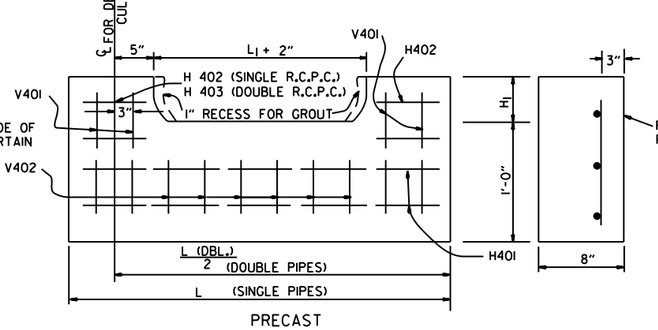
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	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	

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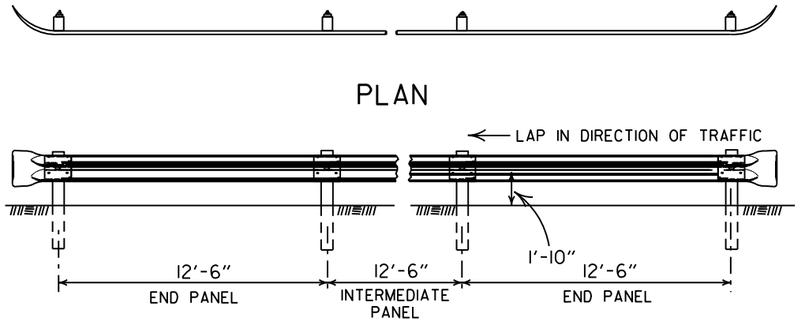
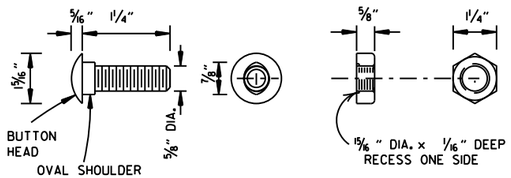
FLARED END SECTION

STANDARD DRAWING FES-1

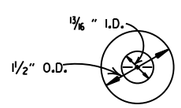




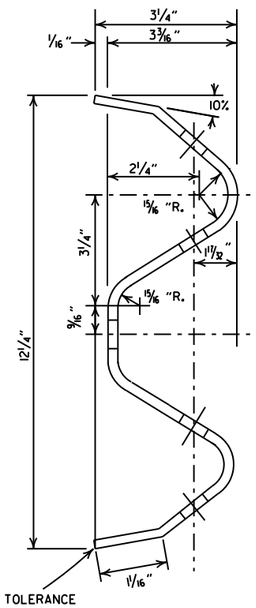
SPLICE BOLT

NOTE: POST BOLT SAME EXCEPT LENGTH.

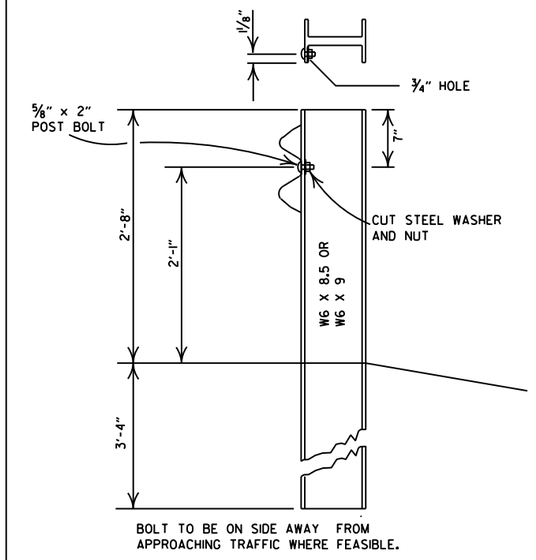
NUT



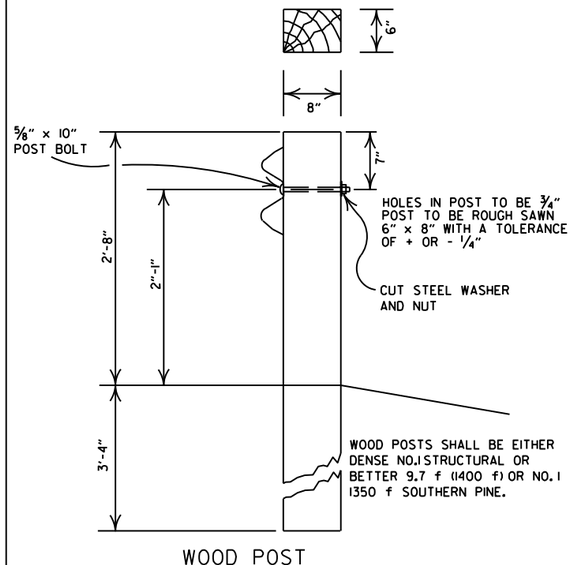
CUT STEEL WASHER



SECTION THRU RAIL



STEEL POST



WOOD POST

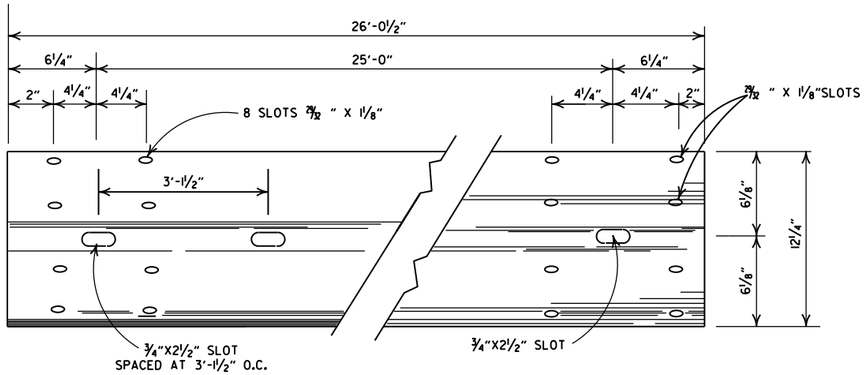
DETAILS OF POST CONNECTIONS

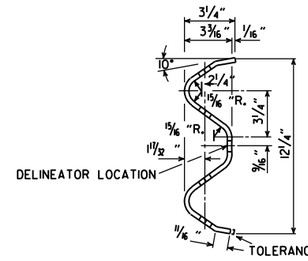
DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
08-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
08-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
06-02-94	ADDED ALTERNATE STEEL POST SIZE	
08-05-93	REVISED STEEL POSTS SIZE	8-5-93
08-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
01-04-83	GRADE FOR WOOD POSTS	679-1-4-83
10-01-77	HARDENED WASHER	922-10-1-72
10-02-72	REVISED & REDRAWN	521-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS (TYPE C) STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

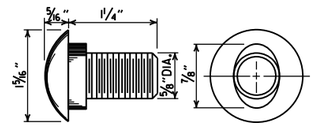
STANDARD DRAWING GR-5



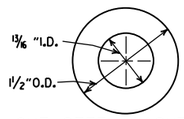


DETAILS OF W-BEAM GUARDRAIL

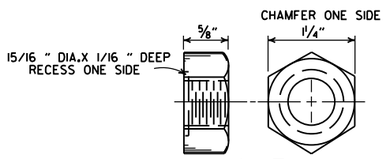
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



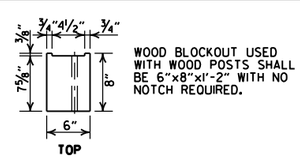
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

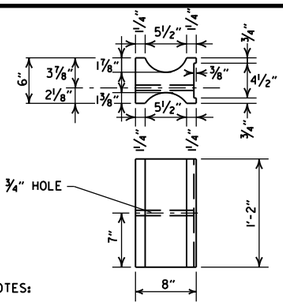


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

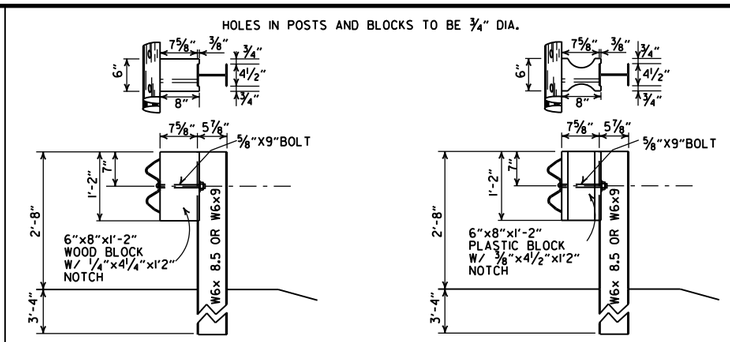
WOOD BLOCKOUT (W-BEAM)



NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

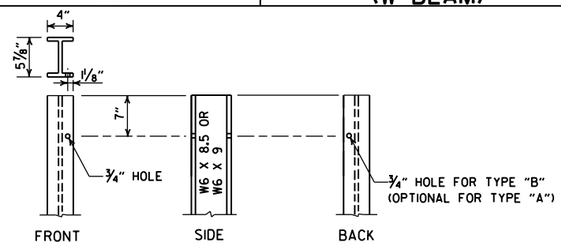
PLASTIC BLOCKOUT (W-BEAM)



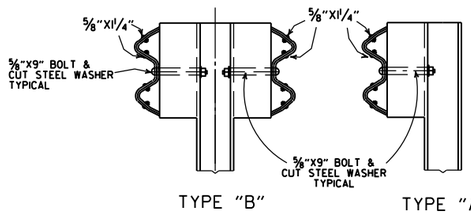
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

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

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

DELINEATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR GUARDRAIL.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

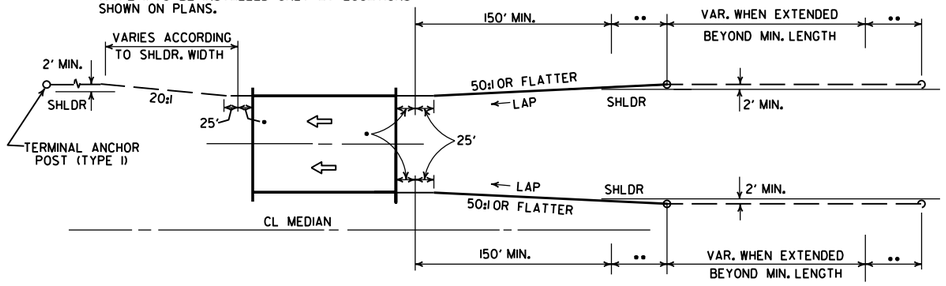
05-19-22	REVISED GENERAL NOTES, ADDED DELINEATOR LOCATION.	
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

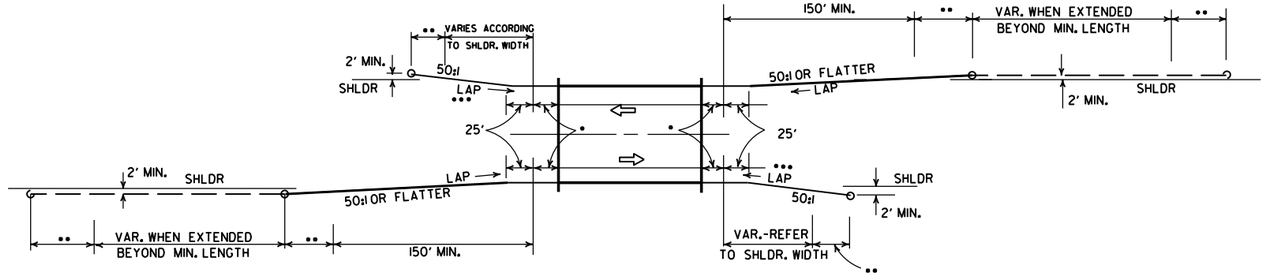
STANDARD DRAWING GR-6

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

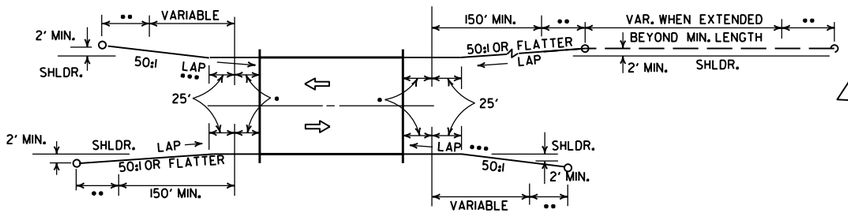
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

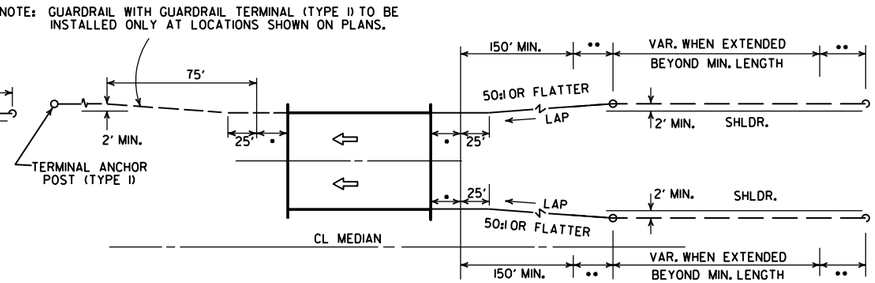
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

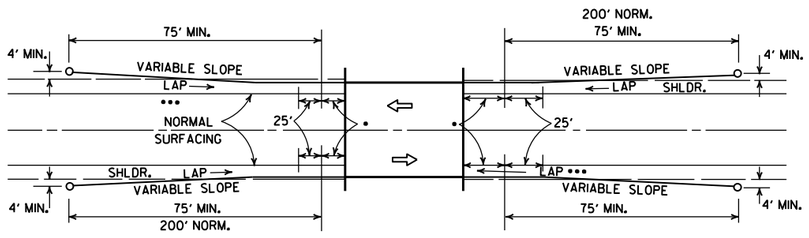
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



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

LEGEND

- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

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

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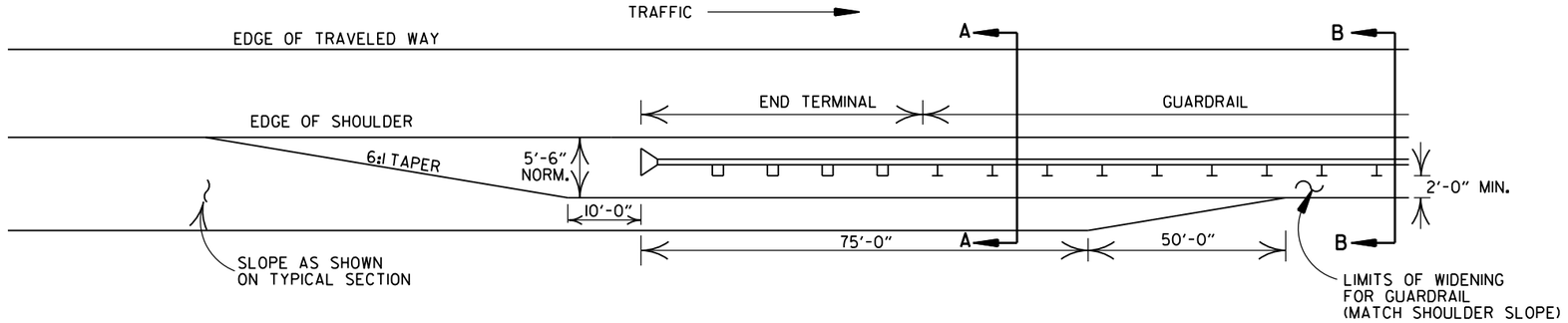
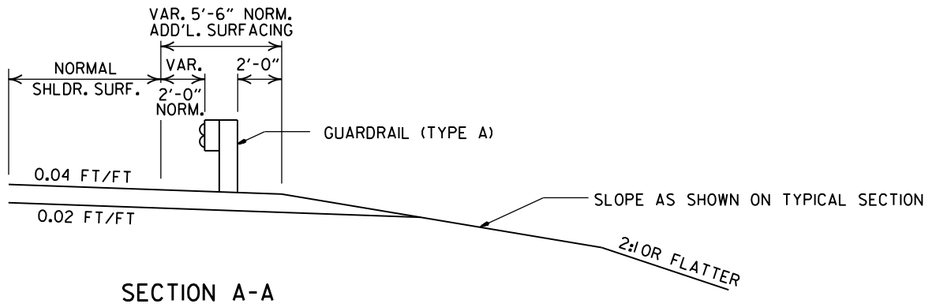
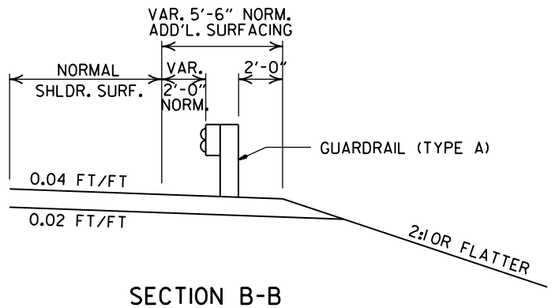
GUARDRAIL DETAILS

STANDARD DRAWING GR-8





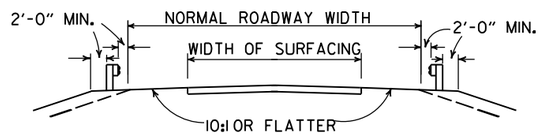
SECTION A-A



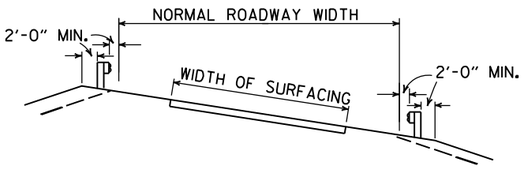
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

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

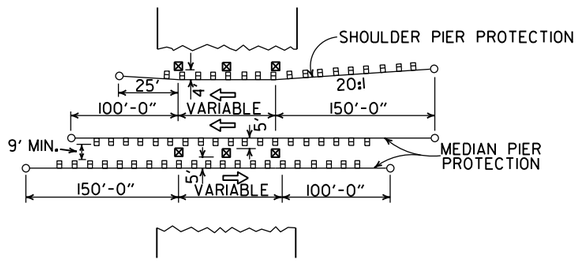


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY



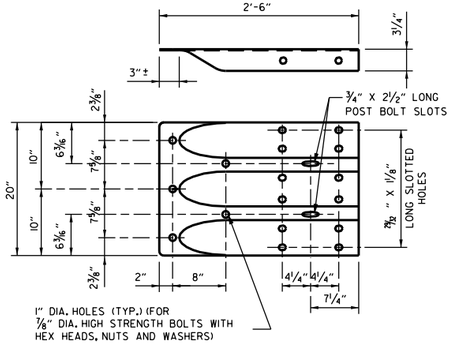
METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

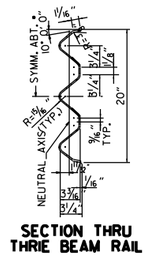
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

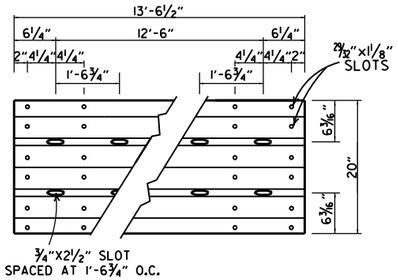
STANDARD DRAWING GR-9



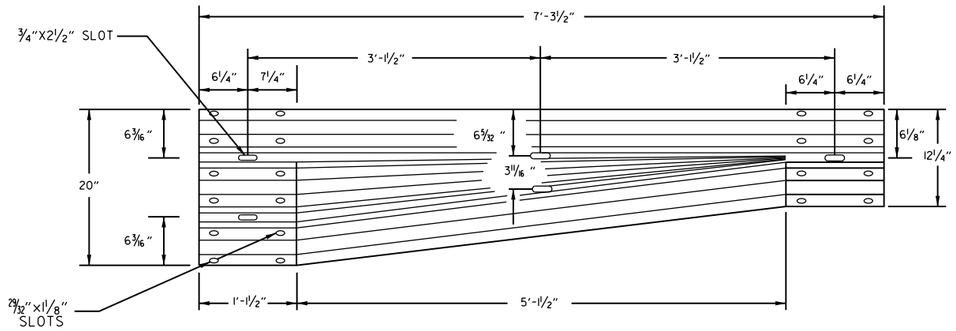
SPECIAL END SHOE



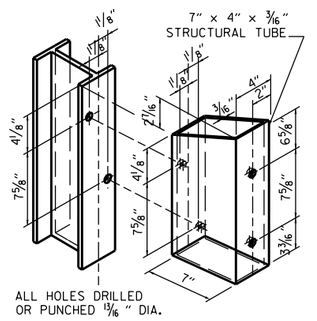
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

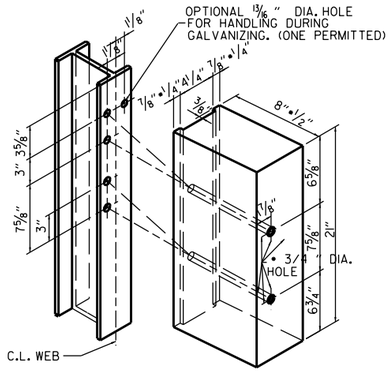


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

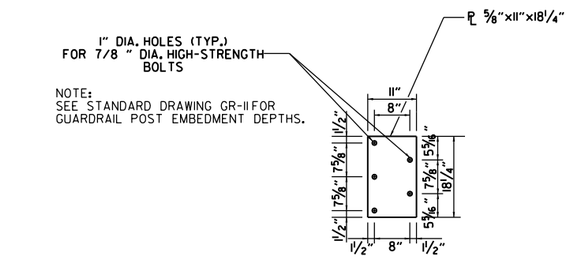
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

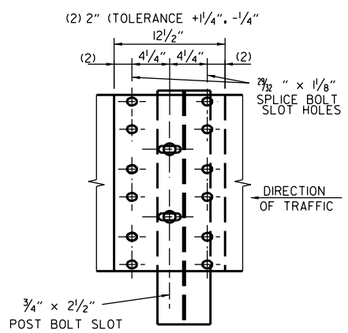
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



NOTE:
SEE STANDARD DRAWING GR-11 FOR GUARDRAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3*4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

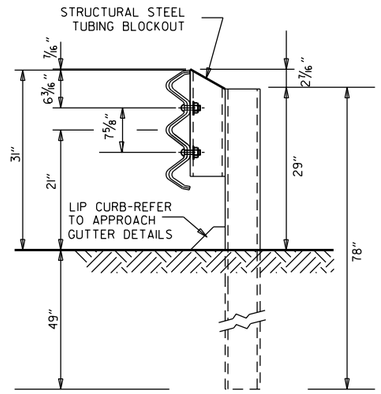
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

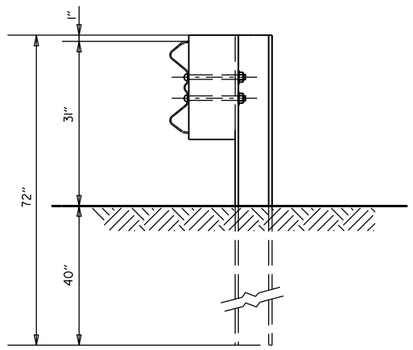
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

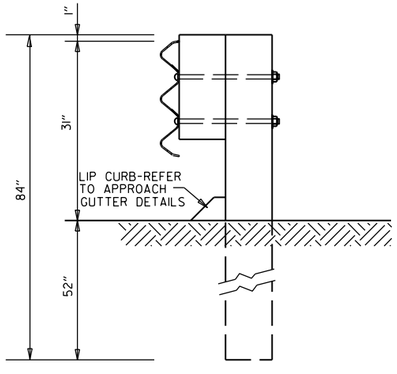
STANDARD DRAWING GR-10



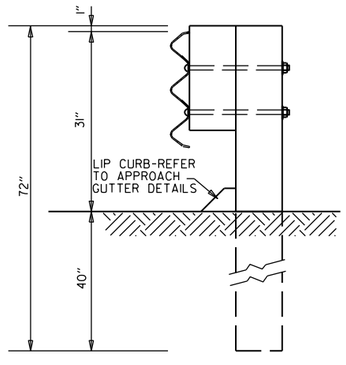
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



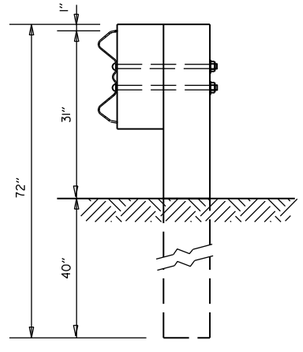
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

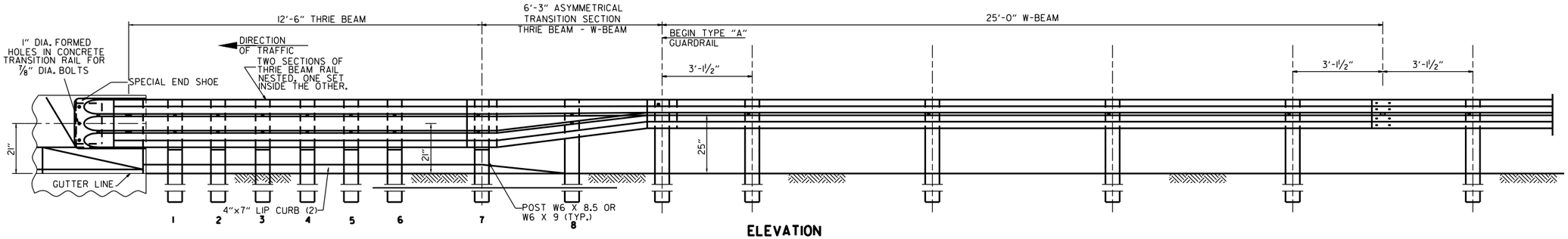
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

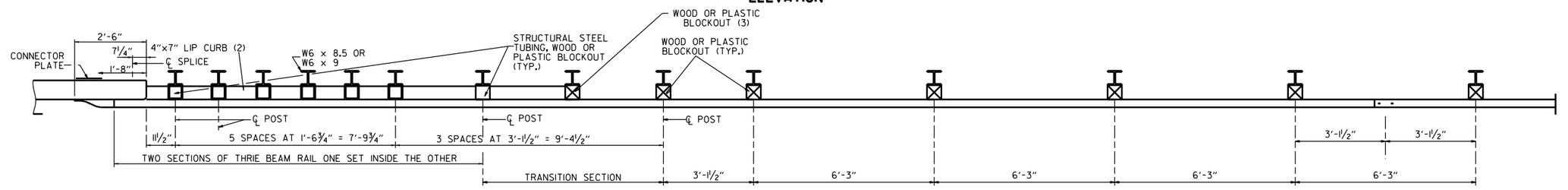
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

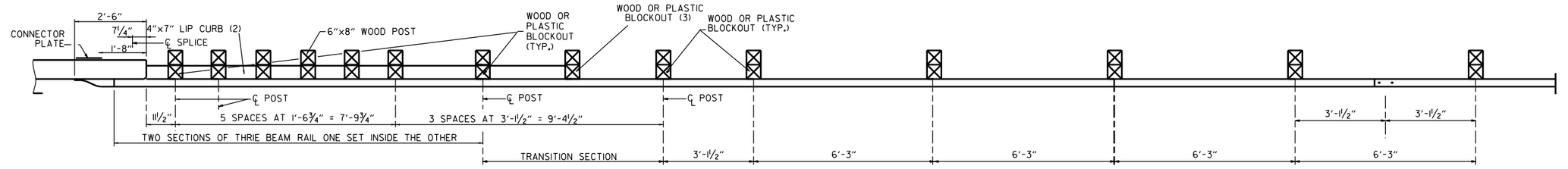
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

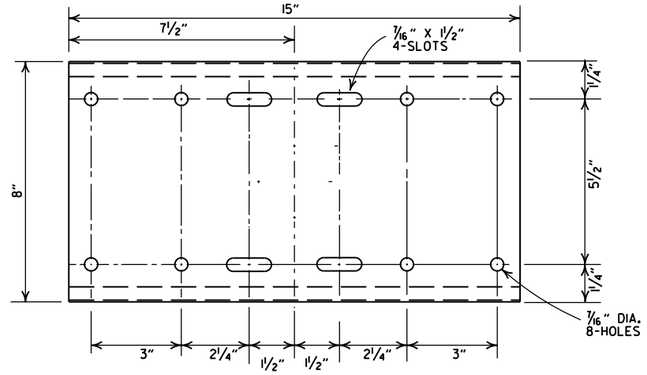
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

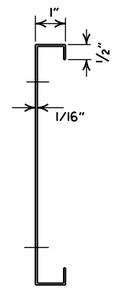
ARKANSAS STATE HIGHWAY COMMISSION

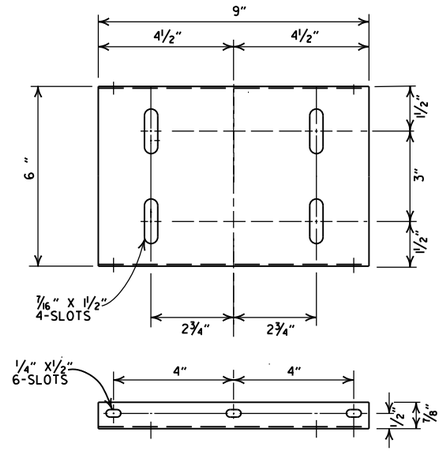
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

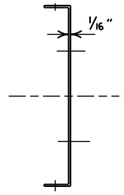


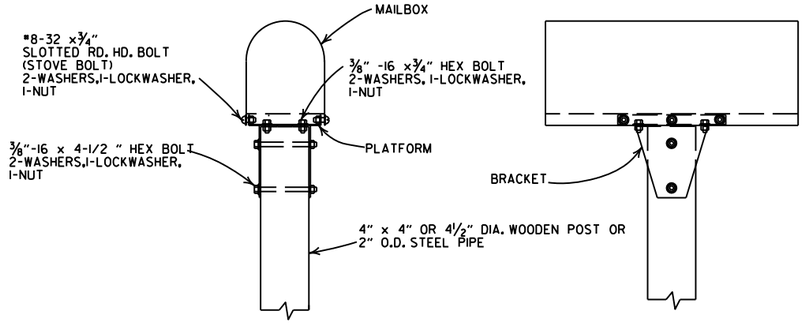
SHELF



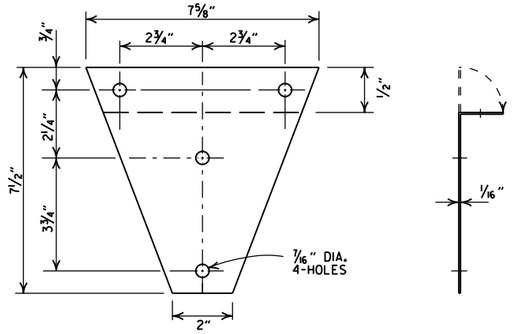


PLATFORM





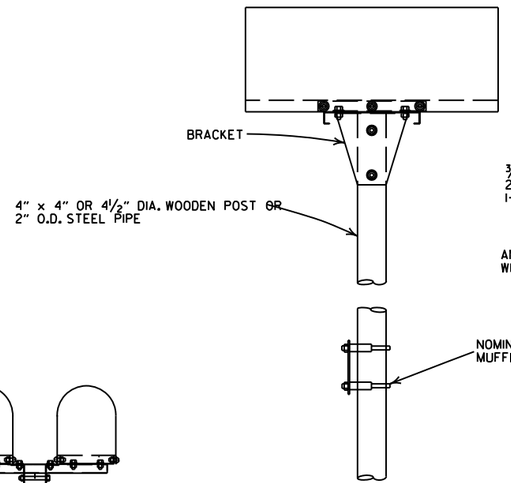
SINGLE INSTALLATION



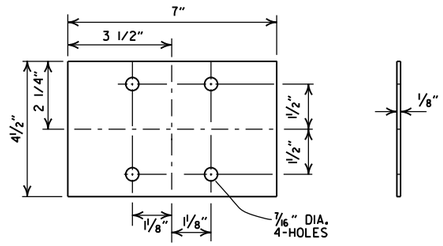
BRACKET

GENERAL NOTES

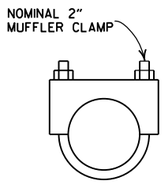
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



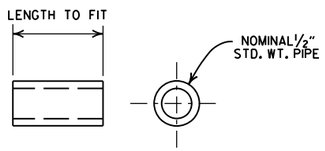
DOUBLE INSTALLATION



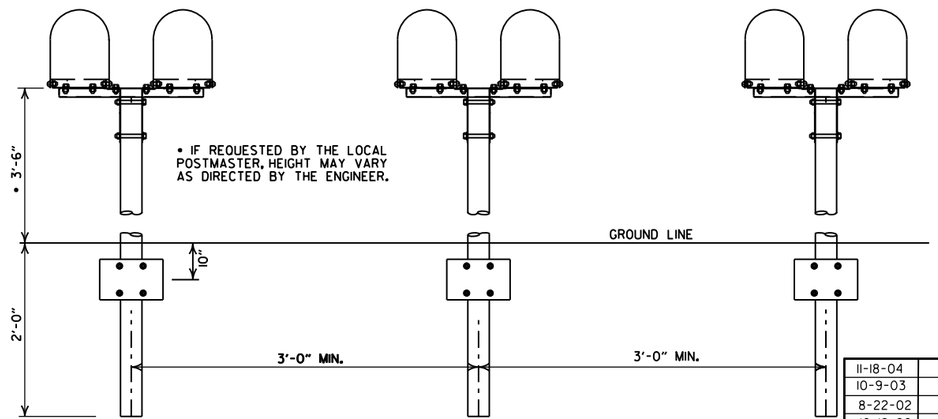
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

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	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

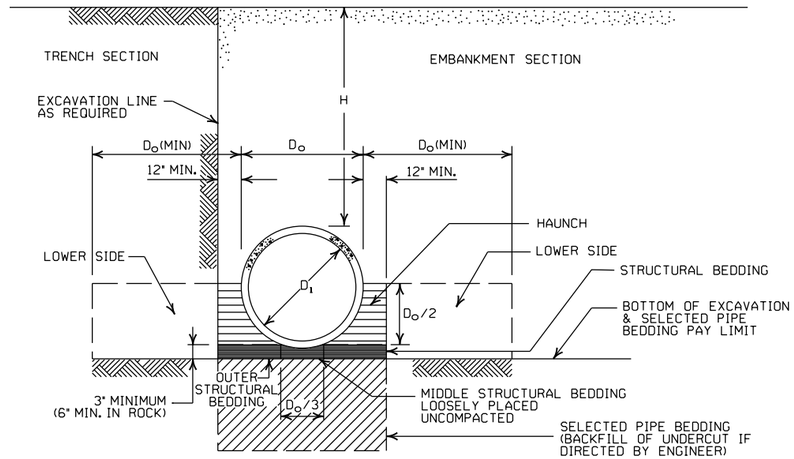
- LEGEND -

D_1 = 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.

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

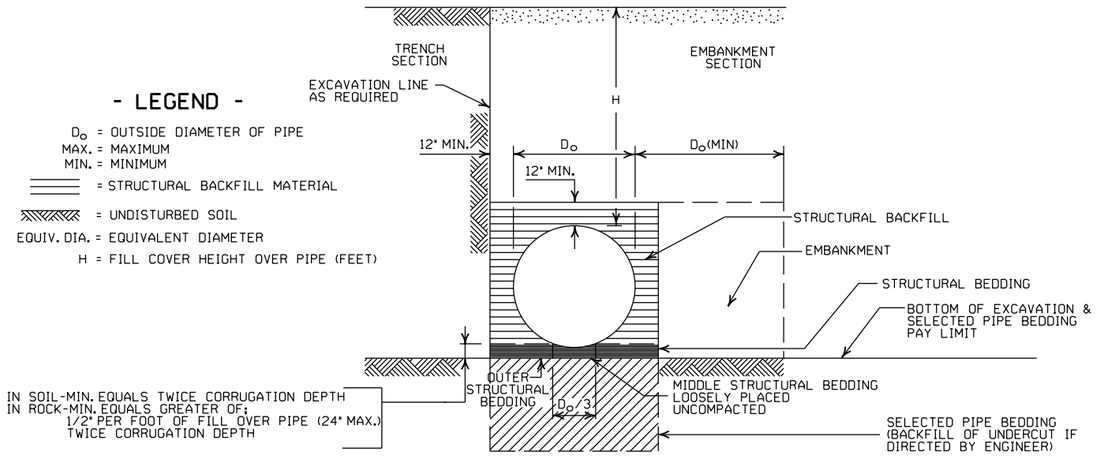
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM 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 TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2		INSTALLATION TYPE 1
36	40x31	5	0.079	3	2	12		15
42	46x36	6	0.079	3	2	13		15
48	53x41	7	0.079	3	2	13		15
54	60x46	8	0.079	3	2	13		15
60	66x51	9	0.079	3	2	13		15
66	73x55	12	0.079	3	2	15		15
72	81x59	14	0.079	3	2	15		15
78	87x63	14	0.079	3	2	15		15
84	95x67	16	0.109	3	2	15		15
90	103x71	16	0.109	3	2	15		15
96	112x75	18	0.109	3	2	15		15
102	117x79	18	0.109	3	2	15		15
108	128x83	18	0.138	3	2	15		15

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

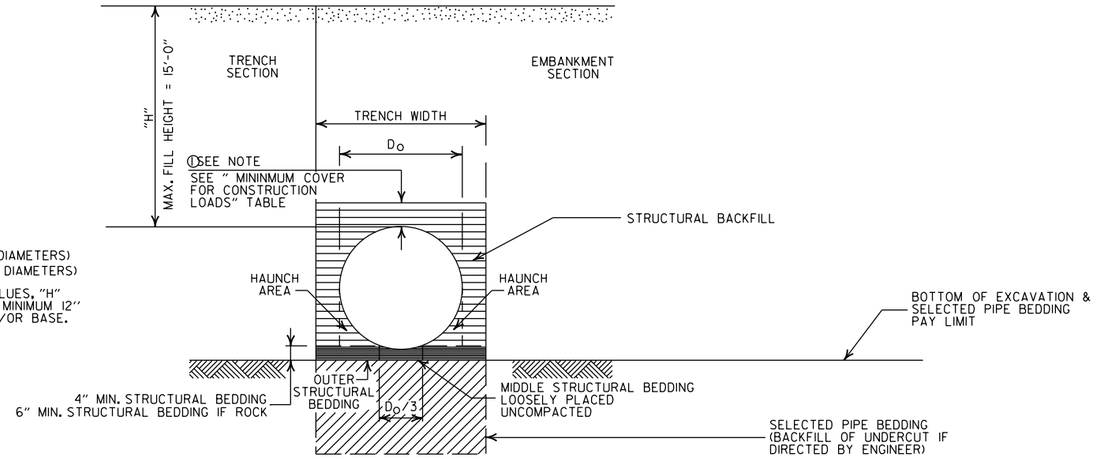
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

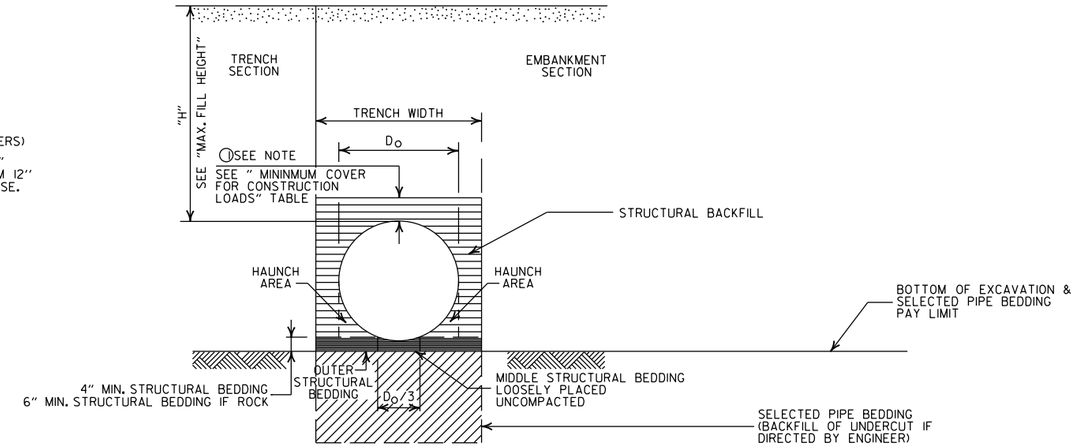
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

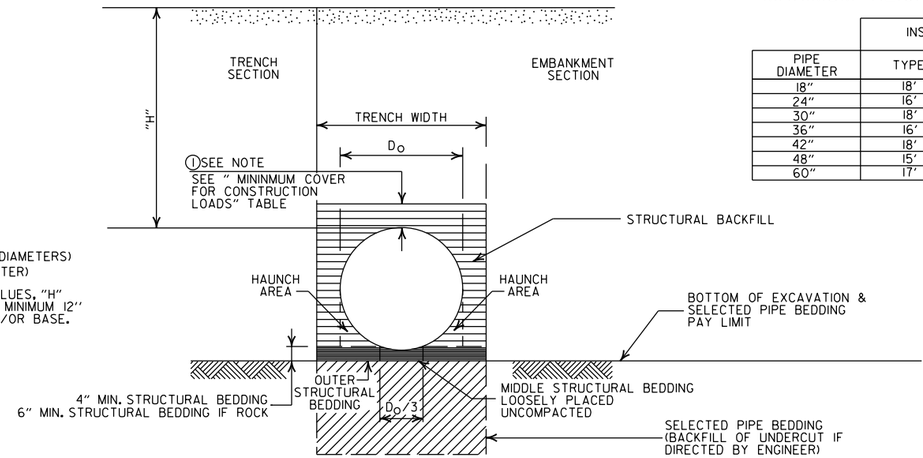
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

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"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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



MAXIMUM HEIGHT OF FILL "H"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

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 SPECIFICIATIONS 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

= UNDISTURBED SOIL

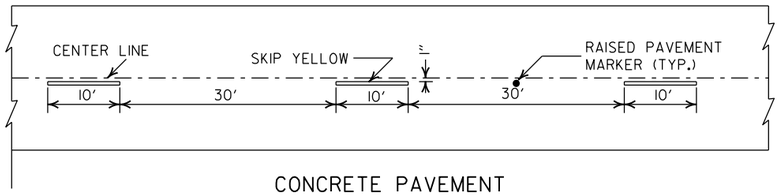
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

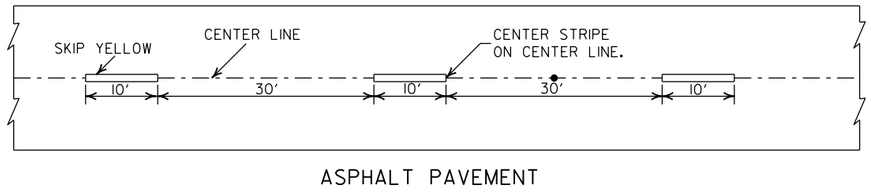
PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

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.

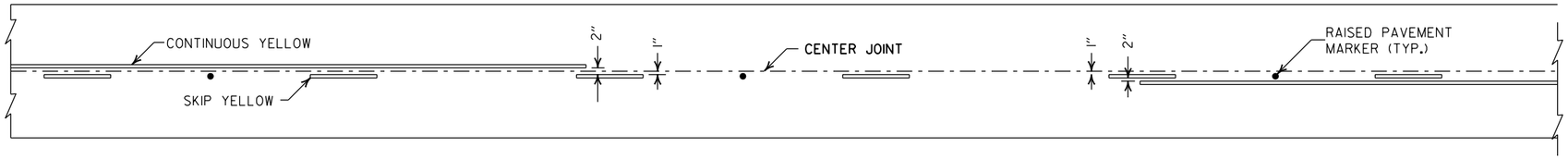


CONCRETE PAVEMENT

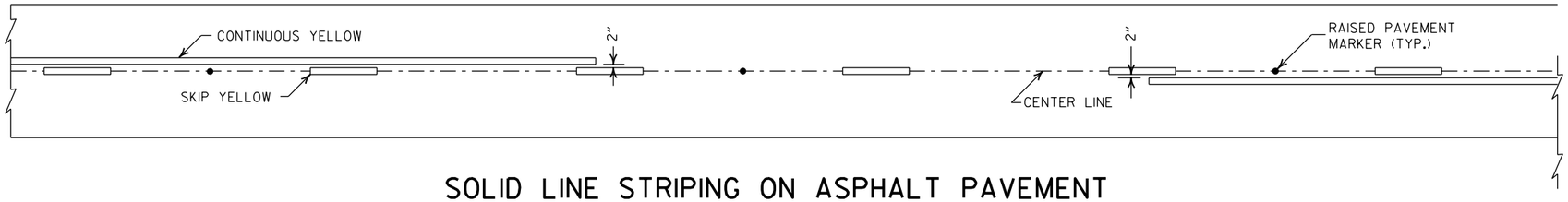


ASPHALT PAVEMENT

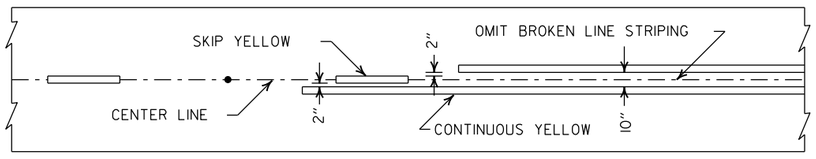
BROKEN LINE STRIPING



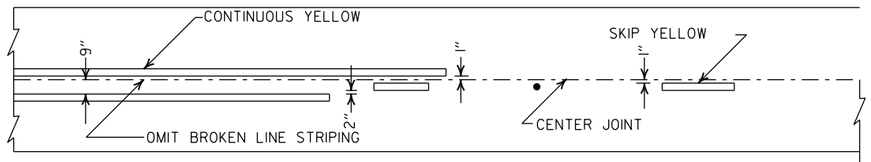
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

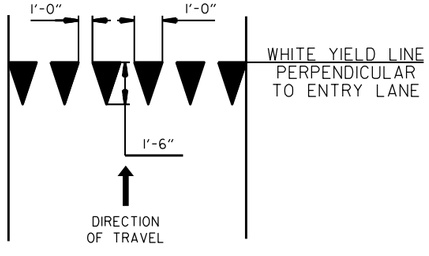


ASPHALT PAVEMENT

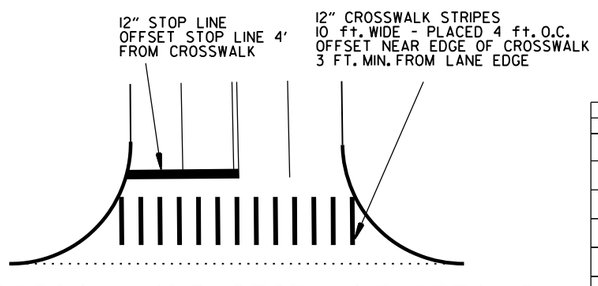


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

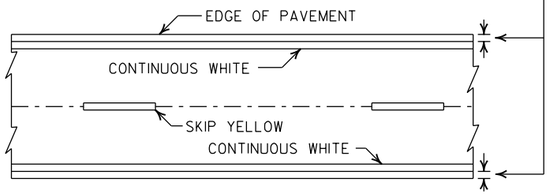


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

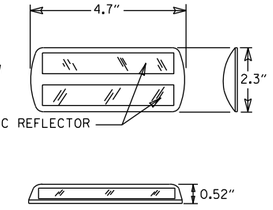
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

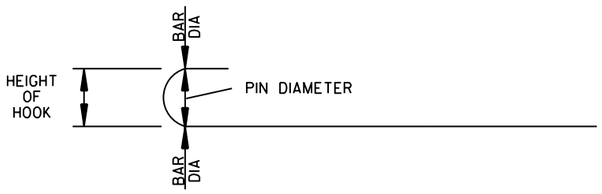
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

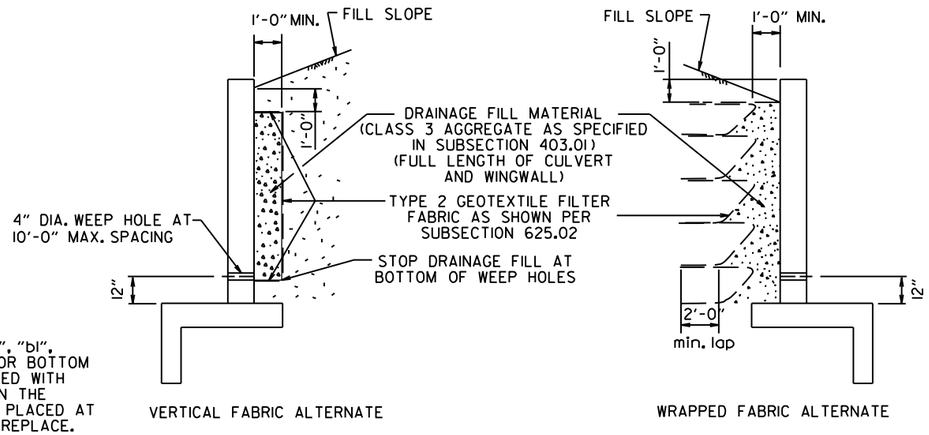
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

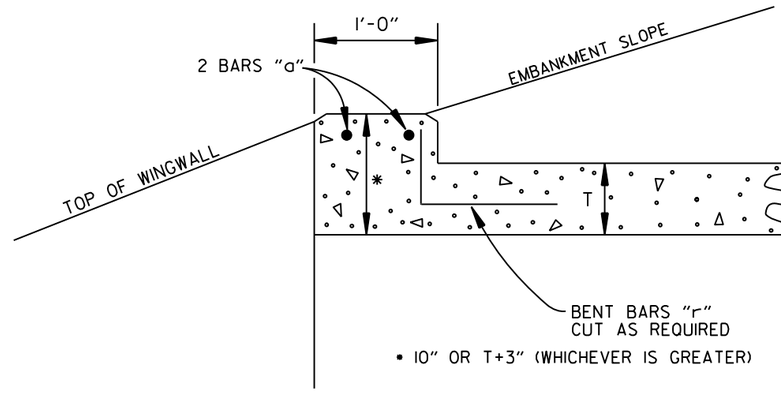
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

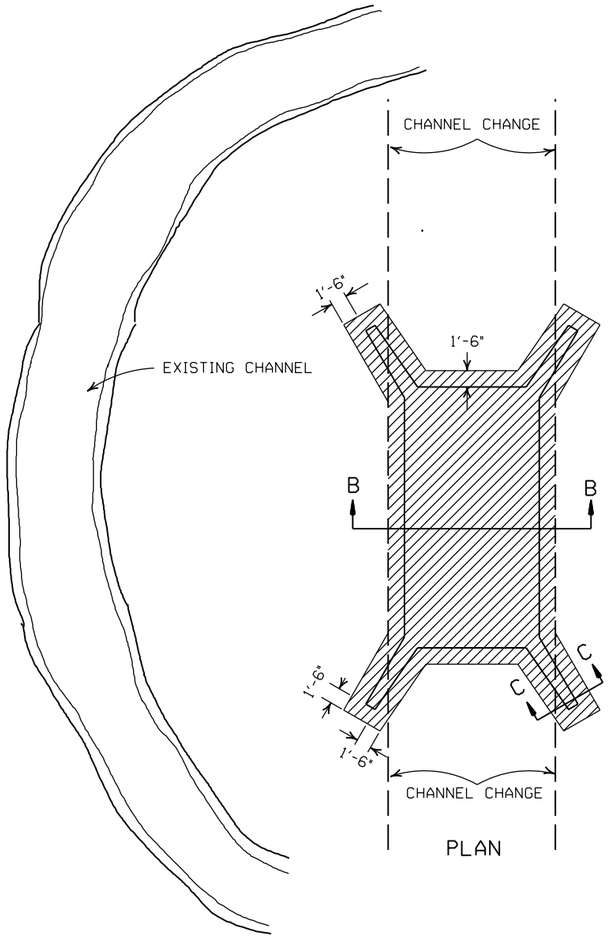
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

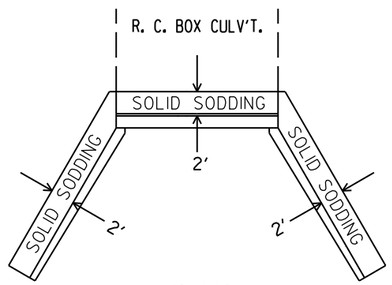
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



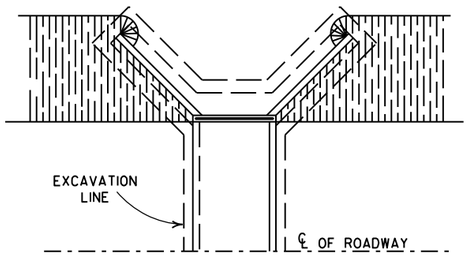
PLAN



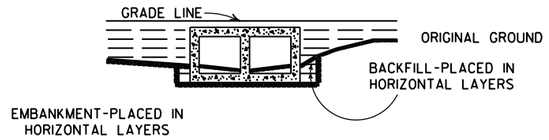
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

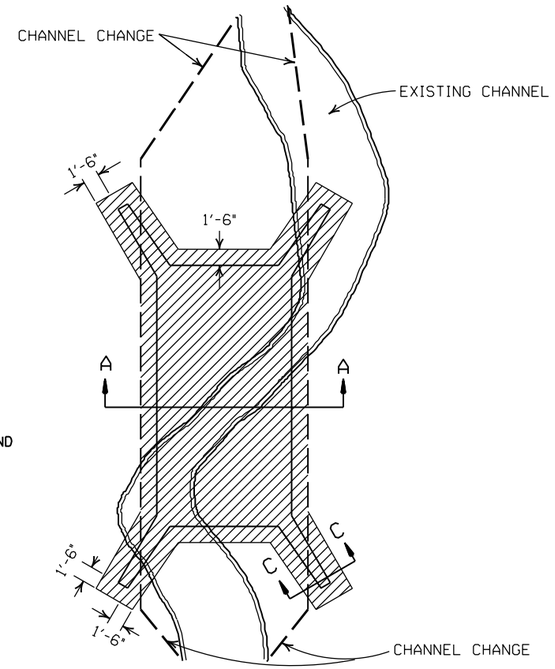


PLAN

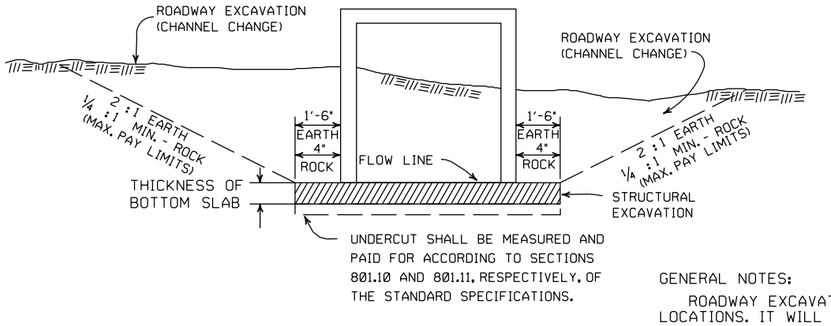


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

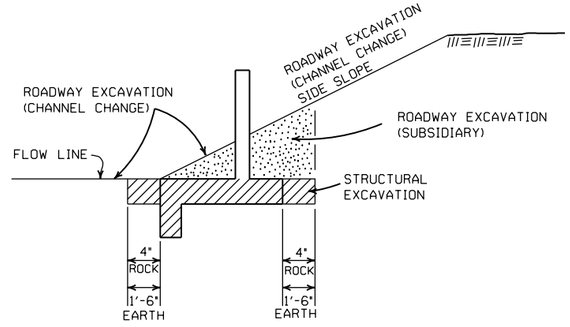


PLAN

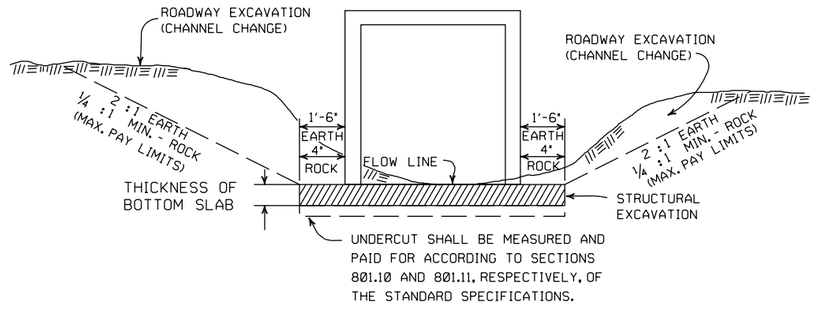


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

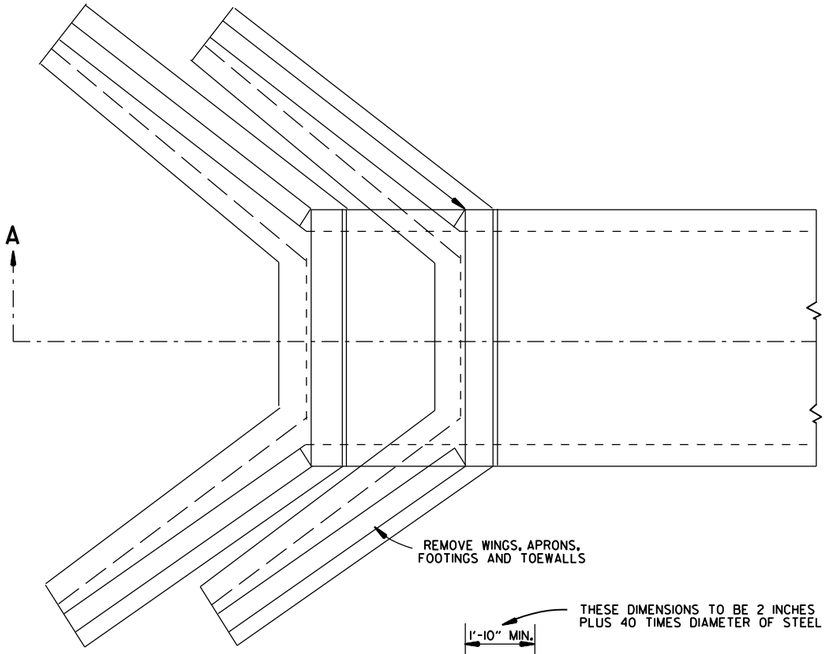
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

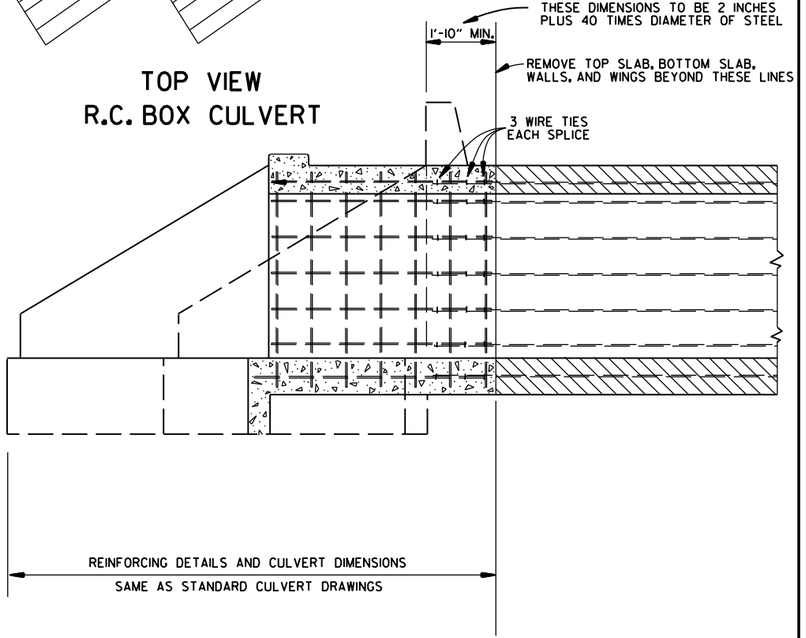
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

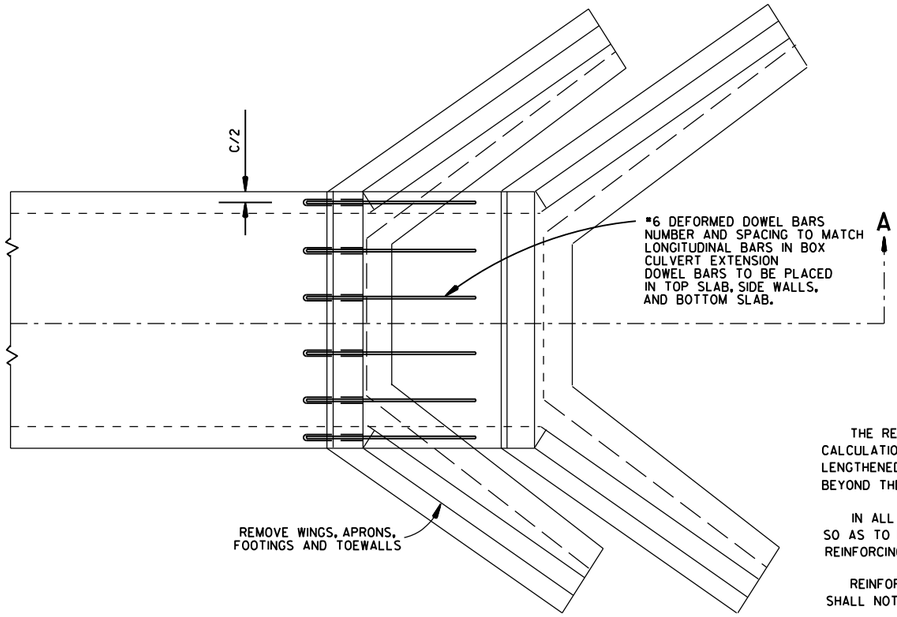


TOP VIEW
R.C. BOX CULVERT

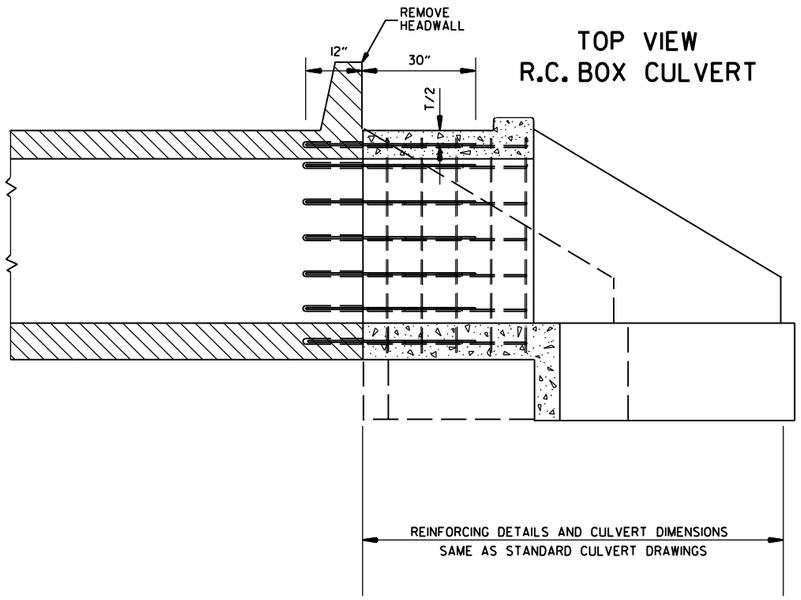


SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER. THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER. AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

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
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158	300	0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
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	
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		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235		0.088	259	350
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		0.086	254	350	0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
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				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
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							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100	200	0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259	300	0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261	300																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																				
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250	D MAX = 19° 30'																										
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												
D MAX = 28° 30'																														

GENERAL NOTES

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

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

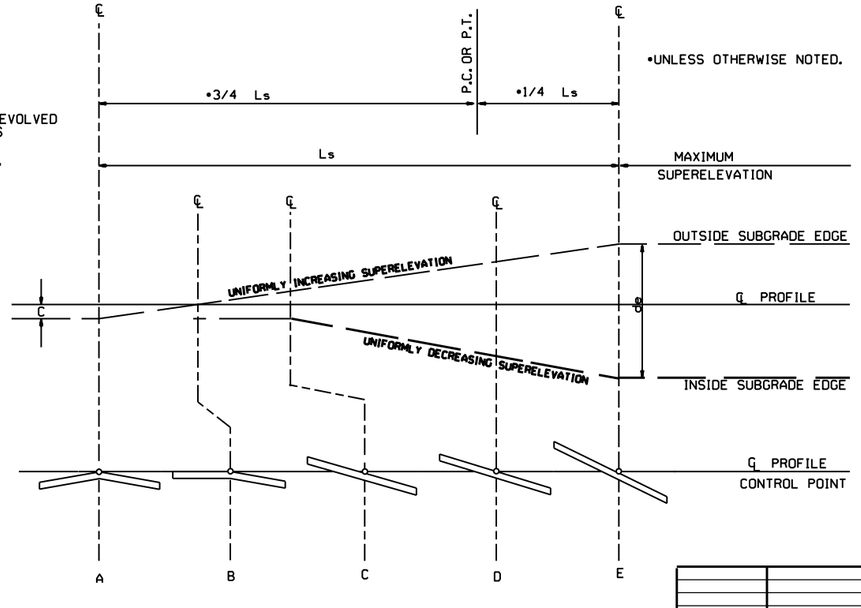
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

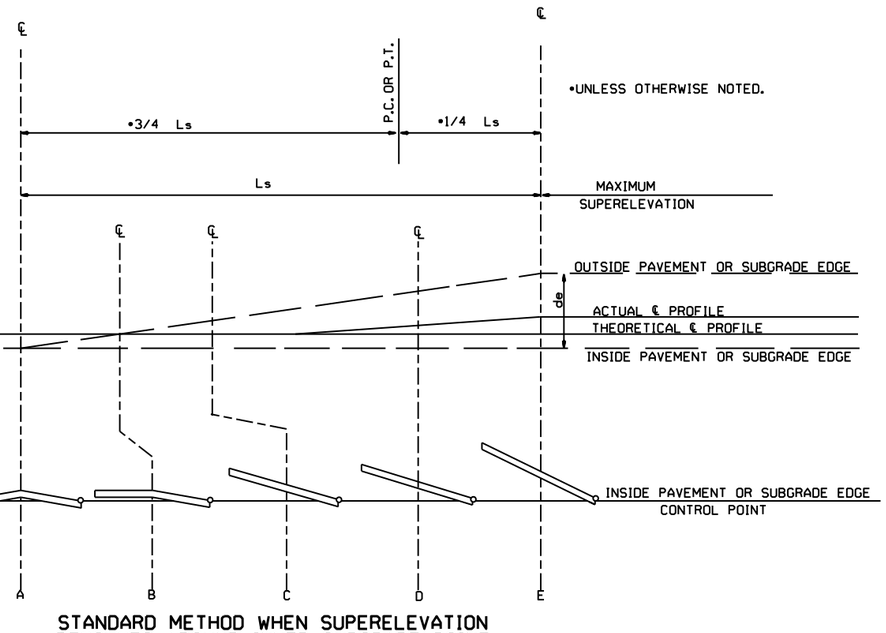
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

DATE	REVISION	DATE FILLMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

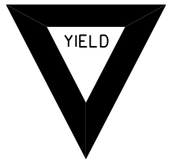
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

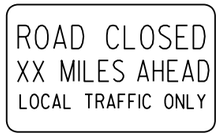
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

W21-5a

STD. 36"X36"
FWY. 48"X48"

WI-1

STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

WI-3

STD. 48"X48"

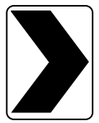
WI-4

STD. 48"X48"

WI-6

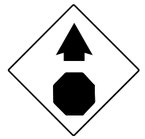
STD. 48"X24"
SPECIAL 60"X30"

WI-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

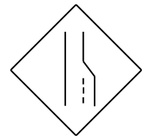


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

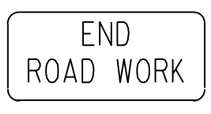
W8-9

STD. 36"X36"
FWY. 48"X48"

G20-1

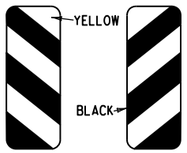
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

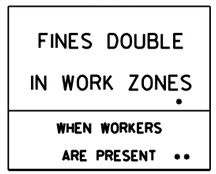
M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

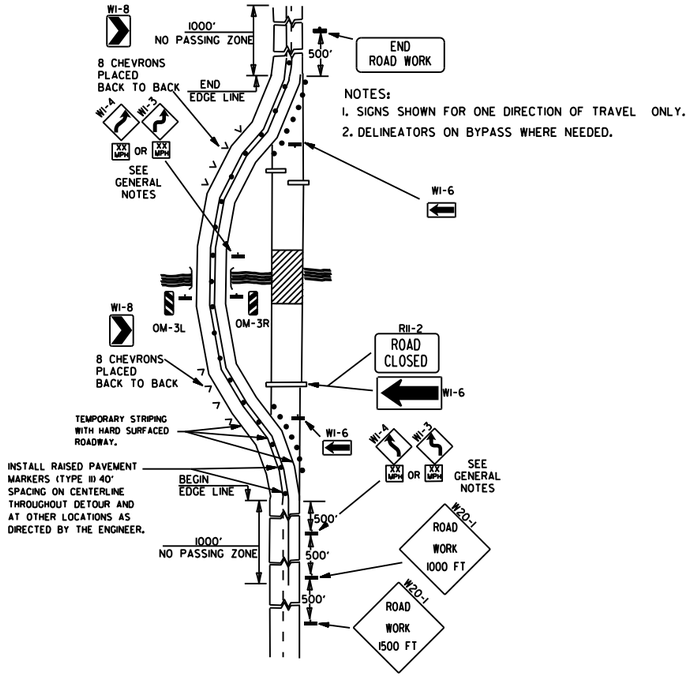
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

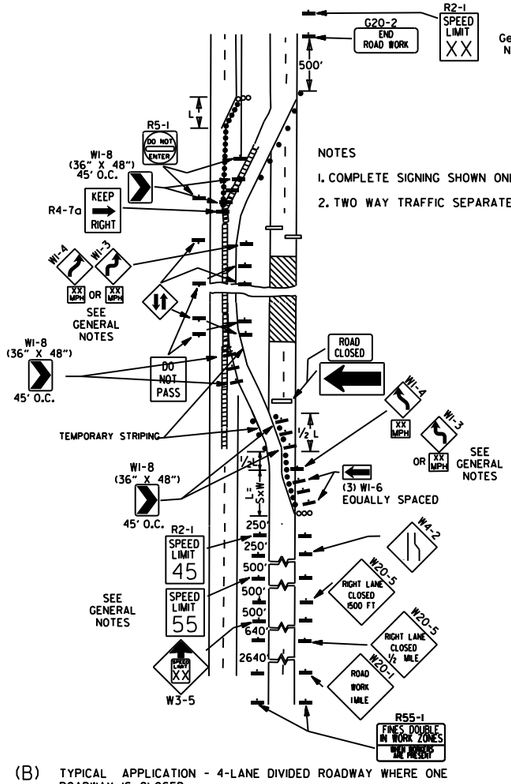
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



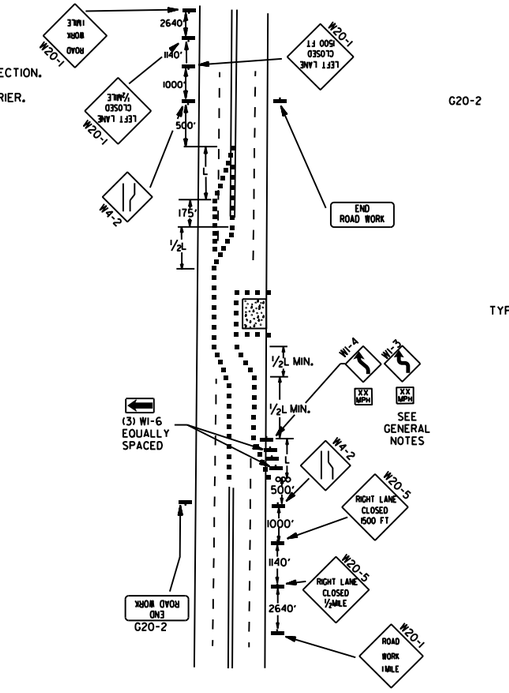
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

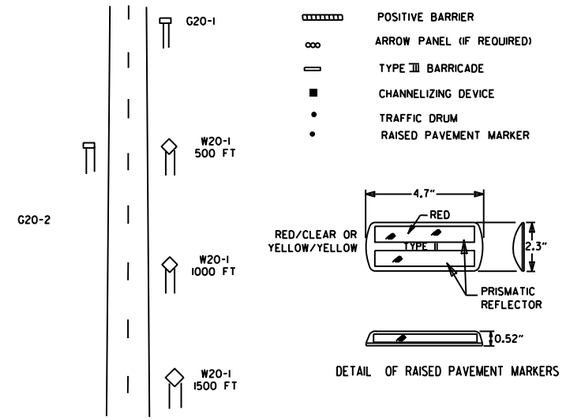


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

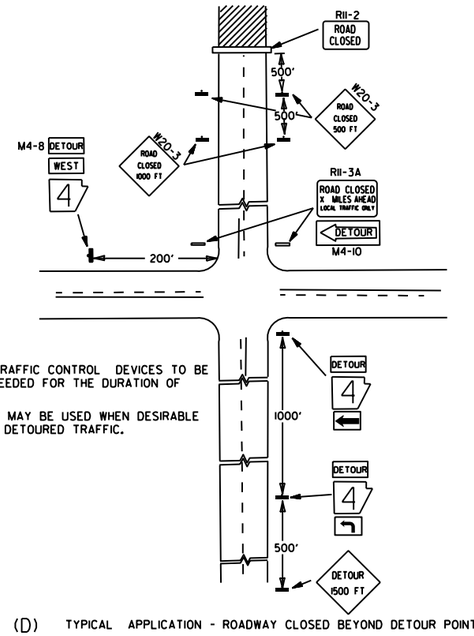
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

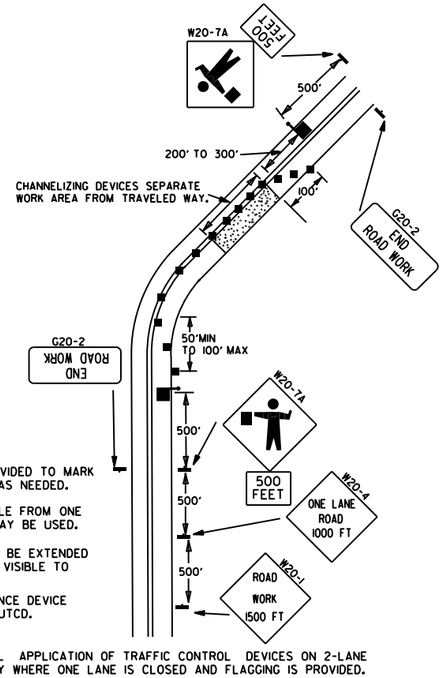
GENERAL NOTES:

1. 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
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 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
9. 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).



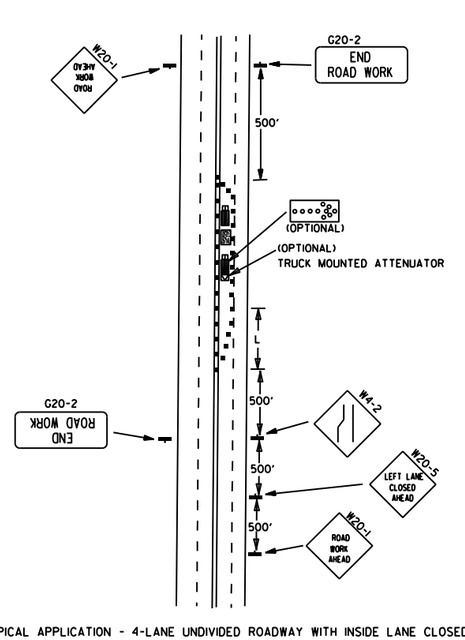
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



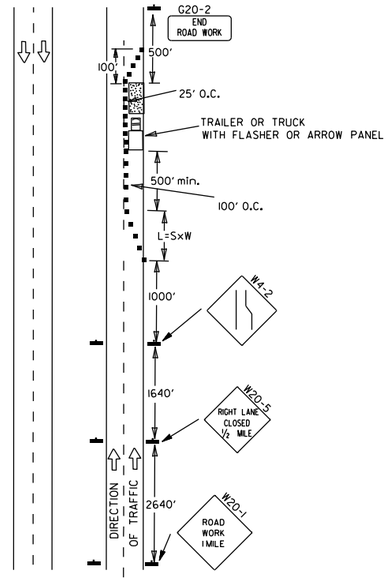
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
05-20-21	REVISED NOTE 7	
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 (G) 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	

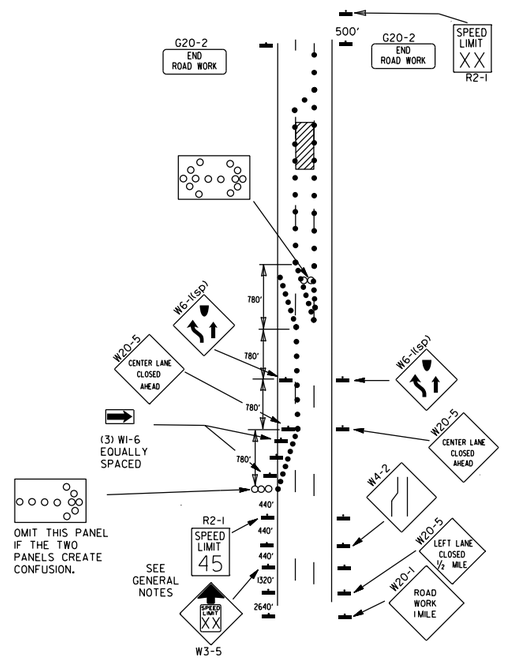
ARKANSAS STATE HIGHWAY COMMISSION

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.



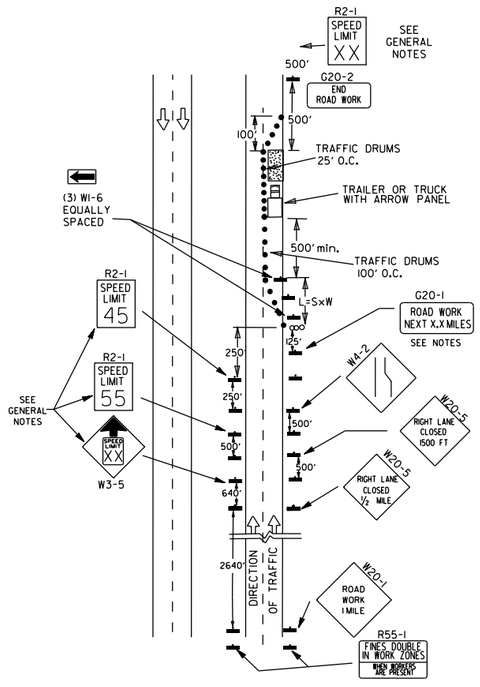
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

- ARROW PANEL (IF REQUIRED)
- ■ CHANNELIZING DEVICE
- ● TRAFFIC DRUM

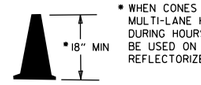
GENERAL NOTES:

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 R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF 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. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
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).



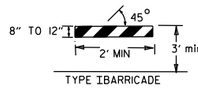
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES

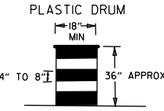


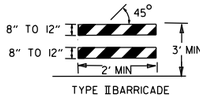
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

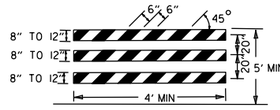
CONES



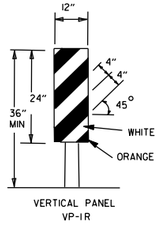
PLASTIC DRUM



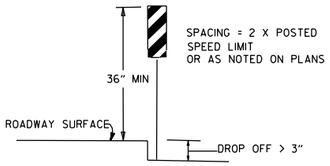




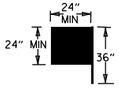
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



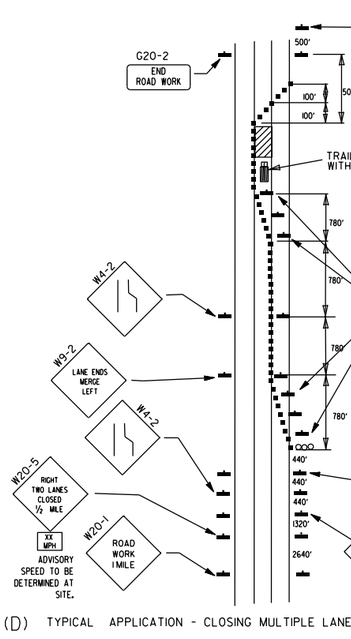
VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL



A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

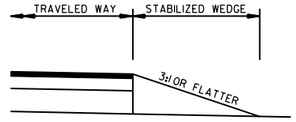
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS[1]	W8-9 AND TRAFFIC DRUMS[1]
> 3" ≤ 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[1]
> 6" ≤ 18"	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]
> 18" ≤ 24"	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

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

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

GENERAL NOTES:

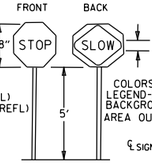
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

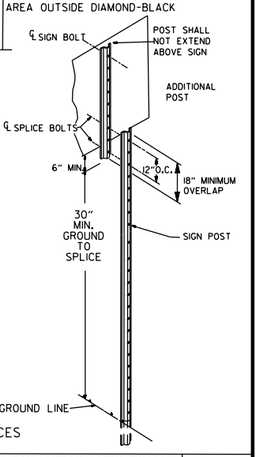


STABILIZED WEDGE

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

STOP SLOW PADDLE

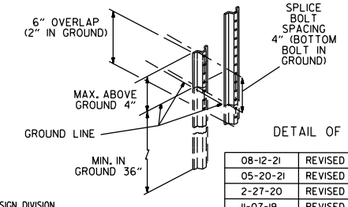




NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DETAIL OF SPLICES

DATE	REVISION	FILMED
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES	
05-20-21	REVISED NOTE 10	
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
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	

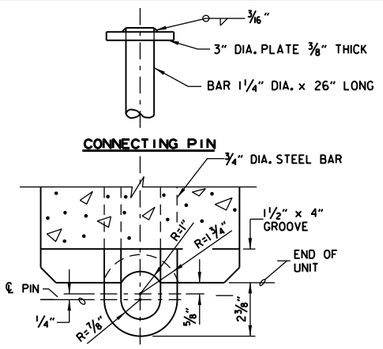
ARKANSAS STATE HIGHWAY COMMISSION

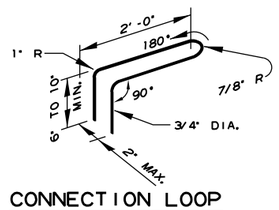
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

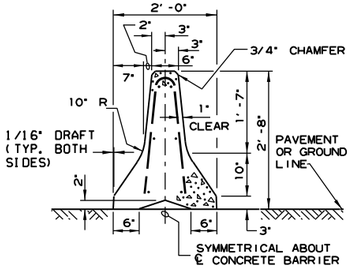
STANDARD DRAWING TC-3

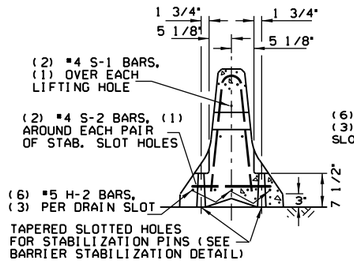
REINFORCING BAR TABLE PER BARRIER UNIT

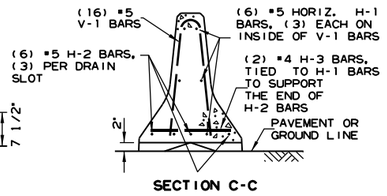
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 1 1/2", 9", 2'-1 3/8", 4 3/8"

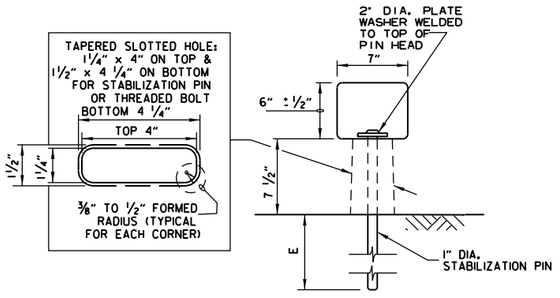




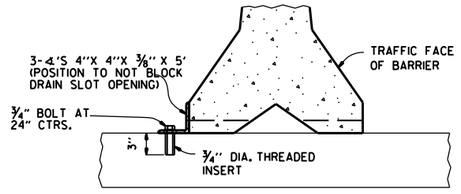






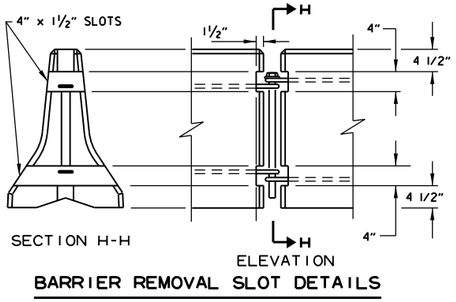


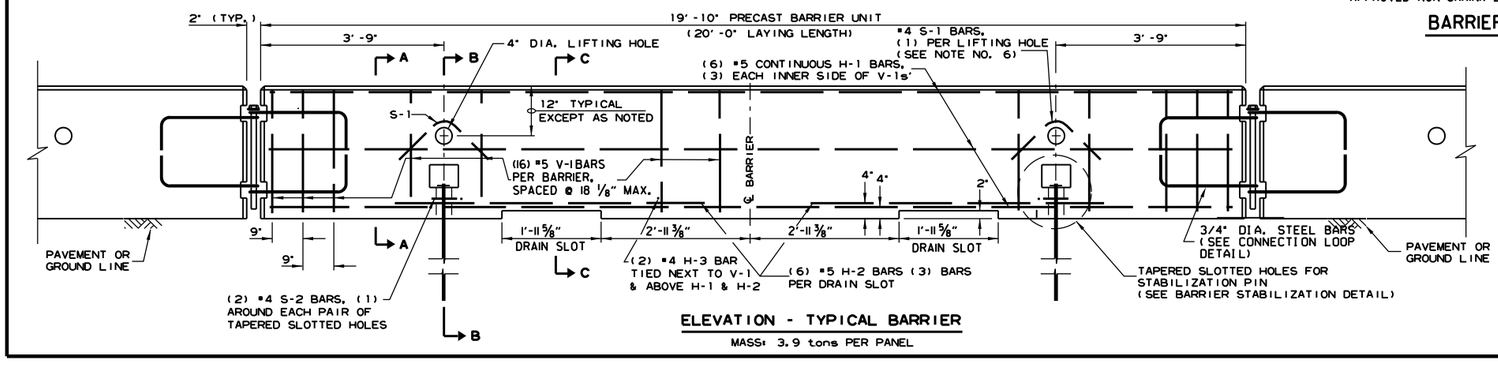
Ⓔ 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



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

BARRIER STABILIZATION DETAIL
BRIDGE DECKS





MASS: 3.9 tons PER PANEL

GENERAL NOTES

1. THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

2. MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
   CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
   REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
   STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
   DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

   IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
   DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
   PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

3. OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

4. DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

5. ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

6. A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

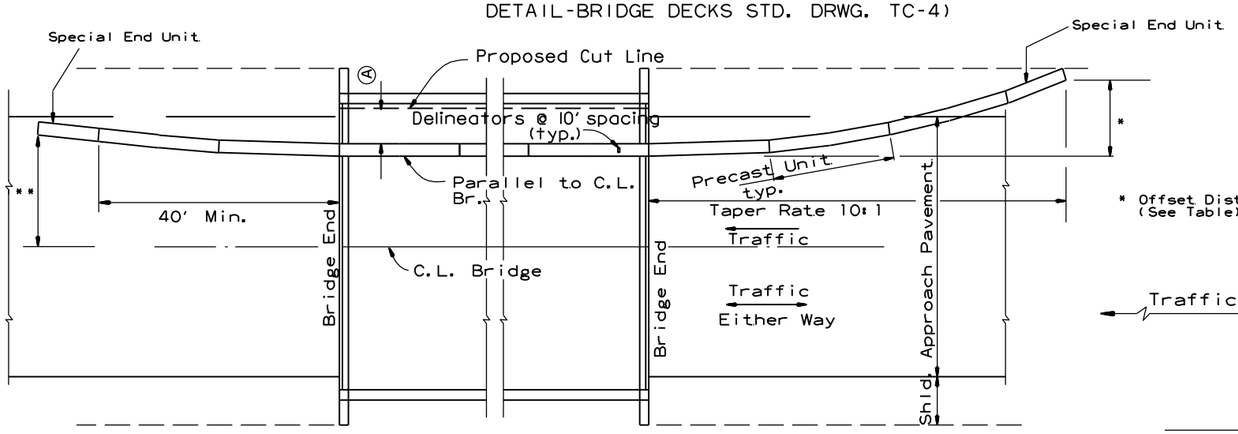
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

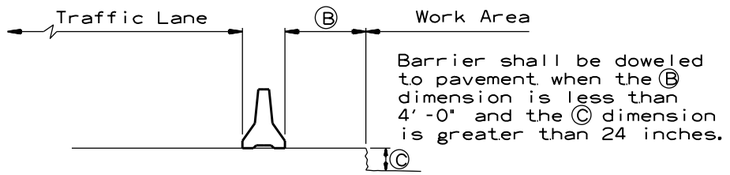
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

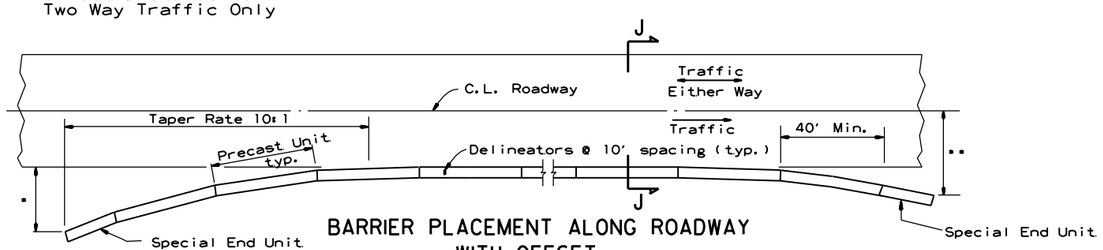
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

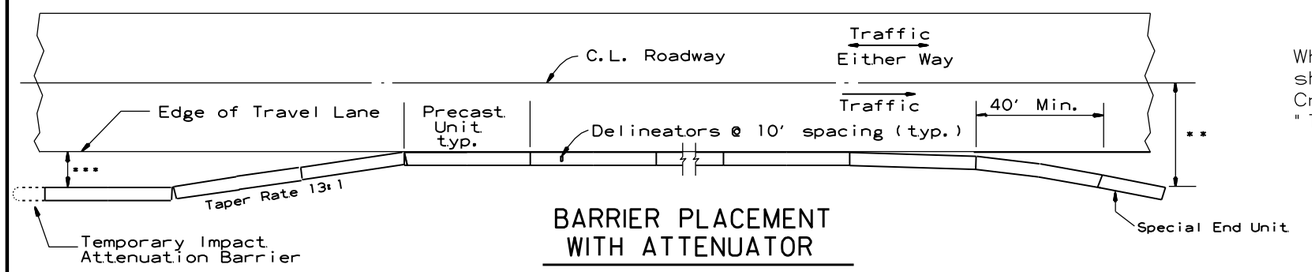
* Offset Distance (See Table)

** 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.

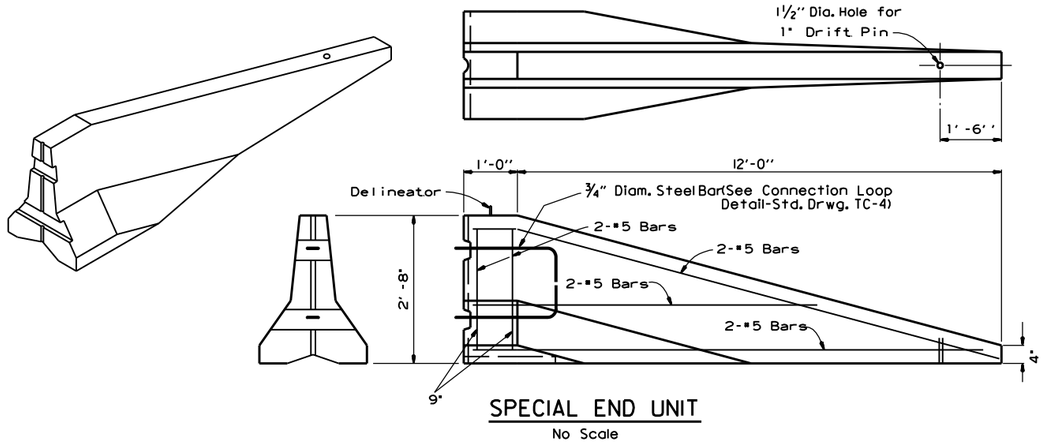


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

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

** Offset Distance For Two Way Traffic Only



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."

DATE	REVISION	FILMED
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

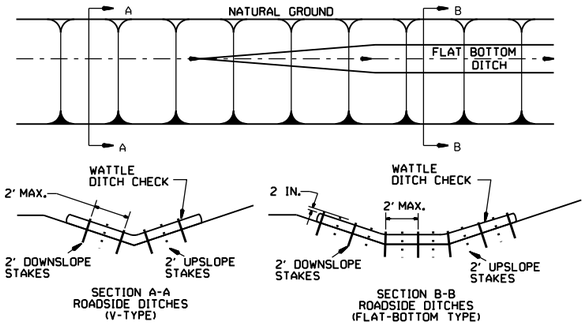
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

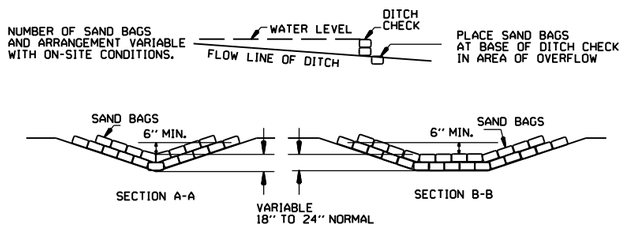
STANDARD DRAWING TC-5

GENERAL NOTES

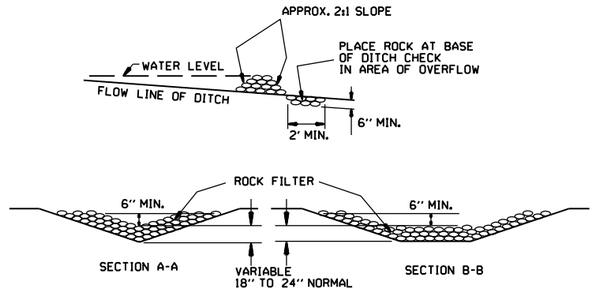
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

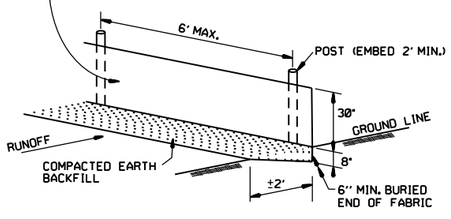


ROCK DITCH CHECK (E-6)

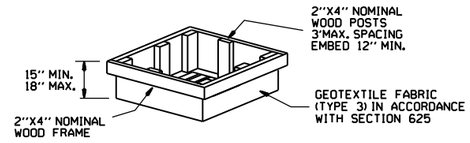
GENERAL NOTES

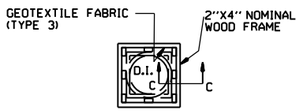
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

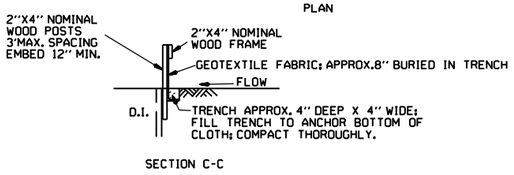


SILT FENCE (E-11)



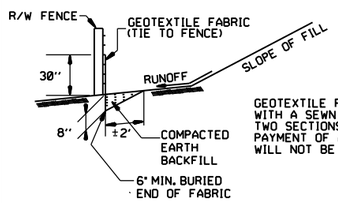


PLAN



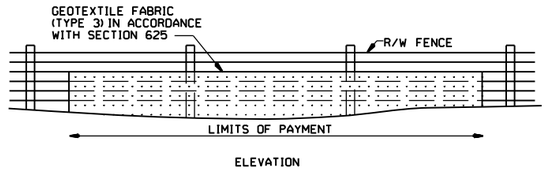
SECTION C-C

DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



ELEVATION

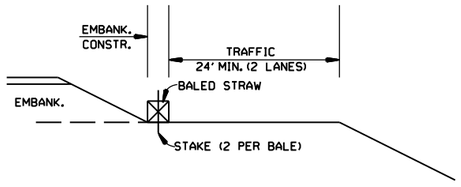
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

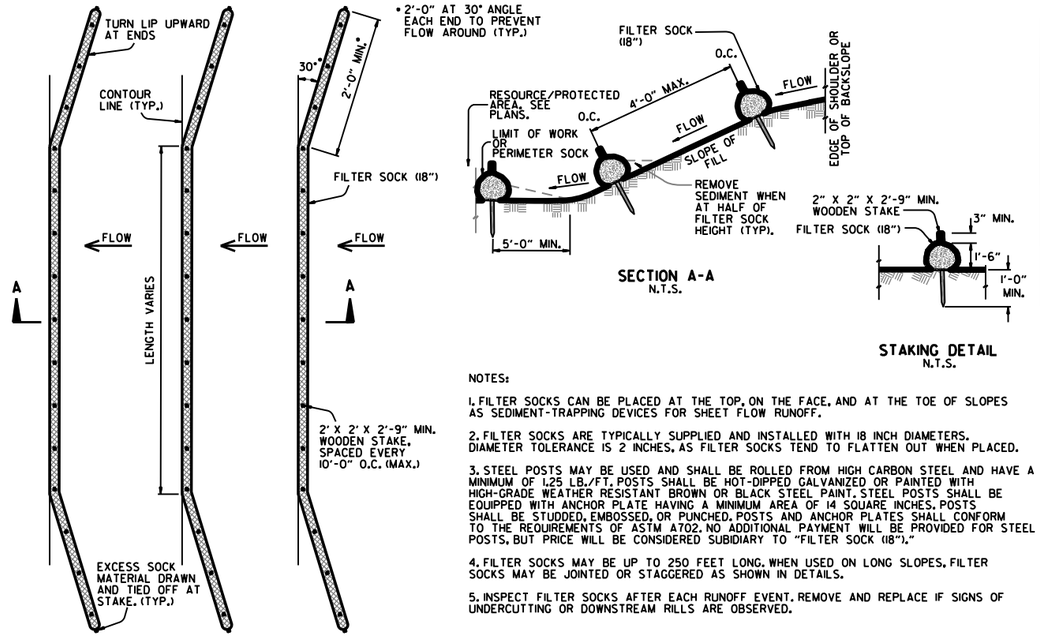
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

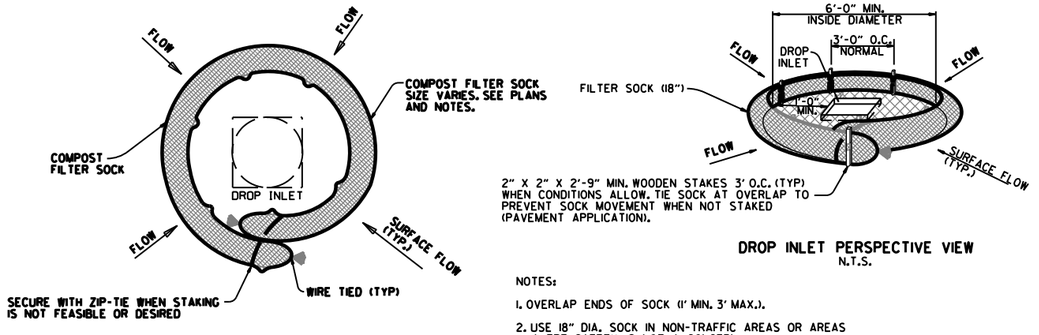
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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 SILT 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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

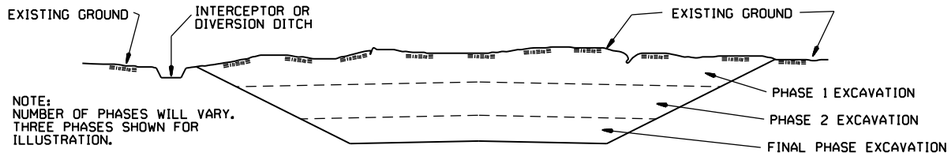
STANDARD DRAWING TEC-1

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



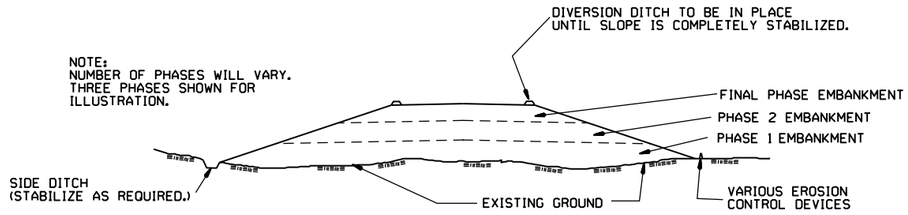
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

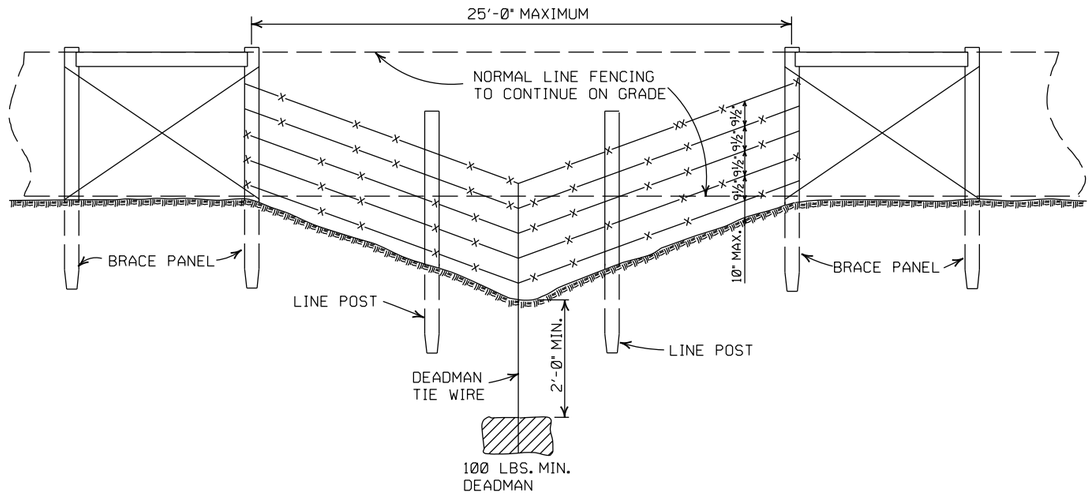
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

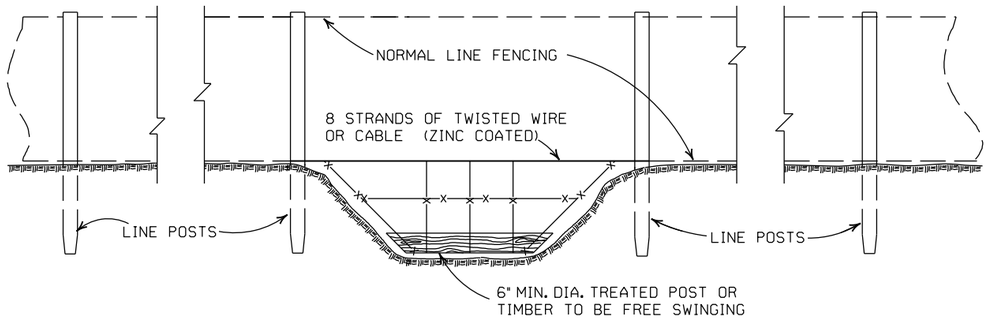
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

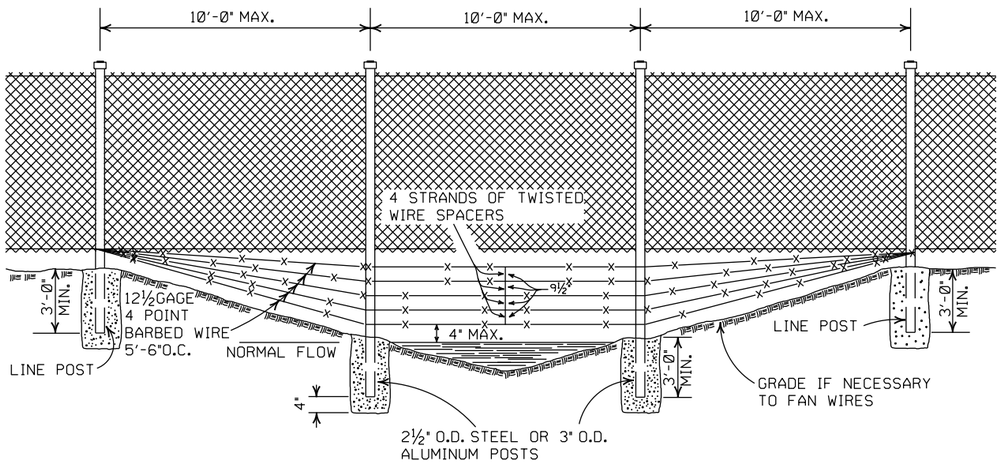
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

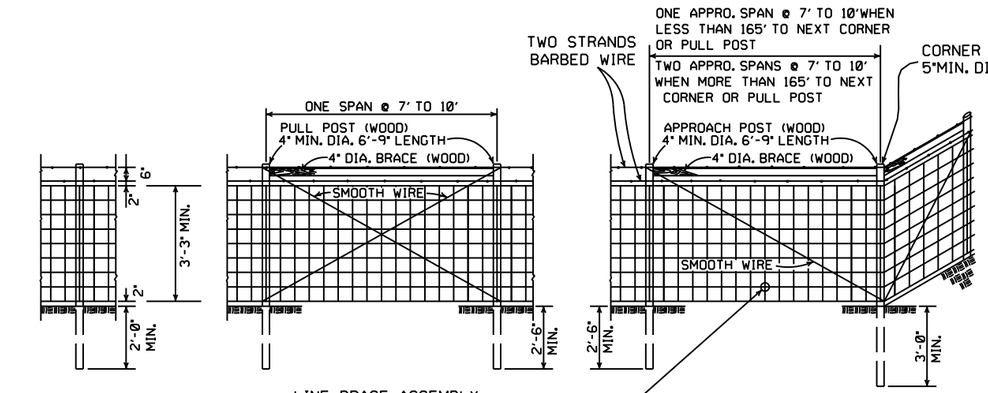
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

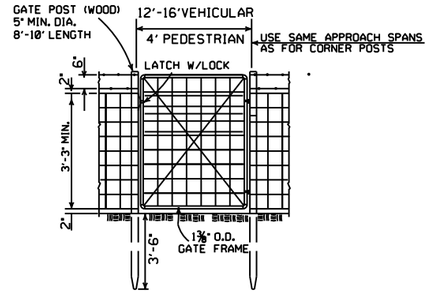
DATE	REVISION	FILMED
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

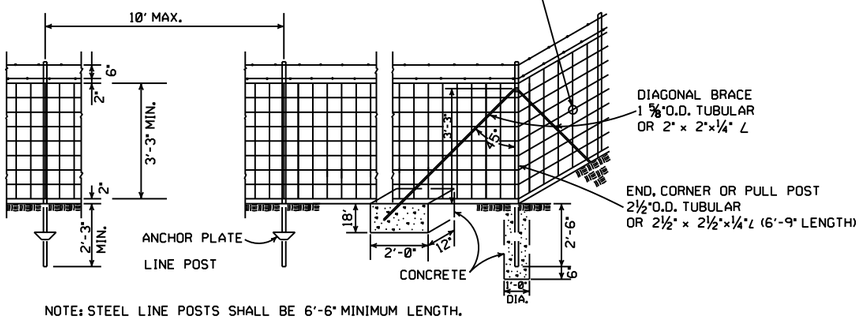
WIRE FENCE WATER GAPS

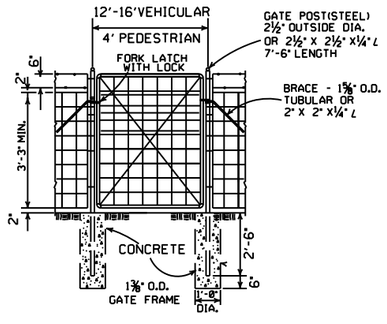
STANDARD DRAWING WF-2



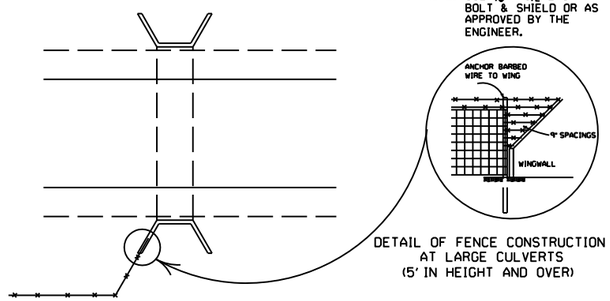


TYPE C FENCE (WOOD POSTS)





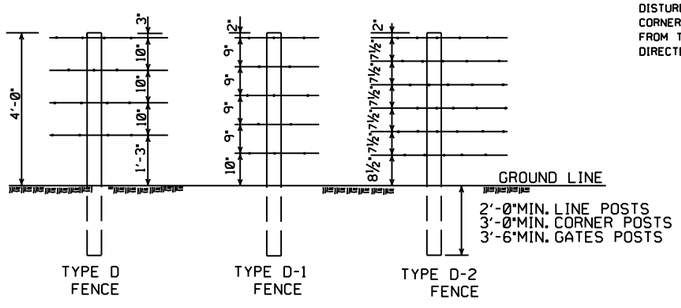
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



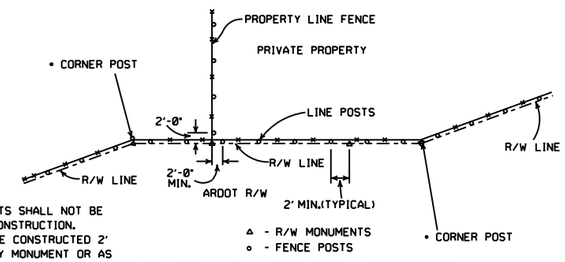
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

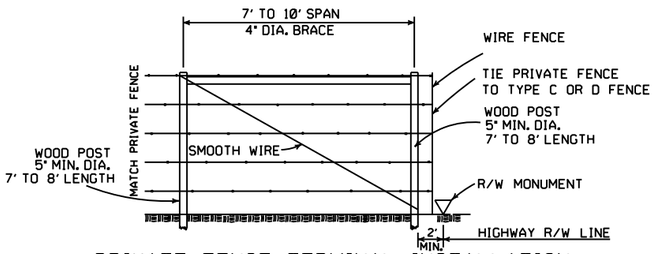


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



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

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

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

GENERAL NOTES:

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

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

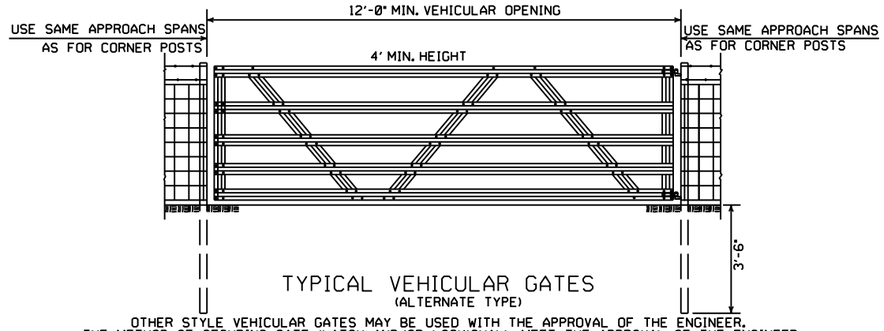
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

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

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

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

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



TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

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

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4