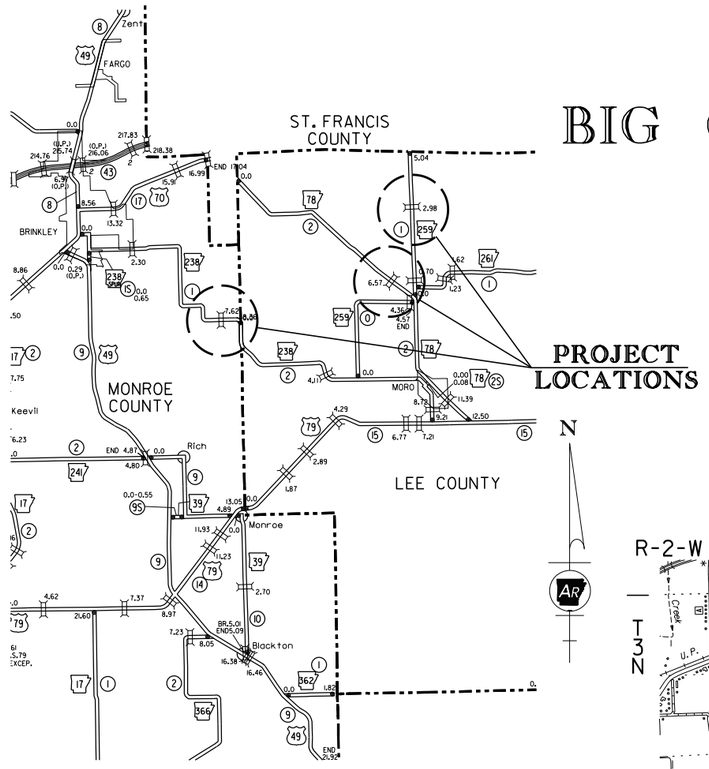
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	1	95
				(2) BIG CREEK, LITTLE PINEY CREEK & BIG CREEK BRANCH STRS. & APPRS. (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS

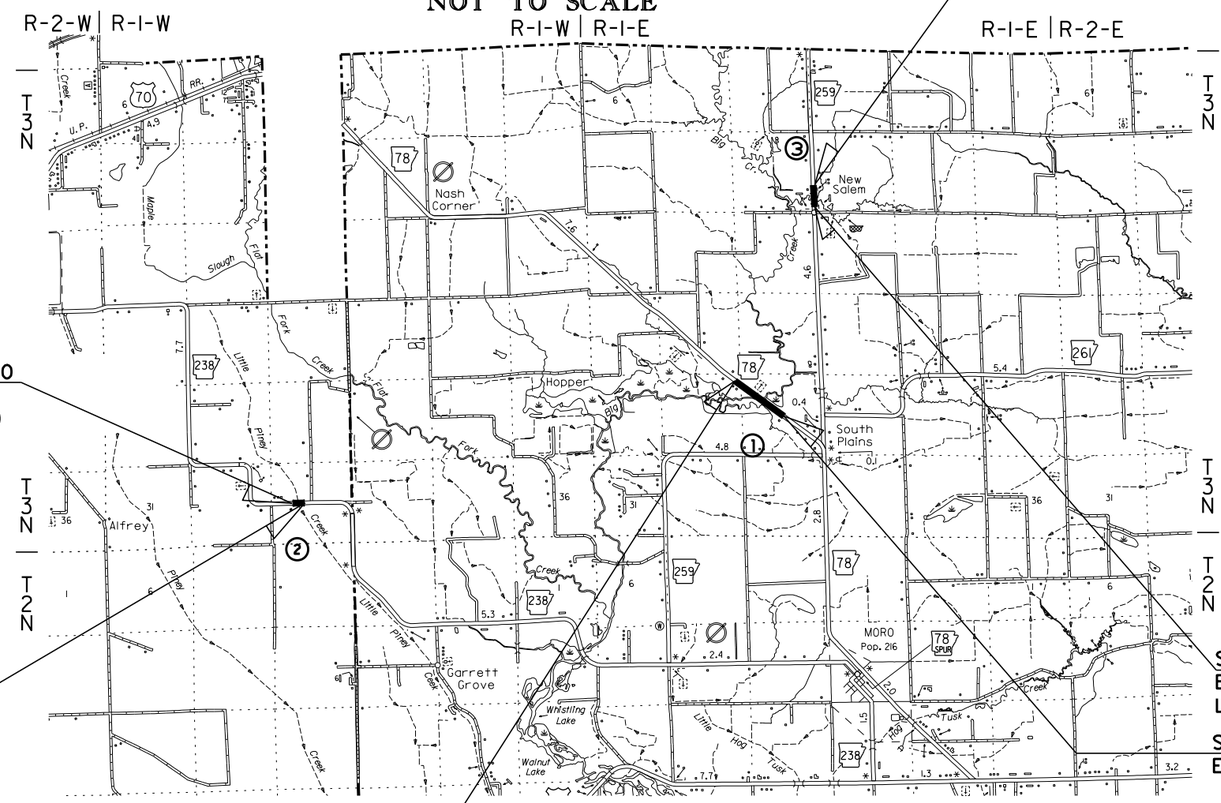
BIG CREEK, LITTLE PINEY CREEK & BIG CREEK BRANCH STRS. & APPRS. (S)

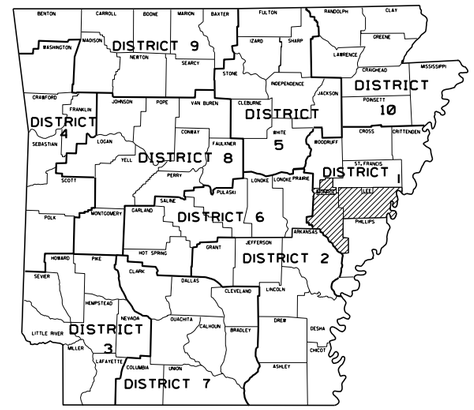
LEE & MONROE COUNTIES
ROUTE 78 SECTION 2
ROUTE 238 SECTION 1
ROUTE 259 SECTION 1
JOB 110715
FED. AID. PROJ. NHPP-3948(1)



VICINITY MAP

NOT TO SCALE





ARKANSAS HIGHWAY DISTRICT 1

BRIDGE CONSTRUCTION DATA

(1) STA. 99+37.08 BRIDGE END
BRIDGE NO. 07569 OVER BIG CREEK
ON 40° LT. FWD. SKEW
199'-0" PRESTRESSED CONCRETE
GIRDER UNIT (TYPE III) (66.5'-66'-66.5')
30'-0" CLEAR ROADWAY
201'-10" BRIDGE LENGTH
STA. 101+38.92 BRIDGE END

STRUCTURES OVER 20'-0" SPAN

(2) STA. 210+15.00 CONSTRUCT
TRI. 7'X4'X86' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
10° RT. FWD. SKEW
Q25=240 CFS D.A.=1.51 SQ. MI.
SPAN=23.69'

(3) STA. 305+00.00 CONSTRUCT
TRI. 10'X6'X80' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
15° RT. FWD. SKEW
Q25=709 CFS D.A.=3.40 SQ. MI.
SPAN=33.47'

· DESIGN TRAFFIC DATA ·

SITE - 1 - HWY. 78
DESIGN YEAR----------2044
2024 ADT----------700
2044 ADT----------900
2044 DHV----------99
DIRECTIONAL DISTRIBUTION-------0.60
TRUCKS----------5%
DESIGN SPEED----------55 MPH

SITE - 2 - HWY. 238
DESIGN YEAR----------2044
2024 ADT----------400
2044 ADT----------500
2044 DHV----------55
DIRECTIONAL DISTRIBUTION-------0.60
TRUCKS----------4%
DESIGN SPEED----------55 MPH

SITE - 3 - HWY. 259
DESIGN YEAR----------2044
2024 ADT----------450
2044 ADT----------580
2044 DHV----------64
DIRECTIONAL DISTRIBUTION-------0.60
TRUCKS----------7%
DESIGN SPEED----------55 MPH

CERTIFICATE OF AUTHORIZATION
MICHAEL BAKER INTERNATIONAL INC
No. 1126
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

SITE		BEGIN OF PROJECT	MID-POINT OF PROJECT	END OF PROJECT
SITE 1	LATITUDE	N 34°50'56"	N 34°50'47"	N 34°50'38"
	LONGITUDE	W 91°00'51"	W 91°00'37"	W 91°00'23"
SITE 2	LATITUDE	N 34°49'51"	N 34°49'51"	N 34°49'51"
	LONGITUDE	W 91°06'46"	W 91°06'45"	W 91°06'43"
SITE 3	LATITUDE	N 34°52'55"	N 34°52'57"	N 34°52'58"
	LONGITUDE	W 90°59'47"	W 90°59'47"	W 90°59'47"

LENGTH COMPUTED ALONG C.L. CONSTRUCTION		
GROSS LENGTH OF PROJECT	3509.53 FEET	0.665 MILES
NET LENGTH OF ROADWAY	3250.54 FEET	0.616 MILES
NET LENGTH OF BRIDGES	258.99 FEET	0.049 MILES
NET LENGTH OF PROJECT	3509.53 FEET	0.665 MILES

Scott.Thornsberry 5/5/2024 11:03:42 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_T5022_ 110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_01_CO_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	2	95
				(2)	INDEX OF SHEETS AND STANDARD DRAWINGS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-6-2024

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 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6 - 14	SPECIAL DETAILS		
15 - 26	TEMPORARY EROSION CONTROL DETAILS		
27 - 41	MAINTENANCE OF TRAFFIC DETAILS		
42 - 45	PERMANENT PAVEMENT MARKING DETAILS		
46 - 49	QUANTITIES		
50	SCHEDULE OF BRIDGE QUANTITIES	07569	64531
51	SUMMARY OF QUANTITIES AND REVISIONS		
52 - 56	SURVEY CONTROL DETAILS		
57 - 63	PLAN AND PROFILE SHEETS		
64	LAYOUT OF BRIDGE HIGHWAY 78 OVER BIG CREEK (SHEET 1 OF 2)	07569	64532
65	LAYOUT OF BRIDGE HIGHWAY 78 OVER BIG CREEK (SHEET 2 OF 2)	07569	64533
66	DETAILS OF END BENTS (SHEET 1 OF 4)	07569	64534
67	DETAILS OF END BENTS (SHEET 2 OF 4)	07569	64535
68	DETAILS OF END BENTS (SHEET 3 OF 4)	07569	64536
69	DETAILS OF END BENTS (SHEET 4 OF 4)	07569	64537
70	DETAILS OF INTERMEDIATE BENTS	07569	64538
71	DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07569	64539
72	DETAILS OF ELASTOMERIC BEARINGS	07569	64540
73	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 1 OF 6)	07569	64541
74	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 2 OF 6)	07569	64542
75	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 3 OF 6)	07569	64543
76	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 4 OF 6)	07569	64544
77	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 5 OF 6)	07569	64545
78	DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 6 OF 6)	07569	64546
79	DETAILS OF POURED SILICONE JOINTS	07569	64547
80 - 95	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
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
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
55040F2	STANDARD DETAILS FOR SKEWED 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
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	05-19-22
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
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-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-4	WIRE FENCE TYPE C AND D	08-22-02
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5/10/1966
R-200X-X1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10/15/1962

Scott.Thornsberry 6/6/2024 9:19:10 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_02_IND_00.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06/10/2024			
09/03/2024			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	3	95

(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-3-2024

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
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
102-3_____	PREQUALIFICATION OF BIDDERS
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
307-2_____	CEMENT TREATED BASE COURSE
308-2_____	CEMENT STABILIZED CRUSHED STONE BASE COURSE
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
501-3_____	PORTLAND CEMENT CONCRETE PAVEMENT
505-1_____	PORTLAND CEMENT CONCRETE DRIVEWAY
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
802-5_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
807-2_____	STEEL STRUCTURES
808-1_____	INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____	ELASTOMERIC BEARINGS
JOB 110715_	BIDDING REQUIREMENTS AND CONDITIONS
JOB 110715_	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 110715_	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 110715_	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 110715_	CARGO PREFERENCE ACT REQUIREMENTS
JOB 110715_	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 110715_	COLD MILLING - COUNTY PROPERTY
JOB 110715_	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 110715_	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 110715_	CULVERT CLEAN OUT
JOB 110715_	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 110715_	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 110715_	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB 110715_	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 110715_	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 110715_	MANDATORY ELECTRONIC CONTRACT
JOB 110715_	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 110715_	NESTING SITES OF MIGRATORY BIRDS
JOB 110715_	PARTNERING REQUIREMENTS
JOB 110715_	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 110715_	PLASTIC PIPE
JOB 110715_	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 110715_	PRICE ADJUSTMENT FOR FUEL
JOB 110715_	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 110715_	RESTRAINING CONDITIONS
JOB 110715_	SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 110715_	SHORING FOR CULVERTS
JOB 110715_	SOIL STABILIZATION
JOB 110715_	STORM WATER POLLUTION PREVENTION PLAN
JOB 110715_	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 110715_	UTILITY ADJUSTMENTS
JOB 110715_	VALUE ENGINEERING
JOB 110715_	WARM MIX ASPHALT

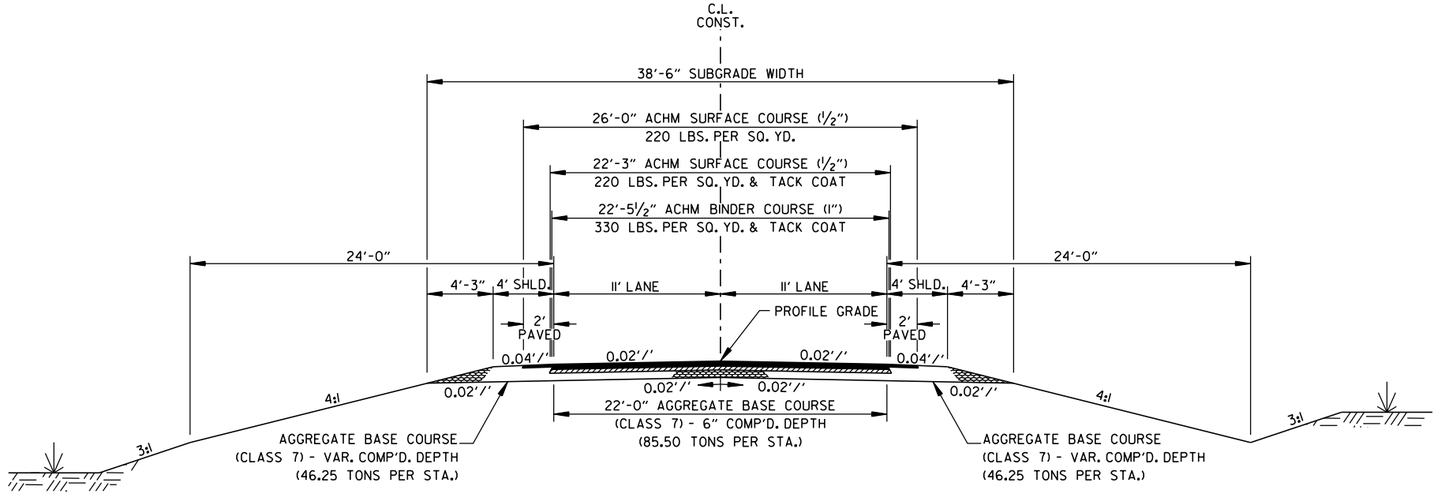
GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO 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.

$$USER$$ $$DATE$$ $$TIME$$
WORKSPACE: $$WORKSPACE$$
$$FILE$$
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	4	95
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			

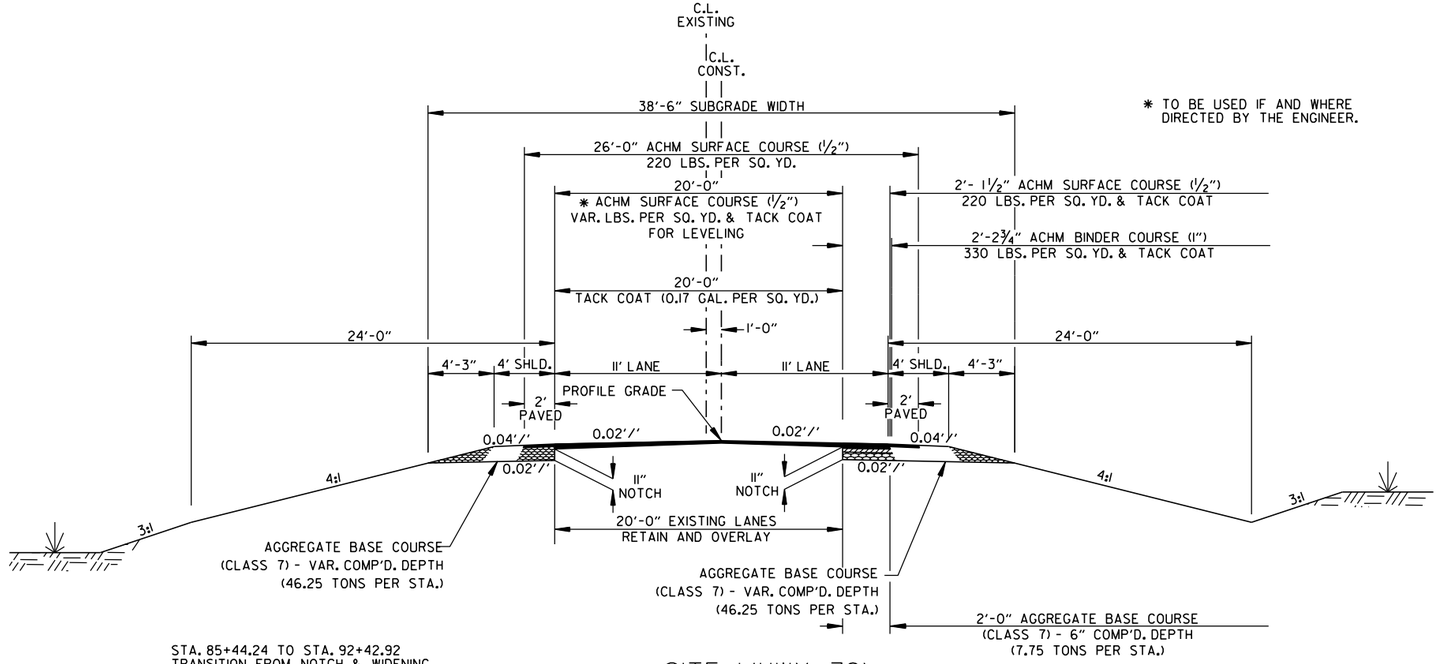
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



SITE 1 (HWY. 78)
TANGENT SECTION
STA. 92+42.92 TO STA. 98+94.85
STA. 101+81.15 TO STA. 108+14.58

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. 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 THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.
5. BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



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

STA. 85+44.24 TO STA. 92+42.92
TRANSITION FROM NOTCH & WIDENING SECTION TO FULL DEPTH SECTION.

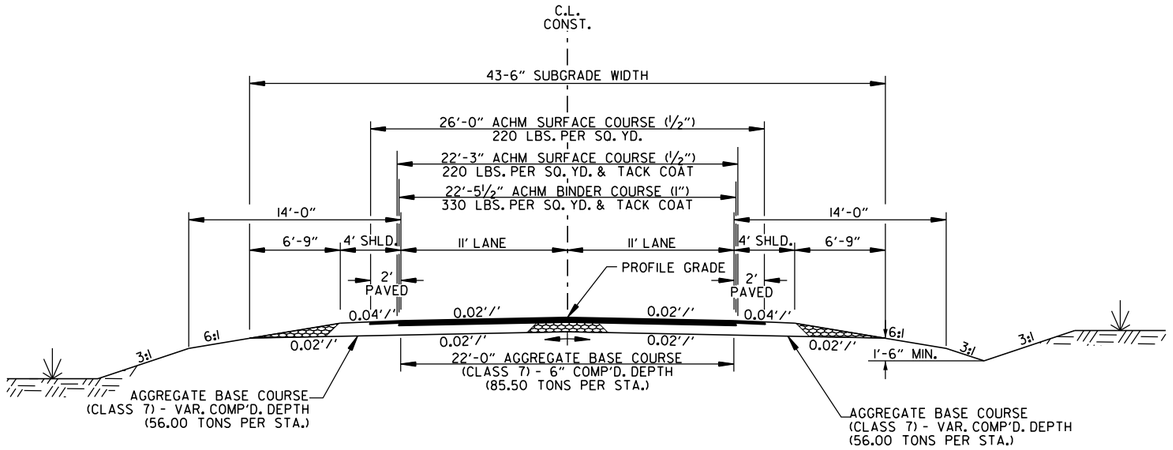
STA. 108+14.58 TO STA. 115+03.77
TRANSITION FROM FULL DEPTH SECTION TO NOTCH & WIDENING SECTION.

SITE 1 (HWY. 78)
NOTCH & WIDENING
STA. 85+44.24 TO STA. 92+42.92
STA. 108+14.58 TO STA. 115+03.77

TYPICAL SECTIONS OF IMPROVEMENT

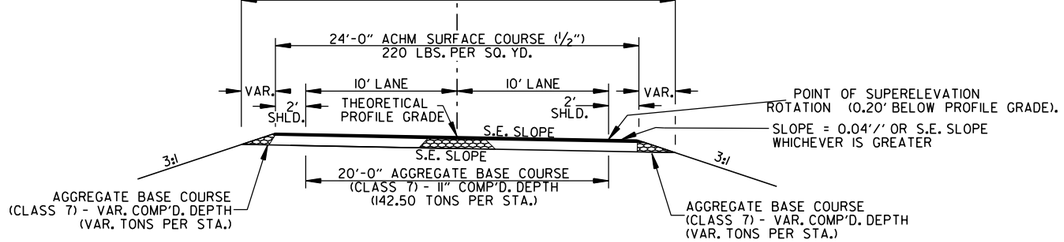
Scott.Thornsberry 5/5/2024 11:03:45 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_04_TS_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	5	95
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			



SITE 2 (HWY. 238) AND SITE 3 (HWY. 259)
TANGENT SECTION

SITE 2 (HWY. 238) STA. 209+00.00 TO STA. 211+00.00
SITE 3 (HWY. 259) STA. 304+00.00 TO STA. 307+50.00



SITE 2 (HWY. 238) & SITE 3 (HWY. 259)
TEMP. DETOUR - SUPERELEVATED SECTION

SITE 2 (HWY. 238) STA. 22+45.00 TO STA. 25+85.27
SITE 3 (HWY. 259) STA. 33+38.17 TO STA. 38+27.36

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
2-5-2024

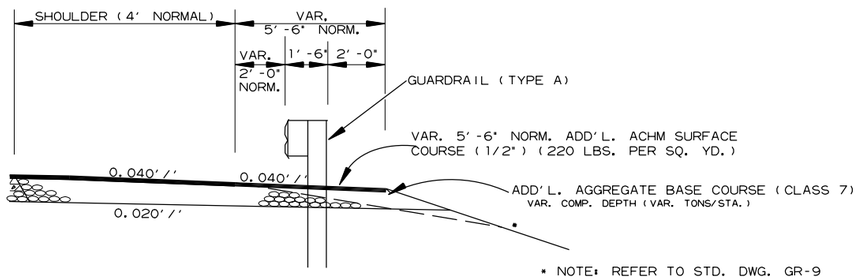
NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. 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 THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

Scott.Thornsberry
5/5/2024 11:03:45 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_04_TS_001.dgn
REVISED DATE: $$REVDATE$$

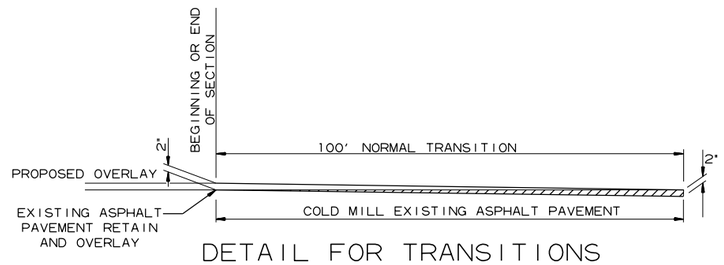
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	6	95
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



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

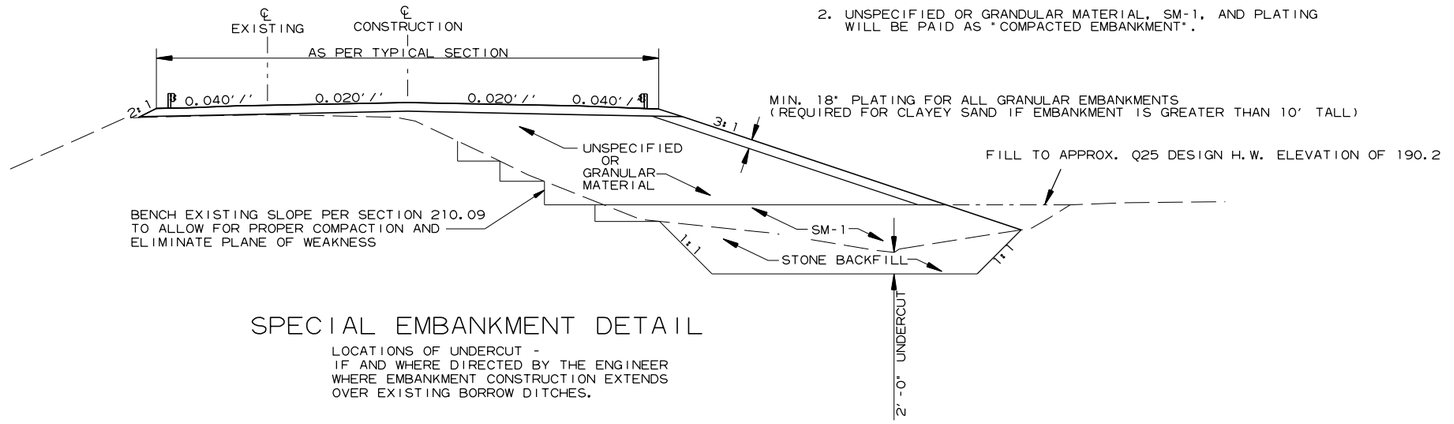
WIDENING FOR GUARDRAIL



DETAIL FOR TRANSITIONS

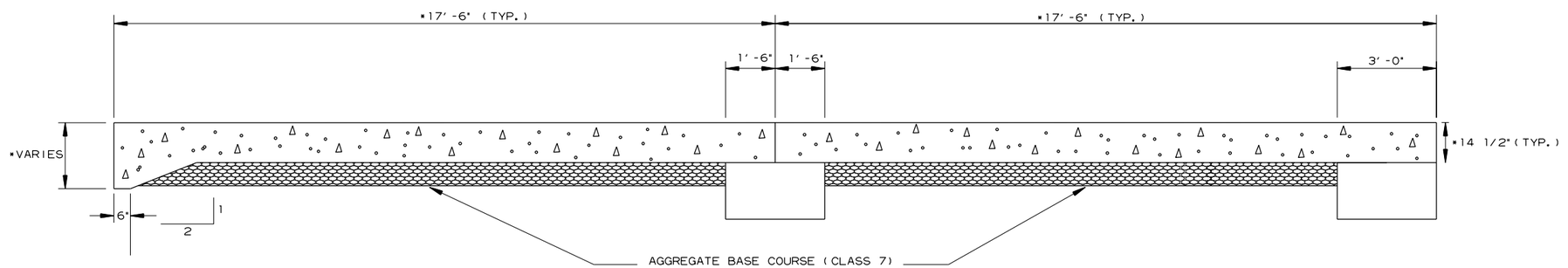
NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION.
2. UNSPECIFIED OR GRANULAR MATERIAL, SM-1, AND PLATING WILL BE PAID AS "COMPACTED EMBANKMENT".



SPECIAL EMBANKMENT DETAIL

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



* SEE BRIDGE DRAWINGS FOR DETAILS

SECTION OF APPROACH SLAB (TYPE F) (FOR ASPHALT PAVEMENT)

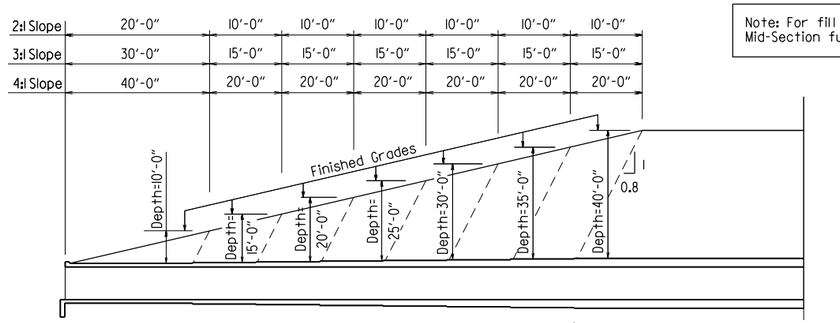
NOTES:

(1) REFER TO BRIDGE STANDARD DRAWINGS 55040F1, 55040F2, AND 55030F.

(2) APPROACH SLAB WIDTH IS 26' - 0"

(3) APPROACH GUTTER WIDTH IS 2' - 0"

Scott.Thornsberry 5/5/2024 11:03:46 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_04a_SD_001.dgn
REVISED DATE: $$REVDATE$$



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

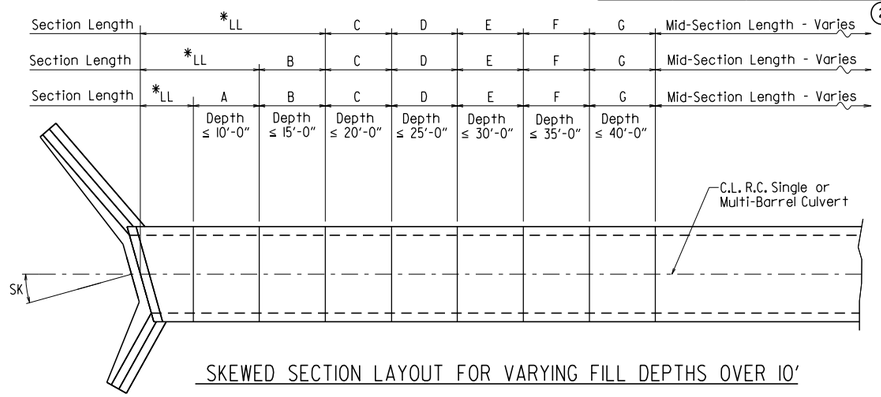
Slope Section Length @								
2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

*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.

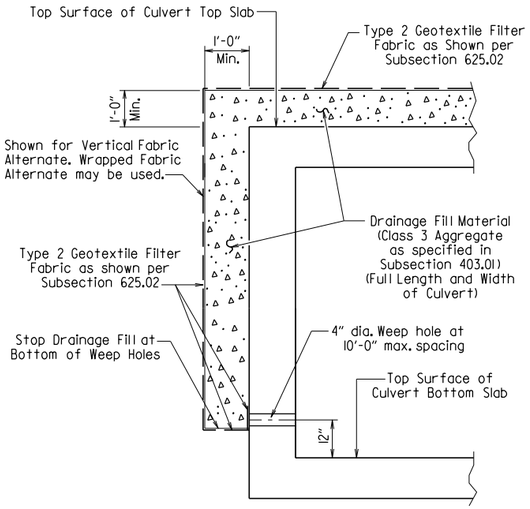
Section Length	*LL	A	B	C	D	E	F	G	Mid-Section Length - Varies
		Depth ≤ 10'-0"	Depth ≤ 15'-0"	Depth ≤ 20'-0"	Depth ≤ 25'-0"	Depth ≤ 30'-0"	Depth ≤ 35'-0"	Depth ≤ 40'-0"	



SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

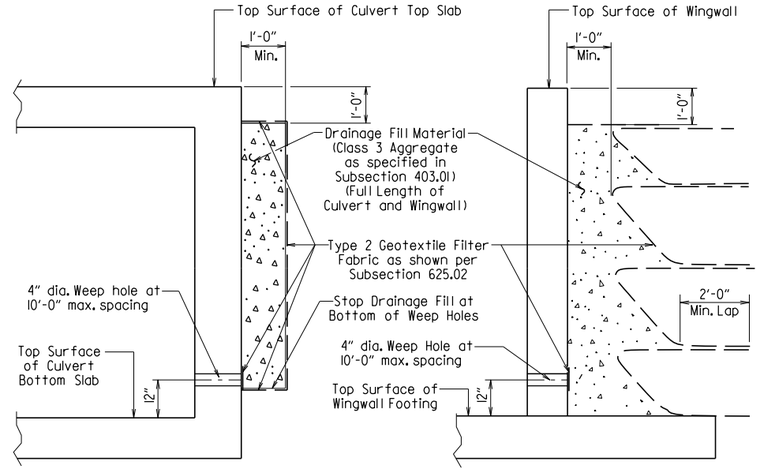
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	7	95
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
Ethan R. Baker
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

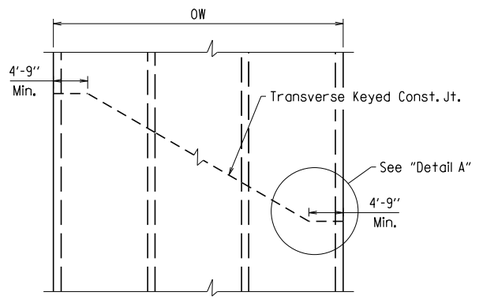


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

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

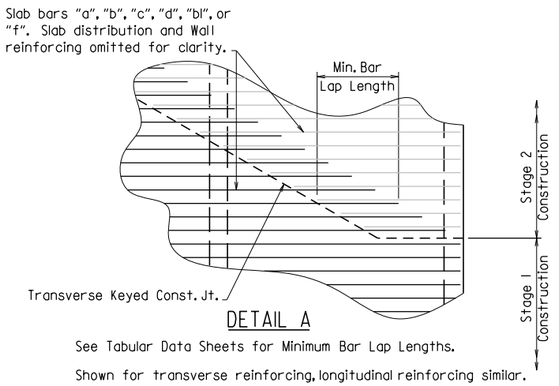
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

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.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

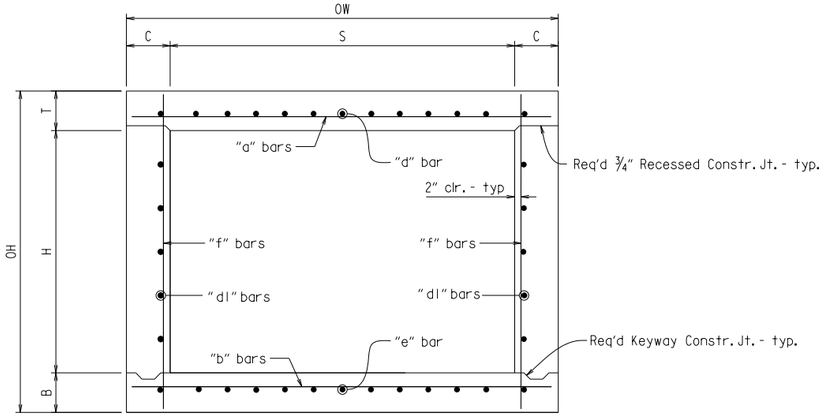
LRFD

V 1.1.17
Scott.Thornsberry@5/5/2024 11:40:51 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_115022_110715.Big Creek-Little Piney Creek & Big Creek Branch Srrs & Apprs\Design\CIVIL\Drawings\R110715_05_SD_001_Culvert-General.dgn
REVISED DATE: $$REVDATE$$

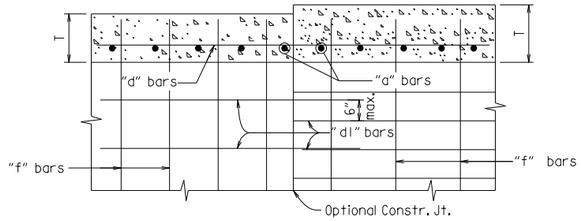
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	8	95
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24

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



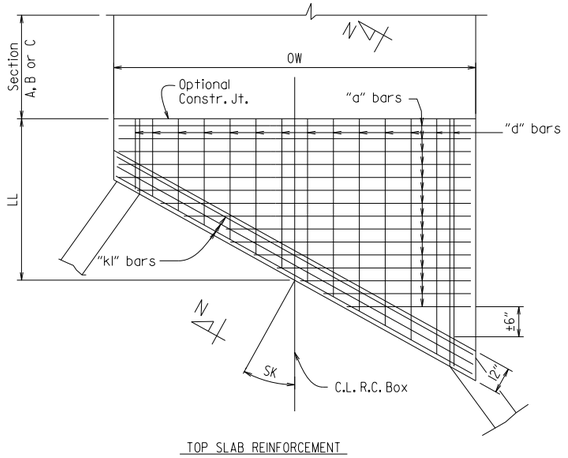
TYPICAL SECTION M-M



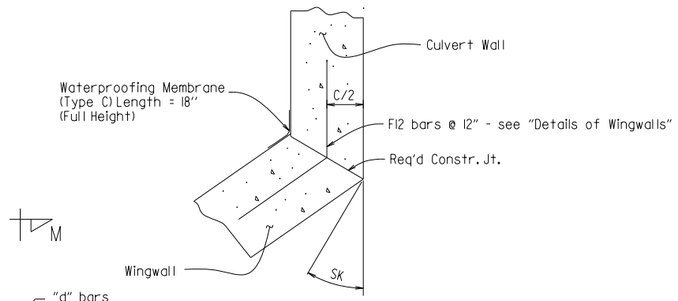
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

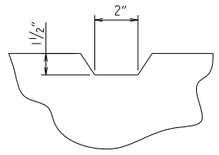


TOP SLAB REINFORCEMENT



WINGWALL ATTACHMENT

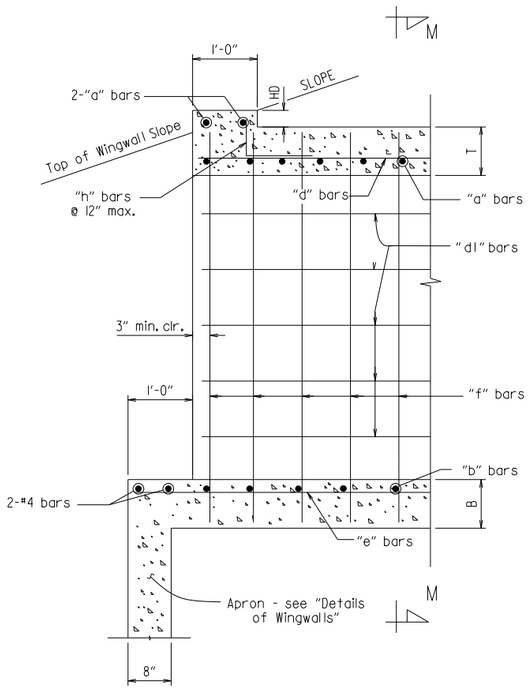
See "Details of Wingwalls" for additional information and wingwall details.



TYPICAL KEYWAY DETAIL

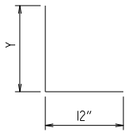
(All Construction Joints)

BOTTOM SLAB REINFORCEMENT

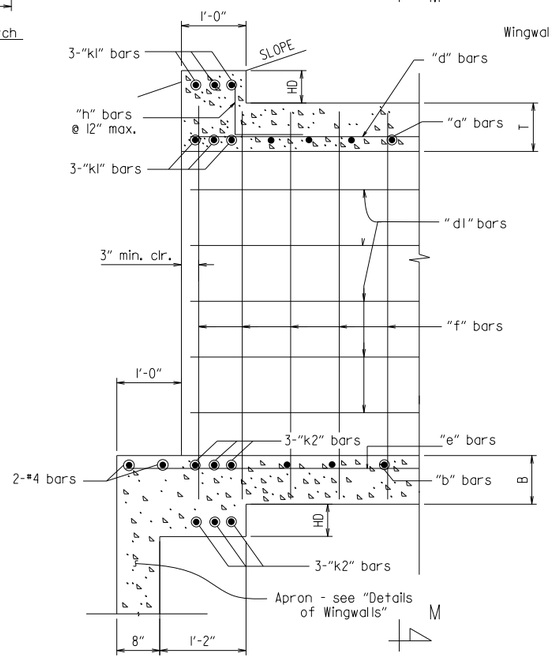


PART LONGITUDINAL SECTION

(Non-Skewed Ends)



"h" bars sketch



PART LONGITUDINAL SECTION N-N

(Skewed Ends)

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

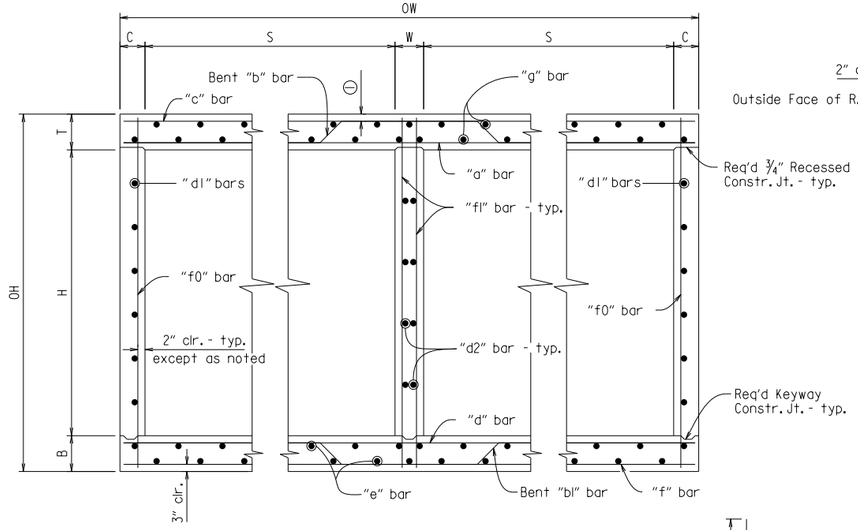
V 1.1.17
Scott.Thornsberry 5/5/2024 11:04:00 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05_SD_002_Culvert-General.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	9	95

(2) 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.

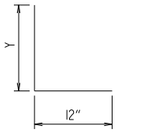
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



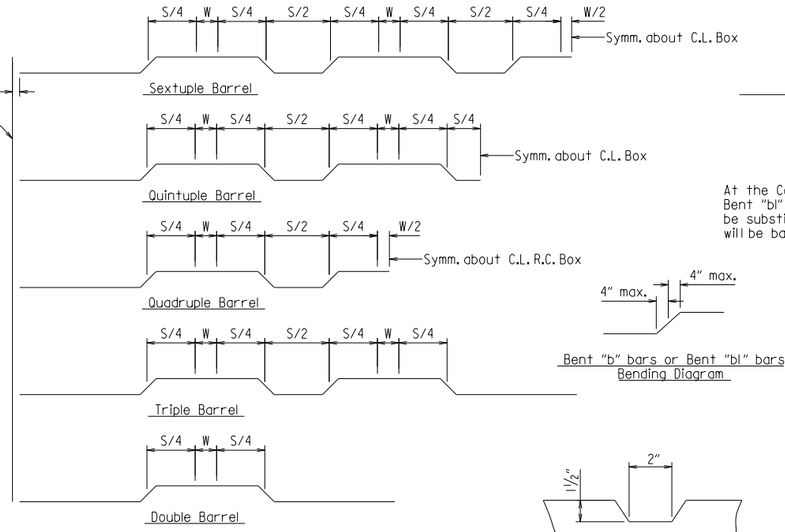
TYPICAL SECTION M-M

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

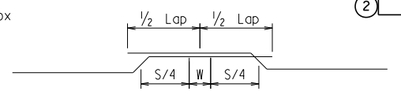
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



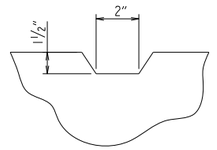
Bent "b" bars or Bent "bl" bars sketch



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

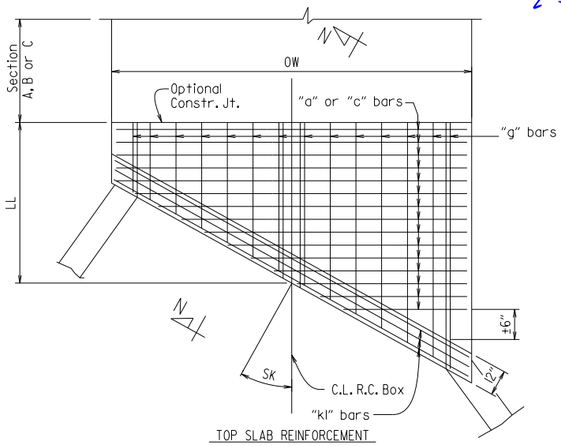
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

Bent "b" bars or Bent "bl" bars Bending Diagram



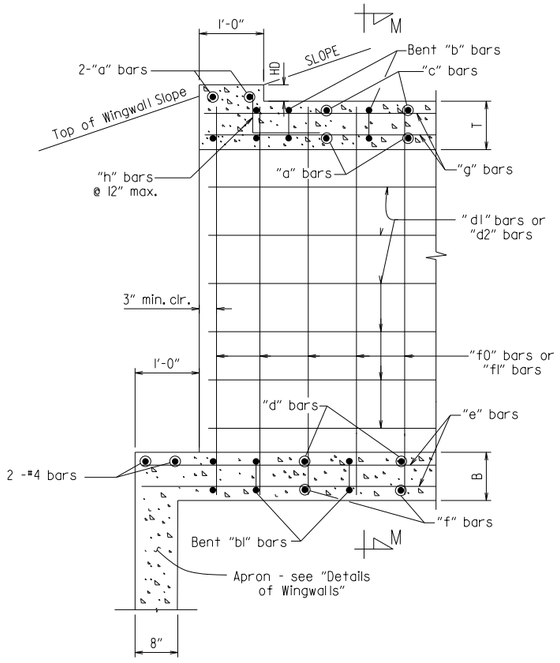
TYPICAL KEYWAY DETAIL

(All Construction Joints)



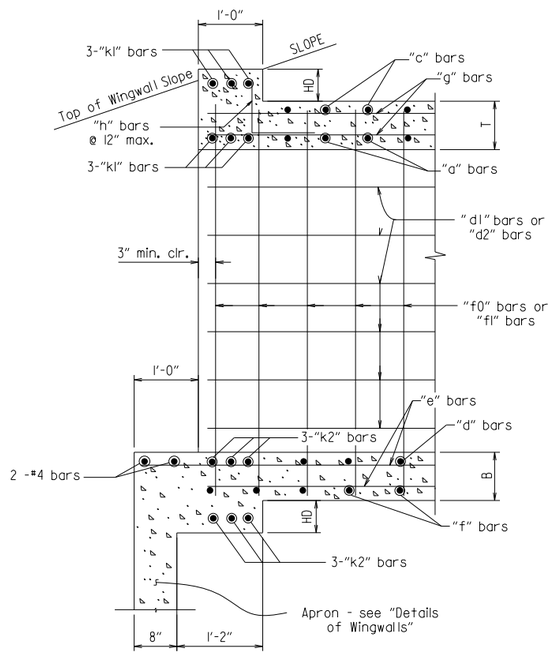
TOP SLAB REINFORCEMENT

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



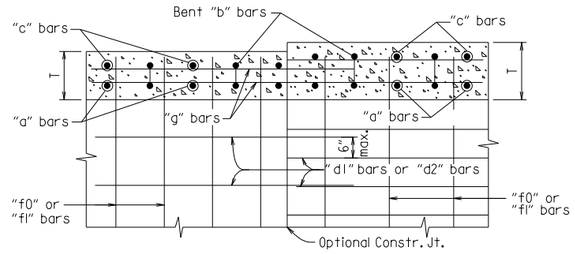
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

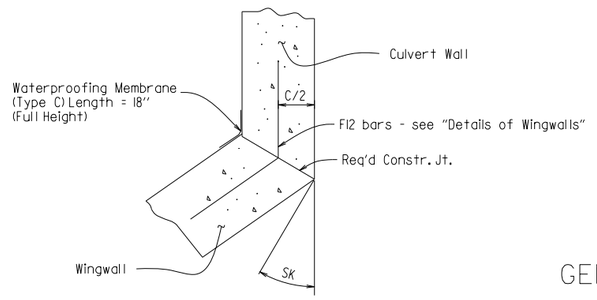
(Skewed Ends)



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

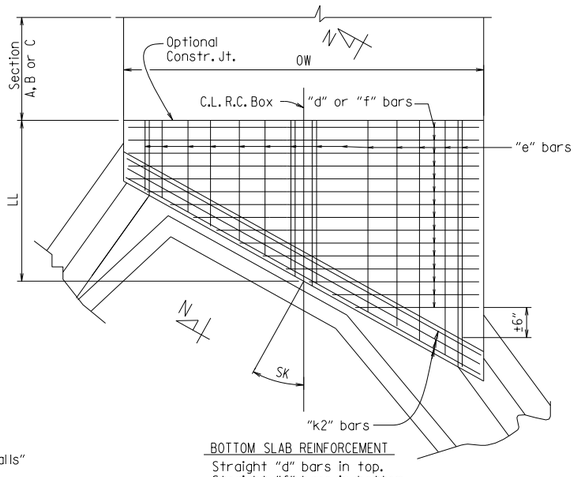
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

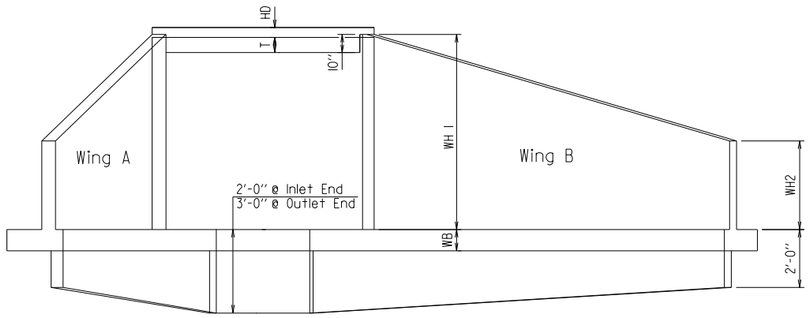
DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24

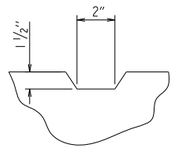
V 1.11.7
Scott.Thornsberry 9/5/2024 11:04:00 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05_SD_003_Culvert-General.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	10	95
				(2)	SPECIAL DETAILS			



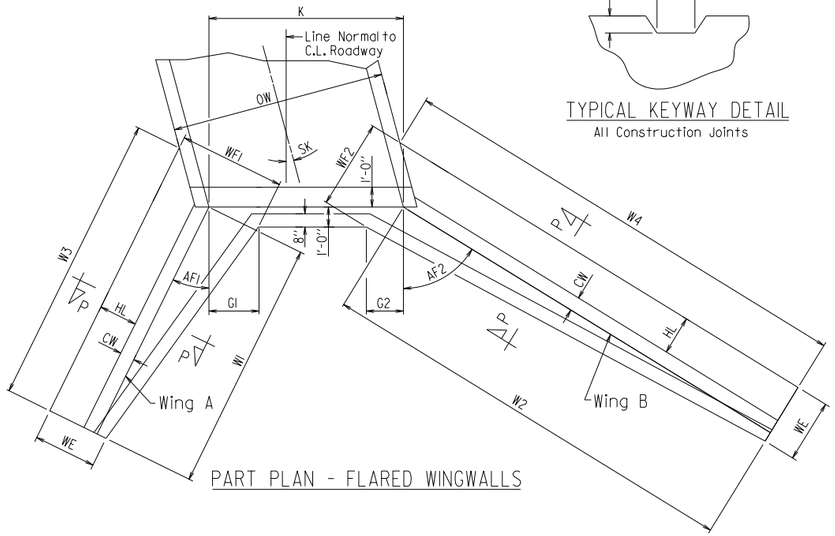
END ELEVATION

Flared Wingwalls Shown

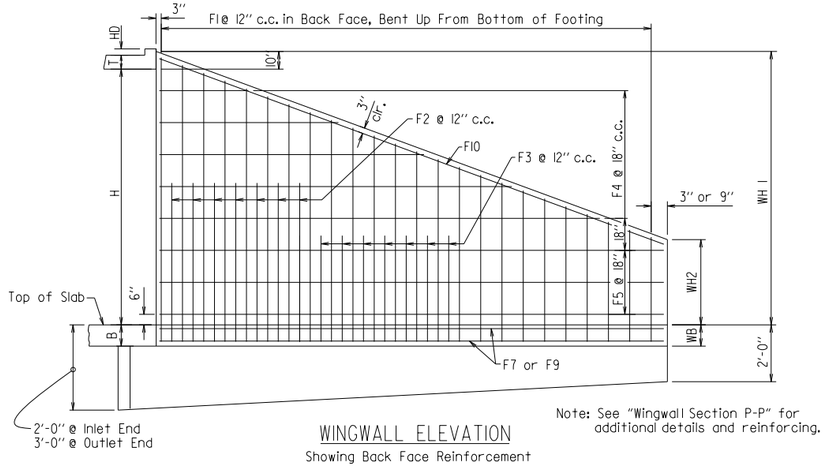


TYPICAL KEYWAY DETAIL

All Construction Joints



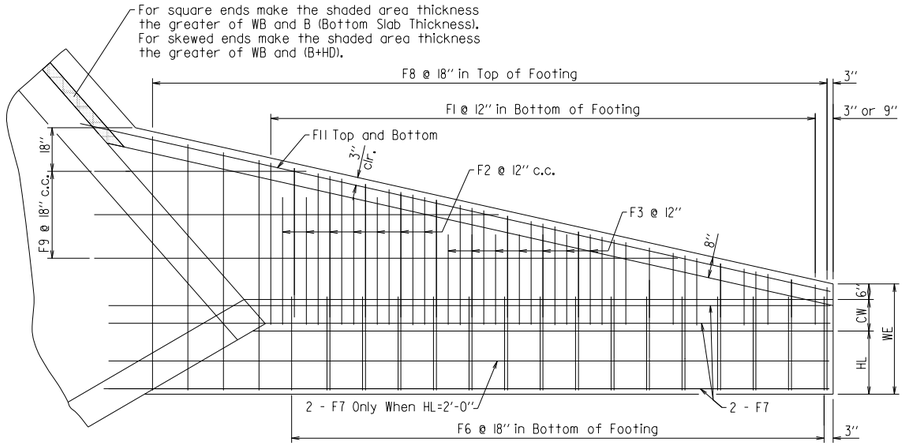
PART PLAN - FLARED WINGWALLS



WINGWALL ELEVATION

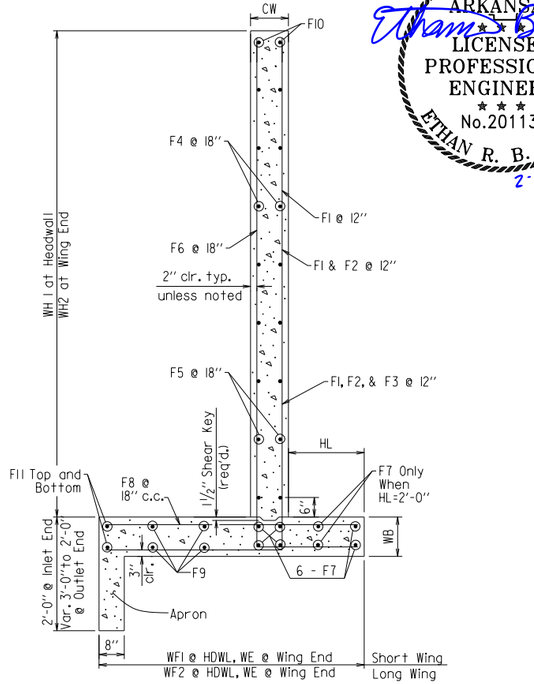
Showing Back Face Reinforcement

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

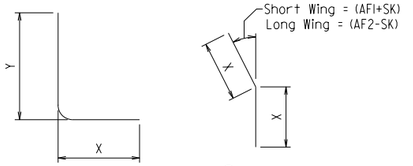


PLAN - FLARED WINGWALLS

Showing Footing Reinforcement



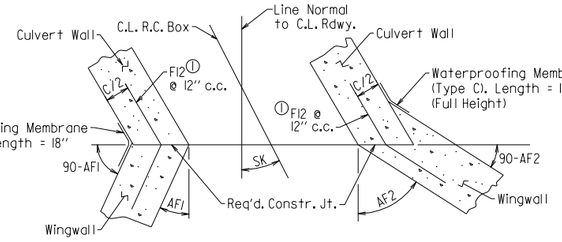
WINGWALL SECTION P-P



F1, F2, F3, & F6 BARS

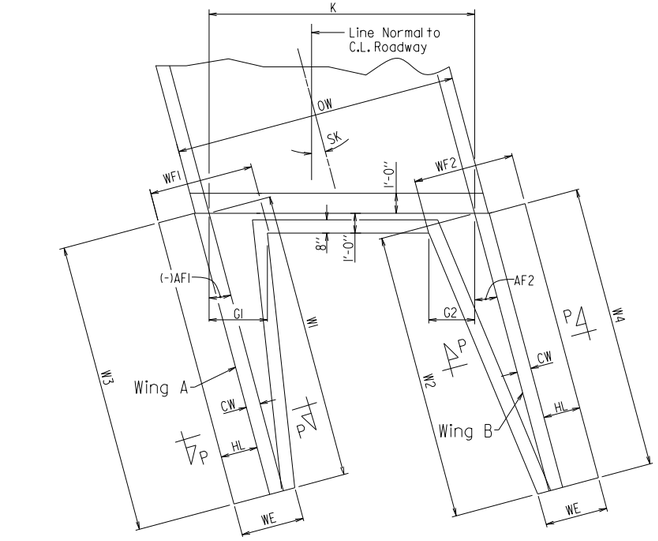
①F12 BAR

①F12 is a straight bar for parallel wingwalls

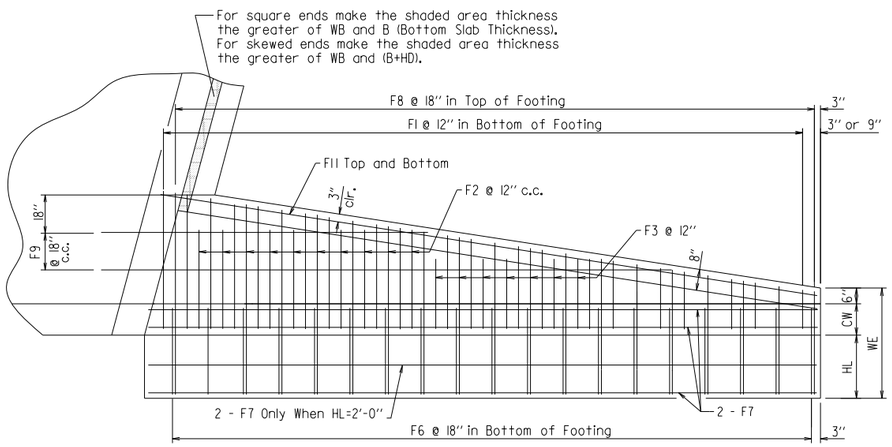


CONSTRUCTION JOINTS

Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24

V 1.17
Scott.Thornsberry 2/5/2024 11:04:01 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05_SD_004_Culvert-General.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	II	95

(2) 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
23'-4"	4'-0"	0'-9"	0'-8"	10	3:1	22'-8 1/8"	1'-0"	4'-10"	1'-4"	20	40	2'-2"	2'-5 3/4"	2'-6 3/4"	0'-6"	0'-4"	11'-0"	13'-6"	12'-10 5/8"	15'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
5.51	496

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
WING A	4	12	11	L	Min	2'-6"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min
					Max	6'-0"																3-6"
				X	Min	0'-9"				X	-					X	-					Max
					Max	1'-1"																8-3"
				Y	Min	1'-10"				Y	-					Y	-					
					Max	5'-0"																
WING B	4	12	14	L	Min	2'-4"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min
					Max	6'-1"																4'-4"
				X	Min	0'-9"				X	-					X	-					Max
					Max	1'-2"																10'-1"
				Y	Min	1'-8"				Y	-					Y	-					
					Max	5'-0"																

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			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
WING A	4	18	2	10'-8"	4	18	8	L	Min	2'-11"	4	13'-9"	6	18	7	Min	-	-	-	Min	4	2	11'-1"
									Max	6'-3"						1'-8"				-			
								X	Min	1'-4"						Max				Max			
									Max	1'-4"						1'-11"				-			
								Y	Min	1'-8"													
									Max	5'-0"													
WING B	4	18	2	13'-2"	4	18	9	L	Min	3'-2"	4	16'-3"	6	18	9	Min	-	-	-	Min	4	2	13'-6"
									Max	6'-3"						1'-8"				-			
								X	Min	1'-4"						Max				Max			
									Max	1'-4"						2'-1"				-			
								Y	Min	1'-11"													
									Max	5'-0"													

WING	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	12'-2"	6	12	4	L	3'-4"		227
								X	1'-8"		
WING B	-	4	2	15'-2"	6	12	4	L	3'-4"		269
								X	1'-8"		

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"

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24

TABULAR DATA BY: SCR DATE: 10/01/2021
CHECKED BY: ERBB DATE: 10/01/2021

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 REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH								
10	3:1	5	7	4	4'-1"	8.5	3	9	6	8	23'-4"	5'-5 1/2"	4	4	Max 23'-0" / Min 8'-9" / 23'-0"	8 / 6	5	6	Max 23'-0" / Min 8'-9" / 23'-0"	6 / 4

BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	7.5	Max 23'-0" / Min 8'-9" / 23'-0"	5	4	10	Max 23'-0" / Min 8'-9" / 23'-0"	4	4	9	12	5'-2"	4	12	20	5'-2"

TOP SLAB DISTRIBUTION REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
4	12	47	Max 5'-11" / Min 1'-10"	4	12	47	Max 5'-11" / Min 1'-10"	4	12	4	LONG 5'-11" / SHORT 1'-11"	4	12	8	LONG 4'-7" / SHORT 3'-3"

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
6.99	1205

"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	23'-4"	6	4	23'-4"	6	4	1'-7"	0'-7"	25

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

BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D

SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINF. "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

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

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

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 REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
A	2	7	4	10.5	10.5	6	8	23'-4"	5'-9"	77.83	4	23'-0"	8	23'-7"	8	23'-0"	17	54

BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	23'-0"	4	23'-6"	4	23'-0"	15	62

SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	9	206	5'-5"

INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	308	5'-5"

TOP SLAB DISTRIBUTION REINF. "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	59

BOTTOM SLAB DISTRIBUTION REINF. "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	59

SIDE WALL DISTRIBUTION REINF. "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	8

INTERIOR WALL DISTRIBUTION REINF. "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	16

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
144.62	19829

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 210+15

SPECIAL DETAILS

Ver. 1.17
Scott.Thornsberry 5/5/2024 11:04:07 AM
WORKSPACE: ARDOT_I75022_JI0715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RI10715_05_SD_RCB_002.dgn
XREFS: ARDOT_I75022_JI0715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RI10715_05_SD_RCB_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	12	95

(2) SPECIAL DETAILS

STATE OF ARKANSAS
ETHAN R. B. BAKER
LICENSED PROFESSIONAL ENGINEER
No.20113
2-5-24

TABULAR DATA BY: SCR DATE: 10/01/2021
CHECKED BY: ERBB DATE: 10/01/2021

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
23'-4"	4'-0"	0'-9"	0'-8"	10	3:1	22'-8 1/8"	1'-0"	4'-10"	1'-4"	20	40	2'-2"	2'-5 3/4"	2'-6 3/4"	0'-6"	0'-4"	11'-0"	13'-6"	12'-10 5/8"	15'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
6.34	496

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	11	L	Min	2'-6"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	10'-8"	4	18	8	L	Min	2'-11"	4	6	13'-9"	6	18	7	Min	-	-	-	-	4	2	11'-1"	4	2	12'-2"	6	12	4	L	3'-4"	227
					Max	6'-0"												3-6"									Min	2'-3"							1'-8"														
				X	Min	0'-9"				X -				X -				Max								X	Min	1'-4"							Max												X	1'-8"	
					Max	1'-1"												8-3"									Max	1'-4"							1'-11"														
				Y	Min	1'-10"				Y -				Y -												Y	Min	1'-8"																				
					Max	5'-0"																					Max	5'-0"																				
WING B	4	12	14	L	Min	2'-4"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	13'-2"	4	18	9	L	Min	3'-2"	4	6	16'-3"	6	18	9	Min	-	-	-	-	4	2	13'-6"	4	2	15'-2"	6	12	4	L	3'-4"	269
					Max	6'-1"												4-4"									Min	6'-3"							1'-8"														
				X	Min	0'-9"				X -				X -				Max								X	Min	1'-4"							Max												X	1'-8"	
					Max	1'-2"												10'-1"									Max	1'-4"							2'-1"														
				Y	Min	1'-8"				Y -				Y -												Y	Min	1'-11"																				
					Max	5'-0"																					Max	5'-0"																				

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	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	"g" LENGTHS VARY	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																																								
10	3:1	5	7	4	4'-1"	8.5	3	9	6	8	23'-4"	5'-5 1/2"	4	4	Max 23'-0" Min 8'-9" 23'-0"	8 6	5	6	Max 23'-0" Min 8'-9" 23'-0"	6 4	4	7.5	Max 23'-0" Min 8'-9" 23'-0"	5 4	4	10	Max 23'-0" Min 8'-9" 23'-0"	4 3	4	9	12	5'-2"	4	12	20	5'-2"	4	12	47	Max 5'-11" Min 1'-10"	4	12	47	Max 5'-11" Min 1'-10"	4	12	4	LONG 5'-11" SHORT 1'-11"	4	12	8	LONG 4'-7" SHORT 3'-3"

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
6.99	1205

"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	23'-4"	6	4	23'-4"	6	4	1'-7"	0'-7"	25

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.)	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	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																								

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.
TOTAL	

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
TRIPLE BARREL BOX CULVERT
Sta. 210+15

SPECIAL DETAILS

Ver. 1.11.7
Scott.Thornsberry 5/5/2024 11:04:10 AM
W:\PROJECTS\ARDOT_I75022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII\110715_05_SD_RCB_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	13	95

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.20113
ETHAN R. B. BAKER
2-5-24

TABULAR DATA BY: SCR DATE: 10/01/2021
CHECKED BY: ERBB DATE: 10/01/2021

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
32'-4"	6'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-7 3/8"	24'-1 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
10.26	927

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	15	L Min 3'-2" / Max 7'-10"	-	-	-	-	-	-	-	L -	-	-	-	L -	4	18	4	Min 5'-0" / Max 9'-8"	4	18	4	14'-8"	4	18	10	L Min 4'-11" / Max 9'-3"	4	8	19'-5"	6	18	10	Min 2'-8" / Max 2'-10"	-	-	-	Min - / Max -	4	2	15'-3"	4	2	16'-0"	6	12	6	L 3'-4" / X 1'-8"	400
				X Min 0'-9" / Max 0'-11"				X -				X -				X -								X Min 2'-4" / Max 2'-4"																									
				Y Min 2'-6" / Max 7'-0"				Y -				Y -				Y -								Y Min 2'-8" / Max 7'-0"																									
WING B	4	12	21	L Min 3'-0" / Max 8'-1"	-	-	-	-	-	-	-	L -	-	-	-	L -	4	18	4	Min 6'-11" / Max 13'-3"	4	18	4	20'-2"	4	18	14	L Min 4'-8" / Max 9'-3"	4	8	24'-11"	6	18	14	Min 2'-8" / Max 3'-1"	-	-	-	Min - / Max -	4	2	20'-7"	4	2	22'-3"	6	12	6	L 3'-4" / X 1'-8"	527
				X Min 0'-9" / Max 1'-2"				X -				X -				X -								X Min 2'-4" / Max 2'-4"																									
				Y Min 2'-4" / Max 7'-0"				Y -				Y -				Y -								Y Min 2'-5" / Max 7'-0"																									

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"

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "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) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH LL	TOP SLAB THK. T	HDWL DEPTH HD	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH
15	3:1	2	10	6	6'-4"	12	3	12	6	8	32'-4"	8'-0"

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
6	9	Max 32'-0" / Min 5'-11" / 32'-0"	10 / 3	6	4	Max 32'-0" / Min 5'-11" / 32'-0"	21 / 6

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
4	9	Max 32'-0" / Min 5'-11" / 32'-0"	10 / 3	4	8.5	Max 32'-0" / Min 5'-11" / 32'-0"	10 / 3

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH
4	6	26	7'-8"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	28	7'-8"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	9	89	Max 10'-6" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	9	89	Max 10'-6" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	6	LONG 10'-5"
		6	SHORT 1'-11"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	12	LONG 7'-7"
		12	SHORT 4'-9"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	(1) REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
19.12	3166

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

"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	33'-2"	6	4	33'-2"	6	4	1'-11"	0'-11"	35

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	"b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"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 REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTON REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

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

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

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
A	10	6	12	12	6	8	32'-4"	8'-0"	67.33

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
4	32'-0"	8	32'-8"	8	32'-0"	14	57

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	"b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	32'-0"	4	32'-8"	4	32'-0"	17	47

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	6	268	7'-8"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	268	7'-8"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	89

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	89

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	12

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	24

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
196.18	26902

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 305+00

SPECIAL DETAILS

LRFD

Ver. 1.11.7
Scott.Thornsberry 9/5/2024 11:04:13 AM
WORKSPACE: ARDOT_125022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RI10715_05_SD_RCB_003.dgn
XYZ: 0.000, 0.000, 0.000
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	14	95

(2) SPECIAL DETAILS

STATE OF ARKANSAS
ETHAN R. B. BAKER
LICENSED PROFESSIONAL ENGINEER
No.20113
2-5-24

TABULAR DATA BY: SCR DATE: 10/01/2021
CHECKED BY: ERBB DATE: 10/01/2021

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
32'-4"	6'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-7 3/8"	24'-1 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
11.47	927

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
WING A	4	12	15	L	Min	3'-2"	-	-	-	L -	-	-	-	L	-	4	18	4	Min
					Max	7'-10"													5'-0"
				X	Min	0'-9"				X -				X	-				Max
					Max	0'-11"													9'-8"
				Y	Min	2'-6"				Y -				Y	-				
					Max	7'-0"													
WING B	4	12	21	L	Min	3'-0"	-	-	-	L -	-	-	-	L	-	4	18	4	Min
					Max	8'-1"													6'-11"
				X	Min	0'-9"				X -				X	-				Max
					Max	1'-2"													13'-3"
				Y	Min	2'-4"				Y -				Y	-				
					Max	7'-0"													

WING	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	18	4	14'-8"	4	18	10	L	Min 4'-11"	4	8	19'-5"	6	18	10	Min		-	-	-	Min	4	2	15'-3"	4	2	16'-0"	6	12	6	L 3'-4"	400
									Max 9'-3"							2'-8"					-											
								X	Min 2'-4"							Max					Max										X 1'-8"	
									Max 2'-4"							2'-10"					-										
								Y	Min 2'-8"																							
									Max 7'-0"																							
WING B	4	18	4	20'-2"	4	18	14	L	Min 4'-8"	4	8	24'-11"	6	18	14	Min		-	-	-	Min	4	2	20'-7"	4	2	22'-3"	6	12	6	L 3'-4"	527
									Max 9'-3"							2'-8"					-										
								X	Min 2'-4"							Max					Max										X 1'-8"	
									Max 2'-4"							3'-1"					-										
								Y	Min 2'-5"																							
									Max 7'-0"																							

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

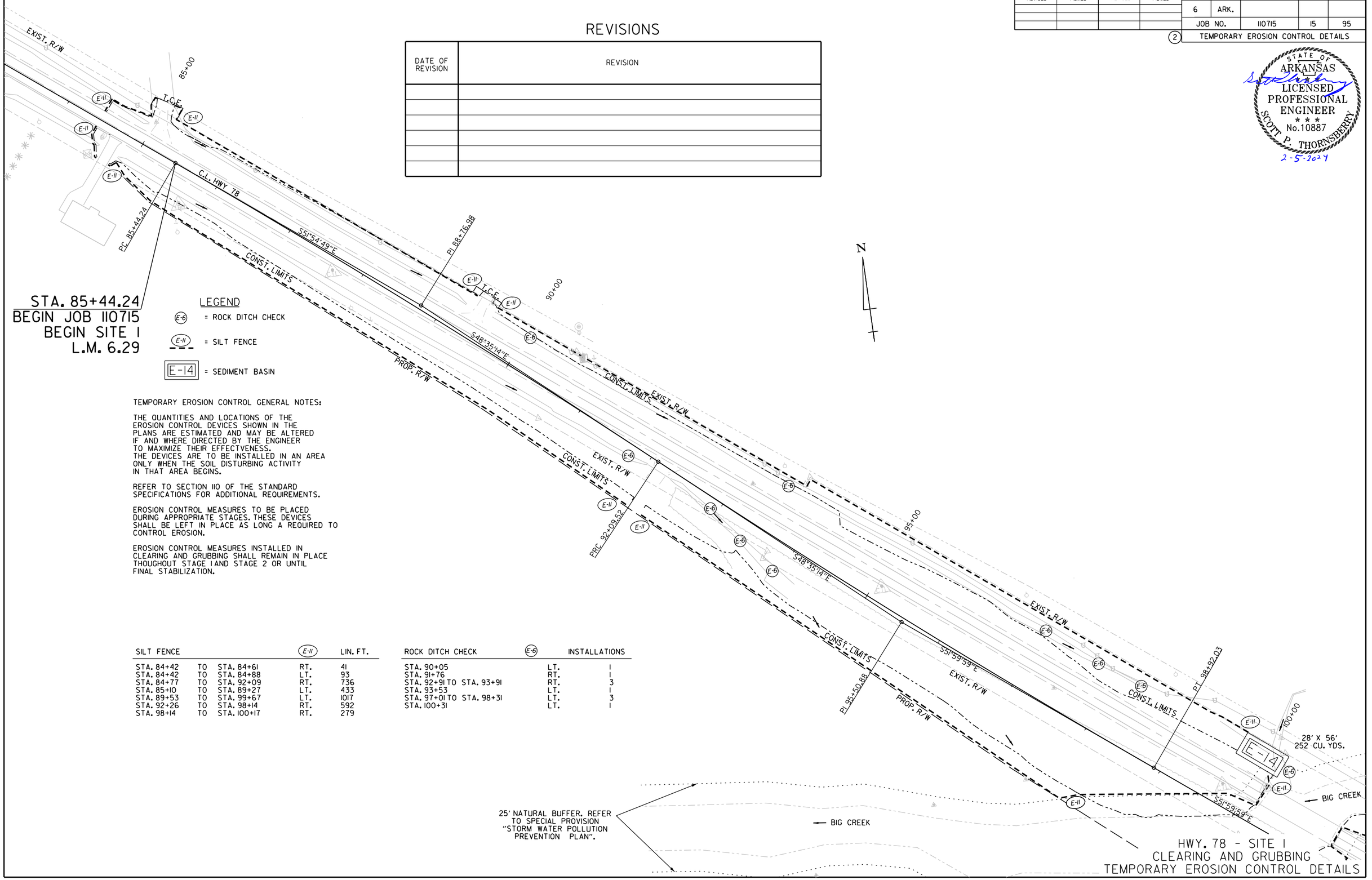
| SKEW (DEGREE) | SLOPE | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | SECTION LENGTH | TOP SLAB THK. | HDWL DEPTH | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINFORCING STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "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 | "g" LENGTHS VARY | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	15	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

REVISIONS

DATE OF REVISION	REVISION



STA. 85+44.24
BEGIN JOB 110715
BEGIN SITE 1
L.M. 6.29

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

E-14 = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

SILT FENCE			(E-11)	LIN. FT.
STA. 84+42	TO	STA. 84+61	RT.	41
STA. 84+42	TO	STA. 84+88	LT.	93
STA. 84+77	TO	STA. 92+09	RT.	736
STA. 85+10	TO	STA. 89+27	LT.	433
STA. 89+53	TO	STA. 99+67	LT.	1017
STA. 92+26	TO	STA. 98+14	RT.	592
STA. 98+14	TO	STA. 100+17	RT.	279

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 90+05	LT.	1
STA. 91+76	RT.	1
STA. 92+91 TO STA. 93+91	RT.	3
STA. 93+53	LT.	1
STA. 97+01 TO STA. 98+31	LT.	3
STA. 100+31	LT.	1

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN".

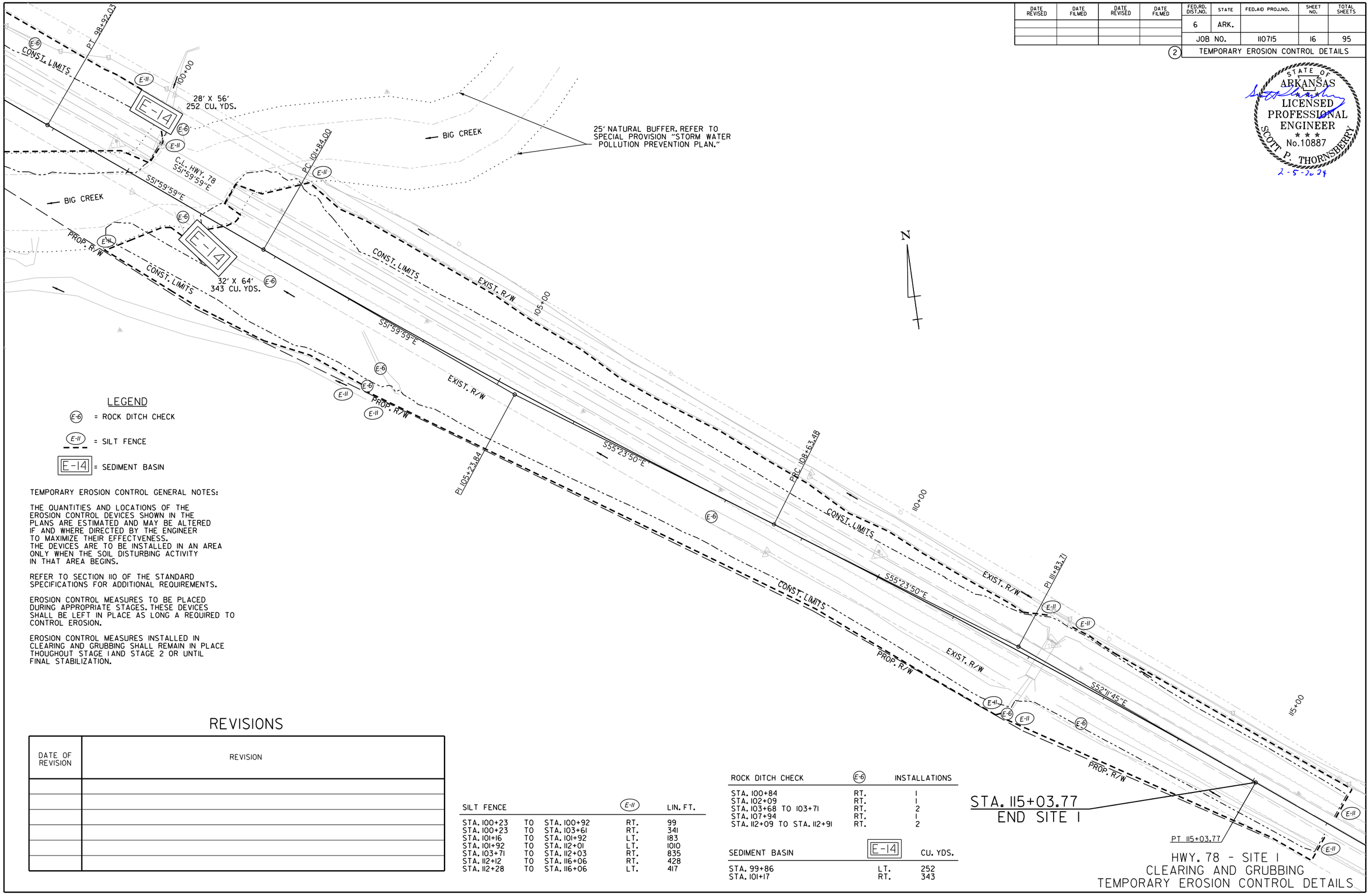
HWY. 78 - SITE 1
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:23 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_-_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	16	95
(2) TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

E-14 = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE			(E-11)	LIN. FT.
STA. 100+23	TO	STA. 100+92	RT.	99
STA. 100+23	TO	STA. 103+61	RT.	341
STA. 101+16	TO	STA. 101+92	LT.	183
STA. 101+92	TO	STA. 112+01	LT.	1010
STA. 103+71	TO	STA. 112+03	RT.	835
STA. 112+12	TO	STA. 116+06	RT.	428
STA. 112+28	TO	STA. 116+06	LT.	417

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 100+84	RT.	1
STA. 102+09	RT.	1
STA. 103+68 TO 103+71	RT.	2
STA. 107+94	RT.	1
STA. 112+09 TO STA. 112+91	RT.	2

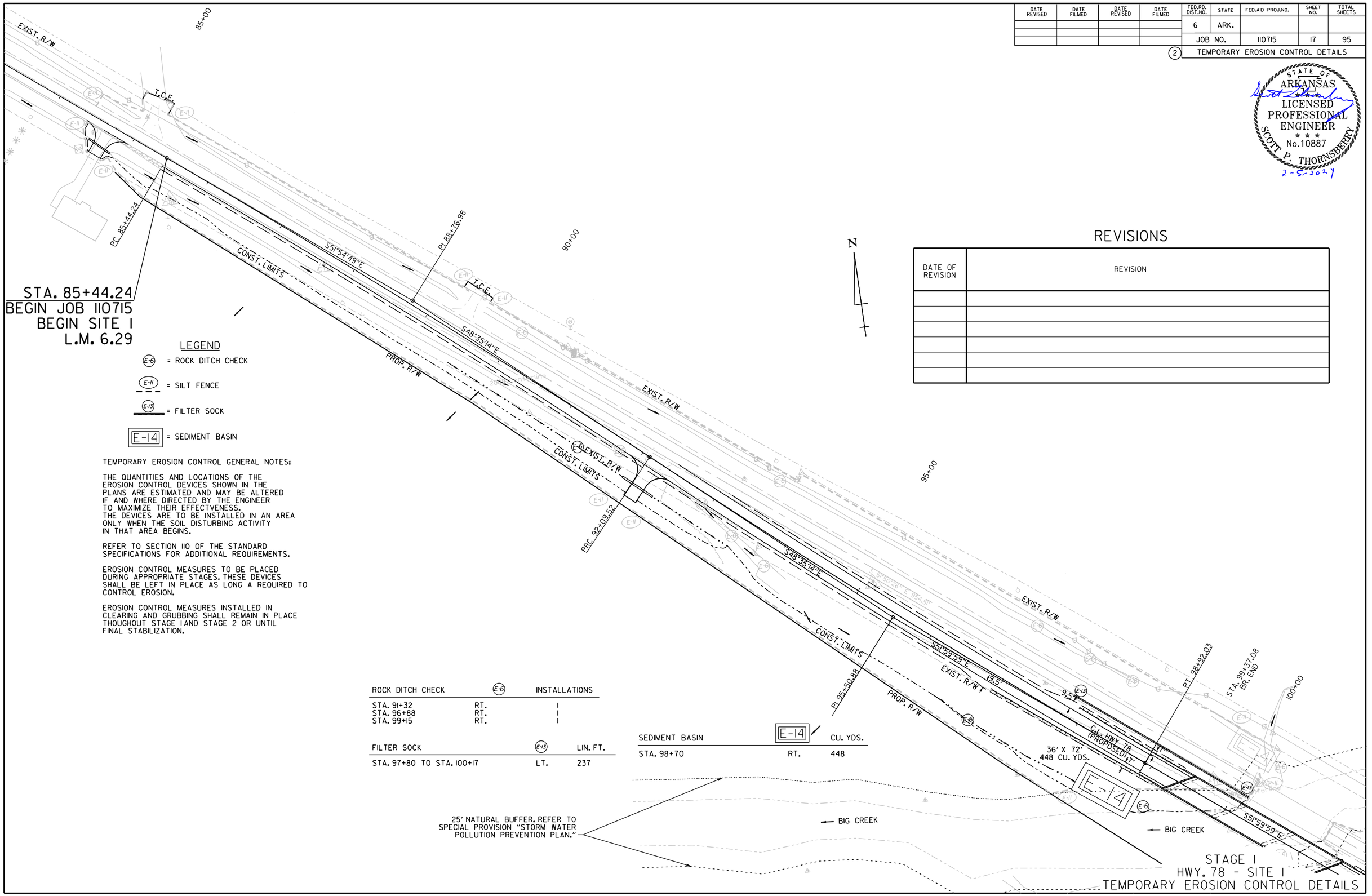
SEDIMENT BASIN	E-14	CU. YDS.
STA. 99+86	LT.	252
STA. 101+17	RT.	343

HWY. 78 - SITE 1
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/5/2024 11:04:24 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	17	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



STA. 85+44.24
BEGIN JOB 110715
BEGIN SITE 1
L.M. 6.29

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

(E-13) = FILTER SOCK

E-14 = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE 1 AND STAGE 2 OR UNTIL FINAL STABILIZATION.

ROCK DITCH CHECK (E-6)		INSTALLATIONS
STA. 91+32	RT.	1
STA. 96+88	RT.	1
STA. 99+15	RT.	1

FILTER SOCK (E-13)		LIN. FT.
STA. 97+80 TO STA. 100+17	LT.	237

SEDIMENT BASIN E-14		CU. YDS.
STA. 98+70	RT.	448

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

REVISIONS

DATE OF REVISION	REVISION

STAGE 1
HWY. 78 - SITE 1
TEMPORARY EROSION CONTROL DETAILS

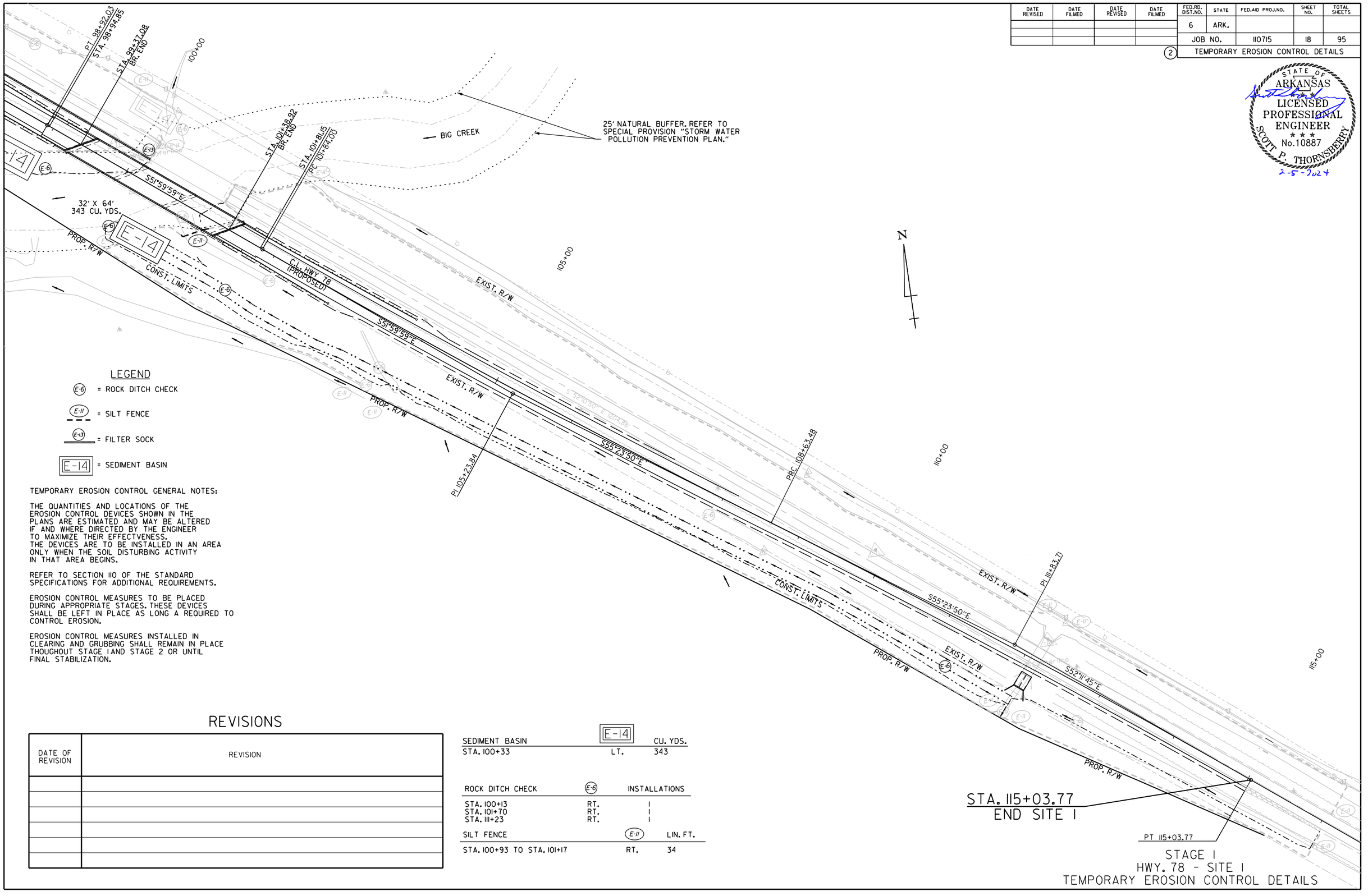
Scott.Thornsberry@5/2024 11:04:25 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_IT5022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	18	95

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



N

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- E-14 = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

SEDIMENT BASIN	E-14	CU. YDS.
STA. 100+33	LT.	343

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 100+13	RT.	1
STA. 101+70	RT.	1
STA. 111+23	RT.	1

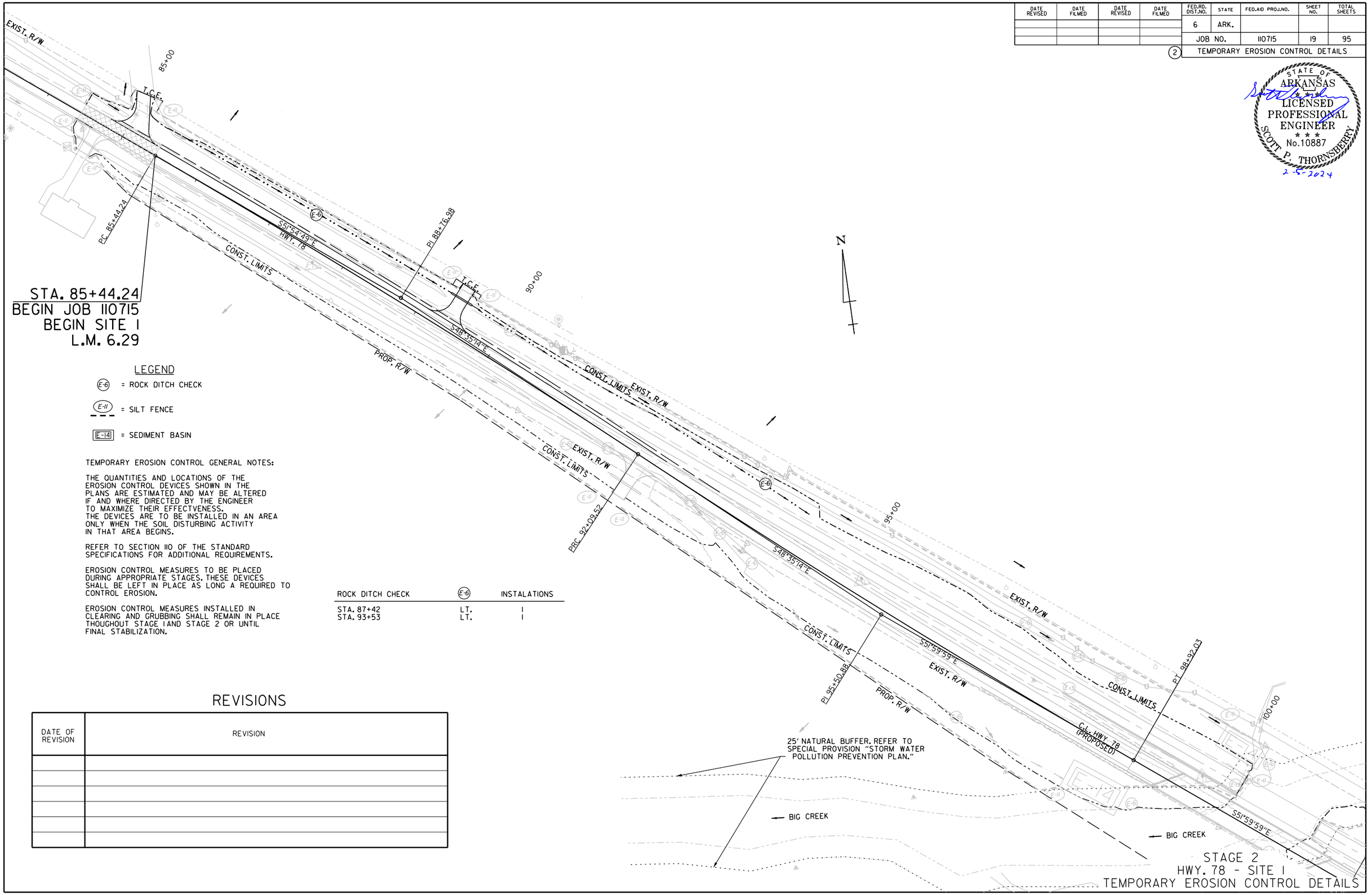
SILT FENCE	(E-11)	LIN. FT.
STA. 100+93 TO STA. 101+17	RT.	34

STAGE I
HWY. 78 - SITE 1
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry@5/2024 11:04:26 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_004.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	19	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-6-2024



STA. 85+44.24
BEGIN JOB 110715
BEGIN SITE 1
L.M. 6.29

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

E-14 = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE 1 AND STAGE 2 OR UNTIL FINAL STABILIZATION.

ROCK DITCH CHECK	E-6	INSTALATIONS
STA. 87+42	LT.	1
STA. 93+53	LT.	1

REVISIONS

DATE OF REVISION	REVISION

STAGE 2
HWY. 78 - SITE 1
TEMPORARY EROSION CONTROL DETAILS

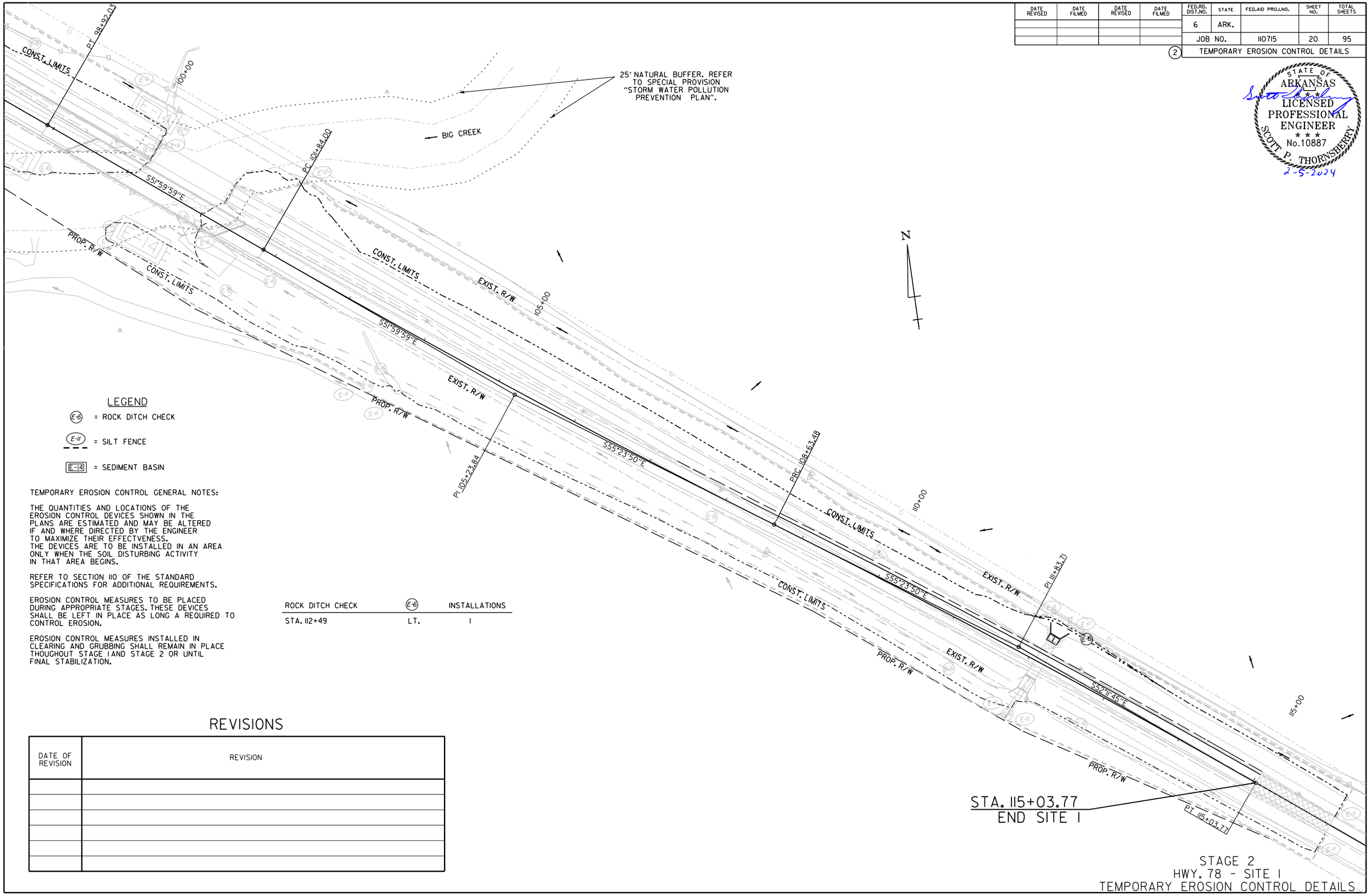
Scott.Thornsberry 5/5/2024 11:04:27 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_005.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	20	95

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

(E-14) = SEDIMENT BASIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 112+49	LT.	1

REVISIONS

DATE OF REVISION	REVISION

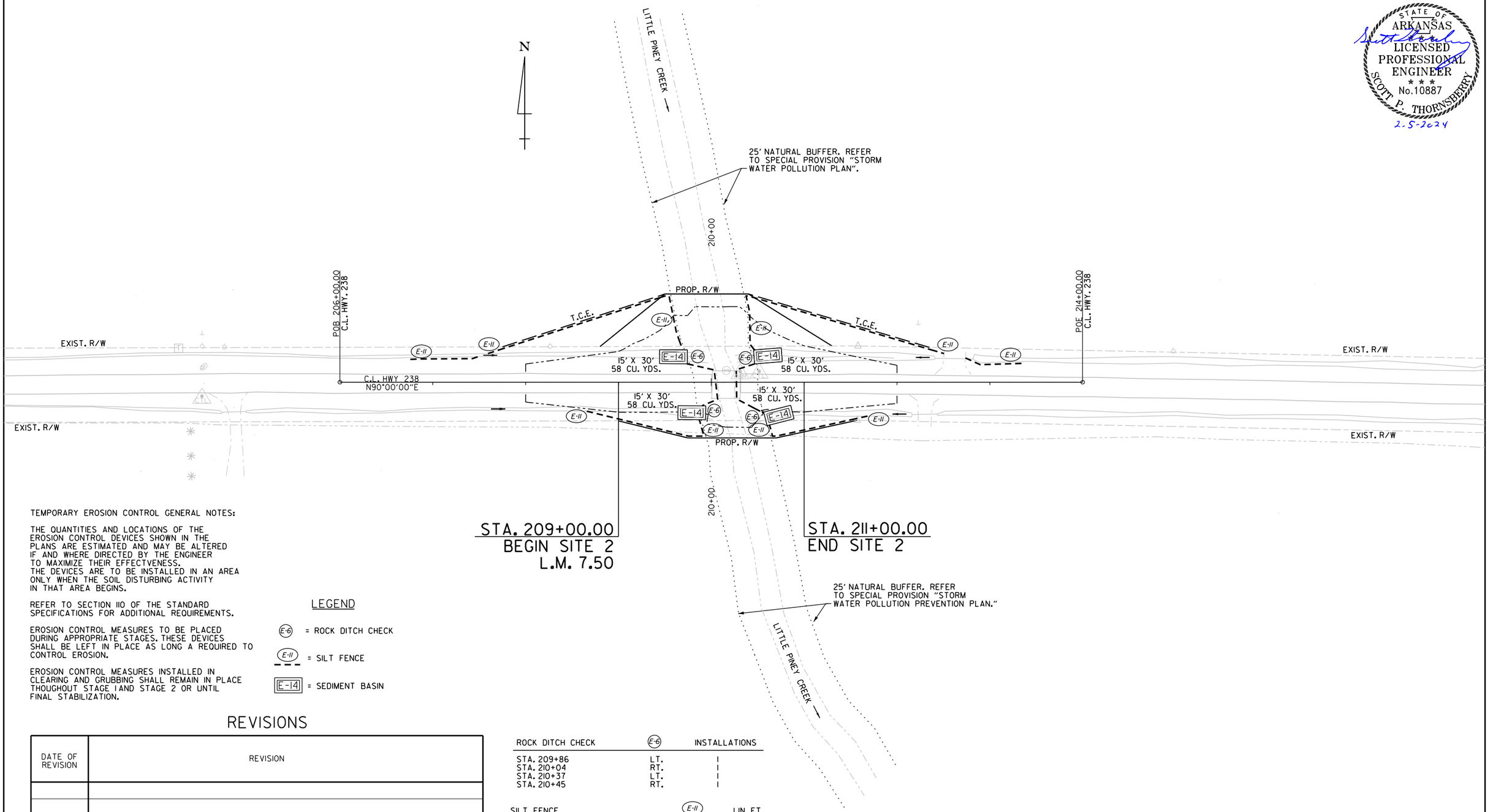
STAGE 2
HWY. 78 - SITE 1
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/5/2024 11:04:28 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_ECI_006.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	21	95
(2) TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



STA. 209+00.00
BEGIN SITE 2
L.M. 7.50

STA. 211+00.00
END SITE 2

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

(E-6) = ROCK DITCH CHECK

(E-II) = SILT FENCE

[E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 209+86	LT.	1
STA. 210+04	RT.	1
STA. 210+37	LT.	1
STA. 210+45	RT.	1

SILT FENCE	(E-II)	LIN. FT.
STA. 206+75 TO STA. 207+49	LT.	74
STA. 207+59 TO STA. 209+69	LT.	263
STA. 208+66 TO STA. 209+87	RT.	146
STA. 209+74 TO STA. 209+88	CL.	82
STA. 210+45 TO STA. 212+52	LT.	282
STA. 210+46 TO STA. 210+57	CL.	86
STA. 210+63 TO STA. 211+68	RT.	118
STA. 212+73 TO STA. 213+35	LT.	62

SEDIMENT BASIN	[E-14]	CU. YDS.
STA. 209+56	LT.	58
STA. 209+74	RT.	58
STA. 210+59	LT.	58
STA. 210+71	RT.	58

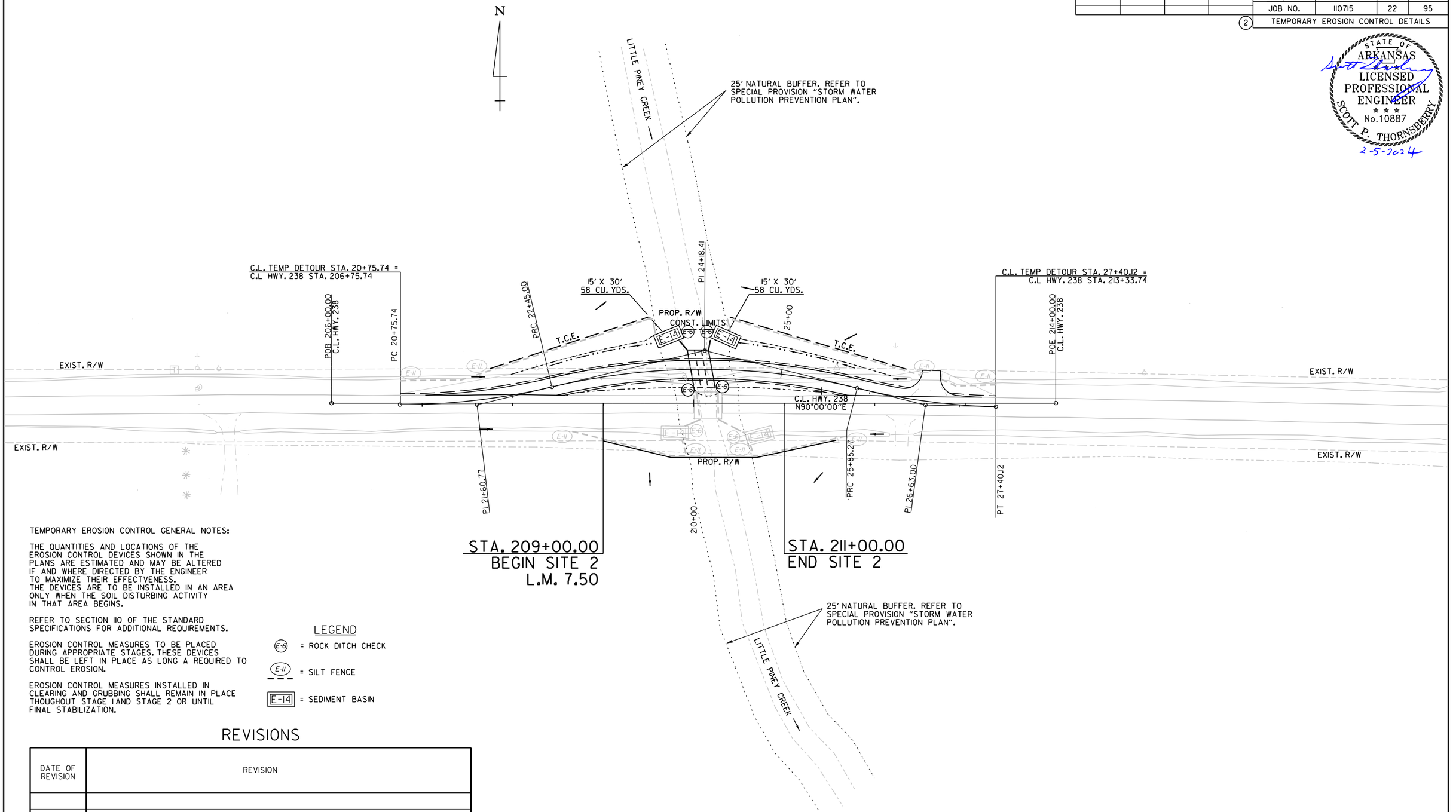
HWY. 238 - SITE 2
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/2024 11:04:29 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC2_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	22	95
(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
2-5-2024



TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

[E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECK C.L. OF HWY. 238 - DETOUR	(E-6)	INSTALLATIONS
STA. 23+96	RT.	1
STA. 23+97	LT.	1
STA. 24+17	LT.	1
STA. 24+35	RT.	1

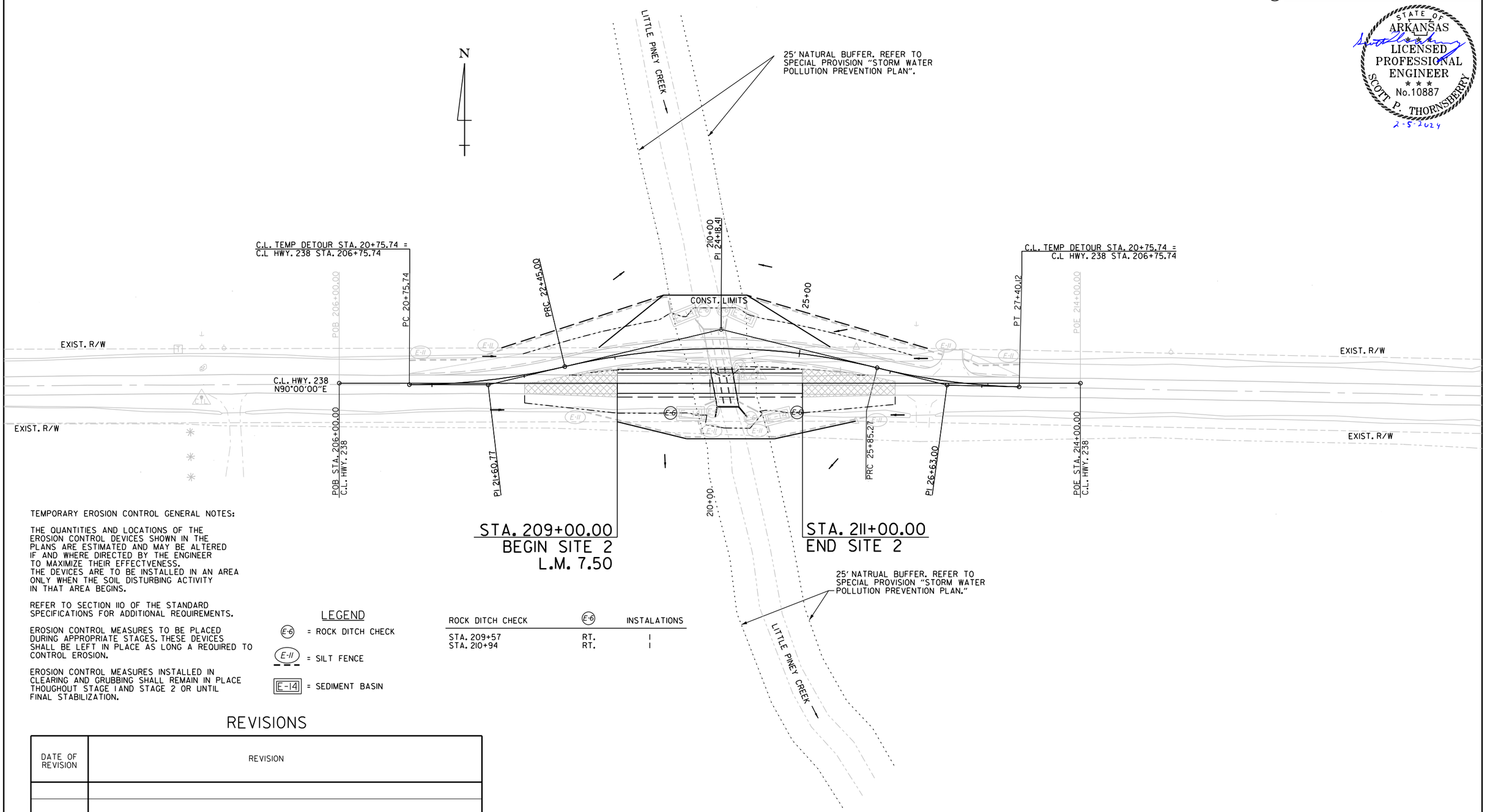
SEDIMENT BASIN C.L. OF HWY. 238 - DETOUR	[E-14]	CU. YDS.
STA. 23+75	LT.	58
STA. 24+36	LT.	58

STAGE 1
HWY. 238 - SITE 2
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/5/2024 11:04:30 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC2_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	23	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

[E-14] = SEDIMENT BASIN

ROCK DITCH CHECK	(E-6)	INSTALATIONS
STA. 209+57	RT.	1
STA. 210+94	RT.	1

REVISIONS

DATE OF REVISION	REVISION

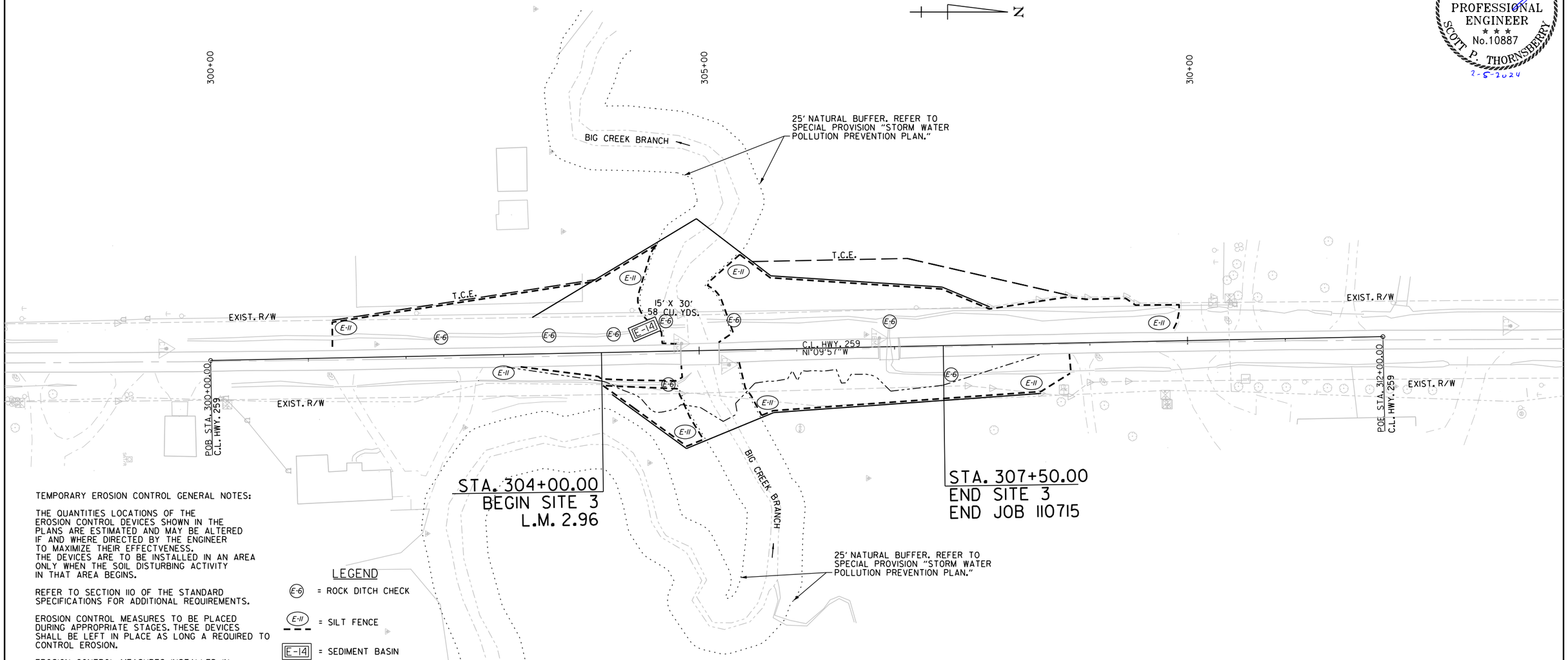
STAGE 2
HWY. 238 - SITE 2
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:31 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC2_003.dgn
REVISED DATE: $$REVDATE$$

_EC2_003.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	24	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
1-5-2024



TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

[E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE (E-11)		LIN. FT.
STA. 301+25 TO STA. 304+58	LT.	370
STA. 303+17 TO STA. 304+82	RT.	180
STA. 304+01 TO STA. 305+02	RT.	260
STA. 304+58 TO STA. 304+81	LT.	116
STA. 305+20 TO STA. 305+43	LT.	111
STA. 305+40 TO STA. 305+63	RT.	60
STA. 305+43 TO STA. 309+92	LT.	493
STA. 305+63 TO STA. 308+80	RT.	339

ROCK DITCH CHECK (E-6)		INSTALLATIONS
STA. 302+35 TO 304+13	LT.	3
STA. 304+66	LT.	1
STA. 304+68	RT.	1
STA. 305+37	LT.	1
STA. 306+96	LT.	1
STA. 307+57	RT.	1

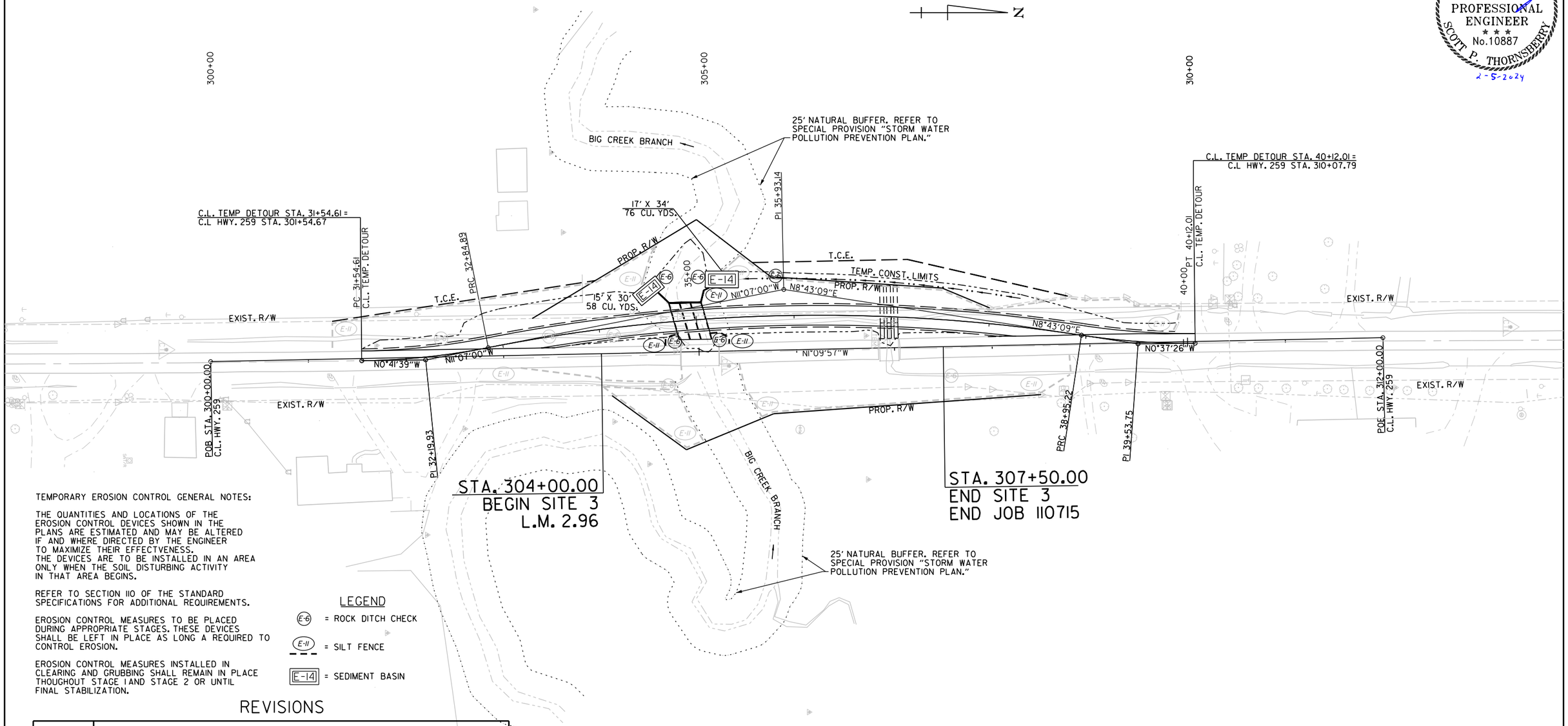
SEDIMENT BASIN [E-14]		CU. YDS.
STA. 304+57	LT.	58

HWY. 259 - SITE 3
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/5/2024 11:04:32 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC3_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	25	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

[E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE
C.L. TEMP. DETOUR

			(E-11)	LIN. FT.
STA. 34+66	TO	STA. 34+79	RT.	21
STA. 35+09	TO	STA. 35+15	LT.	6
STA. 35+13	TO	STA. 35+32	RT.	27

ROCK DITCH CHECK
C.L. TEMP. DETOUR

(E-6)	INSTALLATIONS
STA. 34+73 LT.	1
STA. 34+76 RT.	1
STA. 35+05 LT.	1
STA. 35+23 RT.	1
STA. 35+82 LT.	1

SEDIMENT BASIN
C.L. TEMP. DETOUR

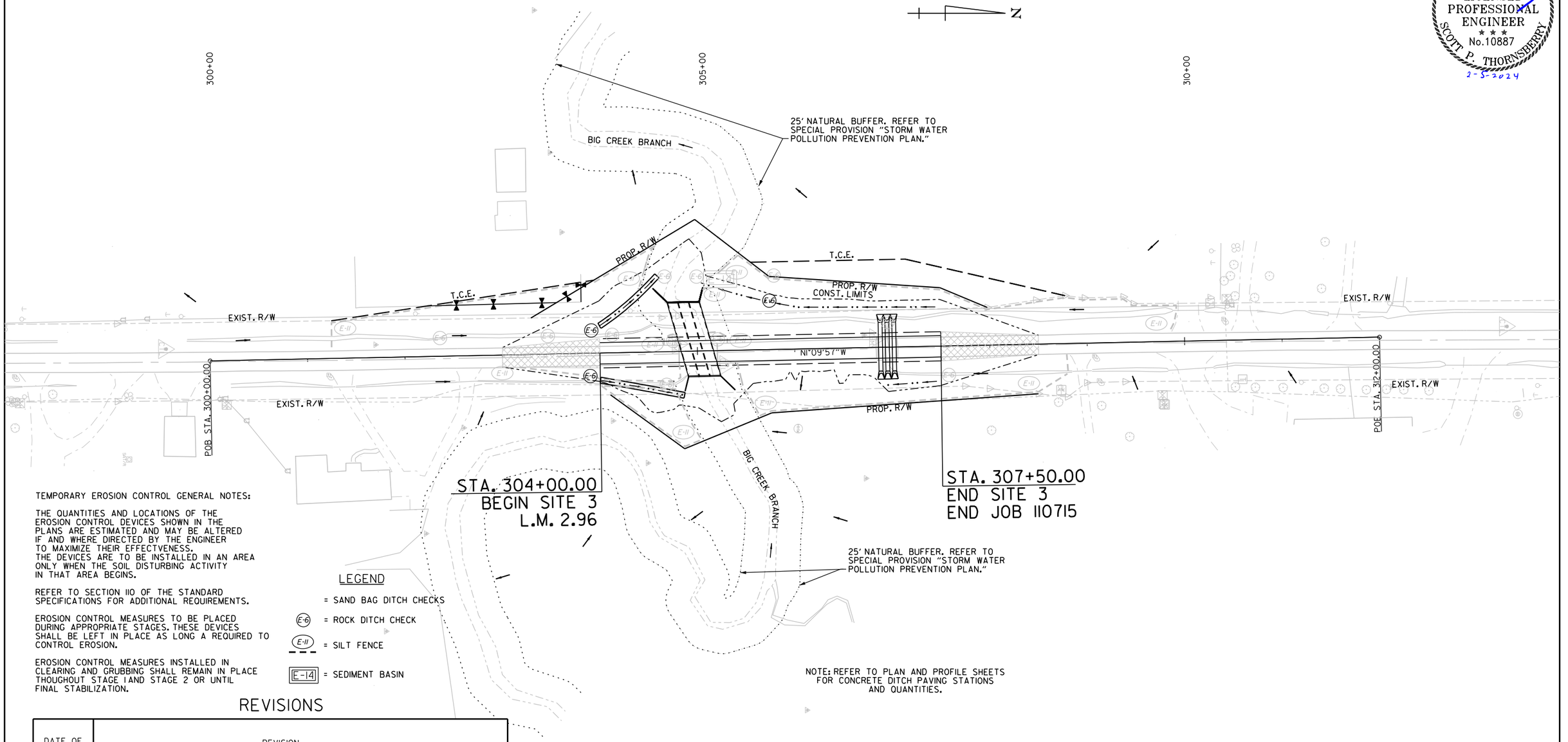
[E-14]	CU. YDS.
STA. 34+43 LT.	58
STA. 35+19 LT.	76

STAGE I
HWY. 259 - SITE 3
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 5/5/2024 11:04:33 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC3_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	26	95
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG A REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE I AND STAGE 2 OR UNTIL FINAL STABILIZATION.

LEGEND

= SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECK
(E-11) = SILT FENCE
[E-14] = SEDIMENT BASIN

NOTE: REFER TO PLAN AND PROFILE SHEETS FOR CONCRETE DITCH PAVING STATIONS AND QUANTITIES.

REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECK		INSTALLATIONS
STA. 304+56	RT.	1
STA. 304+38	LT.	1

ROCK DITCH CHECK	(E-6)	INSTALLATIONS
STA. 303+09	RT.	1
STA. 303+92	LT.	1
STA. 305+76	LT.	1

STAGE 2
HWY. 259 - SITE 3
TEMPORARY EROSION CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:34 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_05E_EC3_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	27	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			



RIGHT SHOULDER CLOSED — * (2) W21-5a (36" X 36")

DO NOT PASS — * (2) R4-1 (24" X 30")

* IF AND WHERE DIRECTED BY THE ENGINEER

CONSTRUCTION SEQUENCE - HWY. 78 SITE 1

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCTION SEQUENCE - HWY. 238 & 259 SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

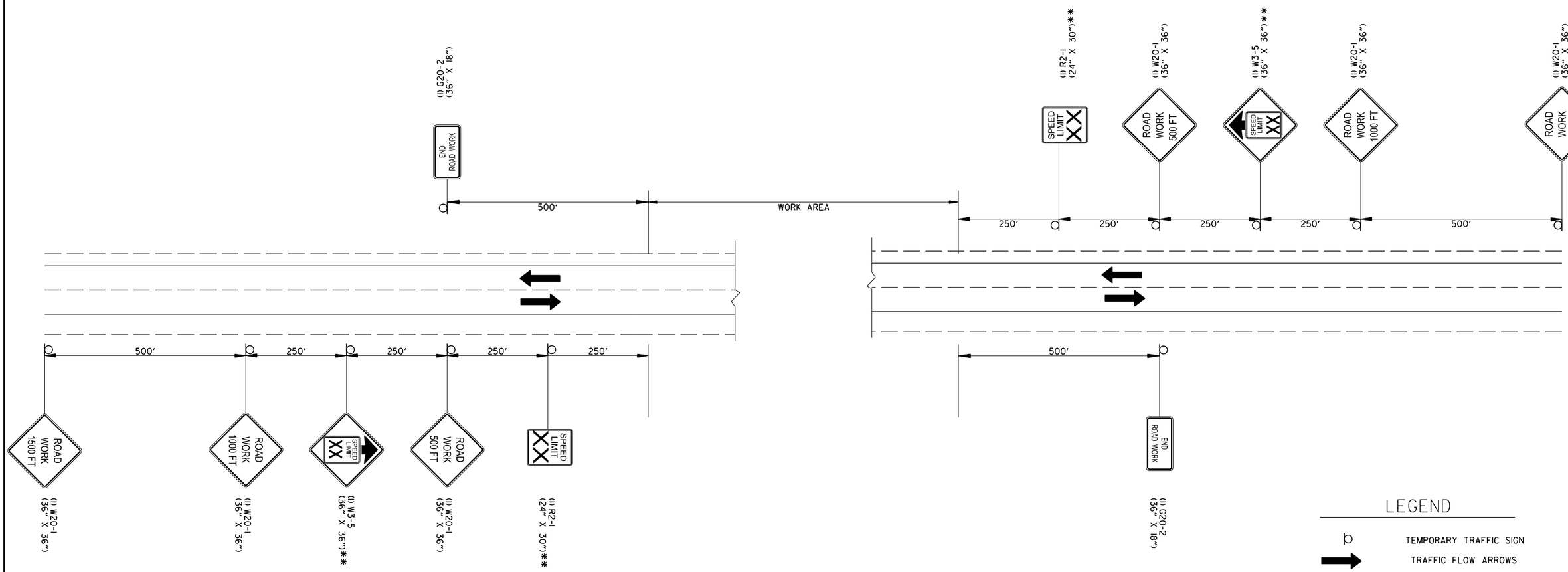
STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.



** USE SPEED LIMIT SIGNS ONLY ON SITES 2 & 3 IF AND WHERE DIRECTED BY THE ENGINEER.

ADVANCE WARNING DETAILS
ALL SITES - ALL STAGES

MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/5/2024 11:04:35 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	28	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

CONSTRUCTION SEQUENCE - HWY. 78
SITE 1

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

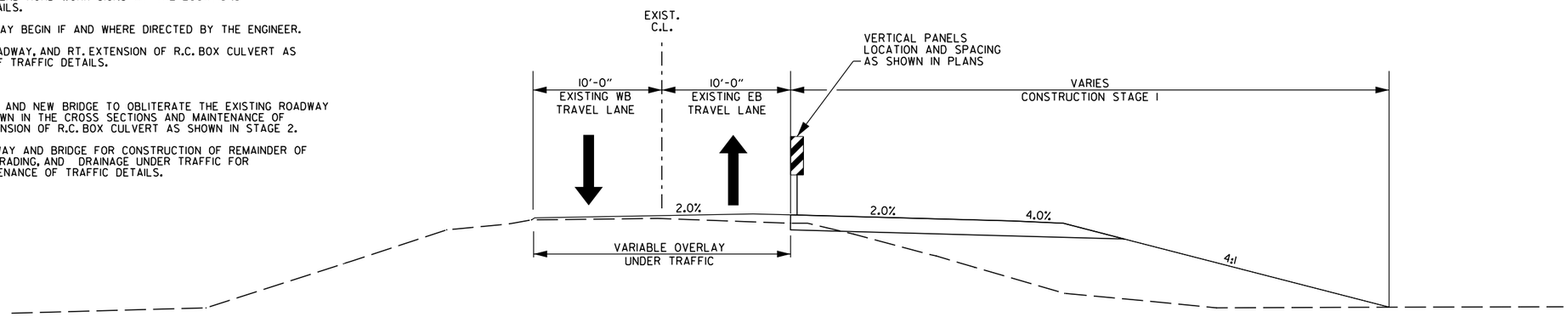
CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

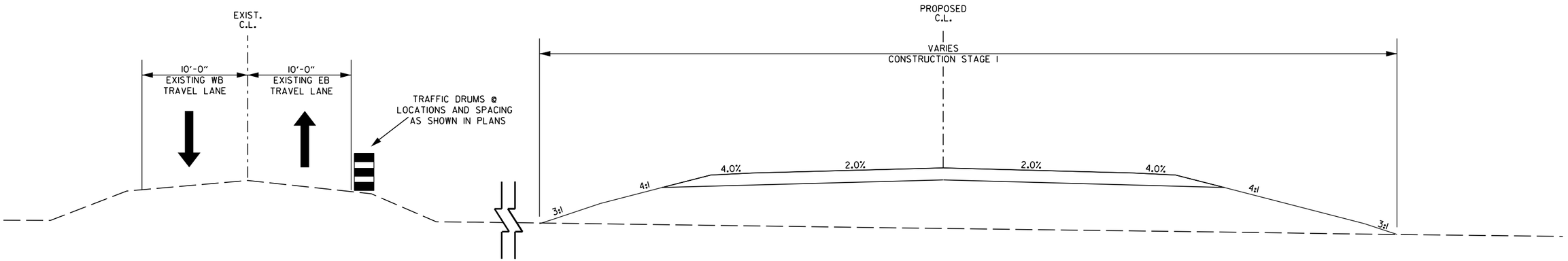
MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



SITE 1 - BIG CREEK
STAGE 1 - NOTCH AND WIDEN TRANSITIONS
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

STA. 85+44.21 TO 94+04.30
STA. 106+66.00 TO 115+03.77



SITE 1 - BIG CREEK
STAGE 1 - PROPOSED ROADWAY CONSTRUCTION
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

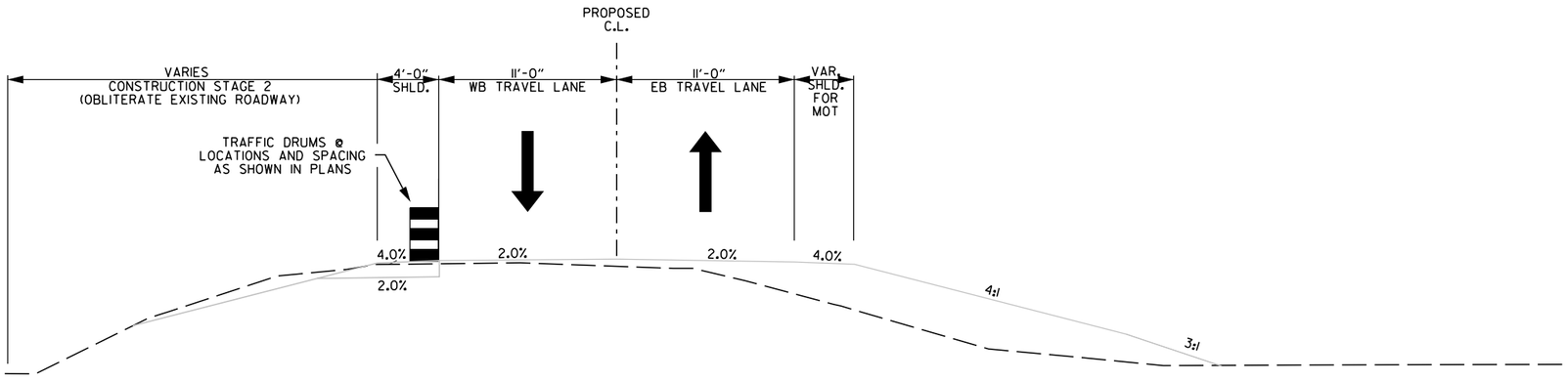
STA. 94+04.00 TO 98+95.65
STA. 101+80.35 TO 106+66.00

SITE 1 - STAGE 1
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/5/2024 11:04:36 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	29	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 78 SITE 1

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

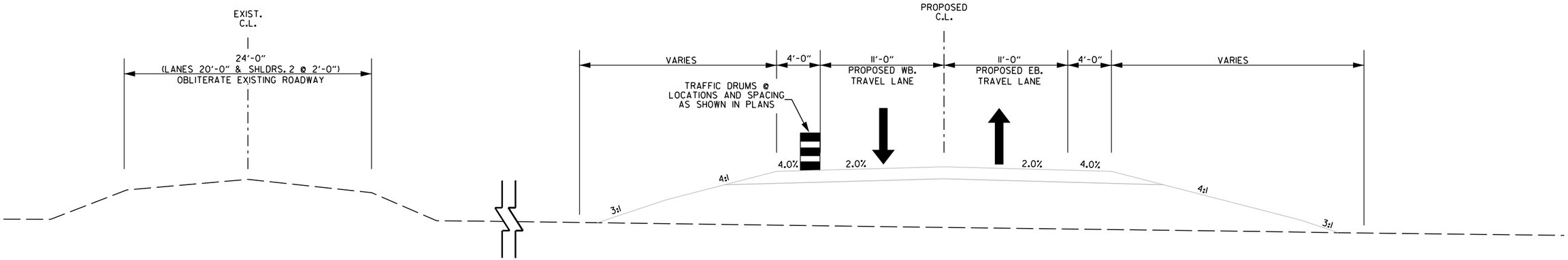
STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

SITE 1- BIG CREEK
STAGE 2 - OBLITERATION OF EXISTING ROADWAY (NOTCH AND WIDEN SECTION)
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

STA. 85+44.21 TO 94+04.30
STA. 106+66.00 TO 115+03.77



SITE 1- BIG CREEK
STAGE 2 - OBLITERATION OF EXISTING ROADWAY
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

STA. 94+04.00 TO 106+66.00

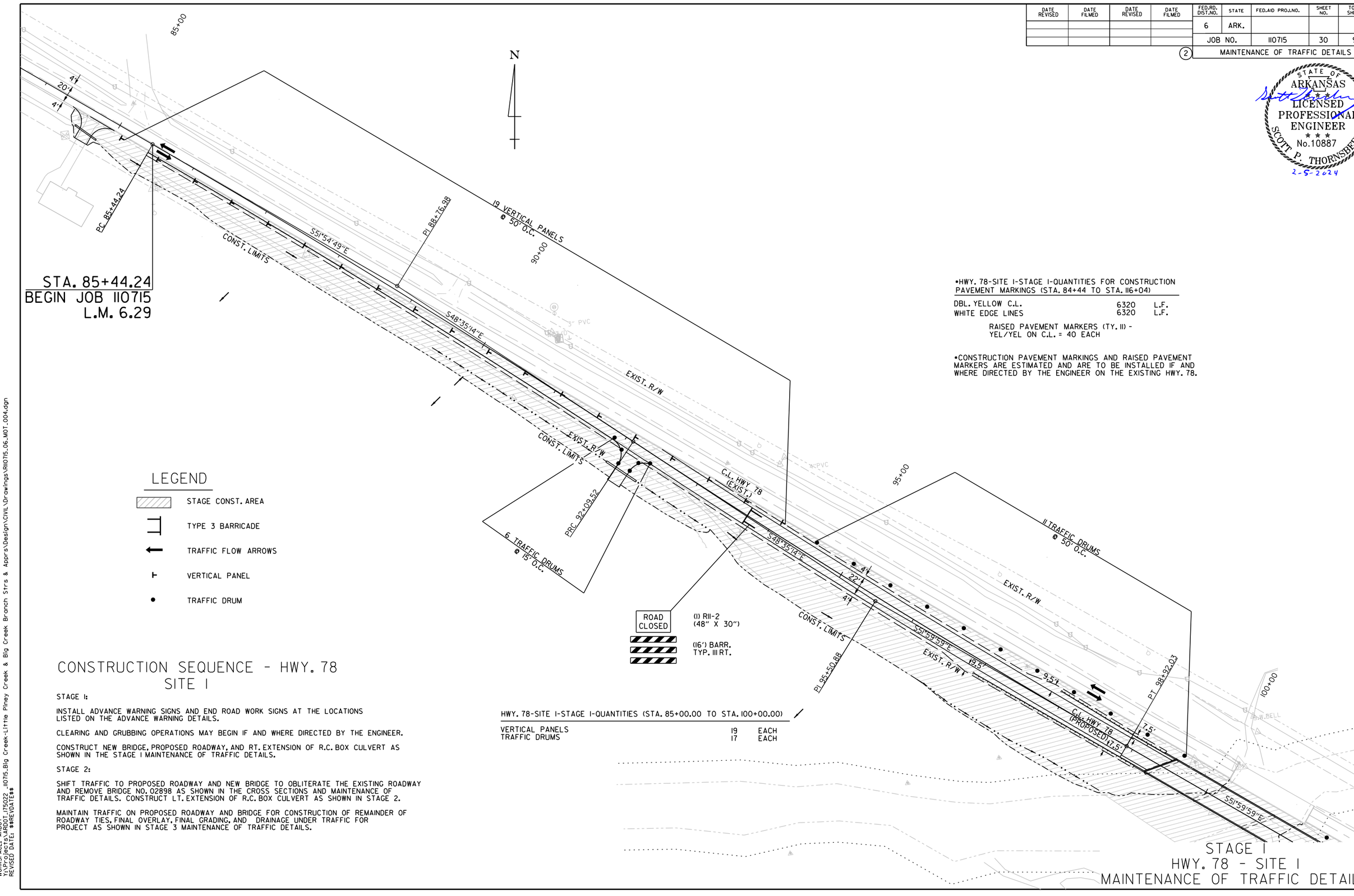
SITE 1- STAGE 2
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry@5/5/2024 11:04:37 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17S022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	30	95
(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



STA. 85+44.24
BEGIN JOB 110715
L.M. 6.29

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM

CONSTRUCTION SEQUENCE - HWY. 78 SITE I

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

HWY. 78-SITE I-STAGE I-QUANTITIES (STA. 85+00.00 TO STA. 100+00.00)

VERTICAL PANELS	19	EACH
TRAFFIC DRUMS	17	EACH

•HWY. 78-SITE I-STAGE I-QUANTITIES FOR CONSTRUCTION PAVEMENT MARKINGS (STA. 84+44 TO STA. 116+04)

DBL. YELLOW C.L.	6320	L.F.
WHITE EDGE LINES	6320	L.F.

RAISED PAVEMENT MARKERS (TY. II) - YEL/YEL ON C.L. = 40 EACH

•CONSTRUCTION PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS ARE ESTIMATED AND ARE TO BE INSTALLED IF AND WHERE DIRECTED BY THE ENGINEER ON THE EXISTING HWY. 78.

STAGE I
HWY. 78 - SITE I
MAINTENANCE OF TRAFFIC DETAILS

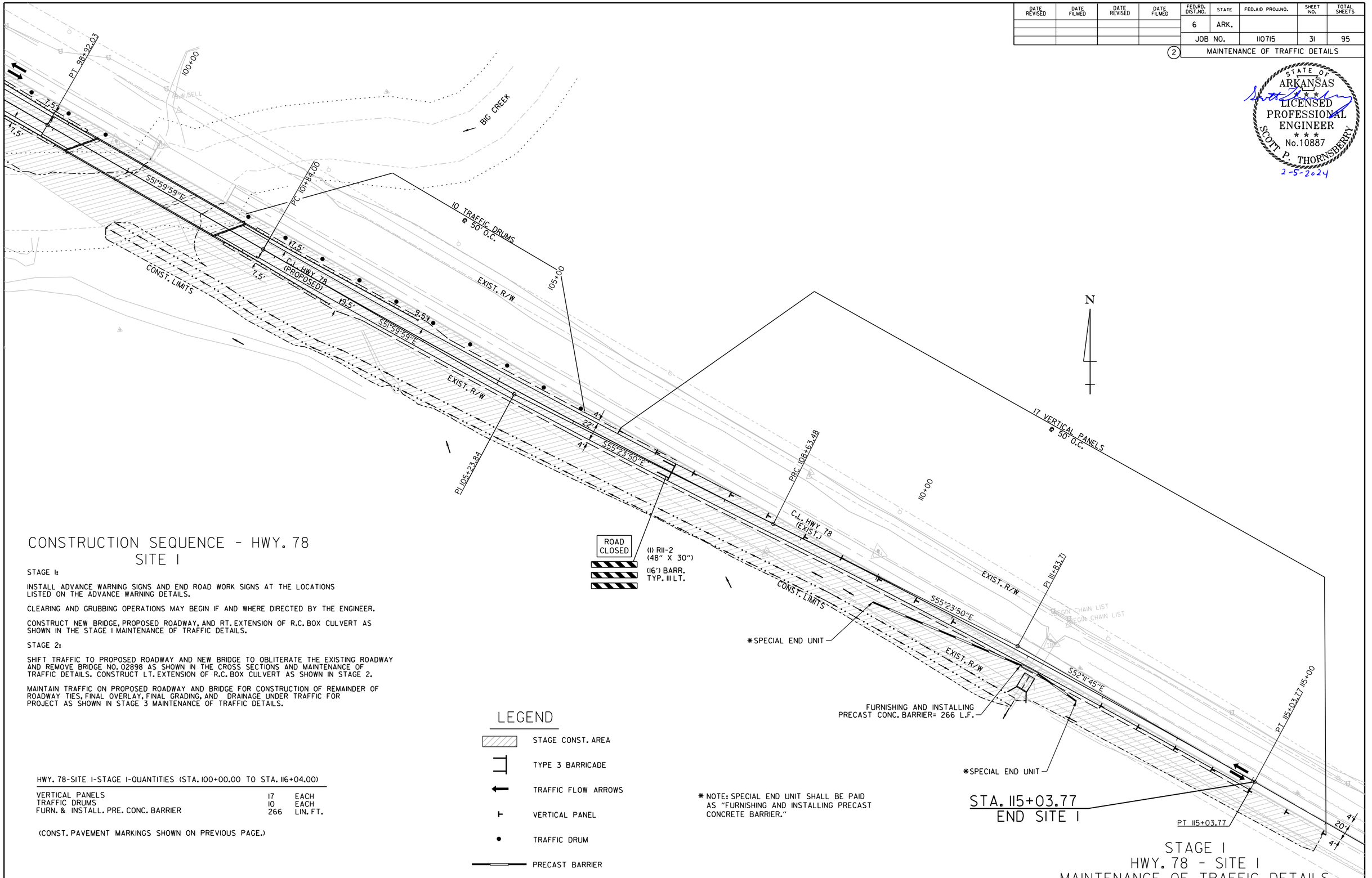
Scott.Thornsberry@5/2024 11:04:38 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_T5022_ 110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_06_MOT_004.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	31	95

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 78 SITE I

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

HWY. 78-SITE I-STAGE I-QUANTITIES (STA. 100+00.00 TO STA. 116+04.00)

VERTICAL PANELS	17	EACH
TRAFFIC DRUMS	10	EACH
FURN. & INSTALL. PRE. CONC. BARRIER	266	LIN. FT.

(CONST. PAVEMENT MARKINGS SHOWN ON PREVIOUS PAGE.)

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM
- PRECAST BARRIER

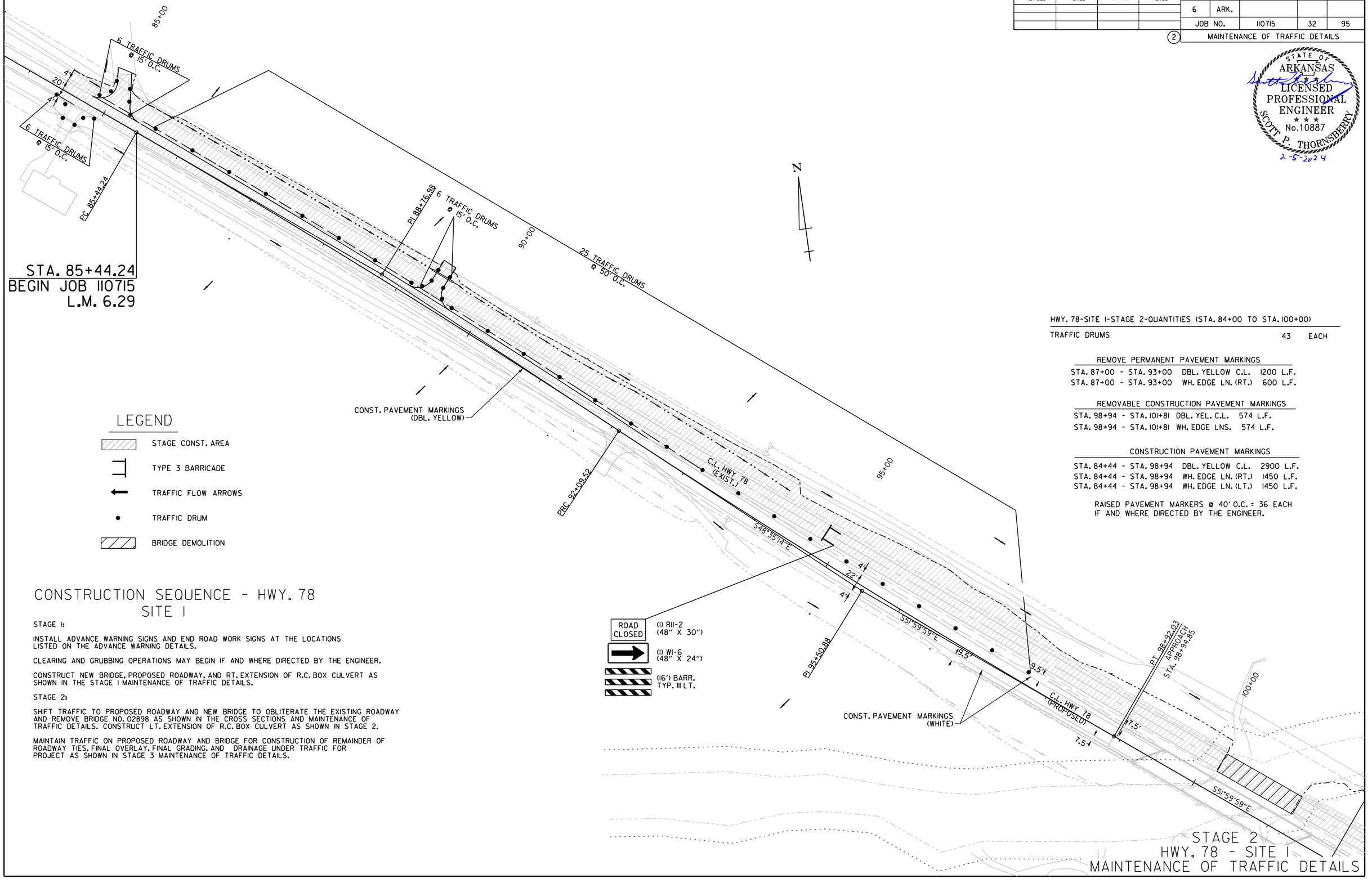
* NOTE: SPECIAL END UNIT SHALL BE PAID AS "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER."

STAGE I
HWY. 78 - SITE I
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry@5/2024 11:04:38 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_T5022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Appr's\Design\CIVIL\Drawings\R110715_06_MOT_005.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	32	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- BRIDGE DEMOLITION

CONSTRUCTION SEQUENCE - HWY. 78 SITE I

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

HWY. 78-SITE 1-STAGE 2-QUANTITIES (STA. 84+00 TO STA. 100+00)

TRAFFIC DRUMS	43	EACH

REMOVE PERMANENT PAVEMENT MARKINGS

STA. 87+00 - STA. 93+00	DBL. YELLOW C.L.	1200 L.F.
STA. 87+00 - STA. 93+00	WH. EDGE LN. (RT.)	600 L.F.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

STA. 98+94 - STA. 101+81	DBL. YEL. C.L.	574 L.F.
STA. 98+94 - STA. 101+81	WH. EDGE LNS.	574 L.F.

CONSTRUCTION PAVEMENT MARKINGS

STA. 84+44 - STA. 98+94	DBL. YELLOW C.L.	2900 L.F.
STA. 84+44 - STA. 98+94	WH. EDGE LN. (RT.)	1450 L.F.
STA. 84+44 - STA. 98+94	WH. EDGE LN. (LT.)	1450 L.F.

RAISED PAVEMENT MARKERS @ 40' O.C. = 36 EACH
IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 2
HWY. 78 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

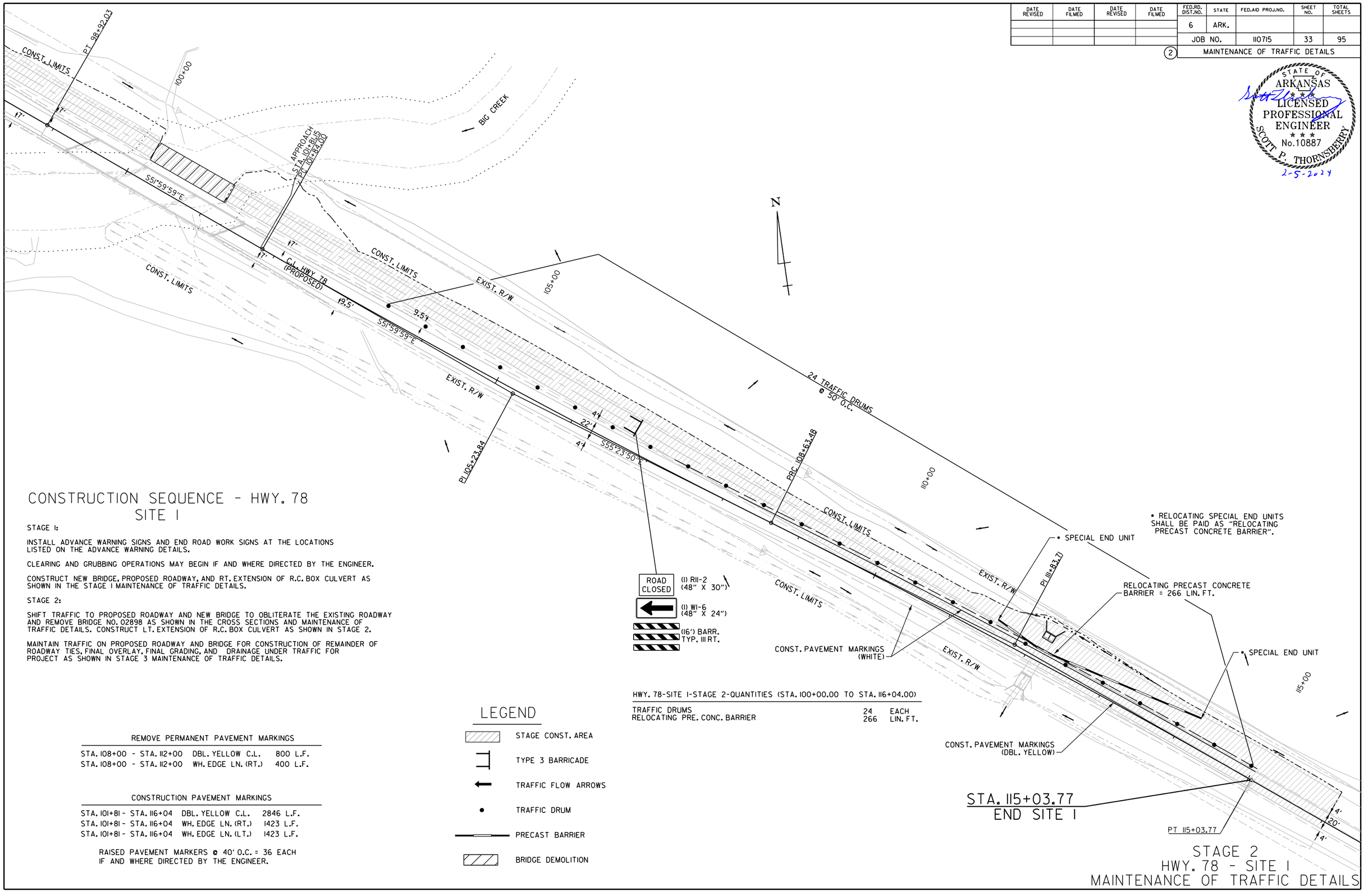
Scott.Thornsberry 2/5/2024 11:04:40 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_-_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_006.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	33	95

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 78 SITE I

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT NEW BRIDGE, PROPOSED ROADWAY, AND RT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO PROPOSED ROADWAY AND NEW BRIDGE TO OBLITERATE THE EXISTING ROADWAY AND REMOVE BRIDGE NO. 02898 AS SHOWN IN THE CROSS SECTIONS AND MAINTENANCE OF TRAFFIC DETAILS. CONSTRUCT LT. EXTENSION OF R.C. BOX CULVERT AS SHOWN IN STAGE 2.

MAINTAIN TRAFFIC ON PROPOSED ROADWAY AND BRIDGE FOR CONSTRUCTION OF REMAINDER OF ROADWAY TIES, FINAL OVERLAY, FINAL GRADING, AND DRAINAGE UNDER TRAFFIC FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

REMOVE PERMANENT PAVEMENT MARKINGS

STA. 108+00 - STA. 112+00	DBL. YELLOW C.L.	800 L.F.
STA. 108+00 - STA. 112+00	WH. EDGE LN. (RT.)	400 L.F.

CONSTRUCTION PAVEMENT MARKINGS

STA. 101+81 - STA. 116+04	DBL. YELLOW C.L.	2846 L.F.
STA. 101+81 - STA. 116+04	WH. EDGE LN. (RT.)	1423 L.F.
STA. 101+81 - STA. 116+04	WH. EDGE LN. (LT.)	1423 L.F.

RAISED PAVEMENT MARKERS @ 40' O.C. = 36 EACH
IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- PRECAST BARRIER
- BRIDGE DEMOLITION

HWY. 78-SITE I-STAGE 2-QUANTITIES (STA. 100+00.00 TO STA. 116+04.00)

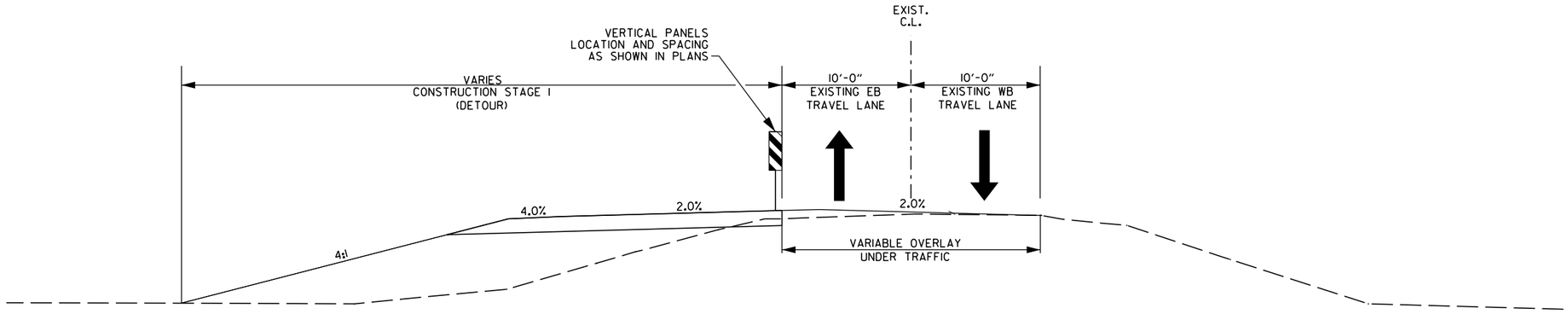
TRAFFIC DRUMS	24	EACH
RELOCATING PRE. CONC. BARRIER	266	LIN. FT.

STAGE 2 HWY. 78 - SITE I MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/2024 11:04:40 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_007.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	34	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



SITE 2 & 3 - LITTLE PINEY CREEK & BIG CREEK BRANCH
STAGE I- NOTCH AND WIDEN
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

SITE 2 - HWY. 238 STA. 206+75.72 TO 210.03+16
STA. 210+26.85 TO 213+34.14

SITE 3 - HWY. 259 STA. 301+54.74 TO 304+83.26
STA. 305+16.81 TO 310+07.79

CONSTRUCTION SEQUENCE - HWY. 238 & 259
SITES 2 & 3

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

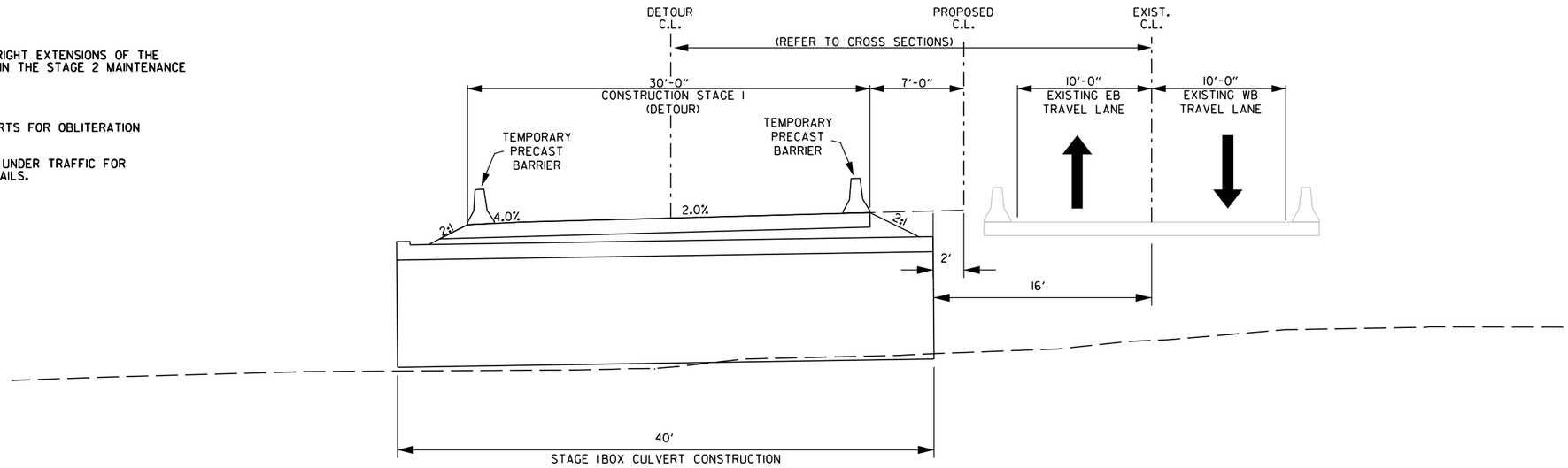
STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.



SITE 2 & 3 - LITTLE PINEY CREEK & BIG CREEK BRANCH
STAGE I- R.C. BOX AND DETOUR CONSTRUCTION
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

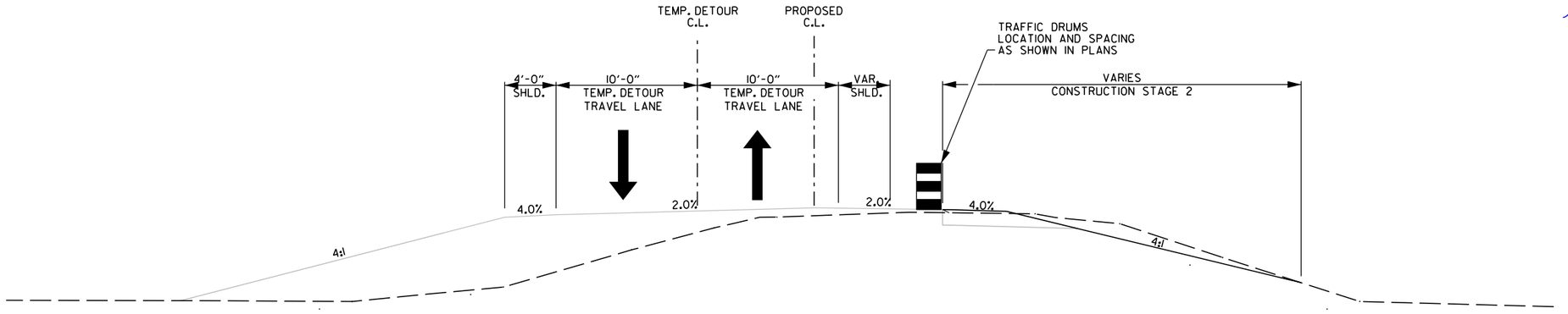
SITE 2 - HWY. 238 STA. 210.03+16 TO 210+26.85
SITE 3 - HWY. 259 STA. 304+83.26 TO 305+16.81

SITES 2 & 3 - STAGE I
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/5/2024 11:04:41 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_008.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	35	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



SITE 2 & 3 - LITTLE PINEY CREEK & BIG CREEK BRANCH
STAGE 2 - NOTCH AND WIDEN
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

SITE 2 - HWY. 238 STA. 206+75.72 TO 210.03+16
STA. 210+26.85 TO 213+34.14

SITE 3 - HWY. 259 STA. 301+54.74 TO 304+83.26
STA. 305+16.81 TO 310+07.79

CONSTRUCTION SEQUENCE - HWY. 238 & 259
SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

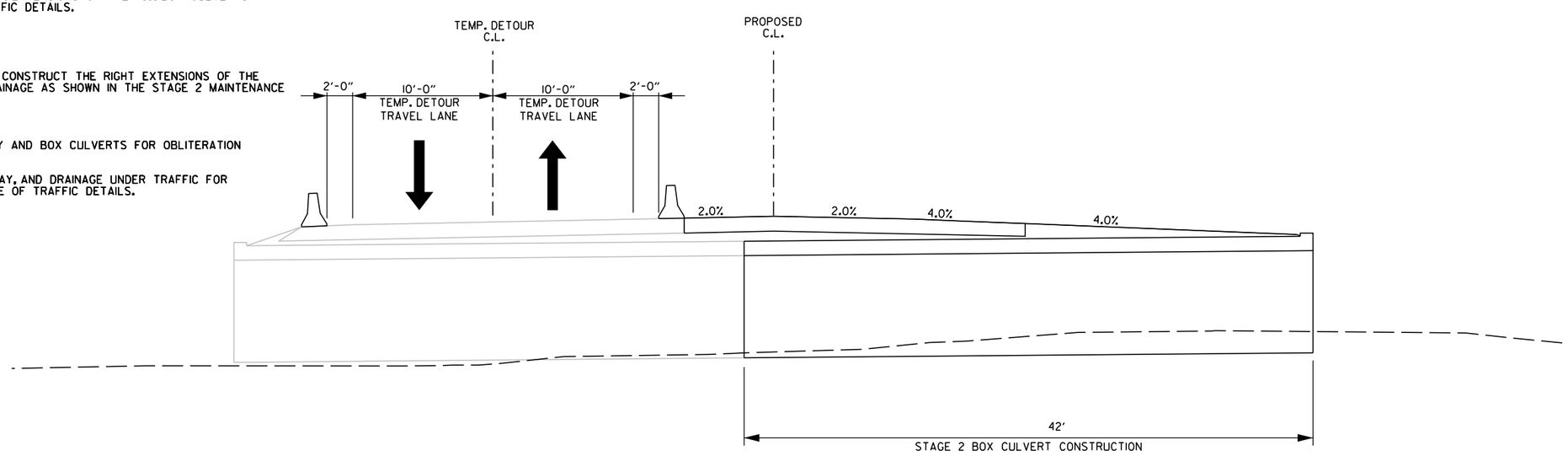
STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.



SITE 2 & 3 - LITTLE PINEY CREEK & BIG CREEK BRANCH
STAGE 2 - NOTCH AND WIDEN
MAINTENANCE OF TRAFFIC DETAILS
TYPICAL SECTION

SITE 2 - HWY. 238 STA. 210.03+16 TO 210+26.85
SITE 3 - HWY. 259 STA. 304+83.26 TO 305+16.81

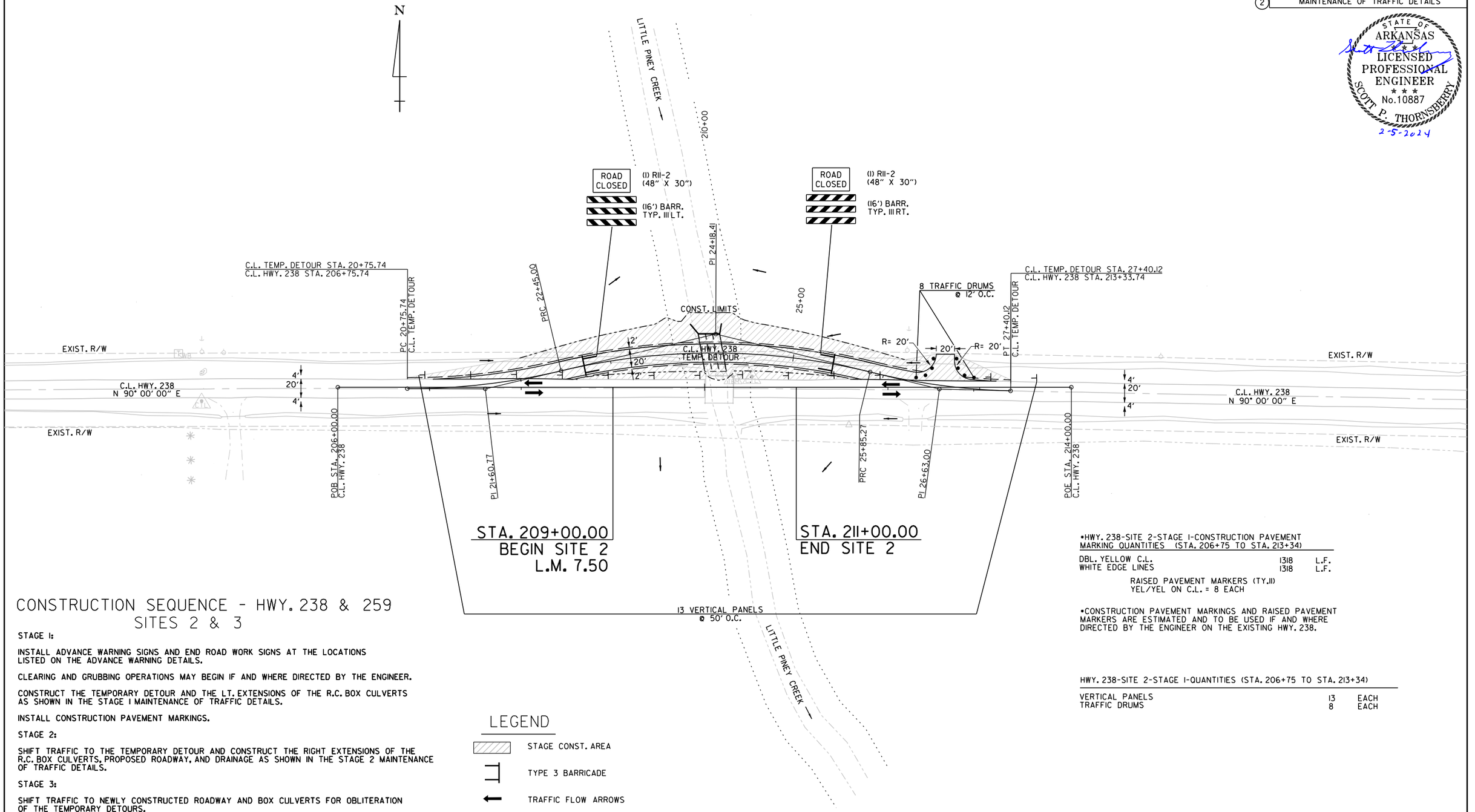
SITES 2 & 3 - STAGE 2
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 2/5/2024 11:04:42 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_009.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	36	95
(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 238 & 259 SITES 2 & 3

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM

•HWY. 238-SITE 2-STAGE I-CONSTRUCTION PAVEMENT MARKING QUANTITIES (STA. 206+75 TO STA. 213+34)

DBL. YELLOW C.L.	1318	L.F.
WHITE EDGE LINES	1318	L.F.

RAISED PAVEMENT MARKERS (TY.II)
YEL/YEL ON C.L. = 8 EACH

•CONSTRUCTION PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS ARE ESTIMATED AND TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER ON THE EXISTING HWY. 238.

HWY. 238-SITE 2-STAGE I-QUANTITIES (STA. 206+75 TO STA. 213+34)

VERTICAL PANELS	13	EACH
TRAFFIC DRUMS	8	EACH

STAGE I
HWY. 238 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/5/2024 11:04:43 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_01.dgn
REVISED DATE: $$REVDATE$$

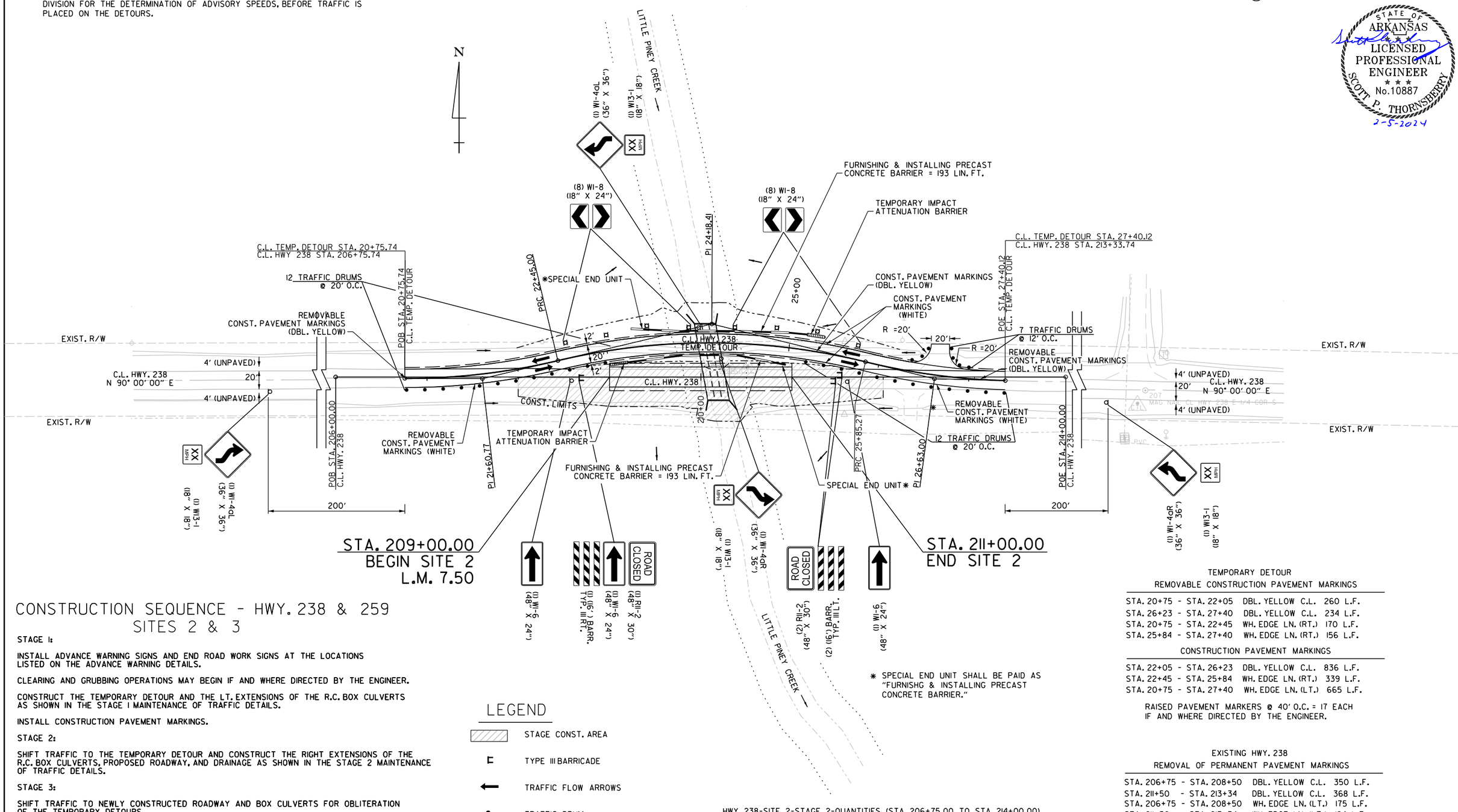
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	37	95

(2) MAINTENANCE OF TRAFFIC DETAILS

NOTE: THE PROJECT MUST HAVE THE CURRENT CONDITIONS EVALUATED FOR THE ESTABLISHMENT OF ADVISORY SPEEDS. CONTACT THE MAINTENANCE DIVISION FOR THE DETERMINATION OF ADVISORY SPEEDS, BEFORE TRAFFIC IS PLACED ON THE DETOURS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 238 & 259 SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

LEGEND

- STAGE CONST. AREA
- TYPE III BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- TEMPORARY TRAFFIC SIGN

HWY. 238-SITE 2-STAGE 2-QUANTITIES (STA. 206+75.00 TO STA. 214+00.00)

TRAFFIC DRUMS	31	EACH
PRE. CONC. BARRIER	386	LIN. FT.
TEMP. IMPACT ATTENUATION BARRIER	2	EACH
CHEVRONS	16	EACH

* SPECIAL END UNIT SHALL BE PAID AS "FURNISHG & INSTALLING PRECAST CONCRETE BARRIER."

TEMPORARY DETOUR
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

STA. 20+75	STA. 22+05	DBL. YELLOW C.L.	260 L.F.
STA. 26+23	STA. 27+40	DBL. YELLOW C.L.	234 L.F.
STA. 20+75	STA. 22+45	WH. EDGE LN. (RT.)	170 L.F.
STA. 25+84	STA. 27+40	WH. EDGE LN. (RT.)	156 L.F.

CONSTRUCTION PAVEMENT MARKINGS

STA. 22+05	STA. 26+23	DBL. YELLOW C.L.	836 L.F.
STA. 22+45	STA. 25+84	WH. EDGE LN. (RT.)	339 L.F.
STA. 20+75	STA. 27+40	WH. EDGE LN. (LT.)	665 L.F.

RAISED PAVEMENT MARKERS @ 40' O.C. = 17 EACH
IF AND WHERE DIRECTED BY THE ENGINEER.

EXISTING HWY. 238
REMOVAL OF PERMANENT PAVEMENT MARKINGS

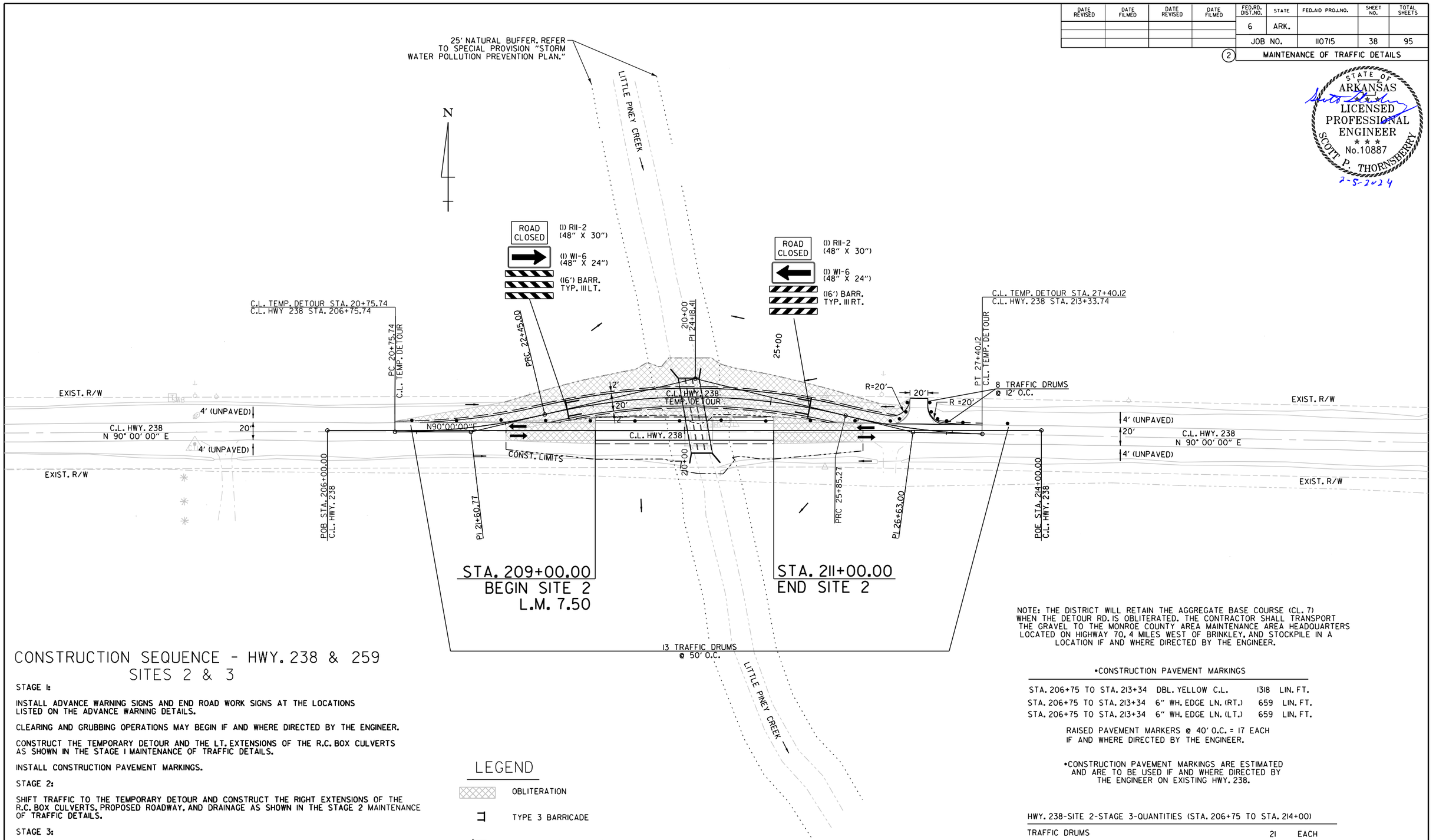
STA. 206+75	STA. 208+50	DBL. YELLOW C.L.	350 L.F.
STA. 211+50	STA. 213+34	DBL. YELLOW C.L.	368 L.F.
STA. 206+75	STA. 208+50	WH. EDGE LN. (LT.)	175 L.F.
STA. 211+50	STA. 213+34	WH. EDGE LN. (LT.)	184 L.F.

STAGE 2
HWY. 238 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 5/5/2024 11:04:44 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_012.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	38	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 238 & 259
SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

LEGEND

- OBLITERATION
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM

NOTE: THE DISTRICT WILL RETAIN THE AGGREGATE BASE COURSE (CL. 7) WHEN THE DETOUR RD. IS OBLITERATED. THE CONTRACTOR SHALL TRANSPORT THE GRAVEL TO THE MONROE COUNTY AREA MAINTENANCE AREA HEADQUARTERS LOCATED ON HIGHWAY 70, 4 MILES WEST OF BRINKLEY, AND STOCKPILE IN A LOCATION IF AND WHERE DIRECTED BY THE ENGINEER.

•CONSTRUCTION PAVEMENT MARKINGS

STA. 206+75 TO STA. 213+34	DBL. YELLOW C.L.	1318	LIN. FT.
STA. 206+75 TO STA. 213+34	6" WH. EDGE LN. (RT.)	659	LIN. FT.
STA. 206+75 TO STA. 213+34	6" WH. EDGE LN. (LT.)	659	LIN. FT.

RAISED PAVEMENT MARKERS @ 40' O.C. = 17 EACH
IF AND WHERE DIRECTED BY THE ENGINEER.

•CONSTRUCTION PAVEMENT MARKINGS ARE ESTIMATED AND ARE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER ON EXISTING HWY. 238.

HWY. 238-SITE 2-STAGE 3-QUANTITIES (STA. 206+75 TO STA. 214+00)

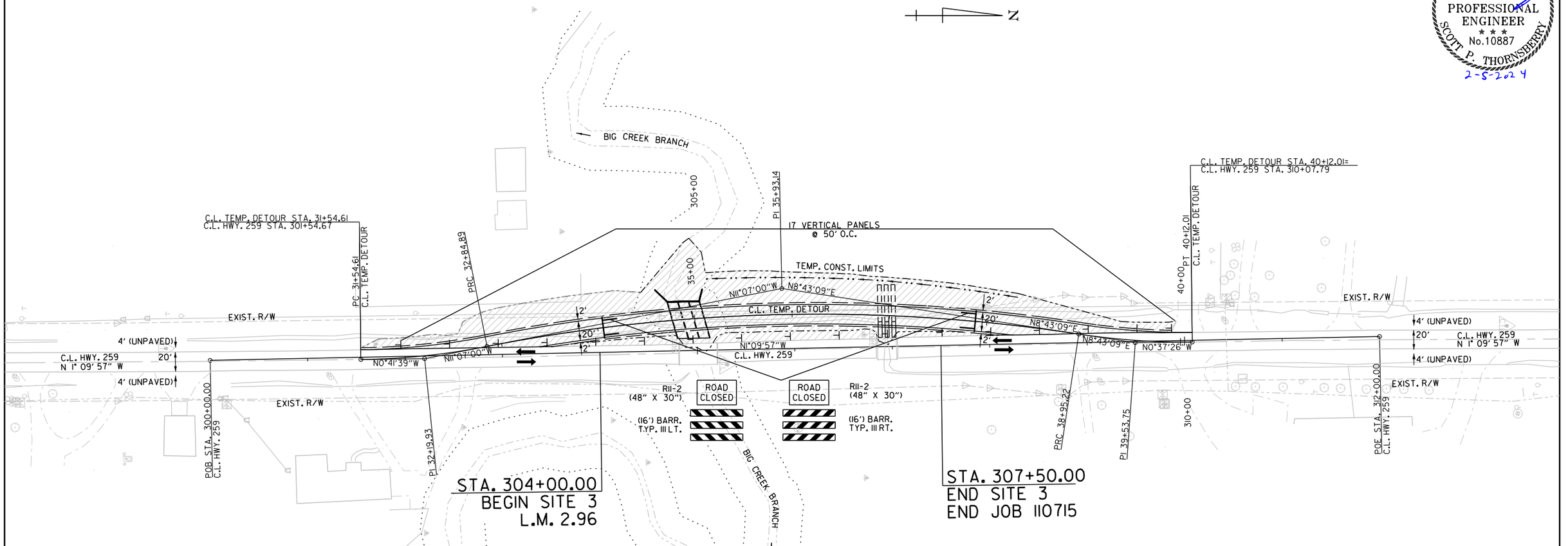
TRAFFIC DRUMS	21	EACH

STAGE 3
HWY. 238 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 2/5/2024 11:04:45 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_013.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	39	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 238 & 259
SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

*
*

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL

•HWY. 259-SITE 3-STAGE 1-CONSTRUCTION PAVEMENT MARKING QUANTITIES (STA. 301+54 TO STA. 310+08)

DBL. YELLOW C.L.	1708	L.F.
WHITE EDGE LINES	1708	L.F.

RAISED PAVEMENT MARKERS (TY. II) - YEL/YEL ON C.L. = 10 EACH

•CONSTRUCTION PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS ARE ESTIMATED AND ARE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER ON EXISTING HWY. 259.

HWY. 259-SITE 3-STAGE 1-QUANTITIES (STA. 301+54 TO STA. 310+08)

VERTICAL PANELS	17	EACH

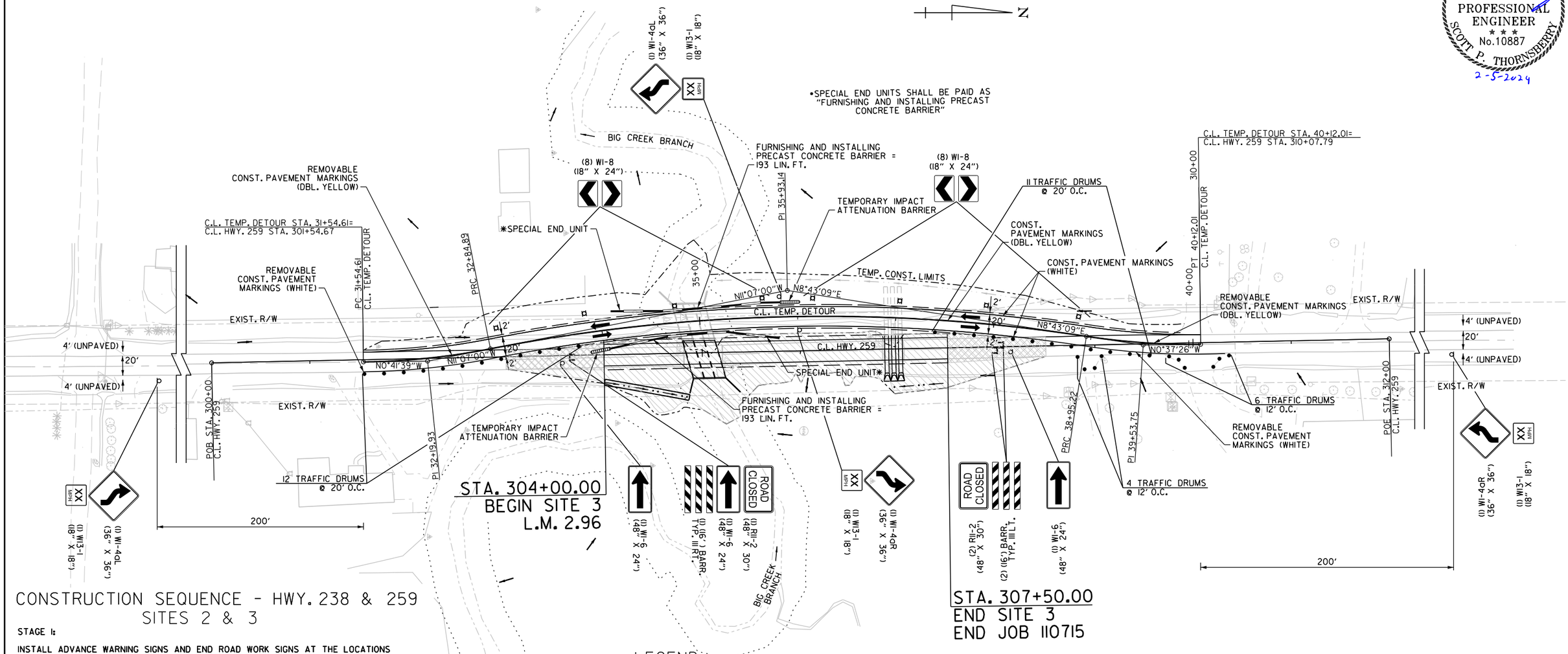
STAGE 1
HWY. 259 - SITE 3
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 2/5/2024 11:04:45 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17502_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_014.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	40	95
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

NOTE: THE PROJECT MUST HAVE THE CURRENT CONDITIONS EVALUATED FOR THE ESTABLISHMENT OF ADVISORY SPEEDS. CONTACT THE MAINTENANCE DIVISION FOR THE DETERMINATION OF ADVISORY SPEEDS, BEFORE TRAFFIC IS PLACED ON THE DETOURS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



CONSTRUCTION SEQUENCE - HWY. 238 & 259 SITES 2 & 3

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM
- TEMPORARY TRAFFIC SIGN

TEMPORARY DETOUR

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

STA. 31+54	STA. 32+85	DBL. YELLOW C.L.	262	L.F.
STA. 38+95	STA. 40+12	DBL. YELLOW C.L.	234	L.F.
STA. 31+54	STA. 33+40	WH. EDGE LN. (RT.)	186	L.F.
STA. 38+20	STA. 40+12	WH. EDGE LN. (RT.)	192	L.F.

CONSTRUCTION PAVEMENT MARKINGS

STA. 32+85	STA. 38+95	DBL. YELLOW C.L.	1220	L.F.
STA. 33+40	STA. 38+20	WH. EDGE LN. (RT.)	480	L.F.
STA. 31+54	STA. 40+12	WH. EDGE LN. (LT.)	858	L.F.

RAISED PAVEMENT MARKERS 40' O.C. = 22 EACH
IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 259-SITE 3-STAGE 2-QUANTITIES (STA. 301+54.00 TO STA. 310+08.00)

TRAFFIC DRUMS	33	EACH
FURN. & INSTALL. PRE. CONC. BARRIER	386	LIN. FT.
TEMP. IMP. ATTENUATION BARRIER	2	EACH
CHEVRONS	16	EACH

EXISTING HWY. 259
REMOVE PERMANENT PAVEMENT MARKINGS

STA. 301+54	- STA. 303+30	DBL. YELLOW C.L.	352	L.F.
STA. 301+54	- STA. 303+50	WH. EDGE LINE (LT.)	196	L.F.
STA. 308+50	- STA. 310+08	DBL. YELLOW C.L.	316	L.F.
STA. 308+00	- STA. 310+08	WH. EDGE LINE (LT.)	208	L.F.

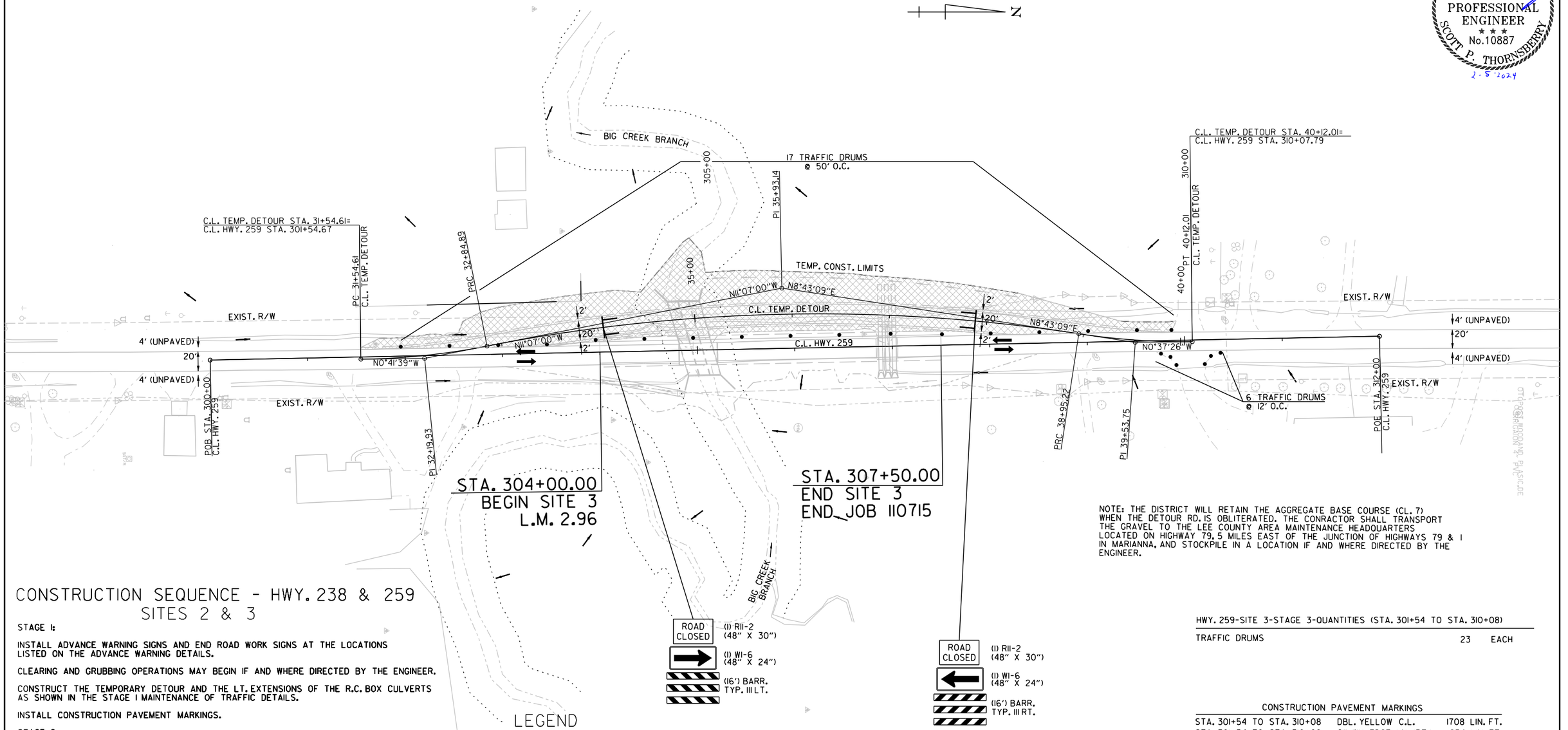
STAGE 2
HWY. 259 - SITE 3
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 2/5/2024 11:04:46 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_06_MOT_015.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		II0715	41	95
(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



NOTE: THE DISTRICT WILL RETAIN THE AGGREGATE BASE COURSE (CL. 7) WHEN THE DETOUR RD. IS OBLITERATED. THE CONRACTOR SHALL TRANSPORT THE GRAVEL TO THE LEE COUNTY AREA MAINTENANCE HEADQUARTERS LOCATED ON HIGHWAY 79, 5 MILES EAST OF THE JUNCTION OF HIGHWAYS 79 & I IN MARIANNA, AND STOCKPILE IN A LOCATION IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCTION SEQUENCE - HWY. 238 & 259 SITES 2 & 3

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT THE TEMPORARY DETOUR AND THE LT. EXTENSIONS OF THE R.C. BOX CULVERTS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2:

SHIFT TRAFFIC TO THE TEMPORARY DETOUR AND CONSTRUCT THE RIGHT EXTENSIONS OF THE R.C. BOX CULVERTS, PROPOSED ROADWAY, AND DRAINAGE AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BOX CULVERTS FOR OBLITERATION OF THE TEMPORARY DETOURS.

CONSTRUCT ROADWAY TIES, FINAL GRADING, OVERLAY, AND DRAINAGE UNDER TRAFFIC FOR SITES 2 & 3 AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

LEGEND

- OBLITERATION
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- TRAFFIC DRUM

HWY. 259-SITE 3-STAGE 3-QUANTITIES (STA. 301+54 TO STA. 310+08)

TRAFFIC DRUMS	23	EACH

CONSTRUCTION PAVEMENT MARKINGS

STA. 301+54 TO STA. 310+08	DBL. YELLOW C.L.	1708 LIN. FT.
STA. 301+54 TO STA. 310+08	6" WH. EDGE LN. (RT.)	854 LIN. FT.
STA. 301+54 TO STA. 310+08	6" WH. EDGE LN. (LT.)	854 LIN. FT.

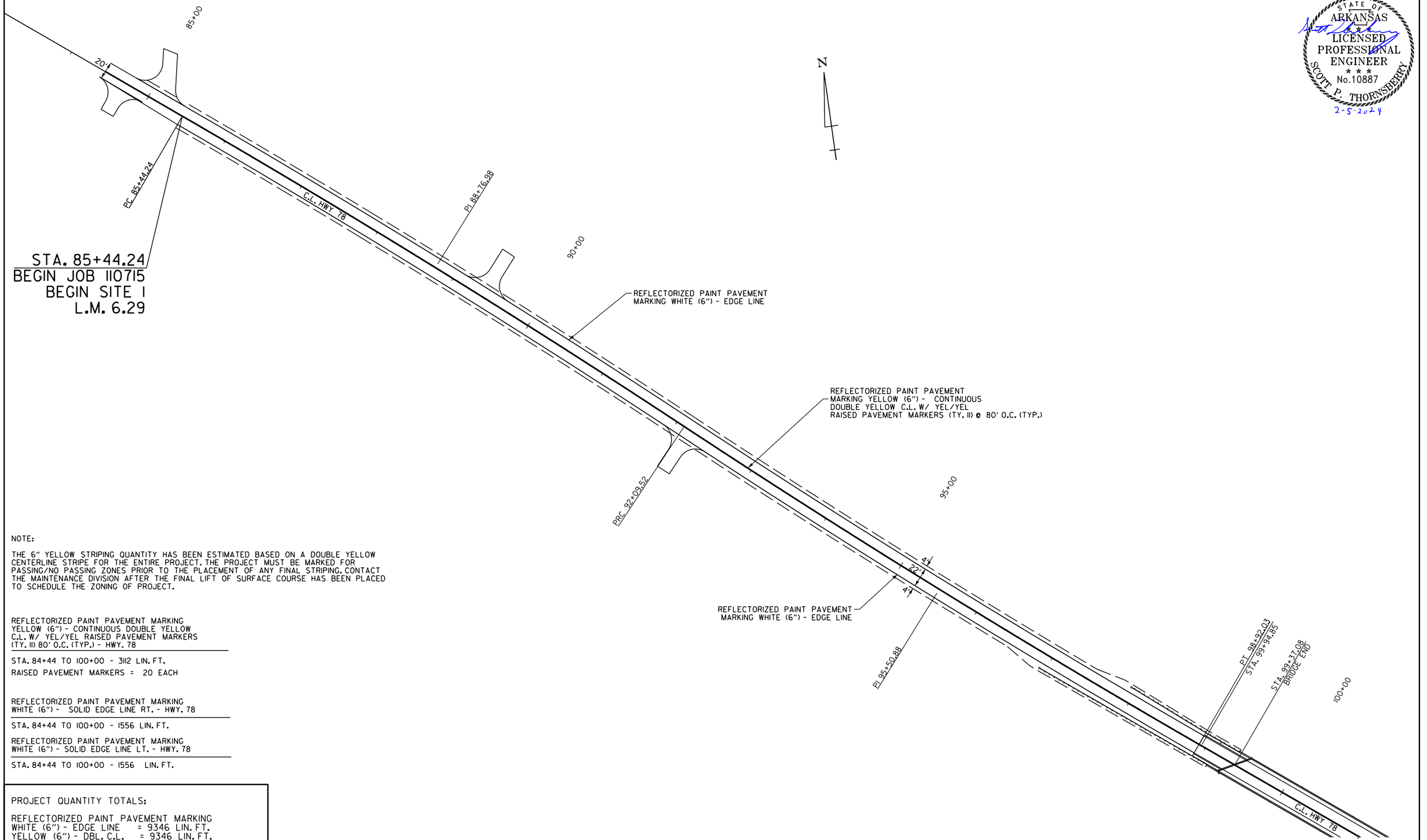
RAISED PAVEMENT MARKERS 40' O.C. = 22 EACH
IF AND WHERE DIRECTED BY THE ENGINEER

STAGE 3
HWY. 259 - SITE 3
MAINTENANCE OF TRAFFIC DETAILS

Scott.Thornsberry 2/5/2024 11:04:47 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_II0715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_06_MOT_016.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	42	95
				(2)	PERMANENT PAVEMENT MARKINGS DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



STA. 85+44.24
BEGIN JOB 110715
BEGIN SITE 1
L.M. 6.29

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 PROJECT.

REFLECTORIZED PAINT PAVEMENT MARKING
YELLOW (6") - CONTINUOUS DOUBLE YELLOW
C.L. W/ YEL/YEL RAISED PAVEMENT MARKERS
(TY. II) 80' O.C. (TYP.) - HWY. 78

STA. 84+44 TO 100+00 - 3112 LIN. FT.

RAISED PAVEMENT MARKERS = 20 EACH

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE RT. - HWY. 78

STA. 84+44 TO 100+00 - 1556 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE LT. - HWY. 78

STA. 84+44 TO 100+00 - 1556 LIN. FT.

PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE = 9346 LIN. FT.
YELLOW (6") - DBL. C.L. = 9346 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) = 59 EACH

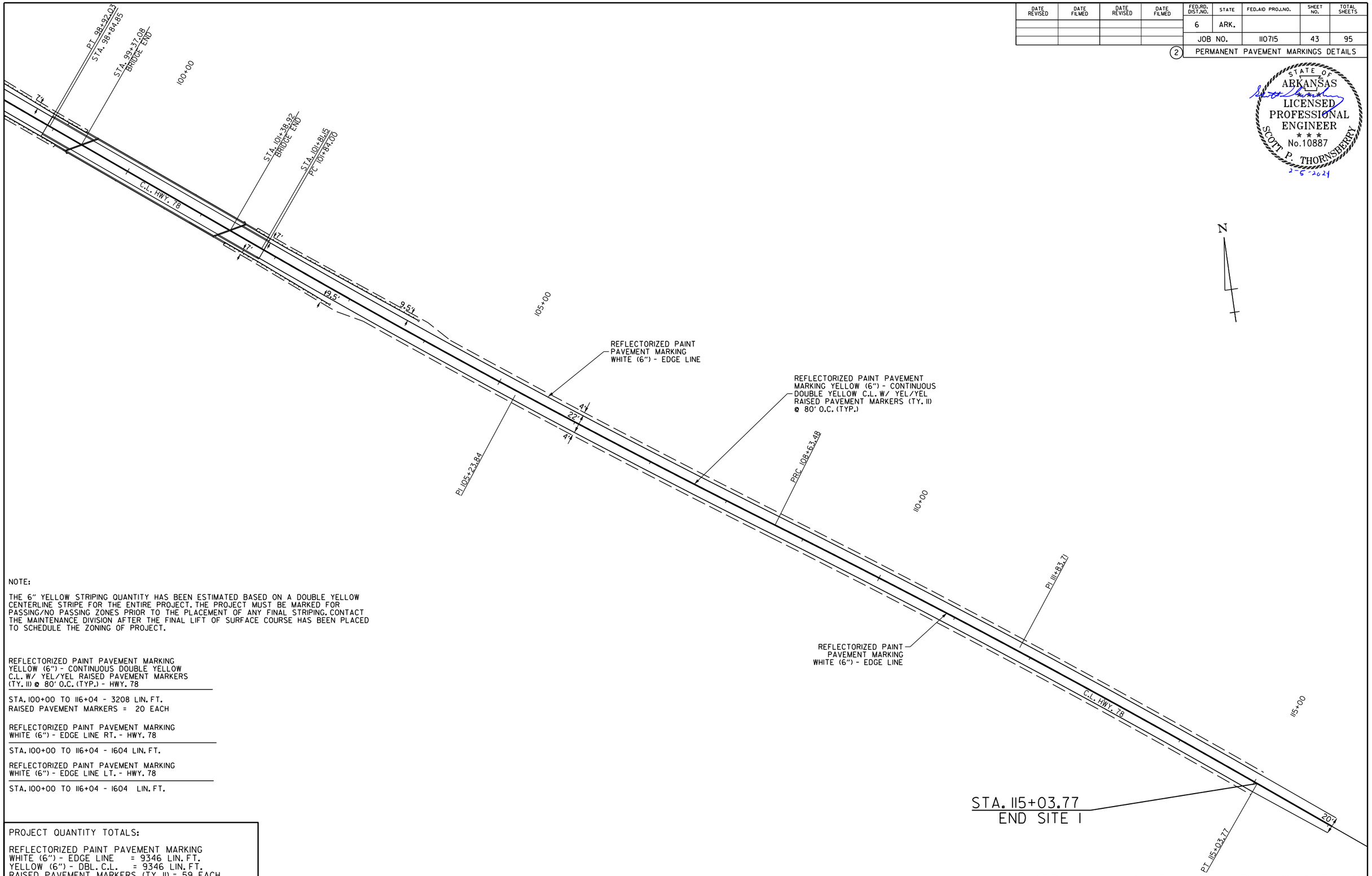
PERMANENT PAVEMENT MARKINGS DETAILS

Scott.Thornsberry@5/5/2024 11:04:48 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_07_PM_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	43	95

(2) PERMANENT PAVEMENT MARKINGS DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
2-5-2024



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 PROJECT.

REFLECTORIZED PAINT PAVEMENT MARKING
YELLOW (6") - CONTINUOUS DOUBLE YELLOW
C.L. W/ YEL/YEL RAISED PAVEMENT MARKERS
(TY. II) @ 80' O.C. (TYP.) - HWY. 78

STA. 100+00 TO 116+04 - 3208 LIN. FT.
RAISED PAVEMENT MARKERS = 20 EACH

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE RT. - HWY. 78

STA. 100+00 TO 116+04 - 1604 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE LT. - HWY. 78

STA. 100+00 TO 116+04 - 1604 LIN. FT.

PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE = 9346 LIN. FT.
YELLOW (6") - DBL. C.L. = 9346 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) = 59 EACH

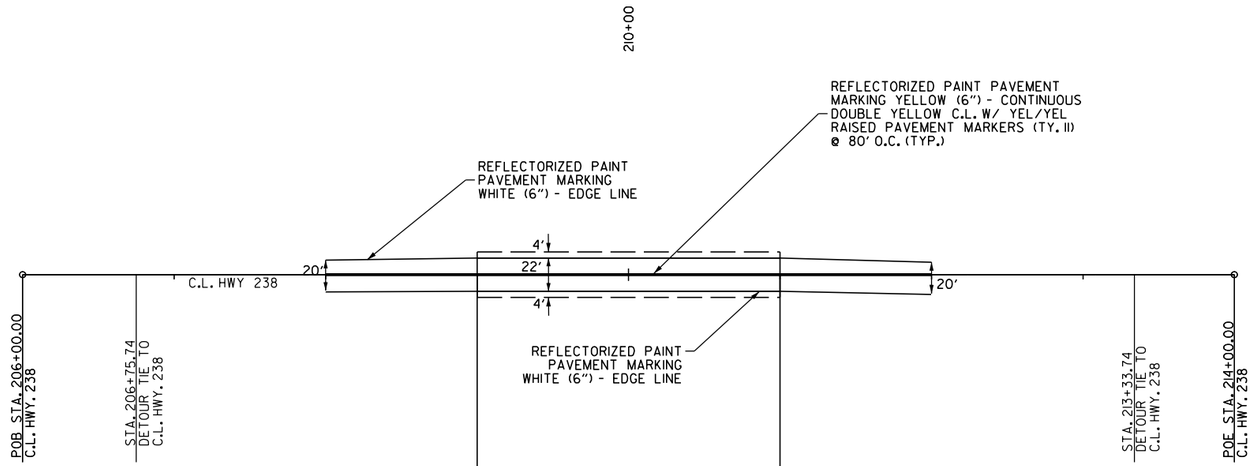
PERMANENT PAVEMENT MARKINGS DETAILS

Scott.Thornsberry 9/5/2024 11:04:49 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17502_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_07_PM_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	44	95
				(2)	PERMANENT PAVEMENT MARKINGS DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

N



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 PROJECT.

REFLECTORIZED PAINT PAVEMENT MARKING
YELLOW (6") - CONTINUOUS DOUBLE YELLOW
C.L. W/ YEL/YEL RAISED PAVEMENT MARKERS
(TY. II) 80' O.C. (TYP.) - HWY. 238

STA. 206+75 TO 213+34 - 1318 LIN. FT.

RAISED PAVEMENT MARKERS = 8 EACH

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE RT. - HWY. 238

STA. 206+75 TO 213+34 - 659 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE LT. - HWY. 238

STA. 206+75 TO 213+34 - 659 LIN. FT.

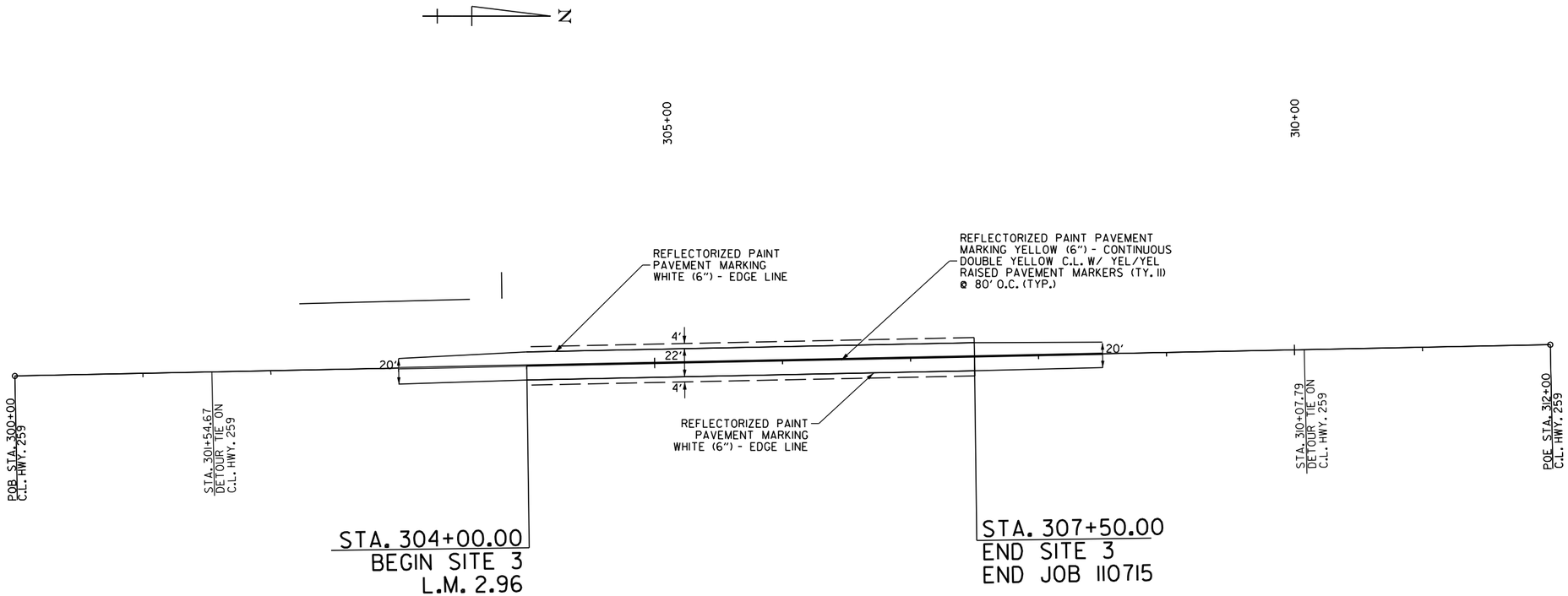
PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE = 9346 LIN. FT.
YELLOW (6") - DBL. C.L. = 9346 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) = 59 EACH

Scott.Thornsberry@5/5/2024 11:04:49 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_07_PM_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	45	95
				(2)	PERMANENT PAVEMENT MARKINGS DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



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 PROJECT.

REFLECTORIZED PAINT PAVEMENT MARKING
YELLOW (6") - CONTINUOUS DOUBLE YELLOW
C.L. W/ YEL/YEL RAISED PAVEMENT MARKERS
(TY. II) 80' O.C. (TYP.) - HWY. 259

STA. 301+54 TO 310+08 - 1708 LIN. FT.

RAISED PAVEMENT MARKERS = 11 EACH

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE RT. - HWY. 259

STA. 301+54 TO 310+08 - 854 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - SOLID EDGE LINE LT. - HWY. 259

STA. 301+54 TO 310+08 - 854 LIN. FT.

PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINE = 9346 LIN. FT.
YELLOW (6") - DBL. C.L. = 9346 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) = 59 EACH

PERMANENT PAVEMENT MARKINGS DETAILS

Scott.Thornsberry 5/5/2024 11:04:50 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_07_PM_004.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		II0715	46	95
				(2)	QUANTITIES			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION
		FEET			
99+96	SITE 1-HWY. 78	2.5 to 4	37	22	A-6
99+96	SITE 1-HWY. 78	13.5 to 15.5	37	20	A-6
99+96	SITE 1-HWY. 78	23.5 to 25.5	NP	NP	A-4
99+96	SITE 1-HWY. 78	33.5 to 25.5	28	5	A-4
99+96	SITE 1-HWY. 78	43.5 to 45	–	–	--
99+96	SITE 1-HWY. 78	58.5 to 60	–	–	--
99+96	SITE 1-HWY. 78	78.5 to 80	–	–	--
99+96	SITE 1-HWY. 78	98.5 to 100	–	–	--
99+96	SITE 1-HWY. 78	108.5 to 110	–	–	--
101+44	SITE 1-HWY. 78	1 to 2.5	44	21	A-7-6
101+44	SITE 1-HWY. 78	13.5 to 15.5	41	27	A-7-6
101+44	SITE 1-HWY. 78	23.5 to 25.5	39	19	A-6
101+44	SITE 1-HWY. 78	28.5 to 30	NP	NP	A-4
101+44	SITE 1-HWY. 78	48.5 to 50	–	–	--
101+44	SITE 1-HWY. 78	68.5 to 70	–	–	--
101+44	SITE 1-HWY. 78	88.5 to 90	–	–	--
101+44	SITE 1-HWY. 78	118.5 to 120	–	–	--

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
								TYPE II	6"	
								(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH				LIN. FT.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	18692	15890	6052			40634				
REMOVAL OF PERMANENT PAVEMENT MARKINGS		5149			5149					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		2842					2842			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	58	111	39	59				267		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				9346					9346	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				9346						9346
TOTALS:					**5149**	**40634**	**2842**	**267**	**9346**	**9346**

NOTE: THE HIGHWAYS IN THIS PROJECT ARE LOW TRAFFIC VOLUME ROADS 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.

ADVANCE WARNING SIGNS AND DEVICES

	SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
													RIGHT	LEFT				
				LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.		LIN. FT.		EACH	
	W20-1	ROAD WORK 1500 FT.	36"x36"	6	6	6		6	6	54.0								
	W20-1	ROAD WORK 1000 FT.	36"x36"	6	6	6		6	6	54.0								
	W20-1	ROAD WORK 500 FT.	36"x36"	6	6	6		6	6	54.0								
*	W3-5	REDUCED SPEED LIMIT AHEAD	36"x36"	4	4	4		4	4	36.0								
	G20-2	END ROAD WORK	36"x18"	6	6	6		6	6	27.0								
	W1-4aR	REVERSE CURVE RT.	36"x36"		4			4	4	36.0								
	W1-4aL	REVERSE CURVE LT.	36"x36"		4			4	4	36.0								
	W13-1	SPEED LIMIT (ADVISORY)	18"x18"		8			8	8	18.0								
	R11-2	ROAD CLOSED	48"x30"	6	6	4		6	6	60.0								
	W1-6	LARGE ARROW	48"x24"		8	4		8	8	64.0								
	W1-8	CHEVRONS	18"x24"		32			32	32	96.0								
*	R4-1	DO NOT PASS	24"x30"	6	6	6		6	6	30.0								
*	W21-5a	RIGHT SHOULDER CLOSED	36"x36"	6	6	6		6	6	54.0								
*	R2-1	SPEED LIMIT	24"x30"	4	4	4		4	4	24.0								
		VERTICAL PANELS		66				66			66							
		TRAFFIC DRUMS		35	131	44		131				131						
		TYPE III BARRICADE-RT. (16')		3	3	2		3					48					
		TYPE III BARRICADE-LT. (16')		3	3	2		3						48				
		FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		266	772			1038							1038			
		RELOCATING PRECAST CONCRETE BARRIER			266			266								266		
		TEMPORARY IMPACT ATTENUATION BARRIER			4			4									4	
		TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			4			4										4
	TOTALS:									**643.0**	**66**	**131**	**48**	**48**	**1038**	**266**	**4**	**4**

NOTE: THE HIGHWAYS IN THIS PROJECT ARE LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
84+44.24	85+44.24	SITE 1-C.L. HWY. 78	20.00	222.22
115+03.77	116+03.77	SITE 1-C.L. HWY. 78	20.00	222.22
208+00.00	209+00.00	SITE 2-C.L. HWY. 238	20.00	222.22
211+00.00	212+00.00	SITE 2-C.L. HWY. 238	20.00	222.22
303+00.00	304+00.00	SITE 3-C.L. HWY. 259	20.00	222.22
307+50.00	308+50.00	SITE 3-C.L. HWY. 259	20.00	222.22
TOTAL:				**1333.32**

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	17	34
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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
99+38	SITE 1-C.L. HWY.78 BRIDGE ABUTMENT	1
112+12	SITE 1-C.L. HWY.78 LT. OR RT. HDWL.	1
210+15	SITE 2-C.L. HWY. 238 LT. OR RT. HDWL.	1
305+00	SITE 3-C.L. HWY 259 LT. OR RT. HDWL.	1

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

Scott.Thornsberry 2/5/2024 11:04:51 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_II0715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_08B_01T_00i.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		II0715	47	95
				(2)	QUANTITIES			

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	STONE BACKFILL	* SOIL STABILIZATION
			CU. YD.		TON	TON
ENTIRE	PROJECT	SITE 1-STAGE 1-MAIN LANES	2776	24581		
ENTIRE	PROJECT	SITE 1-STAGE 2-MAIN LANES	3833	747		
ENTIRE	PROJECT	SITE 2-STAGE 1-MAIN LANES	90	1716		
ENTIRE	PROJECT	SITE 2-STAGE 2&3-MAIN LANES	1201	560		
ENTIRE	PROJECT	SITE 3-STAGE 1-MAIN LANES	1380	2549		
ENTIRE	PROJECT	SITE 3-STAGE 2&3-MAIN LANES	1987	2179		
ENTIRE	PROJECT	APPROACHES		220		
SITE 1		(REFER TO BR. LAYOUT SHEET)	1700			
ENTIRE	PROJECT	SITE 1-C.L. HWY. 78			2998	
		SITE 2-CHANNEL CHANGE	216			
		SITE 3-CHANNEL CHANGE	624			
**		IF & WHERE DIRECTED BY ENGINEER	1000	1000	200	200
* TOTALS:			14807	33552	3198	200

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.
*QUANTITY IS ESTIMATED. SEE SECT. 104.03 OF STD. SPECS.
** TO BE FIELD MEASURED.
IF AND WHERE DIRECTED BY ENGINEER STONE BACKFILL QUANTITIES ARE FOR SITES 2 & 3.

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
96+92.67	99+11.42	SITE 1-RT. OF C.L. HWY. 78	150	1	1
97+92.84	99+36.59	SITE 1-LT. OF C.L. HWY. 78	75	1	1
101+39.41	102+83.16	SITE 1-RT. OF C.L. HWY. 78	75	1	1
101+64.58	103+83.33	SITE 1-LT. OF C.L. HWY. 78	150	1	1
TOTALS:			450	4	4

FENCING

STATION	STATION	LOCATION	FENCE REMOVED AND RECONSTRUCTED
			LIN. FT.
303+56	303+82	LT. OF C.L. HWY. 259	168
TOTALS:			168

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
								18"	24"	
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.		
84+69	RT.	SITE 1-C.L. HWY. 78	16	67.12				30		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
85+10	LT.	SITE 1-C.L. HWY. 78	16		37.01	4.07	44.05			
89+38	LT.	SITE 1-C.L. HWY. 78	16		37.01	4.07	40.31	28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
92+17	RT.	SITE 1-C.L. HWY. 78	16		37.01	4.07	58.98		42	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
216+63	LT.	SITE 2-C.L. HWY. 238	20		44.12	4.85	28.52			
TOTALS:				67.12	155.15	17.06	171.86	58	42	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER

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.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	30
ENGINEER	
TOTAL:	30

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			2700	18
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			2700	18

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	FILTER SOCK (18") (E-13)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	SITE 1-CLEARING AND GRUBBING						14.60	14.60	297.8		51	6504		595		853
ENTIRE	PROJECT	SITE 1-STAGE 1	3.75	7.50	3.75	382.5	3.75	7.50	7.50	153.0		18	34	237	791	343	798
ENTIRE	PROJECT	SITE 1-STAGE 2	3.71	7.42	3.71	378.4	3.71	7.42	7.42	151.4		9				1043	3
ENTIRE	PROJECT	SITE 2-CLEARING AND GRUBBING						2.15	2.15	43.9		12	1113		232		277
ENTIRE	PROJECT	SITE 2-STAGE 1	0.38	0.76	0.38	38.8	0.38	0.76	0.76	15.5		12			116	116	120
ENTIRE	PROJECT	SITE 2-STAGE 2&3	0.74	1.48	0.74	75.5	0.74	1.48	1.48	30.2		6				232	2
ENTIRE	PROJECT	SITE 3-CLEARING AND GRUBBING						3.57	3.57	72.8		24	1929		58		137
ENTIRE	PROJECT	SITE 3-STAGE 1	0.79	1.58	0.79	80.6	0.79	1.58	1.58	32.2		15	54		134	58	141
ENTIRE	PROJECT	SITE 3-STAGE 2&3	1.04	2.08	1.04	106.1	1.04	2.08	2.08	42.4	44	9				134	5
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.04	2.08	1.04	106.1	1.04	4.11	4.11	83.8	44	16	963	24	193	193	229
TOTALS:			11.45	22.90	11.45	1168.0	11.45	45.25	45.25	923.0	88	172	10597	261	2119	2119	2565

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.

CULVERT CLEAN OUT

STATION	LOCATION	EACH
112+12	SITE 1-C.L. HWY. 78 - (EXIST. 6' X 4' X 51' R.C. BOX)	1
TOTAL:		1

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
84+44	116+04	SITE 1-C.L. HWY. 78	33	33
206+76	213+34	SITE 2-C.L. HWY. 238	8	8
301+55	310+08	SITE 3-C.L. HWY. 259	10	10
TOTALS:			51	51

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.
304+00.00	304+86.00	SITE 3-RT. OF C.L. HWY. 259	88.00	6.00	58.67	39.11	0.49
304+00.00	304+60.00	SITE 3-LT. OF C.L. HWY. 259	78.00	6.00	52.00	34.67	0.44
TOTALS:					110.67	73.78	0.93

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

Scott.Thornsberry 2/5/2024 11:04:51 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_II0715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_08B_01T_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		II0715	48	95
				(2)	QUANTITIES			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-6-2024

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
98+94.85	99+37.08	C.L. HWY. 78: APPROACH GUTTERS RT. & LT.	8.40		420	5.30
98+94.85	99+37.08	C.L. HWY. 78: APPROACH SLAB		57.00	7685	34.07
101+38.92	101+81.15	C.L. HWY. 78: APPROACH GUTTERS RT. & LT.	8.40		420	5.30
101+38.92	101+81.15	C.L. HWY. 78: APPROACH SLAB		57.00	7685	34.07
TOTALS:			**16.80**	**114.00**	**16210**	**78.74**

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10
DIRECTED BY THE ENGINEER	
TOTAL:	**10**

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE (CLASS IV)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	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.
		48"	48"	48"									
		LIN. FT.	EACH	LIN. FT.	LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
112+12	SITE 1 - DBL. R.C. BOX EXT. - 17' RT. & 7' LT. (1.83' BKBACK.)				6	4	24	34.48	3619	17	17	0.21	RCB-1, RCB-2, RCB-3, R-200X-X1, W-X003-1
306+95	SITE 3-TRIPLE R.C. PIPE CULVERT	150	6	96							33	0.42	PCC-1, FES-1
SUBTOTALS:		**150**	**6**	**96**				**34.48**	**3619**	**17**	**50**	**0.63**	
STRUCTURES OVER 20' - 0" SPAN													
210+15	SITE 2-TRIPLE R.C. BOX CULVERT				7	4	86	170.45	23231	72	21	0.26	RCB-1, RCB-2, SPECIAL DETAILS
305+00	SITE 3-TRIPLE R.C. BOX CULVERT				10	6	80	256.15	35088	121	30	0.38	RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:								**426.60**	**58319**	**193**	**51**	**0.64**	
TOTALS:		**150**	**6**	**96**				**461.08**	**61938**	**210**	**101**	**1.27**	

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.

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	GUARDRAIL
			SQ. YD.	LIN. FT.
84+63	84+75	SITE 1-RT. OF C.L. HWY. 78	44	
99+88	100+15	SITE 1-LT. OF C.L. HWY. 78		27
99+89	100+15	SITE 1-LT. OF C.L. HWY. 78		26
101+21	101+46	SITE 1-LT. OF C.L. HWY. 78		26
101+21	101+46	SITE 1-LT. OF C.L. HWY. 78		26
TOTALS:			**44**	**105**

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
84+69	SITE 1-RT. OF C.L. HWY. 78 (18" X 30' CM SIDE DRAIN)	1
92+17	SITE 1-RT. OF C.L. HWY. 78 (24" X 30' CM SIDE DRAIN)	1
TOTAL:		**2**

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

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
210+01	210+31	SITE 2-C.L. HWY. 238	1.00
304+82	305+21	SITE 3-C.L. HWY. 259	1.00
306+88	307+05	SITE 4-C.L. HWY. 259	1.00

Scott.Thornsberry 6/6/2024 2:24:42 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_II0715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_08B_QTY_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		II0715	49	95
				(2)	QUANTITIES			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	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
						TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON														
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
84+44.24	85+44.24	SITE 1-C.L. HWY. 78 TRANSITION	100.00	46.25	46.25				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
85+44.24	92+42.92	SITE 1-C.L. HWY. 78 NOTCH & WIDEN	698.68	100.25	700.43	17.47	1356.22	67.81				67.81	8.84	686.26	330.00	113.23	8.63	669.96	220.00	73.70	26.00	2018.41	220.00	222.03	295.73
92+42.92	98+94.85	SITE 1-C.L. HWY. 78 FULL DEPTH	651.93	178.00	1160.44	44.71	3238.64	161.93				161.93	22.46	1626.93	330.00	268.44	22.25	1611.72	220.00	177.29	26.00	1883.35	220.00	207.17	384.46
101+81.15	108+14.58	SITE 1-C.L. HWY. 78 FULL DEPTH	633.43	178.00	1127.51	44.71	3146.74	157.34				157.34	22.46	1580.76	330.00	260.83	22.25	1565.98	220.00	172.26	26.00	1829.91	220.00	201.29	373.55
108+14.58	115+03.77	SITE 1-C.L. HWY. 78 NOTCH & WIDEN	689.19	100.25	690.91	18.45	1412.84	70.64				70.64	9.33	714.46	330.00	117.89	9.12	698.38	220.00	76.82	26.00	1990.99	220.00	219.01	295.83
115+03.77	116+03.77	SITE 1-C.L. HWY. 78 TRANSITION	100.00	46.25	46.25				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
208+00.00	209+00.00	SITE 2-C.L. HWY. 238 TRANSITION	100.00	56.00	56.00				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
209+00.00	211+00.00	SITE 2-C.L. HWY. 238 FULL DEPTH	200.00	197.50	395.00	44.71	993.56	49.68				49.68	22.46	499.11	330.00	82.35	22.25	494.44	220.00	54.39	26.00	577.78	220.00	63.56	117.95
211+00.00	212+00.00	SITE 2-C.L. HWY. 238 TRANSITION	100.00	56.00	56.00				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
21+75.74	22+47.58	SITE 2-C.L. HWY. 238 DETOUR-GORE	71.84	80.25	57.65																9.23	73.68	220.00	8.10	8.10
22+47.58	25+77.73	SITE 2-C.L. HWY. 238 DETOUR-FULL DEPTH	330.15	200.00	660.30																24.00	880.40	220.00	96.84	96.84
25+77.73	27+40.12	SITE 2-C.L. HWY. 238 DETOUR-GORE	162.39	82.75	134.38																9.58	172.86	220.00	19.01	19.01
303+00.00	304+00.00	SITE 3-C.L. HWY. 259 TRANSITION	100.00	56.00	56.00				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
304+00.00	307+50.00	SITE 3-C.L. HWY. 259 FULL DEPTH	350.00	197.50	691.25	44.71	1738.72	86.94				86.94	22.46	873.44	330.00	144.12	22.25	865.28	220.00	95.18	26.00	1011.11	220.00	111.22	206.40
307+50.00	308+50.00	SITE 3-C.L. HWY. 259 TRANSITION	100.00	56.00	56.00				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
31+54.61	33+38.17	SITE 3-C.L. HWY. 259 DETOUR-GORE	183.56	79.50	145.93																9.11	185.80	220.00	20.44	20.44
33+38.17	38+27.36	SITE 3-C.L. HWY. 259 DETOUR-FULL DEPTH	489.19	200.00	978.38																24.00	1304.51	220.00	143.50	143.50
38+27.36	40+12.01	SITE 3-C.L. HWY. 259 DETOUR-GORE	184.65	82.25	151.87																9.49	194.70	220.00	21.42	21.42
ADDITIONAL FOR LEVELING																									
85+44.24	92+42.92	SITE 1-C.L. HWY. 78	698.68			13.62	1057.34	52.87	13.62	1057.34	179.75	232.62	13.62	1057.34	110.00	58.15	13.62	1057.34	220.00	116.31					116.31
108+14.58	115+03.77	SITE 1-C.L. HWY. 78	689.19						13.13	1005.45	170.93	170.93					13.13	1005.45	220.00	110.60					110.60
ADDITIONAL FOR SUPERELEVATION																									
22+45.00	25+85.27	SITE 2-C.L. HWY. 238 DETOUR	340.27	3.50	11.91																				
33+38.17	38+27.36	SITE 3-C.L. HWY. 259 DETOUR	489.19	3.50	17.12																				
ADDITIONAL FOR GUARDRAIL																									
96+49.65	96+82.65	SITE 1-RT. OF C.L. HWY. 78	33.00	19.50	6.44																2.75	10.08	220.00	1.11	1.11
96+82.65	96+92.65	SITE 1-RT. OF C.L. HWY. 78	10.00	39.25	3.93																5.50	6.11	220.00	0.67	0.67
96+92.65	98+67.65	SITE 1-RT. OF C.L. HWY. 78	175.00	32.00	56.00																4.50	87.50	220.00	9.63	9.63
98+67.65	99+11.40	SITE 1-RT. OF C.L. HWY. 78	43.75	25.00	10.94																3.50	17.01	220.00	1.87	1.87
97+49.82	97+82.82	SITE 1-LT. OF C.L. HWY. 78	33.00	19.50	6.44																2.75	10.08	220.00	1.11	1.11
97+82.82	97+92.82	SITE 1-LT. OF C.L. HWY. 78	10.00	39.25	3.93																5.50	6.11	220.00	0.67	0.67
97+92.82	98+92.82	SITE 1-LT. OF C.L. HWY. 78	100.00	32.00	32.00																4.50	50.00	220.00	5.50	5.50
98+92.82	99+36.57	SITE 1-LT. OF C.L. HWY. 78	43.75	25.00	10.94																3.50	17.01	220.00	1.87	1.87
101+39.43	101+83.18	SITE 1-RT. OF C.L. HWY. 78	43.75	25.00	10.94																3.50	17.01	220.00	1.87	1.87
101+83.18	102+83.18	SITE 1-RT. OF C.L. HWY. 78	100.00	32.00	32.00																4.50	50.00	220.00	5.50	5.50
102+83.18	102+93.18	SITE 1-RT. OF C.L. HWY. 78	10.00	39.25	3.93																5.50	6.11	220.00	0.67	0.67
102+93.18	103+26.18	SITE 1-RT. OF C.L. HWY. 78	33.00	19.50	6.44																2.75	10.08	220.00	1.11	1.11
101+64.60	102+08.35	SITE 1-LT. OF C.L. HWY. 78	43.75	25.00	10.94																3.50	17.01	220.00	1.87	1.87
102+08.35	103+83.35	SITE 1-LT. OF C.L. HWY. 78	175.00	32.00	56.00																4.50	87.50	220.00	9.63	9.63
103+83.35	103+93.35	SITE 1-LT. OF C.L. HWY. 78	10.00	39.25	3.93																5.50	6.11	220.00	0.67	0.67
103+93.35	104+26.35	SITE 1-LT. OF C.L. HWY. 78	33.00	19.50	6.44																2.75	10.08	220.00	1.11	1.11
TOTALS:					**7500.82**		**12944.06**	**647.21**		**3396.11**	**577.36**	**1224.57**		**7038.30**		**1045.01**		**7968.55**		**876.55**		**13931.28**		**1532.47**	**2409.02**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

Scott.Thornsberry 2/5/2024 11:04:52 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_II0715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_08B_01T_00L.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	50	95
				(1)	07569 - QUANTITIES - 64531			

SCHEDULE OF BRIDGE QUANTITIES - JOB 110715

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	205	801	SP, SS & 802	SP, SS & 802	SS & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 807	SS & 808	SS & 809	812	SS & 816	SS & 816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	PRESTRESSED CONCRETE GIRDERS (TYPE III)	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	(1) STEEL SHELL PILING (18" DIA.)	(1) STEEL SHELL PILING (24" DIA.)	PILE ENCASEMENT	STRUCTURAL STEEL IN BEAM SPANS (A709, GR.50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	POUND	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.
07569	HWY 78 OVER BIG CREEK	END BENT NO. 1			35	53.19			16.6	11,078	1,114	385			1,010	1,716.0	43		207	378
		INTERMEDIATE BENT NO. 2				30.06				8,552			385	50	518	3,432.0				
		INTERMEDIATE BENT NO. 3				30.06				8,552			385	50	518	3,432.0				
		END BENT NO. 4			13	53.19			16.6	11,078	1,114	385			1,010	1,716.0	43		215	393
		199'-0" PRESTRESSED CONC. GIRDER UNIT					234.40	780.0	829.5		66,355				3,951			1		
		SITE NO. 1 (EXISTING BRIDGE NO. 02898)		1 (2)																
		SITE NO. 2 (EXISTING BRIDGE NO. M2503)		1 (3)																
		SITE NO. 3 (EXISTING BRIDGE NO. M2575)		1 (4)																
		TOTALS FOR JOB NO. 110715			48	166.50	234.40	780.0	862.7	39,260	68,583	770	770	100	7,007	10,296.0	86	1	422	771

(1) Steel shell piles shall conform to ASTM A252, Grade 3 (Fy = 45,000 psi)

(2) Existing Bridge No. 02898 - See Bridge Layout

(3) Existing Bridge No. M2503 is 30.2 ft wide (28.3 ft clear roadway), 31.1 ft long consisting of timber beams spans (2 spans total) supported by timber pile bents.

The existing bridge shall be removed in accordance with Section 205. All material shall become the property of the Contractor.

(4) Existing Bridge No. M2575 is 23.4 ft wide (22.4 ft clear roadway), 39.0 ft long consisting of timber beam spans (2 spans total) supported by timber pile bents.

The existing bridge shall be removed in accordance with Section 205. All material shall become the property of the Contractor.

TABLE OF APPROACH SLAB QUANTITIES

(FOR INFORMATION ONLY)

BRIDGE NO.	ITEM	REINFORCING STEEL	CONCRETE
	UNIT	LBS.	CU. YDS.
07569	BEGIN BRIDGE	7,685	57.00
	END BRIDGE	7,685	57.00

02-05-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SCHEDULE OF BRIDGE QUANTITIES
BIG CREEK, LITTLE PINEY CREEK & BIG CREEK BRANCH STRS. & APPRS. (S)
LEE COUNTY
ROUTE 78 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 07/2021 FILENAME: B110715X1_QX1.dgn
CHECKED BY: ERBB DATE: 09/2021
DESIGNED BY: -- DATE: --
BRIDGE NO. 07569 DRAWING NO. 64531
SCALE: No Scale

Mr.All
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_QX1.dgn
2/5/2024 5:17:46 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06/10/2024				6	ARK.			
09/3/2024				JOB NO.		110715	51	95
				(2)	SUMMARY OF QUANTITIES AND REVISIONS			

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	51	STATION
201	GRUBBING	51	STATION
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	44	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	105	LIN. FT.
SP & 207	STONE BACKFILL	3198	TON
208	FENCE REMOVED AND RECONSTRUCTED	168	LIN. FT.
SP, SS, & 210	UNCLASSIFIED EXCAVATION	14807	CU. YD.
SP & 210	COMPACTED EMBANKMENT	33552	CU. YD.
SP & 210	SOIL STABILIZATION	200	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	7751	TON
SS & 401	TACK COAT	1259	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1000	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	45	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2285	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	141	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	1333	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	17	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
SP, SS, & 504	APPROACH SLABS	114.00	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.80	CU. YD.
SP, SS, & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	67.12	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	48" TEMPORARY CULVERT	96	LIN. FT.
SS & 604	SIGNS	643	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	131	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1038	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	266	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	40634	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2842	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	5149	LIN. FT.
SS & 604	VERTICAL PANELS	66	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	111	SQ. YD.
SP	CULVERT CLEAN OUT	1	EACH
SS & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	150	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	58	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	42	LIN. FT.
SS & 606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
SS & 606	SELECTED PIPE BEDDING	30	CU. YD.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	18	EACH
SS & 611	4" PIPE UNDERDRAINS	2700	LIN. FT.
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	23	TON
620	SEEDING	11.45	ACRE
SS & 620	MULCH COVER	56.70	ACRE
620	WATER	2093.2	M. GAL.
621	TEMPORARY SEEDING	45.25	ACRE
621	SILT FENCE	10597	LIN. FT.
621	SAND BAG DITCH CHECKS	88	BAG
621	SEDIMENT BASIN	2119	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	2119	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	2565	CU. YD.
621	ROCK DITCH CHECKS	172	CU. YD.
SS & 621	FILTER SOCK (18")	261	LIN. FT.
623	SECOND SEEDING APPLICATION	11.45	ACRE
624	SOLID SODDING	175	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	9346	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	9346	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	267	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	4	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	4	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	17	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	34.48	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	19829	POUND
	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
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	48	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	193	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	426.60	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	166.50	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	234.40	CU. YD.
SS & 802	PRESTRESSED CONCRETE GIRDERS (TYPE III)	780	LIN. FT.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	862.7	SQ. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	58319	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	39260	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	68583	POUND
SS & 805	STEEL SHELL PILING (18" DIAMETER)	770	LIN. FT.
SS & 805	STEEL SHELL PILING (24" DIAMETER)	770	LIN. FT.
SS & 805	PILE ENCASEMENT	100	LIN. FT.
SS & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	7007	POUND
SS & 808	ELASTOMERIC BEARINGS	10296	CU. IN.
SS & 809	SIICONE JOINT SEALANT	86	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	FILTER BLANKET	771	SQ. YD.
SS & 816	DUMPED RIPRAP	422	CU. YD.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
9-3-2024

REVISIONS

DATE	REVISION	SHEET NUMBER
6/10/2024	ADDED SS 103-2: PREQUALIFICATION OF BIDDERS, REVISED UTILITY ADJUSTMENTS SPECIAL PROVISION, ADDED RESTRAINING CONDITIONS SPECIAL PROVISION.	3 & 51
9/3/2024	REMOVED SUPPLEMENTAL SPECIFICATIONS 307-1, 308-1, 501-2, AND 802-4. ADDED SUPPLEMENTAL SPECIFICATIONS 307-2, 308-2, 501-3, AND 802-5.	3 & 51
9/3/2024	ADDED MISSING "RESTRICTIONS" TO THE TITLE OF "CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENTS RESTRICTIONS" SP	3 & 51

$$USER$$ $$DATE$$ $$TIME$$
WORKSPACE: $$WORKSPACE$$
$$FILE$$
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	52	95
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

SURVEY CONTROL COORDINATES

Project Name: s110715 (SITE 1, SITE 2 & SITE 3)
Date: 9/12/2019
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	182237.5062	1577414.5832	189.030	CTL	STD ARDOT CAP STAMPED PN: 1
2	182241.6460	1578166.6557	189.564	CTL	STD ARDOT CAP STAMPED PN: 2
3	182268.5804	1578766.8339	188.863	CTL	STD ARDOT CAP STAMPED PN: 3
4	182227.7360	1579581.2347	188.228	CTL	STD ARDOT CAP STAMPED PN: 4 PLEA
5	182215.2916	1580153.0612	187.802	CTL	STD ARDOT CAP STAMPED PN: 5
6	189022.9429	1608321.1872	198.619	CTL	STD ARDOT CAP STAMPED PN: 6
7	188566.5402	1608906.7645	196.908	CTL	STD ARDOT CAP STAMPED PN: 7
8	188281.6821	1609270.1374	194.596	CTL	STD ARDOT CAP STAMPED PN: 8
9	187681.0074	1610087.7661	191.377	CTL	STD ARDOT CAP STAMPED PN: 9
10	187018.5478	1610893.9670	191.283	CTL	STD ARDOT CAP STAMPED PN: 10
11	199783.7019	1613339.9523	203.416	CTL	STD ARDOT CAP STAMPED PN: 11
12	200409.0611	1613335.4234	203.738	CTL	STD ARDOT CAP STAMPED PN: 12
13	200761.0196	1613304.5657	204.495	CTL	STD ARDOT CAP STAMPED PN: 13
14	201336.8828	1613321.1465	196.881	CTL	STD ARDOT CAP STAMPED PN: 14
15	202136.6477	1613281.2630	197.906	CTL	STD ARDOT CAP STAMPED PN: 15
16	202829.5199	1613304.4937	200.822	CTL	STD ARDOT CAP STAMPED PN: 16
900	182292.1856	1577335.9401	187.808	TBM	RBR W/ALUM CAP
901	182268.0887	1578746.3211	189.380	TBM	CHISELED SQUARE IN N/E
902	182265.8737	1580310.7604	187.657	TBM	RBR W/ALUM CAP
903	190419.9115	1606621.9914	197.065	TBM	CHISELED SQUARE IN HW
904	189125.8841	1608153.7591	197.356	TBM	RBR W/ALUM CAP
905	187548.4135	1610273.7440	188.366	TBM	CHISELED SQUARE IN HW
906	199891.9903	1613282.8940	201.615	TBM	RBR W/ALUM CAP
907	201288.0411	1613299.3688	197.315	TBM	CUT SQUARE
908	201490.5034	1613293.6958	197.427	TBM	CUT SQUARE
909	202811.4222	1613246.7594	202.144	TBM	RBR W/ALUM CAP
990	192240.0461	1604726.7339	191.806	BM	ALUM DISK F 176
991	188273.2186	1609321.1248	195.547	BM	ALUM DISK H 176

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 1.000011326 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 s110715gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

ALIGNMENT NAME: HWY. 78

POINT	STATION	TYPE	NORTHING	EASTING
8015	82+19.59	POB	189372.7885	1607900.8941
8016	85+44.24	PC	189172.5294	1608156.4199
8018	92+09.52	PRC	188747.1878	1608667.8470
8007	98+92.03	PT	188311.2298	1609192.8412
8008	101+84.00	PC	188131.4714	1609422.9202
8019	108+63.48	PRC	187729.2564	1609970.4404
8030	115+03.77	PT	187351.1187	1610487.0344
8031	118+41.16	POE	187144.3116	1610753.6083

ALIGNMENT NAME: HWY. 238

POINT	STATION	TYPE	NORTHING	EASTING
8021	206+00.00	POB	182256.6089	1578315.2249
8022	214+00.00	POE	182256.6089	1579115.2249

ALIGNMENT NAME: HWY. 238 DETOUR

POINT	STATION	TYPE	NORTHING	EASTING
8023	20+75.74	PC	182255.0437	1578390.9686
8025	22+45.00	PRC	182274.4973	1578558.7104
8027	25+85.27	PRC	182273.1734	1578895.7845
8029	27+40.12	PT	182252.6216	1579048.9670

ALIGNMENT NAME: HWY. 259

POINT	STATION	TYPE	NORTHING	EASTING
8000	300+00.00	POB	200806.0899	1613316.6973
8001	312+00.00	POE	202005.8415	1613292.2810

ALIGNMENT NAME: HWY. 259 DETOUR

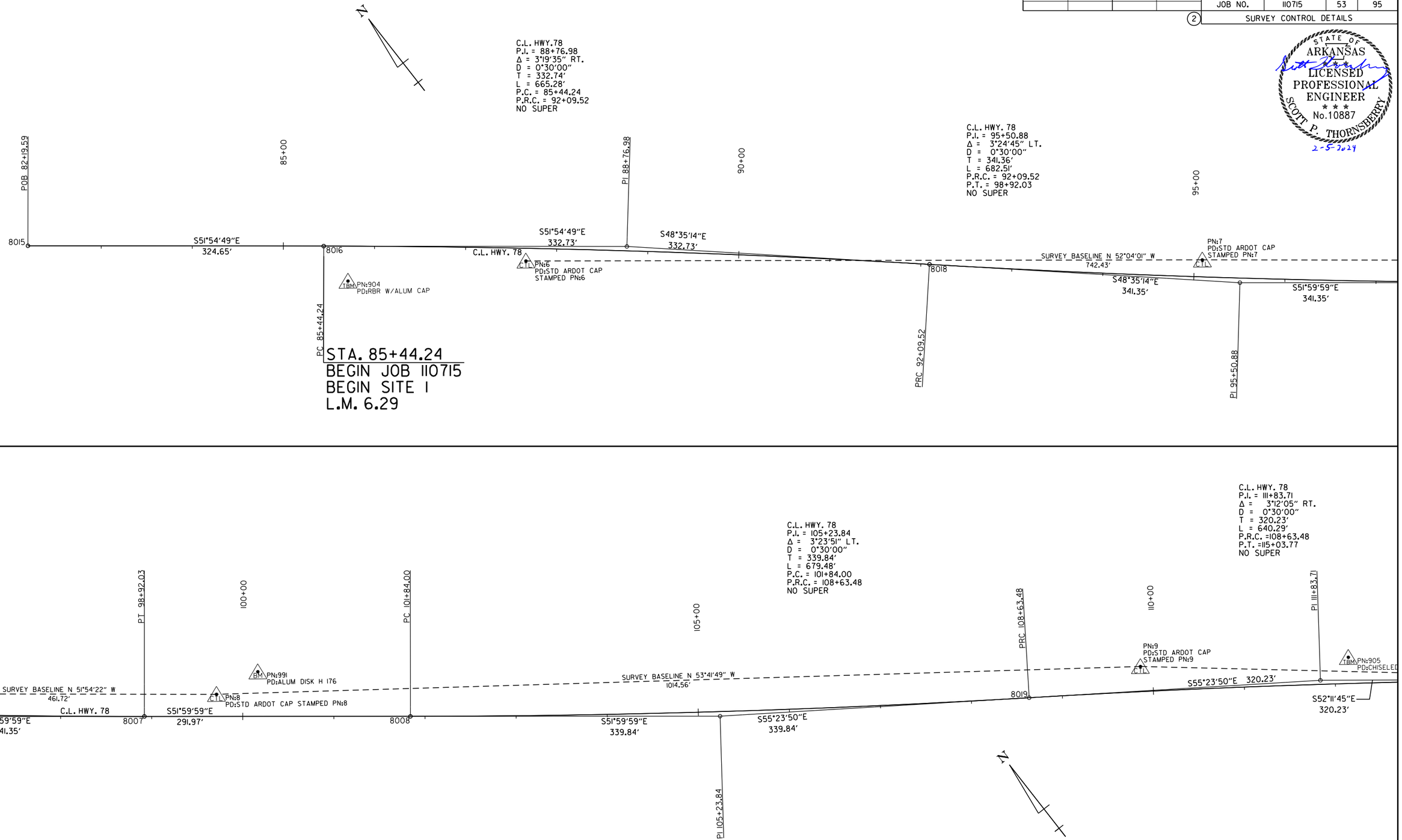
POINT	STATION	TYPE	NORTHING	EASTING
8014	31+54.61	PC	200960.7691	1613315.7708
8033	32+84.89	PRC	201090.1818	1613302.3851
8035	38+95.22	PRC	201697.3363	1613289.6802
8037	40+12.01	PT	201813.7044	1613297.9145

Scott.Thornsberry 9/5/2024 11:04:55 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_II_SC_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	53	95

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



SITE 1
SURVEY CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:56 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_IL_SC_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	54	95
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

C.L. HWY. 78
P.I. = 105+23.84
Δ = 3°23'51" LT.
D = 0°30'00"
T = 339.84'
L = 679.48'
P.C. = 101+84.00
P.R.C. = 108+63.48
NO SUPER

C.L. HWY. 78
P.I. = 111+83.71
Δ = 3°12'05" RT.
D = 0°30'00"
T = 320.23'
L = 640.29'
P.R.C. =108+63.48
P.T. =115+03.77
NO SUPER

N

PRC 108+63.48
110+00
PI 111+83.71
115+00
POE 118+41.16

PN:9
PD:STD ARDOT CAP STAMPED PN:9

TBM PN:905
PD:CHISELED SQUARE IN HW

SURVEY BASELINE N 50°35'24" W 1043.46'

S55°23'50"E 339.84'
8019
S55°23'50"E 320.23'
S52°11'45"E 320.23'
C.L. HWY. 78
8030
S52°11'45"E 337.39'
8031

PN:10
PD:STD ARDOT CAP STAMPED PN:10

PT 115+03.77

STA. 115+03.77
END SITE 1

SITE 1
SURVEY CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:57 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_II_SC_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	55	95
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

N

HWY. 238 TEMP. DETOUR
P.I. = 24+18.41
Δ = 27°13'17" RT.
D = 8°00'00"
T = 173.41'
L = 340.27'
P.R.C. = 22+45.00
P.I. = 24+18.41
P.R.C. = 25+85.27
Ls = 300'
e = 0.094 '/'

HWY. 238 TEMP. DETOUR
P.I. = 21+60.77
Δ = 13°32'27" LT.
D = 8°00'00"
T = 85.03'
L = 169.26'
P.C. = 20+75.74
P.I. = 21+60.77
P.R.C. = 22+45.00
NO SUPER

HWY. 238 TEMP. DETOUR
P.I. = 26+63.00
Δ = 12°23'18" LT.
D = 8°00'00"
T = 77.73'
L = 154.86'
P.R.C. = 25+85.27
P.I. = 26+63.00
P.T. = 27+40.12
NO SUPER

PN:900
PD:RBR W/ALUM CAP

SURVEY BASELINE N 89°41'05" E
752.08'

PN:1
PD:STD ARDOT CAP
STAMPED PN:1

SURVEY BASELINE
N 87°25'50" E - 600.78'

PN:2
PD:STD ARDOT CAP
STAMPED PN:2

8021

POB STA. 206+00.00
C.L. HWY. 238

8023

POB (PC) STA. 20+75.74
C.L. TEMP. DETOUR

PRC 22+45.00

N76°36'52"E
85.03'

S89°50'42"E
85.03'

PI 21+60.77

8025

210+00
PI 24+18.41

25+00

N76°36'52"E
173.41'

S76°09'51"E
173.41'

C.L. TEMP. DETOUR

PN:901
PD:CHISELED SQUARE
IN N/E

SURVEY BASELINE S 87°07'44" E
815.42'

C.L. HWY. 238

PN:3
PD:STD ARDOT CAP
STAMPED PN:3

N90°00'00"E
800.00'

8027

S76°09'51"E
77.73'

PRC 25+85.27

PI 26+63.00

8029

S88°33'10"E
77.73'

POE (PT) STA. 27+40.12
C.L. TEMP. DETOUR

8022

POE STA. 214+00.00
C.L. HWY. 238

PN:902
PD:RBR W/ALUM CAP

SURVEY BASELINE S 88°45'12" E
571.96'

PN:4
PD:STD ARDOT CAP
STAMPED PN:4 PLEA

PN:5
PD:STD ARDOT CAP
STAMPED PN:5

STA. 209+00.00
BEGIN SITE 2
L.M. 7.50

STA. 211+00.00
END SITE 2

SITE 2
SURVEY CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:57 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\RII0715_II_SC_004.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	56	95
				(2)	SURVEY CONTROL DETAILS			

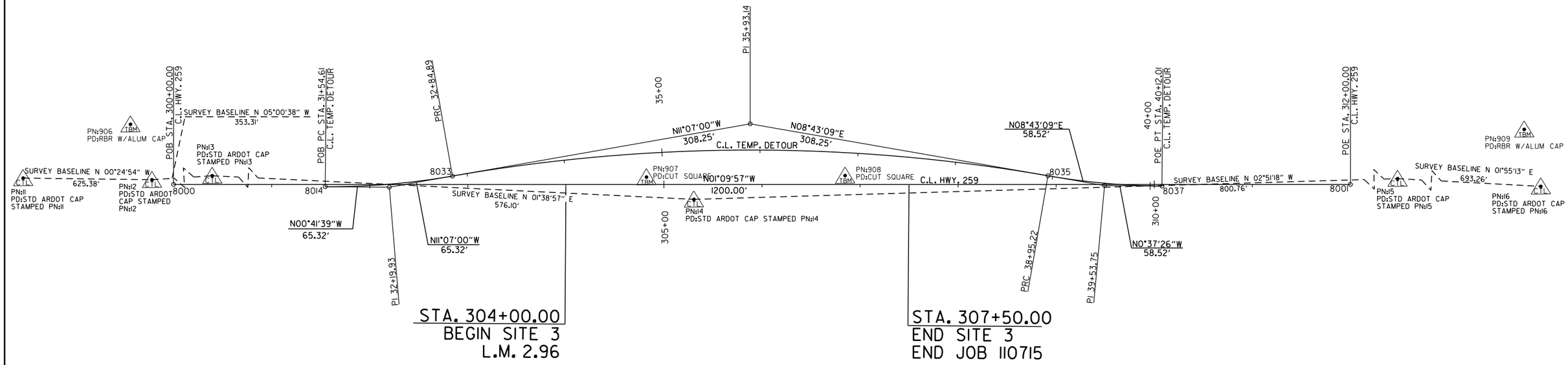
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

N

C.L. TEMP. DETOUR
P.I. = 32+19.93
Δ = 10°25'21" LT.
D = 8°00'00"
T = 65.32'
L = 130.28'
P.C. = 31+54.61
P.R.C. = 32+84.89
NO SUPER

C.L. TEMP. DETOUR
P.I. = 35+93.14
Δ = 19°50'09" RT.
D = 3°15'00"
T = 308.25'
L = 610.33'
P.R.C. = 32+84.89
P.R.C. = 38+95.22
e = 0.052'/'
Ls = 200'

C.L. TEMP. DETOUR
P.I. = 39+53.75
Δ = 9°20'35" LT.
D = 8°00'00"
T = 58.52'
L = 116.79'
P.R.C. = 38+95.22
P.R.C. = 40+12.01
NO SUPER



STA. 304+00.00
BEGIN SITE 3
L.M. 2.96

STA. 307+50.00
END SITE 3
END JOB 110715

SITE 3
SURVEY CONTROL DETAILS

Scott.Thornsberry 2/5/2024 11:04:58 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_IL_SC_005.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	57	95
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024

N

C.L. HWY.78
P.I. = 88+76.98
Δ = 3°19'35" RT.
D = 0°30'00"
T = 332.74'
L = 665.28'
P.C. = 85+44.24
P.R.C. = 92+09.52
NO SUPER

STA. 89+38.00 INSTALL
18" X 28' LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YDS.

C.L. HWY. 78
P.I. = 95+50.88
Δ = 3°24'45" LT.
D = 0°30'00"
T = 341.36'
L = 682.51'
P.R.C. = 92+09.52
P.T. = 98+92.03
NO SUPER

STA. 85+10.00 CONSTRUCT
APPROACH ON LT. = 50 CU. YDS.

STA. 84+69.00 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

STA. 92+17.00 IN PLACE
24" x 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 42' RT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

LEGEND

PAVEMENT TRANSITION

STA. 85+44.24
BEGIN JOB 110715
BEGIN SITE 1
L.M. 6.29

SITE 1- HWY. 78

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

PVI 85+44.24
ELEV. 200.16

+60.00 LT. 195.80

+40.00 RT. 194.82

PVC 93+00.00 ELEV. 200.24

-0.05% (EXIST.)

0.01%

-0.25% LT. DT. GR.

-0.25% RT. DT. GR.

PROFILE GRADE

EXISTING GROUND

HWY. 78

240 230 220 210 200 190 180 170 160 150

78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00

Scott.Thornsberry 2/5/2024 11:04:59 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	58	95
				(2)	PLAN AND PROFILE SHEETS			

C.L. HWY. 78
P.I. = 95+50.88
Δ = 3°24'45" LT.
D = 0°30'00"
T = 341.36'
L = 682.51'
P.R.C. = 92+09.52
P.T. = 98+92.03
NO SUPER

REMOVAL & DISPOSAL OF GUARD RAIL

STA. 99+88.45	TO	STA. 100+15.23	LT. OF C.L. OF HWY 78 =	27 LIN. FT.
STA. 99+89.01	TO	STA. 100+14.76	LT. OF C.L. OF HWY 78 =	26 LIN. FT.
STA. 101+21.05	TO	STA. 101+46.26	LT. OF C.L. OF HWY 78 =	26 LIN. FT.
STA. 101+21.16	TO	STA. 101+46.33	LT. OF C.L. OF HWY 78 =	26 LIN. FT.

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

STA. 99+37.08 BRIDGE END
BRIDGE NO. 07569 OVER BIG CREEK
ON 40° LT. FWD. SKEW
199'-0" PRESTRESSED CONCRETE GIRDER UNIT (TYPE III) (66'-66'-66.5')
30'-0" CLEAR ROADWAY
201'-10" BRIDGE LENGTH
STA. 101+38.92 BRIDGE END

STA. 100+17 TO STA. 101+20
EXISTING BRIDGE NO. 02898
103.33 3/12 X 28.50 9/12 I-BEAM SUPERSTRUCTURE (2@50.9 5/12)
WITH SUBSTRUCTURE COMPOSED OF CONCRETE PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

C.L. HWY. 78
P.I. = 105+23.84
Δ = 3°23'51" LT.
D = 0°30'00"
T = 339.84'
L = 679.48'
P.C. = 101+84.00
P.R.C. = 108+63.48
NO SUPER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

APPROACH SLAB AND GUTTERS

STA.	98+94.85	TO STA.	99+37.08	
STA.	101+38.92	TO STA.	101+81.15	

					GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
STA.	96+92.67	TO STA.	99+11.42	RT. OF C.L. HWY. 78=	150 LIN. FT.	1 EACH	1 EACH
STA.	97+92.84	TO STA.	99+36.59	LT. OF C.L. HWY. 78 =	75 LIN. FT.	1 EACH	1 EACH
STA.	101+39.41	TO STA.	102+83.28	RT. OF C.L. HWY. 78 =	75 LIN. FT.	1 EACH	1 EACH
STA.	101+64.58	TO STA.	103+83.33	LT. OF C.L. HWY. 78 =	150 LIN. FT.	1 EACH	1 EACH

SITE 1 - HWY. 78

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

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEVATION
BIG CREEK	N/A	INTERMITTENT	186 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

HWY. 78

Scott.Thornsberry 2/5/2024 11:05:00 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_I2_PP_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	59	95
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

C.L. HWY. 78
P.I. = 105+23.84
Δ = 3°23'51" LT.
D = 0°30'00"
T = 339.84'
L = 679.48'
P.C. = 101+84.00
P.R.C. = 108+63.48
NO SUPER

C.L. HWY. 78
P.I. = 111+83.71
Δ = 3°12'05" RT.
D = 0°30'00"
T = 320.23'
L = 640.29'
P.R.C. =108+63.48
P.T. =115+03.77
NO SUPER

PRC 108+63.48 | 110+00 | PI 111+83.71 | 115+00 +03.77 | +03.77 | POE 118+41.16

100' TRANSITION TO MATCH EXIST.

EXIST. R/W
CONST. LIMITS
S55°23'50"E
S52°11'45"E
C.L. HWY. 78
4'
22'
20'
4'
EXIST. R/W
CONST. LIMITS
PROP. R/W
PROP. R/W

+50 70' | +35 80' | PT 115+03.77 | +50 48.87'

LEGEND

PAVEMENT TRANSITION

STA. 112+11.95 CULVERT CLEAN OUT OF EXISTING 6' X 4' X 51' R.C. BOX CULVERT

STA. 112+11.95 IN PLACE
6' X 4' X 51' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
RETAIN & EXTEND 17' RT. & 7' LT.
FOR A COMPLETED LENGTH OF 75'
Q25 = 82 CFS DA = 104.85 ACRES

STA. 115+03.77
END SITE 1

SITE 1 - HWY. 78

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

ELEV. 193.24

-0.08%

EXISTING GROUND

0.25% RT. DT. GR.

-1.18% RT. DT. GR.

-9.08% DT. GR. LT.

+11.95

-0.00% LT. DT. GR.

1.70% LT. DT. GR.

PROFILE GRADE

PVI 115+03.77
ELEV. 192.72

100' TRANSITION TO MATCH EXIST.

-0.07% (EXIST.)

+60.00 RT. 185.26

+76.00 LT. 184.89

+03.00 LT. 182.44

+0.00 RT. 182.30

+29.00 LT. 182.44

+59.00 LT. 184.65

FL IN LT. (EXIST.) = 182.43
FL OUT RT. (EXIST.) = 182.41
FL IN LT. (PROP.) = 182.44
FL OUT RT. (PROP.) = 182.34

HWY. 78

240 230 220 210 200 190 180 170 160 150

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+00 121+00 122+00 123+00

Scott.Thornsberry 2/5/2024 11:05:01 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	60	95
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

N

LITTLE PINEY CREEK 210+00

PN:II29
PD:8-SPK

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

STA. 210+01.00 TO STA. 210+31.00
EXISTING BRIDGE NO. M2503
30.00' X 29.25' TIMBER SUPERSTRUCTURE (28@15.5')
WITH SUBSTRUCTURE COMPOSED OF TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE
STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

STA. 212+63.00 IN PLACE
24" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONST. APPROACH = 5 CU. YDS.

+50 95'
+40 95'
+80 38.33'
+75 38.05'
+30 38.99'
+35 37.55'
PROP. R/W
CONST. LIMITS
T.C.E.
T.C.E.
EXIST. R/W
EXIST. R/W
EXIST. R/W
20'
4'
22'
4'
4'
22'
4'
CONST. LIMITS
R =20'
R =20'
+63
N90°00'00"E
C.L. HWY. 238
N90°00'00"E
20'
20'
100' TRANSITION TO MATCH EXIST.
100' TRANSITION TO MATCH EXIST.
PROP. R/W
POB STA. 206+00.00
C.L. HWY. 238
POE STA. 214+00.00
C.L. HWY. 238
+00.00
+00 41.62'
+00.00
+75 60'
+70 60'
+57.39' 40.93'
+00.00
+00.00
DE24" CMP CN:70% LN:24
DE24" CMP CN:30 LN:25
DE24" TYsCMP CN:10 LN:39
PN:II28
PD:8-SPK 8 SPK
PN:II31
PD:8-SPK 8 SPK

STA. 209+00.00
BEGIN SITE 2
L.M. 7.50

STA. 211+00.00
END SITE 2

LITTLE PINEY CREEK

STA. 210+15.00 CONSTRUCT
TRI. 7'X4'X86' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
10° RT. FWD. SKEW
Q25=240 CFS D.A.=1.51 SQ. MI.
SPAN=23.69'
CHANNEL CHANGE=216 CU. YDS. (UNCLASS. EXC.)

LEGEND

PAVEMENT TRANSITION

SITE 2 - HWY. 238

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

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEVATION
LITTLE PINEY CREEK	N/A	INTERMITTENT	186 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

PVI 209+00.00
ELEV. 189.92
PVI 211+00.00
ELEV. 189.57
PROFILE GRADE
0.23% (EXIST.)
-0.17%
+15
0.14% (EXIST.)
-0.84% LT. DT. GR.
0.79% LT. DT. GR.
EXCAVATION LIMITS
EXISTING GROUND
+00.00 LT. 185.17
+84.00 LT. 184.47
Q25 DESIGN H.W. ELEV. 187.31
+20.00 LT. 184.20
+00.00 LT. 184.83
FL. IN LT. = 183.76
FL. OUT RT. = 183.30

HWY. 238

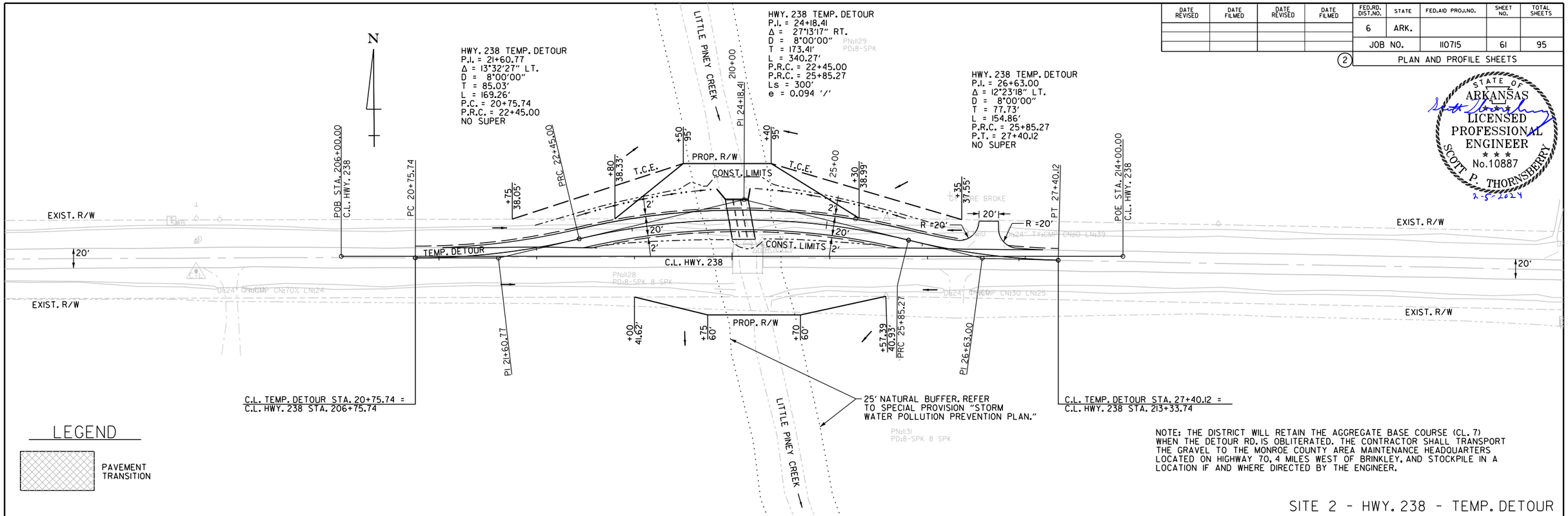
230 220 210 200 190 180 170 160 150 140

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+00 216+00 217+00 218+00

Scott.Thornsberry@5/5/2024 11:05:02 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_004.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	61	95
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
2-5-2024



LEGEND

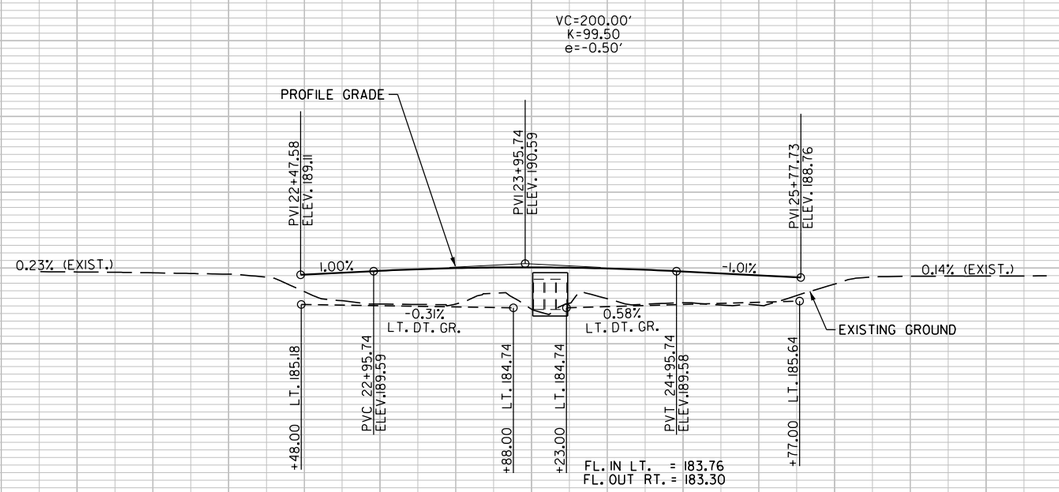
PAVEMENT TRANSITION

NOTE: THE DISTRICT WILL RETAIN THE AGGREGATE BASE COURSE (CL. 7) WHEN THE DETOUR RD. IS OBLITERATED. THE CONTRACTOR SHALL TRANSPORT THE GRAVEL TO THE MONROE COUNTY AREA MAINTENANCE HEADQUARTERS LOCATED ON HIGHWAY 70, 4 MILES WEST OF BRINKLEY, AND STOCKPILE IN A LOCATION IF AND WHERE DIRECTED BY THE ENGINEER.

SITE 2 - HWY. 238 - TEMP. DETOUR

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 22+45.00 BEGIN SUPERELEVATION
STA. 24+15.13 MAX SUPERELEVATION (0.053'/')
STA. 24+15.14 MAX SUPERELEVATION (0.053'/')
STA. 25+85.27 END SUPERELEVATION



HWY. 238 - TEMP. DETOUR

16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00

230 220 210 200 190 180 170 160 150 140

Scott.Thornsberry 2/5/2024 11:05:03 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_005.dgn
REVISED DATE: $$REVDATE$$

STA.	STA.	LOCATION	FENCE (REMOVE & RECONSTRUCTED)
303+56.00	303+82.00	LT. OF C.L. HWY. 259 =	168 LIN. FT.

NOTE: 6' WOOD PRIVACY FENCE EXISTING.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	62	95
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

BIG CREEK BRANCH

N

STA. 304+82.00 TO STA. 305+21.00
EXISTING BRIDGE NO. M2575
39.00 5/12 X 23.40 5/12 TIMBER SUPERSTRUCTURE (20.0,19.0 5/12)
WITH SUBSTRUCTURE COMPOSED OF TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 3) = 1.00 LUMP SUM

STA. 306+88.00 TO STA. 307+05.00 IN PLACE
17 5/12 X 22 5/12 WOODEN BRIDGE
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 4) = 1.00 LUMP SUM

6' WOOD PRIV. FENCE

T.C.E.

CONST. LIMITS

PROP. R/W

EXIST. R/W

C.L. HWY. 259
N01°09'57"W

4' 20' 4' 22' 4'

POB STA. 300+00
C.L. HWY. 259

POE STA. 312+00
C.L. HWY. 259

100' TRANSITION TO MATCH EXIST.

STA. 304+00.00
BEGIN SITE 3
L.M. 2.96

STA. 307+50.00
END SITE 3
END JOB 110715

STA. 305+00.00 CONSTRUCT
TRI. 10'X6'X80' R.C. BOX CULVERT
WITH 30° WINGS LT. & RT.
15° RT. FWD. SKEW
Q25 = 709.00 CFS D.A. = 3.40 SQ. MI.
SPAN = 33.47'
CHANNEL CHANGE = 643 CU. YDS.

STA. 306+95.00 INSTALL
TRI. 48" X 50' R.C. PIPE CULVERT
(CL. IV) WITH FES. LT. AND RT.
Q25 = 106.32 CFS D.A. = 0.51 SQ. MI.
48" R.C. PIPE (CLASS IV)
(TYPE 3 BEDDING) = 150 LIN. FT
48" FES= 6 EACH

LEGEND

PAVEMENT TRANSITION

FENCE

SITE 3 - HWY. 259

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROLS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
304+00	304+60	LT.=	78 LIN. FT.	6'- 0"	52.00
304+00	304+86	RT.=	88 LIN. FT.	6'- 0"	58.67

VC=160.00'
K=115.94
e=0.28'

PVC 304+00.00
ELEV. 198.81

PVT 305+60.00
ELEV. 197.68

PVI 307+50.00
ELEV. 197.64

PROFILE GRADE

-1.55% (EXIST.)

-1.40%

+00

-0.02%

-0.02%

-0.03% (EXIST.)

1.72% RT. DT. GR.

1.82% RT. DT. GR.

0.59% LT. DT. GR.

EXISTING GROUND

+00.00 RT. 195.79
+00.00 LT. 195.79

PVI 304+80.00
ELEV. 197.69

+60.00 LT. 189.08

+86.00 RT. 189.15

+05.00 LT. 189.08

Q25 DESIGN H.W.
ELEV. 195.27

EXCAVATION LIMITS

FL. IN RT = 189.15
FL. OUT LT. = 189.08

+95.00 RT. 191.00

+50.00 LT. 190.52
+50.00 RT. 192.00

FL. IN RT. = 191.00
FL. OUT LT. = 190.14

STREAM	STATION NUMBER	STREAM TYPE	TOP OF CHANNEL ELEVATION
BIG CREEK BRANCH	N/A	PERENNIAL	190 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

HWY. 259

230 220 210 200 190 180 170 160 150 140

297+50 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00 312+00 312+50

Scott.Thornsberry@5/5/2024 11:05:04 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_006.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	63	95
				(2)	PLAN AND PROFILE SHEETS			

C.L. TEMP. DETOUR
P.I. = 32+19.93
Δ = 10°25'21" LT.
D = 8°00'00"
T = 65.32'
L = 130.28'
P.C. = 31+54.61
P.R.C. = 32+84.89
NO SUPER

C.L. TEMP. DETOUR
P.I. = 35+93.14
Δ = 19°50'09" RT.
D = 3°15'00"
T = 308.25'
L = 610.33'
P.R.C. = 32+84.89
P.R.C. = 38+95.22
e = 0.052'/'
Ls = 200'

C.L. TEMP. DETOUR
P.I. = 39+53.75
Δ = 9°20'35" LT.
D = 8°00'00"
T = 58.52'
L = 116.79'
P.R.C. = 38+95.22
P.R.C. = 40+12.01
NO SUPER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-5-2024

BIG CREEK BRANCH

EXIST. R/W
4'
20'
4'
N1°09'57"W
C.L. HWY. 259
EXIST. R/W

PI 300+00.00
C.L. HWY. 259

C.L. TEMP. DETOUR STA. 31+54.61 =
C.L. HWY. 259 STA. 301+54.67

PC 31+54.61
C.L. TEMP. DETOUR
PRC 32+84.89
PI 32+19.93
T.C.F
38+39
37+36
+30
+95.54
75'
PROP. R/W
135'
+00
+56.25
90'
PI 35+93.14
75'
+75
90'
+15
60'
+50
T.C.F
38+98.28
49.20'
+78.28
TEMP. CONST. LIMITS
35+00
N11°07'00"W
N8°43'09"E
C.L. TEMP. DETOUR
2'
20'
2'
TEMP. CONST. LIMITS
N0°41'39"W
N11°07'00"W
N8°43'09"E
2'
N0°37'26"W
40+00
PT 40+12.01
C.L. TEMP. DETOUR
EXIST. R/W
4'
20'
4'

PI 32+19.93
43.17'
+10
305+00
+75
65'
+00
+85
BIG CREEK BRANCH
PROP. R/W
+48.92
51.01'
PRC 38+95.22
PI 39+53.75
310+00
PI 312+00.00
C.L. HWY. 259
EXIST. R/W

STA. 306+95.00 INSTALL
TRI. 48" X 32' TEMP. PIPE
CULVERT EXT. LT. = 96 L.F.

C.L. TEMP. DETOUR STA. 40+12.01 =
C.L. HWY. 259 STA. 310+07.79

25' NATURAL BUFFER. REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

NOTE: THE DISTRICT WILL RETAIN THE AGGREGATE BASE COURSE (CL. 7) WHEN THE DETOUR RD. IS OBLITERATED. THE CONTRACTOR SHALL TRANSPORT THE GRAVEL TO THE LEE COUNTY AREA MAINTENANCE HEADQUARTERS LOCATED ON HIGHWAY 79, 5 MILES EAST OF THE JUNCTION OF HIGHWAYS 79 & 1 IN MARIANNA, AND STOCKPILE IN A LOCATION IF AND WHERE DIRECTED BY THE ENGINEER.

SITE 3 - HWY. 259 - TEMP. DETOUR

REFER TO SURVEY CONTROL DETAILS
FOR HORIZONTAL AND VERTICAL CONTROLS.

STA. 33+38.17 BEGIN SUPERELEVATION
STA. 35+38.17 MAX SUPERELEVATION (0.052'/')
STA. 36+27.36 MAX SUPERELEVATION (0.052'/')
STA. 38+27.36 END SUPERELEVATION

VC=120.00'
K=80.00
e=0.22'

VC=100.00'
K=312.50
e=-0.04'

PVI 33+38.17
ELEV. 199.05
PVC 34+00.00
ELEV. 198.11
PVT 35+20.00
ELEV. 197.17
PVI 37+20.00
ELEV. 197.11
PVI 38+27.24
ELEV. 196.74

PROFILE GRADE

-2.69% (EXIST.)
-1.53%
-1.53%
-0.03%
-0.03%
-0.03%
-0.35%
-0.35%
0.30% (EXIST.)
EXISTING GROUND

EXCAVATION LIMITS
0.55% LT. DT. GR.
1.04% LT. DT. GR.

PVI 34+60.00
ELEV. 197.19
+0.00
LT. 188.82
PVC 36+70.00
ELEV. 197.12
±97.00
LT. 189.86
PVT 37+70.00
ELEV. 196.93
+28.00
LT. 191.22

FL. IN LT = 189.15
FL. OUT RT. = 189.08

TEMP. EXT.
FL. IN RT. = 191.00
FL. OUT LT. = 189.85

230 220 210 200 190 180 170 160 150 140

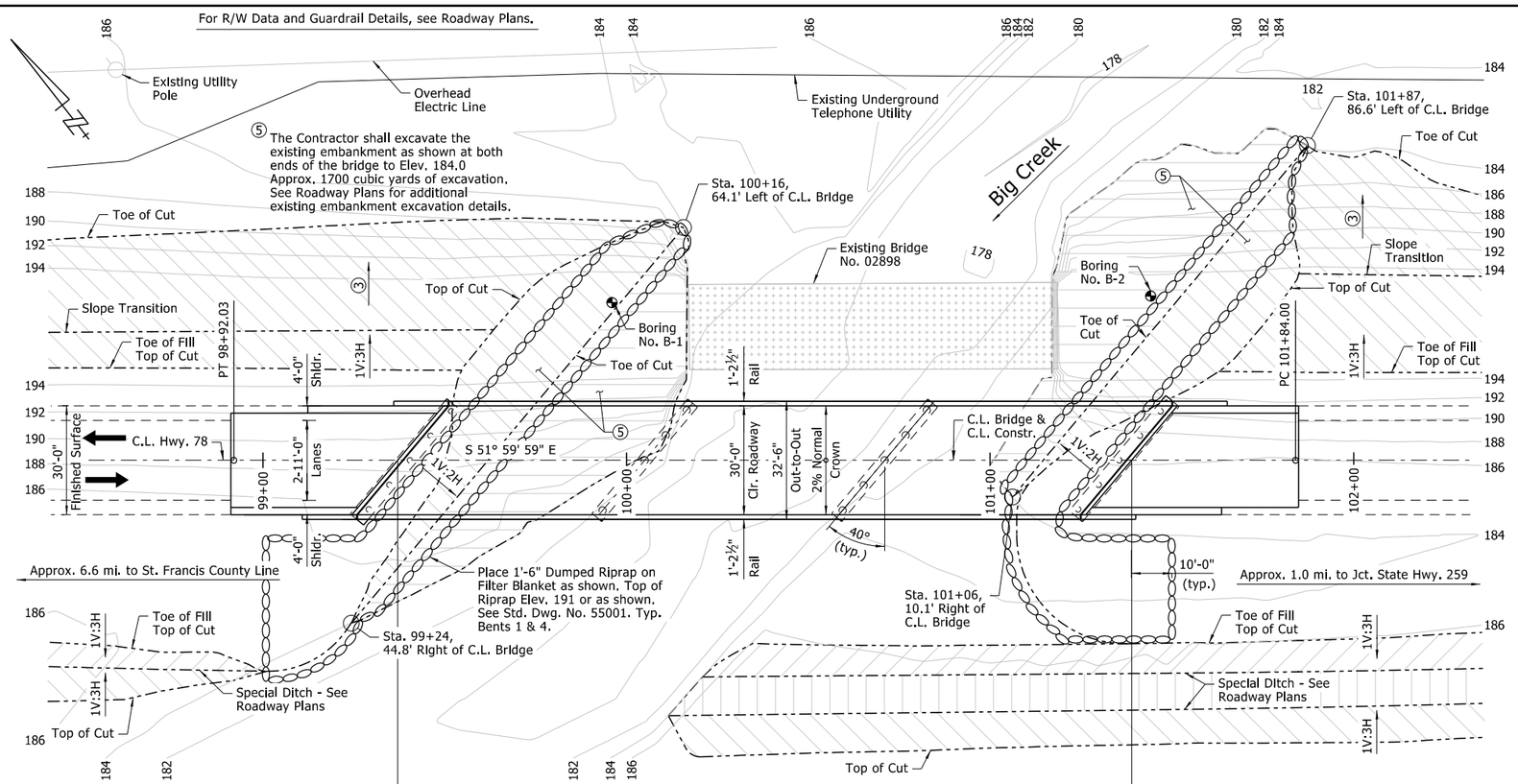
27+50 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 42+50

HWY. 259 - TEMP. DETOUR

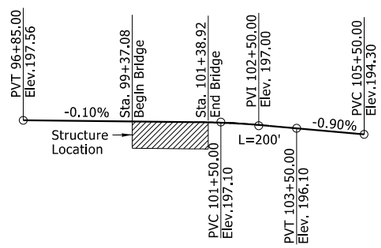
Scott.Thornsberry@5/2024 11:05:04 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_12_PP_007.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	64	95
				(1)	07569 - LAYOUT - 64532			

For R/W Data and Guardrail Details, see Roadway Plans.



PLAN



HORIZONTAL ALIGNMENT DATA

Along C.L. Construction

Curve 1	Curve 2
P.I. = Sta. 95+50.88	P.I. = Sta. 105+23.84
Δ = 3° 24' 45" Left	Δ = 3° 23' 51" Left
D = 0° 30' 00"	D = 0° 30' 00"
T = 341.36'	T = 339.84'
L = 682.51'	L = 679.48'
R = 11,459.16'	R = 11,459.16'
P.R.C. - Sta. 92+09.52	P.C. = Sta. 101+84.00
P.T. = Sta. 98+92.03	P.R.C. = 108+63.48

VERTICAL ALIGNMENT DATA

Stations and Elevations are along C.L. Bridge

No Scale

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	(1) NATURAL WATER SURFACE ELEVATION FEET	WATER SURFACE ELEV. WITH BACKWATER FEET
Design	25	3,930	189.2	190.2
Base	100	4,890	189.5	190.8
Extreme	500	5,990	189.9	191.4
Overtopping	>500	-	-	-

(1) Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 191.1 feet.

(2) Proposed Low Bridge Chord Elevation = 192.25 feet and occurs at Sta. 101+44.70

Drainage area = 105 square miles.

Historical H.W Elevation = 191.1 (from 1955 construction plans)

(3) Slope Varies. See Roadway Plans.

(4) C.L. Deck @ C.L Bridge and C.L. Bent to Low Seat of Cap = 5'-2¾" Typ. Bents 2 & 3

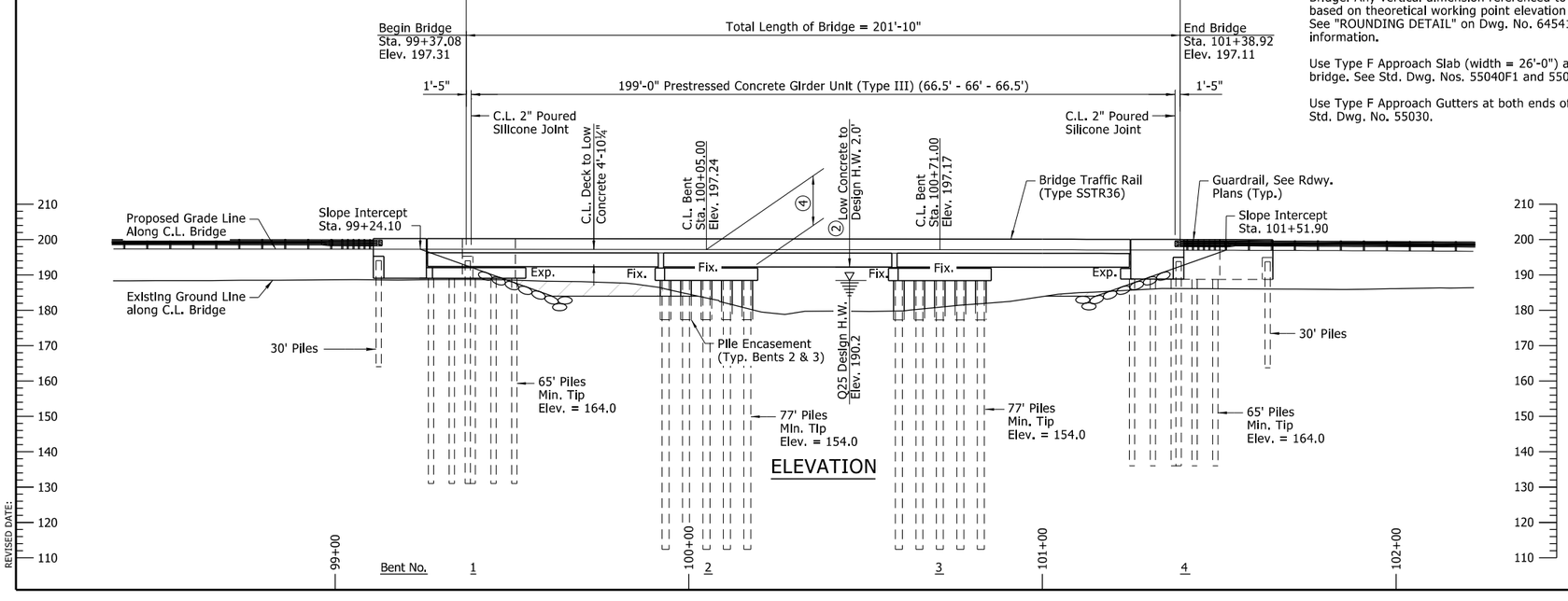
Notes:

For Soil Boring Information, see Dwg. No. 64533.

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Dwg. No. 64541 for additional information.

Use Type F Approach Slab (width = 26'-0") at both ends of bridge. See Std. Dwg. Nos. 55040F1 and 55040F2.

Use Type F Approach Gutters at both ends of the bridge. See Std. Dwg. No. 55030.



ELEVATION

02-05-2024

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18919 HUSSAM S. SALEEM

BRIDGE ENGINEER

PRINT DATE: 2/5/2024

SHEET 1 OF 2

LAYOUT OF BRIDGE HIGHWAY 78 OVER BIG CREEK BIG CREEK, LITTLE PINEY CREEK & BIG CREEK BRANCH STRS. & APPRS. (S) LEE COUNTY

ROUTE 78 SECTION 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: JPC/MKL DATE: 07/2020
CHECKED BY: SFH DATE: 07/2020
DESIGNED BY: MKL DATE: 07/2020
FILENAME: B110715X1_LX1.dgn
SCALE: 1" = 20'
BRIDGE NO. 07569
DRAWING NO. 64532

Mr-All 2/5/2024 5:22:14 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_LX1.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	65	95
				(1)	07569 - LAYOUT - 64533			

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Eighth Edition (2017).

LIVE LOADING: HL-93

SEISMIC ZONE: 3 S_{D1}= 0.467 SITE CLASS = E

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
Class S Concrete (Prestressed Concrete Girders)	f'c = 8,000 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A, Gr. 60)	fy = 60,000 psi
Prestressing Strands (AASHTO M 203, Gr. 270)	fpu = 270,000 psi
Structural Steel (ASTM A709, Gr. 50 or 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Pipe Pile (ASTM A252,Grade 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 Bents 1 and 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to meet the minimum ultimate bearing capacity of 260 tons per pile. Piling in Bents 2 and 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to meet the minimum ultimate bearing capacity of 420 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevation shown on Dwg. No. 64532. 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. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles shall be paid for as test piles.

Water jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the items "STEEL SHELL PILING (18" Dia.)" and "STEEL SHELL PILING (24" Dia.)".

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural or finished ground. Galvanized corrugated steel pipe shall not be used to form pile encasement. See Dwg. No. 64539 for additional information.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)". It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles at Bents 1 and 4 will be 43,000 foot pounds per blow and for all piles at Bents 2 and 3 will be 44,000 foot pounds per blow. If the Contractor elects to use water jetting or other approved methods to obtain the minimum tip elevations shown while driving only to the required minimum ultimate bearing capacity, the minimum rated hammer energy required will be lower and shall be accounted for in the driving system chosen by the Contractor.

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.

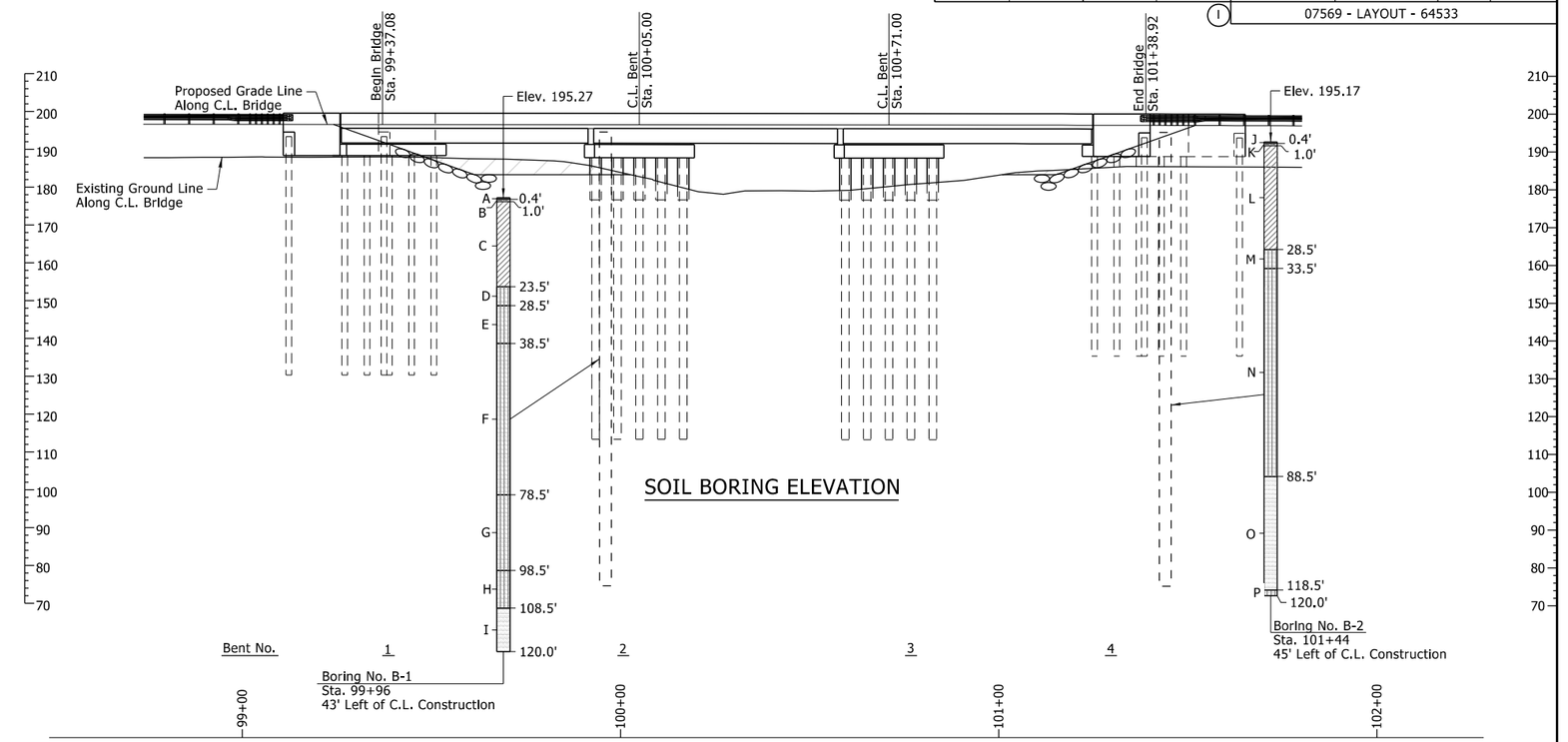
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the bridge traffic rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	64534 - 64537
Intermediate Bents	64538
Concrete Filled Steel Shell Piles and Pile Encasements	64539
Elastomeric Bearings	64540
199'-0" Prestressed Concrete Girder Unit	64541 - 64546
Details of Poured Silicone Joints	64547
Concrete Filled Steel Shell Piles and Pile Encasements	55021
Type F Approach Gutters	55030
Type F Approach Slab	55040F1
Skewed Type F Approach Slab	55040F2
Bridge Traffic Rail (Type SSTR36)	55070

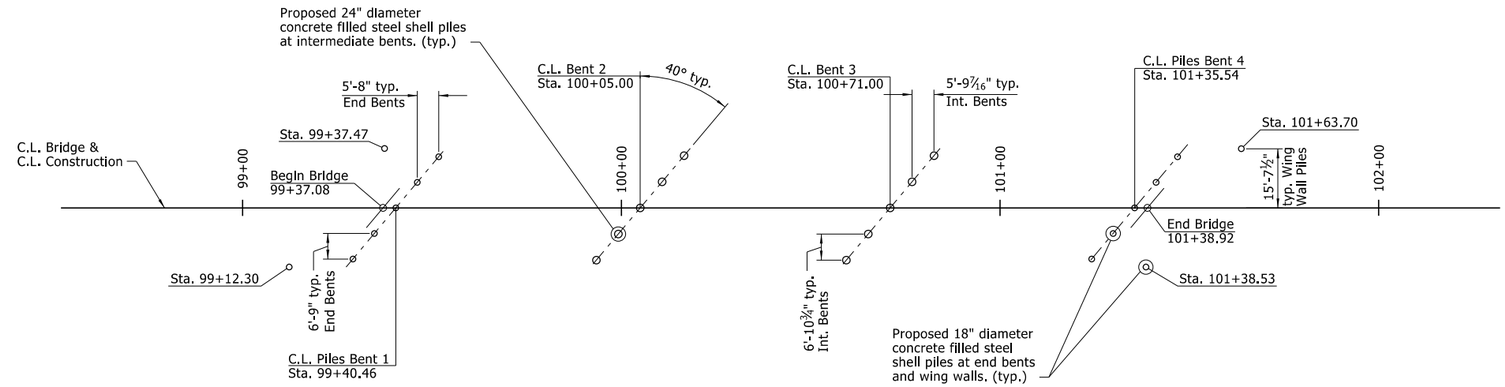
EXISTING BRIDGE: Existing Bridge No. 02898 (Log Mile 6.57) is 28.5' wide (24.0' clear roadway) and 103.3' long and consists of steel I-beam spans (2 spans total) supported by concrete pile bents. The existing bridge is located approximately 38' upstream from the proposed new bridge. Plans of the existing 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. 02898 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



SOIL BORING ELEVATION



FOUNDATION PLAN

BORING LEGEND

A-ASPHALT CONCRETE - 5 inches
B-AGGREGATE BASE COURSE - 7 inches
C-LEAN CLAY (CL), brown and gray, soft to stiff
D-SILTY SAND (SM), brown and gray, medium dense
E-SILT WITH SAND (ML), brown and gray, soft to stiff
F-POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, medium dense to dense
G-SILTY SAND (SM), fine grained, gray, medium dense to dense
H-POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, medium dense
I-POORLY GRADED SAND (SP), fine grained, gray, medium dense to dense
J-ASPHALT CONCRETE - 5 inches
K-AGGREGATE BASE COURSE - 7 inches
L-LEAN CLAY (CL), brown and gray, soft to medium stiff
M-SANDY SILT (ML), fine grained, gray, loose
N-POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, medium dense to dense
O-POORLY GRADED SAND (SP), fine grained, gray, medium dense to dense
P-POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, very dense

"N" VALUES

Boring No. B-1 Sta. 99+96 - 43' Left of C.L. Construction		Boring No. B-2 Sta. 101+44 - 45' Left of C.L. Construction	
1.5 - 2.5	N=7	1.5 - 2.5	N=5
3.0 - 4.0	N=4	3.0 - 4.0	N=4
4.5 - 5.5	N=3	4.5 - 5.5	N=3
9.0 - 10.0	N=3	9.0 - 10.0	N=5
19.0 - 20.0	N=9	19.0 - 20.0	N=7
29.0 - 30.0	N=2	29.0 - 30.0	N=6
39.0 - 40.0	N=19	39.0 - 40.0	N=24
44.0 - 45.0	N=34	44.0 - 45.0	N=33
49.0 - 50.0	N=16	49.0 - 50.0	N=33
59.0 - 60.0	N=42	59.0 - 60.0	N=35
69.0 - 70.0	N=27	69.0 - 70.0	N=36
79.0 - 80.0	N=30	79.0 - 80.0	N=32
89.0 - 90.0	N=29	89.0 - 90.0	N=31
99.0 - 100.0	N=22	99.0 - 100.0	N=39
109.0 - 110.0	N=29	109.0 - 110.0	N=16
119.0 - 120.0	N=48	119.0 - 120.0	N=53

02-05-2024
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 78 OVER BIG CREEK
BIG CREEK, LITTLE PINEY CREEK & BIG CREEK BRANCH STRS. & APPRS. (S)
LEE COUNTY
ROUTE 78 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 07/2020 FILENAME: B110715X1_LX2.dgn
CHECKED BY: SFH DATE: 07/2020
DESIGNED BY: MKL DATE: 07/2020 SCALE: 1" = 20'
BRIDGE NO. 07569 DRAWING NO. 64533

Mr.Ali
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_LX2.dgn
2/5/2024 5:22:15 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	66	95
				(1)	07569 - END BENTS - 64534			

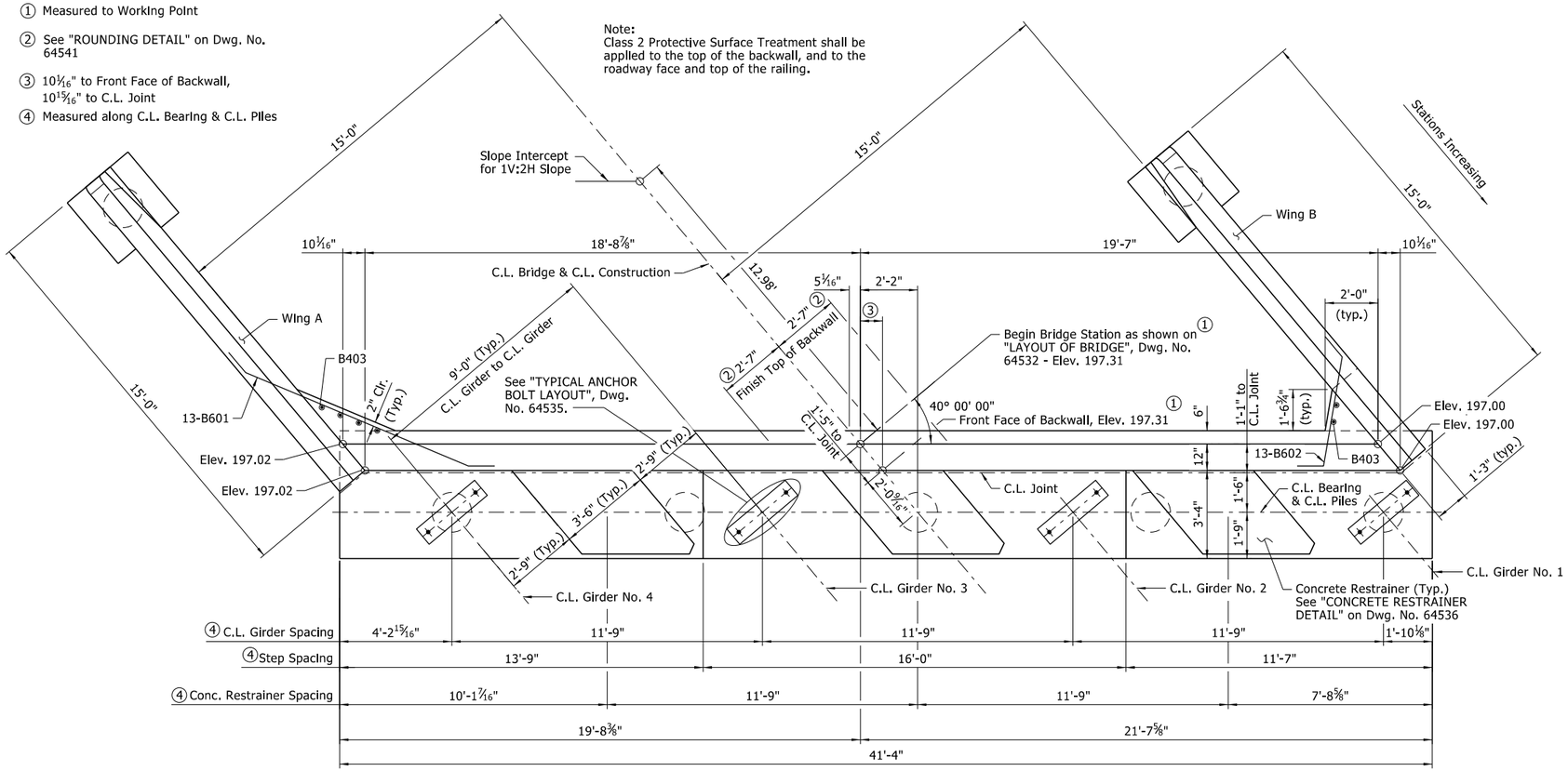
(1) Measured to Working Point

(2) See "ROUNDING DETAIL" on Dwg. No. 64541

(3) $10\frac{1}{16}$" to Front Face of Backwall, $10\frac{15}{16}$" to C.L. Joint

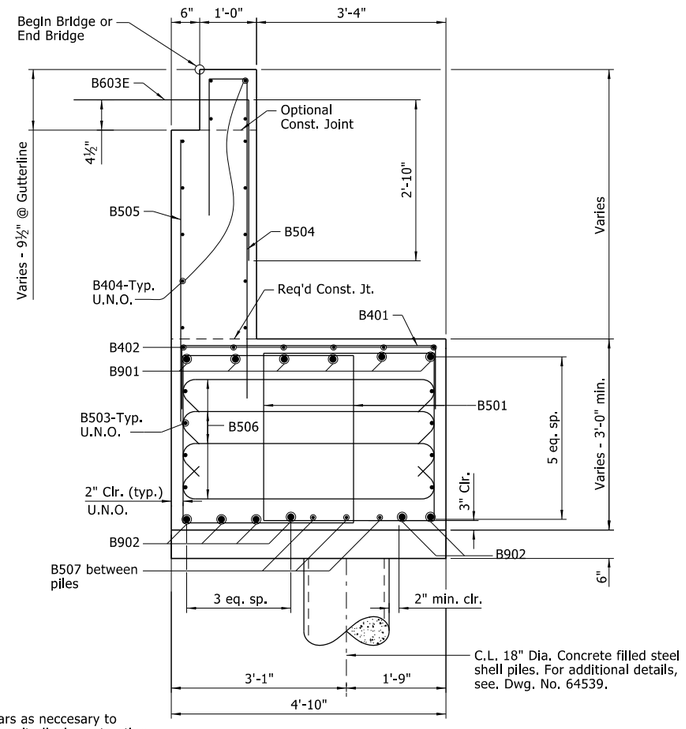
(4) Measured along C.L. Bearing & C.L. Piles

Note:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall, and to the roadway face and top of the railing.



PLAN - BENT 1

3/8" = 1'-0"



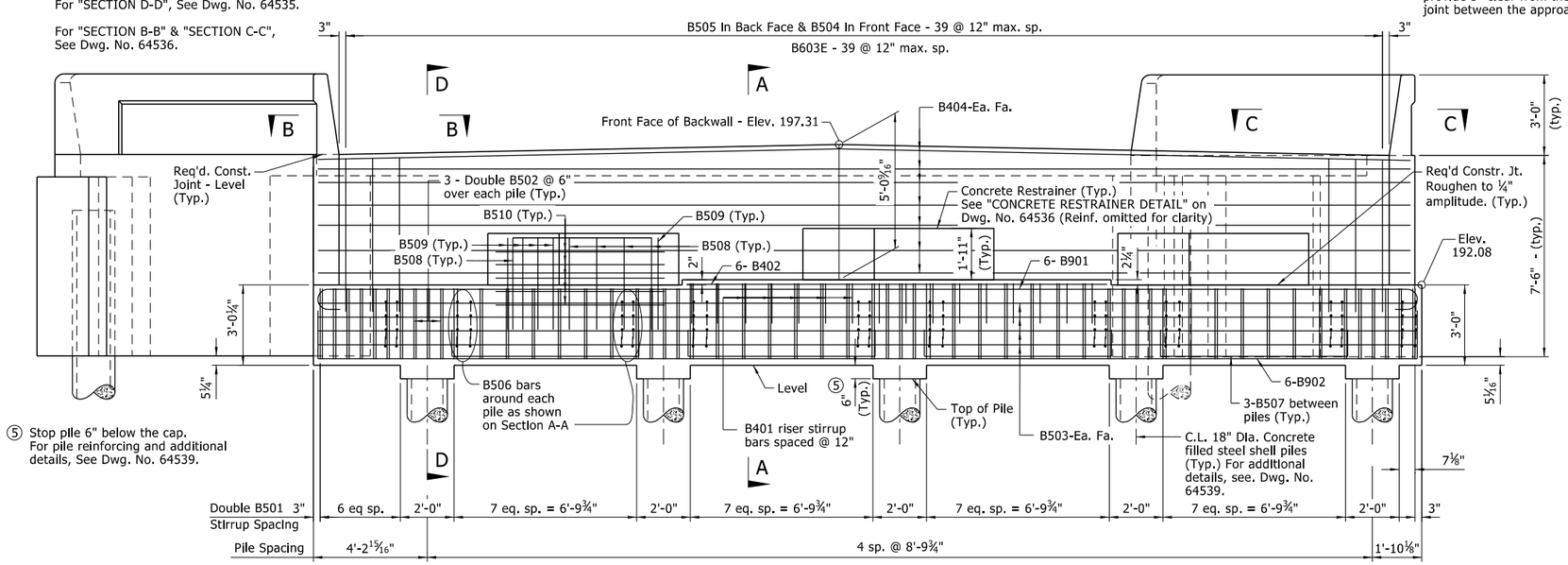
SECTION A-A

3/4" = 1'-0"

NOTE:
Adjust spacing of B601E bars as neccesary to provide 3" clear from the longitudinal construction joint between the approach slab and gutters.

For "SECTION D-D", See Dwg. No. 64535.

For "SECTION B-B" & "SECTION C-C", See Dwg. No. 64536.



(5) Stop pile 6" below the cap. For pile reinforcing and additional details, See Dwg. No. 64539.

ELEVATION - BENT 1

Looking Back

3/8" = 1'-0"

GENERAL NOTES

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

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.

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION" note on Dwg. No. 64547. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

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

For additional information, see "LAYOUT OF BRIDGE".

For Concrete Filled Steel Shell Piles, See Std. Dwg. 55021 for wingwall piles and Dwg. No. 64539 for end bent piles.

02-05-2024
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 1 OF 4
DETAILS OF END BENTS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	12/2020	FILENAME:	B110715X1_B11.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	12/2020	SCALE:	As Shown
BRIDGE NO.	07569		DRAWING NO.		64534

Mr-All
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B11.dgn
2/5/2024 5:22:16 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	67	95
				(1)	07569 - END BENTS - 64535			

(1) Measured to Working Point

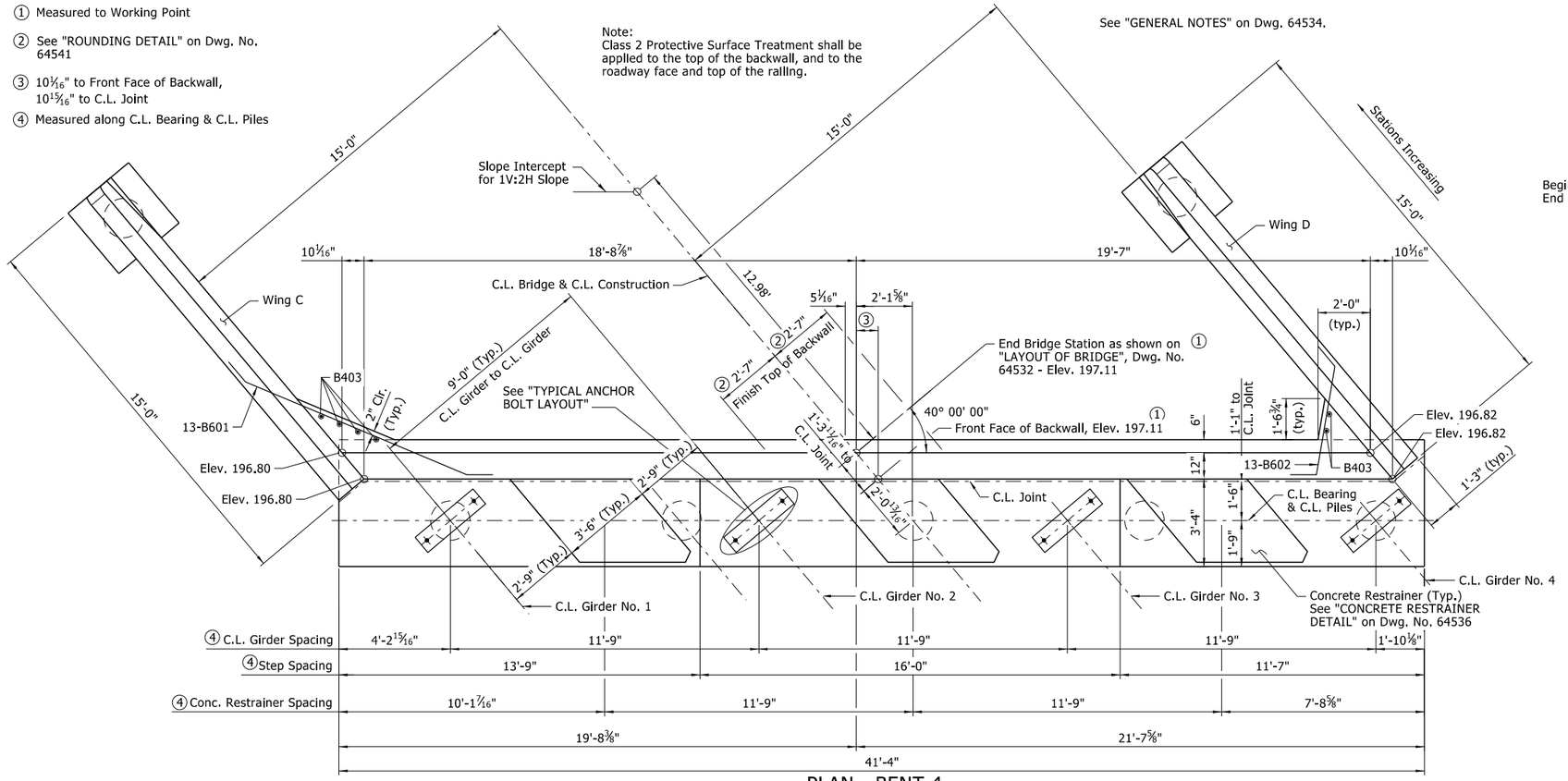
(2) See "ROUNDING DETAIL" on Dwg. No. 64541

(3) 10 1/16" to Front Face of Backwall, 10 15/16" to C.L. Joint

(4) Measured along C.L. Bearing & C.L. Piles

Note:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall, and to the roadway face and top of the railing.

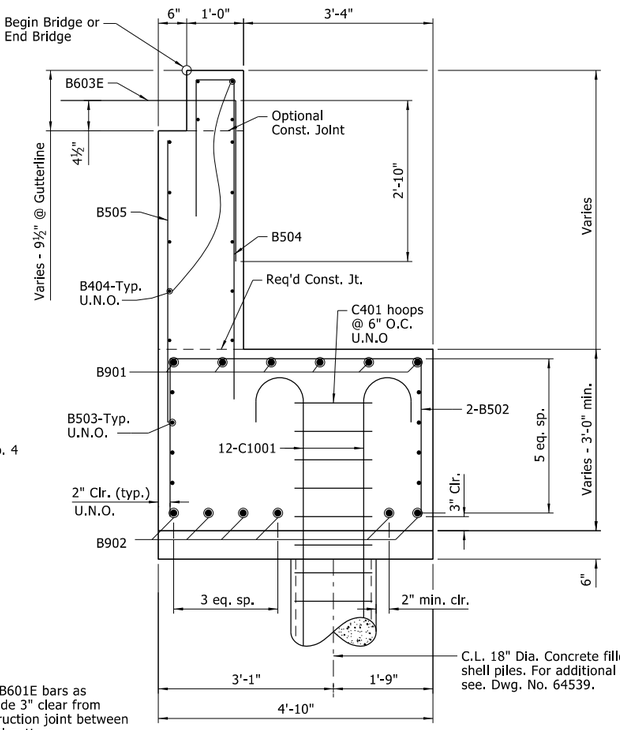
See "GENERAL NOTES" on Dwg. 64534.



PLAN - BENT 4

3/8" = 1'-0"

NOTE:
Adjust spacing of B601E bars as necessary to provide 3" clear from longitudinal construction joint between approach span and gutters.

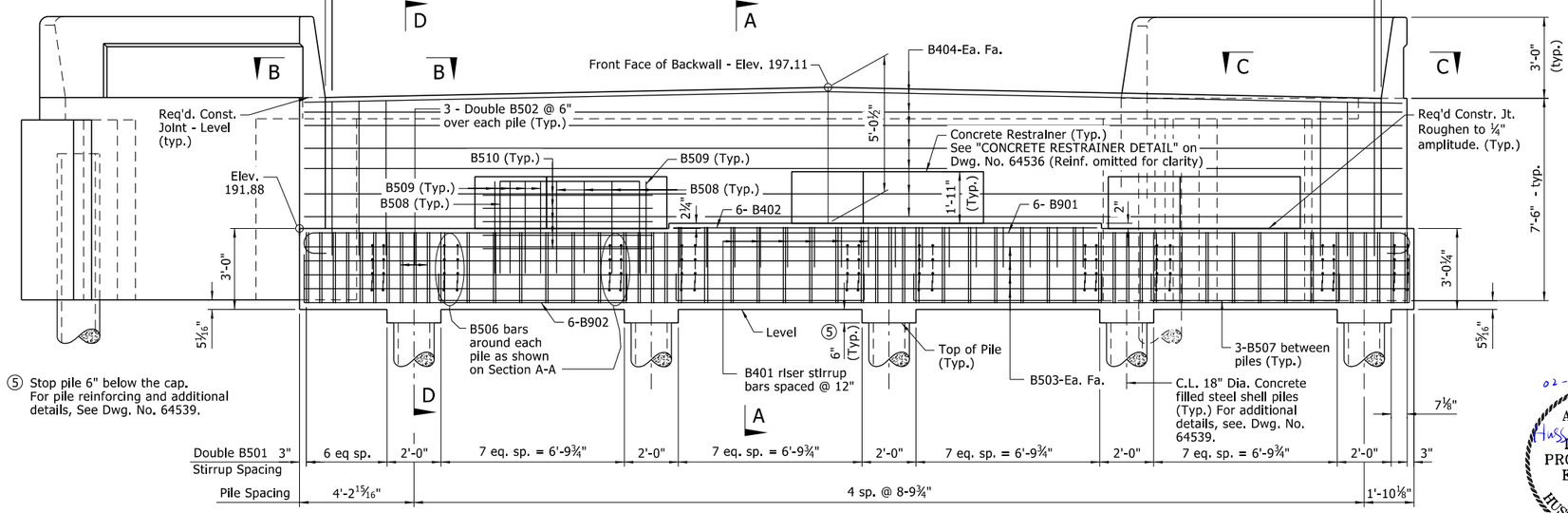


SECTION D-D

3/4" = 1'-0"

For "SECTION A-A", See Dwg. No. 64534.

For "SECTION B-B" & "SECTION C-C", See Dwg. No. 64536.

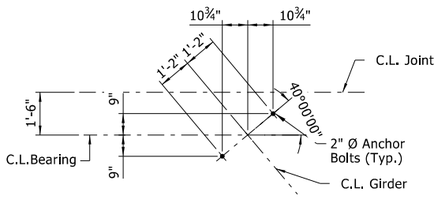


(5) Stop pile 6" below the cap. For pile reinforcing and additional details, See Dwg. No. 64539.

ELEVATION - BENT 4

Looking Ahead

3/8" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale

Notes:

For details of elastomeric bearings, See Dwg. No. 64540.

For General notes, See Dwg. No. 64534.

02-05-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

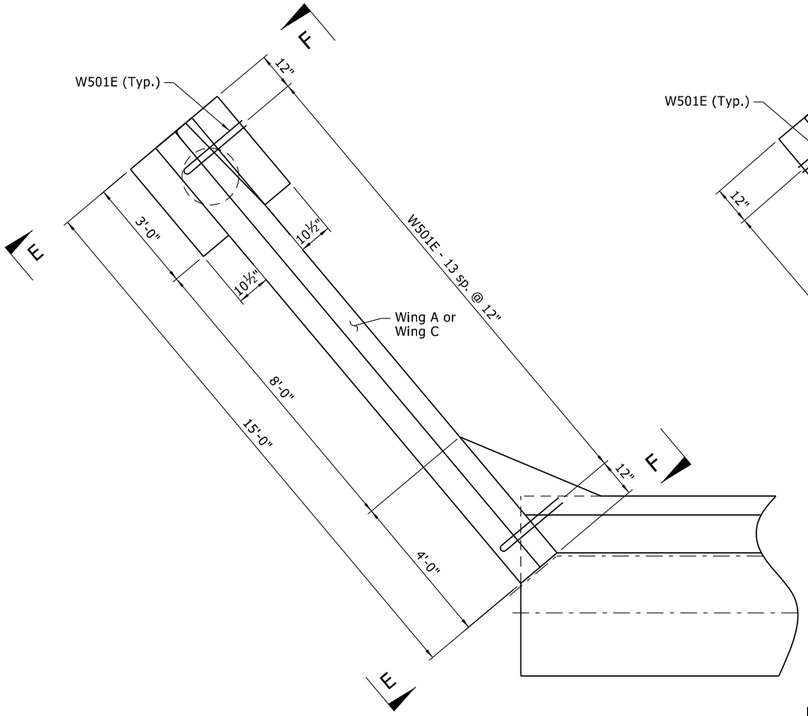
SHEET 2 OF 4
DETAILS OF END BENTS
ROUTE SECTION

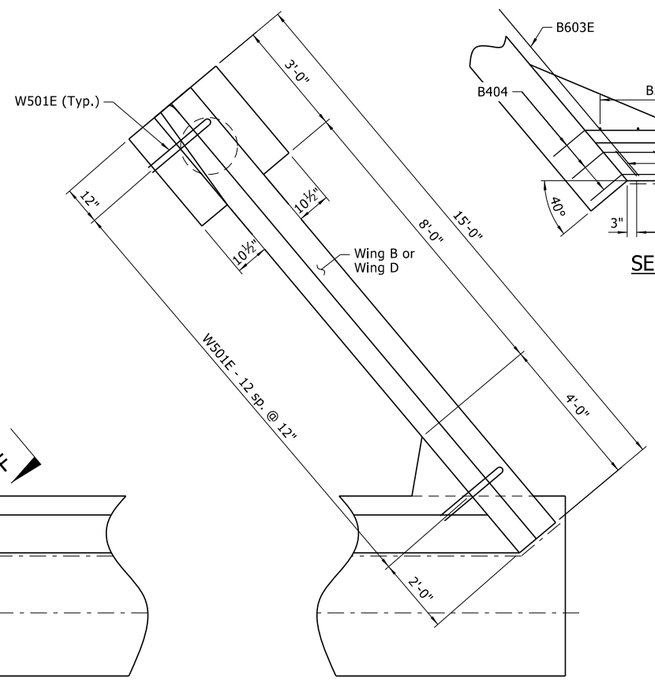
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	12/2020	FILENAME: B110715X1_B12.dgn
CHECKED BY:	HSS	DATE:	08/2021	
DESIGNED BY:	SCR	DATE:	12/2020	SCALE: As Shown
BRIDGE NO.	07569			DRAWING NO. 64535

Mr.All
2/5/2024 5:22:18 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B12.dgn
REVISED DATE:

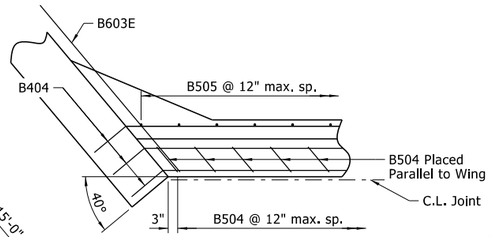
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	68	95
				(1)	07569 - END BENTS - 64536			





PLAN OF RAILS

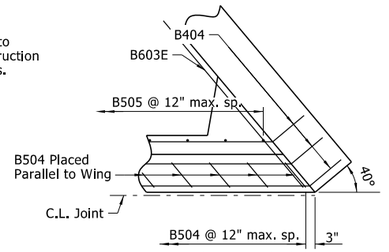
½" = 1'-0"



SECTION B-B

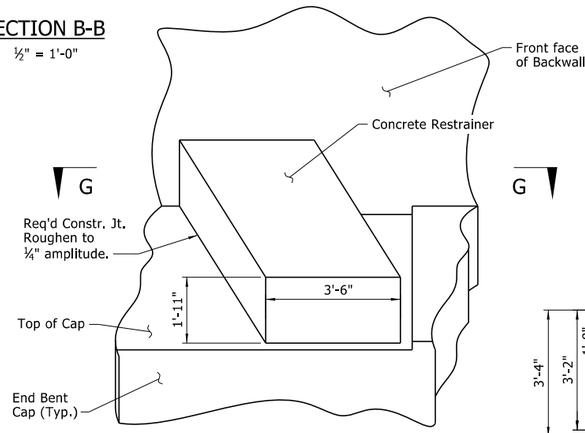
½" = 1'-0"

NOTE:
Adjust spacing of D601E bars as necessary to provide 3" clear from the longitudinal construction joint between the approach slab and gutters.



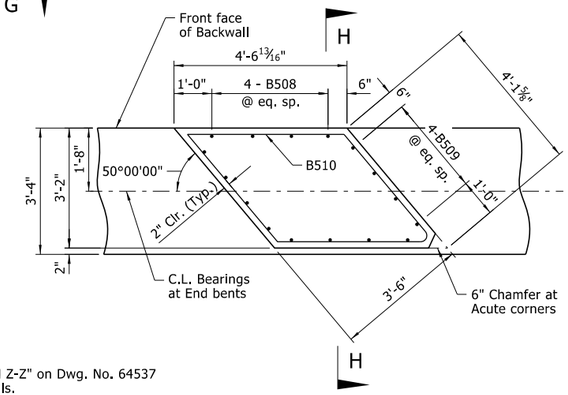
SECTION C-C

½" = 1'-0"



CONCRETE RESTRAINER DETAIL

No Scale

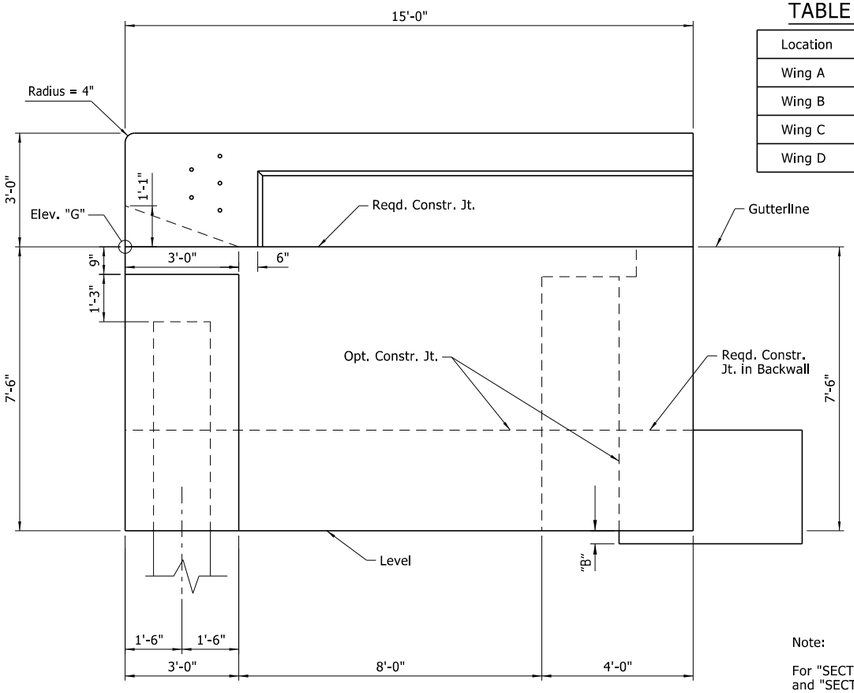


VIEW G-G

½" = 1'-0"

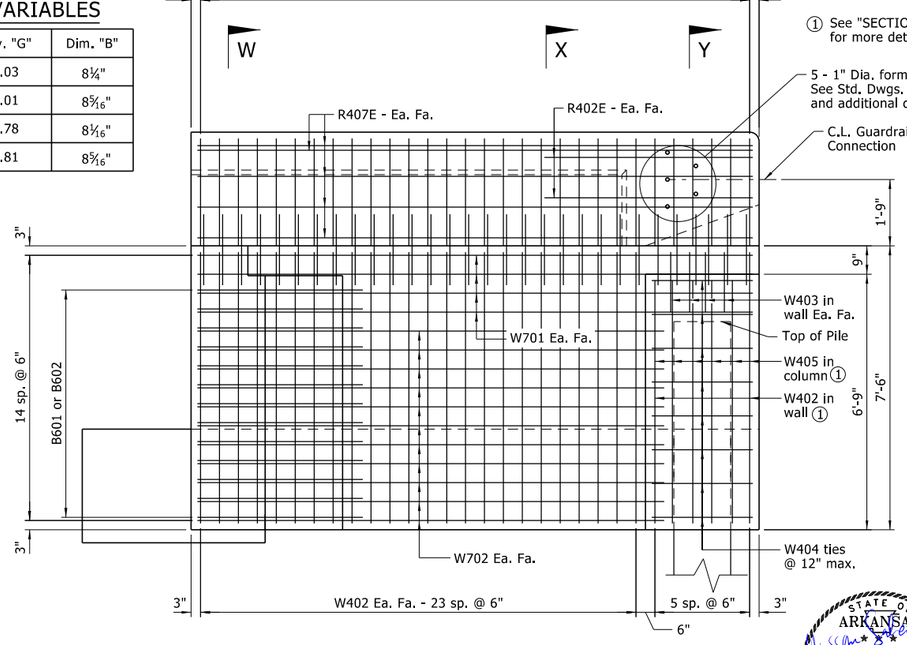
TABLE OF VARIABLES

Location	Elev. "G"	Dim. "B"
Wing A	197.03	8¼"
Wing B	197.01	8 5/16"
Wing C	196.78	8 1/16"
Wing D	196.81	8 5/16"



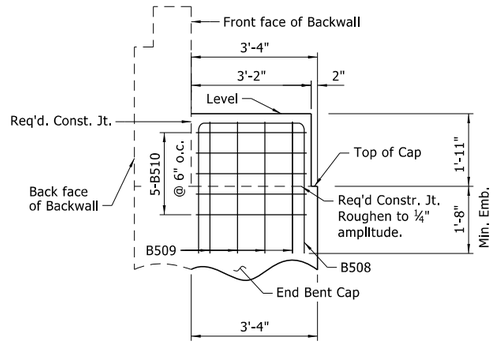
VIEW E-E

½" = 1'-0"



(1) See "SECTION Z-Z" on Dwg. No. 64537 for more details.

5 - 1" Dia. formed holes for Guardrail Connection. See Std. Dwgs. GR-10 & GR-12 for bolt spacing and additional details.



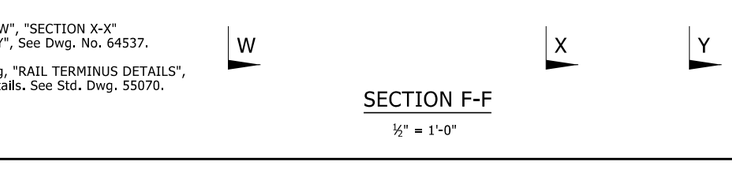
SECTION H-H

½" = 1'-0"

Note:

For "SECTION W-W", "SECTION X-X" and "SECTION Y-Y", See Dwg. No. 64537.

For rail reinforcing, "RAIL TERMINUS DETAILS", and additional details. See Std. Dwg. 55070.



SECTION F-F

½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
02-05-2024

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 3 OF 4
DETAILS OF END BENTS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	KDH	DATE:	1/2021	FILENAME:	B110715X1_B13.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	ERBB	DATE:	1/2021	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64536

Mr.All 2/5/2024 5:22:19 PM
WORKSPACE: AROOT
Y:\Projects\AROOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B13.dgn
REVISED DATE:

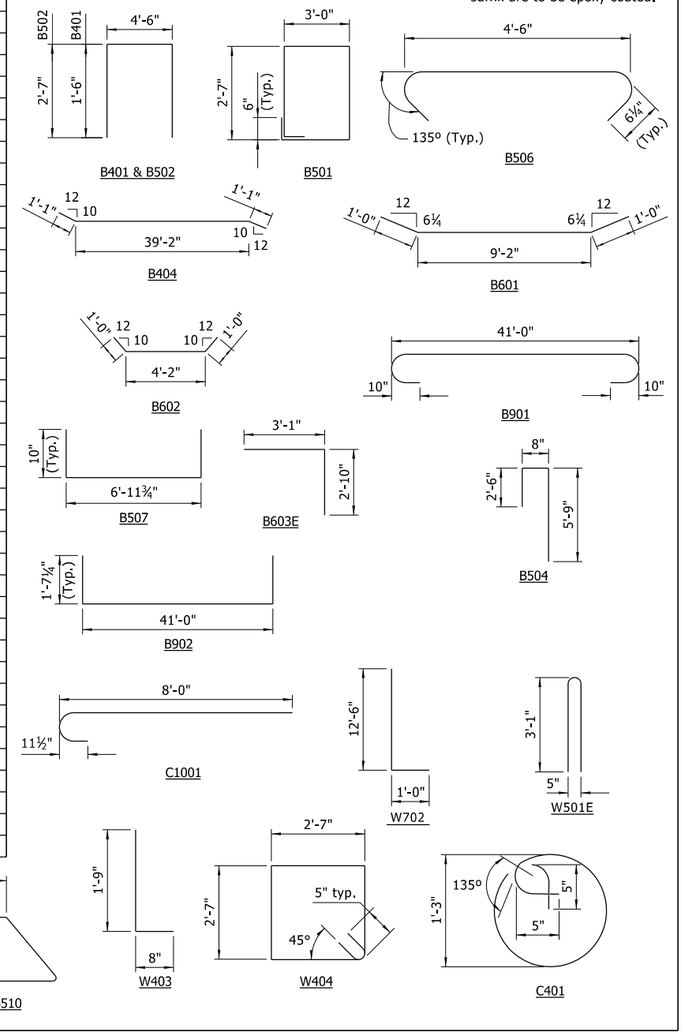
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	69	95
				(1)	07569 - END BENTS - 64537			

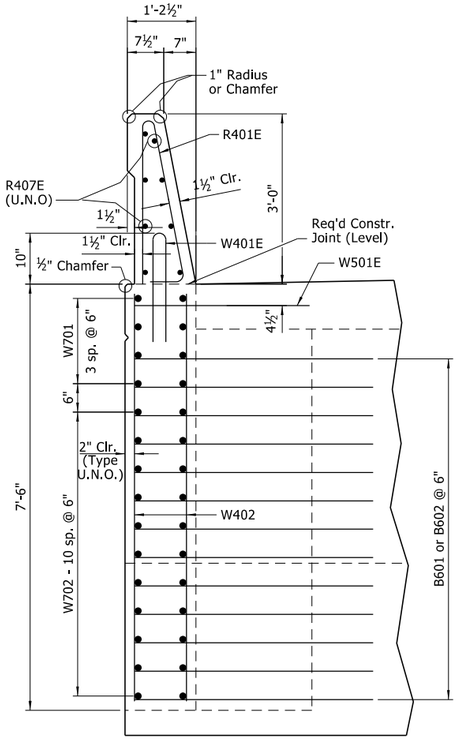
BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.
B401	16	7'-4"	2"
B402	6	15'-8"	Str.
B403	6	6'-4"	Str.
B404	14	41'-4"	2"
B501	82	11'-8"	2½"
B502	30	9'-5"	2½"
B503	8	41'-0"	Str.
B504	40	8'-8"	2½"
B505	40	5'-9"	Str.
B506	80	5'-7"	3¾"
B507	12	8'-4¾"	3¾"
B508	12	10'-2"	3¾"
B509	24	3'-5"	Str.
B510	15	16'-2"	2½"
B601	13	11'-2"	4½"
B602	13	6'-2½"	4½"
B603E	39	5'-9"	4½"
B901	6	43'-6"	9"
B902	6	43'-8"	9"
C401	75	5'-0"	3"
C1001	60	9'-5"	10"
R401E	60	6'-4"	2½", 3"
R402E	8	5'-6"	Str.
R407E	16	14'-8"	Str.
W401E	60	3'-11"	3¾"
W402	104	7'-1"	Str.
W403	16	2'-4"	3"
W404	16	10'-10"	3"
W405	32	6'-4"	Str.
W501E	27	6'-4"	3¾"
W701	16	14'-8"	Str.
W702	44	13'-4"	5¼"

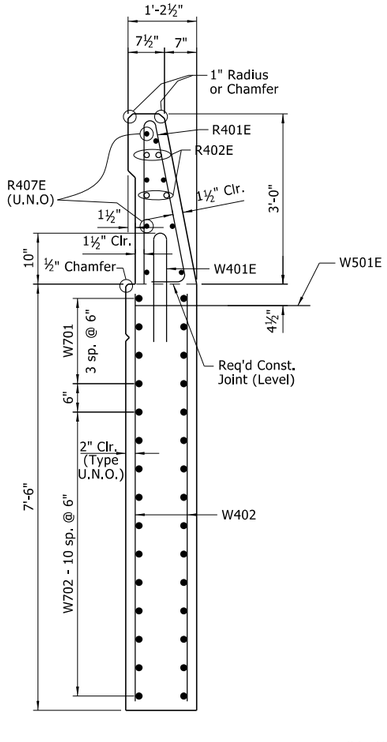
BENDING DIAGRAMS
Dimensions are out to out of bars.

All bars designated with an "E" suffix are to be epoxy coated.

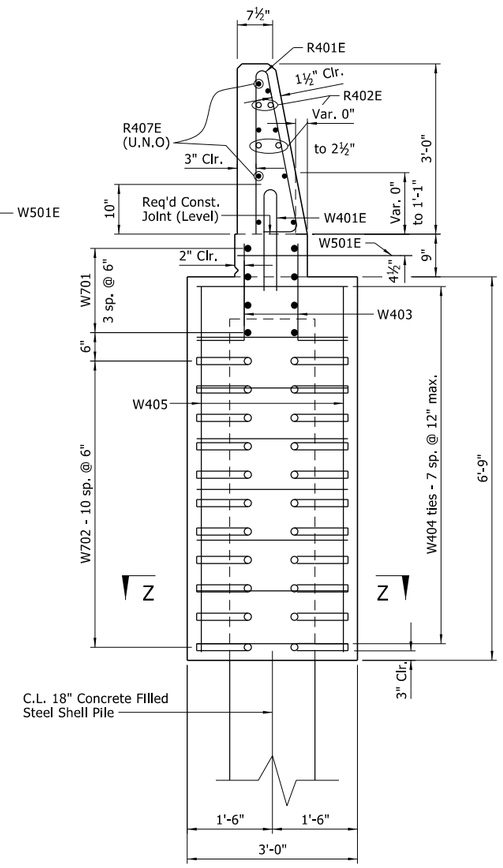




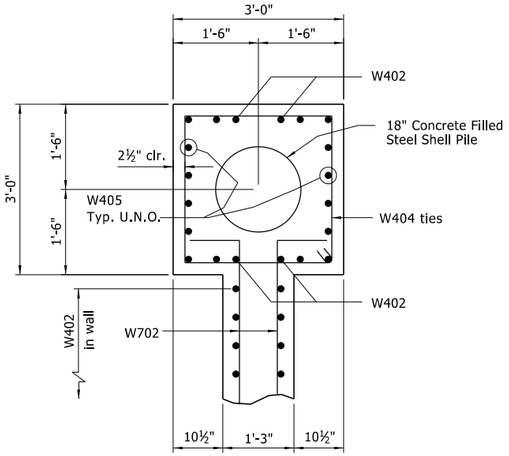
SECTION W-W
¾" = 1'-0"



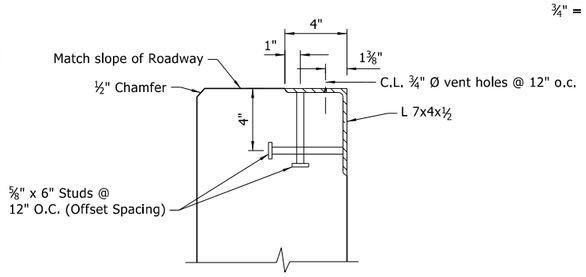
SECTION X-X
¾" = 1'-0"



SECTION Y-Y
¾" = 1'-0"



SECTION Z-Z
¾" = 1'-0"



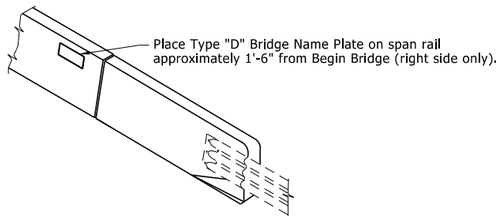
END BENT WALL ARMOR DETAIL
No Scale

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

Concrete to be hand packed under the joint armor.

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

For rail reinforcing, "RAIL TERMINUS DETAILS", and additional details. See Std. Dwg. 55070.



THREE DIMENSIONAL VIEW OF RAIL
No Scale

02-05-2024
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 4 OF 4
DETAILS OF END BENTS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: SCR DATE: 1/2021 FILENAME: B110715X1_B14.dgn
CHECKED BY: HSS DATE: 08/2021
DESIGNED BY: ERBB DATE: 1/2021 SCALE: As Shown
BRIDGE NO. 07569 DRAWING NO. 64537

MR.All 2/5/2024 5:22:20 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B14.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	70	95
				07569 - INTERMEDIATE BENTS - 64538				

GENERAL NOTES

Concrete in the cap shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. All exposed corners to be chamfered ¾"unless otherwise noted.

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.

For additional information, see "LAYOUT OF BRIDGE".

For Concrete Filled Steel Shell Piles, See Dwg. No. 64539.

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.
B401	16	6'-6"	2"
B402	6	15'-8"	Str.
B501	92	12'-10"	2½"
B502	40	10'-9"	2½"
B503	10	40'-8"	Str.
B504	16	8'-1"	3¾"
B505	120	4'-8½"	3¾"
B506	15	10'-4½"	3¾"
B507	12	3'-5"	Str.
B508	15	16'-2½"	4½"
B509	18	5'-1"	Str.
B510	15	12'-0"	3¾"
B511	9	13'-2½"	2½"
B512	20	7'-8"	3¾"
B901	8	43'-2"	9"
B902	6	43'-4"	9"
B903	2	42'-9"	9"
C402	75	6'-7"	3"
C901	60	9'-3"	9"

BENDING DIAGRAMS
Dimensions are out to out of bars.

All bars designated with an "E" suffix are to be epoxy coated.

B401, B502, B512 · B501 · B504 · B902 · B903 · B901 · B505 · B506 & B510 · B508 · B511 · C402 · C901

PLAN

⅜" = 1'-0"

ELEVATION

Looking Ahead

⅜" = 1'-0"

VIEW C-C

⅜" = 1'-0"

SECTION B-B

¾" = 1'-0"

SECTION A-A

¾" = 1'-0"

SECTION E-E

⅜" = 1'-0"

VIEW D-D

⅜" = 1'-0"

COCNRETE RESTRAINER DETAIL

⅜" = 1'-0"

TYPICAL ANCHOR BOLT LAYOUT

No Scale

Notes:
For Details of Elastomeric Bearings, See Dwg. No. 64540.

① Stop steel shell piles 6" below the cap. For pile reinforcing and additional details, See Dwg. No. 64539.

② U-Bars Each End of Cap (3" clr.)

Main cap reinforcement not shown for clarity

02-05-2024
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
BRIDGE ENGINEER
PRINT DATE: 2/5/2024

DETAILS OF INTERMEDIATE BENTS

ROUTE SECTION

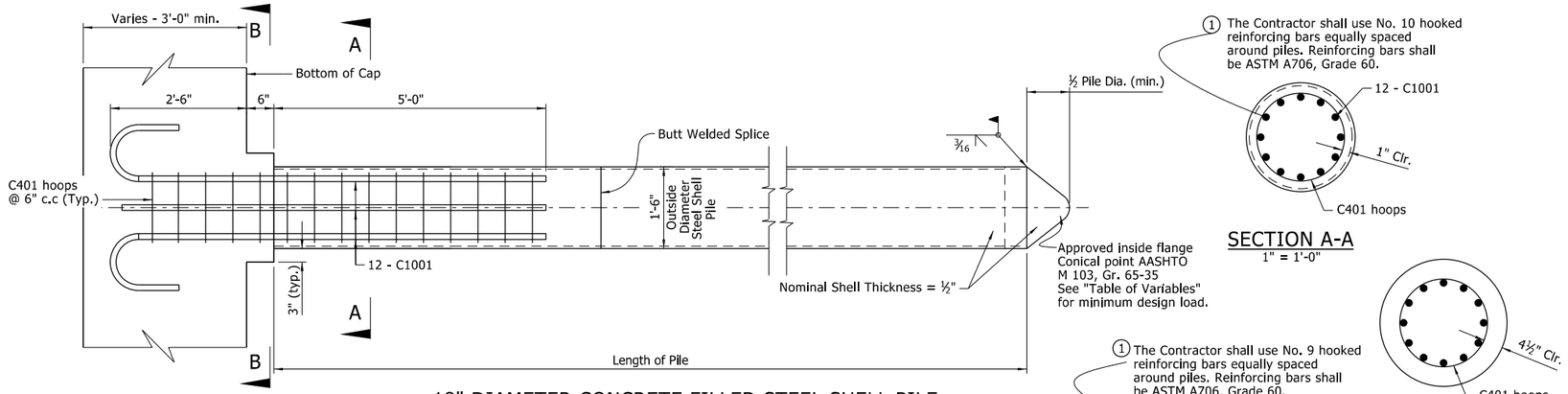
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	12/2020	FILENAME:	B110715X1_B21.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	12/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64538

Mfr.All 2/5/2024 5:22:21 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B21.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	71	95
				(1)	07569 - STEEL SHELL PILES - 64539			



18" DIAMETER CONCRETE FILLED STEEL SHELL PILE

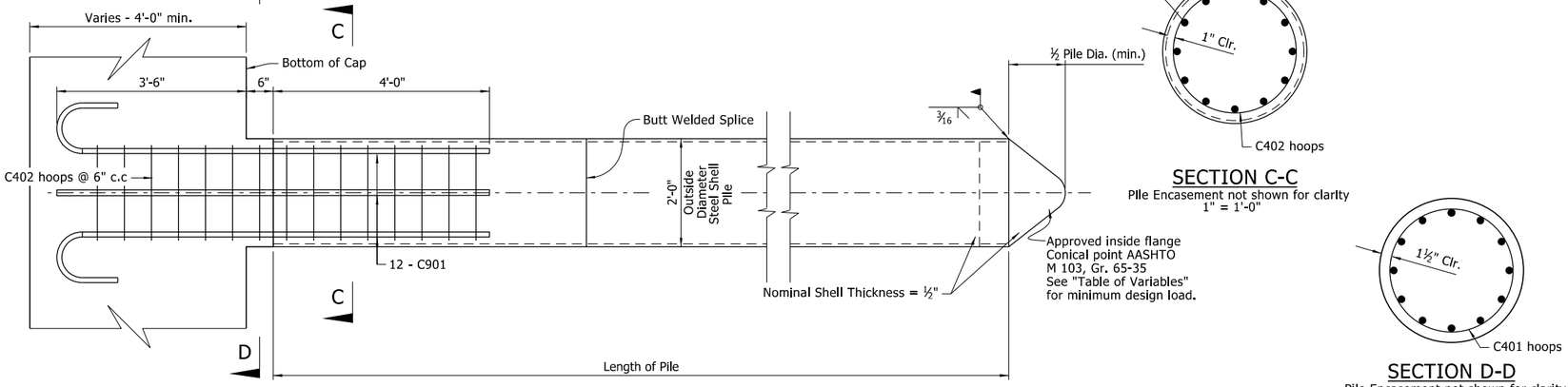
¾" = 1'-0"

SECTION A-A

1" = 1'-0"

SECTION B-B

1" = 1'-0"



24" DIAMETER CONCRETE FILLED STEEL SHELL PILE

¾" = 1'-0"

SECTION C-C

Pile Encasement not shown for clarity

1" = 1'-0"

SECTION D-D

Pile Encasement not shown for clarity

1" = 1'-0"

GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

See Bridge Layout for size and estimated length of steel shell piles and for driving information.

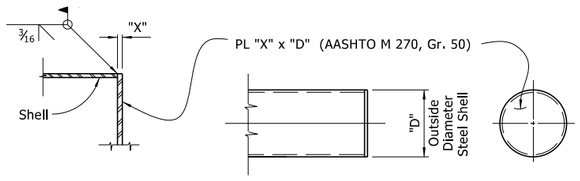
Concrete, structural steel, reinforcing steel (including welding), shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)" or "Steel Shell Piling (24" Dia.)".

Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling (18" Dia.)" or "Steel Shell Piling (24" Dia.)".

TABLE OF VARIABLES

OUTSIDE DIAMETER STEEL SHELL PILE "D"	PLATE THICKNESS "X"	PLATE THICKNESS "Y"	MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
18"	2½"	1½"	1,114
24"	2¾"	1¾"	1,495

(1) Hooked bars shall be placed to minimize interference with anchor bolts and reinforcing in cap. Minimum concrete cover distance to edges of cap shall be maintained.

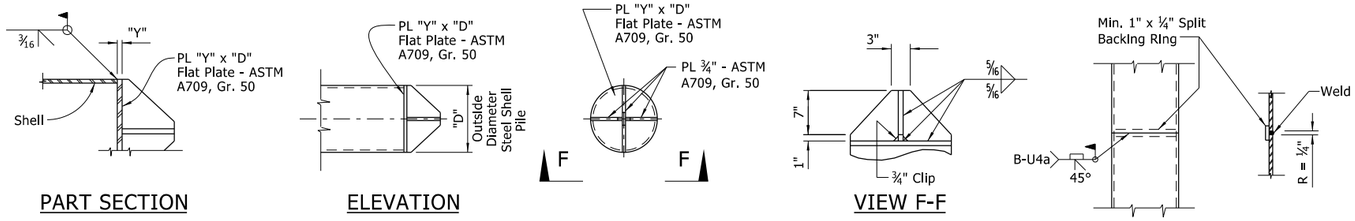


PART SECTION ELEVATION

ALTERNATE FLAT TIP DETAIL

No Scale

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



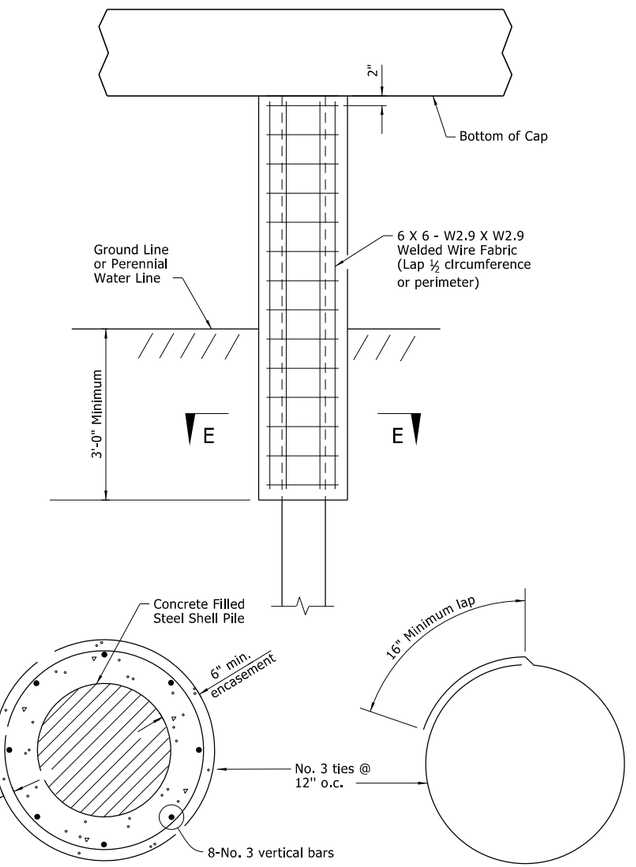
PART SECTION ELEVATION VIEW F-F

ALTERNATE VANED TIP DETAIL

No Scale

TYPICAL SPLICE DETAILS

No Scale



SECTION E-E (REINFORCEMENT ALTERNATE)

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

No Scale

GENERAL NOTES FOR PILE ENCASEMENTS

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. The concrete must be placed in the dry.

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

02-05-2024

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18919 HUSSAM S. SALEEM

BRIDGE ENGINEER

PRINT DATE: 2/5/2024

DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ROUTE SECTION

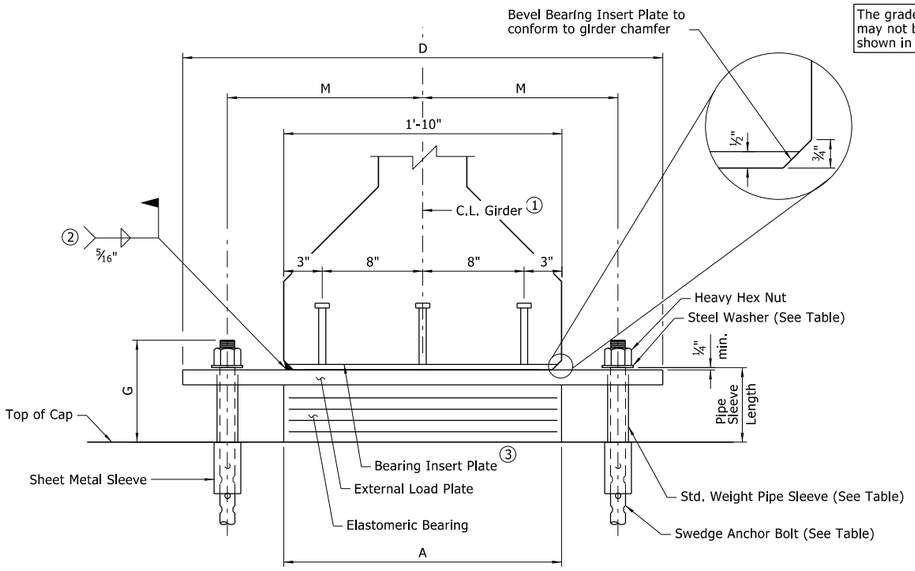
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	12/2020	FILENAME:	B110715X1_B22.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	12/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64539

MR.All
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_B22.dgn
2/5/2024 5:22:22 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	72	95
				(1)	07569 - ELASTOMERIC BEARINGS - 64540			

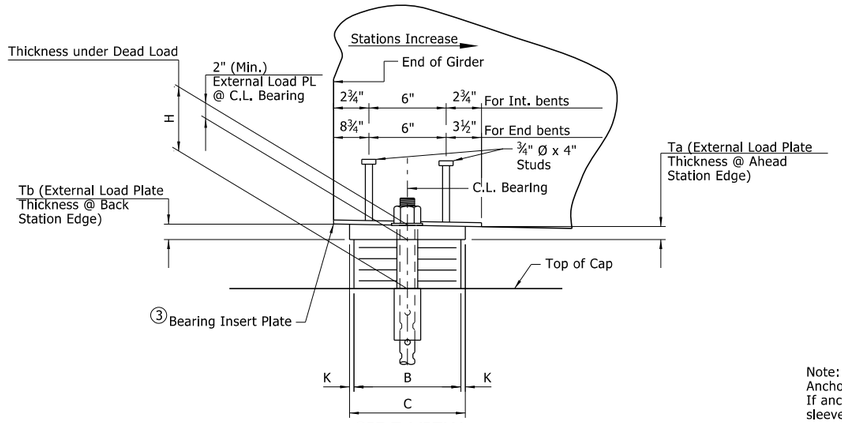


FRONT VIEW

(1) C.L. Elastomeric Pad shall be aligned with C.L. Girder.

The grade and the direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "TABLE OF FABRICATOR VARIABLES".

Prior to erection of the girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.

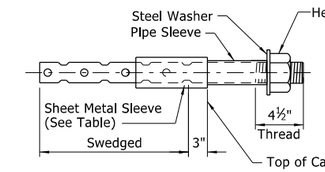


SIDE VIEW

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

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

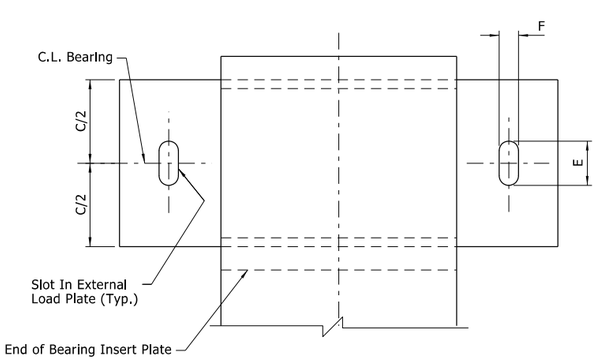
(3) Bearing Insert Plate (ASTM A709, Gr. 50W) & studs shall be considered subsidiary to the Item " PRESTRESSED CONCRETE GIRDERS (TYPE III)". Studs shall conform to Subsection 807.08.



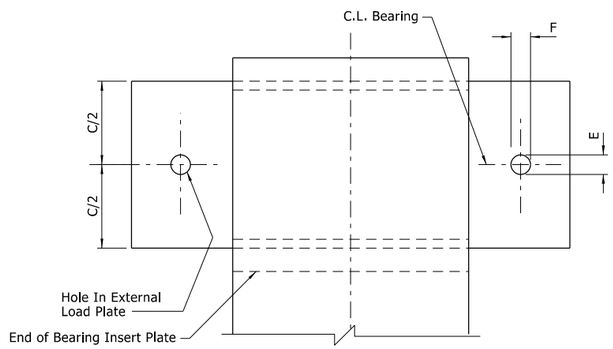
ANCHOR BOLT DETAIL

Note:
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.

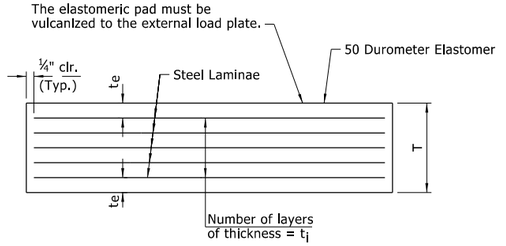
If anchor bolts are to be drilled and grouted in place, the galvanized sheet metal sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the 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 A653, CS Type B or approved equivalent, be a minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "STRUCTURAL STEEL IN BEAM SPANS (ASTM A709, Gr. 50W)."



PLAN VIEW - AT END BENTS



PLAN VIEW - AT INT BENTS



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

ELASTOMERIC BEARING

GENERAL NOTES

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

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

External load plates shall be completely fabricated (including bevel, bolt holes and shop welds) 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 (ASTM A709, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "ELASTOMERIC BEARINGS".

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

TABLE OF FABRICATOR VARIABLES

(4) Maximum Load = LRFD Service I Limit State.

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	MAXIMUM DESIGN (4) LOAD (kips)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	BEAM OR GIRDER NO.				G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Ø x L)	GRADE	PIPE SLEEVE SIZE (Ø x L)	SHEET METAL SLEEVE SIZE (Ø x L)	STEEL WASHER SIZE (O.D.)
07569	1 & 4	1,2,4	Exp.	3	180.0	7¾"	4 7/16"	22"	8"	3	½"	¼"	4 @ 12ga	2 7/16"	9"	34½"	5⅛"	3⅛"	½"	14"	2.00"	2.00"	2" x 30"	55	2½" x 4¾"	4" x 9"	3¾"
	1 & 4	3	Exp.	1	180.0	7¾"	4 7/16"	22"	8"	3	½"	¼"	4 @ 12ga	2 7/16"	9"	34½"	5⅛"	3⅛"	½"	14"	2.08"	2.08"	2" x 30"	55	2½" x 4¾"	4" x 9"	3¾"
	2 & 3	1,2,4	Fix.	6	180.0	7¼"	4 7/16"	22"	8"	3	½"	¼"	4 @ 12ga	2 7/16"	9"	34½"	3⅛"	3⅛"	½"	14"	2.00"	2.00"	2" x 30"	55	2½" x 4¾"	4" x 9"	3¾"
	2 & 3	3	Fix.	2	180.0	7¼"	4 7/16"	22"	8"	3	½"	¼"	4 @ 12ga	2 7/16"	9"	34½"	3⅛"	3⅛"	½"	14"	2.08"	2.08"	2" x 30"	55	2½" x 4¾"	4" x 9"	3¾"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
02-05-2024

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SECTION

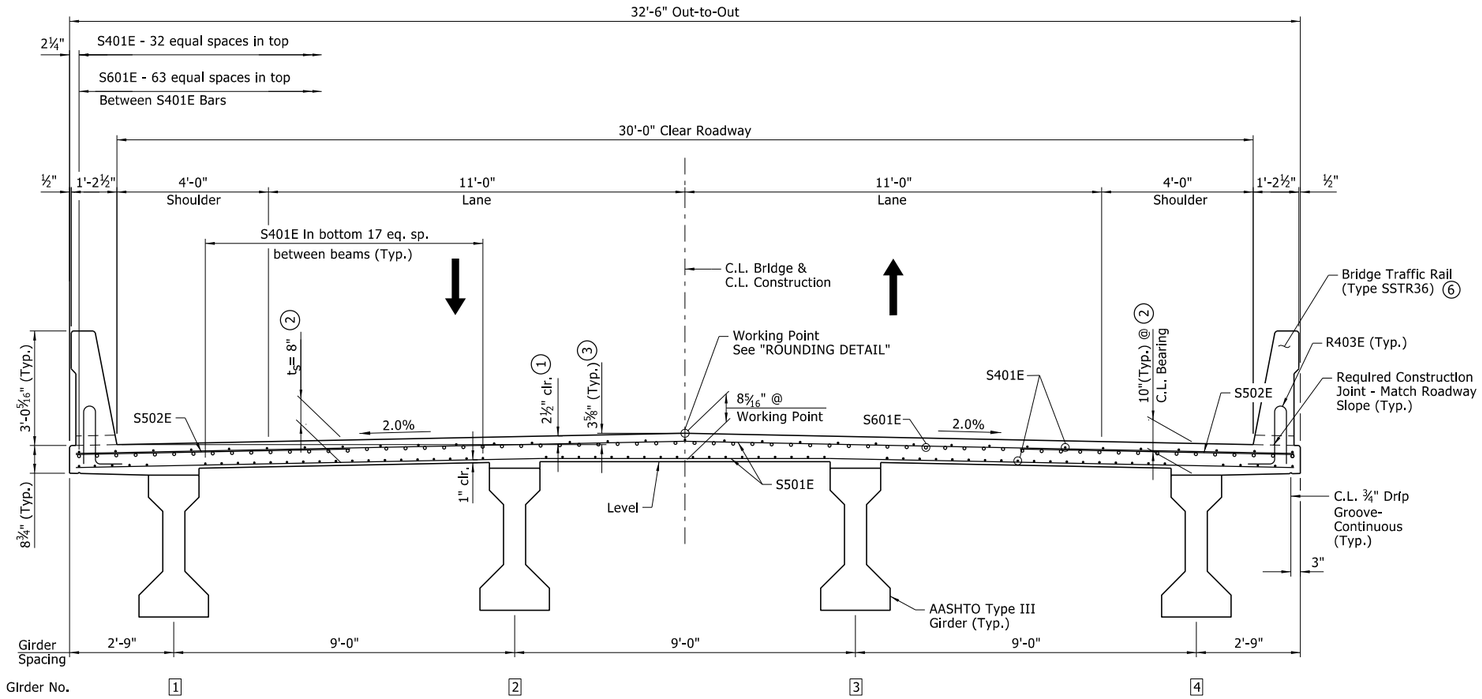
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: SCR DATE: 11/2020 FILENAME: B110715X1_EX1.dgn
CHECKED BY: HSS DATE: 08/2021
DESIGNED BY: SCR DATE: 11/2020 SCALE: No Scale
BRIDGE NO. 07569 DRAWING NO. 64540

Mr.All 2/5/2024 5:22:23 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_EX1.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	73	95
				(1) 07569 - 199'-0" PRESTR. GIRDER UNIT - 64541				



TYPICAL SECTION

(Looking Forward)
½" = 1'-0"

Slab Reinforcing:

Transverse: S501E @ 6" o.c. in top and bottom
S502E @ 6" o.c. under each rail bundled w/ S501E in top @ both gutterlines

Longitudinal: S401E placed as shown in top and bottom
S601E placed as shown over Int. supports

Expansion Device

Roadway Channel: MC18x42.7
Poured Silicone Joint
Detail devices ⅛" high & provide ¼"
Shims using 1 - ⅛" & 2 - 1/16" Plates

For additional joint details,
See Dwg. No. 64547.

Notes:
Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the face and top of concrete rail.

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

(1) Tolerance: Minus = ¼"; Plus = equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

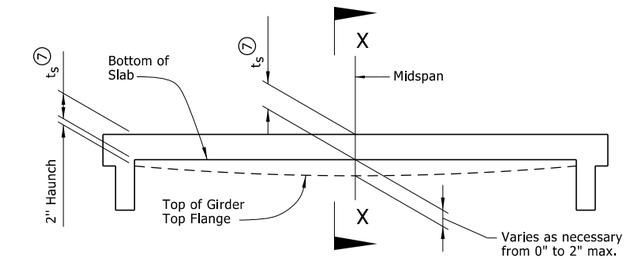
(2) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

(3) Working point to gutterline.

(4) Measured along skew @ C.L. diaphragm at end bents.

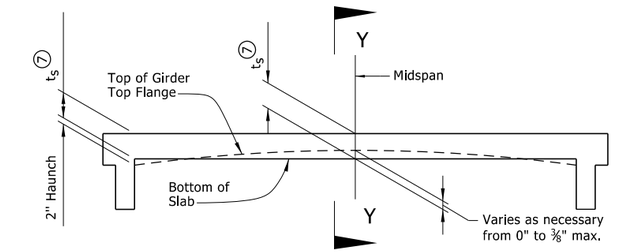
(5) Galvanized threaded Inserts shall be Dayton-Superior F-42 Loop Ferule Inserts or approved equal. ¾" Ø galvanized threaded rods shall be ASTM A709, Gr. 36 or AASHTO M 31 or M322 Type A, Gr. 60. Galvanizing shall be in accordance with AASHTO M 322, Class C or ASTM B695, Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)". See "TYPICAL GIRDER ELEVATION (AASHTO TYPE III)" on Dwg. No. 64545 for number and location.

(6) For "TABLE OF RAIL VARIABLES", See Dwg. No. 64544. For Additional Details, See Std. Dwg. No. 55070.



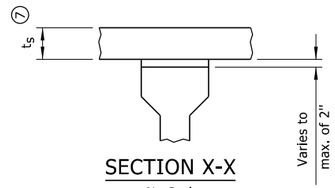
GIRDER ELEVATION

No Scale



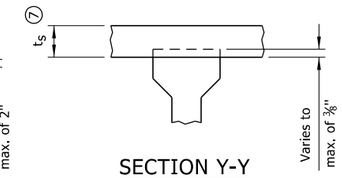
GIRDER ELEVATION

No Scale



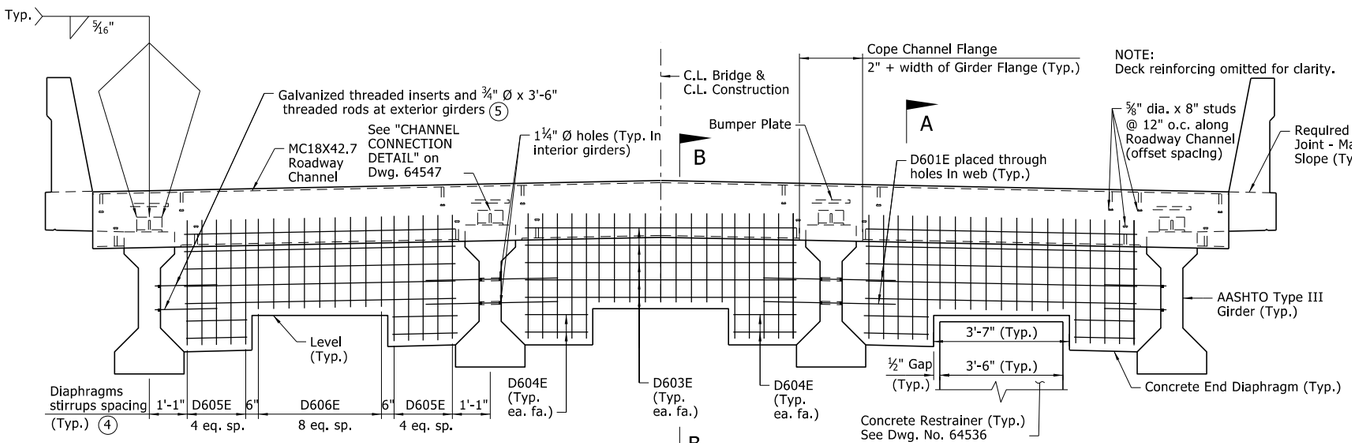
SECTION X-X

No Scale



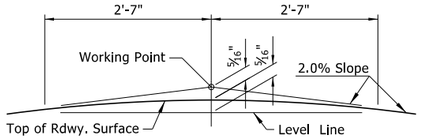
SECTION Y-Y

No Scale



TYPICAL SECTION THRU JOINT

(Shown @ Bent No. 1. Similar @ Bent No. 4.)
(Looking Forward)
½" = 1'-0"
For "SECTION A-A" and 'SECTION B-B", See Dwg. No. 64542.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

t_S = slab thickness. As shown on "TYPICAL SECTION".

(7) Tolerance when removable deck forming is used is +½" , -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

"GIRDER ELEVATION" sketches show the range of acceptability of the top of the girder relative to bottom of slab after the placement of the slab. When the top of the girder projects more than ⅜" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
02-05-2024

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 1 OF 6
DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: SCR DATE: 10/2020 FILENAME: B110715X1_SX1.dgn
CHECKED BY: HSS DATE: 08/2021
DESIGNED BY: SCR DATE: 10/2020 SCALE: As Shown
BRIDGE NO. 07569 DRAWING NO. 64541

Mr.Ali 2/5/2024 5:22:25 PM
WORKSPACE: AROOT
Y:\Projects\AROOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX1.dgn
REVISED DATE:

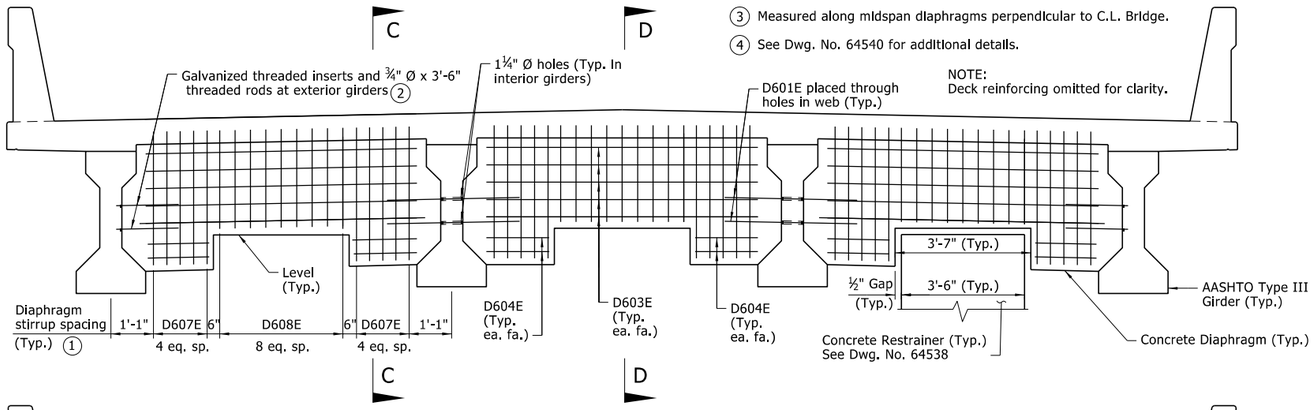
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	74	95
				(1) 07569 - 199'-0" PRESTR. GIRDER UNIT - 64542				

(1) Measured along skew @ C.L. Diaphragm at interior bents

(2) Galvanized threaded inserts shall be Dayton-Superior F-42 Loop Ferule Inserts or approved equal. ¾" Ø galvanized threaded rods shall be ASTM A709, Gr. 36 or AASHTO M 31 or M322 Type A, Gr. 60. Galvanizing shall be in accordance with AASHTO M 322, Class C or ASTM B695, Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)". See "TYPICAL GIRDER ELEVATION (AASHTO TYPE III)" on Dwg. No. 64545 for number and location.

(3) Measured along midspan diaphragms perpendicular to C.L. Bridge.

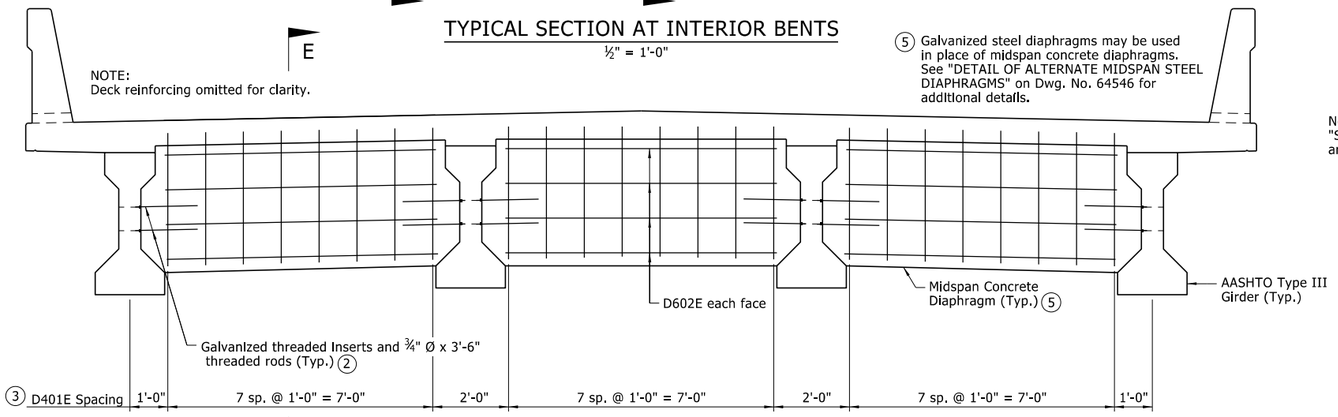
(4) See Dwg. No. 64540 for additional details.



TYPICAL SECTION AT INTERIOR BENTS

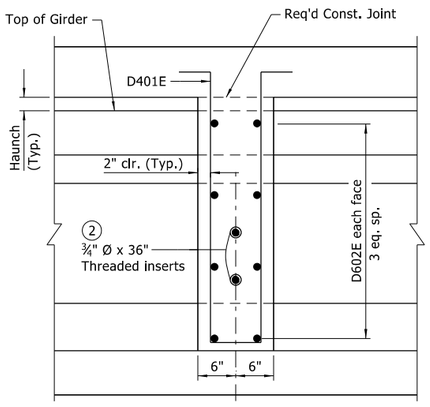
½" = 1'-0"

(5) Galvanized steel diaphragms may be used in place of midspan concrete diaphragms. See "DETAIL OF ALTERNATE MIDSPAN STEEL DIAPHRAGMS" on Dwg. No. 64546 for additional details.



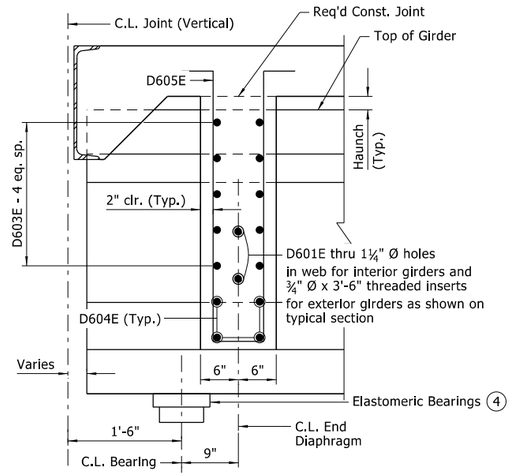
TYPICAL SECTION THRU MIDSPAN DIAPHRAGMS

½" = 1'-0"



SECTION E-E

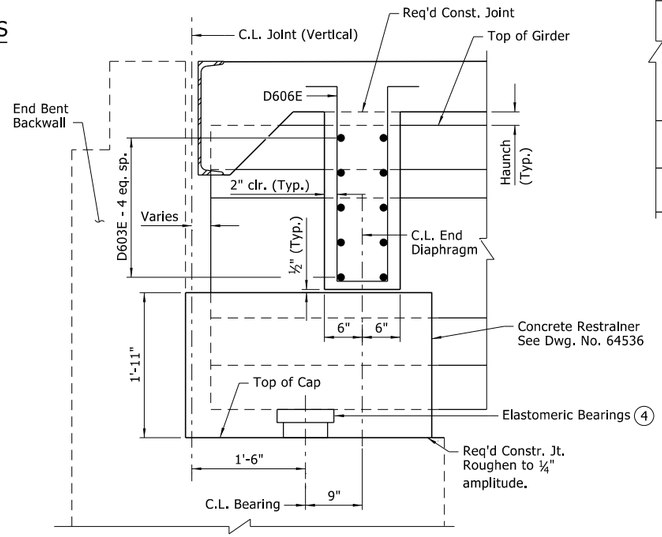
1" = 1'-0"



SECTION A-A

1" = 1'-0"

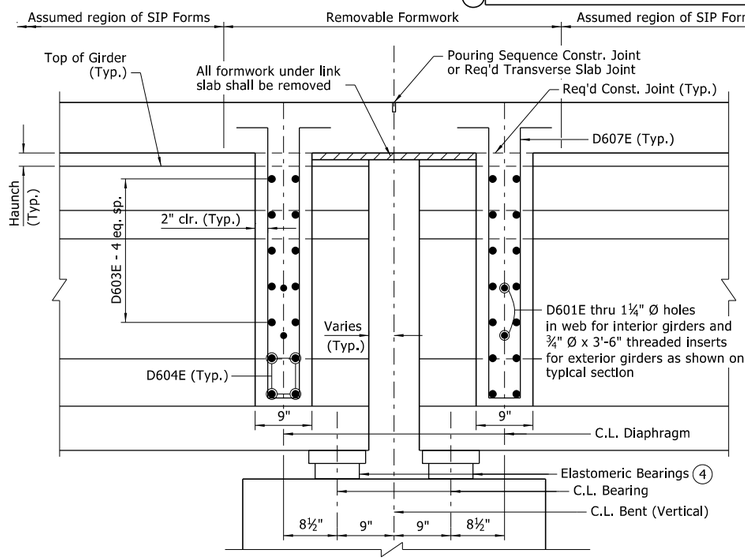
Note: Horizontal dimensions are measured from normal to C.L. Bent.



SECTION B-B

1" = 1'-0"

Note: Horizontal dimensions are measured from normal to C.L. Bent.



SECTION C-C

1" = 1'-0"

Note: "SECTION A-A", "SECTION B-B", "SECTION C-C", "SECTION D-D", "SECTION E-E" are cut normal to Diaphragms.

Note: Horizontal dimensions are measured from normal to C.L. Bent.

SECTION D-D

1" = 1'-0"

Note: Horizontal dimensions are measured from normal to C.L. Bent.

02-05-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 2 OF 6
DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

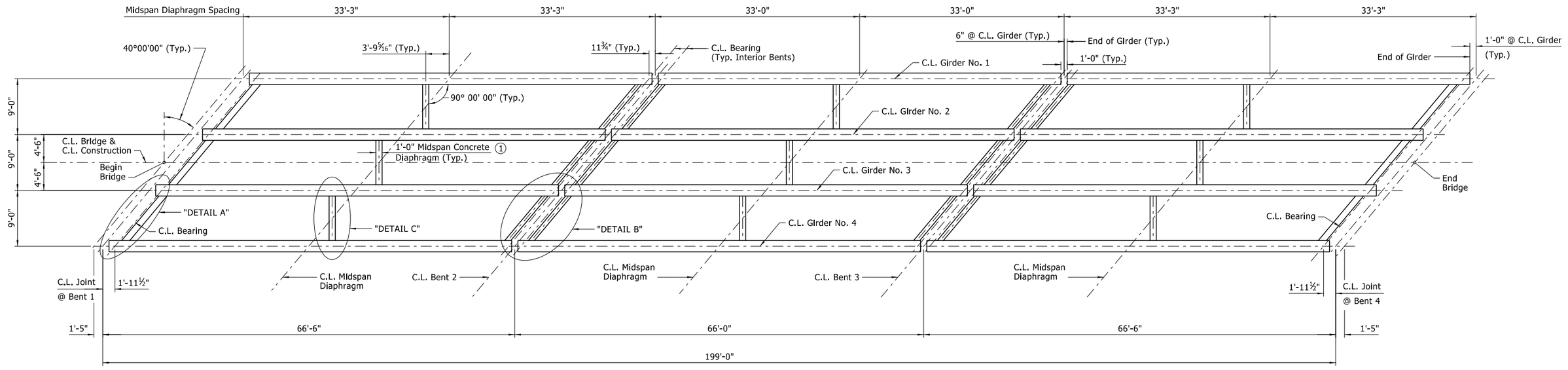
DRAWN BY:	SCR	DATE:	10/2020	FILENAME:	B110715X1_SX2.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	10/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64542

Mfr.All
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022 _110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX2.dgn
2/5/2024 5:22:31 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		110715	75	95

(1) 07569 - 199'-0" PRESTR. GIRDER UNIT - 64543

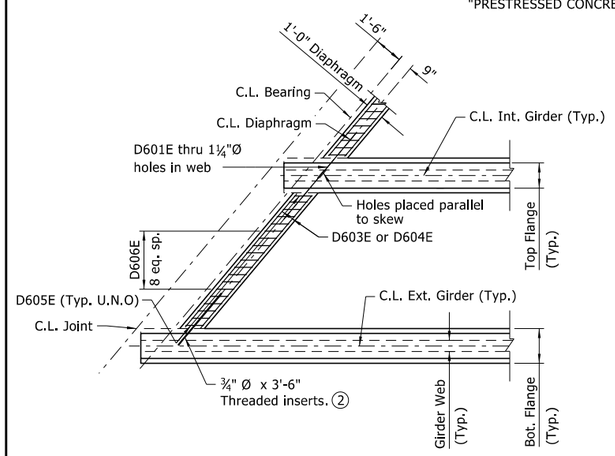


FRAMING PLAN

⅛" = 1'-0"

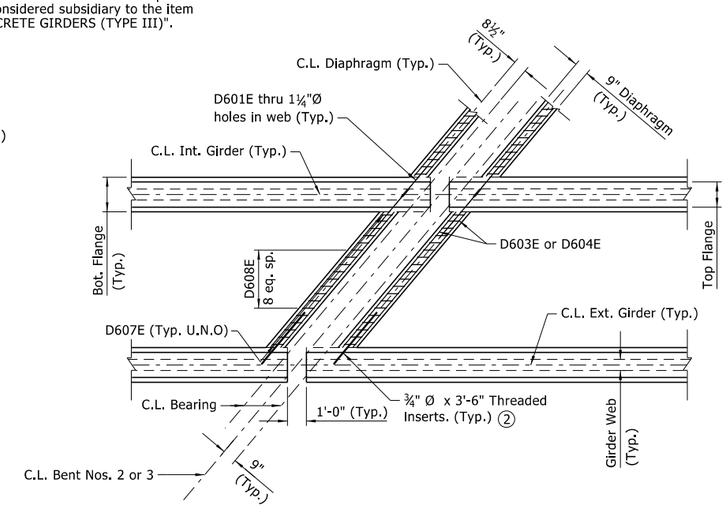
(1) Galvanized steel diaphragms may be used in place of midspan concrete diaphragms. See "DETAIL OF ALTERNATE MIDSPAN STEEL DIAPHRAGMS" on Dwg. No. 64546 for additional details.

(2) Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal. ¾" Φ galvanized threaded rods shall be ASTM A709, Grade 36 or AASHTO M31 or M322 Type A, Gr. 60. Galvanizing shall be in accordance with AASHTO M232, Class C or ASTM B695, Class 50. These items will not be paid for directly but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)".



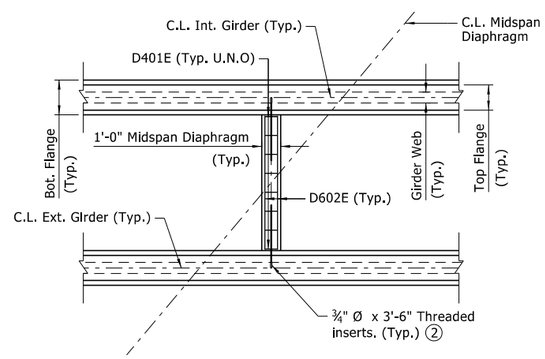
DETAIL A

(Typ. at End Bents)
¼" = 1'-0"



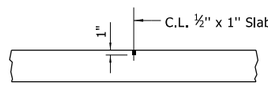
DETAIL B

(Typ. at Interior Bents)
¼" = 1'-0"



DETAIL C

(Typ. at Midspan)
¼" = 1'-0"



Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Baker 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 the open joints at the front face of the rail. Slab joints shall be installed before the 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.

TRANSVERSE SLAB JOINT DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
01-05-2024

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

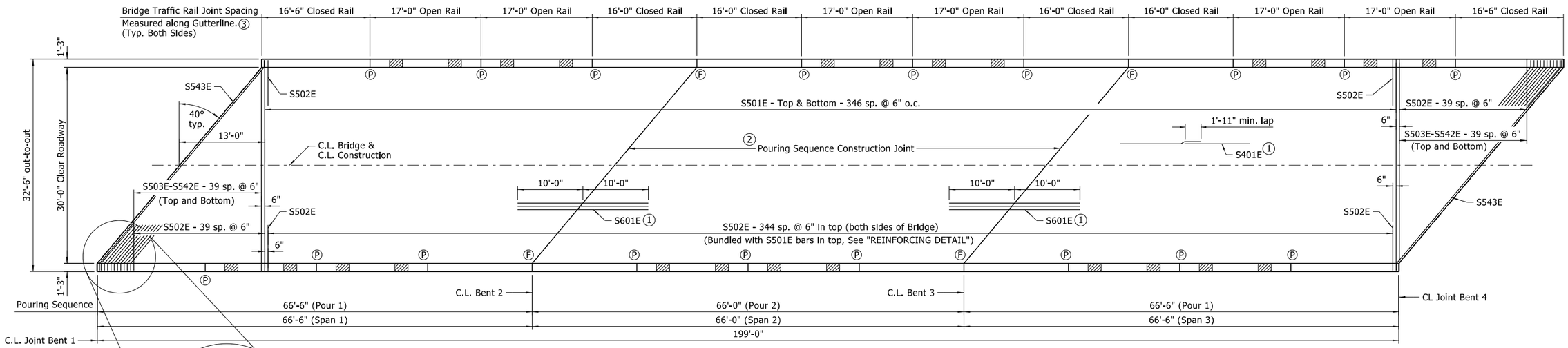
SHEET 3 OF 6
DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT
ROUTE SECTION

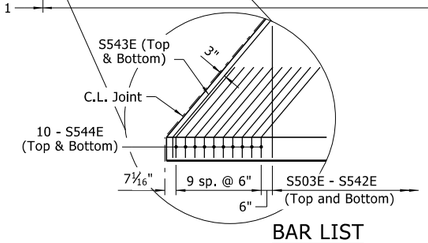
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	10/2020	FILENAME:	B110715X1_SX3.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	10/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64543

Mr.Ali 2/5/2024 5:22:37 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX3.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	76	95
				(1) 07569 - 199'-0" PRESTR. GIRDER UNIT - 64544				





REINFORCING PLAN AND SLAB POURING SEQUENCE

1/8" = 1'-0"

Ⓟ Partial depth Rail joint at this location (Stop 1'-4" above top of slab).

Ⓕ Full depth Rail joint at this location (Stop 6" above top of slab).

① Placed as shown in "TYPICAL SECTION", see Dwg. No. 64541.

② Align with Rail open joint unless noted otherwise.
See Dwg. No. 64543 for "TRANSVERSE SLAB JOINT DETAIL"

③ See "TABLE OF RAIL VARIABLES". For additional details, see Std. Dwg. No. 55070.

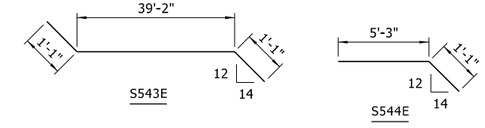
TABLE OF RAIL VARIABLES

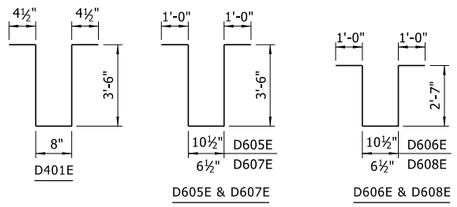
For Additional Details, See Std. Dwg. No. 55070

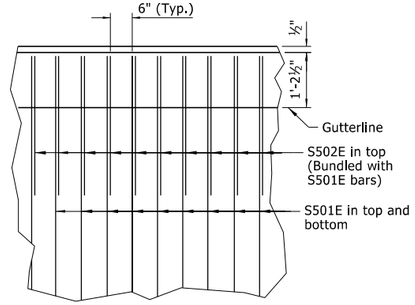
Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
16'-6"	32	R404E	17-0"	9	3'-6"	11	6'-0"	R406E
16'-0"	31	R405E	-	-	-	-	-	-

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
D401E	72	8'-1"	2"	Note: All bars designated with an "E" suffix are to be epoxy coated. Dimensions are out to out of bars.
D601E	24	6'-0"	Str.	
D602E	72	7'-4"	Str.	
D603E	180	10'-1"	Str.	
D604E	144	2'-6"	Str.	
D605E	60	9'-6½"	4½"	
D606E	54	7'-8½"	4½"	
D607E	120	9'-2½"	4½"	
D608E	108	7'-4½"	4½"	
S401E	582	34'-9"	Str.	
S501E	692	32'-2"	Str.	
S502E	774	7'-1"	Str.	
S503E to S542E	4 each	7'-1" to 30'-11"	Str.	
S543E	4	41'-4"	3¾"	
S544E	40	6'-4"	3¾"	
S601E	128	20'-0"	Str.	
R400E	96	5'-3"	2½"	
R401E	700	6'-4"	2½", 3"	
R402E	72	5'-6"	Str.	
R403E	772	3'-6"	3¾", 3"	
R404E	32	16'-2"	Str.	
R405E	64	15'-8"	Str.	
R406E	96	16'-8"	Str.	







REINFORCING DETAIL

No Scale

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

Rail spacing and joint depth shown are typical for both sides of roadway. For reinforcing details, see Std. Dwg. No. 55070.

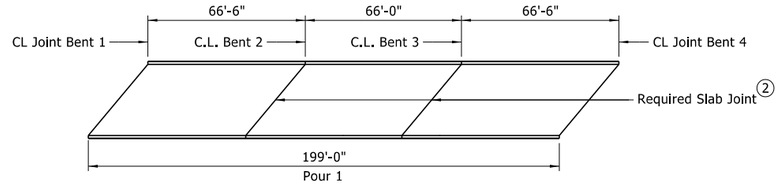
POURING SEQUENCE NOTES:

Pours with the same number may be placed simultaneously or separately. Concrete diaphragms at Bents 1 - 4 shall be poured prior to pouring any slab concrete. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck 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. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

All diaphragms shall be cast in place and poured a minimum of 48 hours before the slab is poured.

The deck and diaphragms shall not be poured prior to 90 days following release of the girder prestressing strands.



ALTERNATE SLAB POURING SEQUENCE

No Scale

ALTERNATE POURING SEQUENCE NOTES:

Concrete diaphragms at Bents 1 - 4 shall be poured prior to pouring any slab concrete. 72 hours shall elapse between the completion of the entire deck 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. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

All diaphragms shall be cast in place and poured a minimum of 48 hours before the slab is poured.

The deck and diaphragms shall not be poured prior to 90 days following release of the girder prestressing strands.

02-05-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 4 OF 6
DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

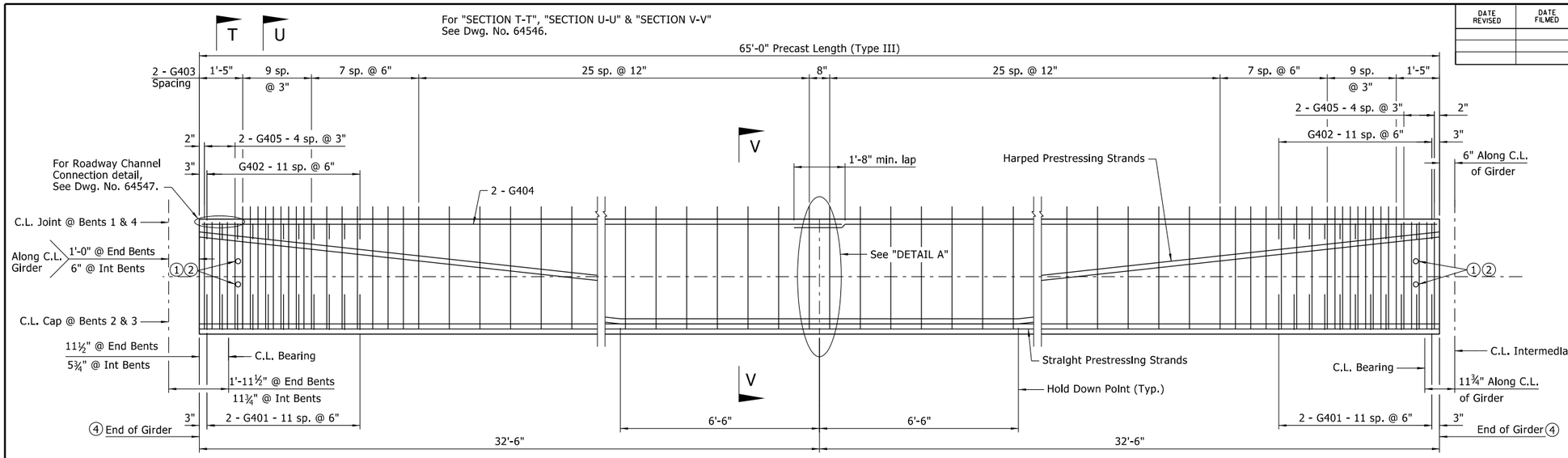
LITTLE ROCK, ARKANSAS

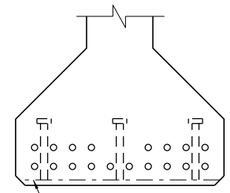
DRAWN BY:	SCR	DATE:	10/2020	FILENAME:	B110715X1_SX4.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	10/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64544

Mr-All 2/5/2024 5:22:38 PM
WORKSPACE: AROOT
Y:\Projects\AROOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX4.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	77	95

(1) 07569 - 199'-0" PRESTR. GIRDER UNIT - 64545





VIEW AT END OF GIRDER

No Scale

TYPICAL GIRDER ELEVATION (AASHTO TYPE III)

Spans 1 or 3 shown, Span 2 similar

½" = 1'-0"

(1) Inserts on inside of exterior girders and 1¼" Ø holes for interior girders. Holes and inserts shown are for concrete diaphragms. See Dwg. Nos. 64541 and 64542 for additional details.

(2) Galvanized threaded inserts shall be Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal (Omit in exterior face of exterior girders.) ¾" Ø galvanized threaded rods shall be ASTM A709, Gr. 36 or AASHTO M 31 OR M 322 Type A, Gr. 60. Galvanizing shall be in accordance with AASHTO M 322, Class C or ASTM B695, Class 50. These items will not paid directly but shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)". For alternate steel diaphragms at midspan diaphragms only, see Dwg. No. 64542.

(3) See "FRAMING PLAN" on Dwg. No. 64543 for more details

(4) Saw cut or grind all strands flush with end of the girder. The ends of the girders and the cut-off strands shall be coated with a 1/16" min. thick coating of a QPL approved epoxy resin.

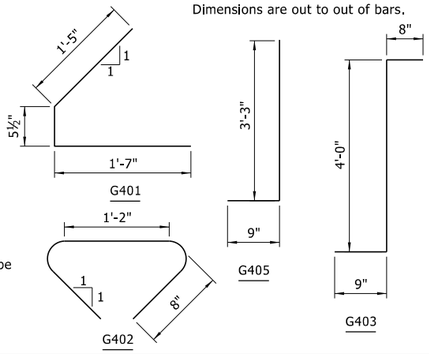
BAR LIST - PER GIRDER			
MARK	NO. REQ'D.	LENGTH	P.D.
G301	(4)	2'-6"	Str.
G401	48	3'-4"	2"
G402	24	2'-9"	3"
G403	168	5'-3"	2"
G404	4	33'-2"	Str.
G405	20	3'-11"	2"

All bars in the Bar List will not be paid for directly, but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)"

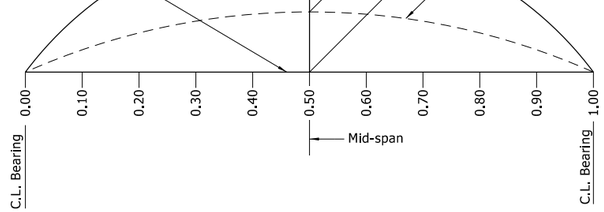
At the Contractor's option, the two G401 bars may be furnished as one bar.

BENDING DIAGRAMS

Dimensions are out to out of bars.



(4) 6 for Ext. Girder
12 for Int. Girder



"W" is expected camber of girder at 90 days after release (prestress + dead load of girder).

"X" is dead load deflection of slab + diaphragms + composite dead load.

CAMBER & DEFLECTIONS (INCHES)

Span Pt.	Interior		Exterior	
	"X"	"W"	"X"	"W"
C.L.Bearing	0.000	0.000	0.000	0.000
0.1	0.216	0.526	0.176	0.529
0.2	0.427	0.941	0.342	0.940
0.3	0.592	1.241	0.474	1.239
0.4	0.697	1.423	0.559	1.423
0.5	0.733	1.483	0.587	1.483

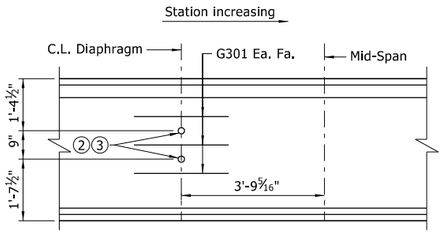
Table is symmetric about mid-span

Note: 'W' & 'X' are based on the required minimum concrete strength and may vary from the dimensions shown. Different strengths may require adjustments. 'W' & 'X' shall be measured along bottom of girders unless otherwise approved by the Engineer. The contractor shall provide the Engineer with the following information:

- Actual 28-day concrete strength of prestressed concrete girders.
- Estimated age of prestressed concrete girders at time of erection which shall not be less than 90 days from release.
- Profile of each girder under its own weight in final position.

Following receipt of the above data, the Engineer will evaluate the dead load and, if necessary, will provide an updated deflection diagram to the contractor.

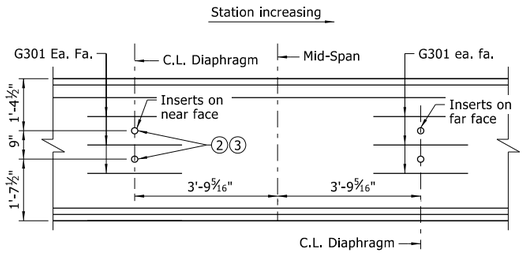
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 64541 for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the slab when camber is less than shown.



DETAIL A (EXTERIOR GIRDERS)

Girder No. 1 shown, Girder No. 4 similar

½" = 1'-0"



DETAIL A (INTERIOR GIRDERS)

½" = 1'-0"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18919 HUSSAM S. SALEEM

02-05-2024

BRIDGE ENGINEER

PRINT DATE: 2/5/2024

SHEET 5 OF 6

DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: SCR DATE: 10/2020 FILENAME: B110715X1_SX5.dgn

CHECKED BY: HSS DATE: 08/2021

DESIGNED BY: SCR DATE: 10/2020 SCALE: As Shown

BRIDGE NO. 07569 DRAWING NO. 64545

Mr.All 5:22:39 PM
WORKSPACE: ARDOT 2/5/2024
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX5.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	78	95
				(1)	07569 - 199'-0" PRESTR. GIRDER UNIT - 64546			

GENERAL NOTES

PRESTRESSED CONCRETE GIRDERS

Pretensioning steel shall be ½" Ø low relaxation strands with a minimum ultimate strength of 270 ksi and shall conform to AASHTO M 203.

Distances from the forms and spacing of the prestressing steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the shop drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in floored pallets and in metal forms. All work and materials shall be as specified in Subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength f'c = 8,000 psi. The initial tensile force applied to each ½" Ø strand shall be 28,917 lbs. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete has reached f'ci = 6,000 psi.

Dimensions shown are to the center of the strands, unless noted otherwise.

The Contractor shall submit the method and sequence for the release of strands to the Engineer for approval prior to casting of the girders.

Holes and inserts shall be cast into the girders. Field drilling of holes shall not be permitted.

The first 16" along the tops of the girders at both ends shall have smooth surface. The tops of the remaining length of the girders shall be rough floated at approximately the time of set. This portion of the tops of girders shall be scrubbed transversely with a coarse wire brush to remove all laitance and to produce a roughened surface with an amplitude of ¼" for bonding the slab.

After detensioning, saw cut, grind or bend up strands as designated by the plans. Heat-cutting or bending methods shall not be done within 6" of the girder.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to the collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

Girder lengths shown on the design plans are net lengths measured horizontally along the girder centerline. The girder manufacturer shall make the necessary allowances for grade and shortening due to elastic shortening, creep, and shrinkage.

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

The Contractor may submit alternate strand patterns with design calculations for review and approval in accordance with Subsection 802.22.

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

CONCRETE

All concrete in slab, railing, and diaphragms 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. All diaphragms shall be cast in place and cured a minimum of 48 hours before the slab is poured. Removable forms shall be used when pouring diaphragms. The slab and diaphragms shall not be poured prior to 90 days following release of the prestressing strands.

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 Std. Dwg. No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

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. 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 the railings. Any railing pours made before the entire slab has been placed and cured must be approved by the engineer.

REINFORCING STEEL

All reinforcing steel shall be Grade 60 conforming to AASHTO M31 or M322, 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)".

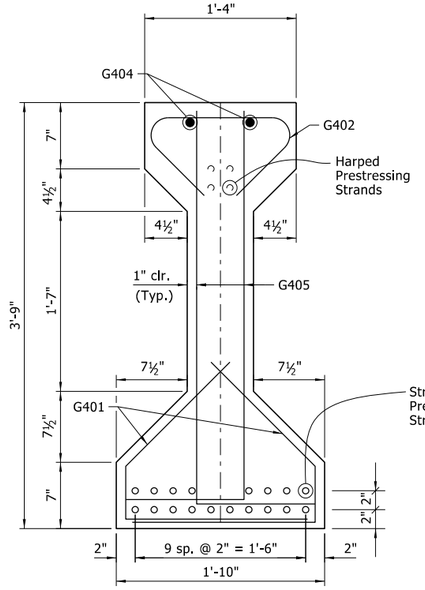
STRUCTURAL STEEL

Structural steel shall be ASTM A709 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(b) unless noted otherwise. Structural steel completely embedded in concrete may be ASTM A709, 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.

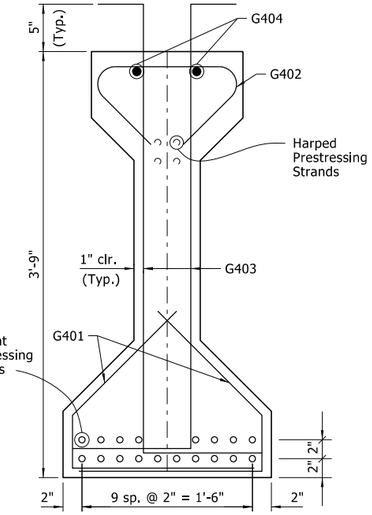
Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and 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.



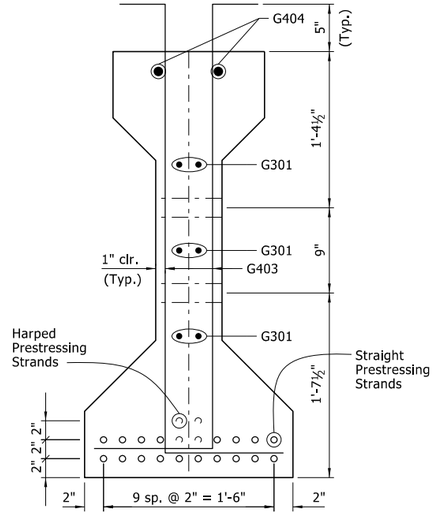
SECTION T-T

¾" = 1'-0"



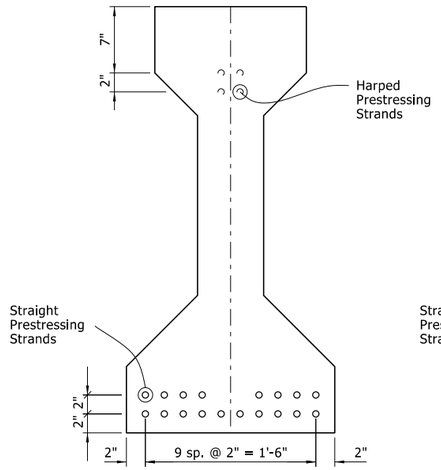
SECTION U-U

¾" = 1'-0"



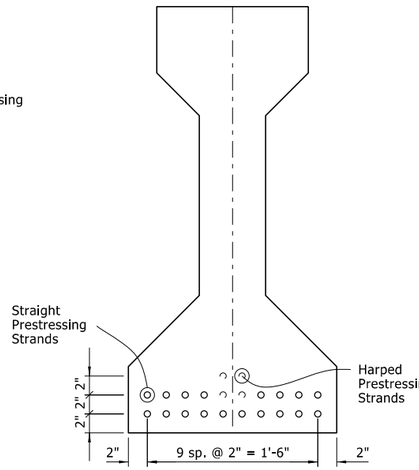
SECTION V-V

¾" = 1'-0"



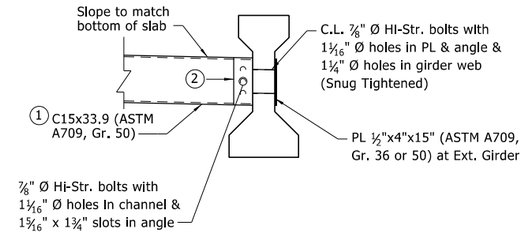
STRAND PATTERN AT END OF GIRDER

¾" = 1'-0"



STRAND PATTERN AT MIDSPAN

¾" = 1'-0"



DETAIL OF ALTERNATE MIDSPAN STEEL DIAPHRAGMS

½" = 1'-0"

(1) Galvanized steel diaphragms may be used in place of concrete diaphragms at midspan diaphragm locations only. All components of the alternate steel diaphragms shall be galvanized. Galvanizing shall be in accordance with AASHTO Mill. If alternate midspan steel diaphragms are used, camber and deflection values shown on Dwg. No. 64545 may require revision by the Engineer. Payment will be based on midspan concrete diaphragms.

(2) L6" x 4" x ½" x 15" (center angle on web of girder). A standard washer shall be supplied for use under both the nut and the head of the ⅞" Ø Hi-Str. bolts. An additional plate washer shall cover the angle slots.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
02-05-2024

BRIDGE ENGINEER
PRINT DATE: 2/5/2024

SHEET 6 OF 6
DETAILS OF 199'-0" PRESTRESSED CONCRETE GIRDER UNIT
ROUTE SECTION

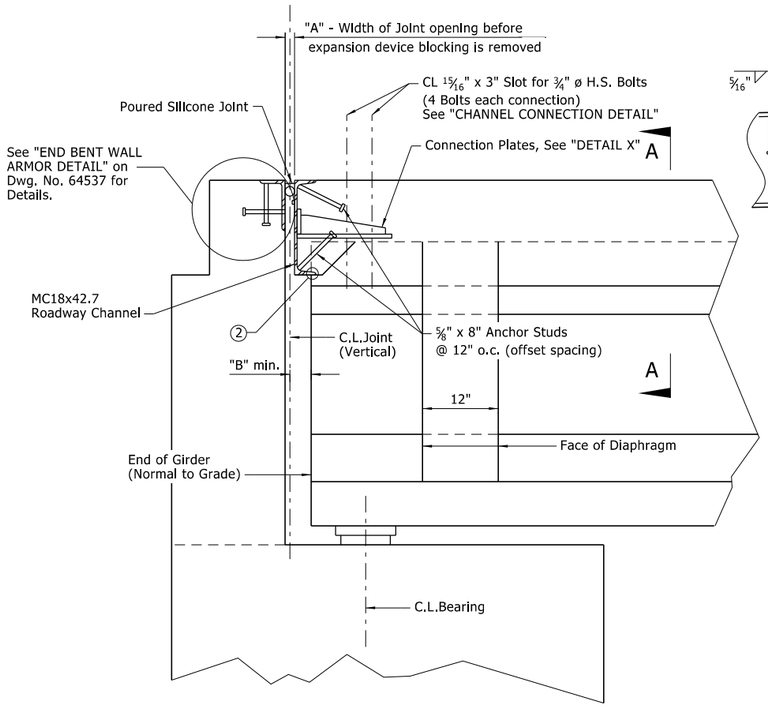
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	SCR	DATE:	10/2020	FILENAME:	B110715X1_SX6.dgn
CHECKED BY:	HSS	DATE:	08/2021		
DESIGNED BY:	SCR	DATE:	10/2020	SCALE:	As Shown
BRIDGE NO.	07569			DRAWING NO.	64546

MicroStation
2/5/2024 5:22:40 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_SX6.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	79	95

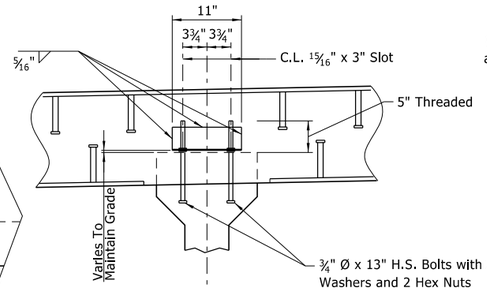
(1) 07569 - POURED SILICONE JOINTS - 64547



SECTION THRU JOINT AT END BENTS

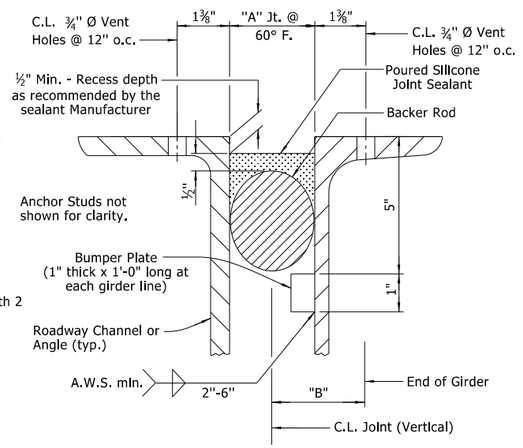
Notes: Section is taken perpendicular to C.L. Joint.

(2) Cope bottom flange of Roadway Channel at each girder. See "TYPICAL SECTION THRU JOINT" on Dwg. No. 64541 for more information.



SECTION A-A

Note: Bolts, washers, and hex nuts shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE III)".



DETAIL OF POURED SILICONE JOINT

Notes: Concrete shall be hand packed under the joint armor. Section is taken perpendicular to C.L. Joint.

TABLE OF SILICONE JOINT DATA

Bridge Location	Bent Nos.	(1) "A" Width Perpendicular To Joint at 24 Hour Average Temperature Of :			"B" Perpendicular To Joint @ 60°F
		40°F	60°F	80°F	
Hwy 78	1 & 4	2⅛"	2"	1⅞"	2"

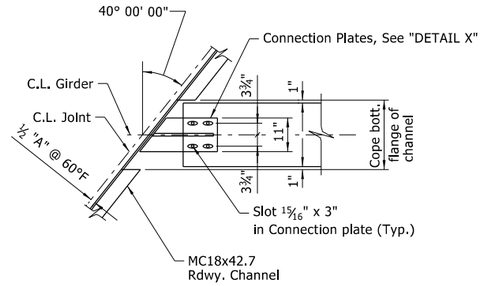
(1) The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

NOTES:
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° F and 80° F.

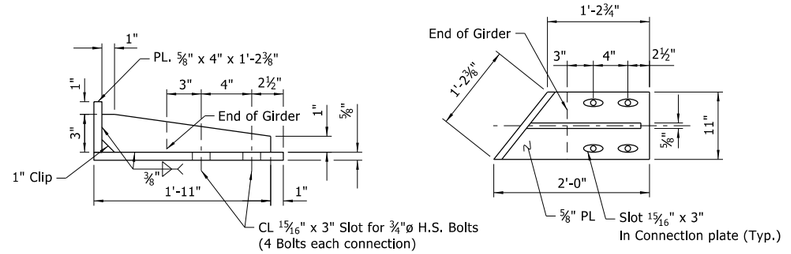
Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

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

All exposed structural steel shall conform to ASTM A709, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural steel embedded in concrete shall conform to ASTM A709, Grade 36, 50 or 50W steel. Structural steel completely embedded in concrete need not to be painted. Structural steel shall be paid as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)" unless otherwise noted.



CHANNEL CONNECTION DETAIL



ELEVATION VIEW
Along C.L. Girder

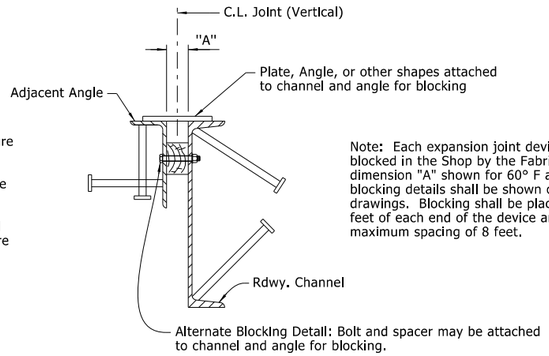
PLAN VIEW

EXPANSION DEVICE INSTALLATION

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

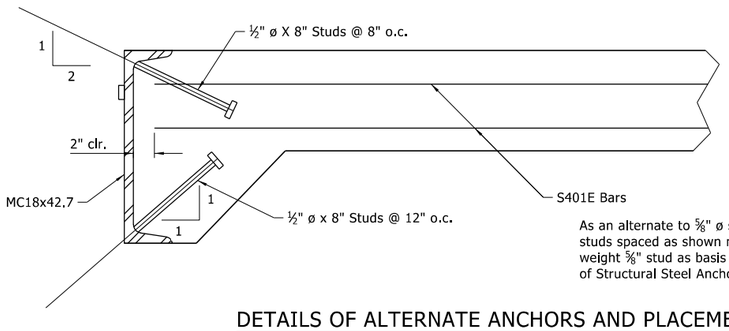
1. The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing 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 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.



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.

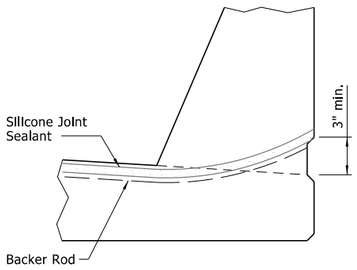
DETAILS FOR BLOCKING EXPANSION JOINT DEVICE



As an alternate to ⅝" ø studs, ½" ø x 8" studs spaced as shown may be used. Use weight ⅝" stud as basis of measurement of Structural Steel Anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

DETAIL X



JOINT SEAL PLACEMENT AT RAIL

02-05-2024
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
BRIDGE ENGINEER
PRINT DATE: 2/5/2024

DETAILS OF POURED SILICONE JOINTS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

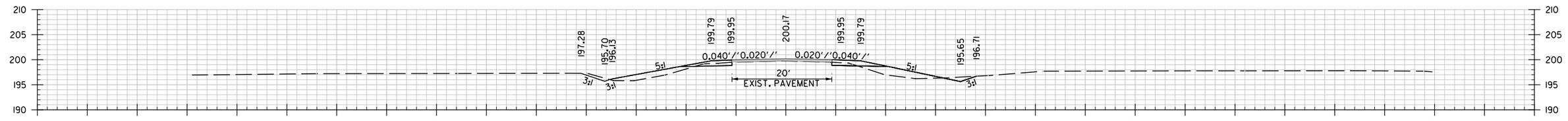
DRAWN BY: SCR DATE: 10/2020 FILENAME: B110715X1_J1.dgn
CHECKED BY: HSS DATE: 08/2021
DESIGNED BY: SCR DATE: 10/2020 SCALE: No Scale
BRIDGE NO. 07569 DRAWING NO. 64547

MicAll 2/5/2024 5:22:41 PM
WORKSPACE: AROOT
Y:\Projects\AROOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\BRIDGE\Drawings\B110715X1_J1.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	80	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2

STAGE 2 STAGE 1

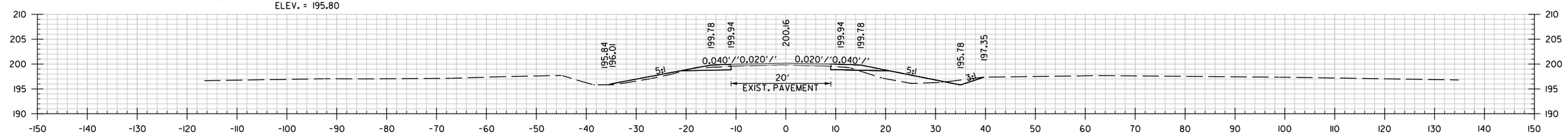


CUT AREA 5 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 18 SQ. FT. FILL AREA 15 SQ. FT.

86+00.00

STA. 85+60
BEGIN SP. DITCH LT. -0.25'/'
ELEV. = 195.80

CUT VOLUME 11 CU. YD. CUT VOLUME 12 CU. YD.
FILL VOLUME 21 CU. YD. FILL VOLUME 38 CU. YD.

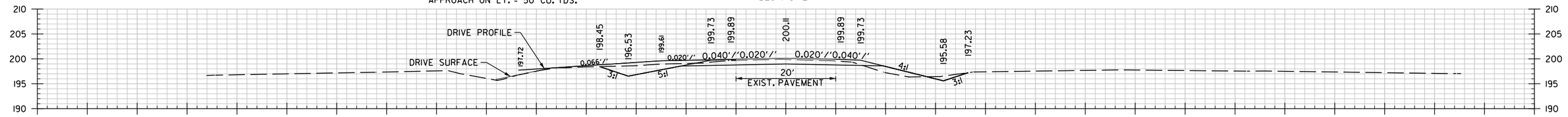


CUT AREA 7 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 19 SQ. FT. FILL AREA 5 SQ. FT.

85+44.24
END 100' TRANSITION
BEGIN JOB 110715
BEGIN SITE 1

CUT VOLUME 16 CU. YD. CUT VOLUME 25 CU. YD.
FILL VOLUME 28 CU. YD. FILL VOLUME 18 CU. YD.

STA. 85+10.00 CONSTRUCT
APPROACH ON LT. = 50 CU. YDS.

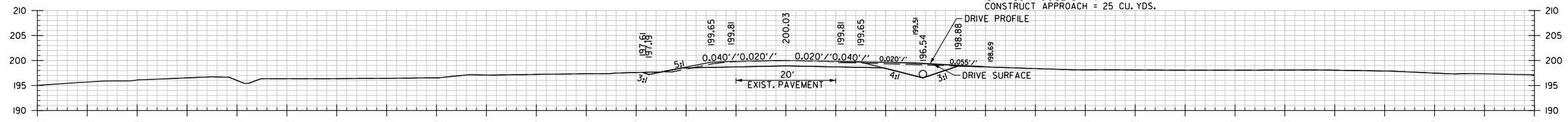


CUT AREA 32 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 10 SQ. FT. FILL AREA 39 SQ. FT.

85+10.00

STA. 84+69.00 IN PLACE
18" X 30' C. M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

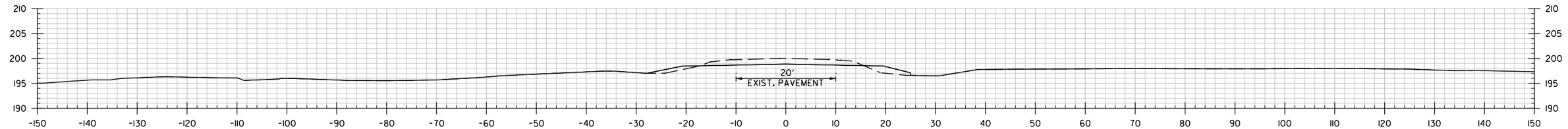
CUT VOLUME 15 CU. YD. CUT VOLUME 68 CU. YD.
FILL VOLUME 59 CU. YD. FILL VOLUME 9 CU. YD.



CUT AREA 58 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 2 SQ. FT. FILL AREA 39 SQ. FT.

84+69.00

CUT VOLUME 0 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 18 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 32 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 14 SQ. FT. FILL AREA 0 SQ. FT.

84+44.24
BEGIN 100' TRANSITION

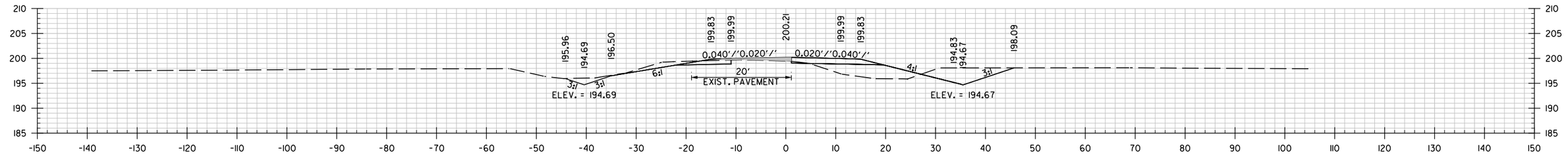
CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

SITE 1 STA. 84+44 TO STA. 86+00

Scott.Thornsberg@5/5/2024 11:05:22 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDAT$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	81	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 35 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 40 SQ. FT. FILL AREA 0 SQ. FT.

90+00.00

CUT VOLUME 81 CU. YD. CUT VOLUME 76 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 85 CU. YD.

STA. 89+38.00 INSTALL
18" X 28' LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YDS.

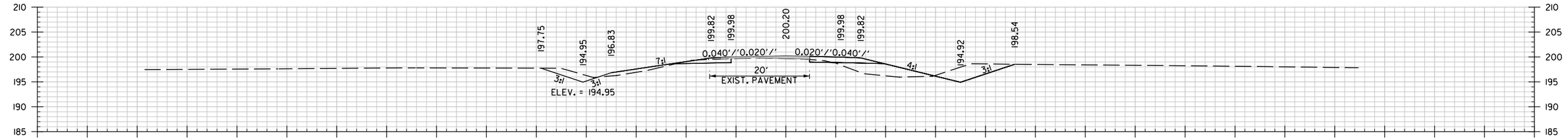


CUT AREA 31 SQ. FT. CUT AREA 49 SQ. FT.
FILL AREA 34 SQ. FT. FILL AREA 0 SQ. FT.

89+38.00

CUT VOLUME 47 CU. YD. CUT VOLUME 42 CU. YD.
FILL VOLUME 5 CU. YD. FILL VOLUME 44 CU. YD.

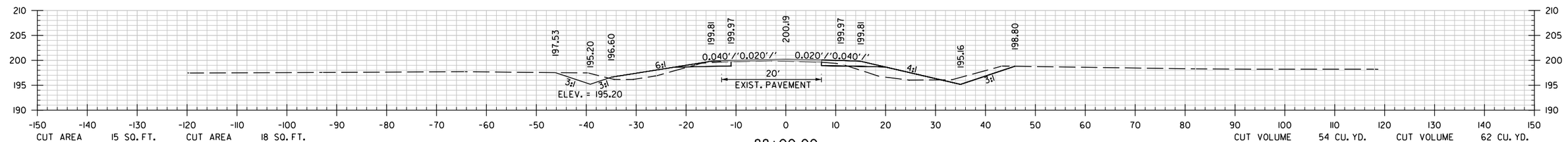
STA. 89+40.00
BEGIN SP. DITCH RT. -0.25%
ELEV. = 194.82



CUT AREA 29 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 29 SQ. FT. FILL AREA 8 SQ. FT.

89+00.00

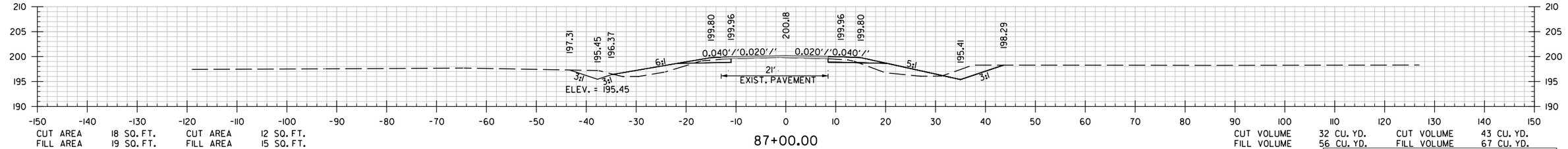
CUT VOLUME 65 CU. YD. CUT VOLUME 83 CU. YD.
FILL VOLUME 39 CU. YD. FILL VOLUME 95 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 22 SQ. FT. FILL AREA 13 SQ. FT.

88+00.00

CUT VOLUME 54 CU. YD. CUT VOLUME 62 CU. YD.
FILL VOLUME 53 CU. YD. FILL VOLUME 75 CU. YD.



CUT AREA 18 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 19 SQ. FT. FILL AREA 15 SQ. FT.

87+00.00

CUT VOLUME 32 CU. YD. CUT VOLUME 43 CU. YD.
FILL VOLUME 56 CU. YD. FILL VOLUME 67 CU. YD.

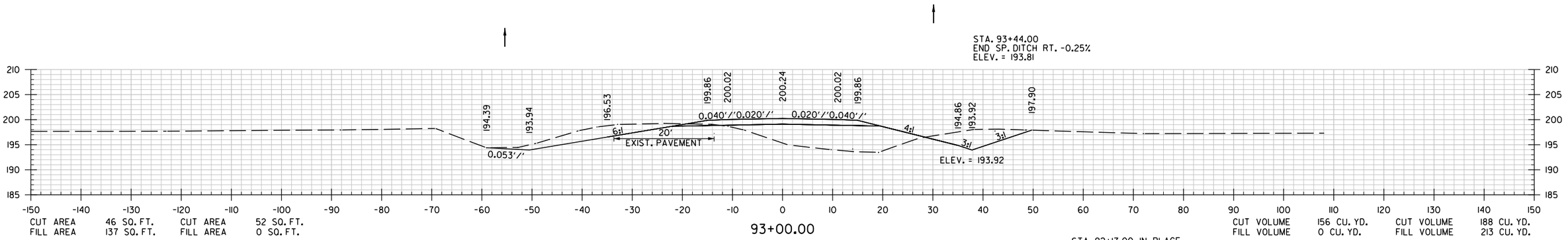
SITE I STA. 87+00 TO STA. 90+00

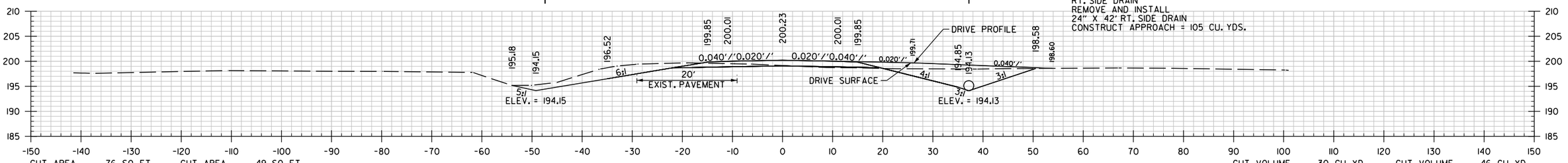
Scott.Thornsberry 5/5/2024 11:05:23 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

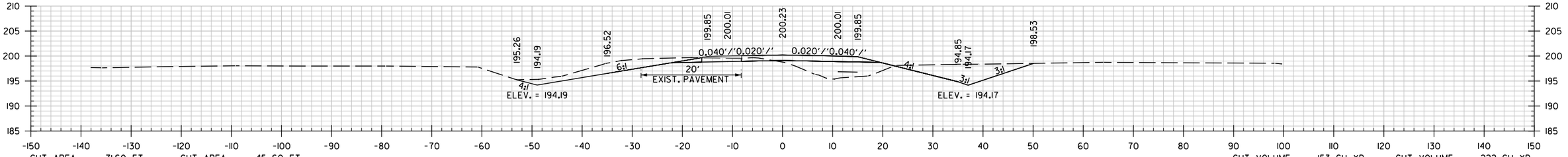
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	82	95
				(2)	CROSS SECTIONS			

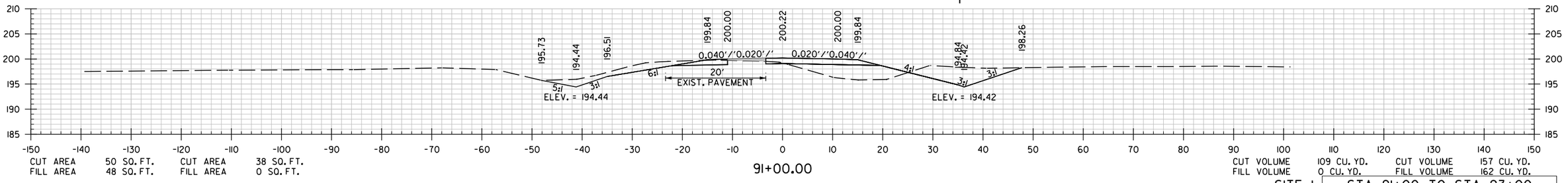
STAGE 1 STAGE 2

STAGE 2 STAGE 1







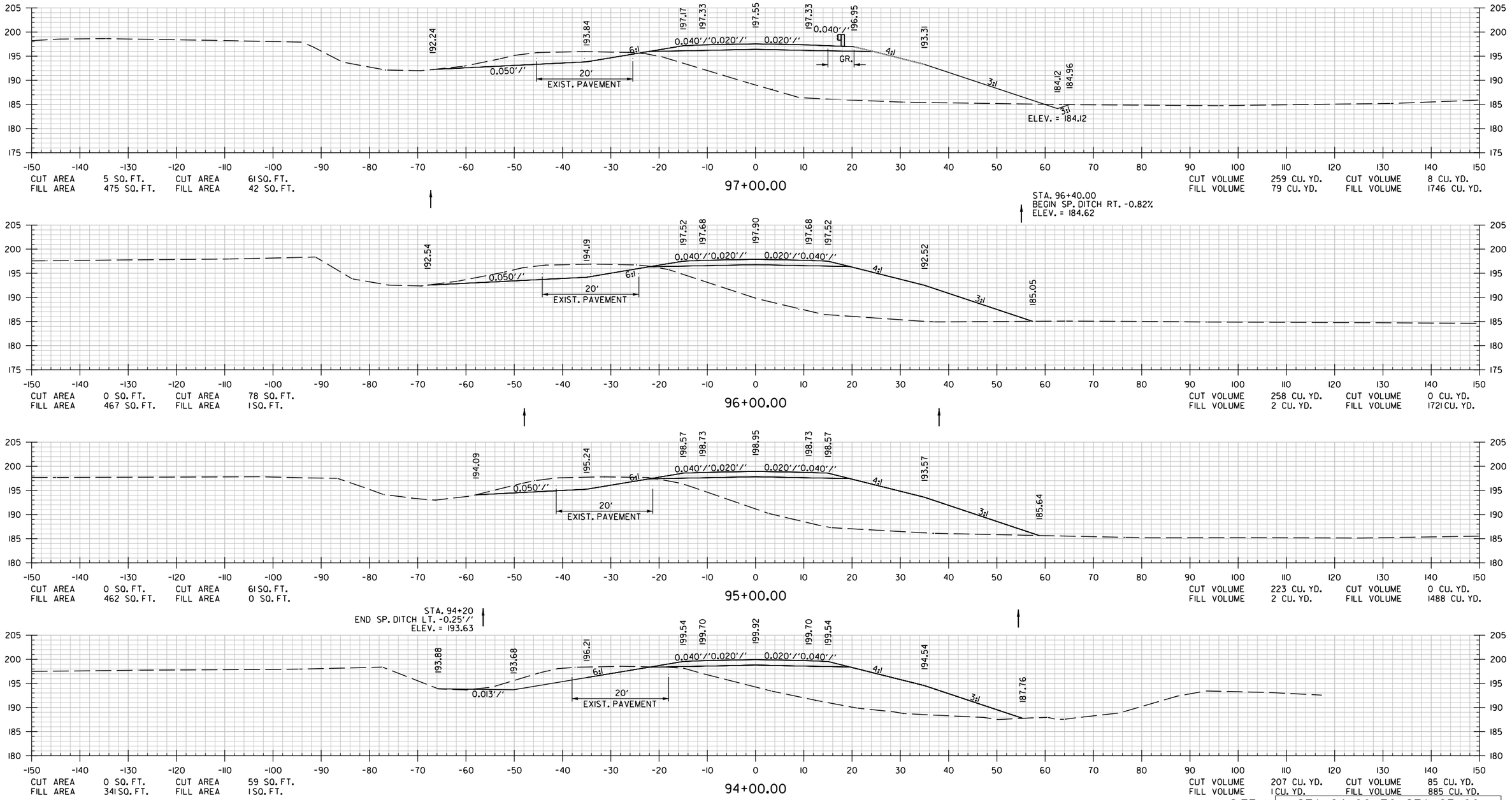


SITE I STA. 91+00 TO STA. 93+00

Scott.Thornsberry 5/5/2024 11:05:23 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	83	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 STAGE 2 STAGE 1

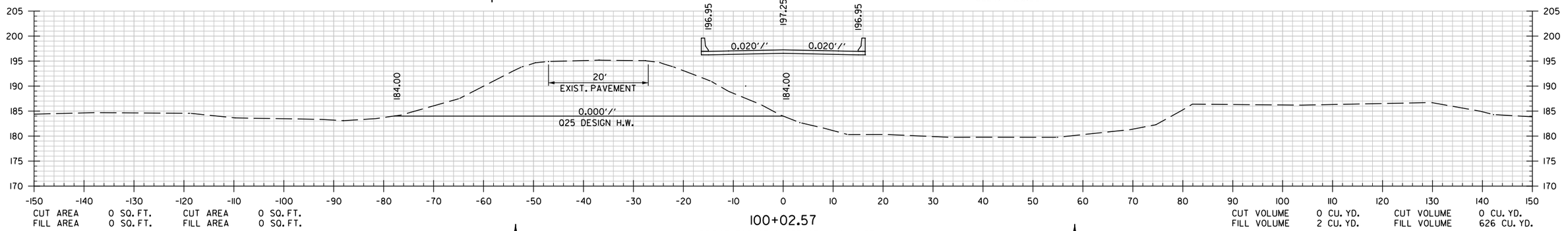


SITE 1 STA. 94+00 TO STA. 97+00

Scott.Thornsberry 5/5/2024 11:05:24 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	84	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2



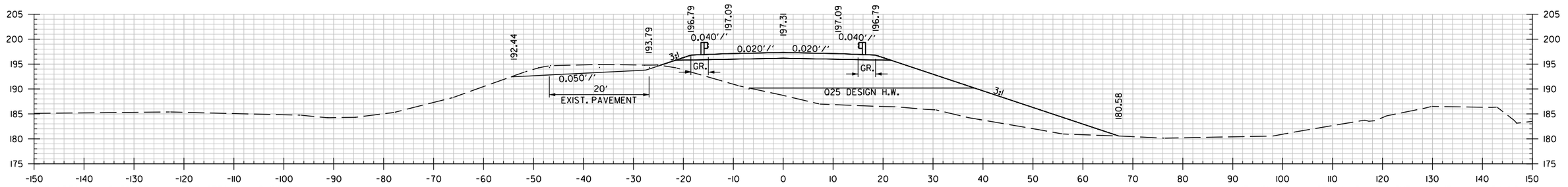
STA. 100+16.00
BEGIN SP. DITCH RT. 0.25%
ELEV. = 182.90

STAGE 2 STAGE 1

CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 2 CU. YD. FILL VOLUME 626 CU. YD.

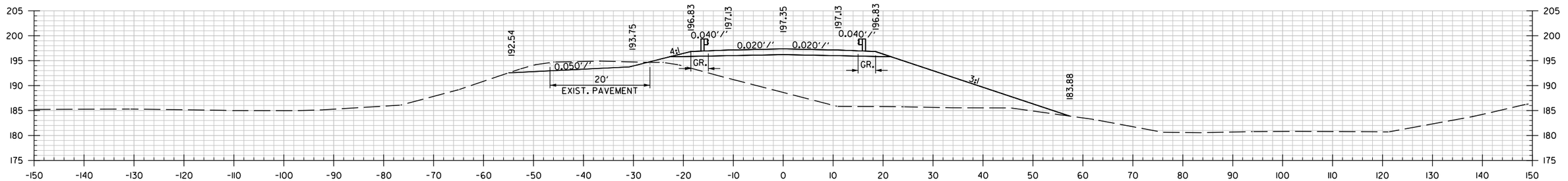
100+02.57
BRIDGE TOE OF SLOPE STA. 100+02.57



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 520 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 23 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 4 CU. YD. FILL VOLUME 688 CU. YD.

99+37.08
BRIDGE END

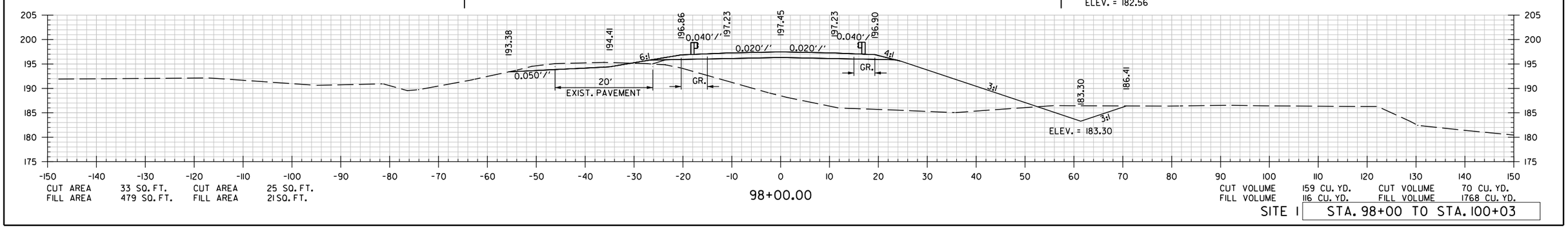


CUT AREA 0 SQ. FT. CUT AREA 33 SQ. FT.
FILL AREA 468 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 108 CU. YD. CUT VOLUME 61 CU. YD.
FILL VOLUME 45 CU. YD. FILL VOLUME 1754 CU. YD.

99+00.00

STA. 98+90.00
END SP. DITCH RT. -0.82%
ELEV. = 182.56



CUT AREA 33 SQ. FT. CUT AREA 25 SQ. FT.
FILL AREA 479 SQ. FT. FILL AREA 21SQ. FT.

CUT VOLUME 159 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 116 CU. YD. FILL VOLUME 1768 CU. YD.

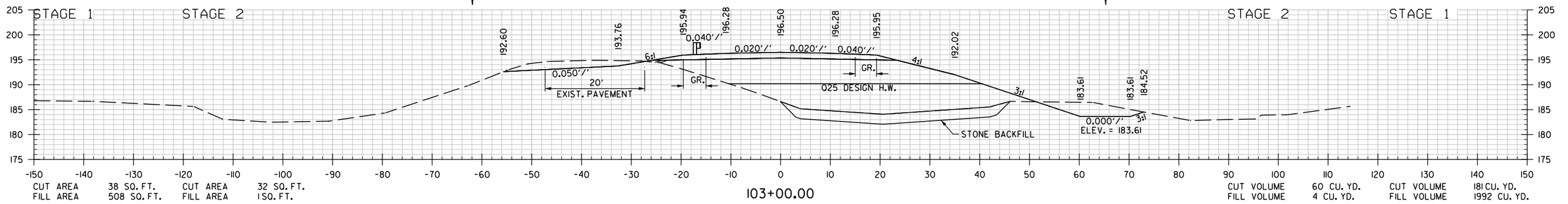
98+00.00

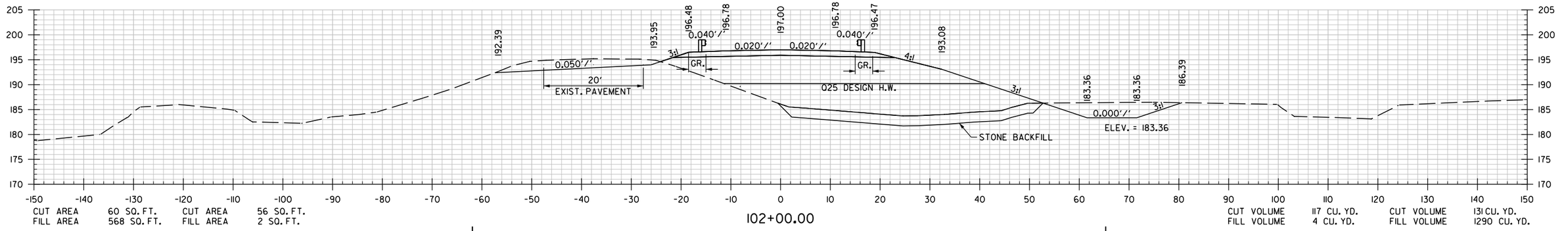
SITE 1 | STA. 98+00 TO STA. 100+03

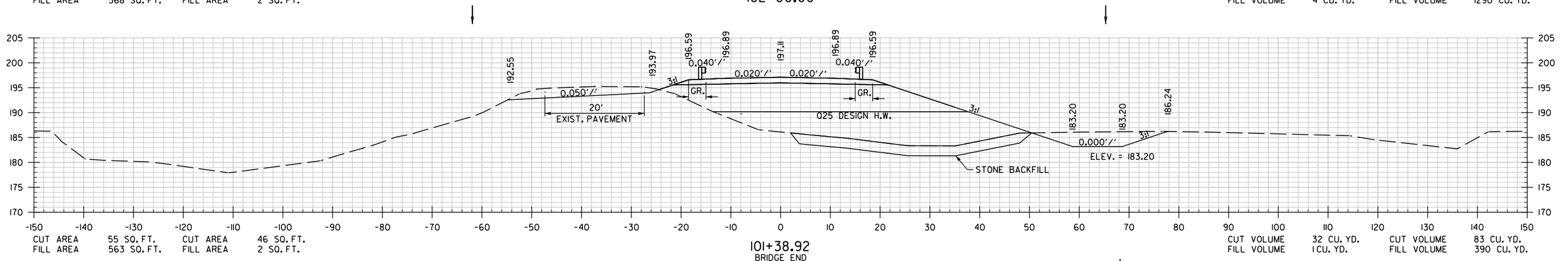
Scott.Thornsberry5/2024 11:05:24 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

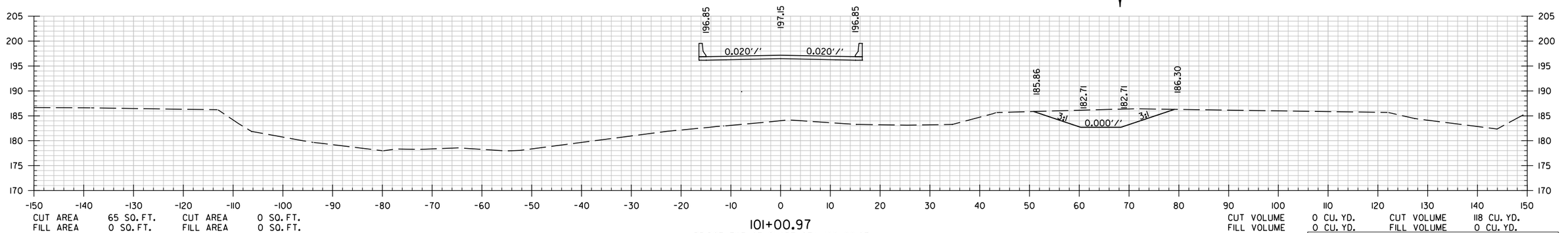
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	85	95

(2) CROSS SECTIONS









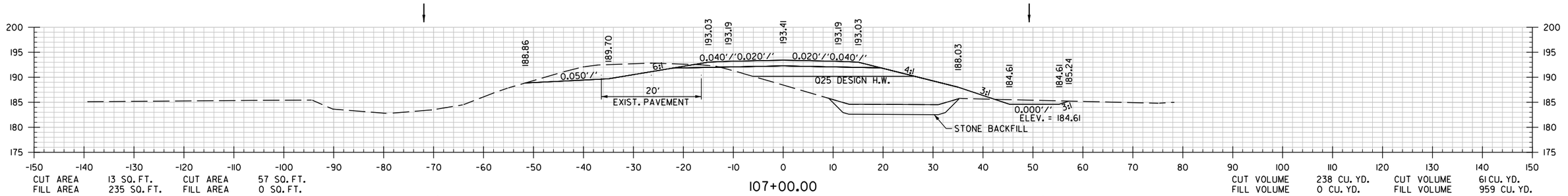
SITE 1 STA. 101+01 TO STA. 103+00

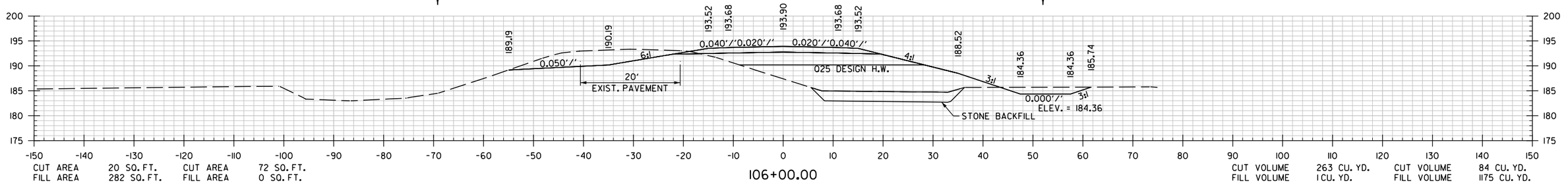
Scott.Thornsberg@5/2024 11:05:25 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

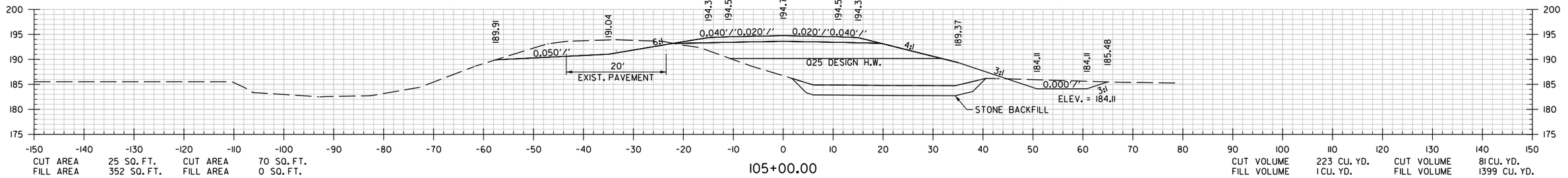
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	86	95
				(2)	CROSS SECTIONS			

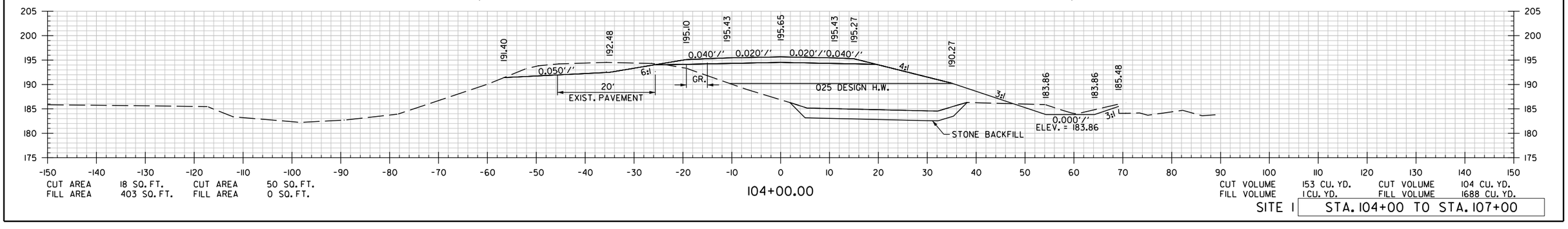
STAGE 1 STAGE 2

STAGE 2 STAGE 1









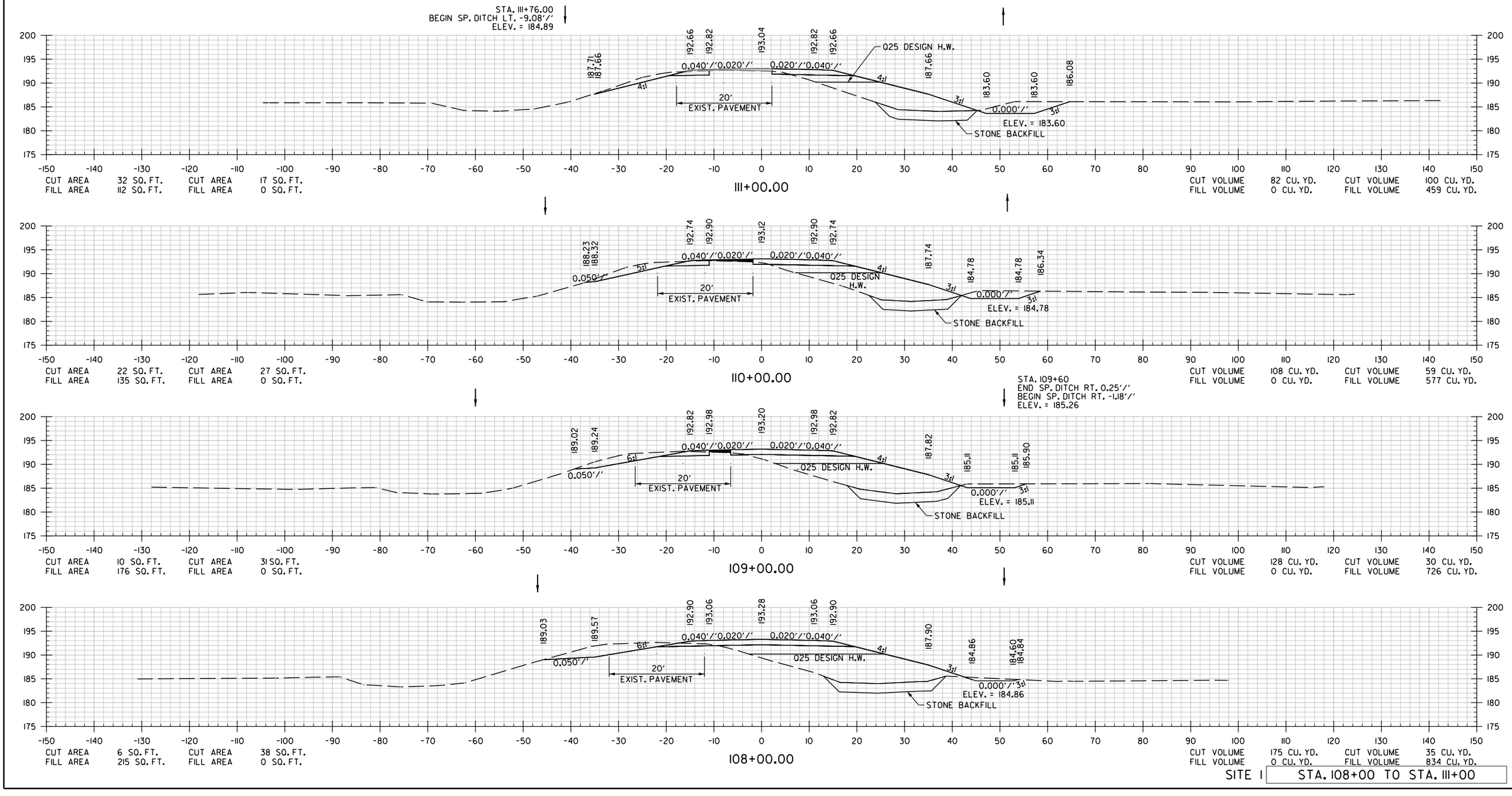
SITE 1 | STA. 104+00 TO STA. 107+00

Scott.Thornsberg 9/5/2024 11:05:25 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_ITS022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	87	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2

STAGE 2 STAGE 1

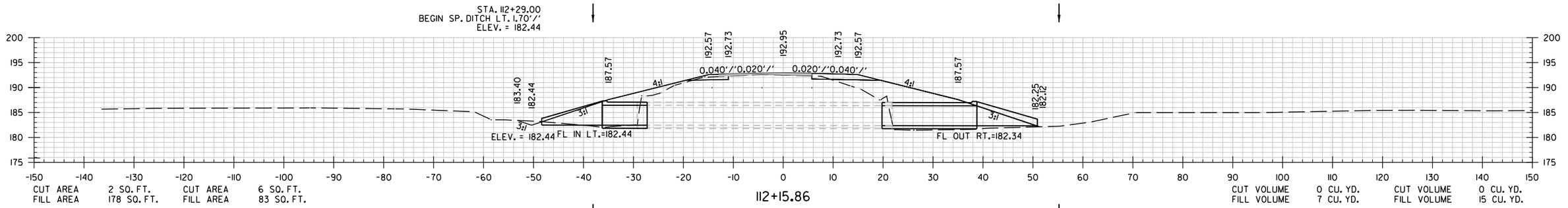


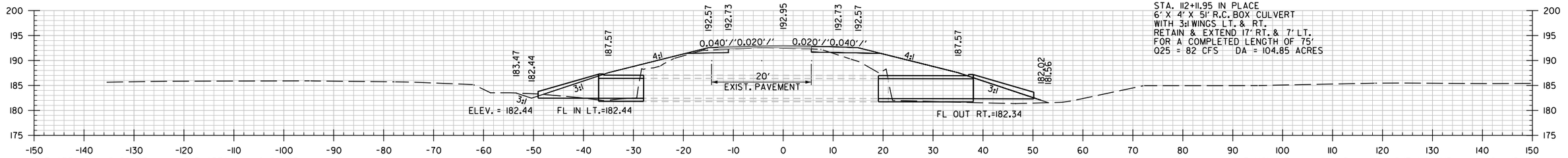
SITE I STA. 108+00 TO STA. 111+00

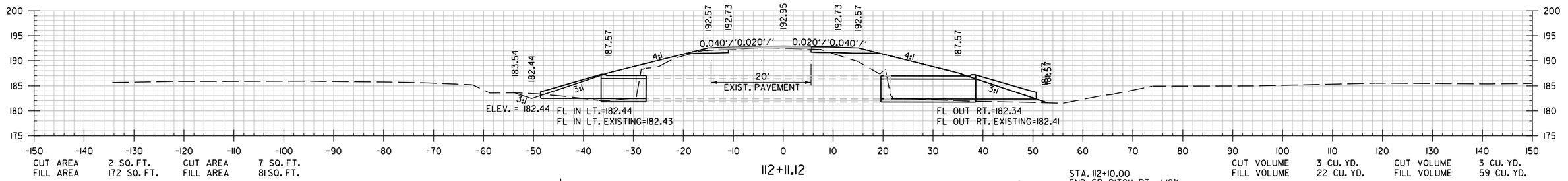
Scott.Thornsberry 5/5/2024 11:05:26 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_17022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_2L_CX_001.dgn
REVISED DATE: $$REVDATE$$

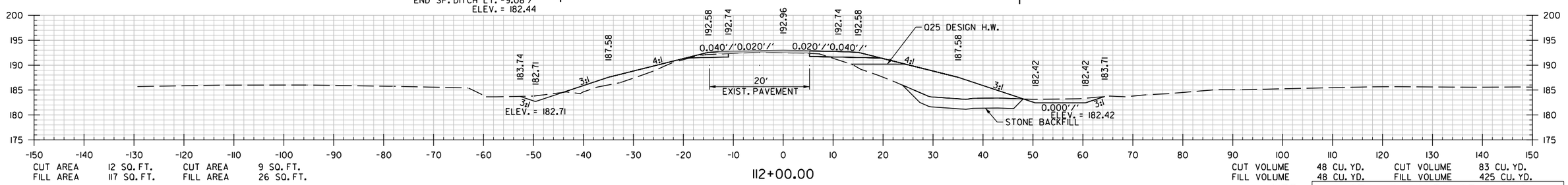
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	88	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 STAGE 2 STAGE 1





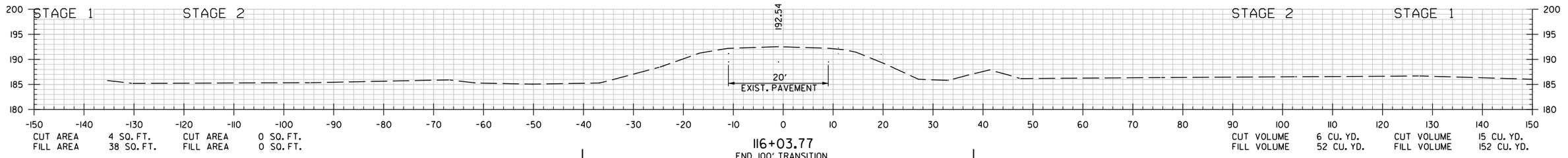




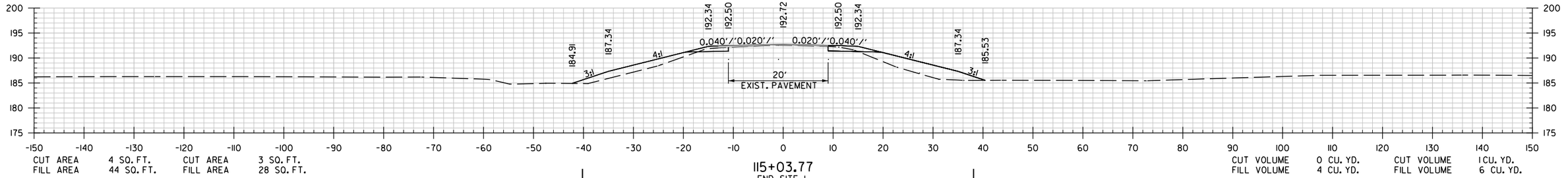
SITE I STA. 112+00 TO STA. 112+16

Scott.Thornsberry 5/2024 11:05:27 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

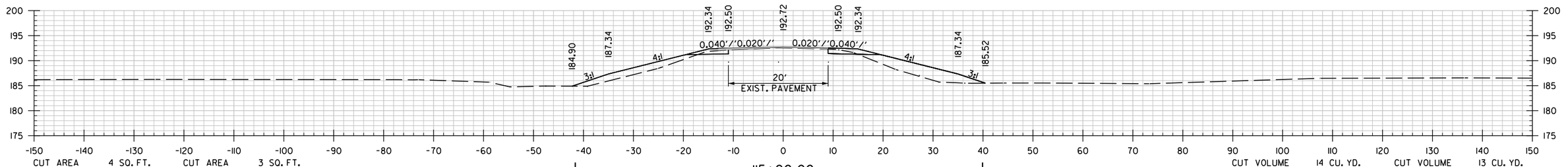
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	89	95
				(2)	CROSS SECTIONS			



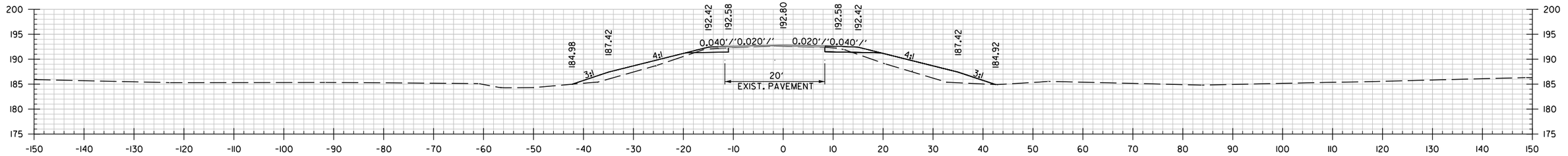
116+03.77
END 100' TRANSITION



115+03.77
END SITE 1
BEGIN 100' TRANSITION

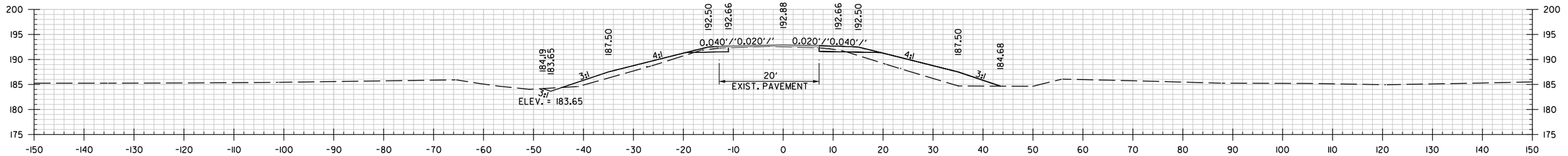


115+00.00



114+00.00

STA. 113+59.00
END SP. DITCH LT. 1.70'/'
ELEV. = 184.65

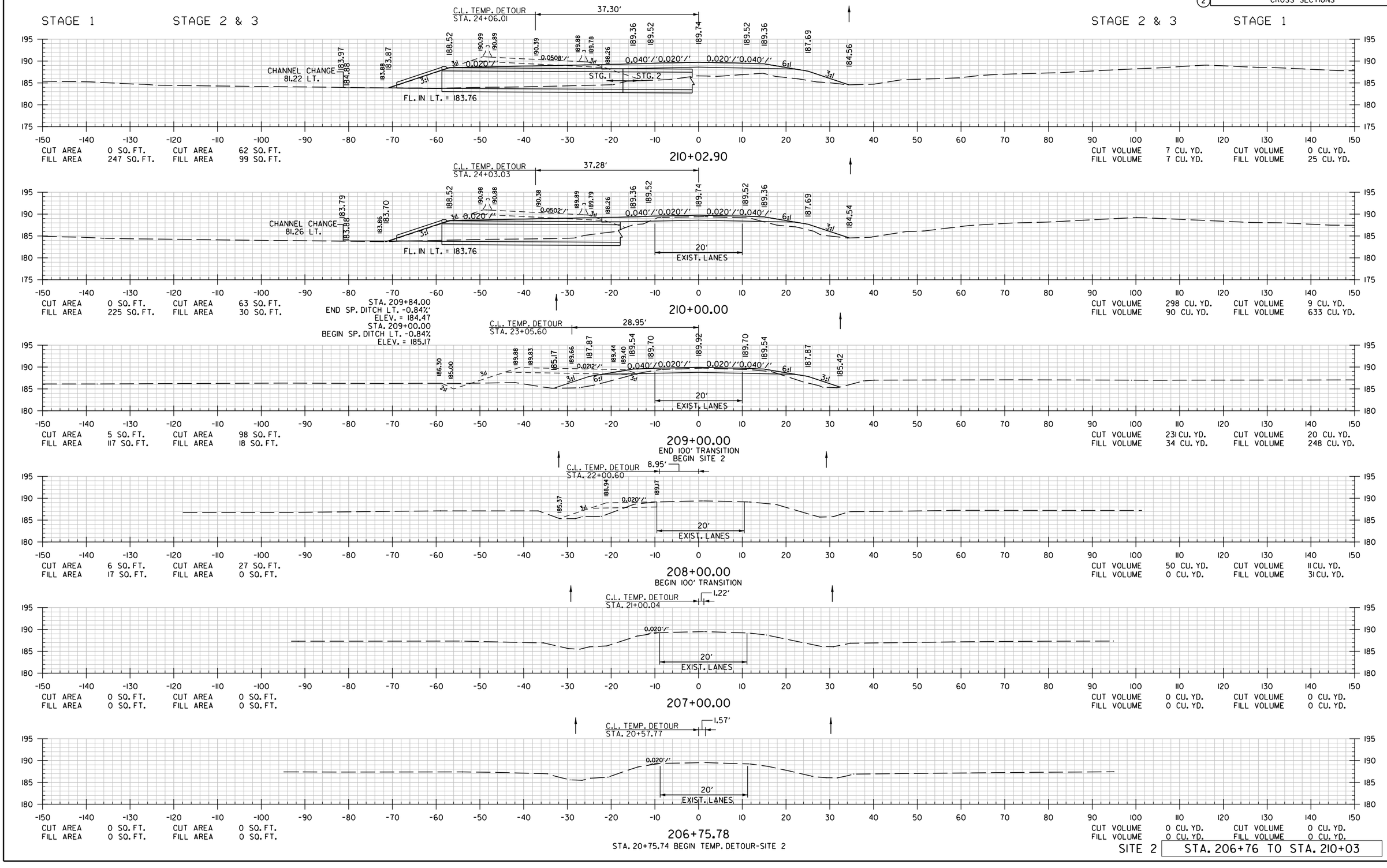


113+00.00

SITE 1 | STA. 113+00 TO STA. 116+04

Scott.Thornsberry 5/5/2024 11:05:27 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	90	95
				(2)	CROSS SECTIONS			

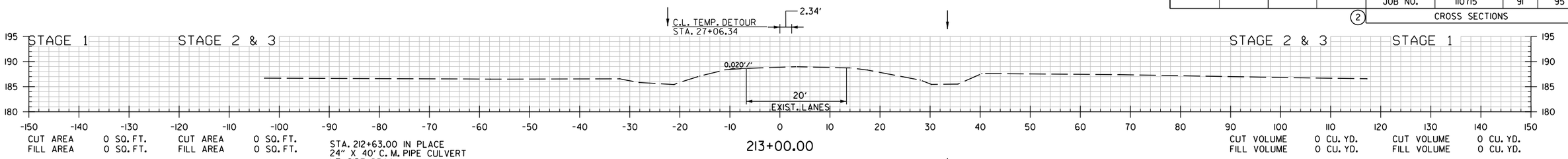


SITE 2 | STA. 206+76 TO STA. 210+03

Scott.Thornsberry 5/2024 11:05:28 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	91	95

(2) CROSS SECTIONS

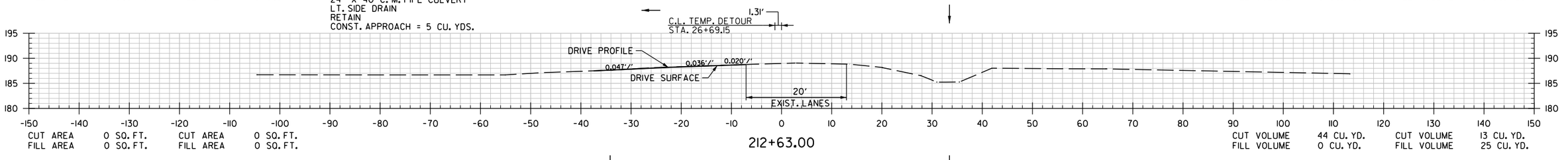


CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

STA. 212+63.00 IN PLACE
24" X 40' C. M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONST. APPROACH = 5 CU. YDS.

213+00.00

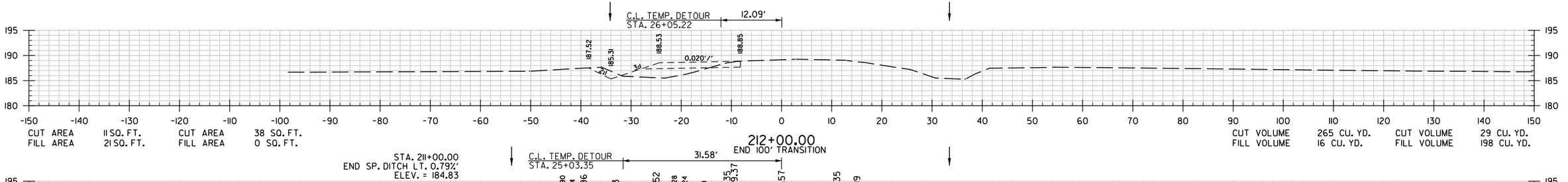
CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

212+63.00

CUT VOLUME 44 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 25 CU. YD.

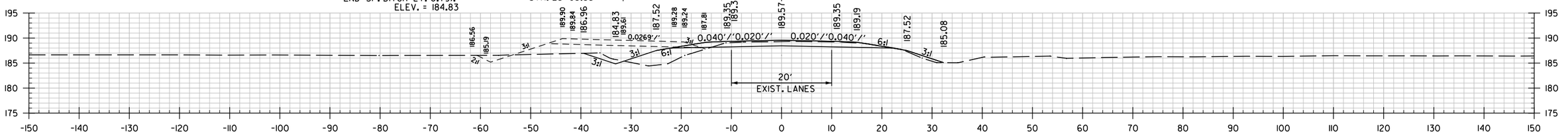


CUT AREA 11 SQ. FT. CUT AREA 38 SQ. FT.
FILL AREA 21 SQ. FT. FILL AREA 0 SQ. FT.

212+00.00
END 100' TRANSITION

CUT VOLUME 265 CU. YD. CUT VOLUME 29 CU. YD.
FILL VOLUME 16 CU. YD. FILL VOLUME 198 CU. YD.

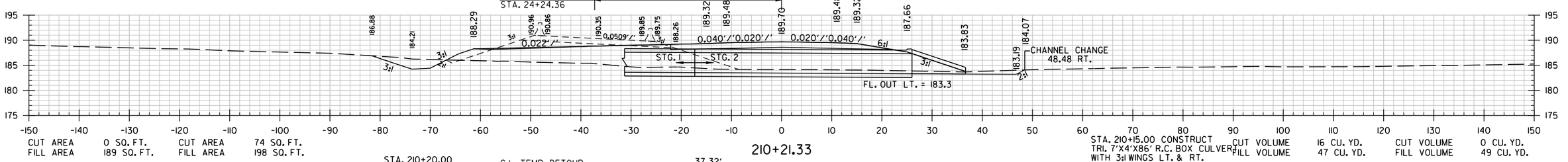
STA. 211+00.00
END SP. DITCH LT. 0.79%'
ELEV. = 184.83



CUT AREA 5 SQ. FT. CUT AREA 105 SQ. FT.
FILL AREA 86 SQ. FT. FILL AREA 8 SQ. FT.

211+00.00
BEGIN 100' TRANSITION

CUT VOLUME 261 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 301 CU. YD. FILL VOLUME 401 CU. YD.



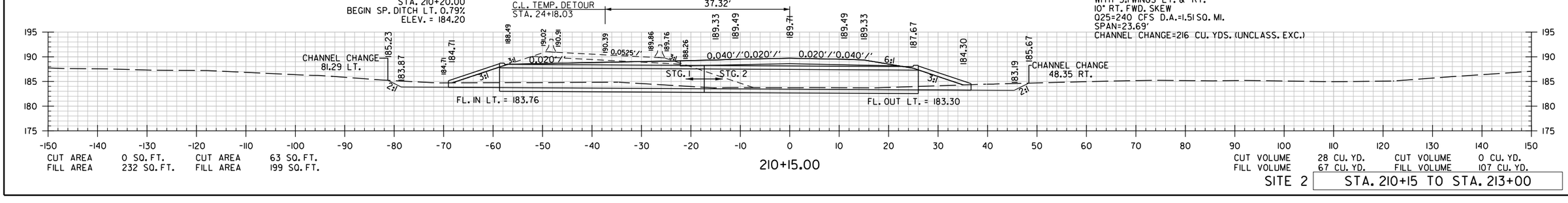
CUT AREA 0 SQ. FT. CUT AREA 74 SQ. FT.
FILL AREA 189 SQ. FT. FILL AREA 198 SQ. FT.

210+21.33

STA. 210+15.00 CONSTRUCT
TRI. 7'X4'X86' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
10° RT. FWD. SKEW
Q25=240 CFS D.A.=1.51 SQ. MI.
SPAN=23.69'
CHANNEL CHANGE=216 CU. YDS. (UNCLASS. EXC.)

CUT VOLUME 16 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 47 CU. YD. FILL VOLUME 49 CU. YD.

STA. 210+20.00
BEGIN SP. DITCH LT. 0.79%
ELEV. = 184.20



CUT AREA 0 SQ. FT. CUT AREA 63 SQ. FT.
FILL AREA 232 SQ. FT. FILL AREA 199 SQ. FT.

210+15.00

CUT VOLUME 28 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 67 CU. YD. FILL VOLUME 107 CU. YD.

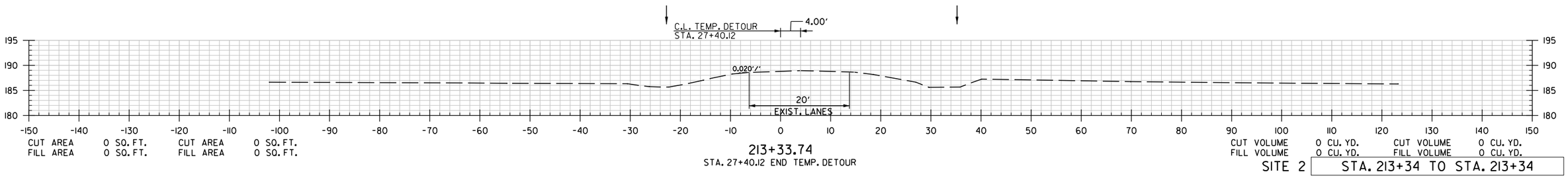
SITE 2 STA. 210+15 TO STA. 213+00

Scott.Thornsberg 9/5/2024 11:05:29 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_115022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	92	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 & 3

STAGE 2 & 3 STAGE 1



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

213+33.74
STA. 27+40.12 END TEMP. DETOUR

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

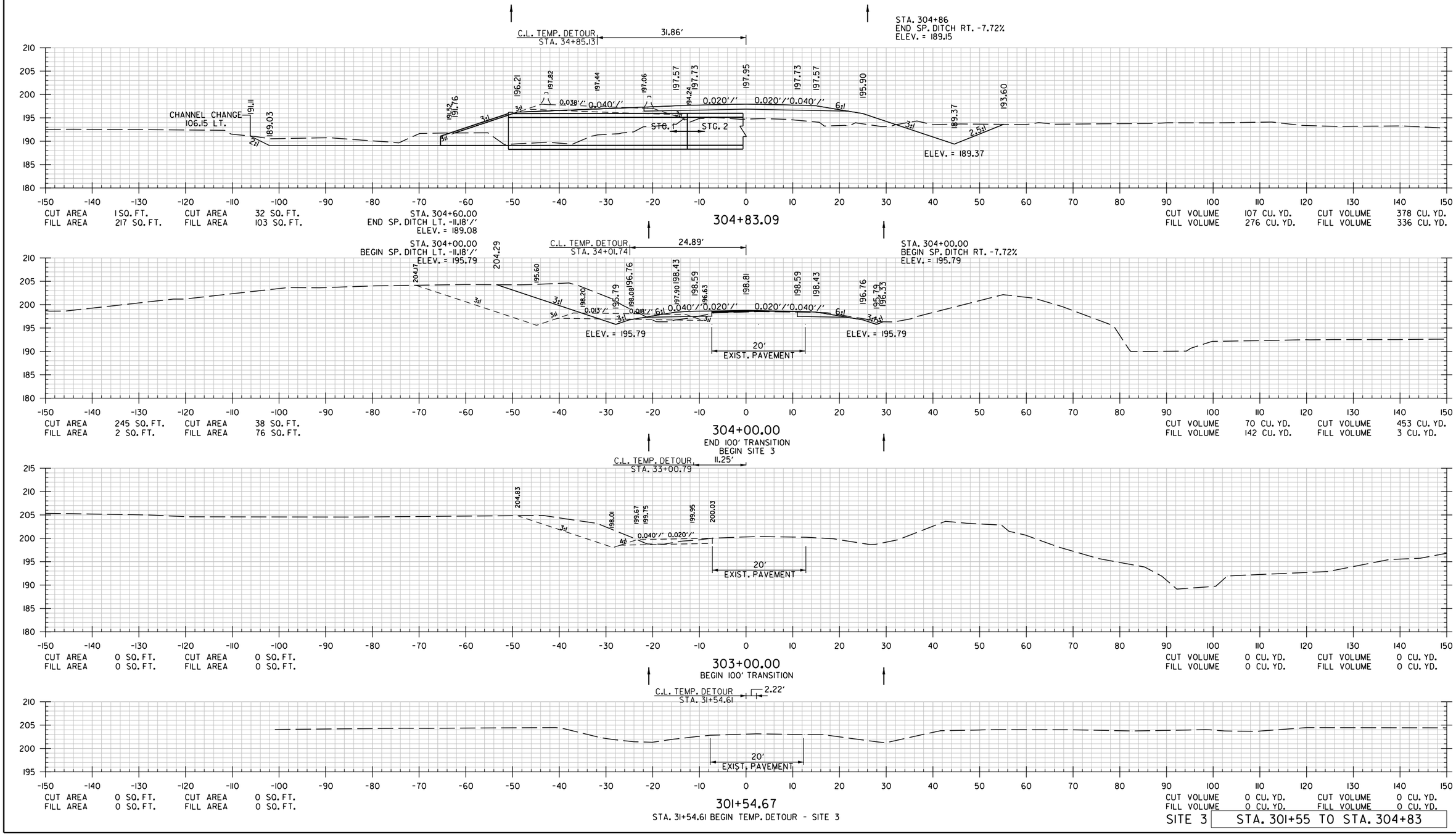
SITE 2 STA. 213+34 TO STA. 213+34

Scott.Thornsberg 9/5/2024 11:05:29 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	93	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 & 3

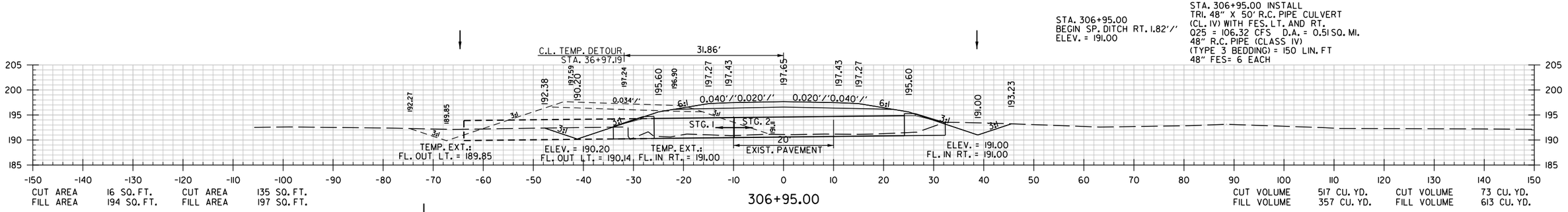
STAGE 2 & 3 STAGE 1

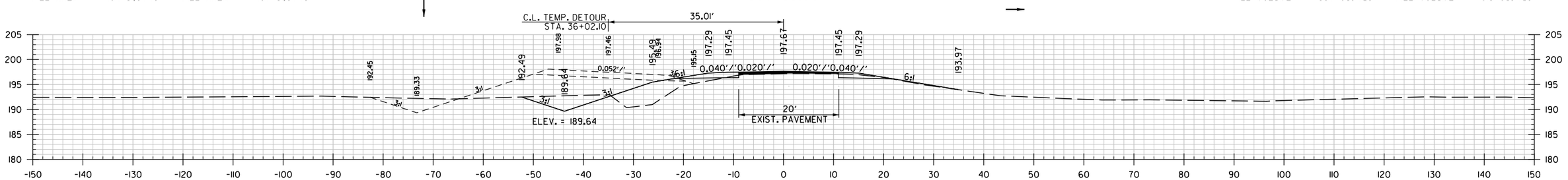


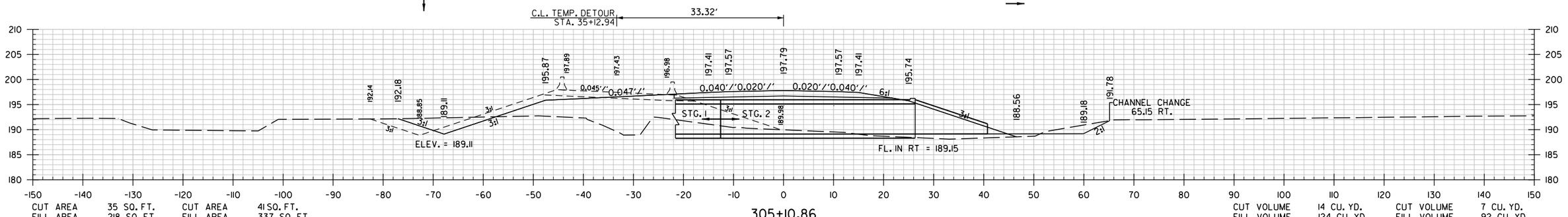
Scott.Thornsberry 5/5/2024 11:05:31 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_003.dgn
REVISED DATE: $$REVDATE$$

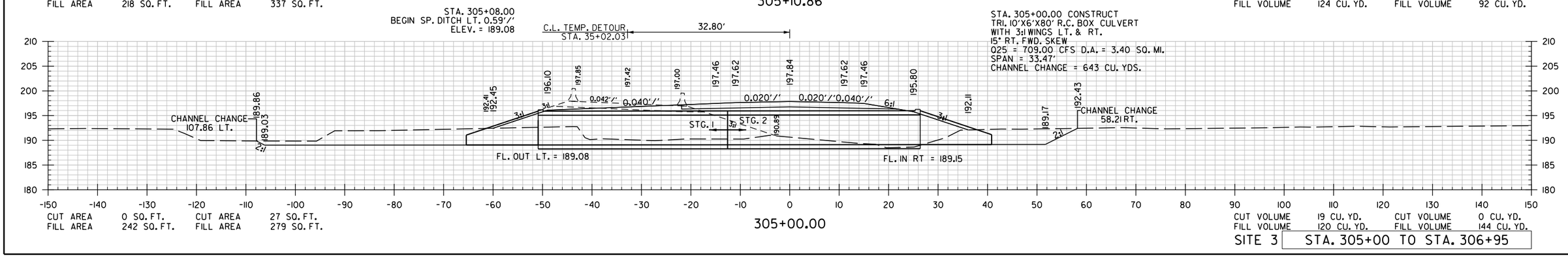
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	94	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 & 3 STAGE 2 & 3 STAGE 1









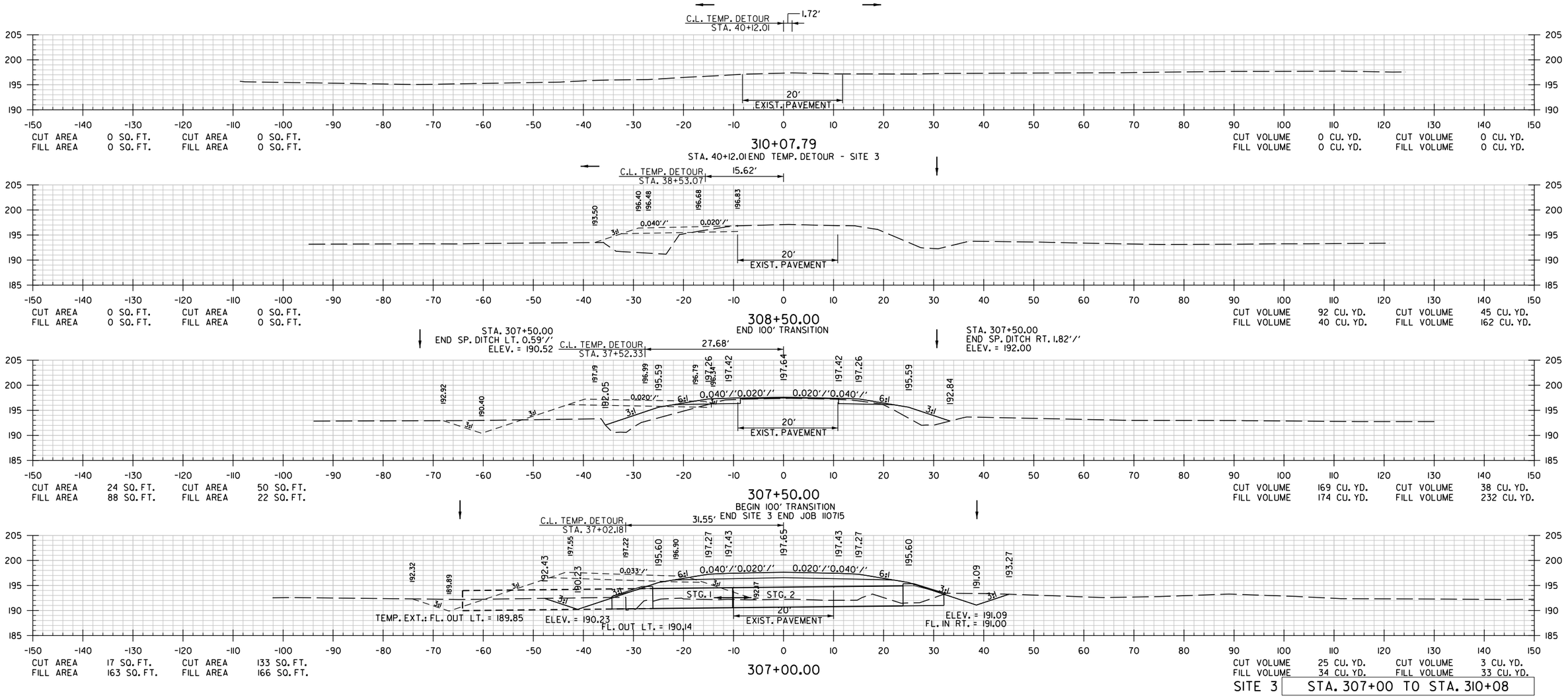
SITE 3 STA. 305+00 TO STA. 306+95

Scott.Thornsberry 5/2024 11:05:31 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_175022_110715_Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715_21_CX_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110715	95	95
				(2)	CROSS SECTIONS			

STAGE 1 STAGE 2 & 3

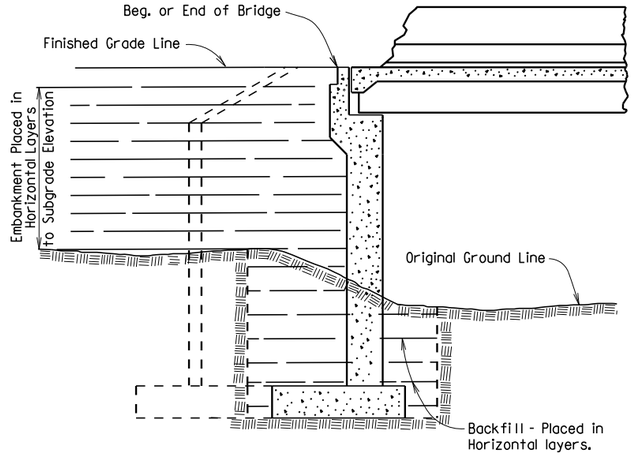
STAGE 2 & 3 STAGE 1



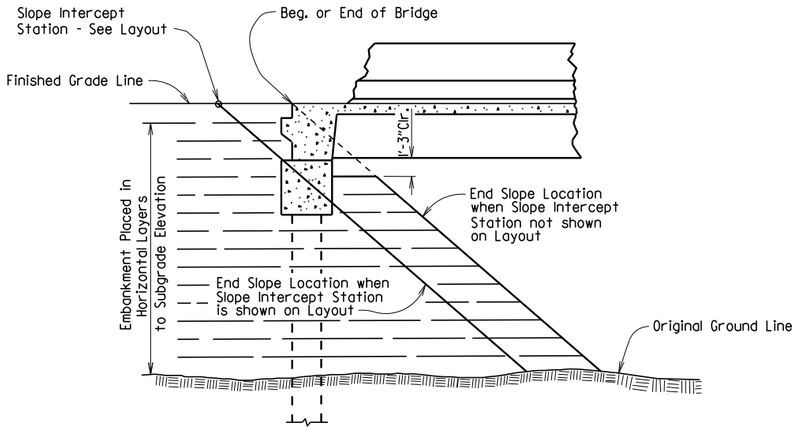
Scott.Thornsberg@5/5/2024 11:05:32 AM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_I75022_110715.Big Creek-Little Piney Creek & Big Creek Branch Strs & Apprs\Design\CIVIL\Drawings\R110715.21.CX.003.dgn
REVISED DATE: $$REVDAT$$

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.				

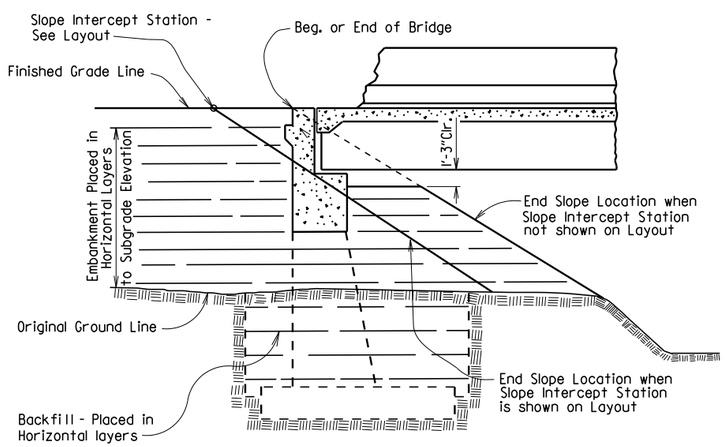
1 EMBANKMENT & BACKFILL 55000



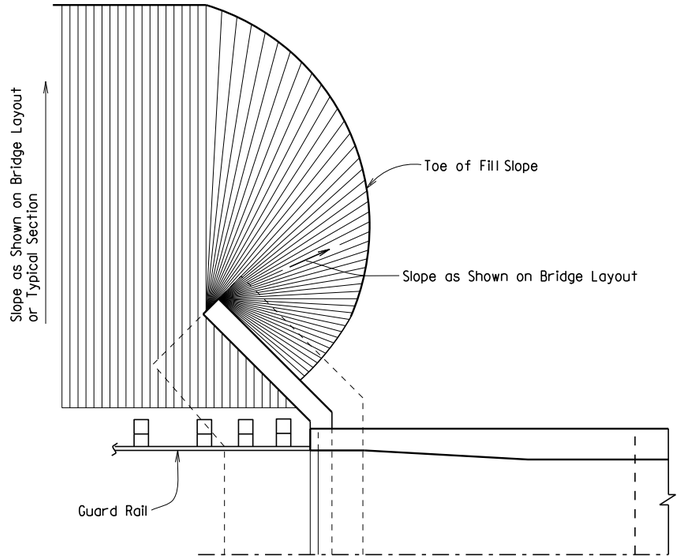
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



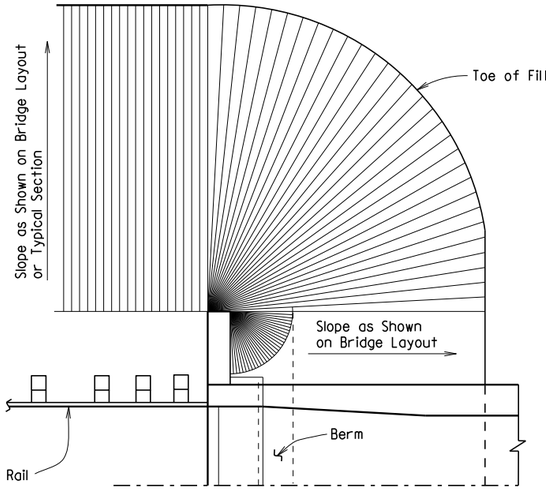
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



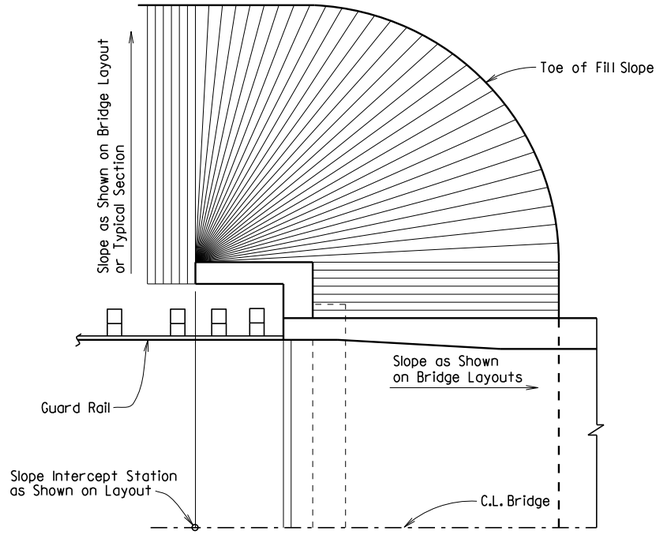
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



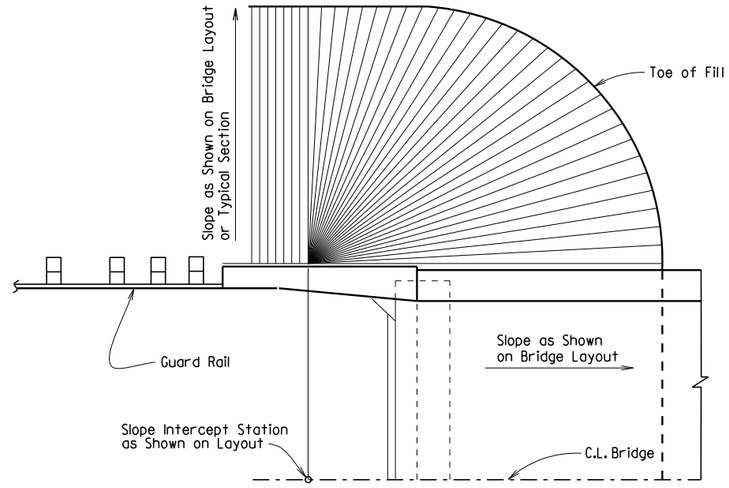
VERTICAL WALL ABUTMENTS



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

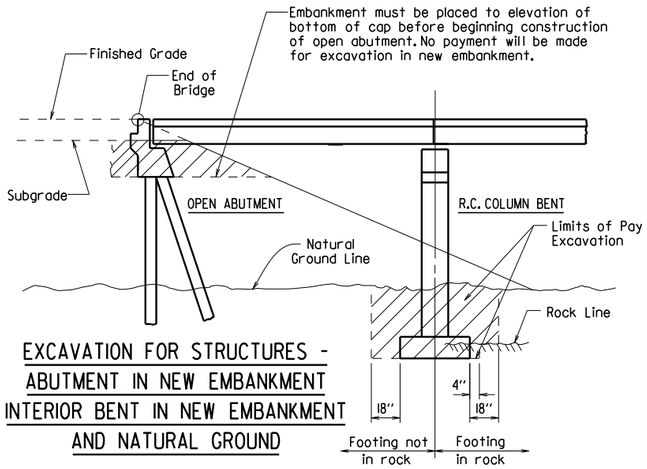
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

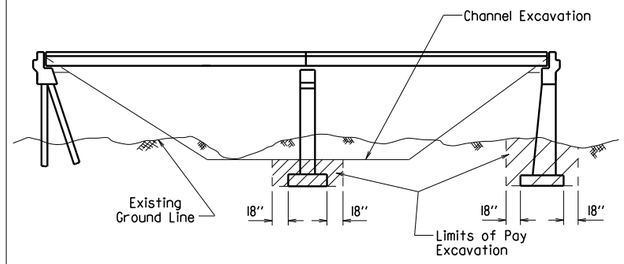
DRAWING NO. 55000

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.				

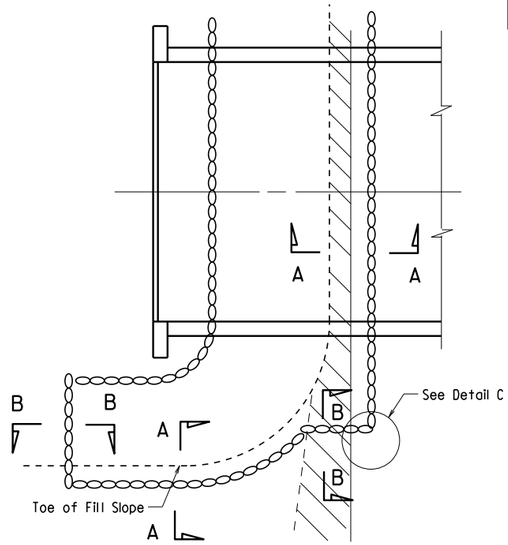
1 RIPRAP & EXCAV. 55001



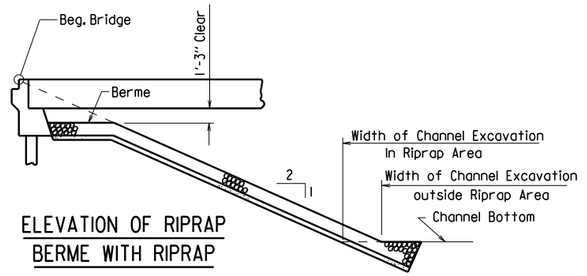
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



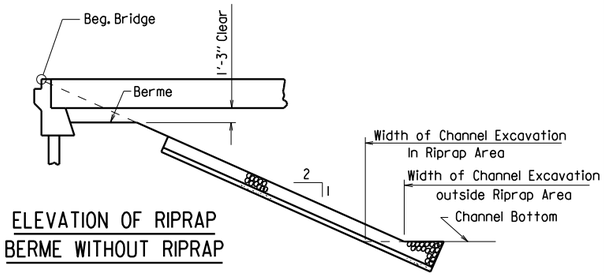
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



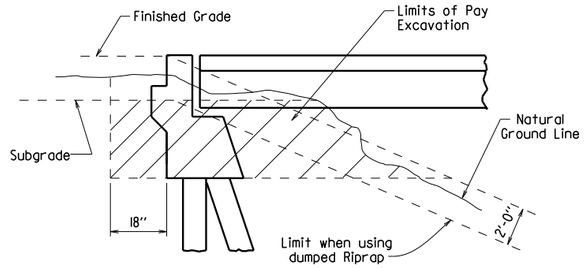
PLAN OF DUMPED RIPRAP



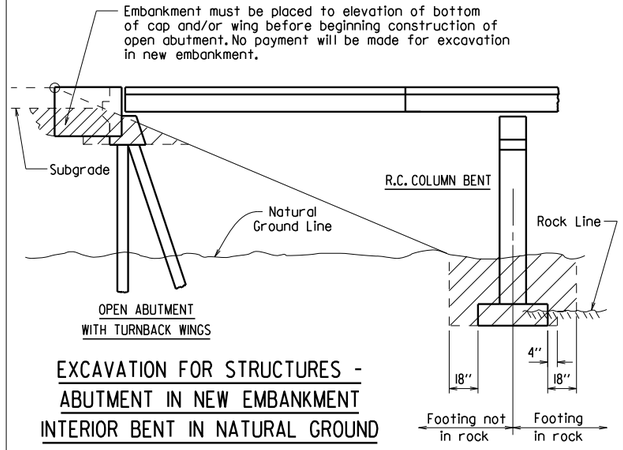
ELEVATION OF RIPRAP BERME WITH RIPRAP



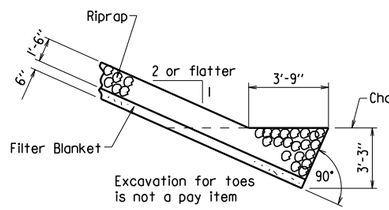
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

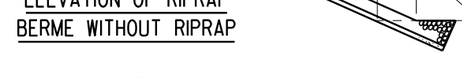


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

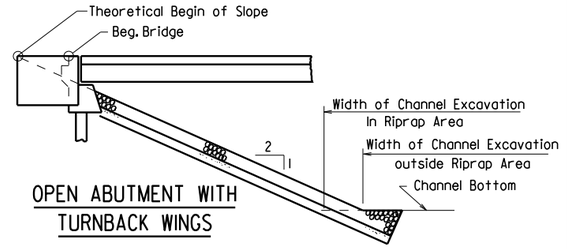


SECTION A-A

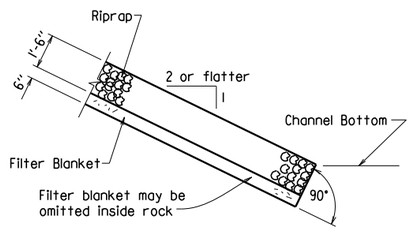
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



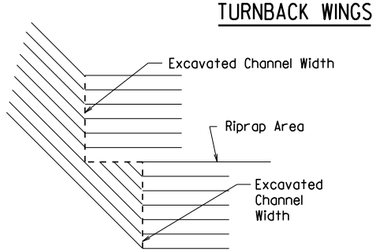
SECTION A-A

(Toe Excavation in Rock)

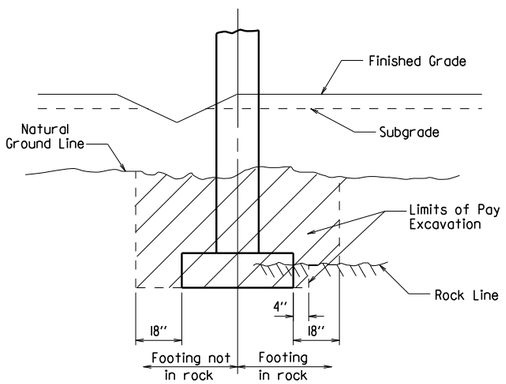
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

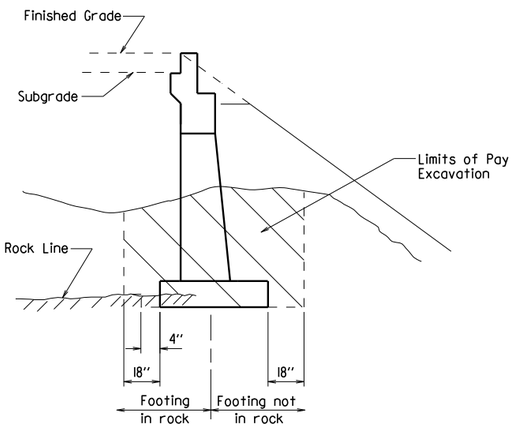
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



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.

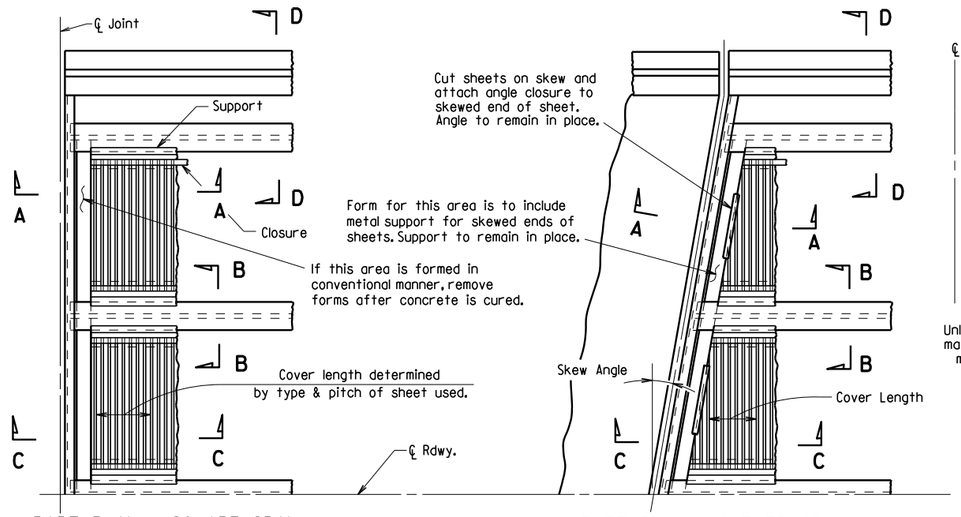
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

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	

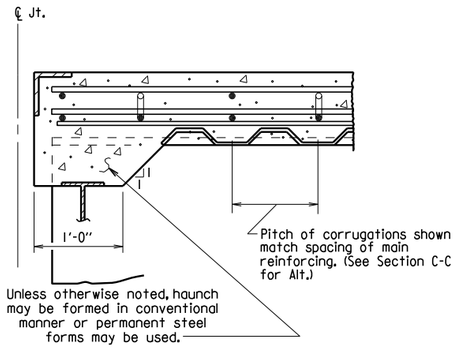


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

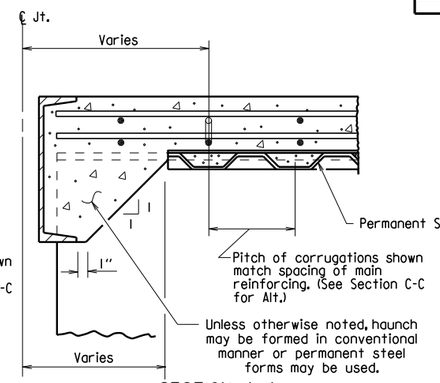
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



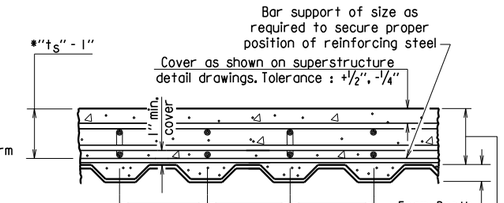
SECTION A-A

N.T.S.
(Angle at end of span)



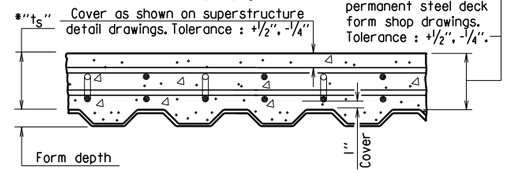
SECTION A-A

N.T.S.
(Channel at end of span)



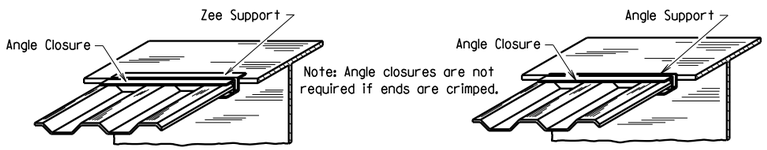
SECTION C-C

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.

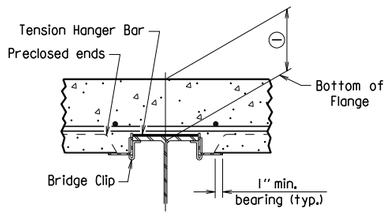
SECTION B-B

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.)

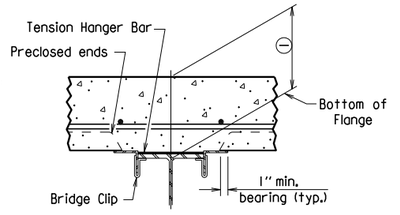
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



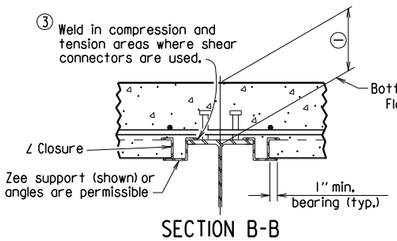
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



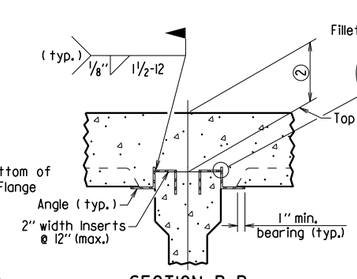
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



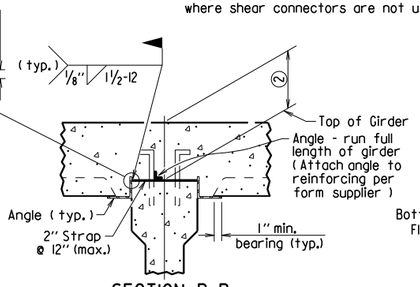
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



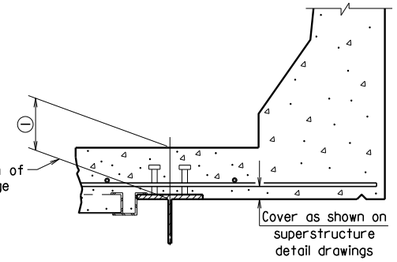
SECTION B-B (FOR CONCRETE GIRDERS)

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.

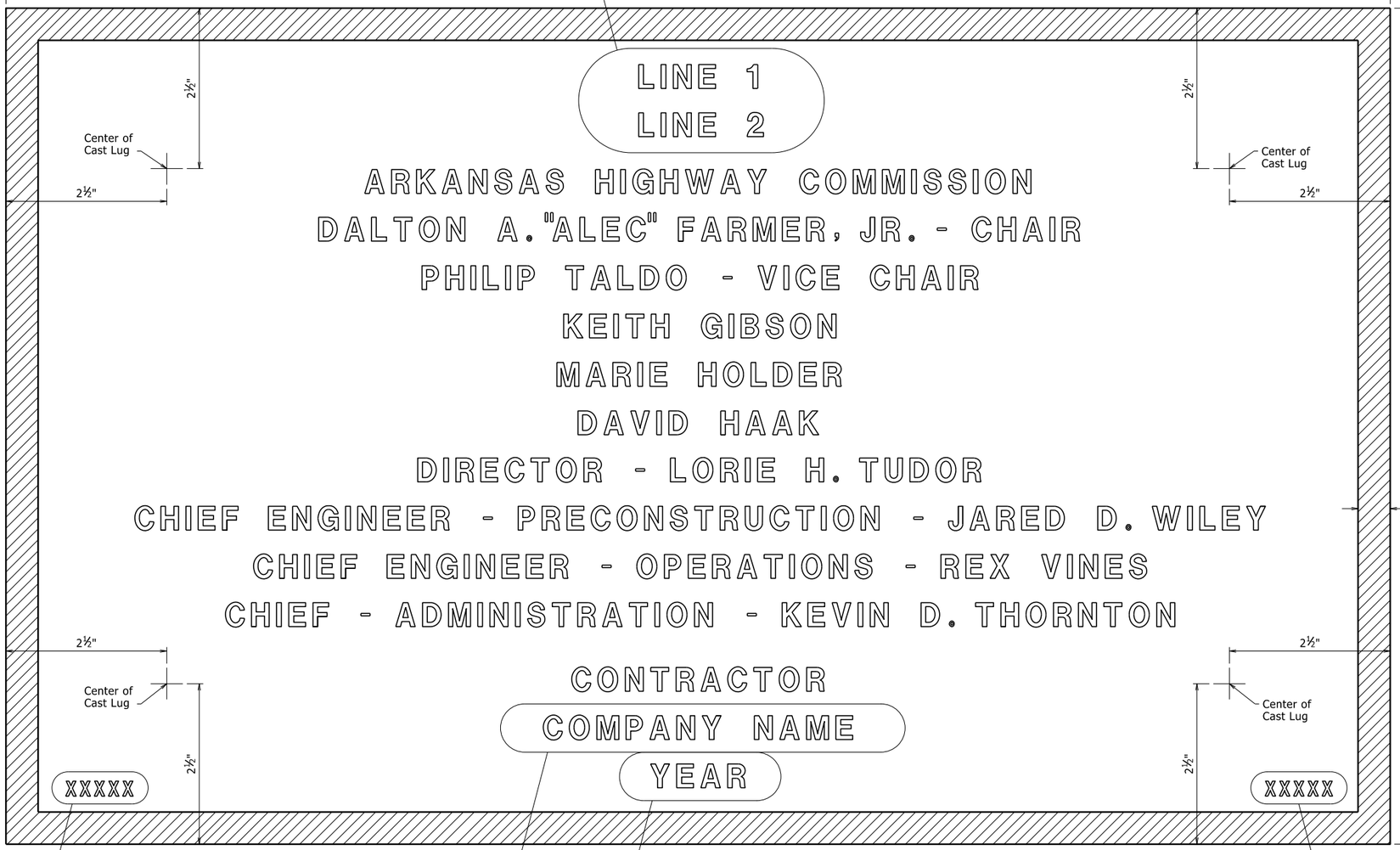
DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE 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	



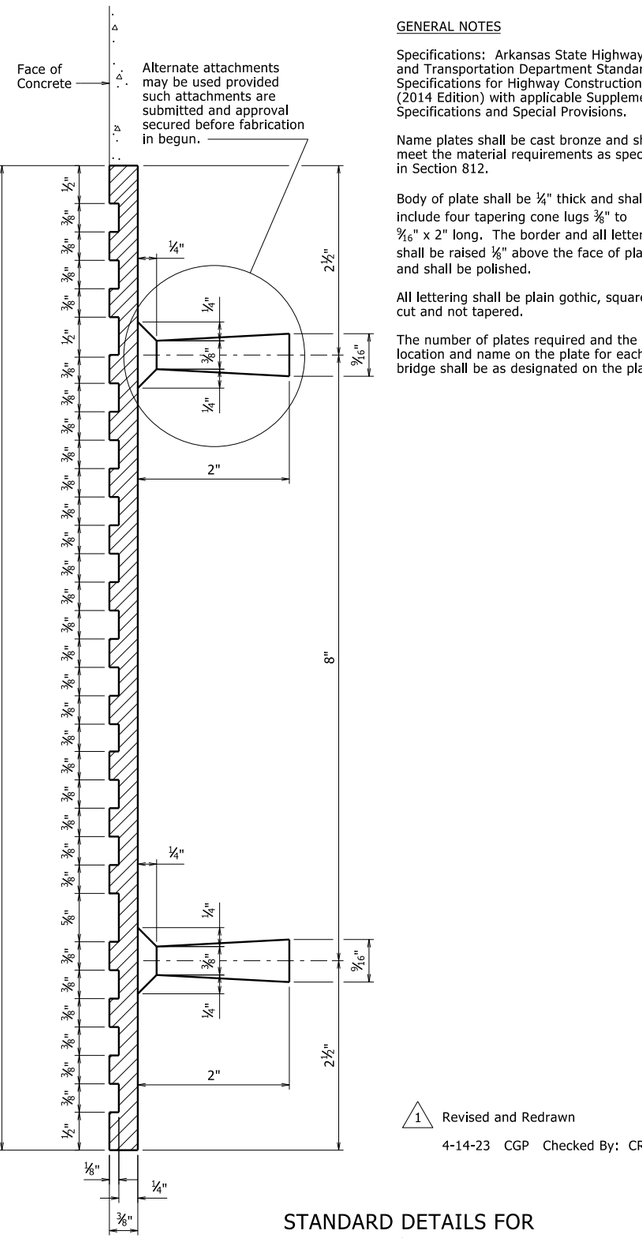
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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.

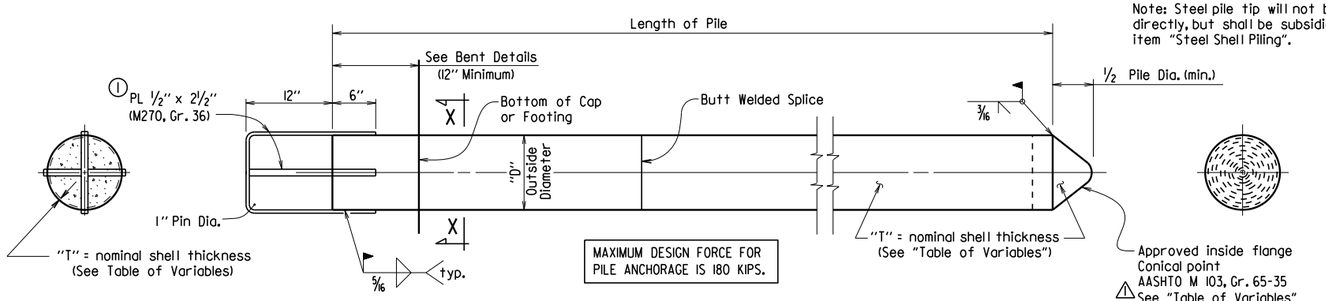
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

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 SHELL PILES 55021

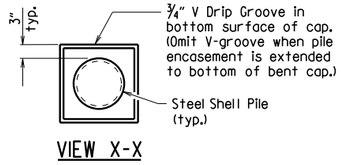


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

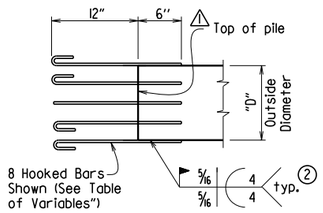
CONCRETE FILLED STEEL SHELL PILE

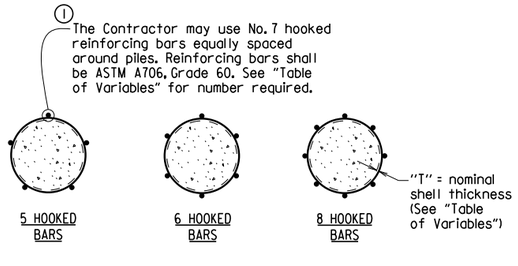
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(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.



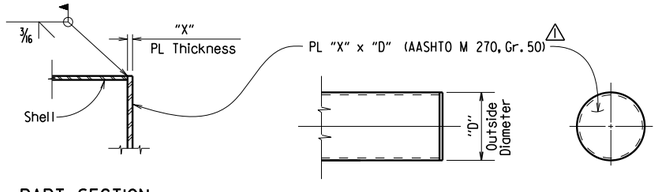
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

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

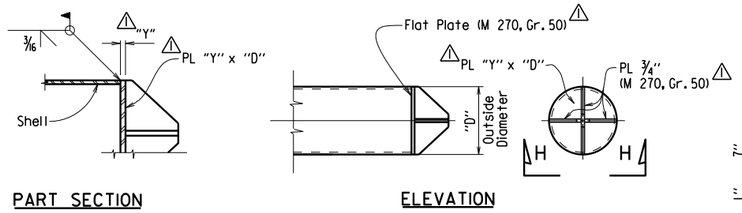


PART SECTION

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.

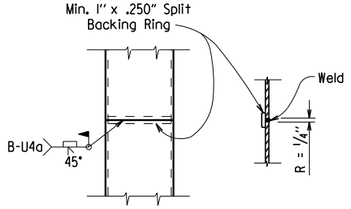


PART SECTION

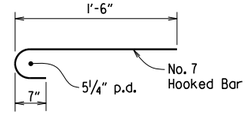
ELEVATION

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:

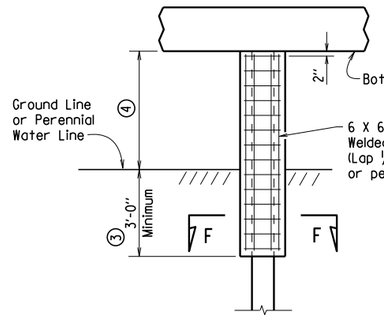
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

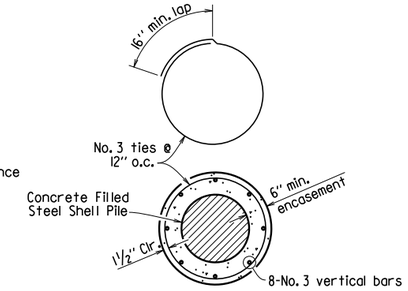
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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)

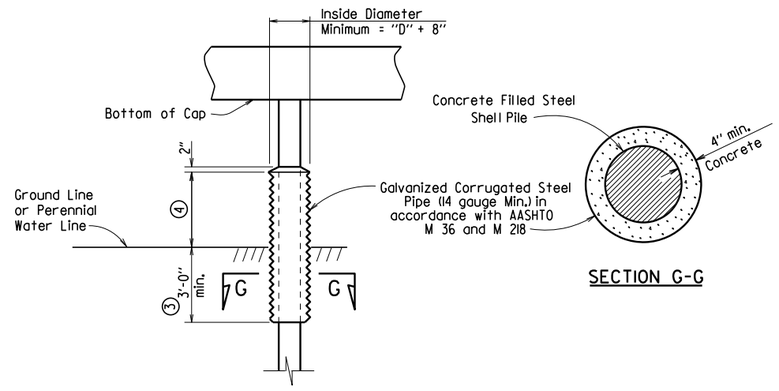
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(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

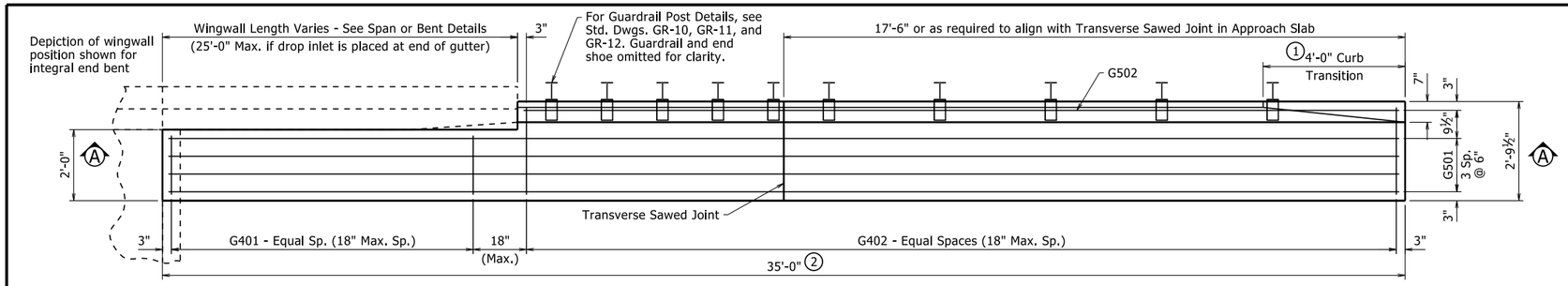
LITTLE ROCK, ARK.

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

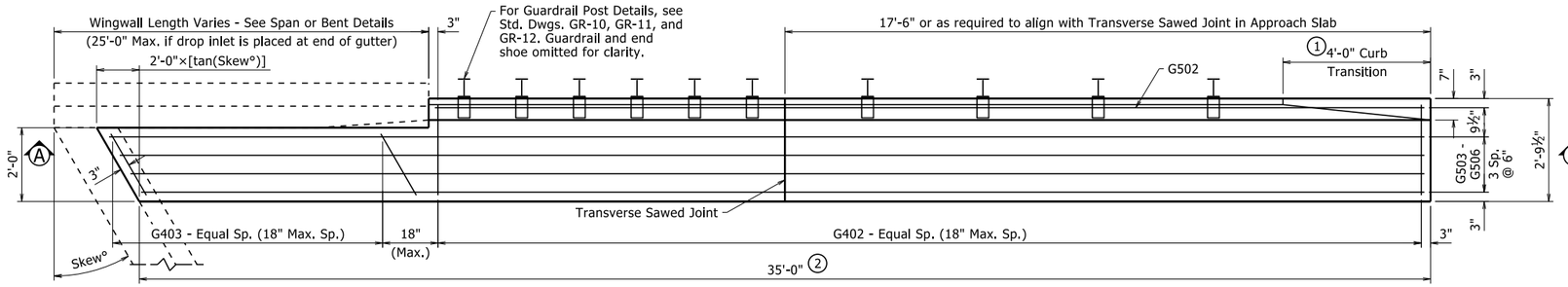
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F

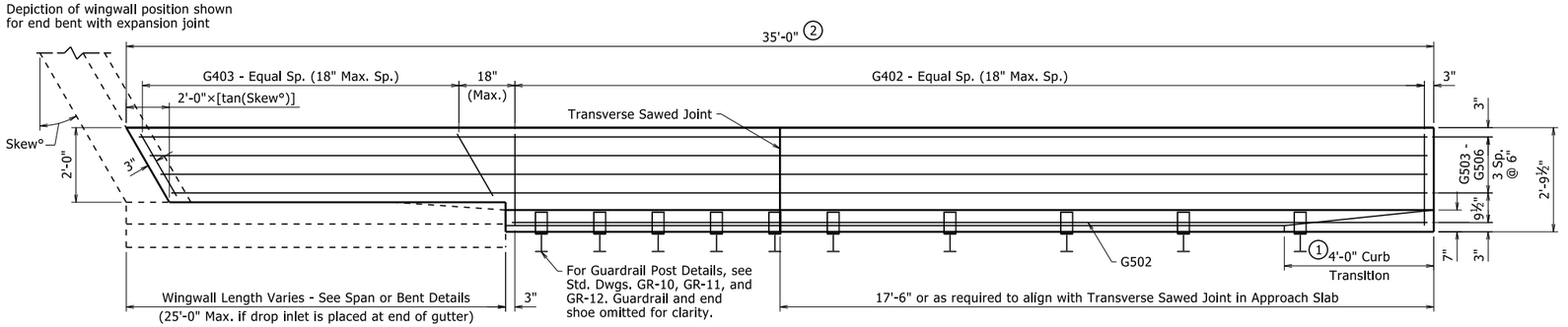


HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"

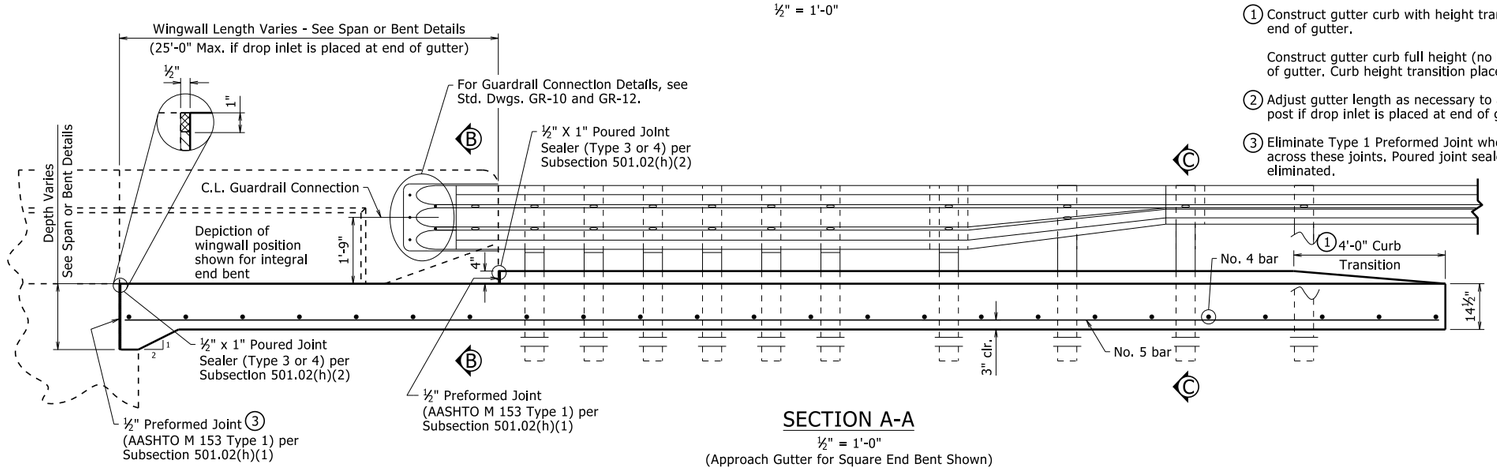


Depiction of wingwall position shown for end bent with expansion joint



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)

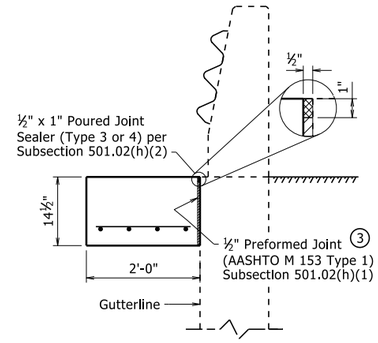
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

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

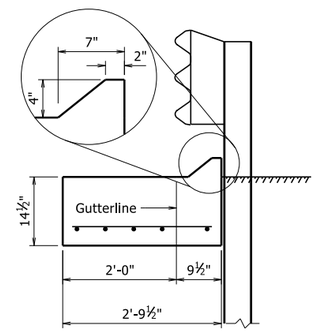
	Mark	No. Req'd.	Length
Square End Bent	G401	④	1'-8"
	G402	④	2'-5½"
	G501	4	34'-8"
	G502	1	④
Skewed End Bent	G402	④	2'-5½"
	G403	④	④
	G502	1	④
	G503 - G506	1 ea.	④

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

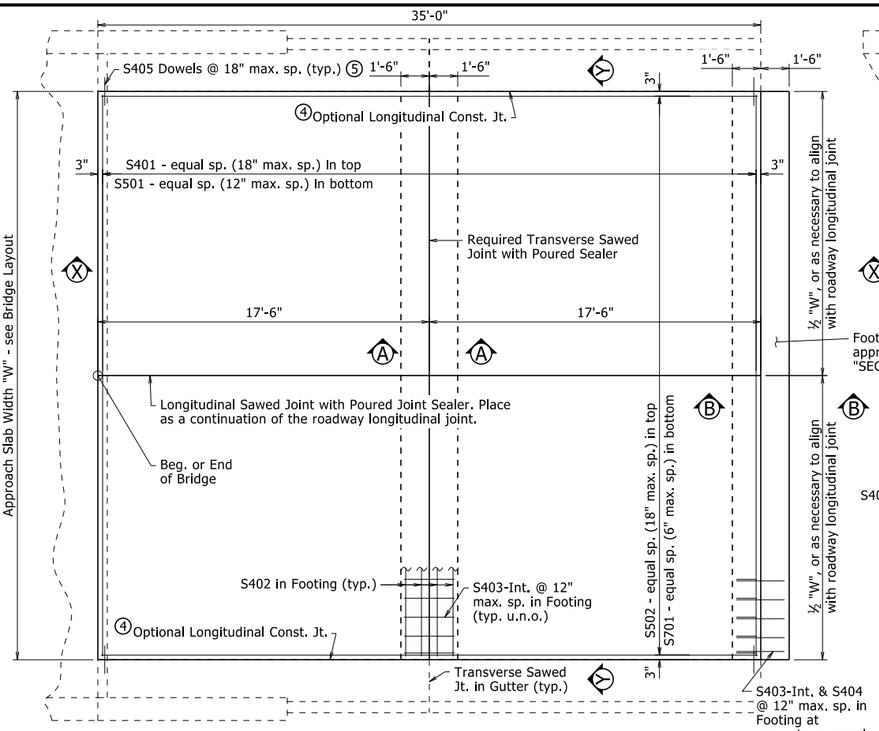
CHECKED BY: LJB DATE: 4-8-2021 SCALE: AS NOTED

DESIGNED BY: STD DATE: -

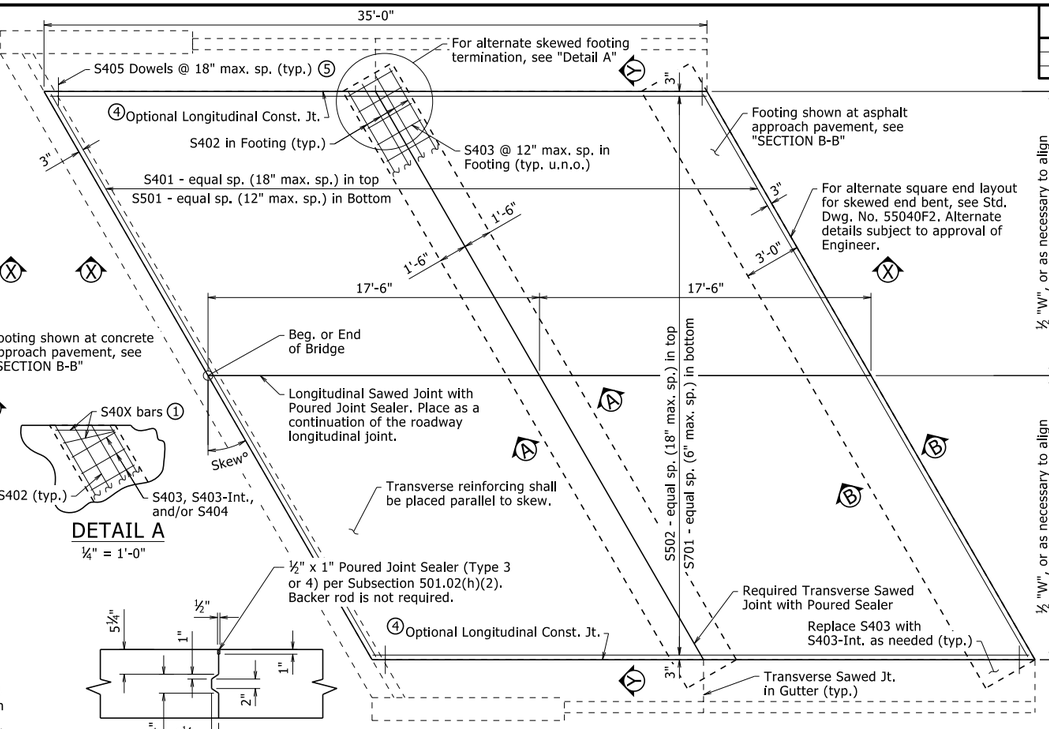
DRAWING NO. 55030F

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				

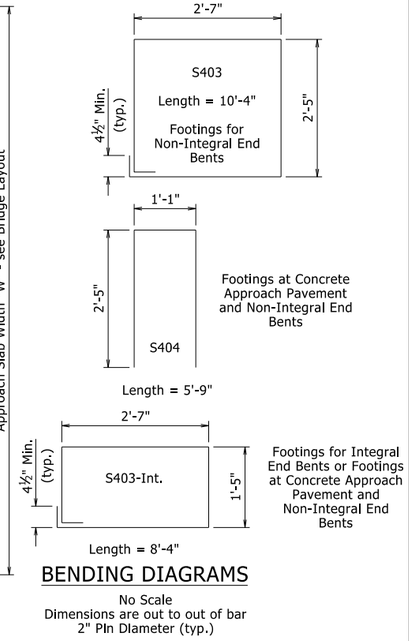


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

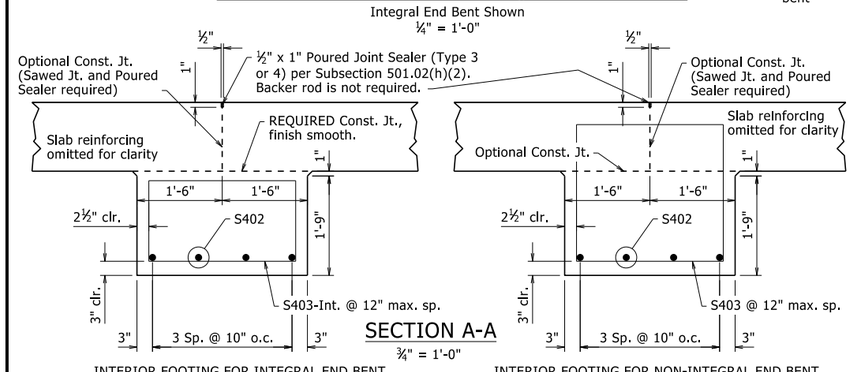


BENDING DIAGRAMS

No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

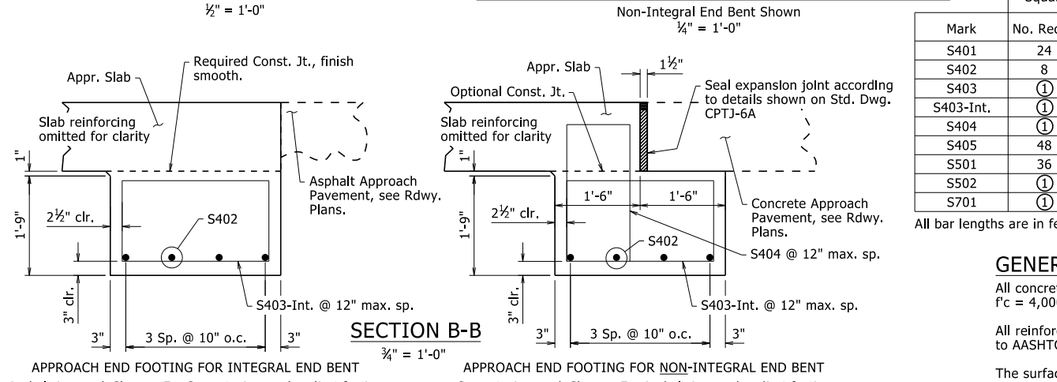
PLAN - APPROACH SLAB AT SKEWED END BENT

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.

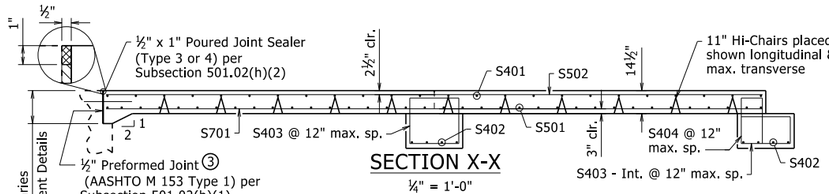
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

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

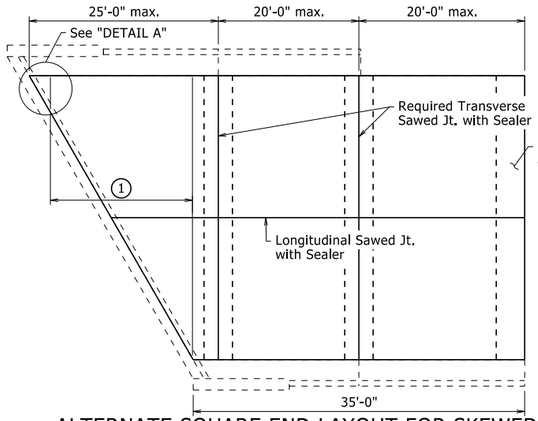
ARKANSAS STATE HIGHWAY COMMISSION

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:	-		

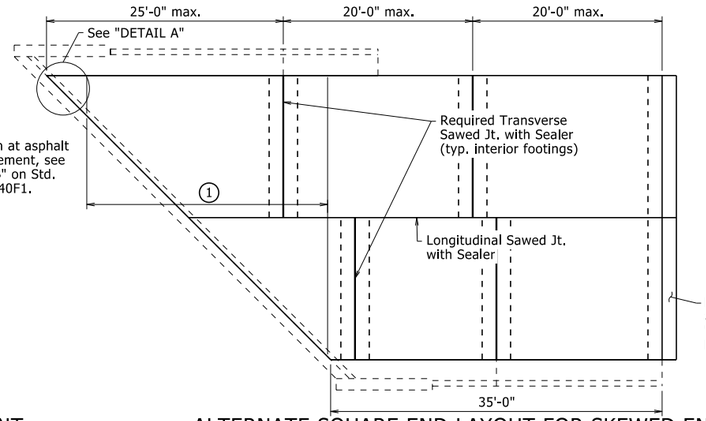
DRAWING NO. 55040F1

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F2				



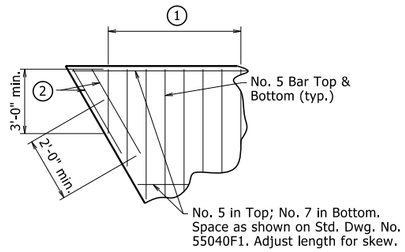
ALTERNATE SQUARE END LAYOUT FOR SKEWED END BENT - CONTINUOUS FOOTINGS

⅛" = 1'-0"



ALTERNATE SQUARE END LAYOUT FOR SKEWED END BENT - STAGGERED FOOTINGS

⅛" = 1'-0"



DETAIL A

¼"= 1'-0"

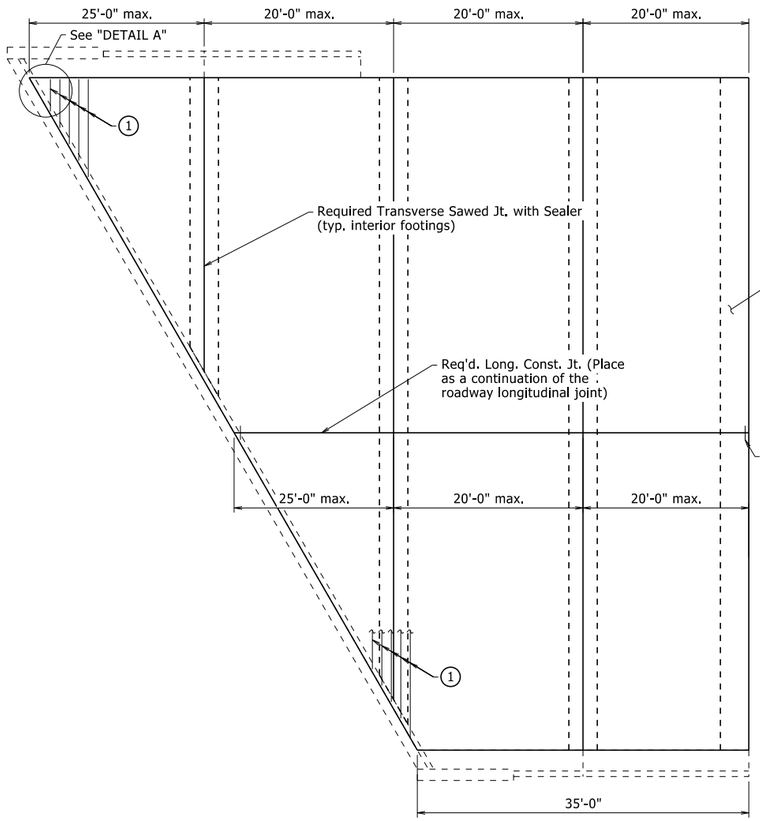
NOTES

See Std. Dwg. No. 55040F1 for additional details of Type F Approach Slabs. Unless noted otherwise, minimum dimensions and reinforcing shall be as shown on Std. Dwg. No. 55040F1. Use of Alternate Square End Details shall be approved by the Engineer. Payment for alternate square end approach slabs shall be based on plan quantities.

Reinforcing shall be lapped as needed. All reinforcing shall be lapped between stages except for the reinforcing in the staggered footings or where the reinforcing cannot obtain the minimum lap length as shown in "MINIMUM BAR LAP LENGTH" on Std. Dwg. No. 55040F1.

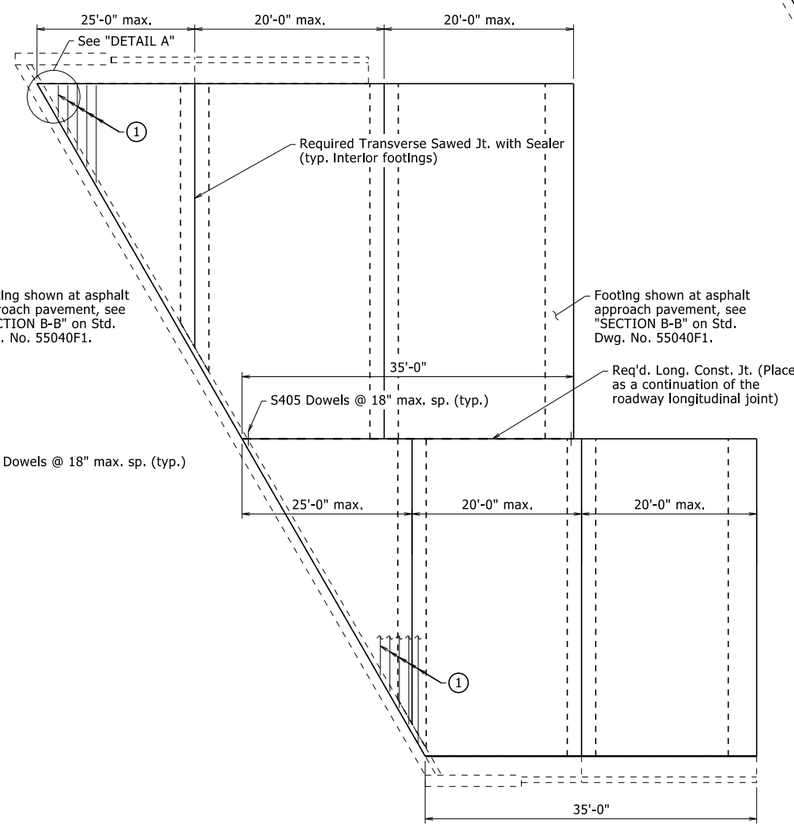
(1) Variable Length No. 5 Bars Top and Bottom spaced at 12" max. where slab is less than full width.

(2) Place additional No. 5 Bars Top and Bottom parallel to skew and spaced at 12" max. in acute corners for all stages as shown. Terminate once a 2'-0" lap with variable length No. 5 bars is achieved.



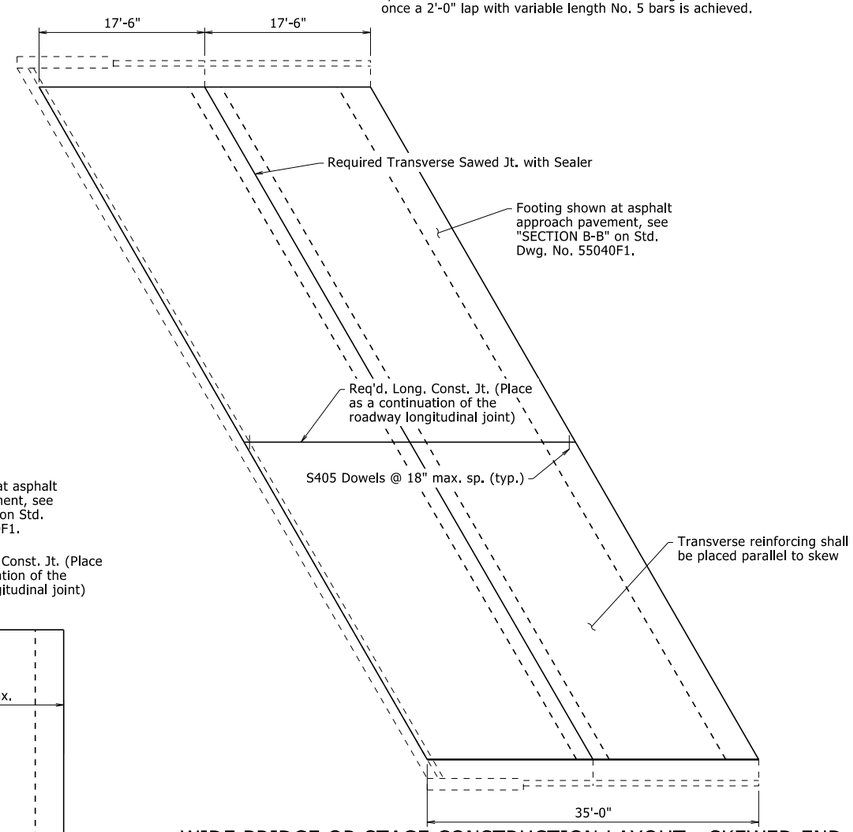
WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SQUARE END, CONTINUOUS FOOTINGS

⅛" = 1'-0"



WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SQUARE END, STAGGERED FOOTINGS

⅛" = 1'-0"



WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SKEWED END

Square End Bent Similar

⅛"= 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE 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.

ALTERNATE DETAILS FOR SKEWED TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 05/12/2023 FILENAME: b55040f.dgn

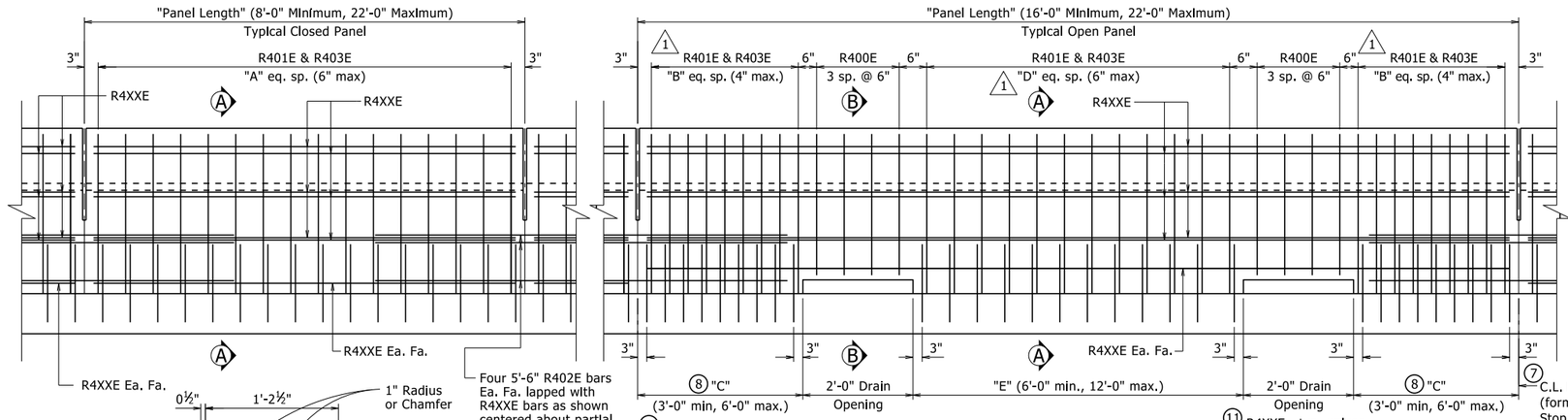
CHECKED BY: JYP DATE: 05/15/2023 SCALE: AS NOTED

DESIGNED BY: STD. DATE: -

DRAWING NO. 55040F2

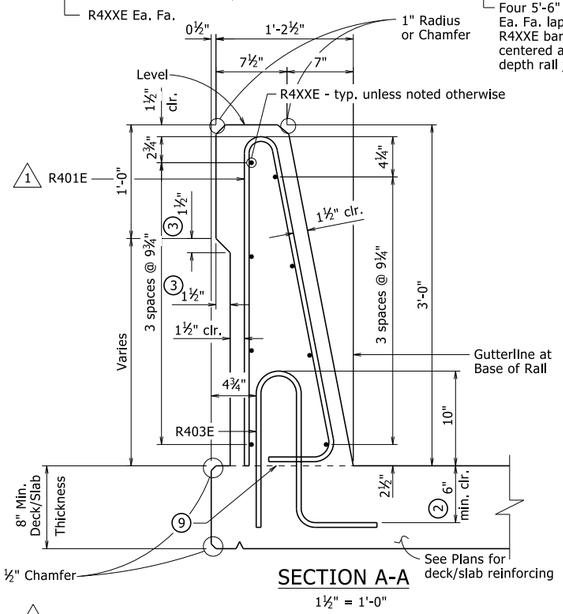
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



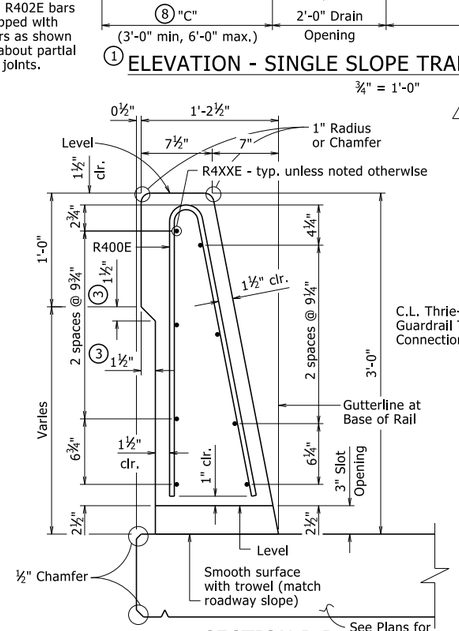
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



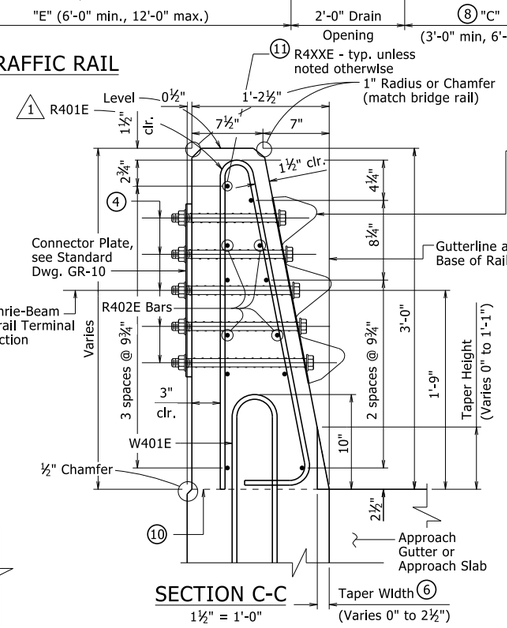
SECTION A-A

1½" = 1'-0"



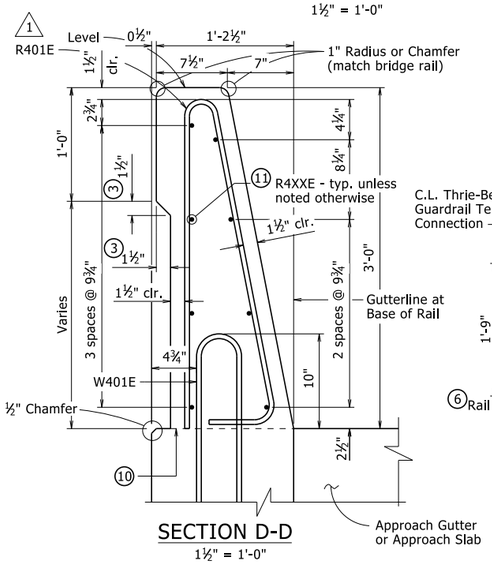
SECTION B-B

1½" = 1'-0"



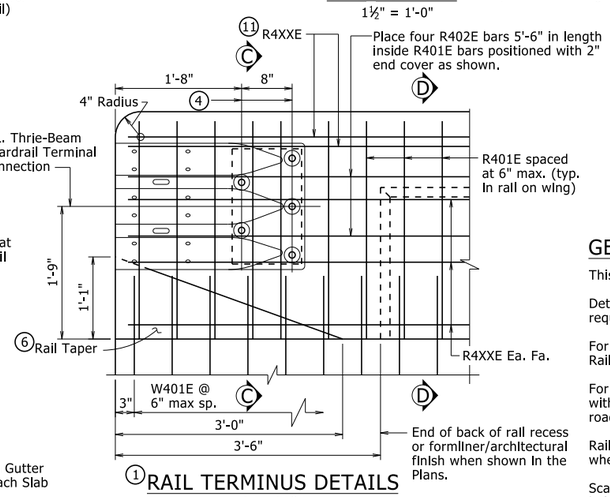
SECTION C-C

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.

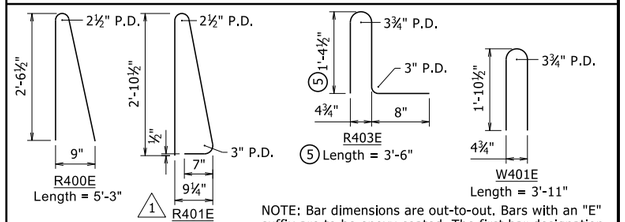
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

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.

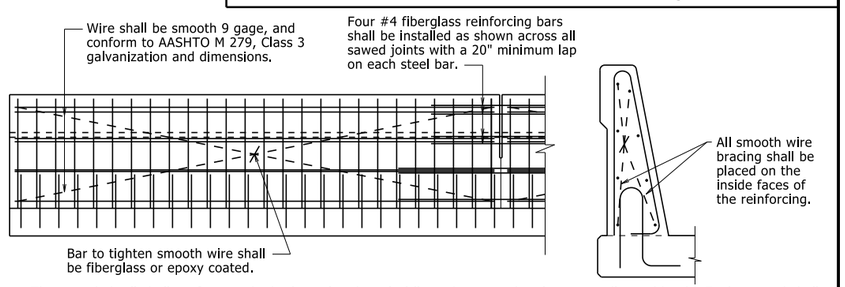
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

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

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 5, 2020. This copy is not a signed and sealed document.

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

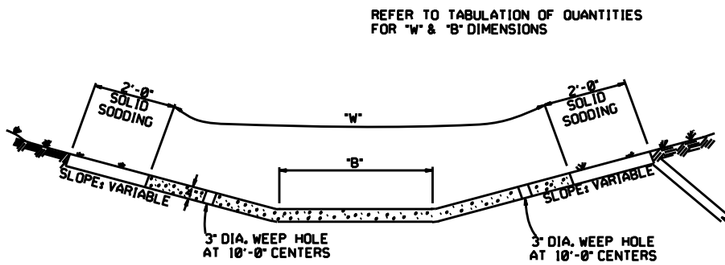
ARKANSAS STATE HIGHWAY COMMISSION

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

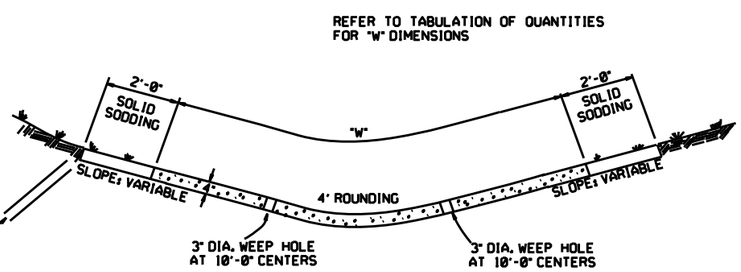
DRAWING NO. 55070

PRINT DATE: 10/6/2022



TYPE A

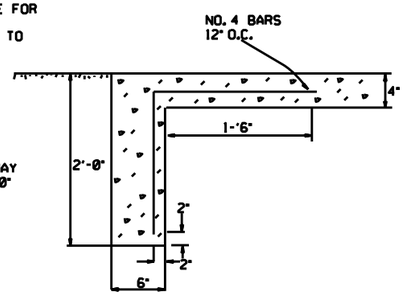
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



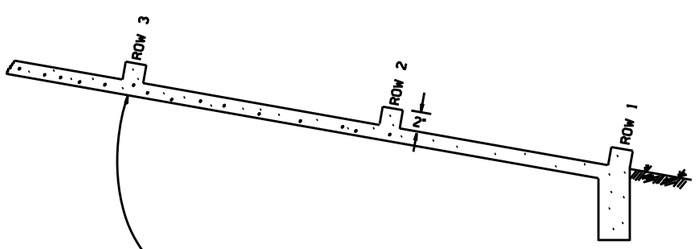
TYPE B

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

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

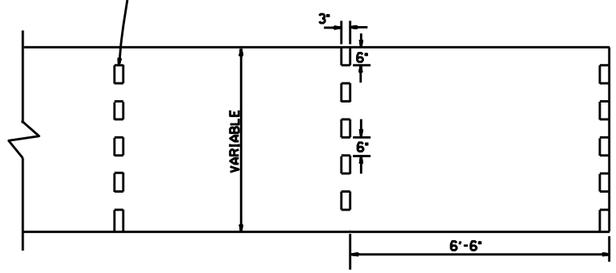


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

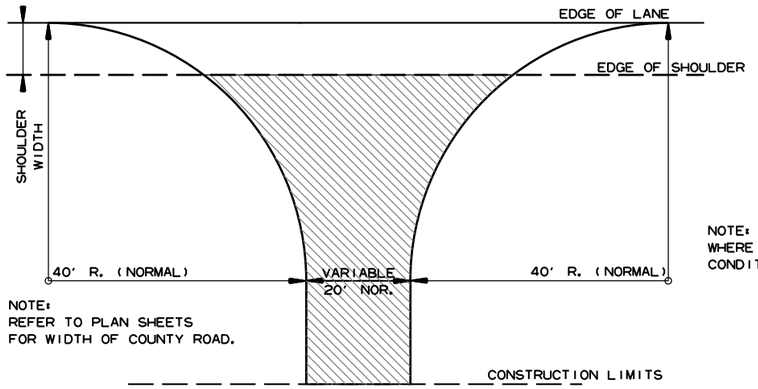
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

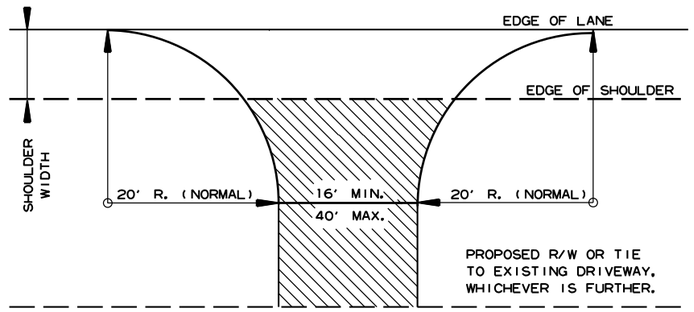


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

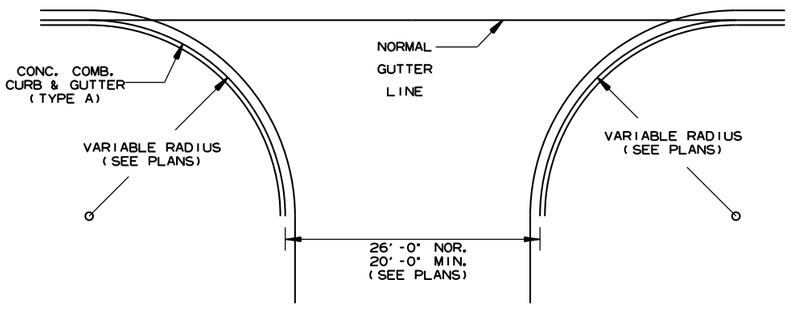
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

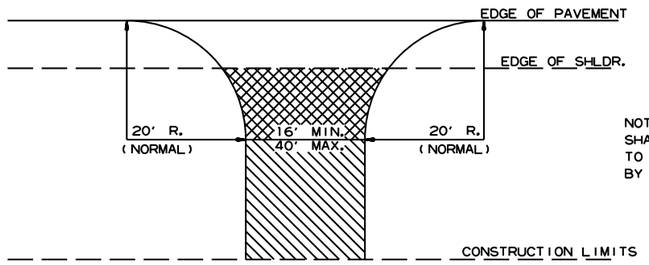
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

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

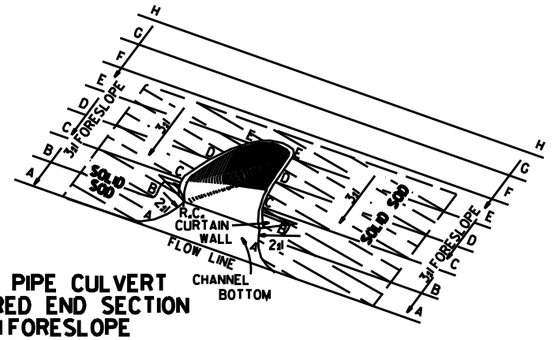
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

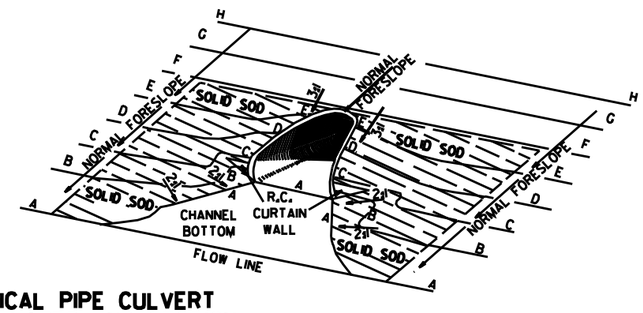
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

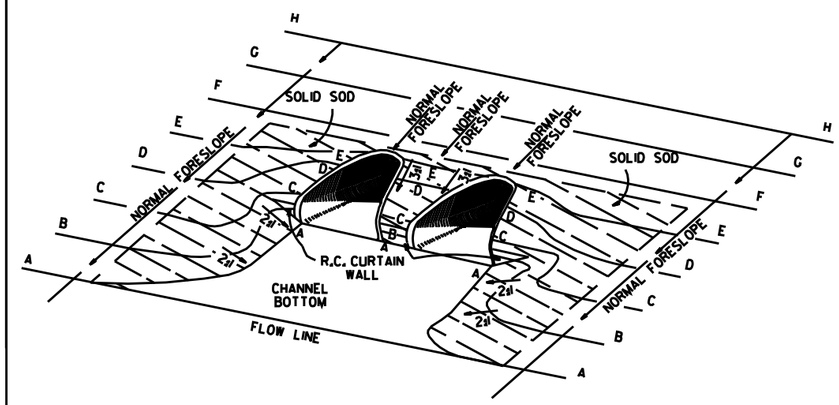
STANDARD DRAWING DR-2



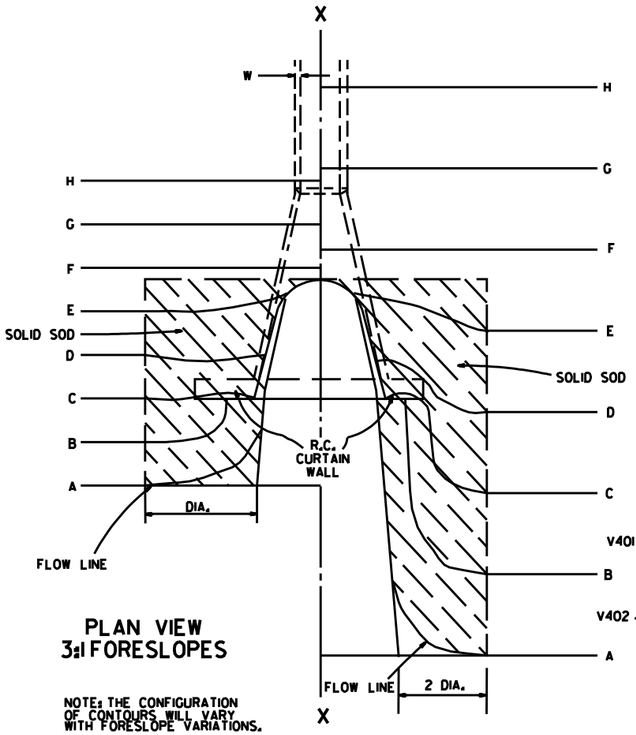
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

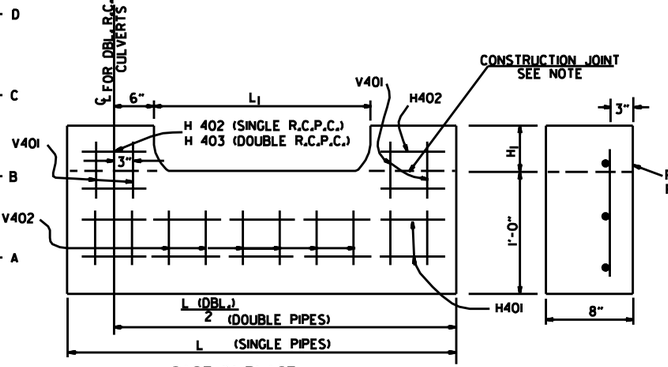
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

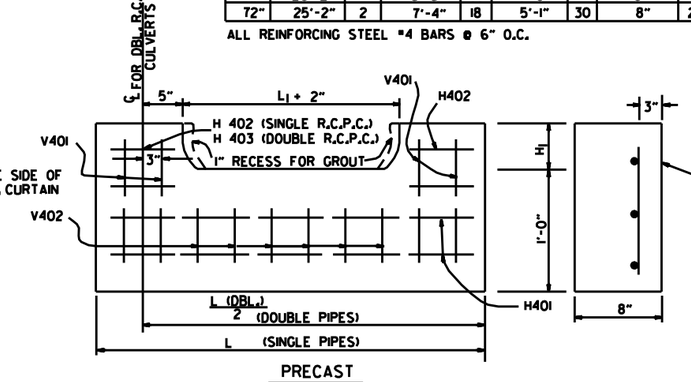
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	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.



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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 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.

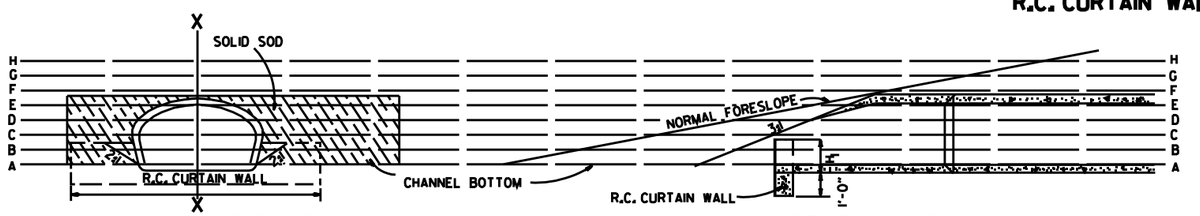
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 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

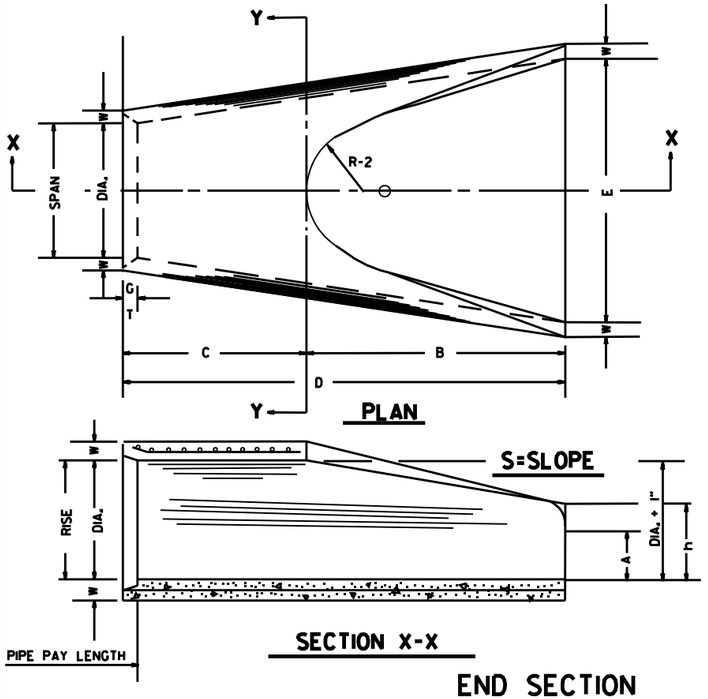
SECTIONAL VIEW "X-X"

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	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

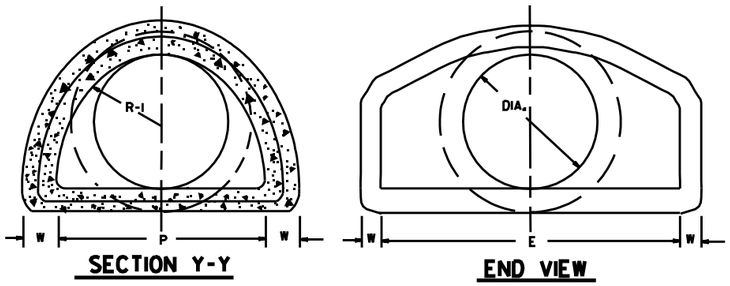
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3st	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3st	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3st	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3st	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3st	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3st	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3st	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3st	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3st	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"

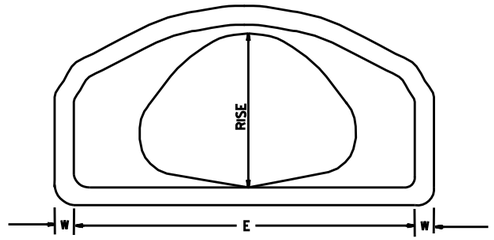


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

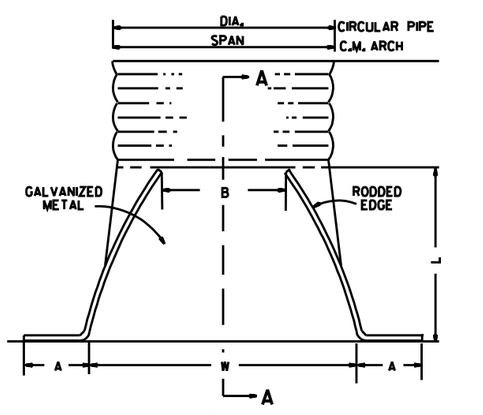
ARCH PIPE

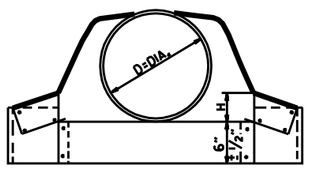
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½st
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½st
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½st
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅛"	15"	2½"	2½st
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½st
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½st
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½st
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅜"	24"	4¼"	2½st
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼st
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼st

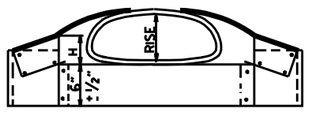
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE







CIRCULAR PIPE

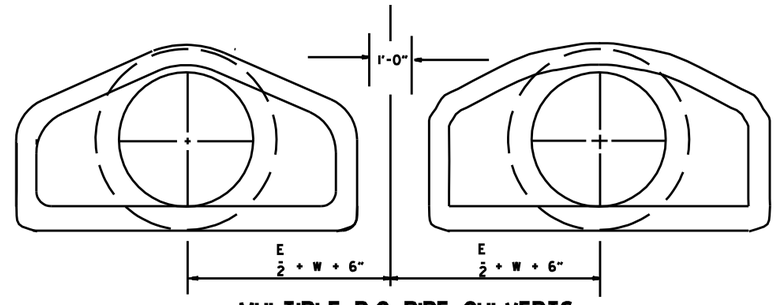
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½st
15	16	7	8	6	26	30	2½st
18	16	8	10	6	31	36	2½st
21	16	9	12	6	36	42	2½st
24	16	10	13	6	41	48	2½st
30	14	12	16	8	51	60	2½st
36	14	14	19	9	60	72	2½st
42	12	16	22	11	69	84	2½st
48	12	18	27	12	78	90	2½st
54	12	18	30	12	84	102	2st
60	12	18	33	12	87	114	1½st
66	12	18	36	12	87	120	1½st
72	12	18	39	12	87	126	1 1/3st

C.M. ARCH PIPE

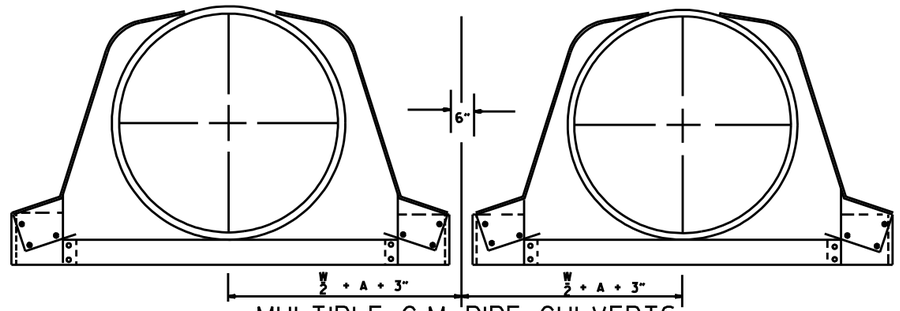
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½st	16
18"	21	15	7	10	6	23	36	2½st	16
21"	24	18	8	12	6	28	42	2½st	16
24"	28	20	9	14	6	32	48	2½st	16
30"	35	24	10	16	6	39	60	2½st	14
36"	42	29	12	18	8	46	75	2½st	14
42"	49	33	13	21	9	53	85	2½st	12
48"	57	38	18	26	12	63	90	2½st	12
54"	64	43	18	30	12	70	102	2½st	12
60"	71	47	18	33	12	77	114	2½st	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



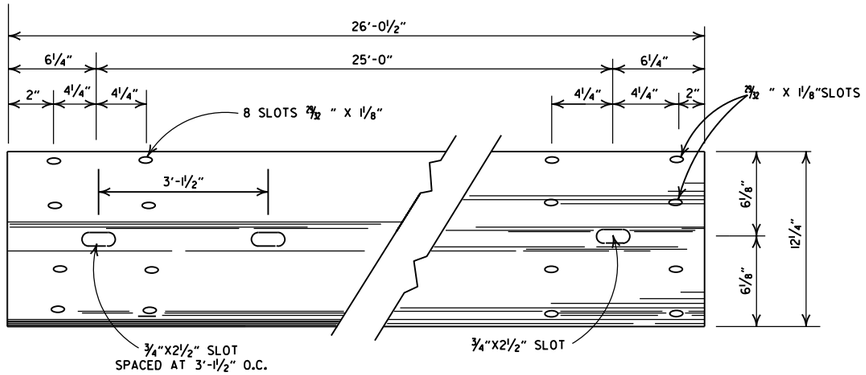
MULTIPLE C.M. PIPE CULVERTS

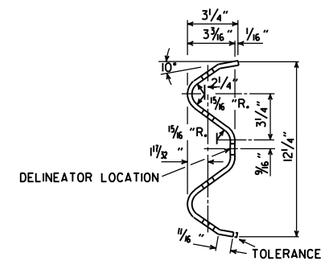
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

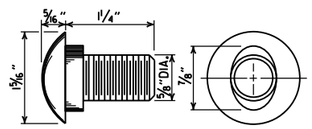
STANDARD DRAWING FES-2



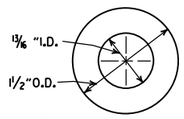


DETAILS OF W-BEAM GUARDRAIL

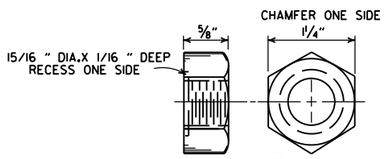
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



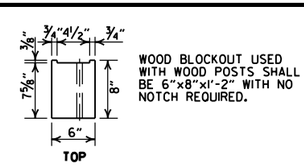
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

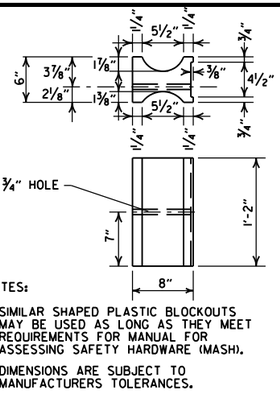


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

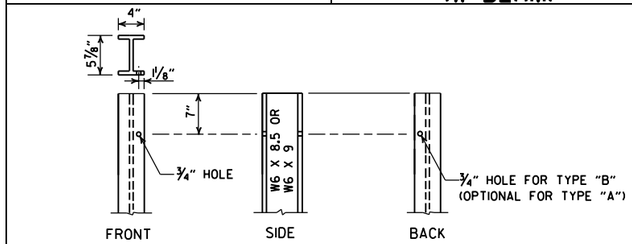
WOOD BLOCKOUT (W-BEAM)



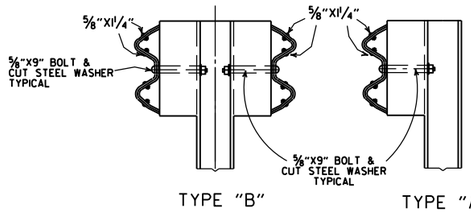
NOTES:

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)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 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.

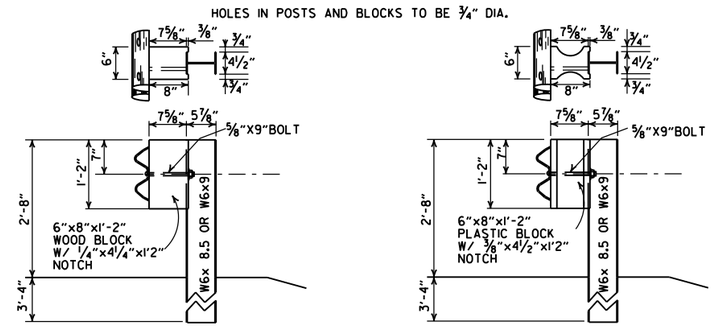
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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.



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

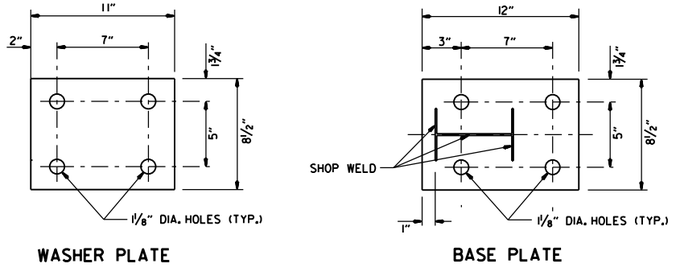
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

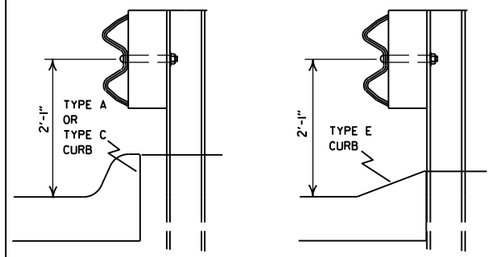
STANDARD DRAWING GR-6



WASHER PLATE

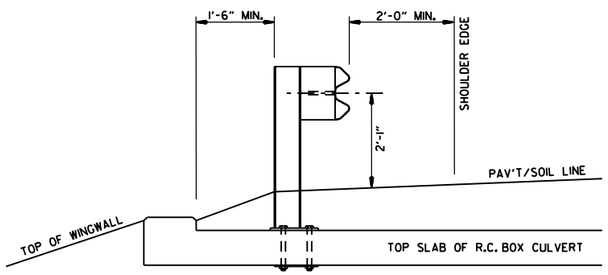
BASE PLATE

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

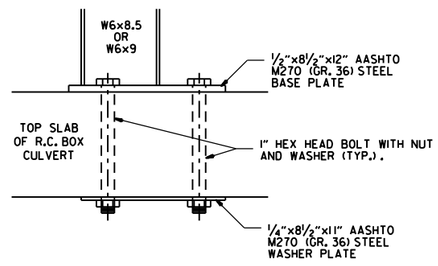


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

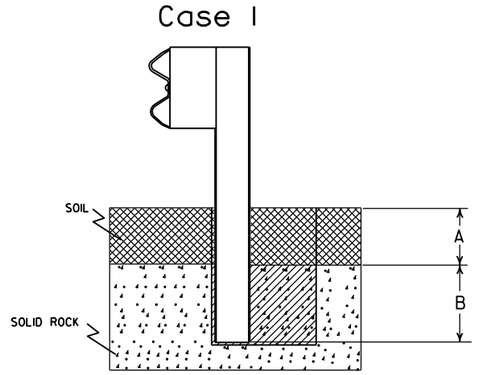
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

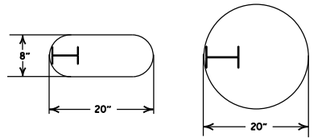


DETAIL OF CONNECTION



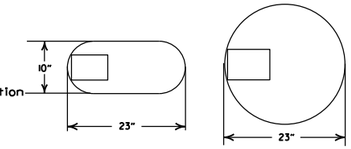
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

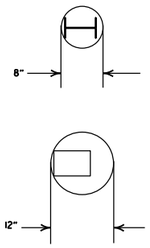
Either hole configuration acceptable



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

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

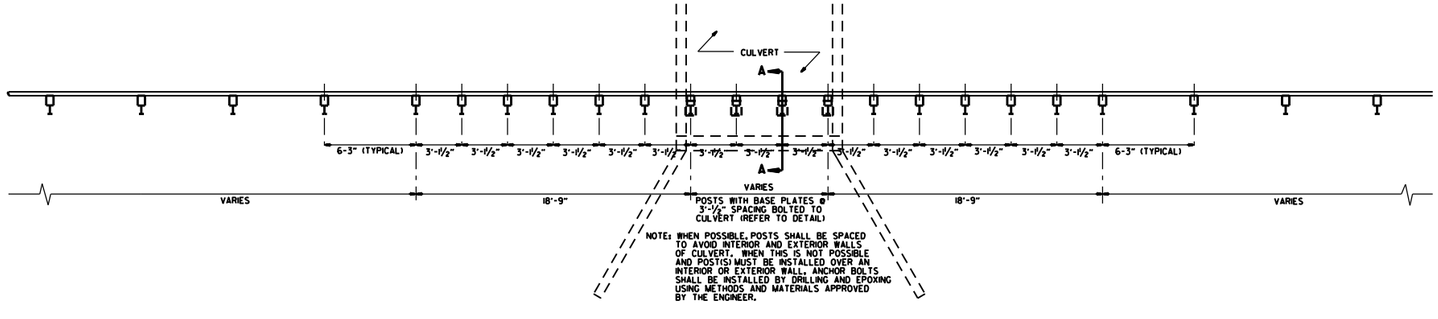
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



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

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

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



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

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

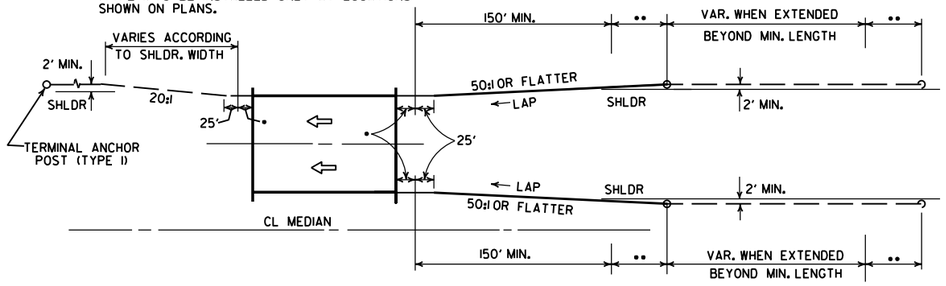
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

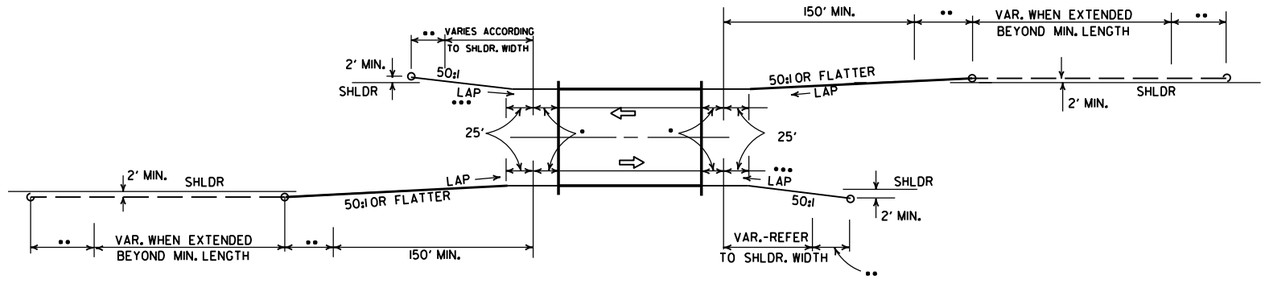
STANDARD DRAWING GR-7

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

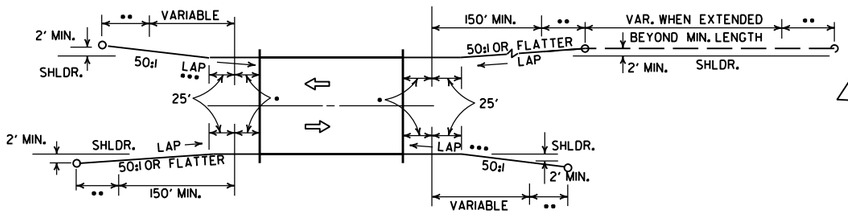
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

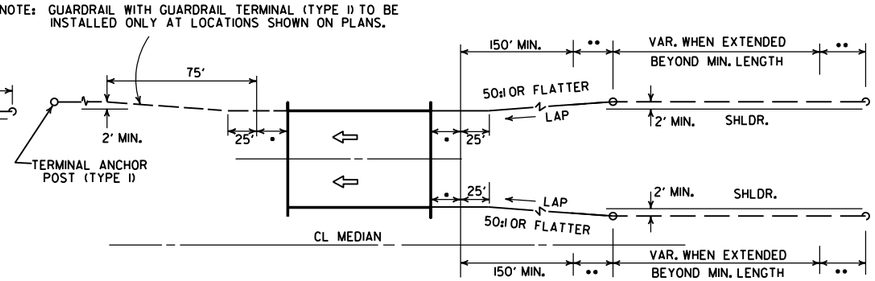
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

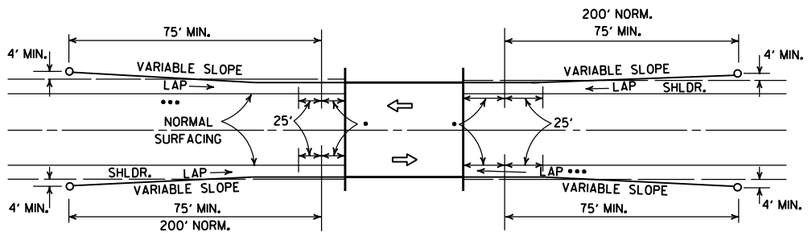
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



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

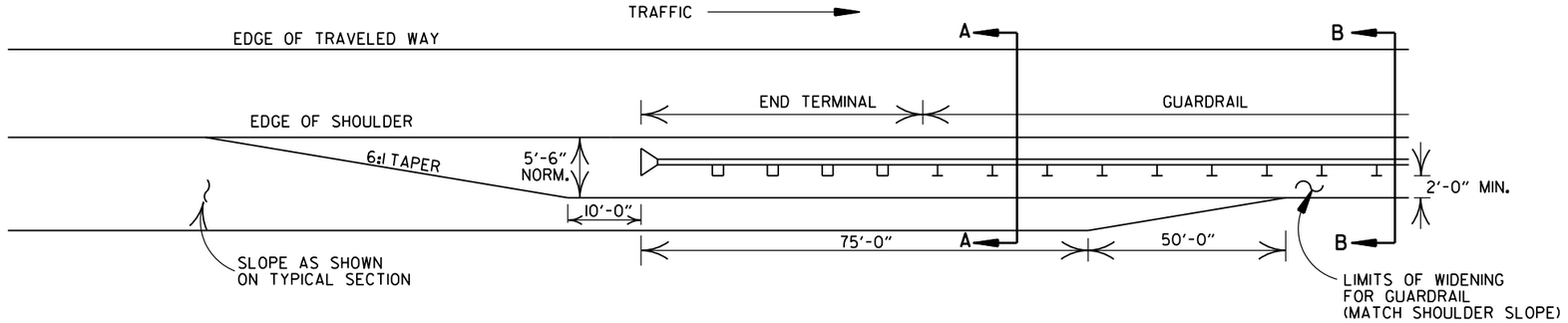
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

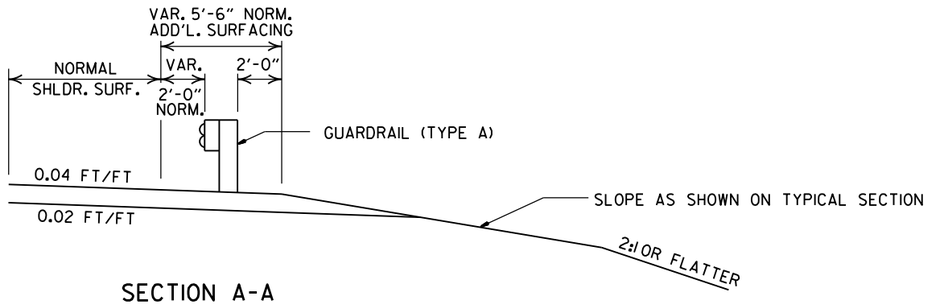
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

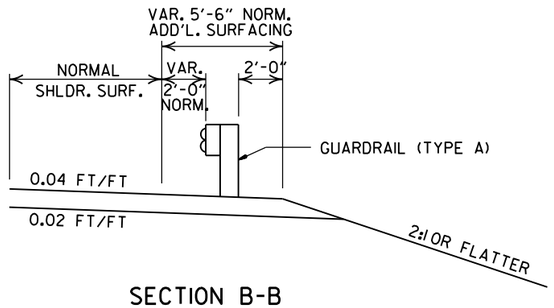
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



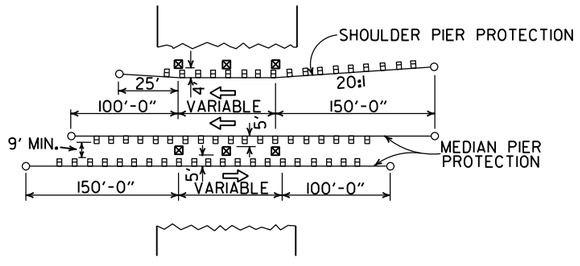


SECTION A-A



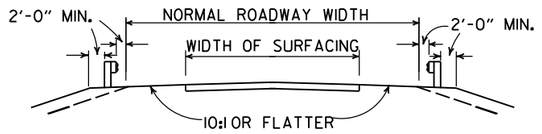
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

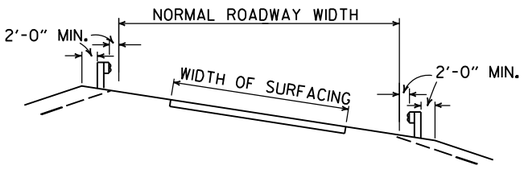


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

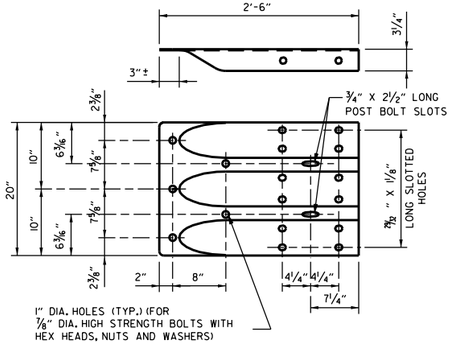
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

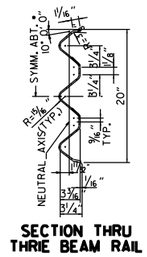
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

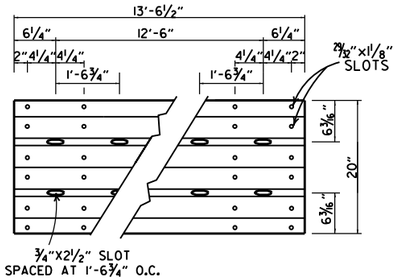
STANDARD DRAWING GR-9



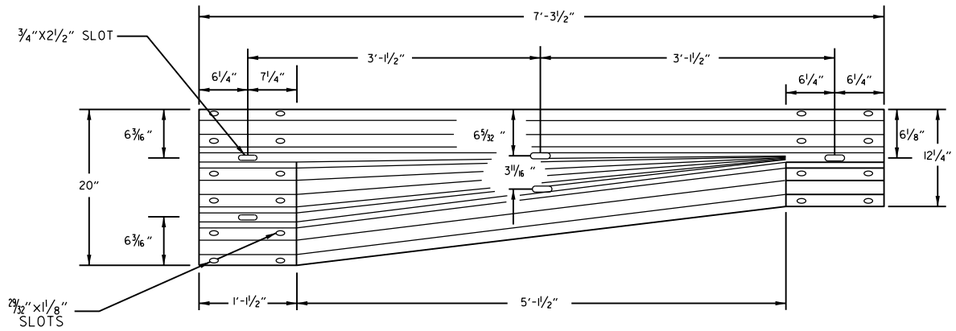
SPECIAL END SHOE



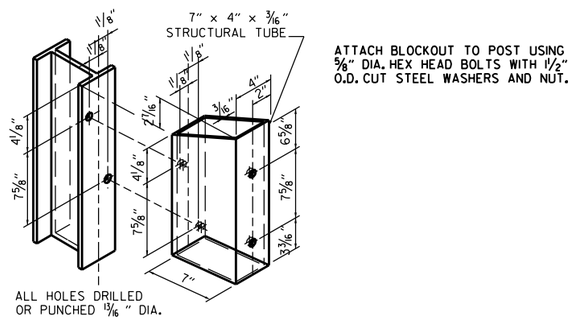
SECTION THRU THRIE BEAM RAIL



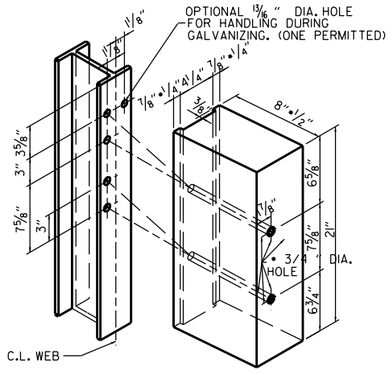
THRIE BEAM RAIL



TRANSITION SECTION



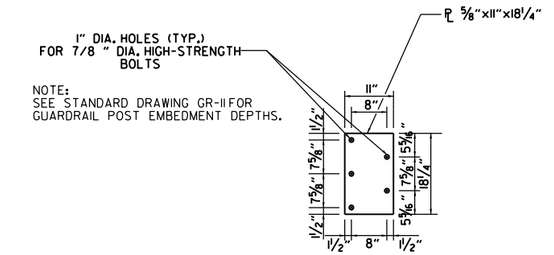
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

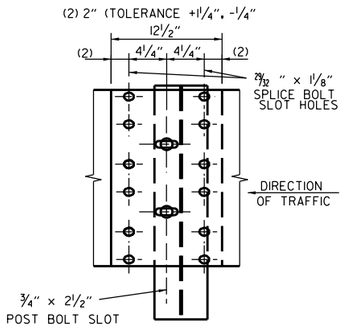
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



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.

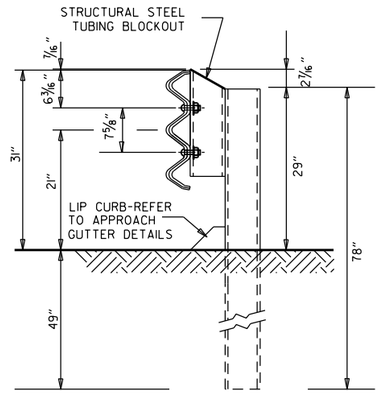
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

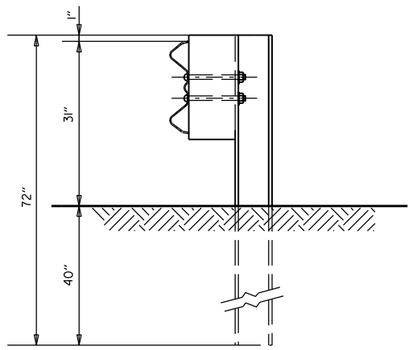
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

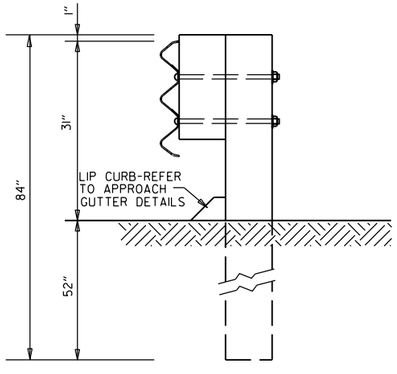
STANDARD DRAWING GR-10



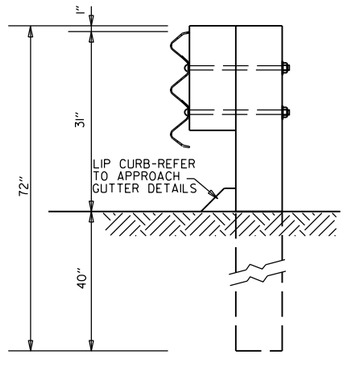
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



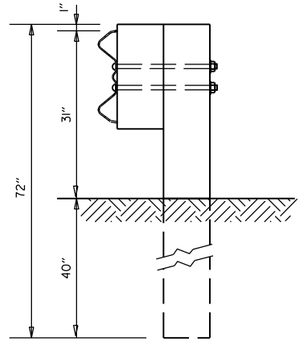
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

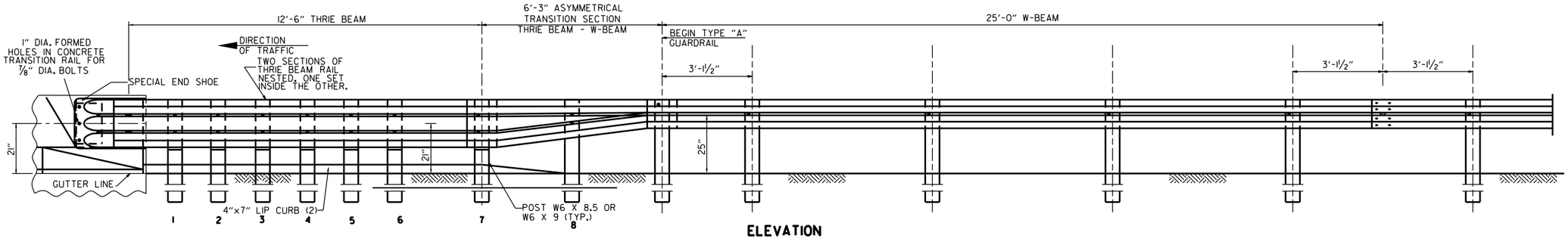
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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	

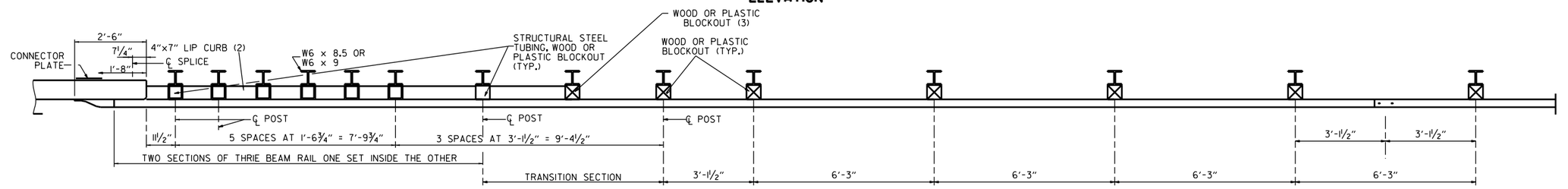
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

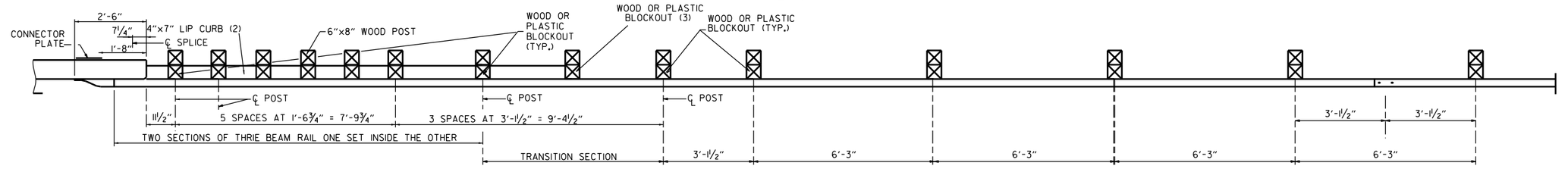
STANDARD DRAWING GR-11



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

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.

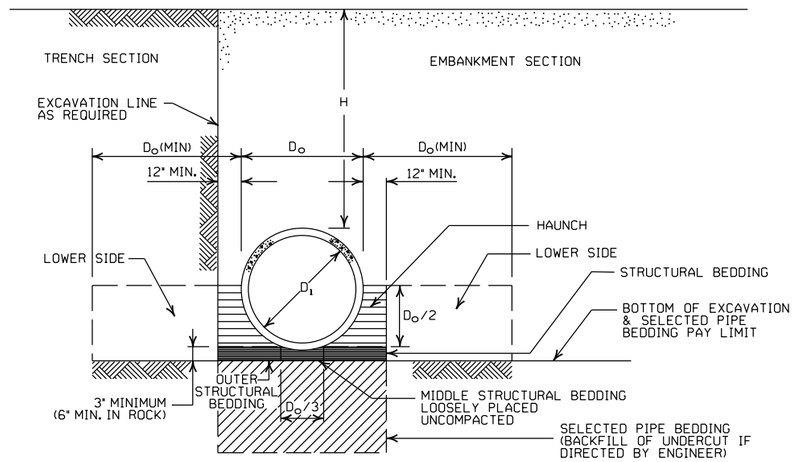
- LEGEND -

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

CORRUGATED METAL PIPE ARCHES

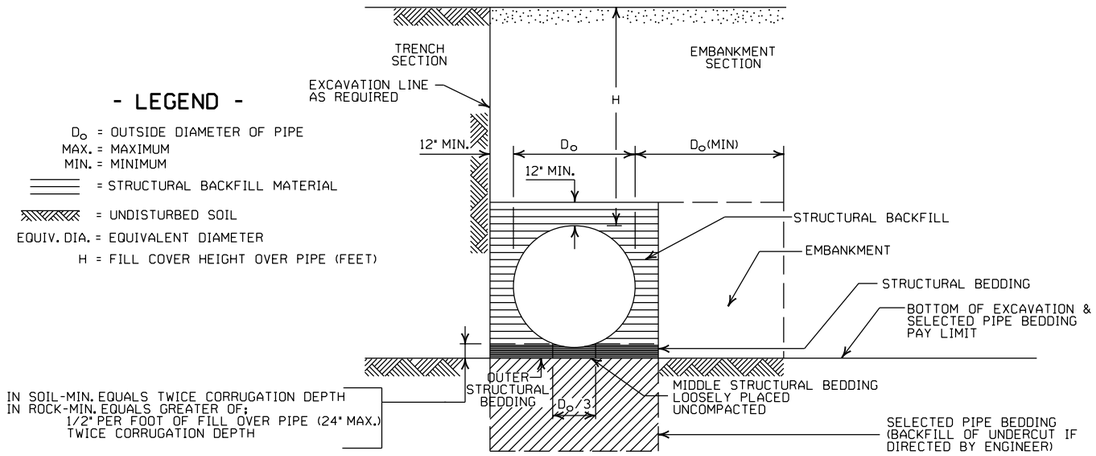
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION	INSTALLATION			INSTALLATION	INSTALLATION	
				TYPE 1	TYPE 1			TYPE 1	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		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

② WHERE THE STANDARD 2 2/3"x 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.

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



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."

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"

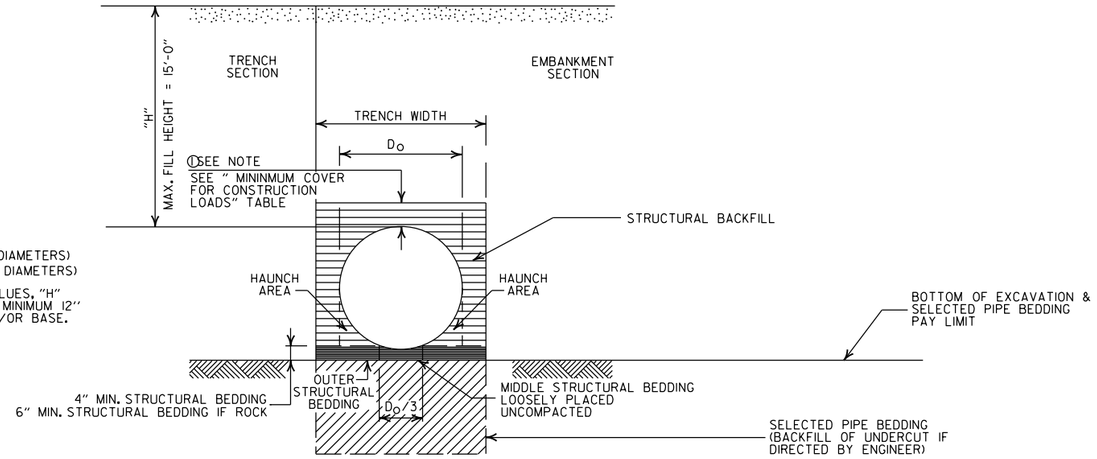
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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 = 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

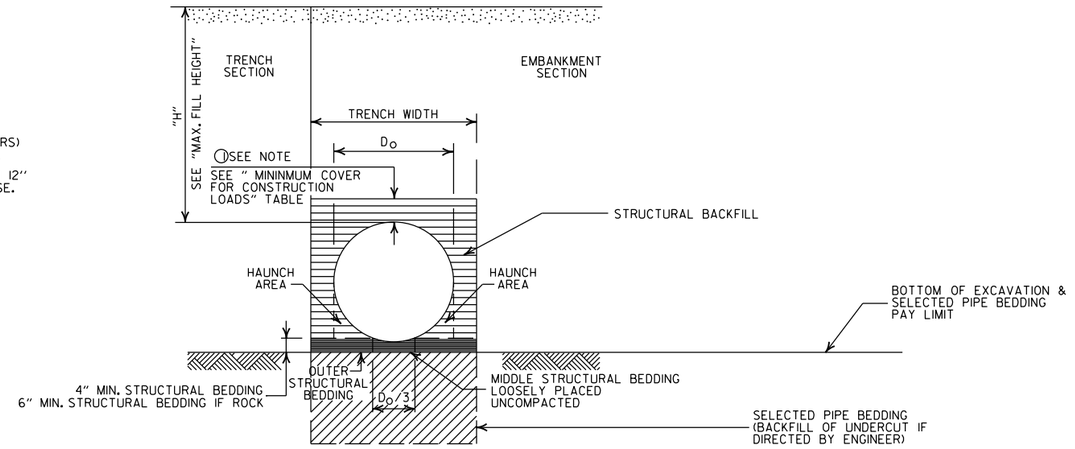
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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"

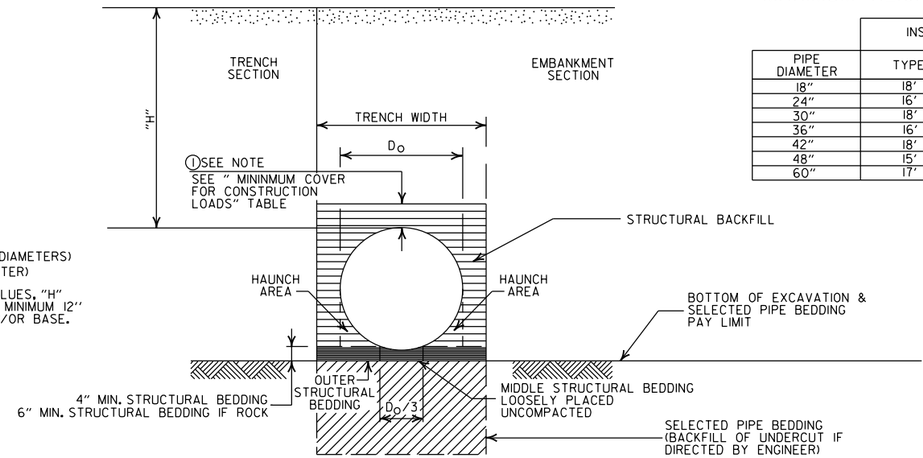
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

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

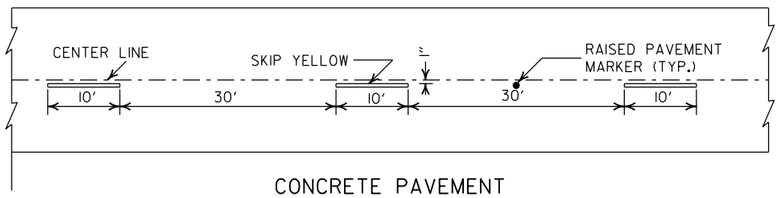
= UNDISTURBED SOIL

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

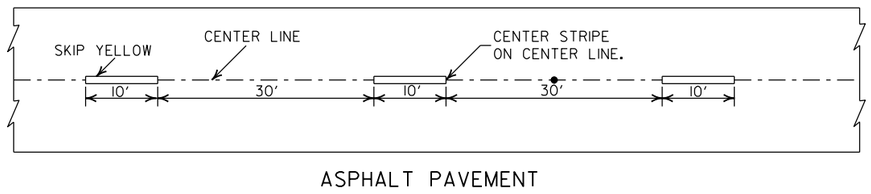
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

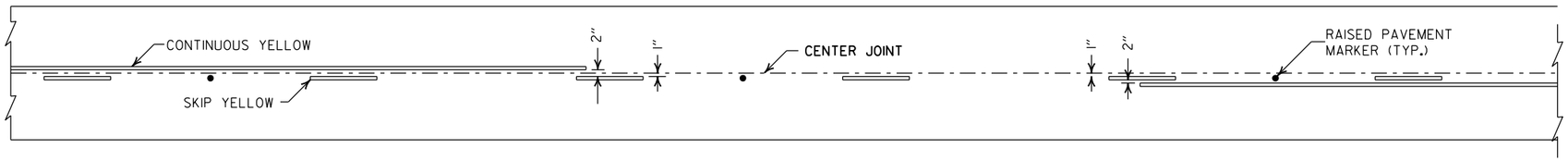


CONCRETE PAVEMENT

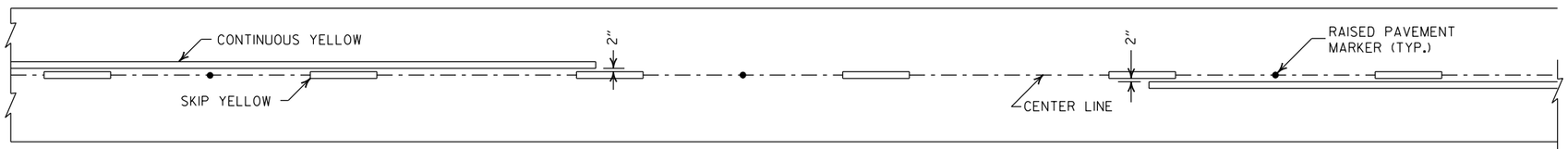


ASPHALT PAVEMENT

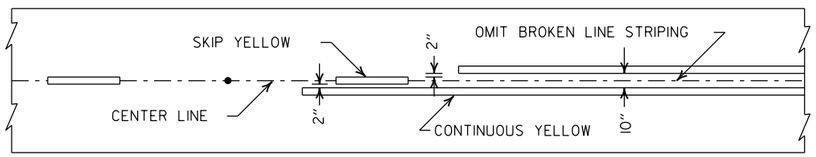
BROKEN LINE STRIPING



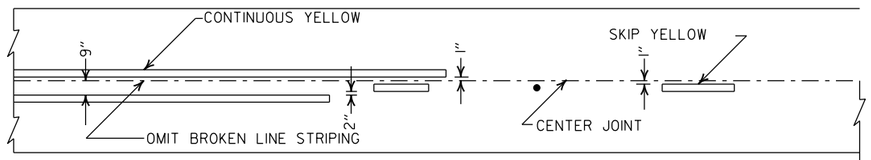
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

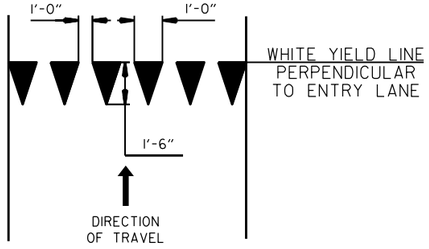


ASPHALT PAVEMENT

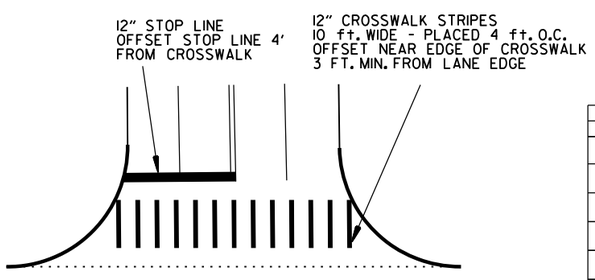


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

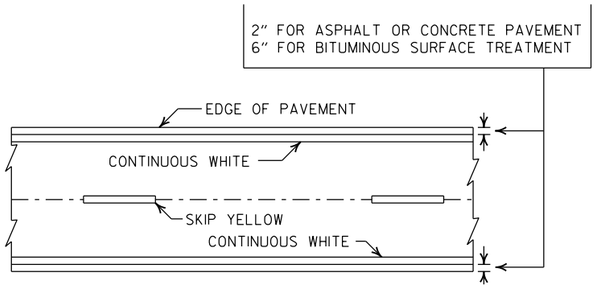


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

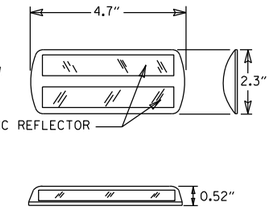
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



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

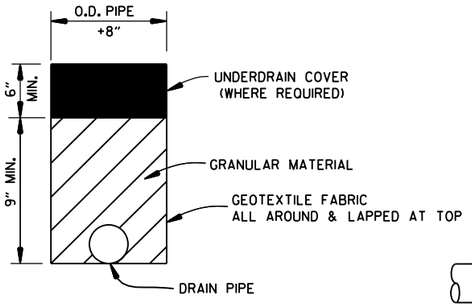
PAVEMENT MARKING DETAILS

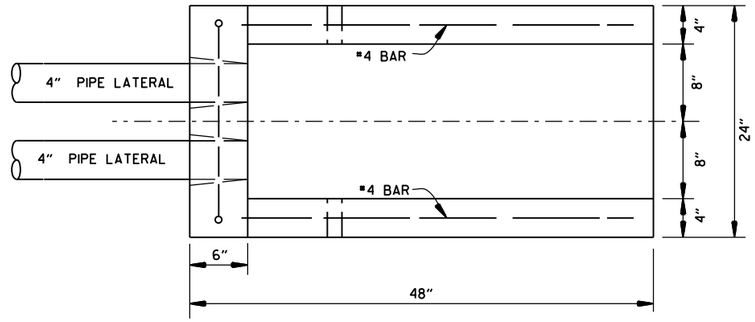
STANDARD DRAWING PM-1

NOTE:

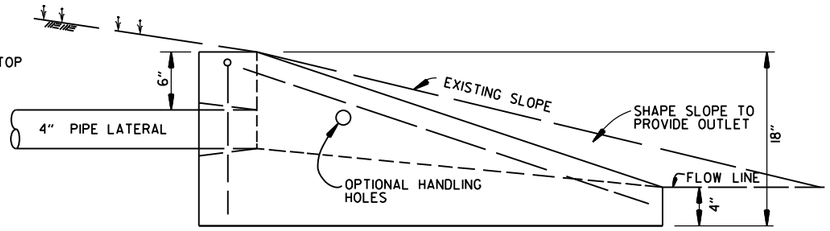
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

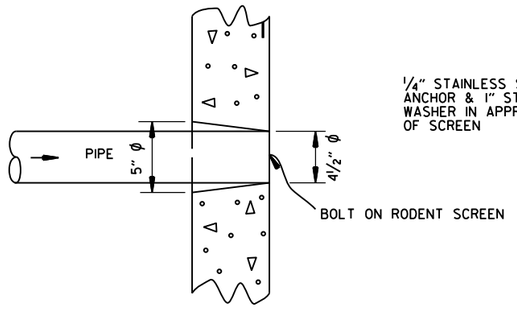




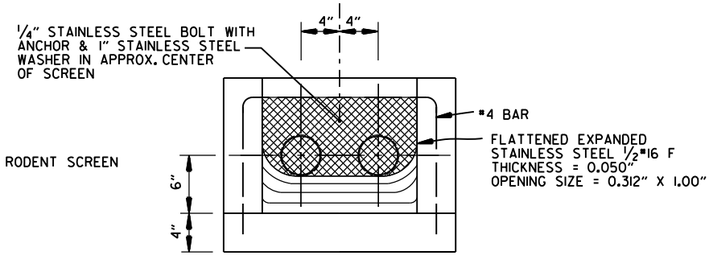
PLAN VIEW



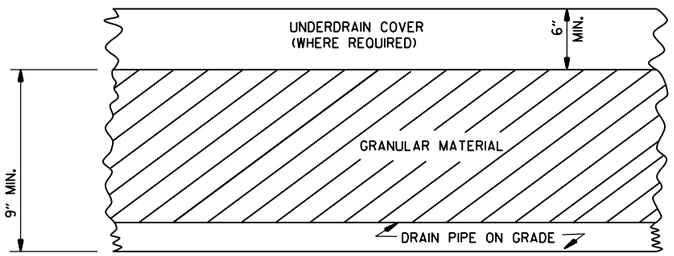
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

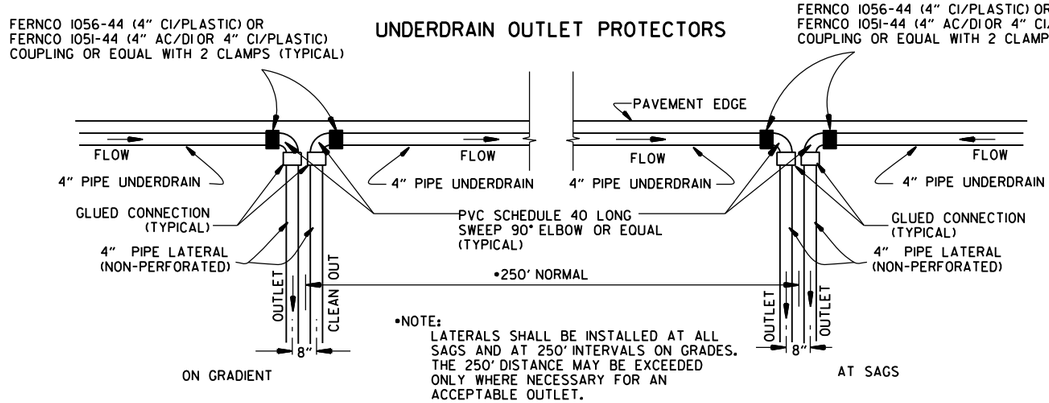
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

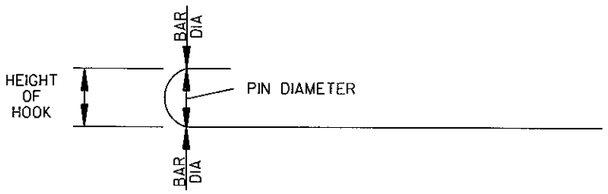
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-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

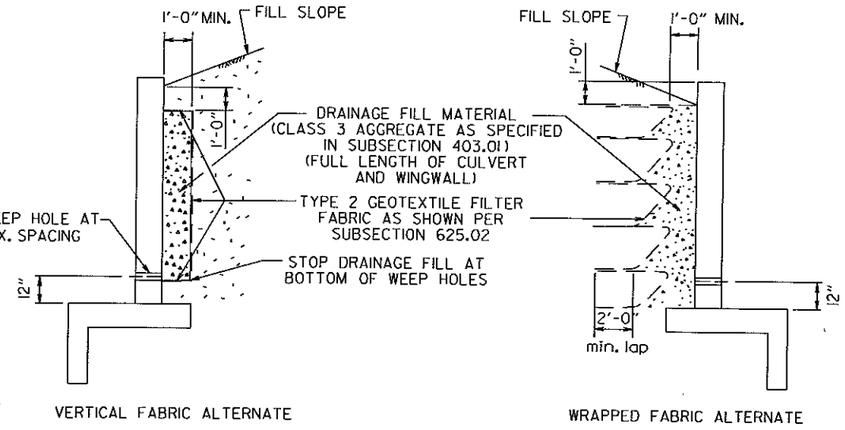
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

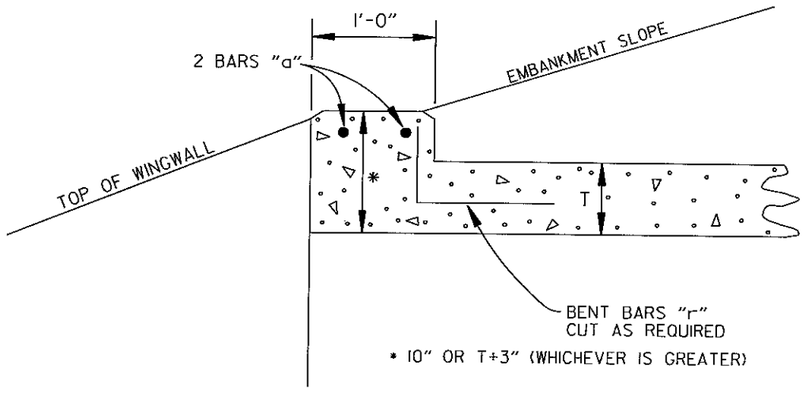
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

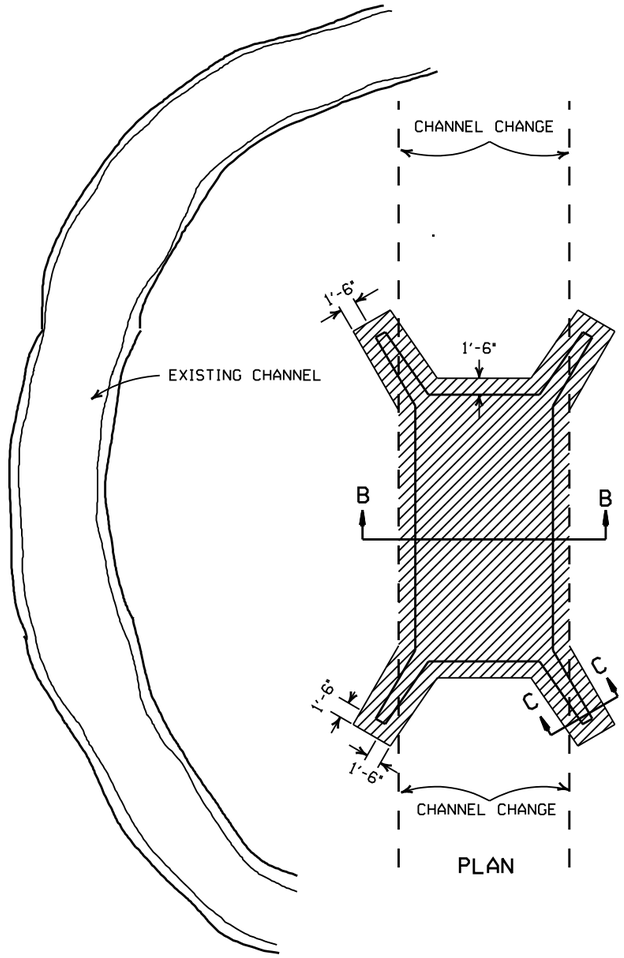
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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	

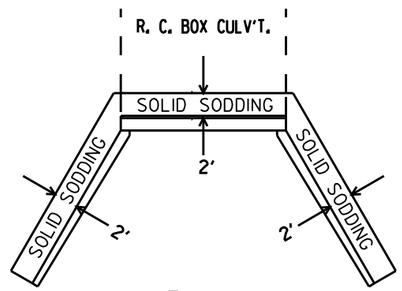
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



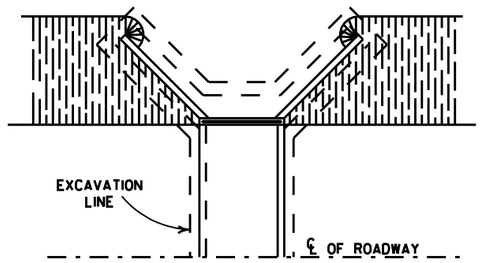
PLAN



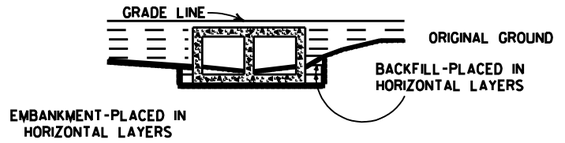
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

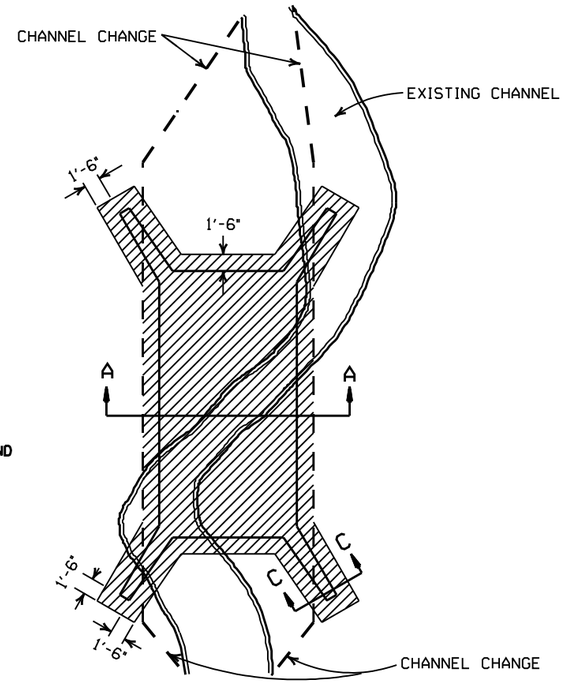


PLAN

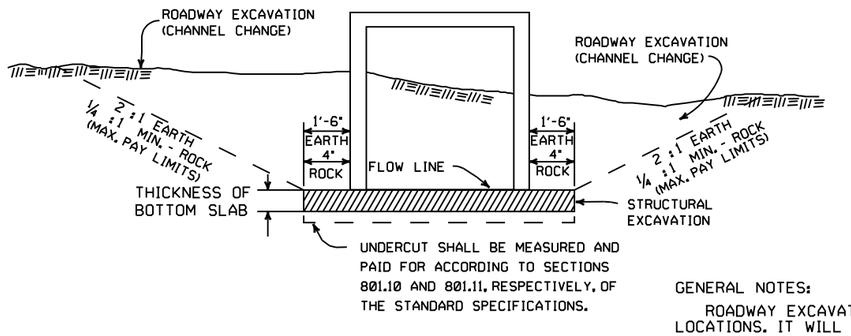


LONGITUDINAL SECTION

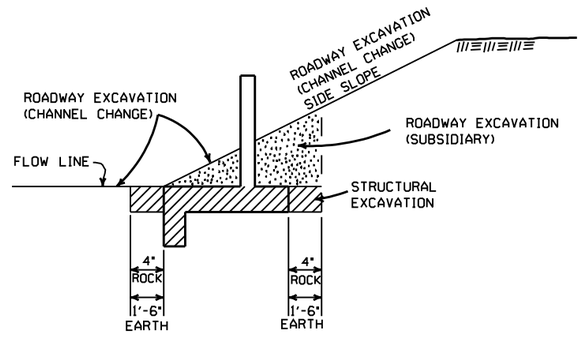
BACKFILL DETAILS FOR BOX CULVERT



PLAN

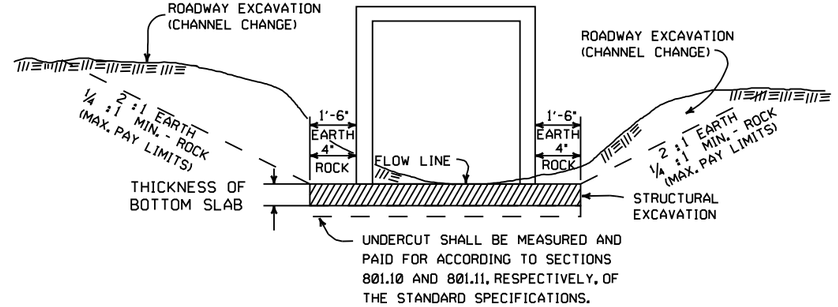


SECTION B-B



SECTION C-C

DETAILS FOR NEW CHANNELS



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.

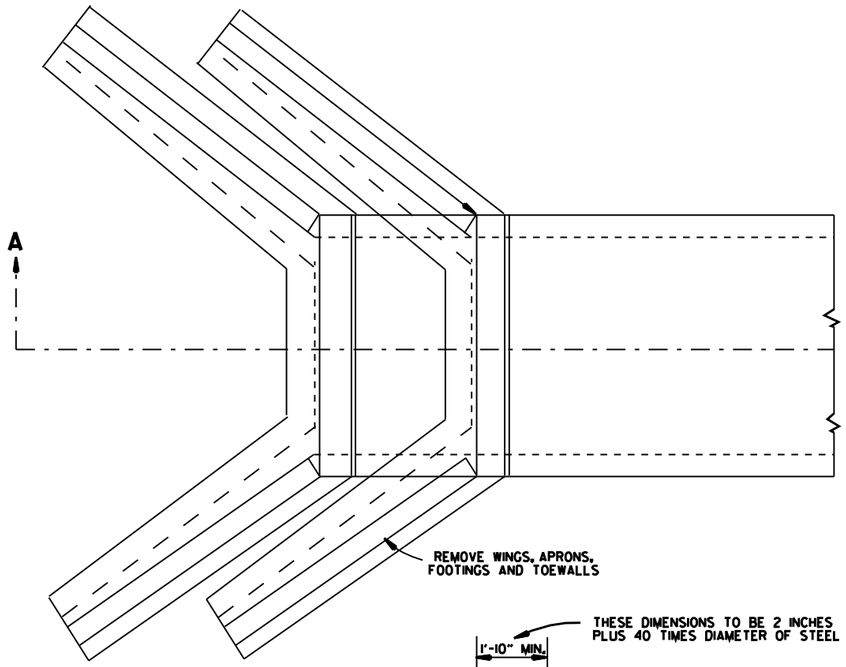
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

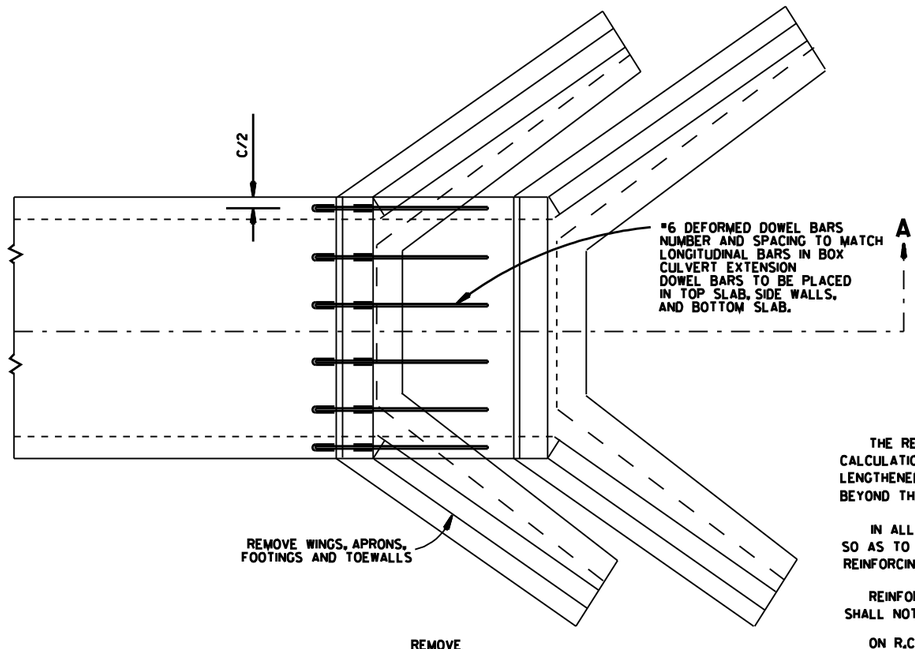
STANDARD DRAWING RCB-2



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	300	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		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	300	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	350	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		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		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	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		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	300	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	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
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	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
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'																													

ABBREVIATIONS

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

GENERAL NOTES

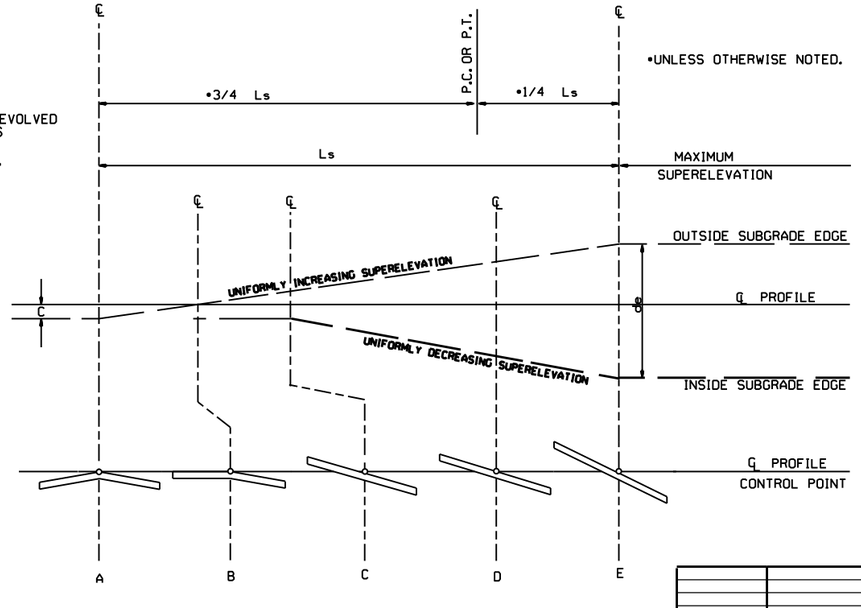
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

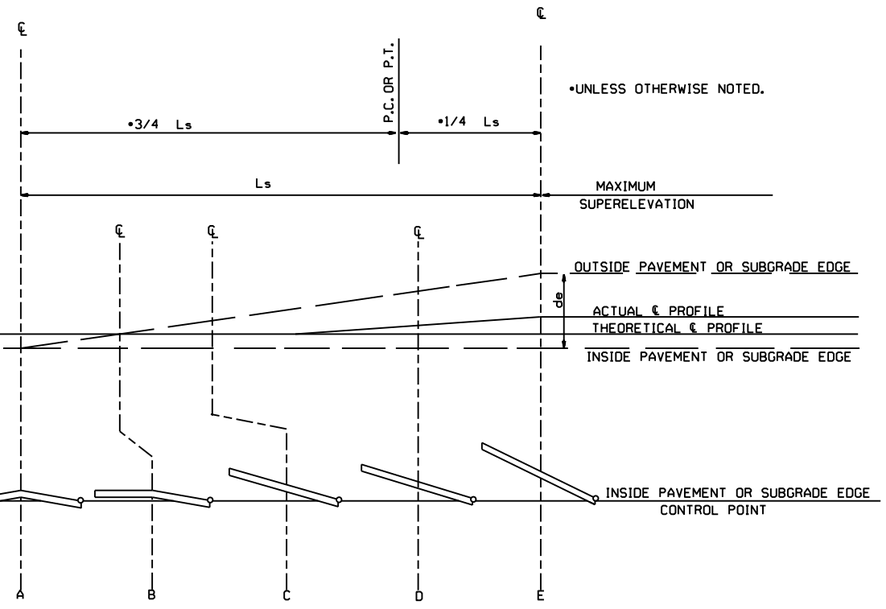
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

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

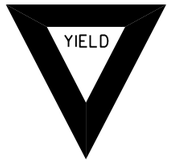
STANDARD DRAWING SE-2

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



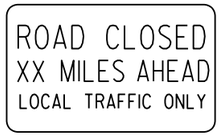
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a



STD. 36"X36"
FWY. 48"X48"

W1-1



STD. 36"X36"
FWY. 48"X48"

W1-2



STD. 36"X36"
FWY. 48"X48"

W1-3



STD. 48"X48"

W1-4



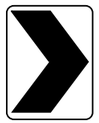
STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



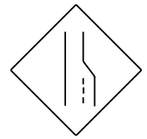
STD. 36"X36"
SPECIAL 48"X48"

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"

W13-1



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"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



STD. 36"X36"
FWY. 48"X48"

W8-9



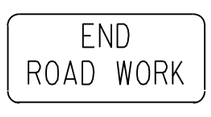
STD. 36"X36"
FWY. 48"X48"

G20-1



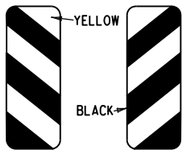
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

M4-9



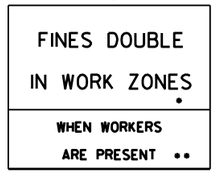
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

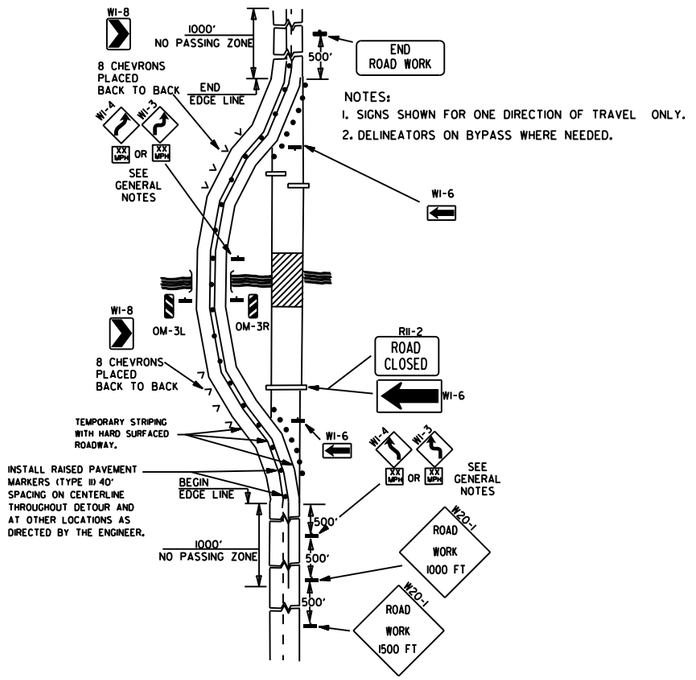
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

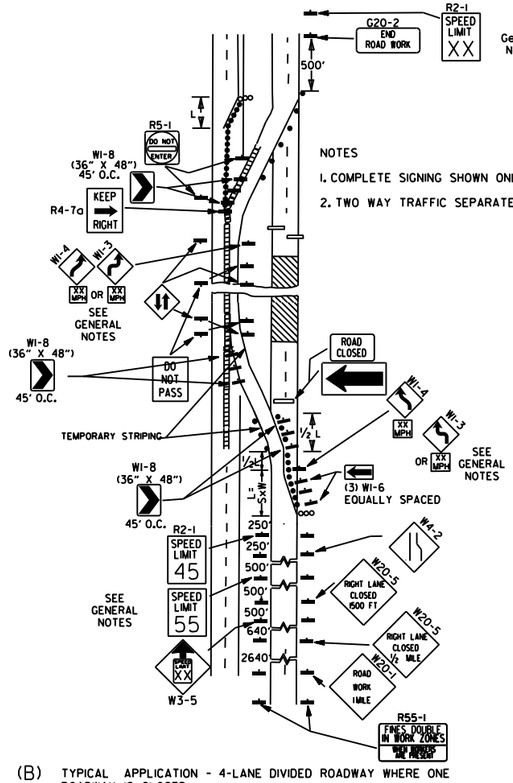
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



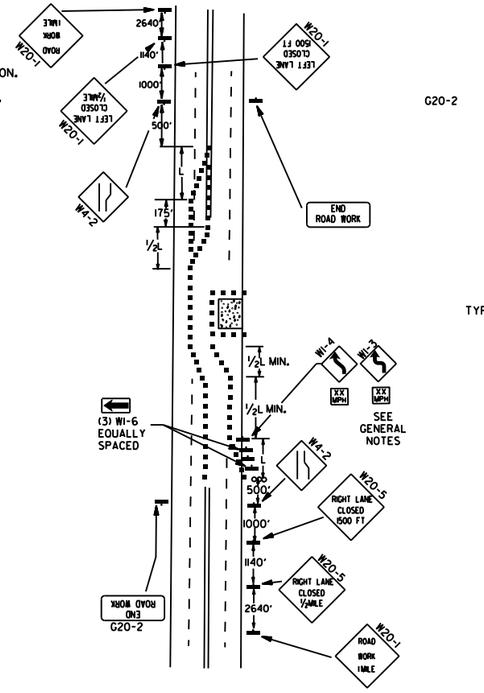
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

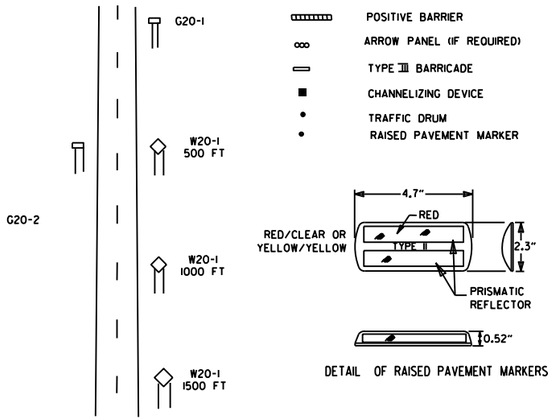


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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:

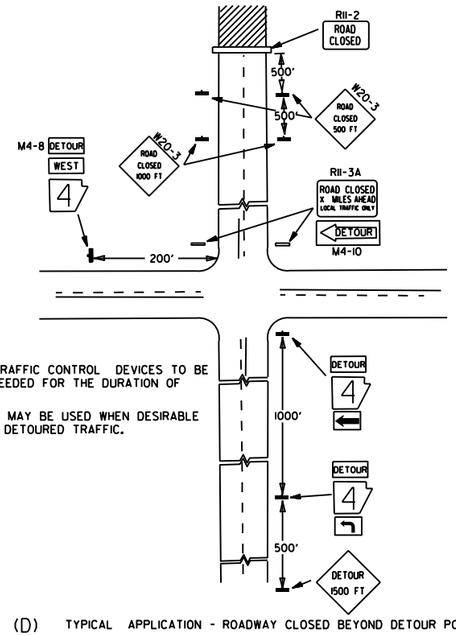
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

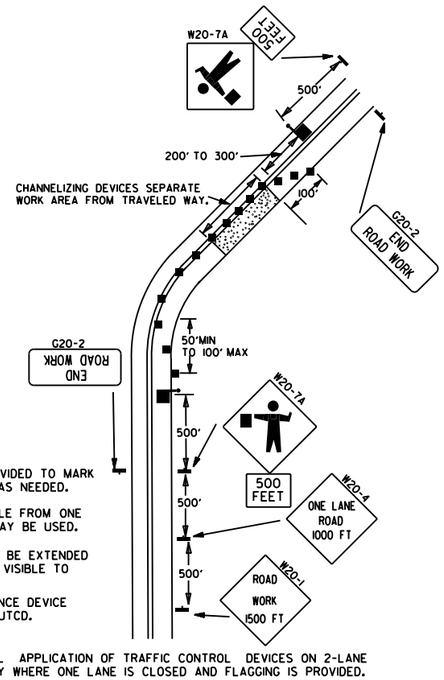
GENERAL NOTES:

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 WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-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).



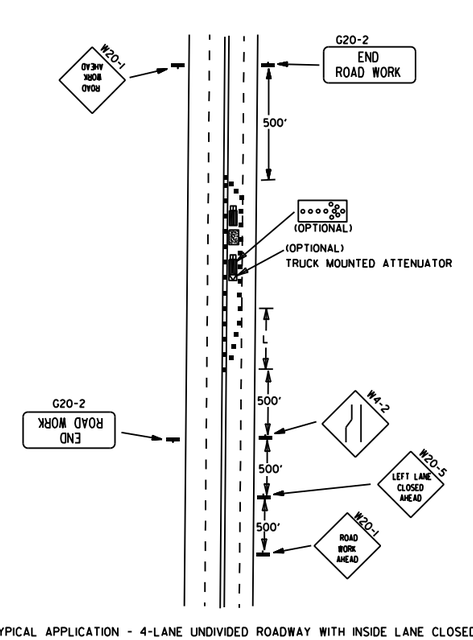
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



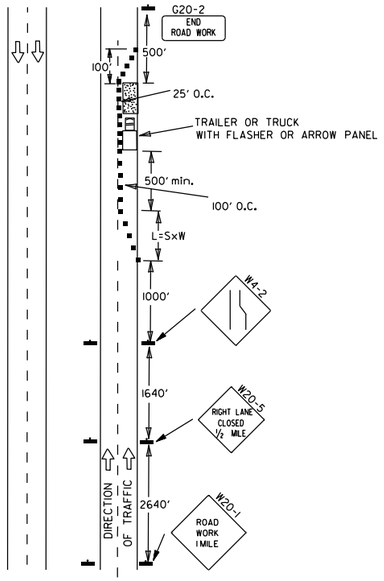
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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 (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

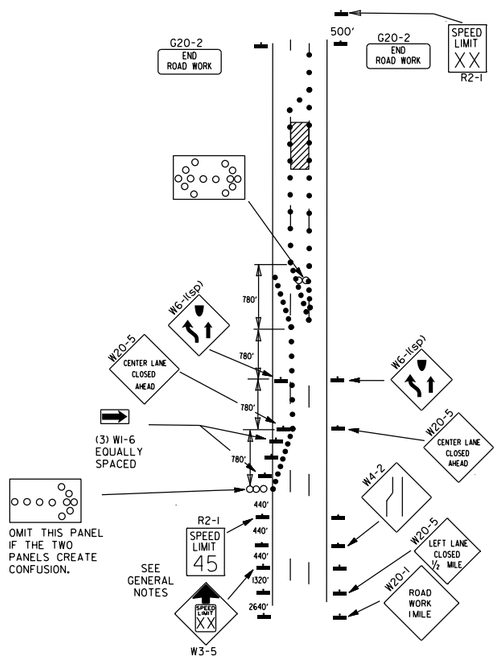
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



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

KEY:

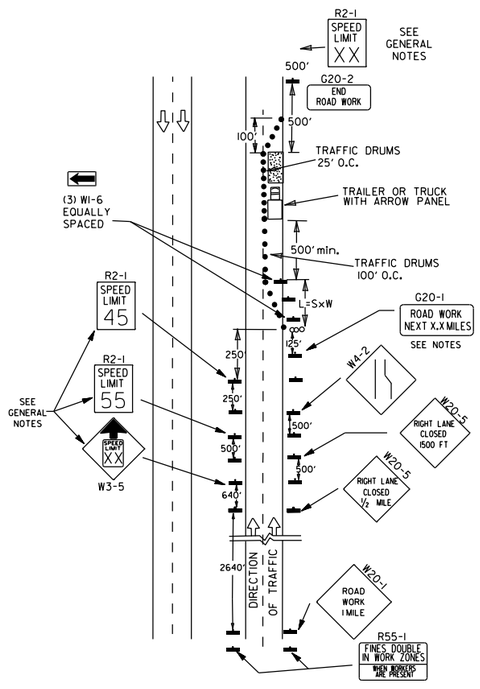
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

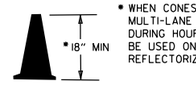
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 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.

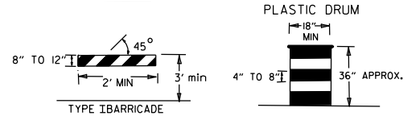
CHANNELIZING DEVICES



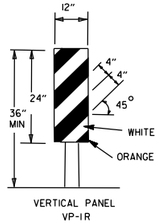
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

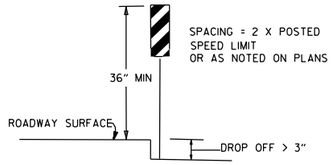
PLASTIC DRUM



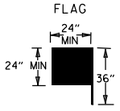
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

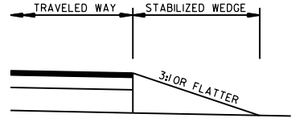
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	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:

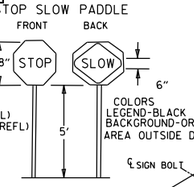
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL 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).

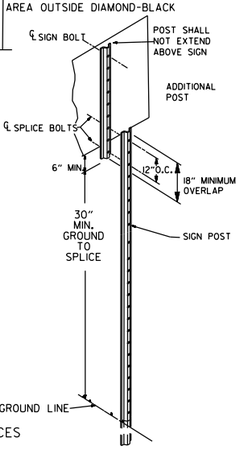


STABILIZED WEDGE

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

STOP SLOW PADDLE

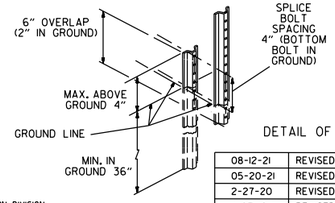




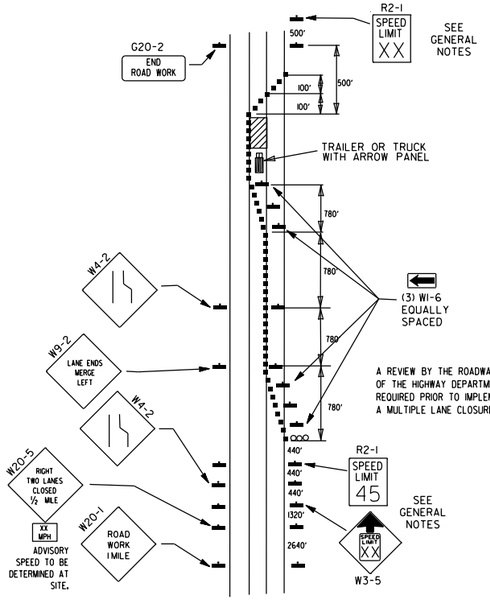
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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



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.

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	

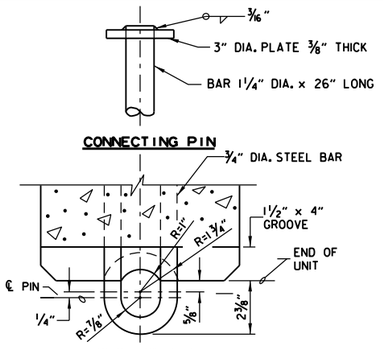
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

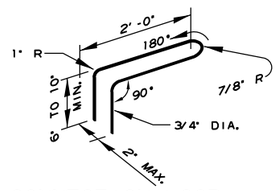
REINFORCING BAR TABLE PER BARRIER UNIT

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"

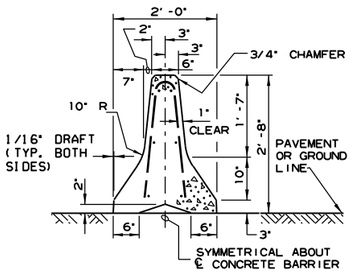


SECTION E-E

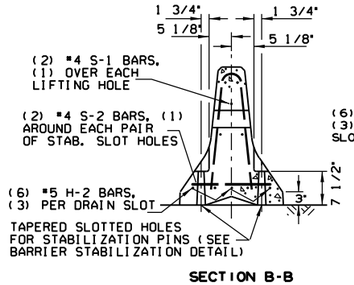
CONNECTION DETAILS



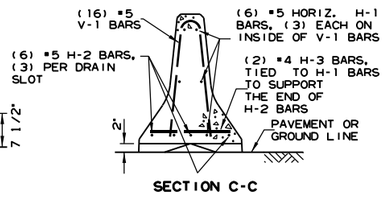
CONNECTION LOOP



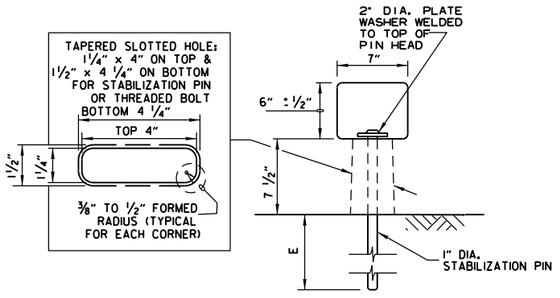
SECTION A-A



SECTION B-B



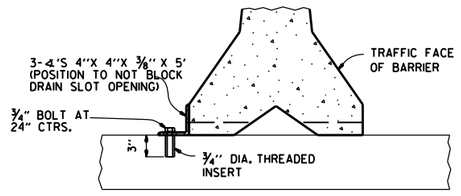
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

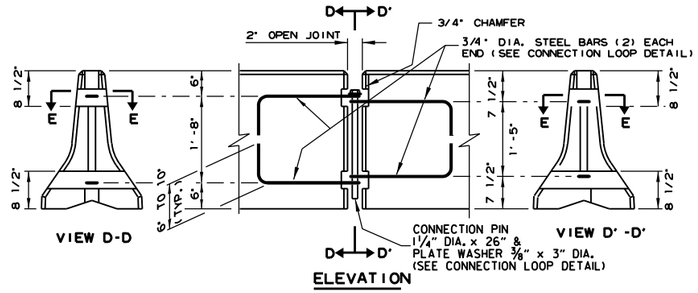
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



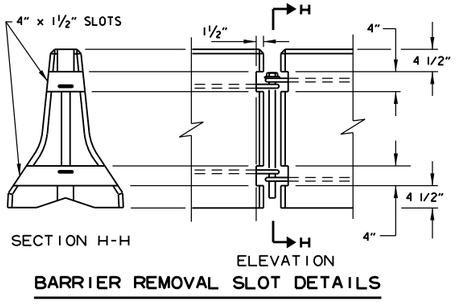
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

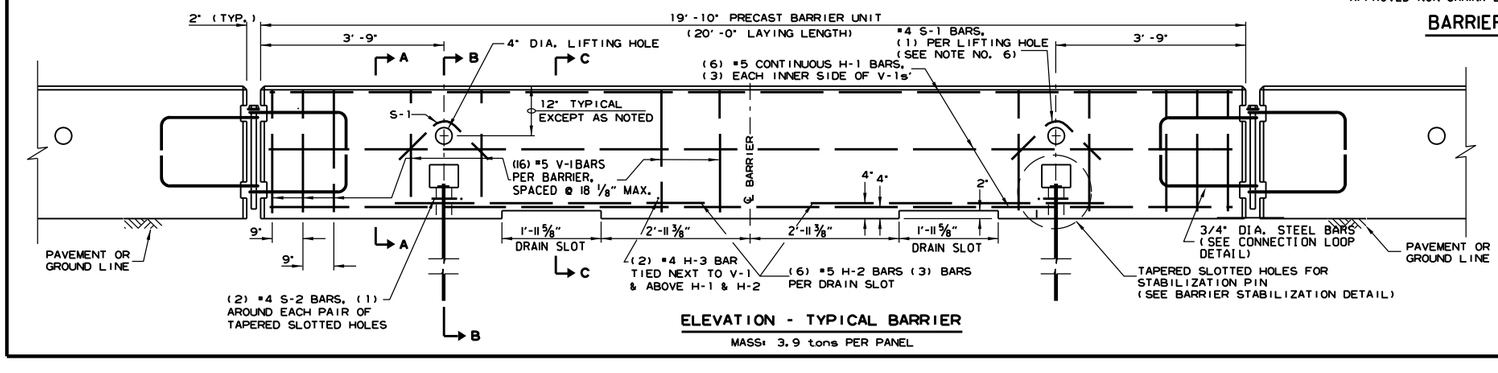
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

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.

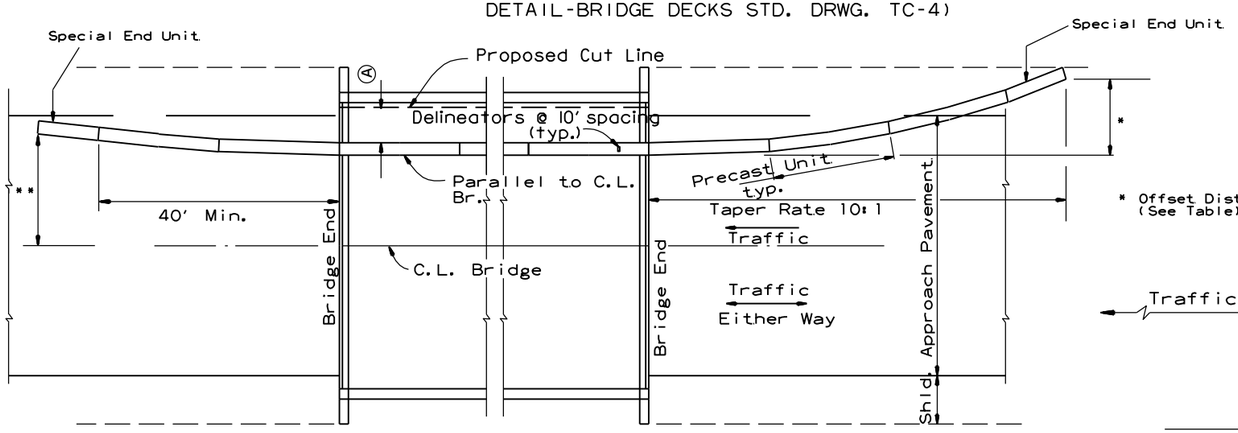
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

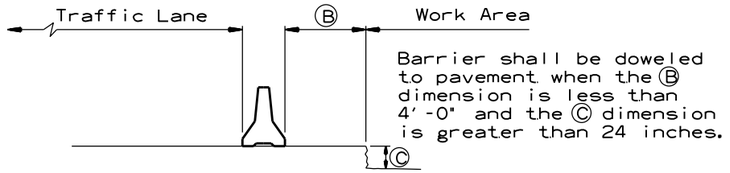
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

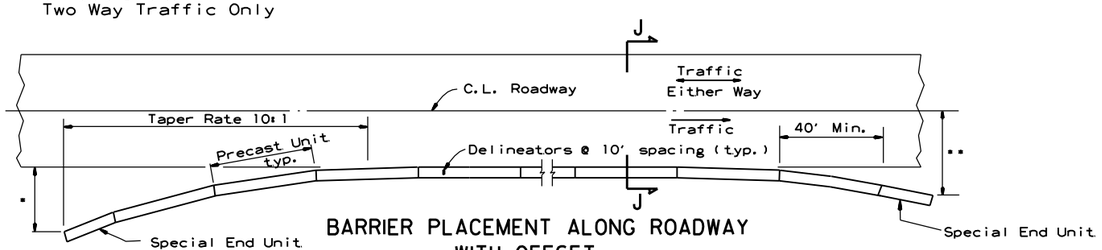


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

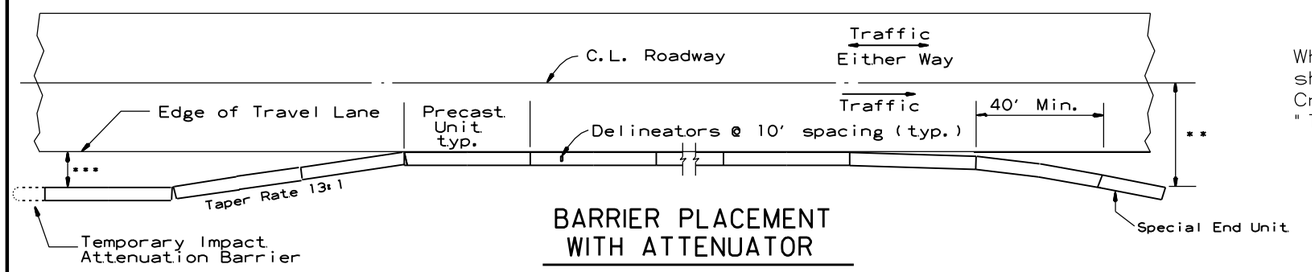
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

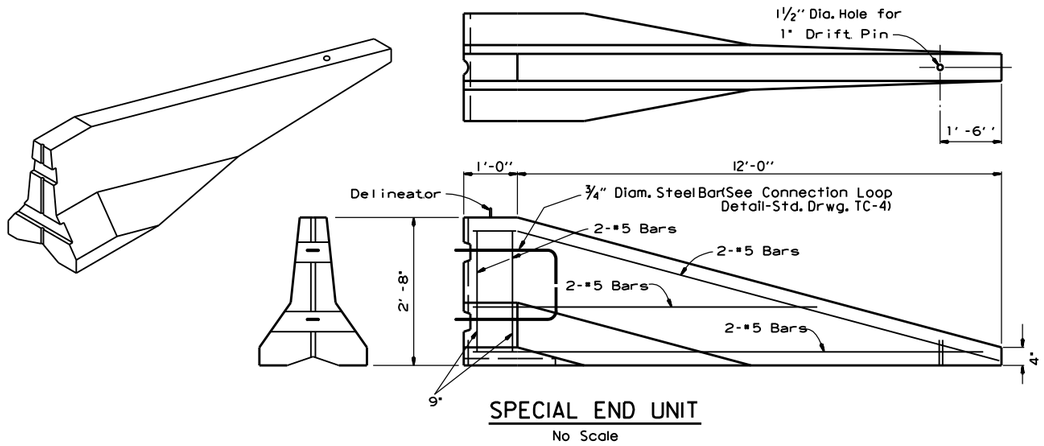


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



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	

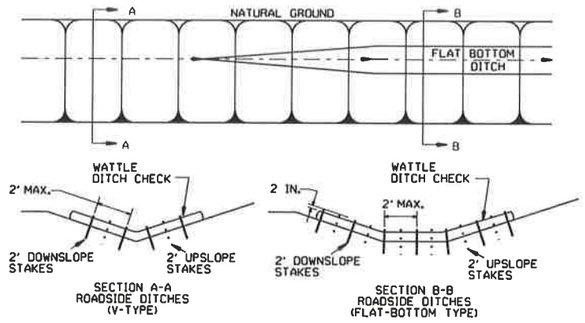
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

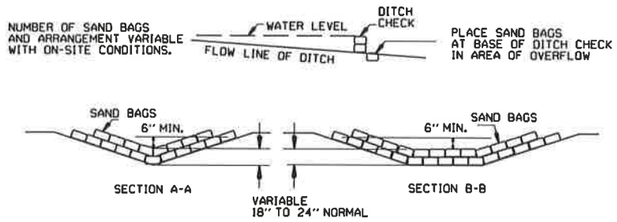
STANDARD DRAWING TC-5

GENERAL NOTES

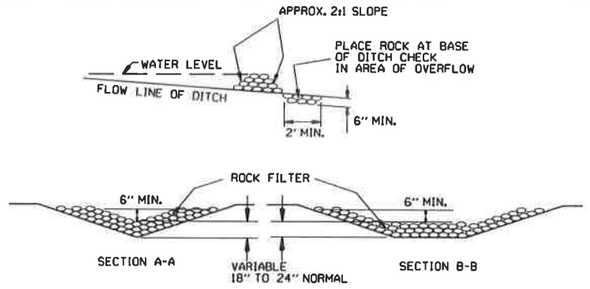
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

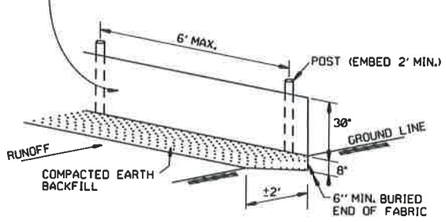


ROCK DITCH CHECK (E-6)

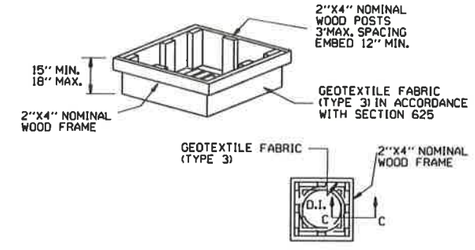
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

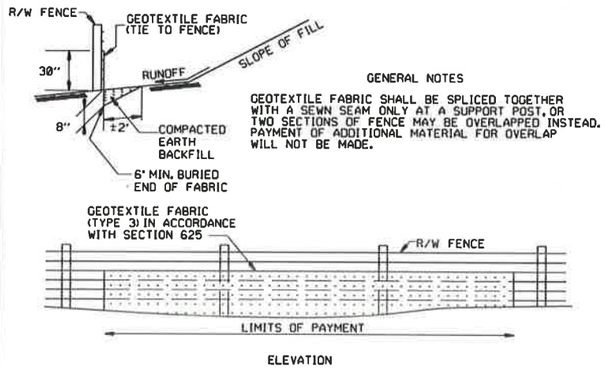
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



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.

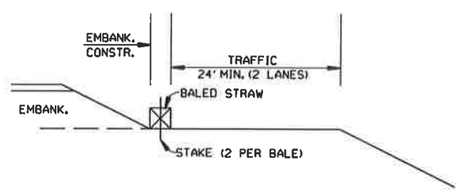
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

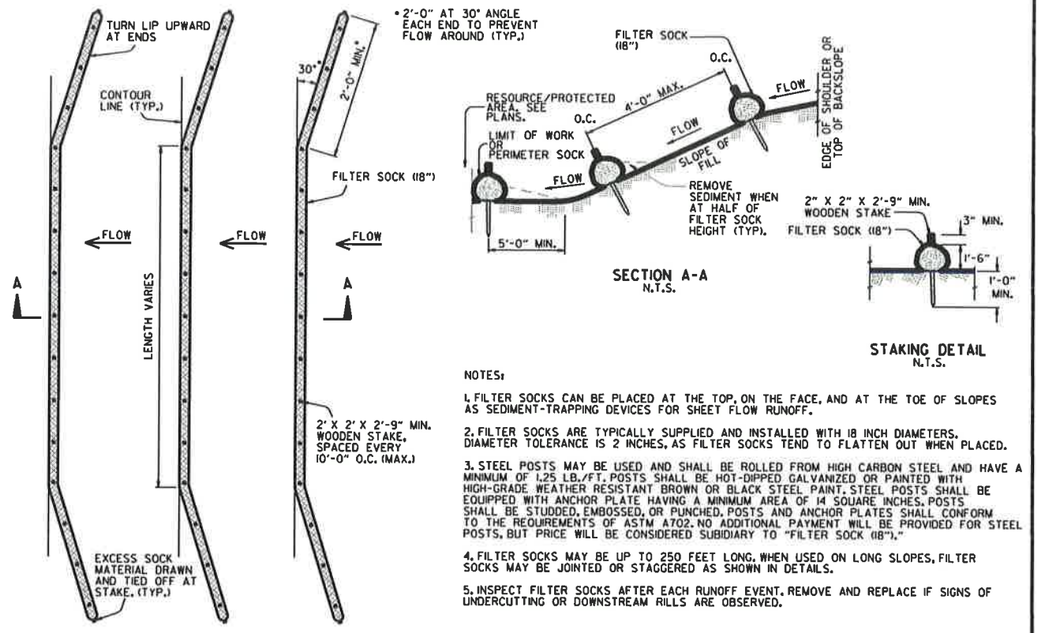
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

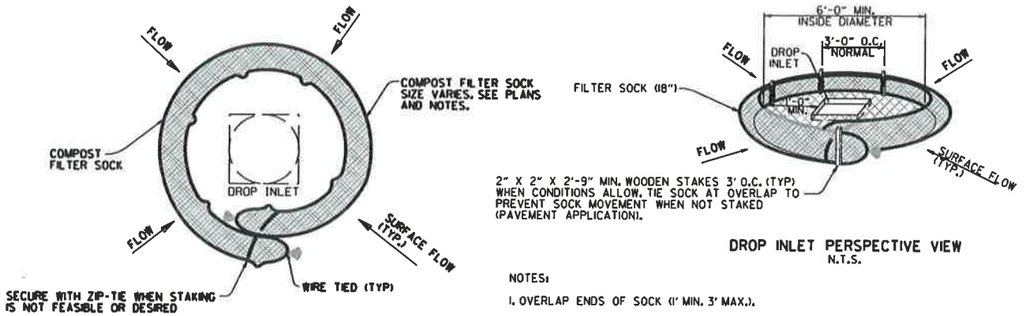
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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.

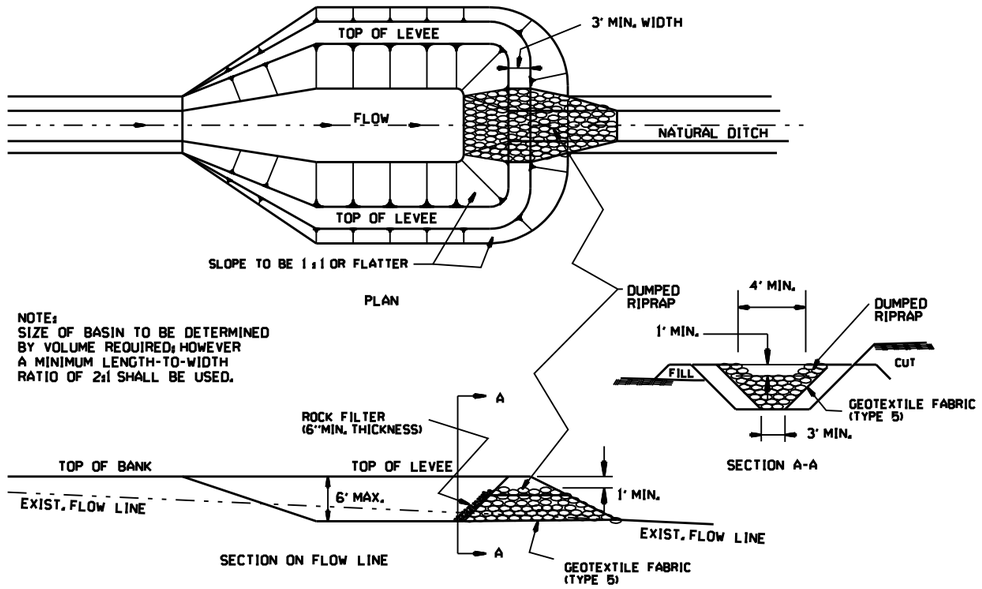
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

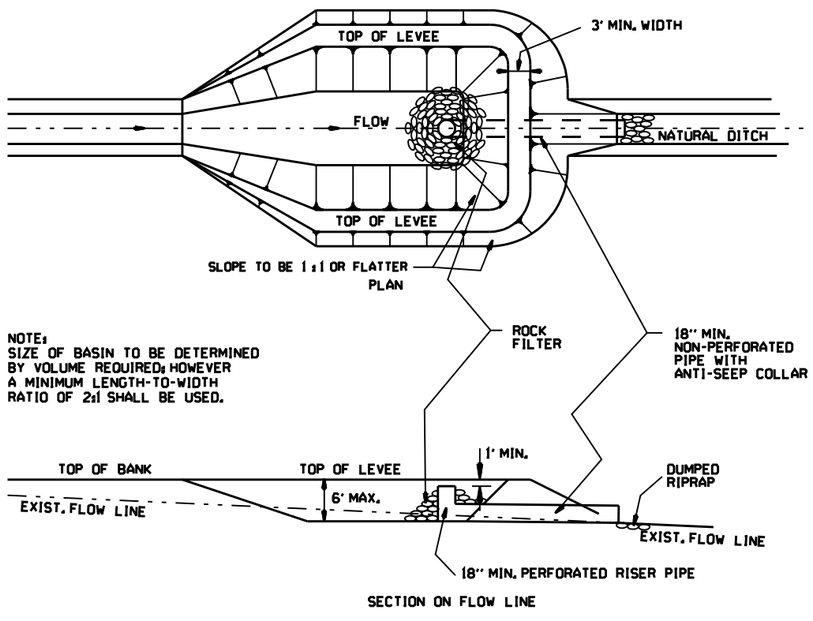
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

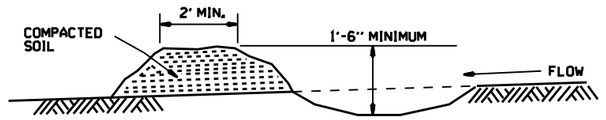
STANDARD DRAWING TEC-1



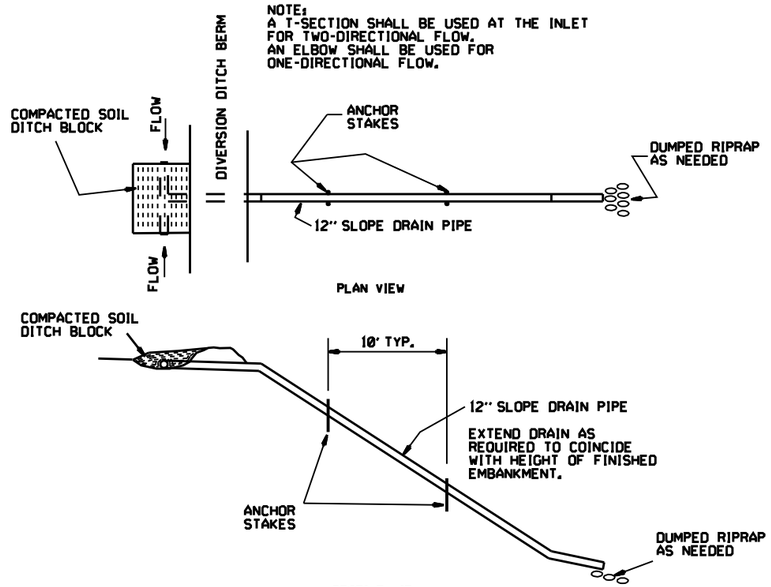
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



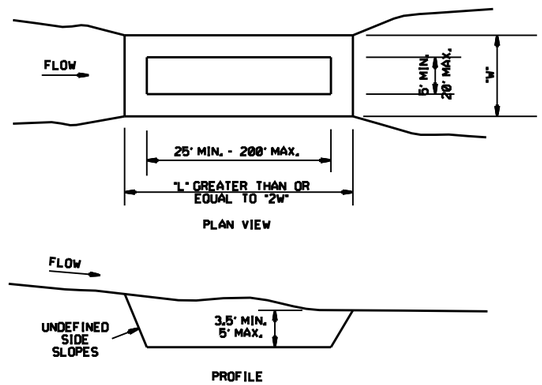
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

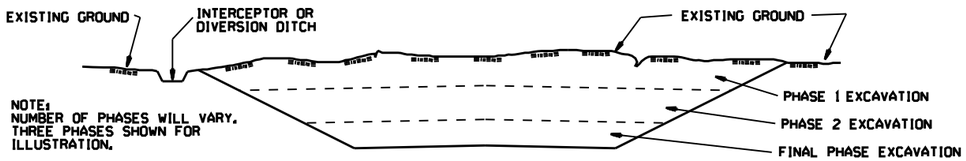
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



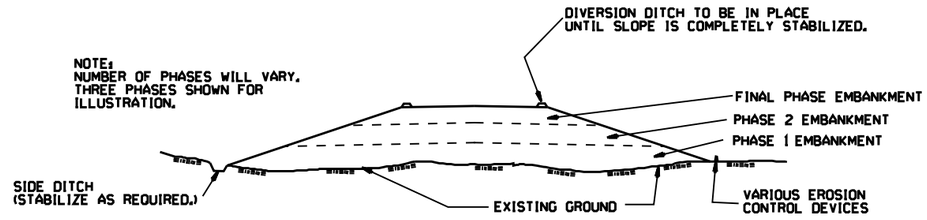
GENERAL NOTE

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

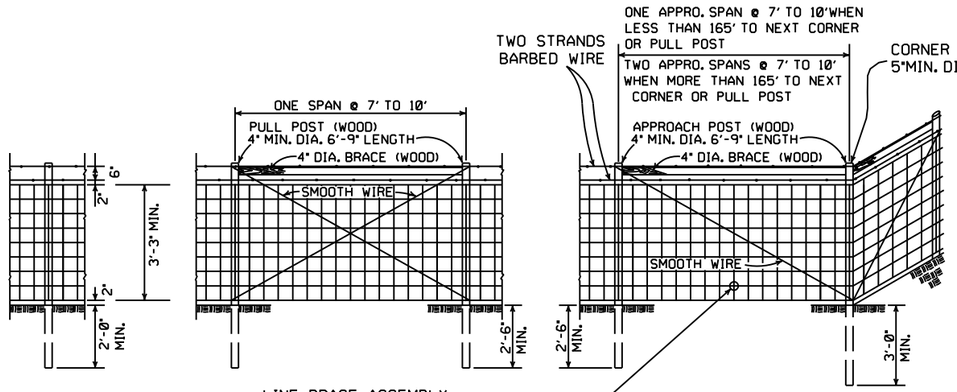
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

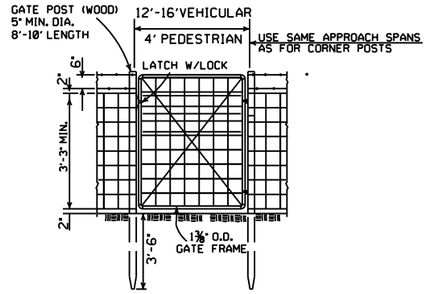
ARKANSAS STATE HIGHWAY COMMISSION

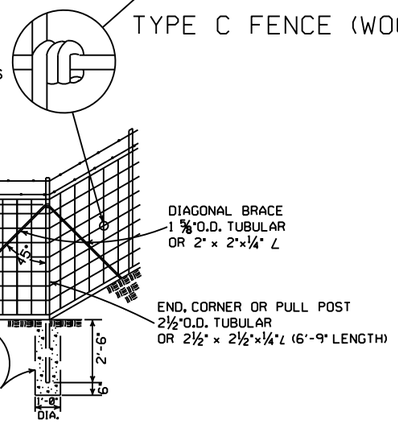
TEMPORARY EROSION CONTROL DEVICES

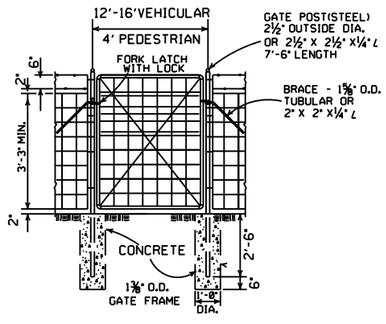
STANDARD DRAWING TEC-3



TYPE C FENCE (WOOD POSTS)

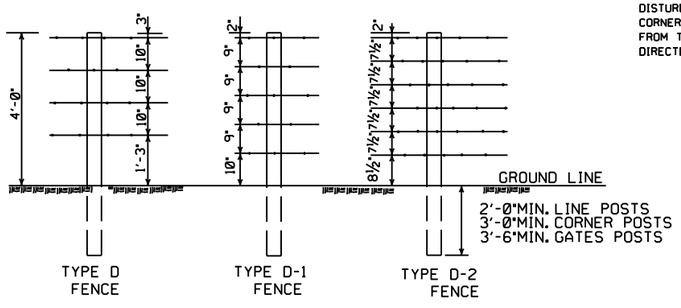




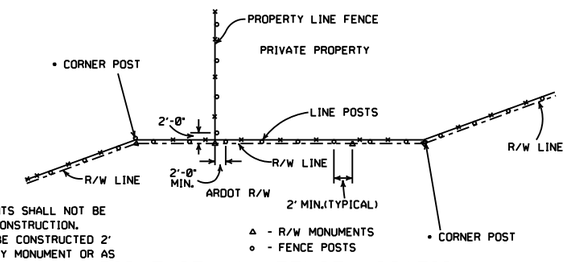


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

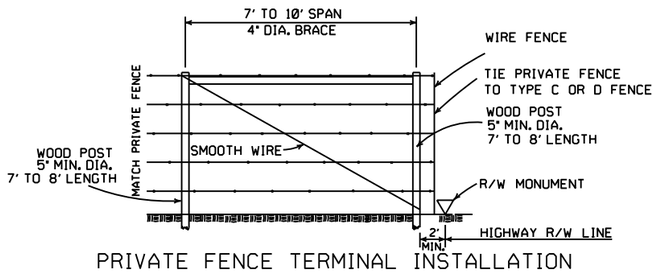


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



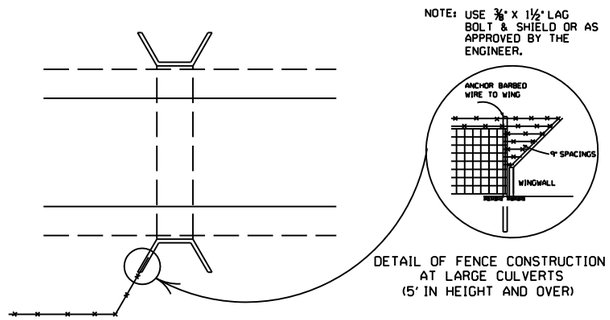
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION

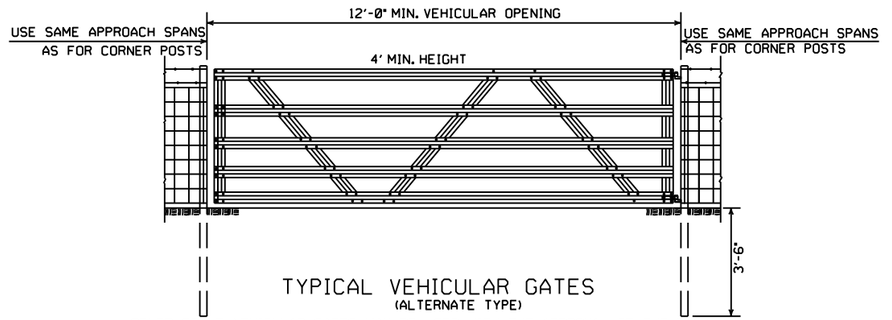


PRIVATE FENCE TERMINAL INSTALLATION

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.



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



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.

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.

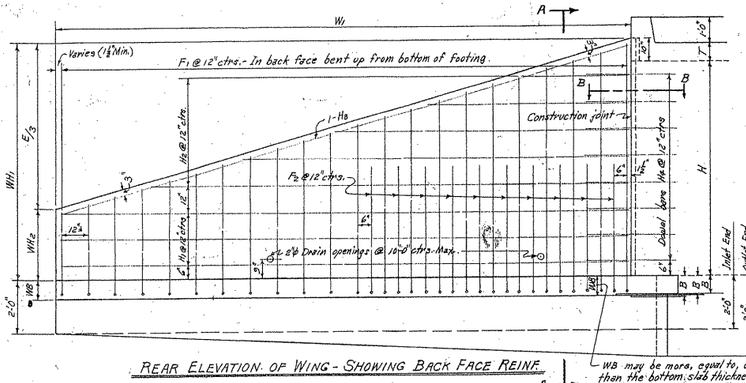
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	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

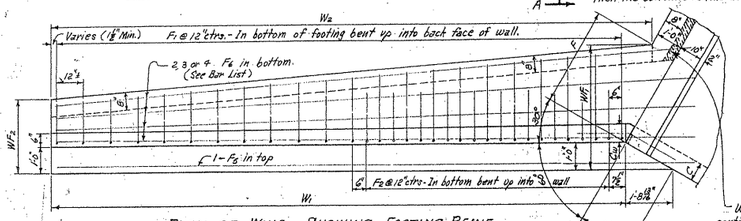
WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4

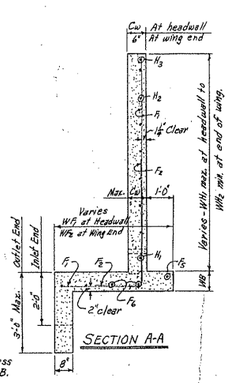
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

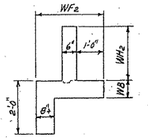


PLAN OF WING - SHOWING FOOTING REINF.



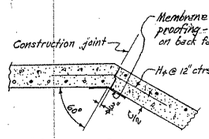
SECTION A-A

WB may be more, equal to, or less than the bottom slab thickness B.

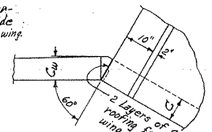


END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅛"	1'-1⅜"	8'-6"	9'-3⅜"	9'-2⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-2"	3'-0"	2'-3"	1'-3"	10'-6"	12'-1⅝"	12'-1⅝"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-9⅜"	2'-1⅞"	12'-6"	14'-5⅝"	14'-7⅛"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4⅞"	2'-1⅞"	12'-6"	14'-5⅝"	14'-7⅛"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	16'-7⅛"	3.440	3.661
		7⅞"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-2⅝"	14'-6"	16'-5"	17'-1⅝"	3.582	3.803
7'	8⅝"	7⅞"	7'-10"	2'-4"	4'-2"	2'-7⅞"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7⅝"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4⅝"	22'-0⅛"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W3

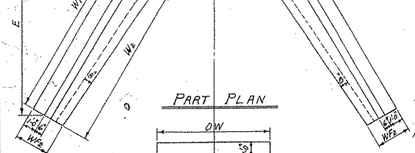
W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
4'	2'	1'-11⅞"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅛"	5'-0"	2'-3⅜"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅝"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-8⅜"
	6'	5'-0⅝"	5'-2"	0'-1⅛"	9'-11"	4'-10⅛"	14'-8"	9'-7⅛"	19'-5"	14'-4⅛"	24'-2"	19'-1⅛"
5'	3'	2'-8⅛"	6'-0"	3'-3⅜"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅝"	11'-8"	7'-5⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-8⅜"
	6'	5'-0⅝"	6'-2"	1'-1⅛"	11'-11"	6'-10⅛"	17'-8"	12'-7⅛"	23'-5"	18'-4⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅛"	6'-5"	0'-0⅝"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-8⅝"	29'-7"	23'-6⅝"
6'	3'	2'-8⅛"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅝"	13'-8"	9'-5⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-8⅜"
	6'	5'-0⅝"	7'-2"	2'-1⅛"	13'-11"	8'-10⅛"	20'-8"	15'-7⅛"	27'-5"	22'-2⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅛"	7'-5"	1'-6"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-9"	21'-6⅝"	34'-7"	28'-6⅝"
	8'	7'-1⅝"	7'-8"	0'-10⅝"	14'-5"	6'-10⅛"	21'-0"	13'-8⅛"	27'-10"	20'-6⅛"	34'-8"	27'-10⅛"
8'	4'	3'-6"	9'-0"	5'-6"	17'-6"	14'-2"	26'-1"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-8"	21'-11⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅝"	9'-2"	4'-1⅛"	17'-11"	12'-10⅛"	26'-8"	21'-1⅛"	35'-5"	30'-3⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅛"	9'-5"	3'-0⅝"	18'-1"	11'-10⅝"	26'-11"	20'-0⅝"	35'-9"	29'-4⅝"	44'-7"	38'-0⅝"
	8'	7'-1⅝"	9'-9"	2'-0"	18'-2"	10'-11"	27'-0"	19'-0"	35'-10"	28'-6"	44'-8"	37'-11"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅝"	10'-3"	5'-2⅛"	20'-1"	15'-0⅛"	29'-11"	24'-6⅛"	39'-9"	34'-3⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅛"	10'-5"	4'-0⅝"	20'-1"	13'-10⅝"	29'-11"	23'-5⅝"	39'-9"	33'-4⅝"	49'-7"	43'-1⅝"
	8'	7'-1⅝"	10'-9"	3'-0"	20'-2"	12'-11"	29'-10"	22'-3"	39'-10"	32'-6"	49'-8"	42'-3"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅝"	11'-3"	6'-2⅛"	22'-1"	17'-0⅛"	32'-11"	27'-10⅛"	43'-9"	38'-3⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅛"	11'-5"	5'-0⅝"	22'-1"	15'-10⅝"	32'-11"	26'-5⅝"	43'-9"	37'-4⅝"	54'-7"	48'-1⅝"
	8'	7'-1⅝"	11'-9"	4'-0"	22'-2"	14'-11"	33'-0"	25'-3"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0⅝"	12'-3"	7'-3⅛"	24'-2"	19'-1⅛"	36'-0"	30'-11⅛"	47'-10"	42'-3⅛"		
	7'	6'-2⅛"	12'-5"	6'-1⅝"	24'-2"	17'-11⅝"	36'-0"	29'-5⅝"	47'-10"	41'-1⅝"		
	8'	7'-1⅝"	12'-9"	5'-0"	24'-2"	16'-10"	36'-0"	28'-3"	47'-10"	40'-6"		
12'	6'	5'-0⅝"	13'-3"	8'-3⅛"	26'-2"	21'-1⅛"	39'-0"	33'-11⅛"	51'-10"	46'-3⅛"		
	7'	6'-2⅛"	13'-5"	7'-1⅝"	26'-2"	19'-11⅝"	39'-0"	32'-5⅝"	51'-10"	45'-1⅝"		
	8'	7'-1⅝"	13'-8"	6'-0"	26'-2"	18'-10"	39'-0"	31'-3"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS @	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.42	7.38	8.34
	3'	6"	7"	169.4	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	169.4	6.97	7.68	8.79	9.96	11.12
	4'	6"	7"	259.6	8.54	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅞"	8⅝"	1139.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	169.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	259.6	8.75	10.12	11.49	12.87	14.25
	5'	7"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7⅞"	8⅝"	1139.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	25.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.58	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7⅞"	8⅝"	1139.6	19.38	21.02	22.68	24.28	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7⅞"	8⅝"	1139.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.41	28.28	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.97
	6'	7⅞"	8"	583.1	15.94	18.09	20.09	22.19	24.23
	7'	7⅞"	8⅝"	1139.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.24	21.52
	6'	7⅞"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅞"	8⅝"	1139.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8⅝"	1139.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8⅝"	1139.6	20.87	23.69	26.40	29.18	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

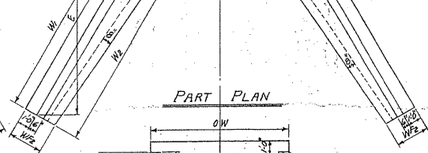
* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

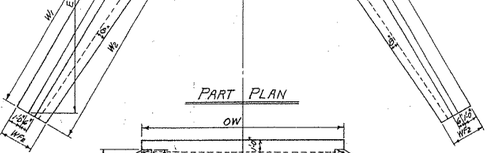
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

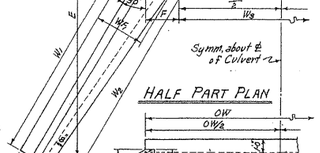


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

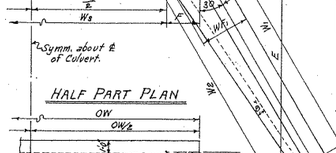
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length.								F2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						F5 Straight: Longitudinal in top of wing footing heel.			F6 Straight: Longitudinal in bottom of wing footing toe.			H1 Straight: Horizontal in back face of wing.			H2 Straight: Horizontal in back face of wing. One bar of each length.					H3 Straight: In back face of wing at top - on slope.			H4 Bent: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
				LENGTHS VARY																					LENGTHS VARY												
H	SIZE	SPACING	NO. REQD	MIN.	MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	MAX.	MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.	
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	—	—	#3	1	9'-6"	#3	12"	2	2'-8"	1'-9"	27.0	
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	#3	1	7'-6"	#3	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-8"	5'-0"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	#3	1	10'-11"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	#3	1	14'-1"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	#4	1	19'-5"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	#5	1	17'-9"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-6"	#4	12"	3	21'-1"	#4	12"	#5	1	17'-9"	#4	12"	8	3'-6"	1'-9"	356.4	

NOTE:- Dimensions are to bar centers.

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- W.C.H. 8-20-62. Checked By:-
Drawn By:- W.C.H. 12-4-62. Checked By:- RMS. 1-31-63
Quantities By:- W.C.H. 12-14-62. Checked By:- RMS. 3-29-63
Rechecked By:-

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

Mylar

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	SECTION "A" & BAR GROUP "A"	SECTION "B" & BAR GROUP "B"	SECTION "C" & BAR GROUP "C"	SECTION "D" & BAR GROUP "D"	SECTION "E" & BAR GROUP "E"	SECTION "F" & BAR GROUP "F"	SECTION "G" & BAR GROUP "G"
LENGTHS OF SECTION	4:1 = 32'0"	3:1 = 32'0"	4:1 = 16'0"	3:1 = 16'0"	4:1 = 16'0"	3:1 = 16'0"	4:1 = 16'0"
DEPTH OF COVER	0' TO 10'0"	0' TO 15'0"	0' TO 20'0"	0' TO 25'0"	0' TO 30'0"	0' TO 35'0"	0' TO 40'0"
CLEAR SPAN	2 4@ 6@	2 4@ 6@	2 4@ 6@	2 4@ 6@	2 4@ 6@	2 4@ 6@	2 4@ 6@
CLEAR HEIGHT	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"	3'0" 4'0" 5'0" 6'0" 7'0" 8'0"

"a" bars — STRAIGHT

In Top and Bottom Slab of Barrel & Hdd'n in Apron and Headwall - Each.

SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
#4	13"	46	64	31'5"
		46	64	31'5"
		46	64	31'5"
		46	64	31'8"
#5	11"	52	74	31'5"
		52	74	31'5"
		52	74	31'8"
		52	74	31'10"
#6	12"	98	68	31'5"
		98	68	31'8"
		98	68	31'10"
		98	68	32'1"
#4	11"	24	34	31'5"
		24	34	31'5"
		24	34	31'5"
		24	34	31'8"
#5	11"	24	34	31'5"
		24	34	31'5"
		24	34	31'8"
		24	34	31'10"
#4	10"	26	40	31'5"
		26	40	31'5"
		26	40	31'8"
#5	11"	24	34	31'5"
		24	34	31'5"
		24	34	31'8"
		24	34	31'10"
#5	13"	20	30	31'5"
		20	30	31'5"
		20	30	31'8"
		20	30	31'10"
#4	10"	26	40	31'5"
		26	40	31'5"
		26	40	31'8"
#5	13"	20	28	31'5"
		20	28	31'5"
		20	28	31'8"
		20	28	31'10"
#5	10"	28	38	31'5"
		28	38	31'5"
		28	38	31'8"
		28	38	31'11"
#5	12"	22	32	31'5"
		22	32	31'6"
		22	32	31'8"
		22	32	31'10"
#6	10"	22	32	31'5"
		22	32	31'6"
		22	32	31'8"
		22	32	31'11"
#6	12"	22	32	31'5"
		22	32	31'6"
		22	32	31'8"
		22	32	31'10"
#6	11"	22	32	31'5"
		22	32	31'6"
		22	32	31'8"
		22	32	31'10"

"b" bars — BENT - See Diagram at Right.

In Bottom of Top Slab bent up over Division Wall - hooked.

Alternate with "a" and "c" bars.

SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
#4	13"	20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'8"	0'-2 3/8"	2'2"	3'6"
#5	11"	24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'9"	0'-3"	2'7"	4'3"
		24	35	12'11"	0'-3"	2'8"	4'3"
#6	12"	22	32	14'7"	0'-3"	3'0"	4'11"
		22	32	14'7"	0'-3"	3'0"	4'11"
		22	32	14'10"	0'-3"	3'0"	5'0"
		22	32	15'1"	0'-3"	3'1"	5'1"
#4	13"	24	36	10'5"	0'-2 3/8"	2'1"	3'5"
		24	36	10'5"	0'-2 3/8"	2'1"	3'5"
		24	36	10'5"	0'-2 3/8"	2'1"	3'5"
		24	36	10'8"	0'-2 3/8"	2'2"	3'6"
#5	11"	12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'10"	0'-3 1/4"	2'6"	4'3"
		12	18	13'0"	0'-3 1/4"	2'7"	4'3"
#6	11"	12	17	14'7"	0'-3 1/4"	2'9"	4'11"
		12	17	14'7"	0'-3 1/4"	2'9"	4'11"
		12	17	14'10"	0'-3 1/4"	2'10"	5'0"
		12	17	15'0"	0'-3 1/4"	2'11"	5'0"
		12	17	15'3"	0'-3 1/4"	2'11"	5'1"
#4	10"	14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'8"	0'-3 3/8"	2'1"	3'6"
#5	10"	12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'10"	0'-3 1/4"	2'6"	4'3"
		12	18	13'0"	0'-3 1/4"	2'7"	4'3"
#6	13"	10	15	14'10"	0'-3 5/8"	2'11"	4'11"
		10	15	14'10"	0'-3 5/8"	2'11"	4'11"
		10	15	15'1"	0'-3 5/8"	2'11"	5'0"
		10	15	15'3"	0'-3 5/8"	3'0"	5'0"
		10	15	15'6"	0'-3 5/8"	3'0"	5'1"
#5	13"	10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'10"	0'-3 1/4"	2'2"	3'6"
#6	13"	10	15	12'10"	0'-3 5/8"	2'7"	4'3"
		10	15	12'10"	0'-3 5/8"	2'7"	4'3"
		10	15	13'1"	0'-3 5/8"	2'8"	4'4"
		10	15	13'4"	0'-3 5/8"	2'8"	4'4"
		10	15	13'7"	0'-3 5/8"	2'9"	4'5"
#6	12"	11	16	14'10"	0'-3 5/8"	3'0"	4'11"
		11	16	15'0"	0'-3 5/8"	3'0"	4'11"
		11	16	15'2"	0'-3 5/8"	3'1"	5'0"
		11	16	15'5"	0'-3 5/8"	3'1"	5'0"
		11	16	15'8"	0'-3 5/8"	3'2"	5'1"
#6	11"	11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'10"	0'-3 5/8"	2'3"	3'6"
		11	16	11'1"	0'-3 5/8"	2'3"	3'6"
		11	16	11'4"	0'-3 5/8"	2'4"	3'7"
#6	10"	13	19	12'8"	0'-3 5/8"	2'7"	4'2"
		13	19	12'8"	0'-3 5/8"	2'7"	4'2"
		13	19	12'8"	0'-3 5/8"	2'7"	4'2"
		13	19	12'11"	0'-3 5/8"	2'8"	4'3"
		13	19	13'2"	0'-3 5/8"	2'8"	4'4"
#6	12"	11	16	14'11"	0'-3 5/8"	3'0"	4'11"
		11	16	15'0"	0'-3 5/8"	3'0"	4'11"
		11	16	15'2"	0'-3 5/8"	3'1"	5'0"
		11	16	15'5"	0'-3 5/8"	3'1"	5'0"
		11	16	15'8"	0'-3 5/8"	3'2"	5'1"
#6	11"	11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'10"	0'-3 5/8"	2'3"	3'6"
		11	16	11'1"	0'-3 5/8"	2'3"	3'6"
		11	16	11'4"	0'-3 5/8"	2'4"	3'7"

"bz" bars — BENT - See Diagram at Right.

In Top of Bottom Slab, bent down under Division Wall - hooked.

Alternate with "a" and "c" bars.

SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
#4	13"	20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'5"	0'-2 3/8"	2'1"	3'5"
		20	29	10'8"	0'-2 3/8"	2'2"	3'6"
#5	11"	24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'6"	0'-3"	2'6"	4'2"
		24	35	12'9"	0'-3"	2'7"	4'3"
		24	35	12'11"	0'-3"	2'8"	4'3"
#6	12"	22	32	14'7"	0'-3 1/4"	3'0"	4'11"
		22	32	14'7"	0'-3 1/4"	3'0"	4'11"
		22	32	14'10"	0'-3 1/4"	3'0"	5'0"
		22	32	15'1"	0'-3 1/4"	3'1"	5'1"
#4	13"	24	36	10'5"	0'-2 3/8"	2'0"	3'5"
		24	36	10'5"	0'-2 3/8"	2'0"	3'5"
		24	36	10'5"	0'-2 3/8"	2'0"	3'5"
		24	36	10'8"	0'-2 3/8"	2'1"	3'6"
#5	11"	12	17	12'7"	0'-3 1/4"	2'5"	4'2"
		12	17	12'7"	0'-3 1/4"	2'5"	4'2"
		12	17	12'7"	0'-3 1/4"	2'5"	4'2"
		12	17	12'10"	0'-3 1/4"	2'6"	4'3"
		12	17	13'0"	0'-3 1/4"	2'7"	4'3"
#6	11"	12	17	14'7"	0'-3 1/4"	2'9"	4'11"
		12	17	14'7"	0'-3 1/4"	2'9"	4'11"
		12	17	14'10"	0'-3 1/4"	2'10"	5'0"
		12	17	15'0"	0'-3 1/4"	2'11"	5'0"
		12	17	15'3"	0'-3 1/4"	2'11"	5'1"
#4	10"	14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'5"	0'-3 3/8"	2'0"	3'5"
		14	19	10'8"	0'-3 3/8"	2'1"	3'6"
#5	10"	12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'7"	0'-3 1/4"	2'5"	4'2"
		12	18	12'10"	0'-3 1/4"	2'6"	4'3"
		12	18	13'1"	0'-3 1/4"	2'6"	4'3"
#6	13"	10	15	14'10"	0'-3 5/8"	2'11"	4'11"
		10	15	14'10"	0'-3 5/8"	2'11"	4'11"
		10	15	15'1"	0'-3 5/8"	2'11"	5'0"
		10	15	15'3"	0'-3 5/8"	3'0"	5'0"
		10	15	15'6"	0'-3 5/8"	3'0"	5'1"
#5	13"	10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'7"	0'-3 1/4"	2'1"	3'5"
		10	15	10'10"	0'-3 1/4"	2'2"	3'6"
		10	15	11'1"	0'-3 1/4"	2'2"	3'6"
#6	13"	10	15	12'8"	0'-3 5/8"	2'7"	4'2"
		10	15	12'8"	0'-3 5/8"	2'7"	4'2"
		10	15	12'8"	0'-3 5/8"	2'7"	4'2"
		10	15	12'11"	0'-3 5/8"	2'8"	4'3"
		10	15	13'2"	0'-3 5/8"	2'8"	4'4"
#6	12"	11	16	14'11"	0'-3 5/8"	3'0"	4'11"
		11	16	15'0"	0'-3 5/8"	3'0"	4'11"
		11	16	15'2"	0'-3 5/8"	3'1"	5'0"
		11	16	15'5"	0'-3 5/8"	3'1"	5'0"
		11	16	15'8"	0'-3 5/8"	3'2"	5'1"
#6	11"	11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'7"	0'-3 5/8"	2'2"	3'5"
		11	16	10'10"	0'-3 5/8"	2'3"	3'6"
		11	16	11'1"	0'-3 5/8"	2'3"	3'6"
		11	16	11'4"	0'-3 5/8"	2'4"	3'7"

"c" bars — STRAIGHT

In Top and Bottom Slab of Barrel. Alternate with "b" and "bz" bars.

SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
#4	19"	42	60	4'8"
		42	60	4'8"
		42	60	4'8"
		42	60	4'9"
#5	15"	48	70	5'8"
		48	70	5'8"
		48	70	5'8"
		48	70	5'9"
#6	17"	44	64	6'8"
		44	64	6'8"
		44	64	6'9"
		44	64	6'10"
#4	19"	29	39	9'8"
		29	39	9'8"
		29	39	9'8"
		29	39	9'9"
#5	15"	48	70	5'8"
		48	70	5'8"
		48	70	5'8"
		48	70	5'10