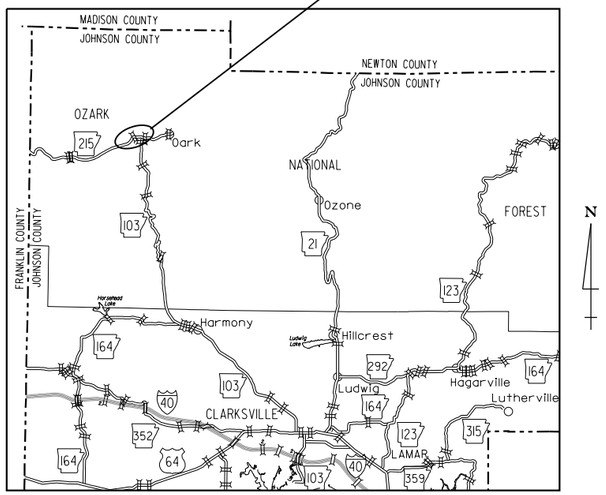
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		1	59
				JOB NO.		080617		
				②	WOLF PEN CREEK STR. & APPRS. (S)			

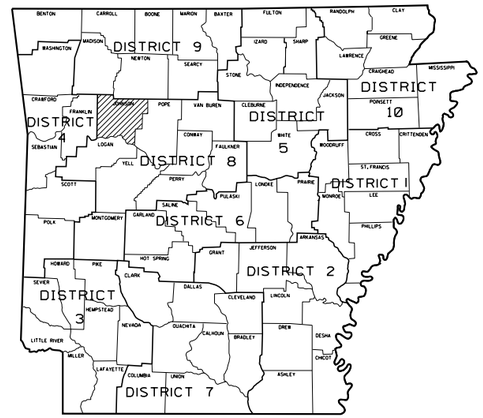
PROJECT LOCATION



VICINITY MAP

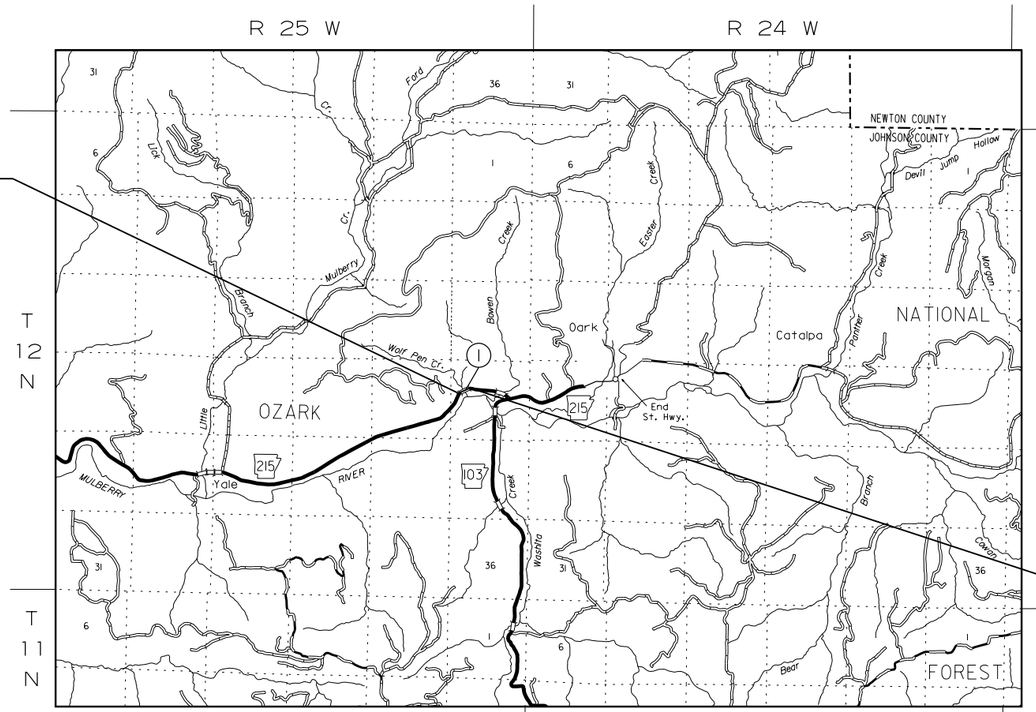
ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

WOLF PEN CREEK
STR. & APPRS. (S)
JOHNSON COUNTY
ROUTE 215 SECTION 4
JOB 080617
FED. AID PROJ. NHPP-0036(26)



ARKANSAS HIGHWAY DISTRICT 8

NOT TO SCALE



STA. 103+50.00
BEGIN JOB 080617
L.M. 5.89

STA. 110+85.00
END JOB 080617

· DESIGN TRAFFIC DATA ·

DESIGN YEAR	2044
2024 ADT	150
2044 ADT	180
2044 DHV	20
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	2%
DESIGN SPEED	30 MPH

BRIDGE CONSTRUCTION DATA

① STA. 106+18.00 BRIDGE END
BRIDGE NO. 07528 OVER WOLF PEN CREEK
60'-0" CONT. R.C. SLAB UNIT (30'-30')
32'-0" CLEAR ROADWAY
60'-0" BRIDGE LENGTH
STA. 106+78.00 BRIDGE END

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LATITUDE	N 35°41'14"	N 35°41'16"	N 35°41'15"
LONGITUDE	W 93°36'26"	W 93°36'22"	W 93°36'18"
STATION	103+50.00	107+17.50	110+85.00

GROSS LENGTH OF	PROJECT	735.00	FEET OR	0.139	MILES
NET " "	ROADWAY	675.00	" "	0.128	"
NET " "	BRIDGES	60.00	" "	0.011	"
NET " "	PROJECT	675.00	" "	0.128	"

GARVER LLC CERTIFICATE OF AUTHORIZATION No. 766 ARKANSAS ENGINEER

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 13422 JOHN F. CANTABER

DIGITALLY SIGNED 05/21/2024

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		2	59
				JOB NO.		080617		
				(2)	INDEX OF SHEETS AND STANDARD DRAWINGS			

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 - 7	SPECIAL DETAILS		
8 - 11	TEMPORARY EROSION CONTROL DETAILS		
12 - 15	MAINTENANCE OF TRAFFIC DETAILS		
16	PERMANENT PAVEMENT MARKING DETAILS		
17	SOIL BORING LOG		
18 - 20	QUANTITIES		
21	SCHEDULE OF BRIDGE QUANTITIES	07528	64026
22	SUMMARY OF QUANTITIES AND REVISIONS		
23 - 25	SURVEY CONTROL DETAILS		
26	PLAN AND PROFILE SHEETS		
27	LAYOUT OF BRIDGE HIGHWAY 215 OVER WOLF PEN CREEK (SHEET 1 OF 2)	07528	64027
28	LAYOUT OF BRIDGE HIGHWAY 215 OVER WOLF PEN CREEK (SHEET 2 OF 2)	07528	64028
29	DETAILS OF STAGED CONSTRUCTION HIGHWAY 215 OVER WOLF PEN CREEK (SHEET 1 OF 2)	07528	64029
30	DETAILS OF STAGED CONSTRUCTION HIGHWAY 215 OVER WOLF PEN CREEK (SHEET 2 OF 2)	07528	64030
31	DETAILS OF END BENTS (SHEET 1 OF 5)	07528	64031
32	DETAILS OF END BENTS (SHEET 2 OF 5)	07528	64032
33	DETAILS OF END BENTS (SHEET 3 OF 5)	07528	64033
34	DETAILS OF END BENTS (SHEET 4 OF 5)	07528	64034
35	DETAILS OF END BENTS (SHEET 5 OF 5)	07528	64035
36	DETAILS OF BENT NO. 2	07528	64036
37	DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT (SHEET 1 OF 5)	07528	64037
38	DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT (SHEET 2 OF 5)	07528	64038
39	DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT (SHEET 3 OF 5)	07528	64039
40	DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT (SHEET 4 OF 5)	07528	64040
41	DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT (SHEET 5 OF 5)	07528	64041
42	DETAILS OF TYPE SPECIAL APPROACH GUTTERS (SHEET 1 OF 2)	07528	64042
43	DETAILS OF TYPE SPECIAL APPROACH GUTTERS (SHEET 2 OF 2)	07528	64042A
44 - 59	CROSS SECTIONS		

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024

BRIDGE STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
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
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
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
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

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
06-10-2024				6	ARK.		3	59
				JOB NO.		080617		

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

Digitally Signed 06/10/2024

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
307-1_____ CEMENT
308-1_____ CEMENT
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
400-7_____ TRACKLESS TACK
404-3_____ DESIGN OF ASPHALT MIXTURES
409-2_____ ASPHALT LABORATORY FACILITY
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4_____ EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1_____ RECYCLED ASPHALT PAVEMENT
501-2_____ CEMENT
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
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
734-1_____ BRIDGE END TERMINAL
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
802-4_____ CEMENT
804-2_____ REINFORCING STEEL FOR STRUCTURES

GOVERNING SPECIFICATIONS

JOB 080617__ ARCHITECTURAL FINISH
JOB 080617__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 080617__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080617__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080617__ BUY AMERICA - CONSTRUCTION MATERIALS
JOB 080617__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 080617__ CAVE DISCOVERY
JOB 080617__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 080617__ COLD MILLING - COUNTY PROPERTY
JOB 080617__ CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 080617__ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 080617__ DESIGN OF ASPHALT MIXTURES - AGGREGATES
JOB 080617__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 080617__ FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 080617__ FOREST SERVICE REQUIREMENTS
JOB 080617__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080617__ GUARDRAIL MAINTENANCE MATERIALS
JOB 080617__ LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 080617__ MANDATORY ELECTRONIC CONTRACT
JOB 080617__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 080617__ NATIVE STONE FOR DITCH LINER
JOB 080617__ NATIVE STONE FOR RIPRAP
JOB 080617__ NESTING SITES OF MIGRATORY BIRDS
JOB 080617__ OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 080617__ PARTNERING REQUIREMENTS
JOB 080617__ PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 080617__ PLASTIC PIPE
JOB 080617__ PORTABLE TRAFFIC SIGNAL SYSTEM
JOB 080617__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 080617__ PRICE ADJUSTMENT FOR FUEL
JOB 080617__ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 080617__ REACTIVE COLOR TREATMENT
JOB 080617__ SHORING
JOB 080617__ SHORING FOR CULVERTS
JOB 080617__ SOIL STABILIZATION
JOB 080617__ SPECIAL CLEARING REQUIREMENTS
JOB 080617__ SPECIAL SEEDING REQUIREMENTS
JOB 080617__ STAINING CONCRETE SURFACES
JOB 080617__ STORM WATER POLLUTION PREVENTION PLAN
JOB 080617__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080617__ UTILITY ADJUSTMENTS
JOB 080617__ VALUE ENGINEERING
JOB 080617__ VEGETATED BUFFER ZONE
JOB 080617__ WARM MIX ASPHALT
JOB 080617__ WATER POLLUTION CONTROL
JOB 080617__ WELLHEAD PROTECTION

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. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. 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.
6. 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.
7. 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.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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				6	ARK.		4	59
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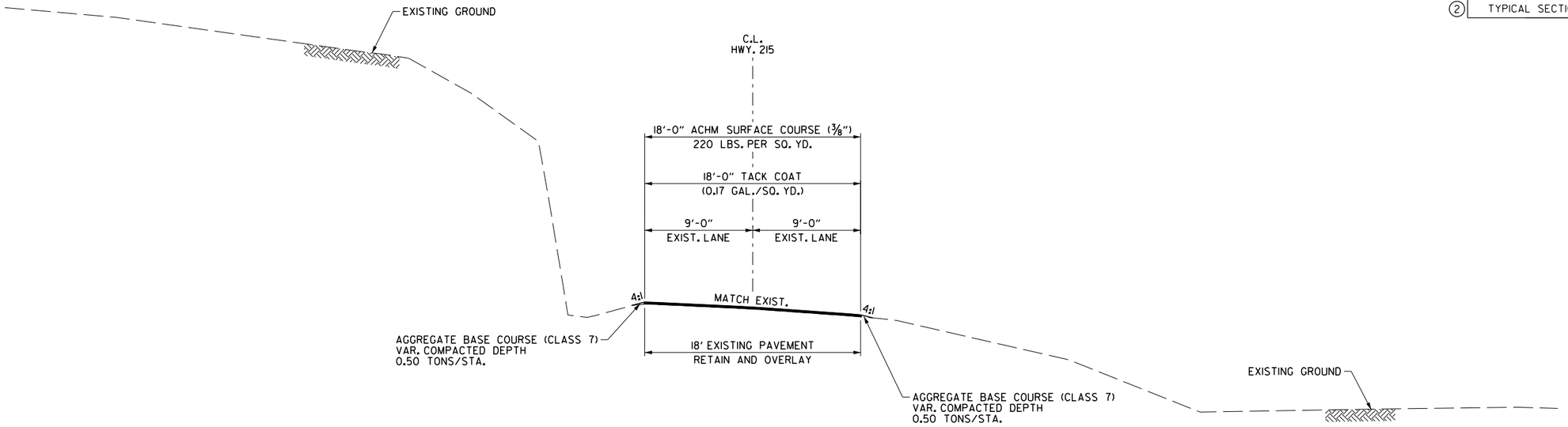
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024



TYPICAL SUPERELEVATED OVERLAY SECTION HWY. 215

STA. 103+50.00 TO STA. 104+59.00

NOTES:

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

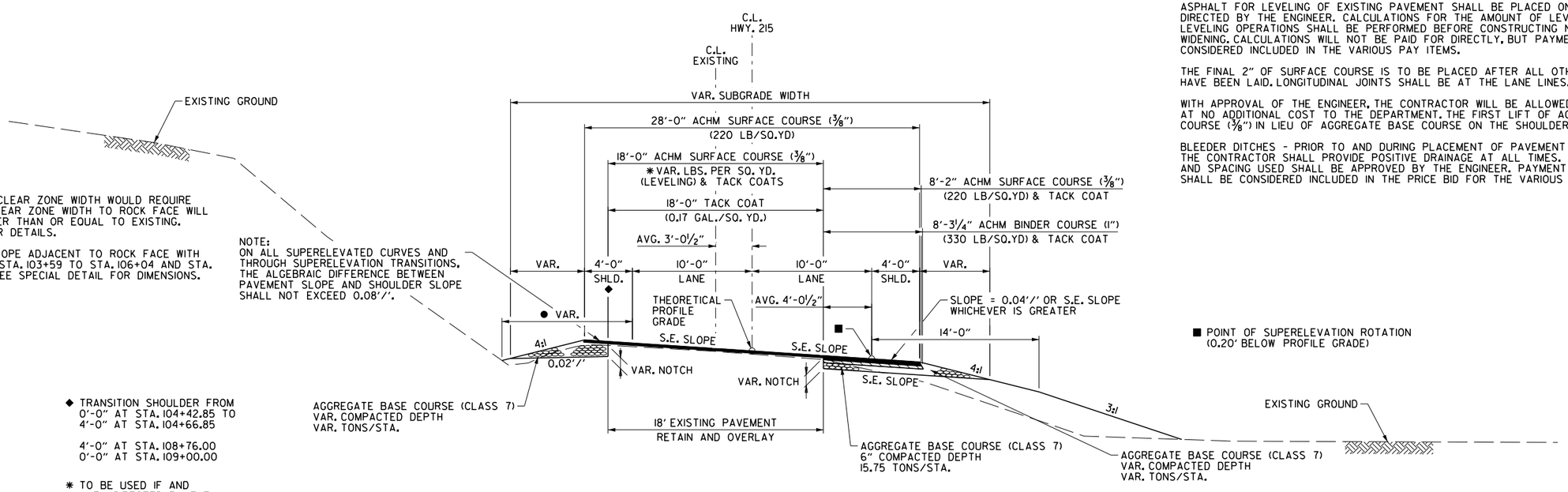
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (3/8") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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.



● CONSTRUCTION OF FULL CLEAR ZONE WIDTH WOULD REQUIRE EXCAVATION OF ROCK. CLEAR ZONE WIDTH TO ROCK FACE WILL IN ALL CASES BE GREATER THAN OR EQUAL TO EXISTING. SEE CROSS SECTIONS FOR DETAILS.

PROTECT CLEAR ZONE SLOPE ADJACENT TO ROCK FACE WITH CONCRETE RIPRAP FROM STA. 103+59 TO STA. 106+04 AND STA. 108+37 TO STA. 110+35. SEE SPECIAL DETAIL FOR DIMENSIONS.

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

◆ TRANSITION SHOULDER FROM
0'-0" AT STA. 104+42.85 TO
4'-0" AT STA. 104+66.85

4'-0" AT STA. 108+76.00
0'-0" AT STA. 109+00.00

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

TYPICAL SUPERELEVATED NOTCH AND WIDEN SECTION HWY. 215 REDUCED CLEAR ZONE LT.

STA. 104+59.00 TO STA. 105+66.00
STA. 108+38.00 TO STA. 109+35.00

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				6	ARK.		5	59
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STATE OF ARKANSAS
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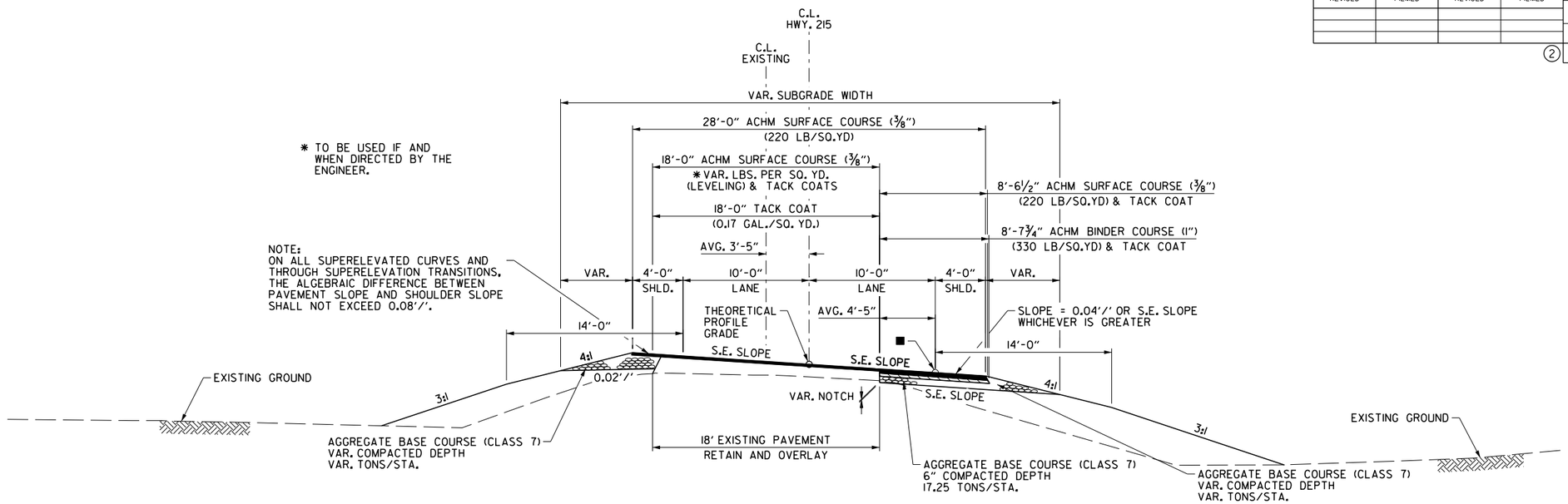


* TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER.

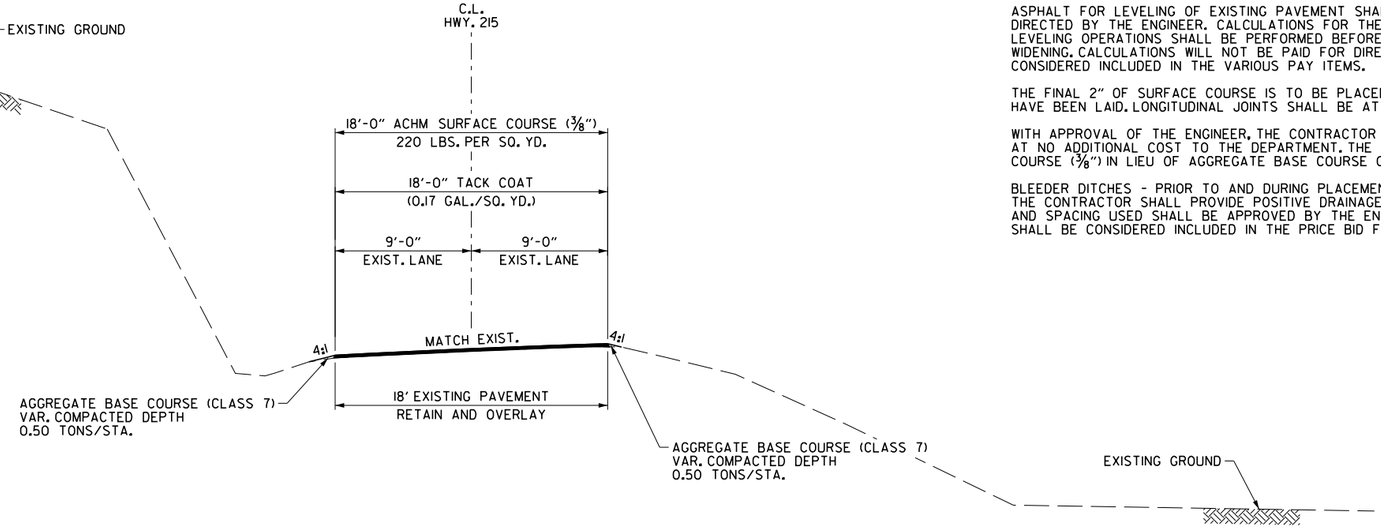
NOTE:
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

TYPICAL SUPERELEVATED NOTCH AND WIDEN SECTION HWY. 215

STA. 105+66.00 TO STA. 106+18.00
STA. 106+78.00 TO STA. 108+38.00

■ POINT OF SUPERELEVATION ROTATION (0.20' BELOW PROFILE GRADE)

NOTE: SEE BRIDGE PLANS FOR STA. 106+18.00 TO STA. 106+78.00



TYPICAL SUPERELEVATED OVERLAY SECTION HWY. 215

STA. 109+35.00 TO STA. 110+85.00

NOTES:

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (3/8") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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.

TYPICAL SECTIONS OF IMPROVEMENT

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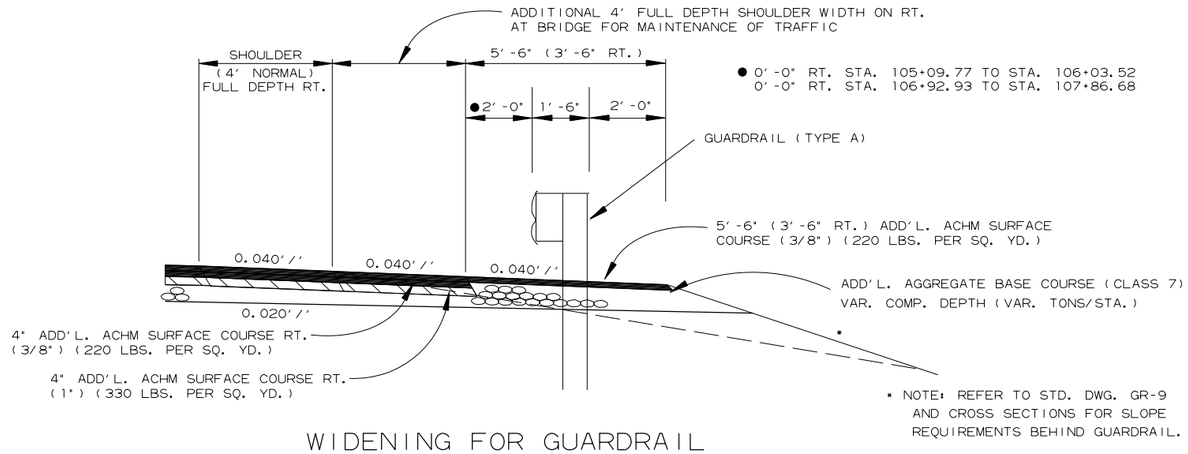
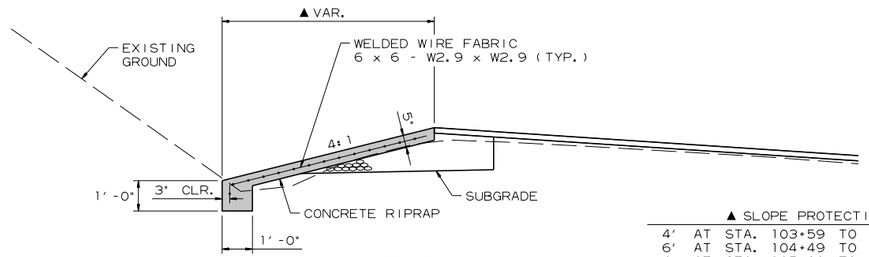
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6	59
				JOB NO.		080617		
				(2)	SPECIAL DETAILS			



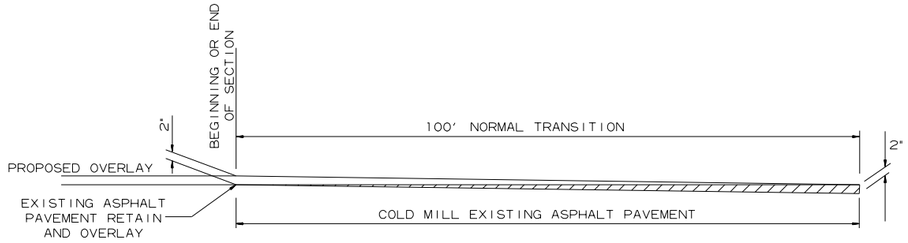
WIDENING FOR GUARDRAIL



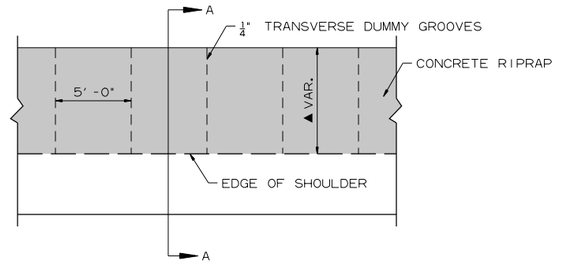
SECTION A-A

▲ SLOPE PROTECTION WIDTHS

4'	AT	STA.	103+59	TO	4'	AT	STA. 104+49
6'	AT	STA.	104+49	TO	4'	AT	STA. 105+00
4'	AT	STA.	105+00	TO	4'	AT	STA. 105+36
4'	AT	STA.	105+36	TO	9'	AT	STA. 106+04
12'	AT	STA.	108+37	TO	10'	AT	STA. 108+76
10'	AT	STA.	108+76	TO	4'	AT	STA. 109+00
4'	AT	STA.	109+00	TO	4'	AT	STA. 110+35



DETAIL FOR TRANSITIONS



SLOPE PROTECTION DETAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK
DIGITALLY SIGNED 05/21/2024

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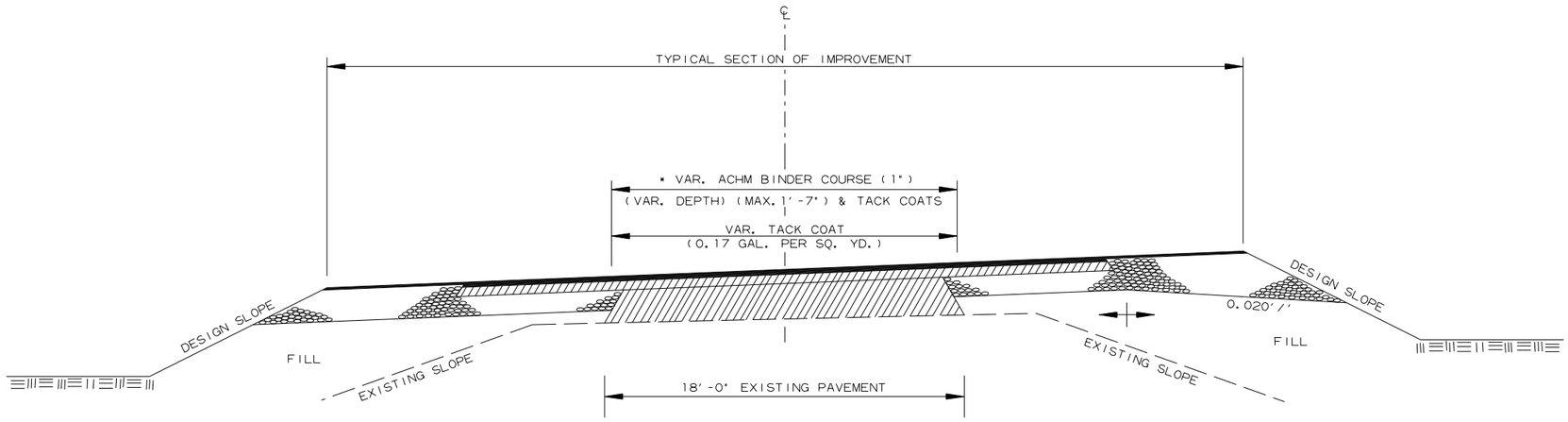
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		7	59
				JOB NO.		080617		
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024



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

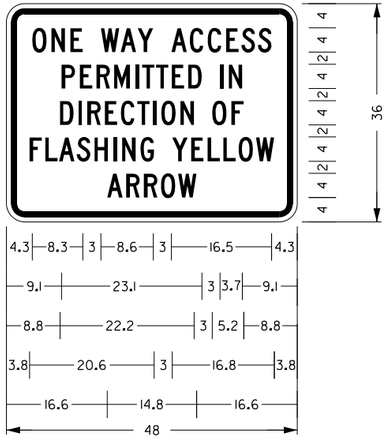
METHOD OF RAISING GRADE

NOTES:

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

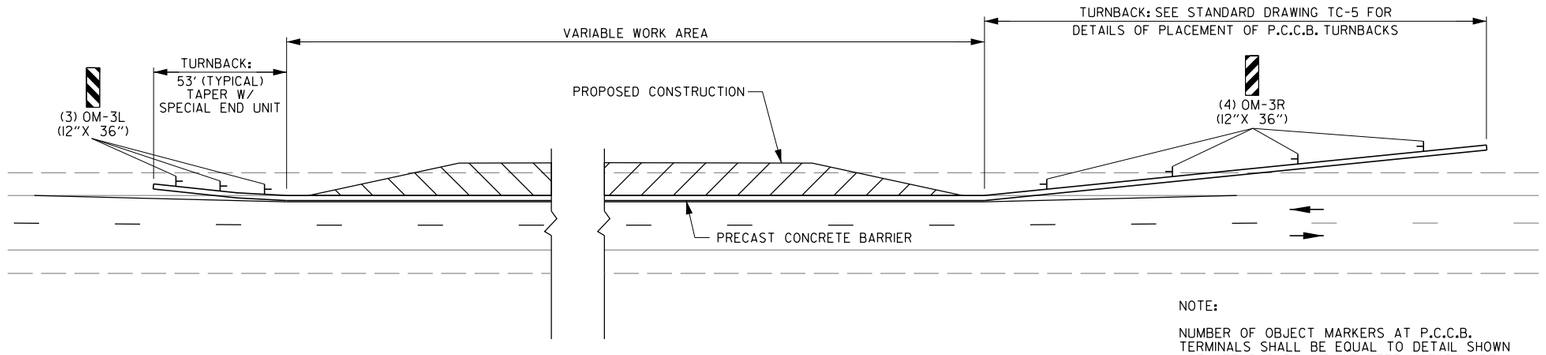
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

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



3.0" Radius, 1.0" Border, 0.8" Indent, Black on White;
"ONE", C 2K;
"WAY", C 2K;
"ACCESS", C 2K;
"PERMITTED", C 2K;
"IN", C 2K;
"DIRECTION", C 2K;
"OF", C 2K;
"FLASHING", C 2K;
"YELLOW", C 2K;
"ARROW", C 2K;

SPECIAL SIGN DETAIL



NOTE:

NUMBER OF OBJECT MARKERS AT P.C.C.B. TERMINALS SHALL BE EQUAL TO DETAIL SHOWN WHEN TEMPORARY IMPACT ATTENUATORS ARE UTILIZED IN PLACE OF SPECIAL END UNITS.

DETAIL OF OBJECT MARKERS AT PRECAST CONCRETE BARRIER TURNBACKS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		8	59
JOB NO.		080617		
(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

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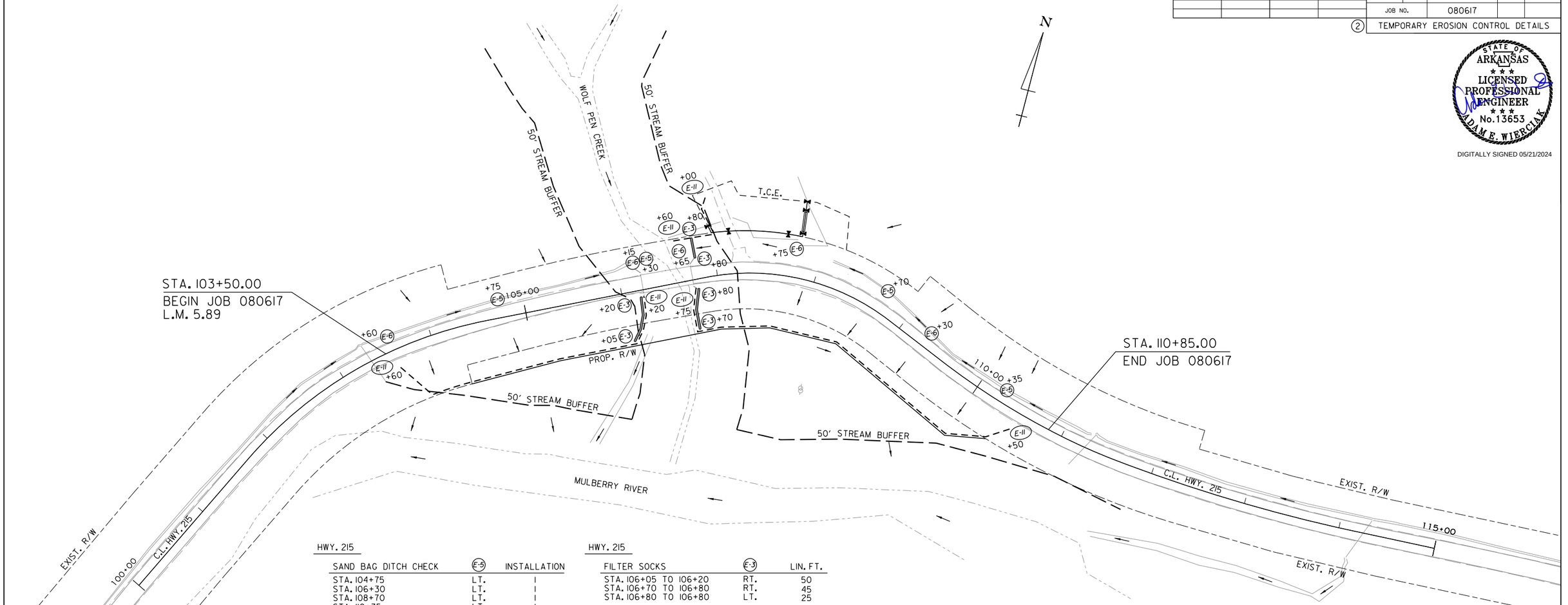

HWY. 215

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 104+75	LT.	1
STA. 106+30	LT.	1
STA. 108+70	LT.	1
STA. 110+35	LT.	1

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 103+60	LT.	1
STA. 106+15	LT.	1
STA. 106+65	LT.	1
STA. 107+75	LT.	1
STA. 109+30	LT.	1

HWY. 215

FILTER SOCKS	(E-3)	LIN. FT.
STA. 106+05 TO 106+20	RT.	50
STA. 106+70 TO 106+80	RT.	45
STA. 106+80 TO 106+80	LT.	25

SILT FENCE	(E-II)	LIN. FT.
STA. 103+60 TO 106+20	RT.	310
STA. 106+60 TO 107+00	LT.	90
STA. 106+75 TO 110+50	RT.	405

REVISIONS

DATE	REVISION

LEGEND

(E-3) = FILTER SOCK
(E-6) = ROCK DITCH CHECKS
(E-5) = SAND BAG DITCH CHECKS
(E-II) = SILT FENCE

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

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

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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.		9	59
JOB NO.		080617		
(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

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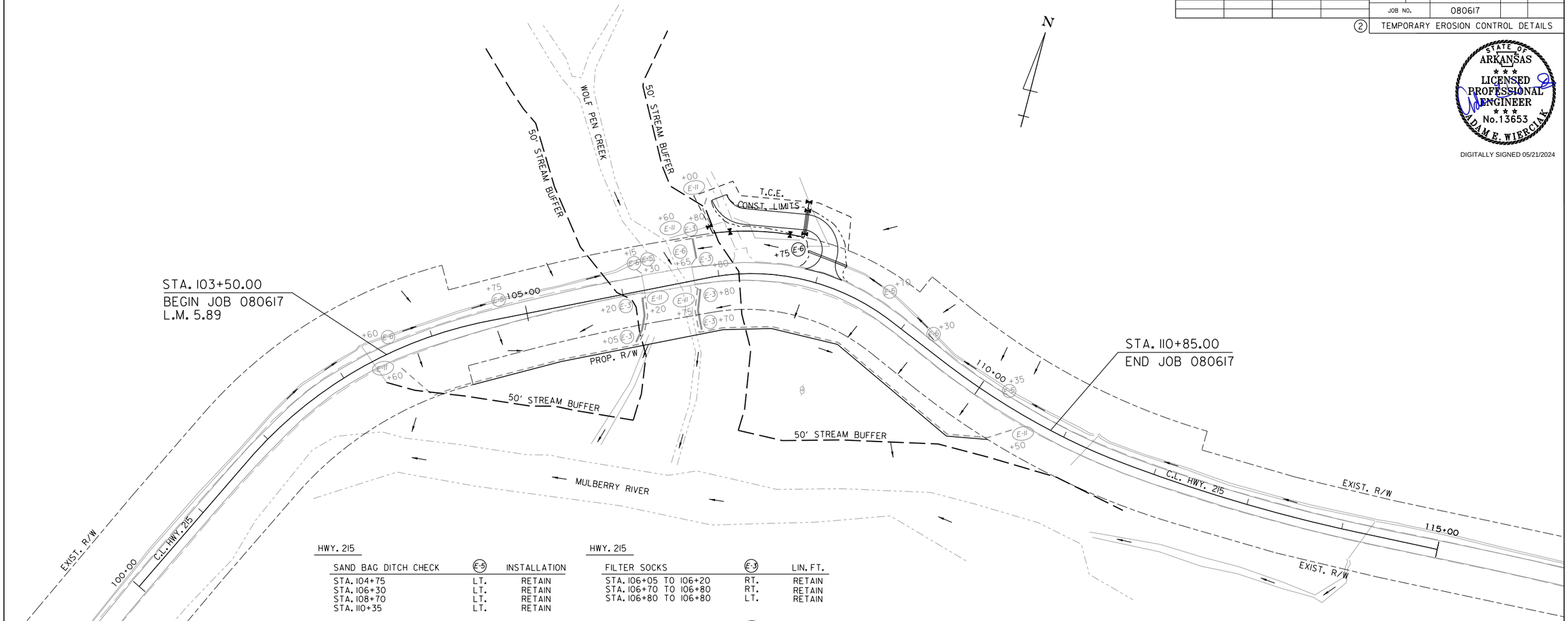

HWY. 215

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 104+75	LT.	RETAIN
STA. 106+30	LT.	RETAIN
STA. 108+70	LT.	RETAIN
STA. 110+35	LT.	RETAIN

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 103+60	LT.	RETAIN
STA. 106+15	LT.	RETAIN
STA. 106+65	LT.	RETAIN
STA. 107+75	LT.	I
STA. 109+30	LT.	RETAIN

HWY. 215

FILTER SOCKS	(E-3)	LIN. FT.
STA. 106+05 TO 106+20	RT.	RETAIN
STA. 106+70 TO 106+80	RT.	RETAIN
STA. 106+80 TO 106+80	LT.	RETAIN

SILT FENCE	(E-11)	LIN. FT.
STA. 103+60 TO 106+20	RT.	RETAIN
STA. 106+60 TO 107+00	LT.	RETAIN
STA. 106+75 TO 110+50	RT.	RETAIN

REVISIONS

DATE	REVISION

LEGEND

(E-3) = FILTER SOCK (E-6) = ROCK DITCH CHECKS

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

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

TEMPORARY EROSION CONTROL DETAILS
STAGE I

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		10	59
				JOB NO.		080617		
				(2)	TEMPORARY EROSION CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

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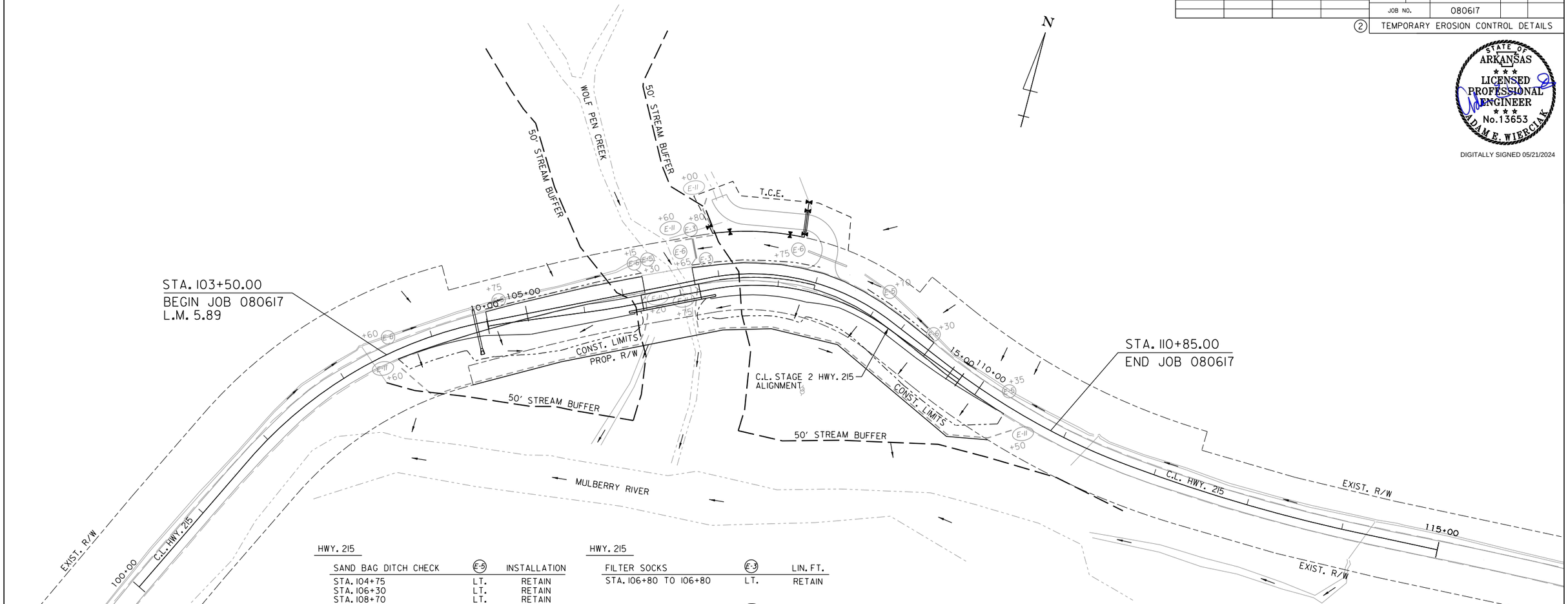

HWY. 215

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 104+75	LT.	RETAIN
STA. 106+30	LT.	RETAIN
STA. 108+70	LT.	RETAIN
STA. 110+35	LT.	RETAIN

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 103+60	LT.	RETAIN
STA. 106+15	LT.	RETAIN
STA. 106+65	LT.	RETAIN
STA. 107+75	LT.	RETAIN
STA. 109+30	LT.	RETAIN

HWY. 215

FILTER SOCKS	(E-3)	LIN. FT.
STA. 106+80 TO 106+80	LT.	RETAIN

SILT FENCE	(E-11)	LIN. FT.
STA. 103+60 TO 106+20	RT.	RETAIN
STA. 106+60 TO 107+00	LT.	RETAIN
STA. 106+75 TO 110+50	RT.	RETAIN

REVISIONS

DATE	REVISION

LEGEND

(E-3) = FILTER SOCK
(E-6) = ROCK DITCH CHECKS
(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE

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

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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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.		11	59
JOB NO.		080617		

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

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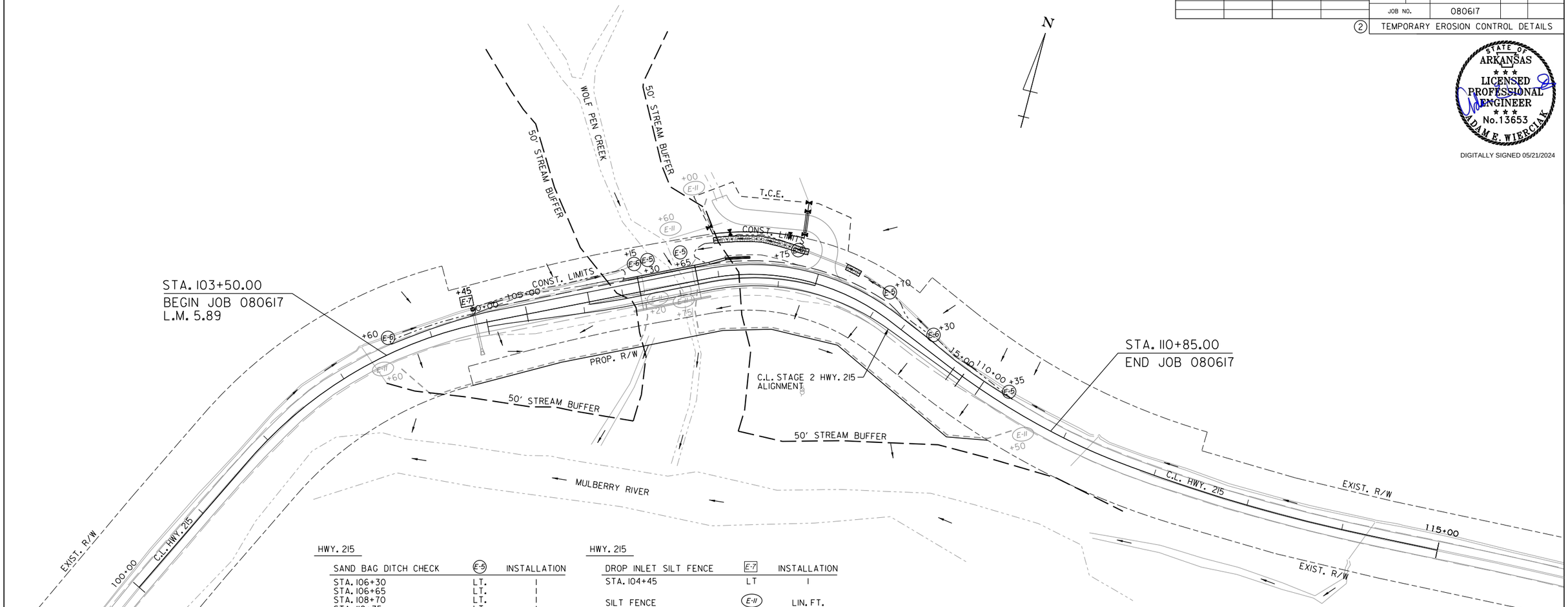

HWY. 215

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 106+30	LT.	1
STA. 106+65	LT.	1
STA. 108+70	LT.	1
STA. 110+35	LT.	1

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 103+60	LT.	1
STA. 106+15	LT.	1
STA. 107+75	LT.	1
STA. 109+30	LT.	1

HWY. 215

DROP INLET SILT FENCE	[E-7]	INSTALLATION
STA. 104+45	LT	1

SILT FENCE	(E-11)	LIN. FT.
STA. 103+60 TO 106+20	RT.	RETAIN
STA. 106+60 TO 107+00	LT.	RETAIN
STA. 106+75 TO 110+50	RT.	RETAIN

REVISIONS

DATE	REVISION

LEGEND

(E-3) = FILTER SOCK
(E-6) = ROCK DITCH CHECKS
(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE

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

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

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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.		12	59
JOB NO.		080617		

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

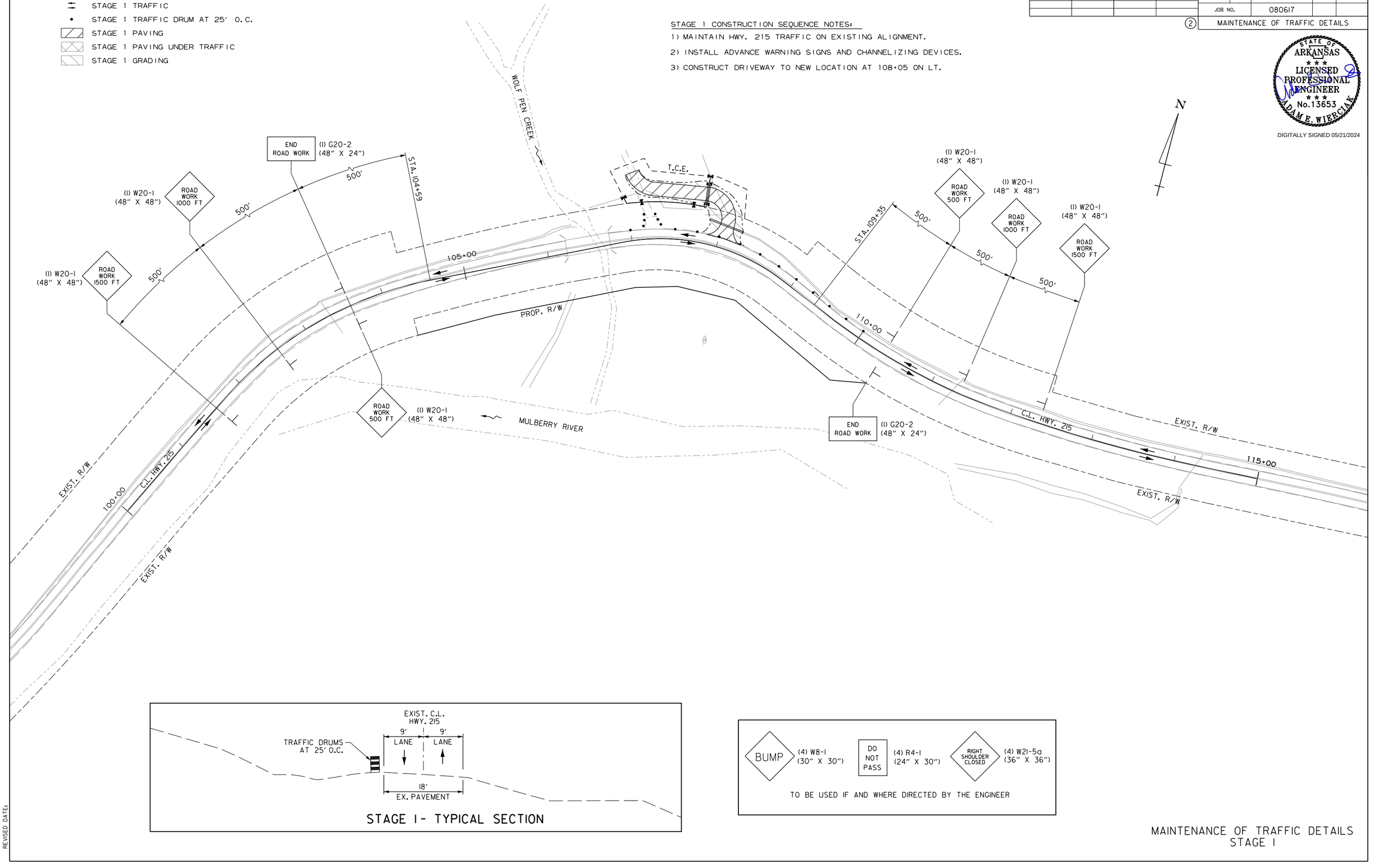
DIGITALLY SIGNED 05/21/2024

STAGE 1 TRAFFIC
STAGE 1 TRAFFIC DRUM AT 25' O.C.
STAGE 1 PAVING
STAGE 1 PAVING UNDER TRAFFIC
STAGE 1 GRADING

STAGE 1 CONSTRUCTION SEQUENCE NOTES:

1) MAINTAIN HWY. 215 TRAFFIC ON EXISTING ALIGNMENT.
2) INSTALL ADVANCE WARNING SIGNS AND CHANNELIZING DEVICES.
3) CONSTRUCT DRIVEWAY TO NEW LOCATION AT 108+05 ON LT.

N



STAGE 1- TYPICAL SECTION

BUMP (4) W8-1 (30" X 30")
DO NOT PASS (4) R4-1 (24" X 30")
RIGHT SHOULDER CLOSED (4) W21-5a (36" X 36")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

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STAGE 2 & 3 TRAFFIC SIGNAL NOTES:

1) THE DRIVEWAY ASSISTANCE DEVICE SYSTEM AT STA. 108+05 LT. SHALL BE ABLE TO INDICATE RED, FLASHING YELLOW LEFT ARROW, AND FLASHING YELLOW RIGHT ARROW.

2) WHEN THE SIGNAL AT HWY. 215 STA. 103+50 IS GREEN, THE DRIVEWAY ASSISTANCE DEVICE SYSTEM SHALL INDICATE FLASHING YELLOW LEFT ARROW.

3) WHEN THE SIGNAL AT HWY. 215 STA. 110+85 IS GREEN, THE DRIVEWAY ASSISTANCE DEVICE SYSTEM SHALL INDICATE FLASHING YELLOW RIGHT ARROW.

4) FOR ANY OTHER SIGNAL COMBINATION, THE DRIVEWAY ASSISTANCE DEVICE SYSTEM SHALL INDICATE RED.

5) CONTRACTOR IS TO COORDINATE WITH THE PROPERTY OWNER TO EXPLAIN HOW THE DRIVEWAY ASSISTANCE DEVICE SYSTEM OPERATES.

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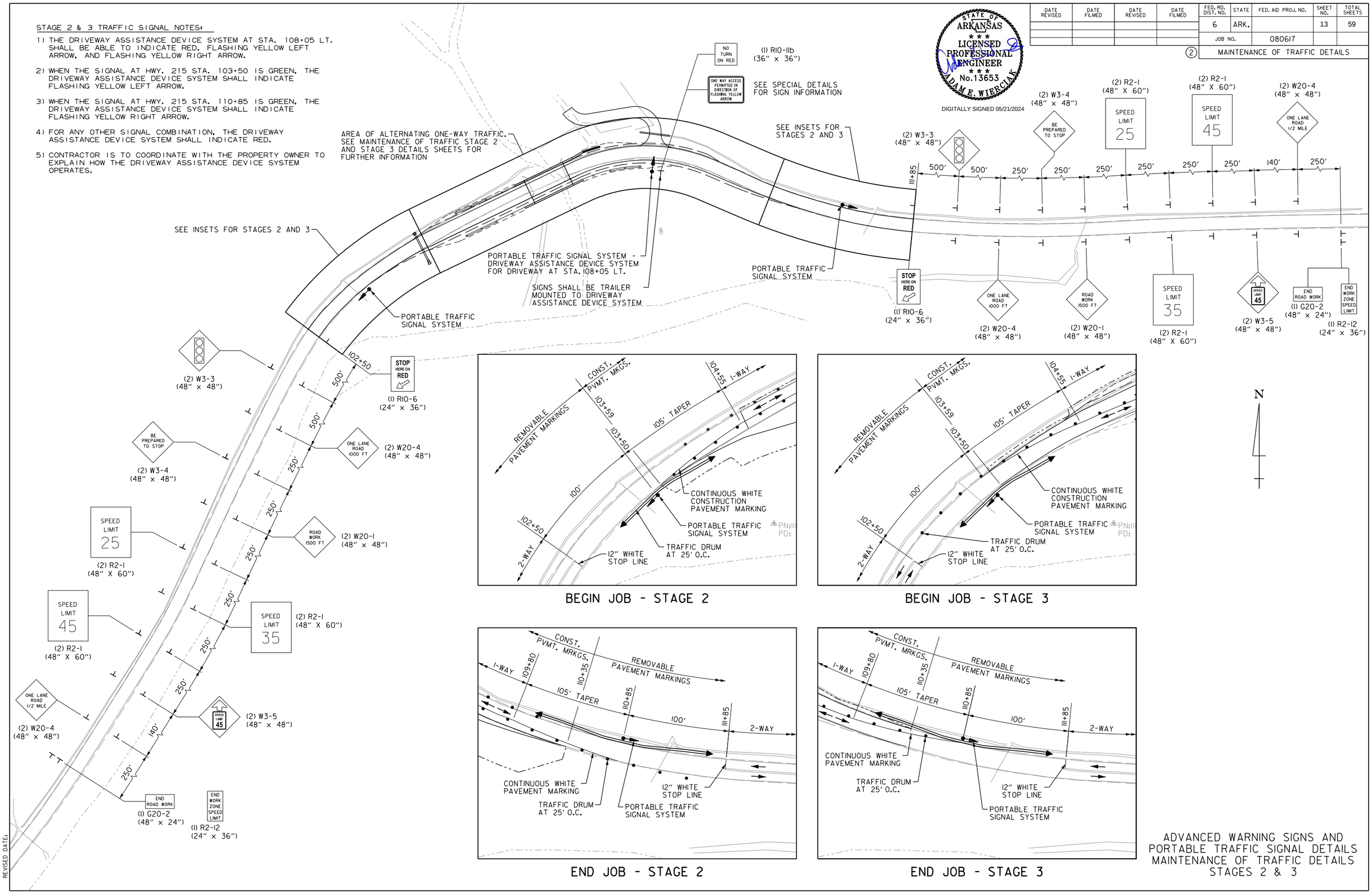
				6	ARK.		13	59
				JOB NO.		080617		

(2) MAINTENANCE OF TRAFFIC DETAILS



BEGIN JOB - STAGE 2

BEGIN JOB - STAGE 3

END JOB - STAGE 2

END JOB - STAGE 3

ADVANCED WARNING SIGNS AND PORTABLE TRAFFIC SIGNAL DETAILS MAINTENANCE OF TRAFFIC DETAILS STAGES 2 & 3

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		14	59
				JOB NO.		080617		

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
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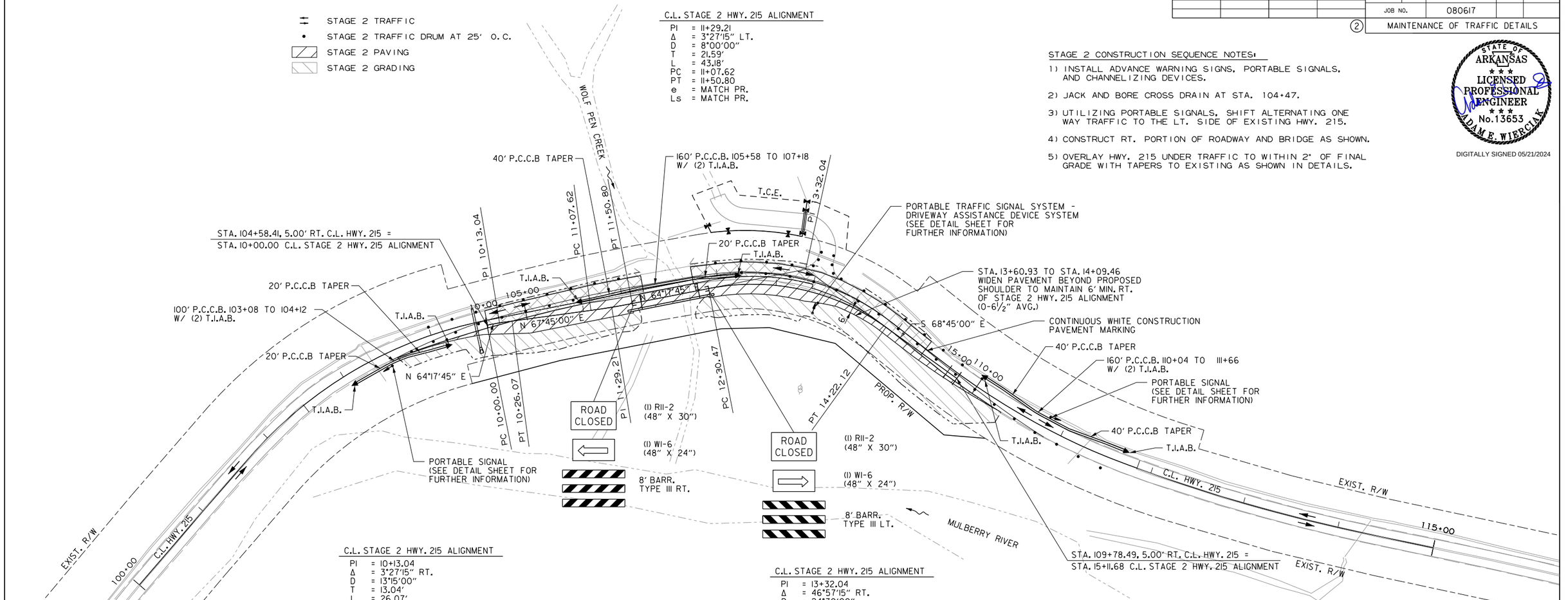
STAGE 2 TRAFFIC
STAGE 2 TRAFFIC DRUM AT 25' O.C.
STAGE 2 PAVING
STAGE 2 GRADING

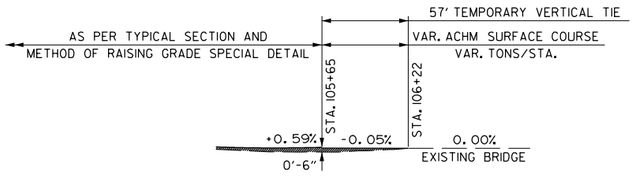
C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 11+29.21
Δ = 3°27'15" LT.
D = 8°00'00"
T = 21.59'
L = 43.18'
PC = 11+07.62
PT = 11+50.80
e = MATCH PR.
Ls = MATCH PR.

STAGE 2 CONSTRUCTION SEQUENCE NOTES:

1) INSTALL ADVANCE WARNING SIGNS, PORTABLE SIGNALS, AND CHANNELIZING DEVICES.
2) JACK AND BORE CROSS DRAIN AT STA. 104+47.
3) UTILIZING PORTABLE SIGNALS, SHIFT ALTERNATING ONE WAY TRAFFIC TO THE LT. SIDE OF EXISTING HWY. 215.
4) CONSTRUCT RT. PORTION OF ROADWAY AND BRIDGE AS SHOWN.
5) OVERLAY HWY. 215 UNDER TRAFFIC TO WITHIN 2" OF FINAL GRADE WITH TAPERS TO EXISTING AS SHOWN IN DETAILS.

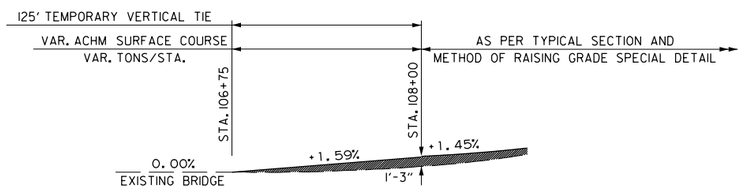


C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 10+13.04
Δ = 3°27'15" RT.
D = 13°15'00"
T = 13.04'
L = 26.07'
PC = 10+00.00
PT = 10+26.07
e = MATCH PR.
Ls = MATCH PR.

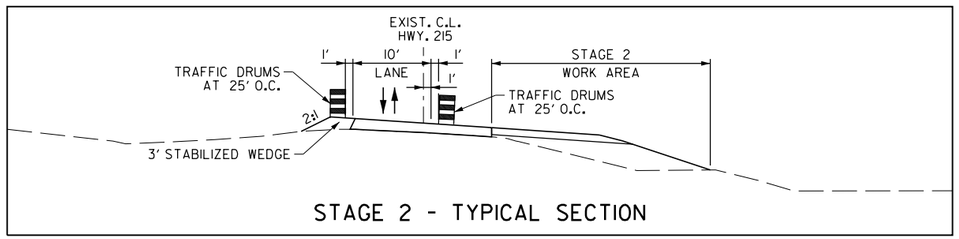


HWY. 215 TEMPORARY VERTICAL TIE

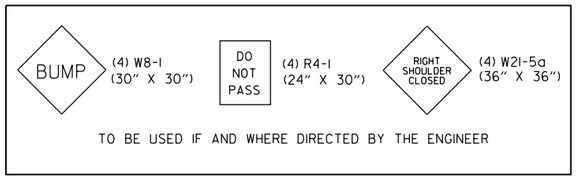
C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 13+32.04
Δ = 46°57'15" RT.
D = 24°30'00"
T = 101.57'
L = 191.65'
PC = 12+30.47
PT = 14+22.12
e = MATCH PR.
Ls = MATCH PR.



HWY. 215 TEMPORARY VERTICAL TIE



STAGE 2 - TYPICAL SECTION



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

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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.		15	59
				JOB NO.		080617		
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

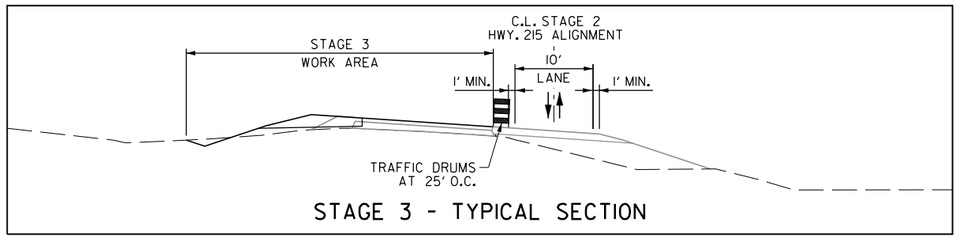
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK
DIGITALLY SIGNED 05/21/2024

STAGE 3 TRAFFIC
STAGE 3 TRAFFIC DRUM AT 25' O.C.
STAGE 3 PAVING
STAGE 3 GRADING

(1) RII-2 (48" X 30")
ROAD CLOSED
(1) WI-6 (48" X 24")
8' BARR. TYPE III LT.
WOLF PEN CREEK
ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
8' BARR. TYPE III RT.
T.C.E.
280' P.C.C.B. 105+18 TO 108+00 W/ (2) T.I.A.B.
100' P.C.C.B. 105+08 TO 106+08 W/ T.I.A.B.
40' P.C.C.B TAPER
40' P.C.C.B TAPER
PORTABLE TRAFFIC SIGNAL SYSTEM - DRIVEWAY ASSISTANCE DEVICE SYSTEM (SEE DETAIL SHEET FOR FURTHER INFORMATION)
C.L. STAGE 2 HWY. 215 ALIGNMENT
CONTINUOUS WHITE CONSTRUCTION PAVEMENT MARKING
20' P.C.C.B TAPER
100' P.C.C.B. 103+08 TO 104+12 W/ (2) T.I.A.B.
T.I.A.B.
100+00
105+00
T.I.A.B.
T.I.A.B.
20' P.C.C.B TAPER
T.I.A.B.
REMOVABLE PAVEMENT MARKINGS ON BRIDGE
100' P.C.C.B. 106+88 TO 107+97 W/ T.I.A.B.
PROP. R/W
15+00
110+00
40' P.C.C.B TAPER
PORTABLE SIGNAL (SEE DETAIL SHEET FOR FURTHER INFORMATION)
T.I.A.B.
40' P.C.C.B TAPER
T.I.A.B.
PORTABLE SIGNAL (SEE DETAIL SHEET FOR FURTHER INFORMATION)
160' P.C.C.B. 110+04 TO 111+66 W/ (2) T.I.A.B.
C.L. HWY. 215
EXIST. R/W
MULBERRY RIVER
EXIST. R/W
115+00
EXIST. R/W
EXIST. R/W
100+00
C.L. HWY. 215
EXIST. R/W

STAGE 3 CONSTRUCTION SEQUENCE NOTES:

1) INSTALL ADVANCE WARNING SIGNS, PORTABLE SIGNALS, AND CHANNELIZING DEVICES.
2) UTILIZING PORTABLE SIGNALS, SHIFT ALTERNATING ONE WAY TRAFFIC TO THE RT. SIDE OF EXISTING HWY. 215 ALONG THE STAGE 2 HWY. 215 ALIGNMENT.
3) CONSTRUCT DROP INLET AT STA. 104+47 LT.
4) CONSTRUCT LT. PORTION OF ROADWAY AND BRIDGE AS SHOWN.
5) A PORTION OF THE REQUIRED PAVING WORK IS UNDER P.C.C.B. ONCE BRIDGE WORK IS COMPLETE, THE P.C.C.B. CAN BE REPLACED WITH TRAFFIC DRUMS TO ALLOW PAVING OF THESE PORTIONS.
6) MOVE TRAFFIC TO PROPOSED CENTERLINE. INSTALL FINAL LIFT OF ACHM SURFACE COURSE AND GUARDRAIL.



STAGE 3 - TYPICAL SECTION

BUMP (4) W8-1 (30" X 30")
DO NOT PASS (4) R4-1 (24" X 30")
RIGHT SHOULDER CLOSED (4) W21-5a (36" X 36")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

aewierciak 2/1/2024 5:01:59 PM
WORKSPACE: AHTD
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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.		16	59
JOB NO.		080617		

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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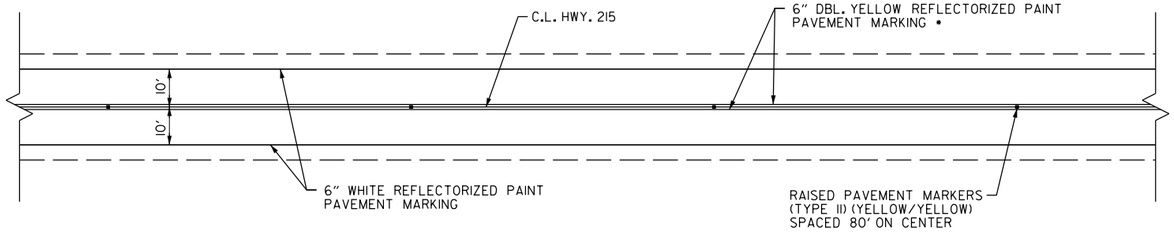
DIGITALLY SIGNED 05/21/2024

- 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.



TYPICAL PERMANENT PAVEMENT MARKING LAYOUT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	59
				JOB NO.		080617		
				(2)	SOIL BORING LOG			

STATE OF ARKANSAS
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SOIL BORING LOG

BORING NO.	APPROX. STATION	SAMPLE	WATER	ATTERBERG LIMITS			PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY			
RV783	110+90, 15' LT.	0-5	-	46	18	28	70		A-7-6(18)
S779	102+50, 05' RT.	0-5	8.0	31	21	10	86		A-4(8)
S780	102+50, 15' RT.	0-5	5.7	28	16	12	36		A-6(1)
S781	110+90, 5' LT.	0-5	17.1	45	17	28	73		A-7-6(19)
S782	110+90, 15' LT.	0-5	15.2	44	18	26	72		A-7-6(17)

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMIT 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.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	59
				JOB NO.		080617		
				②		QUANTITIES		

STATE OF ARKANSAS
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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	REMOVAL OF 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.				EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		1872			1872						
CONSTRUCTION PAVEMENT MARKINGS		677	1196			1873					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			193				193				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		79	197					276			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				12					12		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				1870						1870	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				1870							1870
TOTALS:					**1872**	**1873**	**193**	**276**	**12**	**1870**	**1870**

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

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)	TEMP. IMPACT ATTEN. BARR. (RELOCATION)	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED
										RIGHT	LEFT						
			LIN. FT. - EACH				NO.	SQ. FT.	EACH			LIN. FT.			EACH		LUMP SUM
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0									
OM-3L	OBJECT MARKER	12"x36"		9	12	12	12	36.0									
OM-3R	OBJECT MARKER	12"x36"		12	16	16	16	48.0									
R2-1	SPEED LIMIT 25	48"x60"		4	4	4	4	80.0									
R2-1	SPEED LIMIT 35	48"x60"		4	4	4	4	80.0									
R2-1	SPEED LIMIT 45	48"x60"		4	4	4	4	80.0									
R2-12	END WORK ZONE SPEED LIMIT	24"x36"		2	2	2	2	12.0									
R11-2	ROAD CLOSED	48"x30"		2	2	2	2	20.0									
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0									
R10-6	STOP HERE ON RED	24"x36"		2	2	2	2	12.0									
R10-11b	NO TURN ON RED	36"x36"		1	1	1	1	9.0									
W1-6	LARGE ARROW	48"x24"		2	2	2	2	16.0									
W3-3	SIGNAL AHEAD	48"x48"		4	4	4	4	64.0									
W3-4	BE PREPARED TO STOP	48"x48"		4	4	4	4	64.0									
W3-5	SPEED LIMIT 45 ↑	48"x48"		4	4	4	4	64.0									
W8-1	BUMP	30"x30"	2	2	2	2	2	12.5									
W20-1	ROAD WORK 1500 FT.	48"x48"	2	4	4	4	4	64.0									
W20-1	ROAD WORK 1000 FT.	48"x48"	2			2	2	32.0									
W20-1	ROAD WORK 500 FT.	48"x48"	2			2	2	32.0									
W20-4	ONE LANE ROAD 1000 FT.	48"x48"		4	4	4	4	64.0									
W20-4	ONE LANE ROAD 1/2 MILE	48"x48"		4	4	4	4	64.0									
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	18.0									
SPECIAL	ONE WAY ACCESS PERMITTED IN DIRECTION OF FLASHING YELLOW ARROW	48"x36"		1	1	1	1	12.0									
	TRAFFIC DRUMS		18	53	25	53			53								
	TYPE III BARRICADE-RT. (8')			1	1	1				8							
	TYPE III BARRICADE-LT. (8')			1	1	1					8						
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			420	320	740						740					
	RELOCATING PRECAST CONCRETE BARRIER				160	160							160				
	TEMPORARY IMPACT ATTENUATION BARRIER			6	2	8								8			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			6	8	14									14		
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)				2											2	
	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED			1	1	1											1.00
TOTALS:							**909.5**	**53**	**8**	**8**		**740**	**160**	**8**	**14**	**2**	**1.00**

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
106+11	NW PARAPET WALL BRIDGE NO. 07528	1
TOTAL:		**1**

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
103+59	110+35	HWY. 215	7	7
TOTALS:			**7**	**7**

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
106+93	107+78	HWY. 215 LT.	169	1
TOTALS:			**169**	**1**

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				JOB NO.		080617		
				②		QUANTITIES		

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1 - HWY. 215		
ENTIRE	PROJECT	STAGE 2 - HWY. 215	19	1287
ENTIRE	PROJECT	STAGE 3 - HWY. 215	46	126
ENTIRE	PROJECT	DRIVEWAYS	10	145
ENTIRE	PROJECT	BRIDGE ENDS (NON-STRUCTURAL)	257	
TOTALS:			**332**	**1558**

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE	
		DIRECTED BY THE ENGINEER	100
TOTAL:			**100**

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

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE 1 SPECIAL)	APPROACH GUTTER (TYPE 2 SPECIAL)	APPROACH GUTTER (TYPE 3 SPECIAL)	REINFORCING STEEL-RDWY. (GR. 60)
			CU.YD.	CU.YD.	CU.YD.	POUND
105+81.50	106+18.00	HWY. 215 LT.	7.19			394
105+81.50	106+18.00	HWY. 215 RT.		13.72		766
106+78.00	107+09.50	HWY. 215 LT.			10.95	2112
106+78.00	107+14.50	HWY. 215 RT.		13.72		766
TOTALS:			**7.19**	**27.44**	**10.95**	**4038**

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	**50**

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (3/8") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.	
108+05	LT.	HWY. 215	16	32.47	3.57	149.98	42	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE	PROJECT	TEMPORARY DRIVES				40.00		
TOTALS:				**32.47**	**3.57**	**189.98**	**42**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....93.6% MIN. AGGR.....6.4% ASPHALT BINDER

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

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.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
* ENTIRE PROJECT - TO BE USED IF AND WHERE	2	4
DIRECTED BY THE ENGINEER		
TOTALS:	**2**	**4**

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

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
102+50.00	103+50.00	HWY. 215	18.00	200.00
110+85.00	111+85.00	HWY. 215	18.00	200.00
TOTAL:				**400.00**

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS IV) 24"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	DROP INLETS TYPE E	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.	EACH		SQ.YD.	M.GAL.	
104+47	HWY. 215 CONST. DROP INLET WITH 24" R.C. PIPE OUTLET LT.	41	1	1	8	0.10	FES-1, FES-2, FPC-9, PCC-1
TOTALS:		**41**	**1**	**1**	**8**	**0.10**	

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.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL: SPECIAL SEEDING	LIME	SPECIAL MULCH COVER	WATER	SPECIAL SECOND SEEDING APPLICATION	TEMPORARY EROSION CONTROL: TEMPORARY SEEDING	SPECIAL MULCH COVER	WATER	FILTER SOCKS (18") (E-3)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING									120	88	15		805			39
ENTIRE	PROJECT	STAGE 1											3					1
ENTIRE	PROJECT	STAGE 2																
ENTIRE	PROJECT	STAGE 3										88	12	20				9
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.72	1.44	0.72	73.4	0.72	0.72	0.72	14.7	1000	44	6	20	200	100	100	108
TOTALS:			**0.72**	**1.44**	**0.72**	**73.4**	**0.72**	**0.72**	**0.72**	**14.7**	**1120**	**220**	**36**	**40**	**1005**	**100**	**100**	**157**

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
DROP INLET SILT FENCE.....20 LIN. FT./ LOCATION

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

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

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PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
104+47	HWY. 215	8.50	18	4.3
TOTAL:				**4.3**

AVG. DEPTH = 9"

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)	* 20'-0" GATES
			LIN. FT.	EACH
106+98	107+78	HWY. 215 LT.	138	1
TOTALS:			**138**	**1**

* DENOTES ALTERNATE BID ITEM.

CONCRETE RIPRAP

STATION	STATION	LOCATION	CONCRETE RIPRAP
			CU. YD.
103+59	106+04	HWY. 215 LT.	25
108+37	110+35	HWY. 215 LT.	23
TOTAL:			**48**

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL	GUARDRAIL MAINTENANCE MATERIALS
			LIN. FT.	EACH			LUMP SUM
105+09.77	106+03.52	HWY. 215 RT.	25	1	1		
105+09.77	106+03.52	HWY. 215 LT.	25	1	1		
106+92.93	107+86.68	HWY. 215 RT.	25	1	1		
107+08.62		HWY. 215 LT.				1	
ENTIRE	PROJECT						1.00
TOTALS:			**75**	**3**	**3**	**1**	**1.00**

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	50
ENGINEER	
TOTAL:	**50**

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
108+41.38	109+00.00	HWY. 215 LT.	58.62	52.11
TOTAL:				**52.11**

NOTE: AVERAGE WIDTH = 8'-0"

NATIVE STONE FOR DITCH LINER

STATION	STATION	LOCATION	NATIVE STONE FOR DITCH LINER
			TON
107+00	107+86	HWY. 215 LT.	46
108+23	108+37	HWY. 215 LT.	7
TOTAL:			**53**

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			500	4
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			**500**	**4**

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

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT (0.05 GAL. PER SQ. YD.)			TACK COAT (0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (3/8")								TOTAL PG 64-22
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON		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	
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
102+50.00	103+50.00	HWY. 215 - 100' PAVING TRANSITION	100.00	0.50	0.50				18.00	200.00	34.00	34.00									18.00	200.00	220.00	22.00	22.00
103+50.00	103+59.00	HWY. 215 - OVERLAY	9.00	1.00	0.09				18.00	18.00	3.06	3.06									18.00	18.00	220.00	1.98	1.98
103+59.00	104+59.00	HWY. 215 - OVERLAY & 100' GRADING TRANSITION	100.00	38.75	38.75	4.19	46.56	2.33	18.00	200.00	34.00	36.33	2.17	24.11	330.00	3.98	2.02	22.44	220.00	2.47	23.00	255.56	220.00	28.11	30.58
104+59.00	105+66.00	HWY. 215 - NOTCH AND WIDEN	107.00	78.50	84.00	16.44	195.45	9.77				9.77	8.27	98.32	330.00	16.22	8.17	97.13	220.00	10.68	28.00	332.89	220.00	36.62	47.30
105+66.00	106+18.00	HWY. 215 - NOTCH AND WIDEN	52.00	76.75	39.91	16.90	97.64	4.88				4.88	8.65	49.98	330.00	8.25	8.25	47.67	220.00	5.24	28.00	161.78	220.00	17.80	23.04
106+78.00	108+38.00	HWY. 215 - NOTCH AND WIDEN	160.00	76.75	122.80	16.90	300.44	15.02				15.02	8.65	153.78	330.00	25.37	8.25	146.67	220.00	16.13	28.00	497.78	220.00	54.76	70.89
108+38.00	109+35.00	HWY. 215 - NOTCH AND WIDEN	97.00	78.50	76.15	16.44	177.19	8.86				8.86	8.27	89.13	330.00	14.71	8.17	88.05	220.00	9.69	28.00	301.78	220.00	33.20	42.89
109+35.00	110+35.00	HWY. 215 - OVERLAY & 100' GRADING TRANSITION	100.00	38.75	38.75	4.19	46.56	2.33	18.00	200.00	34.00	36.33	2.17	24.11	330.00	3.98	2.02	22.44	220.00	2.47	23.00	255.56	220.00	28.11	30.58
110+35.00	110+85.00	HWY. 215 - OVERLAY	50.00	1.00	0.50				18.00	100.00	17.00	17.00									18.00	100.00	220.00	11.00	11.00
110+85.00	111+85.00	HWY. 215 - 100' PAVING TRANSITION	100.00	0.50	0.50				18.00	200.00	34.00	34.00									18.00	200.00	220.00	22.00	22.00
ADDITIONAL FOR LEVELING																									
104+59.00	106+18.00	HWY. 215 - NOTCH AND WIDEN	159.00			18.00	318.00	15.90	18.00	318.00	54.06	69.96					18.00	318.00	VAR.	39.66					39.66
108+95.00	109+35.00	HWY. 215 - NOTCH AND WIDEN	40.00			18.00	80.00	4.00	18.00	80.00	13.60	17.60					18.00	80.00	VAR.	12.82					12.82
ADDITIONAL FOR METHOD OF RAISING GRADE																									
106+78.00	108+95.00	HWY. 215 - NOTCH AND WIDEN	217.00			36.00	868.00	43.40	18.00	434.00	73.78	117.18	18.00	434.00	VAR.	226.95	18.00	434.00	220.00	47.74					47.74
ADDITIONAL FOR SUPERELEVATION																									
104+59.00	105+66.00	HWY. 215	107.00	12.75	13.64																				
105+66.00	106+08.41	HWY. 215	42.41	6.00	2.54																				
106+08.41	106+18.00	HWY. 215	9.59	4.50	0.43																				
106+78.00	106+80.25	HWY. 215	2.25	4.50	0.10																				
106+80.25	107+87.63	HWY. 215	107.38	11.75	12.62																				
107+87.63	108+38.00	HWY. 215	50.37	16.50	8.31																				
108+38.00	109+35.00	HWY. 215	97.00	8.50	8.25																				
ADDITIONAL FOR GUARDRAIL																									
104+53.06	106+18.00	HWY. 215 - RT.	164.94	VAR.	51.96	7.34	134.49	6.72				6.72	3.67	67.24	330.00	11.09	3.67	67.24	220.00	7.40	6.09	111.54	220.00	12.27	19.67
104+66.85	106+03.00	HWY. 215 - LT.	136.15	VAR.	37.27																3.84	58.08	220.00	6.39	6.39
106+78.00	108+41.15	HWY. 215 - RT.	163.15	VAR.	48.00	6.94	125.77	6.29				6.29	3.47	62.89	330.00	10.38	3.47	62.89	220.00	6.92	5.70	103.38	220.00	11.37	18.29
106+92.80	107+78.55	HWY. 215 - LT.	85.75	VAR.	38.12																4.10	39.06	220.00	4.30	4.30
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
13+60.93	14+09.46	STAGE 2 HWY. 215 ALIGNMENT - RT.	48.53	VAR.	1.02	1.08	5.82	0.29				0.29	0.54	2.91	330.00	0.48	0.54	2.91	220.00	0.32					0.32
TOTALS:					**624.21**		**2395.92**	**119.79**		**1750.00**	**297.50**	**417.29**		**1006.47**		**321.41**		**1389.44**		**161.54**		**2635.41**		**289.91**	**451.45**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....93.6% MIN. AGGR.....6.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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.		080617	21	59
07528		QUANTITIES		64026

SCHEDULE OF BRIDGE QUANTITIES - JOB. NO. 080617

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS & 802	SP, SS, & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	812	SS & 816	SP, SS, & 816	SP JOB 080617	SP JOB 080617	SP JOB 080617
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12x53) (1)	STEEL PILING (HP 14x73) (1)	PILE ENCASEMENT (3)	PREBORING (2)	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	ARCHITECTURAL FINISH	STAINING CONCRETE SURFACES	SHORING (SITE NO. _) (4)
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LF.	LF.	LF.	LF.	EACH	SQ. YD.	CU. YD.	SQ. FT.	SQ. FT.	LUMP SUM
07528	HIGHWAY 215 OVER WOLF PEN CREEK	END BENT NO. 1			337	96.36			10,990	2,456	196			182		153	88	272	707	
		INTERMEDIATE BENT NO. 2				12.08			1,607	145		156	42	126						
		END BENT NO. 3			385	105.16			11,453	2,456	172			158		225	124	272	803	
		60'-0" CONTINUOUS R.C. SLAB UNIT					156.60	213.3		38,603					1			1,038	1,238	
		SITE NO. 1 (EXISTING BRIDGE NO. M2349)		1																1
		TOTALS FOR JOB NO. 080617			722	213.60	156.60	213.3	24,050	43,660	368	156	42	466	1	378	212	1,582	2,748	

(1) All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the items "STEEL PILING (HP 12X53)" and "STEEL PILING (HP 14x73)".

(2) Quantity of Preboring shown is for estimating and bidding purposes only. Actual quantity will be determined in the field.

(3) Round encasement and alternate pile encasement utilizing corrugated metal pipe will not be allowed.

(4) At the approval of the Engineer, some portions of the shoring system may be left in place. See Job SP "SHORING" for additional information.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HIGHWAY 215 OVER WOLF PEN CREEK
WOLF PEN CREEK STR. & APPRS. (S)
JOHNSON COUNTY

ROUTE 215 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JME DATE: MAR. 2021 FILENAME: b080617_q1.dgn
CHECKED BY: WMM DATE: MAR. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: MAR. 2021

BRIDGE NO. 07528 DRAWING NO. 64026

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WORKSPACE: ARDOT Bridge (2019)
L:\20T\VT01624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_SD01.01.dgn
REVISED DATE:

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	7	STATION
201	GRUBBING	7	STATION
202	REMOVAL AND DISPOSAL OF FENCE	169	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	332	CU. YD.
SP & 210	COMPACTED EMBANKMENT	1558	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	814	TON
SS & 401	TACK COAT	421	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	307	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	14	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")	426	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8")	29	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	400	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	2	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	50	TON
SP, SS, & 504	APPROACH GUTTERS	45.58	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	910	SQ. FT.
SS & 604	BARRICADES	16	LIN. FT.
SS & 604	TRAFFIC DRUMS	53	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	740	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	160	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	1873	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	276	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	193	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1872	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	41	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	42	LIN. FT.
SS & 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	1	EACH
SS & 606	SELECTED PIPE BEDDING	50	CU. YD.
SS & 609	DROP INLETS (TYPE E)	1	EACH
SS & 611	4" PIPE UNDERDRAINS	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
SS & 615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	4.3	CU. YD.
SP, SS, & 617	GUARDRAIL (TYPE A)	75	LIN. FT.
SP, SS, & 617	GUARDRAIL TERMINAL (TYPE 2)	3	EACH
SP, SS, & 617	THRIE BEAM GUARDRAIL TERMINAL	3	EACH
SP	GUARDRAIL MAINTENANCE MATERIALS	1.00	LUMP SUM
SS & 619	WIRE FENCE (TYPE D)	138	LIN. FT.
* SS & 619	20' STEEL GATES (ALTERNATE NO. 1)	1	EACH
* SS & 619	20' ALUMINUM GATES (ALTERNATE NO. 2)	1	EACH
620	LIME	1	TON
SP & 620	SPECIAL SEEDING	0.72	ACRE
SP, SS, & 620	SPECIAL MULCH COVER	1.44	ACRE
620	WATER	88.2	M. GAL.
621	TEMPORARY SEEDING	0.72	ACRE
621	SILT FENCE	1005	LIN. FT.
621	SAND BAG DITCH CHECKS	220	BAG
621	DROP INLET SILT FENCE	40	LIN. FT.
621	SEDIMENT BASIN	100	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	100	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	157	CU. YD.
621	ROCK DITCH CHECKS	36	CU. YD.
SS & 621	FILTER SOCK (18")	1120	LIN. FT.
SP & 623	SPECIAL SECOND SEEDING APPLICATION	0.72	ACRE
624	SOLID SODDING	8	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	52	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
SP	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	1870	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	1870	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	12	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	8	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	14	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	2	EACH
SS & 734	BRIDGE END TERMINAL	1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	4038	POUND
SS & 816	CONCRETE RIPRAP	48	CU. YD.
SP	NATIVE STONE FOR DITCH LINER	53	TON
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	722	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	213.60	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	156.60	CU. YD.
SP	ARCHITECTURAL FINISH	1582	SQ. FT.
SP	STAINING CONCRETE SURFACES	2748	SQ. FT.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	213.3	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	24050	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	43660	POUND
SS & 805	STEEL PILING (HP 12X53)	368	LIN. FT.
SS & 805	STEEL PILING (HP 14X73)	156	LIN. FT.
SS & 805	PREBORING	466	LIN. FT.
SS & 805	PILE ENCASEMENT	42	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	FILTER BLANKET	378	SQ. YD.
SP, SS, & 816	DUMPED RIPRAP	212	CU. YD.
SP	SHORING (SITE NO. 1)	1.00	LUMP SUM

* DENOTES ALTERNATE BID ITEMS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
06-10-2024				6	ARK.		22	59
				JOB NO.		080617		
				(2) SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

Digitally Signed 06/10/2024

REVISIONS

DATE	REVISION	SHEET NUMBER
6/10/2024	ADDED SS 102-3 "PREQUALIFICATION OF BIDDERS".	3, 22

JDBradley 6/10/2024 8:47:29 AM
WORKSPACE: AHTD
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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.		23	59
				JOB NO.		080617		
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024

SURVEY CONTROL COORDINATES

Project Name: s080617
Date: 12/12/2019
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	495729.5122	834500.8633	969.992	GPS	ARDOT STD. MON. STAMPED PN: 1
2	496105.3238	834798.5647	960.865	GPS	ARDOT STD. MON. STAMPED PN: 2
3	496697.8967	835089.4828	960.244	CTL	ARDOT STD. MON. STAMPED PN: 3
4	496936.2026	835477.5456	955.854	CTL	ARDOT STD. MON. STAMPED PN: 4
5	496810.5648	836103.4179	972.114	CTL	ARDOT STD. MON. STAMPED PN: 5
6	496850.7498	836573.7606	973.817	CTL	ARDOT STD. MON. STAMPED PN: 6
7	496838.0677	837408.5007	969.651	CTL	ARDOT STD. MON. STAMPED PN: 7
8	496671.5157	837755.5266	987.924	CTL	ARDOT STD. MON. STAMPED PN: 8
9	496565.1747	838115.6746	980.386	CTL	ARDOT STD. MON. STAMPED PN: 9
10	496405.1362	838569.9392	977.037	CTL	ARDOT STD. MON. STAMPED PN: 10
100	496218.6771	837800.0599	971.781	GPS	ARDOT GPS *360223
101	496470.3541	839055.1342	982.229	GPS	ARDOT GPS *360223A
901	496475.0324	838368.4825	977.028	TBM	CHSQ IN NE CNR OF BR
902	496903.8742	835443.9588	956.442	TBM	CHSQ IN SE CNR OF BR
903	496737.4998	835165.6687	961.078	TBM	CHSQ IN ROCK

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.999895490508 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 s080617gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 880088-880088A
CONVERGENCE ANGLE: 00 56 04.69 LEFT AT LAT N 35 41 16.02 LON W 93 36 22.26
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ALIGNMENT NAME: HWY. 215

POINT	STATION	TYPE	NORTHING	EASTING
8000	100+00.00	POB	496460.0230	834975.2261
8001	101+71.48	PC	496613.7851	835051.1459
8002	104+58.41	PT	496811.9732	835251.3281
8003	106+88.00	PC	496911.5511	835458.1973
8004	108+87.25	PT	496915.9221	835651.4273
8005	109+53.82	PC	496889.7919	835712.6516
8006	110+98.07	PCC	496845.9916	835849.8720
8007	111+59.03	PCC	496836.0426	835909.9815
8008	114+12.80	PT	496826.9217	836163.3332
8009	115+00.00	POE	496830.5418	836250.4623

ALIGNMENT NAME: MOT - STAGE 2 HWY. 215

POINT	STATION	TYPE	NORTHING	EASTING
8010	10+00.00	PC	496807.4679	835253.4967
8011	10+26.07	PT	496818.0601	835277.3127
8012	11+07.62	PC	496848.9387	835352.7900
8013	11+50.80	PT	496866.4819	835392.2352
8014	12+30.47	PC	496901.0371	835464.0222
8015	14+22.12	PT	496908.2779	835650.2131
8016	15+11.68	POE	496875.8181	835733.6834

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WORKSPACE: AHTD
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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.		24	59
				JOB NO.		080617		
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024

N

100 50 0 100

Scale: 1" = 100'

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

SURVEY BASELINE

8000 — C.L. HWY. 215 — N 26°08'54" E 660.13'

8001 — N 26°16'40" E 111.48' — 100+00

PC 101+71.48

PT 104+58.41

PI 103+20.45 — N 26°16'40" E 148.97'

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

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

TBM
PN:903
PD:CHSO IN ROCK

8002 — N 64°17'45" E 148.97' — 105+00

SURVEY BASELINE N 58°26'41" E 455.39'

STA. 103+50.00
BEGIN JOB 080617
L.M. 5.89

N 64°17'45" E 229.59'

TBM
PN:902
PD:CHSO

8003
PD:ARDOT STD. MON. STAMPED PN:4

N SE CNR OF BR

PC 106+88.00

PT 108+87.25

PI 107+94.13 — N 64°17'45" E 106.13'

PN:4

S 66°53'15" E 106.13'

8004

S 66°53'15" E 66.57'

PC 109+53.82

8005 — S 66°53'15" E 72.34' — 110+00

PI 110+26.16

S 77°42'24" E 72.34'

PCC 110+98.07

PCC 111+59.03

8006 — SURVEY BASELINE S 78°38'57" E 638.36'

S 77°42'24" E 30.51'

PI 111+28.58

8007 — S 83°29'50" E 127.14'

S 83°29'50" E 30.51'

SURVEY BASELINE

PT 114+12.80

PI 112+86.17

N 87°37'15" E 127.14' — 115+00

8008 — N 87°37'15" E 87.20'

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

SURVEY BASELINE N 85°07'00" E 472.06'

8009

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

STA. 110+85.00
END JOB 080617

C.L. HWY. 215
PI = 112+86.17
Δ = 8°52'55" LT.
D = 3°30'00"
T = 127.14'
L = 253.77'
PCC = 111+59.03
PT = 114+12.80
e = MATCH EXISTING
Ls = MATCH EXISTING

C.L. HWY. 215
PI = 103+20.45
Δ = 38°01'05" RT.
D = 13°15'00"
T = 148.97'
L = 286.93'
PC = 101+71.48
PT = 104+58.41
e = 0.08'/' (MATCH EXIST.)
Ls = 300'

C.L. HWY. 215
PI = 107+94.13
Δ = 48°49'00" RT.
D = 24°30'00"
T = 106.13'
L = 199.25'
PC = 106+88.00
PT = 108+87.25
e = 0.100'/'
Ls = 200'

C.L. HWY. 215
PI = 110+26.16
Δ = 10°49'09" LT.
D = 7°30'00"
T = 72.34'
L = 144.25'
PC = 109+53.82
PCC = 110+98.07
e = MATCH EXISTING
Ls = MATCH EXISTING

C.L. HWY. 215
PI = 111+28.58
Δ = 5°47'26" LT.
D = 9°30'00"
T = 30.51'
L = 60.96'
PCC = 110+98.07
PCC = 111+59.03
e = MATCH EXISTING
Ls = MATCH EXISTING

SURVEY CONTROL DETAILS

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WORKSPACE: AHTD
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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.		25	59
JOB NO.		080617		

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 05/21/2024

N

100 50 0 100

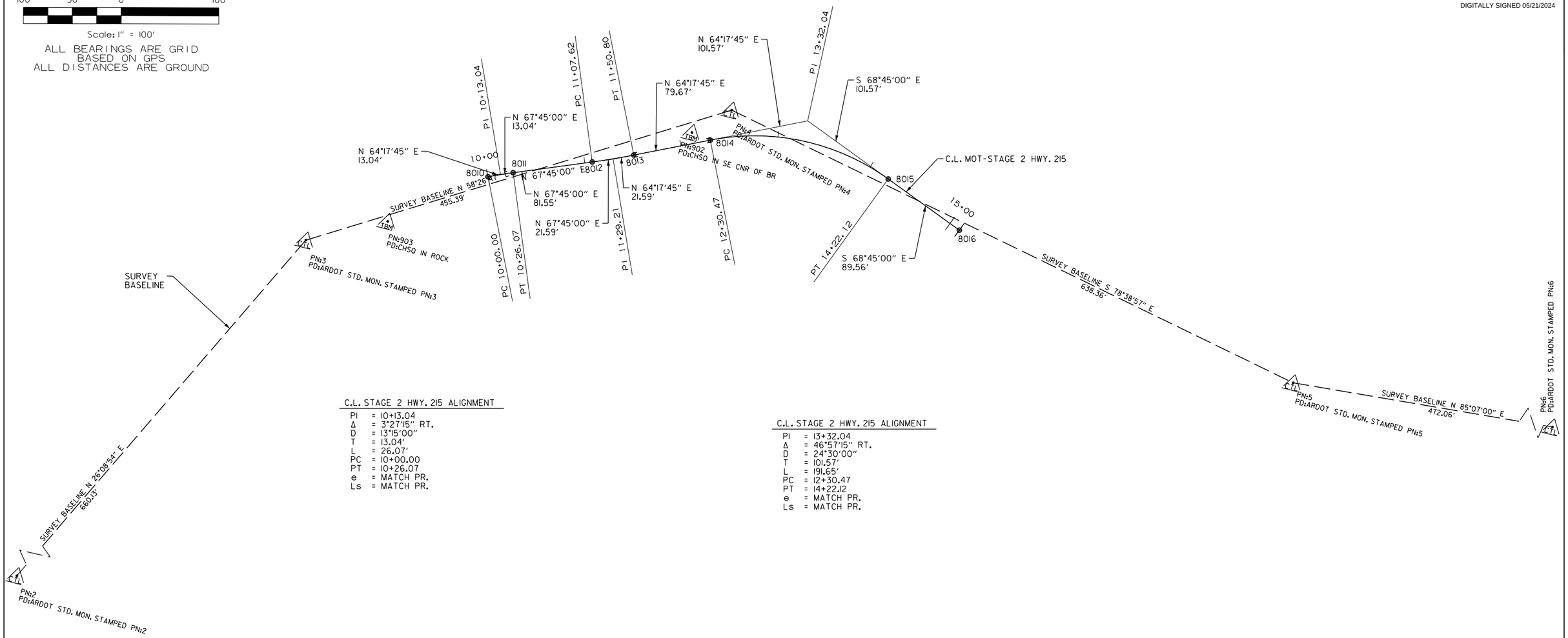
Scale: 1" = 100'

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 11+29.21
Δ = 3°27'15" LT.
D = 8°00'00"
T = 21.59'
L = 43.18'
PC = 11+07.62
PT = 11+50.80
e = MATCH PR.
Ls = MATCH PR.

C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 10+13.04
Δ = 3°27'15" RT.
D = 13°15'00"
T = 13.04'
L = 26.07'
PC = 10+00.00
PT = 10+26.07
e = MATCH PR.
Ls = MATCH PR.

C.L. STAGE 2 HWY. 215 ALIGNMENT
PI = 13+32.04
Δ = 46°57'15" RT.
D = 24°30'00"
T = 101.57'
L = 191.65'
PC = 12+30.47
PT = 14+22.12
e = MATCH PR.
Ls = MATCH PR.



TEMPORARY SURVEY CONTROL DETAILS

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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.		26	59
				JOB NO.		080617		
				(2)	PLAN AND PROFILE - HIGHWAY 215			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK
DIGITALLY SIGNED 05/21/2024

FENCING

STA.	STA.	SIDE	TYPE	UNIT	GATES
106+98	107+78	HWY. 215 - LT.	D	138 LIN. FT.	1

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	UNIT
106+98	107+78	LT.	169 LIN. FT.

STA. 104+47 CONSTRUCT DROP INLET ON LT. H = 2'-9" WITH 24" X 41' R.C. PIPE OUTLET TO F.E.S. ON RT. TYPE E INLET = 3'x2' 24" R.C. PIPE = 41 LIN. FT. (CLASS IV) (TYPE 3 BEDDING) 24" F.E.S. = 1 EACH Q25 = 1.9 CFS DA = 0.3 ACRES

STA. 103+33 IN PLACE 24" X 44' C.M. PIPE CULVERT 8° RT. FWD. SKEW RETAIN

BRIDGE NO. M2349 IN PLACE 52'-0" X 21'-11" BRIDGE CONSISTING OF A CONCRETE SUPERSTRUCTURE SUPPORTED BY A STEEL SUBSTRUCTURE. REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

STA. 108+05 INSTALL 18" X 42' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 145 CU. YDS. FILL 10 CU. YDS. CUT

BRIDGE END TERMINAL

NATIVE STONE FOR DITCH LINER 6' WIDTH, 18" THICKNESS STA. 107+00 TO STA. 107+86 AND STA. 108+23 TO STA. 108+37

SHOULDER TRANSITION 0' TO 4' TO AVOID ROCK FACE

SHOULDER TRANSITION 4' TO 0' TO AVOID ROCK FACE

100' GRADING TRANSITION

100' PAVING TRANSITION

EXIST. R/W

CONST. LIMITS

PROP. R/W

CONSTRUCTION LIMITS

LOW ELEVATION LINE

WOLF PEN CREEK

MULBERRY RIVER

END BRIDGE STA. 106+78.00

BEGIN BRIDGE STA. 106+18.00

STA. 111+26 IN PLACE 36" X 22"X 41' C.M. ARCH PIPE CULVERT 19° LT. FWD. SKEW RETAIN

C.L. HWY. 215

PI	= 103+20.45
Δ	= 38°01'05" RT.
D	= 13°15'00"
T	= 148.97'
L	= 286.93'
PC	= 101+71.48
PT	= 104+58.41
e	= 0.08'/' (MATCH EXIST.)
Ls	= 300'

C.L. HWY. 215

PI	= 107+94.13
Δ	= 48°49'00" RT.
D	= 24°30'00"
T	= 106.13'
L	= 199.25'
PC	= 106+88.00
PT	= 108+87.25
e	= 0.100'/' (SEE PROFILE NOTE)
Ls	= 200'

C.L. HWY. 215

PI	= 110+26.16
Δ	= 10°49'09" LT.
D	= 7°30'00"
T	= 72.34'
L	= 144.25'
PC	= 109+53.82
PCC	= 110+98.07
e	= MATCH EXISTING
Ls	= MATCH EXISTING

C.L. HWY. 215

PI	= 111+28.58
Δ	= 5°47'26" LT.
D	= 9°30'00"
T	= 30.51'
L	= 60.96'
PCC	= 110+98.07
PCC	= 111+59.03
e	= MATCH EXISTING
Ls	= MATCH EXISTING

DRIVEWAY POINT TABLE

POINT	HWY. 215 STA.	OFFSET
D1	108+12.13	28.63' LT.
D2	107+77.12	65.82' LT.
D3	107+26.72	50.55' LT.
D4	107+03.13	77.52' LT.

C.L. HWY. 215

PI	= 112+86.17
Δ	= 8°52'55" LT.
D	= 3°30'00"
T	= 127.14'
L	= 253.77'
PCC	= 111+59.03
PT	= 114+12.80
e	= MATCH EXISTING
Ls	= MATCH EXISTING

C.L. HWY. 215 STATIONING	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)	THRIE BEAM GUARDRAIL TERMINAL
STA. 105+09.77 TO STA. 106+03.52 RT.	= 25 LIN. FT.	1 EACH	1 EACH
STA. 105+09.77 TO STA. 106+03.52 LT.	= 25 LIN. FT.	1 EACH	1 EACH
STA. 106+92.93 TO STA. 107+86.68 RT.	= 25 LIN. FT.	1 EACH	1 EACH

STA. 103+50.00
BEGIN JOB 080617
L.M. 5.89

STA. 110+85.00
END JOB 080617

HWY. 215

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL POINTS

STA. 103+83.41 MAX. SUPERELEVATION (0.080 FT./FT.)
STA. 106+08.41 REVERSE CROWN (0.020 FT./FT.)

STA. 106+80.25 REVERSE CROWN (0.020 FT./FT.)
STA. 107+87.63 MAX. SUPERELEVATION (0.074 FT./FT.) (MAXIMUM OBTAINABLE AT CENTER OF CURVE)
STA. 109+35.00 END SUPERELEVATION (0.000 FT./FT.)

WOLF PEN CREEK AT STA. 106+18 TO STA. 106+78 IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 949 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

100' VERTICAL TRANSITION TO MATCH EXISTING

OVERLAY

PROFILE GRADE

104+47 LT TOP ELEV.=955.50

PVC 104+59.00 ELEV. 955.95

VC=92.00' K=54.12 e=0.20'

PVT 105+51.00 ELEV. 955.71

BEGIN BRIDGE STA. 106+18.00

END BRIDGE STA. 106+78.00

PVC 107+50.00 ELEV. 956.89

VC=120.00' K=57.97 e=0.31'

PVT 108+70.00 ELEV. 958.84

PVI 109+35.00 ELEV. 960.57

100' VERTICAL TRANSITION TO MATCH EXISTING

-1.11%

0.59%

2.66%

3.07% LT. DITCH GRADE

Q25 DESIGN H.W. ELEV. = 953.2

EXISTING GROUND

PVI 105+05.00 ELEV. 955.44

PVI 108+10.00 ELEV. 957.24

+00.00 LT. 951.83

+37.00 LT. 956.04

STA. 103+50.00
BEGIN JOB 080617

STA. 110+85.00
END JOB 080617

F.L. LT.=954.96 EXIST.
F.L. RT.=951.96 EXIST.

F.L. ELEV.=952.75

F.L. RT.=948.96

F.L. LT.=960.69 EXIST.
F.L. RT.=959.90 EXIST.

1000 990 980 970 960 950 940 930 920 910

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00

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REVISED DATE:

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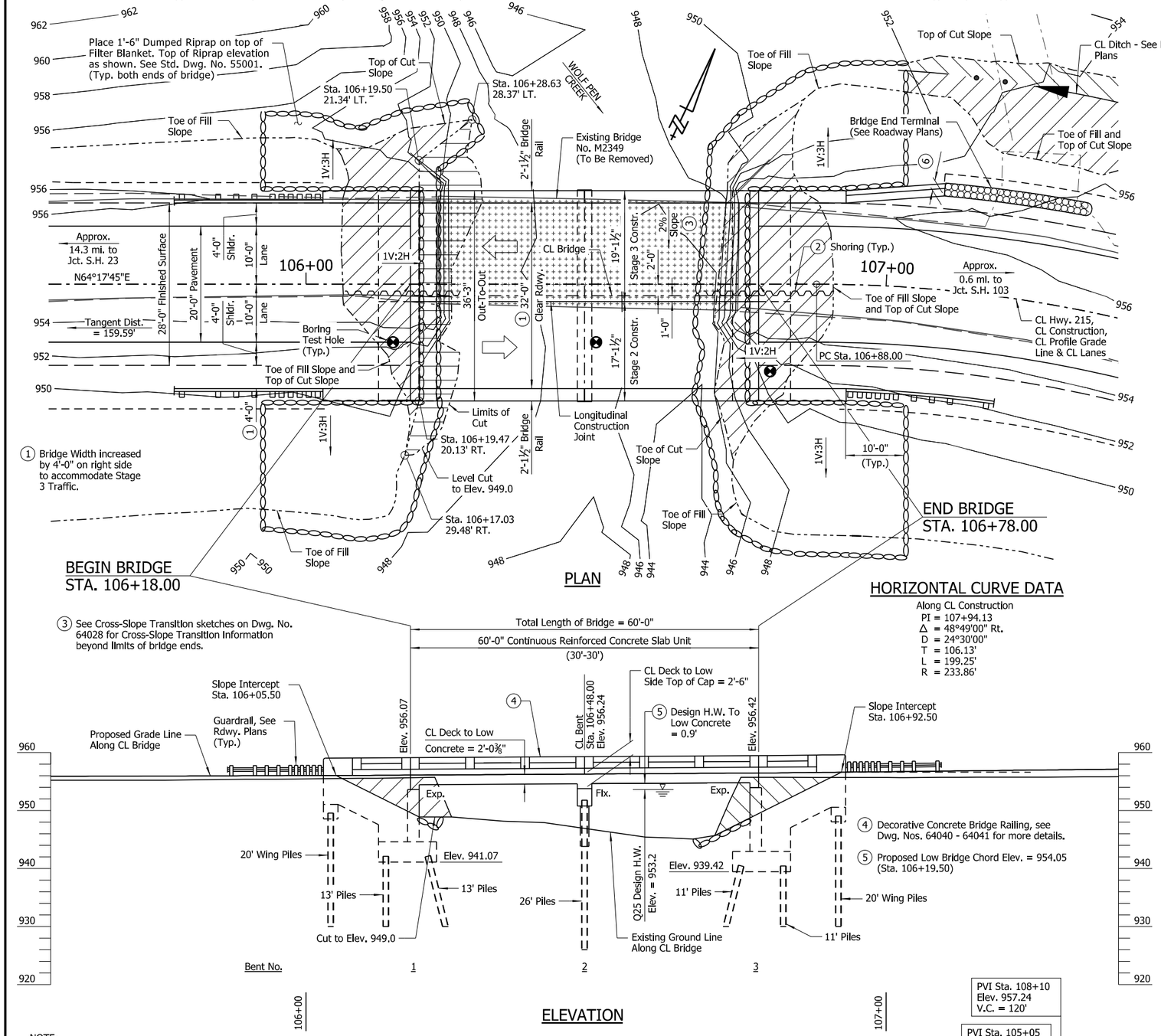
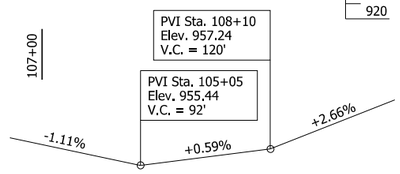
				6	ARK.			
				JOB NO.		080617	27	59
				07528		LAYOUT		64027

NOTE:
Excavate existing embankment at each end of bridge as shown. Approx. 257 cubic yards of excavation (excluding ditch excavation)

NOTE:
Use Type 1 Special Approach Gutter at Begin Bridge Left. Use Type 2 Special Approach Gutter at Begin Bridge Right and End Bridge Right. Use Type 3 Special Approach Gutter at End Bridge Left.





HORIZONTAL CURVE DATA

Along CL Construction
PI = 107+94.13
Δ = 48°49'00" Rt.
D = 24°30'00"
T = 106.13'
L = 199.25'
R = 233.86'

VERTICAL CURVE DATA

(Profile Grade Along CL Construction)

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2017, 8th Edition)

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.06 Site Class = B

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

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

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 only. It SHALL NOT be applied to the railings or curbs.

STAINING CONCRETE SURFACES: A concrete penetrating stain shall be applied to bridge surfaces as specified in Special Provision "STAINING CONCRETE SURFACES". The concrete penetrating stain shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied. The color of the stain shall be as specified in Special Provision "STAINING CONCRETE SURFACES".

PILE FOOTINGS: The top of the footings at Bents 1 and 3 shall be set a minimum 2' below natural ground, as determined by the lowest surface elevation within the footprint of the footing, or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

STEEL PILING: All piling in Bents 1 & 3 shall be HP12x53 (Grade 50) and shall be driven to a minimum safe bearing capacity of 95 tons per pile and into the material designated as sandstone on the boring legend. Minimum penetration shall be 10' below the footing or natural ground, whichever is lower. All piling in Bent 2 shall be HP14x73 (Grade 50) and shall be driven to a minimum safe bearing capacity of 130 tons per pile and into the material designated as sandstone on the boring legend. All piling shall be driven with an approved air, steam or diesel hammer. Lengths of piling shown are for estimating quantities only. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in all bents. Preboring shall be set to a minimum depth of 8' into the material designated as sandstone on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require the use of temporary casings or other approved methods. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "PREBORING".

PILE ENCASEMENT: Pile encasements for Bent 2 shall extend from the bottom of the cap to 3' below final ground surface. See Std. Dwg. 55021 for additional information.

EXISTING BRIDGE: Existing Bridge No. M2349 (Log Mile 5.93) is 52.0' in length, 22.0' wide (19.0' clear roadway) and consists of reinforced concrete slab spans (2 spans total) supported by a reinforced concrete pier wall at intermediate bent and reinforced concrete vertical wall abutments. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: Portions of existing Bridge No. M2349 shall carefully be removed by the Contractor prior to Stage 2 Construction as shown on Dwg. No. 64029 and in accordance with Section 205. After Stage 2 construction is complete and open to traffic, the Contractor shall remove the remainder of the existing bridge in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	64031 - 64035
Intermediate Bent	64036
60'-0" Reinforced Concrete Slab Unit	64037 - 64041
Type Special Approach Gutters	64042 & 64042A
Dumped Riprap	55001
Steel H-Piling	55020

NOTE:
Stations shown are along CL Construction. Elevations shown are actual top of deck elevations at CL Bridge. Any vertical dimension referenced to CL Deck is based on actual top of deck elevation at CL Bridge.

FOR R/W DATA, SEE ROADWAY PLANS

NOTE:
CL Construction beyond Station 106+88.00 is on a 24°30'00" curve right. The longitudinal lines of both the bridge and approach gutters shall be constructed on curves concentric with CL Construction.

NOTE:
For "ELEVATION OF SOIL BORINGS", "BORING LEGEND", "N-VALUES", and "HYDRAULIC DATA", See Dwg. No. 64028.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 215 OVER WOLF PEN CREEK
WOLF PEN CREEK STR. & APPRS. (S)
JOHNSON COUNTY

ROUTE 215 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: SEP. 2020 SCALE: 1" = 10'
DESIGNED BY: CSW DATE: SEP. 2020
BRIDGE NO. 07528 DRAWING NO. 64027

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WORKSPACE: ARDOT Bridge (2019)
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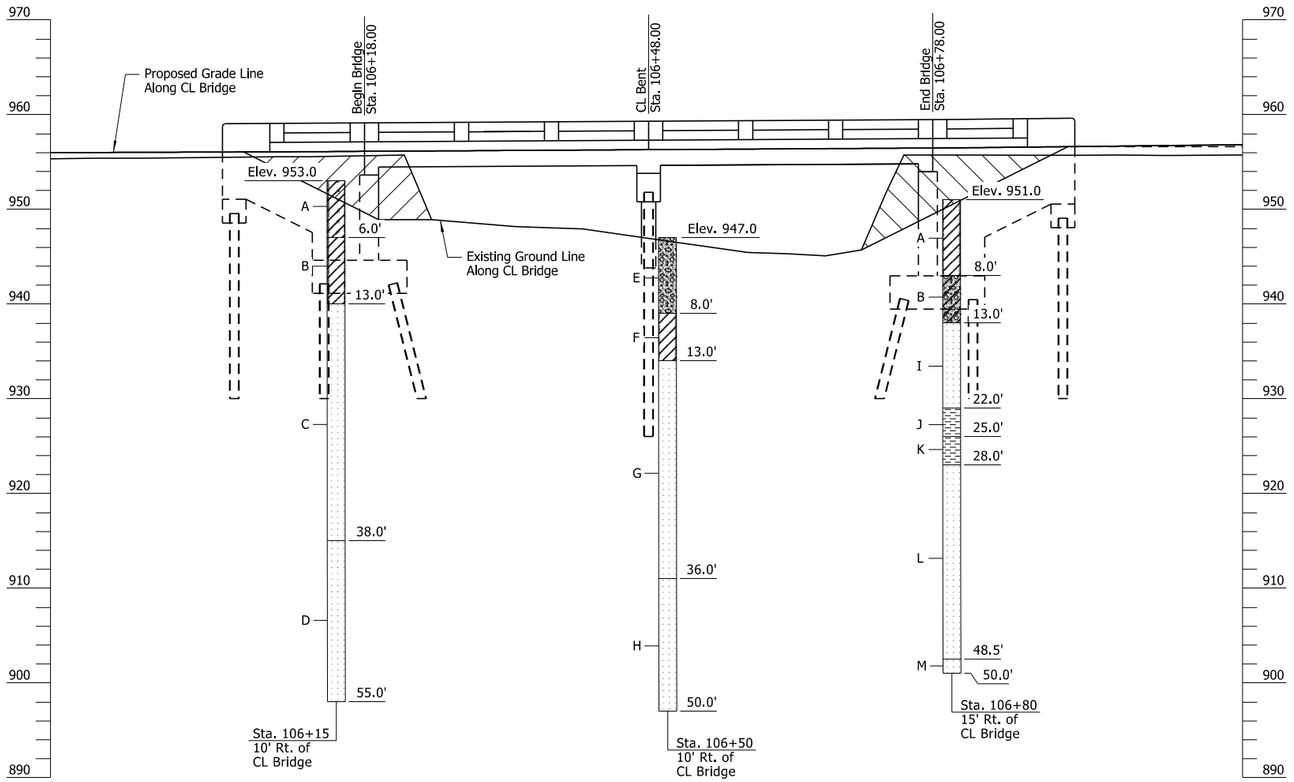
REVISED DATE:

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.		080617	28	59
				07528		LAYOUT		64028



ELEVATION OF SOIL BORINGS

BORING LEGEND

A - Firm brown and red fine sandy clay (fill)
B - Stiff brown fine sandy clay w/ sandstone fragments
C - Moderately hard bluish gray fine to medium-grained sandstone, weakly cemented
D - Hard light gray fine-grained sandstone w/ very close shale laminations, seams and layers
E - Loose to medium-dense brown and tan sandy fine to coarse gravel and cobbles
F - Very stiff reddish brown fine sandy clay
G - Moderately hard brownish gray and light gray fine to medium-grained sandstone, weakly cemented
H - Hard light gray fine-grained sandstone
I - Moderately hard light gray fine to medium-grained sandstone, weakly cemented
J - Moderately hard dark gray shale w/ very close sandstone partings and seams
K - Low hardness dark gray and brown highly weathered shale w/ silty clay seams and layers
L - Moderately hard to hard fine-grained to medium-grained sandstone, weakly cemented w/ close shale laminations and argillaceous inclusions
M - Moderately hard to hard light gray fine-grained sandstone

N-VALUES

Sta. 106+15 Offset 10' Rt.	Sta. 106+50 Offset 10' Rt.	Sta. 106+80 Offset 15' Rt.
0.5-1.5, N=7	2.0-3.5, N=25/0"	0.5-1.5, N=8
2.5-3.5, N=11	4.0-5.5, N=25/0"	2.5-3.5, N=12
4.0-5.0, N=13	6.0-7.5, N=25/0"	4.5-5.5, N=19
6.5-7.5, N=17	9.0-10.0, N=25	6.5-7.5, N=14
9.0-10.0, N=25	14.0-15.0, N=50/3"	9.0-10.0, N=23
14.0-15.0, N=50/5"	19.0-20.0, N=50/6"	14.0-15.0, N=50/2"

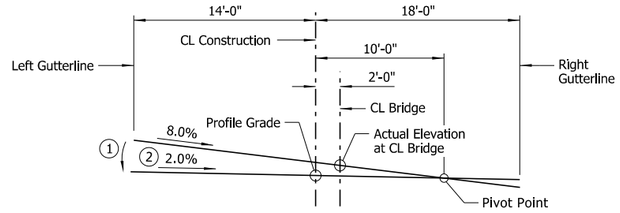
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(6) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	25	1,785	951.1	953.2
BASE	100	2,980	953.1	956.0
EXTREME	500	4,790	954.6	958.3
OVERTOPPING	204	3,695	953.8	956.4

(6) Unconstricted water surface without structure or roadway approaches.

Q100 Backwater Elevation For Existing Structure = 956.5 ft.
Proposed Bridge Low Concrete Elev. = 954.05

Drainage Area = 1.91 square miles.
Historical High Water Elev. = N/A

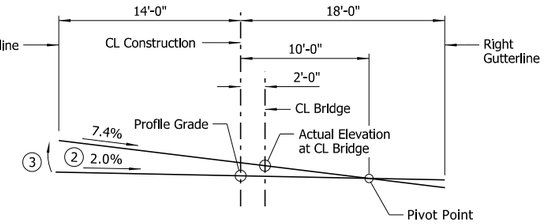


CROSS-SLOPE TRANSITION SKETCH NO. 1

(Looking Ahead)
No Scale

(1) Cross-Slope transitions from 8% (Sta. 103+83.41) to 2% (Sta. 106+08.41)

(2) 2% Reverse Crown remains constant from Sta. 106+08.41 to Sta. 106+80.25



CROSS-SLOPE TRANSITION SKETCH NO. 2

(Looking Ahead)
No Scale

(3) Cross-Slope transitions from 2% (Sta. 106+80.25) to 7.4% (Sta. 107+87.63)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 215 OVER WOLF PEN CREEK
WOLF PEN CREEK STR. & APPRS. (S)
JOHNSON COUNTY
ROUTE 215 SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: SEP. 2020 SCALE: ⅛" = 1'-0"
DESIGNED BY: CSW DATE: SEP. 2020
BRIDGE NO. 07528 DRAWING NO. 64028

cbhall 5/22/2023 5:08:32 PM
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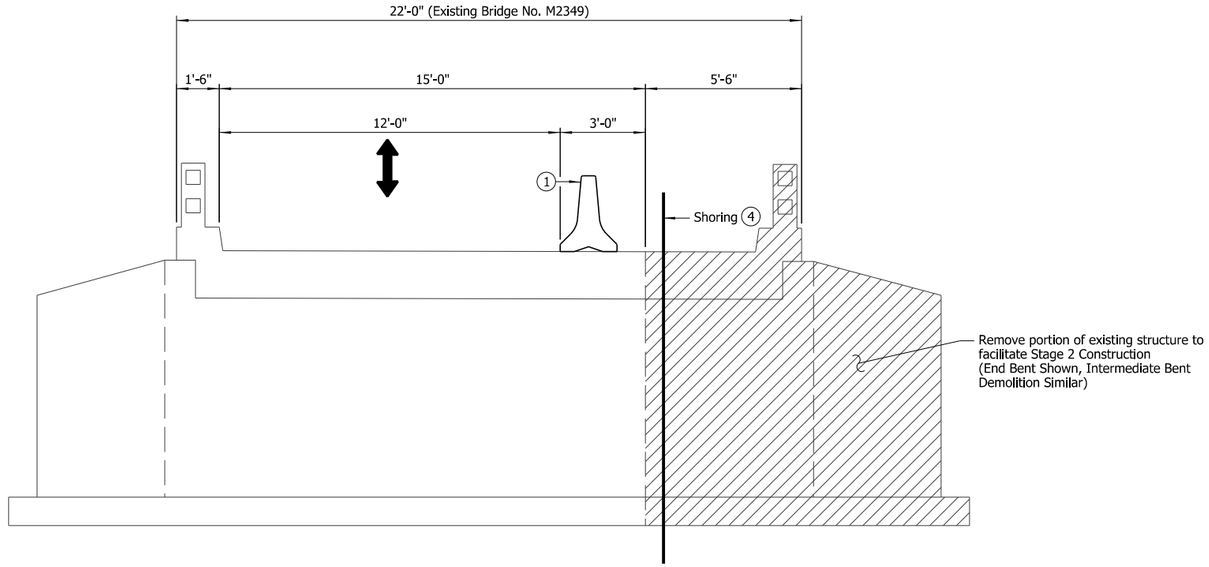
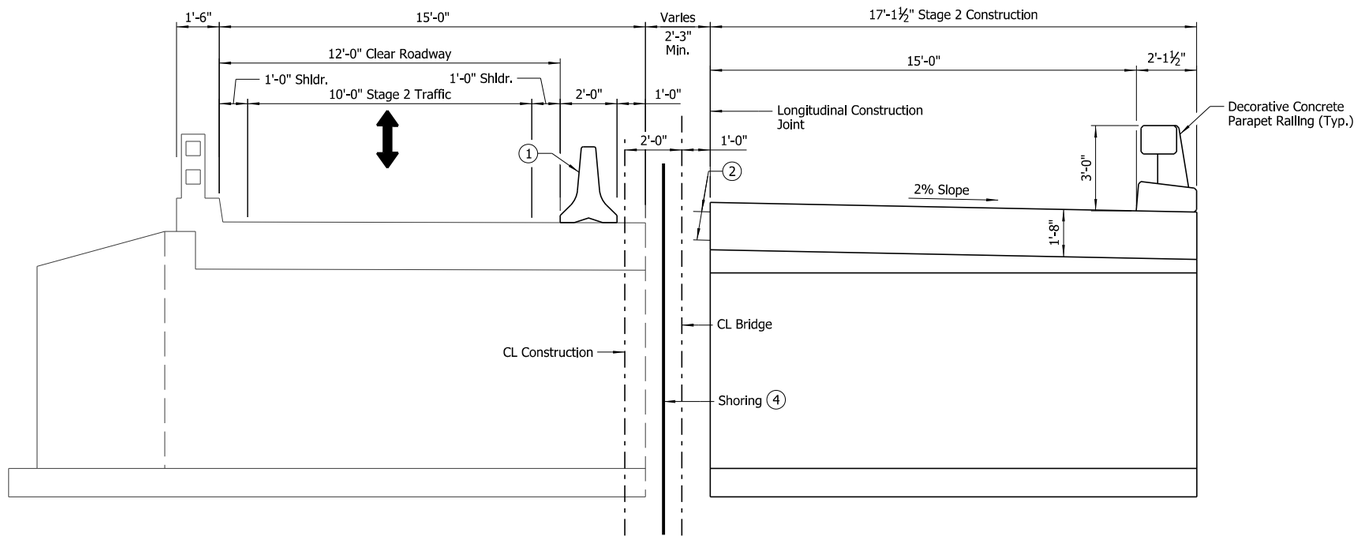
REVISED DATE:

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.		080617	29	59
				07528	STAGED CONSTRUCTION			64029



③ STAGE 2 CONSTRUCTION (SHOWING PARTIAL REMOVAL OF EXISTING BRIDGE)

Scale: ⅜" = 1'-0"



TYPICAL SECTION - STAGE 2 CONSTRUCTION

Scale: ⅜" = 1'-0"

(1) Temporary Construction Barrier connected to existing or new deck (See Std. Dwg. No. TC-4)

(2) Epoxy coated mechanical bar couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type in accordance with the ARDOT Qualified Products List (QPL). Couplers shall develop at least 125% of the specified yield strength of the bar and shall be installed according to the manufacturer's recommendations. The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S CONCRETE - BRIDGE". Couplers shall be installed with minimal projection beyond the deck longitudinal construction joint and shall be adquately protected from damage until the Stage 3 slab reinforcing is installed.

(3) Existing substructure configuration shown is approximate. Existing plans are not available to depict substructure more accurately.

(4) Shoring shall be required to retain existing embankment during Stage 2 Construction as well as the new embankment during Stage 3 Construction. See Job SP "SHORING" for additional information.

NOTE:
Details which relate to Maintenance of Traffic are shown on bridge plans for information only. See Roadway plans for Maintenance of Traffic.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 215 OVER WOLF PEN CREEK
WOLF PEN CREEK STR. & APPRS. (S)
JOHNSON COUNTY

ROUTE 215 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: JUL. 2020 FILENAME: b080617_SC1.dgn
CHECKED BY: JHR DATE: SEP. 2020 SCALE: As Shown
DESIGNED BY: CSW DATE: SEP. 2020

BRIDGE NO. 07528 DRAWING NO. 64029

abhall 5/22/2023 5:08:33 PM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S03_SC.dgn
REVISED DATE:

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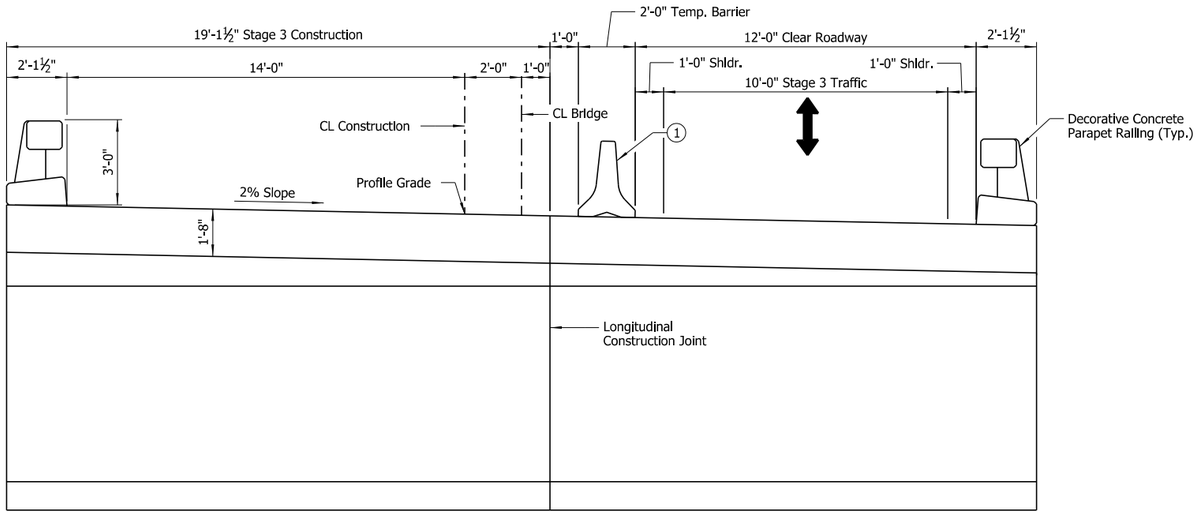
				6	ARK.			
				JOB NO.		080617	30	59
				07528	STAGED CONSTRUCTION			64030



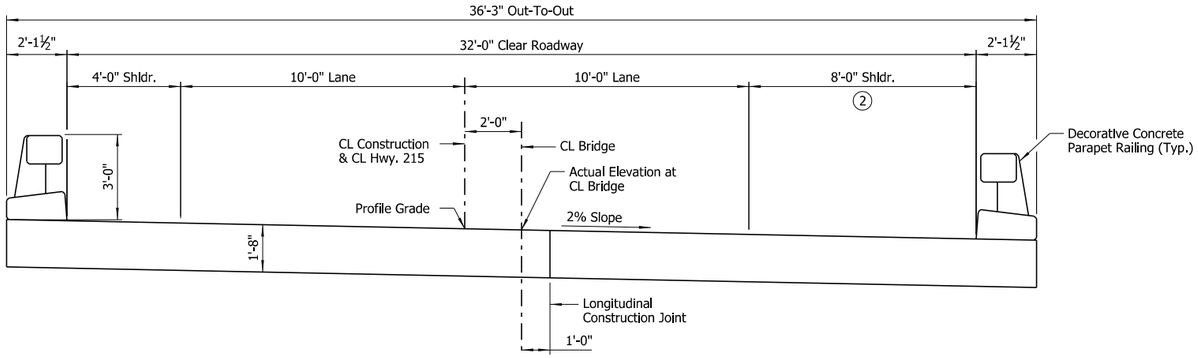
TYPICAL SECTION - STAGE 3 CONSTRUCTION

Scale: ⅜" = 1'-0"

NOTE:
Shoring required for Stage 3 Construction is not shown for clarity.

(1) Temporary Construction Barrier connected to existing or new deck (See Std. Dwg. No. TC-4).

(2) Right Shoulder Increased by 4'-0" to facilitate Maintenance of Traffic during Stage 3.



TYPICAL ROADWAY SECTION - FINAL CONDITION

Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 215 OVER WOLF PEN CREEK
WOLF PEN CREEK STR. & APPRS. (S)
JOHNSON COUNTY

ROUTE 215 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

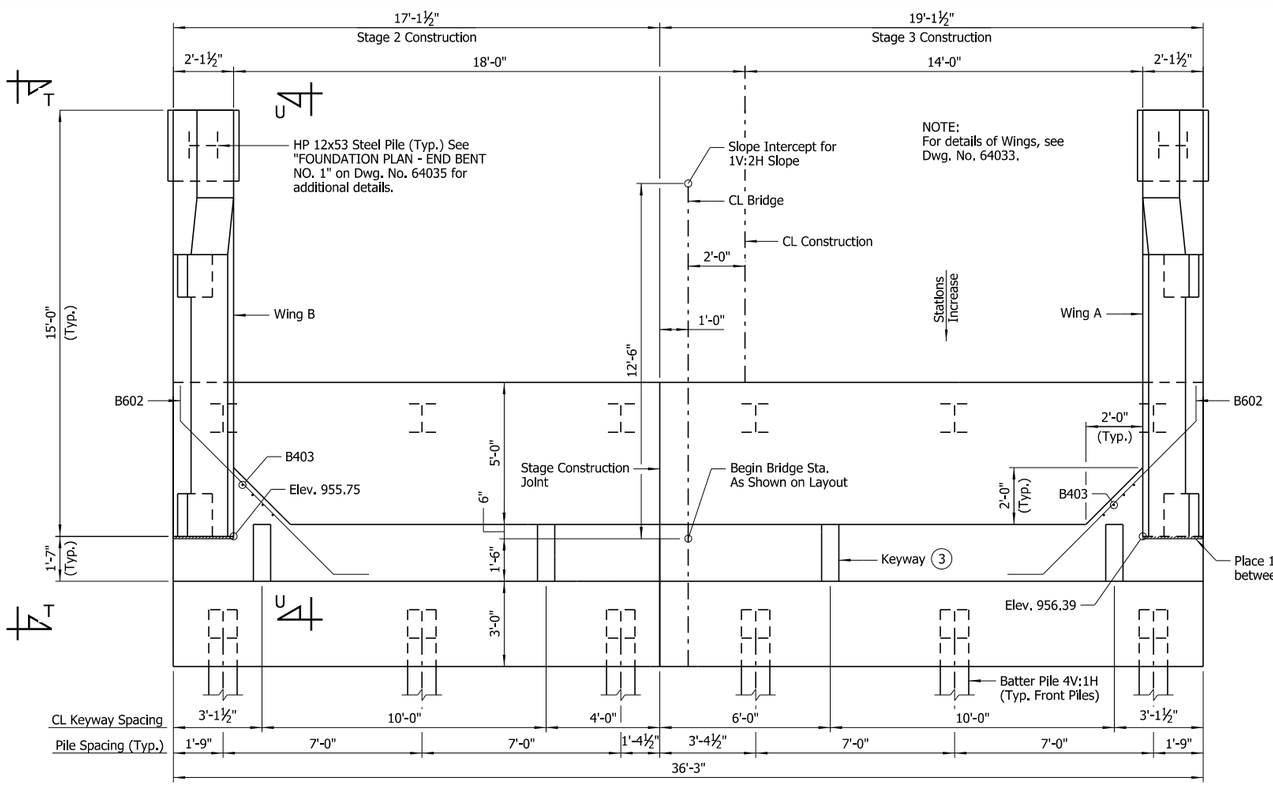
LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: JUL. 2020 FILENAME: b080617_SC2.dgn
CHECKED BY: JHR DATE: SEP. 2020 SCALE: As Shown
DESIGNED BY: CSW DATE: SEP. 2020

BRIDGE NO. 07528 DRAWING NO. 64030

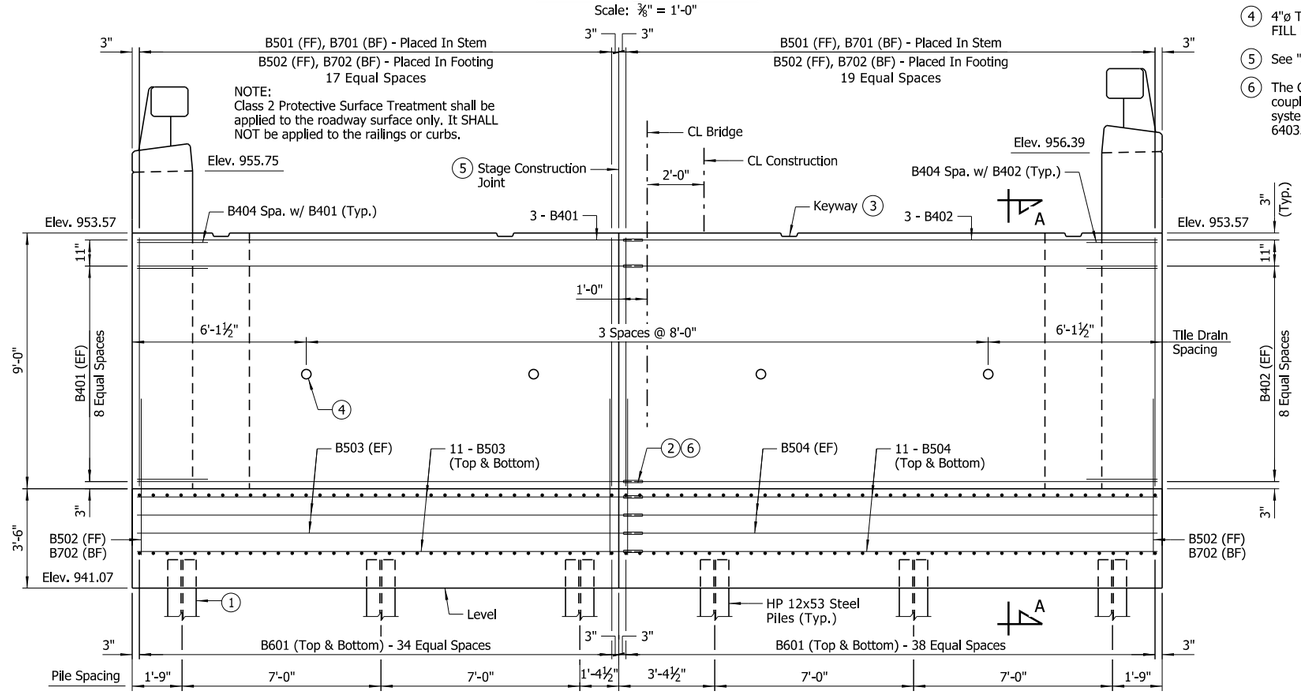
abhall 5/22/2023 5:08:34 PM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_SC4_SC.dgn
REVISED DATE:

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.		080617	31	59
				07528		END BENT DETAILS		64031



PLAN - END BENT NO. 1

Scale: ⅜" = 1'-0"



ELEVATION - END BENT NO. 1

(Looking Back)

Scale: ⅜" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28-day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless noted otherwise.

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

For "BAR LIST" & "BAR BENDING DIAGRAMS", see Dwg. No. 64034.

For "VIEW U-U" and "VIEW T-T", see Dwg. Nos. 64033 and 64034, respectively.

For additional information, see Layout.

LEGEND

EF = Each Face
FF = Front Face
BF = Back Face

(1) Batter Pile 4V:1H (Typ. Front Piles)

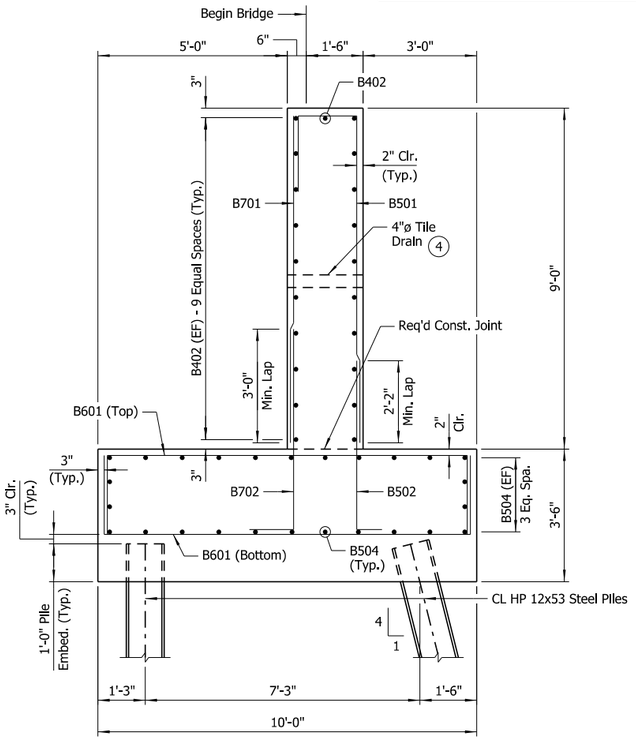
(2) The mechanical couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type in accordance with the ARDOT Qualified Products List (QPL). The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S CONCRETE - BRIDGE". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.

(3) See "KEYWAY DETAIL" on Dwg. No. 64032.

(4) 4"ø Tile Drain placed as shown. See "TYPICAL DRAINAGE FILL DETAIL" on Dwg. No. 64034 for more information.

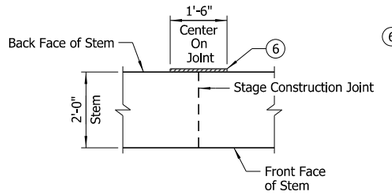
(5) See "CONSTRUCTION JOINT DETAIL".

(6) The Contractor may elect to use the alternate mechanical coupler detail to avoid potential conflicts with shoring system. See "ALTERNATE COUPLER DETAIL" on Dwg. No. 64035 for more information.



SECTION A-A

Scale: ½" = 1'-0"



(6) Membrane waterproofing Type "C" or approved equal, see Section 815. Membrane waterproofing shall extend from the bottom of the stem to the top of the stem.

NOTE:
Payment for this work and material shall be considered subsidiary to other pay items.

CONSTRUCTION JOINT DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

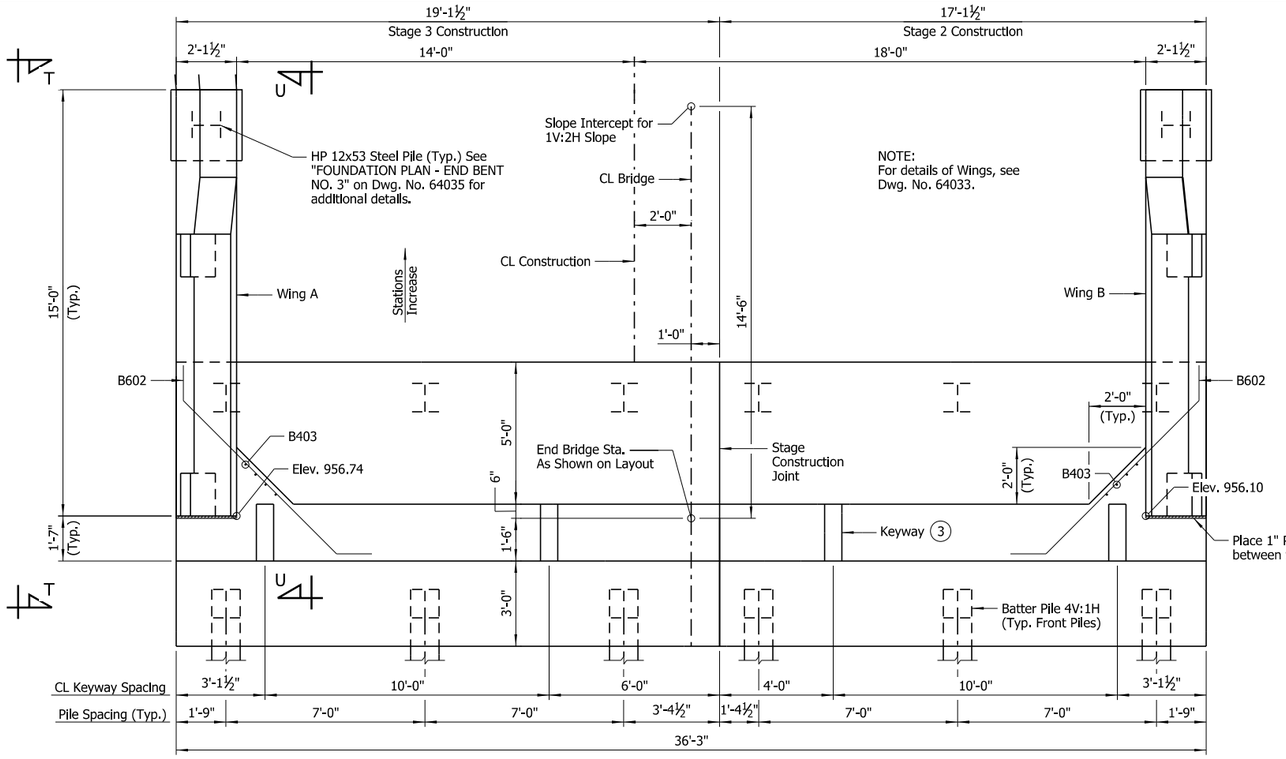
DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JME DATE: FEB. 2021 FILENAME: b080617_a1.dgn
CHECKED BY: JHR DATE: MAR. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: FEB. 2021
BRIDGE NO. 07528 DRAWING NO. 64031

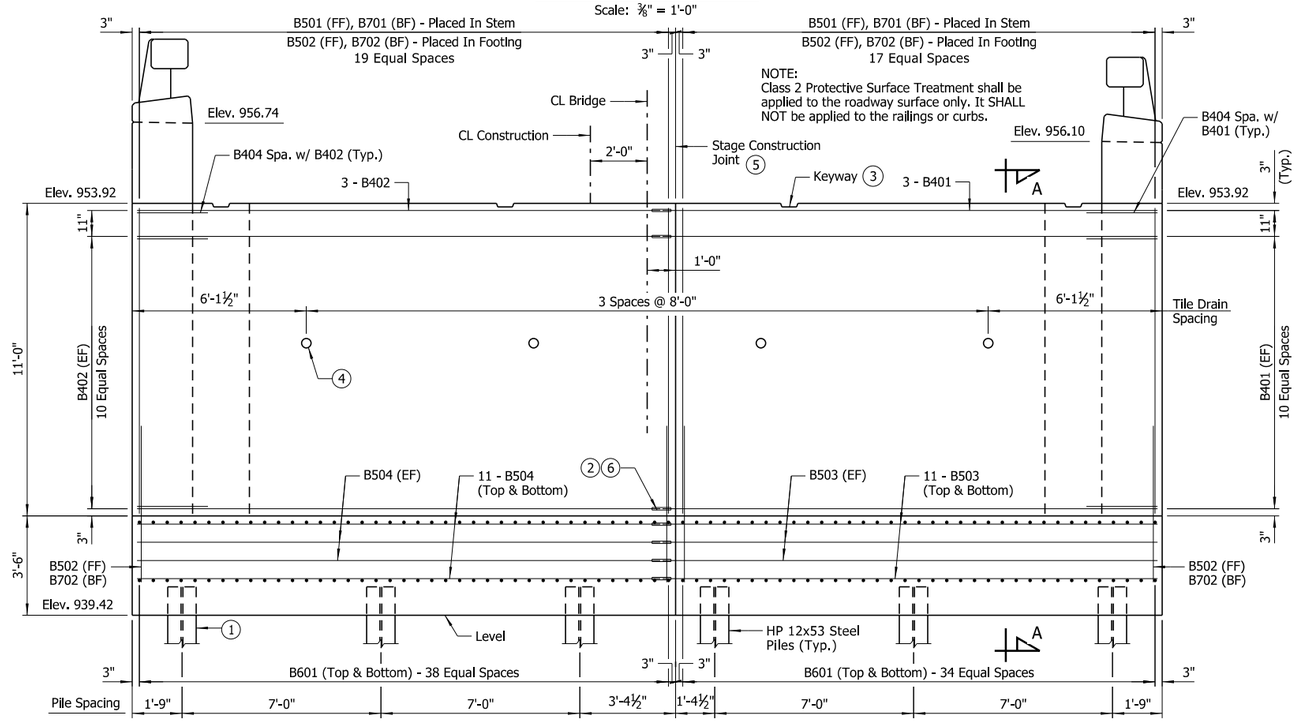
abhall 5/22/2023 5:08:34 PM
WORKSPACE: ARDOT Bridge (2019)
L:\20T\T0T624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S20l_a1.dgn
REVISED DATE:

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.		080617	32	59
				07528		END BENT DETAILS		64032



PLAN - END BENT NO. 3

Scale: ⅜" = 1'-0"



ELEVATION - END BENT NO. 3

(Looking Ahead)
Scale: ⅜" = 1'-0"

1. Batter Pile 4V:1H (Typ. Front Piles)
2. The mechanical couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type in accordance with the ARDOT Qualified Products List (QPL). The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S CONCRETE - BRIDGE". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.
3. See "KEYWAY DETAIL".
4. 4"ø Tile Drain placed as shown. See "TYPICAL DRAINAGE FILL DETAIL" on Dwg. No. 64034 for more information.
5. See "CONSTRUCTION JOINT DETAIL" on Dwg. No. 64031.
6. The Contractor may elect to use the alternate mechanical coupler detail to avoid potential conflicts with shoring system. See "ALTERNATE COUPLER DETAIL" on Dwg. No. 64035 for more information.

LEGEND

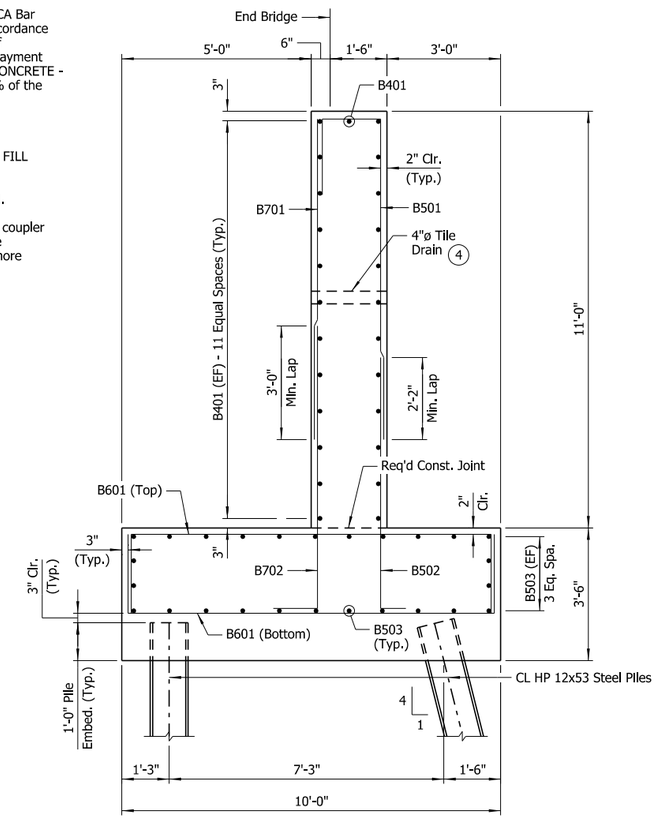
EF = Each Face
FF = Front Face
BF = Back Face

NOTES:
For "GENERAL NOTES", see Dwg. No. 64031.

For "BAR LIST" & "BAR BENDING DIAGRAMS", see Dwg. No. 64034.

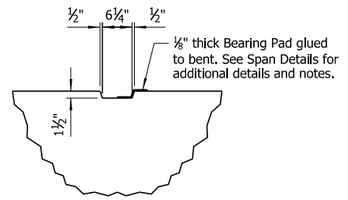
For "VIEW U-U" and "VIEW T-T", see Dwg. Nos. 64033 and 64034, respectively.

For additional information, see Layout.



SECTION A-A

Scale: ½" = 1'-0"



KEYWAY DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	JME	DATE:	FEB. 2021	FILENAME:	b080617_a2.dgn
CHECKED BY:	JHR	DATE:	MAR. 2021	SCALE:	As Shown
DESIGNED BY:	JME	DATE:	FEB. 2021		

BRIDGE NO. 07528 DRAWING NO. 64032

abhall
WORKSPACE: ARDOT Bridge (2019)
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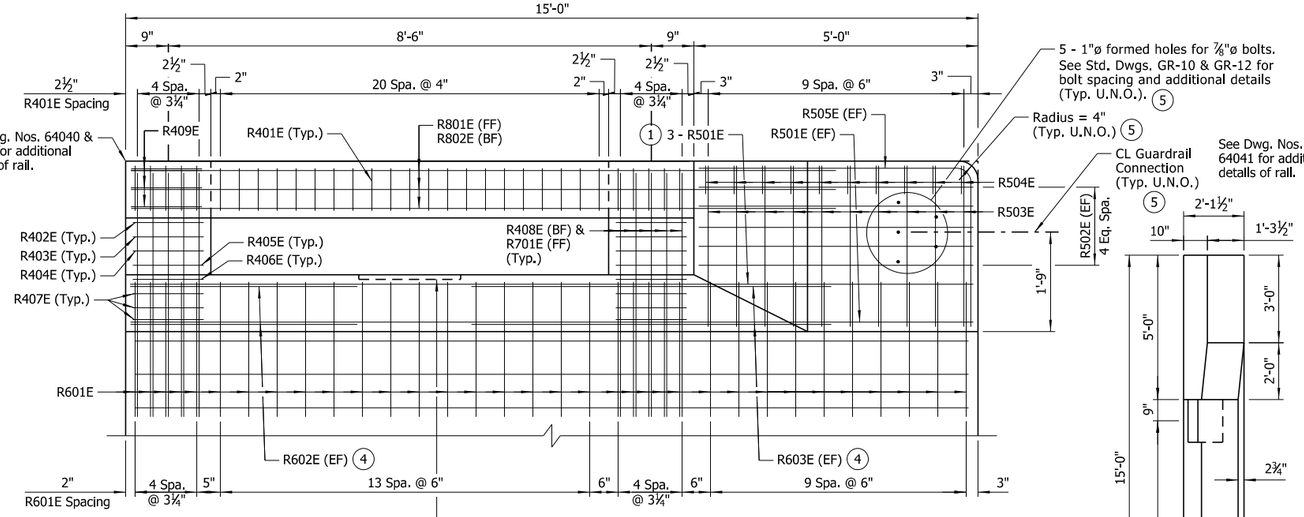
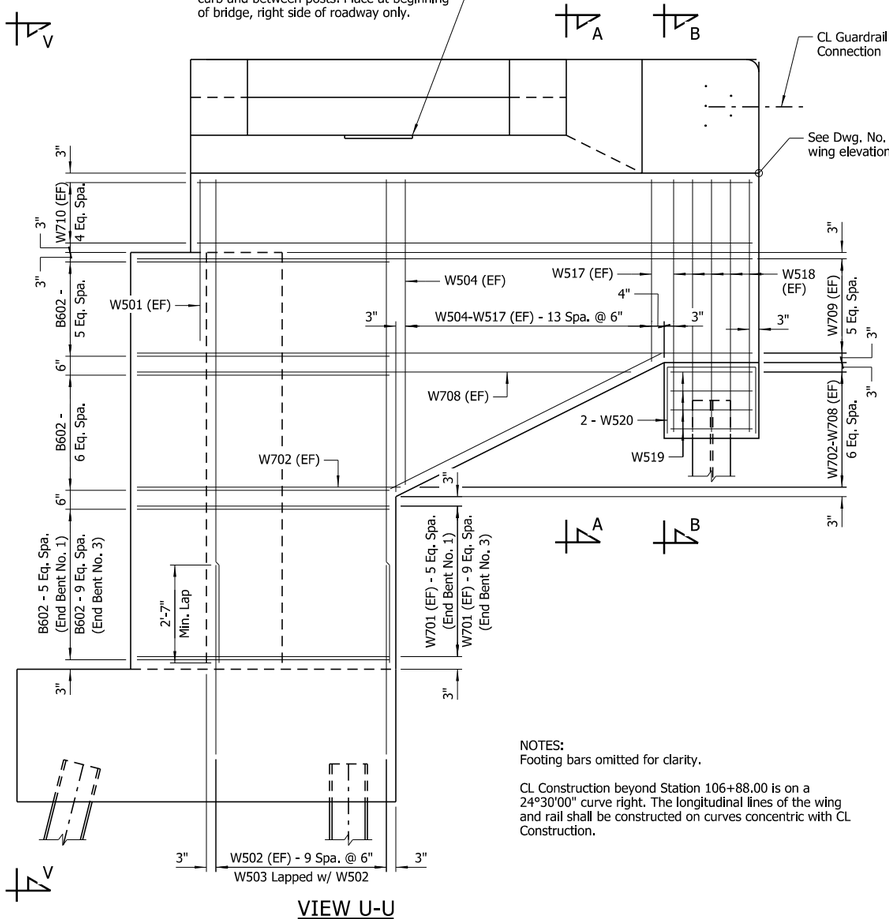
5/22/2023 5:08:36 PM
REVISED DATE:

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.		080617	33	59
				07528	END BENT DETAILS			64033



WING RAIL DETAIL

Scale: ¾" = 1'-0"

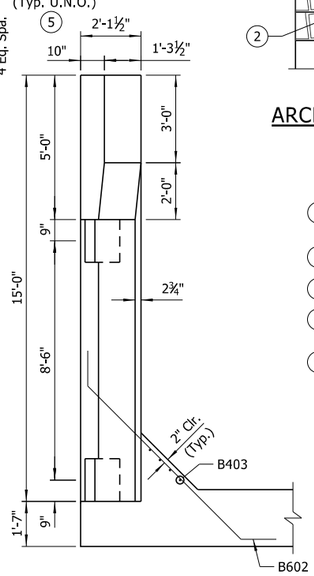


VIEW U-U

Scale: ½" = 1'-0"

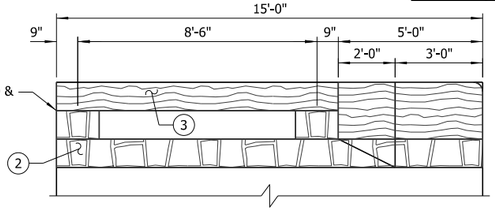
NOTES:
Footing bars omitted for clarity.

CL Construction beyond Station 106+88.00 is on a 24°30'00" curve right. The longitudinal lines of the wing and rail shall be constructed on curves concentric with CL Construction.



PLAN OF RAIL

Scale: ⅜" = 1'-0"



ARCHITECTURAL FINISH (FROM TRAFFIC SIDE)

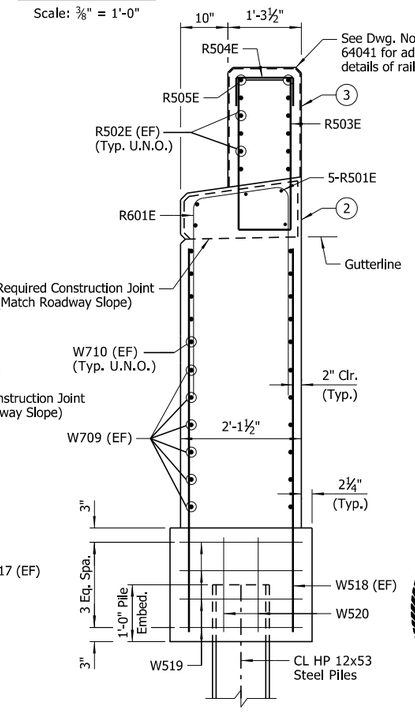
Scale: ⅜" = 1'-0"

1. See "VIEW V-V", "SECTION A-A", and "SECTION B-B" for placement of R501E bars.
2. ¾" allowance for Fieldstone Finish, typ. for Post and Curb.
3. ½" allowance for Roughsawn Wood FInish, typ. for Rail.
4. See "VIEW V-V" and "SECTION A-A" for placement of R603E & R604E bars, respectively.
5. Not applicable at End Bent 3, Wing A

NOTE:
Concrete in Decorative Railing on Wings shall be Class S except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

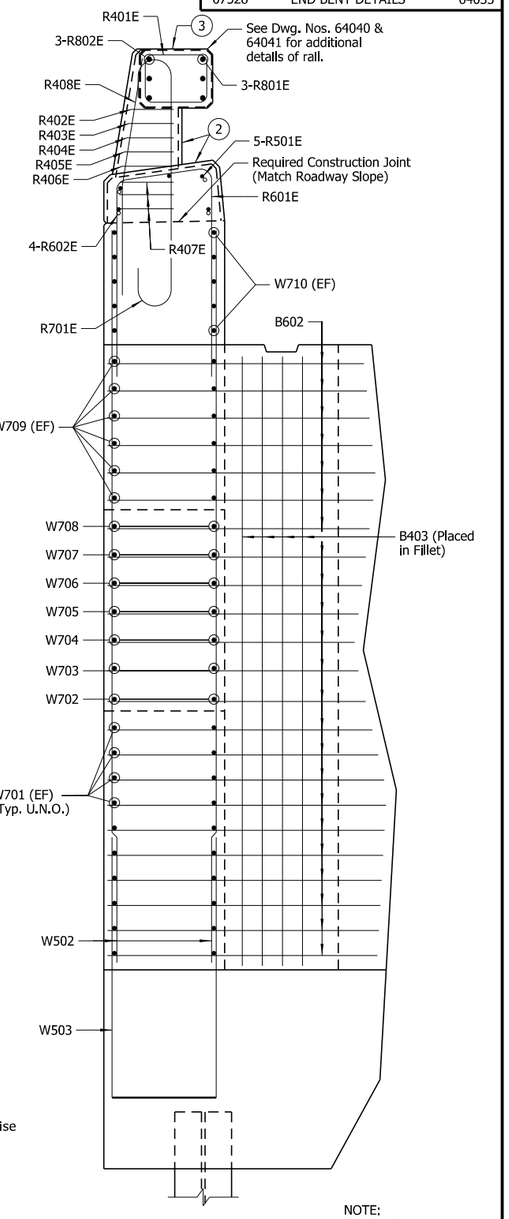
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"



VIEW V-V

Scale: ¾" = 1'-0"

NOTE:
Footing bars omitted for clarity.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face
FF = Front Face
BF = Back Face

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	CWT	DATE:	MAR. 2021	FILENAME:	b080617_a3.dgn
CHECKED BY:	JHR	DATE:	MAR. 2021	SCALE:	As Shown
DESIGNED BY:	JME	DATE:	FEB. 2021		

BRIDGE NO. 07528 DRAWING NO. 64033

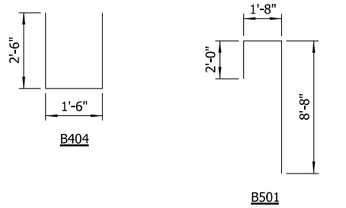
abhall 5/22/2023 5:08:37 PM
WORKSPACE: ARDOT Bridge (2019)
L:\20ITV1701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S203_a3.dgn
REVISED DATE:

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.		080617	34	59
				07528		END BENT DETAILS		64034

BAR LIST

	MARK	NO. REQ'D	LENGTH	P.D.
END BENT NO. 1	B401	21	(1) 17'-6"	Str.
	B402	21	(1) 18'-5"	Str.
	B403	8	8'-8"	Str.
	B404	20	6'-4"	2"
	B501	38	12'-1"	3¾"
	B502	38	7'-6"	3¾"
	B503	26	(1) 17'-6"	Str.
	B504	26	(1) 18'-5"	Str.
	B601	148	13'-5"	4½"
	B602	38	10'-1"	4½"
	B701	38	8'-8"	Str.
	B702	38	8'-7"	5¼"
	W701	24	6'-8"	Str.
END BENT NO. 3	B401	25	(1) 17'-6"	Str.
	B402	25	(1) 18'-5"	Str.
	B403	8	10'-8"	Str.
	B404	24	6'-4"	2"
	B501	38	12'-1"	3¾"
	B502	38	7'-6"	3¾"
	B503	26	(1) 17'-6"	Str.
	B504	26	(1) 18'-5"	Str.
	B601	148	13'-5"	4½"
	B602	46	10'-1"	4½"
	B701	38	8'-8"	Str.
	B702	38	8'-7"	5¼"
	W701	40	6'-8"	Str.

BAR BENDING DIAGRAMS



LEGEND

U.N.O. = Unless Noted Otherwise

(1) Length shown shall be adjusted as required to accommodate length of mechanical coupler.

(2) Not applicable at End Bent 3, Wing A

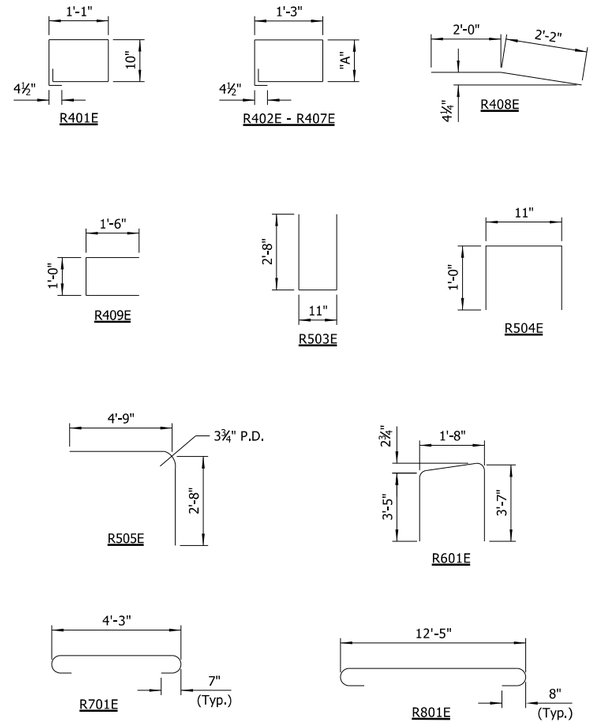
TABLE OF VARIABLES

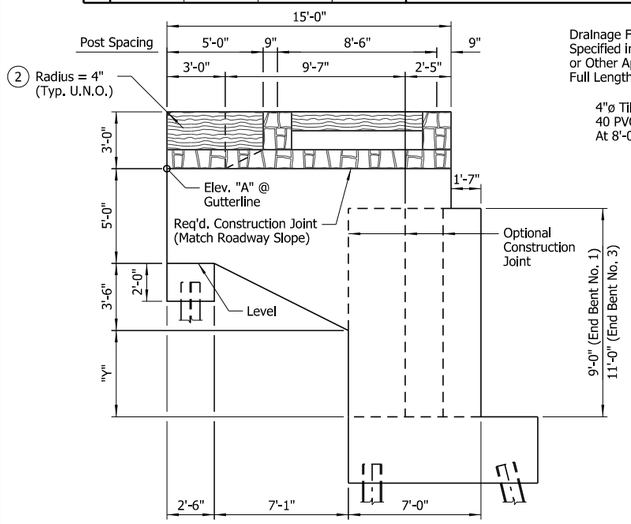
Bent No.	Location	Elev. "A"	"Y"
1	Wing A	956.33	3'-3⅛"
1	Wing B	955.65	2'-6 15/16"
3	Wing A	956.98	5'-6¾"
3	Wing B	956.14	4'-8⅝"

COMMON BAR LIST (EACH END BENT)

	MARK	NO. REQ'D	LENGTH	"A"	P.D.
WINGWALL RAILS	R401E	62	4'-2"		2"
	R402E	4	4'-2"	8"	2"
	R403E	4	4'-3"	8½"	2"
	R404E	4	4'-4"	9"	2"
	R405E	4	4'-5"	9½"	2"
	R406E	4	4'-6"	10"	2"
	R407E	12	4'-7"	10½"	2"
	R408E	20	4'-2"		2"
	R409E	6	3'-10"		2"
	R501E	10	14'-8"		Str.
	R502E	20	4'-8"		Str.
	R503E	20	6'-0"		2½"
	R504E	20	2'-8"		2½"
	R505E	4	7'-3"		3¾"
	R601E	68	8'-5"		4½"
	R602E	8	4'-0"		Str.
	R603E	8	6'-4"		Str.
	R701E	20	5'-11"		5¼"
	R801E	6	14'-3"		6"
	R802E	6	12'-5"		Str.
WINGWALLS	W501	4	4'-4"		Str.
	W502	40	10'-9"		Str.
	W503	20	15'-10"		3¾"
	W504 To W517	4 Ea.	8'-1" To 4'-10"		Str.
	W518	20	6'-8"		Str.
	W519	8	9'-2"		2½"
	W520	4	5'-1"		2½"
	W702 To W708	4 Ea.	6'-11" To 13'-0"		Str.
	W709	24	16'-3"		Str.
	W710	20	14'-8"		Str.

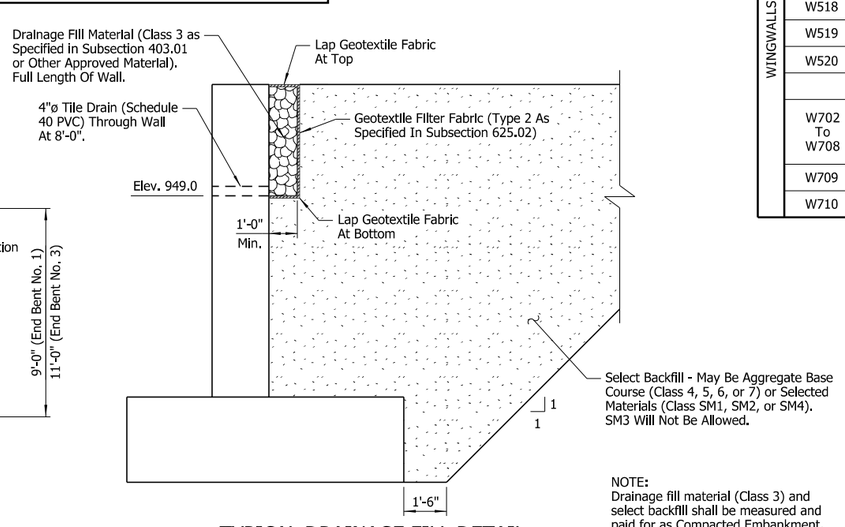
COMMON BAR BENDING DIAGRAMS





VIEW T-T

Scale: ¼" = 1'-0"



TYPICAL DRAINAGE FILL DETAIL

No Scale

NOTE:
Drainage fill material (Class 3) and select backfill shall be measured and paid for as Compacted Embankment.

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

Bars designated with "E" suffix shall be epoxy coated.

Number of common bars shown is for one bent only.

STATE OF ARKANSAS
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No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

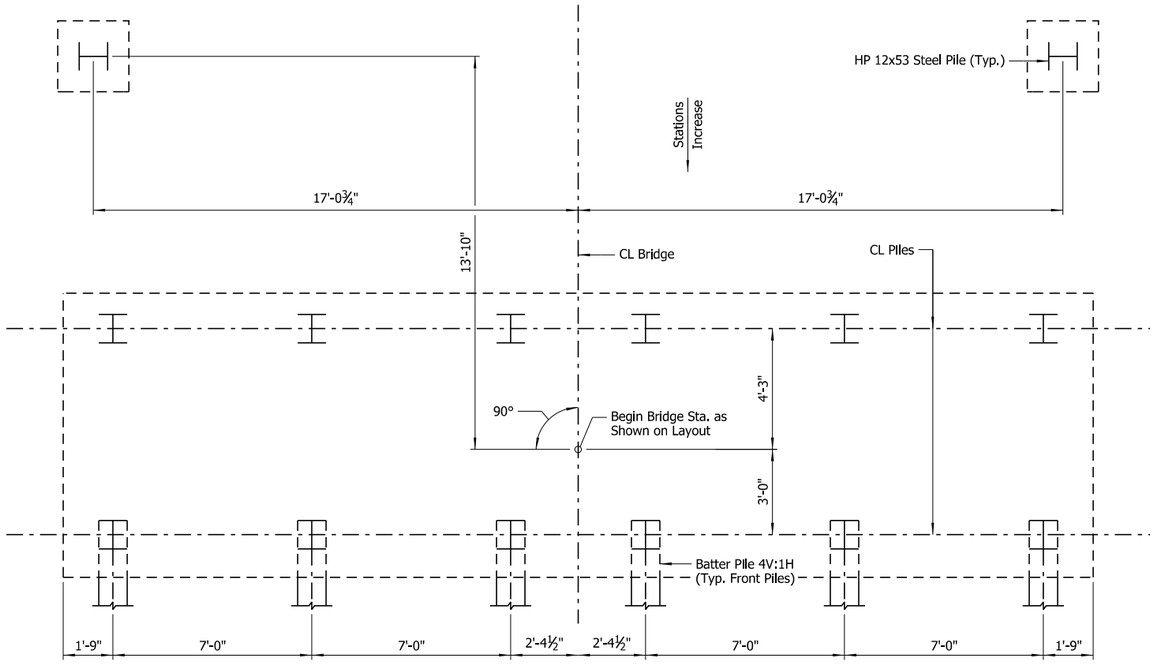
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: MAR. 2021 FILENAME: b080617_a4.dgn
CHECKED BY: JHR DATE: MAR. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: FEB. 2021

BRIDGE NO. 07528 DRAWING NO. 64034

abhall
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017624 - 080617 Wolf Pen Creek Str-Appr\Drawings\b080617_S204_04.dgn
5/22/2023 5:08:38 PM
REVISED DATE:

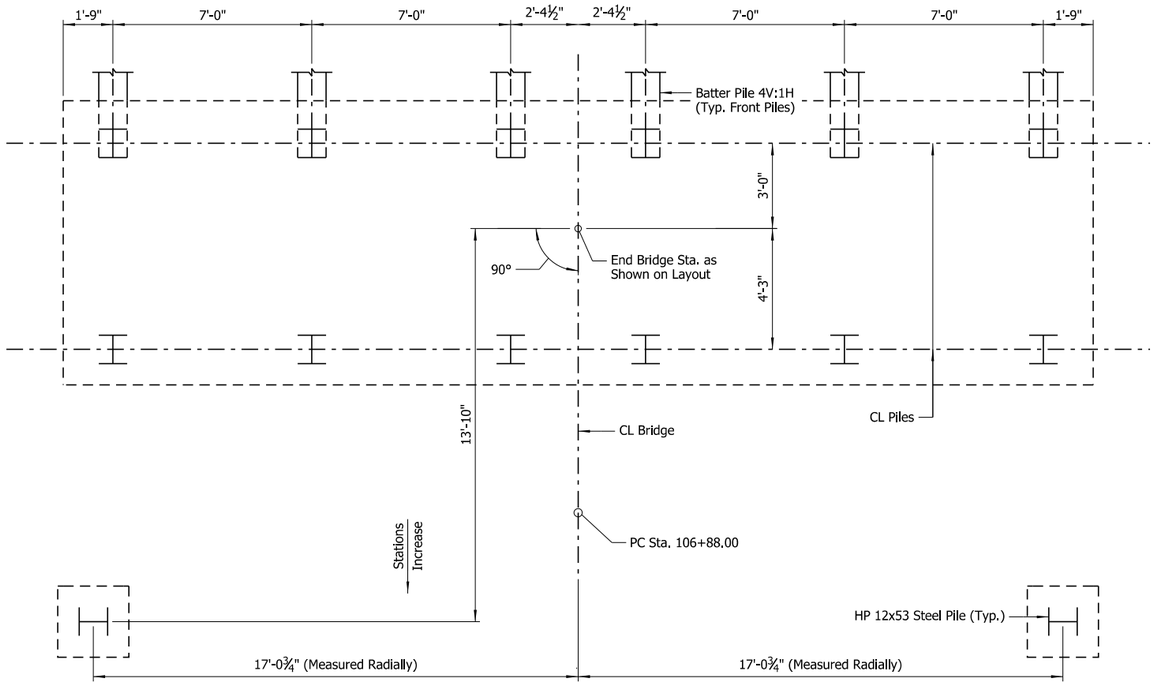
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080617	35	59
				07528		END BENT DETAILS		64035



FOUNDATION PLAN - END BENT NO. 1

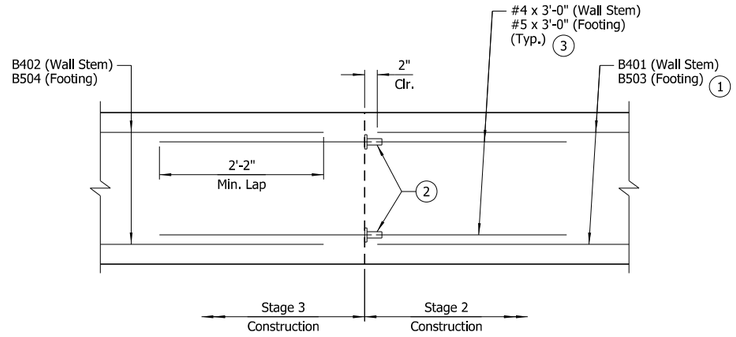
Scale: ⅜" = 1'-0"

NOTE:
See Layout General Notes for additional information on pile driving.



FOUNDATION PLAN - END BENT NO. 3

Scale: ⅜" = 1'-0"



ALTERNATE COUPLER DETAIL

Scale: 1" = 1'-0"

(1) Adjust length of Bars B401 and B503 to provide 2" clear at staged construction joint. Payment of reinforcing steel shall be based on weight of B401 and B503 as detailed.

(2) Lenton "Form Saver" mechanical coupler (SA style) with mounting plate or approved equal.

(3) Bars to be threaded on one end. Cost of additional bars required for alternate coupler configuration shall be considered subsidiary to the item "REINFORCING STEEL - BRIDGE (GRADE 60)."

NOTE:
CL Construction beyond Station 106+88.00 is on a 24°30'00" curve right. The longitudinal lines of the wing shall be constructed on curves concentric with CL Construction.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF END BENTS
ROUTE SEC.

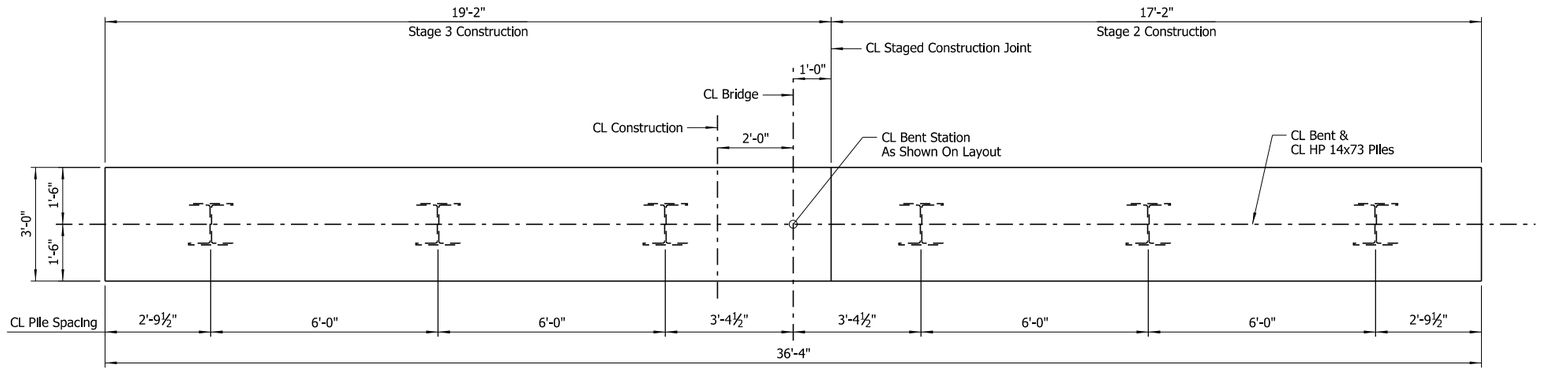
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	CWT	DATE:	MAR. 2021	FILENAME:	b080617_a5.dgn
CHECKED BY:	JHR	DATE:	MAR. 2021	SCALE:	As Shown
DESIGNED BY:	JME	DATE:	FEB. 2021		

BRIDGE NO. 07528 DRAWING NO. 64035

abhall
5/22/2023 5:08:38 PM
WORKSPACE: ARDOT Bridge (2019)
L:\20ft\07t624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_5205_a5.dgn
REVISED DATE:

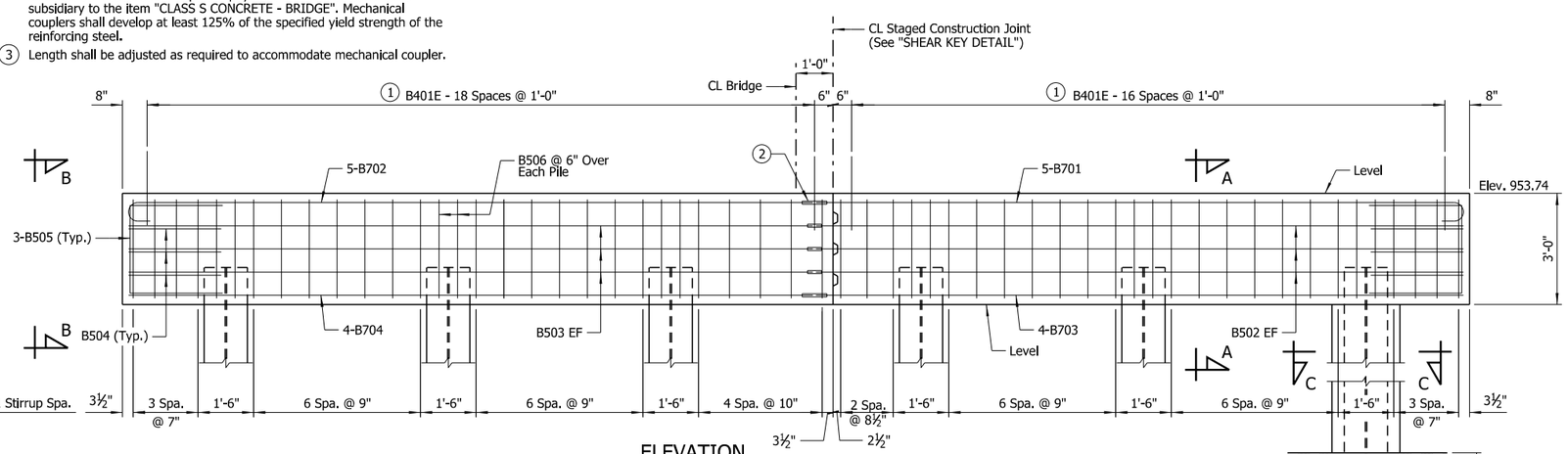
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080617	36	59
				07528		BENT NO. 2		64036



PLAN

Scale: ½" = 1'-0"

1. See "SECTION A-A" for more Information.
2. The mechanical couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type in accordance with the ARDOT Qualified Products List (QPL). The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S CONCRETE - BRIDGE". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.
3. Length shall be adjusted as required to accommodate mechanical coupler.

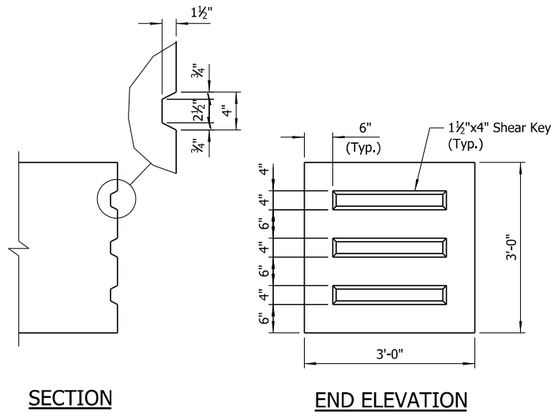


ELEVATION

(Looking Ahead)
Scale: ½" = 1'-0"

LEGEND

EF = Each Face

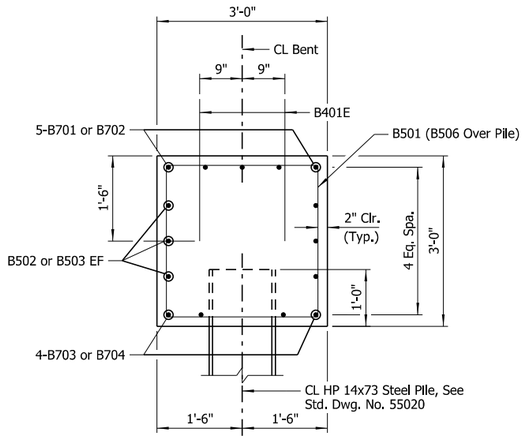


SECTION

END ELEVATION

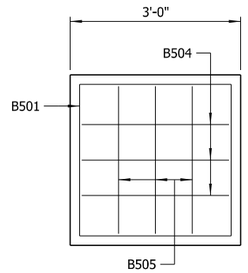
SHEAR KEY DETAIL

Scale: ¾" = 1'-0"



SECTION A-A

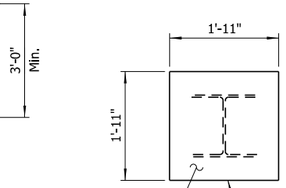
Scale: ¾" = 1'-0"



VIEW B-B

Scale: ¾" = 1'-0"

NOTE:
Longitudinal reinforcing in cap omitted for clarity.



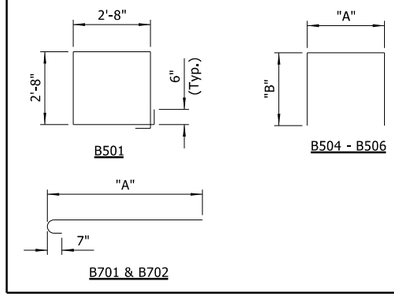
SECTION C-C

Scale: ¾" = 1'-0"

BAR LIST

	MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
	B401E	72	3'-0"			Str.
	B501	44	11'-2"			2½"
(3)	B502	6	17'-6"			Str.
(3)	B503	6	18'-6"			Str.
	B504	6	7'-4"	2'-6"	2'-6"	2½"
	B505	6	7'-4"	2'-6"	2'-6"	2½"
	B506	12	7'-9"	2'-8"	2'-8"	2½"
(3)	B701	5	18'-4"	17'-6"		5¼"
(3)	B702	5	19'-4"	18'-6"		5¼"
(3)	B703	4	17'-6"			Str.
(3)	B704	4	18'-6"			Str.

BENDING DIAPHRAGMS



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

Bars designated with an "E" suffix to be Epoxy Coated.

NOTES:
All Concrete shall be Class "S" with a minimum 28-day compressive strength, f'c=3500 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

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

For additional information, see Layout.

(4) Round encasement and alternate pile encasement utilizing corrugated metal pipe will not be allowed.

STATE OF ARKANSAS
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DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

DETAILS OF BENT NO. 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JAN. 2021 FILENAME: b080617_b1.dgn
CHECKED BY: JME DATE: MAR. 2021 SCALE: As Shown
DESIGNED BY: JHR DATE: JAN. 2021

BRIDGE NO. 07528 DRAWING NO. 64036

abhall 5/22/2023 5:08:39 PM
WORKSPACE: ARDOT Bridge (2019)
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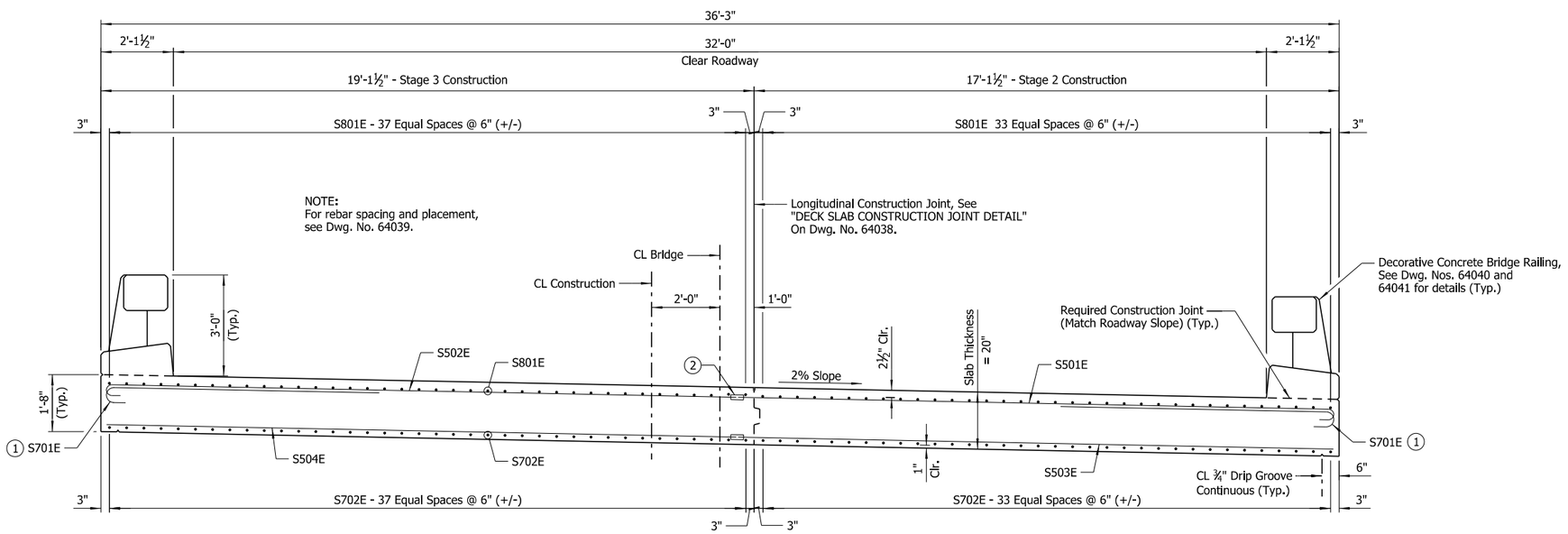
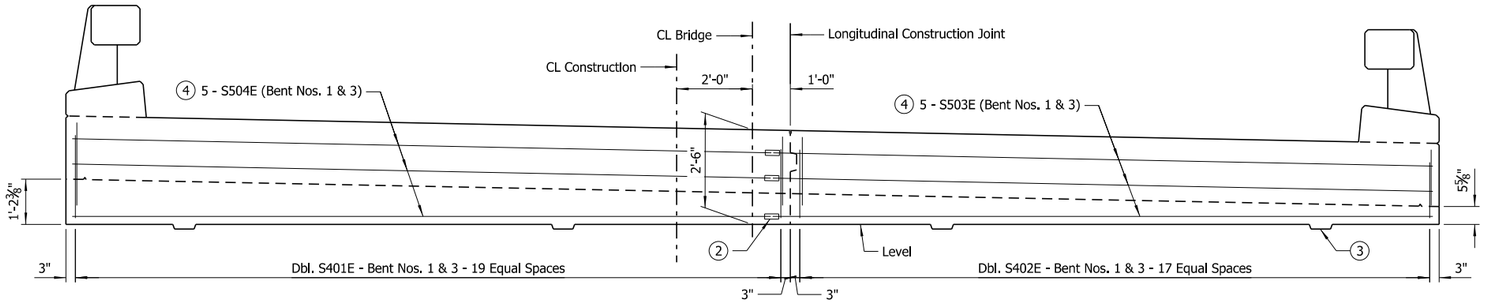
REVISED DATE:

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.		080617	37	59
				07528		60'-0" R.C. SLAB UNIT		64037



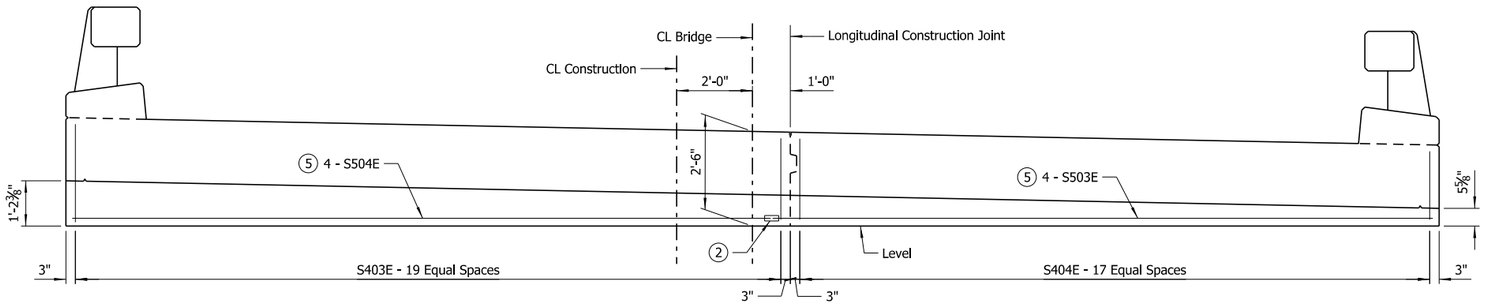
TYPICAL ROADWAY SECTION

(Looking Ahead)
Scale: ½" = 1'-0"



BENT RISER DETAIL - BENT NO. 1

(Looking Ahead)
(Bent No. 3 Similar)
Scale: ½" = 1'-0"



BENT RISER DETAIL - BENT NO. 2

(Looking Ahead)
Scale: ½" = 1'-0"

1 Provide 5-S701E bars bundled w/ No. 5 bars in top of slab at end posts and 7-S701E bars bundled w/ No. 5 bars in top of slab at intermediate posts as shown. See "REINFORCING PLAN & DECK POURING SEQUENCE" on Dwg. No. 64039.

2 The mechanical couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type In accordance with the ARDOT Qualified Products List (QPL). The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S(AE) CONCRETE - BRIDGE". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.

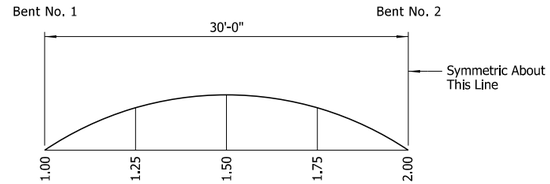
3 See Dwg. No. 64032 for keyway detail and spacing.

NOTES:
Class 2 Protective Surface Treatment shall be applied to the roadway surface only. It SHALL NOT be applied to the railings or curbs.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

4 See "DETAIL A" on Dwg. No. 64038.

5 See "DETAIL B" on Dwg. No. 64038.



DEAD LOAD CAMBER DIAGRAM

No Scale

DEAD LOAD DEFLECTIONS

Point	Total Deflection
1.00	0.00"
1.25	0.20"
1.5	0.25"
1.75	0.12"
2.00	0.00"

Symmetrical About
This Point

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No.8017
JOHN H. RUDDELL

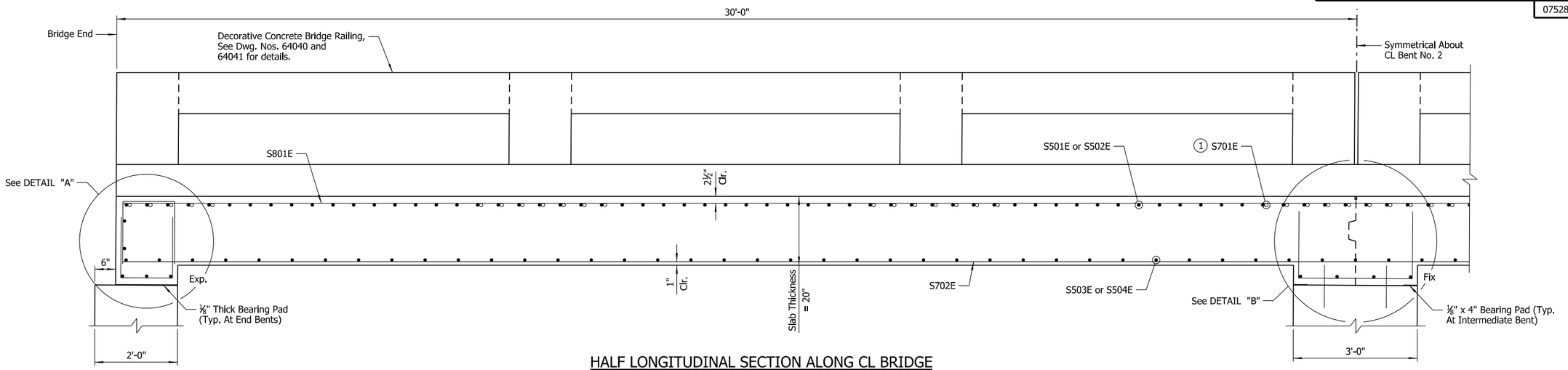
DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 60'-0"
CONTINUOUS R.C. SLAB UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2020 FILENAME: b080617_s1.dgn
CHECKED BY: JHR DATE: JAN. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: DEC. 2020
BRIDGE NO. 07528 DRAWING NO. 64037

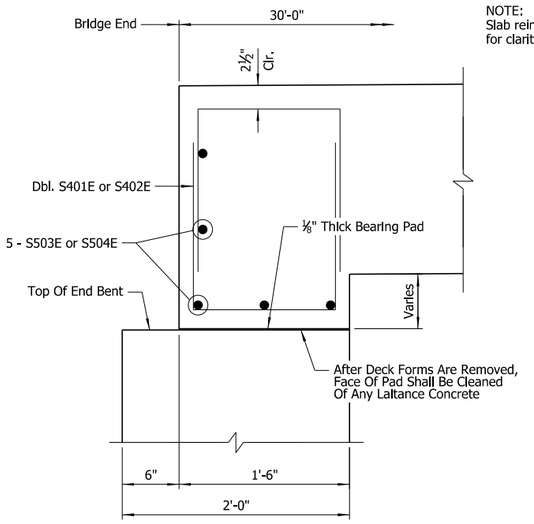
abhall 5/22/2023 5:08:40 PM
WORKSPACE: ARDOT Bridge (2019)
L:\20T\T0I7624 - 080617 Wolf Pen Creek Str-Appr\Drawings\b080617_S3OL_SX.dgn
REVISED DATE:

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.		080617	38	59
				07528	60'-0" R.C. SLAB UNIT			64038



HALF LONGITUDINAL SECTION ALONG CL BRIDGE

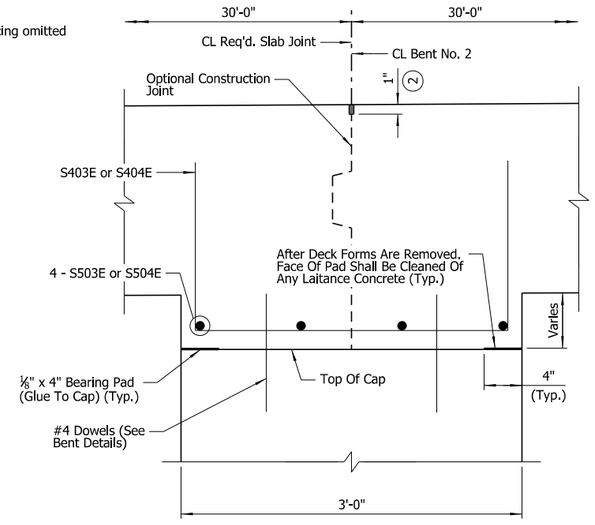
Scale: ½" = 1'-0"



DETAIL "A"

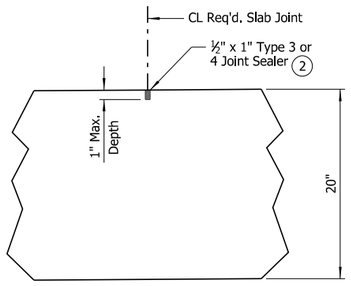
Scale: 1" = 1'-0"

NOTE:
Slab reinforcing omitted for clarity.



DETAIL "B"

Scale: 1" = 1'-0"



SLAB JOINT DETAIL

Scale: 1" = 1'-0"

1 Provide 5-S701E bars bundled w/ No. 5 bars in top of slab at end posts and 7-S701E bars bundled w/ No. 5 bars in top of slab at intermediate posts as shown. See "REINFORCING PLAN & DECK POURING SEQUENCE" on Dwg. No. 64039.

2 Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer rod filler will not be required. Joint Sealer shall be measured and paid for as "CLASS S(AE) CONCRETE - BRIDGE". Slab Joints shall extend to the outside edge of the deck slab. 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. The joint sealer shall extend across the deck from gutterline to gutterline. Seal Color shall be gray or other color similar to concrete.

GENERAL NOTES

CONCRETE: All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

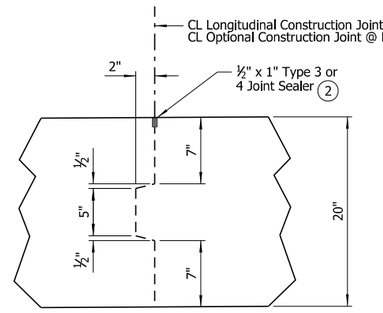
Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck (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.

BEARING PAD: The ⅛" bearing pad shall be an unreinforced pad meeting the requirements of Section 808, or shall be nylon reinforced neoprene meeting the requirements of Subsection 807.20. The pad shall be furnished in one piece for the required width and full length of the cap and glued to the bent cap with adhesive approved by the Engineer. Pads and adhesive will not be paid for directly, but will be considered subsidiary to the item "CLASS S(AE) CONCRETE - BRIDGE".

REINFORCING STEEL: All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 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)".

NOTE:
Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.



DECK SLAB CONSTRUCTION JOINT DETAIL

Scale: 1½" = 1'-0"

NOTES:
Detail applicable to optional construction joint @ Bent No. 2 and required longtiudinal construction joint.

Joint to be cleaned by sandblasting or other approved method before pouring joint sealer.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 60'-0"
CONTINUOUS R.C. SLAB UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	HEW	DATE:	DEC. 2020	FILENAME:	b080617_s2.dgn
CHECKED BY:	JHR	DATE:	JAN. 2021	SCALE:	As Shown
DESIGNED BY:	JME	DATE:	DEC. 2020		

BRIDGE NO. 07528 DRAWING NO. 64038

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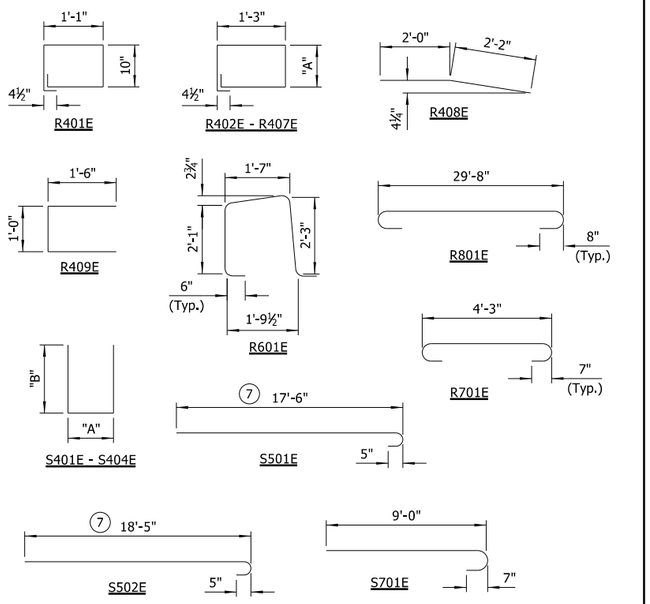
5/22/2023 5:08:41PM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\1701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S302_SX.dgn
REVISED DATE:

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.		080617	39	59
				07528	60'-0" R.C. SLAB UNIT			64039

BAR LIST

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
R401E	368	4'-2"			2"
R402E	16	4'-2"	8"		2"
R403E	16	4'-3"	8½"		2"
R404E	16	4'-4"	9"		2"
R405E	16	4'-5"	9½"		2"
R406E	16	4'-6"	10"		2"
R407E	48	4'-7"	10½"		2"
R408E	80	4'-2"			2"
R409E	24	3'-10"			2"
R501E	20	29'-8"			Str.
R601E	272	6'-4"			4½"
R602E	32	4'-0"			Str.
R603E	32	6'-4"			Str.
R701E	80	5'-11"			5¼"
R801E	12	31'-6"			6"
R802E	12	29'-8"			Str.
S401E	80	5'-2"	1'-2"	2'-1"	2"
S402E	72	4'-6"	1'-2"	1'-9"	2"
S403E	20	6'-8"	2'-8"	2'-1"	2"
S404E	18	6'-0"	2'-8"	1'-9"	2"
S501E	120	(7) 18'-1"			3¾"
S502E	120	(7) 19'-0"			3¾"
S503E	75	(7) 17'-6"			Str.
S504E	75	(7) 18'-5"			Str.
S701E	96	9'-10"			5¼"
S702E	72	59'-8"			Str.
S801E	72	59'-8"			Str.

BAR BENDING DIAGRAMS



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

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

(1) Provide 5-S701E bars bundled w/ No. 5 bars in top of slab at end posts and 7-S701E bars bundled w/ No. 5 bars in top of slab at intermediate posts as shown (Typ.) (See "DETAIL W").

(2) A mechanical coupler will be required for the connection of all S501E bars to S502E bars and for the connection of all S503E bars to S504E bars.

(3) The mechanical couplers shall be Dayton Superior D250SCA Bar Lock Epoxy Couplers or an alternate approved Type in accordance with the ARDOT Qualified Products List (QPL). The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "CLASS S(AE) CONCRETE - BRIDGE". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.

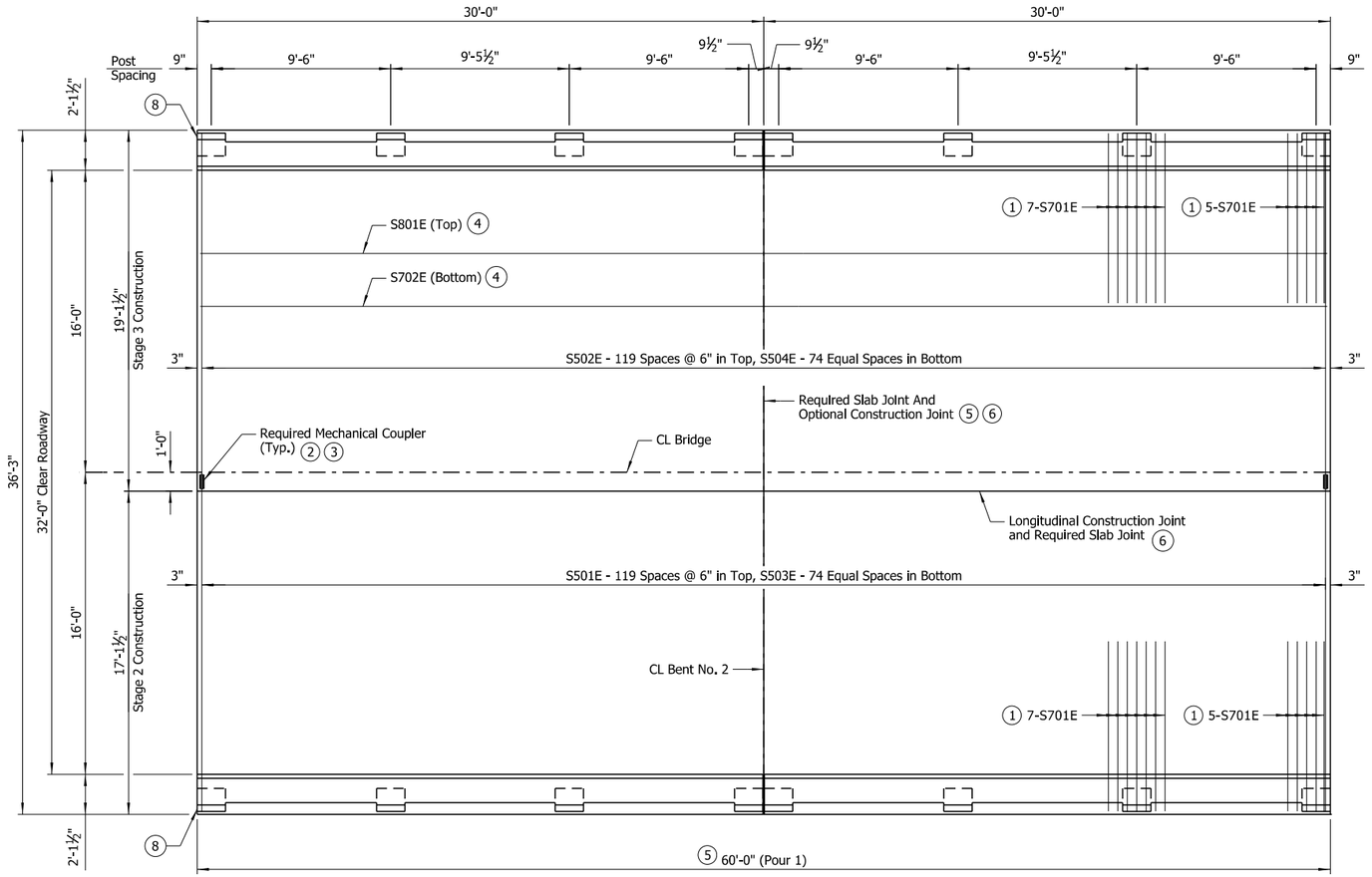
(4) Place as shown in "TYPICAL ROADWAY SECTION" on Dwg. No. 64037.

(5) The Contractor may utilize an Optional Construction Joint, see "DECK SLAB CONSTRUCTION JOINT DETAIL" on Dwg. No. 64038.

(6) See "SLAB JOINT DETAIL" on Dwg. No. 64038.

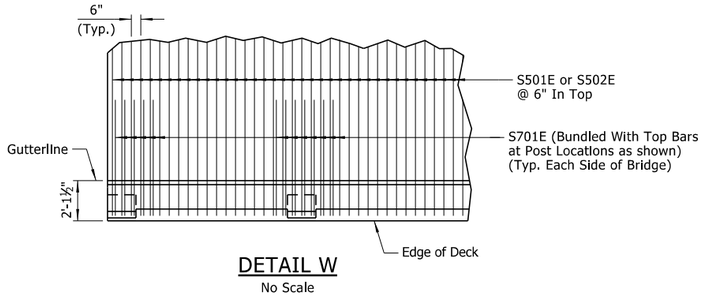
(7) Length shown shall be adjusted as required to accommodate length of mechanical coupler.

(8) Place 1" Preformed Joint Material between wingwall and slab (Typ.)



REINFORCING PLAN & DECK POURING SEQUENCE

Scale: ¼" = 1'-0"



DETAIL W

No Scale

NOTES:
For details of Decorative Concrete Bridge Railing, see Dwg. Nos. 64040 and 64041.

The Contractor shall pour the slab unit according to the pouring sequence shown. No portion of the falsework shall be removed until all of the concrete in that stage of the bridge slab has been placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. A minimum of 72 hours shall elapse between the end of a pour and the start of a new pour. Concrete in the bridge superstructure shall be placed and consolidated for the entire pour before any concrete has taken its inital set. A minimum of 72 hours shall elapse between the completion of the slab unit and the pouring of the bridge railing. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown and for any railing pours made before the entire bridge slab unit has been poured.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 60'-0" CONTINUOUS R.C. SLAB UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

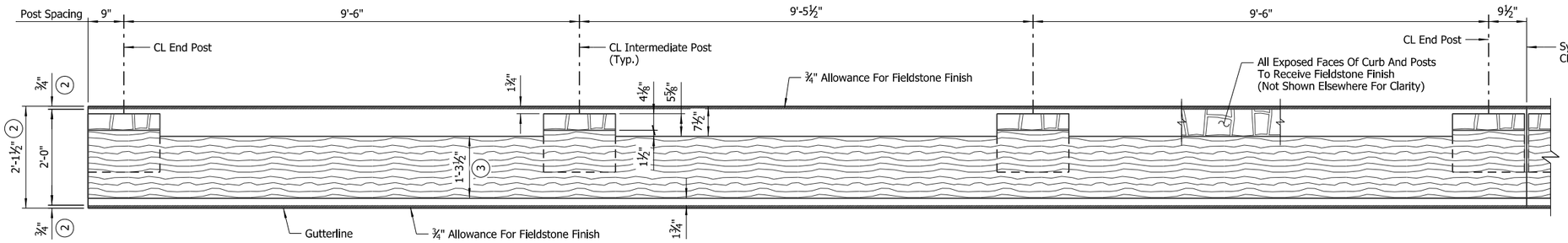
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2020 FILENAME: b080617_s3.dgn
CHECKED BY: JHR DATE: JAN. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: DEC. 2020

BRIDGE NO. 07528 DRAWING NO. 64039

REVISED DATE:
WORKSPACE: ARDOT Bridge (2019)
L:\2019\1701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S303.SB.dgn
5/22/2023 5:08:42 PM
abhall

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.		080617	40	59
				07528	60'-0" R.C. SLAB UNIT			64040



HALF PLAN OF DECORATIVE CONCRETE PARAPET RAILING ON SPANS (1)

Scale: ¾" = 1'-0"

(1) Unless noted otherwise, rail, post and curb dimensions do not include additional allowance for architectural finish. See Dwg. No. 64041 for details of architectural finish.

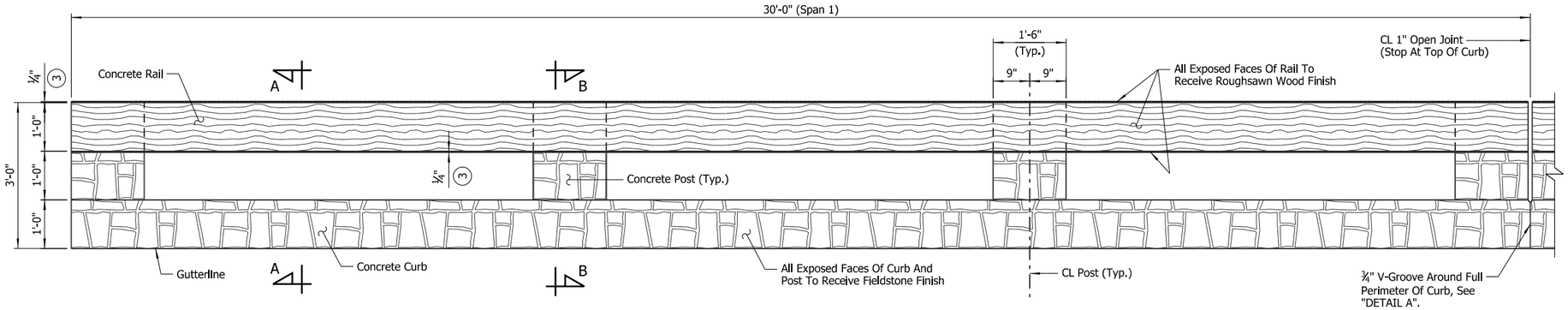
(2) Dimension includes ¾" allowance for Fieldstone Finish. See Dwg. No. 64041 for details of architectural finish.

(3) Dimension Includes ¼" allowance for Roughsawn Wood Finish. See Dwg. No. 64041 for details of architectural finish.

NOTES:

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

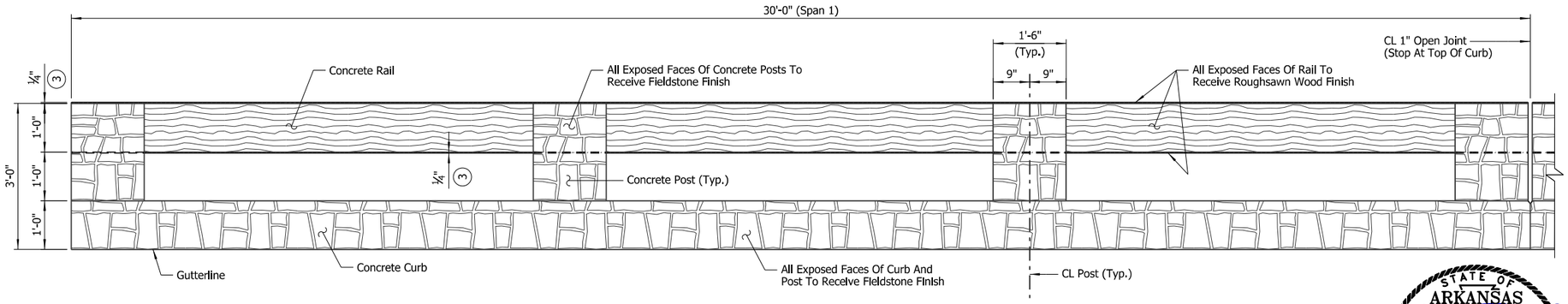
Concrete in Decorative Railing on Spans shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).



HALF ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING ON SPANS (FROM TRAFFIC SIDE) (1)

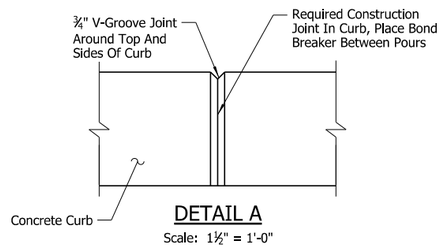
Scale: ¾" = 1'-0"

NOTE:
For "VIEW A-A" & "SECTION B-B", see Dwg. No. 64041.



HALF ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING ON SPANS (FROM BACK SIDE) (1)

Scale: ¾" = 1'-0"



DETAIL A

Scale: 1½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 60'-0"
CONTINUOUS R.C. SLAB UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	HEW	DATE:	DEC. 2020	FILENAME:	b080617_s4.dgn
CHECKED BY:	JHR	DATE:	JAN. 2021	SCALE:	As Shown
DESIGNED BY:	JME	DATE:	DEC. 2020		

BRIDGE NO. 07528 DRAWING NO. 64040

abhall
WORKSPACE: ARDOT Bridge (209)
L:\20TV\07\07624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S304 (Parapet).dgn
5/22/2023 5:08:43 PM
REVISED DATE:

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.		080617	41	59
07528	60'-0" R.C. SLAB UNIT			64041

(1) Unless noted otherwise, railing component (includes rail, post and curb) dimensions do not include additional allowance for architectural finish. See "STRUCTURAL CORE DIMENSIONS" for more information.

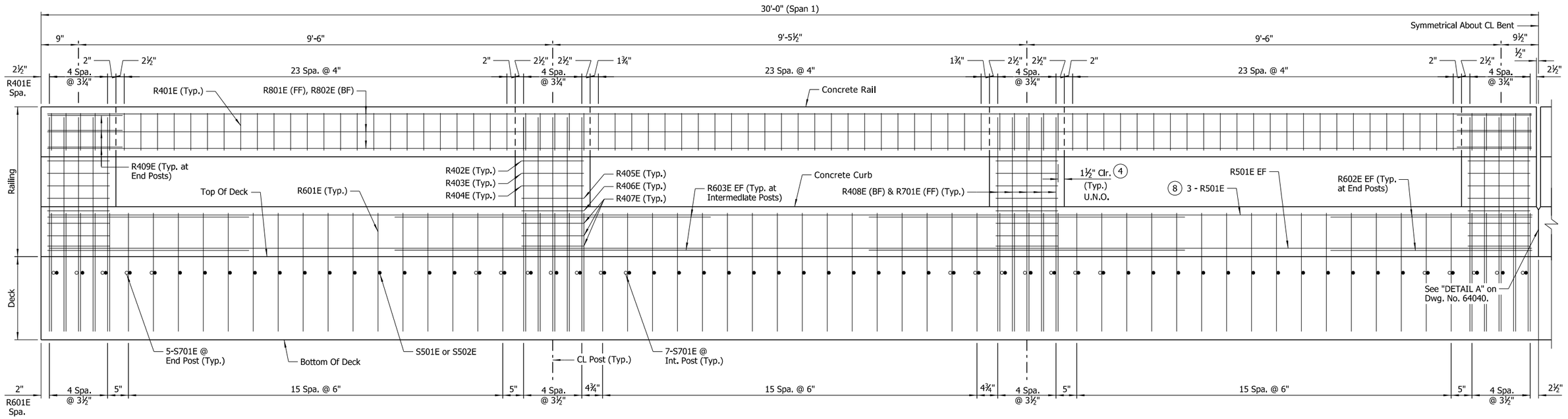
(2) Dimension includes ¾" allowance for Fieldstone Finish.

(3) Dimension includes ¼" allowance for Roughsawn Wood Finish.

(4) A typical clear cover of 1½" shall be provided for the railing components (includes rail, post and curb) reinforcement, unless otherwise noted. This clear cover does not include any allowance for architectural finish.

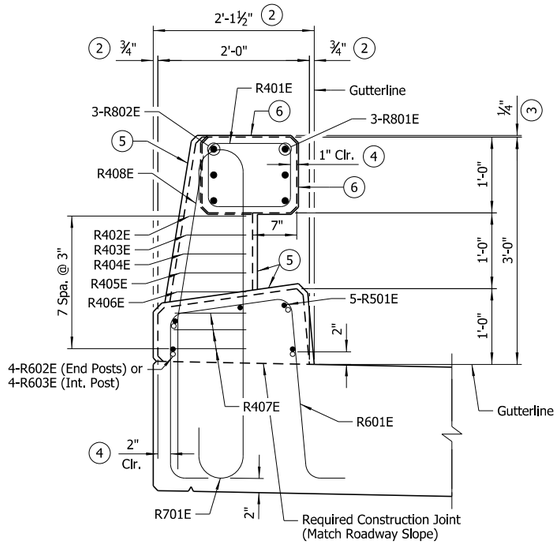
(5) ¾" allowance for Fieldstone Finish, typ. for Post and Curb.

(6) ¼" allowance for Roughsawn Wood Finish, typ. for Rail.



HALF LONGITUDINAL SECTION OF DECORATIVE CONCRETE PARAPET RAILING (FROM TRAFFIC SIDE)

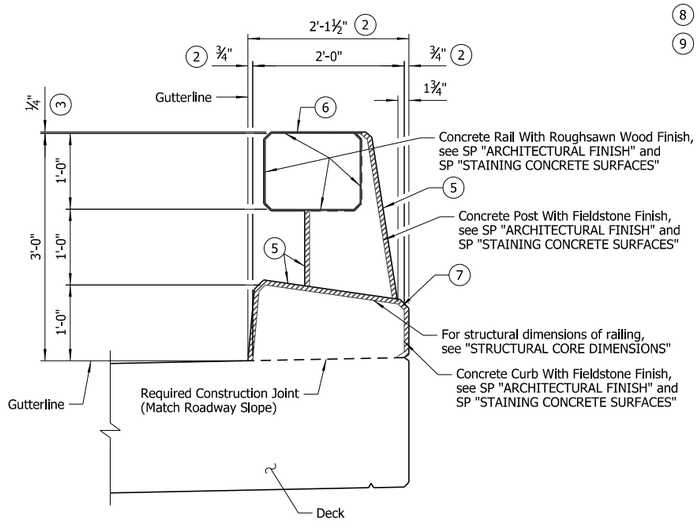
Scale: 1" = 1'-0"



SECTION B-B (1)

Scale: 1" = 1'-0"

NOTE:
Deck reinforcement omitted for clarity.



VIEW A-A (1)

Scale: 1" = 1'-0"

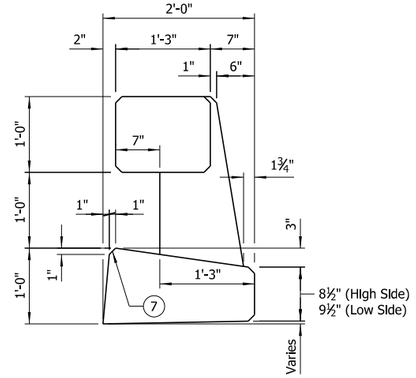
(7) All exposed corners for the railing components (includes rail, post and curb) shall be chamfered 1" unless otherwise noted.

(8) See "SECTION B-B" for placement of R501E bars.

(9) Dimensions shown must be maintained after allowances for various architectural treatments.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face
BF = Back Face
FF = Front Face



STRUCTURAL CORE DIMENSIONS (1) (9)

Scale: 1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 60'-0"
CONTINUOUS R.C. SLAB UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2020 FILENAME: b080617_s5.dgn
CHECKED BY: JHR DATE: JAN. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: DEC. 2020
BRIDGE NO. 07528 DRAWING NO. 64041

abhall
5/22/2023 5:08:44 PM
WORKSPACE: ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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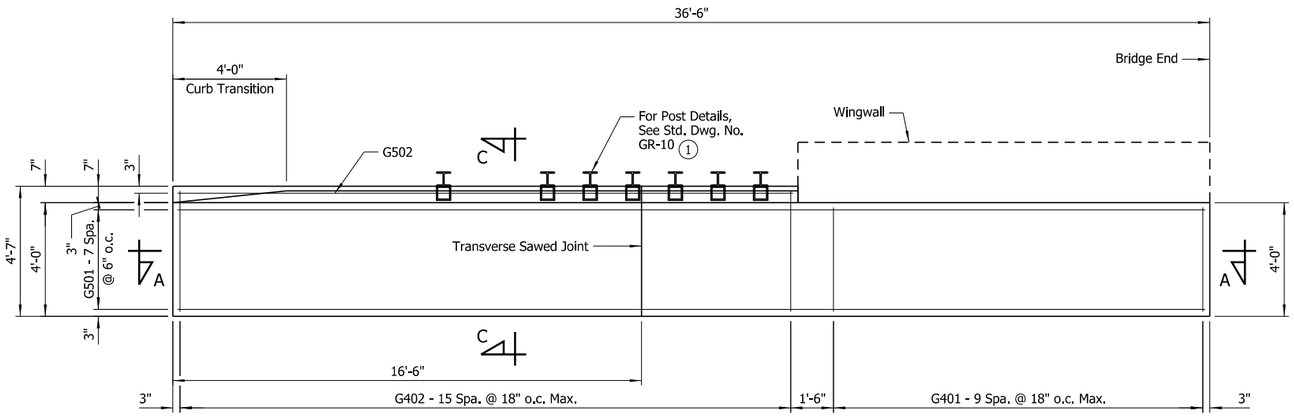
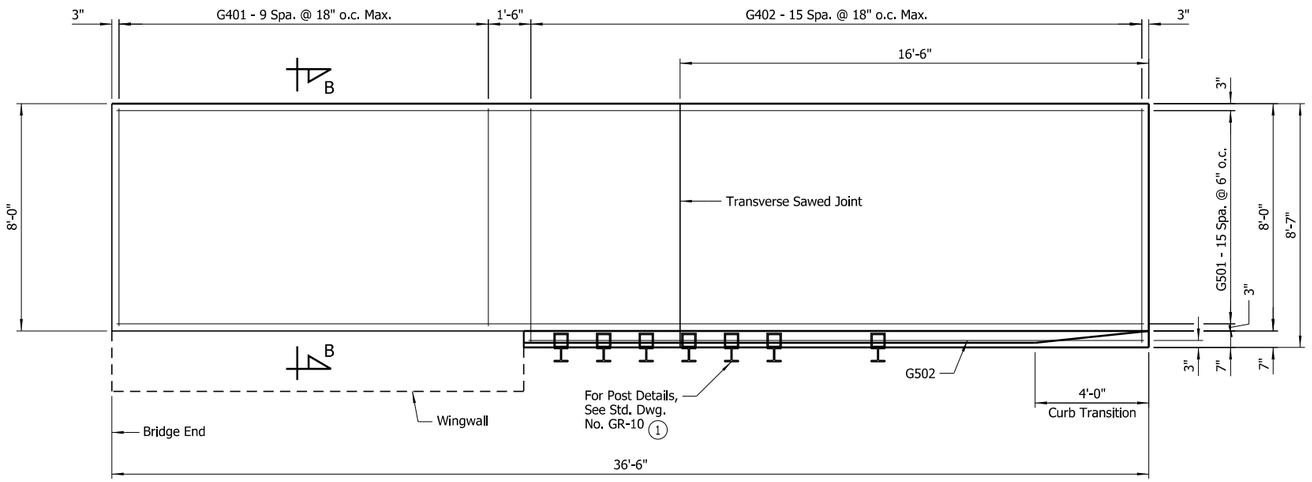
				JOB NO.		080617	42	59
				07528		APPROACH GUTTERS		64042



PLAN - TYPE 1 SPECIAL APPROACH GUTTER

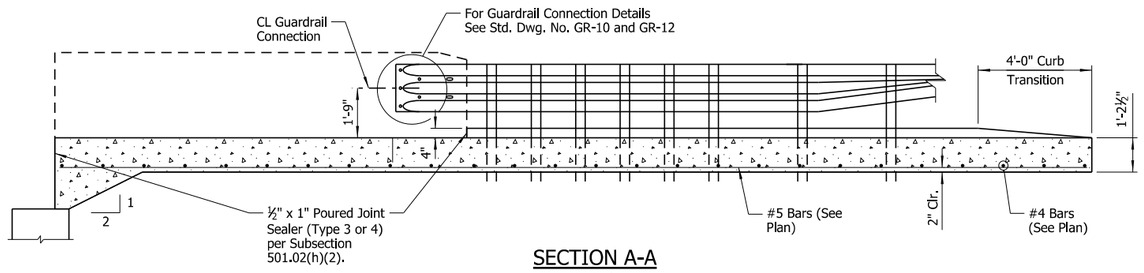
Scale: ⅜" = 1'-0"

(1) See Bridge Layouts for locations of guardrails.



PLAN - TYPE 2 SPECIAL APPROACH GUTTER

Scale: ⅜" = 1'-0"



SECTION A-A

No Scale

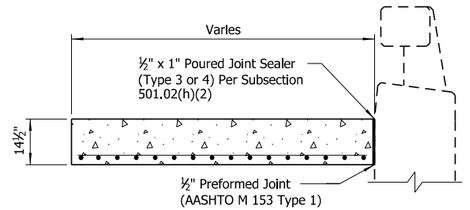
BAR LIST - TYPE 1 SPECIAL APPROACH GUTTER			
Mark	No. Req'd	Length	Pin Dia.
G401	10	3'-8"	Str.
G402	16	4'-3"	Str.
G501	8	36'-2"	Str.
G502	1	21'-8"	Str.

BAR LIST - TYPE 2 SPECIAL APPROACH GUTTER			
Mark	No. Req'd	Length	Pin Dia.
G401	10	7'-8"	Str.
G402	16	8'-3"	Str.
G501	16	36'-2"	Str.
G502	1	21'-8"	Str.

QUANTITIES (FOR INFORMATION ONLY)		
TYPE	Concrete	Reinforcing Steel (Gr. 60)
Type 1 Special	7.19 Cu. Yds.	394 lb.
Type 2 Special	13.72 Cu. Yds.	766 lb.

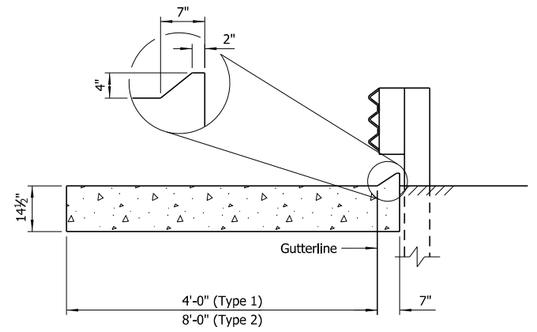
NOTE:
Quantities shown are for one Type 1 Special Approach Gutter and one Type 2 Special Approach Gutter. One Type 1 Special Approach Gutter and two Type 2 Special Approach Gutters are required.

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



SECTION B-B

No Scale



SECTION C-C

(Reinforcing Not Shown)
No Scale

GENERAL NOTES

All concrete shall be Class S or Class S(AE) 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

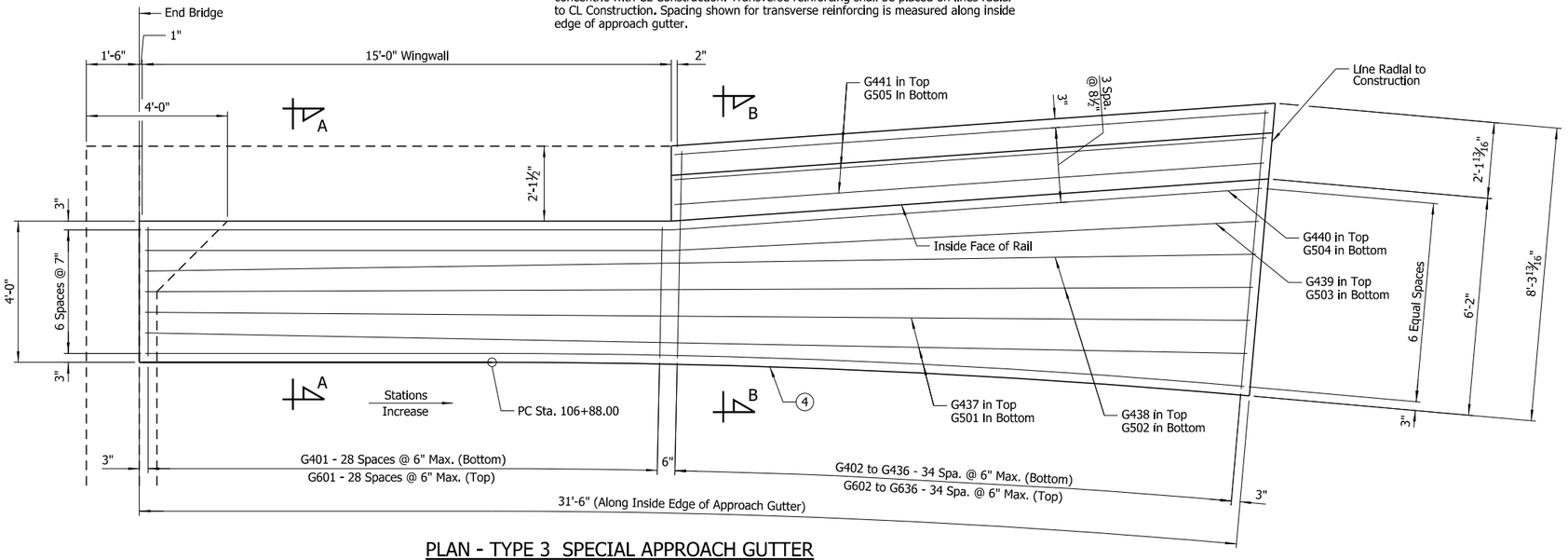
DRAWN BY: HEW DATE: DEC. 2020 FILENAME: b080617_AG1.dgn
CHECKED BY: JHR DATE: JAN. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: DEC. 2020

BRIDGE NO. 07528 DRAWING NO. 64042

abhall
5/22/2023 5:08:45 PM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\1701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\b080617_S401_AG.dgn
REVISED DATE:

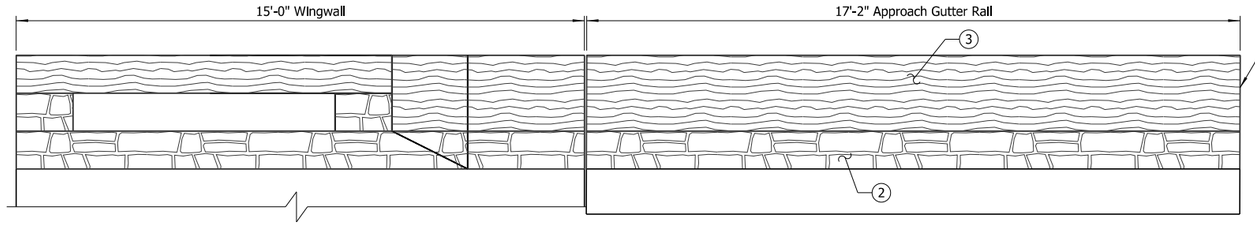
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080617	43	59
				07528	APPROACH GUTTERS			64042A

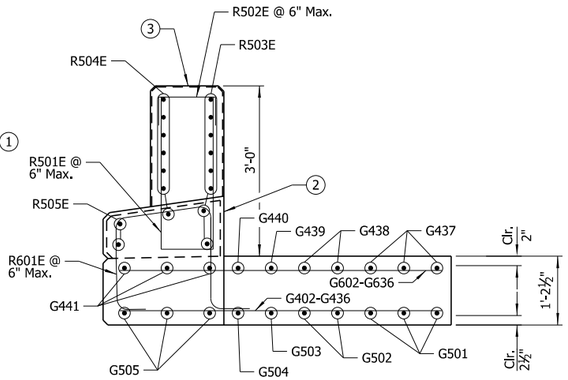
(4) Beyond PC Sta. 106+88.00, inside edge of approach gutter shall be on curve concentric with CL Construction. Transverse reinforcing shall be placed on lines radial to CL Construction. Spacing shown for transverse reinforcing is measured along inside edge of approach gutter.



PLAN - TYPE 3 SPECIAL APPROACH GUTTER

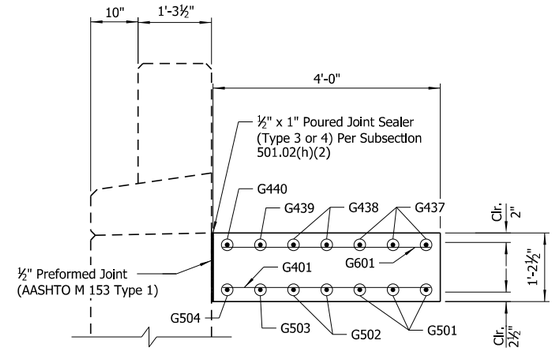
Scale: ½" = 1'-0"





SECTION B-B

No Scale



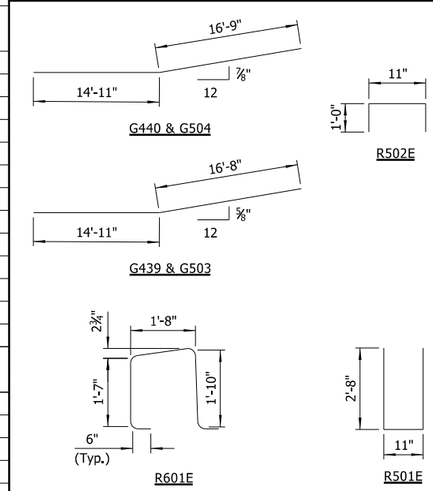
SECTION A-A

No Scale

BAR LIST - TYPE 3 SPECIAL APPROACH GUTTER

Mark	No. Req'd.	Length	Pin. Dia.
G401	29	3'-8"	Str.
G402 to G436	1 Ea.	5'-9" to 7'-10"	Str.
G437	3	31'-2"	Str.
G438	2	31'-5"	Str.
G439	1	31'-7"	Str.
G440	1	31'-8"	Str.
G441	3	16'-9"	Str.
G501	3	31'-2"	Str.
G502	2	31'-5"	Str.
G503	1	31'-7"	Str.
G504	1	31'-8"	Str.
G505	3	16'-9"	Str.
G601	29	3'-8"	Str.
G602 to G636	1 Ea.	5'-9" to 7'-10"	Str.
R501E	35	6'-0"	2½"
R502E	35	2'-8"	2½"
R503E	8	16'-9"	Str.
R504E	7	16'-10"	Str.
R505E	2	16'-11"	Str.
R601E	35	5'-6"	4½"

BAR BENDING DIAGRAMS



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

Bar designations ending in "E" indicate epoxy coated bars.

ARCHITECTURAL FINISH (FROM TRAFFIC SIDE)

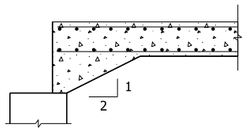
(Elevation View of Rail)
Scale: ½" = 1'-0"

QUANTITIES

(FOR INFORMATION ONLY)

TYPE	Concrete	Reinforcing Steel (Gr. 60)
Type 3 Special	10.95 Cu. Yds.	2,112 lb

NOTE:
Quantities shown are for one Type 3 Special Approach Gutter.
One Type 3 Special Approach Gutter is required.



SECTION A-A

No Scale

(1) Bridge end terminal is required at end of rail.

Modify the approach gutter rail above the gutterline as required by the Manufacturer of the bridge end terminal. Reinforcing bars that are relocated or bent to fit the modified bridge rail should have minimum concrete cover.

(2) ¾" allowance for Fieldstone Finish, typ. for Curb.

(3) ¼" allowance for Roughsawn Wood Finish, typ. for Rail.

Concrete in Decorative Approach Gutter Railing shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

GENERAL NOTES

All concrete shall be Class S or Class S(AE) 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 05/21/2024
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ERM DATE: AUG. 2021 FILENAME: b080617_AG2.dgn
CHECKED BY: ABH DATE: AUG. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: AUG. 2021
BRIDGE NO. 07528 DRAWING NO. 64042A

5/22/2023 5:08:46 PM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017624 - 080617 Wolf Pen Creek Str-Appr\Drawings\b080617_S402_AG.dgn
REVISED DATE:
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		080617		
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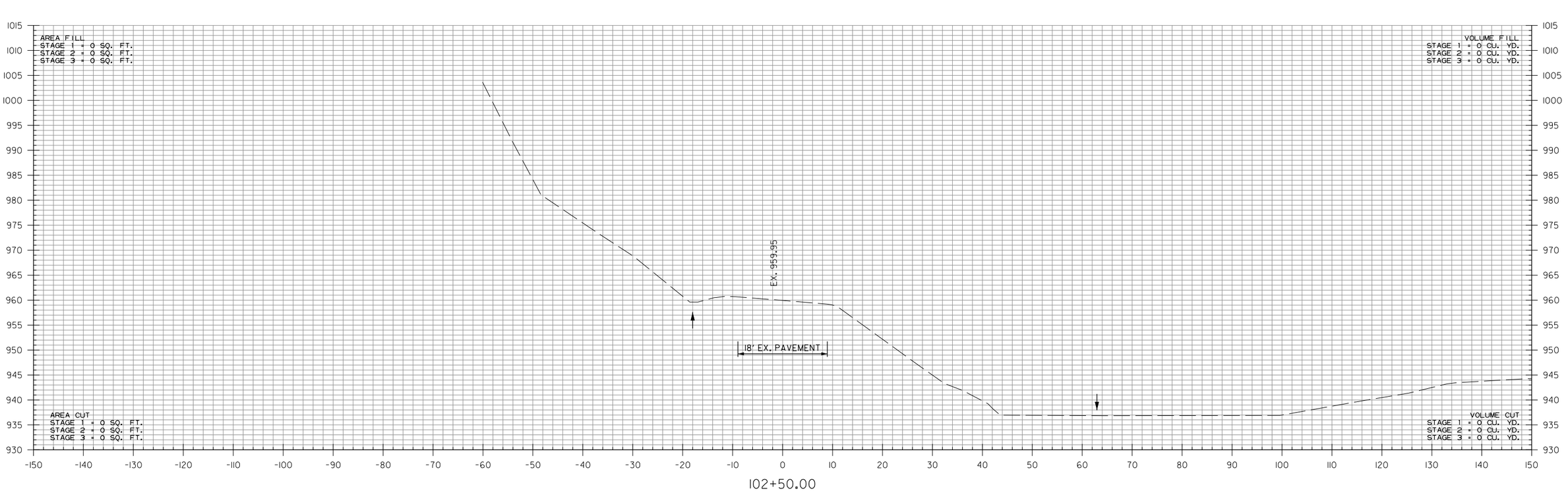

102+50.00

STA. 102+50.00 BEGIN 100' PAVING TRANSITION

HWY. 215
STA. 102+50 TO STA. 102+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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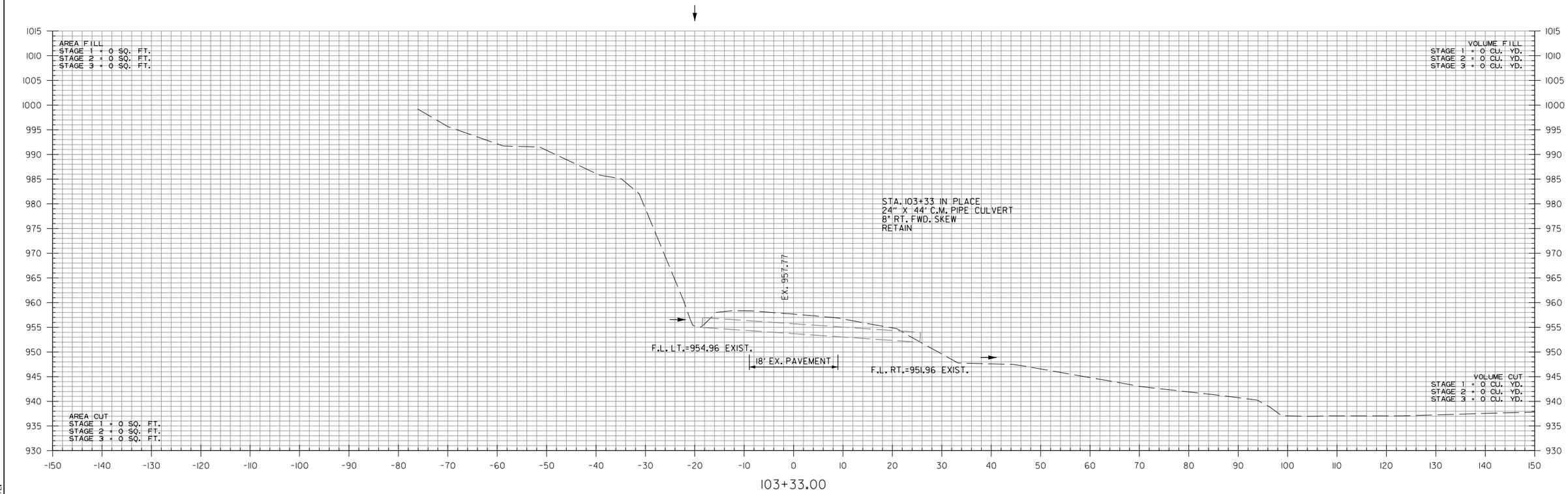
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



HWY. 215
STA. 103+33 TO STA. 103+33

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WORKSPACE: AHTD
L:\2017\170T624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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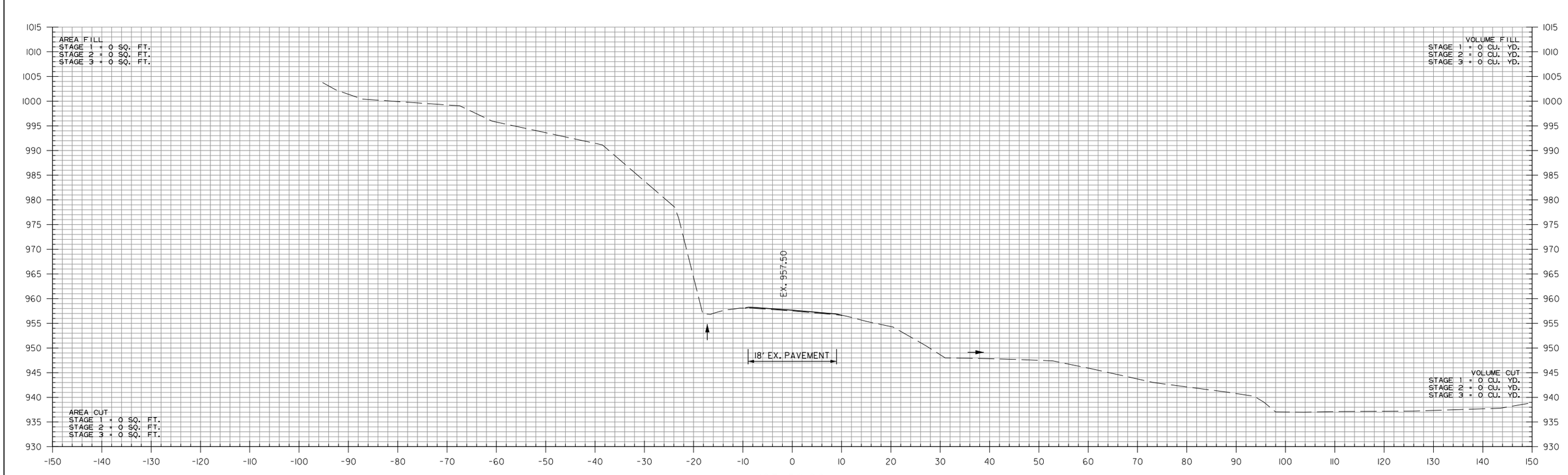
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



103+50.00

STA. 103+50.00 END 100' PAVING TRANSITION
BEGIN JOB 080617

HWY. 215
STA. 103+50 TO STA. 103+50

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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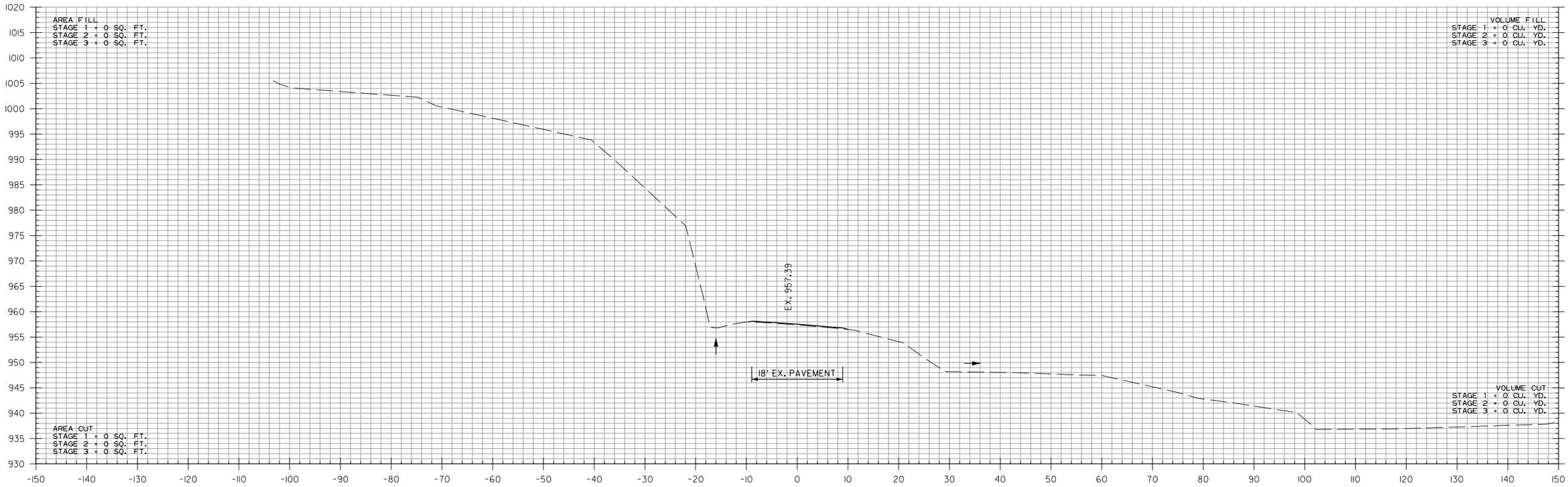
				JOB NO.		080617		
				(2)	CROSS SECTIONS			

STA. 103+83.41 MAX. SUPERELEVATION (0.080 FT./FT.)



103+59.00

STA. 103+59.00 BEGIN 100' GRADING TRANSITION

HWY. 215
STA. 103+59 TO STA. 103+59

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WORKSPACE: AHTD
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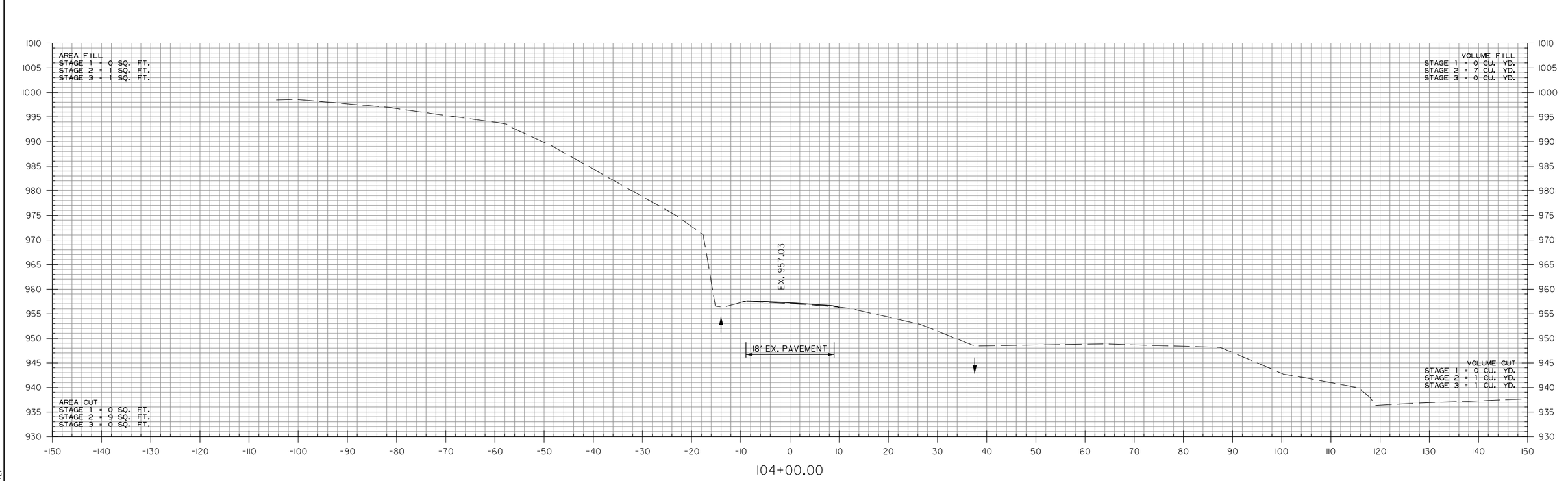
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

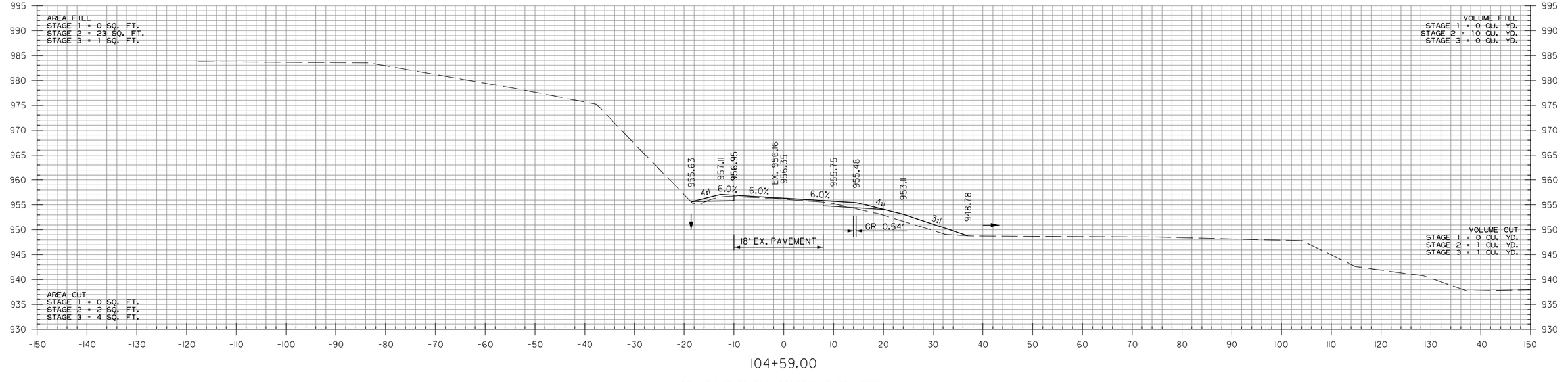
FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		48	59
JOB NO.		080617		

(2) CROSS SECTIONS



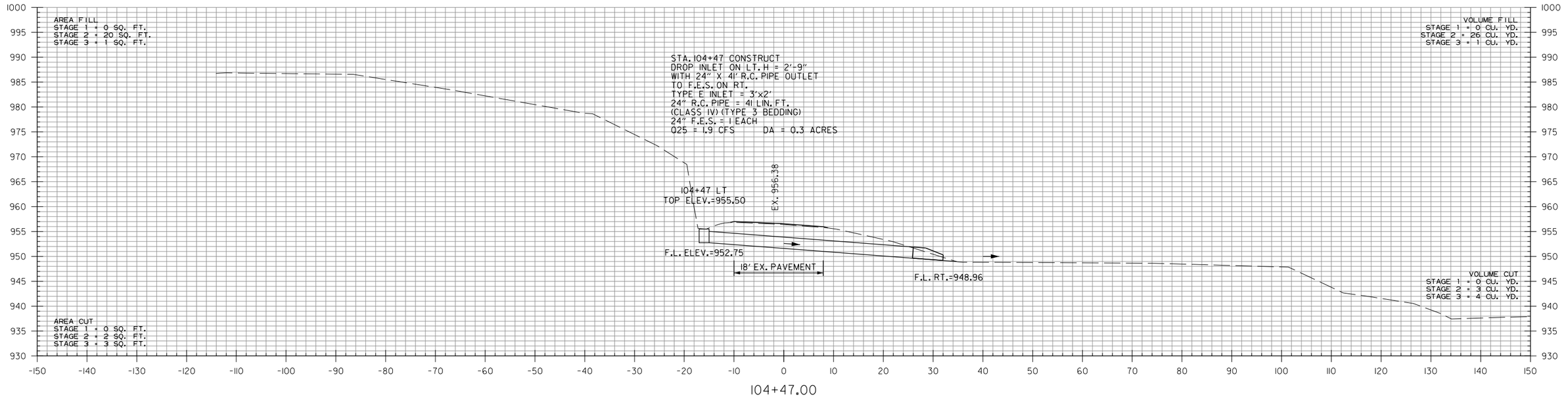
HWY. 215
STA. 104+00 TO STA. 104+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		49	59
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



104+59.00

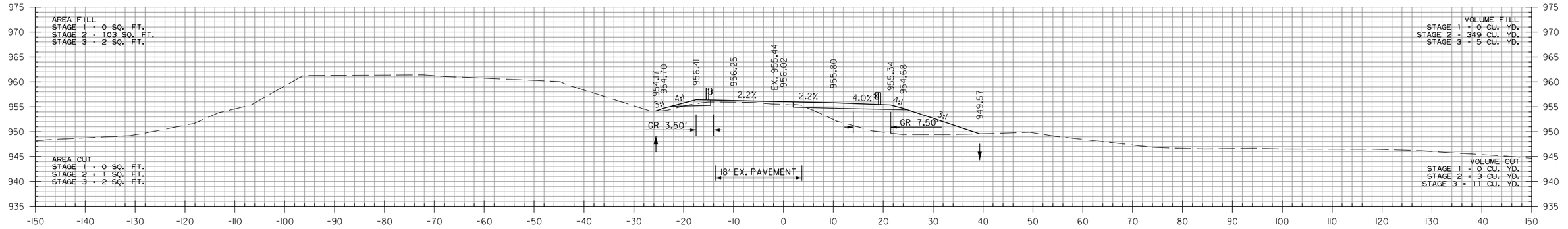
STA. 104+59.00 END 100' GRADING TRANSITION



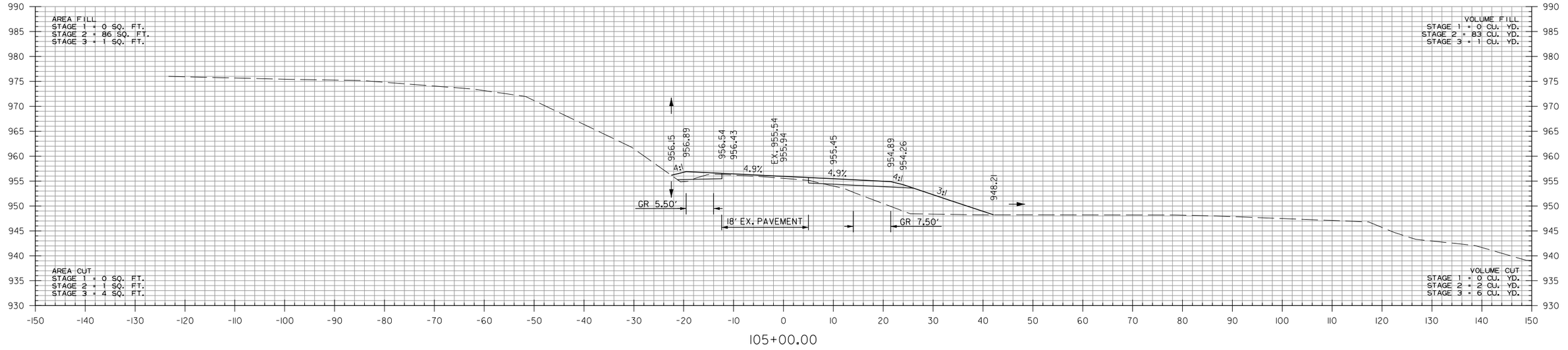
104+47.00

HWY. 215
STA. 104+47 TO STA. 104+59

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		50	59
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



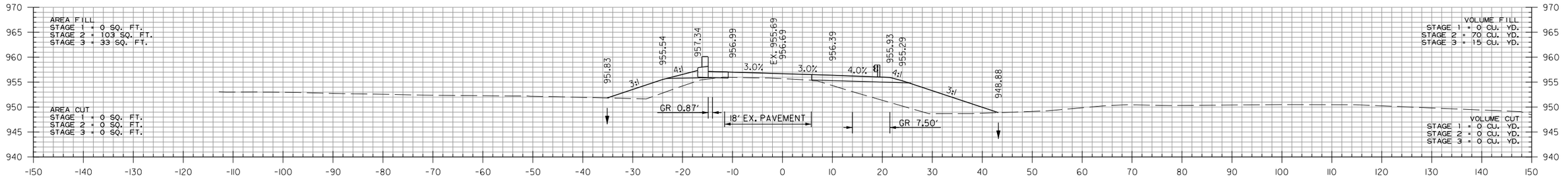
106+00.00



105+00.00

HWY. 215
STA. 105+00 TO STA. 106+00

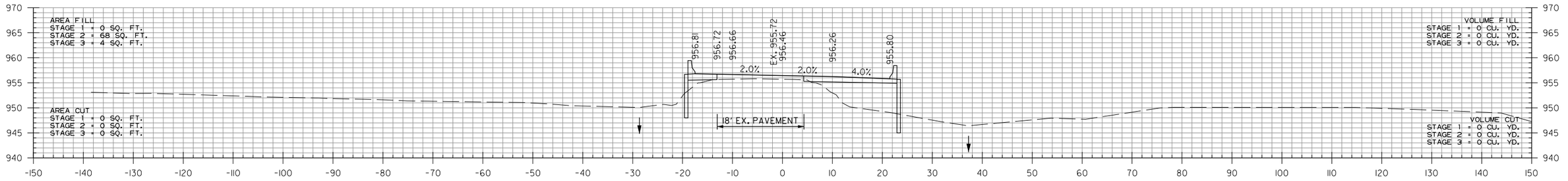
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		51	59
				JOB NO.		080617		
				(2)		CROSS SECTIONS		



107+00.00

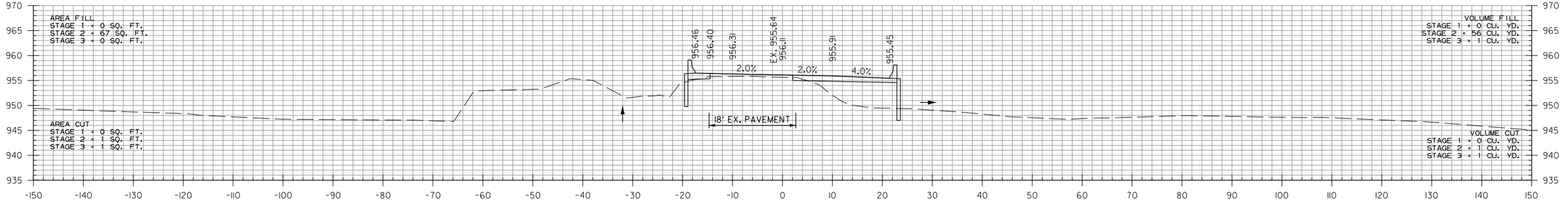
STA. 107+00
BEGIN SP. DT. LT. 3.07%
ELEV. 951.83

STA. 106+80.25 REVERSE CROWN (0.020 FT./FT.)



106+78.00

STA. 106+78.00 BEGIN TOE OF SLOPE (VERTICAL ABUTMENT)
STA. 106+78.00 END BRIDGE



106+18.00

STA. 106+18.00 BEGIN BRIDGE
STA. 106+18.00 END TOE OF SLOPE (VERTICAL ABUTMENT)

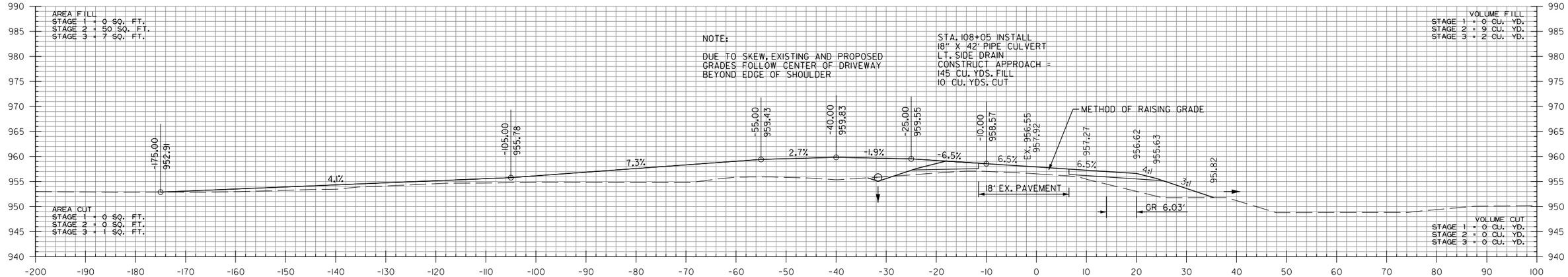
STA. 106+08.41 REVERSE CROWN (0.020 FT./FT.)

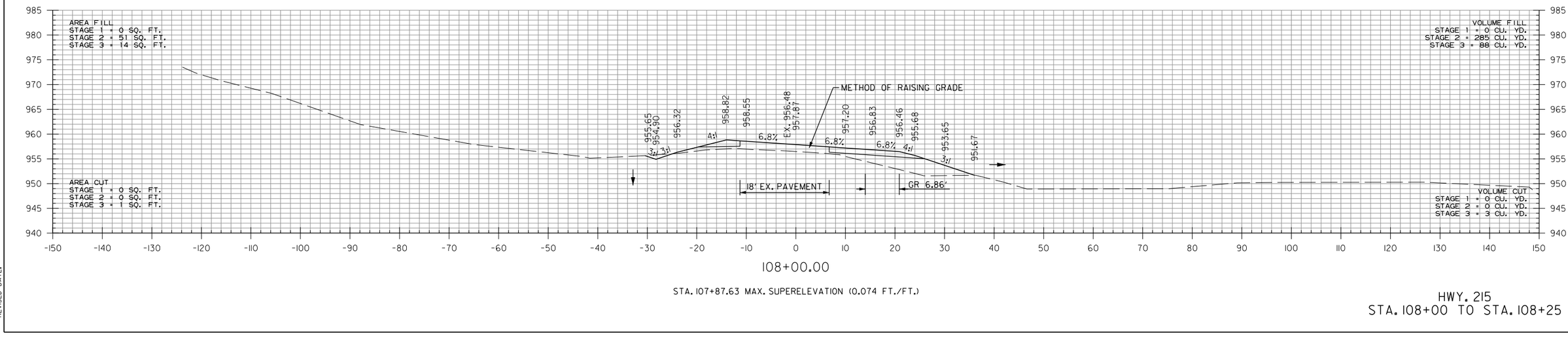
HWY. 215
STA. 106+18 TO STA. 107+00

aewierciak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\201\101624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.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.		52	59
				JOB NO.		080617		
				(2)		CROSS SECTIONS		

STA. 108+37
END SP. DT. LT. 3.07%
ELEV. 956.04





STA. 107+87.63 MAX. SUPERELEVATION (0.074 FT./FT.)

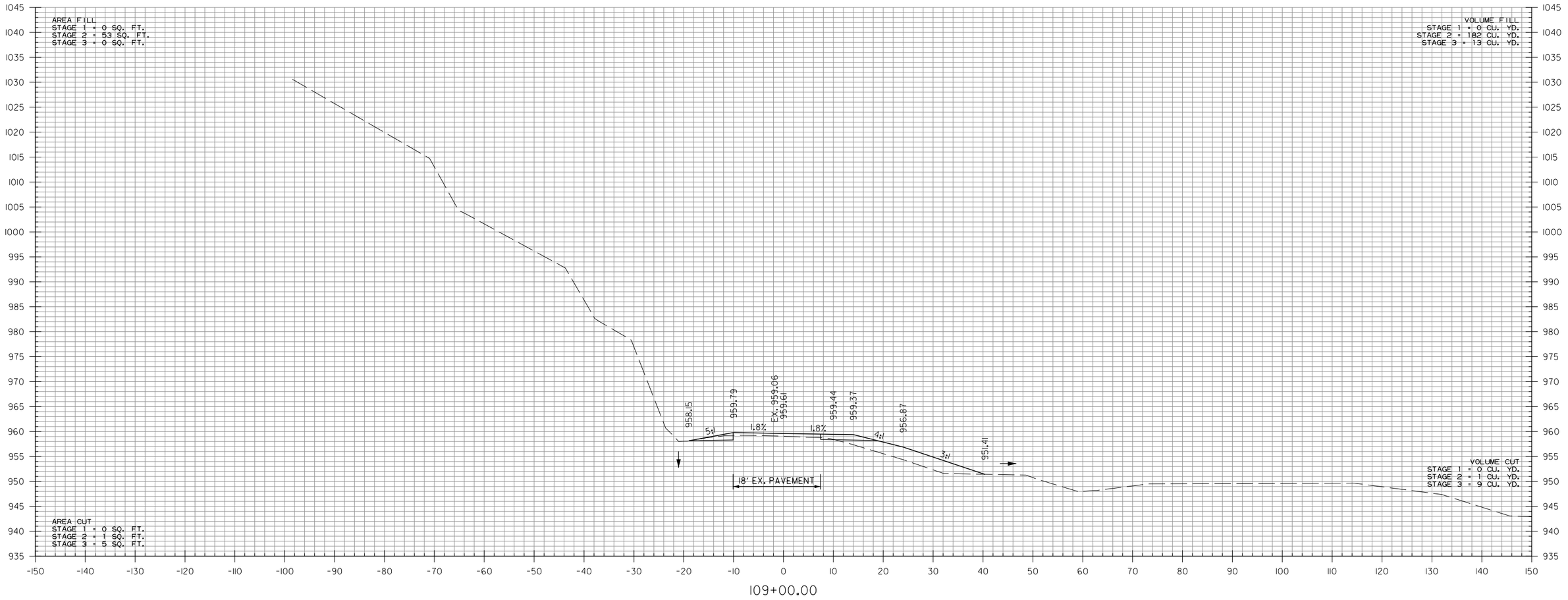
HWY. 215
STA. 108+00 TO STA. 108+25

aewlerclak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\17017624 - 080617 Wolf Pen Creek Str-Appr\s\Drawings\r080617_CX_HWY 215.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.		53	59
JOB NO.		080617		

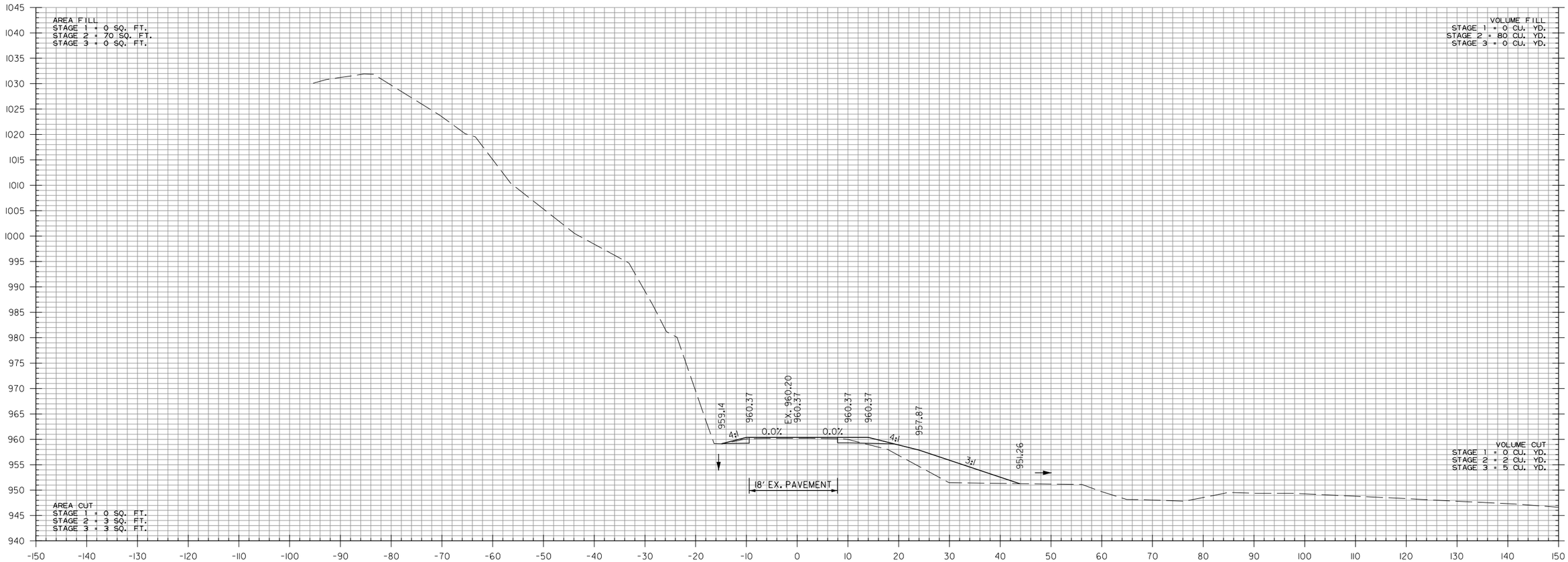
(2) CROSS SECTIONS



HWY. 215
STA. 109+00 TO STA. 109+00

aewierciak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\170176?4 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.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.		54	59
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



109+35.00

STA. 109+35.00 BEGIN 100' GRADING TRANSITION

STA. 109+35.00 END SUPERELEVATION (0.000 FT./FT.)

HWY. 215
STA. 109+35 TO STA. 109+35

oewierciak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\1701624 - 080617 Wolf Pen Creek Str-Appr\Drawings\r080617_CX_HWY 215.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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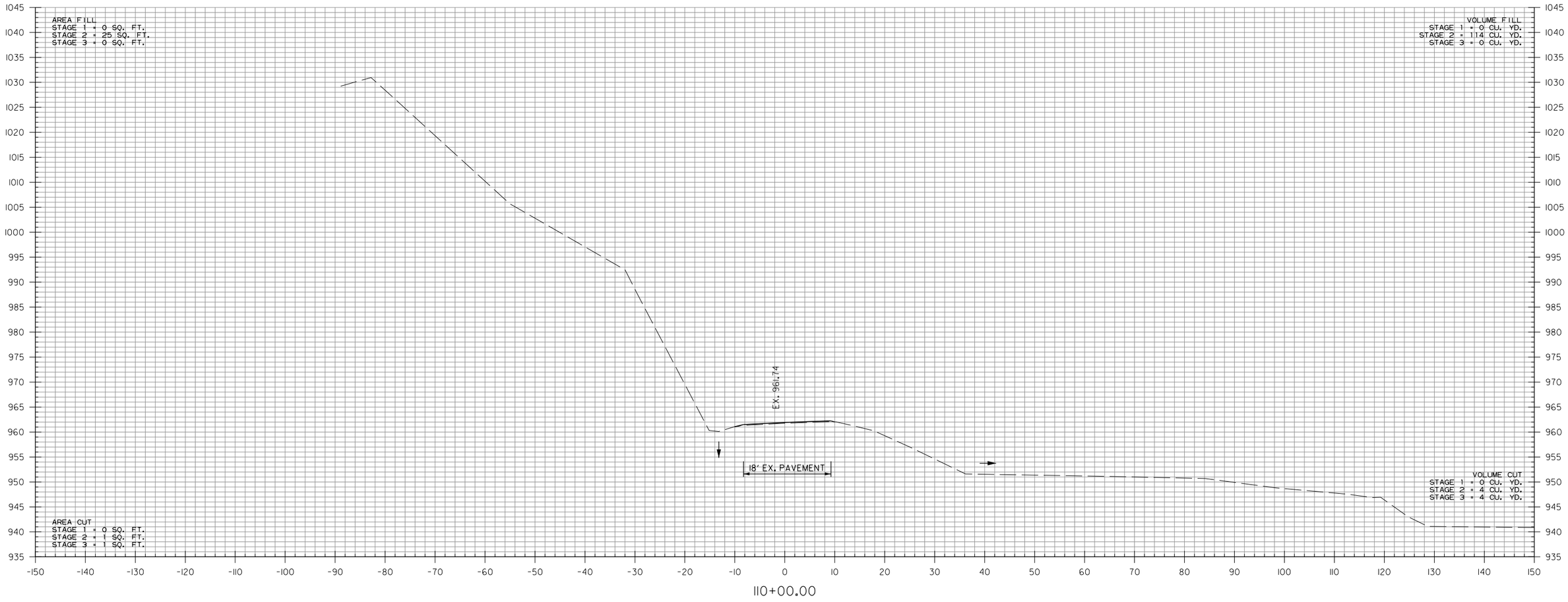
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



HWY. 215
STA. 110+00 TO STA. 110+00

dewierclak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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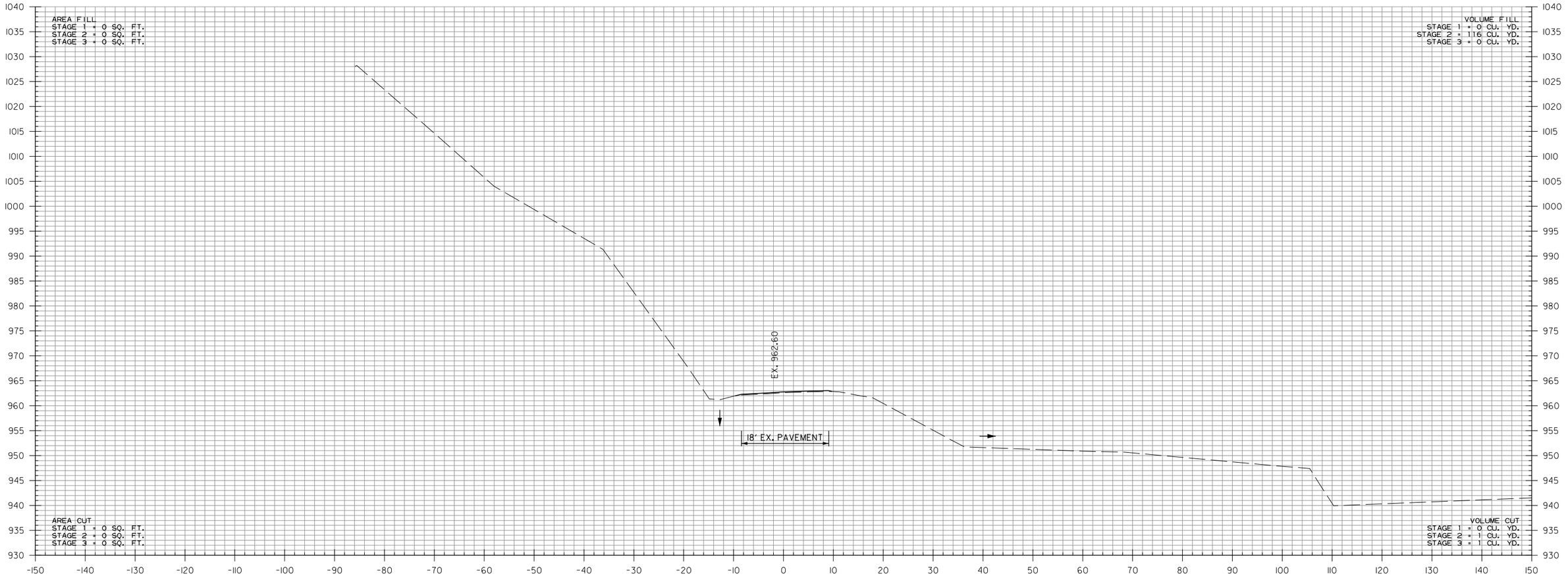
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



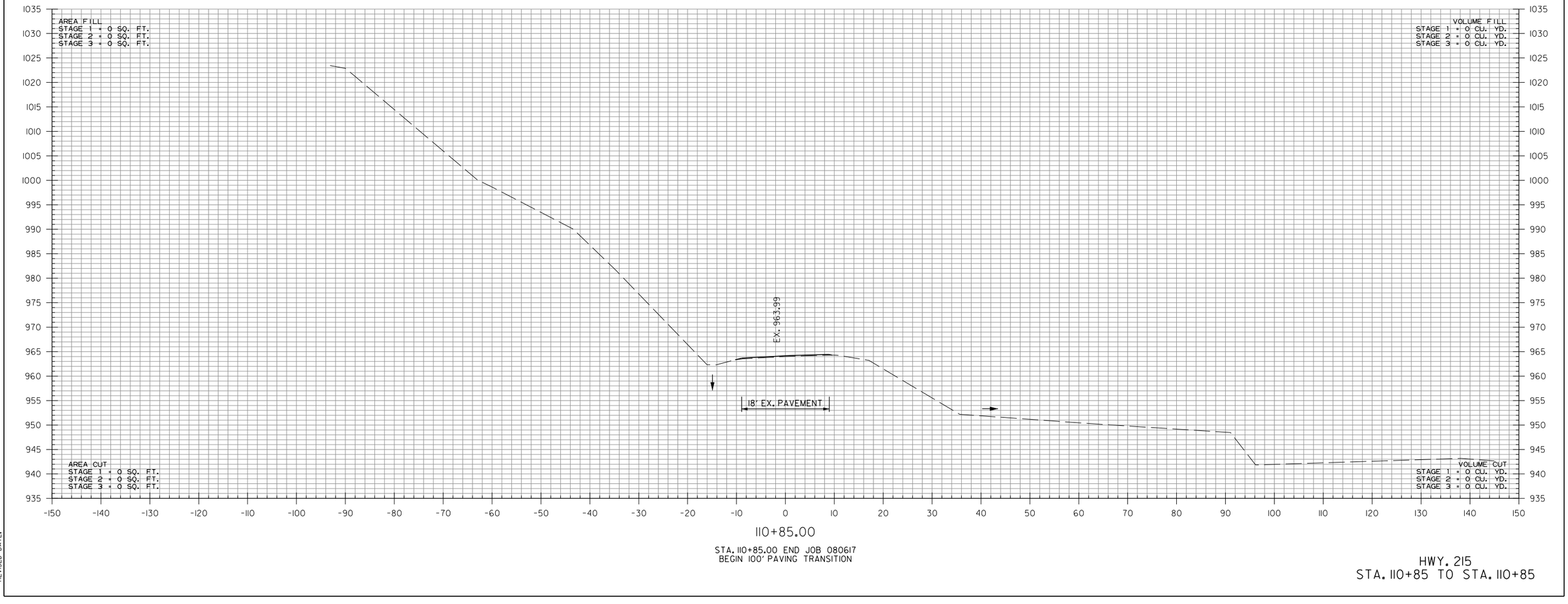
110+35.00

STA. 110+35.00 END 100' GRADING TRANSITION

HWY. 215
STA. 110+35 TO STA. 110+35

oewierclak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\1701624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.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.		57	59
				JOB NO.		080617		
				(2)	CROSS SECTIONS			



110+85.00

STA. 110+85.00 END JOB 080617
BEGIN 100' PAVING TRANSITION

HWY. 215
STA. 110+85 TO STA. 110+85

aewlerclark 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
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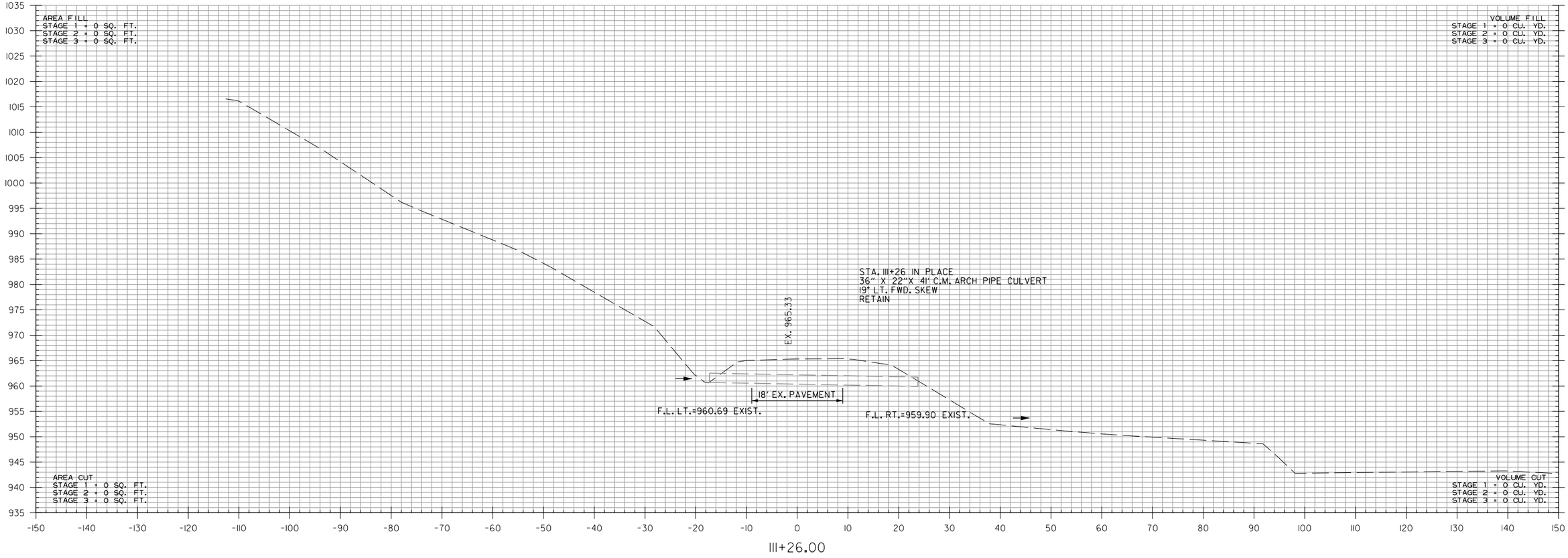
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		58	59
				JOB NO.		080617		
				(2)	CROSS SECTIONS			

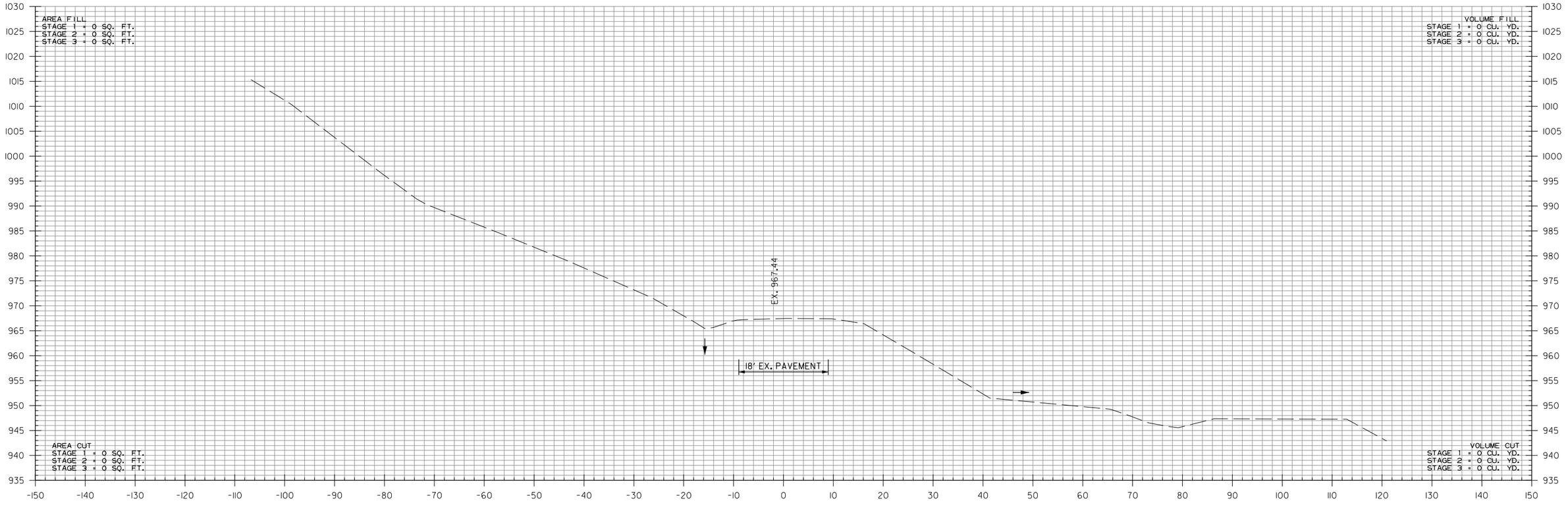


111+26.00

HWY. 215
STA. 111+26 TO STA. 111+26

aewerdak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\170\7624 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.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.		59	59
				JOB NO.		080617		
				(2)		CROSS SECTIONS		



111+85.00

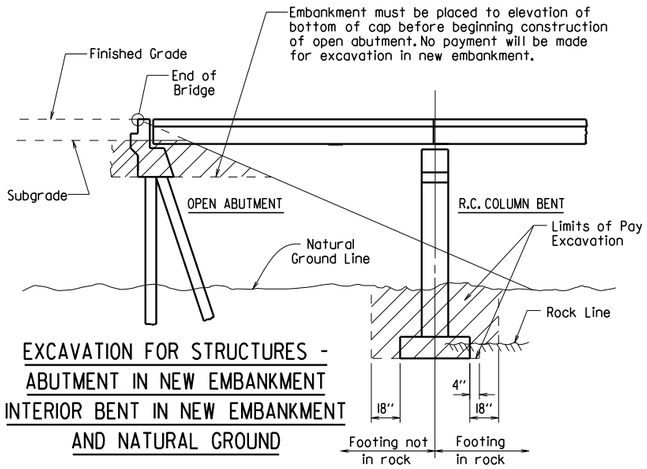
STA. 111+85.00 END 100' PAVING TRANSITION

HWY. 215
STA. 111+85 TO STA. 111+85

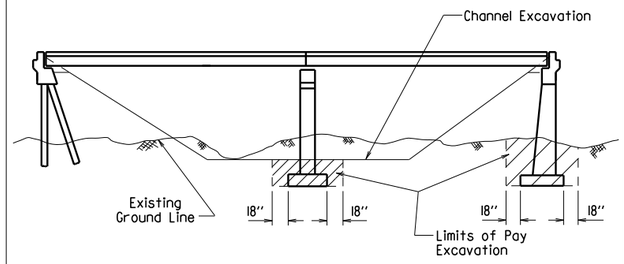
aewierciak 2/1/2024 5:02:38 PM
WORKSPACE: AHTD
L:\2017\170176\24 - 080617 Wolf Pen Creek Str-Apprs\Drawings\r080617_CX_HWY 215.dgn
REVISED DATE:

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.				

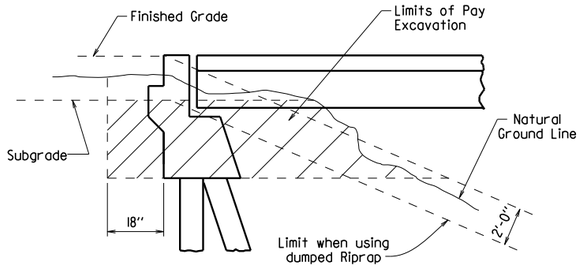
1 RIPRAP & EXCAV. 55001



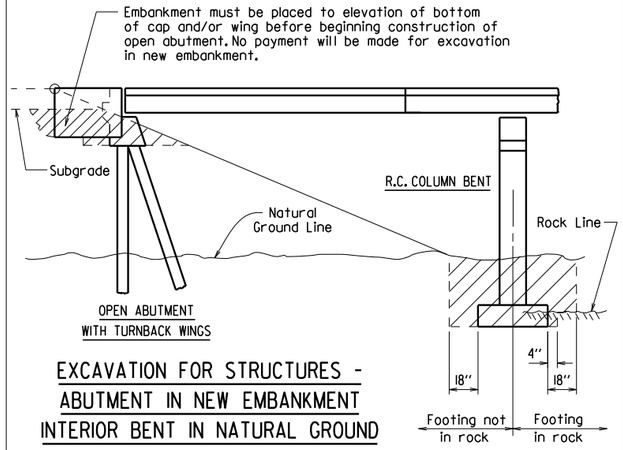
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



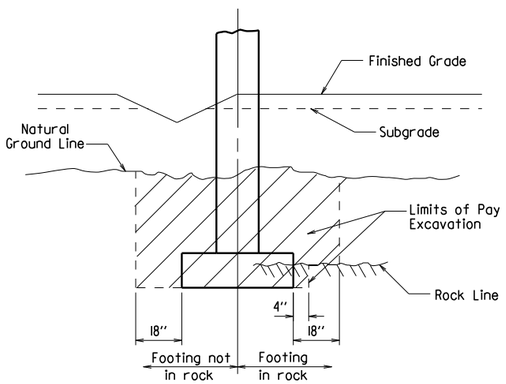
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



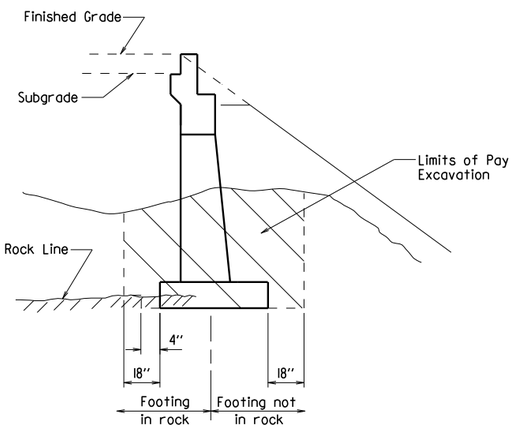
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



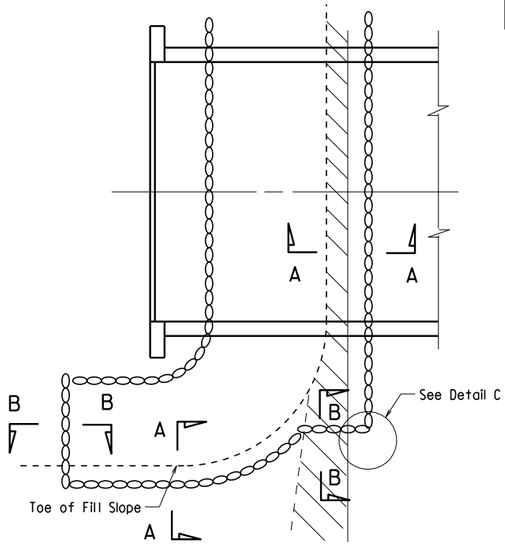
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



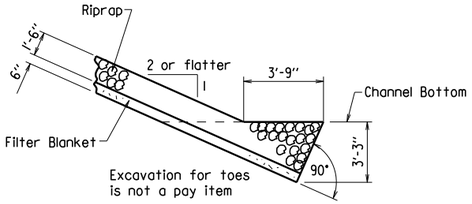
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

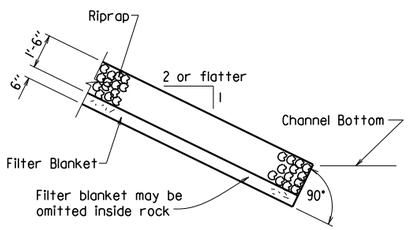


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



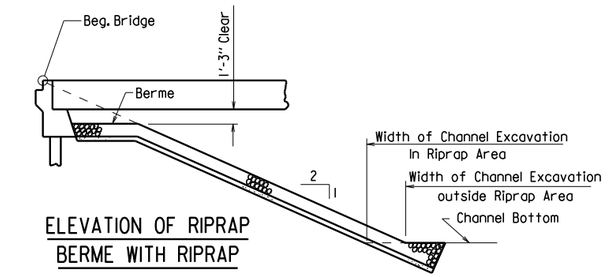
SECTION A-A

(Toe Excavation in Rock)

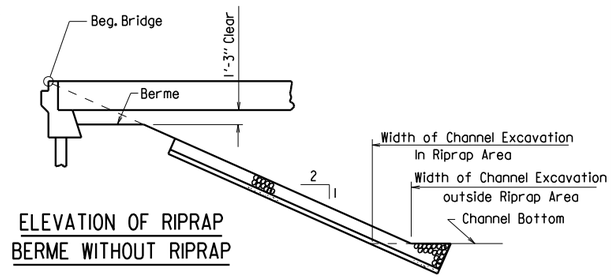
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

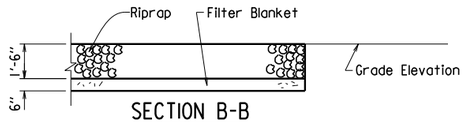
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



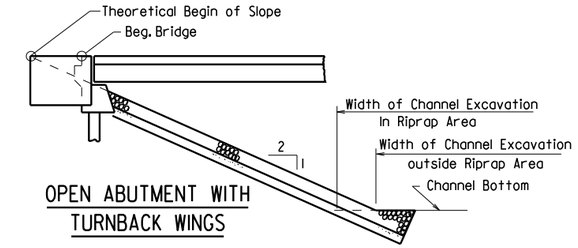
ELEVATION OF RIPRAP BERME WITH RIPRAP



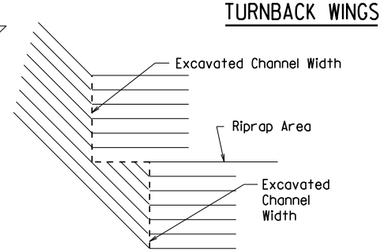
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

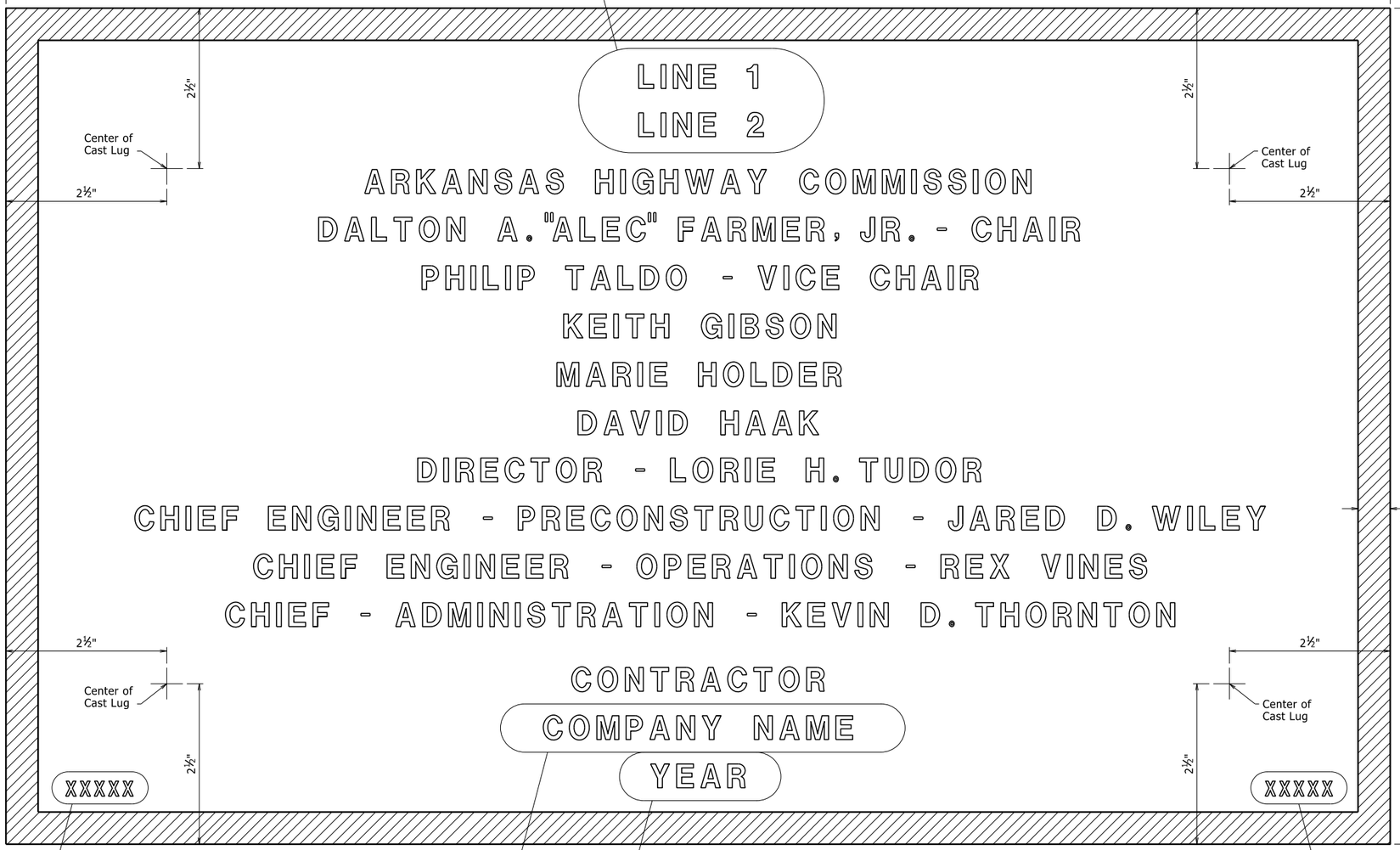
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
4-14-23		6	ARK.			
		TYPE D NAME PLATE - 55010				

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using ⅛" raised letters and numerals ⅜" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	RED RIVER	SOUTHERN RAILROAD	SALINE RIVER	HIGHWAY 5
Line 2	RELIEF	OVERPASS	RELIEF	



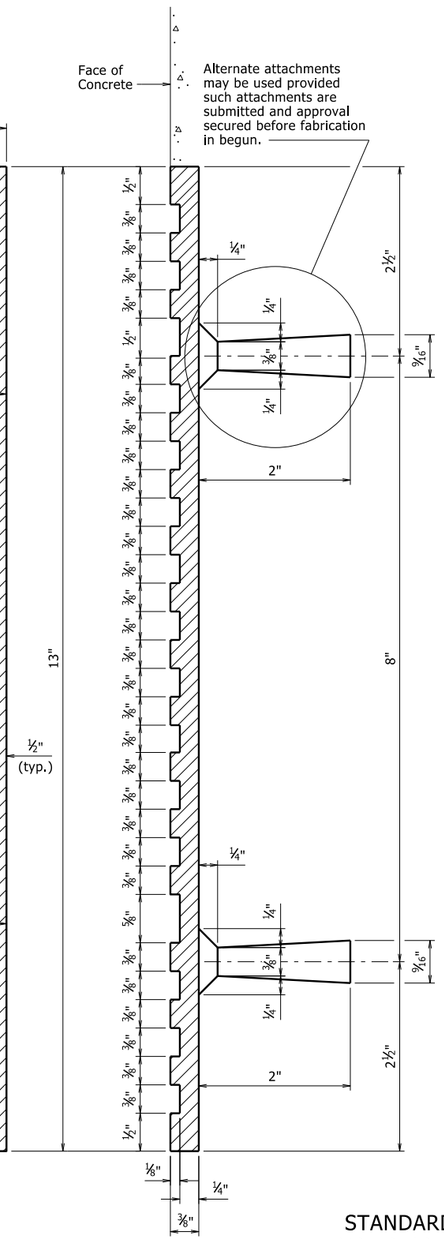
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

1 Revised and Redrawn
4-14-23 CGP Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55010

PRINT DATE: 4/20/2023

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

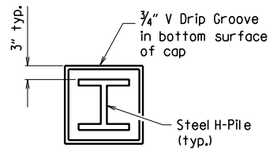
GENERAL NOTES FOR STEEL H-PILES:

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

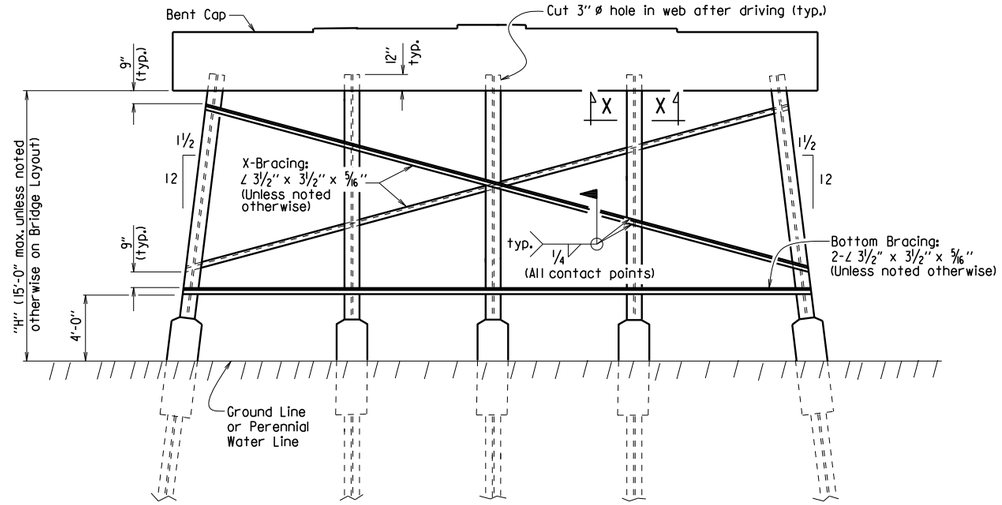
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

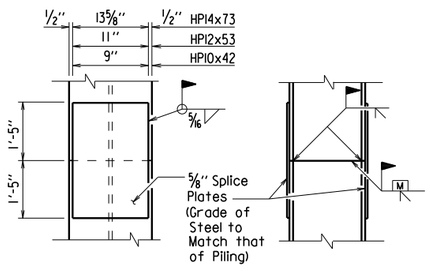
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



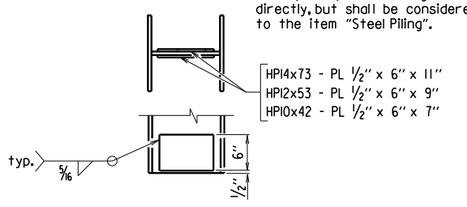
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

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

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

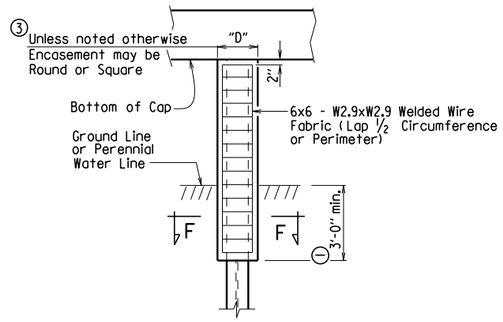
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

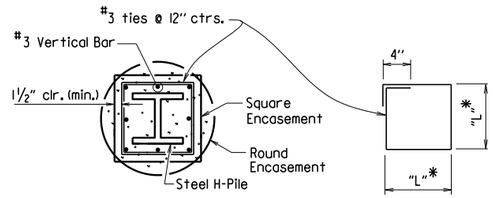
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

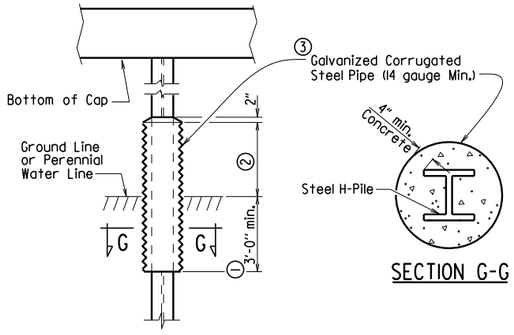


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

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

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

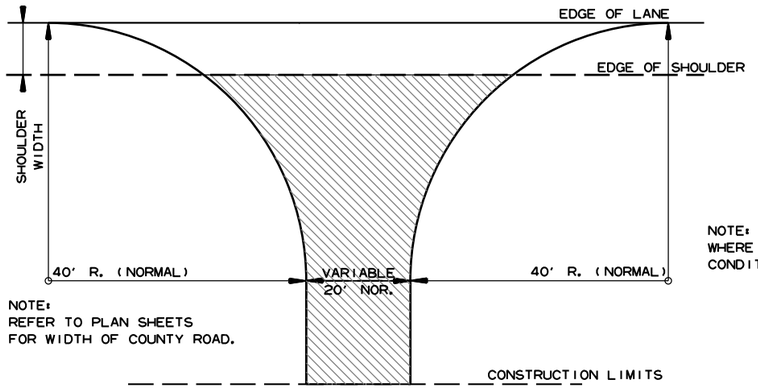
STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55020

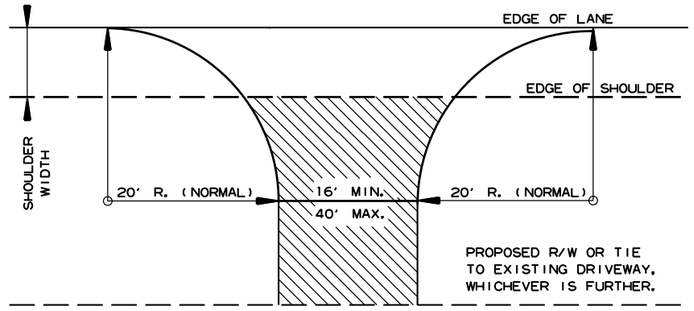


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

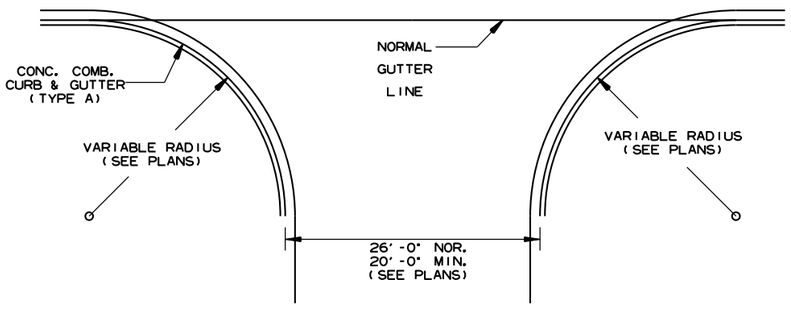
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

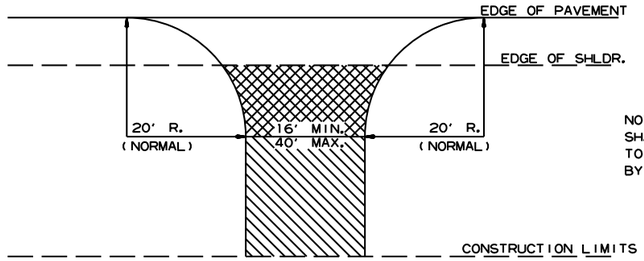
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

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

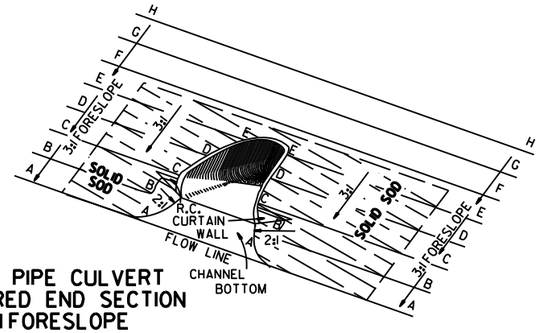
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

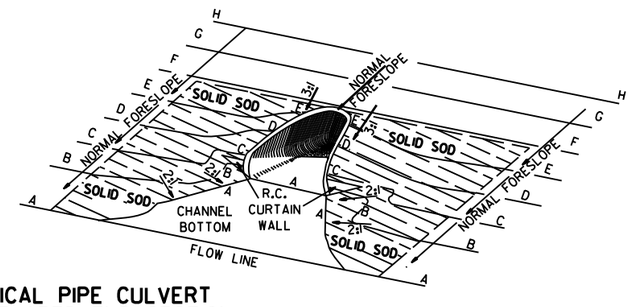
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

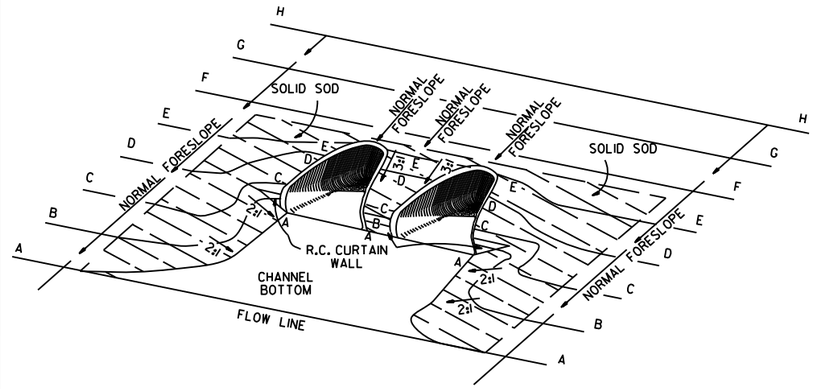
STANDARD DRAWING DR-2



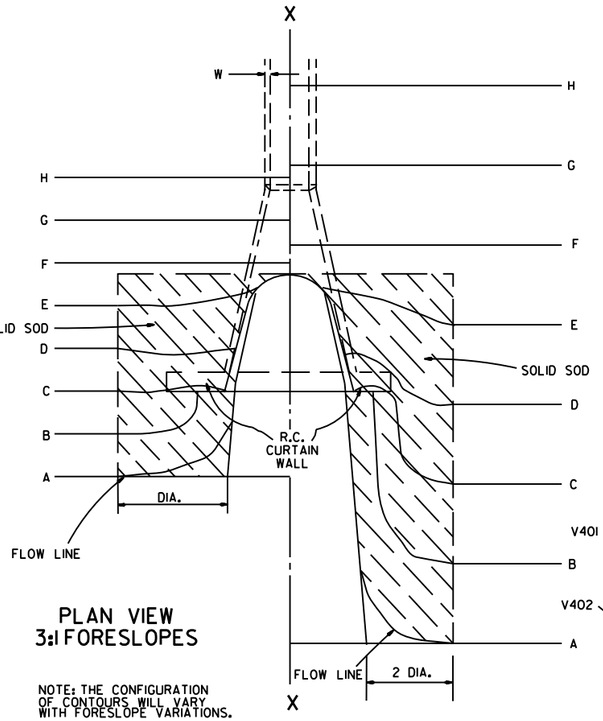
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



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

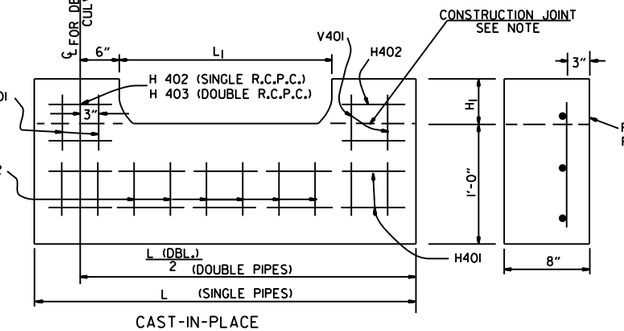
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

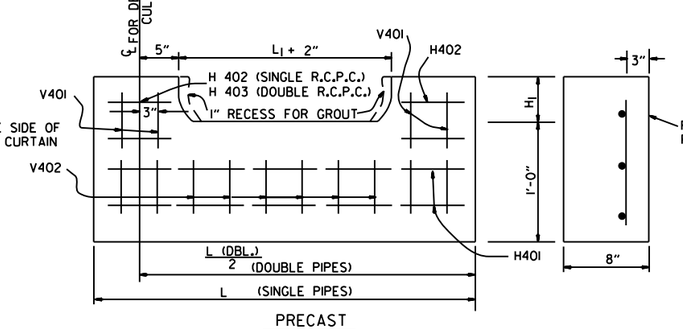
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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

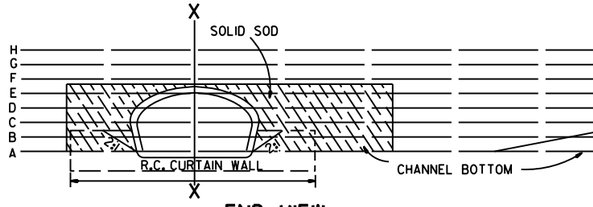
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



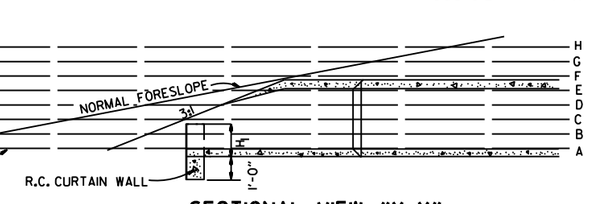
PRECAST

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



END VIEW



SECTIONAL VIEW "X-X"

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.

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

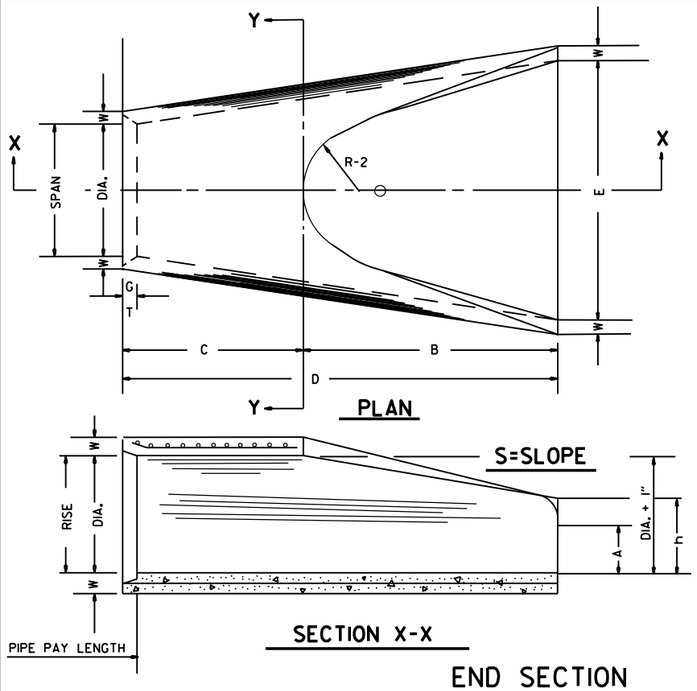
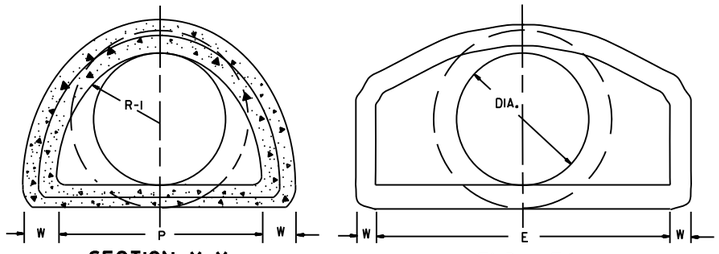


TABLE OF DIMENSIONS

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"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

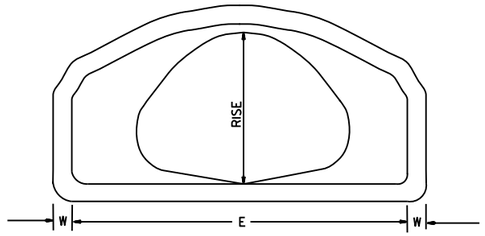


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

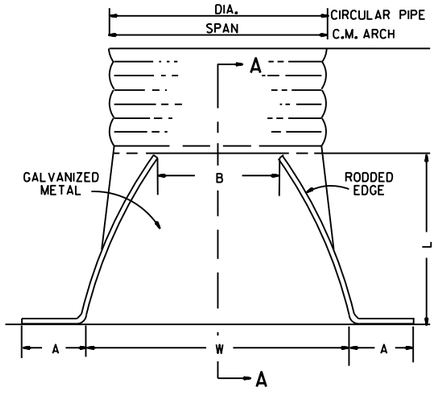
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½:1
36	43¾	44	26⅜	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

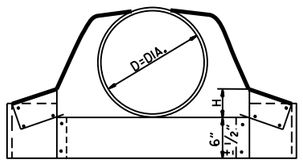
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

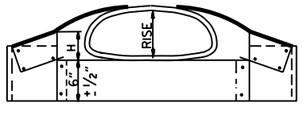


END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS







CIRCULAR PIPE

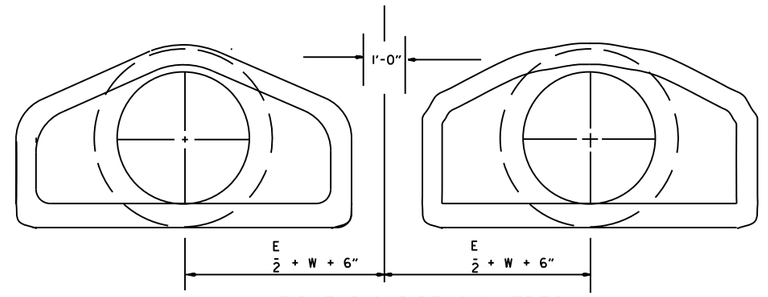
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

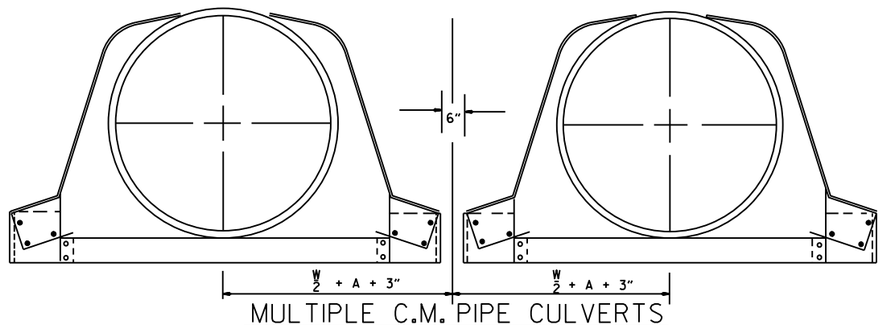
EQUIV. DIA.	SPAN	RISE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



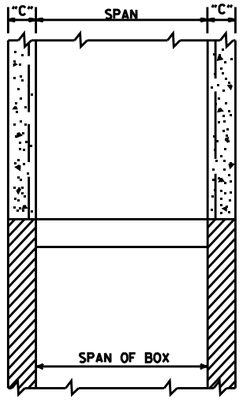
MULTIPLE C.M. PIPE CULVERTS

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

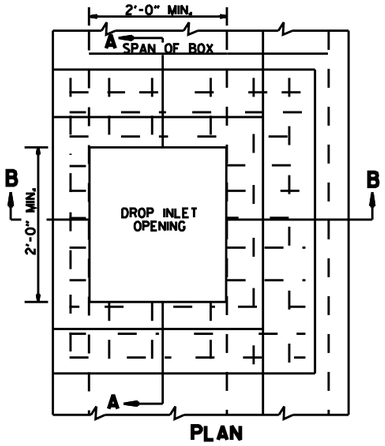
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

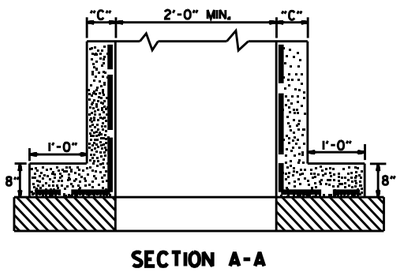
STANDARD DRAWING FES-2



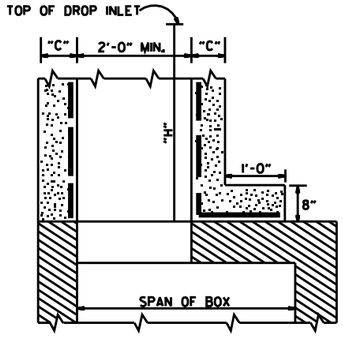
SECTION B-B



PLAN

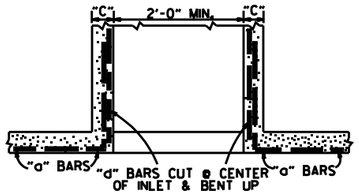


SECTION A-A

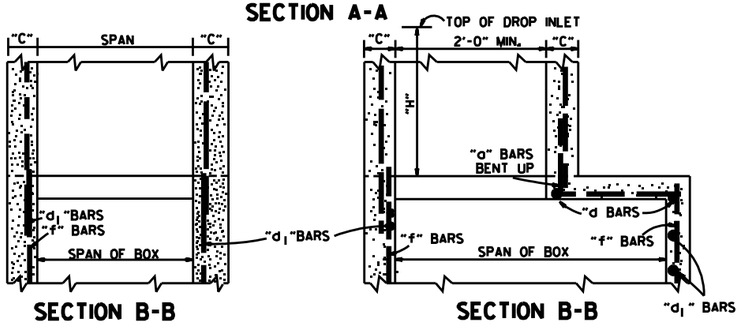


SECTION B-B

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



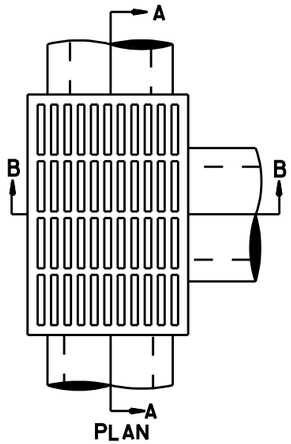
SECTION A-A



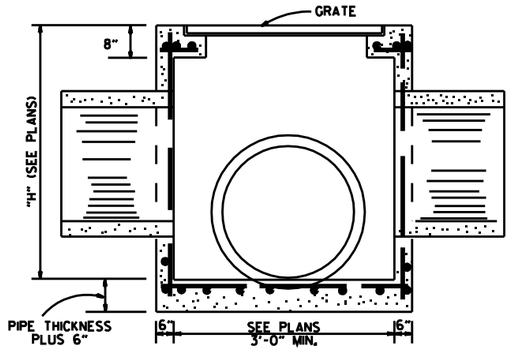
SECTION B-B SECTION B-B

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

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

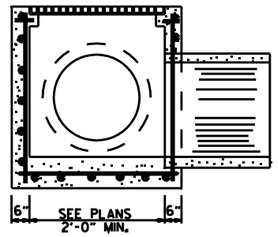


PLAN



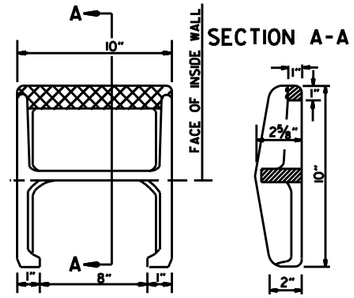
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)



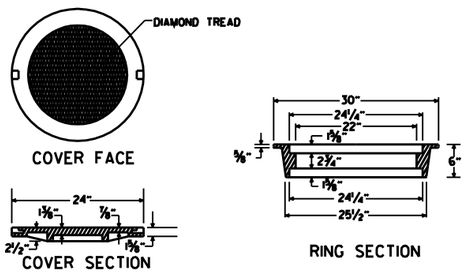
SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

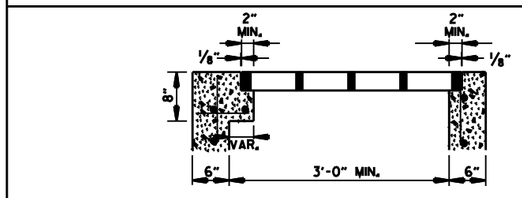
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

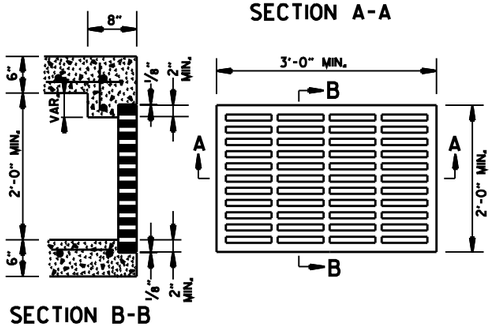


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



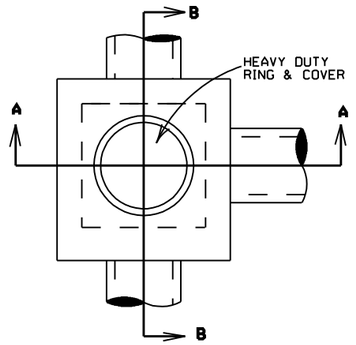
SECTION A-A



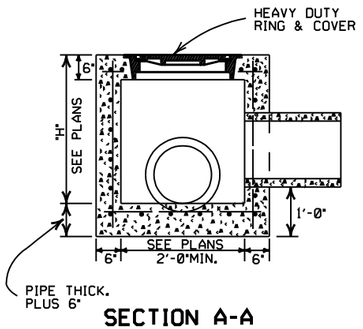
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

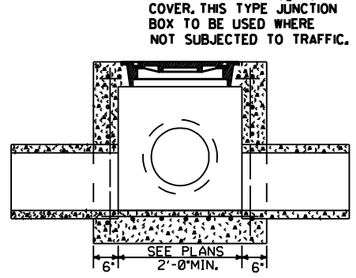


PLAN



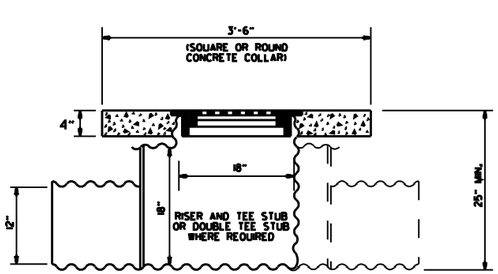
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

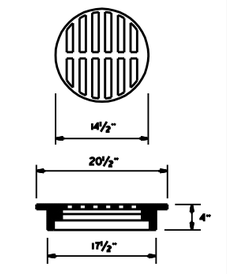


SECTION B-B

JUNCTION BOX (TYPE E)



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



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

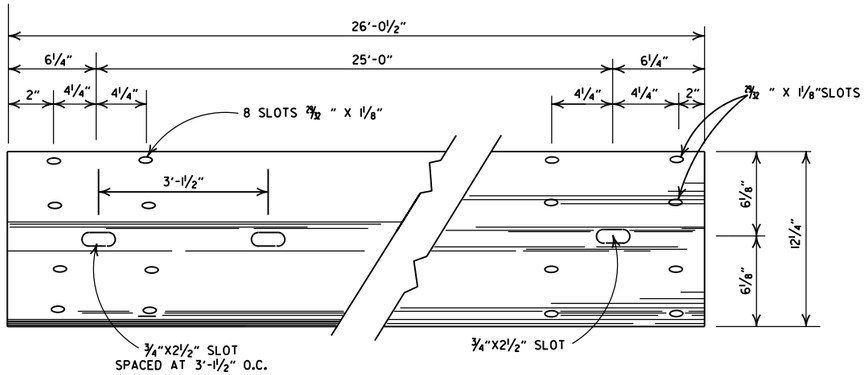
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

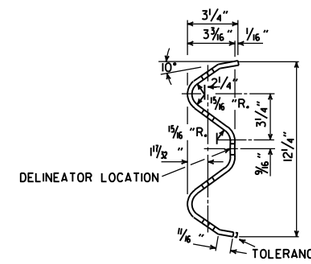
DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

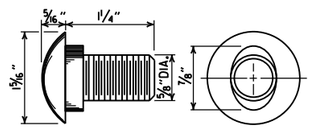
STANDARD DRAWING FPC-9



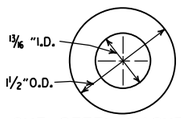


DETAILS OF W-BEAM GUARDRAIL

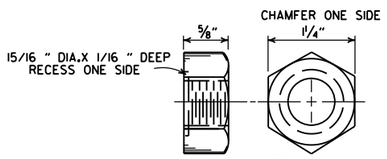
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



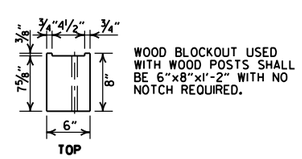
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

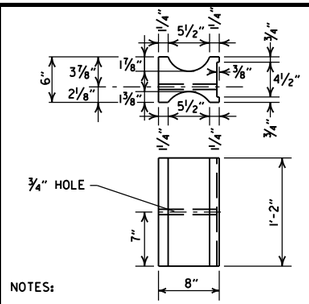


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

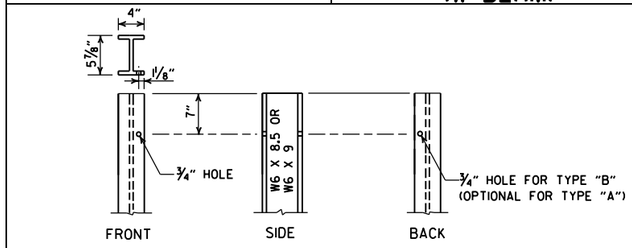
WOOD BLOCKOUT (W-BEAM)



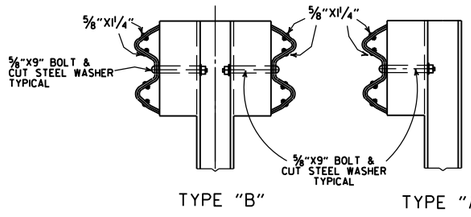
NOTES:

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.

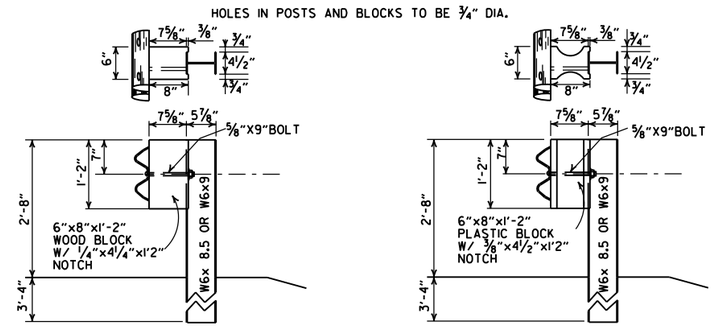
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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.

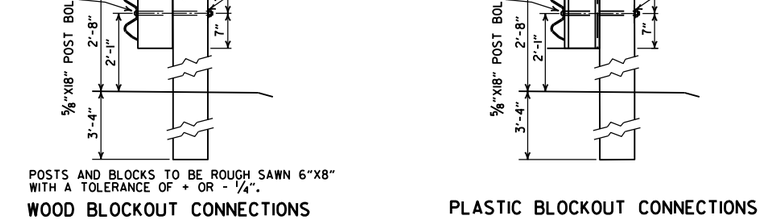
DELINEATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. 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

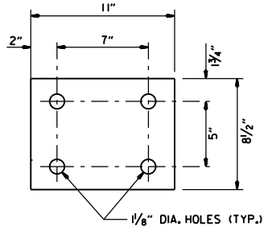
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

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

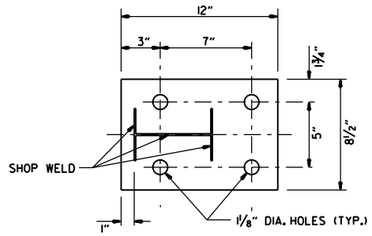
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-6

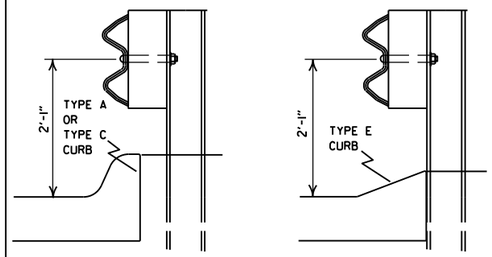


WASHER PLATE



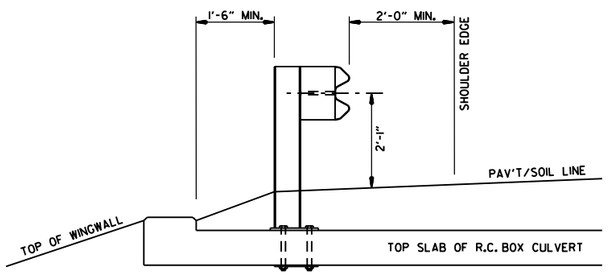
BASE PLATE

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

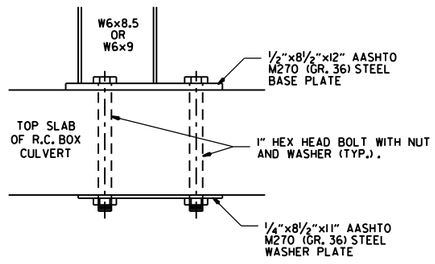


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

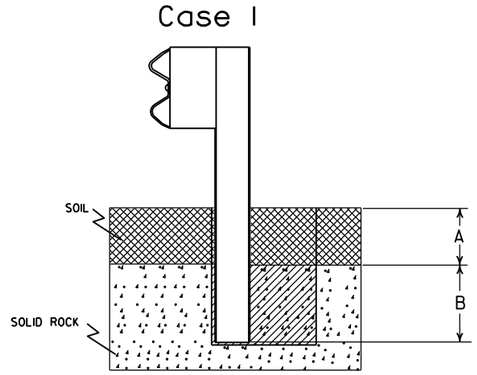
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

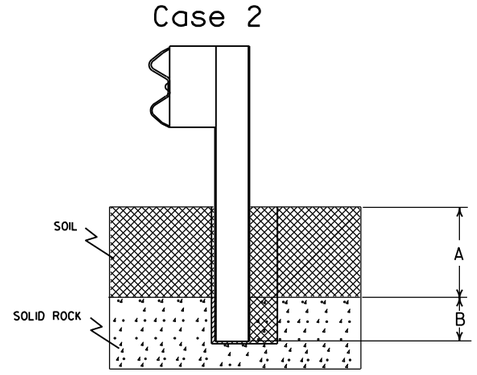


SECTION A-A



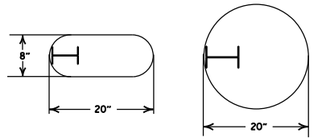
DETAIL OF CONNECTION

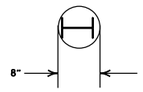




Plan View Steel Posts

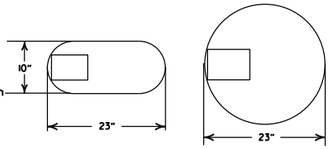
Either hole configuration acceptable

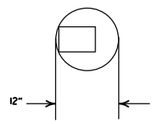




Plan View Wood Posts

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".

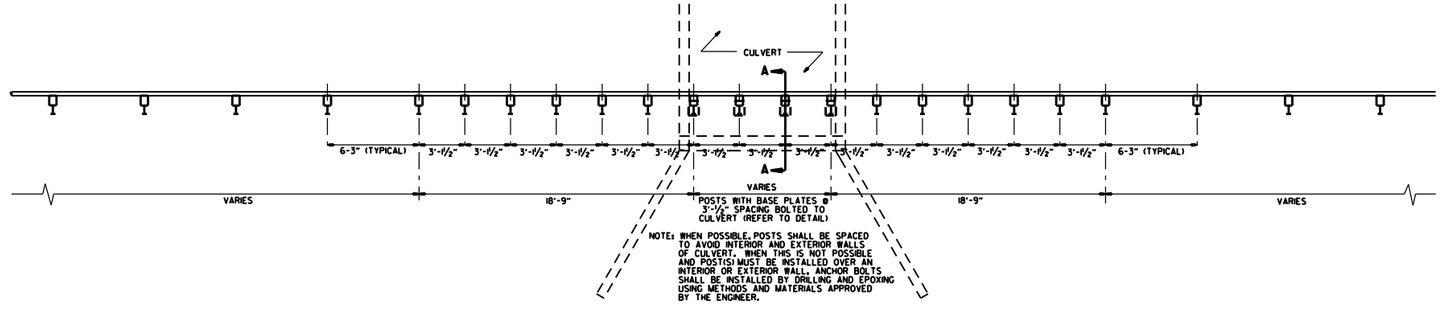
Zone A:
Backfill according to Section 617.03(a).

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.

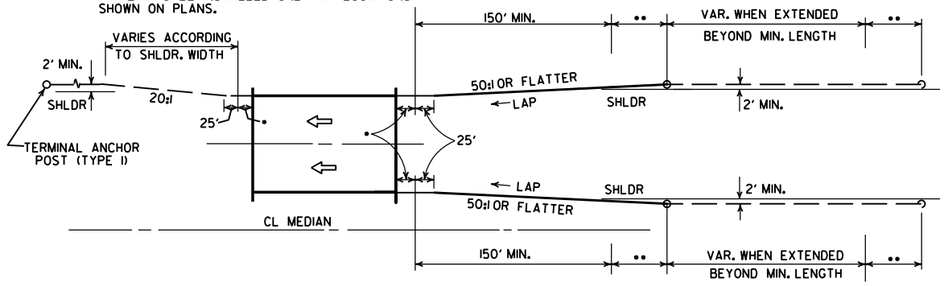
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST 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

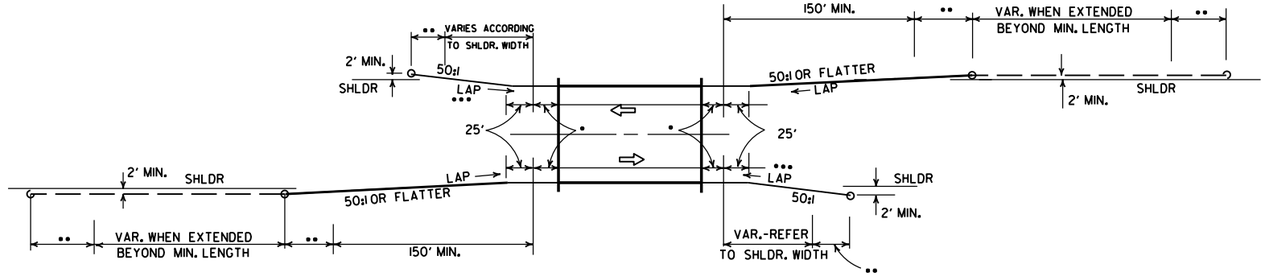
STANDARD DRAWING GR-7

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

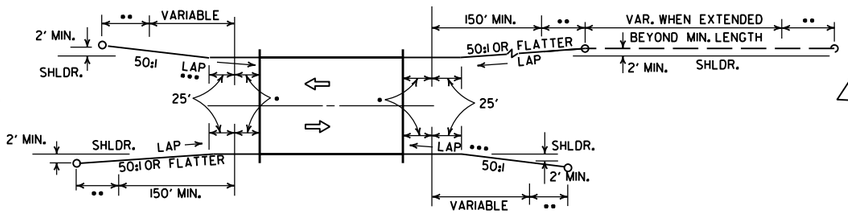
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

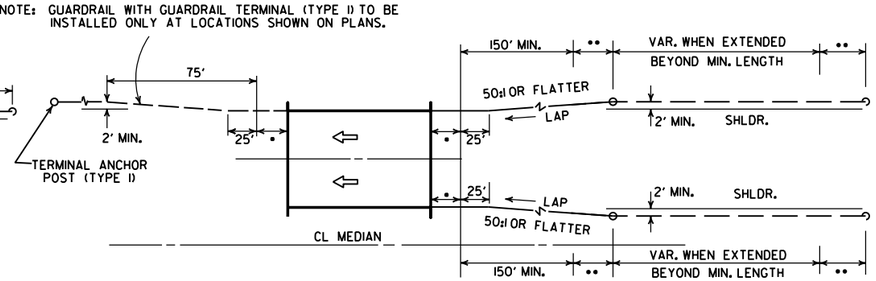
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

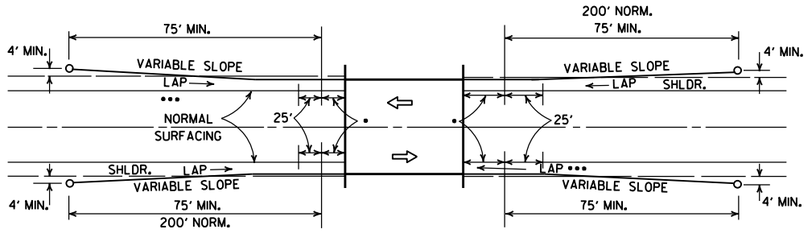
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



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

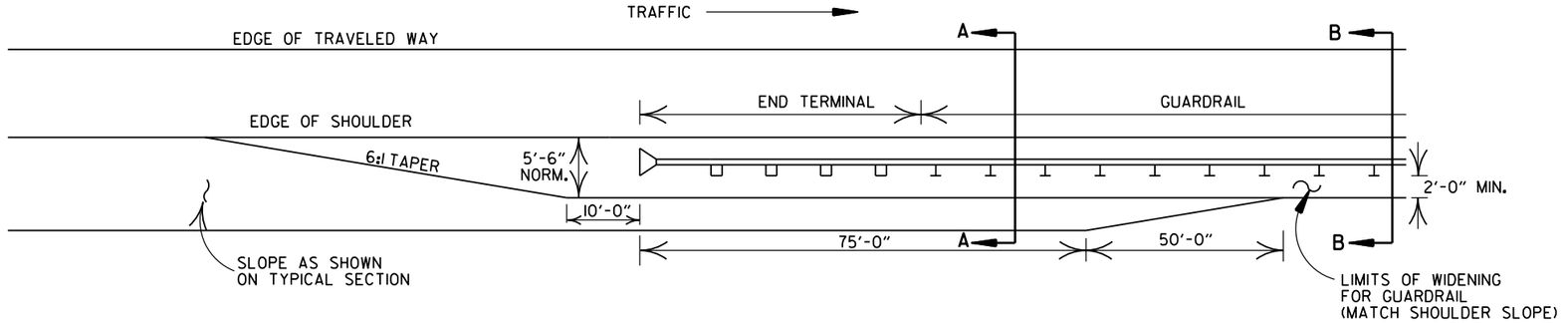
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

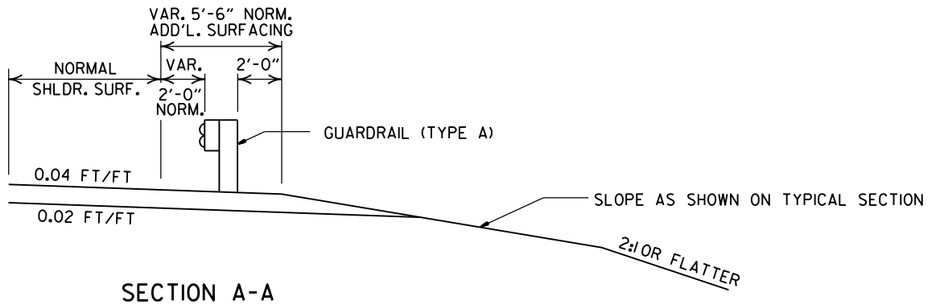
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

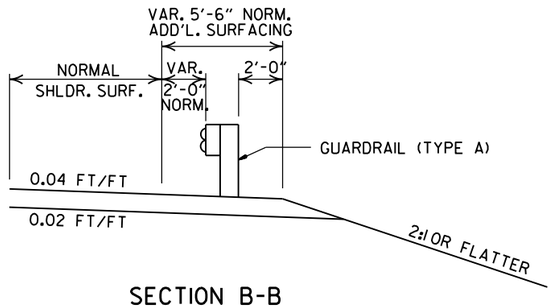
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



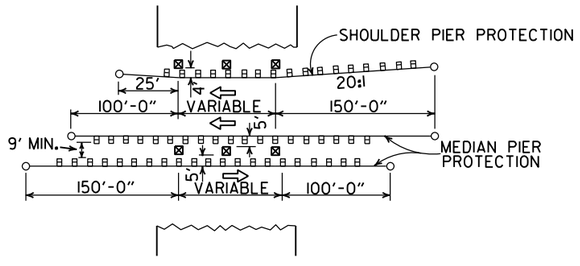


SECTION A-A



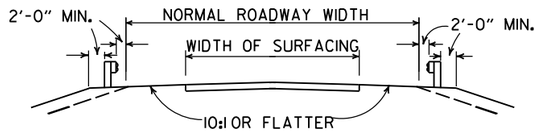
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

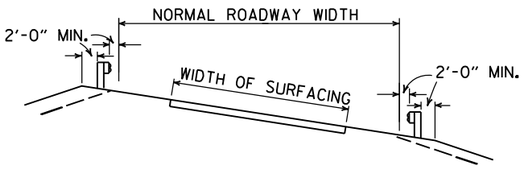


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

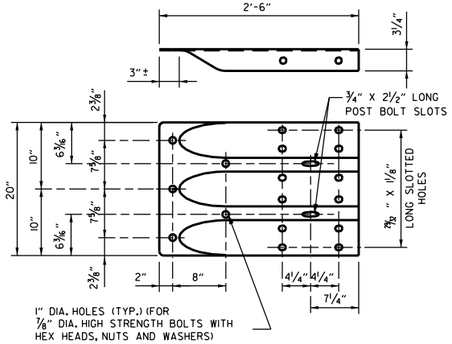
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

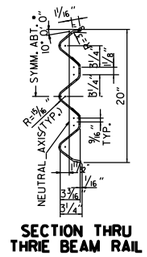
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

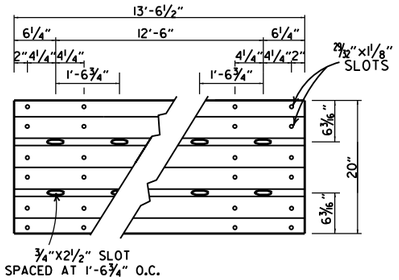
STANDARD DRAWING GR-9



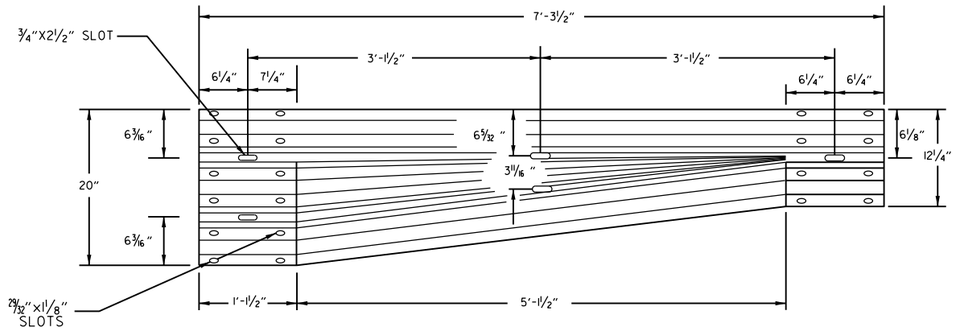
SPECIAL END SHOE



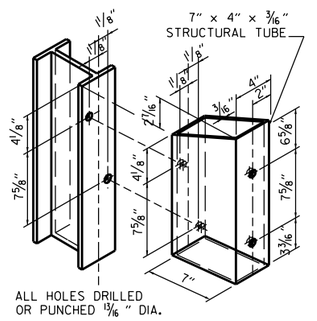
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

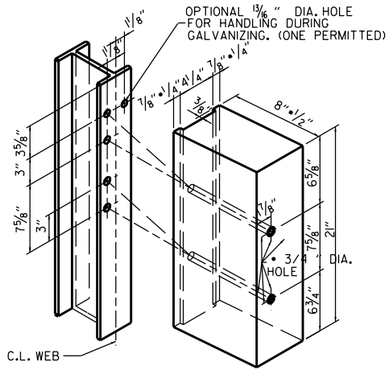


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

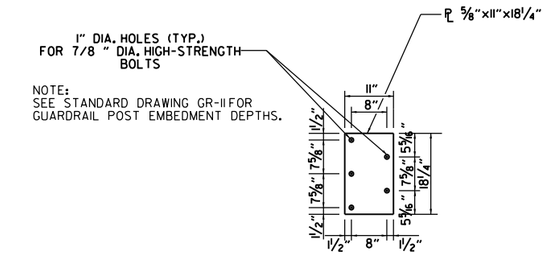
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

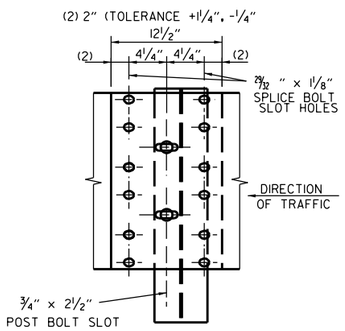
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



NOTE:
SEE STANDARD DRAWING GR-11 FOR GUARDRAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

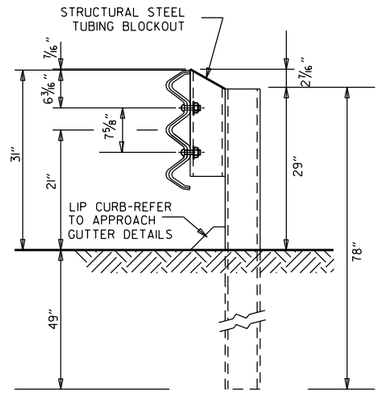
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

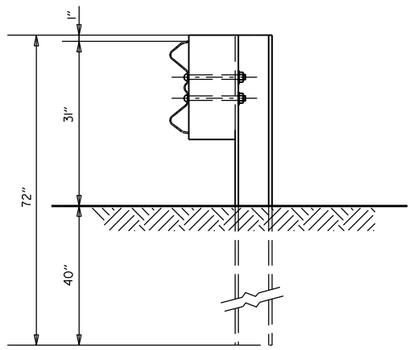
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

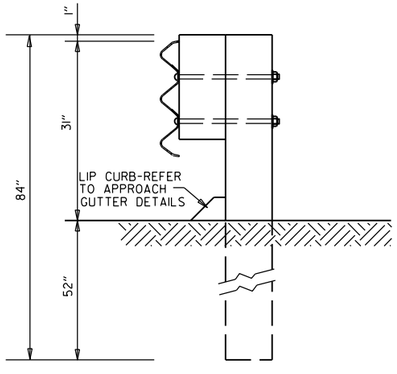
STANDARD DRAWING GR-10



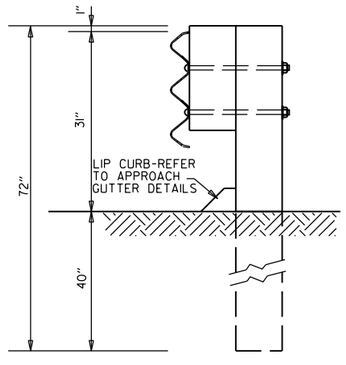
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



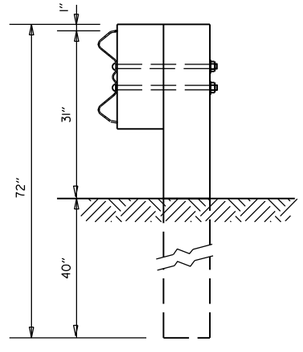
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

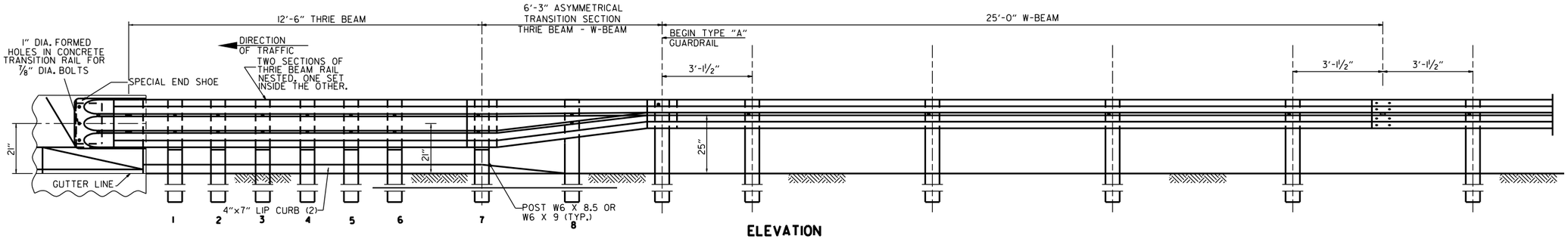
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

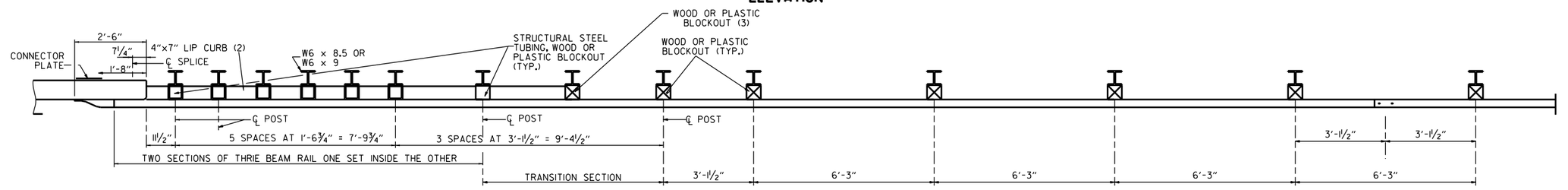
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

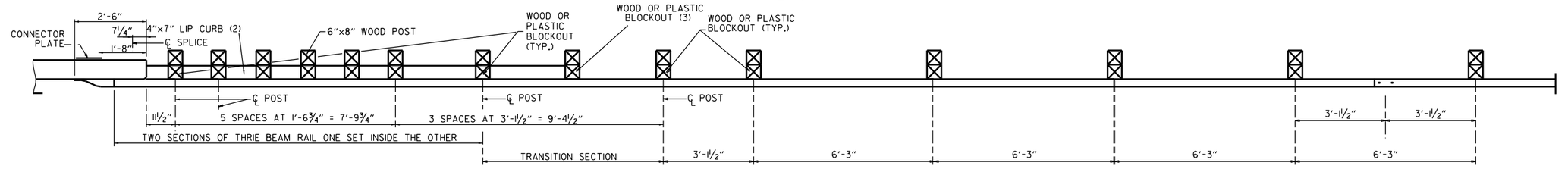
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

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

DATE	REVISION	FILMED
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

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.

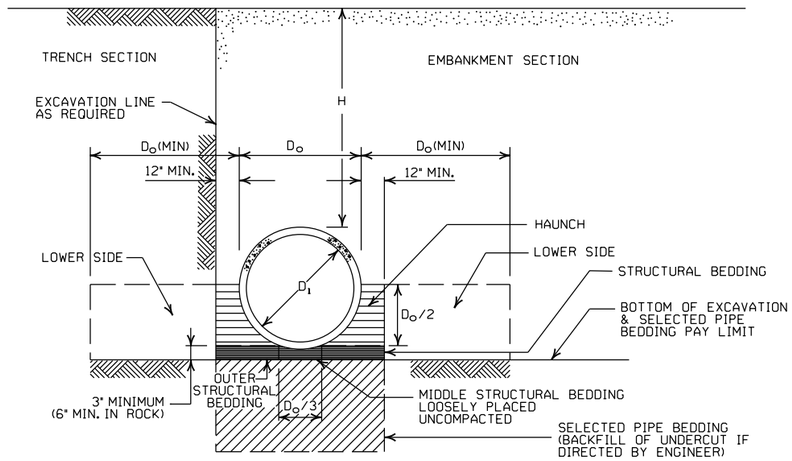
- LEGEND -

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

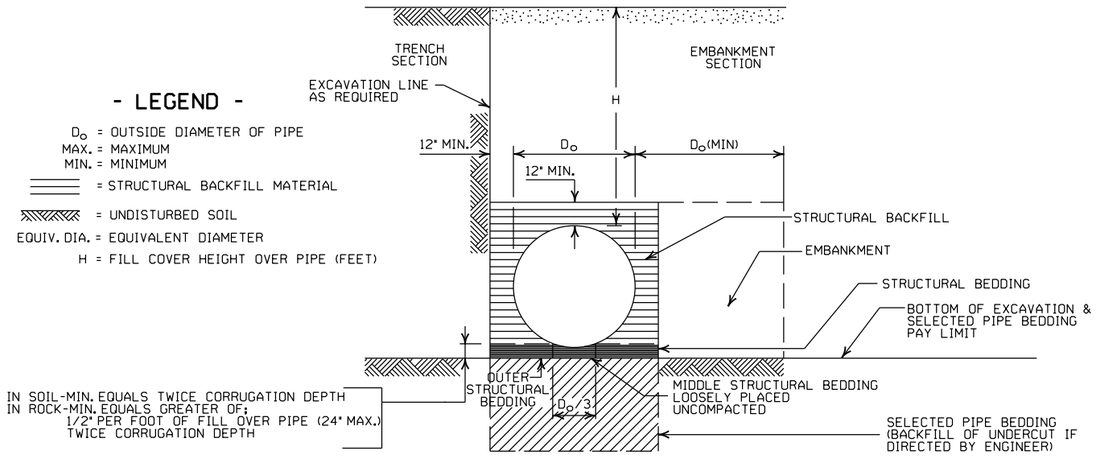
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1		INSTALLATION TYPE 2	INSTALLATION TYPE 1
36	40x31	5	0.079	3	2		12	15
42	46x36	6	0.079	3	2		13	15
48	53x41	7	0.079	3	2		13	15
54	60x46	8	0.079	3	2		13	15
60	66x51	9	0.079	3	2		13	15
66	73x55	12	0.079	3	2		15	15
72	81x59	14	0.079	3	2		15	15
78	87x63	14	0.079	3	2		15	15
84	95x67	16	0.109	3	2		15	15
90	103x71	16	0.109	3	2		15	15
96	112x75	18	0.109	3	2		15	15
102	117x79	18	0.109	3	2		15	15
108	128x83	18	0.138	3	2		15	15

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- 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"

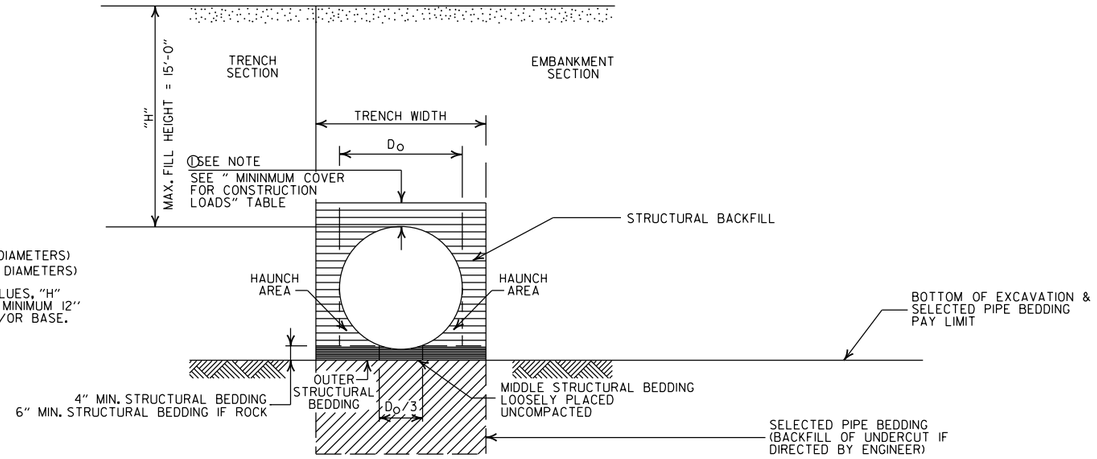
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

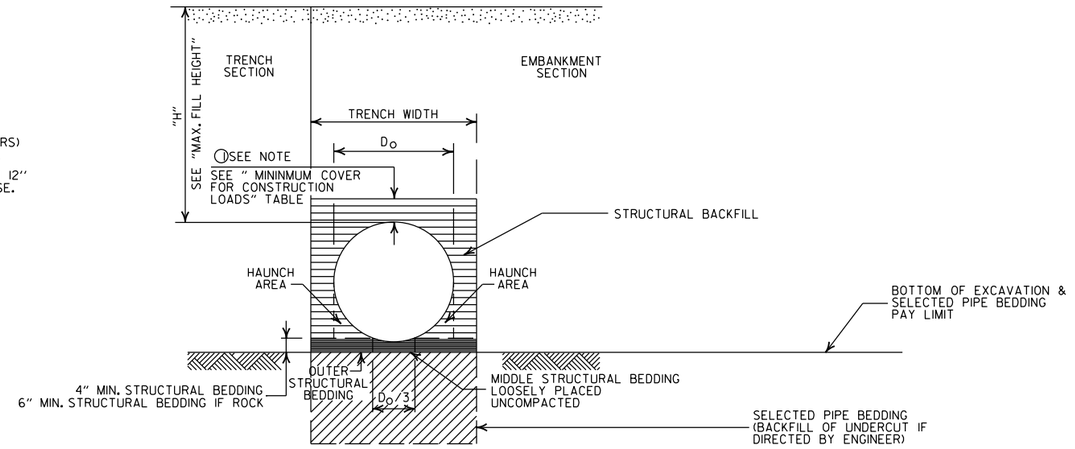
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

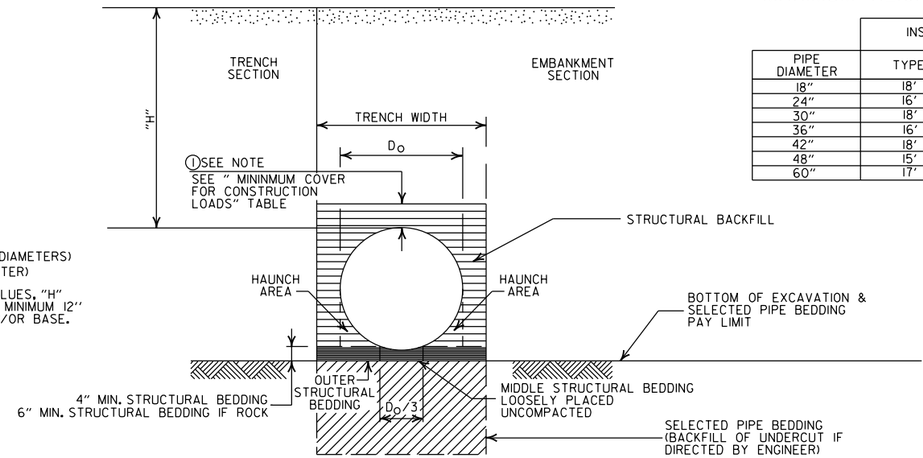
MINIMUM COVER FOR CONSTRUCTION LOADS

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.

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'

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

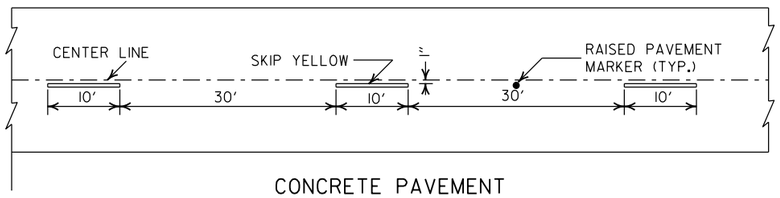
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

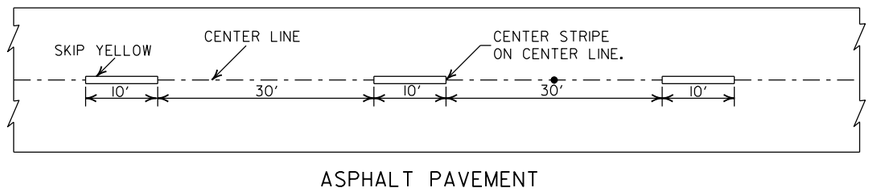
PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

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

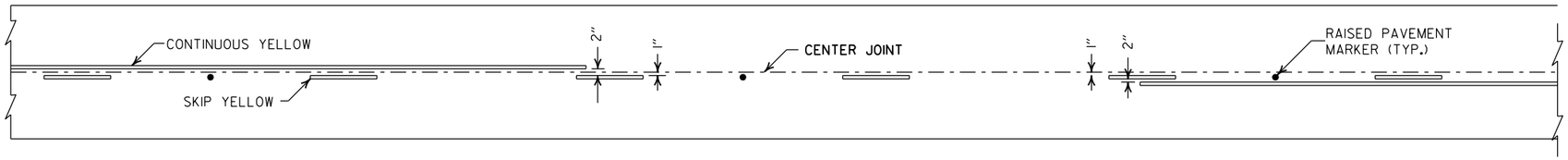


CONCRETE PAVEMENT

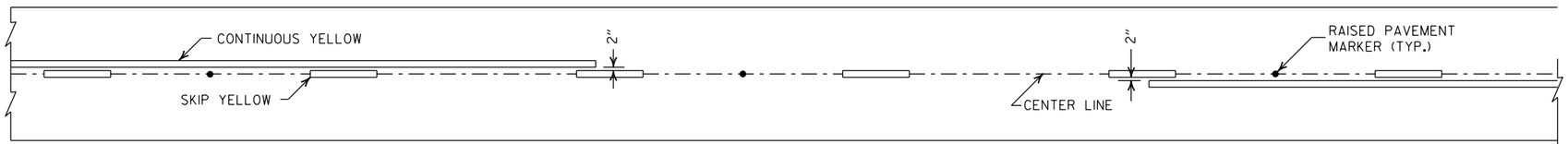


ASPHALT PAVEMENT

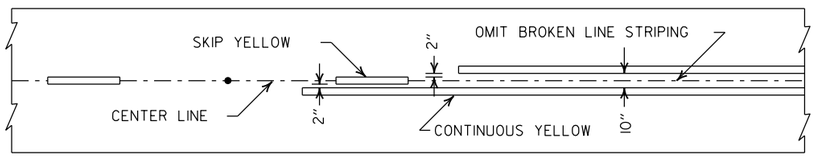
BROKEN LINE STRIPING



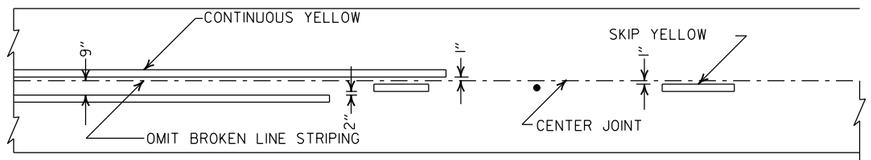
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

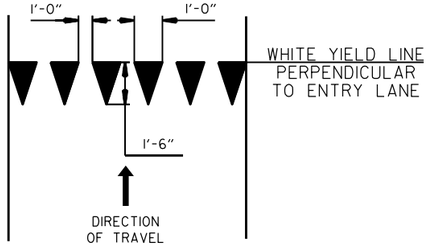


ASPHALT PAVEMENT

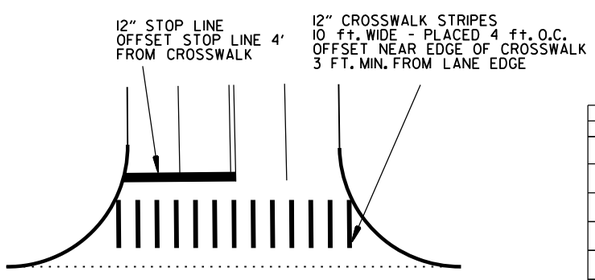


CONCRETE PAVEMENT

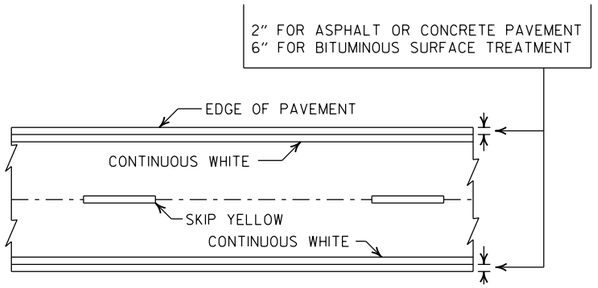
STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL



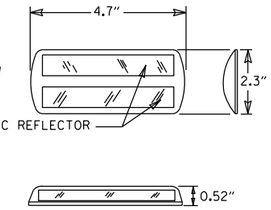
CROSSWALK AND STOP LINE DETAILS



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

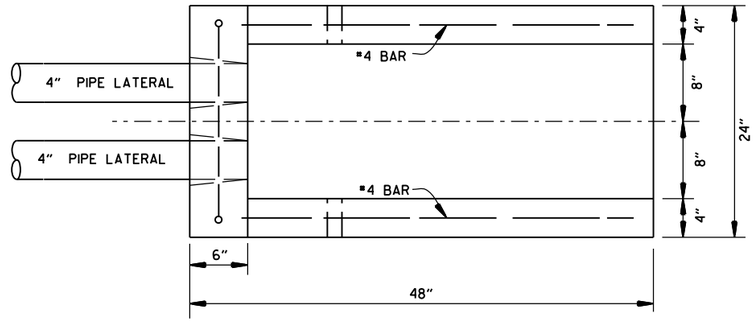
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

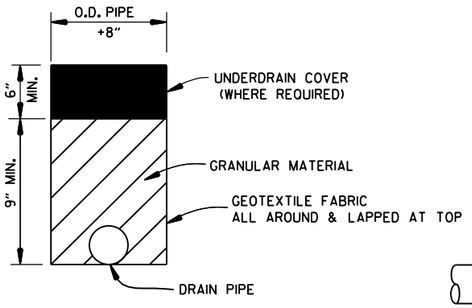
NOTE:

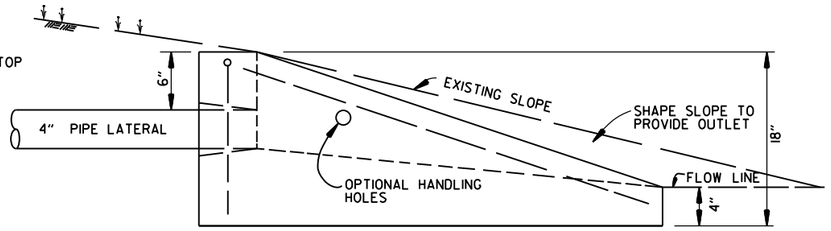
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

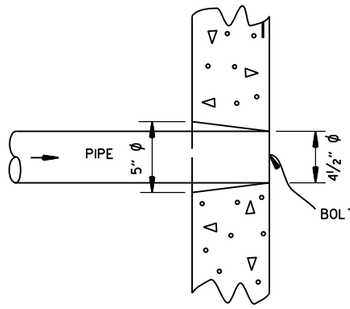


PLAN VIEW

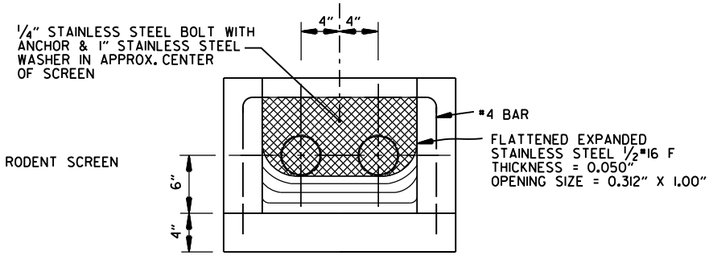




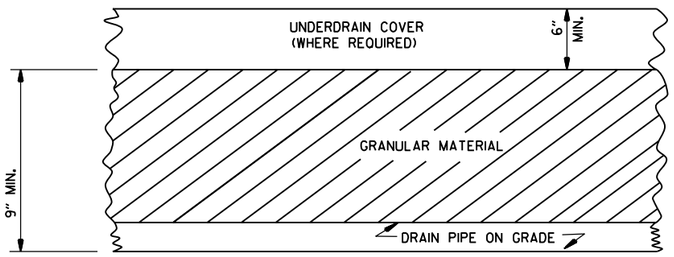
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

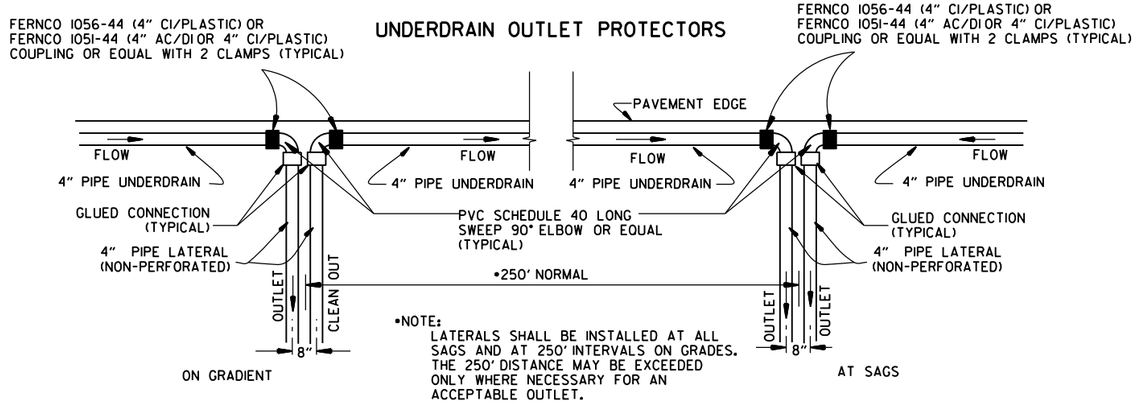


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

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.

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

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

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	200	0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259	300	0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198	250	0.086	239		0.096	278		D MAX = 6° 30'														
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283																
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252	300	0.100	288																
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		D MAX = 8° 25'																	
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																			
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																				
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250	D MAX = 19° 30'																										
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												

D MAX = 28° 30'

GENERAL NOTES

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

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

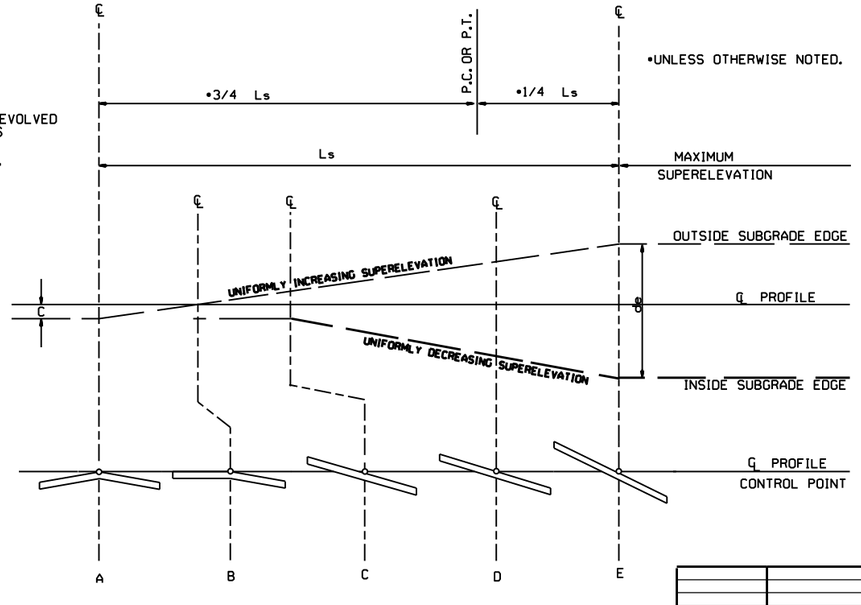
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

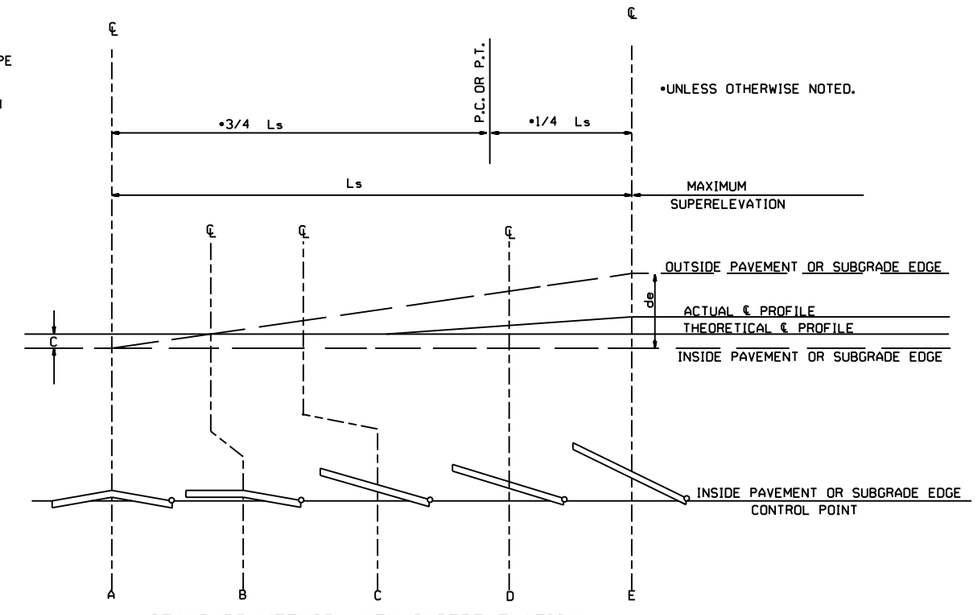
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

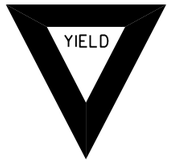
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

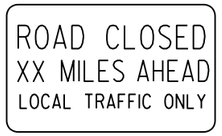
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

W21-5a

STD. 36"X36"
FWY. 48"X48"

WI-1

STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

WI-3

STD. 48"X48"

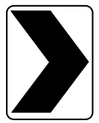
WI-4

STD. 48"X48"

WI-6

STD. 48"X24"
SPECIAL 60"X30"

WI-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

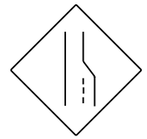
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

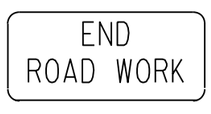
W8-9

STD. 36"X36"
FWY. 48"X48"

G20-1

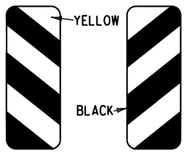
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

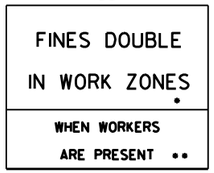
M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

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

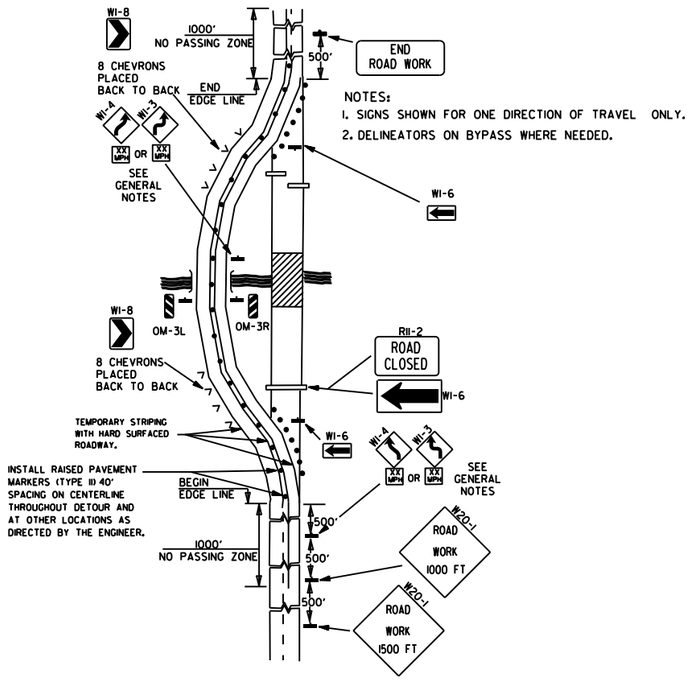
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

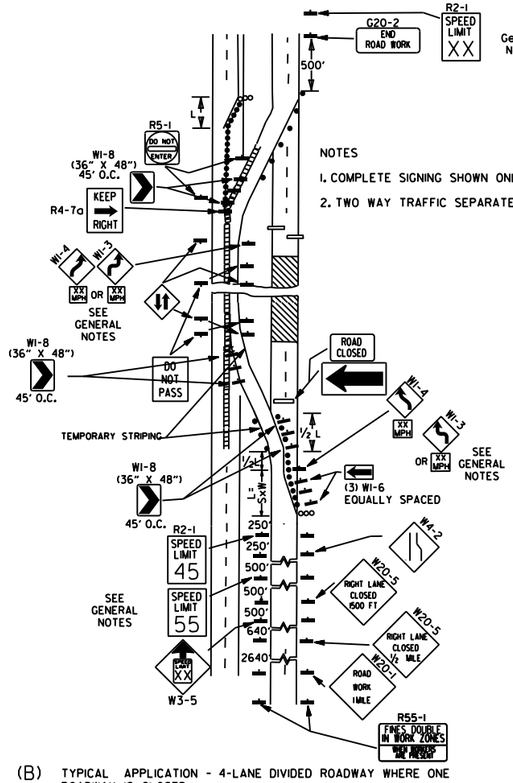
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



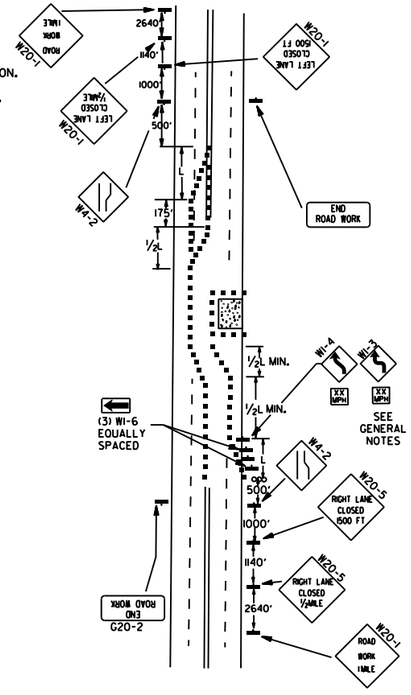
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

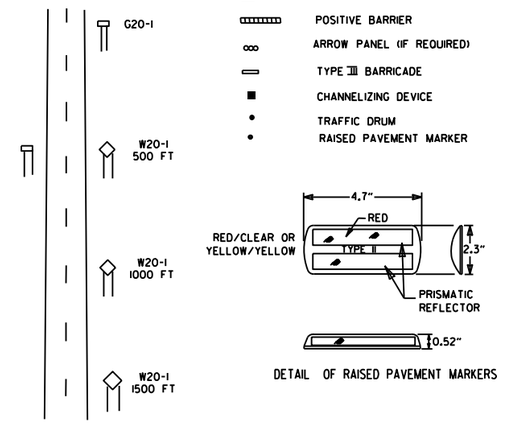


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

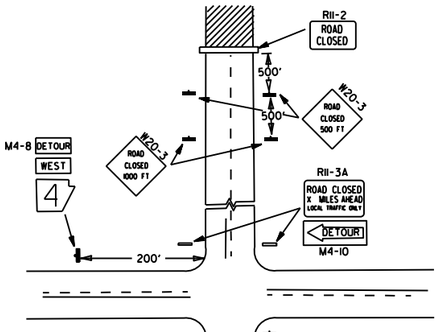
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

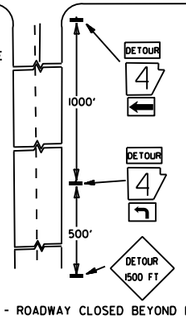
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

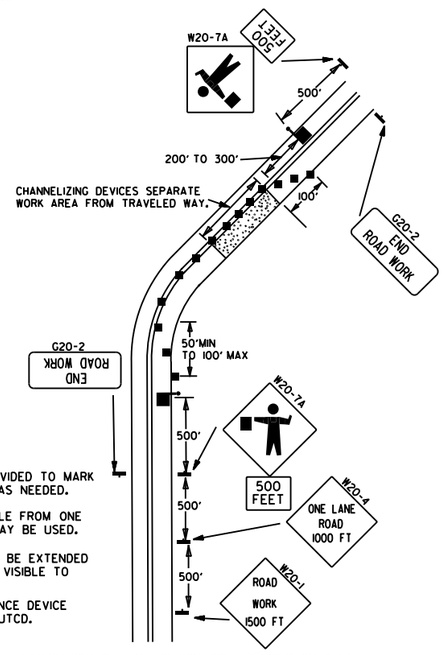
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 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. 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.

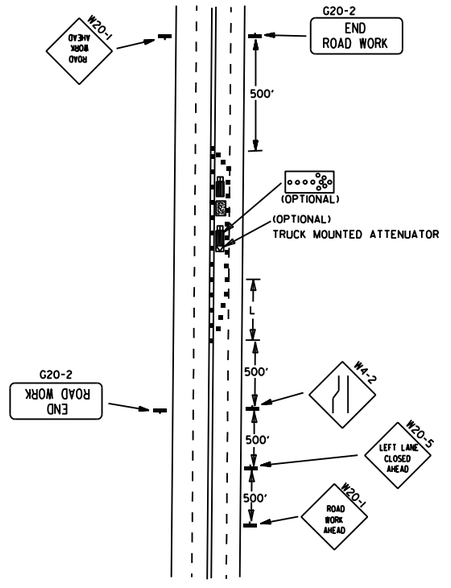


(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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.



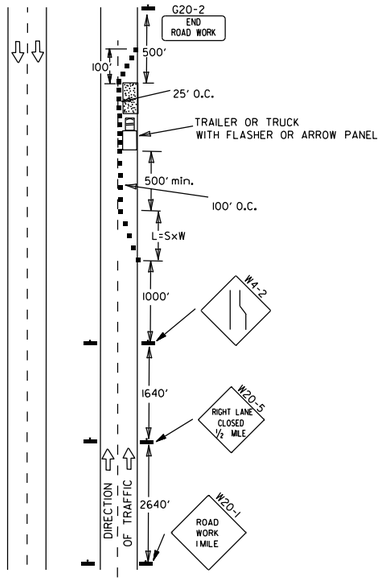
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	

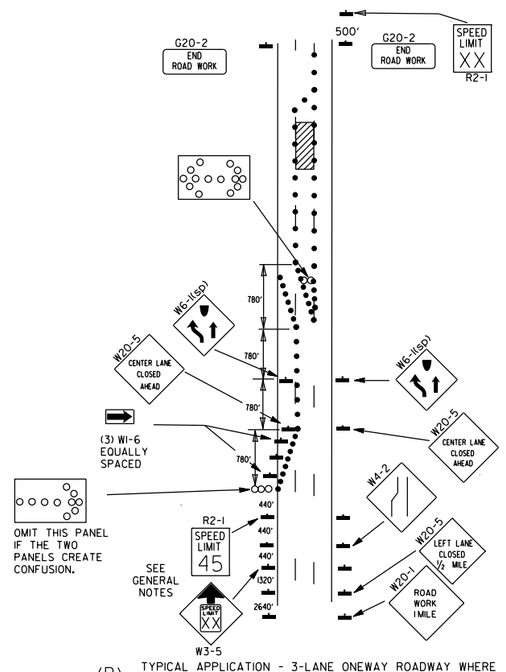
ARKANSAS STATE HIGHWAY COMMISSION

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.



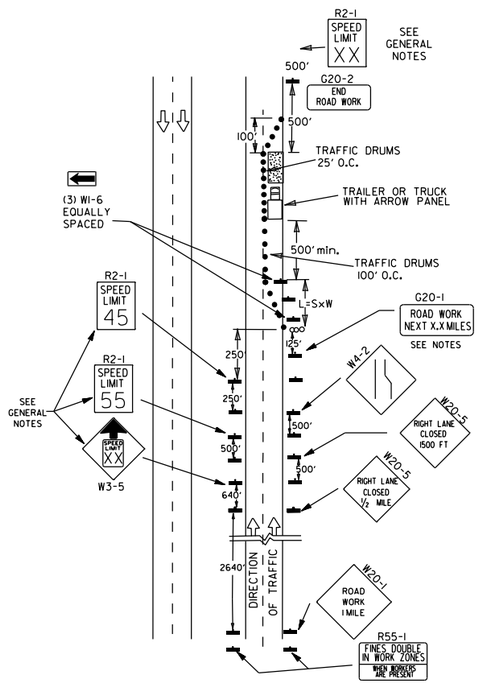
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

- ARROW PANEL (IF REQUIRED)
- ■ CHANNELIZING DEVICE
- ● TRAFFIC DRUM

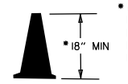
GENERAL NOTES:

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).



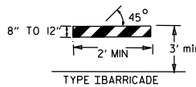
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



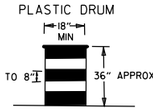
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

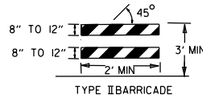
CONES



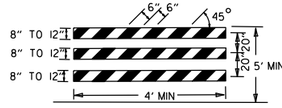
TYPE I BARRICADE

PLASTIC DRUM



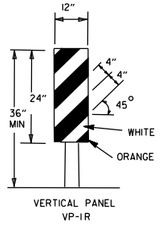


TYPE II BARRICADE



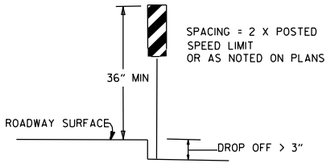
TYPE III BARRICADE

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

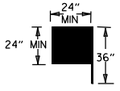


VERTICAL PANEL VP-1R

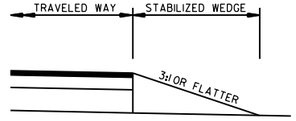
VERTICAL PANEL PLACEMENT



FLAG



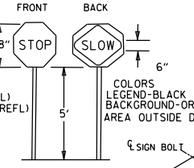
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

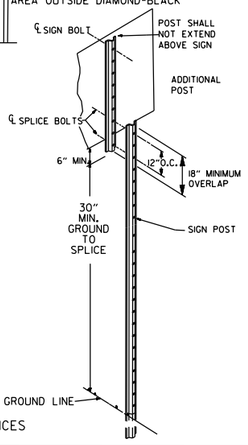


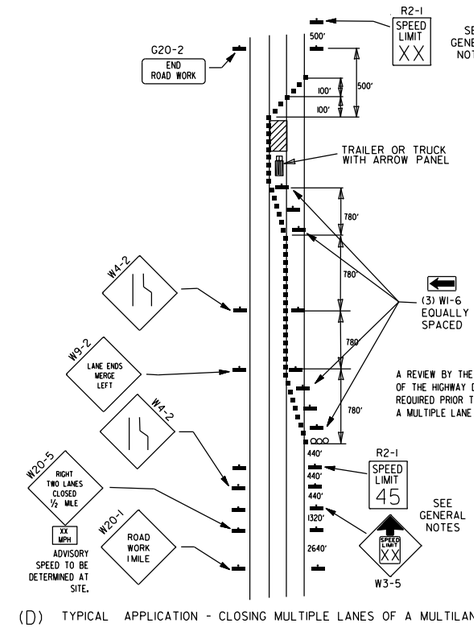
STABILIZED WEDGE

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

STOP SLOW PADDLE







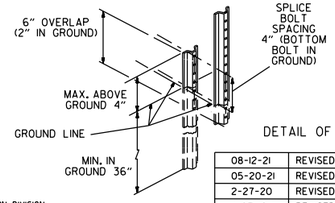
A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

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

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).

DATE	REVISION	FILMED
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES	
05-20-21	REVISED NOTE 10	
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

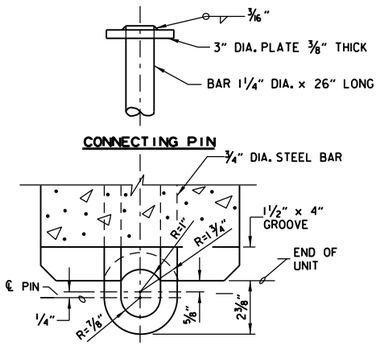
ARKANSAS STATE HIGHWAY COMMISSION

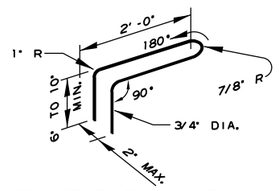
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

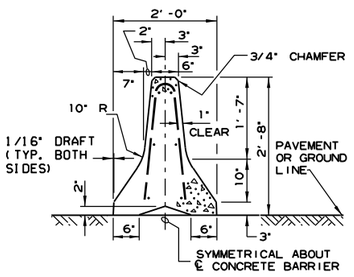
STANDARD DRAWING TC-3

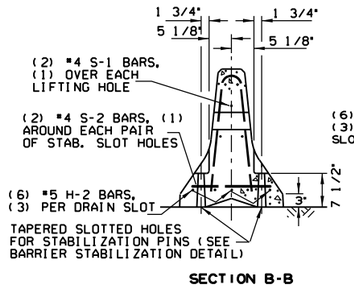
REINFORCING BAR TABLE PER BARRIER UNIT

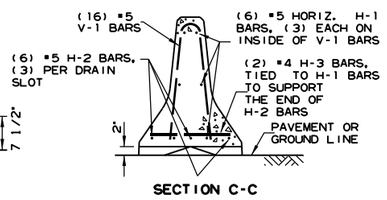
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8"

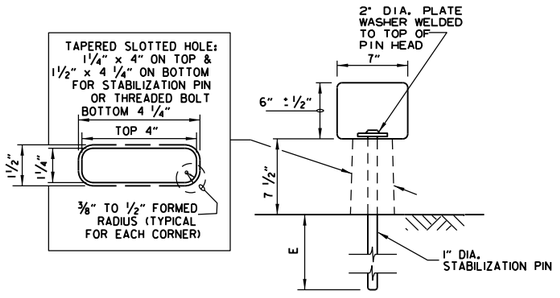




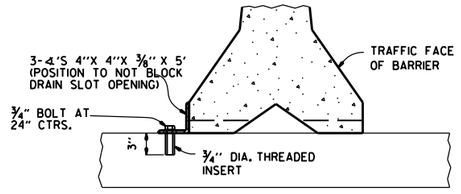






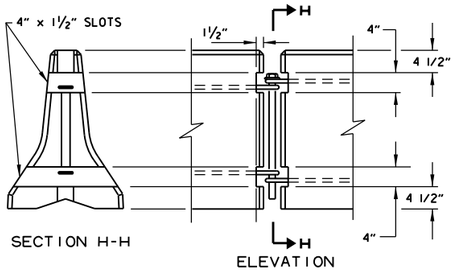


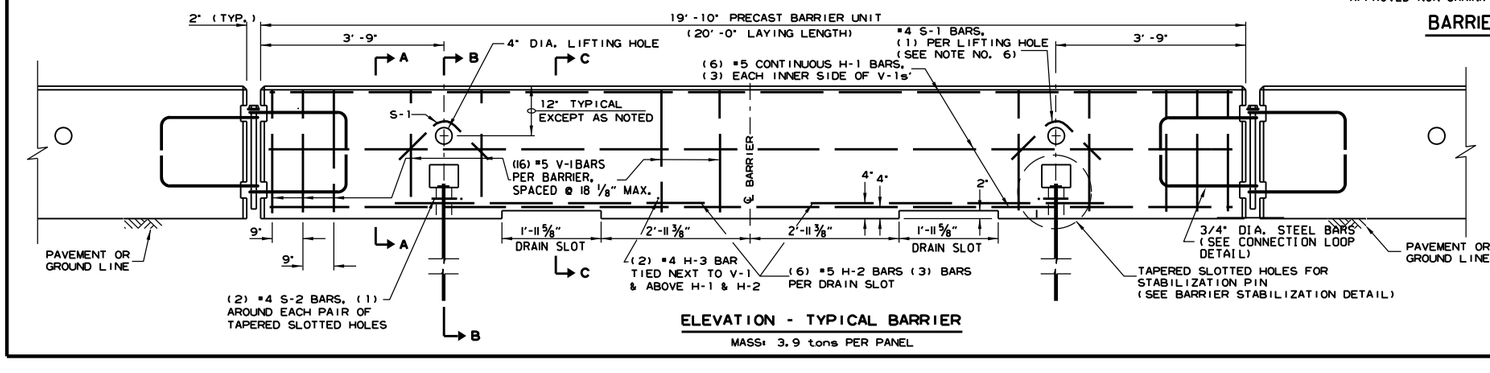
Ⓔ 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



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

BARRIER STABILIZATION DETAIL
BRIDGE DECKS





MASS: 3.9 tons PER PANEL

GENERAL NOTES

1. THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

2. MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
   CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
   REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
   STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
   DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

   IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
   DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
   PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

3. OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

4. DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

5. ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

6. A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

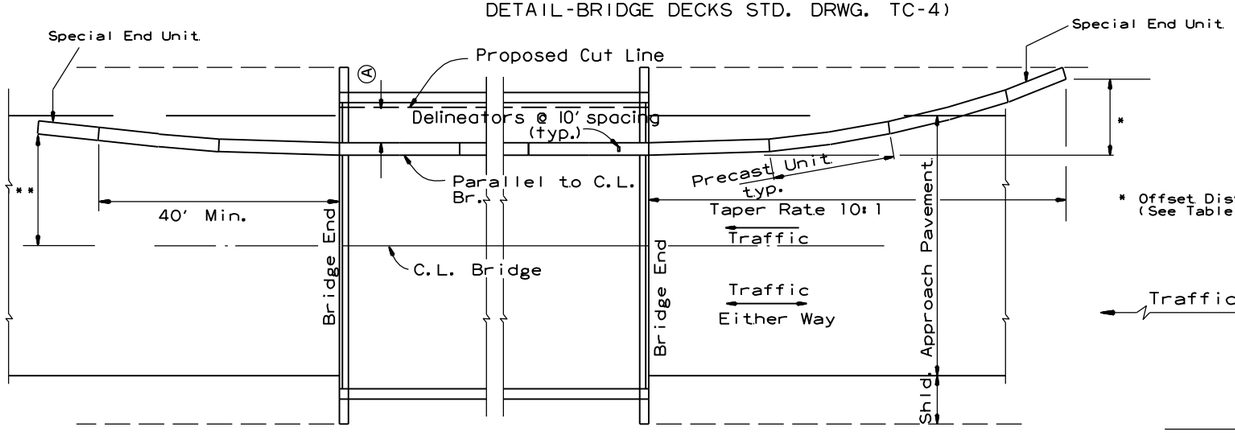
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

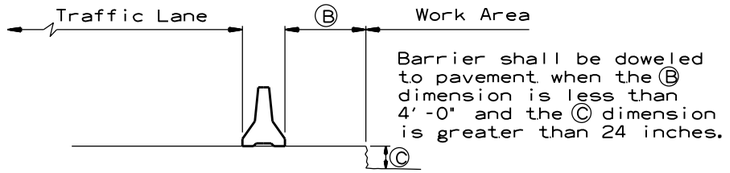
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

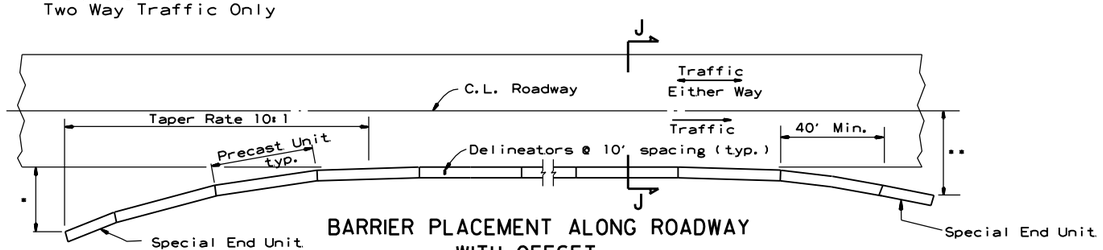
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

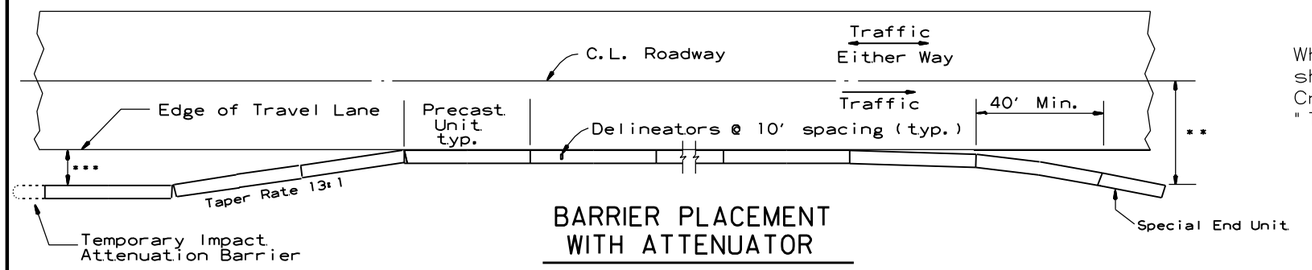
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

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

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

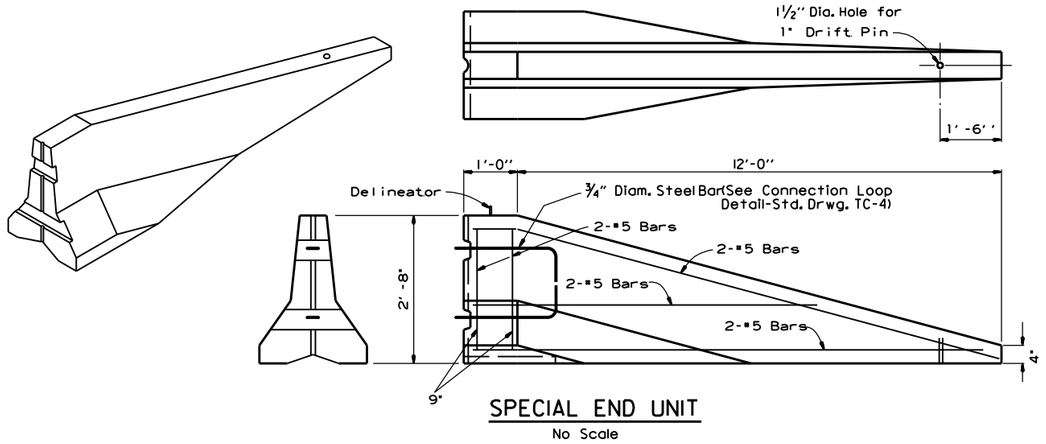


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

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

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

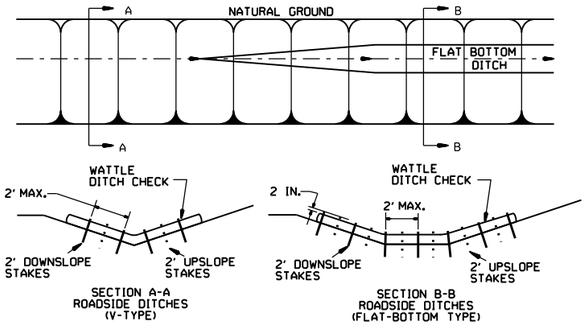
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

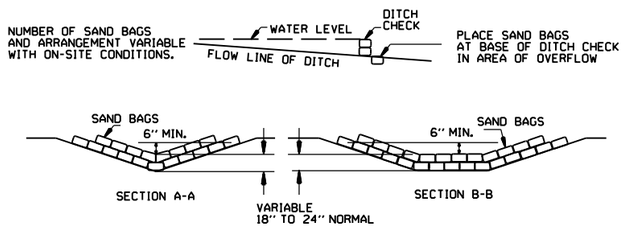
STANDARD DRAWING TC-5

GENERAL NOTES

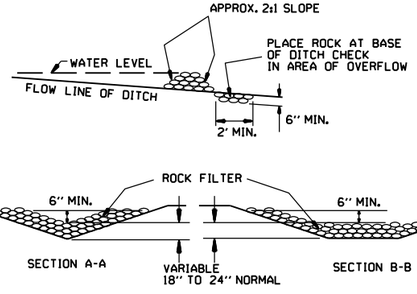
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

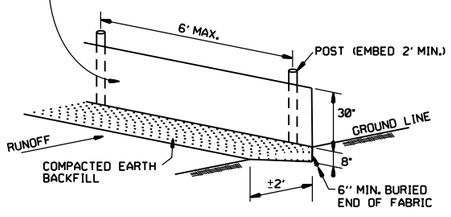


ROCK DITCH CHECK (E-6)

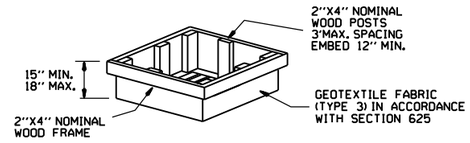
GENERAL NOTES

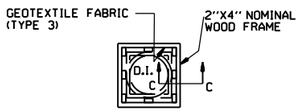
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

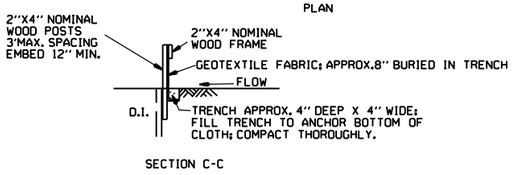
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



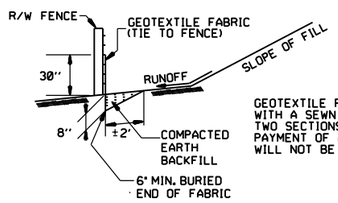
SILT FENCE (E-11)





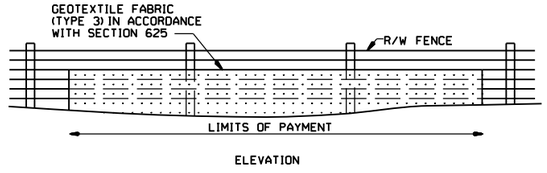


DROP INLET SILT FENCE (E-7)



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.



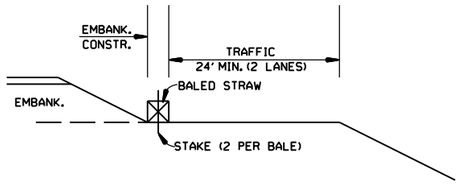
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

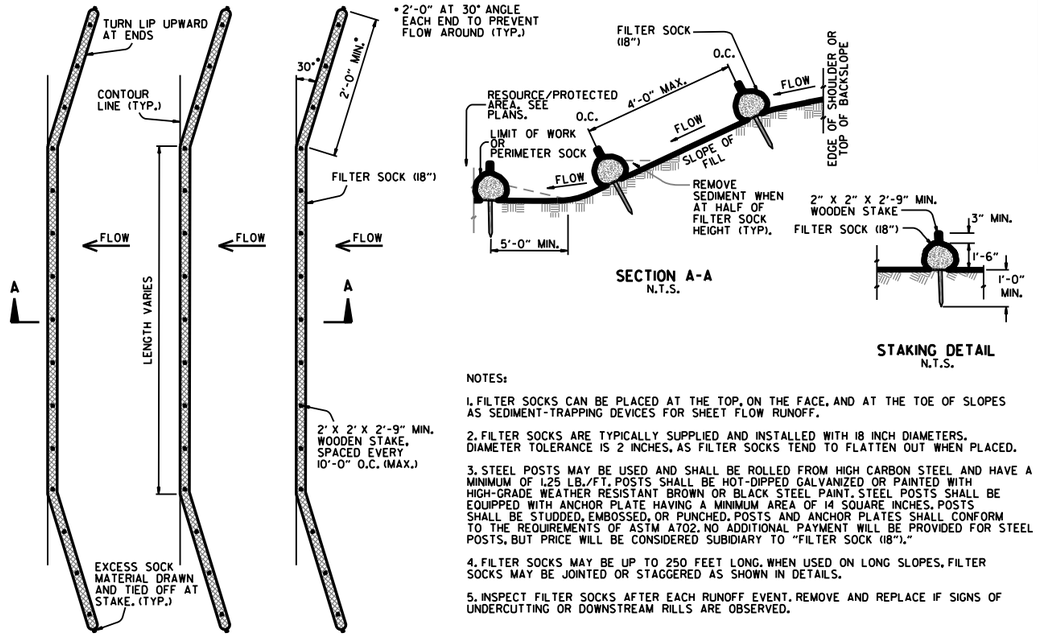
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

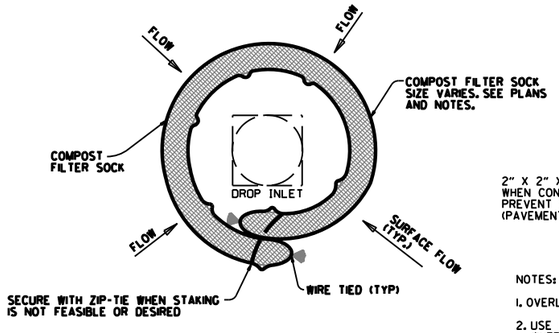
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

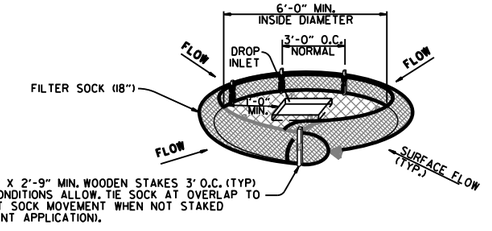
3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. 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.

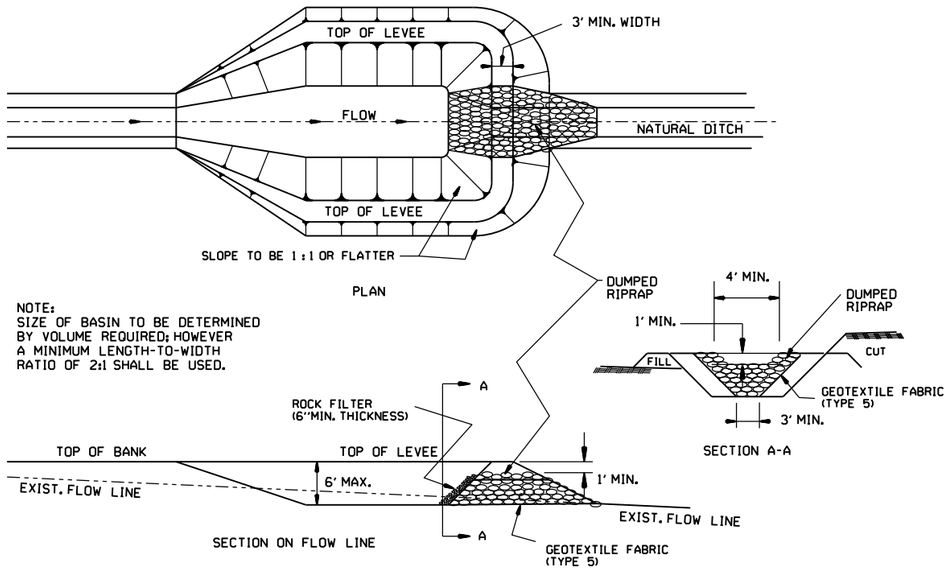
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

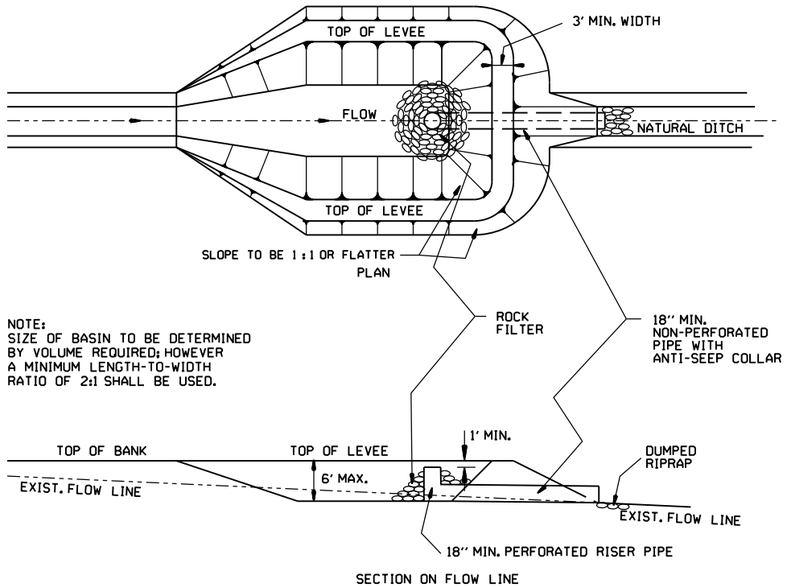
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

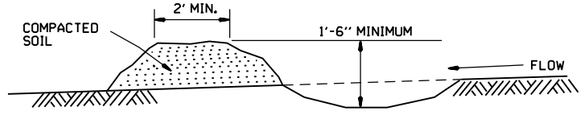
STANDARD DRAWING TEC-1



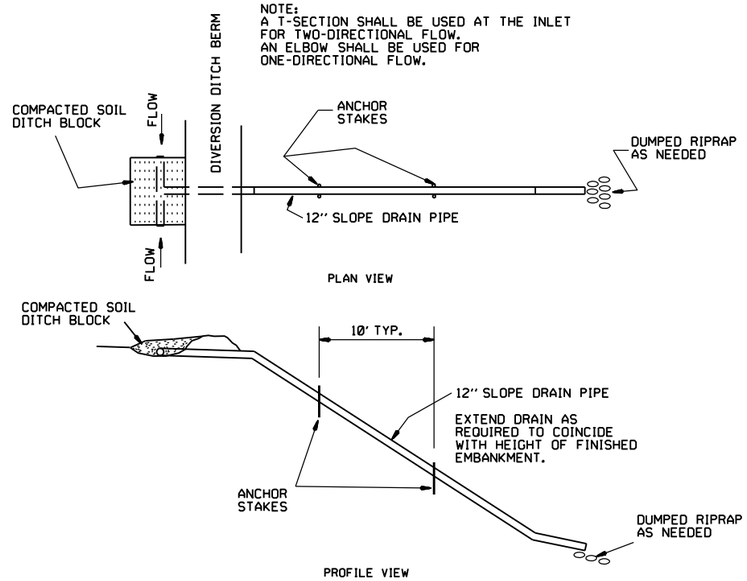
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



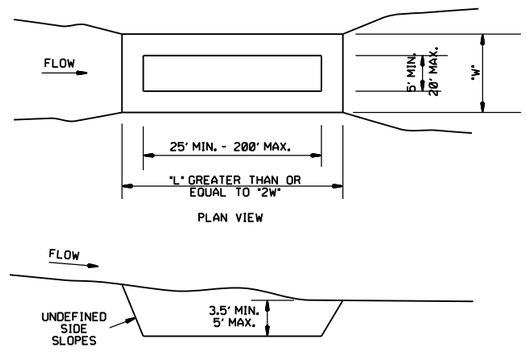
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

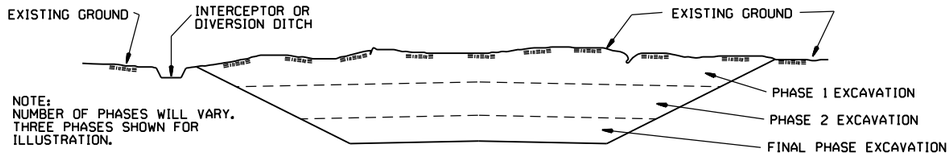
STANDARD DRAWING TEC-2

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



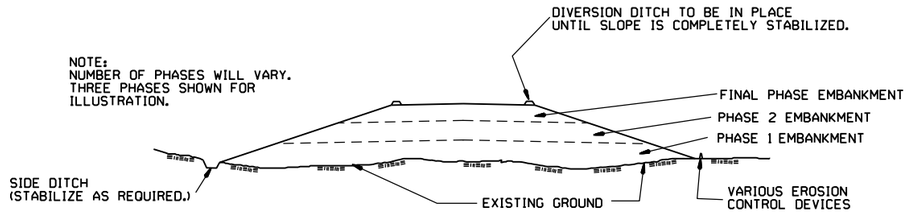
GENERAL NOTE

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

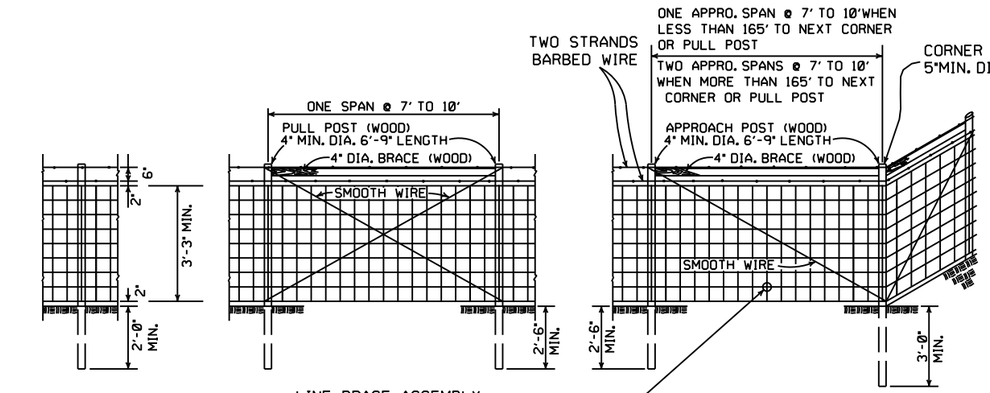
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

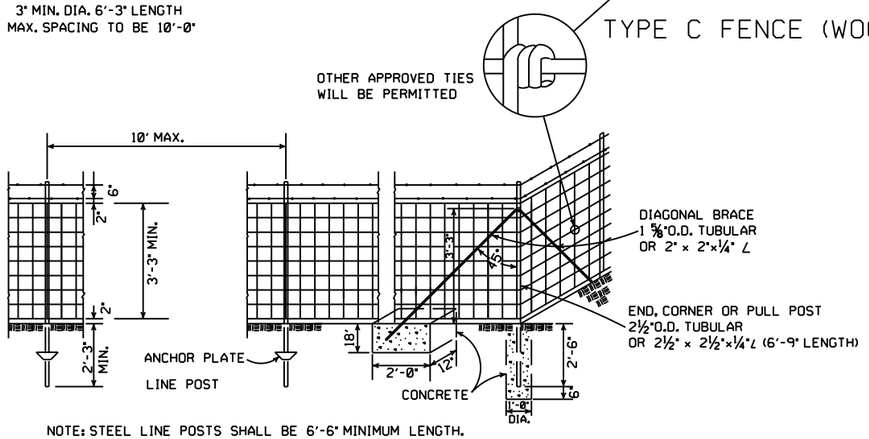
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

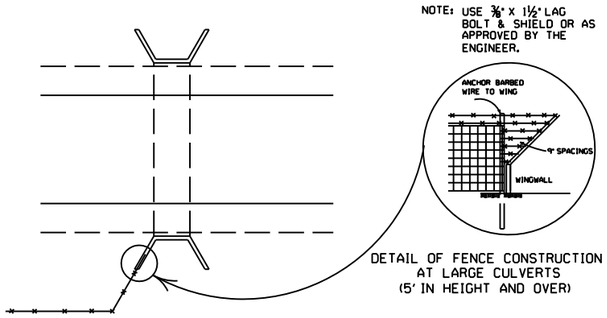


TYPE C FENCE (WOOD POSTS)



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

TYPE C FENCE (STEEL POSTS)



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

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.

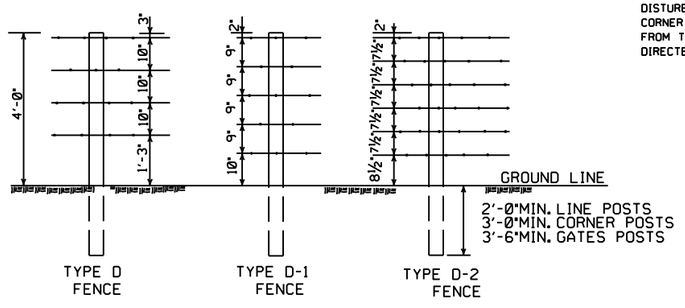
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED 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.

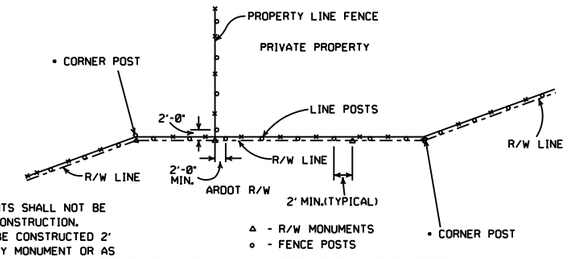
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

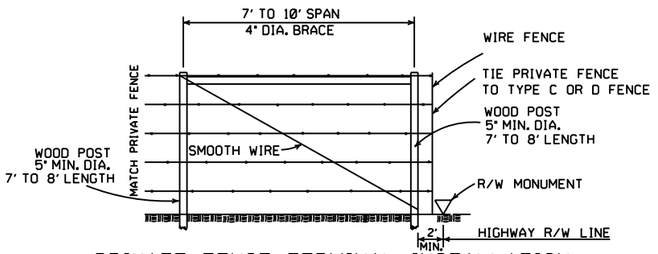


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



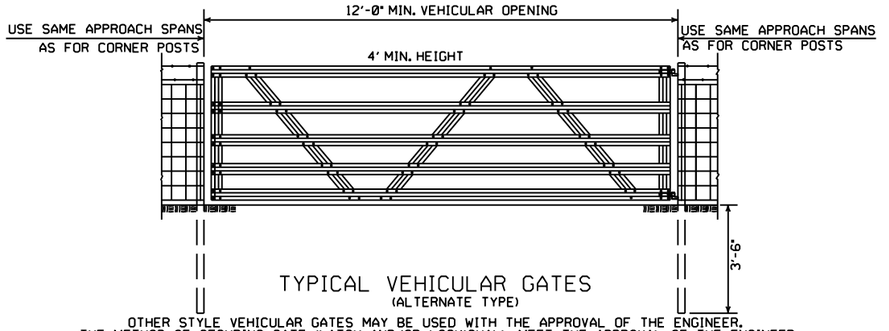
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

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

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4