DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	1	39

(2) ALSOBROOK SLOUGH STR. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

ALSOBROOK SLOUGH STR. & APPRS. (S)

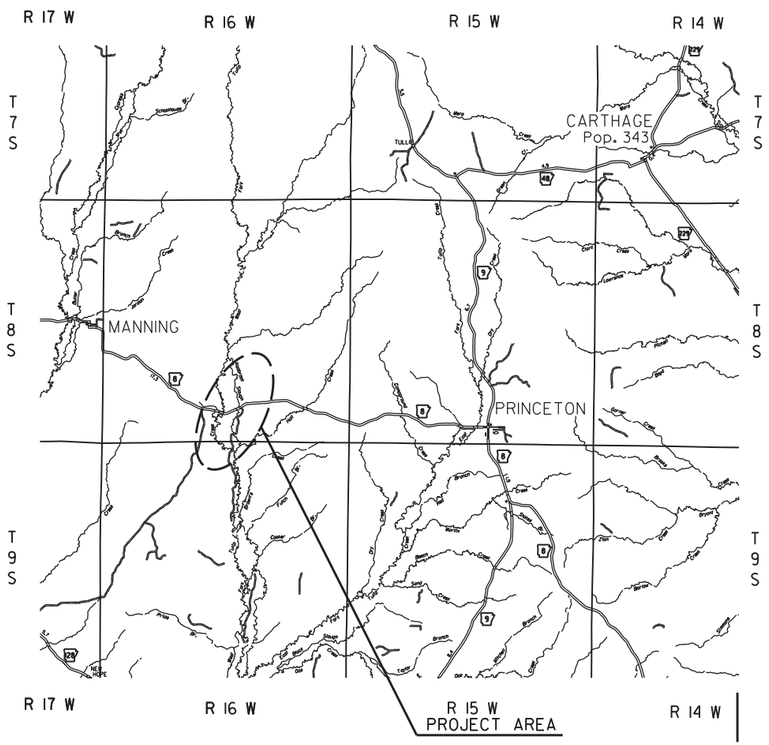
DALLAS COUNTY

ROUTE 8 SECTION 6

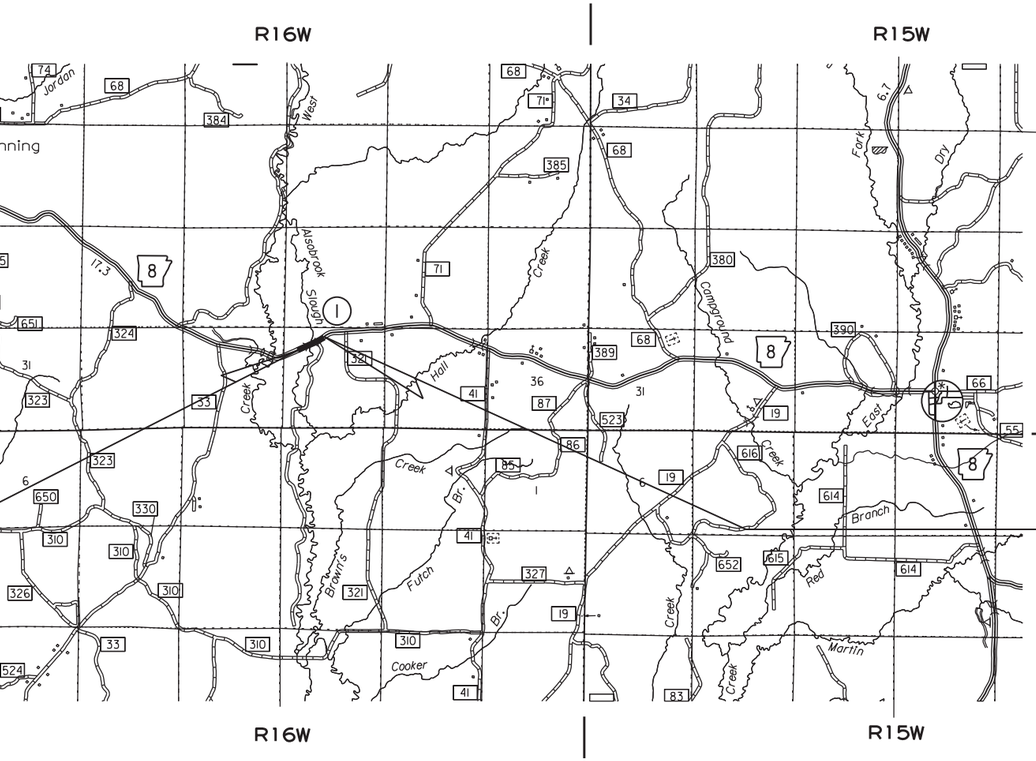
JOB 070375

FED. AID PROJ. NHPP-0020(21)

NOT TO SCALE

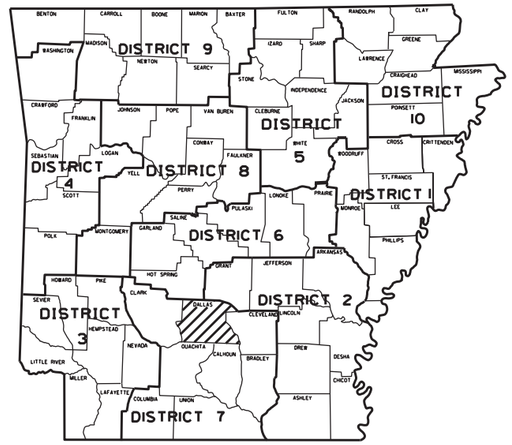


VICINITY MAP



BRIDGE DATA

(1) STA. 109+68.50 BRIDGE END
BRIDGE NO. 07471
155'-0" PRECAST CONCRETE SPANS
(31'-31'-31'-31'-31')
31'-6" CLEAR ROADWAY
155.00' BRIDGE LENGTH
STA. 111+23.50 BRIDGE END



ARK. HWY. DIST. NO. 7

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	270
2040 ADT	300
2040 DHV	33
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	14%
DESIGN SPEED	55 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 33°59'23"	N 33°59'25"	N 33°59'26"
LONGITUDE	W 92°43'58"	W 92°43'54"	W 92°43'50"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT			750.00	FEET	OR	0.142	MILES
NET	:	:	ROADWAY	595.00	:	0.113	MILES
NET	:	:	BRIDGES	155.00	:	0.029	MILES
NET	:	:	PROJECT	750.00	:	0.142	MILES

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 7836
M. E. BANKS

Banks, Emanuel
May 14 2020 9:55 AM

DEPUTY DIRECTOR
AND CHIEF ENGINEER

TW39665 9/30/2019
R070375.DGN

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATICNS AND GENERAL NOTES		
4 - 6	TYPICAL SECTIONS OF IMPROVEMENT		
7 - 8	SPECIAL DETAILS		
9 - 12	TEMPORARY EROSION CONTROL DETAILS		
13 - 16	MAINTENANCE OF TRAFFIC DETAILS		
17	PERMANENT PAVEMENT MARKING DETAILS		
18 - 21	QUANTITIES		
22	SCHEDULE OF BRIDGE QUANTITIES	07471	61122
23	SUMMARY OF QUANTITIES AND REVISIONS		
24	SURVEY CONTROL DETAILS		
25 - 26	PLAN AND PROFILE SHEETS		
27	LAYOUT OF BRIDGE HIGHWAY 8 OVER ALSOBROOK SLOUGH (SHEET 1 OF 2)	07471	61123
28	LAYOUT OF BRIDGE HIGHWAY 8 OVER ALSOBROOK SLOUGH (SHEET 2 OF 2)	07471	61124
29	DETAILS OF END BENTS (SHEET 1 OF 2)	07471	61125
30	DETAILS OF END BENTS (SHEET 2 OF 2)	07471	61126
31	DETAILS OF INTERMEDIATE BENTS	07471	61127
32	DETAILS OF 31'-0" PRECAST CONCRETE SPANS 31'-6" CLEAR ROADWAY	07471	61128
33	DETAILS OF 31'-0" PRECAST PARAPET RAILS	07471	61129
34 - 39	CROSS SECTIONS		

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55011	STANDARD DETAILS FOR TYPE C BRIDGE NAME PLATE	02-27-14
55022	STANDARD DETAILS FOR CONCRETE PILES	03-24-16
55030D	STANDARD DETAILS FOR TYPE D APPROACH GUTTERS	02-27-14
55040D	STANDARD DETAILS FOR TYPE D APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
GR-6	GUARDRAIL DETAILS	11-07-19
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-16-17
GR-11	GUARDRAIL DETAILS	11-16-17
GR-12	GUARDRAIL DETAILS	11-16-17
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
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)	11-07-19
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	11-07-19
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	11-07-19
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	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

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INDEX OF SHEETS AND STANDARD DRAWINGS

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(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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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
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURNG DENSITY FOR ROLLING PATTERNS
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
620-1_____ MULCH COVER
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
804-2_____ REINFORCING STEEL FOR STRUCTURES
JOB 070375__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 070375__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 070375__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 070375__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 070375__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 070375__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 070375__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 070375__ ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 070375__ FLEXIBLE BEGINNING OF WORK
JOB 070375__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 070375__ MANDATORY ELECTRONIC CONTRACT
JOB 070375__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 070375__ NESTING SITES OF MIGRATORY BIRDS
JOB 070375__ PARTNERING REQUIREMENTS
JOB 070375__ PLASTIC PIPE
JOB 070375__ SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 070375__ SHORING FOR CULVERTS
JOB 070375__ SOIL STABILIZATION
JOB 070375__ STORM WATER POLLUTION PREVENTION PLAN
JOB 070375__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 070375__ UTILITY ADJUSTMENTS
JOB 070375__ VALUE ENGINEERING
JOB 070375__ WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF. THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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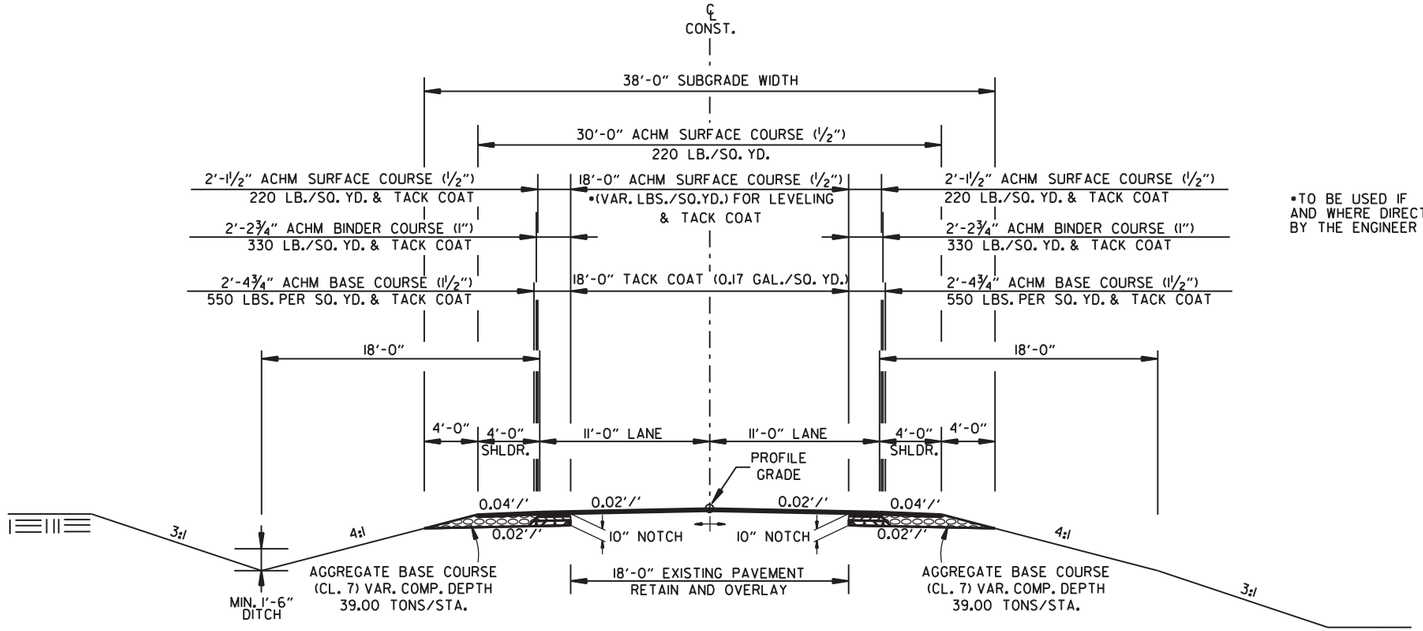


•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 8 - NOTCH, WIDEN, AND OVERLAY SECTION

STA. 106+00.00 TO STA. 109+52.50
STA. 111+39.50 TO STA. 111+33.50

NOTES:

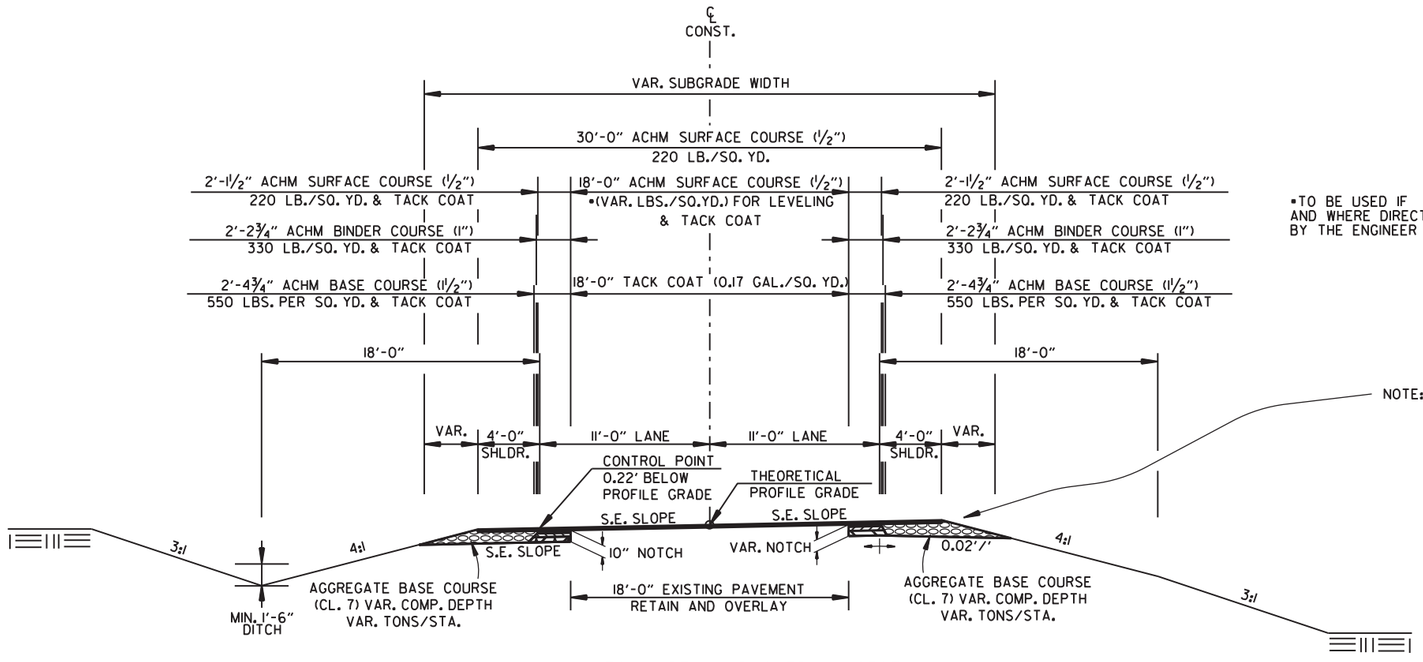
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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 LANE LINES.

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



•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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

HWY. 8 - NOTCH, WIDEN, AND OVERLAY SECTION SUPERELEVATION

STA. 111+33.50 TO STA. 113+50.00

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TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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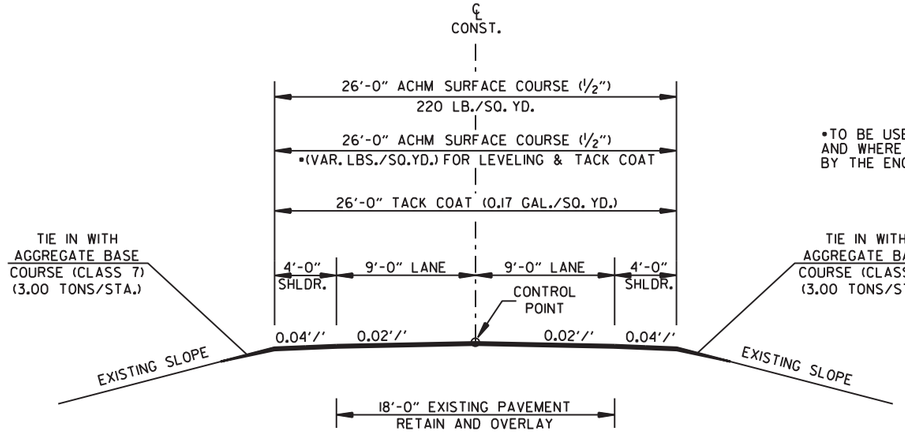

HWY. 8 - OVERLAY SECTION
STA. 114+60.00 TO STA. 114+92.52

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

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TYPICAL SECTIONS OF IMPROVEMENT

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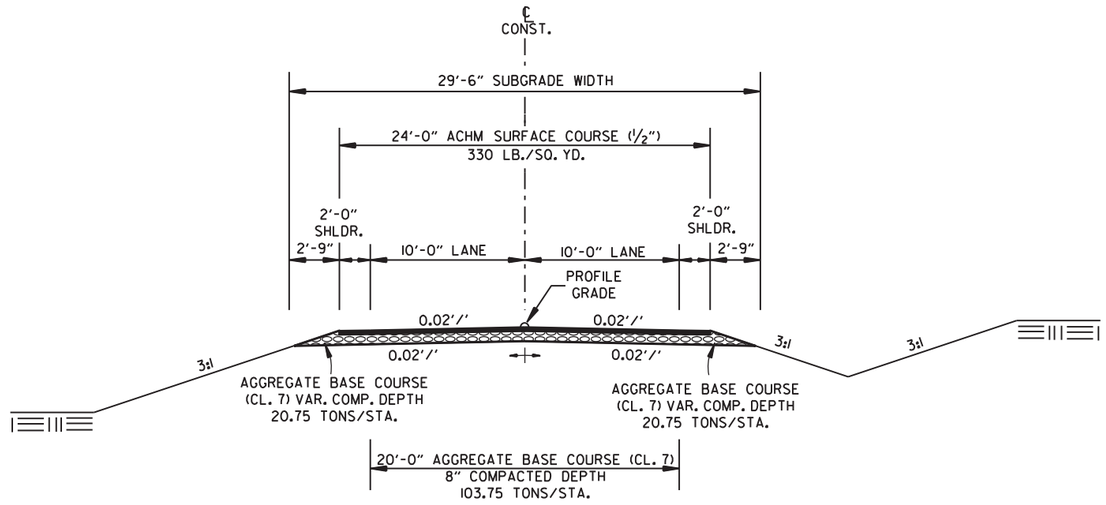
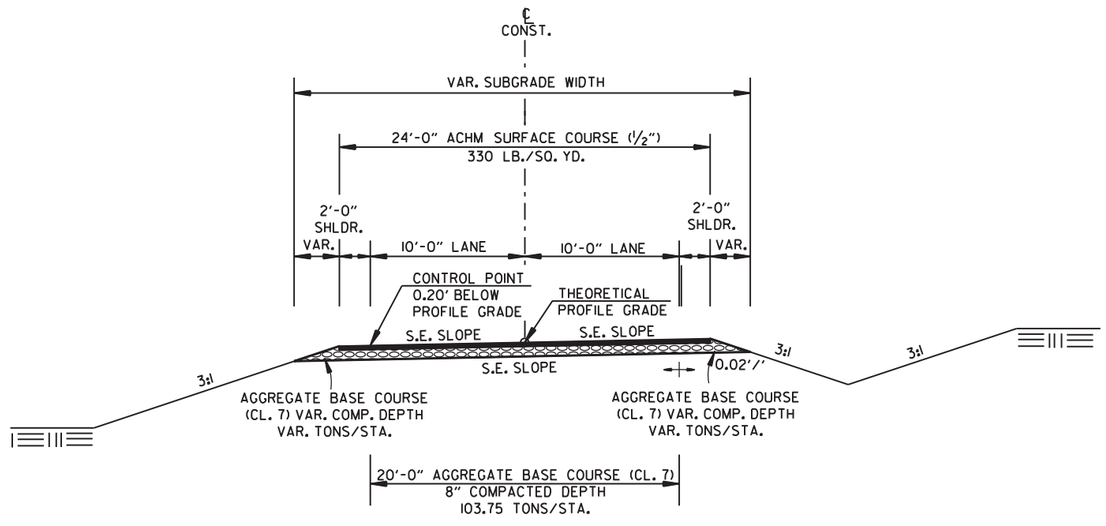
(2) TYPICAL SECTIONS OF IMPROVEMENT

NOTE: TRANSITION
STA. 1001+34.17 TO STA. 1003+00.77
STA. 1009+27.57 TO STA. 1012+10.90



DETOUR - FULL DEPTH SECTION

STA. 1003+00.77 TO STA. 1003+14.18
STA. 1007+96.27 TO STA. 1009+27.57



DETOUR - FULL DEPTH SECTION
SUPERELEVATION

STA. 1003+14.18 TO STA. 1007+96.27

NOTES:

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TYPICAL SECTIONS OF IMPROVEMENT

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(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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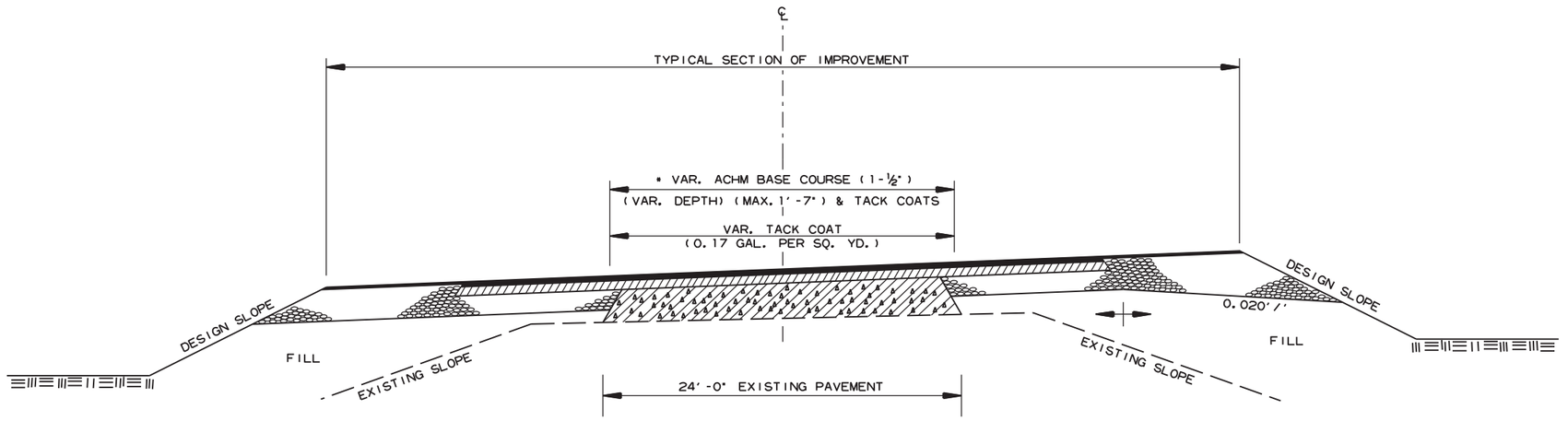


* 7" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BASE COURSE (1-½")

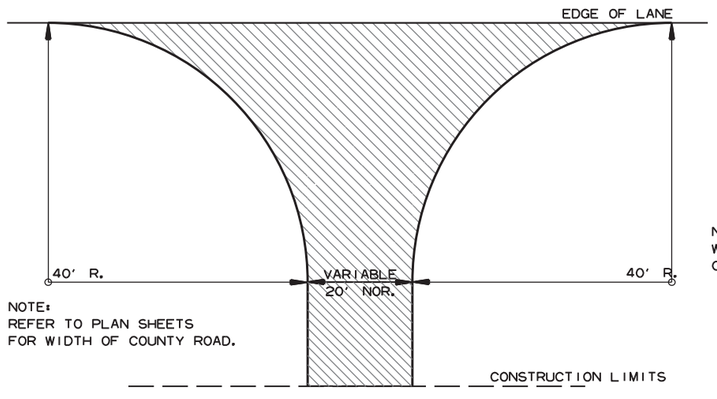
METHOD OF RAISING GRADE

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.

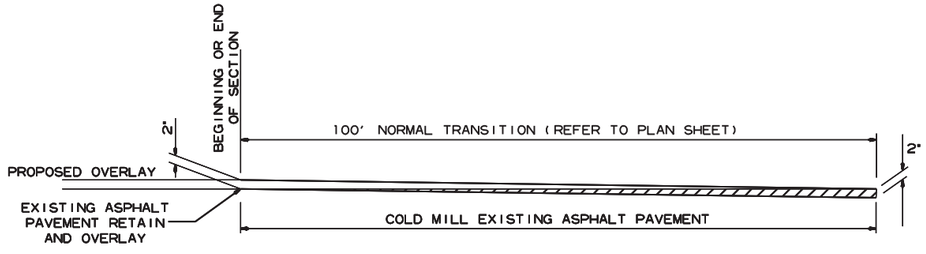


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

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



DETAIL FOR TRANSITIONS

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(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TRINITY D. SMITH

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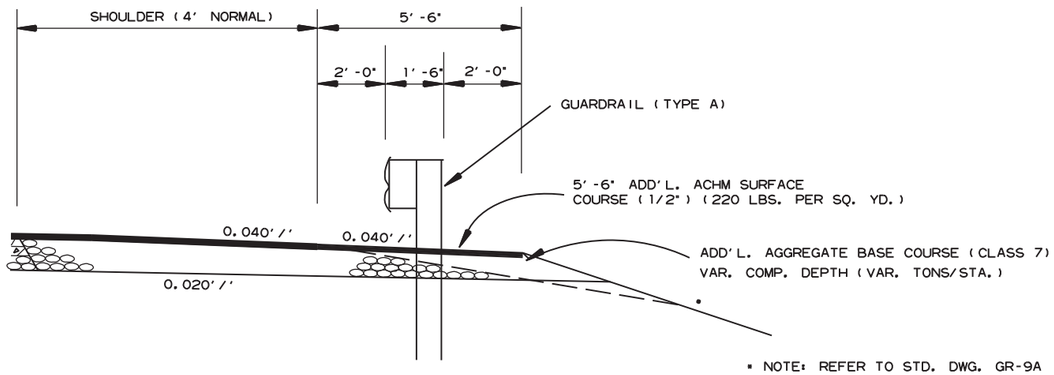
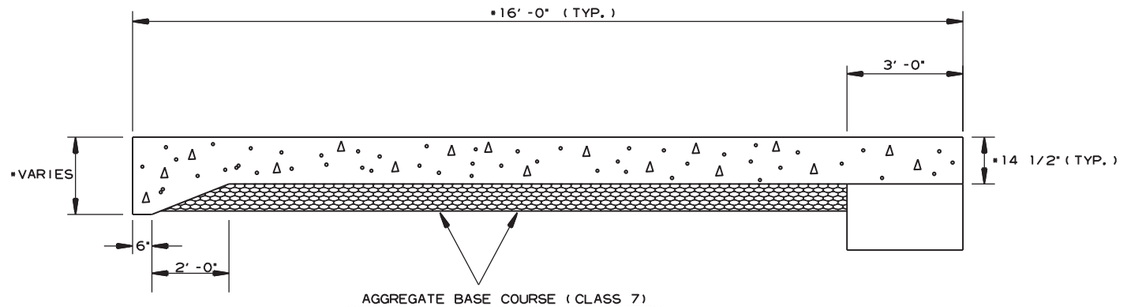


WIDENING FOR GUARDRAIL



▪ SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

TW39665 11/26/2019
RD070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	9	39

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

Trinity Smith

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CLEARING & GRUBBING

ROCK DITCH CHECKS (E-6)
(12 LOCATIONS = 36 CU. YD)
SILT FENCE (E-11)
(4 LOCATIONS = 1350 LIN. FT.)
SEDIMENT BASIN (E-14)
(1 LOCATION = 440 CU. YD.)

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

105 110 115

25' BUFFER

ALSOBROOK SLOUGH

EXISTING R/W

PROPOSED R/W

E-11 ·520 LIN.FT.

E-6 ·440 CU.FT.

E-11 ·170 LIN.FT.

PC 112+47.02

PT 115+92.52

N 68°34' 30" E

N 68°44' 23" E

N 55°47' 01" E

P.I. 104+98.42

Δ = 00°09' 53" RT.

E-11 ·410 LIN.FT.

T.C.E.

E-11 ·250 LIN.FT.

T.C.E.

P.I. 114+20.51

HALL CREEK RD.

25' BUFFER

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
	= SEDIMENT BASIN
·XXX CU.FT.	

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

TW39665 11/26/2019
R070375.DGN

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	10	39

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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STAGE 1

ROCK DITCH CHECKS (E-6)
(8 LOCATIONS = 24 CU. YD)
SILT FENCE (E-11)
(1 LOCATIONS = 100 LIN. FT.)

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

105 110 115

25' BUFFER

ALSOBROOK SLOUGH

EXISTING R/W

PROPOSED R/W

N 68°34' 30" E

N 68°44' 23" E

N 55°47' 01" E

PC 112+47.02

PT 115+92.52

P.I. 104+98.42
Δ = 00°09' 53" RT.

P.I. 114+20.51
HALL CREEK RD.

T.C.E.

TEMP. CONST. LIMITS

+75.00 39.75
+00.00 60.00
+50.00 75.00
+30.00 55.00
+00.00 59.77
+50.00 70.00
+00.00 60.00
+60.00 69.00
+00.00 39.69
+75.00 40.25
+00.00 70.00
+70.00 56.00
+00.00 40.31
+45.00 70.00
+50.00 175.00

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
= SEDIMENT BASIN
•XXX CU.FT.

•520 LIN.FT.
•440 CU.FT.
•410 LIN.FT.
•100 LIN.FT.
•110 LIN.FT.
•250 LIN.FT.

LEGEND

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

TW39665 11/26/2019
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070375	11	39

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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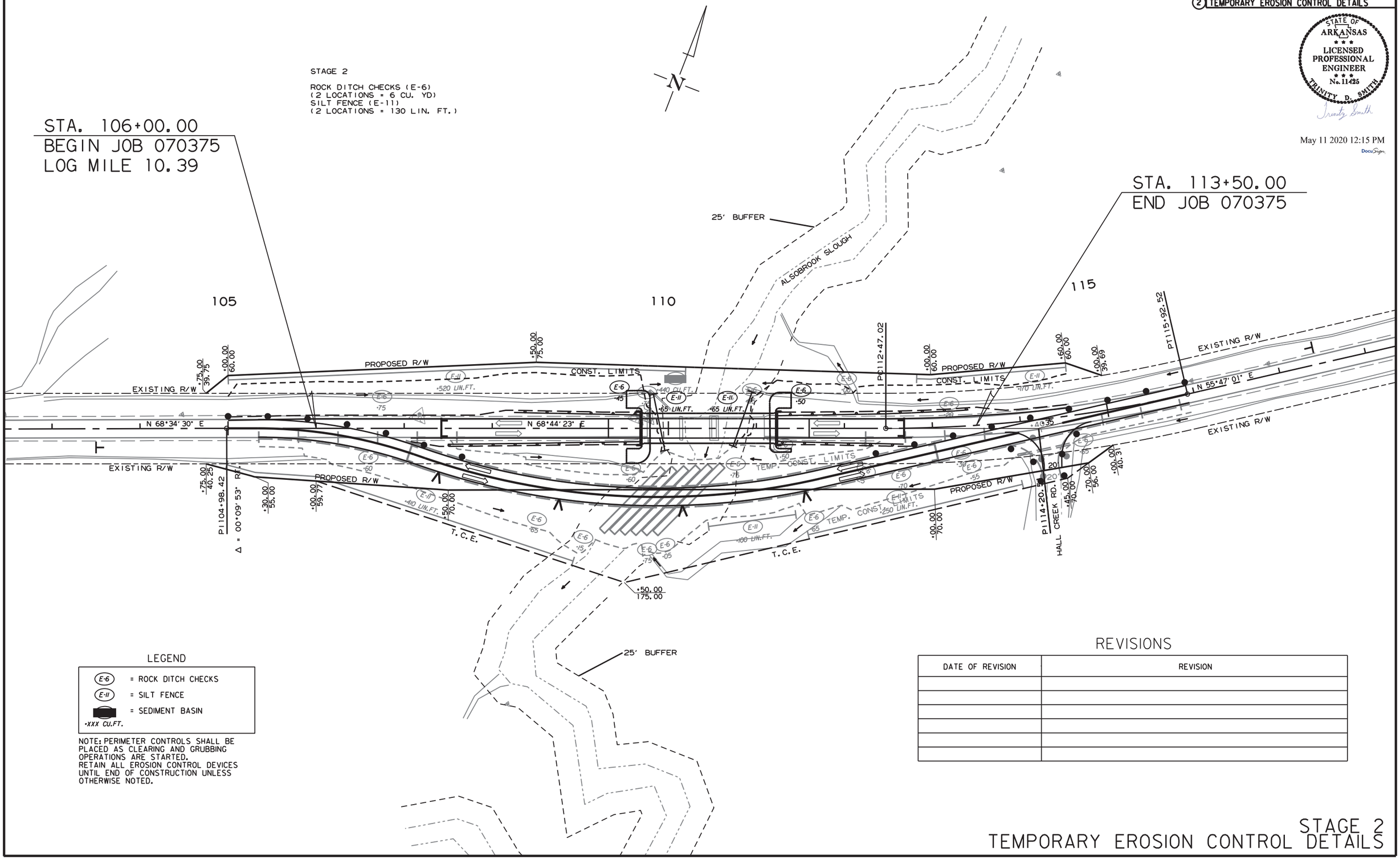
STAGE 2

ROCK DITCH CHECKS (E-6)
(2 LOCATIONS = 6 CU. YD)
SILT FENCE (E-11)
(2 LOCATIONS = 130 LIN. FT.)

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375



LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
	= SEDIMENT BASIN
•XXX CU.FT.	

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE OF REVISION	REVISION

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	12	39

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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STAGE 3

ROCK DITCH CHECKS (E-6)
(2 LOCATIONS = 6 CU. YD)

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

105 110 115

25' BUFFER

ALSOBROOK SLOUGH

PROPOSED R/W
EXISTING R/W
CONST. LIMITS
TEMP. CONST. LIMITS
T.C.E.
HALL CREEK RD.

N 68°34' 30" E
N 68°44' 23" E
N 55°47' 01" E

PI 104+98.42
Δ = 00°09' 53" RT

PC 112+47.02
PT 115+92.52
PI 114+20.57

•520 LIN.FT.
•440 CU.FT.
•410 LIN.FT.
•170 LIN.FT.
•100 LIN.FT.
•250 LIN.FT.

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
	= SEDIMENT BASIN
•XXX CU.FT.	

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

OBLITERATE

REVISIONS

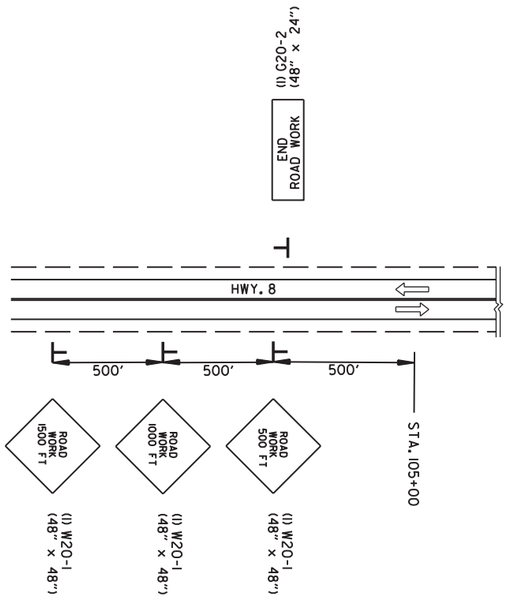
DATE OF REVISION	REVISION

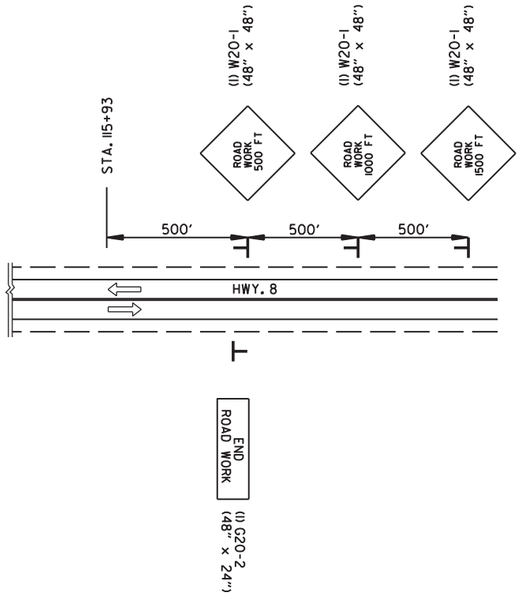
TW39665 11/26/2019
R070375.DGN

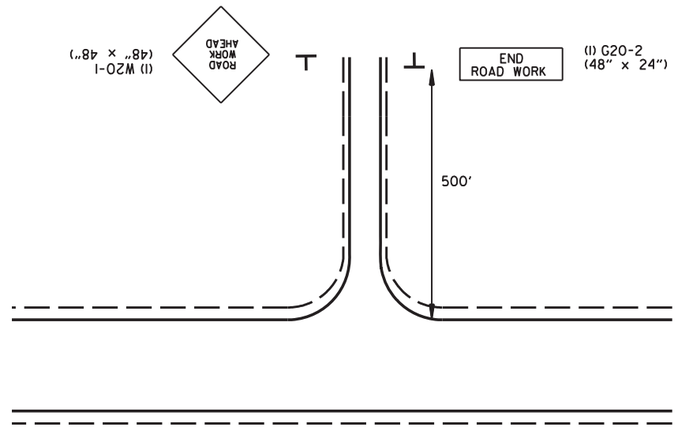
STAGE 3
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	13	39

(2) MAINTENANCE OF TRAFFIC DETAILS







ADVANCE WARNING - SIDE ROADS
(ALL STAGES)

STA. 114+35, HALL CREEK RD.

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LICENSED PROFESSIONAL ENGINEER
No. 11425
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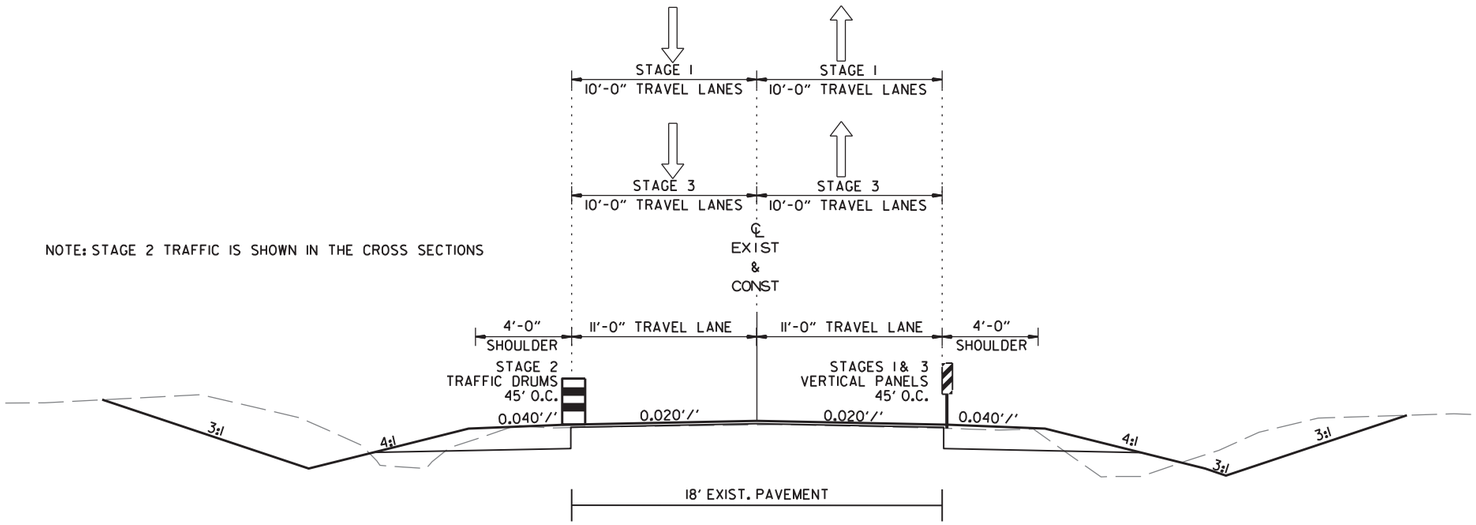

STAGE CONSTRUCTION

RIGHT SHOULDER CLOSED	(2) W21-5a (36" x 36")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
DO NOT PASS	(2) R4-1 (24" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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R070375.DGN

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	14	39

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL.

MAINTAIN TRAFFIC ON EXISTING.

NOTCH AND WIDEN FOR DETOUR ON RIGHT USING VERTICAL PANELS SPACED 45' O.C. USE TRAFFIC DRUMS TO DELINEATE HALL CREEK RD.

CONSTRUCT DETOUR.

STAGE 1 QUANTITIES

SIGNS = 184.0 SQ. FT.
VERTICAL PANELS = 13 EACH
TRAFFIC DRUMS = 6 EACH
BARRICADES (TYPE III) = 32 LIN. FT.

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No. 11425
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STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

STA. 1001+34.17
BEGIN DETOUR

STA. 1012+10.90
END DETOUR

VERTICAL PANELS SPACED 45' O.C.

VERTICAL PANELS SPACED 45' O.C.

1000 105 1005 110 1010 115

EXISTING R/W
PROPOSED R/W
CONST. LIMITS
TEMP. CONST. LIMITS
T.C.E.
P.I. 1002+25.00
P.C. 1003+27.67
P.I. 1003+14.13
P.I. 1005+61.42
P.T. 1007+82.78
P.C. 1012+47.02
P.I. 1014+18.38
P.O.E.
PT 115+92.52
P.I. 1104+98.42
P.T. 1000+98.42
P.C. 1001+34.17
P.I. 1114+20.51
N 68°34' 30" E
N 68°44' 23" E
N 87°38' 28" E
N 55°47' 01" E
E-6 .50
E-6 .55
E-6 .65
E-6 .70
E-6 .15
E-6 .05
E-11 100 LIN.FT.

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

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

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	15	39

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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STAGE 2 CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC TO DETOUR AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT BRIDGE AND ROADWAY.
USE TRAFFIC DRUMS TO DELINEATE DETOUR AND HALL CREEK RD.

STAGE 2 QUANTITIES

SIGNS = 244.0 SQ. FT.
TRAFFIC DRUMS = 22 EACH
BARRICADES (TYPE III) = 32 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 2100 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4307 LIN. FT.

N

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

ROAD CLOSED
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
8' BARR. TYP. III LT.
8' BARR. TYP. III LT.

ROAD CLOSED
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
8' BARR. TYP. III RT.
8' BARR. TYP. III RT.

TRAFFIC DRUMS SPACED 45' O.C.

TRAFFIC DRUMS SPACED 45' O.C.

1000 105 1005 110 1010 115

EXISTING R/W
PROPOSED R/W
CONST. LIMITS
TEMP. CONST. LIMITS
T.C.E.

P.I. 1002+25.00
P.C. 1003+27.67
P.T. 1007+82.78
PC 1112+47.02
PT 1115+92.52
P.O.E. 1014+18.38
P.T. 1000+98.42
P.C. 1001+34.17
P.T. 1003+14.18
P.I. 1005+61.27
P.I. 1114+20.

E-6 E-11 E-11 E-6
65 LIN.FT. 65 LIN.FT.

N 68°34' 30" E
N 68°34' 30" E
N 68°44' 23" E
N 87°38' 28" E
N 55°47' 01" E

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

WHITE CONSTRUCTION PAVEMENT MARKING

(I) W24-IR (48"x48")

(I) W24-IL (48"x48")

(8) WI-8 (18" X 24")

STA. 1001+34.17
BEGIN DETOUR

STA. 1012+10.90
END DETOUR

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.			
				JOB NO.		070375	16	39

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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STAGE 3 CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC TO MAIN LANES AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

OBLITERATE DETOUR AND CONSTRUCT SHOULDERS AND SLOPE AT DETOUR CONNECTIONS USING VERTICAL PANELS SPACED 45' O.C.
USE TRAFFIC DRUMS TO DELINEATE HALL CREEK RD.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

STAGE 3 QUANTITIES

SIGNS = 184.0 SQ. FT.
VERTICAL PANELS = 11 EACH
TRAFFIC DRUMS = 6 EACH
BARRICADES (TYPE III) = 32 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4370 LIN. FT.

N

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

STA. 1001+34.17
BEGIN DETOUR

STA. 1012+10.90
END DETOUR

1000 105 1005 110 1010 115

WHITE CONSTRUCTION PAVEMENT MARKING

VERTICAL PANELS SPACED 45' O.C.

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

VERTICAL PANELS SPACED 45' O.C.

P.I. 1002+25.00
P.C. 1003+27.67
P.T. 1007+82.78
P.C. 1012+47.02
PT 115+92.52
P.O.E. 1014+18.38

EXISTING R/W
PROPOSED R/W
CONST. LIMITS
TEMP. CONST. LIMITS
T.C.E.

+75.00 39.75
+00.00 60.00
+50.00 75.00
+60.00 69.00
+00.00 39.69
+75.00 40.25
+00.00 59.77
+50.00 70.00
+00.00 70.00
+40.00
+00.00 40.31
+45.00 70.00
+70.00 56.00

N 68°34' 30" E
N 68°44' 23" E
N 87°38' 28" E
N 55°47' 01" E

P.I. 1004+98.42
P.T. 1000+98.42
P.C. 1001+34.17
+30.00 55.00
P.T. 1003+14.18
P.I. 1005+61.27
+50.00 175.00
P.I. 1114+20.50

E-6 49

OBLITERATE

ROAD CLOSED
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
8' BARR. TYP. III RT.
8' BARR. TYP. III RT.

ROAD CLOSED
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
8' BARR. TYP. III LT.
8' BARR. TYP. III LT.

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	17	39

(2) PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKINGS

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 2185 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 2185 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 14 EACH

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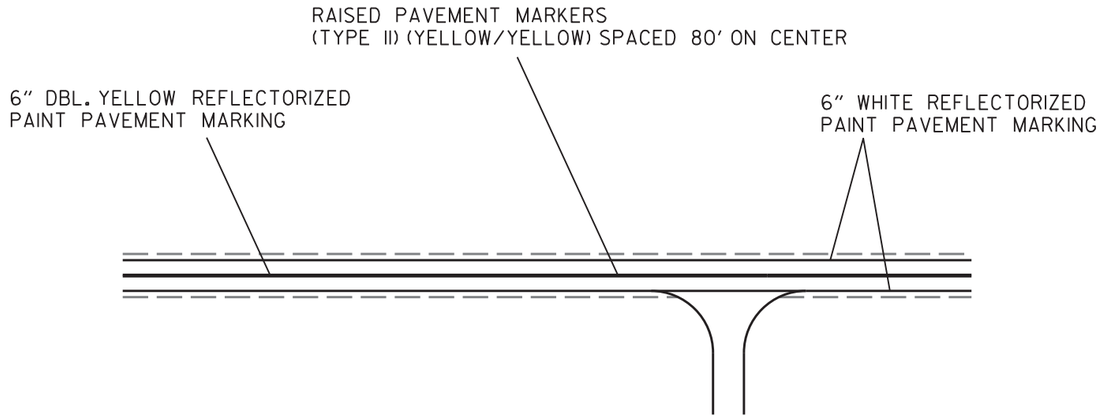

TYPICAL STRIPING DETAIL

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				6	ARK.			
				JOB NO.		070375	18	39

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
											RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0				
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	1	16.0				
G20-2	END ROAD WORK	48"x24"	3	3	3	3	3	24.0				
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	2	20.0				
W1-6	LARGE ARROW	48"x24"		2	2	2	2	16.0				
W1-8	CHEVRONS	18"x24"		4		4	4	12.0				
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0				
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	18.0				
W24-1R	DOUBLE REVERSE CURVE RT.	48"x48"		1		1	1	16.0				
W24-1L	DOUBLE REVERSE CURVE LT.	48"x48"		1		1	1	16.0				
	VERTICAL PANELS		13		11	13			13			
	TRAFFIC DRUMS		6	22	6	22				22		
	TYPE III BARRICADE-RT. (8')		16	16	16	16					128	
	TYPE III BARRICADE-LT. (8')		16	16	16	16						128
TOTALS:								**244.0**	**13**	**22**	**128**	**128**

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

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	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		2100			2100				
CONSTRUCTION PAVEMENT MARKINGS		4307	4370			8677			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				14			14		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				2185				2185	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				2185					2185
TOTALS:					**2100**	**8677**	**14**	**2185**	**2185**

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.

TW39665 11/26/2019
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	19	39

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
106+00	113+50	HWY. 8 - LT. & RT.	8	8
TOTALS:			8	8

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
106+00	5' - RT.	0'-5'	19	6	A-4(0)	BR/GR
106+00	15' - RT.	0'-5'	ND	NP	A-2-4(0)	RD/BR
106+00	15' - RT.	0'-5'	21	7	A-2-4(0)	RD/BR
110+94	BORING	1'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	9.8'-11.3'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	4.8'-6.3'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	4'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	3'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	2'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	7'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	6'	ND	NP	A-2-4(0)	RD/BR
110+94	BORING	5'	29	8	A-2-4(0)	RD/BR
110+94	BORING	10'	29	8	A-2-4(0)	RD/BR
110+94	BORING	9'	29	8	A-2-4(0)	RD/BR
110+94	BORING	8'	29	8	A-2-4(0)	RD/BR
110+94	BORING	13'	34	18	A-2-4(0)	RD/BR
110+94	BORING	12'	34	18	A-2-4(0)	RD/BR
110+94	BORING	11'	34	18	A-2-4(0)	RD/BR
110+94	BORING	16'	93	13	A-2-4(0)	RD/BR
110+94	BORING	15'	25	4	A-2-4(0)	RD/BR
110+94	BORING	14'	38	11	A-2-4(0)	RD/BR
110+94	BORING	18'	34	11	A-2-4(0)	RD/BR
110+94	BORING	17'	31	9	A-2-4(0)	RD/BR
115+00	0' - LT.	0'-5'	23	9	A-2-4(0)	BROWN
115+00	0' - LT.	0'-5'	ND	NP	A-2-4(0)	BROWN

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
109+69	HWY. 8 - BRIDGE END	1
TOTAL:		1

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
105+00.00	109+83.04	HWY. 8 - LT.	483.04	429.37
105+10.00	109+82.43	HWY. 8 - RT.	472.43	419.94
111+10.00	114+60.00	HWY. 8 - LT.	350.00	311.11
111+40.00	114+60.00	HWY. 8 - RT.	320.00	284.44
TOTAL:				1444.86

NOTE: AVERAGE WIDTH = 8'-0"

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	105+34.17	115+92.52	STAGE 1 - DETOUR CONST.	1110	5349	
	105+00.00	114+60.00	STAGE 2 - MAIN LANE CONST.	767	972	
	105+34.17	115+92.52	STAGE 3 - DETOUR OBLITERATION	5838	1681	
	ENTIRE	PROJECT	APPROACHES		155	
	ENTIRE	PROJECT	TEMPORARY APPROACHES		55	
	ENTIRE	PROJECT	BRIDGE EXCAVATION	270		
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
			DIRECTED BY THE ENGINEER			
	TOTALS:			7985	8212	100

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

EROSION CONTROL

	STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
				SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
				ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
	ENTIRE	PROJECT	CLEARING AND GRUBBING						3.26	3.26	66.5		36	1350	440		502
	ENTIRE	PROJECT	STAGE 1 - DETOUR CONST.						0.77	0.77	15.7		24	100			12
	ENTIRE	PROJECT	STAGE 2 - MAIN LANE CONST.	0.76	1.52	0.76	77.5	0.76					6	130			7
	ENTIRE	PROJECT	STAGE 3 - DETOUR OBLITERATION	0.73	1.46	0.73	74.5	0.73					6			440	442
*	ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.00	2.00	1.00	102.0	1.00				506		100	440	440	444
	TOTALS:			2.49	4.98	2.49	254.0	2.49	4.03	4.03	82.2	506	72	1680	880	880	1407

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

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

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

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	20	39

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			400	4
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			400	4

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
107+50.35	109+69.10	RT. SIDE	150	1	1
108+25.35	109+69.10	LT. SIDE	75	1	1
111+22.90	113+41.65	LT. SIDE	150	1	1
111+22.90	112+66.65	RT. SIDE	75	1	1
TOTALS:			450	4	4

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE D)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
109+52.50	109+68.50	HWY. 8 - LT. SIDE	2.83		245	
109+52.50	109+68.50	HWY. 8 - APPROACH SLAB		14.65	1140	10.47
109+52.50	109+68.50	HWY. 8 - RT. SIDE	2.83		245	
111+23.50	111+39.50	HWY. 8 - LT. SIDE	2.83		245	
111+23.50	111+39.50	HWY. 8 - APPROACH SLAB		14.65	1140	10.47
111+23.50	111+39.50	HWY. 8 - RT. SIDE	2.83		245	
TOTALS:			11.32	29.30	3260	20.94

NOTE: USE T =12" FOR 4' SHOULDER.

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	STANDARD DRAWINGS
							24"	
			FEET	SQ. YD.	TON	TON	LIN. FT.	
114+35	RT.	HWY. 8	20	138.97	15.29	56.75	64	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES						10.00		
TOTALS:				138.97	15.29	66.75	64	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS 24"	TEMPORARY CULVERTS 96"	STD. DWG. NOS.
		LIN. FT.		
1006+05	DETOUR - INSTALL TEMP. SEXT. PIPE CULVERTS ON 45° LT. FWD. SKEW		624	PCC-1, PCM-1
1010+40	DETOUR - INSTALL TEMP. PIPE CULVERT SIDE DRAIN ON RT.	64		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
TOTALS:		64	624	

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.

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	5
DIRECTED BY THE ENGINEER	
TOTAL:	5

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	5	10
DIRECTED BY THE ENGINEER		
TOTALS:	5	10

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
105+00.00	106+00.00	MAIN LANES	26.00	288.89
113+50.00	114+50.00	MAIN LANES	26.00	288.89
TOTAL:				577.78

NOTE: AVERAGE MILLING DEPTH 1".

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	10
ENGINEER	
TOTAL:	10

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

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QUANTITIES

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				6	ARK.			
				JOB NO.		070375	21	39

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	TOTAL PG 64-22
			FEET			TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	FEET			TON
MAIN LANES																											
105+00.00	106+00.00	HWY. 8 - TRANSITION	100.00						20.00	222.22	37.78	37.78													28.00	311.11	220.00	34.22	34.22
106+00.00	109+52.50	HWY. 8 - NOTCH AND WIDEN	352.50	78.00	274.95	31.50	1233.75	61.69				61.69	4.79	187.61	550.00	51.59	4.46	174.68	330.00	28.82	4.25	166.46	220.00	18.31	30.00	1175.00	220.00	129.25	147.56
111+39.50	113+50.00	HWY. 8 - NOTCH AND WIDEN	210.50	78.00	164.19	31.50	736.75	36.84				36.84	4.79	112.03	550.00	30.81	4.46	104.31	330.00	17.21	4.25	99.40	220.00	10.93	30.00	701.67	220.00	77.18	88.11
113+50.00	114+60.00	HWY. 8 - TAPER	110.00	42.00	46.20				20.00	244.44	41.55	41.55													28.00	342.22	220.00	37.64	37.64
114+60.00	114+92.52	HWY. 8 - OVERLAY	32.52	6.00	1.95				26.00	93.95	15.97	15.97													26.00	93.95	220.00	10.33	10.33
114+92.52	115+92.52	HWY. 8 - TRANSITION	100.00						18.00	200.00	34.00	34.00													26.00	288.89	220.00	31.78	31.78
ADDITIONAL FOR LEVELING																													
106+00.00	109+52.50	HWY. 8 - NOTCH AND WIDEN	352.50						18.00	705.00	119.85	119.85									18.00	705.00	VAR.	81.07					81.07
111+39.50	113+50.00	HWY. 8 - NOTCH AND WIDEN	210.50						18.00	421.00	71.57	71.57									18.00	421.00	VAR.	49.83					49.83
114+60.00	114+92.52	HWY. 8 - OVERLAY	32.52						26.00	93.95	15.97	15.97									26.00	93.95	VAR.	10.33					10.33
ADDITIONAL FOR GRADE RAISE																													
107+00.00	109+52.50	HWY. 8 - NOTCH AND WIDEN	252.50			36.00	1010.00	50.50				50.50	18.00	505.00	VAR.	96.30	18.00	505.00	VAR.	71.07									
111+39.50	113+00.00	HWY. 8 - NOTCH AND WIDEN	160.50			36.00	642.00	32.10				32.10	18.00	321.00	VAR.	86.79	18.00	321.00	VAR.	53.35									
DETOUR																													
1001+34.17	1003+00.77	HWY. 8 - DETOUR TRANSITION	166.60	72.63	121.00																				12.00	222.13	330.00	36.65	36.65
1003+00.77	1009+27.57	HWY. 8 - DETOUR FULL DEPTH	626.80	145.25	910.43																				24.00	1671.47	330.00	275.79	275.79
1009+27.57	1012+10.90	HWY. 8 - DETOUR TRANSITION	283.33	72.63	205.78																				12.00	377.77	330.00	62.33	62.33
ADDITIONAL FOR SUPERELEVATION																													
111+39.50	113+02.25	HWY. 8 - SUPERELEVATION	162.75	12.25	19.94																								
113+02.25	113+50.00	HWY. 8 - SUPERELEVATION	47.75	18.50	8.83																								
1003+14.18	1005+55.22	HWY. 8 - DETOUR SUPERELEVATION	241.04	1.58	3.81																								
1005+55.22	1007+96.27	HWY. 8 - DETOUR SUPERELEVATION	241.05	3.15	7.59																								
ADDITIONAL FOR GUARDRAIL																													
107+07.35	107+40.35	HWY. 8 - MAIN LANES RT.	33.00	13.38	4.42																				2.75	10.08	220.00	1.11	1.11
107+40.35	107+50.35	HWY. 8 - MAIN LANES RT.	10.00	26.75	2.68																				5.50	6.11	220.00	0.67	0.67
107+50.35	109+25.35	HWY. 8 - MAIN LANES RT.	175.00	15.60	27.30																				4.50	87.50	220.00	9.63	9.63
109+25.35	109+69.10	HWY. 8 - MAIN LANES RT.	43.75	10.48	4.59																				3.50	17.01	220.00	1.87	1.87
107+82.35	108+15.35	HWY. 8 - MAIN LANES LT.	33.00	13.38	4.42																				2.75	10.08	220.00	1.11	1.11
108+15.35	108+25.35	HWY. 8 - MAIN LANES LT.	10.00	26.75	2.68																				5.50	6.11	220.00	0.67	0.67
108+25.35	109+25.35	HWY. 8 - MAIN LANES LT.	100.00	15.60	15.60																				4.50	50.00	220.00	5.50	5.50
109+25.35	109+69.10	HWY. 8 - MAIN LANES LT.	43.75	10.48	4.59																				3.50	17.01	220.00	1.87	1.87
111+22.90	111+66.65	HWY. 8 - MAIN LANES RT.	43.75	13.38	5.85																				2.75	13.37	220.00	1.47	1.47
111+66.65	112+66.65	HWY. 8 - MAIN LANES RT.	100.00	26.75	26.75																				5.50	61.11	220.00	6.72	6.72
112+66.65	112+76.65	HWY. 8 - MAIN LANES RT.	10.00	15.60	1.56																				4.50	5.00	220.00	0.55	0.55
112+76.65	113+09.65	HWY. 8 - MAIN LANES RT.	33.00	10.48	3.46																				3.50	12.83	220.00	1.41	1.41
111+22.90	111+66.65	HWY. 8 - MAIN LANES LT.	43.75	13.38	5.85																				2.75	13.37	220.00	1.47	1.47
111+66.65	113+41.65	HWY. 8 - MAIN LANES LT.	175.00	26.75	46.81																				5.50	106.94	220.00	11.76	11.76
111+41.65	111+51.65	HWY. 8 - MAIN LANES LT.	10.00	15.60	1.56																				4.50	5.00	220.00	0.55	0.55
111+51.65	111+84.65	HWY. 8 - MAIN LANES LT.	33.00	10.48	3.46																				3.50	12.83	220.00	1.41	1.41
TOTALS:					**1926.25**		**3622.50**	**181.13**		**1980.56**	**336.69**	**517.82**		**1125.64**		**265.49**		**1104.99**		**170.45**		**1485.81**		**170.47**		**5618.56**		**742.94**	**913.41**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR..... 5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR..... 4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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RD070375.DGN

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.		070375	22	39

(1) 07471 - QUANTITIES - 61122

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 070375

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SS & 802	SS & 802	SS & 802	SS & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	812	816	816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	(2) 31' PRECAST CONCRETE CURB UNITS	(2) 31' PRECAST CONCRETE INTERIOR UNITS	(2) 31' PRECAST PARAPET RAIL UNITS	CLASS S CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL - BRIDGE (GRADE 60)	(1) CONCRETE PILING (20" SQUARE)	(1) TEST PILE (20" SQUARE)	PREBORING	BRIDGE NAME PLATE (TYPE C)	FILTER BLANKET	DUMPED RIPRAP
			UNIT	LUMP SUM	CUBIC YARD	EACH	EACH	EACH	CUBIC YARD	GALLON	POUND	POUND	LINEAR FOOT	LINEAR FOOT	LINEAR FOOT	EACH	SQUARE YARD	CUBIC YARD
07471	HIGHWAY 8 OVER ALSOBROOK SLOUGH	BENT 1			23				17.80			1,550	100		80	1	158	92
		BENT 2							14.20		80	1,200	90	35	80			
		BENT 3							14.20		80	1,200	120		80			
		BENT 4							14.20		80	1,200	120		80			
		BENT 5							14.20		80	1,200	120		80			
		BENT 6			23				17.80			1,550	75	30	80		93	58
		31'-0" PRECAST CONCRETE SPANS				10	35	10		13.5								
		SITE NO. 1 (EXISTING BR. NO. M0233)		1														
TOTALS FOR JOB NO. 070375					46	10	35	10	92.40	13.5	320	7,900	625	65	480	1	251	150

LUKE BAILEY
DESIGN SECTION SUPERVISOR

(1) All concrete piling shall be prestressed conforming to Std. Dwg. No. 55022.

(2) Shop drawings for the Precast Concrete Units shall be submitted to the Engineer for review and approval before fabrication begins.

PRINT DATE: 4/29/2020

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

Ellis, Rick
May 1 2020 4:09 PM
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BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
ALSOBROOK SLOUGH STR. & APPRS. (S)
DALLAS COUNTY

ROUTE 8 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 10/7/2019 FILENAME: b070375_q1.dgn
CHECKED BY: DBS DATE: 4-30-2020 SCALE: No Scale
DESIGNED BY: - DATE: -

BRIDGE NO. 07471 DRAWING NO. 61122

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6/2/2020				6	ARK.			
				JOB NO.		070375	23	39

(2) SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

Trinity Smith

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SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	8	STATION
201	GRUBBING	8	STATION
SS & 210	UNCLASSIFIED EXCAVATION	7985	CU. YD.
210	COMPACTED EMBANKMENT	8212	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	2014	TON
SS & 401	TACK COAT	528	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	255	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	11	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	163	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	8	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	880	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	49	TON
412	COLD MILLING ASPHALT PAVEMENT	578	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHNG FOR MAINTENANCE OF TRAFFIC	5	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	5	TON
504	APPROACH SLABS	29.30	CU. YD.
504	APPROACH GUTTERS	11.32	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	24" TEMPORARY CULVERT	64	LIN. FT.
603	96" TEMPORARY CULVERT	624	LIN. FT.
SS & 604	SIGNS	244	SQ. FT.
SS & 604	BARRICADES	256	LIN. FT.
SS & 604	TRAFFIC DRUMS	22	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	8677	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	2100	LIN. FT.
SS & 604	VERTICAL PANELS	13	EACH
SP, SS, & 606	24" SIDE DRAIN	64	LIN. FT.
606	SELECTED PIPE BEDDING	10	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	400	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	5	TON
620	SEEDING	2.49	ACRE
SS & 620	MULCH COVER	5.52	ACRE
620	WATER	336.2	M. GAL.
621	TEMPORARY SEEDING	4.03	ACRE
621	SILT FENCE	1680	LIN. FT.
621	SAND BAG DITCH CHECKS	506	BAG
621	SEDIMENT BASIN	880	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	880	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	1407	CU. YD.
621	ROCK DITCH CHECKS	72	CU. YD.
623	SECOND SEEDING APPLICATION	2.49	ACRE
626	EROSION CONTROL MATTING (CLASS 3)	1445	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	2185	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	2185	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	14	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	3260	POUND
	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	46	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	52.40	CU. YD.
SS & 802	31" PRECAST CONCRETE CURB UNITS	10	EACH
SS & 802	31" PRECAST CONCRETE INTERIOR UNITS	35	EACH
SS & 802	31" PRECAST PARAPET RAIL UNITS	10	EACH
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	13.5	GAL.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	7900	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	320	POUND
SS & 805	CONCRETE PILING (20" SQUARE)	625	LIN. FT.
SS & 805	PREBORING	480	LIN. FT.
SS & 805	TEST PILE (20" SQUARE)	65	LIN. FT.
812	BRIDGE NAME PLATE (TYPE C)	1	EACH
816	FILTER BLANKET	251	SQ. YD.
816	DUMPED RIPRAP	150	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
6/2/2020	REVISED "STORM WATER POLLUTION PREVENTION PLAN" SPECIAL PROVISION	23

TW39665 11/26/2019
RO70375.DGN

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	24	39

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s070375
Date: 6/16/2017
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1794353.4263	1089229.8452	217.456	CTL	AHTD STD. MON. STAMPED PN:1
2	1794560.9565	1089810.2300	218.570	CTL	AHTD STD. MON. STAMPED PN:2
3	1794832.2763	1090499.4274	217.934	CTL	AHTD STD. MON. STAMPED PN:3
4	1794920.8690	1090730.8997	218.563	CTL	AHTD STD. MON. STAMPED PN:4
5	1795058.5271	1091166.7639	218.975	CTL	AHTD STD. MON. STAMPED PN:5
6	1795543.5576	1091911.6891	225.958	CTL	AHTD STD. MON. STAMPED PN:6
100	1795672.3439	1084744.4493	269.766	GPS	AHTD GPS #200014
101	1795160.8341	1086009.2081	242.410	GPS	AHTD GPS #200014A
900	1794733.5479	1088050.6595	219.589	TBM	CHISELED SQUARE NW CNR OF BR HY:8
901	1794528.4110	1088605.3374	219.541	TBM	CHISELED SQUARE NW END OF BR HY:8
902	1794925.9034	1090741.8853	218.573	TBM	CHISELED SQUARE

*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 0.999912409483 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 s070375gi.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

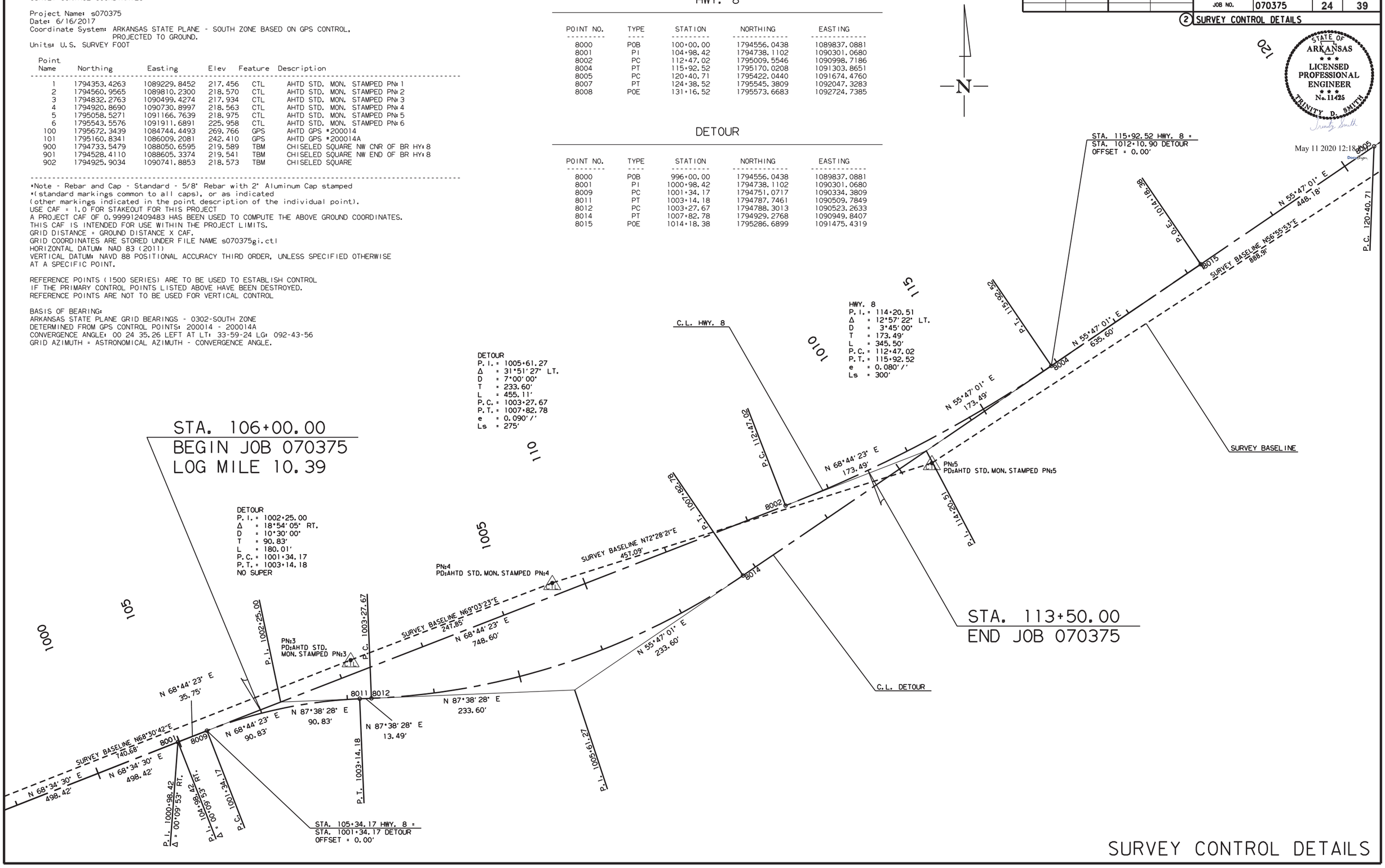
BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 200014 - 200014A
CONVERGENCE ANGLE: 00 24 35.26 LEFT AT LT: 33-59-24 LG: 092-43-56
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 8

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	1794556.0438	1089837.0881
8001	PI	104+98.42	1794738.1102	1090301.0680
8002	PC	112+47.02	1795009.5546	1090998.7186
8004	PT	115+92.52	1795170.0208	1091303.8651
8005	PC	120+40.71	1795422.0440	1091674.4760
8007	PT	124+38.52	1795545.3809	1092047.3283
8008	POE	131+16.52	1795573.6683	1092724.7385

DETOUR

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	996+00.00	1794556.0438	1089837.0881
8001	PI	1000+98.42	1794738.1102	1090301.0680
8009	PC	1001+34.17	1794751.0717	1090334.3809
8011	PT	1003+14.18	1794787.7461	1090509.7849
8012	PC	1003+27.67	1794788.3013	1090523.2633
8014	PT	1007+82.78	1794929.2768	1090949.8407
8015	POE	1014+18.38	1795286.6899	1091475.4319



SURVEY CONTROL DETAILS

TW39665 11/26/2019
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	25	39

(2) PLAN AND PROFILE SHEET

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
107+50.35	109+69.10	RT.	150	1	1
108+25.35	109+69.10	LT.	75	1	1
111+22.90	112+66.65	RT.	75	1	1
111+22.90	113+41.65	LT.	150	1	1

STA. 109+76.15 TO STA. 111+09.10 IN PLACE
BRIDGE NO. M0233
133'-0" X 23'-7" CONCRETE CHANNEL BEAM
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO 1) = 1.00 LUMP SUM

STA. 109+68.50 BRIDGE END
BRIDGE NO. 07471
155'-0" PRECAST CONCRETE SPANS
(31'-31'-31'-31'-31')
31'-6" CLEAR ROADWAY
155.00' BRIDGE LENGTH
STA. 111+23.50 BRIDGE END
Q50 = 8275 C.F.S.; D.A. = 44.53 SQ. MI.

HWY. 8
P.I. = 114+20.51
Δ = 12°57'22" LT.
D = 3°45'00"
T = 173.49'
L = 345.50'
P.C. = 112+47.02
P.T. = 115+92.52
e = 0.080'/'
Ls = 300'

1000 +00 100' TRANSITION +00 105

1005 110

1010 +50 110' TAPER 32.52' OVERLAY 100' TRANSITION +60 +92.52 +92.52 115

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
May 11 2020 12:19 PM

N

ALSOBROOK SLOUGH

25' BUFFER

EXISTING R/W
PROPOSED R/W
CONST. LIMITS
HWY. 8
N 68°34'30" E
N 68°44'23" E
N 87°38'28" E
N 55°47'01" E
T.C.E.
HALL CREEK RD.

P.I. 1002+25.00
P.C. 1003+27.67
P.I. 1000+98.42
Δ = 00°09'53" RT.
P.C. 1001+34.17
P.T. 1003+14.18
P.I. 1005+61.27
P.I. 1007+82.78
P.C. 112+47.02
PT 115+92.52
P.O.E. 1014+18.38
P.I. 1104+98.42
P.I. 1114+20.51

STA. 106+00.00
BEGIN JOB 070375
LOG MILE 10.39

STA. 113+50.00
END JOB 070375

STA. 114+35 IN PLACE
24" X 47' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 64' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT ON RT. = 155 CU. YDS.

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

HWY. 8

STA. 111+33.50 BEGIN SUPERELEVATION (N.C.)
STA. 113+02.25 MAX. SUPERELEVATION (0.045 '/')
STA. 114+19.77 MAX. SUPERELEVATION (0.045 '/')
STA. 114+60.00 MATCH EXISTING SUPERELEVATION (0.034'/')

SFHA
ENTIRE PROJECT

155'-0" BRIDGE LENGTH

K=168.54 VC=150' e=0.17'
K=135.14 VC=100' e=-0.09'
K=140.85 VC=100' e=-0.09'
K=125.00 VC=100' e=0.10'

P.V.C. 106+00.00 ELEV. 219.13
P.V.T. 107+50.00 ELEV. 219.57
P.V.I. 108+75.00 ELEV. 220.50
BRIDGE END STA. 109+68.50
BRIDGE END STA. 111+23.50
P.V.I. 111+85.00 ELEV. 220.50
P.V.C. 112+50.00 ELEV. 220.04
P.V.T. 113+50.00 ELEV. 219.73

-0.15% 0.74% 0.00% -0.71% 0.09%

105+00.00 212.38
105+10.00 213.05
107+00.00 212.25
P.V.I. 106+75.00 ELEV. 219.01
P.V.C. 108+25.00 ELEV. 220.13
P.V.T. 109+25.00 ELEV. 220.50
109+82.43 212.20
109+83.04 211.90
050 DESIGN H. W. ELEVATION 217.5'
111+10.89 212.86
111+10.33 212.58
P.V.C. 111+35.00 ELEV. 220.50
112+10.00 212.96
112+10.00 212.68
P.V.T. 112+35.00 ELEV. 220.15
P.V.I. 113+00.00 ELEV. 219.68
113+50.00 214.22
114+60.00 214.68
114+60.00 217.00

RT. 7' F.B. DITCH GRADE -0.42%
RT. 7' F.B. DITCH GRADE -0.02%
LT. 10' F.B. DITCH GRADE -0.10%
RT. 7' F.B. DITCH GRADE 0.10%
LT. 5' F.B. DITCH GRADE 0.10%
RT. 7' F.B. DITCH GRADE 0.90%
LT. 5' F.B. DITCH GRADE 0.80%
RT. 7' F.B. DITCH GRADE 2.53%

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 215.00 FEET MSL BETWEEN STATIONS 109+65 AND 110+67. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

240 235 230 225 220 215 210 205 200 195

104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00

9/30/2019

R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	26	39

(2) PLAN AND PROFILE SHEET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

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DETOUR
P.I. = 1005+61.27
Δ = 31°51'27" LT.
D = 7°00'00"
T = 233.60'
L = 455.11'
P.C. = 1003+27.67
P.T. = 1007+82.78
e = 0.090'/'
Ls = 275'

1000 105 1005 110 1010 115

ALSOBROOK SLOUGH

32.52' OVERLAY
110' TAPER 100' TRANSITION
+92.52 +92.52

25' BUFFER

EXISTING R/W
PROPOSED R/W
TEMP. CONST. LIMITS
T.C.E.
HALL CREEK RD.

P.I. 1002+25.00
P.C. 1003+27.67
P.T. 1007+82.78
P.C. 1001+34.17
P.I. 1000+98.42 Δ = 00°09'53" RT.
P.T. 1003+14.18
P.I. 1005+61.27
P.C. 1112+47.02
P.T. 1115+92.52
P.I. 1114+20.51
P.O.E. 1014+18.38

N 68°34'30" E
N 68°44'23" E
N 87°38'28" E
N 55°47'01" E

DETOUR
P.I. = 1002+25.00
Δ = 18°54'05" RT.
D = 10°30'00"
T = 90.83'
L = 180.01'
P.C. = 1001+34.17
P.T. = 1003+14.18
NO SUPER

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

STA. 1006+05.00 INSTALL
SEXT. 96" X 104' TEMPORARY PIPE CULVERTS
ON 45° LT. FWD. SKEW
Q2 = 1980 C.F.S. D.A. = 44.53 SQ. MI.

STA. 1010+40 INSTALL
24' X 64' TEMPORARY PIPE CULVERT
ON RT. CONSTRUCT TURNOUT
ON RT. = 55 CU. YDS.

HWY. 8
DETOUR

STA. 1003+14.18 BEGIN SUPERELEVATION (N.C.)
STA. 1005+55.22 MAX. SUPERELEVATION (0.078'/')
STA. 1005+55.23 MAX. SUPERELEVATION (0.078'/')
STA. 1007+96.27 END SUPERELEVATION (N.C.)

SFHA
ENTIRE PROJECT

BEGIN DETOUR STA. 1001+34.17 =
HWY. 8 STA. 105+34.17

END DETOUR STA. 1012+10.90 =
HWY. 8 STA. 115+92.52

P.V.I. 1001+34.17 ELEV. 219.20
P.V.C. 1002+45.00 ELEV. 218.81
P.V.T. 1004+55.00 ELEV. 218.73
P.V.I. 1003+50.00 ELEV. 218.43
P.V.I. 1009+56.42 ELEV. 220.13
P.V.I. 1010+00.00 ELEV. 220.06
P.V.I. 1010+50.00 ELEV. 220.31
P.V.I. 1011+00.00 ELEV. 220.80
P.V.I. 1011+50.00 ELEV. 221.46
P.V.I. 1012+10.90 ELEV. 222.11

K=329.55
VC=210'
e=0.17'

-0.36% 0.28% -0.17% 0.51% 0.97% 1.32% 1.07%

1005+80.00 213.51 LT.
1006+50.00 214.71 RT.

1002+9.44 212.83 RT.
1004+80.00 211.53 RT.
1005+15.00 207.32 RT.
1005+3.00 207.32 RT.
1005+77.00 207.32 RT.
1005+95.00 207.32 RT.
1006+05.00 209.50 LT.
1006+35.00 209.50 LT.
1006+70.00 209.50 LT.
1006+90.00 209.50 LT.
1007+40.00 213.86 LT.
1008+00.00 211.77 RT.
1010+10.00 215.52 RT.
1010+20.00 215.70 RT.
1010+80.00 216.99 RT.

RT. DITCH GRADE -0.50%
RT. DITCH GRADE 1.79%
LT. D.G. 6.04%
RT. D.G. 13.44%
LT. D.G. 8.72%
RT. D.G. 2.16%
RT. D.G. 0.00%
LT. D.G. 0.00%

Q2 DESIGN H. W. ELEVATION 214.05

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 215.00 FEET MSL BETWEEN STATIONS 1005+75 AND 1006+75. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.

F.L. INLET LT. ELEV. = 209.50
F.L. OUTLET RT. ELEV. = 207.32

240 235 230 225 220 215 210 205 200 195

999+00 1000+00 1001+00 1002+00 1003+00 1004+00 1005+00 1006+00 1007+00 1008+00 1009+00 1010+00 1011+00 1012+00 1013+00 1014+00

12/18/2019

R070375.DGN

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.		070375	27	39
				① 07471 - LAYOUT - 61123				

For R/W Data, see Rdwy. Plans.

Use Type D Approach Gutters ("W" = 4'-9") and Type D Approach Slabs (Width = 22'-0") at both ends of bridge. For details see Std. Dwg. Nos. 550300 and 550400, respectively.

The Contractor shall excavate the existing embankments as shown to elevation 214.00. Approx. 270 Cubic Yards of excavation.

③ 10' Flat Bottom Ditch (typ. each side of roadway and both ends of bridge). See Rdwy. Plans.

ALSOBROOK SLOUGH

Top of Cut

Toe of Cut

Toe of Fill

Existing Bridge No. M0233

Level Cut to Elev. 214.00 (typ. both ends of bridge)

Place 1'-6" Dumped Riprap on Filter Blanket as shown. (typ. both ends of bridge) See Std. Dwg. No. 55001.

Tangent Distance 470.08'

Tangent Distance 123.52'

4'-0" Shldr.

30'-0" Pavement

22'-0" Lanes

1'-3" Para. Rail

31'-6" Clear Roadway

34'-0" Out to Out

10'-0" (typ.)

C.L. Bridge & C.L. Construction

N 68° 44' 23" E

Boring Test Hole (typ.)

17' Rt. of Sta. 109+76

17' Rt. of Sta. 111+17

Level

2.0%

1V:2H

1V:3H

45°

30°

Approx. 10.5 Miles to Jct. S.H. 7

Approx. 6.4 Miles to Jct. S.H. 9

109+00

110+00

111+00

112+00

1006+00

1007+00

Temporary Detour Pipes See Rdwy. Plans

C.L. Detour See Rdwy. Plans

PLAN

PVI 108+75.00 Elev. 220.50

+0.74% 0.00%

L= 100'

PVI 111+85.00 Elev. 220.50

0.00% -0.71%

L= 100'

VERTICAL GRADE DATA

Theoretical Grade Along C.L. Const.

Total Length of Bridge = 155'-0"

Five 31'-0" Precast Concrete Spans

Begin Bridge Sta. 109+68.50

End Bridge Sta. 111+23.50

Precast Concrete Parapet Rail

Slope Intercept Sta. 109+63.50

Slope Intercept Sta. 111+28.50

PVT Sta. 109+25.00

PVC Sta. 111+35.00

Proposed Grade Line Along C.L. Bridge

Existing Ground Line Along C.L. Bridge

C.L. Deck to Low Concrete = 1'-9⅜"

C.L. Bent Sta. 109+99.50

C.L. Bent Sta. 110+30.50

Low Concrete to Design H.W. = 1.2'

C.L. Bent Sta. 110+61.50

C.L. Deck to Low Side Top of Cap = 1'-8¾" (typ. at intermediate Bents)

C.L. Bent Sta. 110+92.50

Guard Rails (typ.) See Rdwy. Plans

050 Design High Water Elev. = 217.5

25' Piles

30' Piles

30' Piles

25' Piles

Bridge in Level Grade
Theoretical C.L. Deck Elev. 220.50

Stations shown are along C.L. Construction. Elevations shown are theoretical top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical top of deck elevation at C.L. Bridge. See "DETAIL A" on Dwg. No. 61124 for additional details.

Bent No. 1 2 3 4 5 6

230 220 210 200 190 180 170 160

The proposed bridge is positioned to avoid interference with the existing timber piling. The contractor shall verify the location of the existing piling before driving any piling. Any adjustments necessary to fit the new bridge to the existing bridge location shall be submitted for the Engineer's approval. See "FOUNDATION PLAN" on Dwg. No. 61124 for additional details.

For soil boring information, see Dwg. No. 61124.

ELEVATION

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims unless otherwise noted in the Plans.

LIVE LOADING: HL-93

SEISMIC ZONE: 2 S_{D1}: 0.16 Site Class: D

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.

CONCRETE PILING: Piling in Bents 1 through 6 shall be 20" square prestressed concrete and shall be driven with an approved air, steam or diesel hammer to a minimum ultimate bearing capacity of 258 tons per pile. Piling in end bents shall be driven after embankment to bottom of cap is in place. Drive all piles to a minimum penetration of 20' below final ground surface. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 35' test pile in Bent 2 and one 30' test pile in Bent 6.

PREBORING: All piling shall be prebored to achieve minimum penetration. Quantities of preboring shown are for bidding purposes only. The actual size of preboring shall be determined in the field by the Engineer. After the piles have been driven, the holes shall be backfilled in accordance with Subsection 805.08(a). The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)". It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles will be 66,400 foot pounds per blow.

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 I Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS	DRAWING NOS.
End Bents	61125-61126
Intermediate Bents	61127
31'-0" Precast Concrete Spans	61128
31'-0" Precast Concrete Rails	61129
Concrete Piling	55022

EXISTING BRIDGE: Existing Bridge No. M0233 (Log Mile 10.46) is 25.2' wide (23.6' clear roadway) and 133.0' long and consists of precast concrete channel beam spans supported by timber pile bents, a timber pile false bent, and a steel frame false bent supported by a reinforced concrete footing. The existing bridge occupies the same location as the proposed new bridge.

REMOVAL AND SALVAGE: After the detour alignment is open to traffic, the Contractor shall remove Existing Bridge No. M0233, including steel frames and concrete footing, in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following which shall become property of the State. At the Direction of the Engineer, the existing bridge precast concrete channel units that are in good condition shall be protected and loaded onto State trucks. This work shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No.1)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	TOTAL ② DISCHARGE	DISCHARGE AT THIS SITE	NATURAL ① WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	8,275	4,056	216.2	217.5
Base	100	9,740	4,983	216.5	218.2
Extreme	500	13,463	6,380	217.2	219.3
Overtopping	220	11,700	5,837	216.9	218.4

① Unconstricted water surface elevation without structure or roadway approaches.

② The total discharge includes flow at this site, at West Tulip Creek, Log Mile 10.03, and at West Tulip Relief, Log Mile 9.92.

Q100 backwater elevation for existing structure = 218.3
Proposed Low Bridge Chord Elev. = 218.72
Drainage Area = 44.53 square miles
Historical H.W. Elev. = 220.3

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

May 1 2020 4:08 PM

Charles R. Ellis

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BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 8 OVER ALSOBROOK SLOUGH
ALSOBROOK SLOUGH STR. & APPRS. (S)
DALLAS COUNTY

ROUTE 8 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION

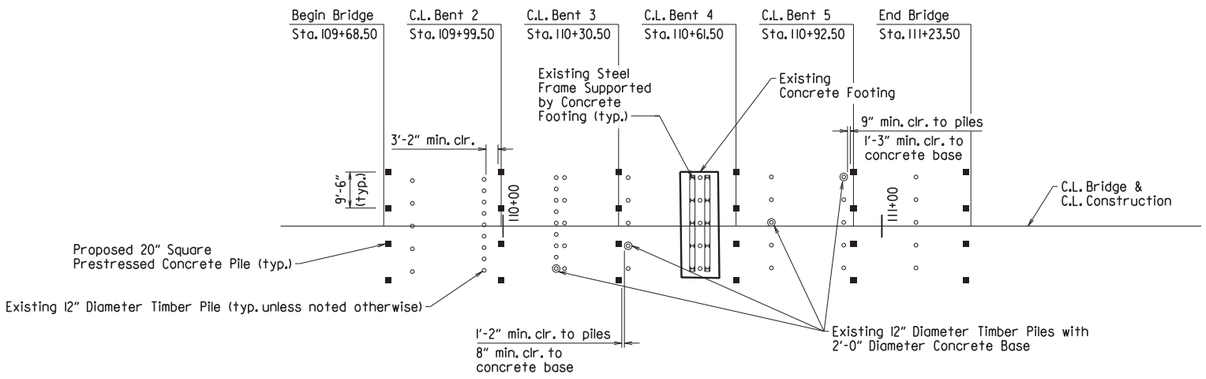
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 6/20/18
CHECKED BY: WAC DATE: 5-1-2020
DESIGNED BY: NAC DATE: 7/2018
FILENAME: b070375_11.dgn
SCALE: 1" = 20'

BRIDGE NO. 07471 DRAWING NO. 61123

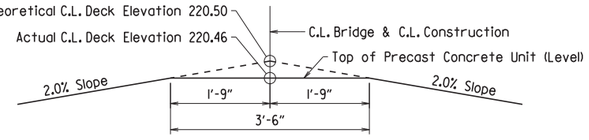
PRINT DATE: 4/29/2020

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.		070375	28	39
				(1)	07471 -	LAYOUT - 61124		



FOUNDATION PLAN

Details shown and dimensions provided are approximate only. Actual conditions may differ slightly from those shown.



DETAIL A

No Scale

"N" VALUES

Sta. 109+68 - 21' Right of C.L. Const.

5.0 - 6.0, N=1
10.0 - 11.0, N=37
15.0 - 16.0, N=25
20.5 - 21.5, N=52
25.5 - 26.5, N=61
30.5 - 31.5, N=79 (10")
35.5 - 36.5, N=58 (7")
40.5 - 41.5, N=28
45.5 - 46.3, N=69 (10")
50.5 - 51.5, N=63
55.5 - 56.5, N=56 (7")
60.5 - 61.5, N=77 (8")
65.5 - 66.1, N=74 (7")
70.5 - 71.3, N=79 (10")
75.5 - 76.5, N=77
80.5 - 81.5, N=66
85.5 - 86.5, N=31
90.5 - 91.5, N=36
95.5 - 96.5, N=46
100.5 - 101.5, N=45

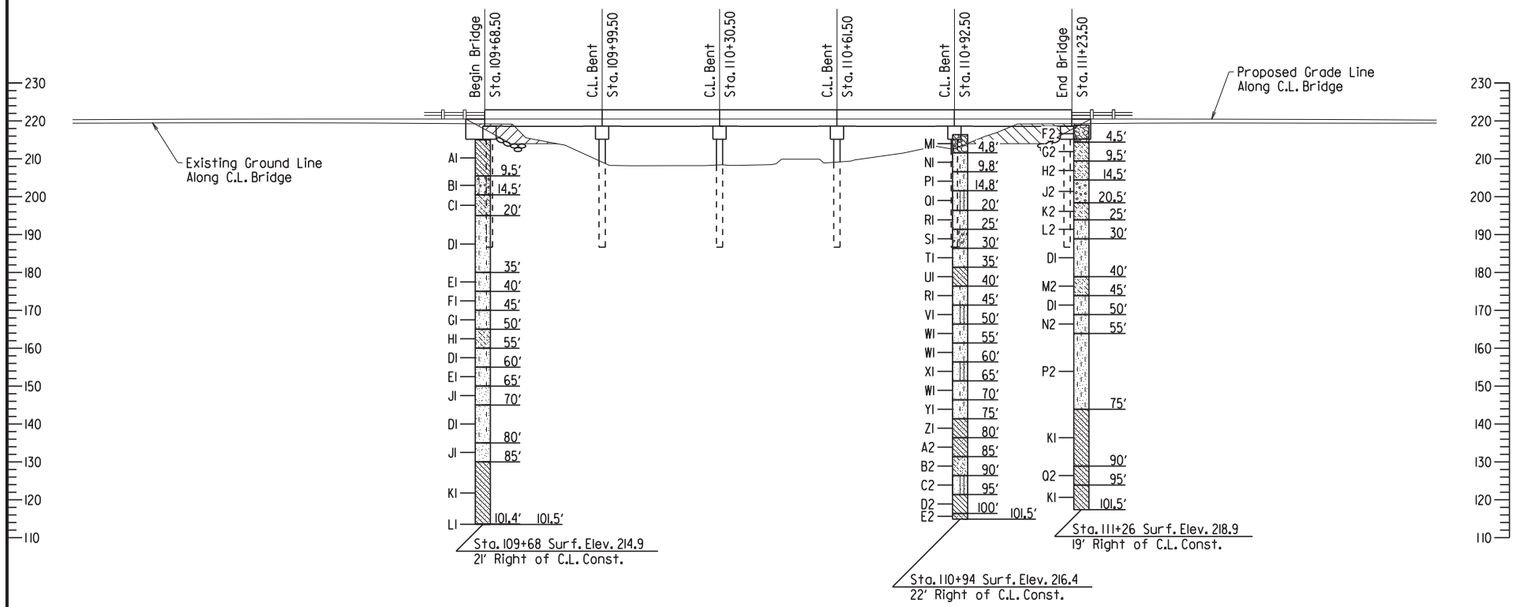
Sta. 110+94 - 22' Right of C.L. Const.

5.3 - 6.3, N=6
10.3 - 11.3, N=18
15.3 - 16.3, N=30
20.5 - 21.5, N=50
25.5 - 26.5, N=38
30.5 - 31.5, N=21
35.5 - 36.5, N=32
40.5 - 41.5, N=39
45.5 - 46.5, N=38
50.5 - 51.5, N=76
55.5 - 56.5, N=54
60.5 - 61.5, N=73
65.5 - 66.5, N=74
70.5 - 71.2, N=66 (8")
75.5 - 76.5, N=29
80.5 - 81.5, N=33
85.5 - 86.5, N=43
90.5 - 91.5, N=29
95.5 - 96.5, N=33
100.5 - 101.5, N=36

Sta. 111+26 - 19' Right of C.L. Const.

5.0 - 6.0, N=10
10.0 - 11.0, N=2
15.0 - 16.0, N=24
21.0 - 22.0, N=28
25.5 - 26.5, N=34
30.5 - 31.3, N=78 (10")
35.5 - 36.0, N=63 (7")
40.5 - 41.5, N=41
45.5 - 46.5, N=53
50.5 - 51.5, N=71
55.5 - 56.1, N=64 (7")
60.5 - 61.2, N=71 (8")
65.5 - 66.3, N=72 (10")
70.5 - 71.2, N=68 (9")
75.5 - 76.5, N=27
80.5 - 81.5, N=31
85.5 - 86.5, N=44
90.5 - 91.5, N=45
95.5 - 96.5, N=34
100.5 - 101.5, N=43

Traces of lignite and pyrite were encountered in the borings and may be encountered in greater amounts at other locations within the project area.



BORING ELEVATION

BORING LEGEND

AI-Wet, Very Soft, Gray Sandy Clay
BI-Wet, Dense, Light Brown Silty Sand with Gravel
CI-Wet, Medium Dense, Brown Clayey Sand
DI-Wet, Very Dense, Brown Silty Sand
EI-Wet, Very Dense, Brown Silty Sand with Trace Lignite
FI-Wet, Medium Dense, Brown Silty Sand
GI-Wet, Very Dense, Brown Silty Sand with Trace Pyrite Nodules
HI-Wet, Very Dense, Brown Clayey Sand with Trace Pyrite Nodules
JI-Wet, Very Dense, Brown Sand with Some Clay
KI-Moist, Hard, Brown Sandy Clay
LI-Moist, Hard, Brown Clay
MI-Sandy Clay with Gravel, Cobbles, and Boulders
NI-Moist, Loose, Brown and Gray Silty Sand with Trace Gravel
PI-Wet, Medium Dense, Gray Silty Sand with Trace Gravel
QI-Wet, Medium Dense, Gray Sandy Silt
RI-Wet, Dense, Gray Silty Sand
SI-Wet, Dense, Gray Silty Sand with Gravel
TI-Wet, Dense, Gray Silty Sand with Some Lignite
UI-Wet, Hard, Gray Sandy Lean Clay
VI-Wet, Dense, Gray Sandy Silt with Trace Pyrite Nodules
WI-Wet, Very Dense, Gray Silty Sand
XI-Wet, Very Dense, Gray Silt with Sand
YI-Wet, Very Dense, Gray Silty Sand with Some Lignite
ZI-Wet, Very Stiff, Gray Lean Clay with Sand and Some Lignite
A2-Wet, Dense, Gray Silt with Sand
B2-Wet, Dense, Gray Clayey Sand
C2-Wet, Medium Dense, Gray Silt with Sand
D2-Wet, Hard, Gray Lean Clay
E2-Wet, Hard, Gray Lean Clay with Sand
F2-Clayey Sand with Gravel and Cobbles
G2-Moist, Loose, Reddish Brown Clayey Sand with Some Gravel
H2-Wet, Very Loose, Gray Clayey Sand
J2-Wet, Medium Dense, Gray Gravel with Sand
K2-Wet, Medium Dense, Brown Sand with Clay and Trace Pyrite Nodules
L2-Wet, Dense, Brown Silty Sand
M2-Wet, Dense, Brown Clayey Sand with Some Lignite
N2-Wet, Very Dense, Brown Silty Sand with Some Lignite
P2-Wet, Very Dense, Brown Silty Sand Trace Pyrite Nodules
Q2-Moist, Hard, Brown Sandy Clay with Trace Gravel

PRINT DATE: 4/29/2020

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

May 1 2020 4:08 PM
Charles R. Ellis
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BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 8 OVER ALSOBROOK SLOUGH
ALSOBROOK SLOUGH STR. & APPRS. (S)
DALLAS COUNTY

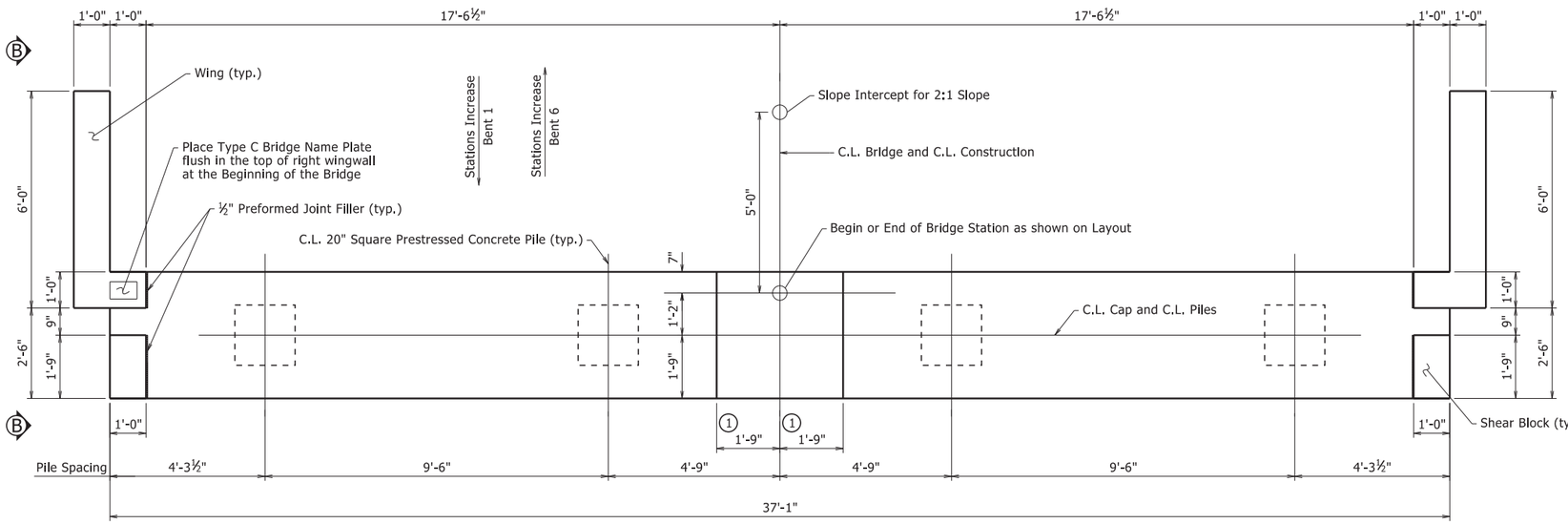
ROUTE 8 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 8/28/19
CHECKED BY: WAC DATE: 5-1-2020
DESIGNED BY: NAC DATE: 7/2018
FILENAME: b070375_11.dgn
SCALE: 1" = 20'

BRIDGE NO. 07471 DRAWING NO. 61124

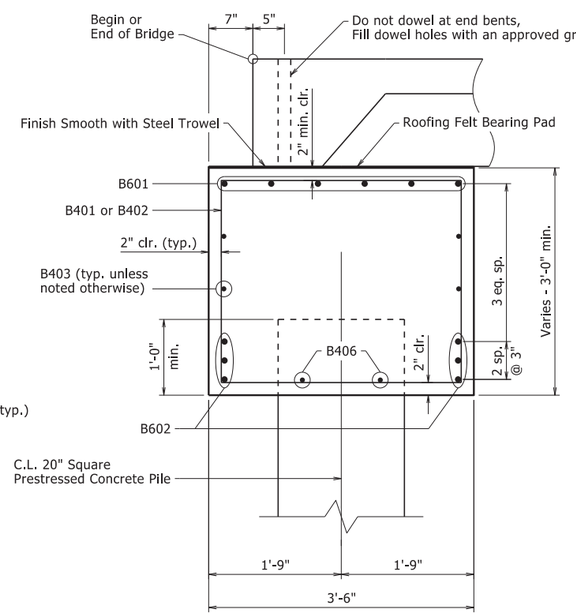
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	29	39
				07471 - END BENTS - 61125				



PLAN

½" = 1'-0"

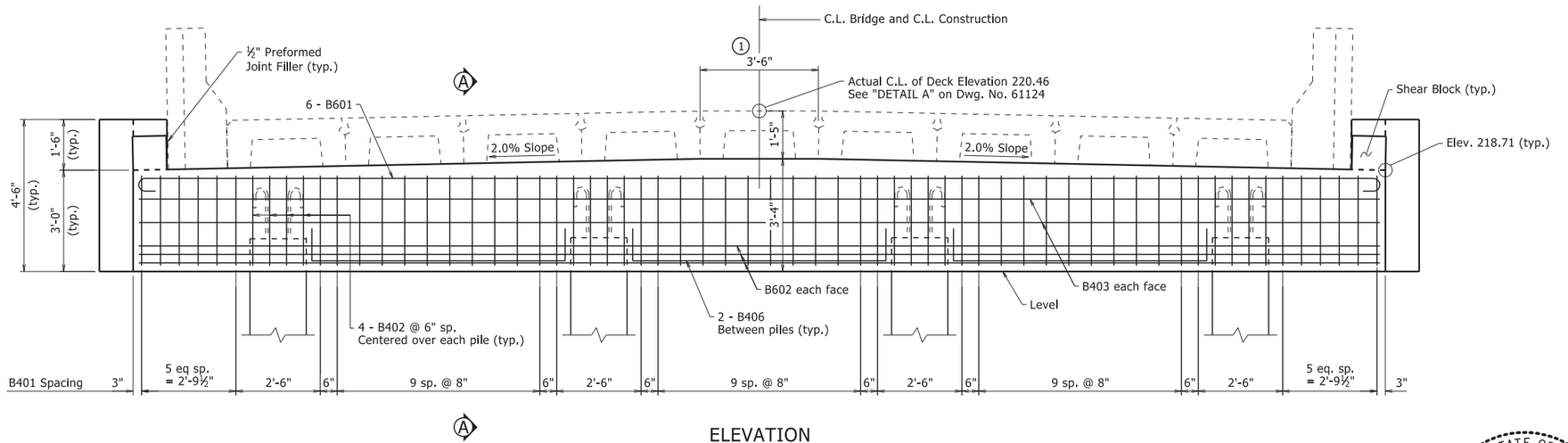
For "VIEW B-B", see Dwg. No. 61126.



SECTION A-A

1" = 1'-0"

Pile Anchorage not shown for clarity, see pile anchorage details on Dwg. No. 61126 for additional information.



ELEVATION

Looking Back Bent 1
Looking Ahead Bent 6
½" = 1'-0"

1 This portion of the cap shall be cast level to elevation 219.04.

GENERAL NOTES

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Reinforcing steel shall be accurately located in the forms and securely held in place by steel wire supports sufficient in size and number to prevent displacement during the course of construction.

All concrete shall be Class S with a minimum 28 day compressive strength f'c=3500 psi. All exposed corners shall be chamfered ¾" unless noted otherwise.

All piling shall be 20" square prestressed concrete piles, and shall conform to Std. Dwg. No. 55022.

Preformed Joint Filler shall conform to AASHTO M153 Type 1 and shall not be paid for directly, but shall be considered subsidiary to the pay items for Precast Concrete Units.

For details of 31'-0" Precast Concrete Spans and Precast Parapet Rails, see Dwg. No. 61128 and Dwg. No. 61129, respectively.

For additional information, See Layout.

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

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Charles R. Ellis

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BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

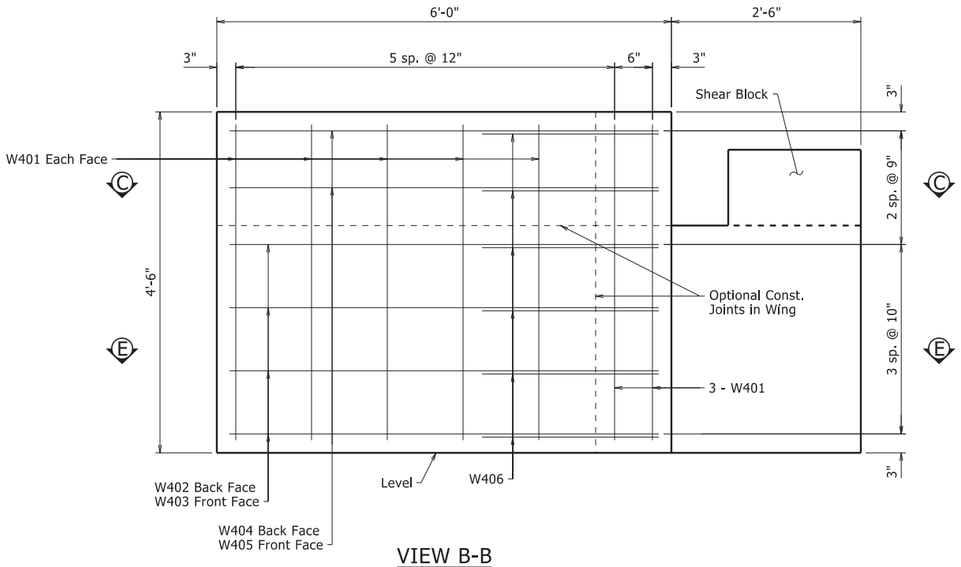
DRAWN BY: NAC DATE: 9/16/19
CHECKED BY: DKS DATE: 4/30/2020
DESIGNED BY: NAC DATE: 9/2018
FILENAME: b070375_b1.dgn
SCALE: As Noted

BRIDGE NO. 07471 DRAWING NO. 61125

PRINT DATE: 4/29/2020

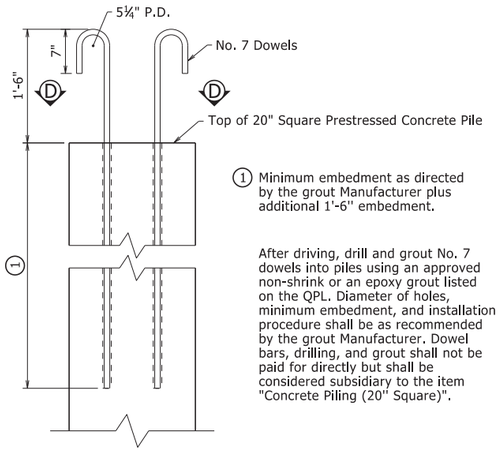
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	30	39

① 07471 - END BENTS - 61126



VIEW B-B

1" = 1'-0"



PILE ANCHORAGE DETAIL

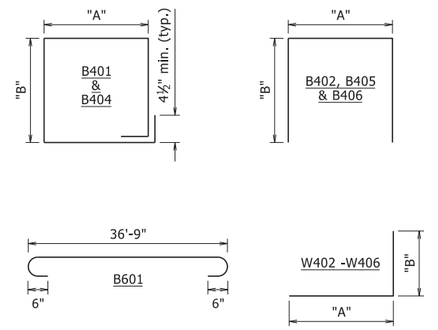
1" = 1'-0"

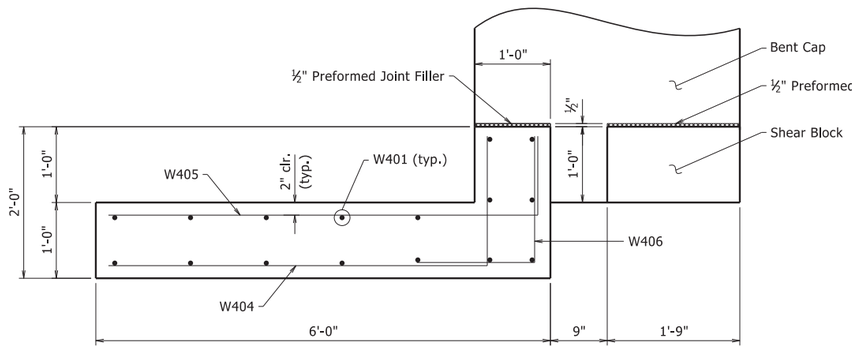
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"A"	"B"	PIN DIA.
B401	48	12'-0"	3'-2"	2'-8"	2"
B402	16	8'-4"	3'-2"	2'-8"	2"
B403	4	36'-9"	-	-	Str.
B404	4	4'-6"	1'-5"	8"	2"
B405	8	4'-7"	7"	2'-1"	2"
B406	6	9'-2"	7'-4"	1'-0"	2"
B601	6	38'-1"	-	-	4½"
B602	6	36'-9"	-	-	Str.
W401	32	4'-2"	-	-	Str.
W402	8	6'-11"	5'-0"	2'-0"	2"
W403	8	6'-11"	5'-8"	1'-4"	2"
W404	4	6'-7"	5'-0"	1'-8"	2"
W405	4	6'-7"	5'-8"	1'-0"	2"
W406	12	3'-3"	1'-8"	1'-8"	2"

BENDING DIAGRAMS

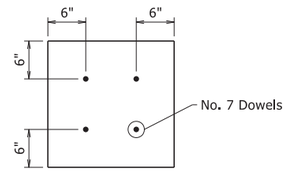
(Dimensions are out to out of bars)





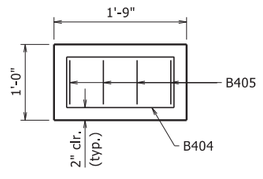
SECTION C-C

1" = 1'-0"



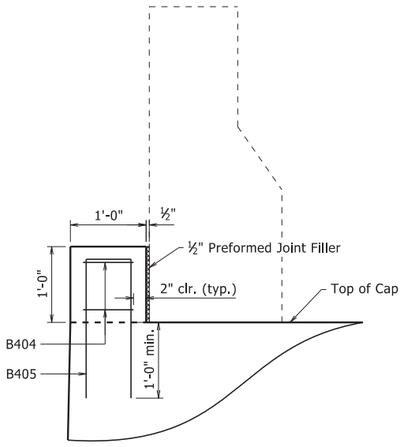
VIEW D-D

1" = 1'-0"



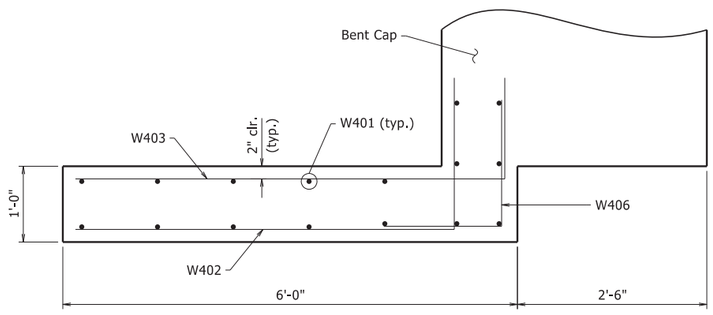
SHEAR BLOCK - PLAN

1" = 1'-0"



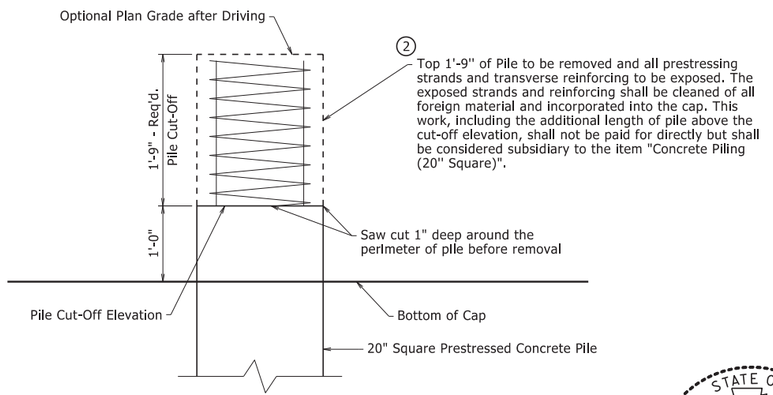
SHEAR BLOCK - ELEVATION

1" = 1'-0"



SECTION E-E

1" = 1'-0"



ALTERNATE PILE ANCHORAGE DETAIL

1" = 1'-0"

② If for any reason there is not 1'-9" of pile above the Pile Cut-Off Elevation after driving, the doweled connection shown in "PILE ANCHORAGE DETAIL" must be used.

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

May 1 2020 4:08 PM

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BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC	DATE: 9/16/19	FILENAME: b070375_b1.dgn	
CHECKED BY: DKS	DATE: 4/30/2020	SCALE: As Noted	
DESIGNED BY: NAC	DATE: 9/2018		

BRIDGE NO. 07471 DRAWING NO. 61126

PRINT DATE: 4/29/2020

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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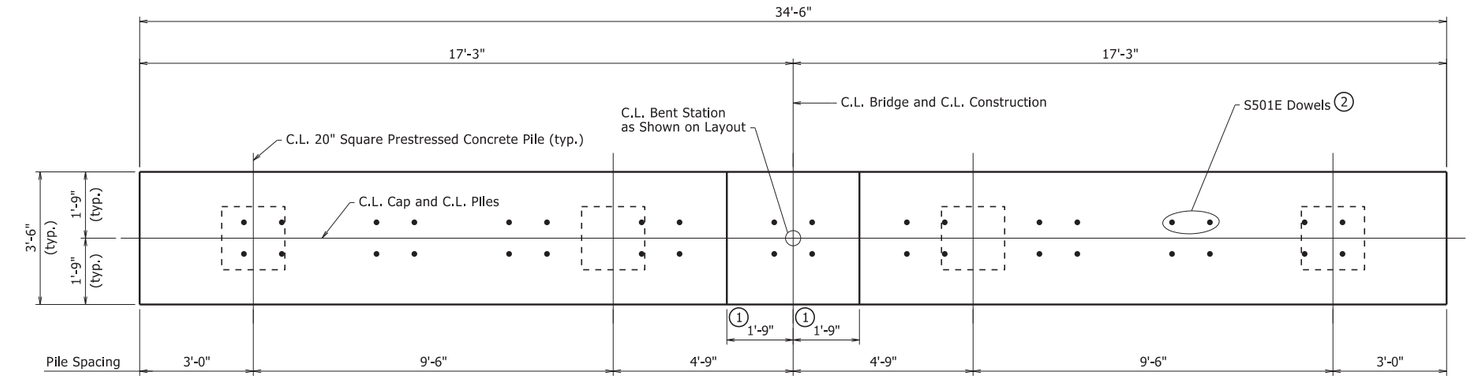
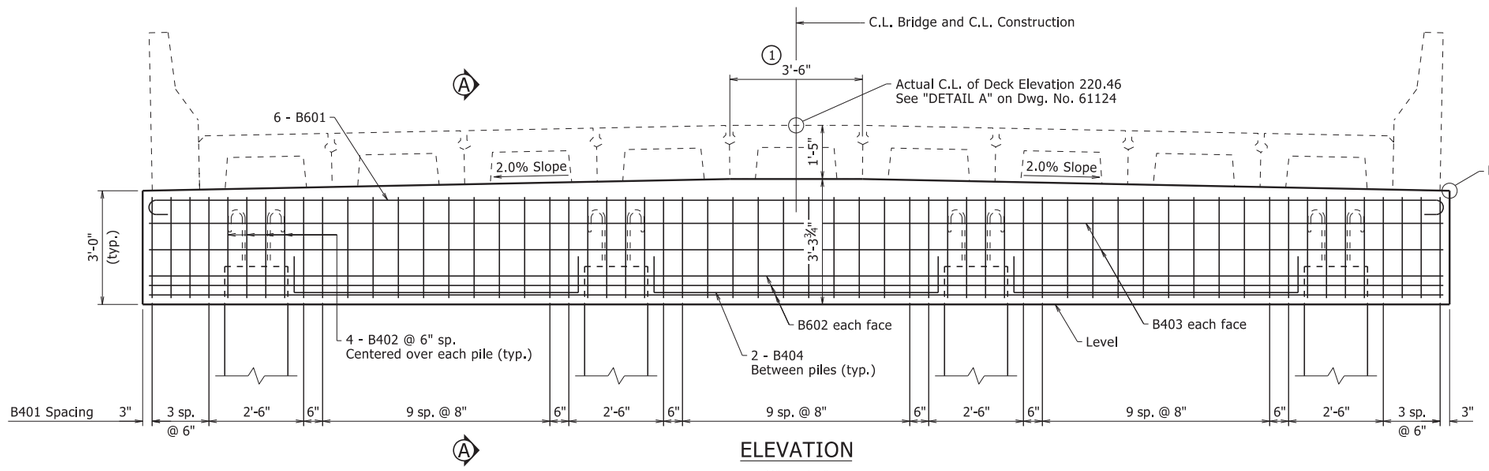


PLAN

½" = 1'-0"

(1) This portion of the cap shall be cast level to elevation 219.04.



ELEVATION

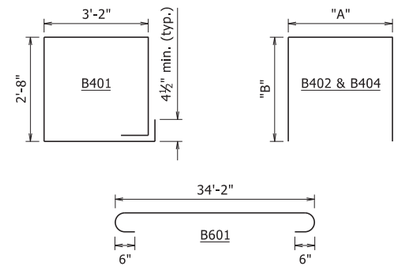
½" = 1'-0"

BAR LIST - PER BENT

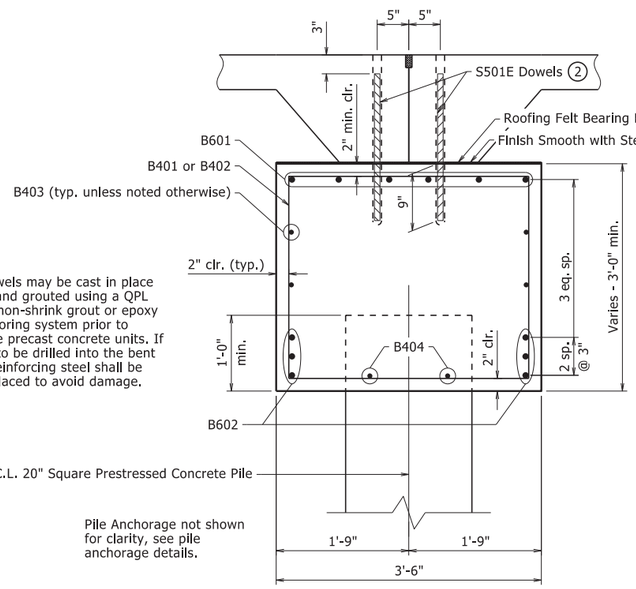
MARK	NO. REQ'D.	LENGTH	"A"	"B"	PIN DIA.
B401	44	12'-0"	-	-	2"
B402	16	8'-4"	3'-2"	2'-8"	2"
B403	4	34'-2"	-	-	Str.
B404	6	9'-2"	7'-4"	1'-0"	2"
B601	6	35'-6"	-	-	4½"
B602	6	34'-2"	-	-	Str.
S501E	36	1'-11"	-	-	Str.

BENDING DIAGRAMS

(Dimensions are out to out of bars)



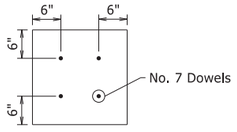
All bars with an "E" suffix shall be Epoxy Coated.



(2) S501E Dowels may be cast in place or drilled and grouted using a QPL approved non-shrink grout or epoxy resin anchoring system prior to placing the precast concrete units. If holes are to be drilled into the bent cap, top reinforcing steel shall be properly placed to avoid damage.

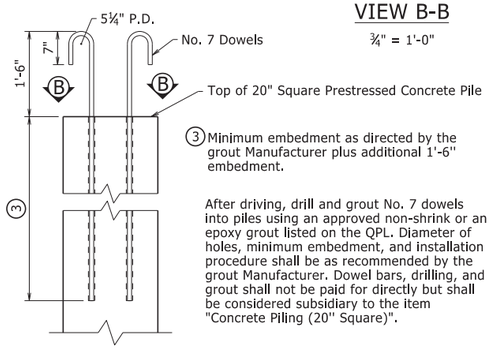
SECTION A-A

1" = 1'-0"



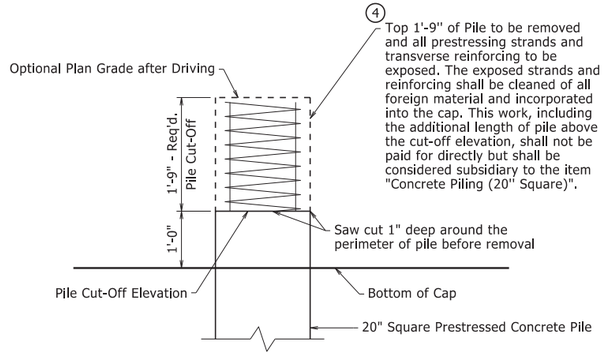
VIEW B-B

¾" = 1'-0"



PILE ANCHORAGE DETAIL

¾" = 1'-0"



ALTERNATE PILE ANCHORAGE DETAIL

¾" = 1'-0"

(4) If for any reason there is not 1'-9" of pile above the Pile Cut-Off Elevation after driving, the doweled connection shown in "PILE ANCHORAGE DETAIL" must be used.

GENERAL NOTES

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Reinforcing steel shall be accurately located in the forms and securely held in place by steel wire supports sufficient in size and number to prevent displacement during the course of construction and to avoid interference with dowel bars.

All concrete shall be Class S with a minimum 28 day compressive strength f'c=3500 psi. All exposed corners shall be chamfered ¾" unless noted otherwise.

Pile anchorage shall be placed to avoid interference with dowel bars.

All piling shall be 20" square prestressed concrete piles, and shall conform to Std. Dwg. No. 55022.

For details of 31'-0" Precast Concrete Spans and Precast Parapet Rails, see Dwg. No. 61128 and Dwg. No. 61129, respectively.

For additional information, See Layout.

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No. 9235
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DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 9/16/19 FILENAME: b070375_b2.dgn

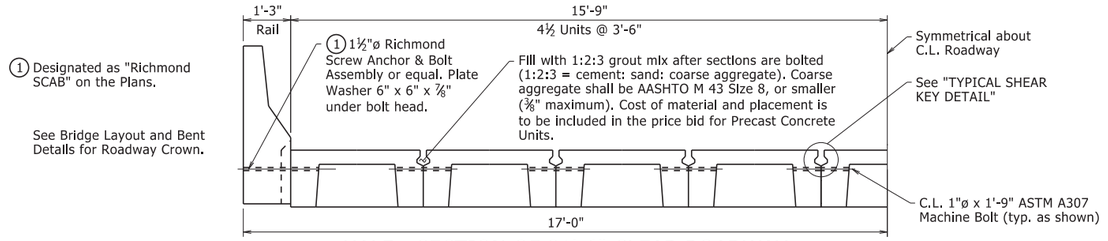
CHECKED BY: DKS DATE: 4/30/2020 SCALE: As Noted

DESIGNED BY: NAC DATE: 7/2018

BRIDGE NO. 07471 DRAWING NO. 61127

PRINT DATE: 5/1/2020

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.		070375	32	39
				①	07471 - 31' PRECAST SPAN - 61128			

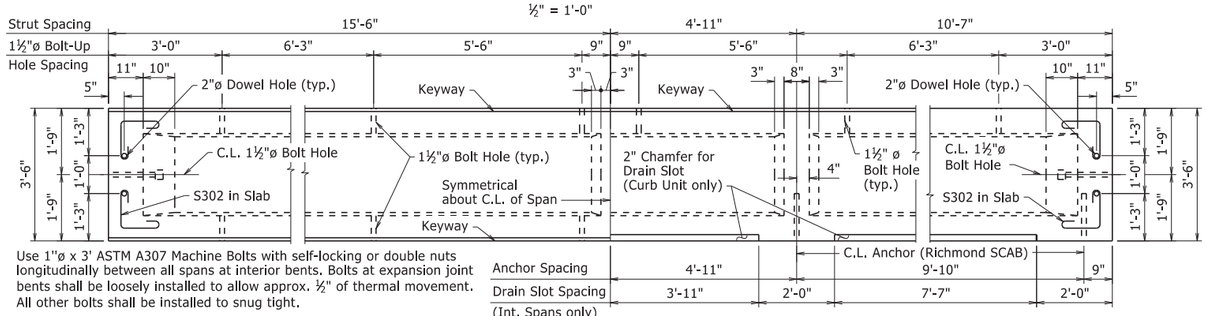


① Designated as "Richmond SCAB" on the Plans.

See Bridge Layout and Bent Details for Roadway Crown.

HALF - SECTION OF 31'-6" CLEAR ROADWAY

½" = 1'-0"



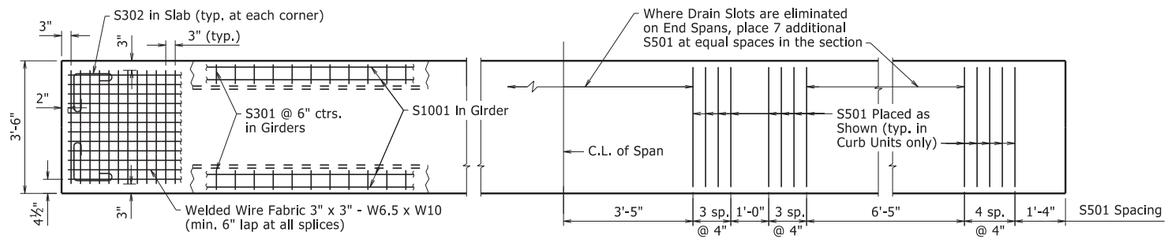
Use 1"ø x 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

½" = 1'-0"

HALF PLAN - CURB UNIT ONLY

½" = 1'-0"

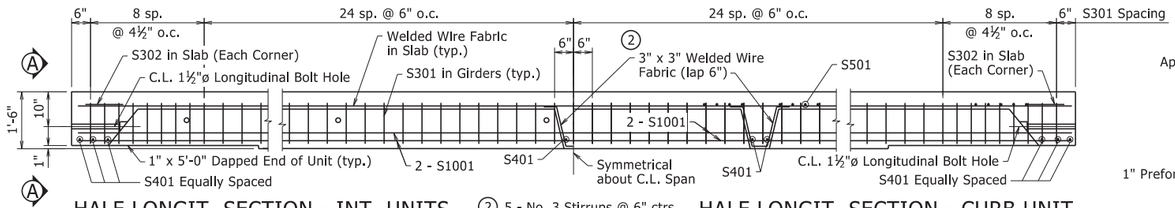


HALF REINFORCING PLAN - CURB & INT. UNITS

½" = 1'-0"

HALF REINFORCING PLAN - CURB UNIT ONLY

½" = 1'-0"



HALF LONGIT. SECTION - INT. UNITS

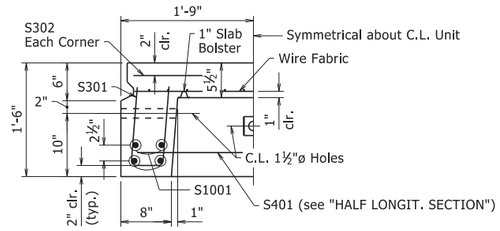
½" = 1'-0"

② 5 - No. 3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

HALF LONGIT. SECTION - CURB UNIT

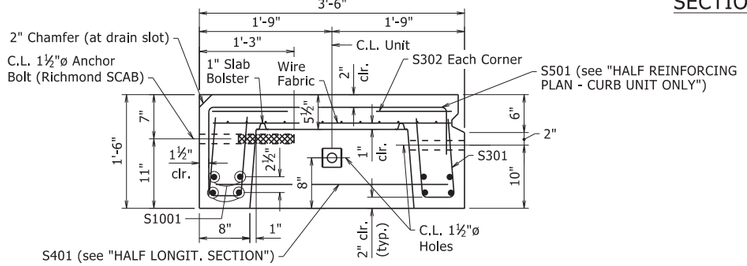
½" = 1'-0"

Bolt holes not shown for Curb Unit interior girder.



HALF - SECTION THRU INT. UNIT

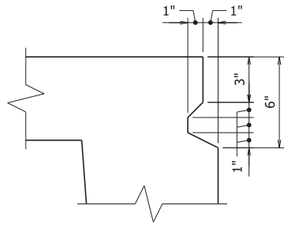
Shown Near Midspan
1" = 1'-0"



SECTION THRU CURB UNIT

Shown Near Midspan
1" = 1'-0"

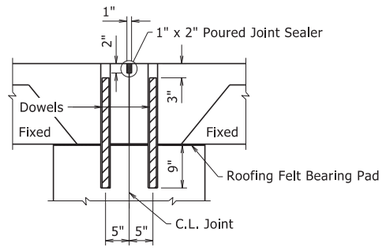
Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the concrete parapet rails.



TYPICAL SHEAR KEY DETAIL

No Scale

All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.



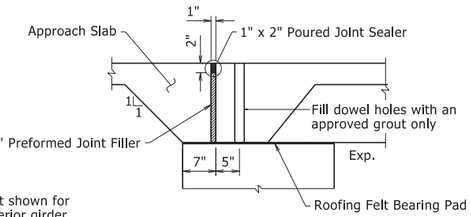
SECTION AT INTERMEDIATE BENT

¾" = 1'-0"

After each unit is in its final position, dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes. See bent drawings for more information.

Poured Joint Sealer shall meet Subsection 501.02(h) (2), Type 3 or 4.

Preformed Joint Filler shall conform to AASHTO M153 Type 1 and shall not be paid for directly, but shall be considered subsidiary to the pay items for Precast Concrete Units.



SECTION AT END BENT

¾" = 1'-0"

GENERAL NOTES

Design Specifications: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014).

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

Live Loading: HL-93

Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Wire fabric shall be AASHTO M 55 or M 221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in Subsection 802.19.

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be ASTM A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50. Plate Washers for SCAB shall be ASTM A709, Grade 36 and shall be galvanized to meet AASHTO M 111.

Camber required for dead load deflection is ⅜". Deviation of more than ⅛" in dimension of grade or line will be cause for rejection.

Ends of adjacent units shall be coated (1/16"+/-) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad, asphaltic paint and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units.

Roofing felt shall meet or exceed the requirements of ASTM D6380 Class S Type IV. The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Pay Items shall be as follows:
"31' Precast Concrete Curb Units"
"31' Precast Concrete Interior Units"
"31' Precast Parapet Rail Units"

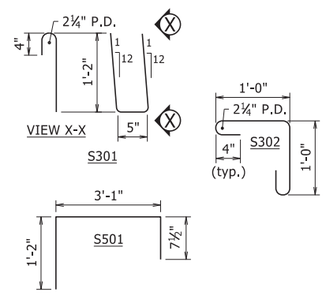
BAR LIST - PER UNIT

MARK	NO. REQ'D. CURB	NO. REQ'D. INT.	LENGTH	P.D.
S301	130	130	3'-5½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 ③	-	4'-8"	2½"
S1001	8	8	30'-8"	Str.

③ 7 additional S501 bars for each Drain Slot eliminated.

BENDING DIAGRAMS

(Dimensions are out to out of bars)



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BRIDGE ENGINEER

DETAILS OF 31'-0" PRECAST CONCRETE SPANS 31'-6" CLEAR ROADWAY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

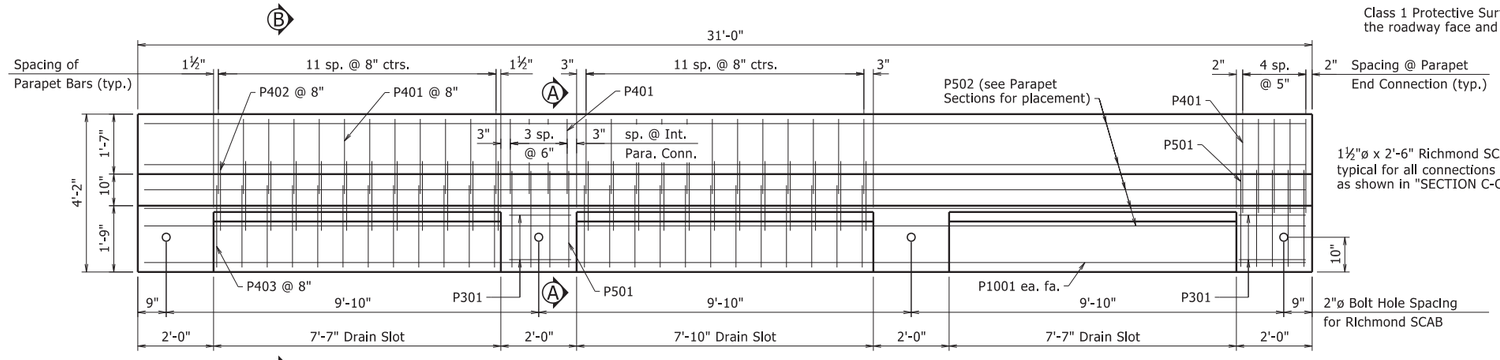
DRAWN BY: NAC DATE: 9/23/19 FILENAME: b070375_s1.dgn
CHECKED BY: DKS DATE: 4/30/2020 SCALE: As Noted
DESIGNED BY: STD DATE: -

BRIDGE NO. 07471 DRAWING NO. 61128

PRINT DATE: 4/29/2020

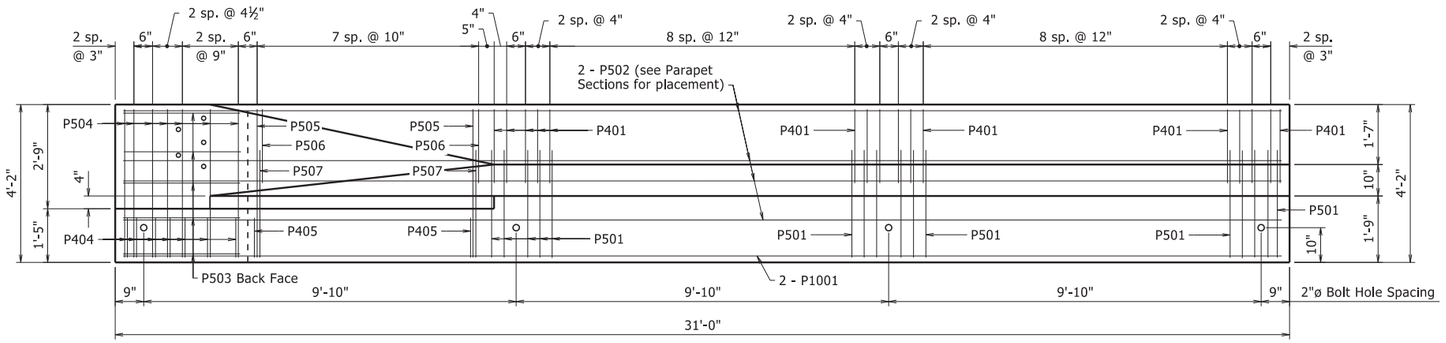
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	33	39
				1	07471 - PRECAST RAIL DETAILS - 61129			

Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the concrete parapet rails.



FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

½" = 1'-0"



FRONT ELEVATION - PRECAST PARAPET RAIL FOR END SPAN

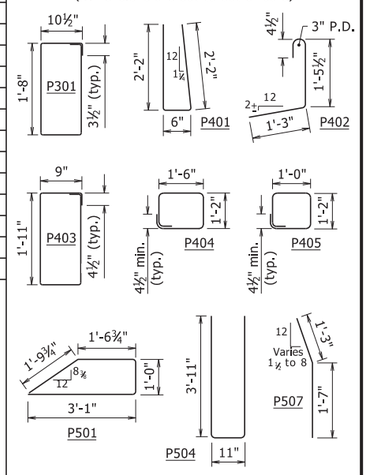
½" = 1'-0"

BAR LIST - PER RAIL

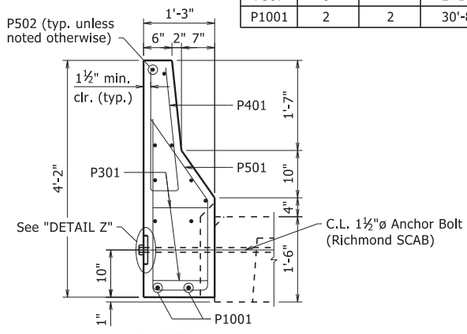
MARK	NO. REQ'D. END	NO. REQ'D. INT.	LENGTH	P.D.
P301	-	8	5'-4"	1½"
P401	30	54	4'-8"	2"
P402	-	36	3'-1½"	2"
P403	-	36	5'-8"	2"
P404	7	-	5'-8"	2"
P405	8	-	4'-8"	2"
P501	30	18	7'-3"	2½"
P502	8	9	30'-8"	Str.
P503	5	-	3'-3"	Str.
P504	7	-	8'-6"	2½"
P505	8	-	3'-11"	Str.
P506	8	-	2'-2"	Str.
P507	8	-	2'-10"	2½"
P1001	2	2	30'-8"	Str.

BENDING DIAGRAMS

(Dimensions are out to out of bars)



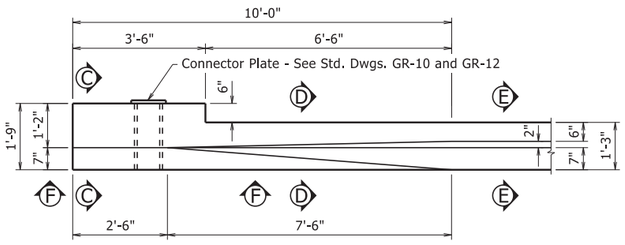
See Dwg. No. 61128 for additional details and general notes pertaining to this drawing.



SECTION A-A

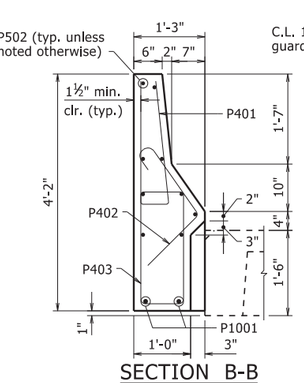
Shown Near Midspan

¾" = 1'-0"



TYPICAL PLAN OF PRECAST PARAPET RAIL FOR END SPAN

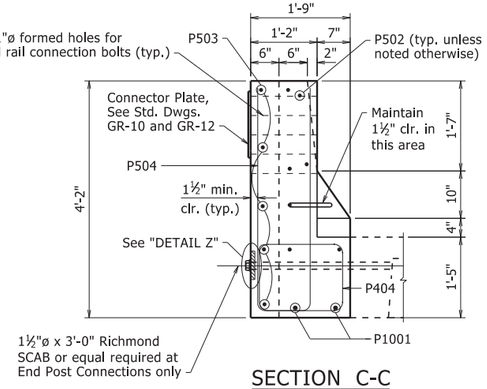
½" = 1'-0"



SECTION B-B

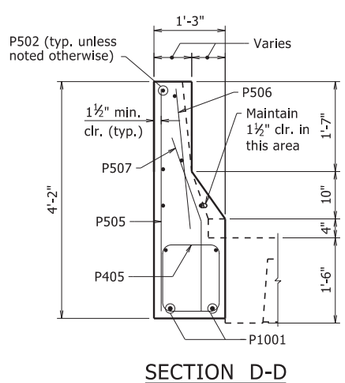
Shown Near Midspan

¾" = 1'-0"



SECTION C-C

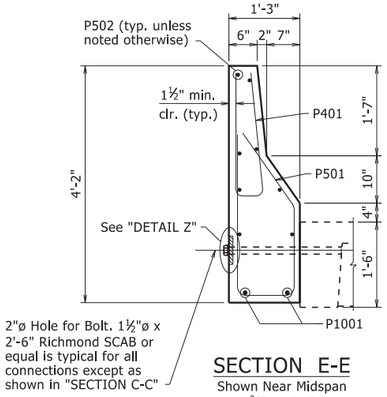
¾" = 1'-0"



SECTION D-D

Shown Near Midspan

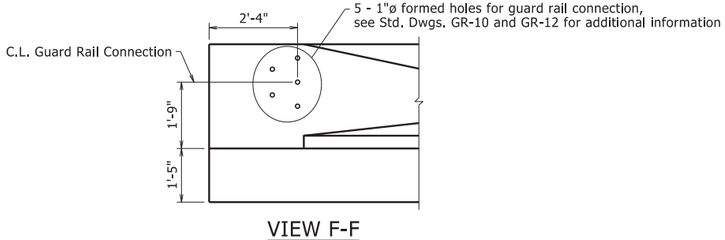
¾" = 1'-0"



SECTION E-E

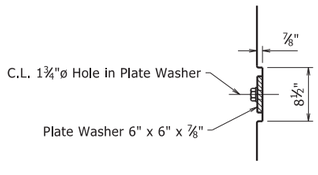
Shown Near Midspan

¾" = 1'-0"



VIEW F-F

½" = 1'-0"



DETAIL Z

No Scale

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

May 1 2020 4:08 PM

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BRIDGE ENGINEER

DETAILS OF 31'-0" PRECAST PARAPET RAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

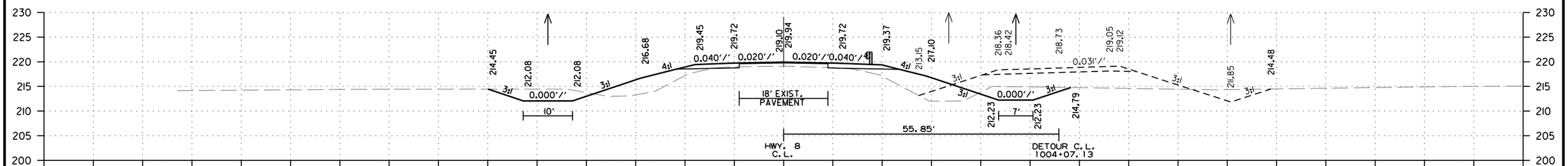
DRAWN BY:	NAC	DATE:	9/25/19	FILENAME:	b070375_s2.dgn
CHECKED BY:	DKS	DATE:	4/30/2020	SCALE:	As Noted
DESIGNED BY:	STD.	DATE:	-		

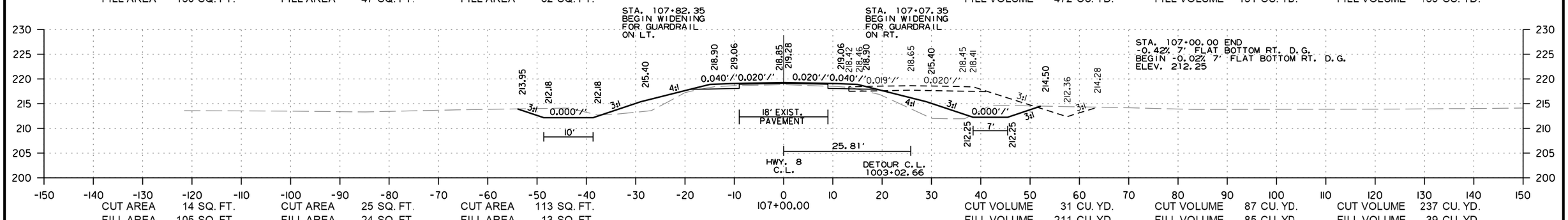
BRIDGE NO. 07471 DRAWING NO. 61129

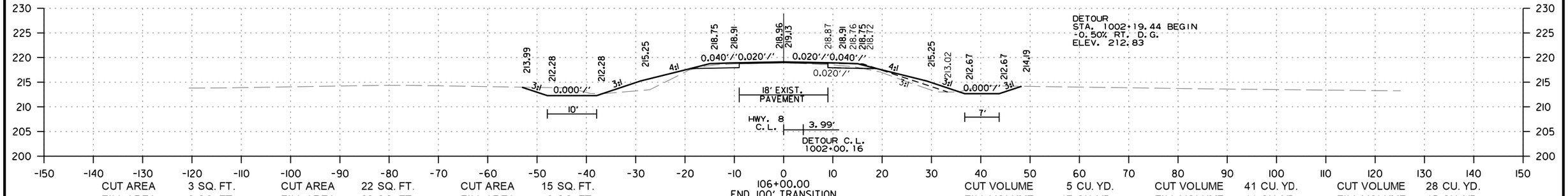
PRINT DATE: 4/29/2020

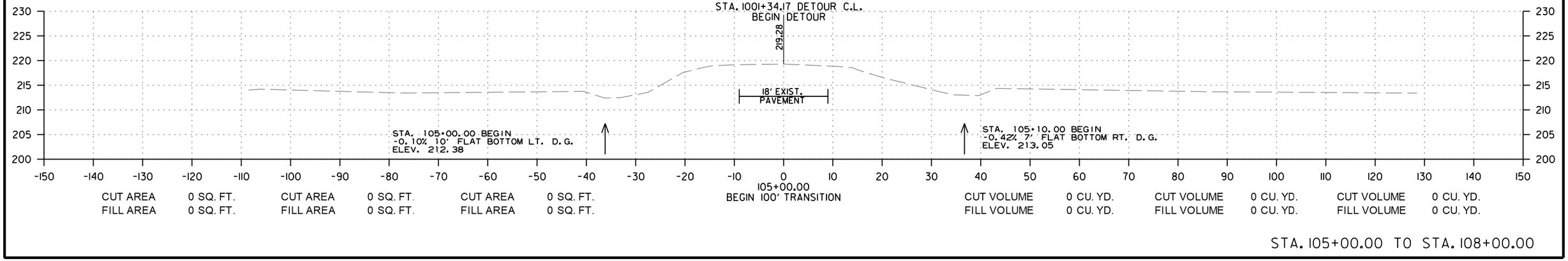
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	34	39

(2) CROSS SECTIONS







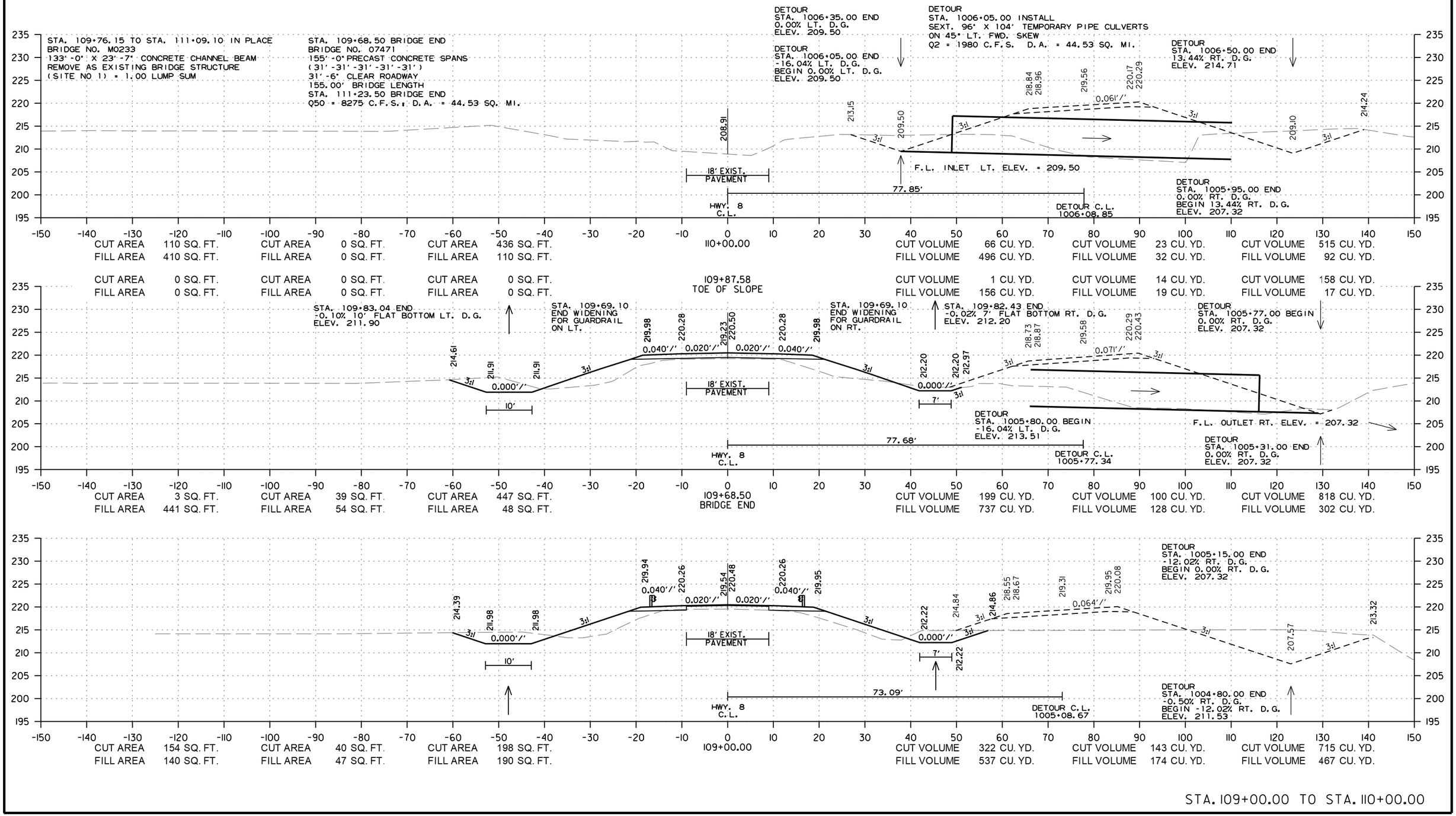


STA. 105+00.00 TO STA. 108+00.00

ah40219 9/30/2019
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	35	39

(2) CROSS SECTIONS



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eh40219 9/30/2019
R070375.DGN

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.		070375	36	39

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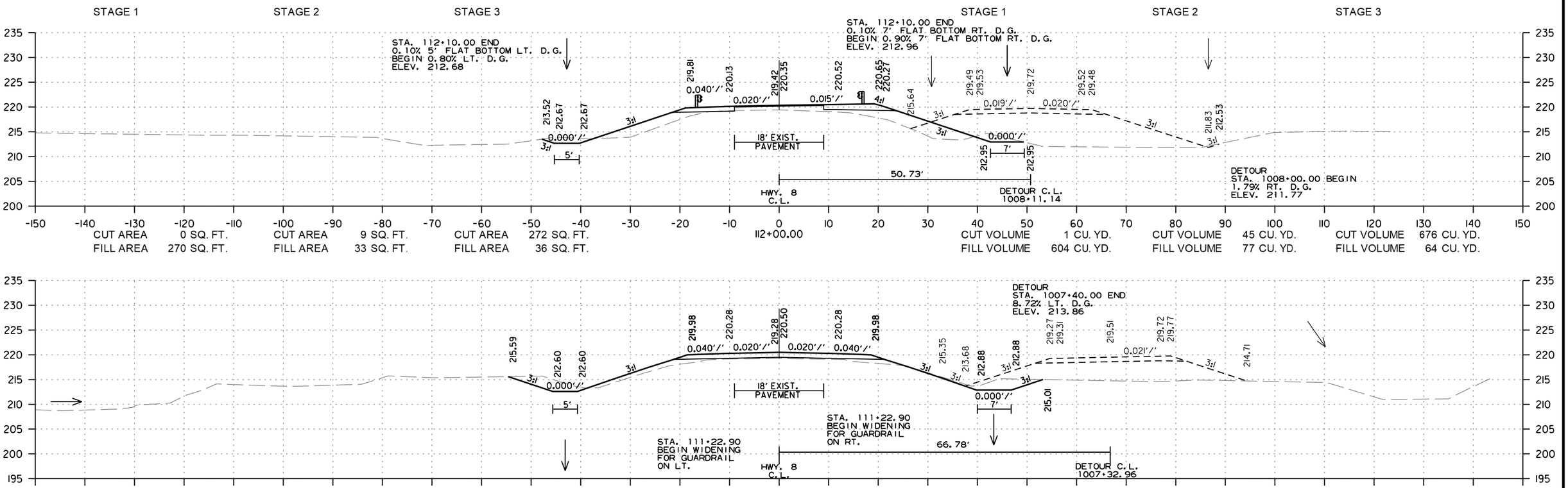
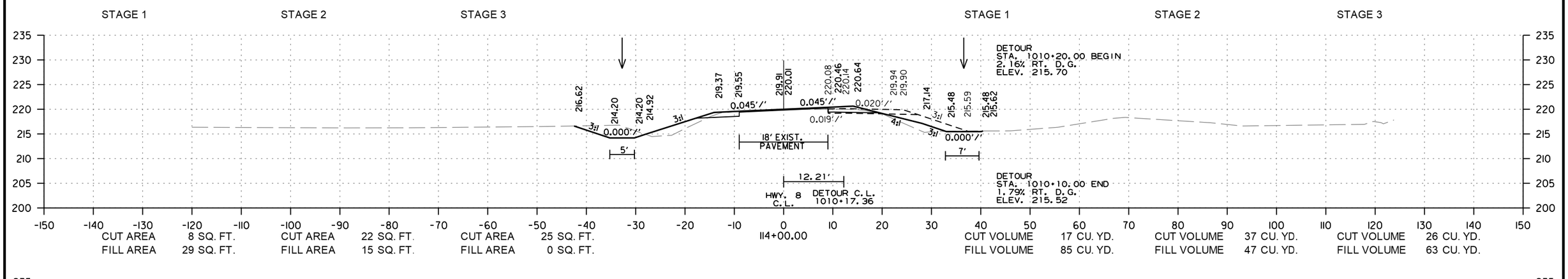


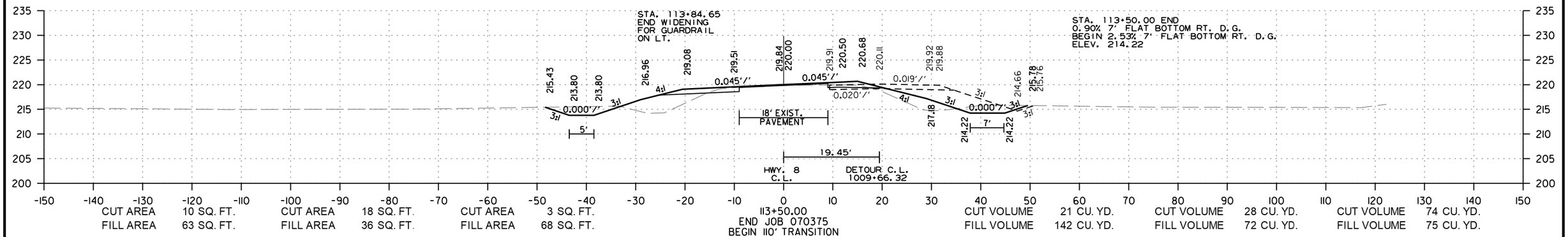
STA. 111+00.00 TO STA. 112+00.00

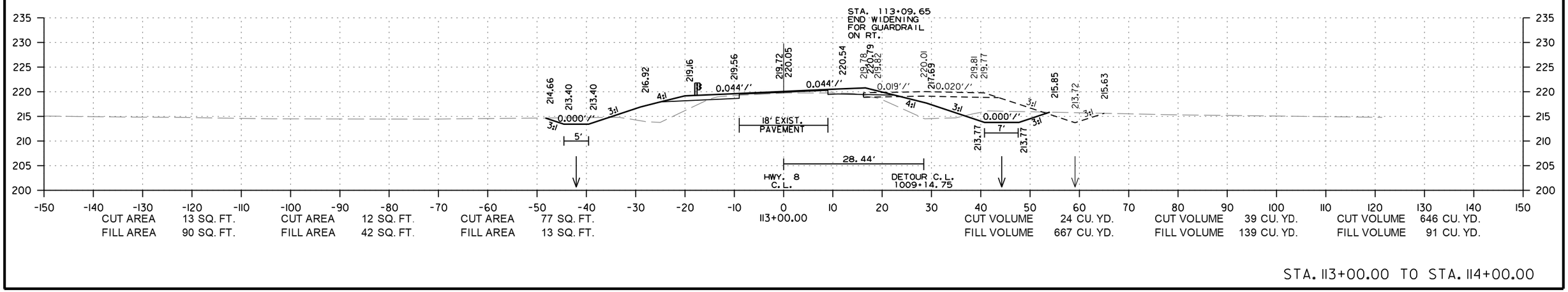
9/30/2019
ah40219
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	37	39

(2) CROSS SECTIONS





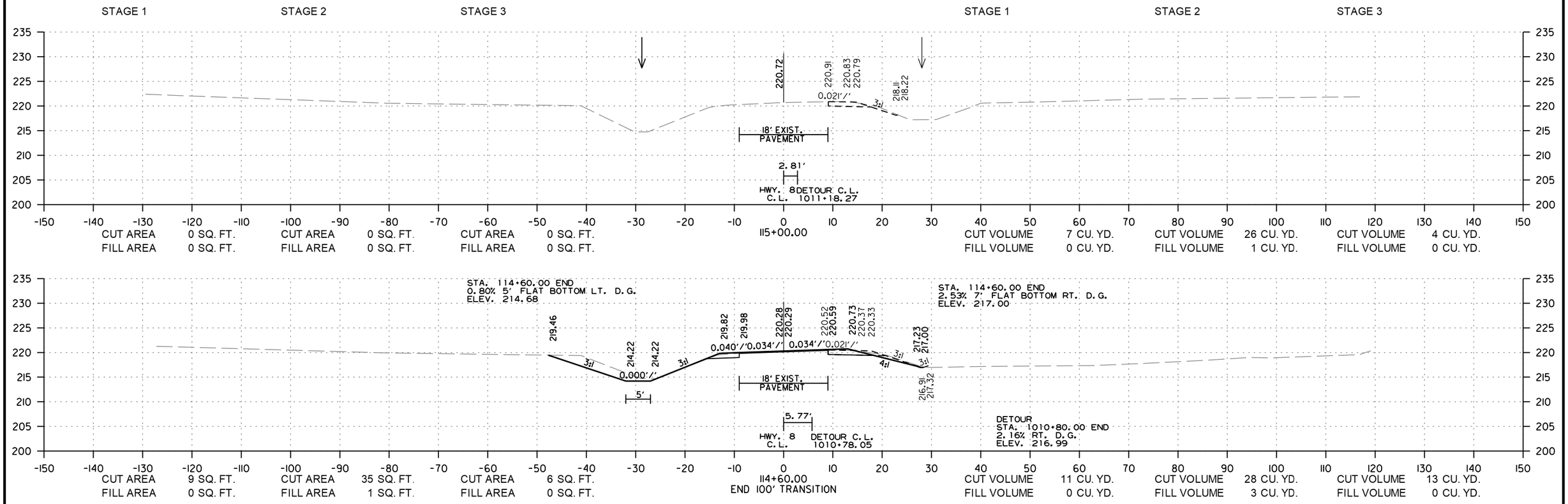


STA. 113+00.00 TO STA. 114+00.00

9/30/2019
ah40219
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070375	38	39

(2) CROSS SECTIONS



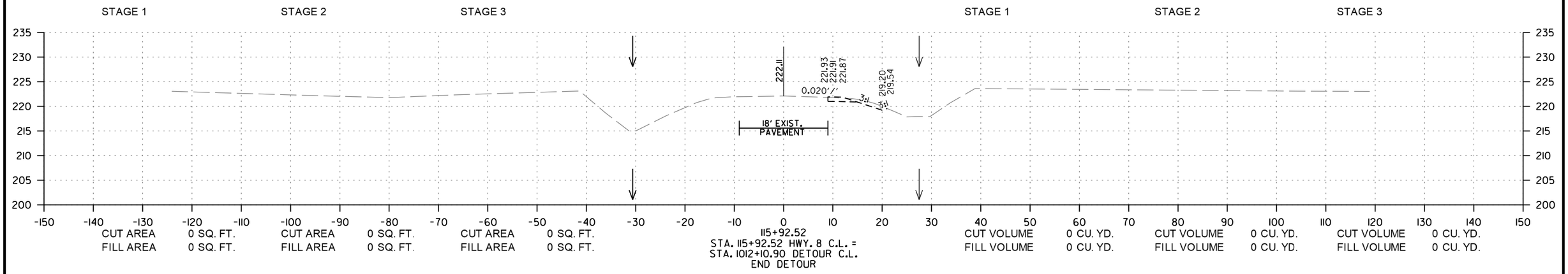
STA. 114+35.00 TO STA. 115+00.00

9/30/2019
ah40219
R070375.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070375	39	39

(2) CROSS SECTIONS

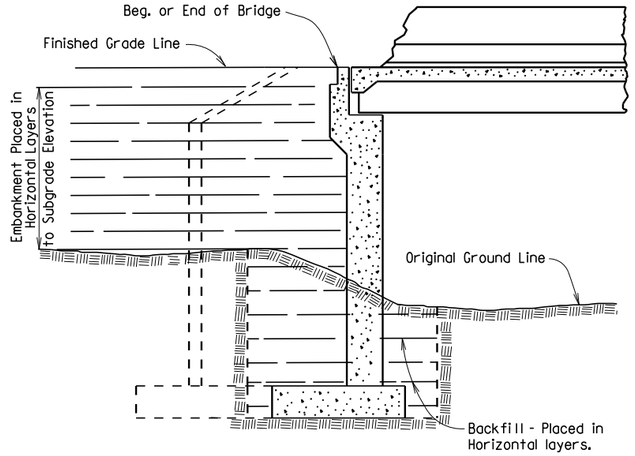


STA. 115+92.52 TO STA. 115+92.52

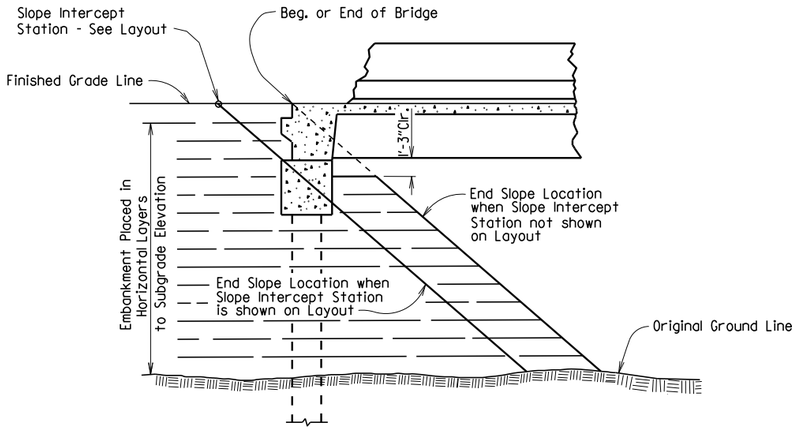
ah40219 9/30/2019
R070375.DGN

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

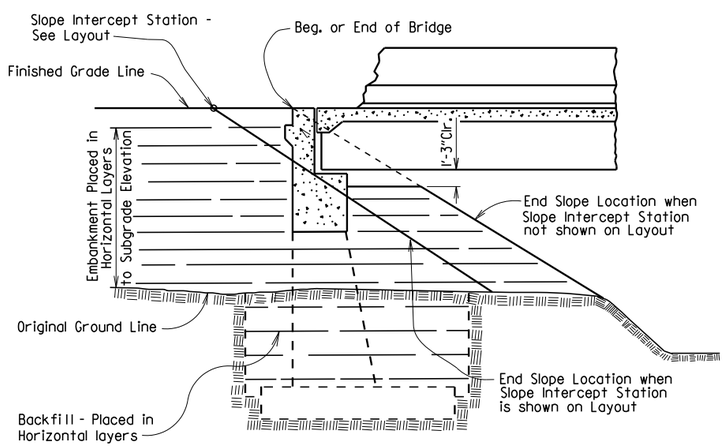
1 EMBANKMENT & BACKFILL 55000



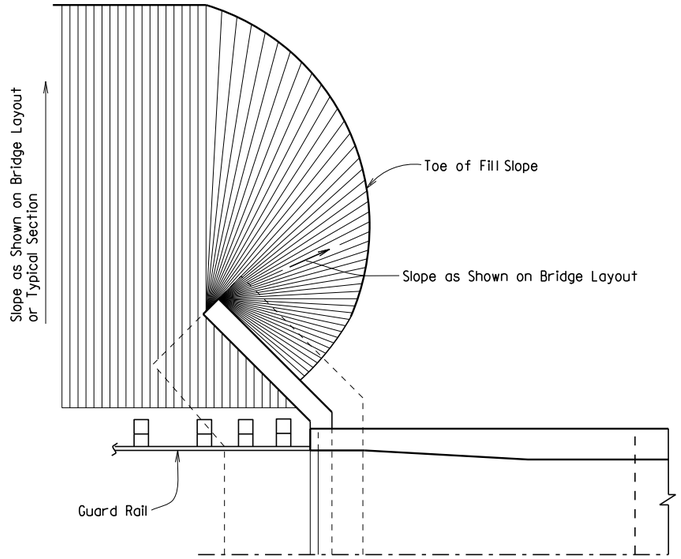
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



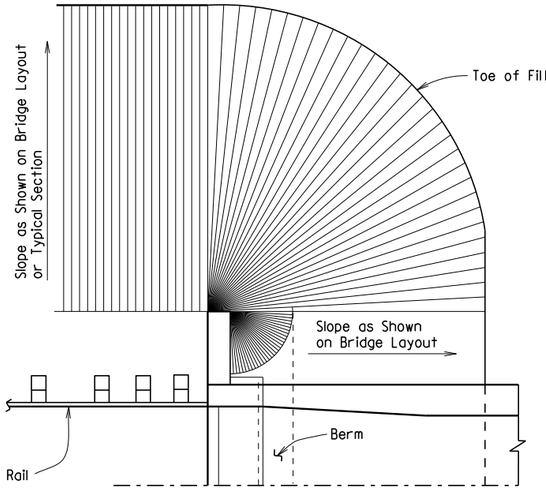
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



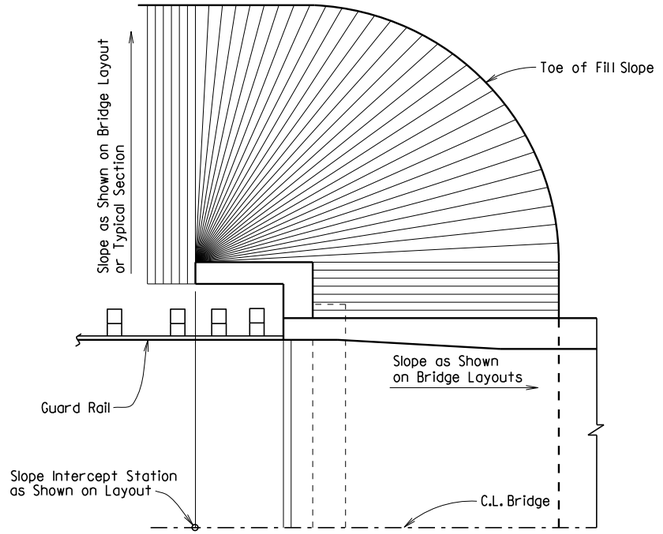
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



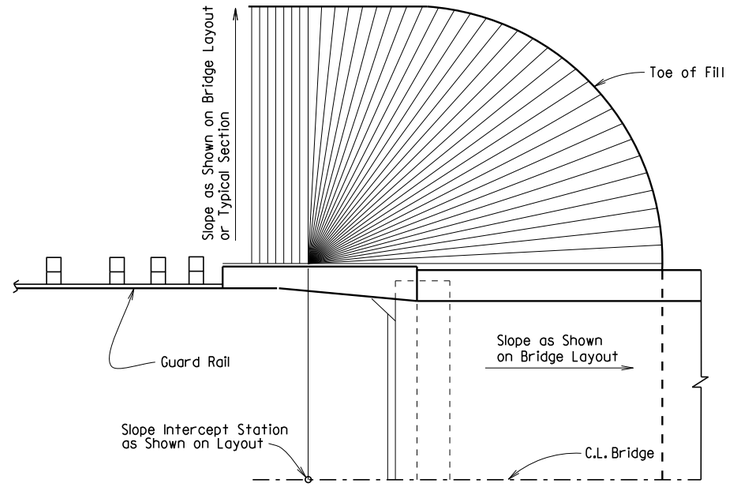
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

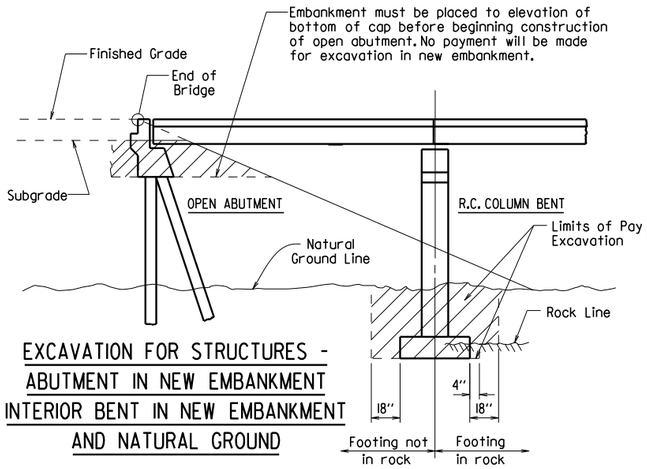
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

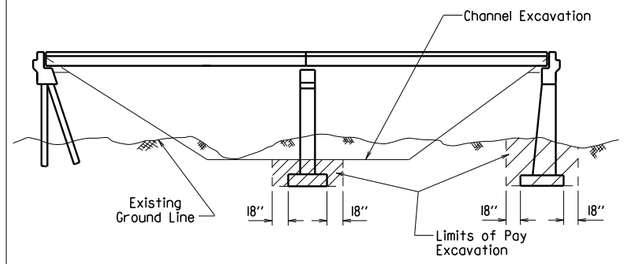
DRAWING NO. 55000

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

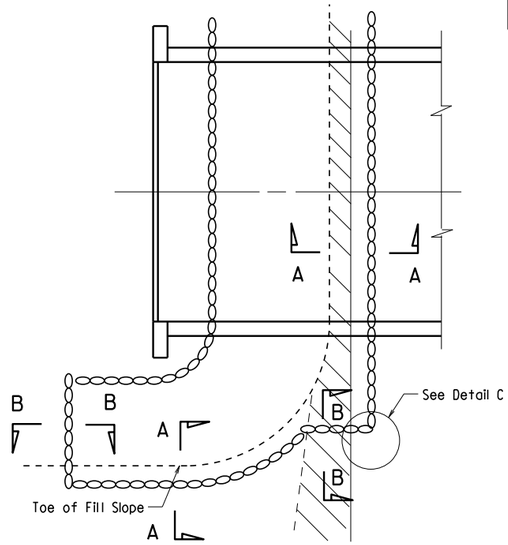
1 RIPRAP & EXCAV. 55001



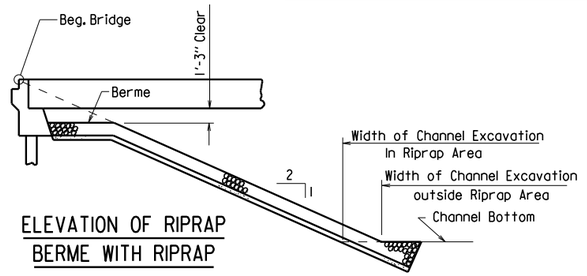
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



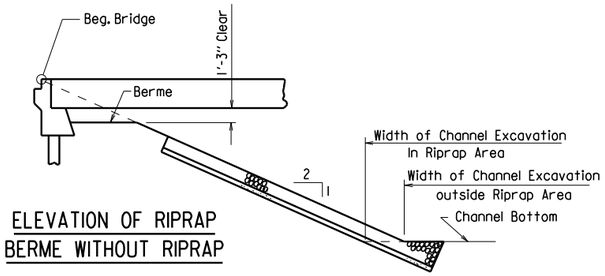
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



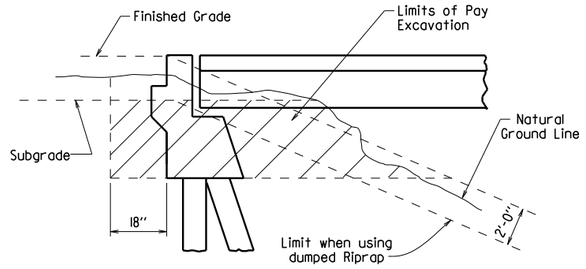
PLAN OF DUMPED RIPRAP



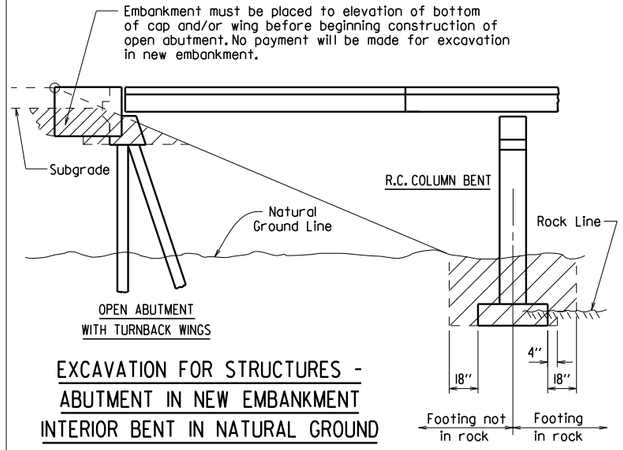
ELEVATION OF RIPRAP BERME WITH RIPRAP



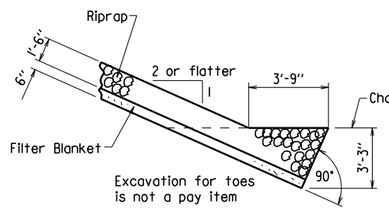
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



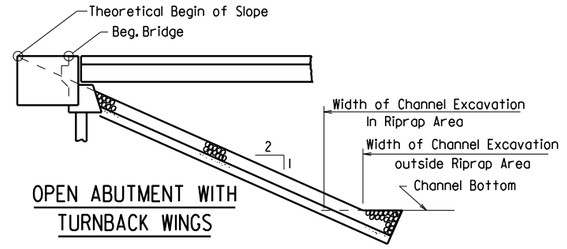
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



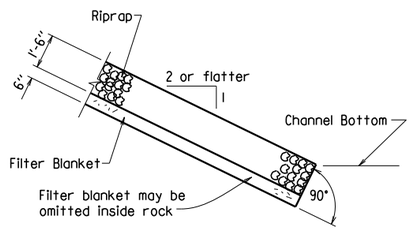
SECTION A-A

(Toe Excavation in Soil)

SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



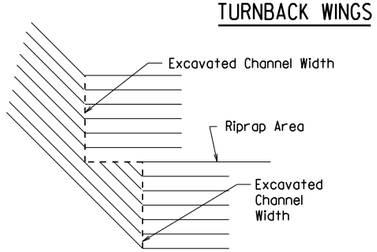
SECTION A-A

(Toe Excavation in Rock)

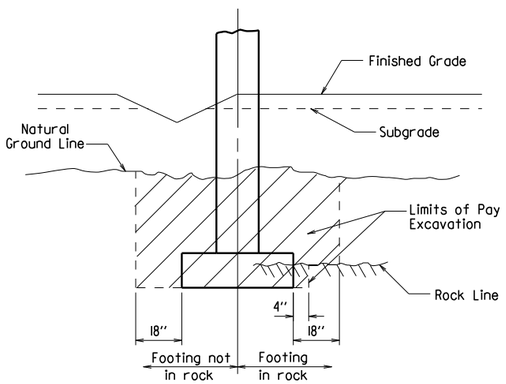
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

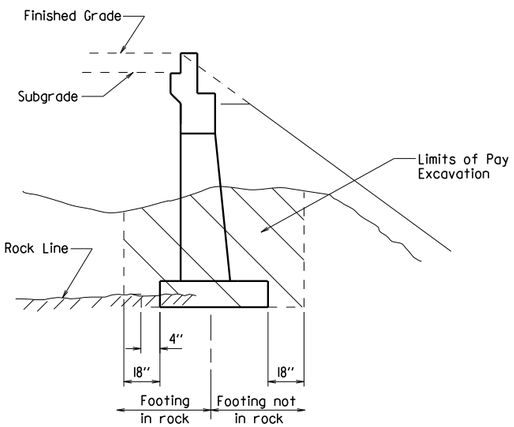
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

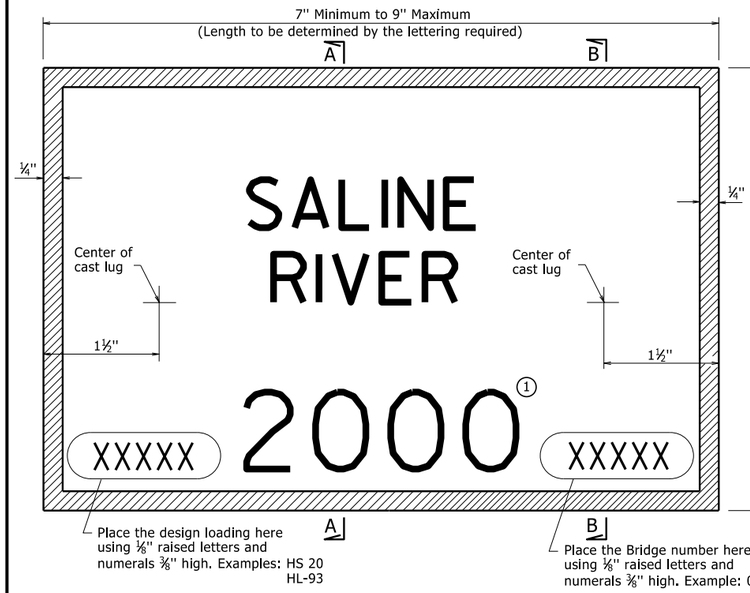
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

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

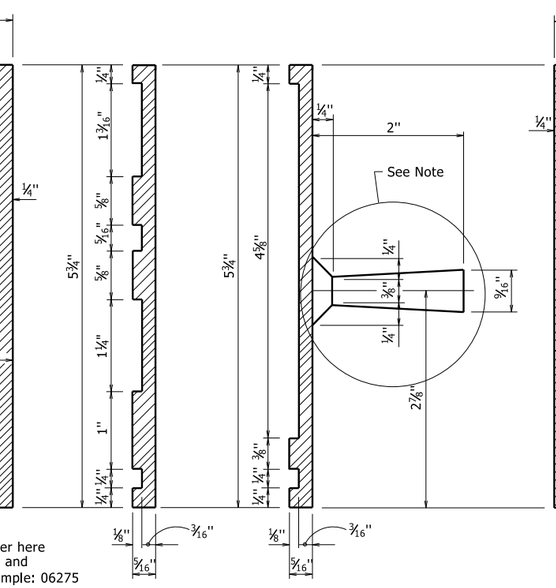
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
2/27/2020				6	ARK.			
				JOB NO.				
				①	TYPE C NAME PLATE	55011		

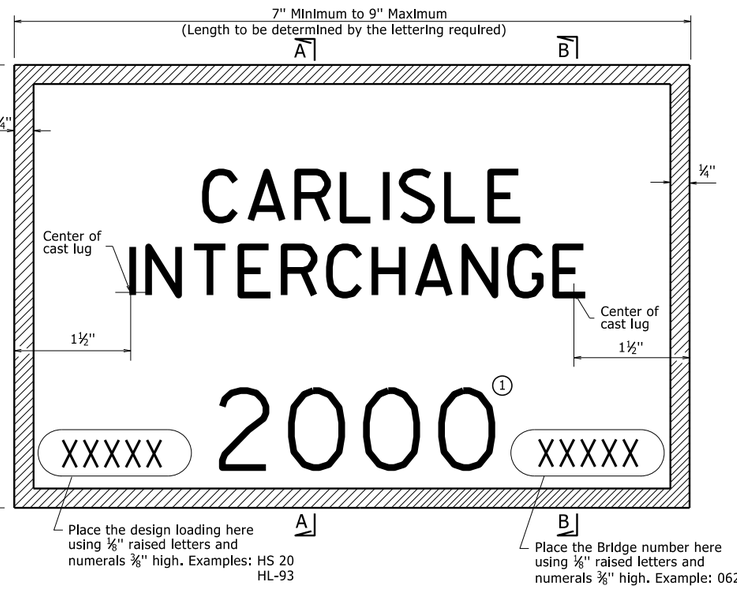


TYPICAL BRIDGE NAME PLATE-STYLE 1 - FULL SIZE
STREAM CROSSINGS



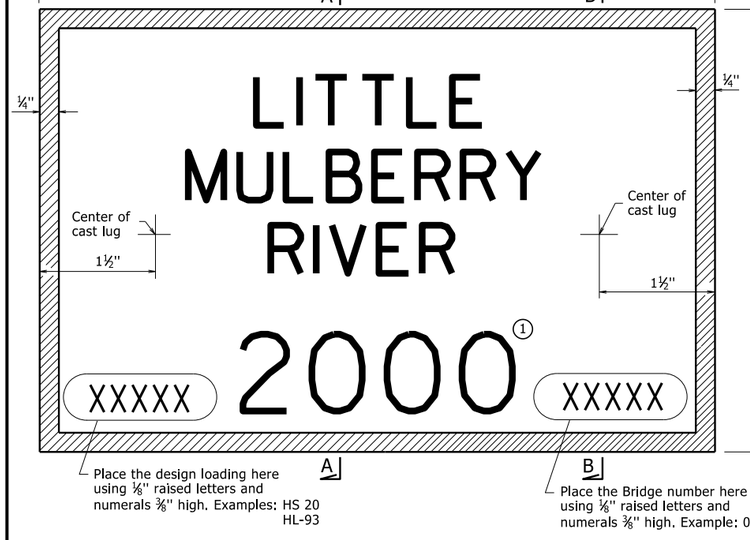
⚠1 SECTION A-A

SECTION B-B

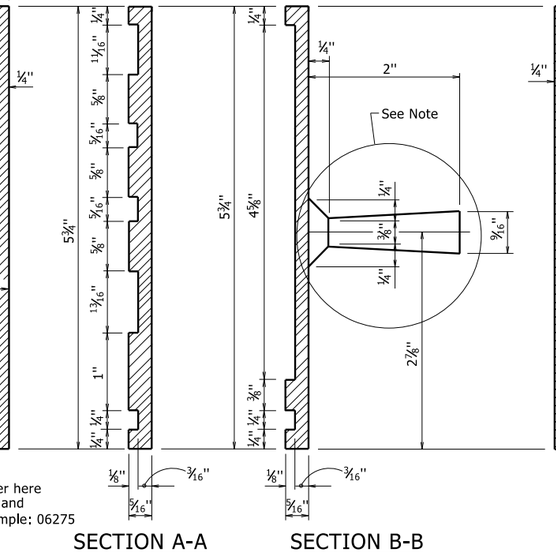


TYPICAL BRIDGE NAME PLATE-STYLE 3 - FULL SIZE
GRADE SEPARATION STRUCTURES

Note: Alternate attachments may be used provided such attachments are submitted and approval secured before fabrication is begun.

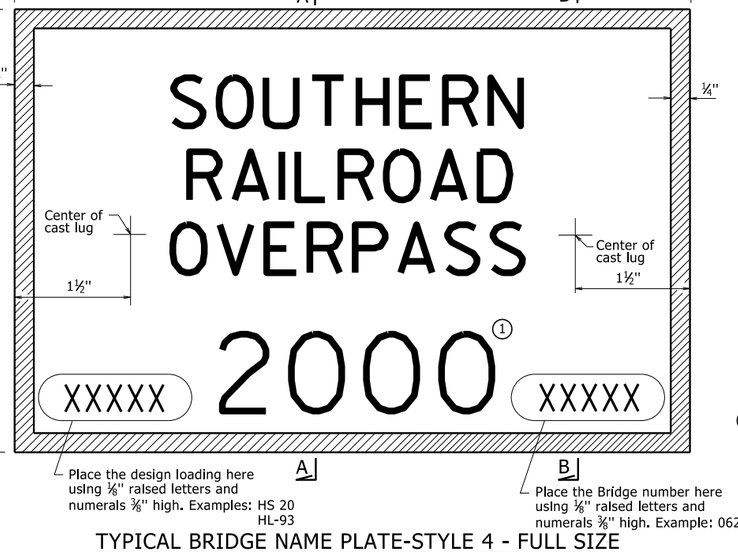


TYPICAL BRIDGE NAME PLATE-STYLE 2 - FULL SIZE
STREAM CROSSINGS



SECTION A-A

SECTION B-B



TYPICAL BRIDGE NAME PLATE-STYLE 4 - FULL SIZE
GRADE SEPARATION STRUCTURES

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 3⁄16" thick and shall include two 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 Year in which contract is awarded.

⚠1 Corrected error in detail showing three lines of text for feature intersected instead of two.
By: KWY, Checked by: WAC; 2/27/2020.

STANDARD DETAILS FOR
TYPE C BRIDGE NAME PLATES

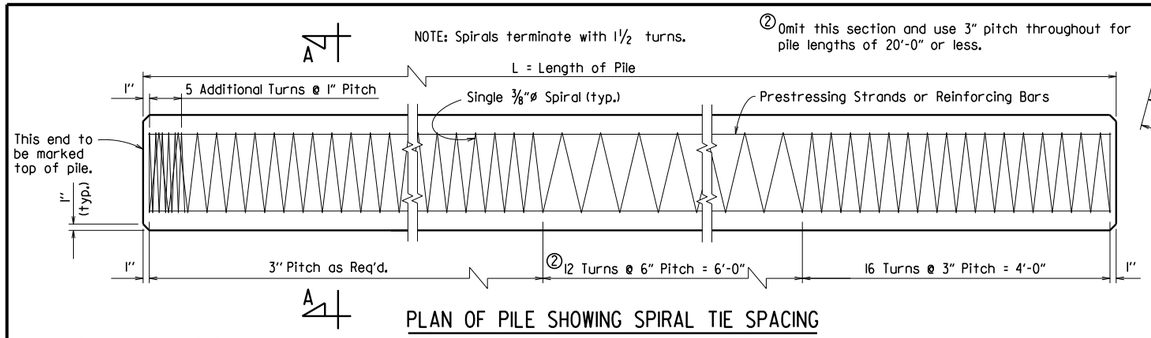
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55011.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55011

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.				

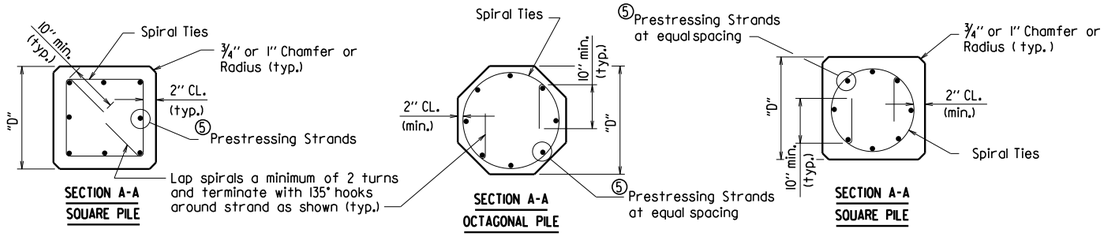
① CONC. PILES 55022



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

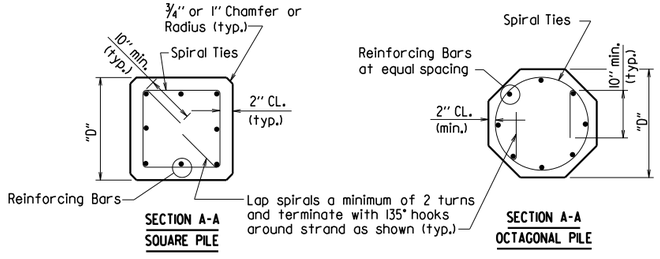
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	①Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	20	28	27,000	18,900
		½"	8	10	8	10	12	15	21	36,000	25,200
	270	7/16"	9	11	8	12	14	17	24	31,000	21,700
		½"	7	9	6	8	10	13	18	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	17	24	27,000	20,200
		½"	7	9	6	8	10	13	18	36,000	27,000
	270	7/16"	8	10	7	9	12	15	21	31,000	23,300
		½"	6	8	6	7	9	11	16	41,300	31,000



NON-PRESTRESSED CONCRETE PILES

NON-PRESTRESSED PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	#7
18" Oct.	8	#7
④ 14" Sq.	8	#7
16" Sq.	8	#7
18" Sq.	8	#8

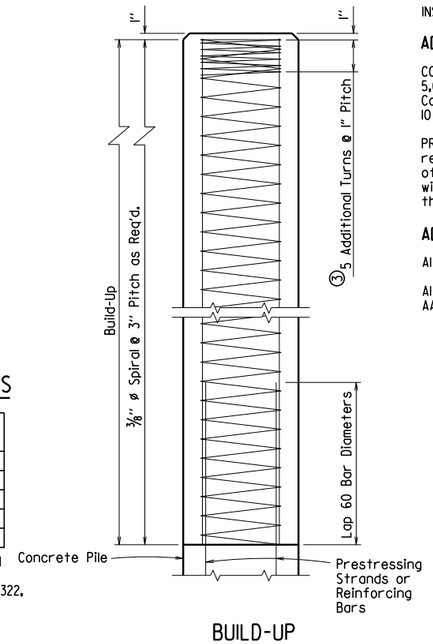
④ 14" sq. piles to be used in Seismic Performance Zone 1 only.

⚠ Revised to accommodate 20" and 24" square prestressed piles by KWY, Ck'd. by BEF, 3/24/16.

⚠ PILE BUILD-UP FOR 20" & 24" PRESTRESSED PILES

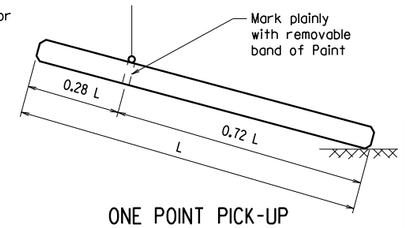
Pile Size	No. Req'd.	Bar Size
20" Sq.	8	#9
24" Sq.	12	#9

NOTE: Reinforcing bars shall meet the requirements for Grade 60, AASHTO M 31 or M 322, Type A.

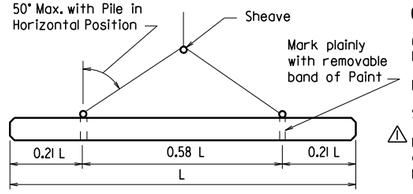


BUILD-UP

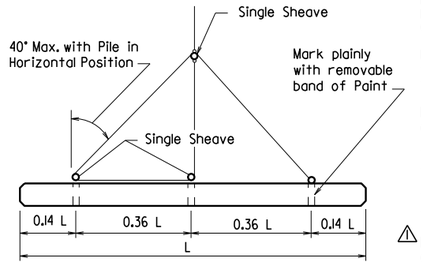
③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.



ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	66'	71'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	95'	102'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	132'	143'	104'	103'	111'

GENERAL NOTES:

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, current Edition with interim Specifications.

SEISMIC PERFORMANCE ZONES: 1 & 2

⚠ Unless otherwise noted in the plans, the Contractor may use prestressed or non-prestressed piles for 14", 16" and 18" piles. The Contractor shall use prestressed piles for 20" and 24" piles. Prestressed and non-prestressed piling shall be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

⚠ BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, the concrete in the pile shall be cut back to provide a 60 bar diameter lap splice. For piles equal to or less than 18", the reinforcing for build-up shall be the reinforcing shown for non-prestressed piles. Otherwise, the reinforcing for build-up shall be as shown in the table "Pile Build-Up for 20" & 24" Prestressed Piles" and the 60 bar diameter splice length shall be based on the bar sizes shown.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

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

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

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE PILES

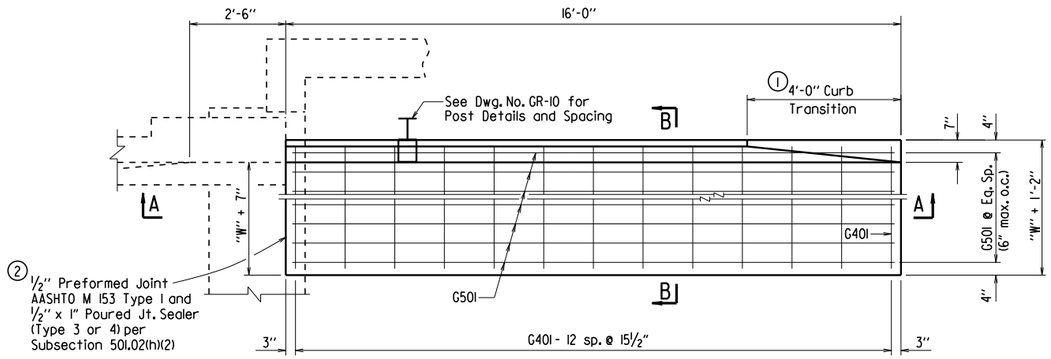
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE: ——
FILENAME: b55022.dgn
SCALE: NO SCALE

DRAWING NO. 55022

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE D GUTTERS		55030D	



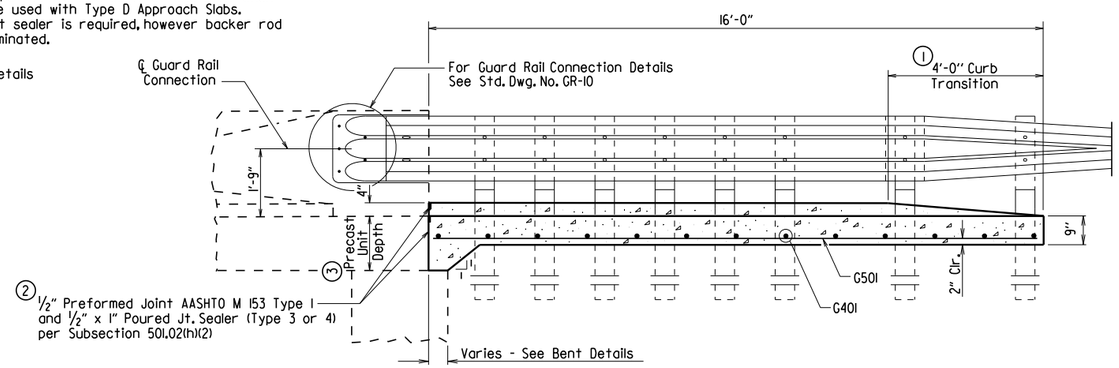
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

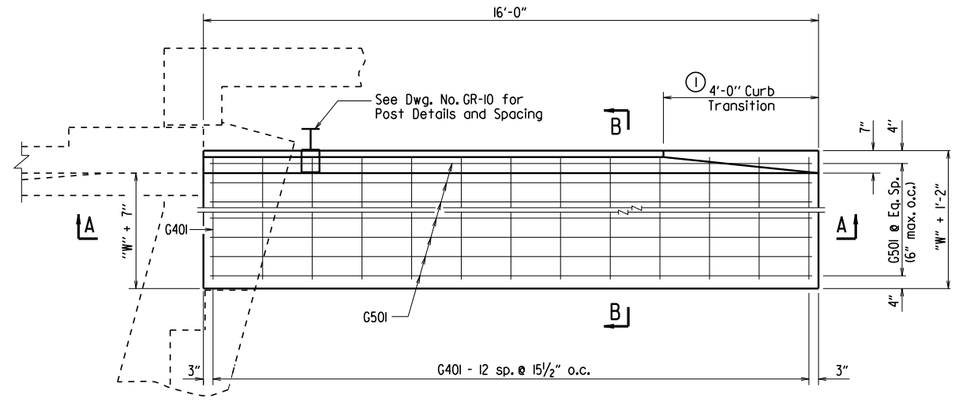
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

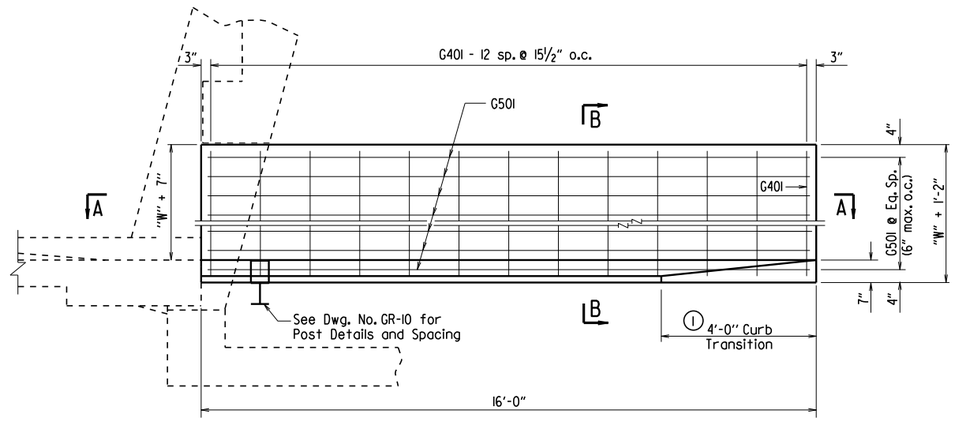
② Eliminate Type I Preformed Joint at end bent when gutters are used with Type D Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

③ See Span Details

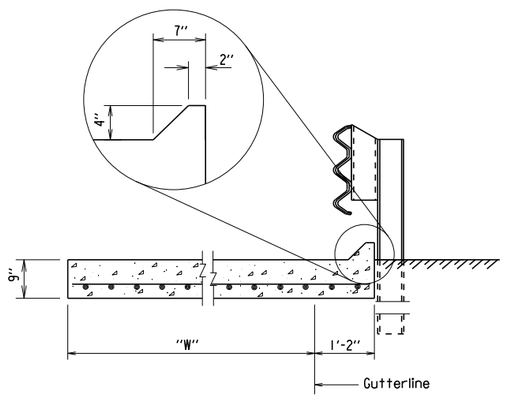


SECTION A-A





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION B-B
N.T.S.

BAR LIST FOR ONE TYPE D GUTTER

Mark	No. Req'd. for Width "W"						Length
	2'-3"	3'-0"	3'-9"	4'-0"	4'-9"	5'-0"	
G401	13	13	13	13	13	13	"W" + 10"
G501	7	8	10	10	12	12	15'-8"

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width	No Approach Slab		With Approach Slab	
	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2'-3"	——	——	141	1.66
3'-0"	164	2.01	164	2.01
3'-9"	——	——	203	2.36
4'-0"	205	2.48	205	2.48
4'-9"	——	——	245	2.83
5'-0"	247	2.94	——	——

GENERAL NOTES

This drawing is for use with Precast Concrete Spans.

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement 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.

STANDARD DETAILS FOR TYPE D APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014
CHECKED BY: K.W.Y. DATE: 2/27/2014
DESIGNED BY: STD. DATE:

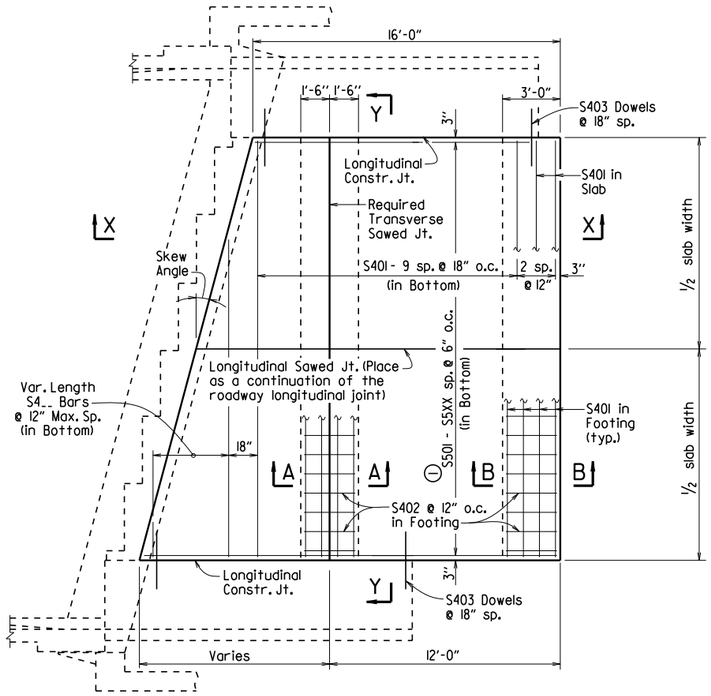
FILENAME: b55030d.dgn
SCALE: ½" = 1'-0" or As Shown

DRAWING NO. 55030D

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				

① TYPE D APPROACH SLAB 55040D

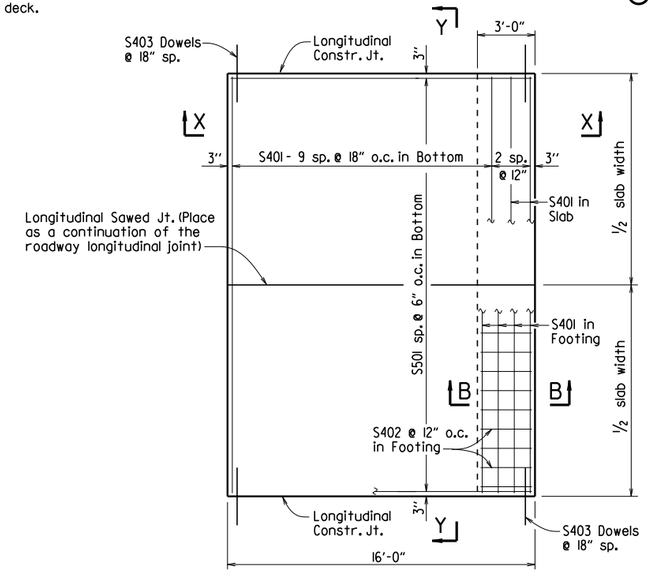


PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"

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

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width



PLAN - SQUARE APPROACH SLAB

¼" = 1'-0"

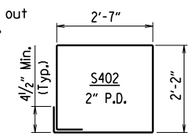
BAR LIST

(Square & Skewed Approach Slabs)

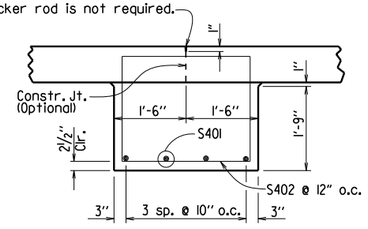
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
20'-0" Slab Width	S401	16	19'-8"	20	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	15'-8"	—	—
	S501 - S540	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 19.75' (tan skew angle)
22'-0" Slab Width	S401	16	21'-8"	20	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	15'-8"	—	—
	S501 - S544	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 21.75' (tan skew angle)
24'-0" Slab Width	S401	16	23'-8"	20	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	15'-8"	—	—
	S501 - S548	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 23.75' (tan skew angle)

*Varies with skew angle

Bending Diagram

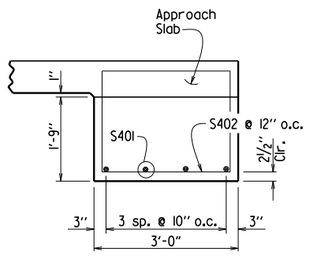


½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

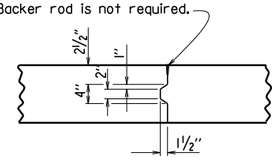
N.T.S.



SECTION B-B

N.T.S.

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

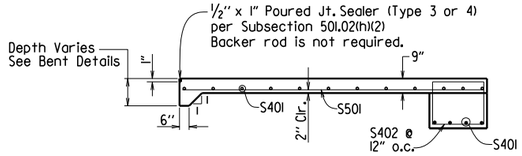
1" = 1'-0"

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	1040	13.35
22'-0"	1140	14.65
24'-0"	1240	16.00

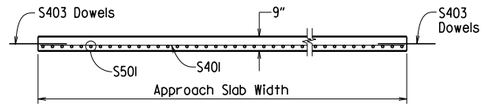
½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



SECTION Y-Y

N.T.S.

GENERAL NOTES

This drawing is for use with Precast Concrete Spans in Seismic Performance Zones 2, 3 & 4.

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

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

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

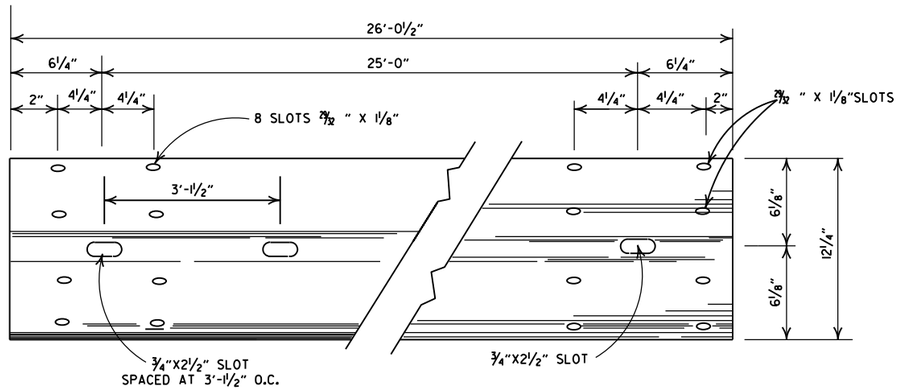
STANDARD DETAILS FOR TYPE D APPROACH SLAB

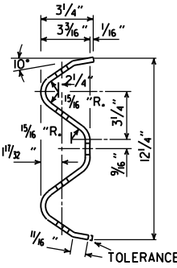
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040d.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

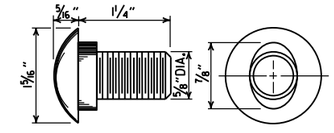
DRAWING NO. 55040D



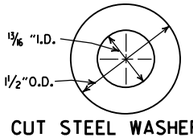


DETAILS OF W-BEAM GUARDRAIL

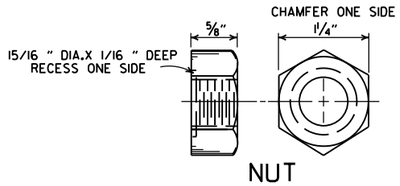
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



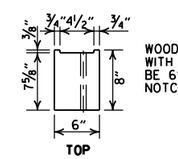
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



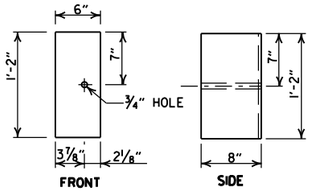
CUT STEEL WASHER



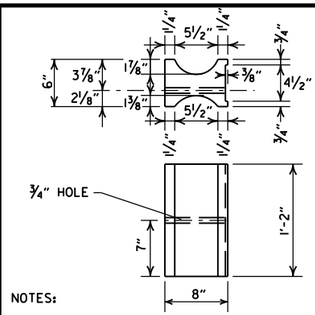
NUT



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



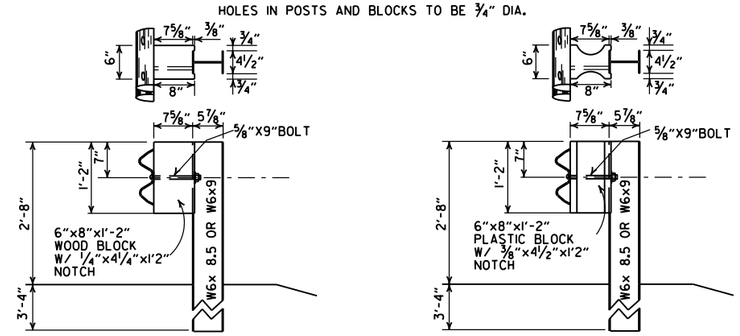
WOOD BLOCKOUT (W-BEAM)



NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

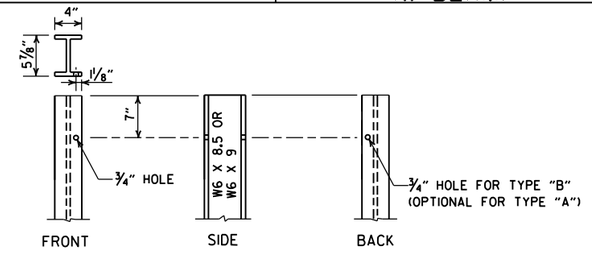
PLASTIC BLOCKOUT (W-BEAM)



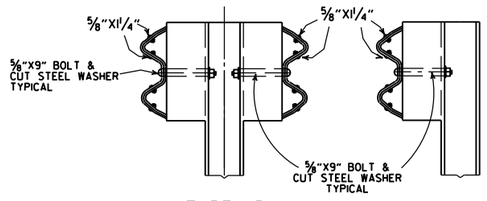
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

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

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

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

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

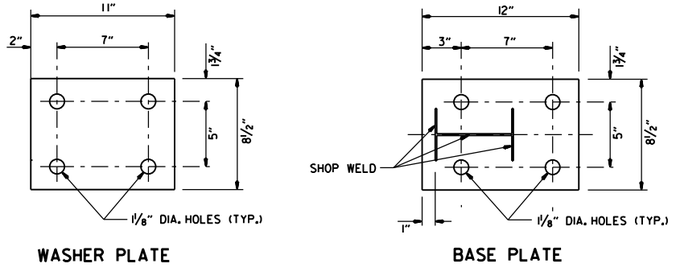
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

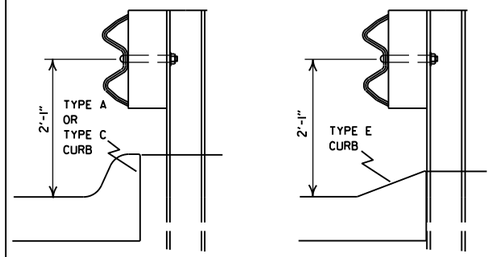
STANDARD DRAWING GR-6



WASHER PLATE

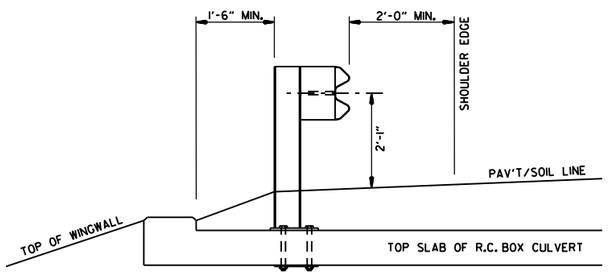
BASE PLATE

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

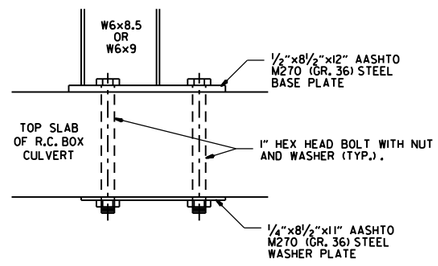


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

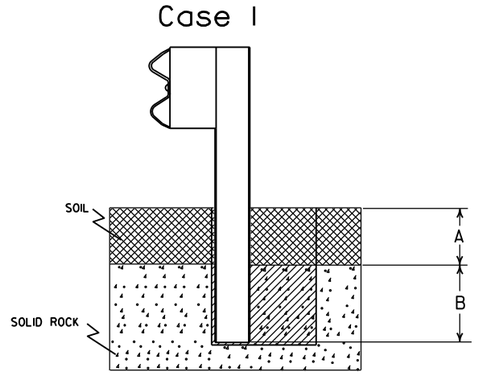
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

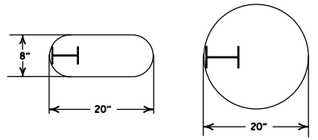


DETAIL OF CONNECTION



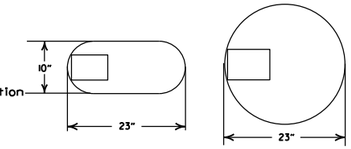
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

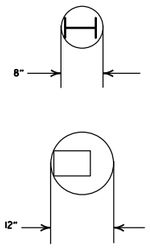
Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

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

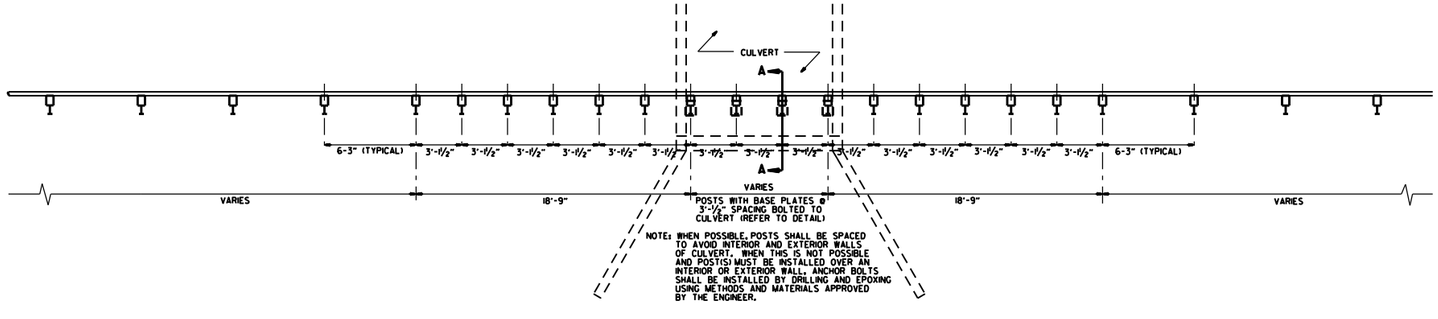
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



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

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

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



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

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

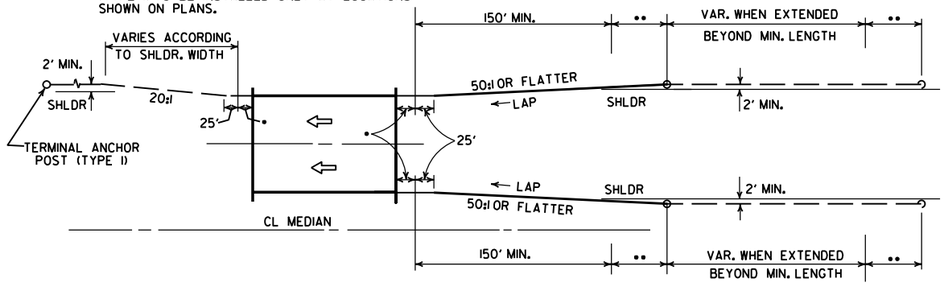
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

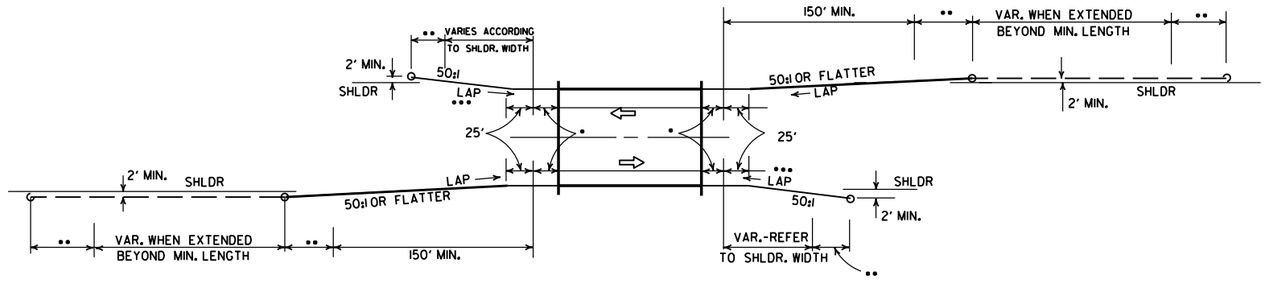
STANDARD DRAWING GR-7

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



ONE-WAY TRAFFIC

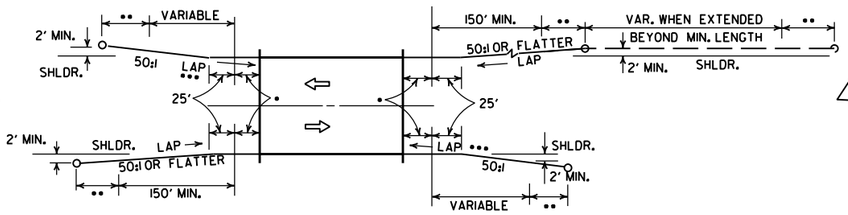
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

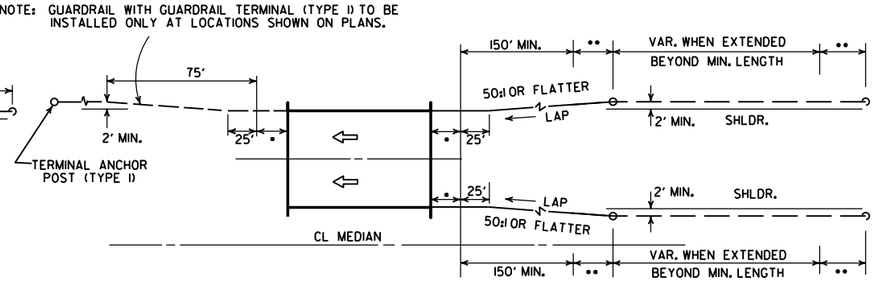
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

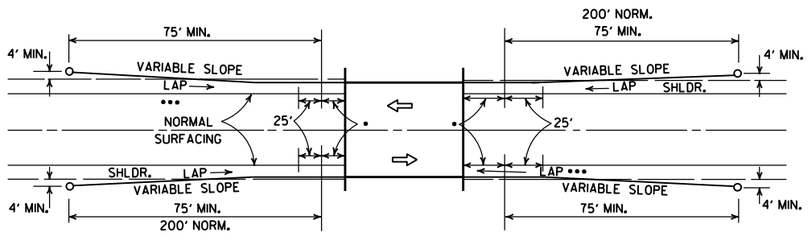
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

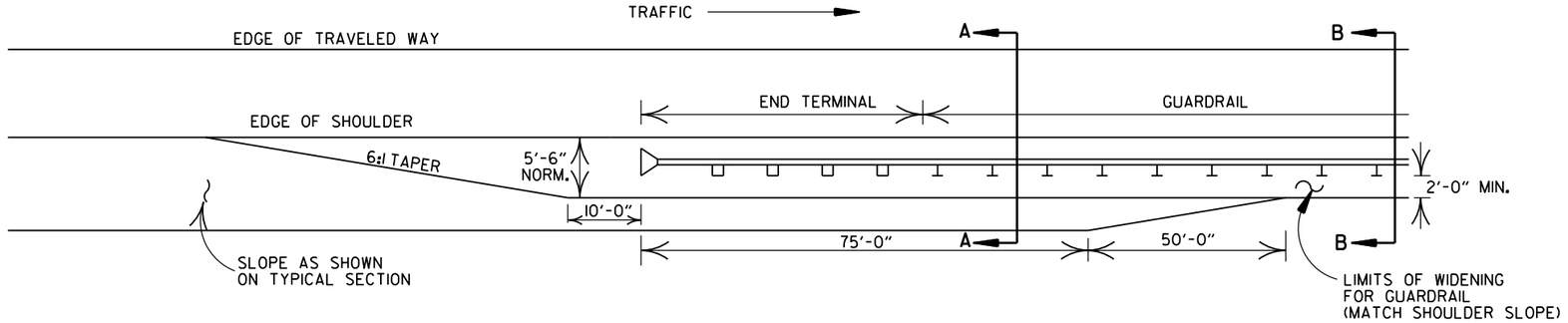
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

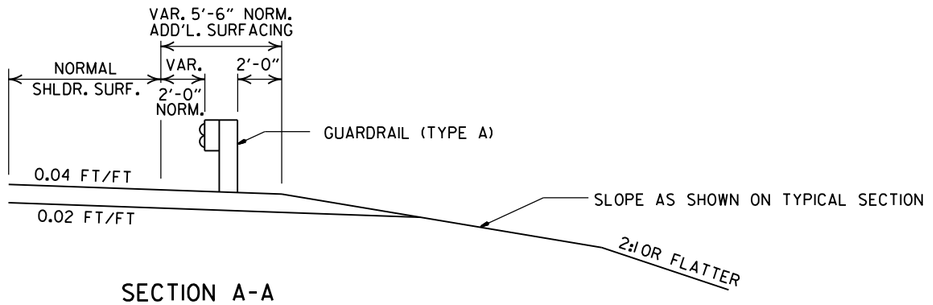
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

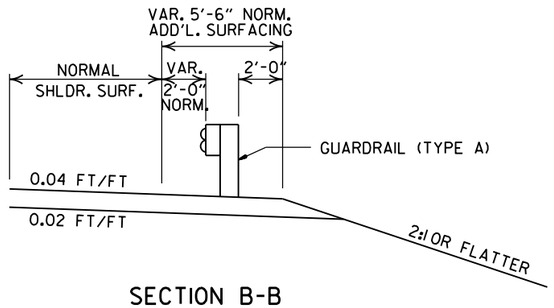
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



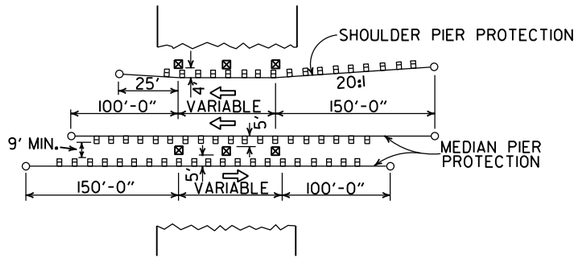


SECTION A-A



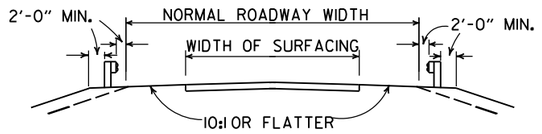
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

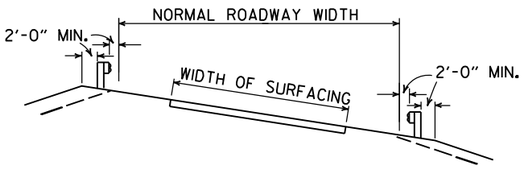


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

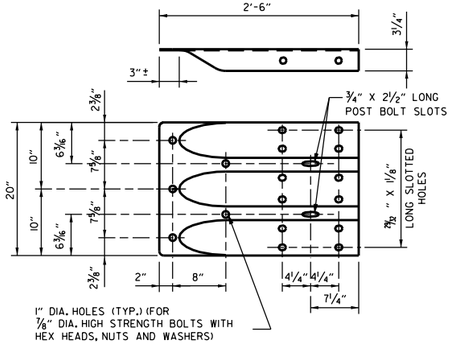
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

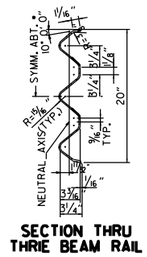
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

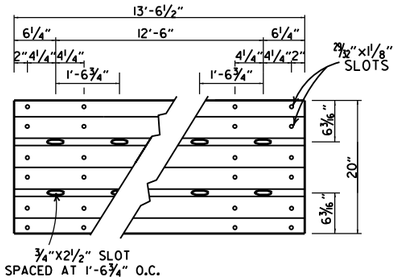
STANDARD DRAWING GR-9



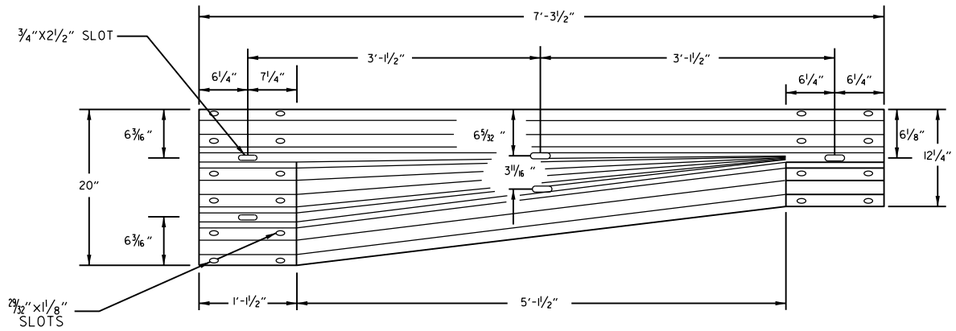
SPECIAL END SHOE



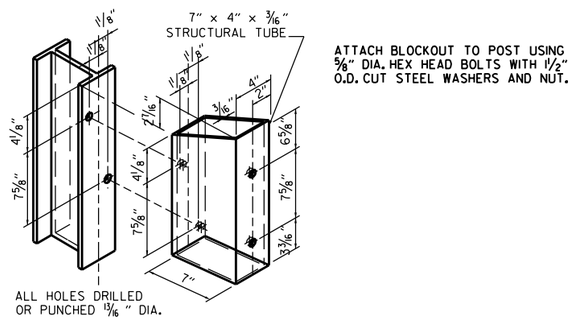
SECTION THRU THRIE BEAM RAIL



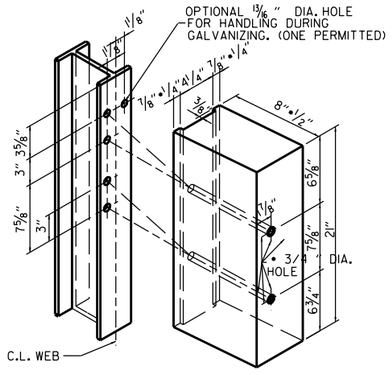
THRIE BEAM RAIL



TRANSITION SECTION



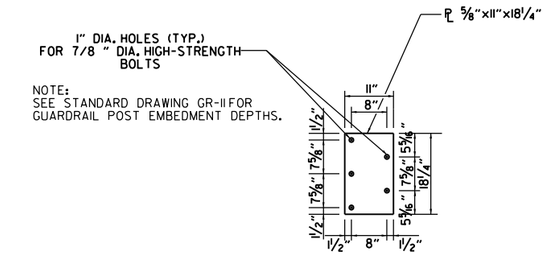
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

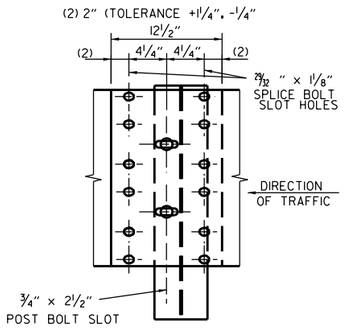
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

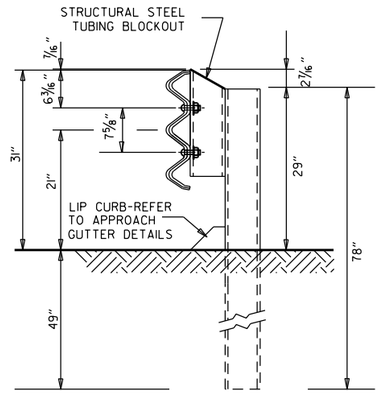
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

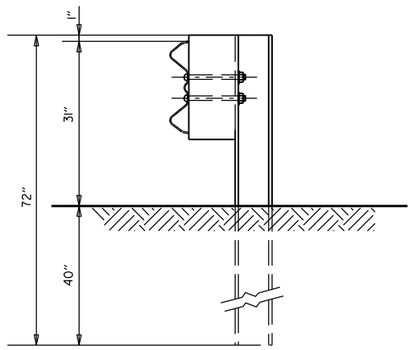
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

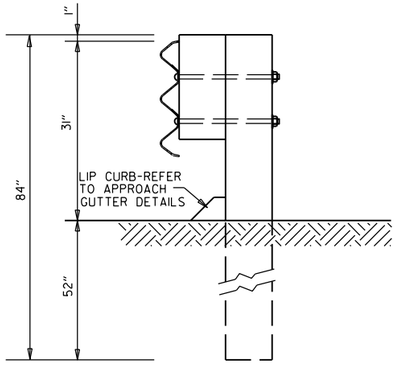
STANDARD DRAWING GR-10



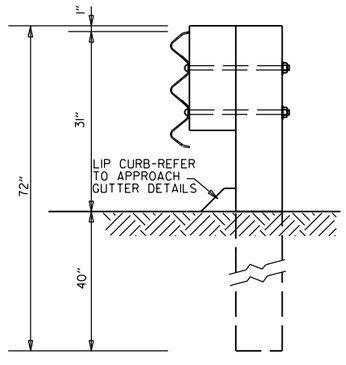
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



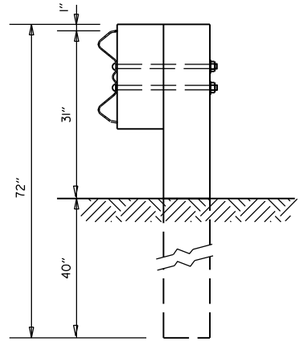
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

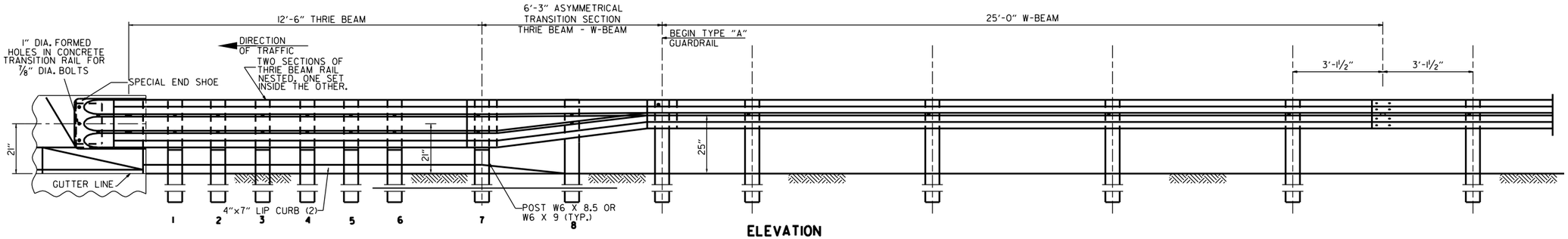
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

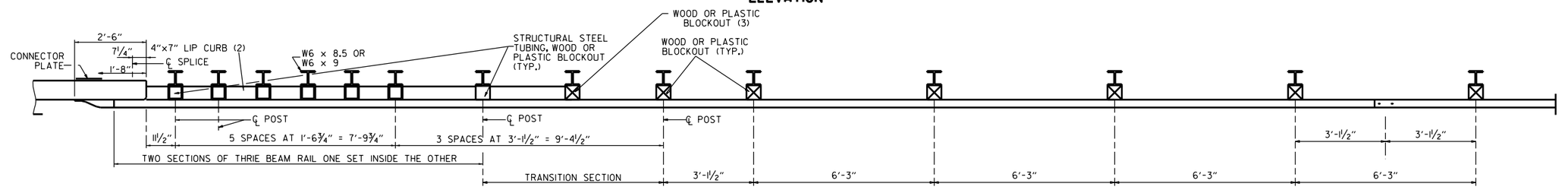
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

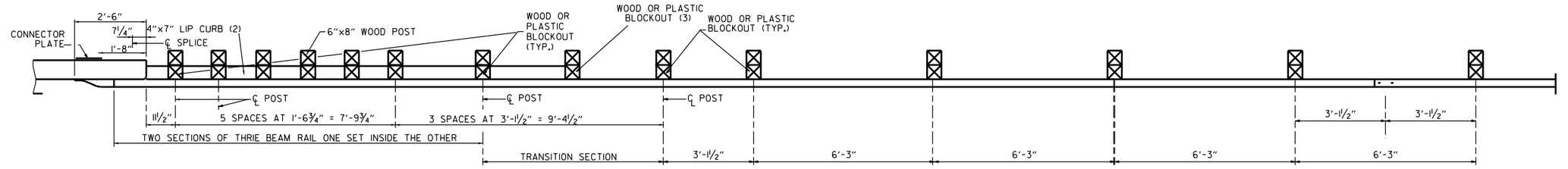
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

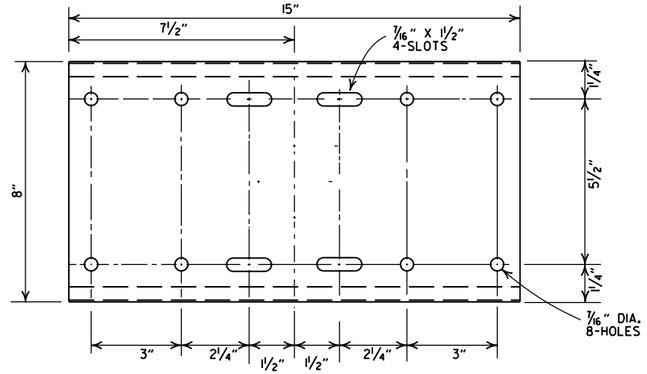
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

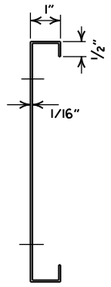
ARKANSAS STATE HIGHWAY COMMISSION

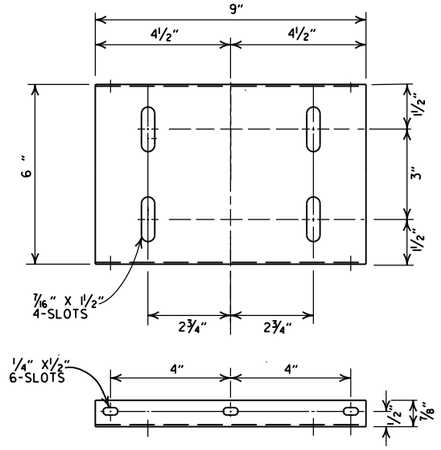
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

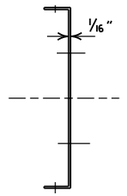


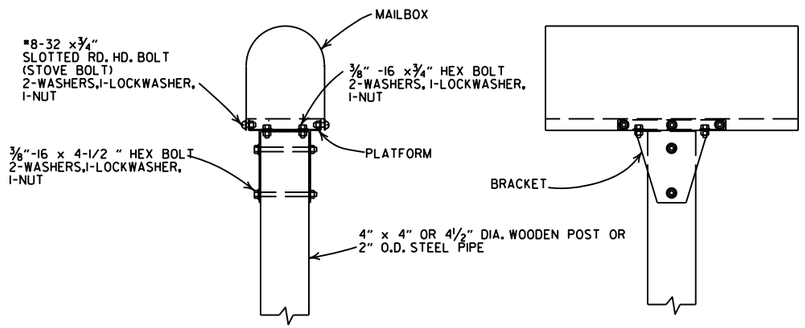
SHELF



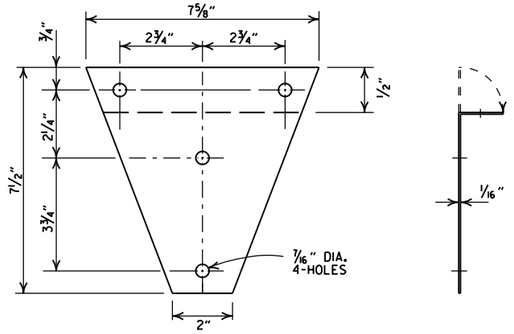


PLATFORM





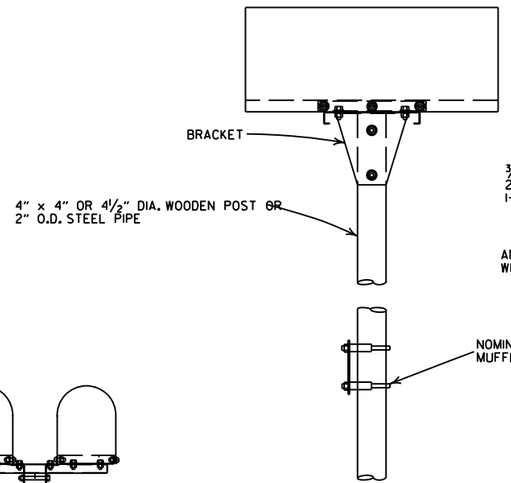
SINGLE INSTALLATION



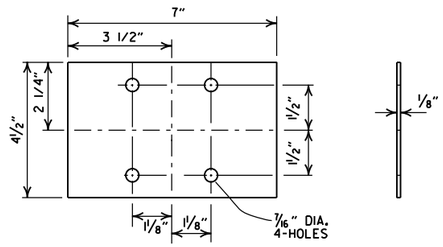
BRACKET

GENERAL NOTES

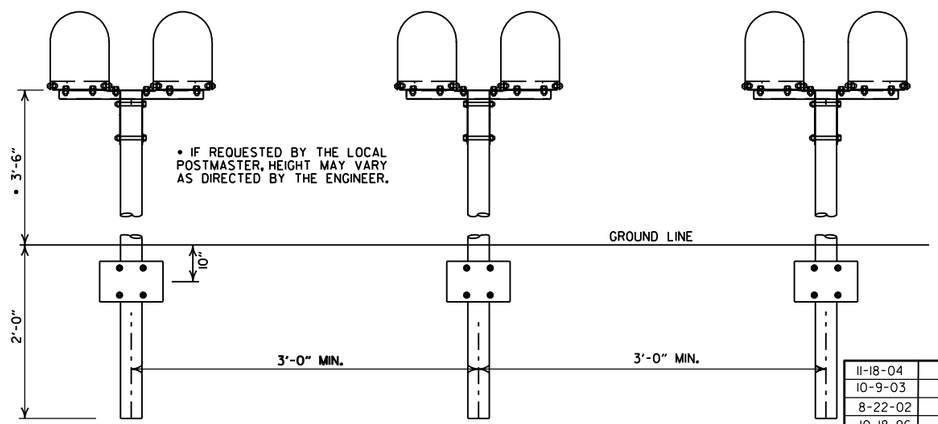
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



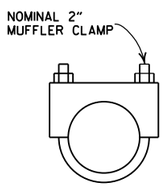
DOUBLE INSTALLATION



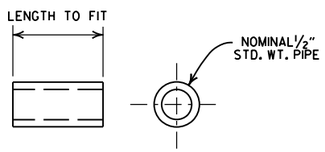
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



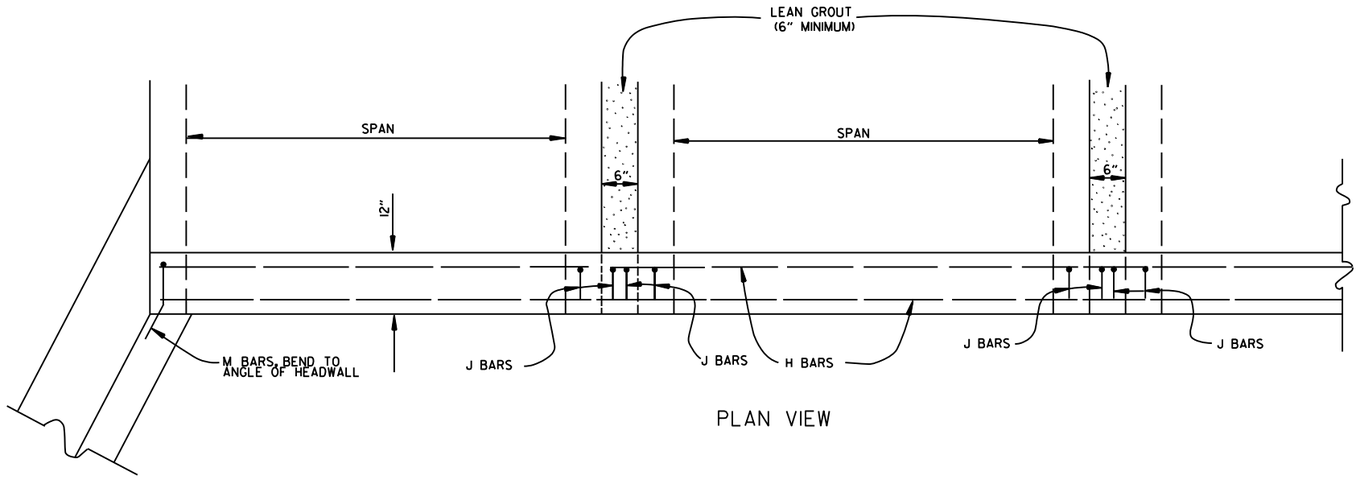
SPACER

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

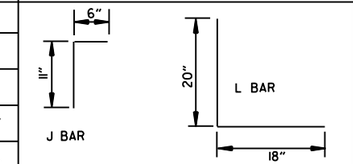
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

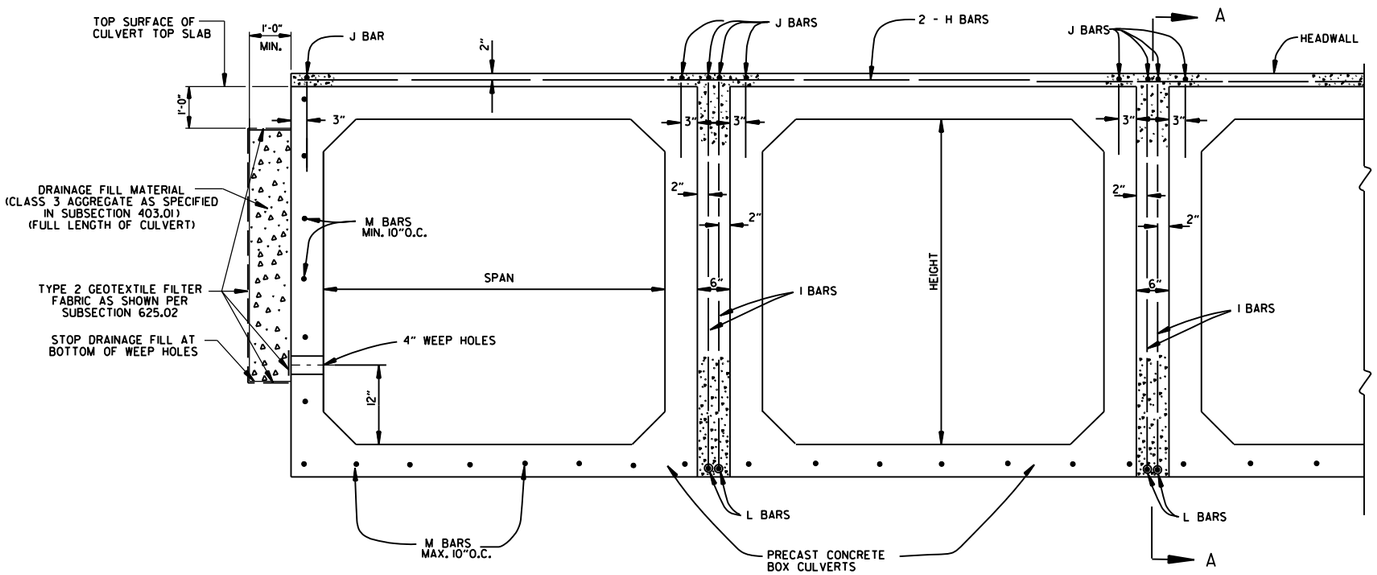
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

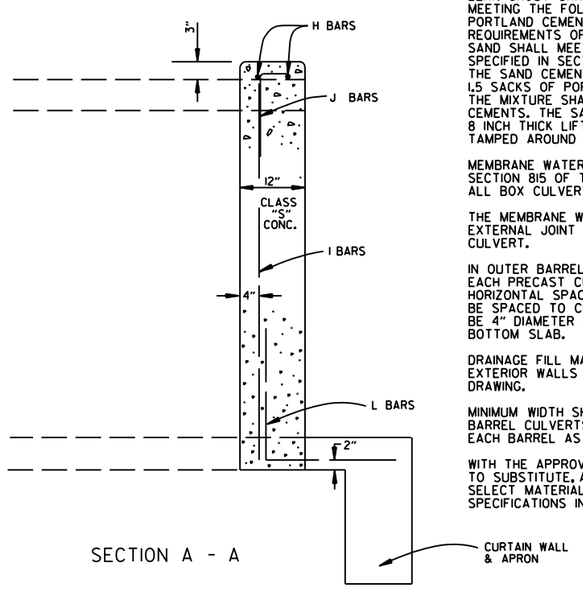
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

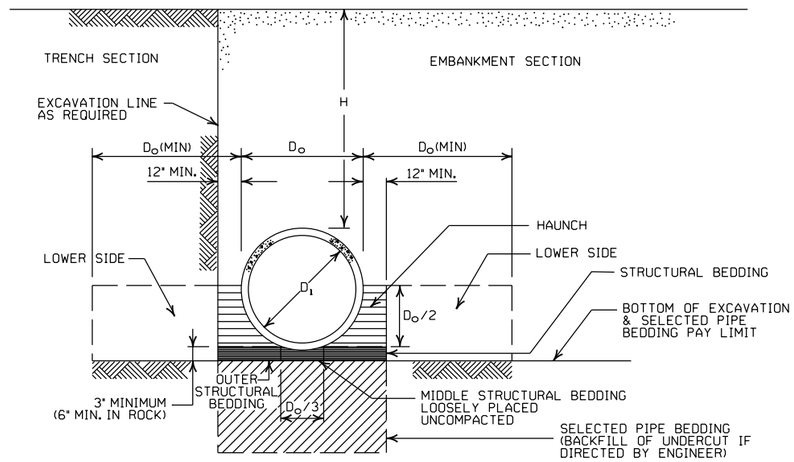
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_O = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

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

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

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

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

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

CORRUGATED METAL PIPE ARCHES

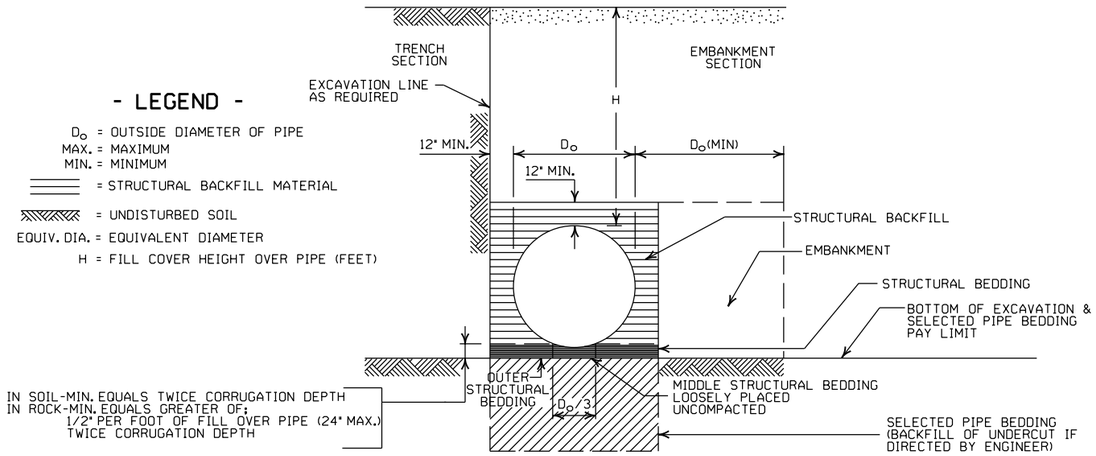
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

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

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

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

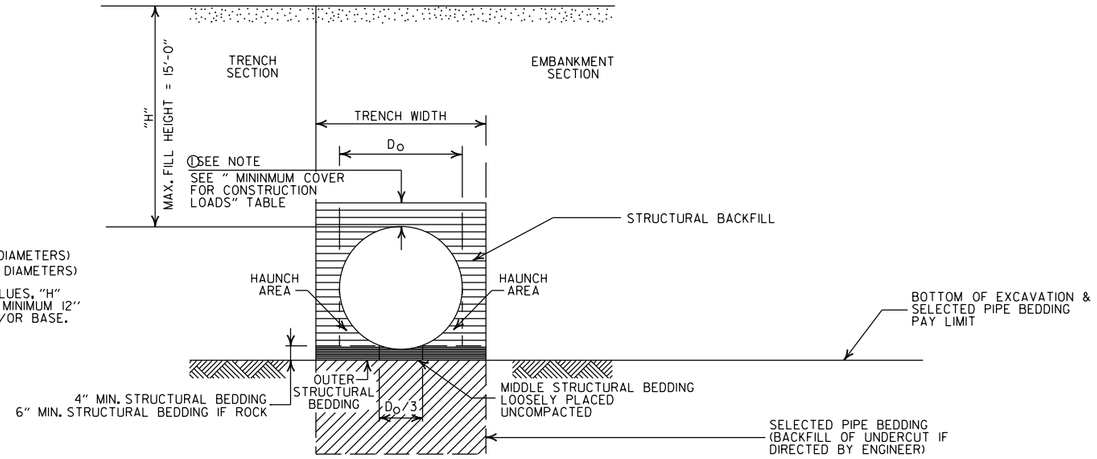
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

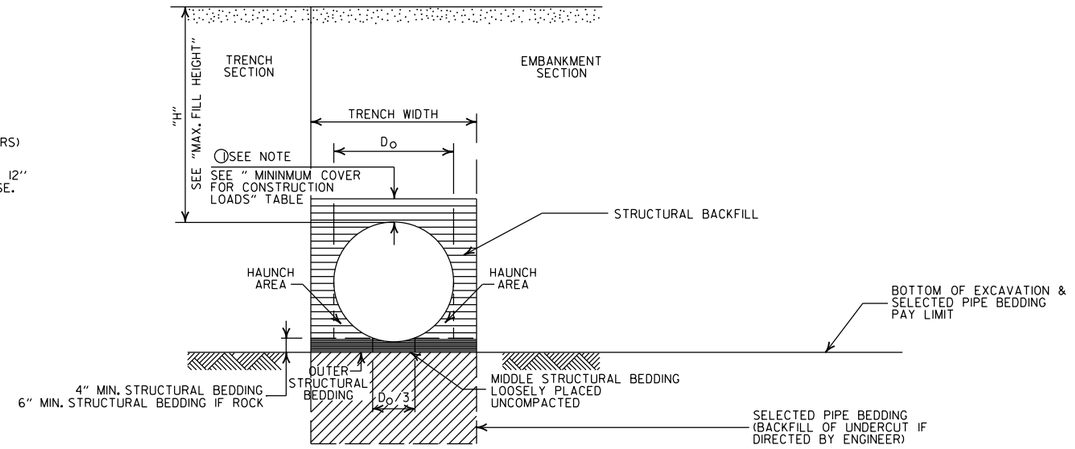
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

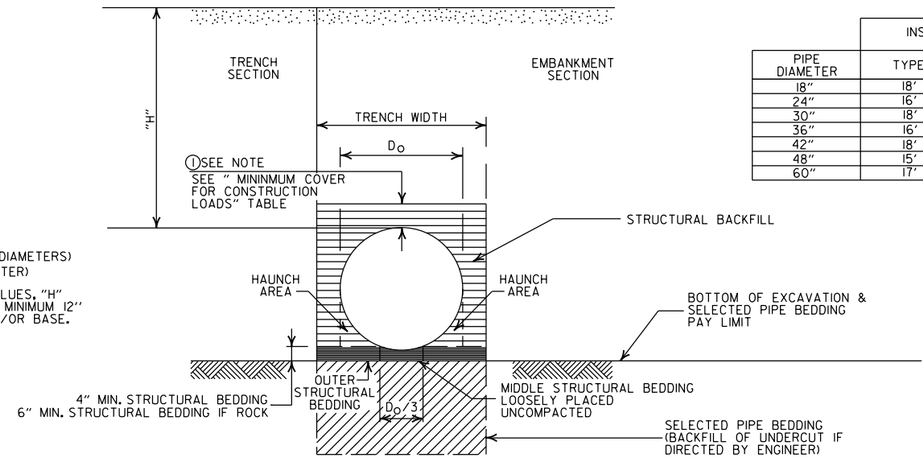
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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

MAXIMUM HEIGHT OF FILL "H"

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



MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

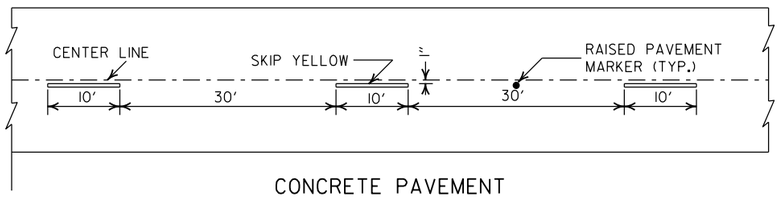
= UNDISTURBED SOIL

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

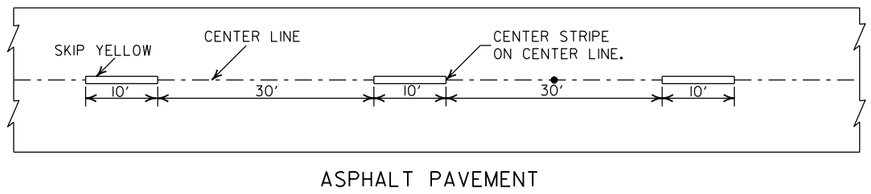
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

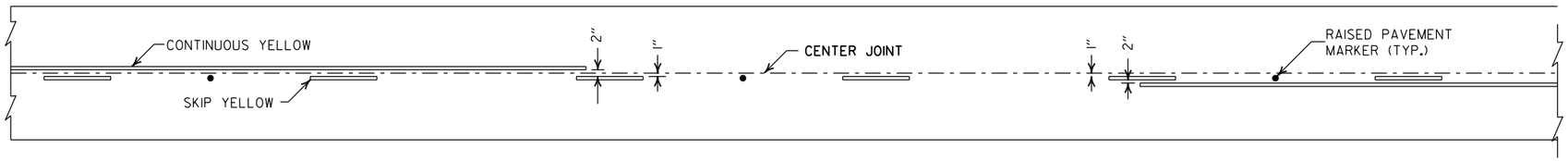


CONCRETE PAVEMENT

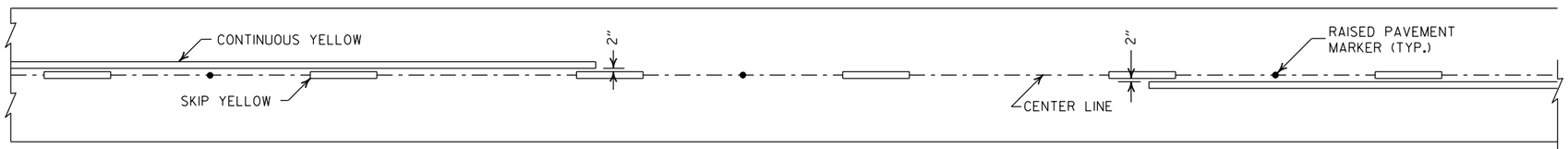


ASPHALT PAVEMENT

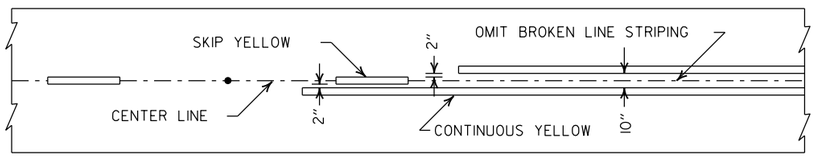
BROKEN LINE STRIPING



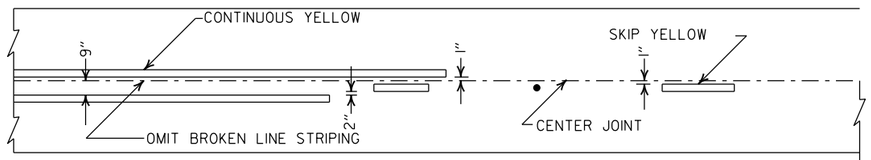
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

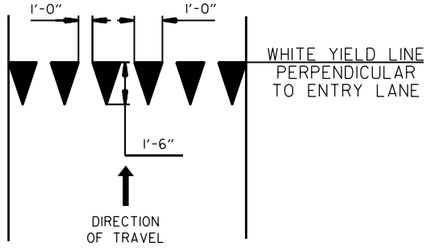


ASPHALT PAVEMENT

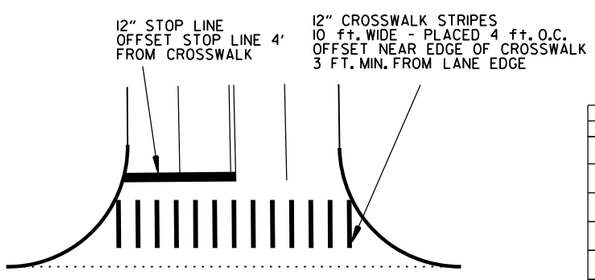


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

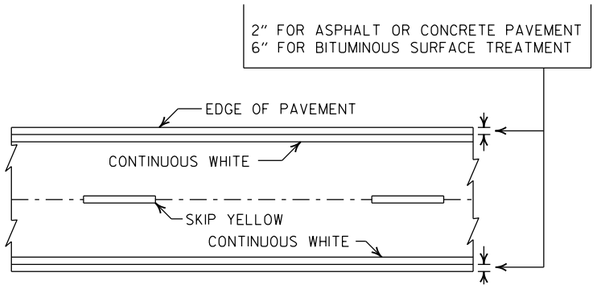


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

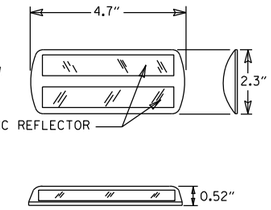
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

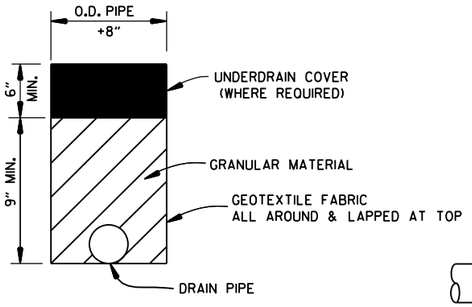
PAVEMENT MARKING DETAILS

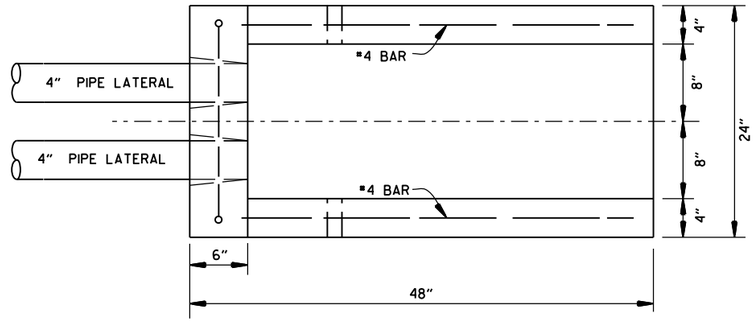
STANDARD DRAWING PM-1

NOTE:

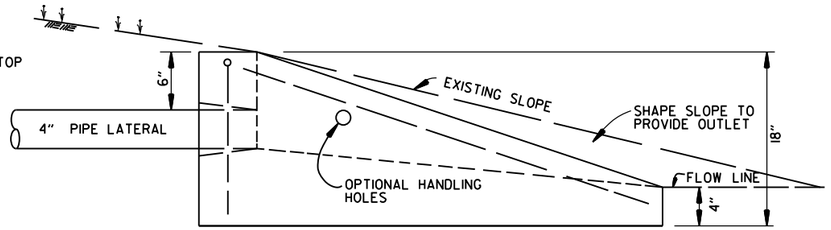
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

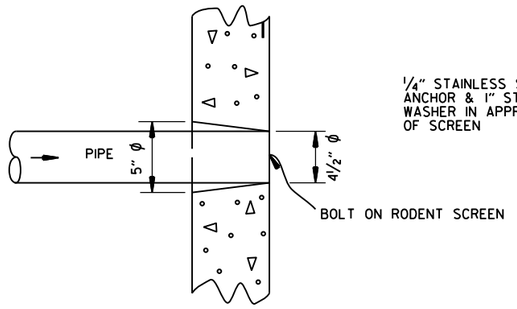




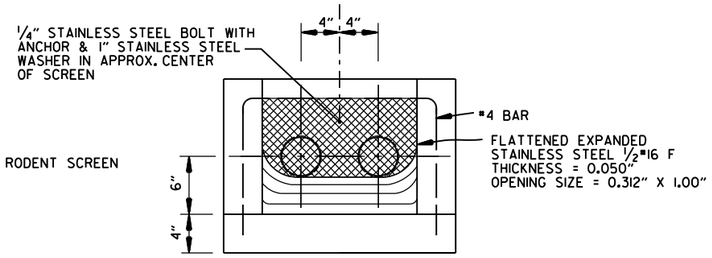
PLAN VIEW



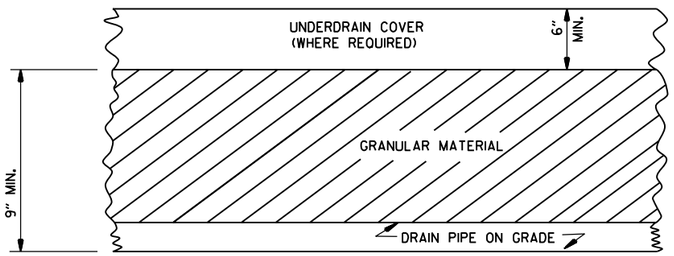
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE

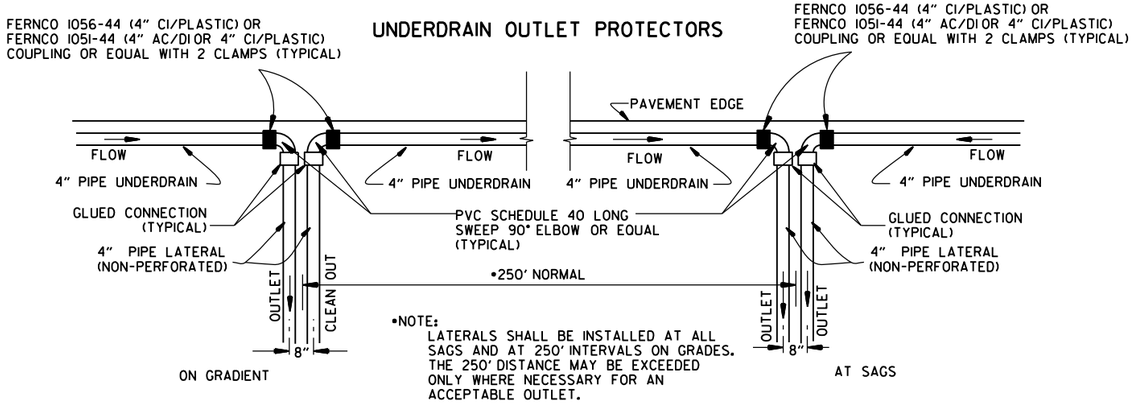


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

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		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

ABBREVIATIONS

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

GENERAL NOTES

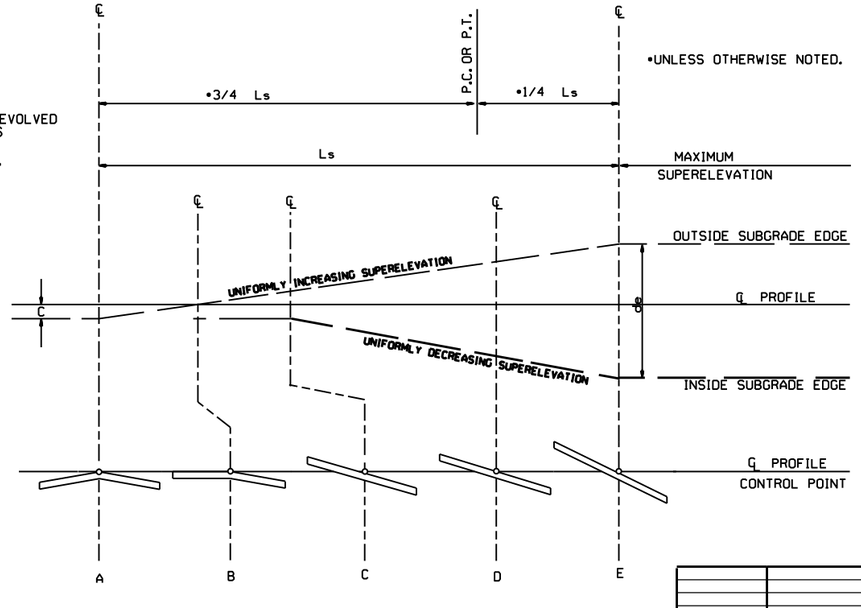
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

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

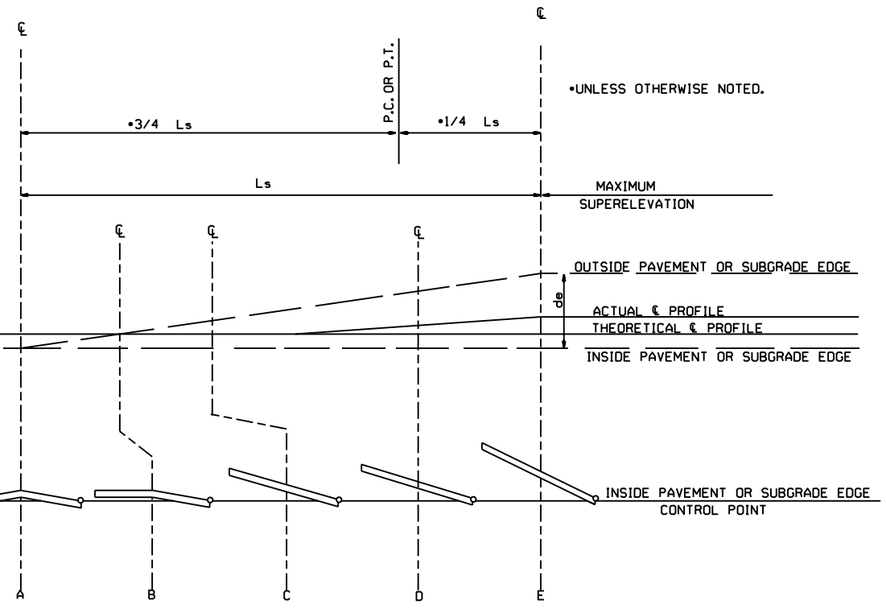
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

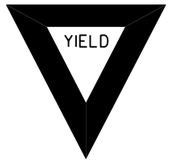
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1

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

R1-2



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

R2-1

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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

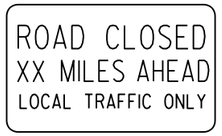
R5-1

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

R11-2

48"X30"

R11-3A



60"X30"

R11-4

60"X30"

W21-5a

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

W1-1

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

W1-2

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

W1-3

STD. 48"X48"

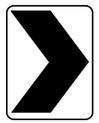
W1-4

STD. 48"X48"

W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

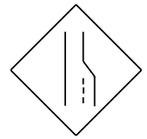
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

W8-9

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

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

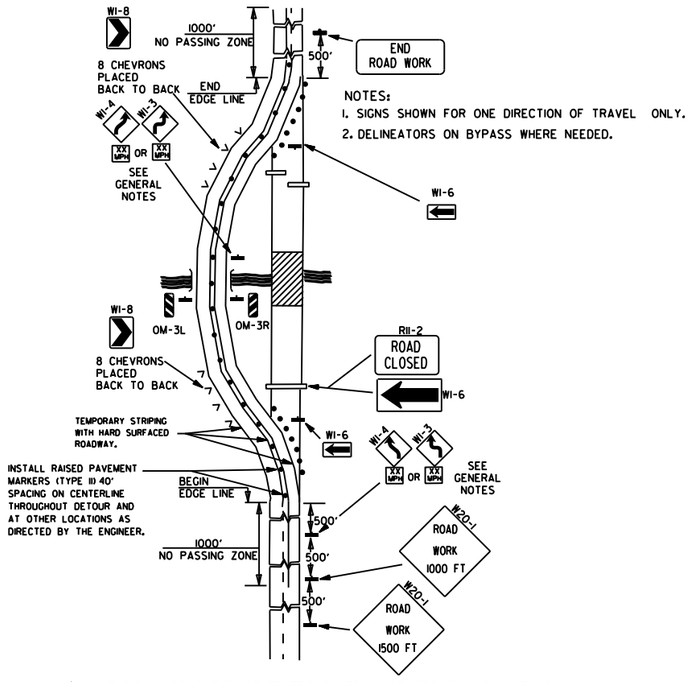
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

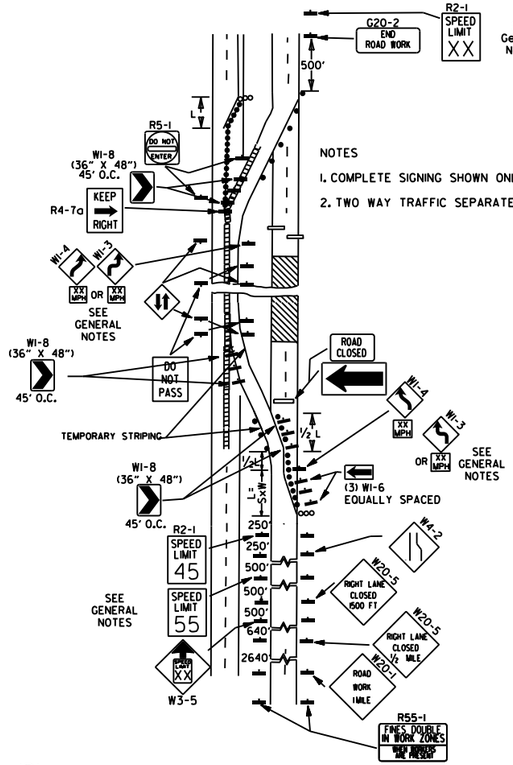
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



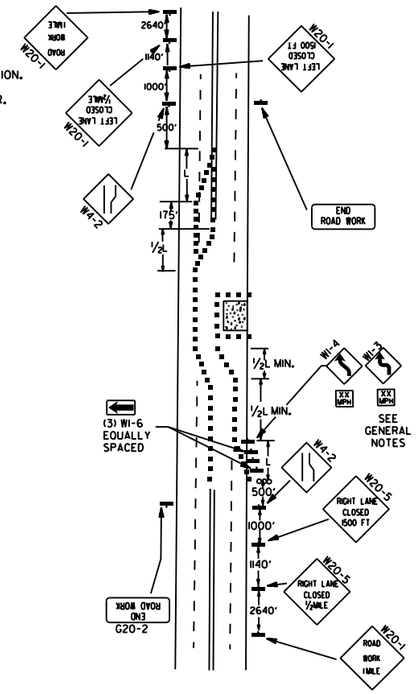
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

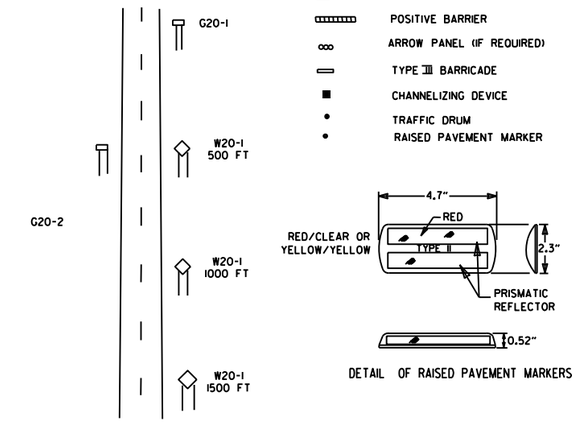


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

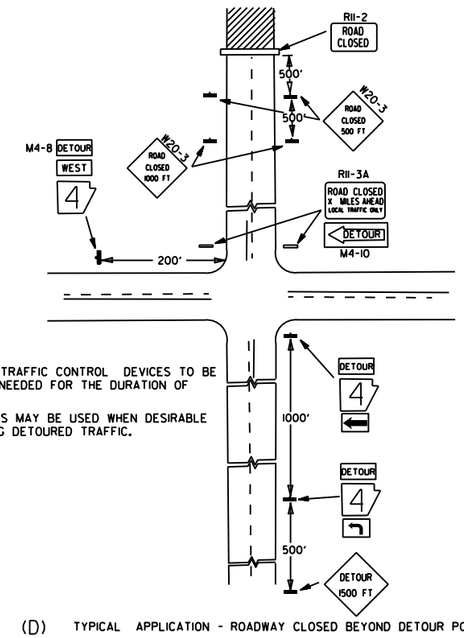
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

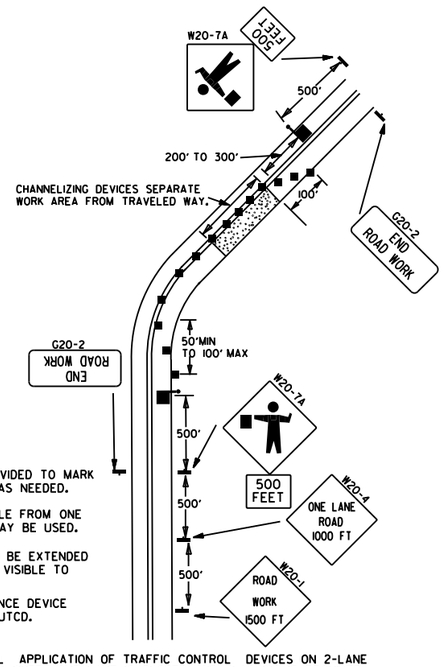
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
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).



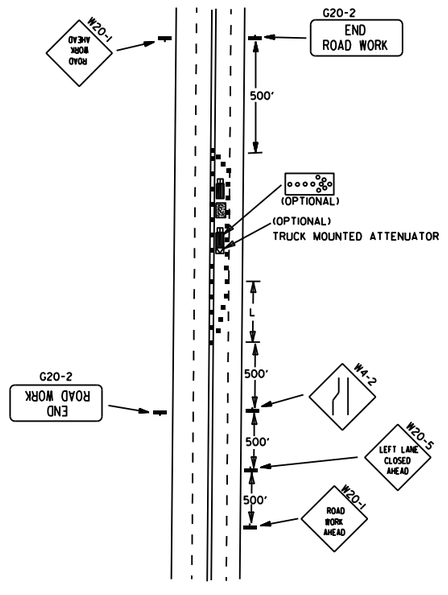
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



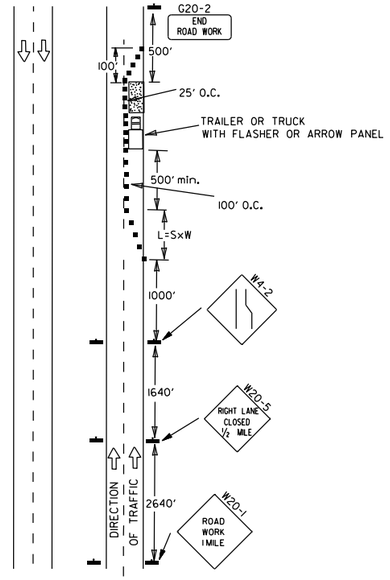
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	
DATE	REVISION	FILMED

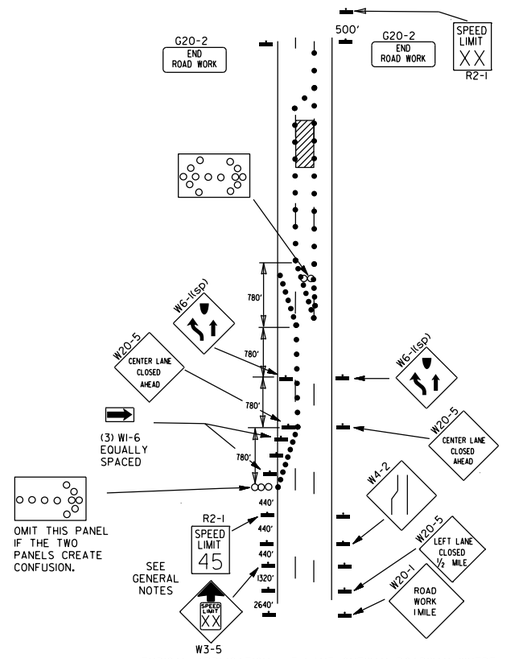
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

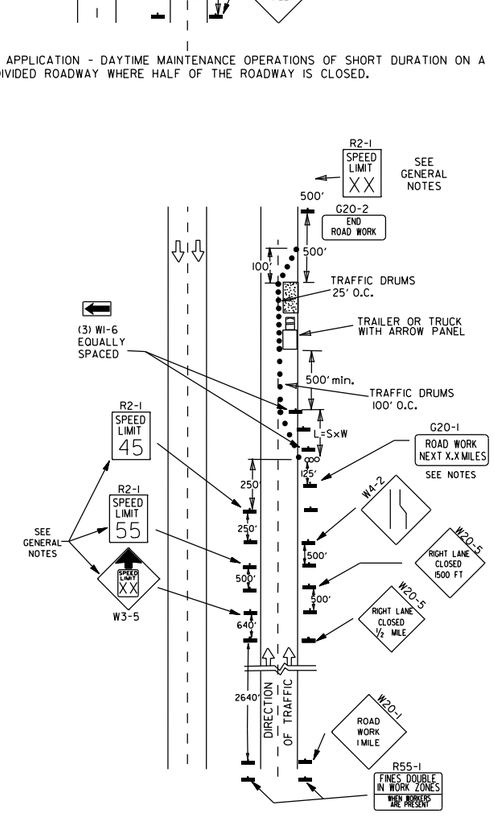
STANDARD DRAWING TC-2



(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.



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

KEY:

ooo ARROW PANEL (IF REQUIRED)

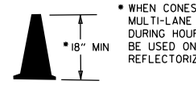
■ CHANNELIZING DEVICE

● TRAFFIC DRUM

GENERAL NOTES:

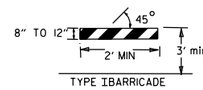
1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. 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.
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).

CHANNELIZING DEVICES

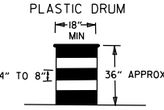


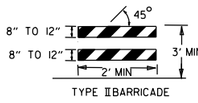
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

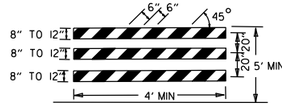
CONES



PLASTIC DRUM

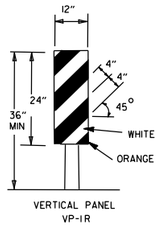




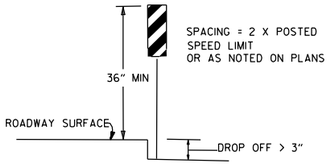


TYPE III BARRICADE

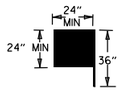
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



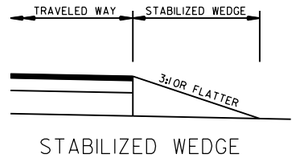
VERTICAL PANEL PLACEMENT



FLAG

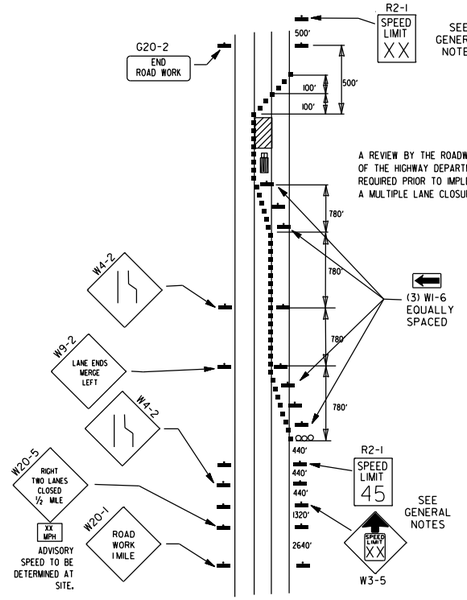


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

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



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

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL ≤ 45 MPH	TRAFFIC CONTROL > 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 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
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 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

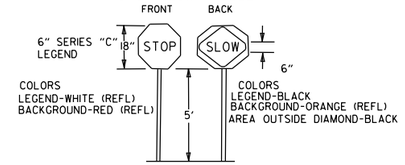
INTERSTATE AND NON-INTERSTATE

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

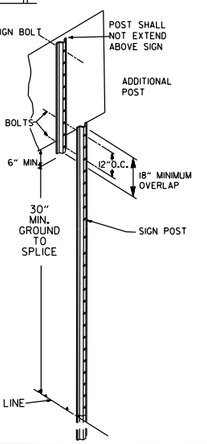
GENERAL NOTES:

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.

STOP SLOW PADDLE



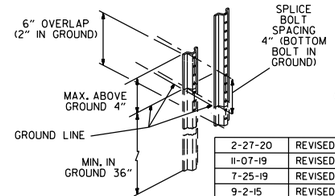
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-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.



DATE	REVISION	FILMED
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	

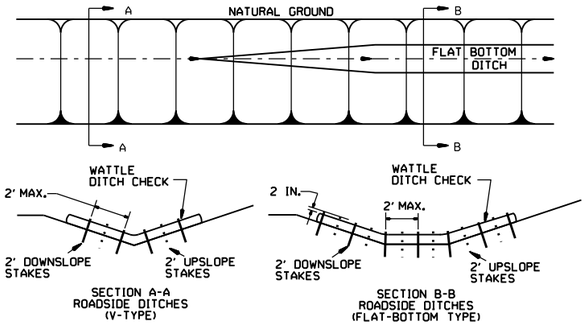
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

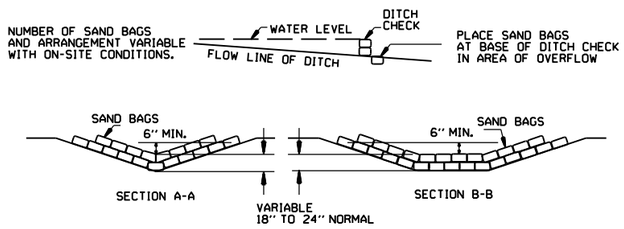
STANDARD DRAWING TC-3

GENERAL NOTES

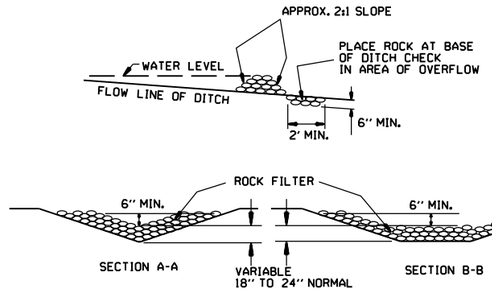
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

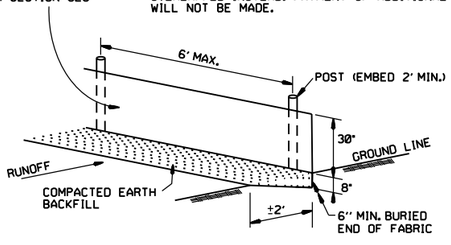


ROCK DITCH CHECK (E-6)

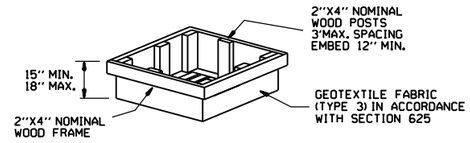
GENERAL NOTES

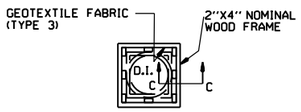
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

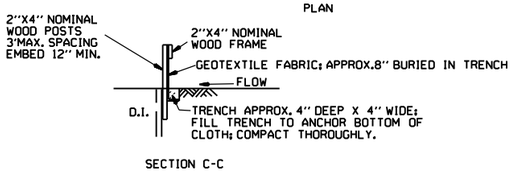
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



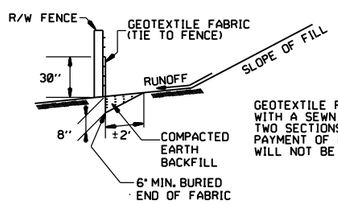
SILT FENCE (E-11)





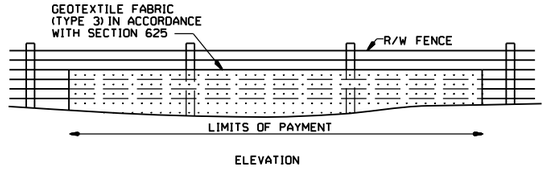


DROP INLET SILT FENCE (E-7)



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.



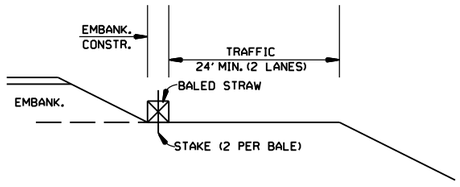
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

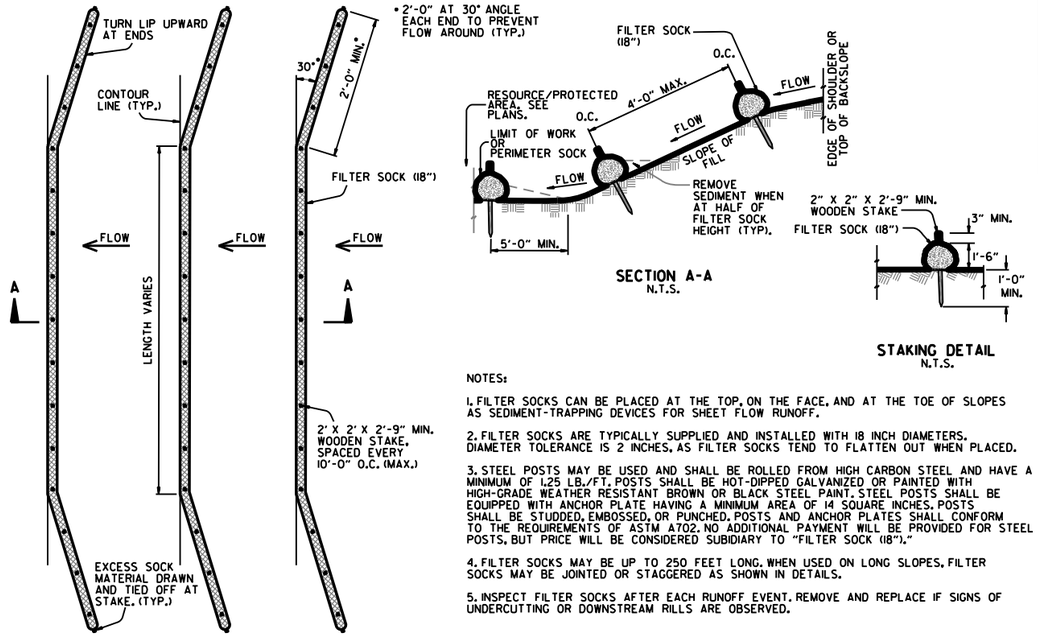
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

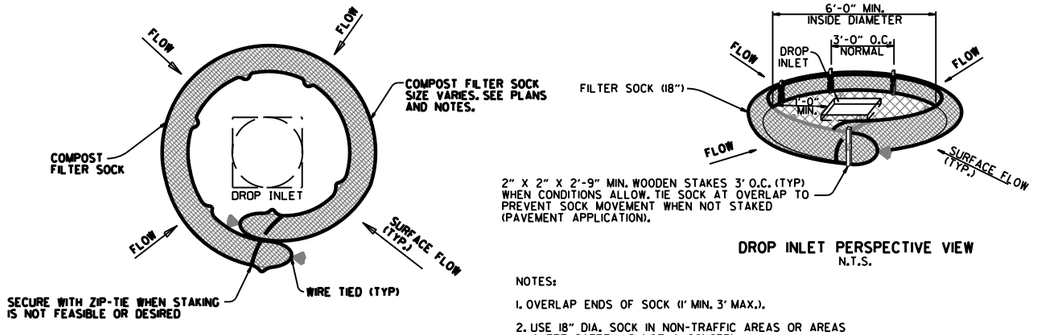
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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.

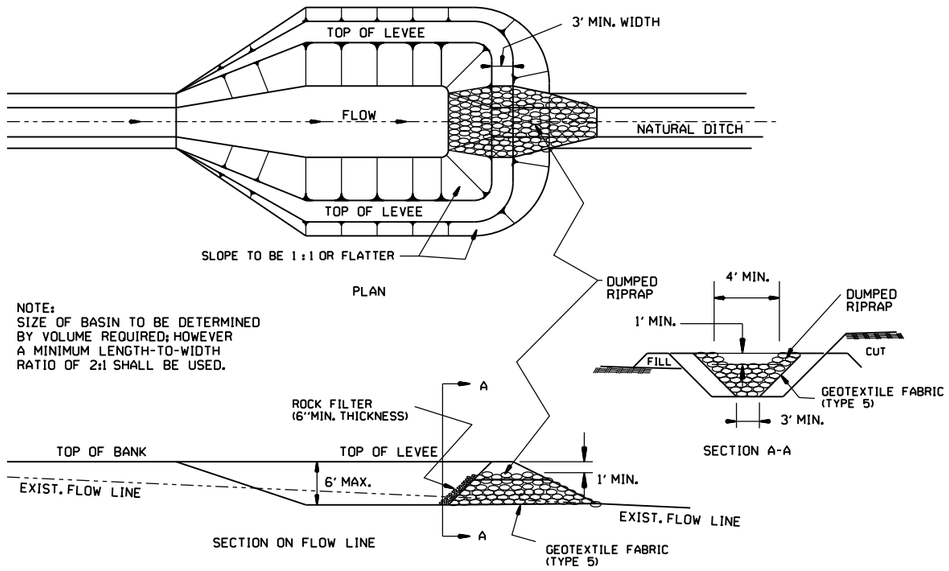
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

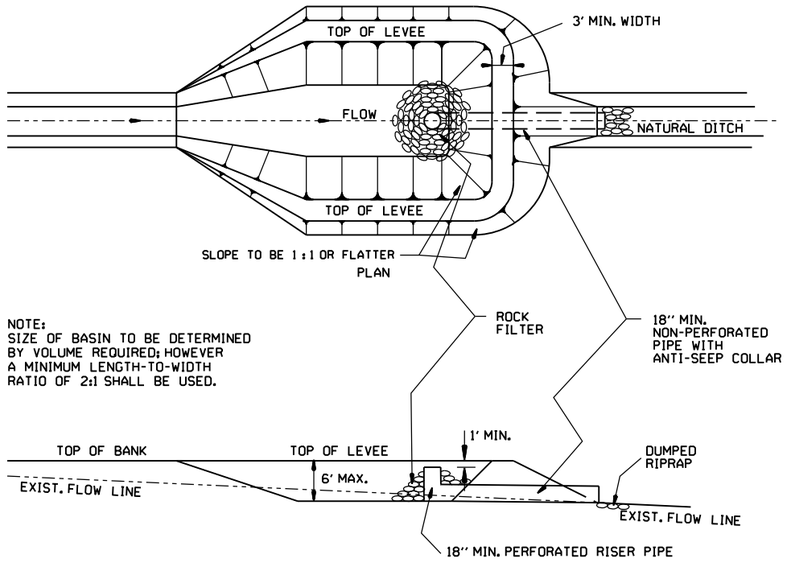
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

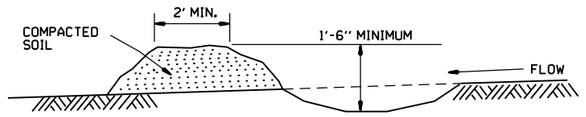
STANDARD DRAWING TEC-1



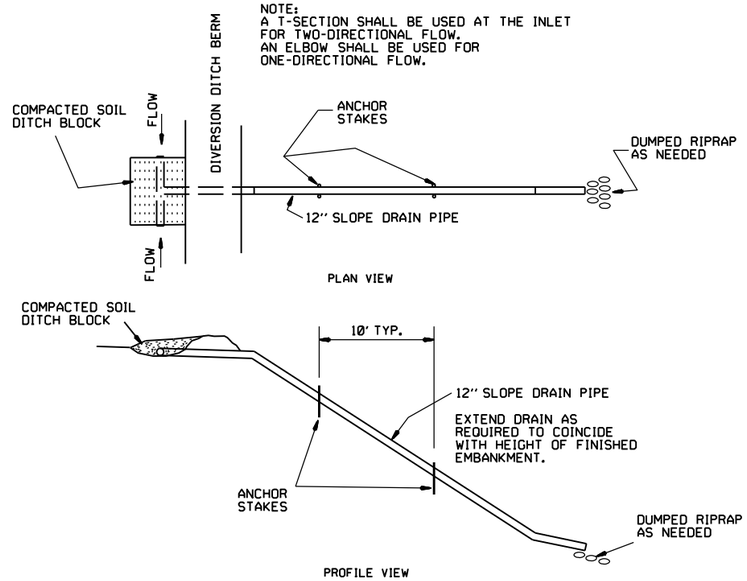
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



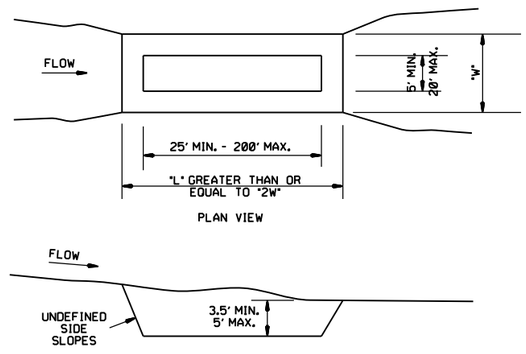
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

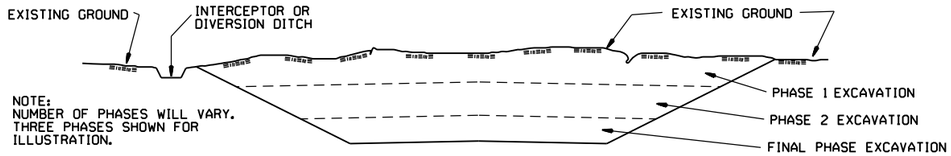
STANDARD DRAWING TEC-2

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



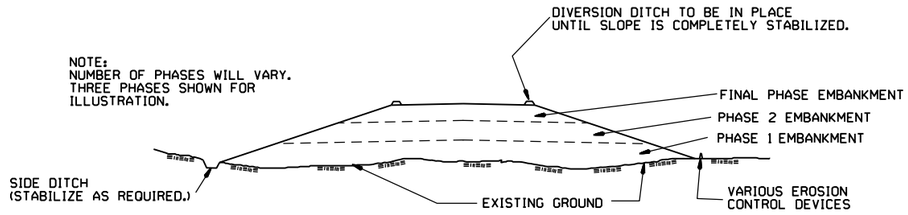
GENERAL NOTE

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