

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080506	1	49

2 CROOKED BRANCH STR. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

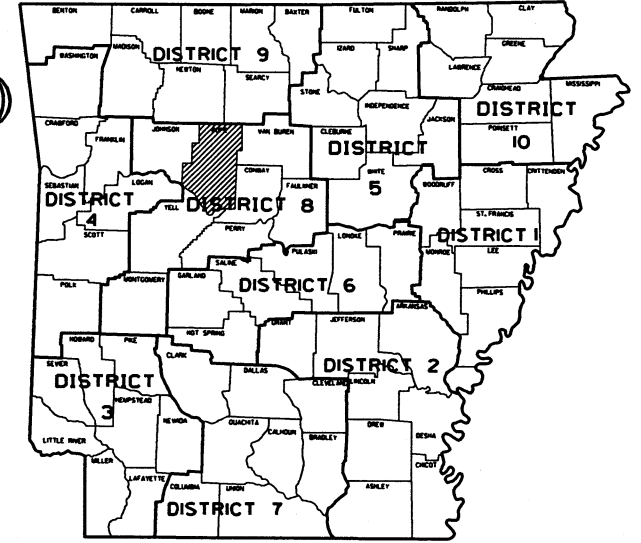
CROOKED BRANCH STR. & APPRS. (S)

POPE COUNTY
ROUTE 7 SECTION 15

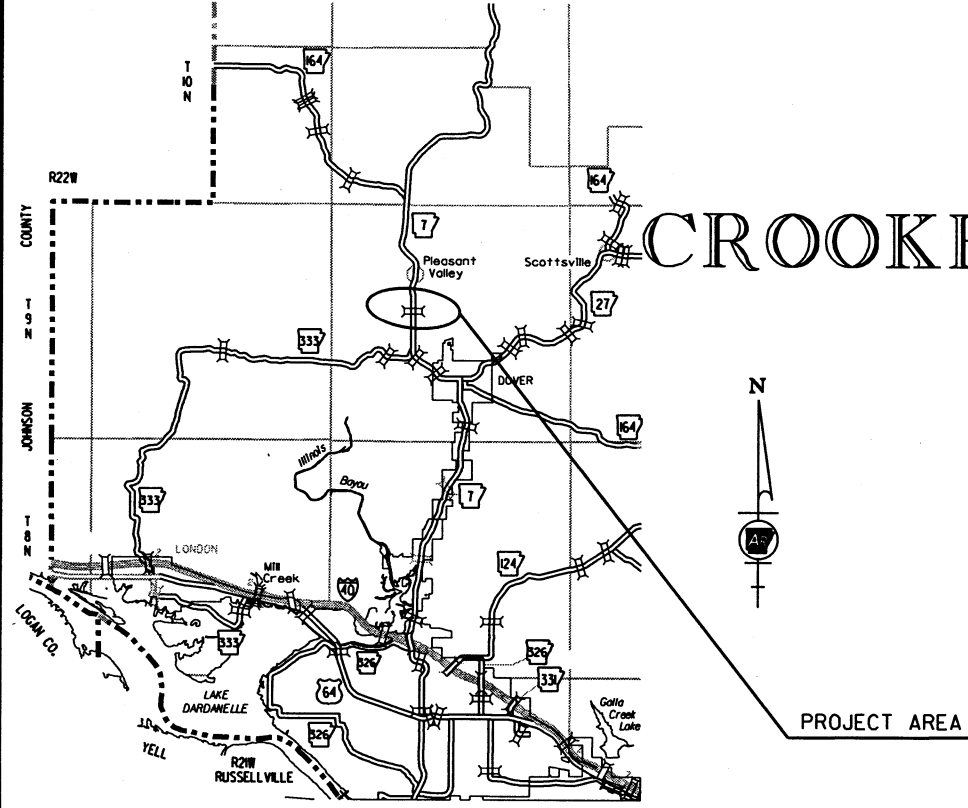
FEDERAL AID PROJ. NHPP-0058(47)

JOB 080506

NOT TO SCALE



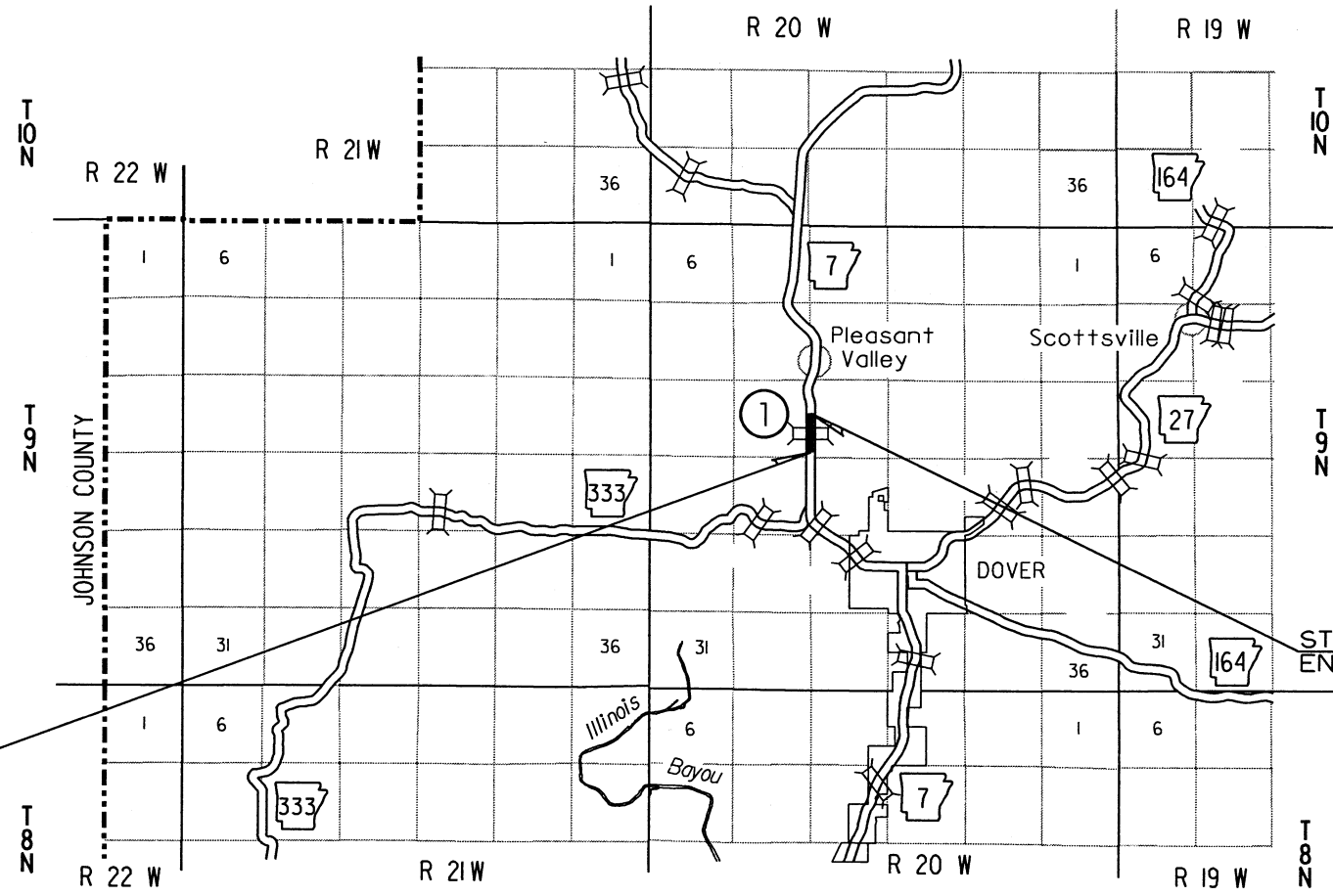
ARK. HWY. DIST. NO. 8



VICINITY MAP

BRIDGE DATA

- 1 STA. 310+32.00 BRIDGE END
- BRIDGE NO. 07428
- 99'-0" INTEGRAL W-BEAM UNIT (32' -35' -32')
- 40'-0" CLEAR ROADWAY
- 100.00' BRIDGE LENGTH
- STA. 311+32.00 BRIDGE END



DESIGN TRAFFIC DATA

DESIGN YEAR	2019
2019 ADT	3800
2039 ADT	4400
2039 DHV	484
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	8%
DESIGN SPEED	55 MPH



APPROVED



1-10-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°25' 39"	N 35°25' 42"	N 35°25' 44"
LONGITUDE	W 93°08' 05"	W 93°08' 05"	W 93°08' 05"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	500.00	FEET	OR	0.095	MILES
NET ROADWAY	400.00			0.076	MILES
NET BRIDGES	100.00			0.019	MILES
NET PROJECT	500.00			0.095	MILES

10/26/2017

R080506.DGN

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6	SPECIAL DETAILS		
7 - 10	TEMPORARY EROSION CONTROL DETAILS		
11 - 14	MAINTENANCE OF TRAFFIC DETAILS		
15	PERMANENT PAVEMENT MARKING DETAILS		
16 - 19	QUANTITIES		
20	SCHEDULE OF BRIDGE QUANTITIES	07428	60371
21	SUMMARY OF QUANTITIES AND REVISIONS		
22 - 24	SURVEY CONTROL DETAILS		
25	PLAN AND PROFILE SHEET		
26	DETOUR PLAN AND PROFILE SHEET		
27	LAYOUT OF BRIDGE HIGHWAY 7 OVER CROOKED BRANCH (SHEET 1 OF 2)	07428	60372
28	LAYOUT OF BRIDGE HIGHWAY 7 OVER CROOKED BRANCH (SHEET 2 OF 2)	07428	60373
29	DETAILS OF END BENTS	07428	60374
30	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 2)	07428	60375
31	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 2)	07428	60376
32	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 1 OF 7)	07428	60377
33	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 2 OF 7)	07428	60378
34	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 3 OF 7)	07428	60379
35	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 4 OF 7)	07428	60380
36	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 5 OF 7)	07428	60381
37	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 6 OF 7)	07428	60382
38	DETAILS OF 99' INTEGRAL W-BEAM UNIT (SHEET 7 OF 7)	07428	60383
39	DETAILS OF DECORATIVE CONCRETE PARAPET RAILING (SHEET 1 OF 4)	07428	60384
40	DETAILS OF DECORATIVE CONCRETE PARAPET RAILING (SHEET 2 OF 4)	07428	60385
41	DETAILS OF DECORATIVE CONCRETE PARAPET RAILING (SHEET 3 OF 4)	07428	60386
42	DETAILS OF DECORATIVE CONCRETE PARAPET RAILING (SHEET 4 OF 4)	07428	60387
43	DETAILS OF TYPE SPECIAL APPROACH GUTTERS	07428	60388
44 - 49	CROSS SECTIONS		

BRIDGE STANDARD DRAWINGS

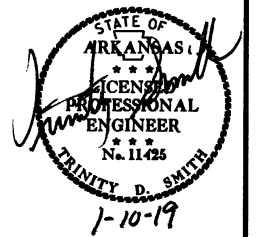
DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-17-17
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	02-27-14
55054	STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM	04-17-14
55055	STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 24' ROADWAY WIDTH (SHEET 1 OF 2)	04-17-14
55056	STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 24' ROADWAY WIDTH (SHEET 2 OF 2)	04-17-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-4	WIRE FENCE TYPE C AND D	08-22-02

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. 080506	2	49

② INDEX OF SHEETS AND STANDARD DRAWINGS



INDEX OF SHEETS AND STANDARD DRAWINGS

12/4/2018

RO80506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.	080506		3	49

2 GOVERNING SPECIFICATIONS AND GEN. NOTES

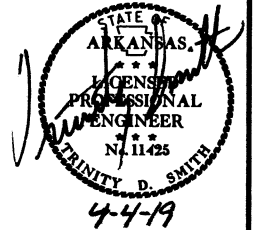
GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
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 MEASURING DENSITY FOR ROLLING PATTERNS
600-2	INCIDENTAL CONSTRUCTION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1	CONCRETE DITCH PAVING
606-1	PIPE CULVERTS FOR SIDE DRAINS
617-1	GUARDRAIL TERMINAL (TYPE 2)
620-1	MULCH COVER
621-1	FILTER SOCKS
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
804-2	REINFORCING STEEL FOR STRUCTURES
JOB 080506	ARCHITECTURAL FINISH
JOB 080506	BIDDING REQUIREMENTS AND CONDITIONS
JOB 080506	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080506	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080506	CARGO PREFERENCE ACT REQUIREMENTS
JOB 080506	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 080506	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 080506	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 080506	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 080506	DRINKING WATER PROTECTION
JOB 080506	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080506	MANDATORY ELECTRONIC CONTRACT
JOB 080506	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 080506	NESTING SITES OF MIGRATORY BIRDS
JOB 080506	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 080506	PLASTIC PIPE
JOB 080506	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 080506	SETTLEMENT AGREEMENTS
JOB 080506	SOIL STABILIZATION
JOB 080506	STAINING CONCRETE SURFACES
JOB 080506	STORM WATER POLLUTION PREVENTION PLAN
JOB 080506	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080506	UTILITY ADJUSTMENTS
JOB 080506	VEGETATED BUFFER ZONE
JOB 080506	WARM MIX ASPHALT

GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- 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.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

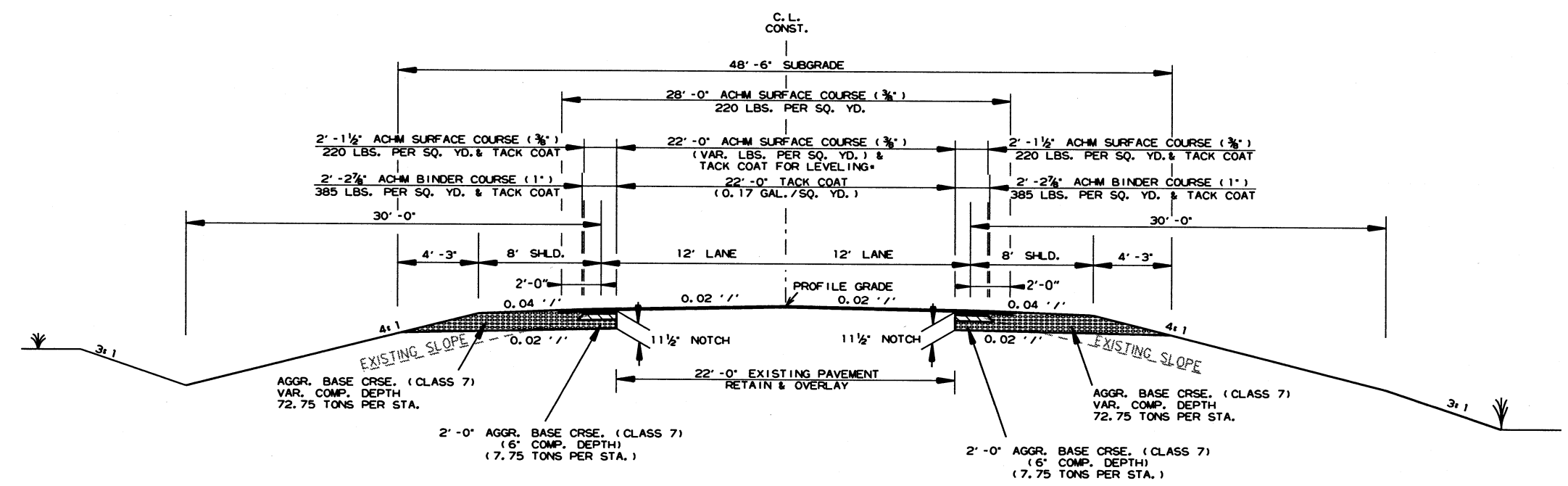
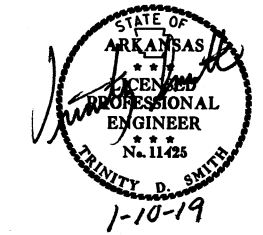


12/4/2018

RO80506.DGN

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				6	ARK.			
JOB NO. 080506							4	49

2 TYPICAL SECTIONS OF IMPROVEMENT



HWY. 7 NOTCH AND WIDEN OPEN SHOULDER

STA. 309+00.00 - STA. 309+95.50
 STA. 311+68.50 - STA. 314+00.00

NOTES:

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

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

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

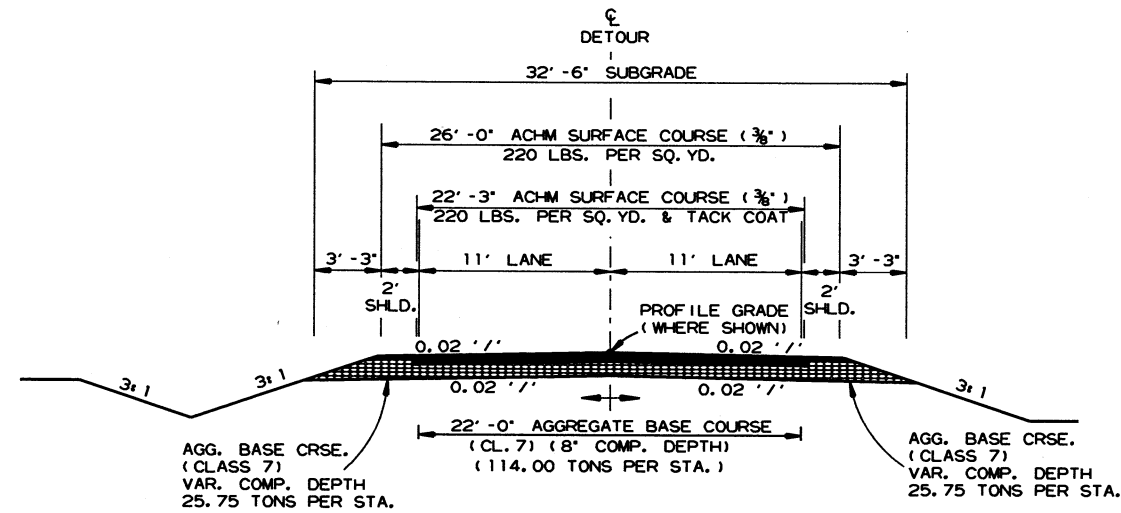
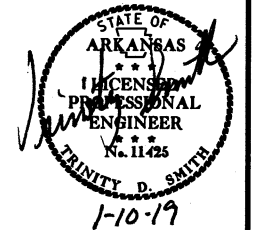
WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF AC-11.1 SURFACE (3/8") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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 CONTRACT ITEMS.

12/12/2018
 R080506.DGN

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				JOB NO.	080506		5	49

2 TYPICAL SECTIONS OF IMPROVEMENT

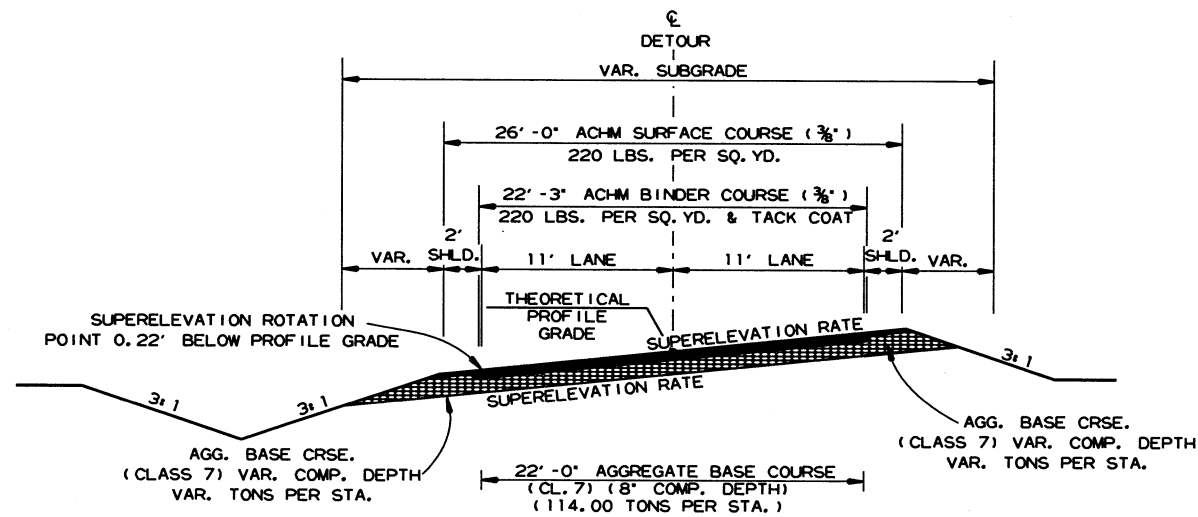


TYPICAL SECTIONS OF IMPROVEMENT DETOUR ROAD

STA. 20+00.00 TO STA. 24+30.00
STA. 25+23.00 TO STA. 29+26.32

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.



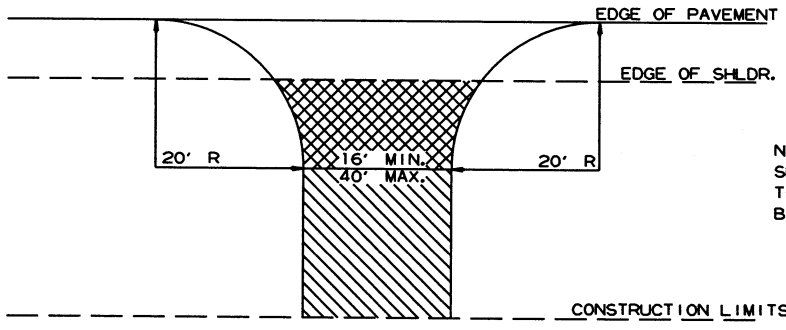
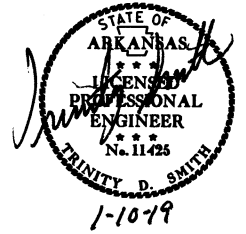
TYPICAL SECTIONS OF IMPROVEMENT DETOUR ROAD - SUPERELEVATION

CURVES ROTATE AROUND INSIDE EDGE
STA. 22+25.00 TO STA. 23+96.30
STA. 25+58.80 TO STA. 27+11.02

TYPICAL SECTIONS OF IMPROVEMENT

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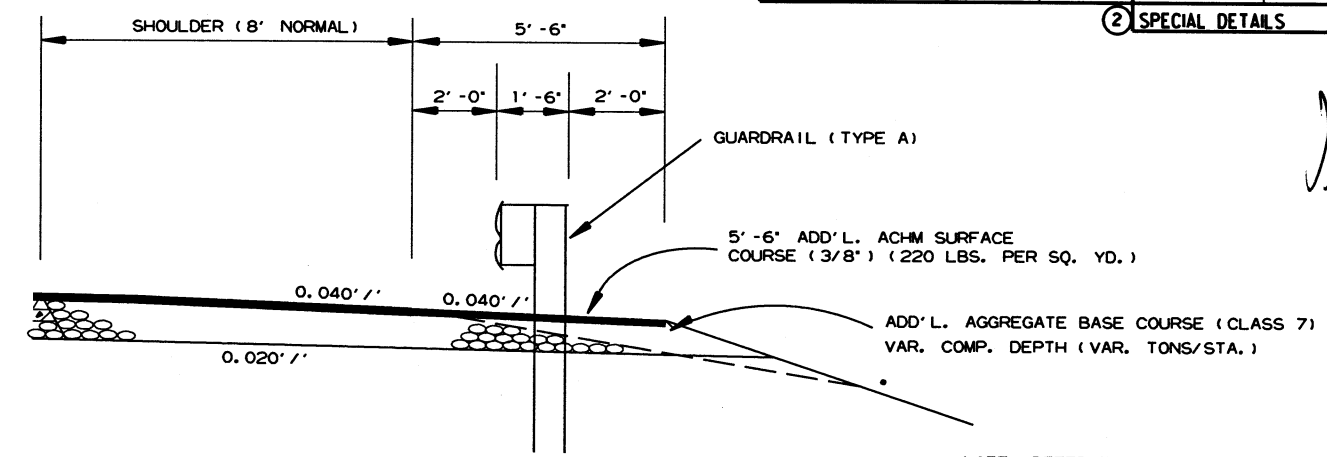
2 SPECIAL DETAILS



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

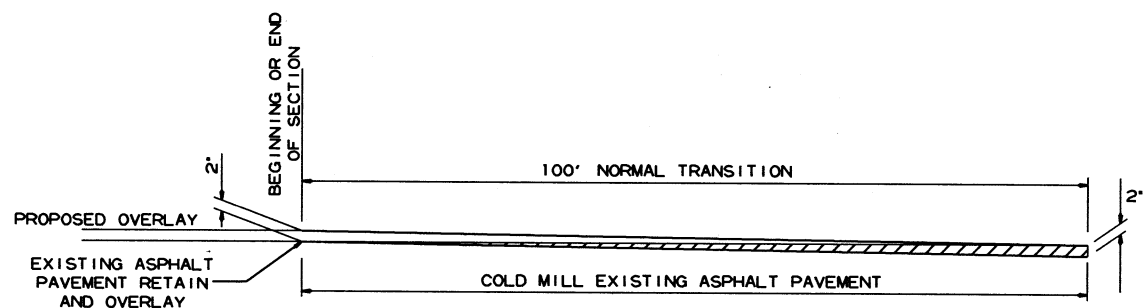
- ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7' COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6' CONCRETE IF CONCRETE DRIVE EXIST.
- AGGREGATE BASE COURSE (CLASS 7)
9' COMP. DEPTH OR CONFORM
TO EXISTING DRIVEWAY

DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

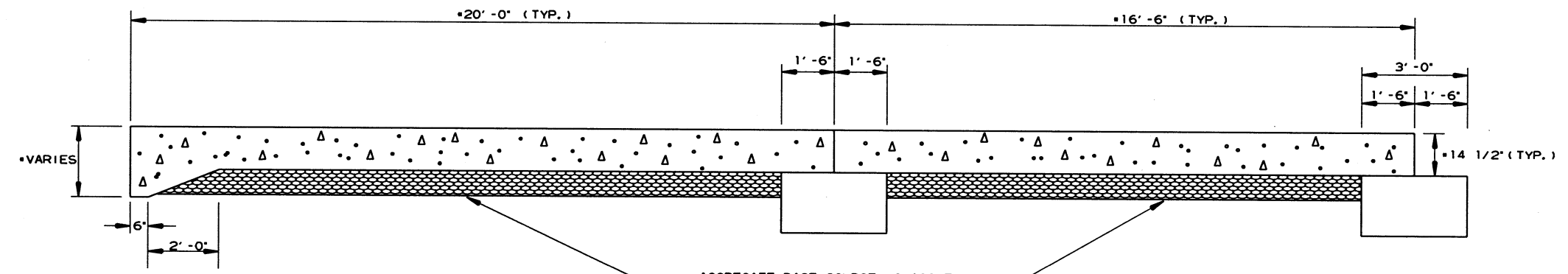


WIDENING FOR GUARDRAIL

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



DETAIL FOR TRANSITIONS



AGGREGATE BASE COURSE (CLASS 7)
VARIABLE - 6' MIN. COMPACTED DEPTH
SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

12/4/2018
R080506.DGN

REVISIONS

DATE OF REVISION	REVISION

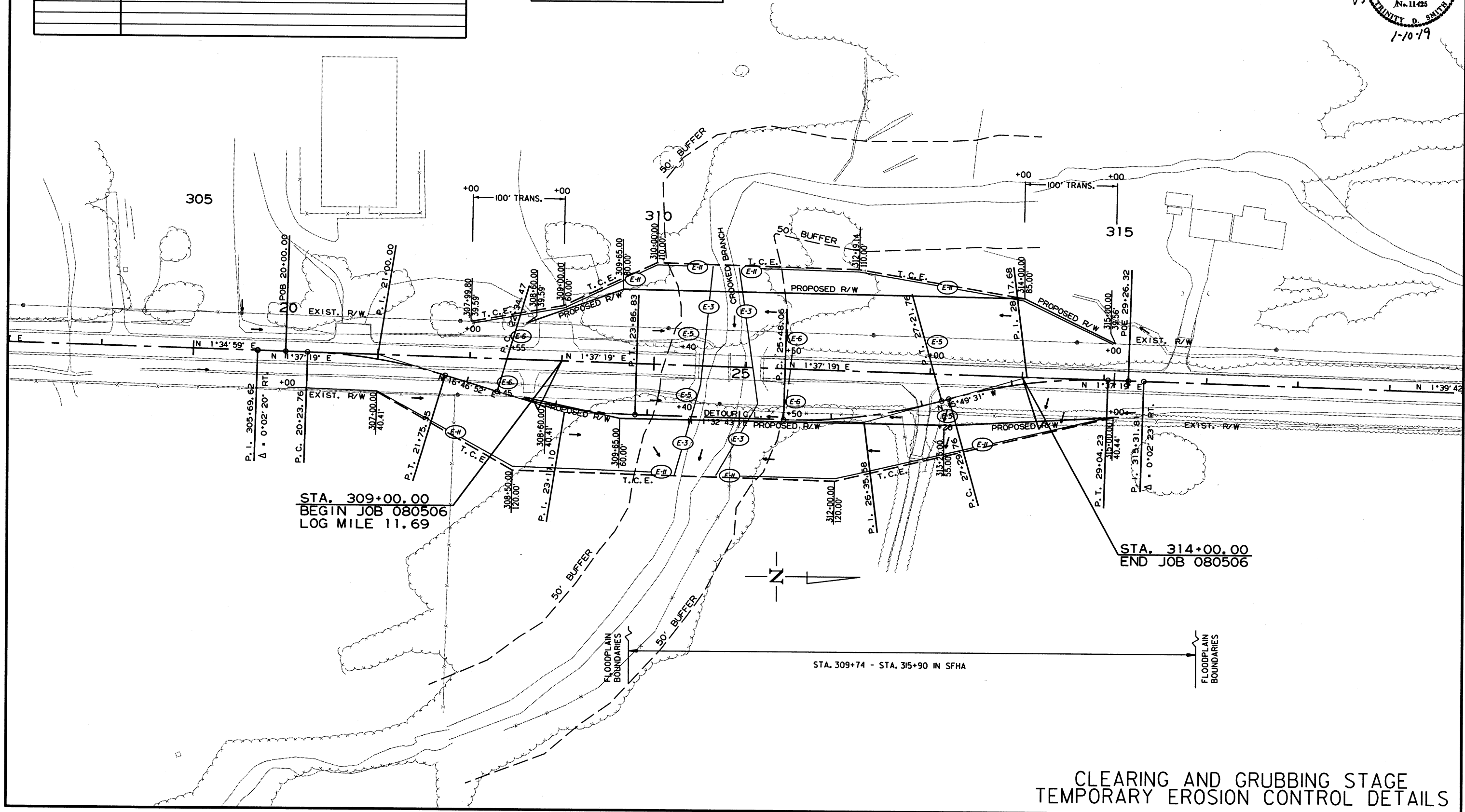
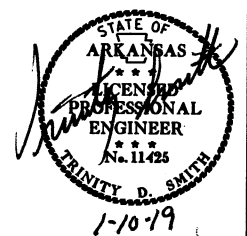
LEGEND

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

CLEARING AND GRUBBING
 FILTER SOCK (E-3)
 (2 LOCATIONS = 470 LIN. FT.)
 SAND BAG DITCH CHECKS (E-5)
 (4 LOCATIONS = 88 BAGS)
 ROCK DITCH CHECKS (E-6)
 (4 LOCATIONS = 12 CU. YDS.)
 SILT FENCE (E-11)
 (2 LOCATIONS = 2029 LIN. FT.)

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				6	ARK.		7	49

2 TEMPORARY EROSION CONTROL DETAILS



2/15/2018

R080506.DGN

CLEARING AND GRUBBING STAGE TEMPORARY EROSION CONTROL DETAILS

REVISIONS

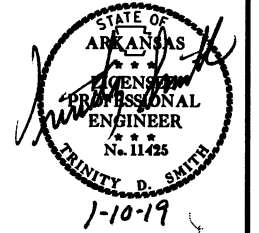
DATE OF REVISION	REVISION

LEGEND

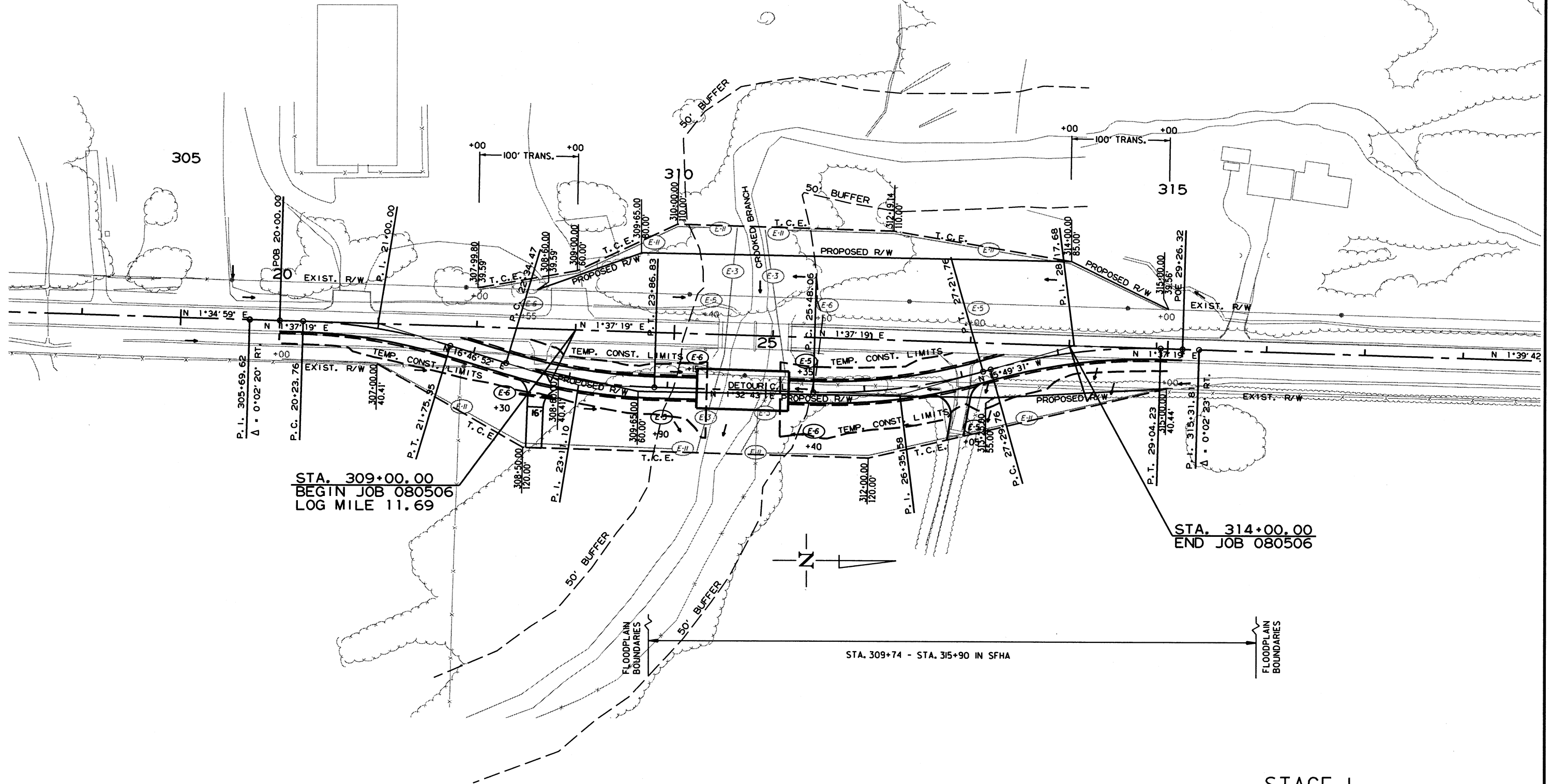
- (E-3) FILTER SOCK
- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-4) SILT FENCE

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				6	ARK.		8	49

② TEMPORARY EROSION CONTROL DETAILS



STAGE 1
 SAND BAG DITCH CHECKS (E-5)
 (3 LOCATIONS = 66 BAGS)
 ROCK DITCH CHECKS (E-6)
 (3 LOCATIONS = 9 CU. YDS.)



STA. 309+00.00
 BEGIN JOB 080506
 LOG MILE 11.69

STA. 314+00.00
 END JOB 080506

STA. 309+74 - STA. 315+90 IN SFHA

STAGE 1
 TEMPORARY EROSION CONTROL DETAILS

REVISIONS

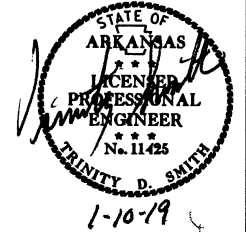
DATE OF REVISION	REVISION

LEGEND

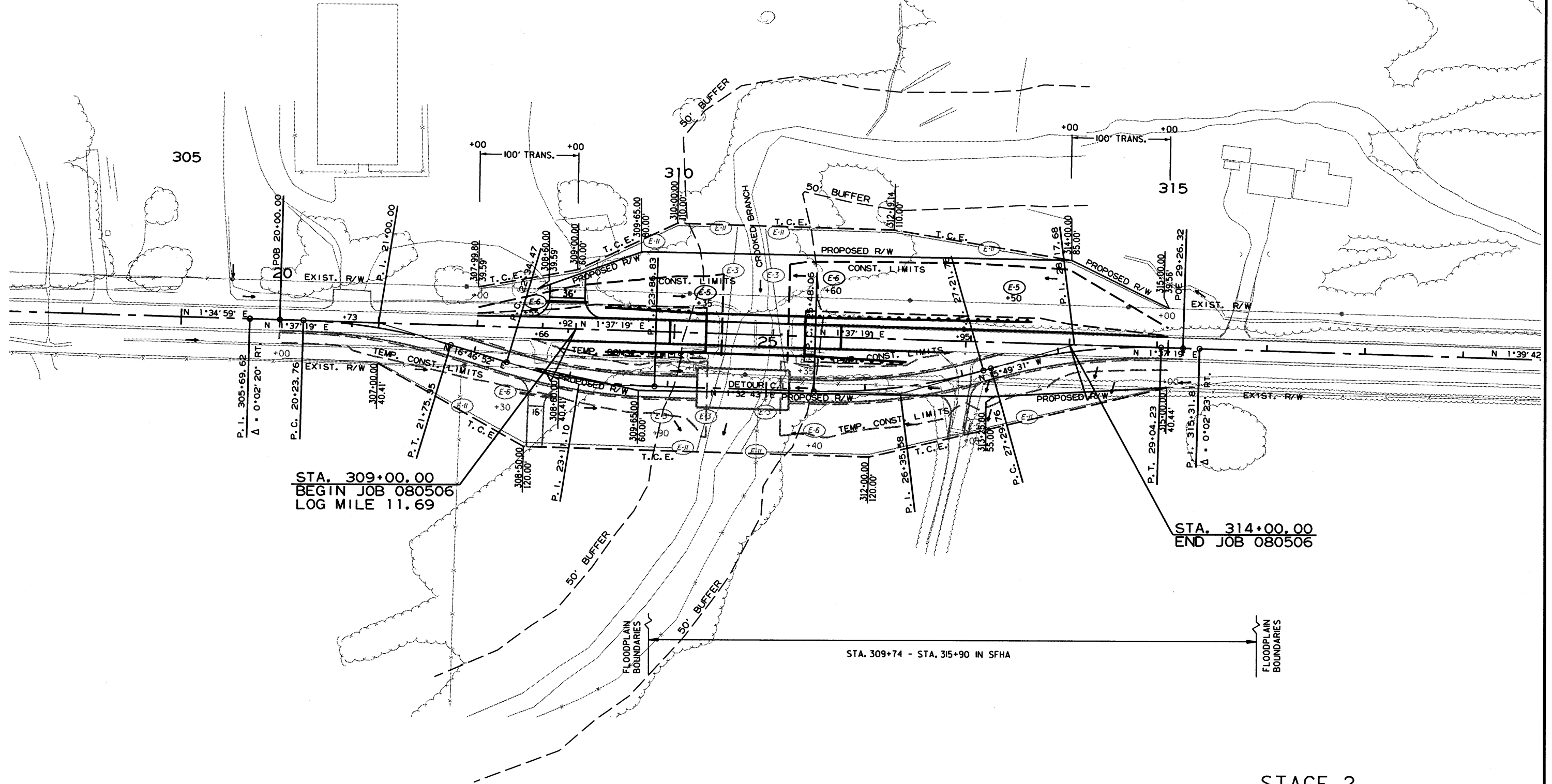
- (E-3) FILTER SOCK
- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-4) SILT FENCE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		9	49

② TEMPORARY EROSION CONTROL DETAILS



STAGE 2
 SAND BAG DITCH CHECKS (E-5)
 (2 LOCATIONS = 44 BAGS)
 ROCK DITCH CHECKS (E-6)
 (2 LOCATIONS = 6 CU. YDS.)



STA. 309+00.00
 BEGIN JOB 080506
 LOG MILE 11.69

STA. 314+00.00
 END JOB 080506

STA. 309+74 - STA. 315+90 IN SFHA

STAGE 2
 TEMPORARY EROSION CONTROL DETAILS

2/15/2018

R080506.DGN

REVISIONS

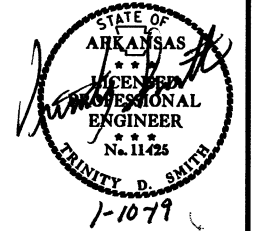
DATE OF REVISION	REVISION

LEGEND

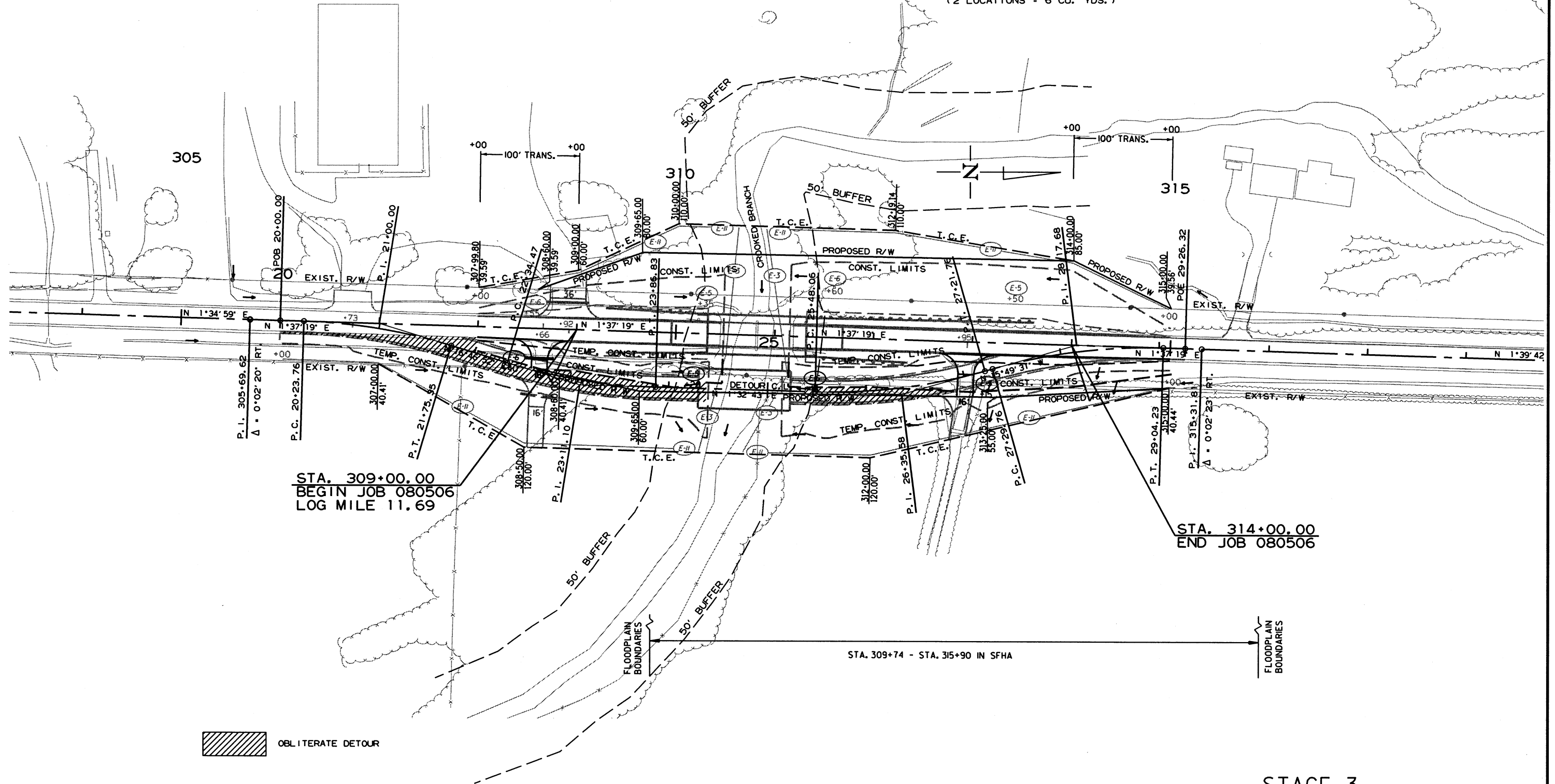
- (E-3) FILTER SOCK
- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-H) SILT FENCE

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.	080506		10	49

TEMPORARY EROSION CONTROL DETAILS



STAGE 3
 SAND BAG DITCH CHECKS (E-5)
 (2 LOCATIONS = 44 BAGS)
 ROCK DITCH CHECKS (E-6)
 (2 LOCATIONS = 6 CU. YDS.)



STA. 309+00.00
 BEGIN JOB 080506
 LOG MILE 11.69

STA. 314+00.00
 END JOB 080506

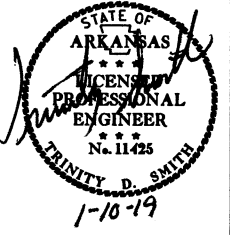
STA. 309+74 - STA. 315+90 IN SFHA

OBLITERATE DETOUR

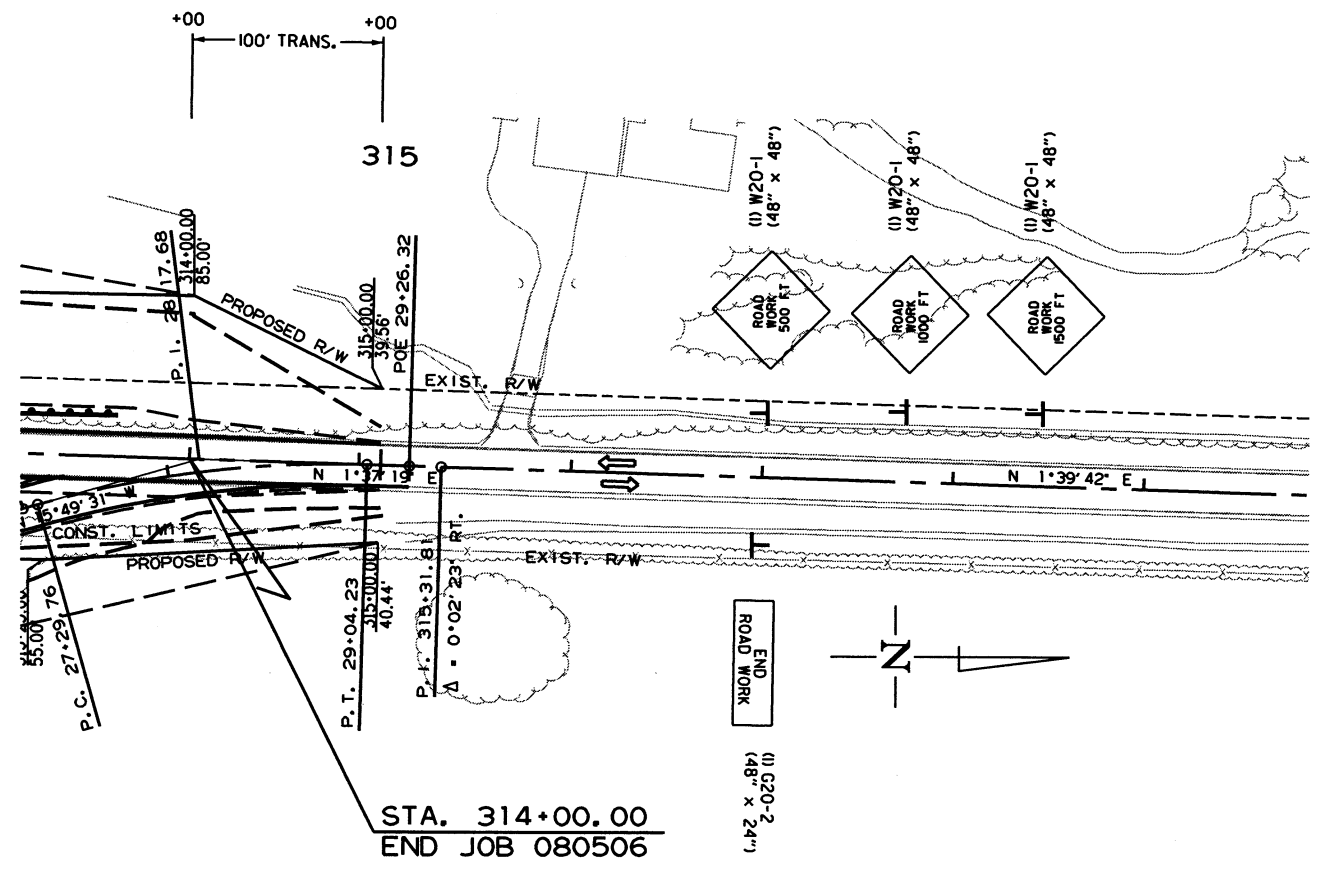
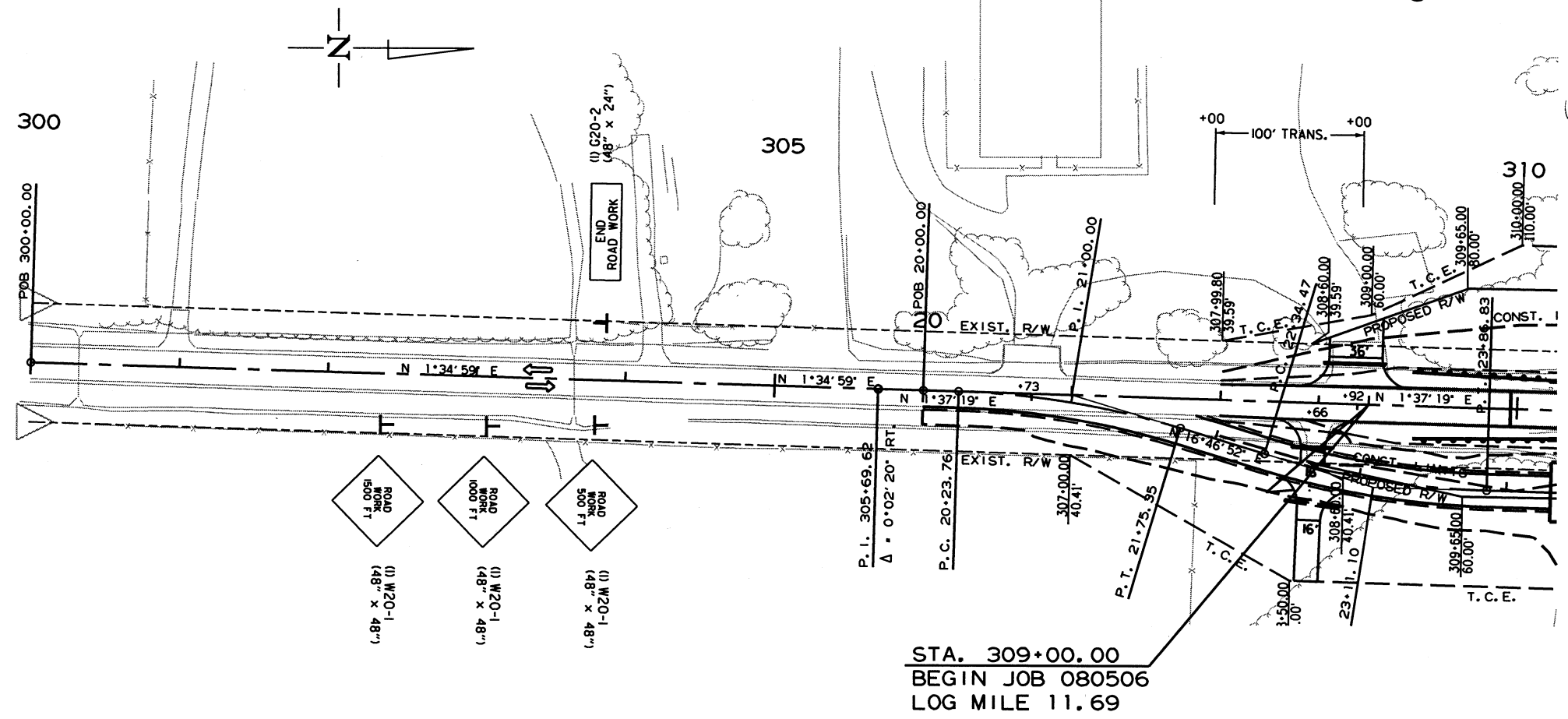
STAGE 3
 TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080506							11	49

② MAINTENANCE OF TRAFFIC DETAILS



- DO NOT PASS (2) R4-1 (24" X 30")
- RIGHT SHOULDER CLOSED (2) W21-5a (36" X 36")

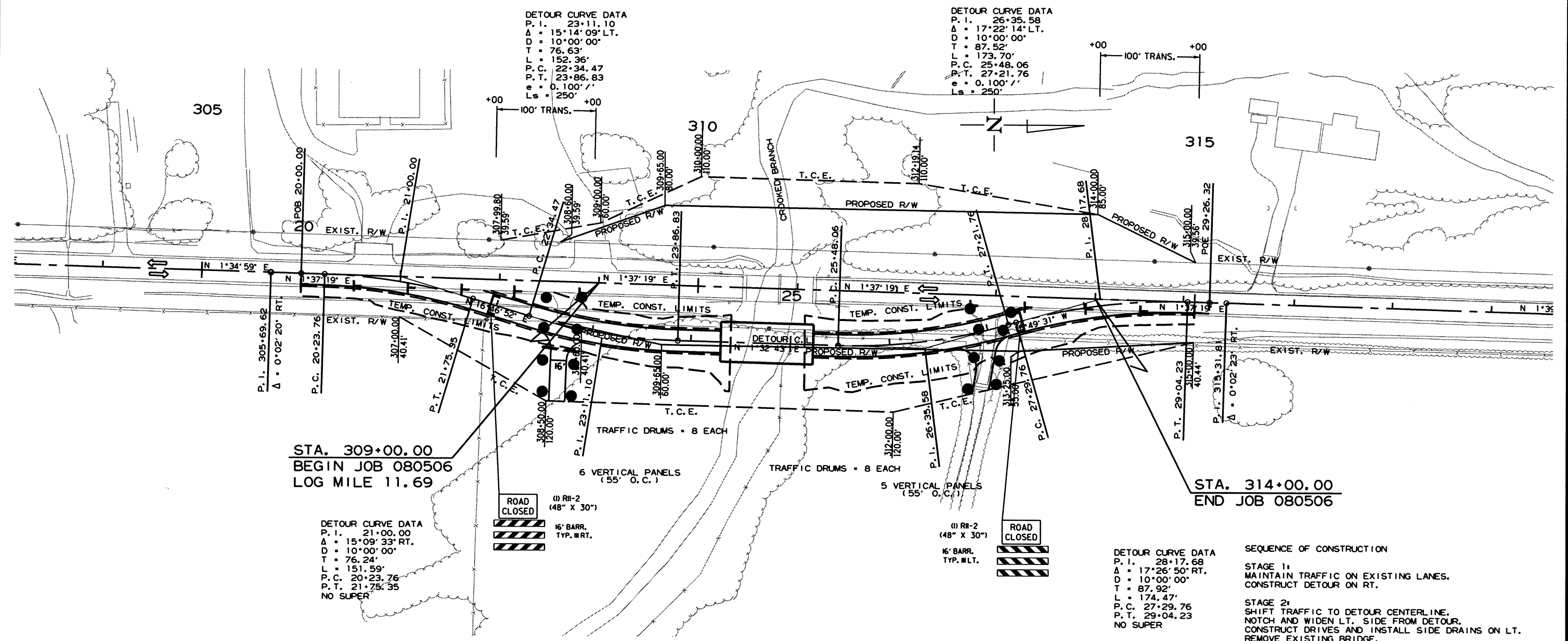
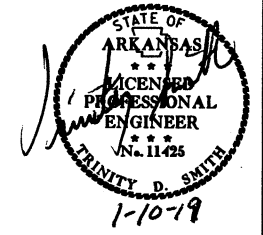


- SEQUENCE OF CONSTRUCTION
- STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOUR ON RT.
 - STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN LT. SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT NEW BRIDGE.
 - STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON RT.
BUILD DRIVES AND INSTALL SIDE DRAINS ON RT.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

MAIN LANES ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		12	49
				JOB NO.		080506		

② MAINTENANCE OF TRAFFIC DETAILS



DETOUR CURVE DATA
 P. I. = 23+11.10
 Δ = 15°14'09" LT.
 D = 10°00'00"
 T = 76.63'
 L = 152.36'
 P. C. = 22+34.47
 P. T. = 23+86.83
 e = 0.100' / '
 Ls = 250'

DETOUR CURVE DATA
 P. I. = 26+35.58
 Δ = 17°22'14" LT.
 D = 10°00'00"
 T = 87.52'
 L = 173.70'
 P. C. = 25+48.06
 P. T. = 27+21.76
 e = 0.100' / '
 Ls = 250'

STA. 309+00.00
 BEGIN JOB 080506
 LOG MILE 11.69

STA. 314+00.00
 END JOB 080506

DETOUR CURVE DATA
 P. I. = 21+00.00
 Δ = 15°09'33" RT.
 D = 10°00'00"
 T = 76.24'
 L = 151.59'
 P. C. = 20+23.76
 P. T. = 21+75.35
 NO SUPER

DETOUR CURVE DATA
 P. I. = 28+17.68
 Δ = 17°26'50" RT.
 D = 10°00'00"
 T = 87.92'
 L = 174.47'
 P. C. = 27+29.76
 P. T. = 29+04.23
 NO SUPER

SEQUENCE OF CONSTRUCTION

STAGE 1:
 MAINTAIN TRAFFIC ON EXISTING LANES.
 CONSTRUCT DETOUR ON RT.

STAGE 2:
 SHIFT TRAFFIC TO DETOUR CENTERLINE.
 NOTCH AND WIDEN LT. SIDE FROM DETOUR.
 CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON LT.
 REMOVE EXISTING BRIDGE.
 CONSTRUCT NEW BRIDGE.

STAGE 3:
 SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
 OBLITERATE DETOUR.
 NOTCH AND WIDEN ON RT.
 BUILD DRIVES AND INSTALL SIDE DRAINS ON RT.
 COLD MILL TRANSITION AREAS.
 PLACE FINAL LAYER OF AC+M SURFACE COURSE.
 INSTALL PERMANENT PAVEMENT MARKINGS.

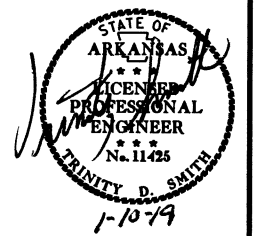
ROAD CLOSED
 (I) RR-2
 (48" X 30")
 16' BARR.
 TYP. 1/2 RT.

ROAD CLOSED
 (I) RR-2
 (48" X 30")
 16' BARR.
 TYP. 1/2 LT.

STAGE 1
 MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		13	49
				JOB NO.		080506		

2 MAINTENANCE OF TRAFFIC DETAILS



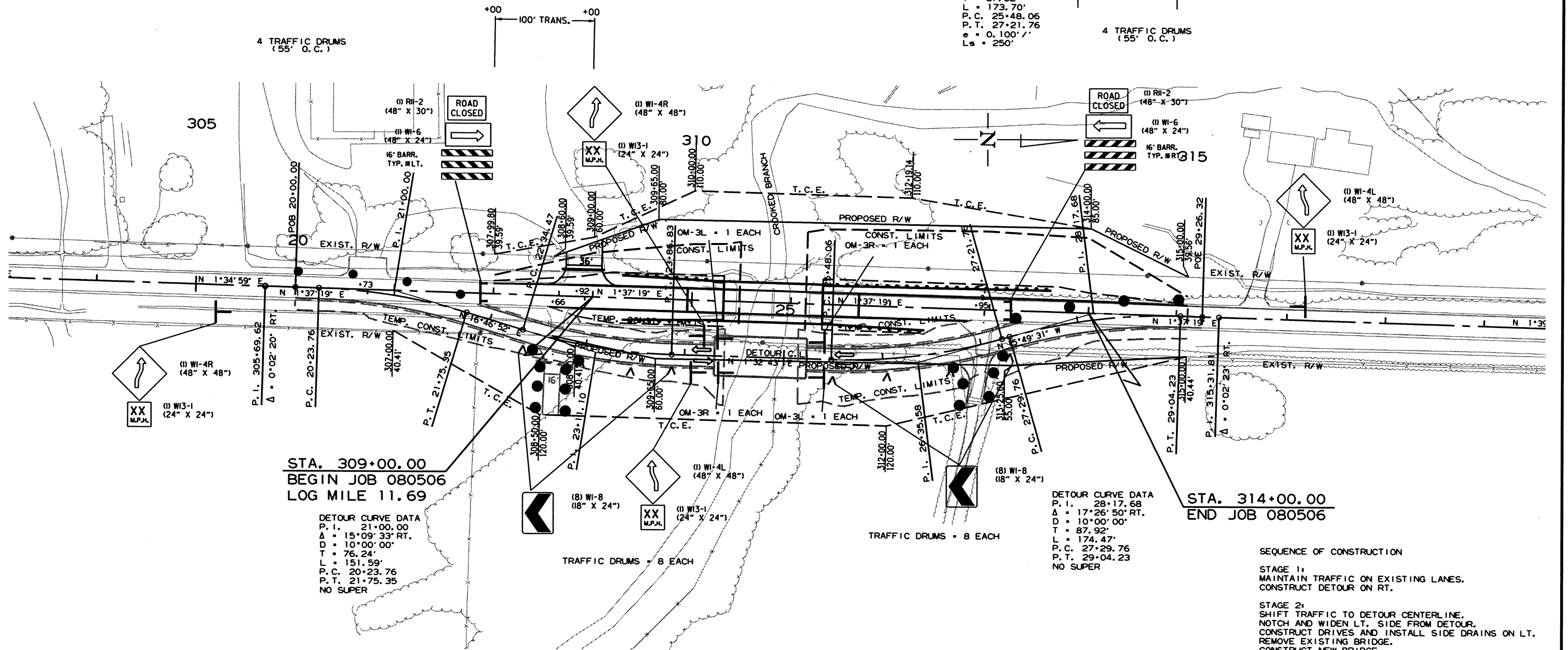
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
800 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS
2905 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS
800 LIN. FT.

DETOUR CURVE DATA
P. I. 23+11.10
Δ = 15°14'09" LT.
D = 10°00'00"
T = 76.63'
L = 152.36'
P. C. 22+34.47
P. T. 23+86.83
e = 0.100' /'
Ls = 250'

DETOUR CURVE DATA
P. I. 26+35.58
Δ = 17°22'14" LT.
D = 10°00'00"
T = 87.52'
L = 173.70'
P. C. 25+48.06
P. T. 27+21.76
e = 0.100' /'
Ls = 250'

4 TRAFFIC DRUMS
(55' O.C.)

4 TRAFFIC DRUMS
(55' O.C.)



STA. 309+00.00
BEGIN JOB 080506
LOG MILE 11.69

STA. 314+00.00
END JOB 080506

DETOUR CURVE DATA
P. I. 21+00.00
Δ = 15°09'33" RT.
D = 10°00'00"
T = 76.24'
L = 151.59'
P. C. 20+23.76
P. T. 21+75.35
NO SUPER

DETOUR CURVE DATA
P. I. 28+17.68
Δ = 17°26'50" RT.
D = 10°00'00"
T = 87.92'
L = 174.47'
P. C. 27+29.76
P. T. 29+04.23
NO SUPER

SEQUENCE OF CONSTRUCTION

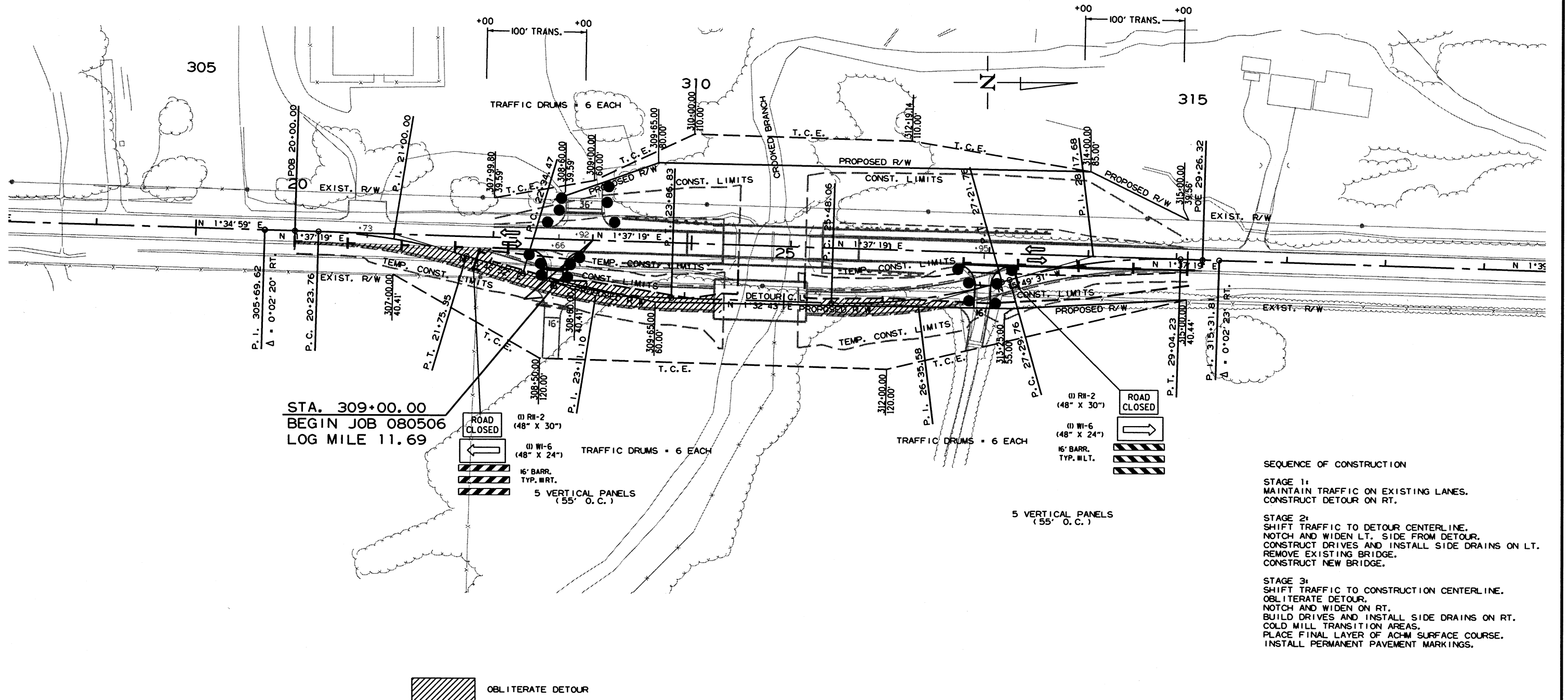
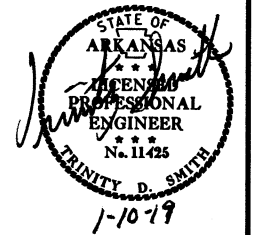
- STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOUR ON RT.
- STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN LT. SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT NEW BRIDGE.
- STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON RT.
BUILD DRIVES AND INSTALL SIDE DRAINS ON RT.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080506	14	49

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
800 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS
3600 LIN. FT.

② MAINTENANCE OF TRAFFIC DETAILS



STA. 309+00.00
BEGIN JOB 080506
LOG MILE 11.69

- (1) RH-2 (48" X 30")
- (1) WI-6 (48" X 24")
- 16' BARR. TYP. WLT.
- 5 VERTICAL PANELS (55' O.C.)
- TRAFFIC DRUMS - 6 EACH

- (1) RH-2 (48" X 30")
- (1) WI-6 (48" X 24")
- 16' BARR. TYP. WLT.
- ROAD CLOSED

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOUR ON RT.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN LT. SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT NEW BRIDGE.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON RT.
BUILD DRIVES AND INSTALL SIDE DRAINS ON RT.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

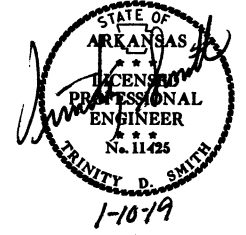
OBLITERATE DETOUR

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

12/5/2018 R080506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		15	49

② PERMANENT PAVEMENT MARKING DETAILS

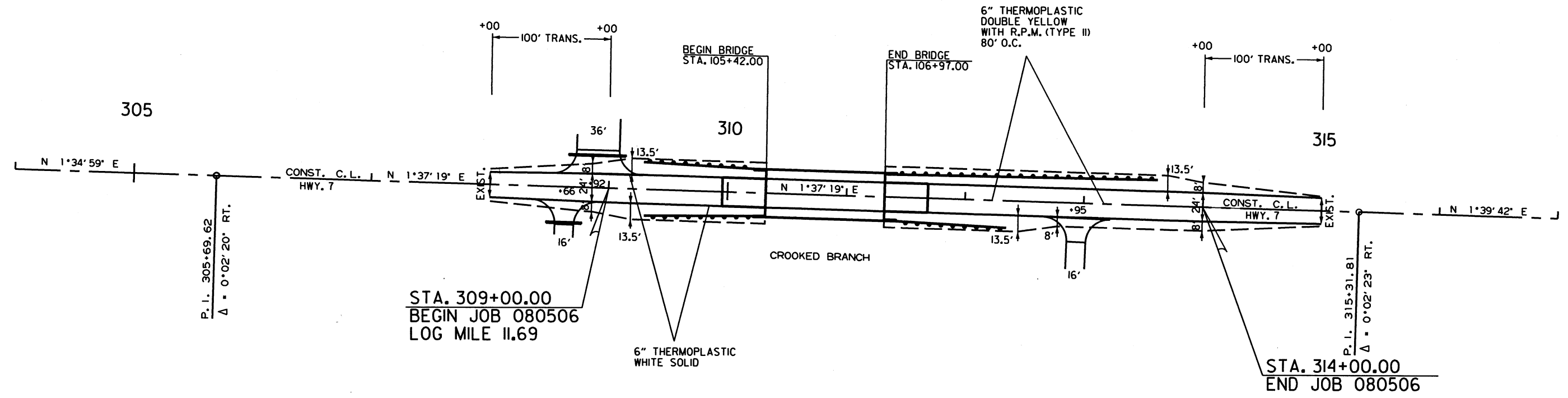
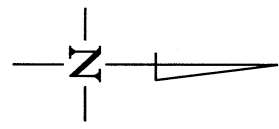


THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN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

QUANTITIES:

THERMOPLASTIC PAVEMENT MARKINGS
 6" YELLOW DBL. = 1800 LIN. FT.
 6" WHITE SOLID = 1800 LIN. FT.

RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)
 YELLOW/YELLOW = 11 EACH



12/4/2018

R080506.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.	080506		16	49

② QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
								NO.	SQ. FT.			RIGHT	LEFT
			LIN. FT. - EACH									LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0				
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	2	16.0				
W1-4AR	REVERSE CURVE RT.	48"x48"		2			2	2	32.0				
W1-4AL	REVERSE CURVE LT.	48"x48"		2			2	2	32.0				
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		4			4	4	16.0				
R11-2	ROAD CLOSED	48"x30"	2	2	2		2	2	20.0				
OM-3L	OBJECT MARKER	12"x36"		2			2	2	6.0				
OM-3R	OBJECT MARKER	12"x36"		2			2	2	6.0				
W1-6	LARGE ARROW	48"x24"		2	2		2	2	16.0				
W1-8	CHEVRONS	18"x24"		16			16	16	48.0				
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	2	10.0				
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	2	18.0				
	VERTICAL PANELS		11		10		11			11			
	TRAFFIC DRUMS		16	24	18		24				24		
	TYPE III BARRICADE-RT. (16')		1	1	1		1					16	
	TYPE III BARRICADE-LT. (16')		1	1	1		1						16
TOTALS:													
								316.0		11	24	16	16

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

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING	
									TYPE II		6"	
									(YELLOW/YELLOW)	EACH	WHITE	YELLOW
		LIN. FT. - EACH				LIN. FT.		LIN. FT.				
REMOVAL OF PERMANENT PAVEMENT MARKINGS		800			800							
CONSTRUCTION PAVEMENT MARKINGS		2905	3600			6505						
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			800				800					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		800						800				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				11					11			
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				1800						1800		
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				1800							1800	
TOTALS:					800	6505	800	800	11	1800	1800	

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

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

12/18/2018

R080506.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	49
				JOB NO.	080506			

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
308+00	35	25	38.10	93	8	4.90	6' RT.	0-5	28	10	A-4(3)	BROWN
308+00	35	25	38.10	93	8	4.80	18' RT.	0-5	ND	NP	A-4(0)	BROWN
308+00	35	25	38.10	93	8	4.80	18' RT.	0-5	26	7	A-4(2)	BROWN
314+00	35	25	43.80	93	8	5.00	6' LT.	0-5	ND	NP	A-4(0)	BROWN
314+00	35	25	43.80	93	8	5.10	18' LT.	0-5	24	8	A-4(1)	BROWN

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
310+32.00	BRIDGE END	1
TOTAL:		1

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	STATION
308+00	315+00	HWY. 7	7	7
TOTALS:			7	7

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
308+66	18" X 21' C.M. PIPE CULVERT ON RT.	1
308+92	18" X 49' B.P. PIPE CULVERT ON LT.	1
TOTAL:		2

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
307+03	307+85	HWY. 7 RT.	126
310+83	314+88	HWY. 7 RT.	537
TOTAL:			663

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	SIGN FOUNDATIONS	GUARDRAIL	SIGNS
			EACH	LIN. FT.	EACH
308+17		HWY. 7 LT.	2		1
309+25		HWY. 7 LT.	1		1
310+08	311+53	HWY. 7 RT.		145	
310+10	311+53	HWY. 7 LT.		143	
TOTALS:			3	288	2

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH LIN. FT.	"W" FEET	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
					SQ. YD.	SQ. YD.	M. GAL.
309+50.00	310+32.00	RT. DITCH GRADE	82.00	9.00	82.00	36.44	0.46
310+00.00	310+32.00	LT. DITCH GRADE	32.00	9.00	32.00	14.22	0.18
TOTALS:					114.00	50.66	0.64

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	3	6
TOTALS:		3 6

NOTE: QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.
 BASIS OF ESTIMATE:
 ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
 TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

ACHM PATCHING OF EXISTING ROADWAY

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

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			600	6
TOTALS:			600	6

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-1)	* 16'-0" GATES
			LIN. FT.	EACH
307+03	307+85	HWY. 7 RT.	126	
310+83	314+88	HWY. 7 RT.	521	1
TOTALS:			647	1

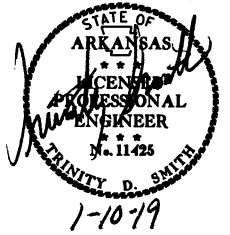
* DENOTES ALTERNATE BID ITEM.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
308+00.00	309+00.00	MAIN LANES	22.00	244.44
314+00.00	315+00.00	MAIN LANES	22.00	244.44
TOTAL:				488.88

NOTE: AVERAGE MILLING DEPTH 1".

QUANTITIES



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		18	49

② QUANTITIES



EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL										
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	FILTER SOCK (12") DITCH CHECKS	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-3) LIN. FT.	(E-5) BAG	(E-6) CU. YD.	(E-11) LIN. FT.	(E-14) CU. YD.	CU. YD.	CU. YD.	
ENTIRE PROJECT		CLEARING AND GRUBBING																
ENTIRE PROJECT		STAGE 1							3.03	3.03	61.8	470	88	12	2029		83	
ENTIRE PROJECT		STAGE 2							0.93	0.93	19.0		66	9			6	
ENTIRE PROJECT		STAGE 3							0.84	0.84	17.1		44	6			4	
ENTIRE PROJECT		STAGE 3	0.89	1.78	0.89	90.8	0.89		0.93	0.93	19.0		44	6			4	
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.11	0.22	0.11	11.2	0.11					230	66	9	500	200	200	225
TOTALS:			1.00	2.00	1.00	102.0	1.00		5.73	5.73	116.9	700	308	42	2529	200	200	322

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.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS (TYPE C1)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
309+95.50	310+32.00	LT. SIDE	14.20		770	
309+95.50	310+32.00	MAIN LANE		49.15	5775	34.1
309+95.50	310+32.00	RT. SIDE	14.20		770	
311+32.00	311+68.50	LT. SIDE	14.20		770	
311+32.00	311+68.50	MAIN LANE		49.15	5775	34.1
311+32.00	311+68.50	RT. SIDE	14.20		770	
TOTALS:			56.80	98.30	14630	68.2

NOTE: USE T=13.5" FOR 8' SHOULDER.

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
309+28.85	310+22.60	LT. SIDE	25	1	1
309+28.85	310+22.60	RT. SIDE	25	1	1
311+41.40	313+60.15	LT. SIDE	150	1	1
311+41.40	312+35.15	RT. SIDE	25	1	1
TOTALS:			225	4	4

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.	CU. YD.	TON
ENTIRE PROJECT		STAGE 1-MAIN LANES	194	2725	
ENTIRE PROJECT		STAGE 2-MAIN LANES	1028	1008	
ENTIRE PROJECT		STAGE 3-MAIN LANES	3381	159	
ENTIRE PROJECT		APPROACHES	5	40	
ENTIRE PROJECT		TEMPORARY APPROACHES		220	
ENTIRE PROJECT		BRIDGE EXCAVATION	190		
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			100
TOTALS:			4798	4152	100

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

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

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS	STD. DWG. NOS.
		18" LIN. FT.	
22+75	INSTALL TEMPORARY PIPE CULVERT ON RT.	38	PCC-1 AND PCM-1
TOTAL:		38	

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.

12/18/2018

RO80506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		19	49
				JOB NO.	080506			

② QUANTITIES

STATION	SIDE	LOCATION	WIDTH FEET	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS		STANDARD DRAWINGS
				SQ. YD.	TON		18"	21"X15"	
								LIN. FT.	
308+66	RT.	HWY. 7 DRIVEWAY	16	44.80	4.93	27.53	28		PCC-1, PCM-1, PCP-1, PCP-2
308+92	LT.	HWY. 7 DRIVEWAY	36	84.80	9.33	76.21		42	PCC-1, PCM-1, PCP-1, PCP-2
312+95	RT.	HWY. 7 DRIVEWAY	16	44.80	4.93	39.57			
ENTIRE PROJECT TEMPORARY DRIVES						110.00			
TOTALS:				174.40	19.19	253.31	28	42	

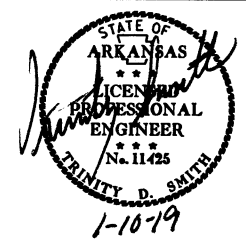
BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

* 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.

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

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



BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT					ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (3/8")										
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)		TOTAL GALLONS	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	TOTAL PG 64-22 TON	
						TOTAL WID. FEET	SQ. YD.	GALLON	TOTAL WID. FEET	SQ. YD.															GALLON
MAIN LANES																									
308+00.00	309+00.00	TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55	2.24	24.89	385.00	4.79	2.13	23.67	220.00	2.60	25.00	277.78	220.00	30.56	33.16
309+00.00	309+95.50	NOTCH AND WIDEN	95.50	161.00	153.76	52.73	559.52	27.98				27.98	26.48	280.98	VAR.	31.85	26.25	278.54	220.00	30.64	28.00	297.11	220.00	32.68	63.32
311+68.50	314+00.00	NOTCH AND WIDEN	231.50	161.00	372.72	52.73	1356.33	67.82				67.82	26.48	681.12	VAR.	158.18	26.25	675.21	220.00	74.27	28.00	720.22	220.00	79.22	153.49
314+00.00	315+00.00	TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55	2.24	24.89	385.00	4.79	2.13	23.67	220.00	2.60	25.00	277.78	220.00	30.56	33.16
ADDITIONAL FOR LEVELING																									
309+00.00	309+95.50	HWY. 7	95.50						22.00	233.44	39.68	39.68													
311+68.50	314+00.00	HWY. 7	231.50						22.00	565.89	96.20	96.20													
WIDENING FOR GUARDRAIL																									
308+49.85	308+85.85	GUARDRAIL WIDENING ON LT.	36.00																						
308+85.85	309+18.85	GUARDRAIL WIDENING ON LT.	33.00	21.13	6.97																				
309+18.85	310+32.00	GUARDRAIL WIDENING ON LT.	113.15	42.25	47.81																				
308+49.85	308+85.85	GUARDRAIL WIDENING ON RT.	36.00																						
308+85.85	309+18.85	GUARDRAIL WIDENING ON RT.	33.00	21.13	6.97																				
309+18.85	310+32.00	GUARDRAIL WIDENING ON RT.	113.15	42.25	47.81																				
311+32.00	313+70.15	GUARDRAIL WIDENING ON LT.	238.15	42.25	100.62																				
313+70.15	314+03.15	GUARDRAIL WIDENING ON LT.	33.00	21.13	6.97																				
314+03.15	314+39.15	GUARDRAIL WIDENING ON LT.	36.00																						
311+32.00	312+45.15	GUARDRAIL WIDENING ON RT.	113.15	42.25	47.81																				
312+45.15	312+78.15	GUARDRAIL WIDENING ON RT.	33.00	21.13	6.97																				
312+78.15	313+14.15	GUARDRAIL WIDENING ON RT.	36.00																						
DETOUR																									
20+00.00	21+90.00	NOTCH AND WIDEN	190.00	82.75	157.23	VAR.	152.22	7.61				7.61													
21+90.00	24+30.00	FULL DEPTH	240.00	165.50	397.20	22.25	593.33	29.67				29.67													
25+23.00	27+40.00	FULL DEPTH	217.00	165.50	359.14	22.25	536.47	26.82				26.82													
27+40.00	29+26.32	NOTCH AND WIDEN	186.32	82.75	154.18	VAR.	152.47	7.62				7.62													
TOTALS:				2027.16		3350.34	167.52		1288.21	218.98	386.50		1011.88		199.61		2435.58		267.90		5025.43		552.80	820.70	

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (3/8").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% 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.

12/18/2018 RO80506.DGN

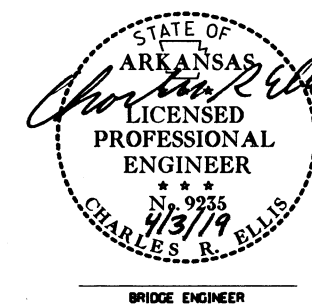
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				8	ARK.			
				JOB NO.	080506		20	49
① 07428 - QUANTITIES - 60371								

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 080506

BRIDGE NO. NAME TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SP, SS, & 807	812	816	816	SP JOB 080506	SP JOB 080506	
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	③ STEEL PILING (HP 12X53)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	ARCHITECTURAL FINISH	STAINING CONCRETE SURFACES	
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	EACH	SQ. YD.	CU. YD.	SQ. FT.	SQ. FT.	
07428 HIGHWAY 7 OVER CROOKED BRANCH	BENT NO. 1			69	18.40			1,480	265	85	75			115	95		20	
	BENT NOS. 2 & 3			205	91.00			11,910										
	BENT NO. 4			69	18.40			1,480	265	85	75			265	175		20	
	99'-0" INTEGRAL W-BEAM UNIT					② 174.00	8.9		52,715			56,430	1			1,795	2,775	
	EXISTING BRIDGE NO. M0197 (SITE NO.1)		1															
TOTALS FOR JOB NO. 080506				90	① 343	127.80	174.00	8.9	14,870	53,245	170	150	56,430	1	380	270	1,795	2,815

- ① Includes approx. 87 cubic yards of rock excavation.
- ② Based upon neat lines of Decorative Concrete Parapet Railing, and the dimension of deck edge being 9 3/4". Payment will be based upon plan quantities shown.
- ③ Steel piling is required to be Grade 50 and have special pile tips which will not be paid for directly, but will be considered subsidiary to the Item "Steel Piling (HP 12X53)".

LUKE BAILEY
DESIGN SECTION SUPERVISOR



**SCHEDULE OF BRIDGE QUANTITIES
CROOKED BRANCH STR. & APPRS. (S)
POPE COUNTY**

ROUTE 7 SEC. 15
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 6-18-18 FILENAME: b080506.qi.dgn
 CHECKED BY: WAC DATE: 4/3/19 SCALE: NONE
 DESIGNED BY: -- DATE: --
 BRIDGE NO. 07428 DRAWING NO. 60371

SURVEY CONTROL COORDINATES

Project Name: s080506
 Date: 11/18/2016
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 580031 - 580031A
 PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	398108.4067	974316.3666	432.347	CTL	AHTD STD. MON. STAMPED PN: 1
2	398830.3183	974351.5369	426.049	CTL	AHTD STD. MON. STAMPED PN: 2
3	399427.3364	974376.4198	427.582	CTL	AHTD STD. MON. STAMPED PN: 3
4	400601.6600	974395.3582	428.429	CTL	AHTD STD. MON. STAMPED PN: 4
5	401329.7653	974413.7204	437.631	CTL	AHTD STD. MON. STAMPED PN: 5
100	400204.0664	974393.6419	429.319	GPS	AHTD GPS #580031
101	401737.6651	974427.8019	441.862	GPS	AHTD GPS #580031A

*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).
 ALL DISTANCES ARE GROUND.
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
 A PROJECT CAF OF 0.999923598729 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 s080506gi.CTL
 HORIZONTAL DATUM: NAD 83 (2011)
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
 AT A SPECIFIC POINT.

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

BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 580031 - 580031A
 CONVERGENCE ANGLE: 00 39 36.83 LEFT AT LT: N 35-25-38.72 LG: W093-08-04.61
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ELEV. BASED ON STATIC GPS DERIVED
 ELEV. TO AHTD GPS #580031 CONSTRAINING
 AHTD CORS ARFY, ARHR & ARLR AND NGS
 1ST ORDER BM B 326

HWY. 7

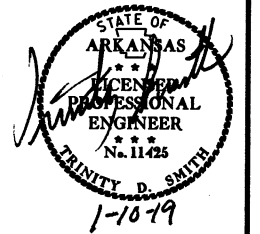
POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	300+00.00	399333.1776	974338.6987
8001	PI	305+69.62	399902.5849	974354.4354
8002	PI	315+31.81	400864.3833	974381.6704
8003	POE	321+92.12	401524.4150	974400.8185

DETOUR

POINT NO.	TYPE	STATION	NORTHING	EASTING
8004	POB	20+00.00	399932.9480	974355.2952
8005	PC	20+23.76	399956.6979	974355.9677
8007	PT	21+75.35	400105.9018	974380.1375
8008	PC	22+34.47	400162.5039	974397.2063
8010	PT	23+86.83	400312.4747	974421.3974
8011	PC	25+48.06	400473.6468	974425.7453
8013	PT	27+21.76	400645.3453	974404.2375
8014	PC	27+29.76	400653.0413	974402.0561
8016	PT	29+04.23	400825.5066	974380.5695
8017	POE	29+26.32	400847.5814	974381.1946

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	080506
							SHEET NO.	22
							TOTAL SHEETS	49

2 SURVEY CONTROL DETAILS



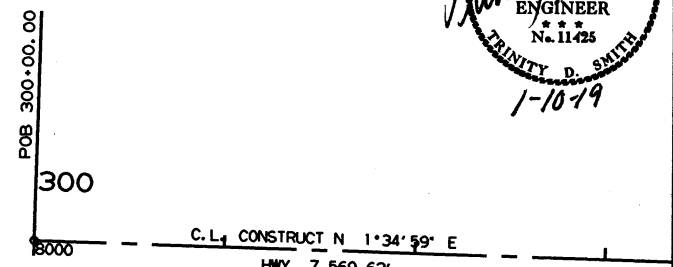
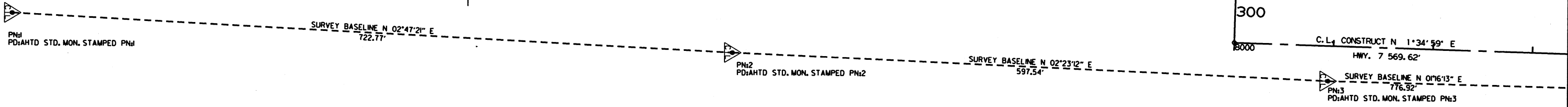
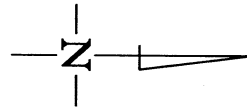
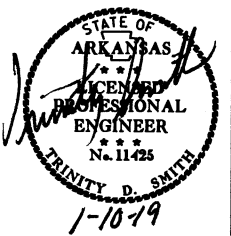
SURVEY CONTROL DETAILS

7/19/2018

R080506.DGN

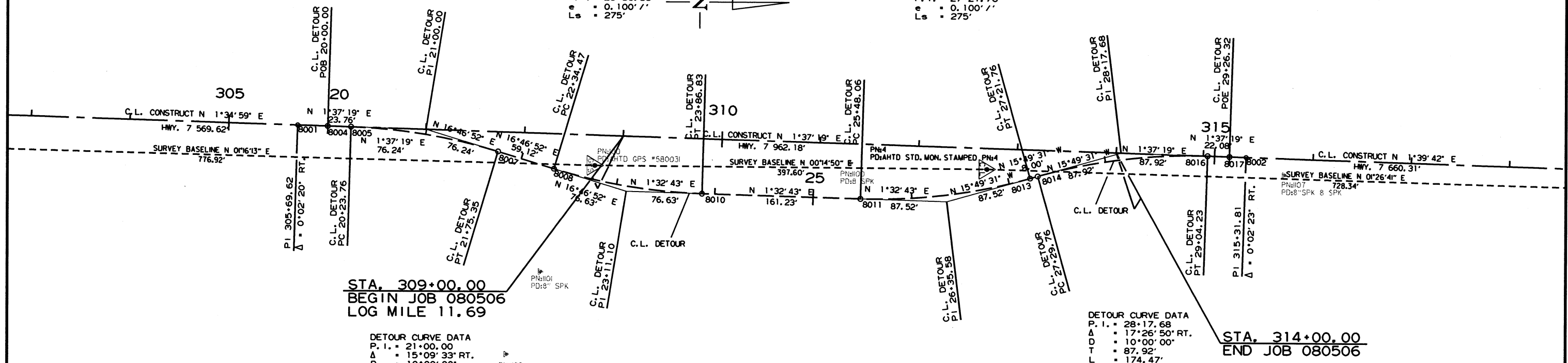
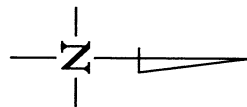
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080506							23	49

2 SURVEY CONTROL DETAILS



DETOUR CURVE DATA
 P. I. = 23+11.10
 Δ = 15°14'09\"/>

DETOUR CURVE DATA
 P. I. = 26+35.58
 Δ = 17°22'14\"/>



DETOUR CURVE DATA
 P. I. = 21+00.00
 Δ = 15°09'33\"/>

DETOUR CURVE DATA
 P. I. = 28+17.68
 Δ = 17°26'50\"/>

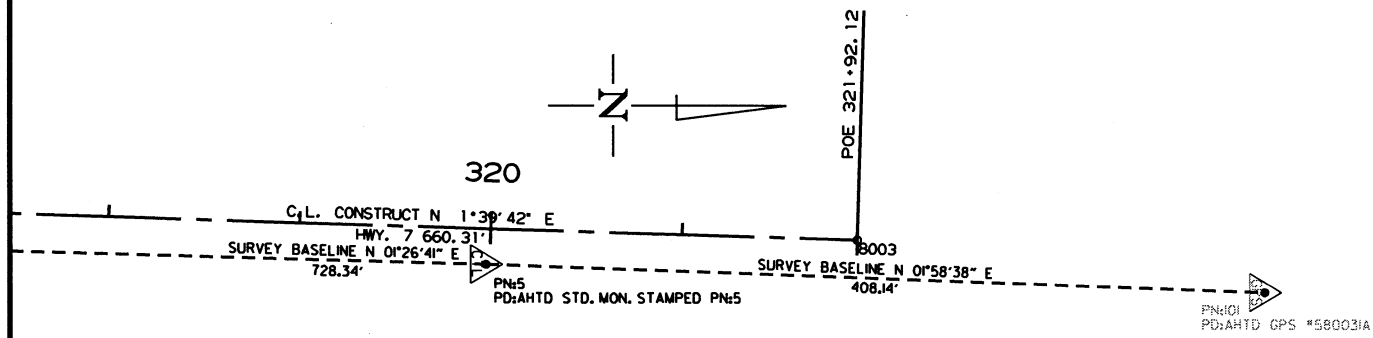
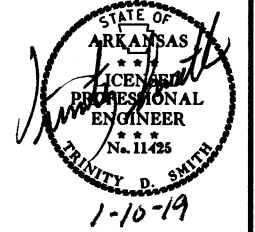
7/19/2018

R080506.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		24	49

2 SURVEY CONTROL DETAILS



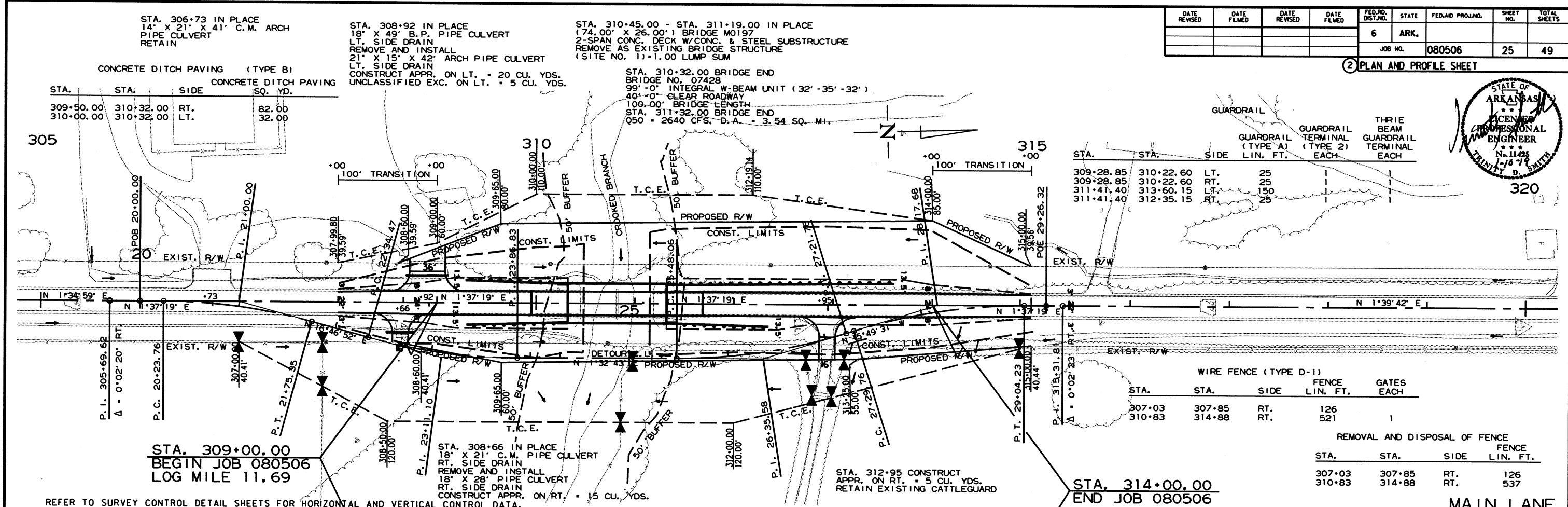
7/19/2018

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080506							25	49

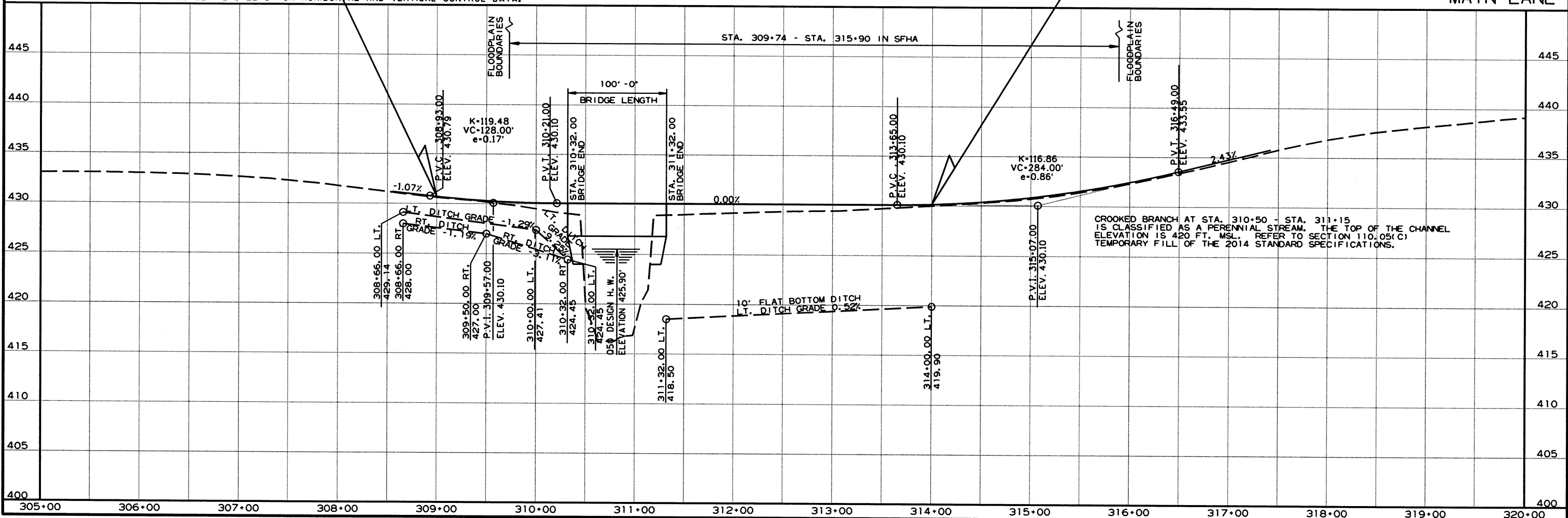
2 PLAN AND PROFILE SHEET



STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THREE BEAM GUARDRAIL TERMINAL EACH
309+28.85	310+22.60	LT.	25		
309+28.85	310+22.60	RT.	25		
311+41.40	313+60.15	LT.	150		
311+41.40	312+35.15	RT.	25		

STA.	STA.	SIDE	WIRE FENCE (TYPE D-1) FENCE LIN. FT.	GATES EACH
307+03	307+85	RT.	126	1
310+83	314+88	RT.	521	

REMOVAL AND DISPOSAL OF FENCE				
STA.	STA.	SIDE	FENCE LIN. FT.	
307+03	307+85	RT.	126	
310+83	314+88	RT.	537	



1/3/2019
R080506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		26	49

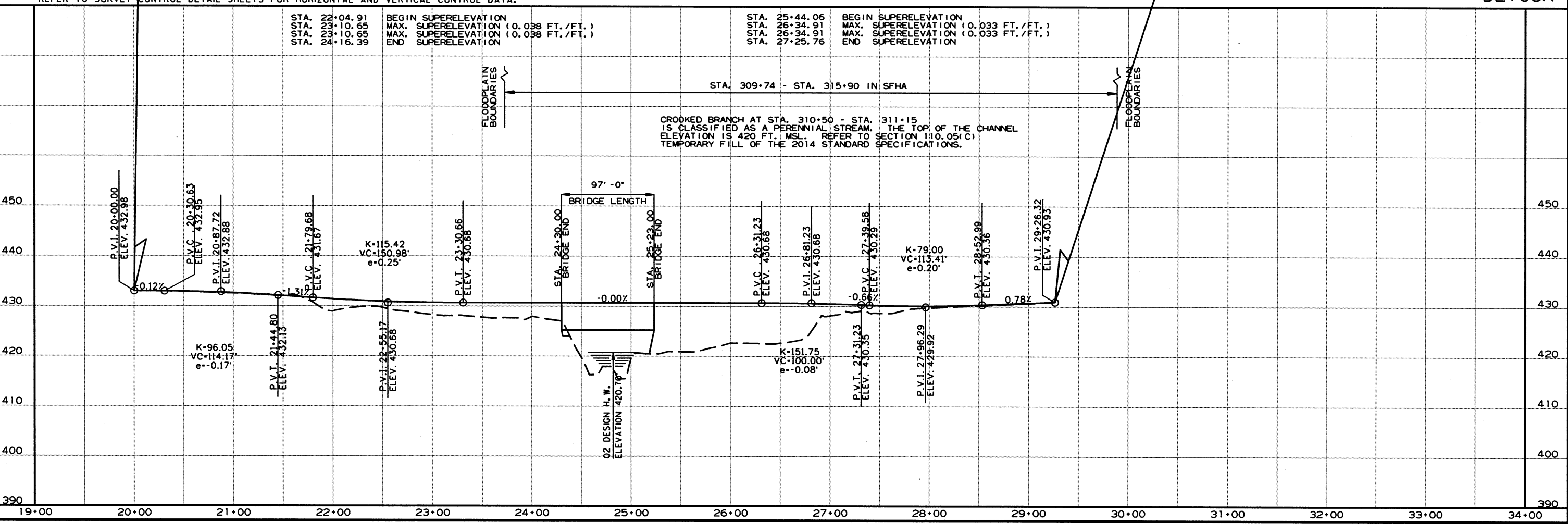
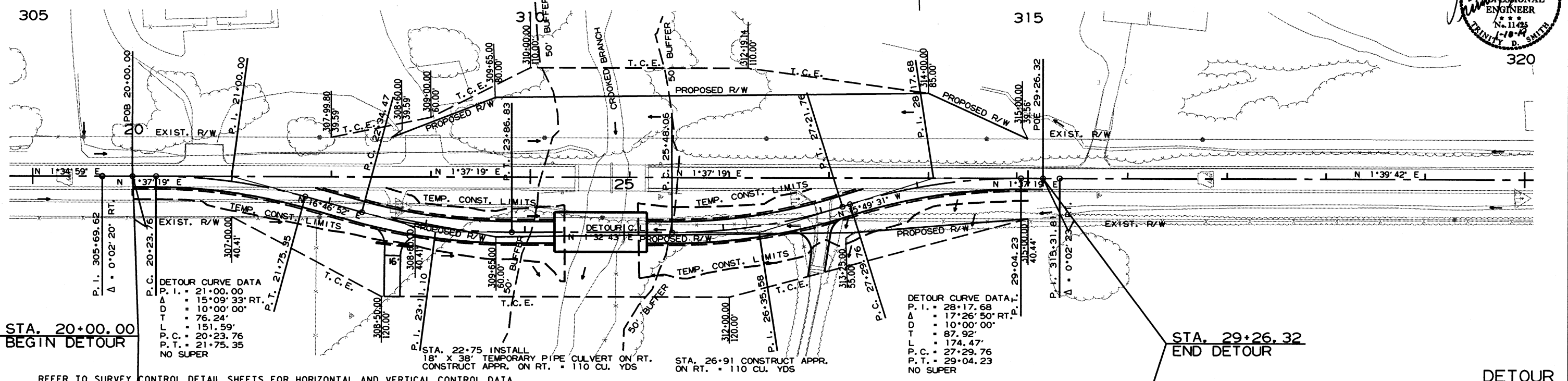
2 DETOUR PLAN AND PROFILE SHEET



DETOUR CURVE DATA
 P.I. = 23+11.10
 Δ = 15°14'09" LT.
 D = 10°00'00"
 T = 76.63'
 L = 152.36'
 P.C. = 22+34.47
 P.T. = 23+86.83
 e = 0.100' /'
 Ls = 275'

STA. 24+30 - STA. 25+23 CONSTRUCT
 93' X 24' TEMPORARY BRIDGE

DETOUR CURVE DATA
 P.I. = 26+35.58
 Δ = 17°22'14" LT.
 D = 10°00'00"
 T = 87.52'
 L = 173.70'
 P.C. = 25+48.06
 P.T. = 27+21.76
 e = 0.100' /'
 Ls = 275'



R080506.DGN 1/3/2019

For R/W Data, see Roadway Plans.

Contractor shall excavate the existing embankment at both ends of the bridge to Elev. 424.0 as shown. Approx. 190 cu. yds. of excavation.

② Install 4" Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 60381. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

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.	080506	27	49	
				07428 - LAYOUT	- 60372			

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: I

S_{D1}: 0.072

SITE CLASS = B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure) f'_c = 4,000 psi
 Class S Concrete (substructure) f'_c = 3,500 psi
 Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A) f_y = 60,000 psi
 Structural Steel (AASHTO M 270, Gr. 36) F_y = 36,000 psi
 Structural Steel (AASHTO M 270, Gr. 50W) F_y = 50,000 psi

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

STEEL PILING: All end bent piling shall be HP 12 x 53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as shale on the boring legend. Minimum penetration shall be 15' below bottom of cap. Piling shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cutoff and build-up in accordance with Section 805. Actual lengths to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all end bent piling. Preboring shall be to a minimum depth of 5' into material designated as shale on the boring legend, or to a minimum depth of 15' below the bottom of the cap, whichever is lower. Prebored holes shall have a diameter 6" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' of the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to 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".

FOOTINGS: Footings at Bents 2 & 3 shall be set a minimum of 3' into material designated as shale on the boring legend. The top of the footings shall be set 2' below the channel bottom as determined by the lowest channel elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface only. It SHALL NOT be applied to the wings, railings, or curbs.

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

STAINING CONCRETE SURFACES: A concrete penetrating stain shall be applied to bridge surfaces as specified in Special Provision Job No. 080506 "Staining Concrete Surfaces". The concrete penetrating stain shall not be applied on surfaces where Class I Protective Surface Treatment is applied. The color of the stain shall be as specified in Special Provision Job No. 080506 "Staining Concrete Surfaces".

DETAIL DRAWINGS:

End Bents 60374
 Intermediate Bents 60375 - 60376
 99'-0" Integral W-Beam Unit 60377-60383
 Standard General Notes for Steel Bridge Structures 55006
 Standard Details for Steel Bridge Structures 55007
 Standard Details for Steel H-Piles and Pile Encasements 55020

DRAWING NOS.
 60374
 60375 - 60376
 60377-60383
 55006
 55007
 55020

EXISTING BRIDGE: Existing Bridge No. M0197 (Log Mile 11.78) is 74.0' long and 28.5' wide and is comprised of two concrete deck and steel beam spans supported by concrete column piers on spread footings. The existing bridge occupies the same location as the proposed bridge.

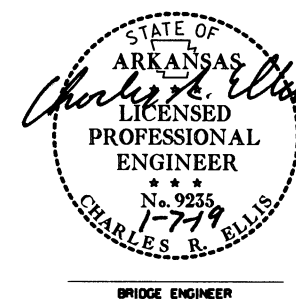
REMOVAL AND SALVAGE: After the temporary bridge is open to traffic, existing Bridge No. M0197 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following, which shall remain property of the State:

Structural Steel in False Bents - (6) Steel Piles and (2) 16" Steel Beams
 Structural Steel in Spans - (4) 15" Steel Beams and (6) 18" Steel Beams

The Contractor shall coordinate with the Engineer for removal and delivery of salvaged material. This material shall be delivered to 372 Aspen Lane, Russellville, AR 72802. Payment for this work shall be considered incidental to "Removal of Existing Bridge Structure (Site No. 1)."

TEMPORARY BRIDGE: Construct a minimum 90' long temporary bridge approximately 55' downstream with a minimum deck elevation of 428.47. See Roadway Plans for actual detour grade and alignment. The temporary bridge shall have a minimum clear roadway width of 24', and a minimum live load capacity of H5 in accordance with AASHTO Standard Specifications for Highway Bridges, 2002 Edition. See Section 603 and drawing numbers 55054 thru 55056 for standard temporary bridge details. If timber piling and pine timber are used on this temporary bridge structure, the materials shall be treated with a preservative in accordance with Subsection 817.04. A timber deck is not allowed.

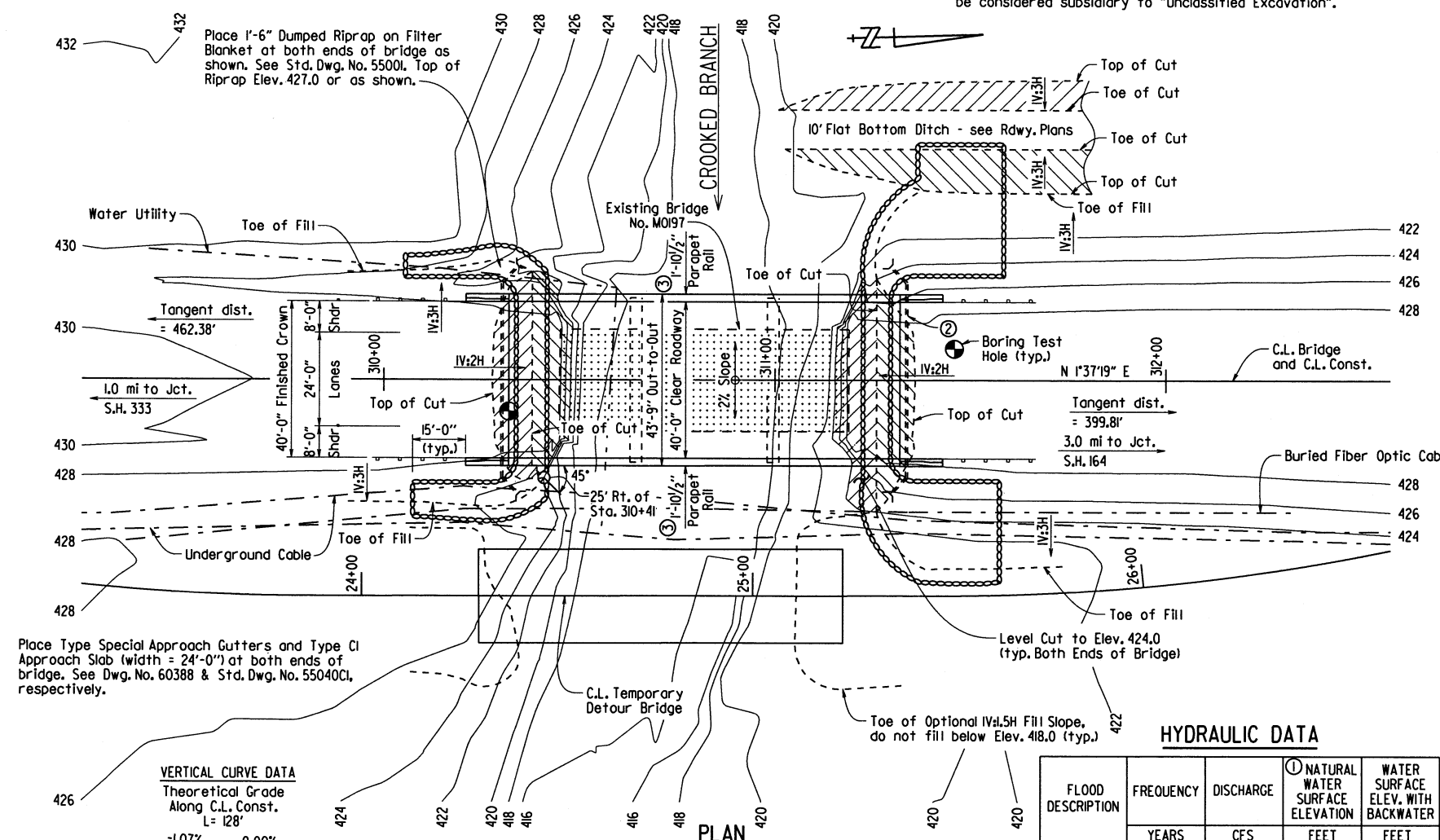
MAINTENANCE OF TRAFFIC: See Roadway Plans.



SHEET 1 OF 2
 LAYOUT OF BRIDGE
 HIGHWAY 7 OVER CROOKED BRANCH
 CROOKED BRANCH STR. & APPRS. (S)
 POPE COUNTY

ROUTE 7 SEC. 15
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 11/16/2017 FILENAME: b080506_ll.dgn
 CHECKED BY: DJS DATE: 12/12/18 SCALE: 1"=20'
 DESIGNED BY: CJR DATE: 5/16/17
 BRIDGE NO. 07428 DRAWING NO. 60372



HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
			FEET	FEET
Design	50	2640	426.1	425.9
Base	100	3060	426.6	426.5
Extreme	500	4520	428.3	428.2
Overtopping	>500	-	-	-

① Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 426.7 ft.
 Proposed Low Bridge Chord elevation = 426.80 ft.

Drainage area = 3.54 square miles
 Historical H.W. Elev. = 426.3 ft.

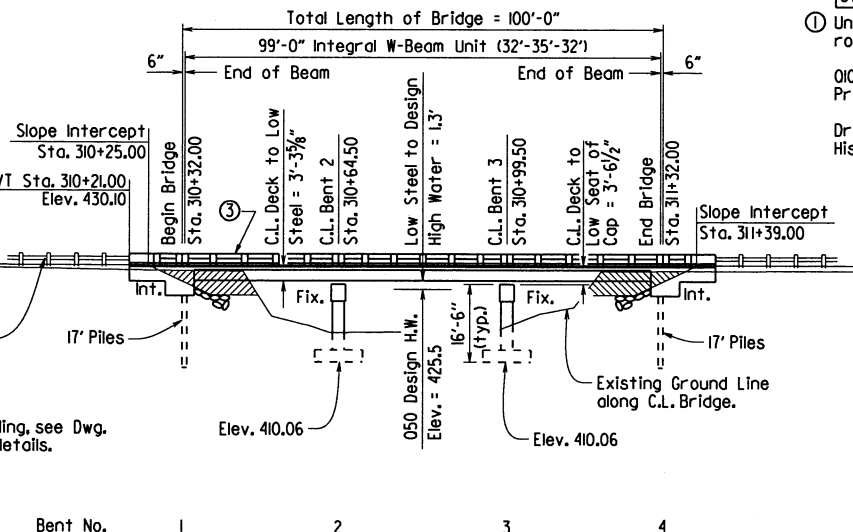
VERTICAL CURVE DATA
 Theoretical Grade Along C.L. Const. L = 128'
 -1.07% 0.00%

PVI Sta. 309+57.00 Elev. 430.10
 PVT Sta. 310+21.00 Elev. 430.10

Stations and Elevations shown are along C.L. Bridge & C.L. Const.

Elevations are at Working Point. See "Rounding Detail", Std. Dwg. No. 55007.

Bridge is in Level Grade C.L. Deck Elev. = 430.10

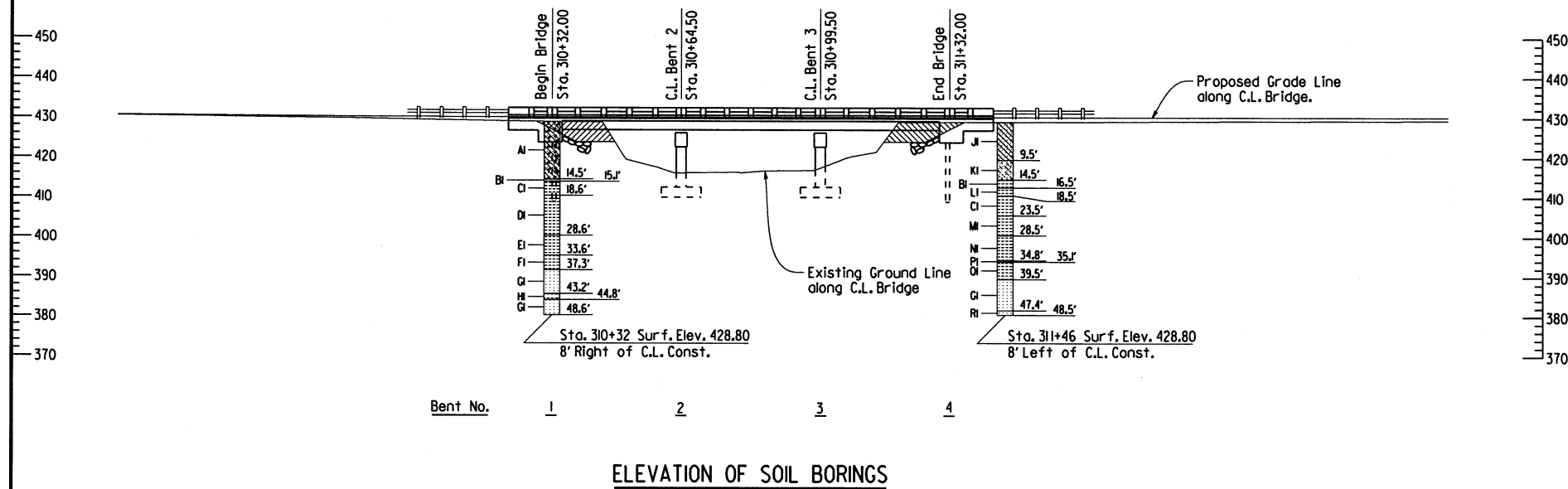


See Dwg. No. 60373 for Soil Borings.

PRINT DATE: 1/2/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080506	28	49
				07428 -	LAYOUT			60373

①



BORING LEGEND

- AI-Moist, Very Stiff, Brown Sandy Clay with Gravel (Rock Fragments)
- BI-SHALE
- CI-SHALE - Slightly Weathered, Medium Hard, Occasional Coal Seams, Dark Gray
- DI-SHALE - Slightly Weathered, Medium Hard, Dark Gray
- EI-SHALE - Unweathered, Medium Hard, Occasional Coal Seams, Dark Gray
- FI-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Unweathered, Medium Hard, Dark Gray
- GI-SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Gray
- HI-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Dark Gray
- JI-Moist, Medium Stiff, Brown Sandy Clay with Some Gravel (Rock Fragments)
- KI-Moist, Loose, Brown Clayey Sand with Some Gravel and Cobbles (Rock Fragments)
- LI-SHALE - Slightly Weathered, Medium Hard, Occasional Fractures, Dark Gray
- MI-SHALE - Unweathered, Medium Hard, Occasional Fractures, Dark Gray
- NI-SHALE - Unweathered, Medium Hard, Occasional Fractures, Dark Gray
- PI-COAL (34.8' to 35.1')
- QI-SHALE - Unweathered, Medium Hard, Dark Gray
- RI-SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Gray

Coal may be encountered in greater extent at other locations in the project area.

"N" VALUES

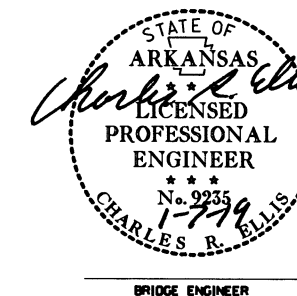
Sta. 310+32 - 8' Right of C.L. Const.

5.0 - 6.0, N=26
 10.0 - 11.0, N=26
 14.5 - 14.5, N=10(0")

Sta. 311+46 - 8' Left of C.L. Const.

5.0 - 6.0, N=6
 10.0 - 11.0, N=7
 14.5 - 14.5, N=10(0")

PRINT DATE: 1/2/2019



BRIDGE ENGINEER

SHEET 2 OF 2
 LAYOUT OF BRIDGE
 HIGHWAY 7 OVER CROOKED BRANCH
 CROOKED BRANCH STR. & APPRS. (S)
 POPE COUNTY

ROUTE 7 SEC. 15
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 11/16/2017 FILENAME: b080506_11.dgn
 CHECKED BY: DBS DATE: 12/12/18 SCALE: 1"=20' or As Noted
 DESIGNED BY: CSR DATE: 5/2017

BRIDGE NO. 07428

DRAWING NO. 60373

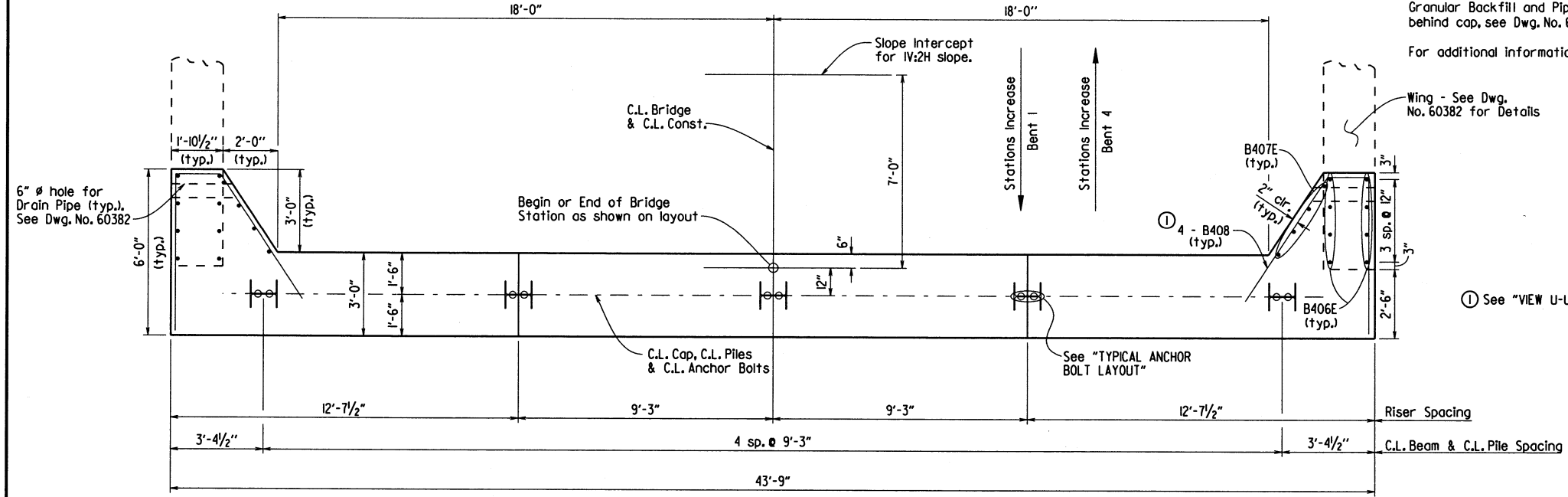
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				6	ARK.			
						JOB NO. 080506	29	49
						07428 - END BENTS	- 60374	

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

Granular Backfill and Pipe Underdrain required behind cap, see Dwg. No. 60381 for details.

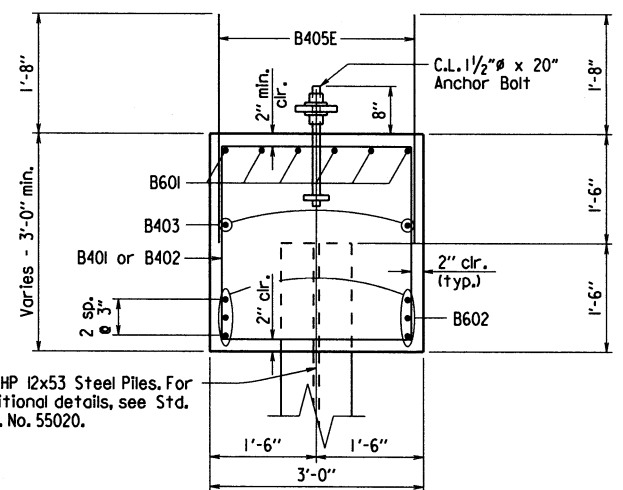
For additional information, see Layout.

Wing - See Dwg. No. 60382 for Details



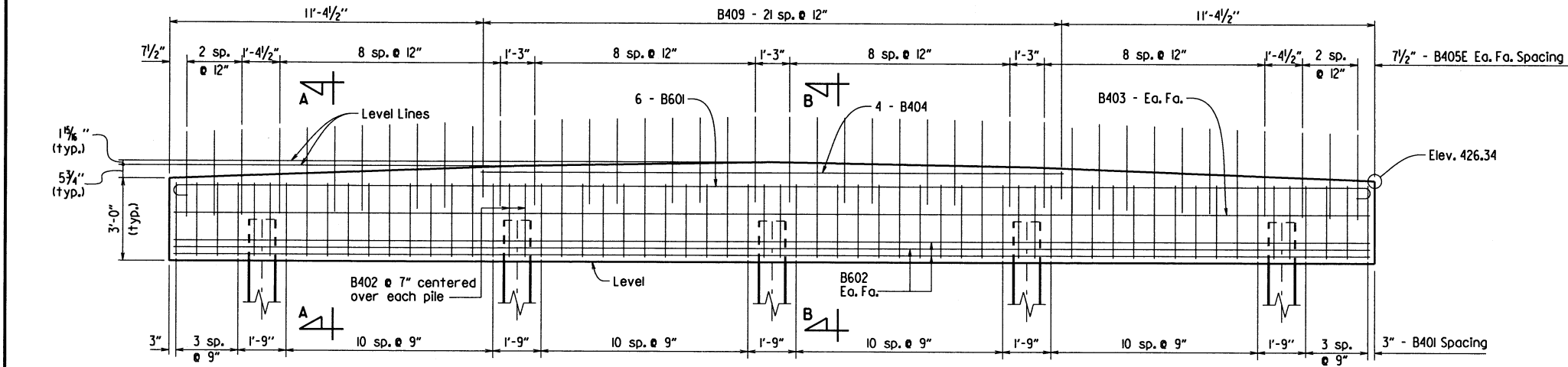
PLAN

3/8" = 1'-0"



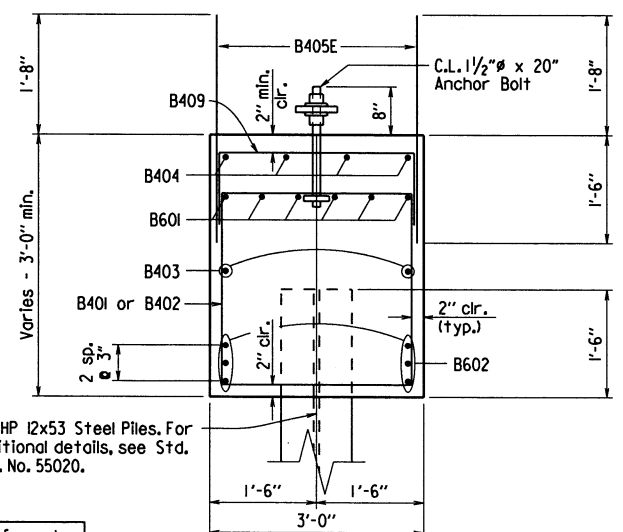
SECTION A-A

3/4" = 1'-0"



ELEVATION

Looking Back - Bent 1
Looking Ahead - Bent 4
3/8" = 1'-0"



SECTION B-B

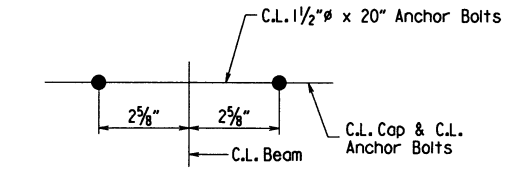
3/4" = 1'-0"

Steel H-Piles shall conform to AASHTO M 270, Grade 50.

BAR LIST - PER BENT

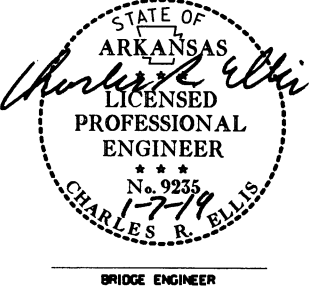
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	52	11'-0"	2"	
B402	10	7'-10"	2"	
B403	2	43'-5"	Str.	
B404	4	21'-2"	Str.	
B405E	84	3'-2"	Str.	
B406E	16	6'-0"	Str.	
B407E	8	4'-6"	Str.	
B408	8	12'-6"	2"	
B409	22	4'-6"	2"	
B601	6	44'-9"	4 1/2"	
B602	6	43'-5"	Str.	

Dimensions are out to out of bars.
No Scale.
Bars with an "E" suffix are to be epoxy coated.



TYPICAL ANCHOR BOLT LAYOUT

No Scale



BRIDGE ENGINEER

DETAILS OF END BENTS

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

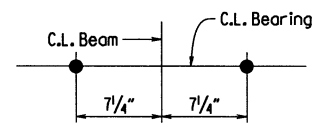
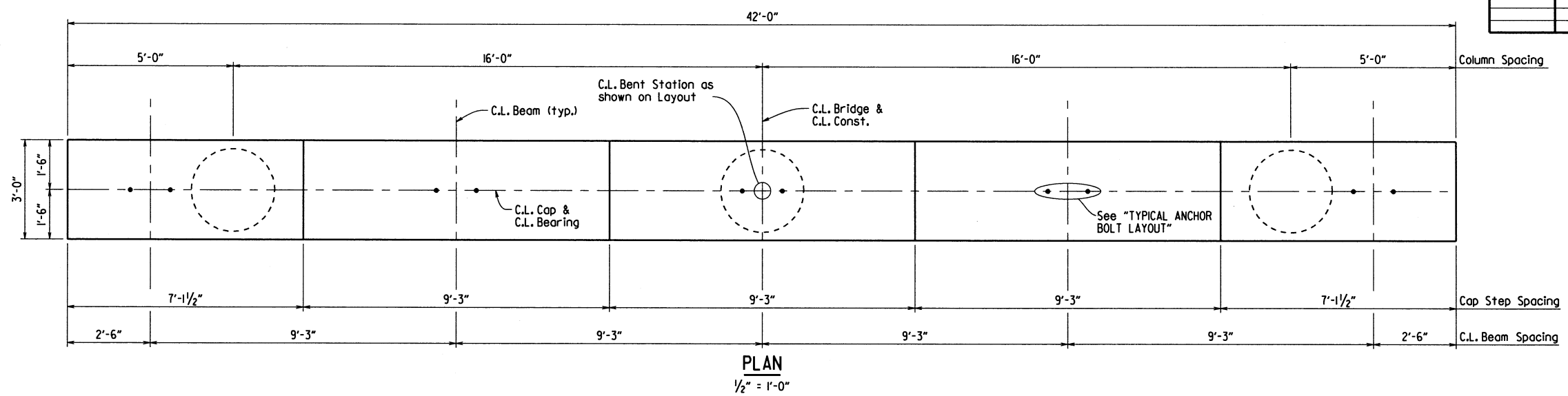
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CHECKED BY: DJS DATE: 12-14-18 SCALE: As Shown
DESIGNED BY: DJS DATE: 4-18

BRIDGE NO. 07428

DRAWING NO. 60374

PRINT DATE: 1/2/2019

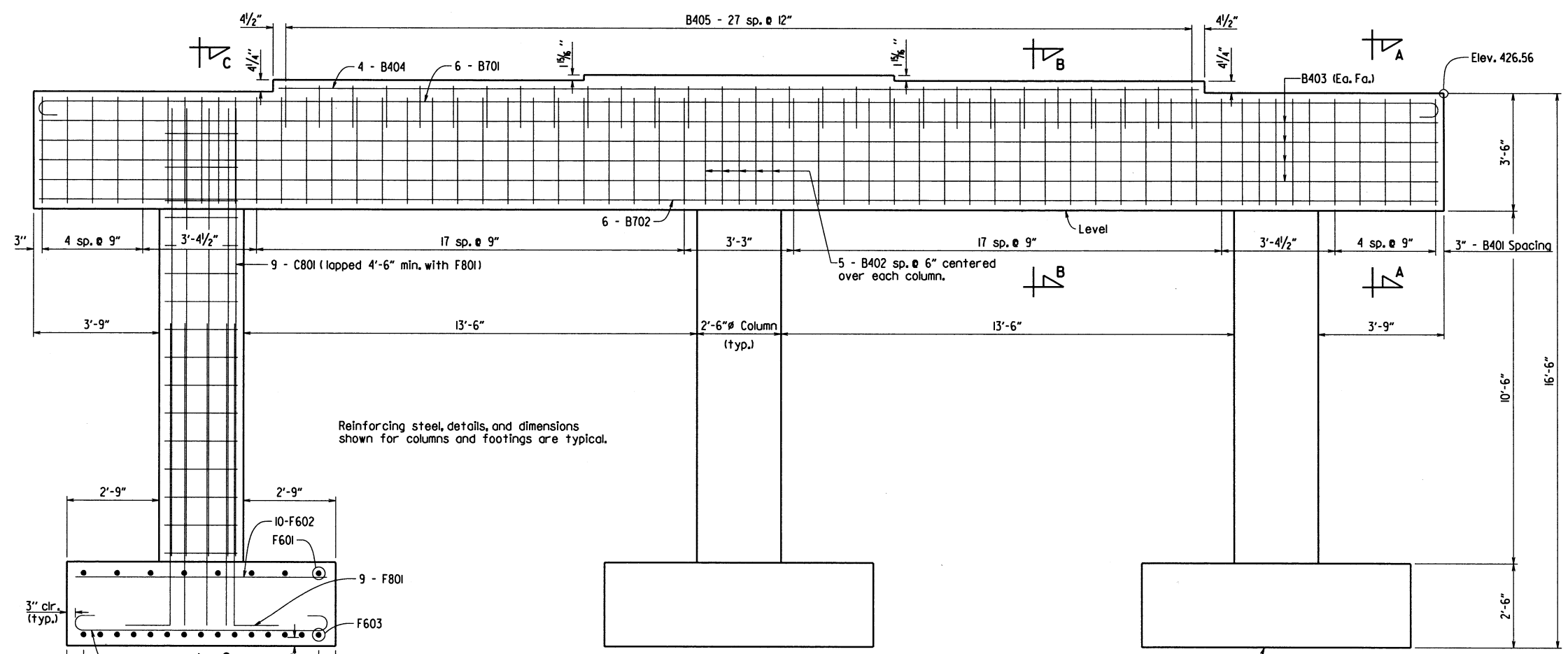
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				6	ARK.			
				JOB NO.	080506	30	49	
				07428 - INT. BENTS	- 60375			



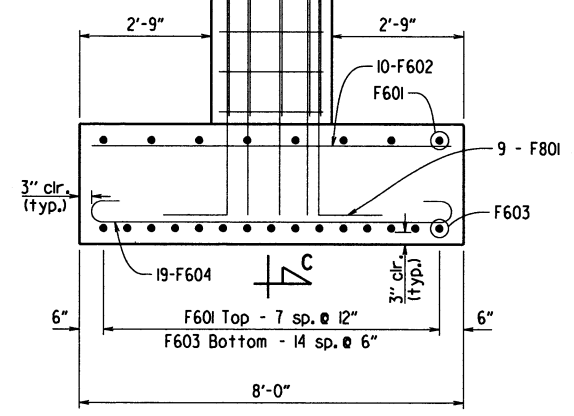
For details of anchor bolts and Type "B" Shoes at Intermediate Bents, see Dwg. No. 60379.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

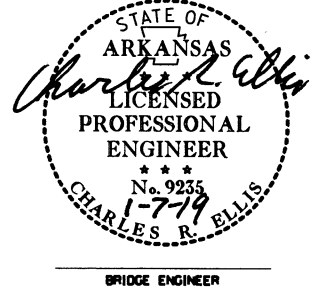


Reinforcing steel, details, and dimensions shown for columns and footings are typical.



ELEVATION
1/2" = 1'-0"

See Dwg. No. 60376 for "SECTION A-A", "SECTION B-B", and "SECTION C-C".
For General Notes, see Std. Dwg. No. 55006.
For additional information, see Layout.



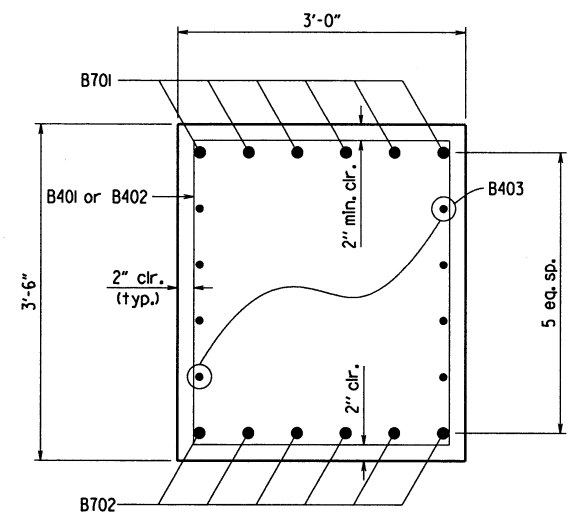
SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS

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

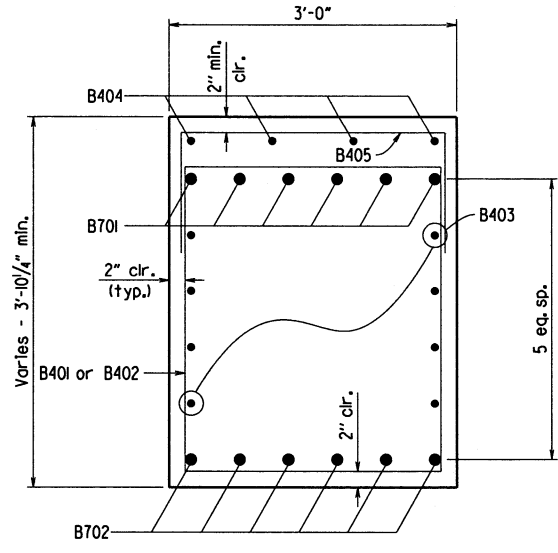
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CHECKED BY: DBS DATE: 12-14-18 SCALE: As Shown
DESIGNED BY: DBS DATE: 4-18
BRIDGE NO. 07428 DRAWING NO. 60375

PRINT DATE: 1/2/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506	31	49	
				07428 -	INT. BENTS	-	60376	



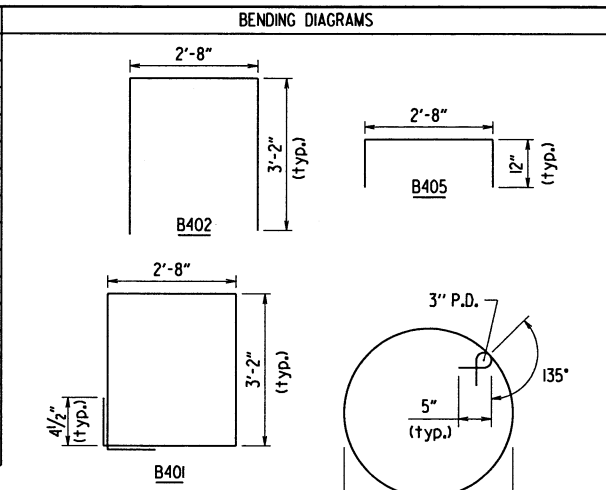
SECTION A-A
1" = 1'-0"



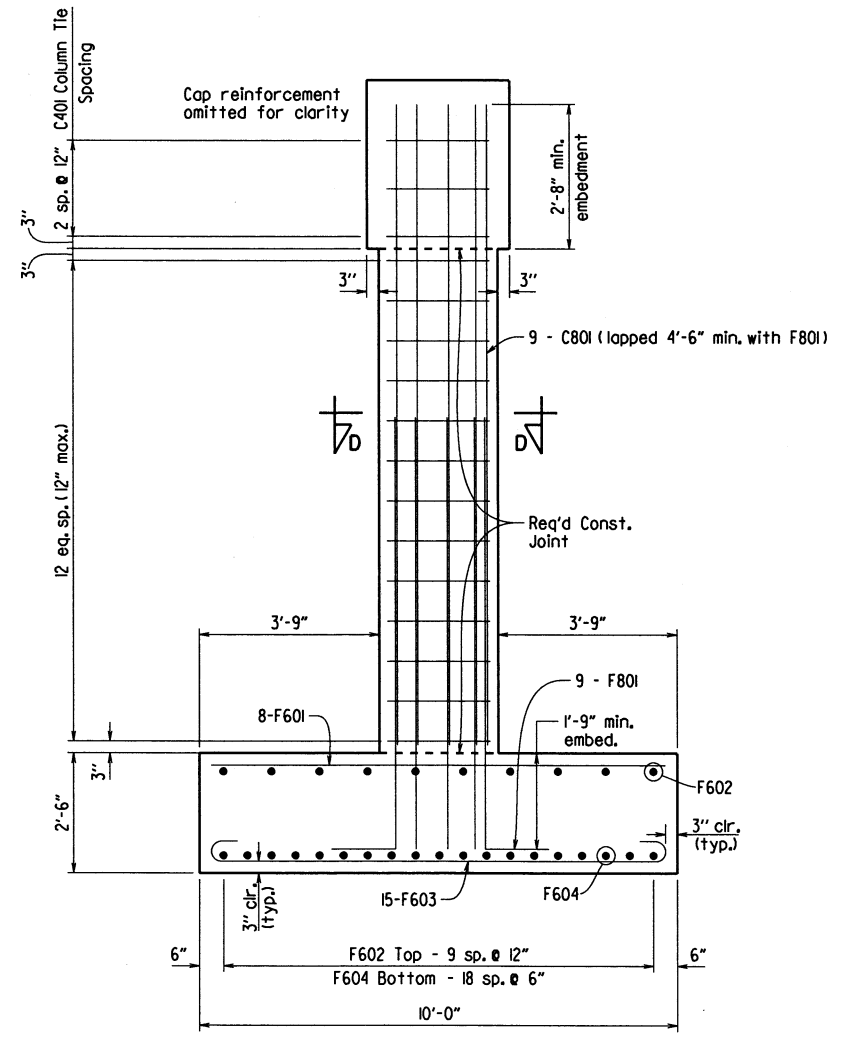
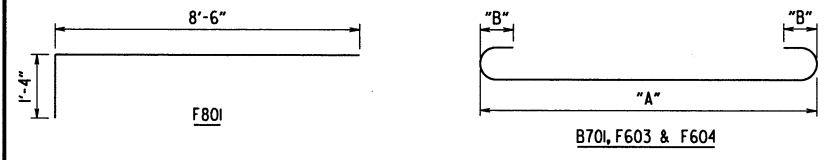
SECTION B-B
1" = 1'-0"

BAR LIST - PER BENT

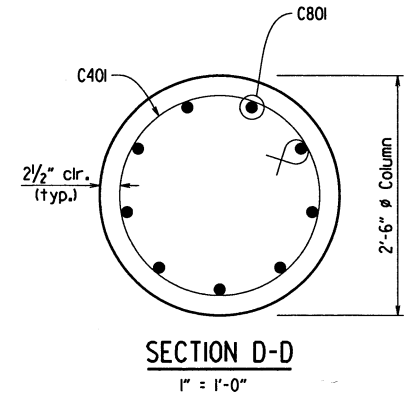
MARK	NO.	REQ'D.	LENGTH	P.D.	"A"	"B"
B401	46	12'-0"	2"	-	-	-
B402	15	8'-10"	2"	-	-	-
B403	8	4'-8"	Str.	-	-	-
B404	4	27'-5"	Str.	-	-	-
B405	28	4'-6"	2"	-	-	-
B701	6	43'-4"	5/4"	4'-8"	7"	-
B702	6	4'-8"	Str.	-	-	-
C401	48	7'-8"	3"	-	-	-
C801	27	13'-4"	Str.	-	-	-
F601	24	9'-6"	Str.	-	-	-
F602	30	7'-6"	Str.	-	-	-
F603	45	10'-10"	4 1/2"	9'-6"	6"	-
F604	57	8'-10"	4 1/2"	7'-6"	6"	-
F801	27	9'-8"	6"	-	-	-



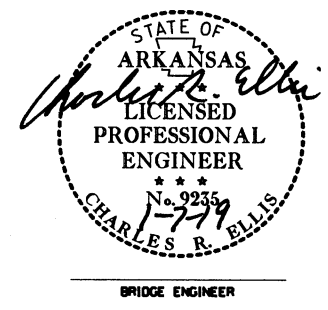
Dimensions are out to out of bars. No Scale.



SECTION C-C
1/2" = 1'-0"



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



SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: WAC DATE: 8/15/18 FILENAME: b080506_b2.dgn
CHECKED BY: DBS DATE: 12-14-18 SCALE: As Shown
DESIGNED BY: DBS DATE: 4-18
BRIDGE NO. 07428 DRAWING NO. 60376

PRINT DATE: 1/2/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		32	49
				07428 -	99 FT. UNIT			60377

At the Contractor's option, in lieu of providing bars S501E, one epoxy coated No. 5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.

Slab Reinforcing:

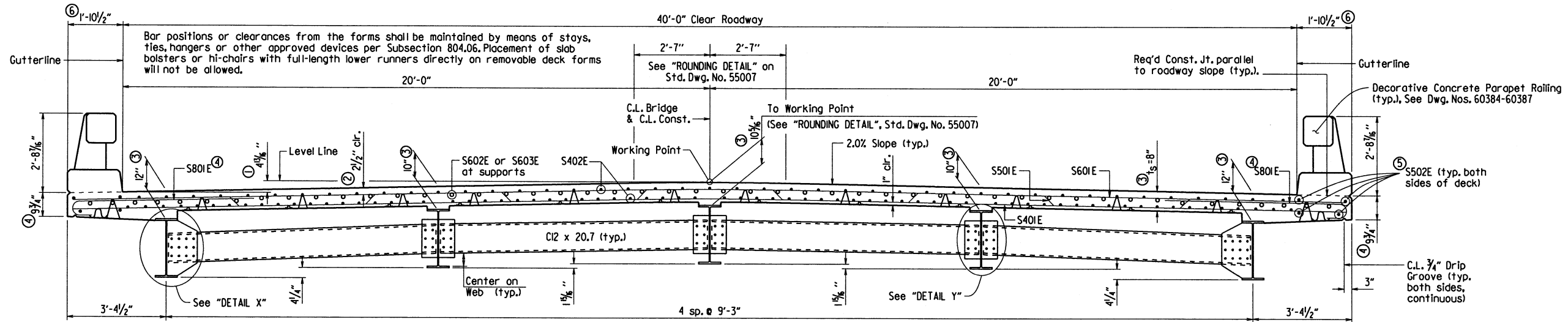
Longitudinal: S402E as shown

S602E as shown over intermediate supports and S603E as shown over end supports, see "HALF-REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. No. 60380.

Transverse: S501E @ 12" o.c. bent up over beams — Alternate

S601E @ 12" o.c. in top, S401E @ 12" o.c. in bottom
S801E @ 6" in top of overhangs (bundled with S501E and S601E)

- ① Working point to gutterline.
- ② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".
- ③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".
- ④ S801E shall be placed in a 45° angle to satisfy the specified minimum clearance, see "VIEW D-0", Dwg. No. 60380. Epoxy-coated Threaded End Anchor (LENTON® TERMINATOR - D6 or approved equal) may be utilized as an alternate to hooked rebar. In this case, the edge of deck dimension shall be detailed to a thickness of 9". See "ALTERNATE OVERHANG DETAIL". Payment for reinforcing shall be based on hooked S801E. No adjustment will be made for concrete volume. Payment for concrete shall be based on the edge thickness of 9 3/4".
- ⑤ See Dwg. No. 60380.
- ⑥ 1'-9" nominal width - see Dwg. No. 60386.

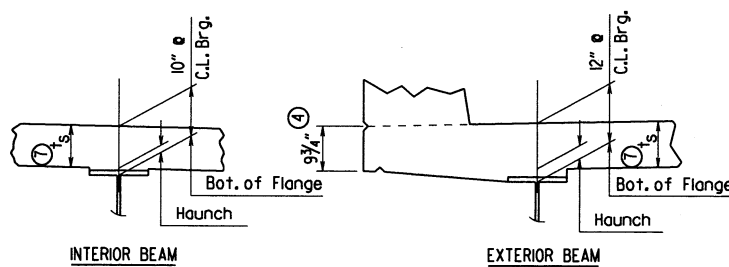


TYPICAL ROADWAY SECTION

Looking Ahead
1/2" = 1'-0"

Class I Protective Surface Treatment shall be applied to the Roadway Surface only. Class I Protective Surface Treatment shall not be applied to any portion of the Span or Wing Railing.

t_s = slab thickness as shown in "TYPICAL ROADWAY SECTION"

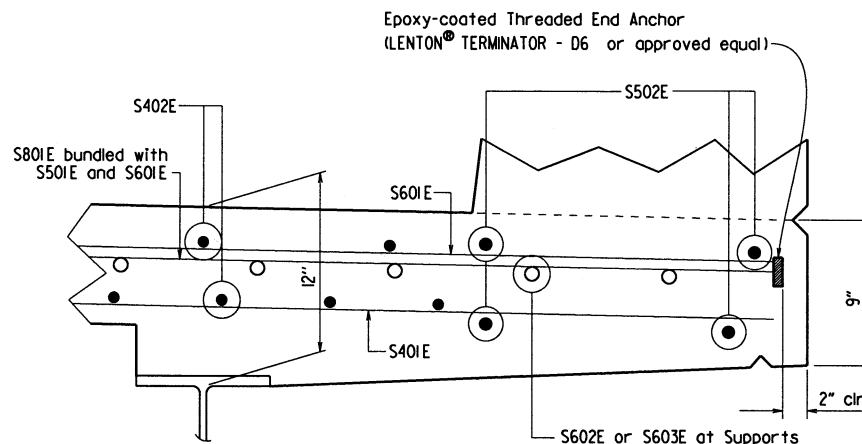


① Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

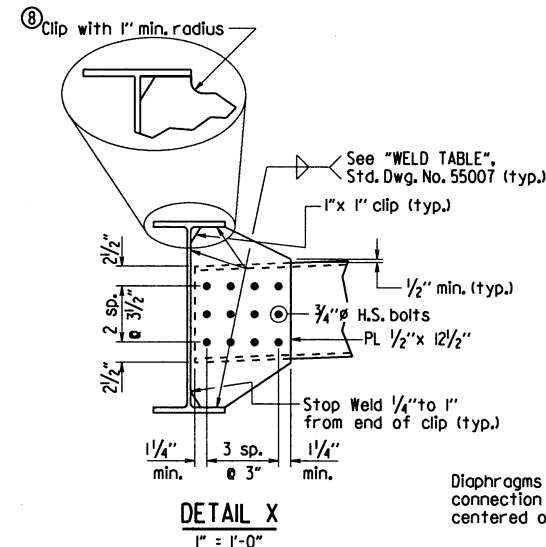
No Scale

For both removable and permanent steel deck forms the haunch dimension may vary +/- 1/2" to maintain grade and slab thickness requirements. No increase in concrete and structural steel quantities will be made to maintain tolerances. Payment for concrete shall be based on removable deck forming. For additional details related to the use of permanent steel deck forms, see Std. Dwg. No. 55005.



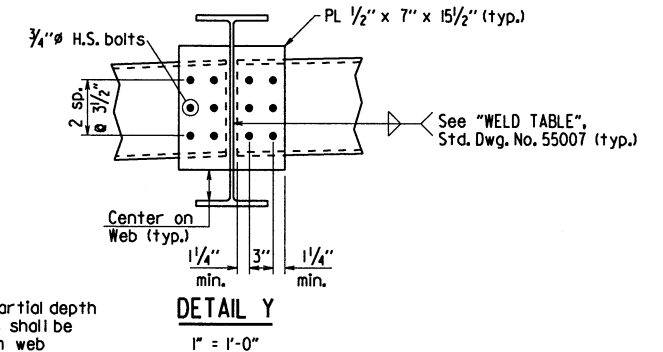
ALTERNATE OVERHANG DETAIL

No Scale



DETAIL X

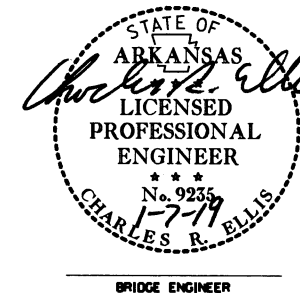
1" = 1'-0"



DETAIL Y

1" = 1'-0"

⑧ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.



BRIDGE ENGINEER

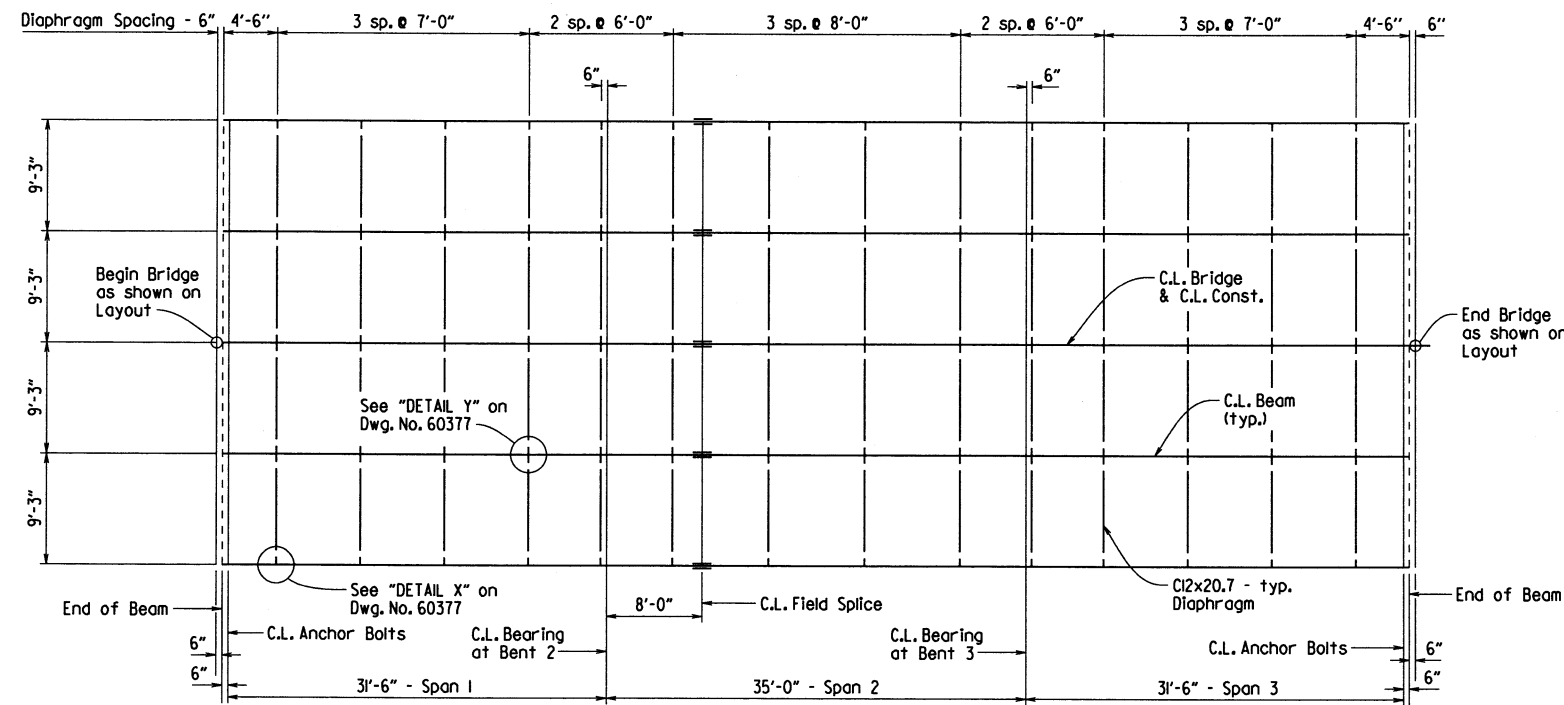
SHEET 1 OF 7
DETAILS OF 99' INTEGRAL
W-BEAM UNIT

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

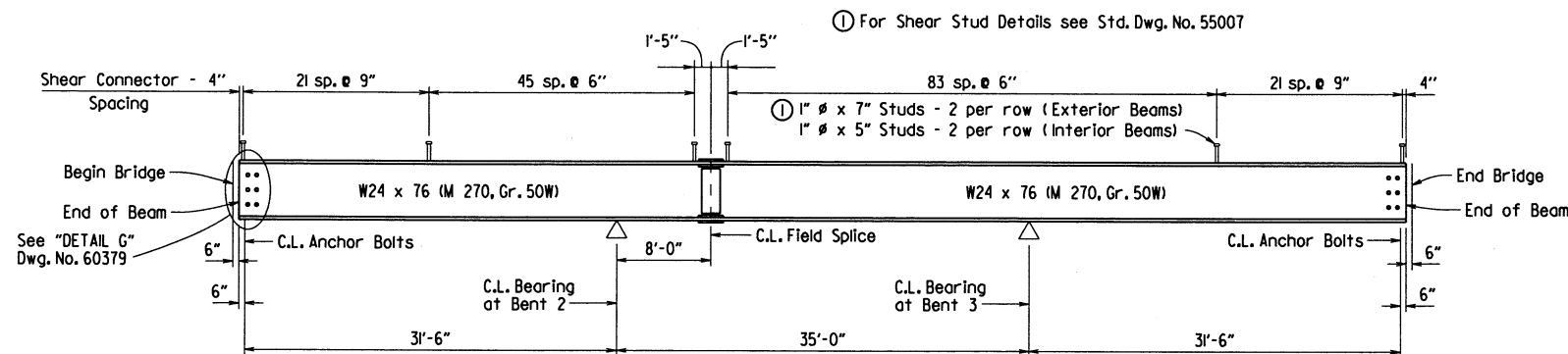
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CHECKED BY: [Signature] DATE: 12/14/18 SCALE: As Shown
DESIGNED BY: [Signature] DATE: 3-13

BRIDGE NO. 07428

DRAWING NO. 60377



FRAMING PLAN
1/8" = 1'-0"



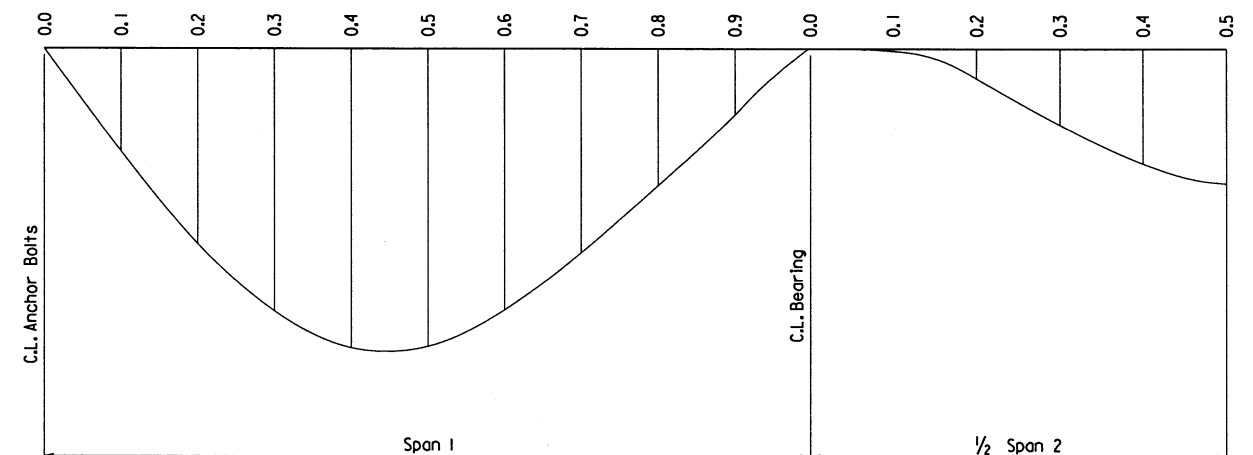
TYPICAL BEAM ELEVATION
No scale

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Beams	Ext. Beams	Int. Beams	Ext. Beams	Int. Beams	Ext. Beams
Span 1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.007	0.006	0.077	0.070	0.077	0.071
	0.2	0.013	0.011	0.142	0.130	0.143	0.132
	0.3	0.017	0.015	0.188	0.173	0.190	0.176
	0.4	0.019	0.017	0.210	0.193	0.213	0.197
	0.5	0.019	0.016	0.207	0.189	0.210	0.193
	0.6	0.016	0.014	0.180	0.165	0.183	0.168
	0.7	0.012	0.011	0.135	0.124	0.137	0.126
	0.8	0.007	0.006	0.081	0.074	0.082	0.075
	0.9	0.003	0.002	0.031	0.028	0.031	0.028
1/2 Span 2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.000	0.000	0.002	0.001	0.003	0.003
	0.2	0.002	0.002	0.027	0.025	0.030	0.029
	0.3	0.005	0.005	0.058	0.054	0.063	0.060
	0.4	0.007	0.007	0.082	0.076	0.088	0.084
0.5	0.008	0.007	0.091	0.084	0.098	0.093	

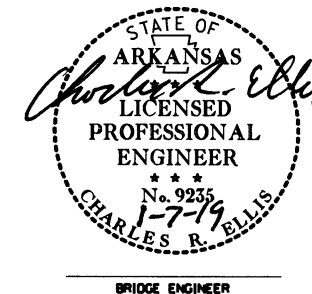
Table is symmetrical about C.L. Unit



DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)

No scale

Camber for Dead Load Deflection +/- 1/4 inch tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Anchor Bolts/C.L. Bearing to C.L. Anchor Bolts/C.L. Bearing. Negative sign (-) indicates point above chord.



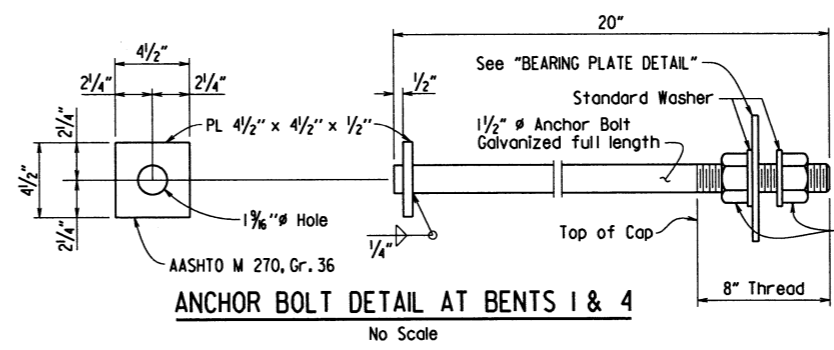
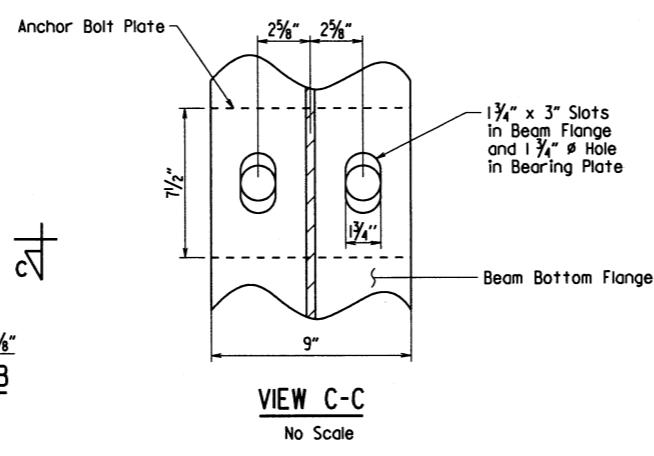
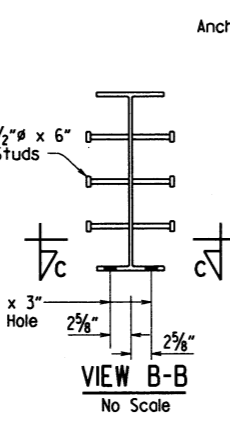
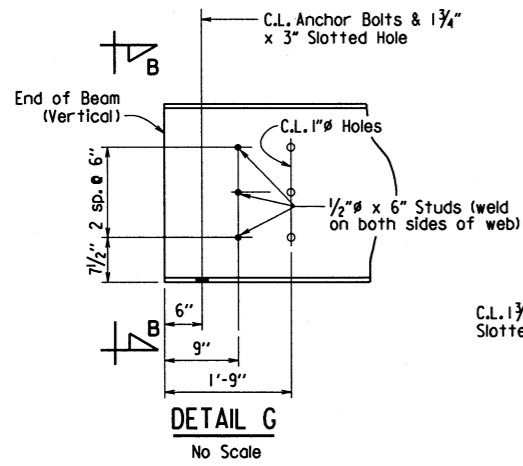
BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF 99' INTEGRAL
W-BEAM UNIT

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

DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
CHECKED BY: DBS DATE: 12/19/18 SCALE: As Shown
DESIGNED BY: DBS DATE: 3/18
BRIDGE NO. 07428 DRAWING NO. 60378

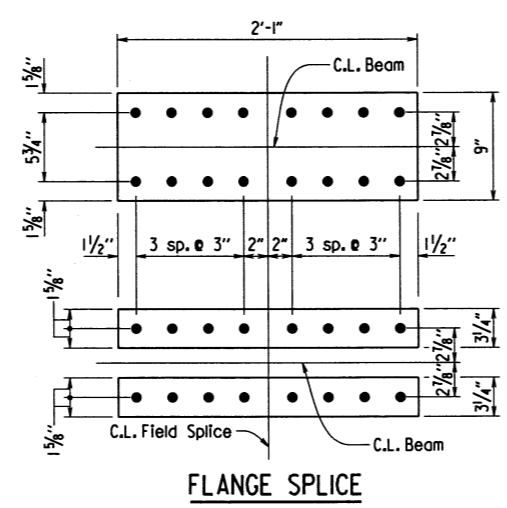
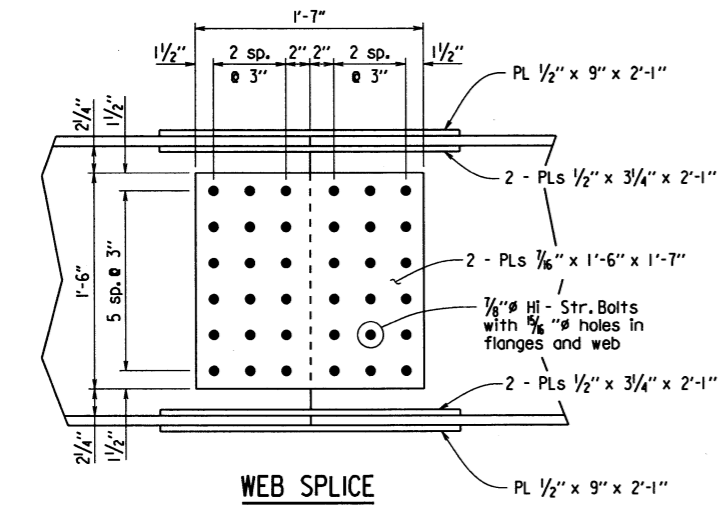
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080506	34	49
				07428 - 99 FT. UNIT		- 60379		



Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Plates, bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".

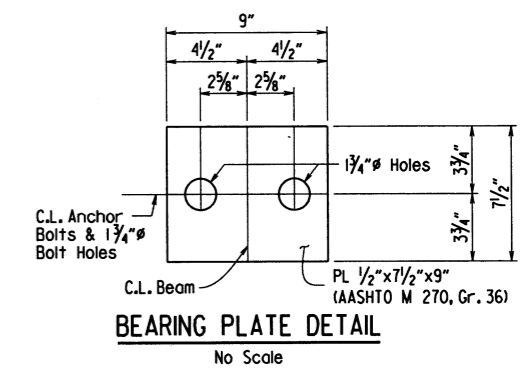
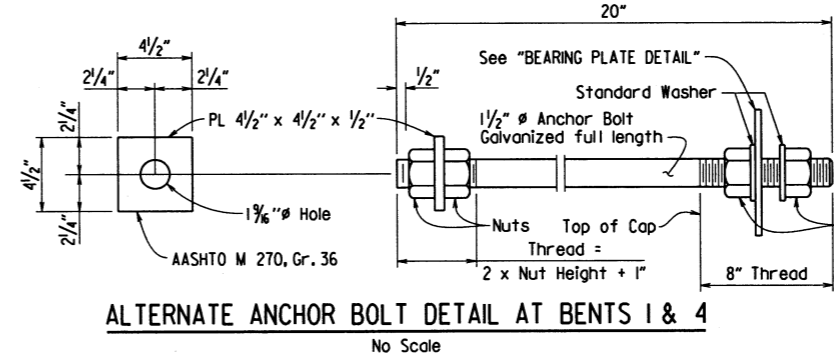
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



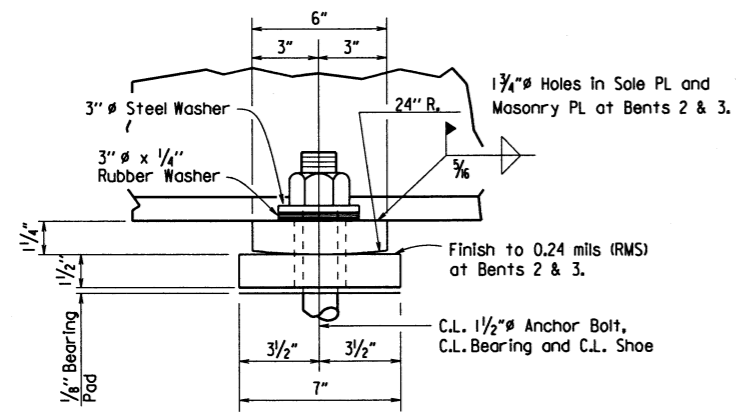
FIELD SPLICE DETAIL
1/2" = 1'-0"

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

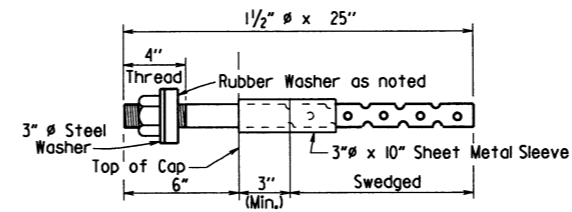
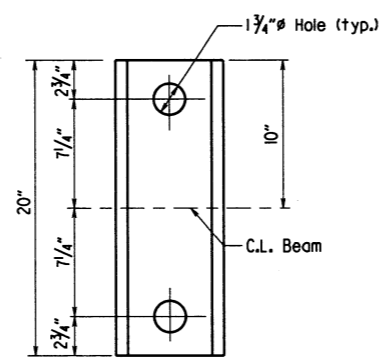
All field splice bolts shall be 7/8" HI-str. bolts. All holes for splice bolts shall be 5/8" .



Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

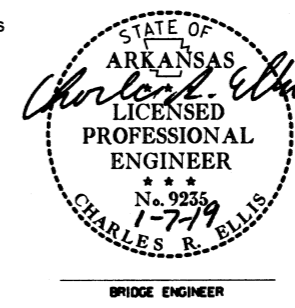


1/8" bearing pad shall conform to the requirements of Subsection 807.15 (a)



Anchor Bolts, Nuts and Washers to be according to Subsection 807.07. Indentations shall be circular with rounded bottoms and staggered as shown above. Rubber washer shall be closed cell expanded rubber, meeting the requirements of ASTM D1056 - 85 2B2 E2, and shall be considered subsidiary to the item of "Structural Steel in Beam Spans (M 270, Gr. 50W)". Anchor Bolts, Nuts and Washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". Anchor bolts shall be Grade 55.

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required. If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".

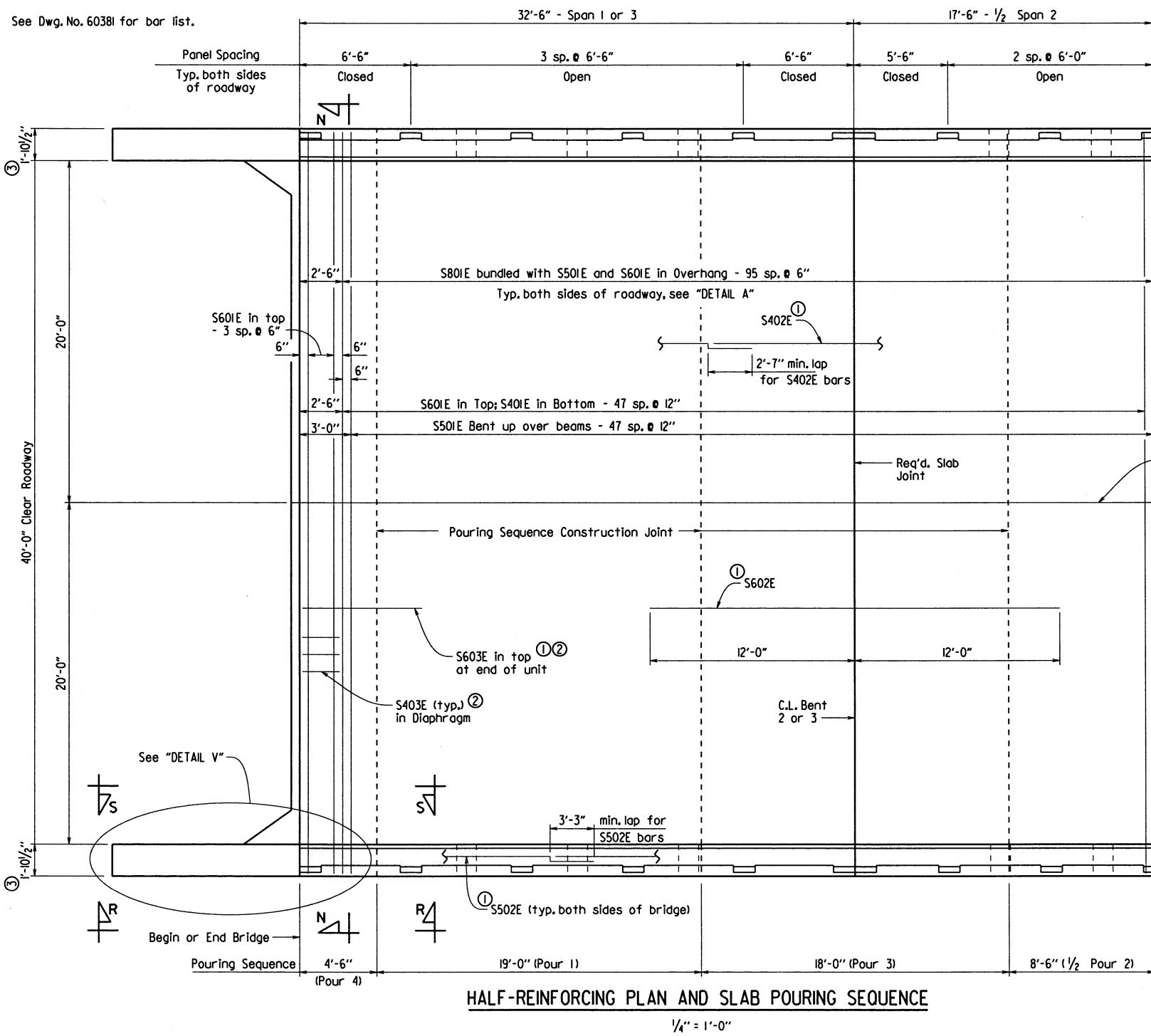


SHEET 3 OF 7
DETAILS OF 99' INTEGRAL W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
CHECKED BY: DES DATE: 12-14-18 SCALE: As Shown
DESIGNED BY: DES DATE: 5-18
BRIDGE NO. 07428 DRAWING NO. 60379

PRINT DATE: 1/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080506	35	49
				07428 - 99 FT. UNIT		- 60380		

See Dwg. No. 60381 for bar list.



Rails and Wings are included in span construction and are included in span quantities

For details of span railing, see Dwg. Nos. 60384-60387.

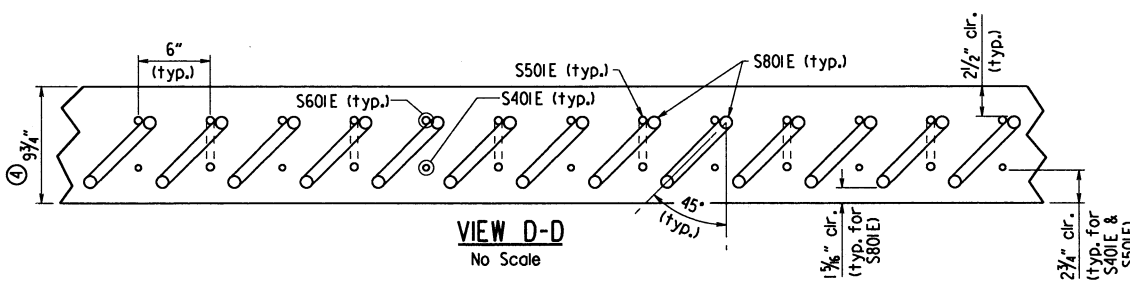
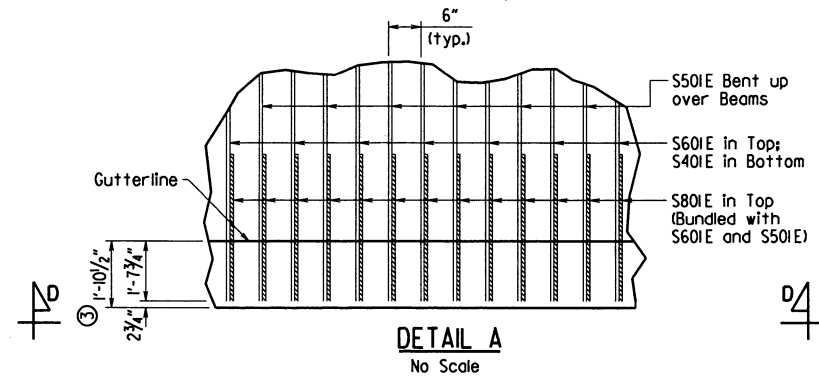
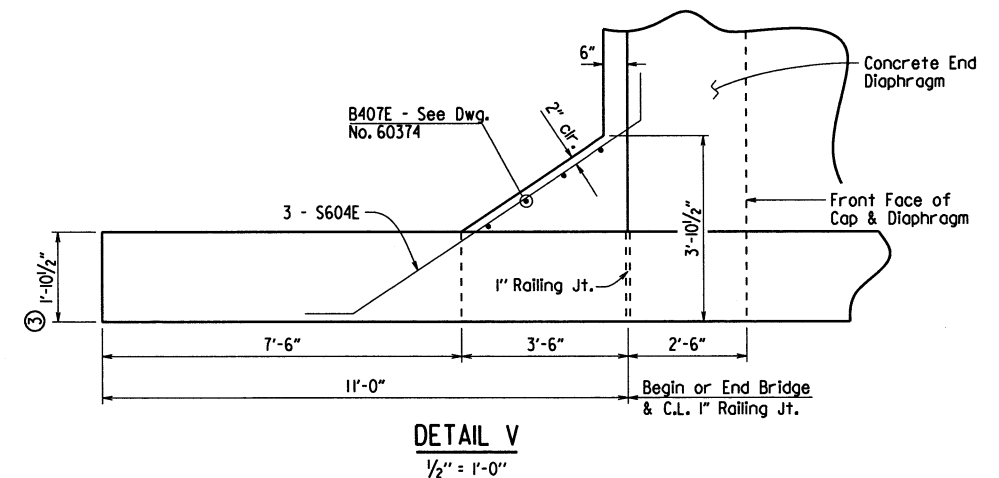
For "VIEW R-R" and "VIEW S-S", see Dwg. No. 60382. For "VIEW N-N", see Dwg. No. 60381.

- ① Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 60377
- ② See Dwg. No. 60381 for more details of reinforcing in concrete end diaphragm

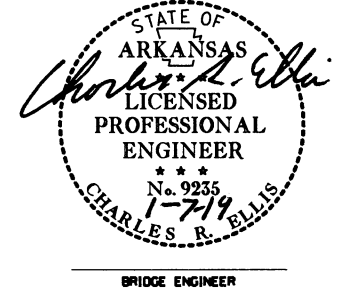
Slab Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2), all Pours (2) must be placed before Pours (3), & all Pours (3) must be placed before Pours (4) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. **No deviations from the pouring sequence shown will be allowed.**

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

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete diaphragms at end bents shall be poured monolithically with the deck.



④ Edge of deck thickness shall be detailed to a thickness of 9" if Alternate Overhang Detail is utilized. See Dwg. No. 60377 for details.



SHEET 4 OF 7
DETAILS OF 99' INTEGRAL W-BEAM UNIT

ROUTE 99
SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

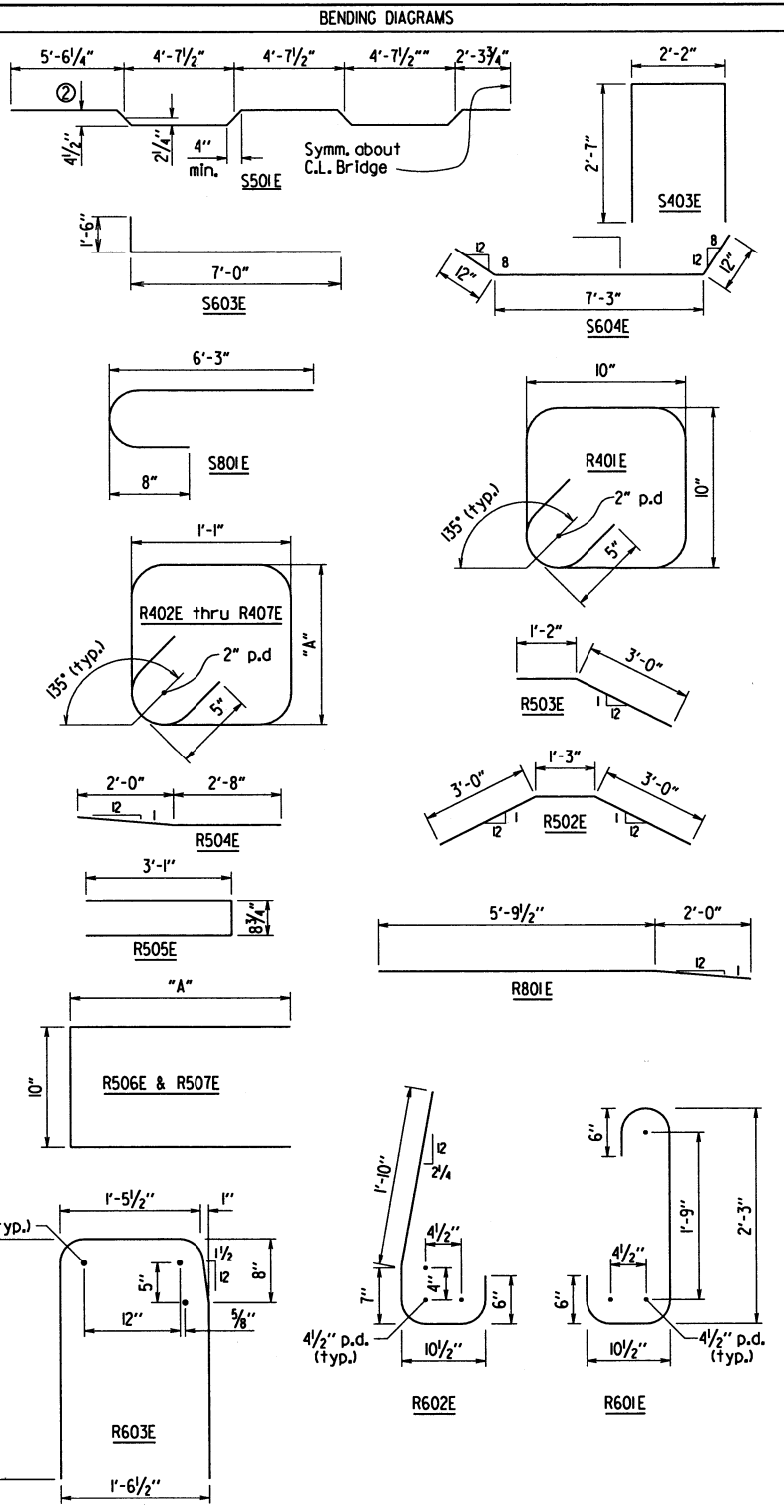
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CHECKED BY: DBS DATE: 12-11-18 SCALE: As Shown
DESIGNED BY: DBS DATE: 2-1-18
BRIDGE NO. 07428 DRAWING NO. 60380

PRINT DATE: 1/7/2019

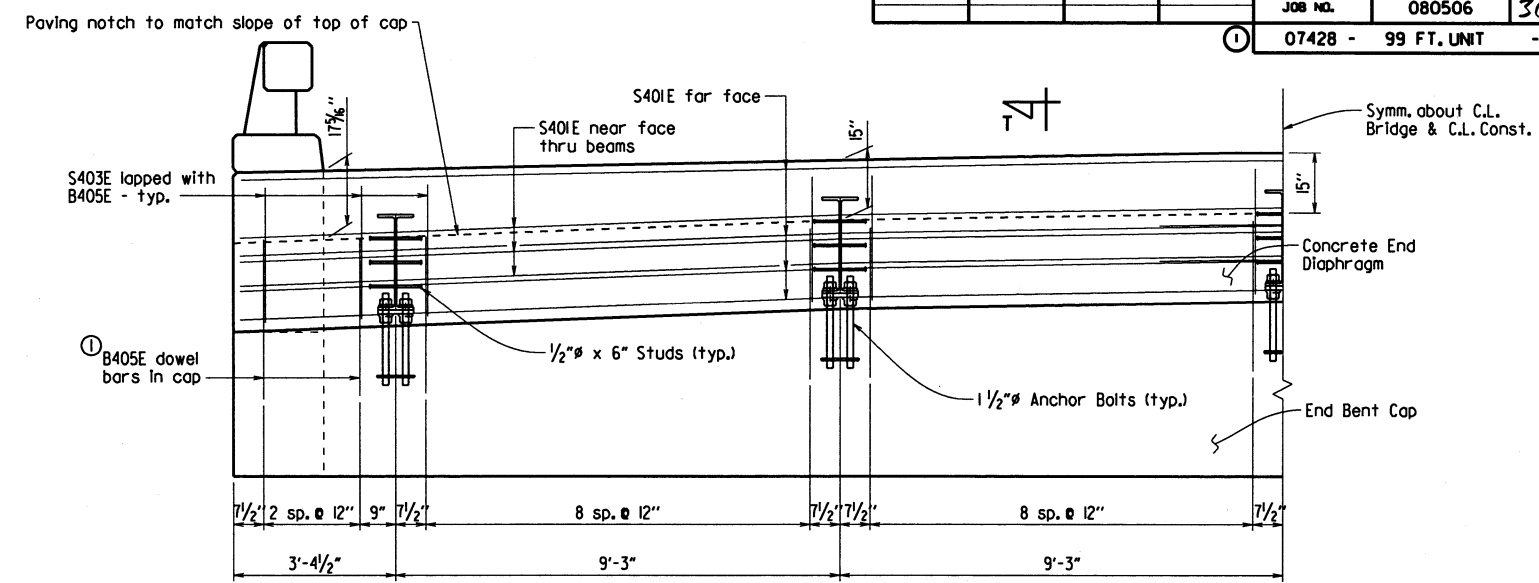
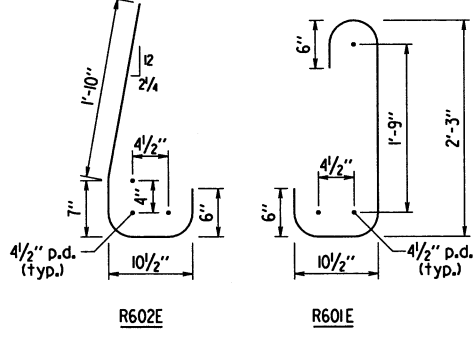
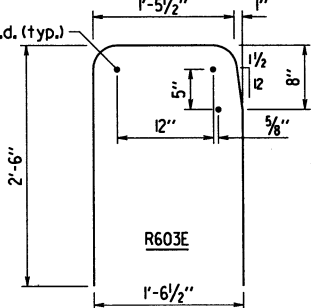
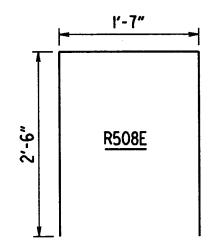
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506	36	49	
				07428 - 99 FT. UNIT	- 60381			

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	"A"
S401E	110	43'-5"	Str.	-
S402E	339	35'-0"	Str.	-
S403E	84	7'-2"	2"	-
S501E	95	44'-3"	3"	-
S502E	24	35'-5"	Str.	-
S601E	104	43'-5"	Str.	-
S602E	96	24'-0"	Str.	-
S603E	96	8'-4"	4 1/2"	-
S604E	12	9'-3"	4 1/2"	-
S801E	382	7'-2"	6"	-
R401E	76	3'-10"	2"	-
R402E	8	4'-2"	2"	9"
R403E	8	4'-3"	2"	9 1/4"
R404E	8	4'-4"	2"	9 3/4"
R405E	8	4'-4"	2"	10"
R406E	8	4'-5"	2"	10 1/2"
R407E	8	4'-7"	2"	11 1/2"
R501E	4	5'-9"	Str.	-
R502E	8	7'-3"	3 3/4"	-
R503E	8	4'-2"	3 3/4"	-
R504E	32	4'-8"	3 3/4"	-
R505E	16	6'-8"	3 3/4"	-
R506E	36	5'-5"	3 3/4"	2'-5"
R507E	36	3'-7"	3 3/4"	1'-6"
R508E	24	6'-4"	3 3/4"	-
R509E	8	10'-9"	Str.	-
R601E	40	4'-2"	4 1/2"	-
R602E	40	3'-7"	4 1/2"	-
R603E	60	6'-3"	4 1/2"	-
R801E	24	7'-10"	6"	-
R802E	8	10'-9"	Str.	-
W401E	40	3'-0"	Str.	-
W601E	32	3'-0"	Str.	-
W101E	32	13'-2"	Str.	-



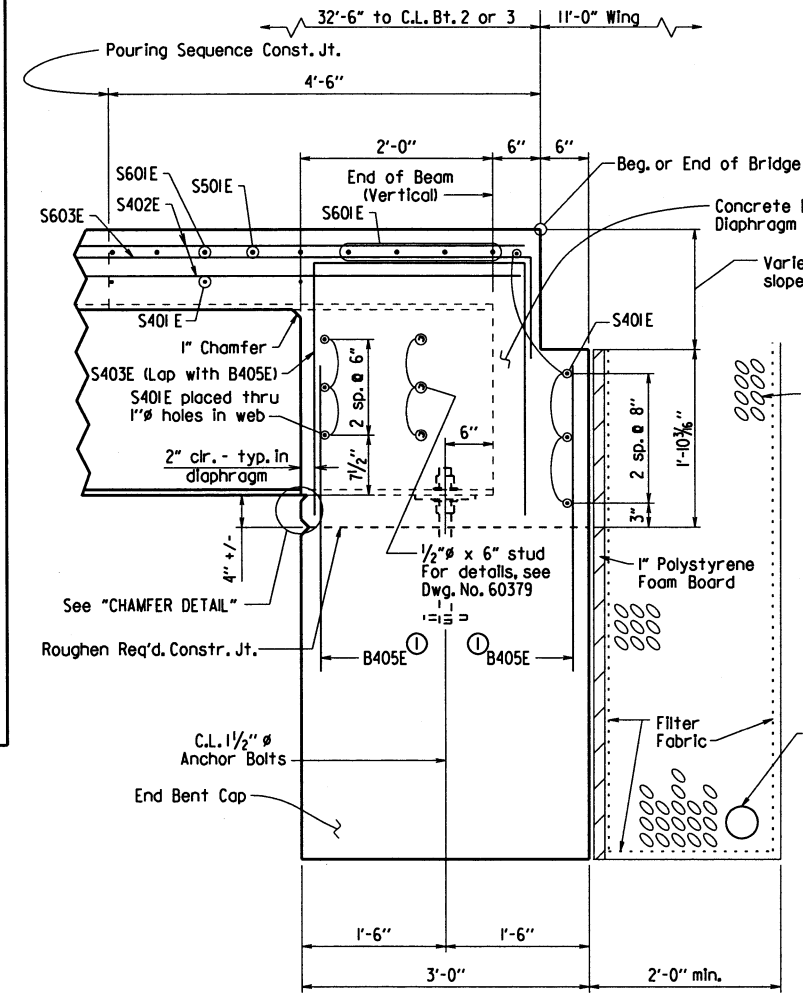
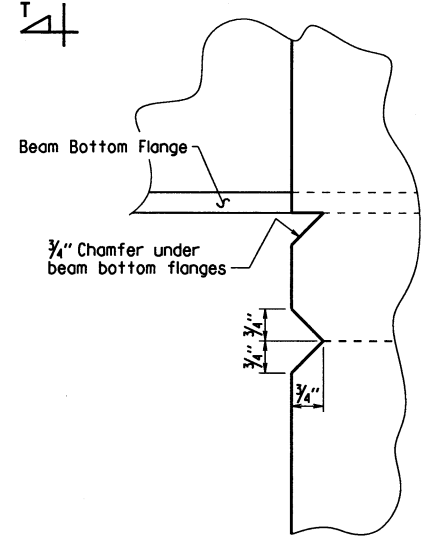
② 1/2" Over tolerance, No Under tolerance.
 Dimensions are out to out of bars.
 No Scale.
 Bars with an "E" suffix are to be epoxy coated.
 See Dwg. No. 60384-60387 for details of reinforcing in span railing.



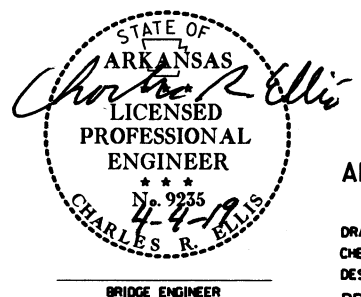
① See End Bent Details on Dwg. No. 60374 for reinforcing and additional details.

VIEW N-N

Looking Back - Bent 1
 Looking Ahead - Bent 4
 1/2" = 1'-0"



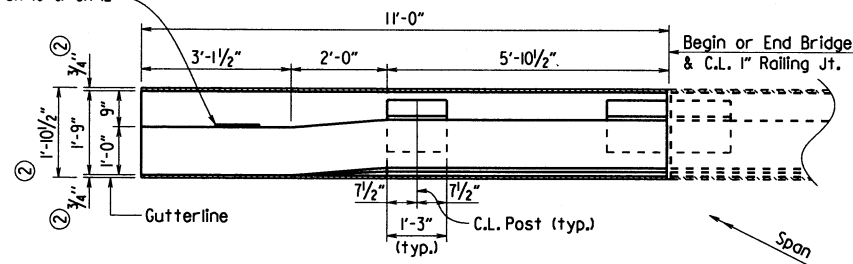
Limits of the concrete end diaphragm shall match plan dimension of End Bent Cap.
 For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".
 1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.



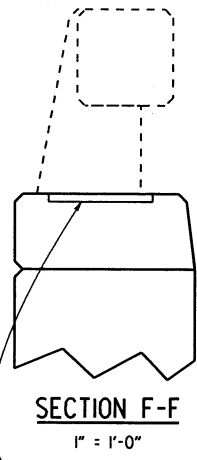
SHEET 5 OF 7
DETAILS OF 99' INTEGRAL W-BEAM UNIT
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
 CHECKED BY: DJ DATE: 11/1/18 SCALE: As Shown
 DESIGNED BY: DJ DATE: 1/1/18
 BRIDGE NO. 07428 DRAWING NO. 60381

Connector Plate, see Std. Dwg. GR 10 & GR-12

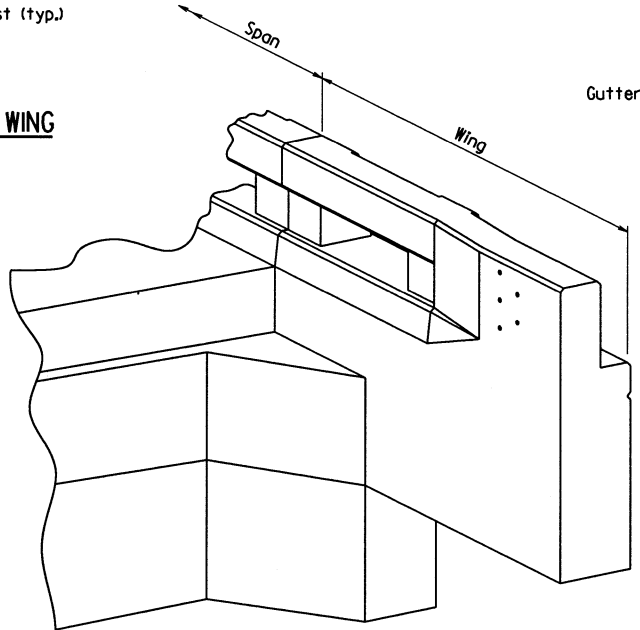
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		37	49
				07428 - 99 FT. UNIT		- 60382		



PLAN OF RAILING ON WING
1/2" = 1'-0"

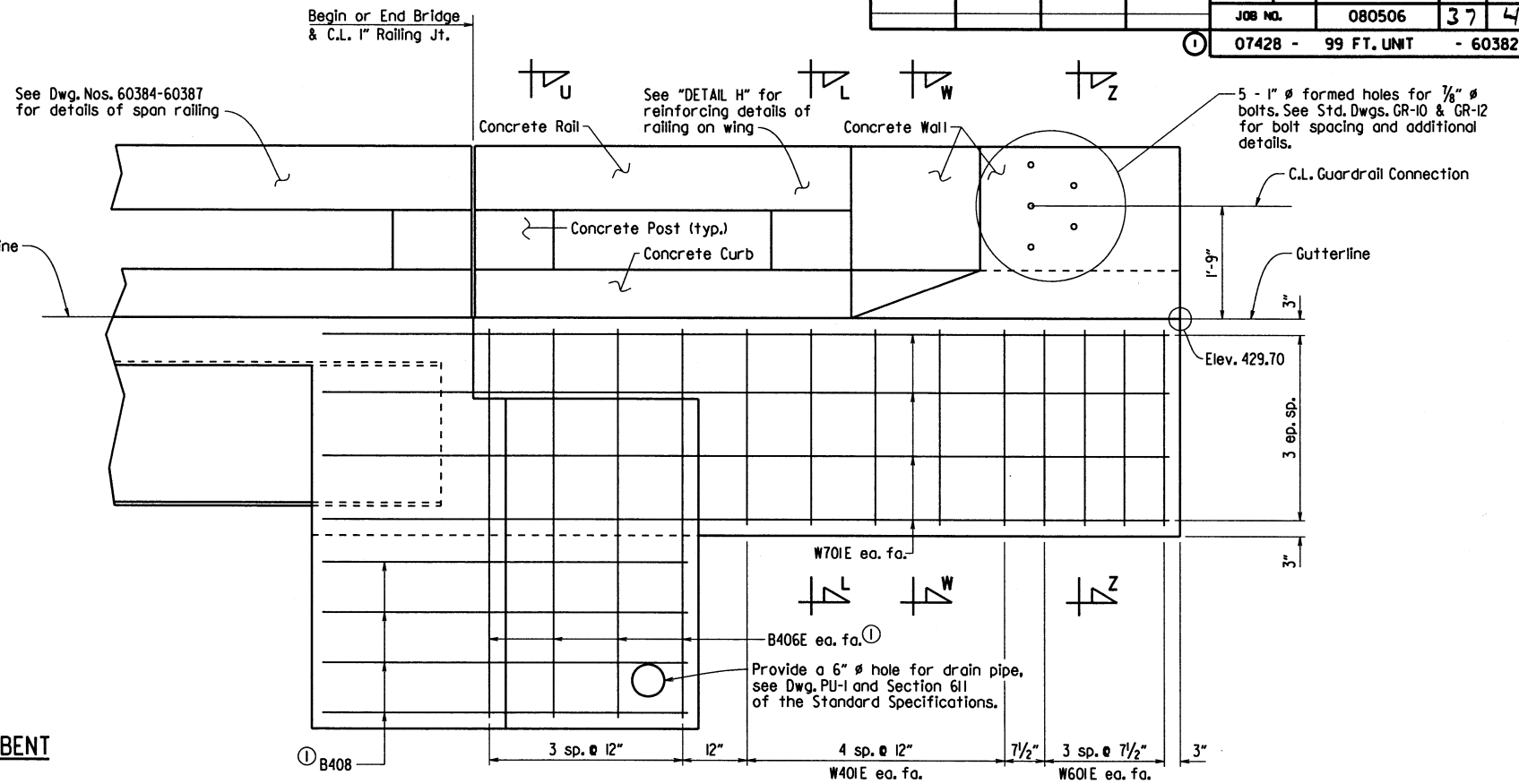


SECTION F-F
1" = 1'-0"

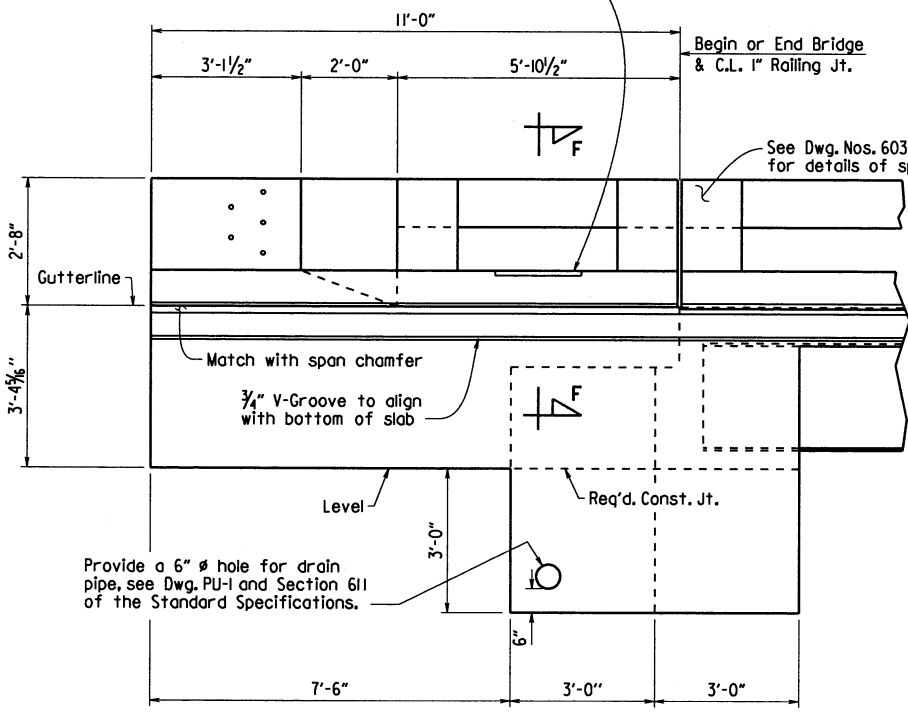


THREE DIMENSIONAL VIEW OF WING AND RAILING AT INTEGRAL END BENT
No Scale

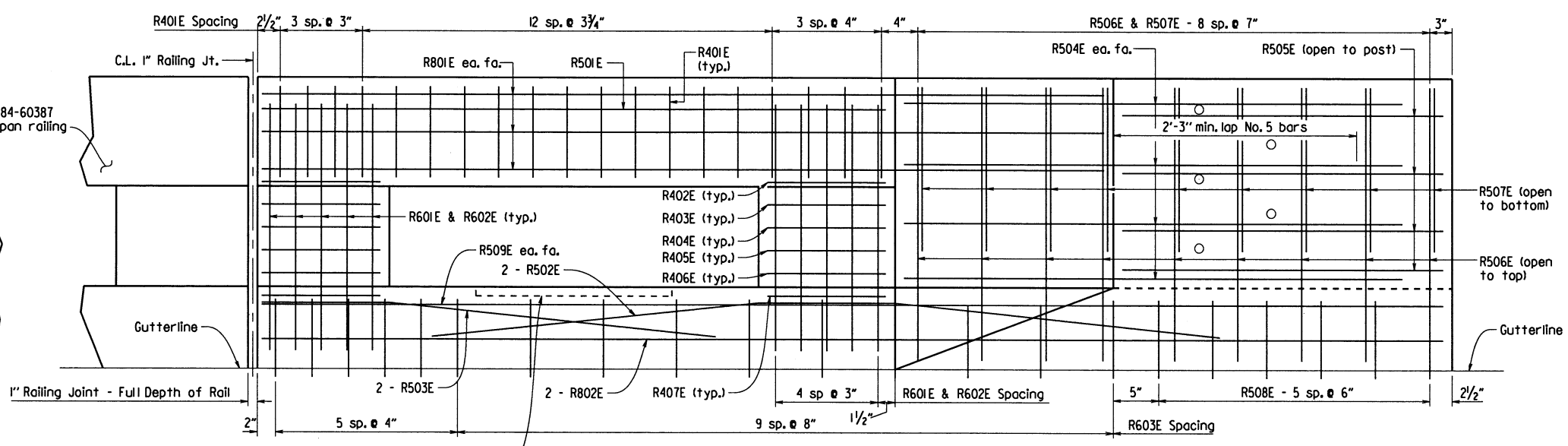
Place Type D Bridge Name Plate centered in curb and between posts. Place at beginning of bridge, right side of roadway only.



VIEW S-S
3/4" = 1'-0"



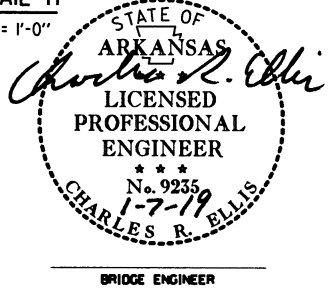
VIEW R-R
1/2" = 1'-0"



DETAIL H
1/2" = 1'-0"

Place Type D Bridge Name Plate centered in curb and between posts. Place at beginning of bridge, right side of roadway only.

For "VIEW U-U," SECTION L-L," SECTION W-W," and "SECTION Z-Z," see Dwg. No. 60383.
 ① See End Bent Details on Dwg. No. 60374 for reinforcing and additional details.
 ② Dimension Includes 3/4" allowance for architectural finish. See Dwg. No. 60387 for details of architectural finish.

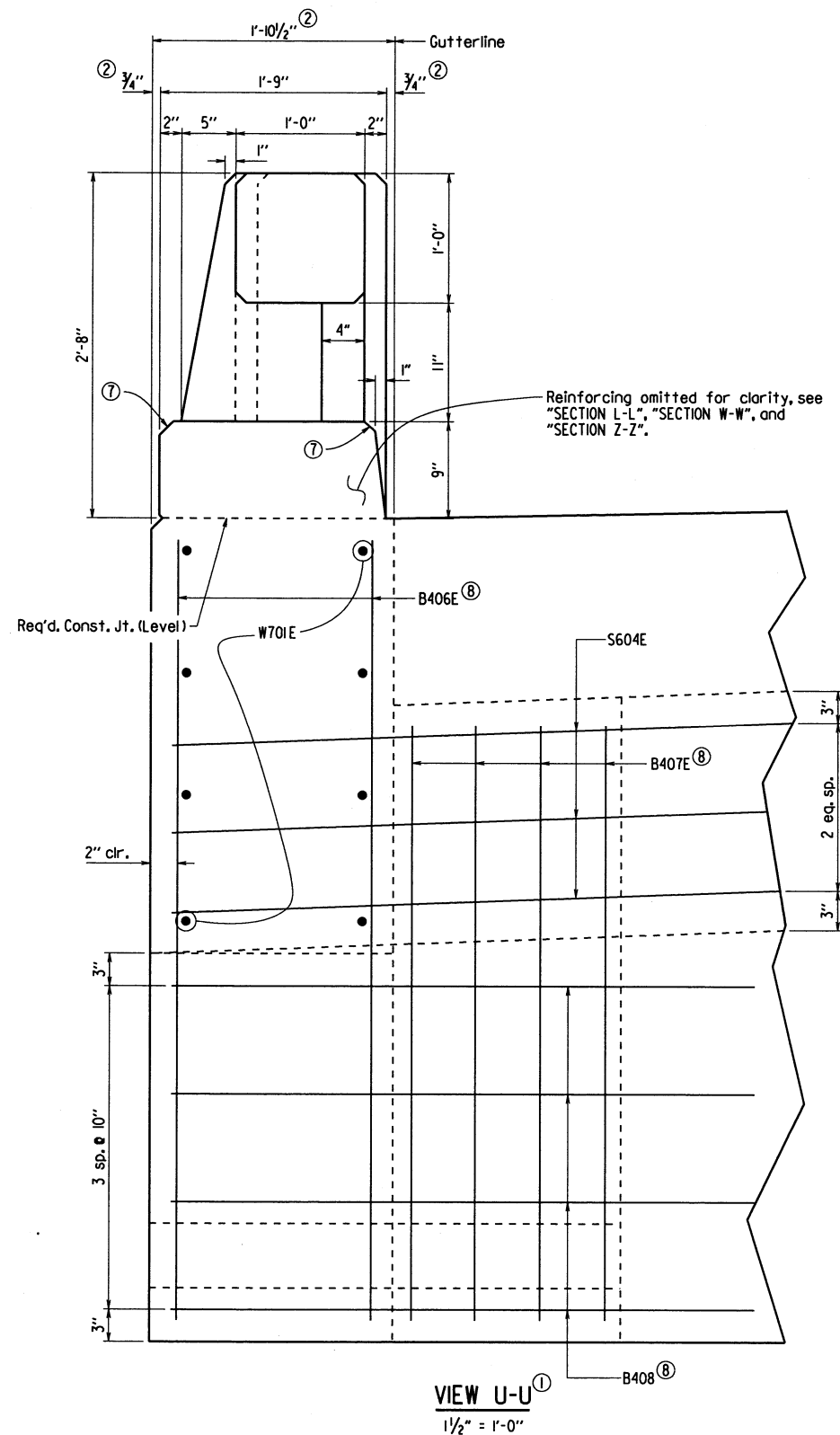


SHEET 6 OF 7
DETAILS OF 99' INTEGRAL W-BEAM UNIT
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
 CHECKED BY: DJS DATE: 12/14/18 SCALE: As Shown
 DESIGNED BY: DJS DATE: 3-18
 BRIDGE NO. 07428 DRAWING NO. 60382

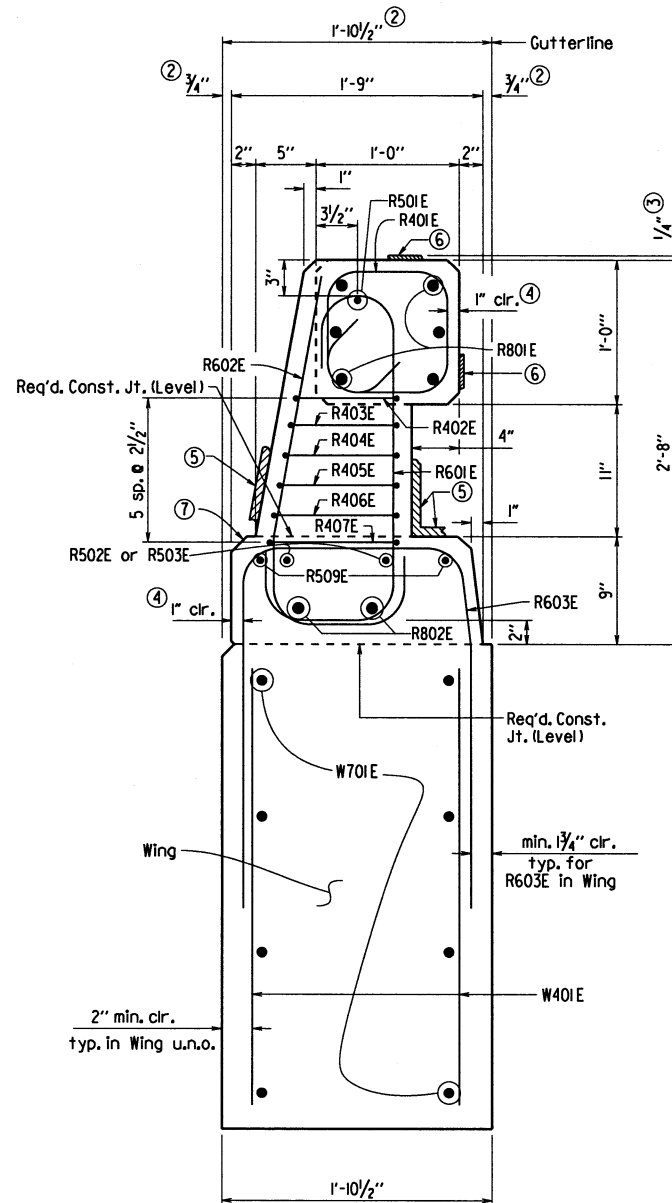
PRINT DATE: 1/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506	38	49	
				07428 - 99 FT. UNIT		- 60383		

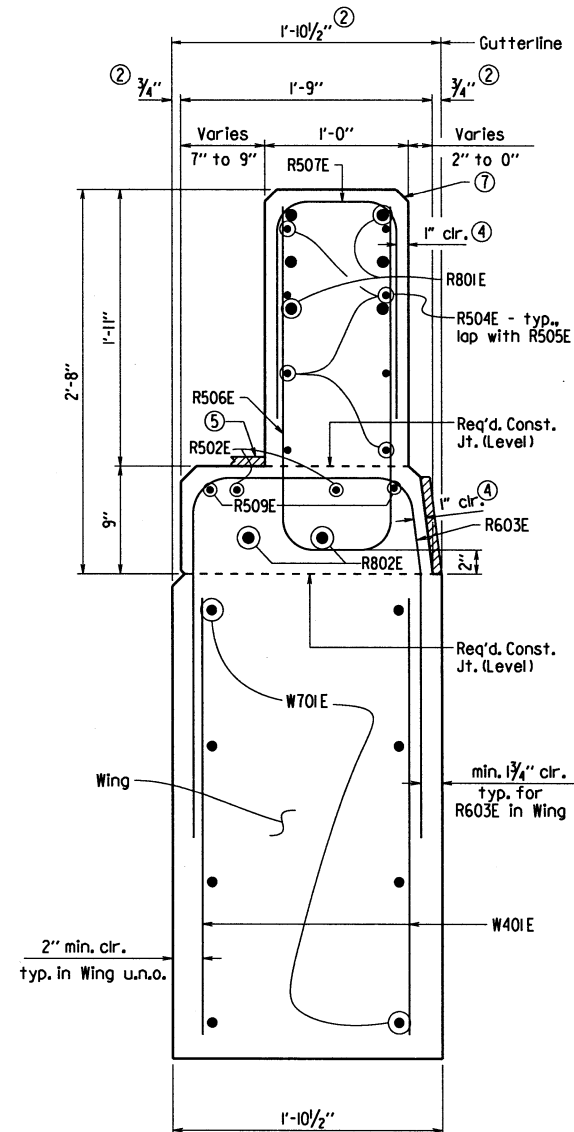
Concrete in Decorative Railing on Spans and Wings shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (3/4" Max.).



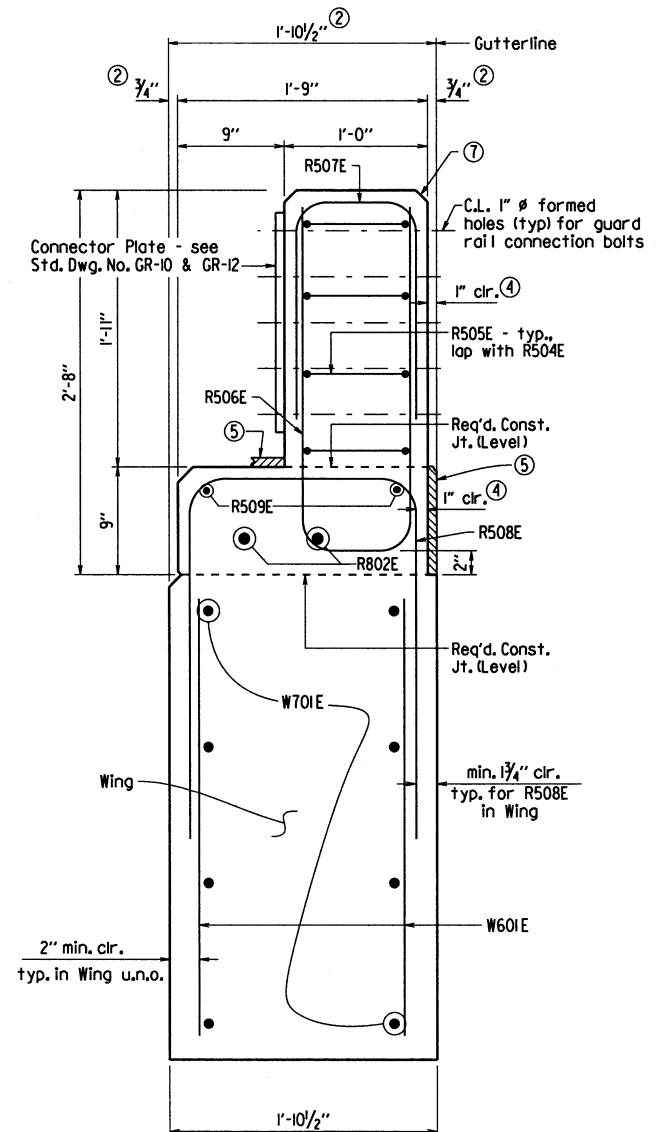
VIEW U-U
1/2" = 1'-0"



SECTION L-L
1/2" = 1'-0"

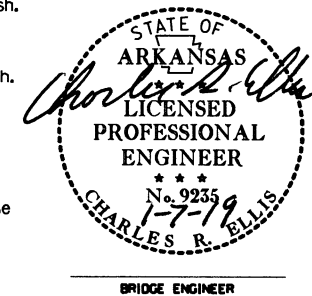


SECTION W-W
1/2" = 1'-0"



SECTION Z-Z
1/2" = 1'-0"

- ① Unless noted otherwise, Railing component (includes Rail, Post, Curb, and Wall) dimensions do not include additional allowance for architectural finish. See Dwg. No. 60387 for details of architectural finish.
- ② Dimension includes 3/4" allowance for Fieldstone Finish. See Dwg. No. 60387 for details of architectural finish on wing railing.
- ③ Dimension includes 1/4" allowance for Roughsawn Wood Finish. See Dwg. No. 60387 for details of architectural finish.
- ④ A typical clear cover of 1" shall be provided for the Railing components (includes Rail, Post, Curb, and Wall) reinforcement, unless otherwise noted. This clear cover does not include any allowance for architectural finish.
- ⑤ 3/4" allowance for Fieldstone Finish, typ. for Post and Curb.
- ⑥ 1/4" allowance for Roughsawn Wood Finish, typ. for Rail.
- ⑦ All exposed corners for the Railing components (Rail, Post, Curb, and Wall) shall be chamfered 1" unless otherwise noted.
- ⑧ See End Bent Details on Dwg. No. 60374 for reinforcing and additional details.



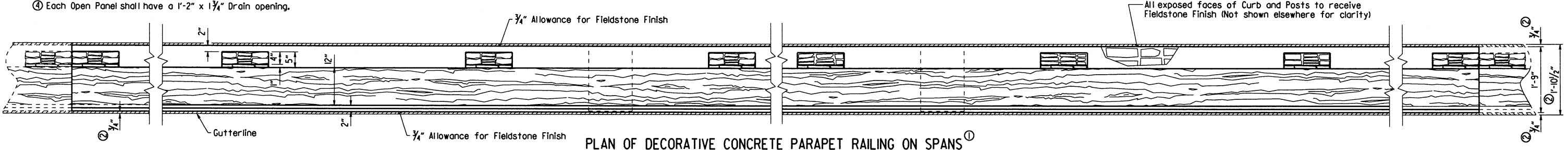
SHEET 7 OF 7
DETAILS OF 99' INTEGRAL
W-BEAM UNIT

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

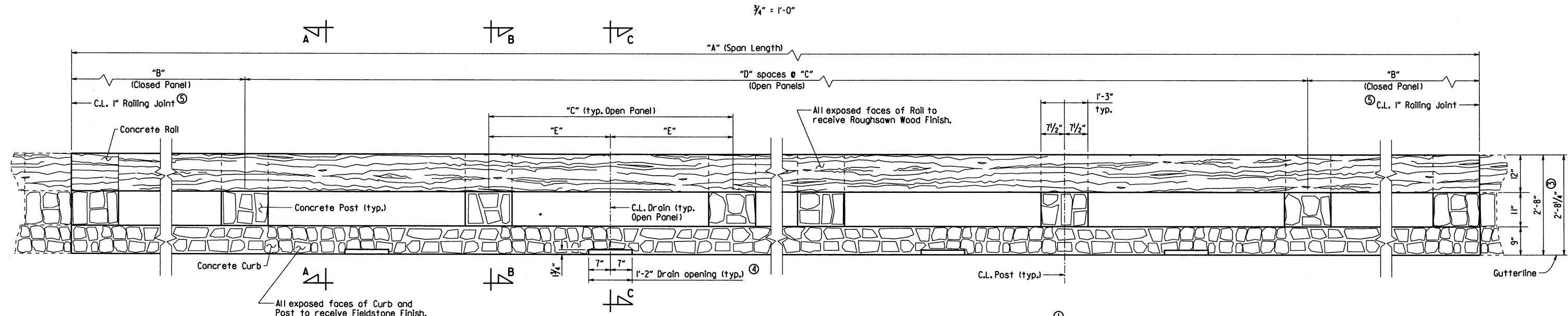
DRAWN BY: WAC DATE: 7/2/18 FILENAME: b080506_sl.dgn
CHECKED BY: DBS DATE: 12/14/18 SCALE: As Shown
DESIGNED BY: DBS DATE: 3-18
BRIDGE NO. 07428 DRAWING NO. 60383

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.	080506	39	49	
				07428 - RAILING				60384

- ① Unless noted otherwise, Rail, Post, and Curb dimensions do not include additional allowance for architectural finish. See Dwg. No. 60386 for details of architectural finish.
- ② Dimension includes 3/4" allowance for Fieldstone Finish. See Dwg. No. 60386 for details of architectural finish.
- ③ Dimension includes 1/4" allowance for Roughsawn Wood. See Dwg. No. 60386 for details of architectural finish.
- ④ Each Open Panel shall have a 1'-2" x 1 3/4" Drain opening.

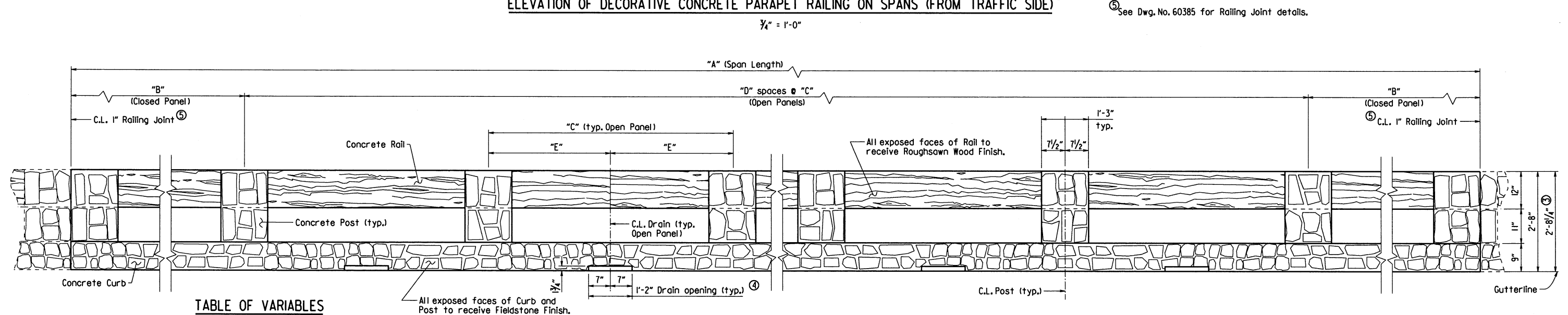


PLAN OF DECORATIVE CONCRETE PARAPET RAILING ON SPANS ①



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

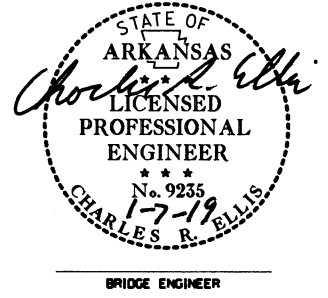
⑤ See Dwg. No. 60385 for Railing Joint details.



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

TABLE OF VARIABLES

Variable	99'-0" Unit	
	32'-0" Span	35'-0" Span
"A"	32'-6"	35'-0"
"B"	6'-6"	5'-6"
"C"	6'-6"	6'-0"
"D"	3	4
"E"	3'-3"	3'-0"



SHEET 1 OF 4
 DETAILS OF DECORATIVE
 CONCRETE PARAPET RAILING

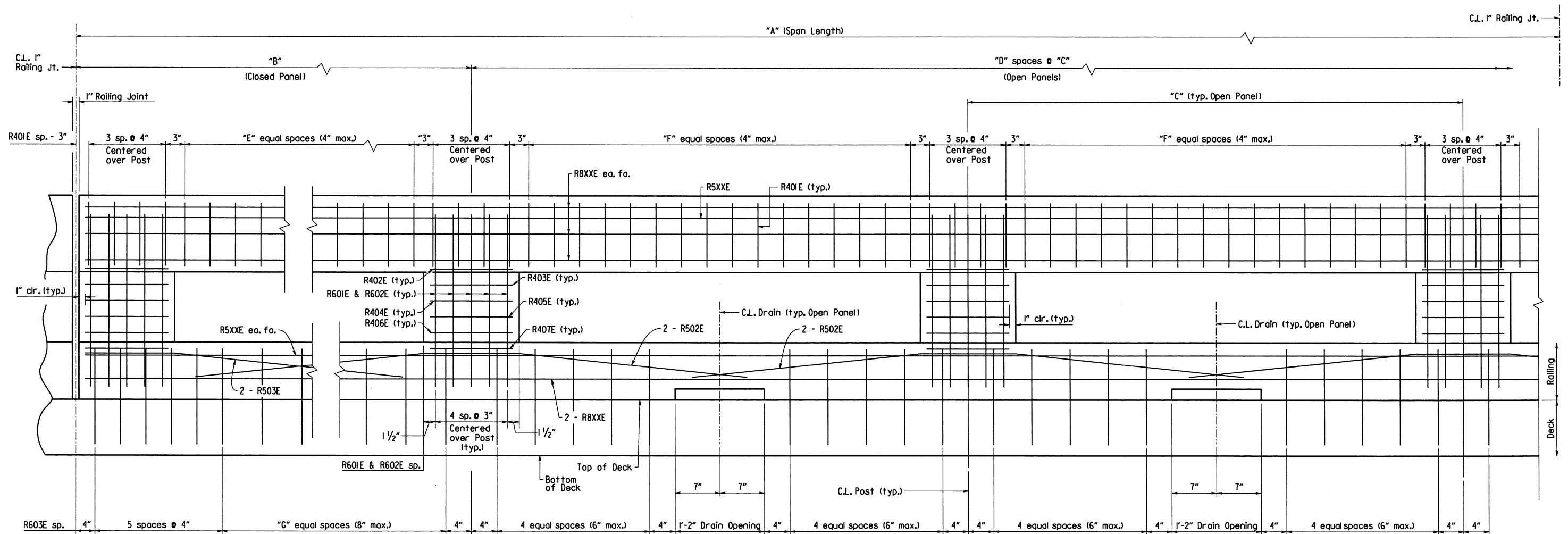
ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
 CHECKED BY: DBS DATE: 12-14-18 SCALE: As Shown
 DESIGNED BY: DBS DATE: 3-18
 BRIDGE NO. 07428 DRAWING NO. 60384

PRINT DATE: 1/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		40	49
				07428 - RAILING				60385

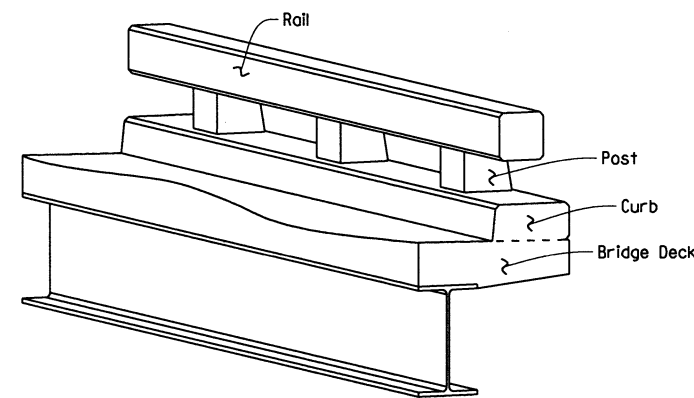
Railing Joint shall extend from the top of the Rail to the top of the Deck.



PARTIAL - LONGITUDINAL SECTION OF DECORATIVE CONCRETE PARAPET RAILING ON SPANS
1/2" = 1'-0"

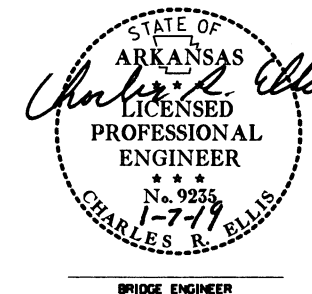
TABLE OF VARIABLES

Variable	99'-0" Unit	
	32'-0" Span	35'-0" Span
"A"	32'-6"	35'-0"
"B"	6'-6"	5'-6"
"C"	6'-6"	6'-0"
"D"	3	4
"E"	13	10
"F"	15	14
"G"	7	5
R5XXE	R501E	R504E
R8XXE	R801E	R802E



THREE DIMENSIONAL VIEW OF DECORATIVE CONCRETE PARAPET RAILING

No Scale



SHEET 2 OF 4
DETAILS OF DECORATIVE
CONCRETE PARAPET RAILING

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

DRAWN BY: WAC DATE: 5/14/18 FILENAME: b080506_sl.dgn
CHECKED BY: DBJ DATE: 12/14/18 SCALE: As Shown
DESIGNED BY: DBS DATE: 5-18

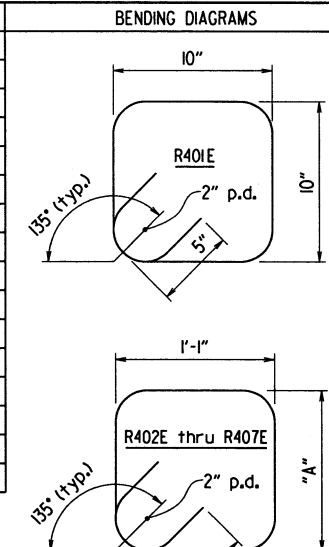
BRIDGE NO. 07428 DRAWING NO. 60385

PRINT DATE: 1/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506		41	49
				07428 -	RAILING		- 60386	

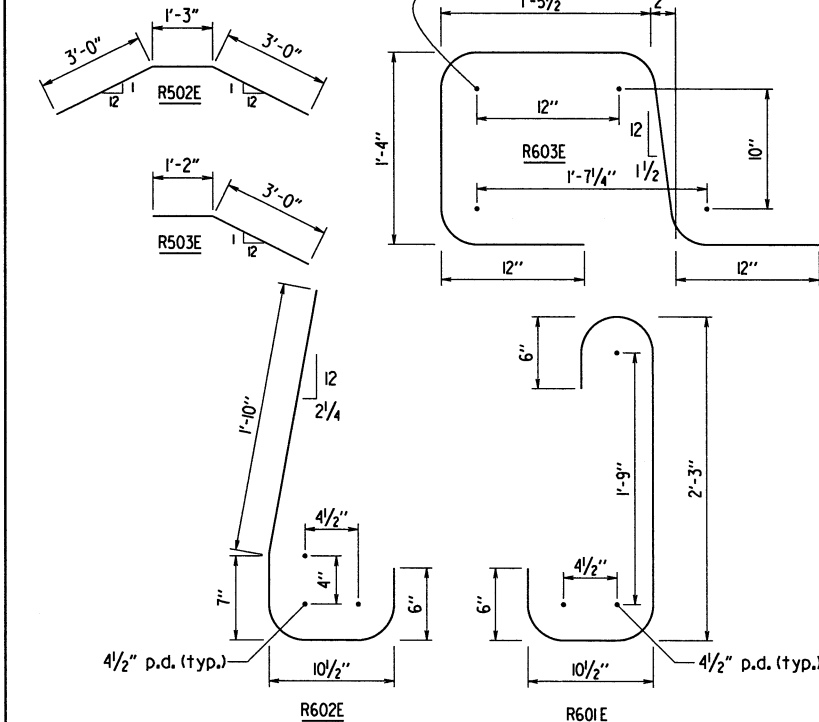
BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
R401E	620	3'-10"	-	2"
R402E	38	4'-2"	9"	2"
R403E	38	4'-3"	9 1/4"	2"
R404E	38	4'-4"	9 3/4"	2"
R405E	38	4'-4"	10"	2"
R406E	38	4'-5"	10 1/2"	2"
R407E	38	4'-7"	11 1/2"	2"
R501E	12	32'-3"	-	Str.
R502E	52	7'-3"	-	3 3/4"
R503E	24	4'-2"	-	3 3/4"
R504E	6	34'-9"	-	Str.
R601E	190	4'-2"	-	4 1/2"
R602E	190	3'-8"	-	4 1/2"
R603E	348	5'-9"	-	4 1/2"
R801E	32	32'-3"	-	Str.
R802E	16	34'-9"	-	Str.

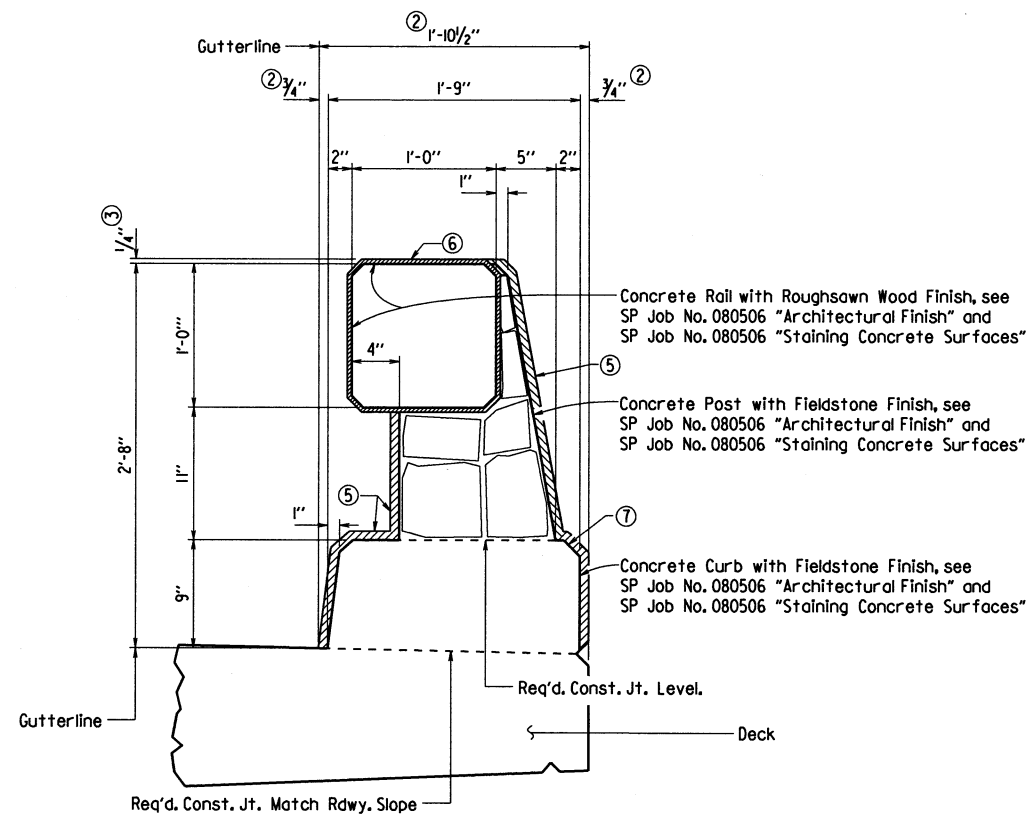


Dimensions are out to out of bars unless noted otherwise.

Bar list is for reinforcement of Span Railing only. See Dwg. No. 60381 for bar list of reinforcement of Wing Railing.



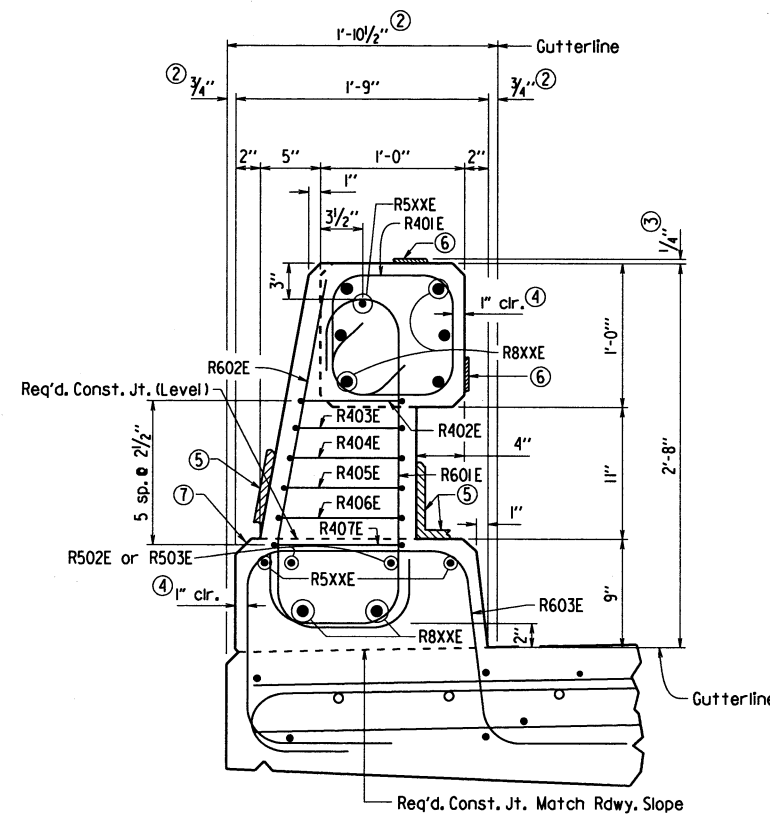
All bars designated with an "E" suffix shall be Epoxy Coated



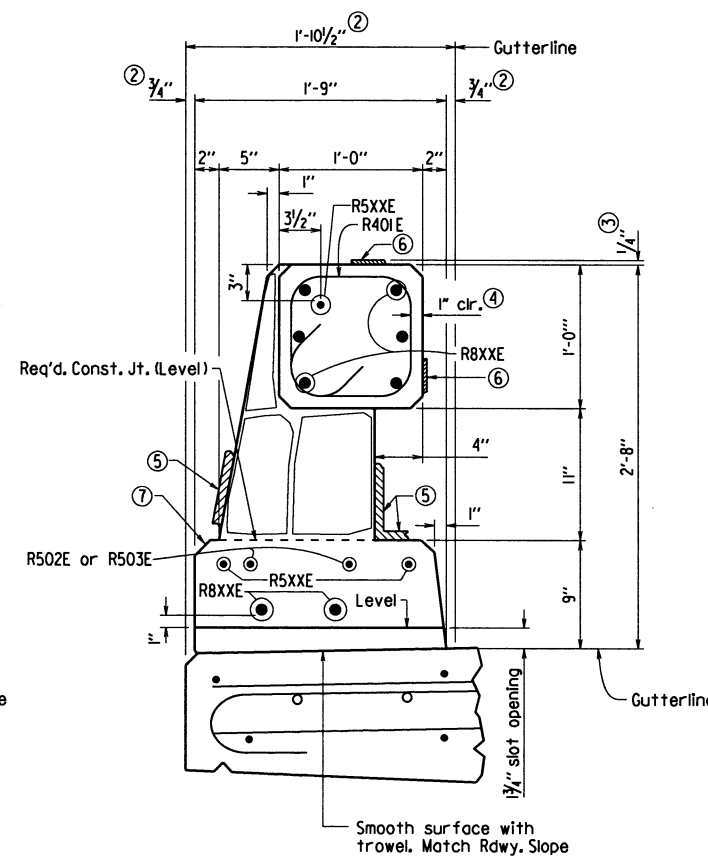
VIEW A-A
1/2" = 1'-0"

- ① Unless noted otherwise, Railing component (includes Rail, Post, and Curb) dimensions do not include additional allowance for architectural finish.
- ② Dimension includes 3/4" allowance for Fieldstone Finish.
- ③ Dimension includes 1/4" allowance for Roughsawn Wood Finish.
- ④ A typical clear cover of 1" shall be provided for the Railing components (includes Rail, Post, and Curb) reinforcement, unless otherwise noted. This clear cover does not include any allowance for architectural finish.
- ⑤ 3/4" allowance for Fieldstone Finish, typ. for Post and Curb.
- ⑥ 1/4" allowance for Roughsawn Wood Finish, typ. for Rail.
- ⑦ All exposed corners for the Railing components (includes Rail, Post, and Curb) shall be chamfered 1" unless otherwise noted.

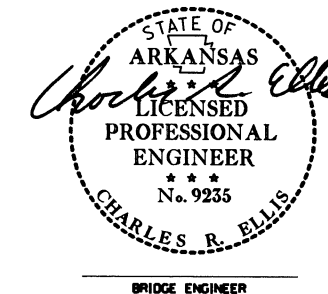
Concrete in Decorative Railing on Spans and Wings shall be Class (S)AE except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (3/4" Max.).



SECTION B-B
1/2" = 1'-0"



SECTION C-C
1/2" = 1'-0"



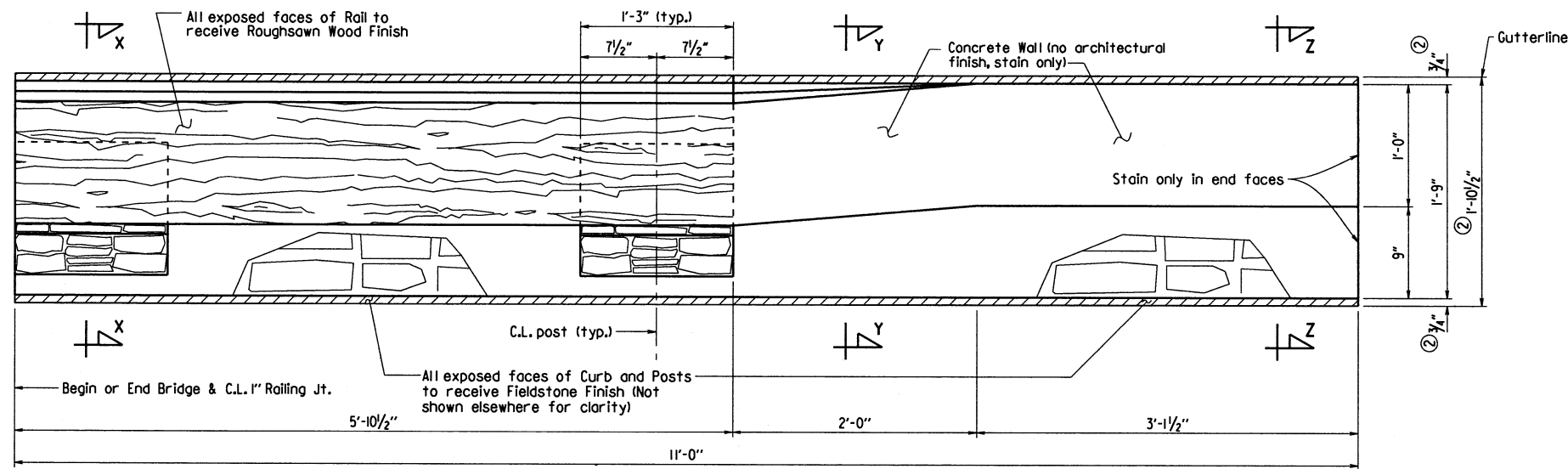
SHEET 3 OF 4
DETAILS OF DECORATIVE CONCRETE PARAPET RAILING

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

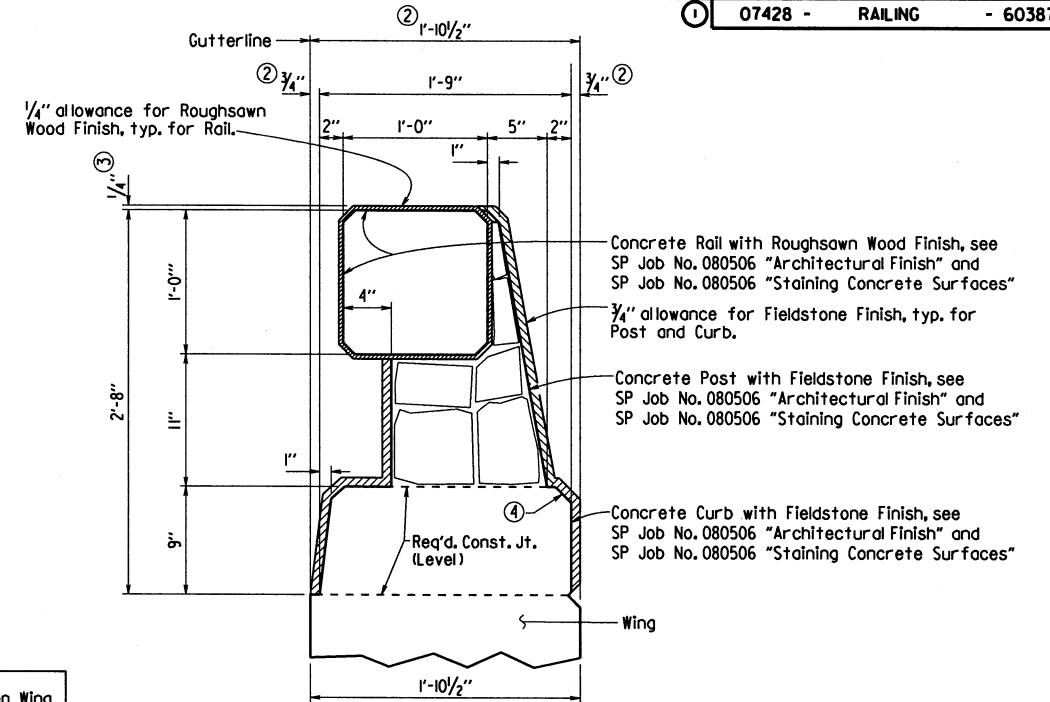
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CHECKED BY: DBS DATE: 12-14-18 SCALE: As Shown
DESIGNED BY: DBS DATE: 2-1-18

BRIDGE NO. 07428 DRAWING NO. 60386

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		42	49
				JOB NO.		080506	42	49
				07428 - RAILING		- 60387		



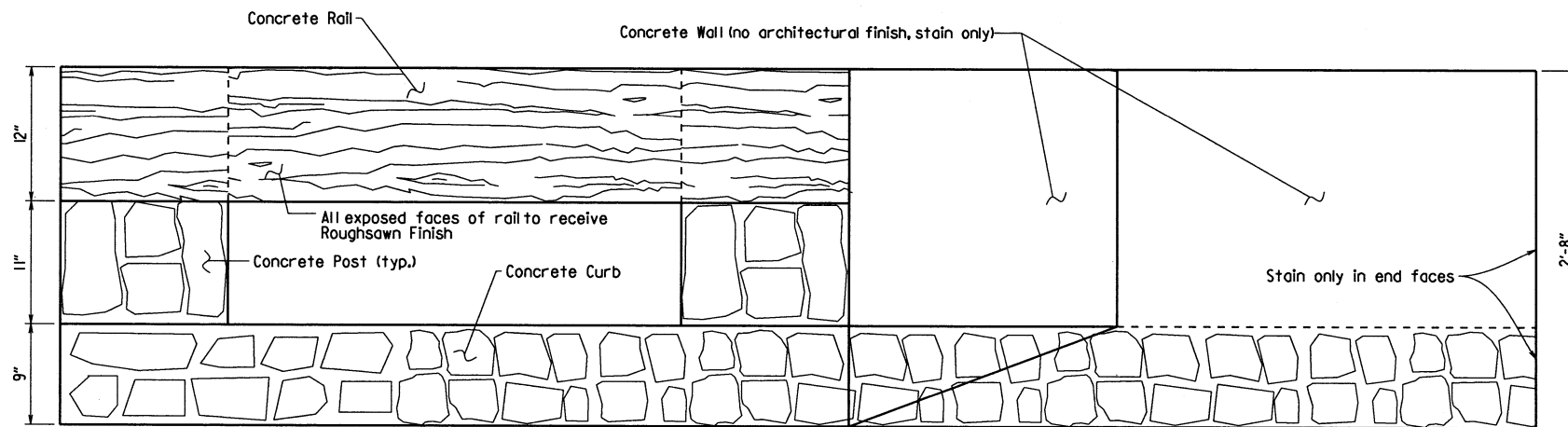
PLAN OF DECORATIVE CONCRETE PARAPET RAILING ON WINGS^①
1/2" = 1'-0"



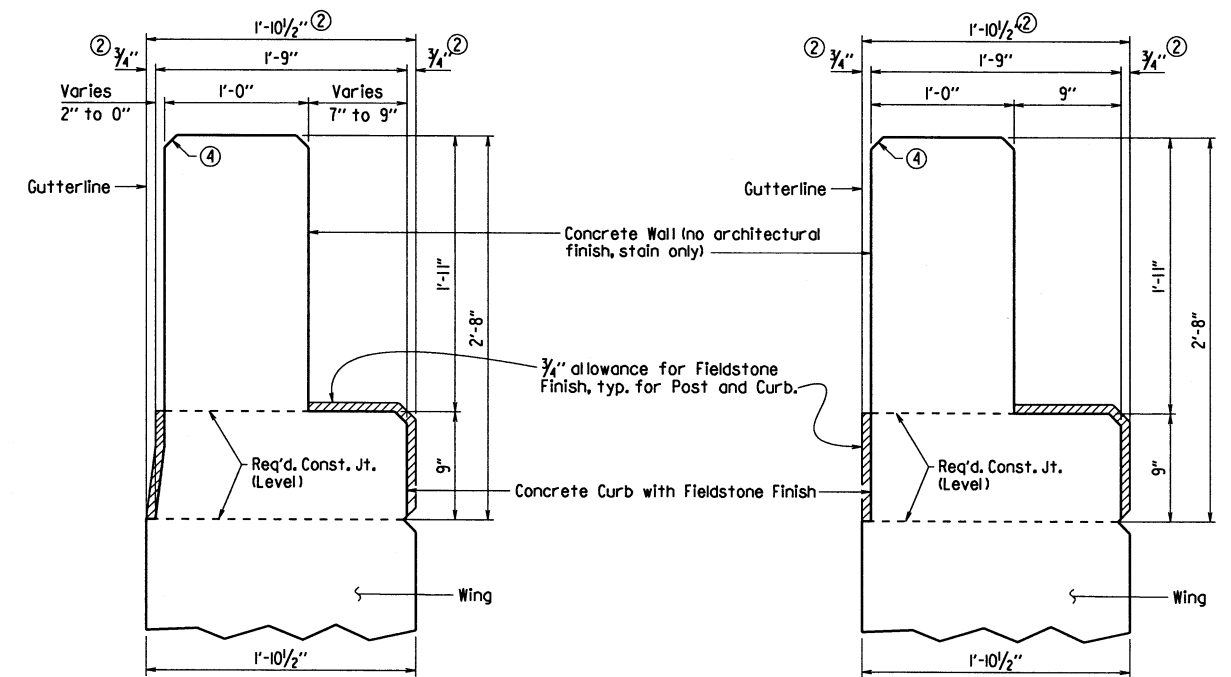
SECTION X-X^①
1/2" = 1'-0"

- ① Unless noted otherwise, Railing component (includes Rail, Post, Curb, and Wall) dimensions do not include additional allowance for architectural finish.
- ② Dimension includes 3/4" allowance for Fieldstone Finish.
- ③ Dimension includes 1/4" allowance for Roughsawn Wood Finish.
- ④ All exposed corners for the Railing components (includes Rail, Post, Curb, and Wall) shall be chamfered 1" unless otherwise noted.

See Dwg. No. 60381-60383 for Bar List and details of reinforcing in Railing on Wing

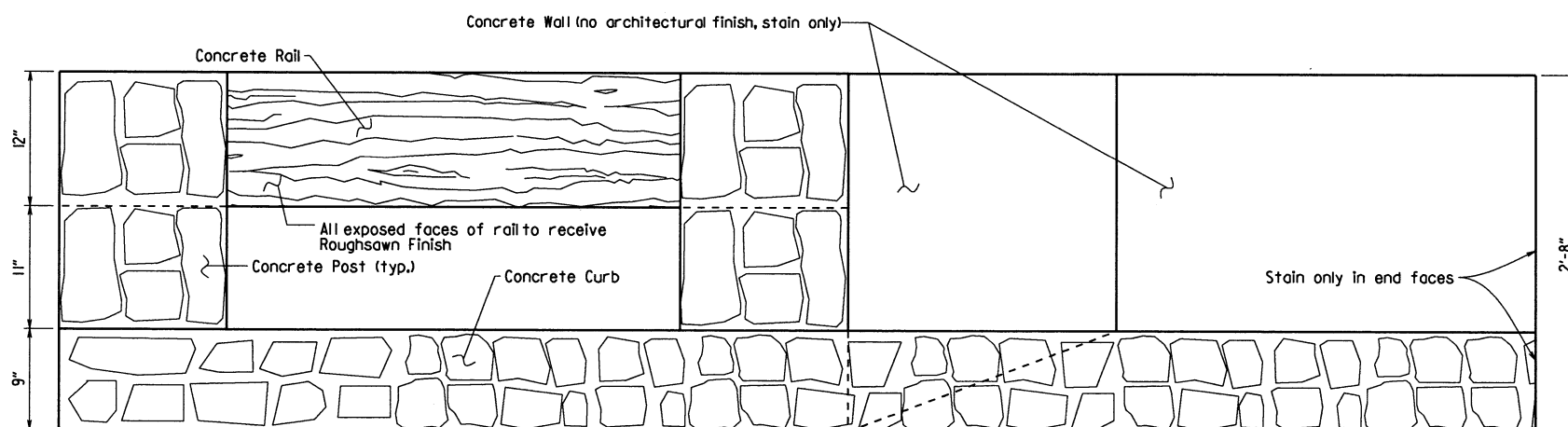


ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING ON WINGS (TRAFFIC SIDE)^①
1/2" = 1'-0"

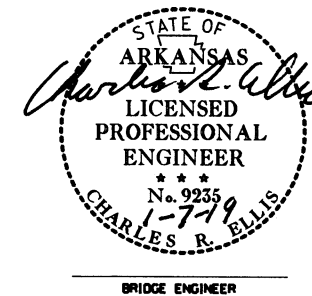


SECTION Y-Y^①
1/2" = 1'-0"

SECTION Z-Z^①
1/2" = 1'-0"



ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING ON WINGS (BACK SIDE)^①
1/2" = 1'-0"



SHEET 4 OF 4
DETAILS OF DECORATIVE CONCRETE PARAPET RAILING

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

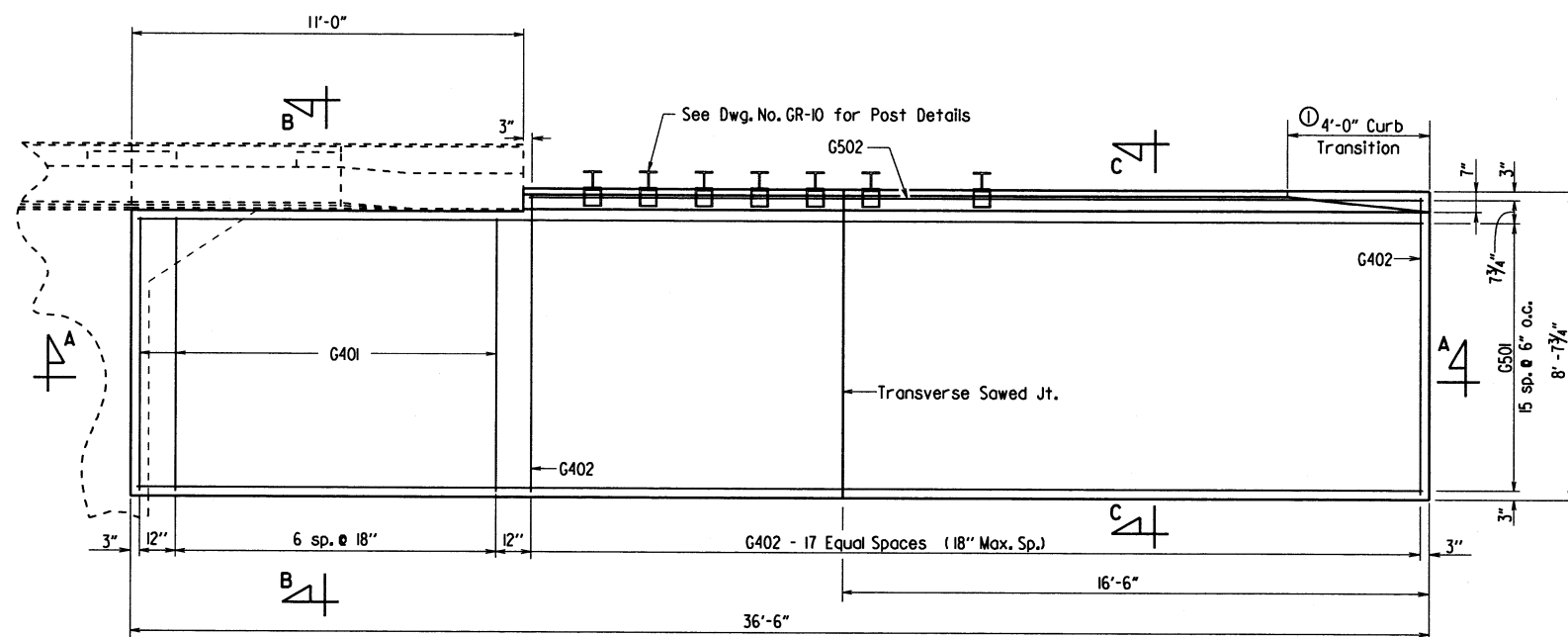
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CHECKED BY: DRS DATE: 12-11-18 SCALE: As Shown
DESIGNED BY: DRS DATE: 3-18

BRIDGE NO. 07428 DRAWING NO. 60387

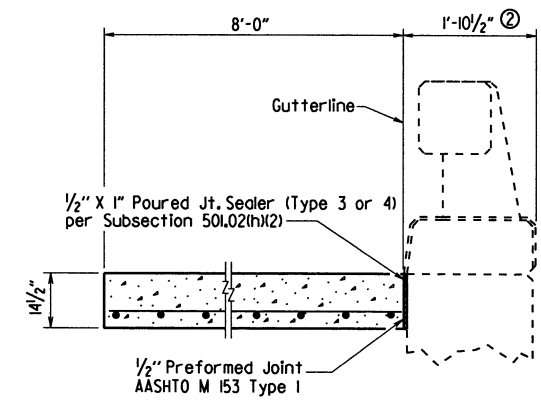
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080506	43	49	

07428 - TYPE SPECIAL GUTTERS - 60388

- 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.
- For Rolling dimensions, refer to "SECTION X-X", "SECTION Y-Y", and "SECTION Z-Z", Dwg. No. 60387.



HALF PLAN OF APPROACH GUTTERS
3/8" = 1'-0"



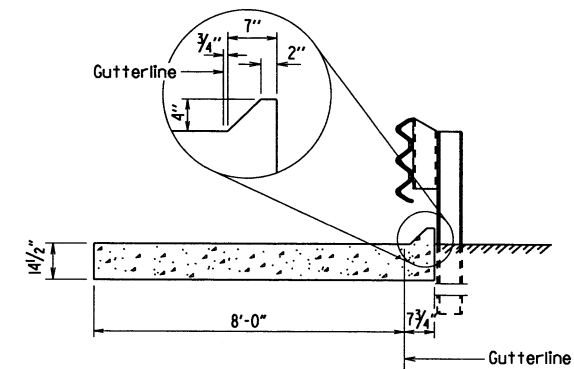
SECTION B-B
No scale

BAR LIST FOR ONE TYPE SPECIAL GUTTER

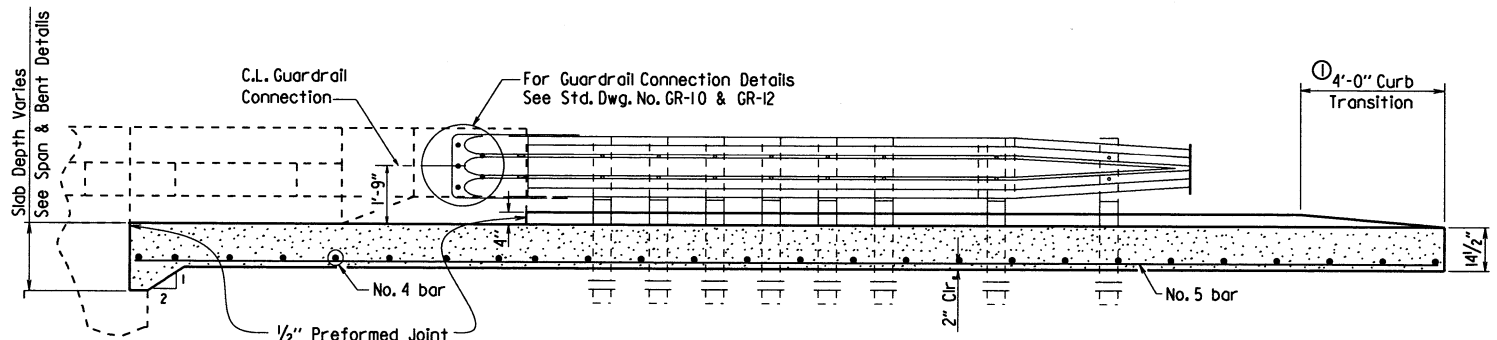
Mark	No. Req'd.	Length
G401	8	7'-8"
G402	18	8'-3"
G501	16	36'-2"
G502	1	25'-2"

QUANTITIES FOR ONE APPROACH GUTTER
(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
770	14.20



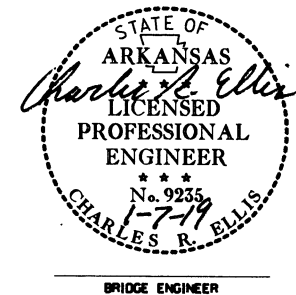
SECTION C-C
No scale



SECTION A-A
3/8" = 1'-0"

GENERAL NOTES

- 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.



DETAILS OF TYPE SPECIAL APPROACH GUTTERS

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

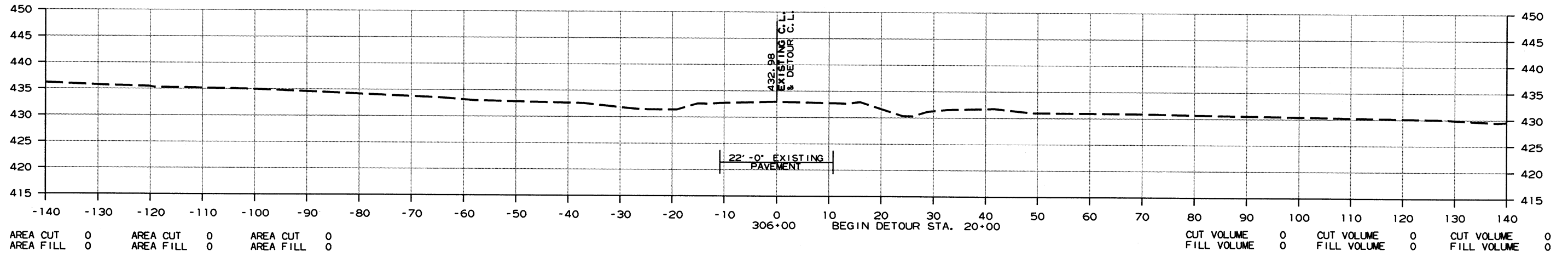
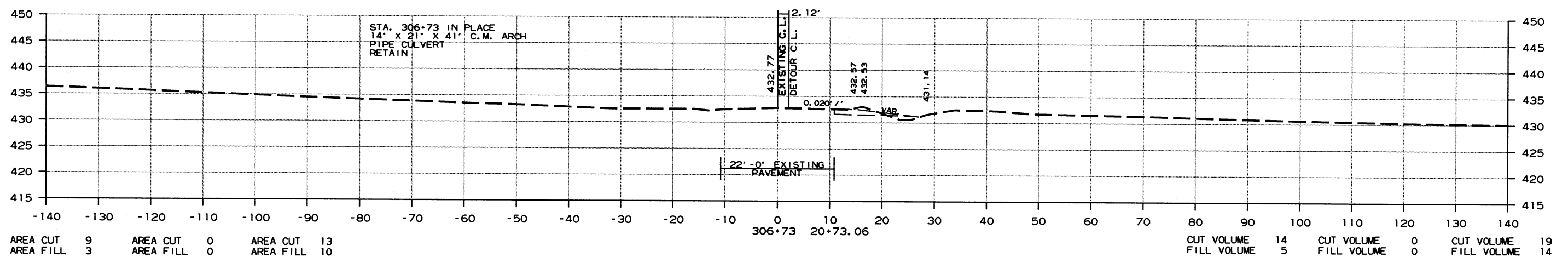
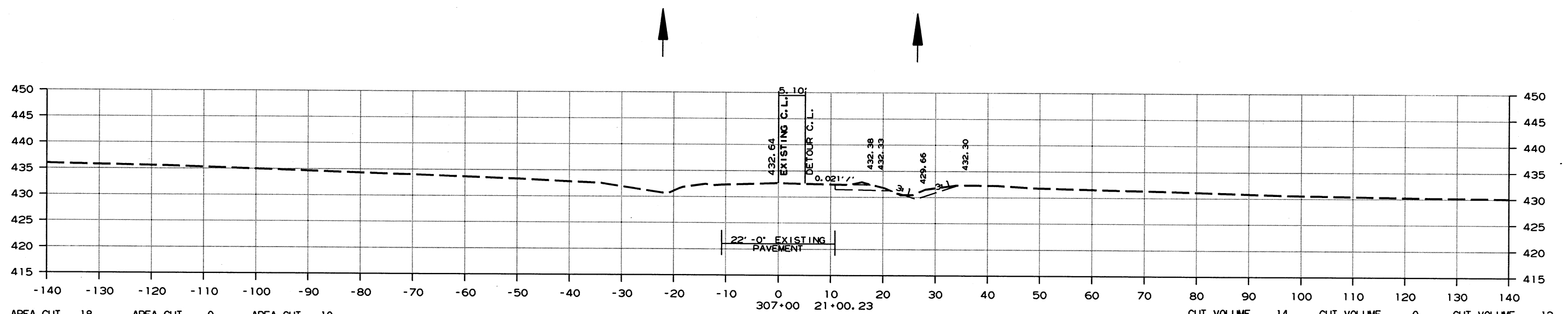
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CHECKED BY: DBS DATE: 12-12-18 SCALE: As Shown
DESIGNED BY: STD DATE: —
BRIDGE NO. 07428 DRAWING NO. 60388

PRINT DATE: 1/2/2019

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. 080506							44	49

2 CROSS SECTIONS

STAGE 1 AREA STAGE 2 STAGE 3 STAGE 1 VOLUME STAGE 2 STAGE 3



CROSS SECTION STA. 306+00 TO STA. 307+00

10/26/2017

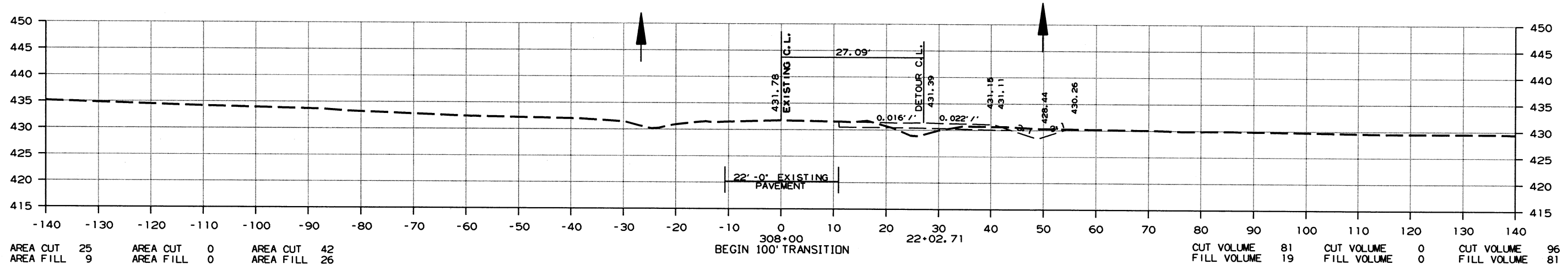
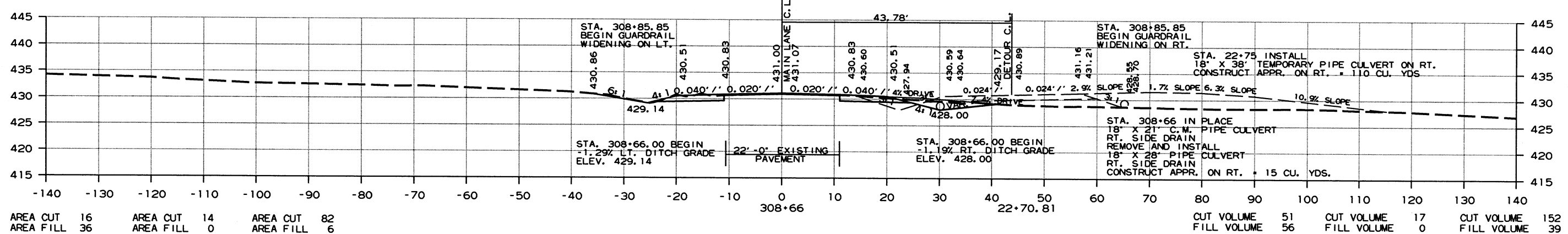
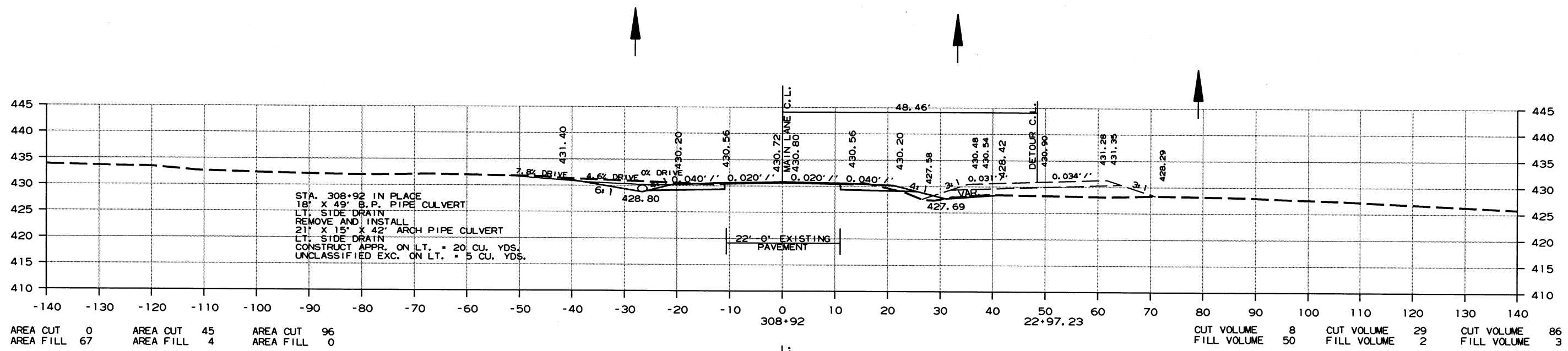
RO80506.DGN

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. 080506	45	49

② CROSS SECTIONS

STAGE 1 AREA STAGE 2 STAGE 3

STAGE 1 VOLUME STAGE 2 STAGE 3



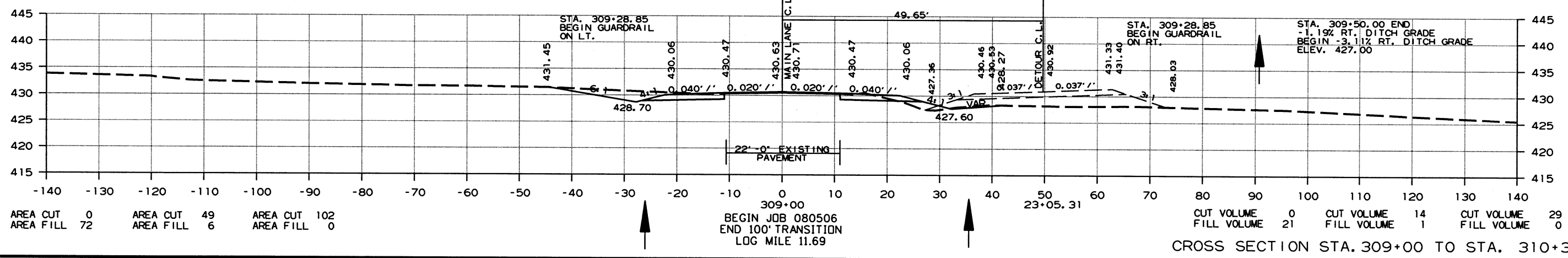
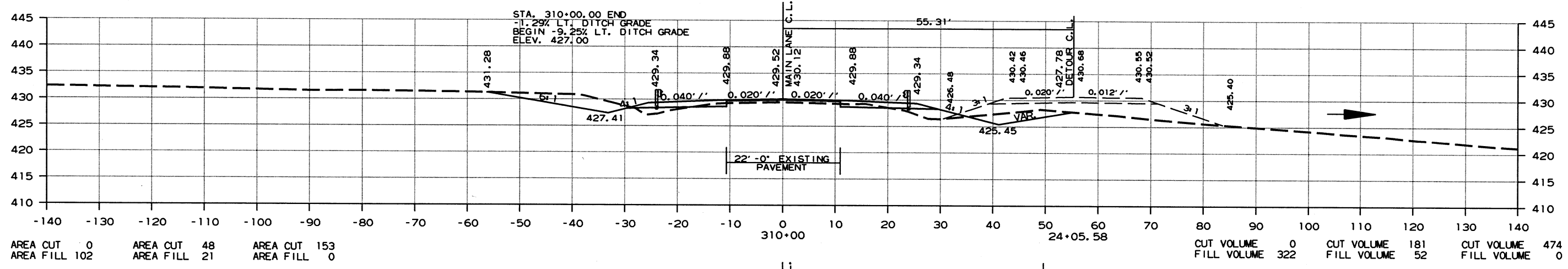
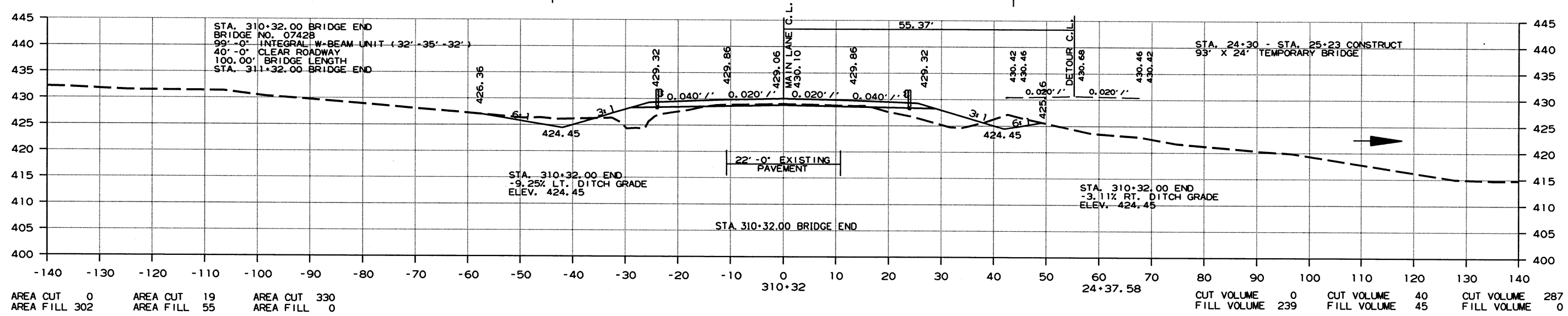
CROSS SECTION STA. 308+00 TO STA. 308+92

10/26/2017
R080506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080506							46	49

2 CROSS SECTIONS

STAGE 1	AREA STAGE 2	STAGE 3	STAGE 1	VOLUME STAGE 2	STAGE 3
AREA CUT 0	AREA CUT 0	AREA CUT 0	CUT VOLUME 0	CUT VOLUME 6	CUT VOLUME 98
AREA FILL 0	AREA FILL 0	AREA FILL 0	FILL VOLUME 89	FILL VOLUME 17	FILL VOLUME 0

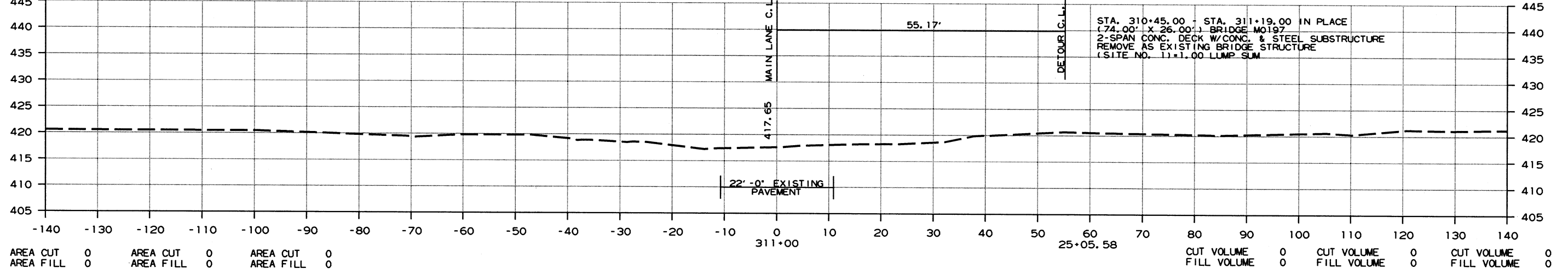
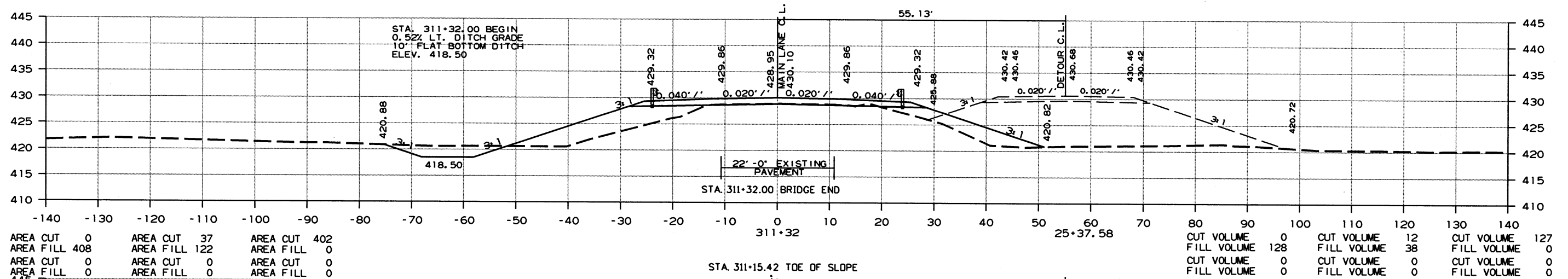
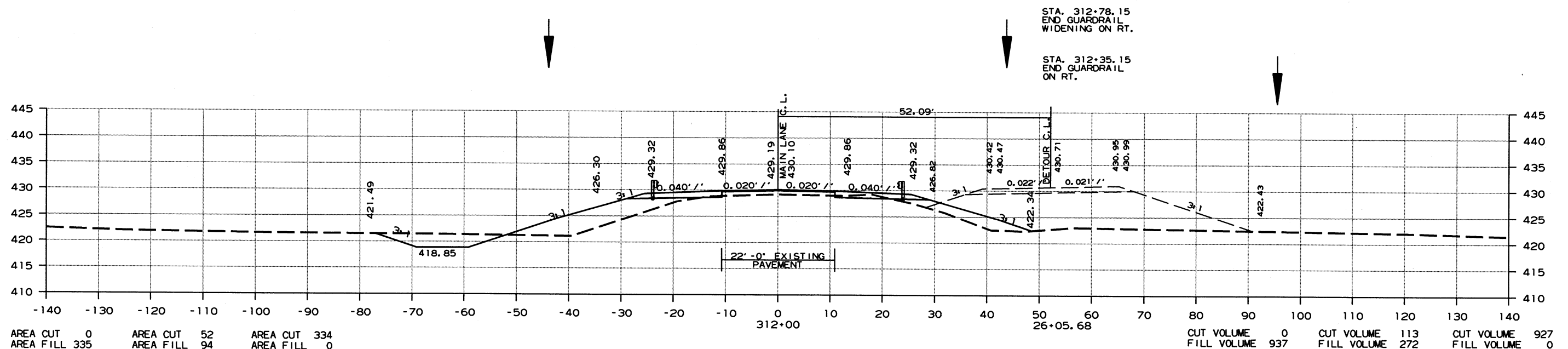


10/26/2017
R080506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		47	49
JOB NO. 080506								

② CROSS SECTIONS

STAGE 1 AREA STAGE 2 STAGE 3 STAGE 1 VOLUME STAGE 2 STAGE 3



CROSS SECTION STA. 311+00 TO STA. 312+00

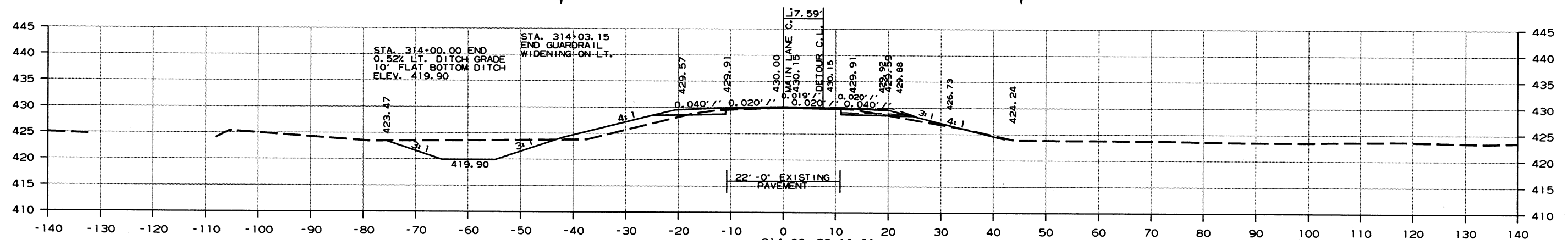
10/26/2017
R080506.DGN

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. 080506	48	49

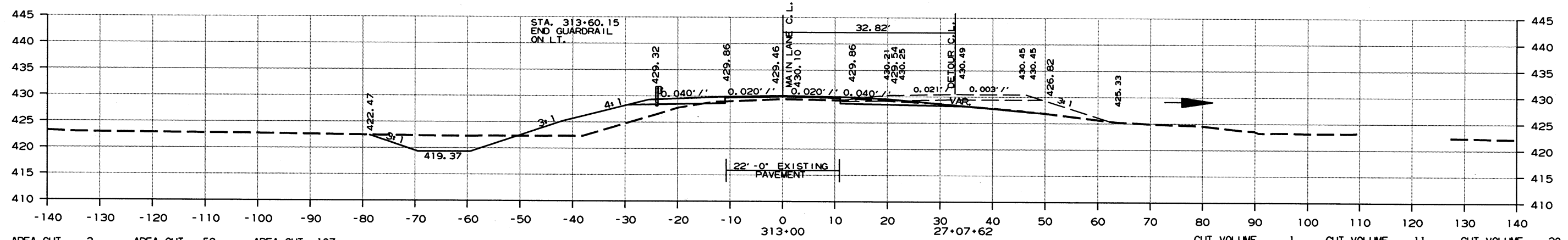
2 CROSS SECTIONS

STAGE 1 AREA STAGE 2 STAGE 3

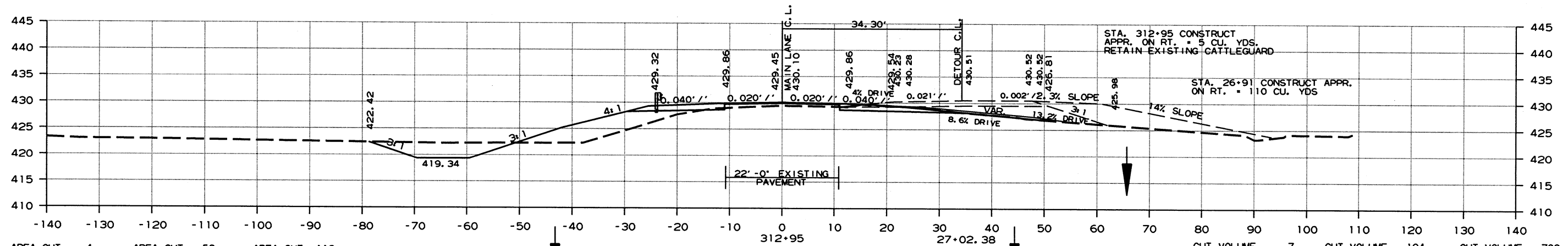
STAGE 1 VOLUME STAGE 2 STAGE 3



AREA CUT	3	AREA CUT	82	AREA CUT	18	CUT VOLUME	11	CUT VOLUME	259	CUT VOLUME	233
AREA FILL	7	AREA FILL	30	AREA FILL	1	FILL VOLUME	130	FILL VOLUME	200	FILL VOLUME	4



AREA CUT	2	AREA CUT	58	AREA CUT	107	CUT VOLUME	1	CUT VOLUME	11	CUT VOLUME	20
AREA FILL	62	AREA FILL	78	AREA FILL	0	FILL VOLUME	12	FILL VOLUME	15	FILL VOLUME	0



AREA CUT	4	AREA CUT	58	AREA CUT	113	CUT VOLUME	7	CUT VOLUME	194	CUT VOLUME	788
AREA FILL	63	AREA FILL	82	AREA FILL	0	FILL VOLUME	700	FILL VOLUME	310	FILL VOLUME	0

CROSS SECTION STA. 312+95 TO STA. 314+00

10/26/2017

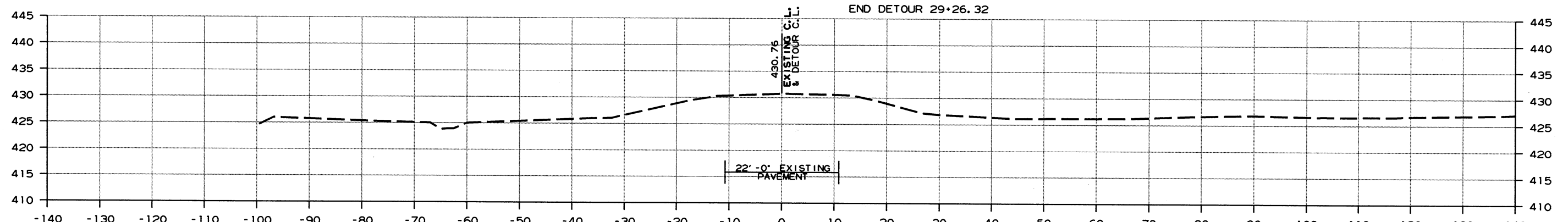
R080506.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						080506	49	49

② CROSS SECTIONS

STAGE 1 AREA STAGE 2 STAGE 3

STAGE 1 VOLUME STAGE 2 STAGE 3

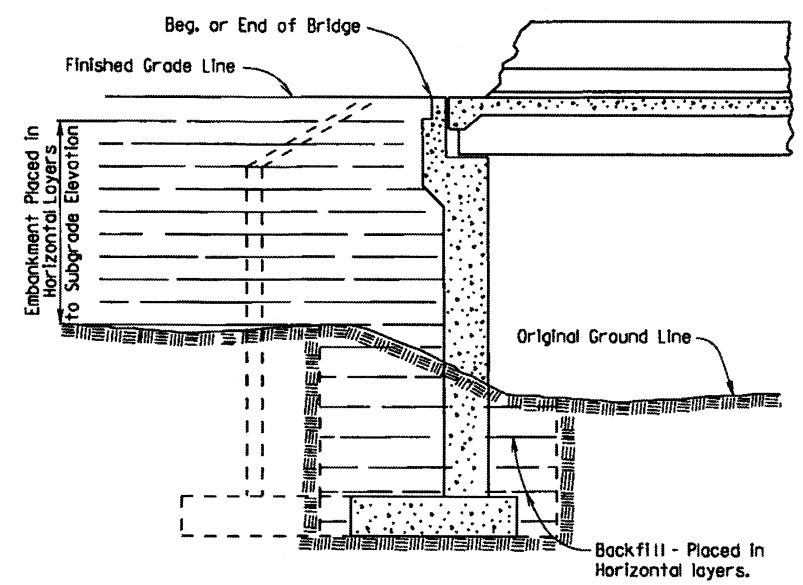


AREA CUT	0	AREA CUT	0	AREA CUT	0	CUT VOLUME	7	CUT VOLUME	152	CUT VOLUME	33
AREA FILL	0	AREA FILL	0	AREA FILL	0	FILL VOLUME	15	FILL VOLUME	56	FILL VOLUME	4

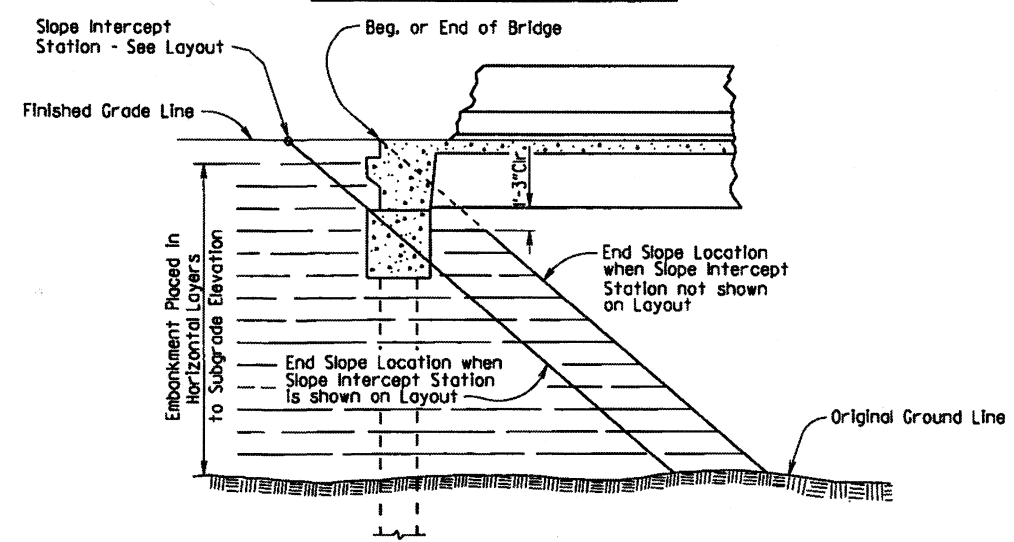
CROSS SECTION STA. 315+00 TO STA. 317+00

10/26/2017 ZBORNER.CEL

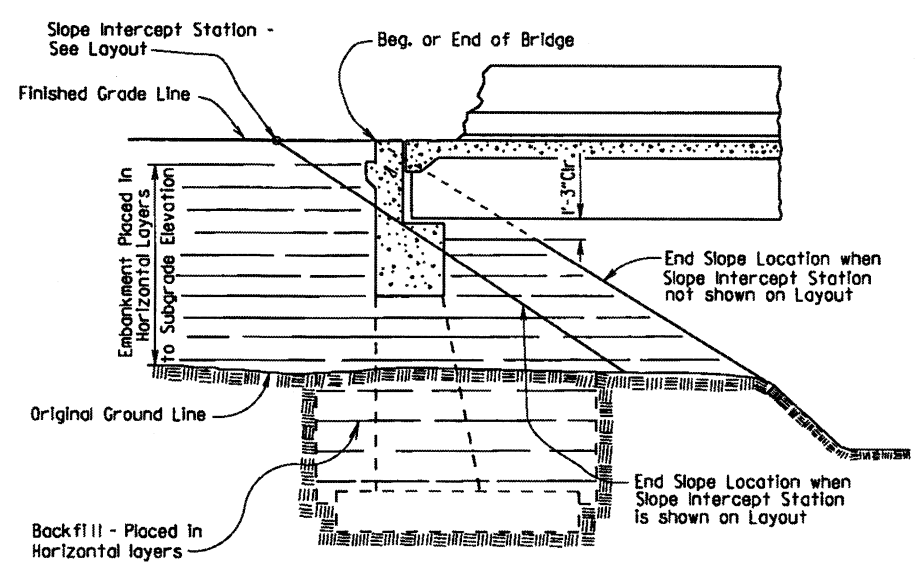
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.								
① EMBANKMENT & BACKFILL								55000



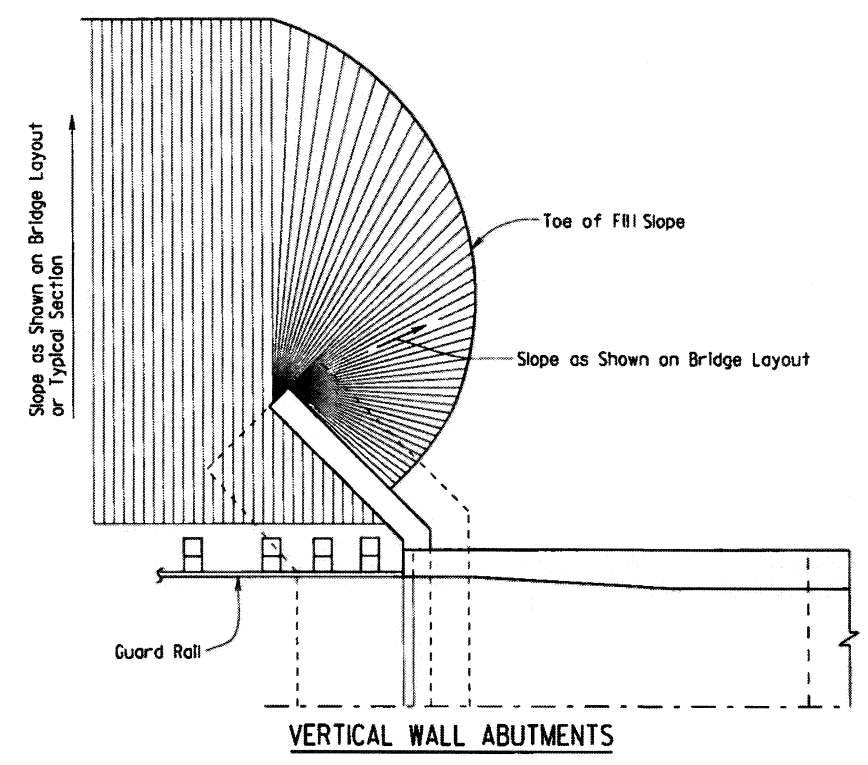
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



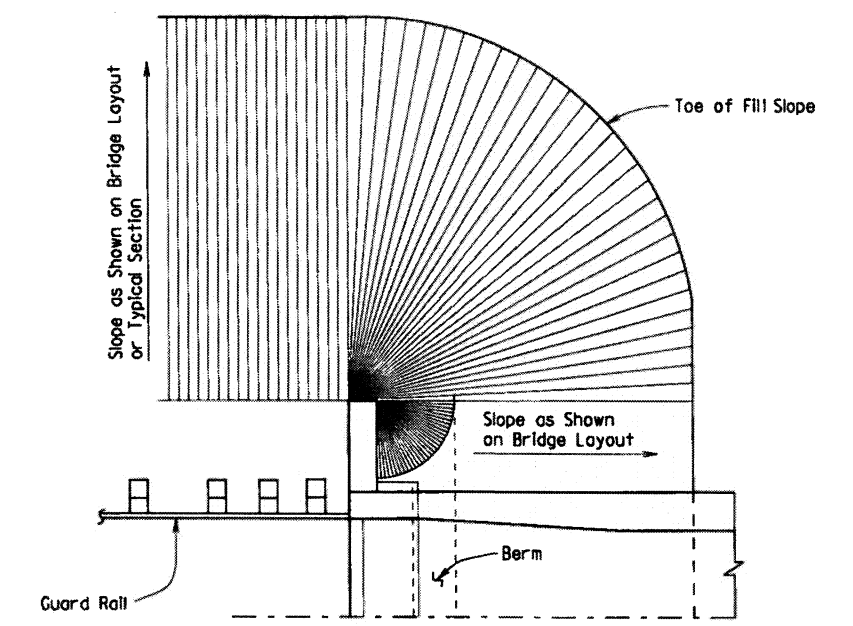
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



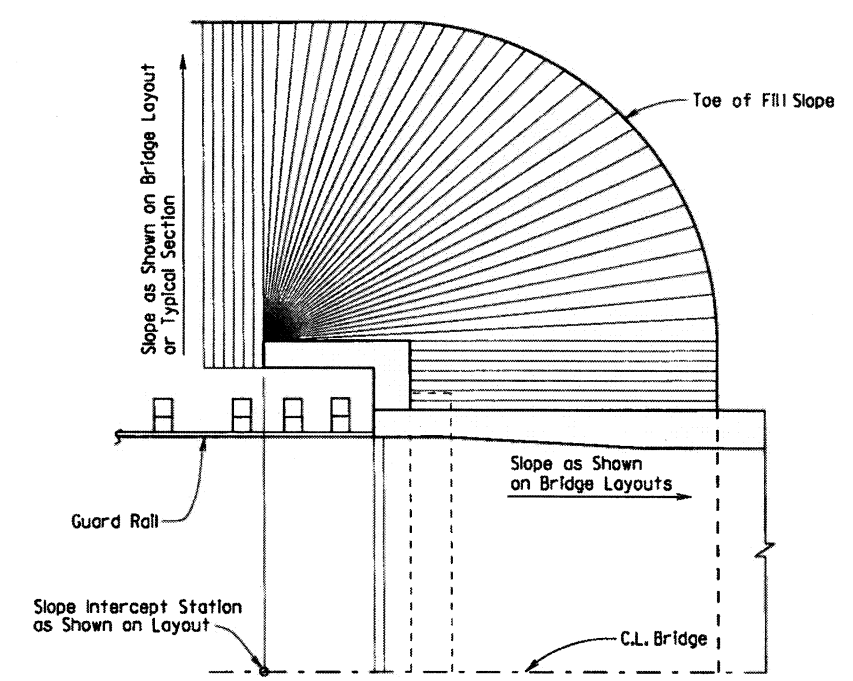
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



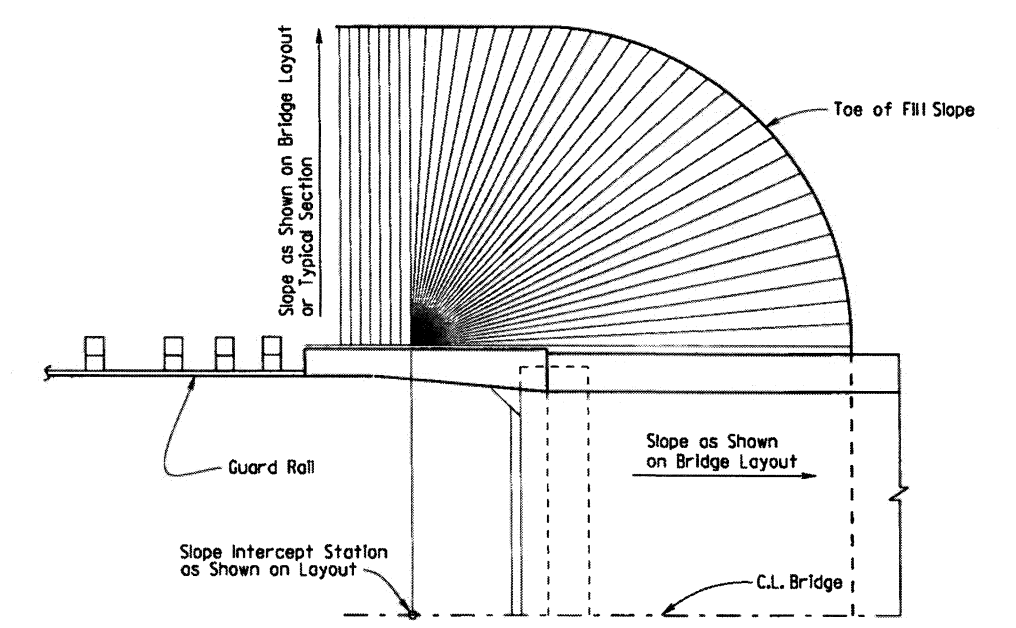
VERTICAL WALL ABUTMENTS



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

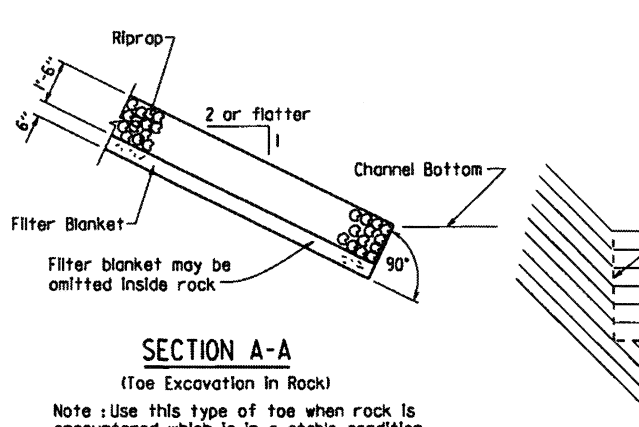
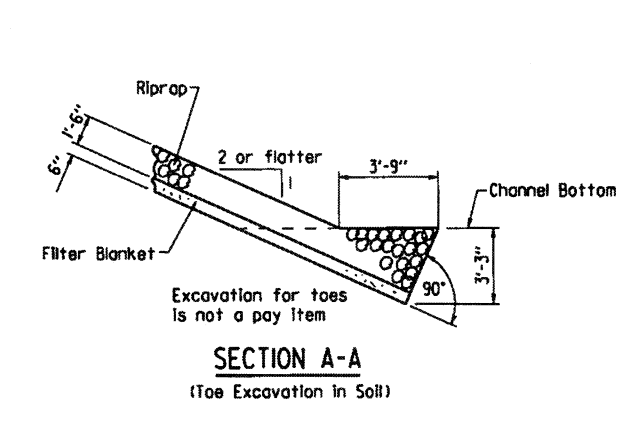
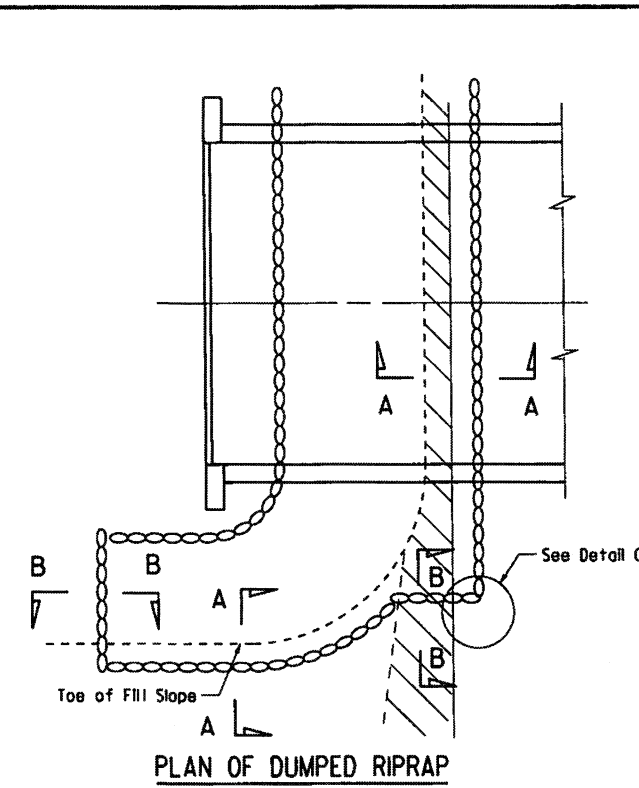
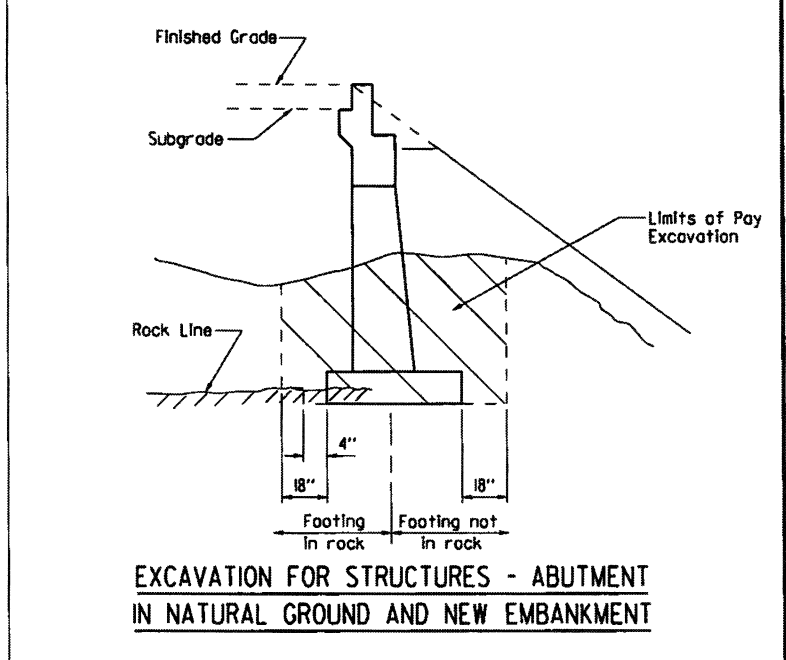
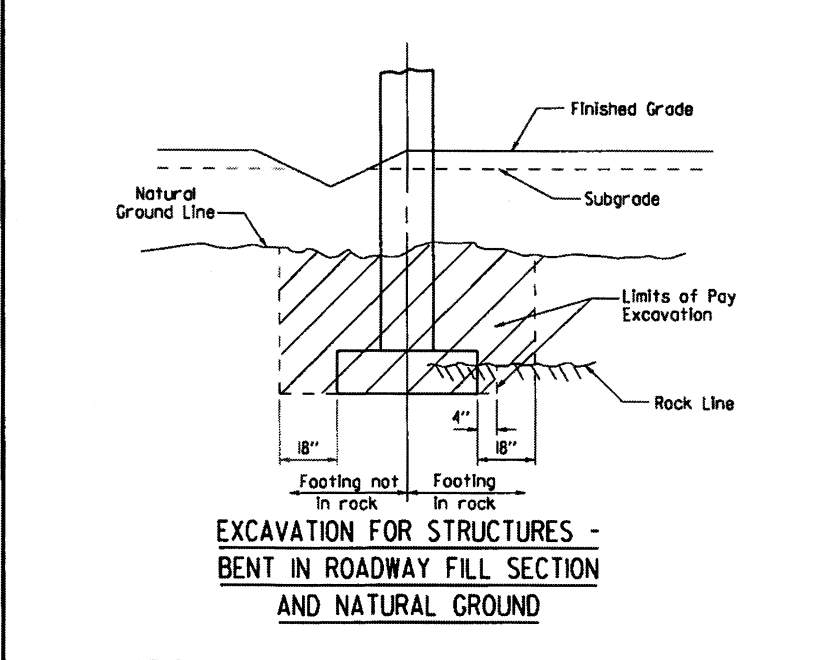
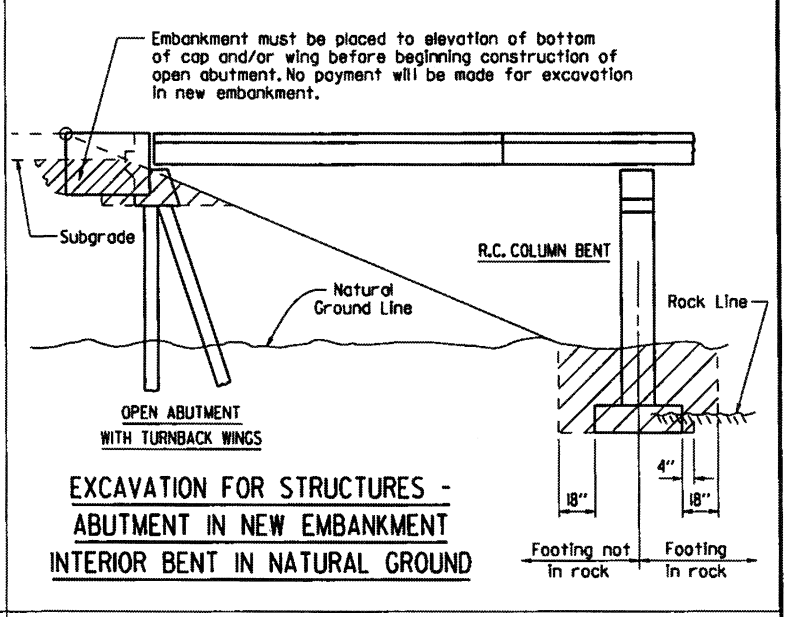
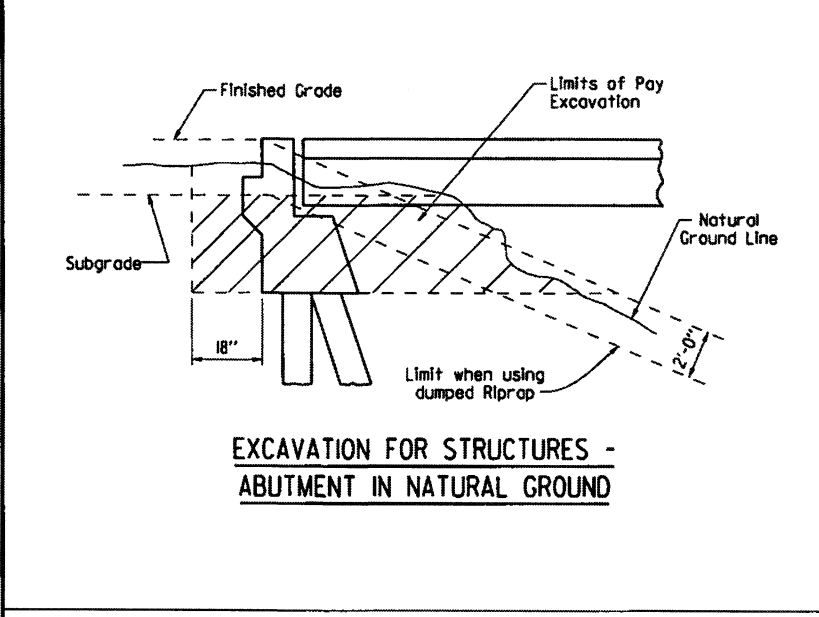
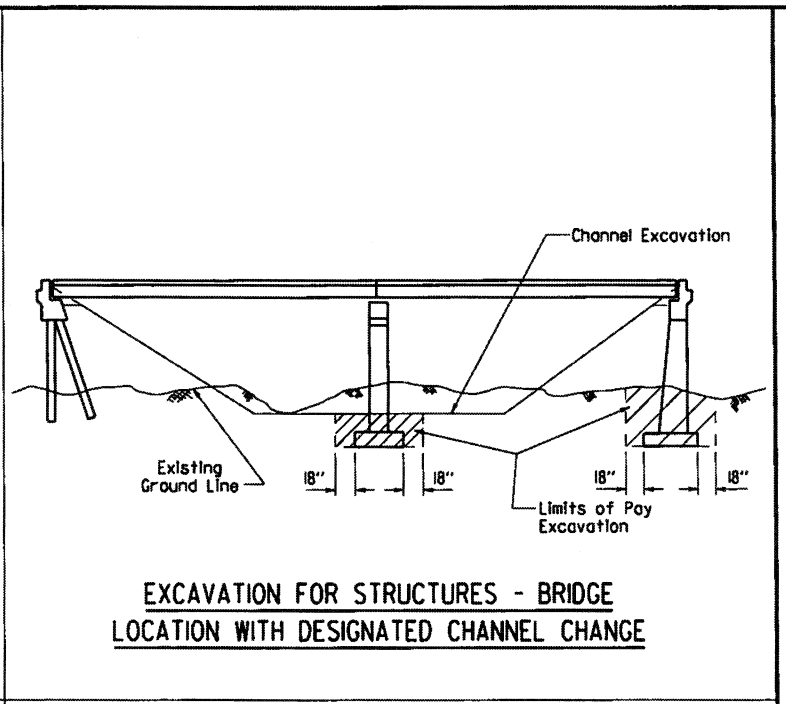
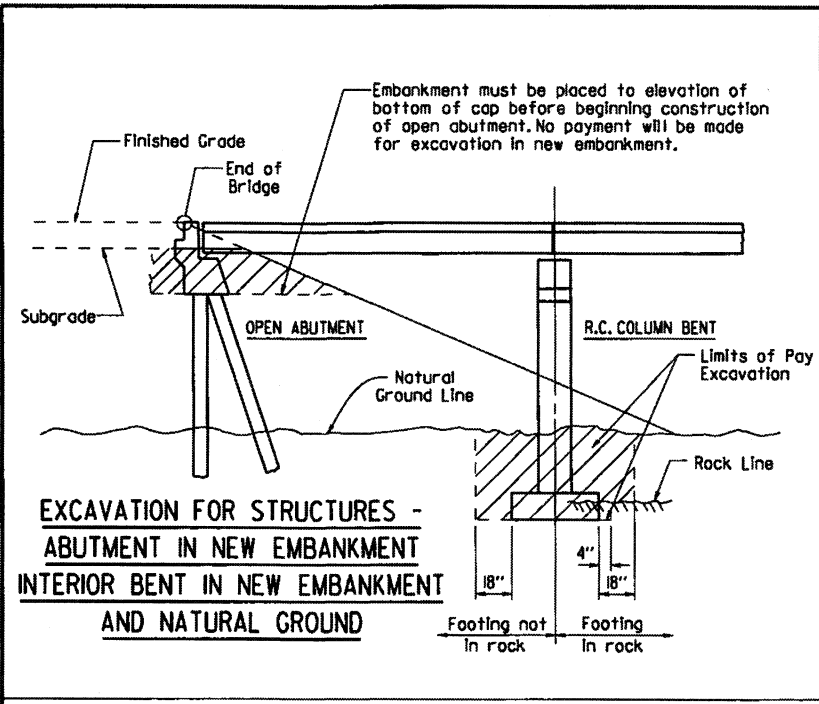
GENERAL NOTES

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.							RIPRAP & EXCAV. 55001	

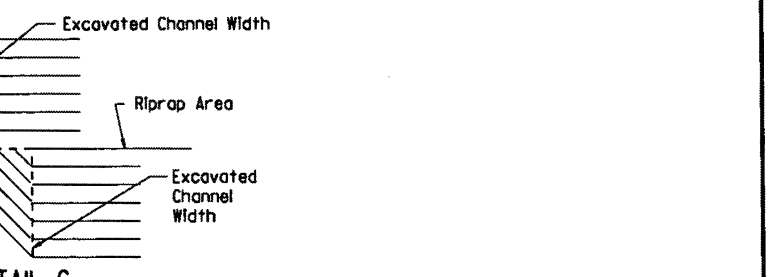
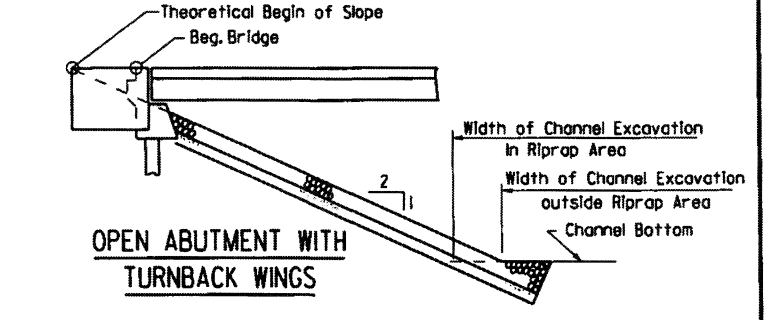
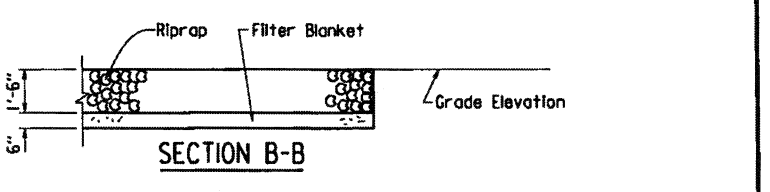
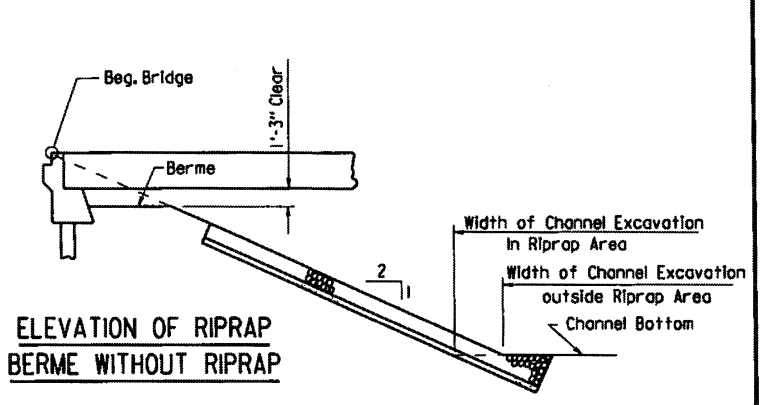
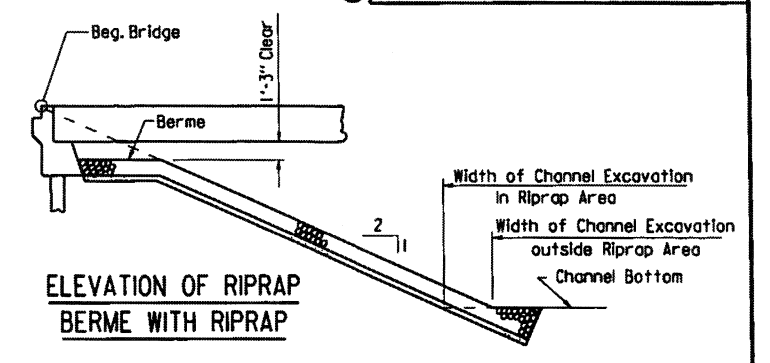


DETAIL C

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

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

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



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

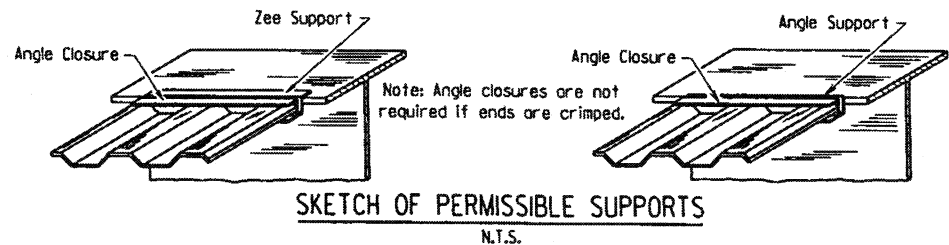
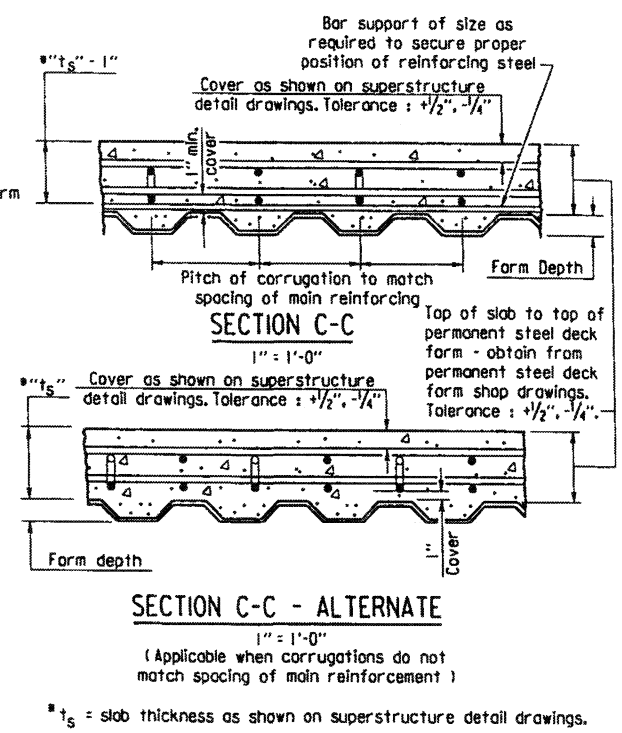
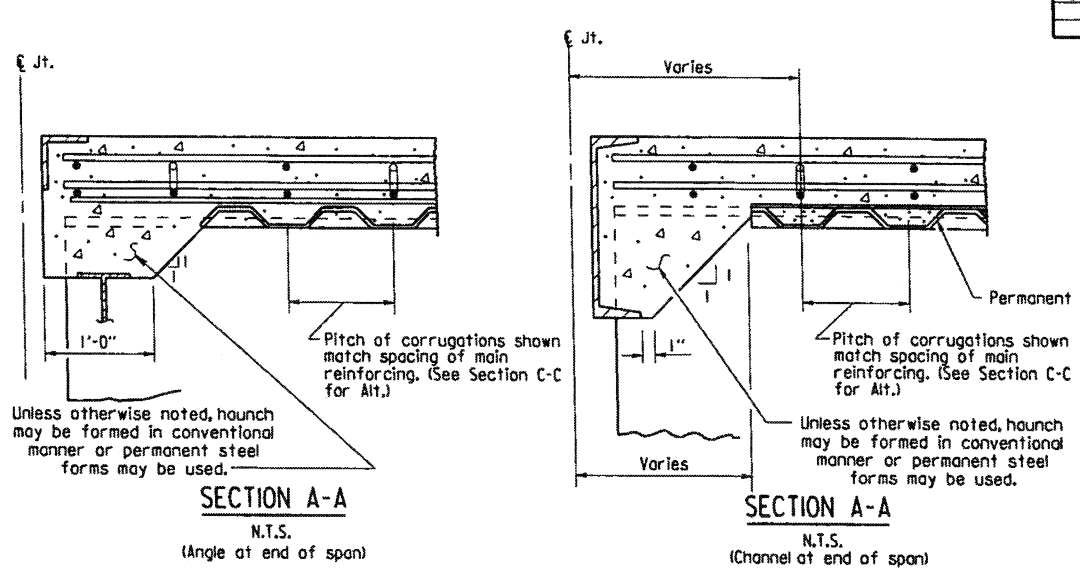
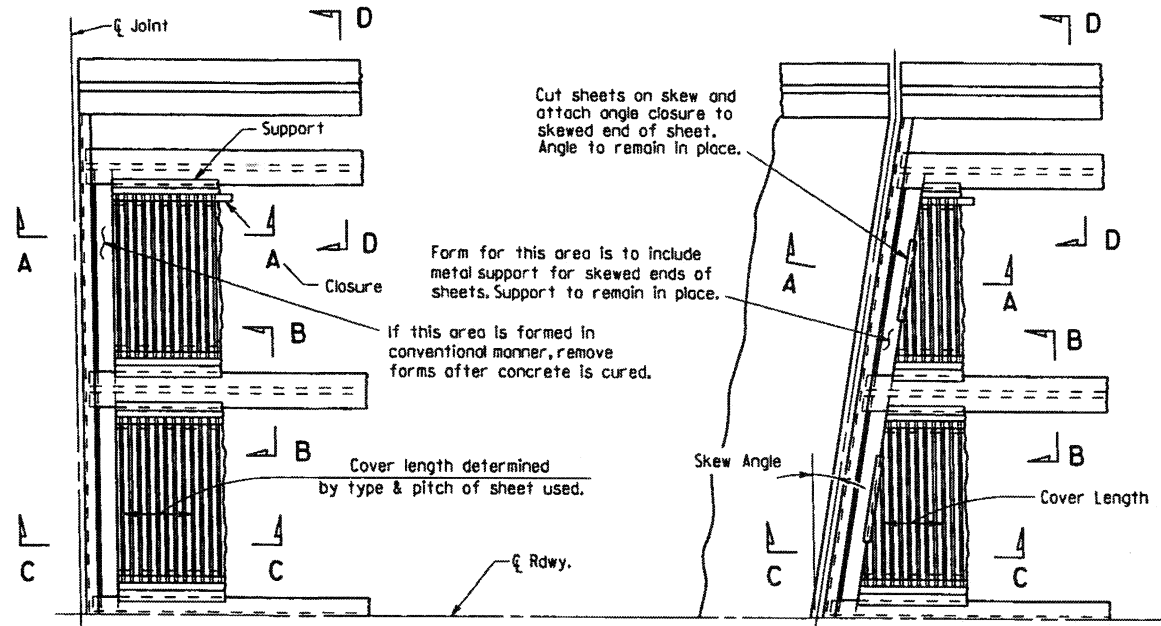
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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



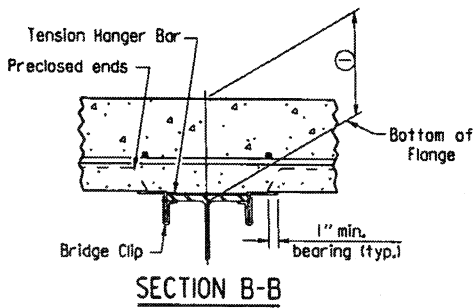
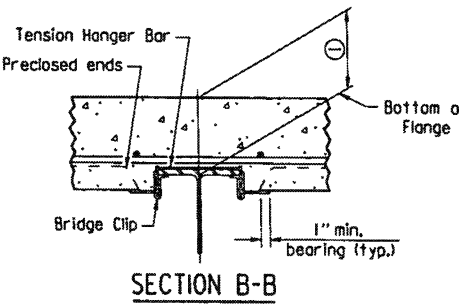
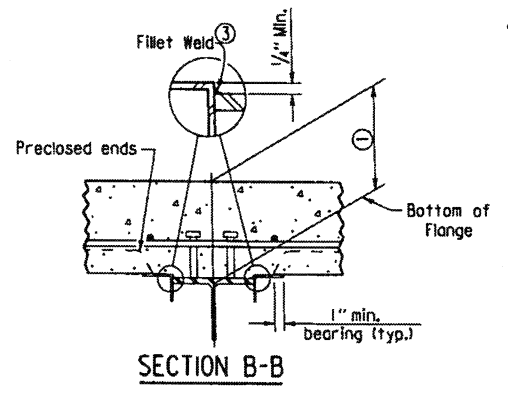
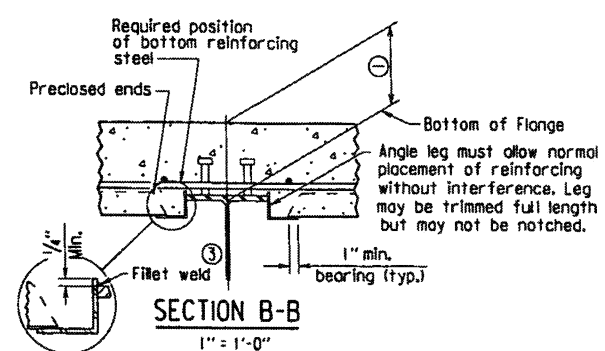
PART PLAN - SQUARE SPAN
3/8" = 1'-0"

PART PLAN - SKEWED SPAN
3/8" = 1'-0"

SECTION A-A
N.T.S.
(Angle at end of span)

SECTION A-A
N.T.S.
(Channel at end of span)

SECTION C-C - ALTERNATE
1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



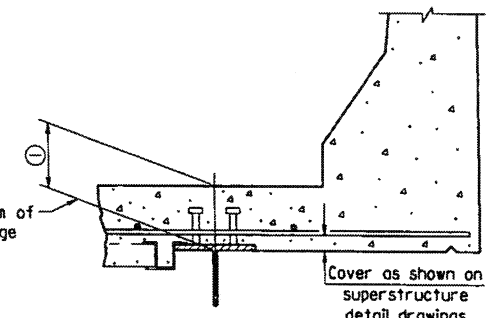
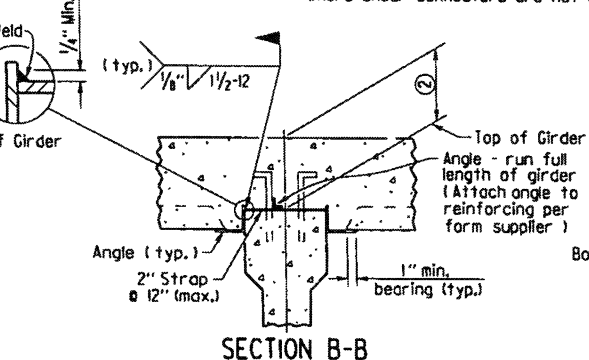
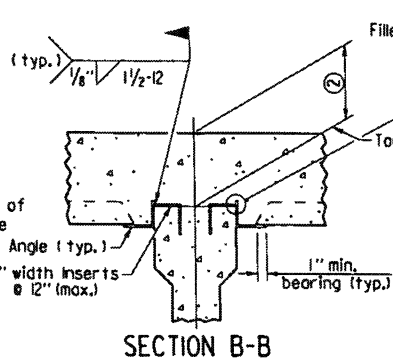
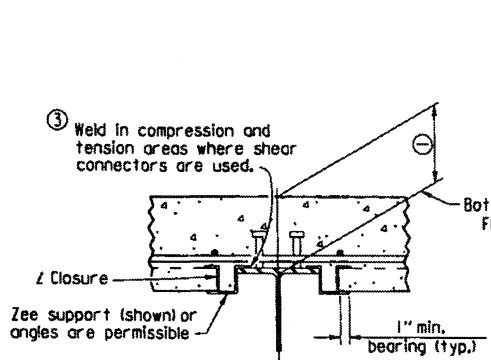
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)

(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)

(Showing permissible support for tension flange where shear connectors are not used)

(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B
1" = 1'-0"
(Showing Z Closure)

SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by insert cast in girder)

SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by Strap)

SECTION D-D
1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = $t_s + 1 1/4"$ + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

Revised weld dimension by KWH, Ck'd by BEF, 3/24/16.

GENERAL NOTES

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

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

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.	
							GENERAL NOTES	55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

See Plan Details for Grades of Structural Steel required.

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

Unless otherwise noted, field connections shall be bolted with 3/4" ø high-strength bolts using 1/2" ø open holes. Holes for 3/4" ø high-strength bolts may be 5/8" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal concrete for footings shall have a minimum 28 day compressive strength f'c = 2,400 psi.

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

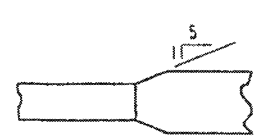
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
 CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
 DESIGNED BY: STD. DATE:

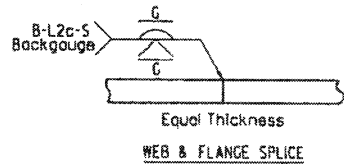
DRAWING NO. 55006

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

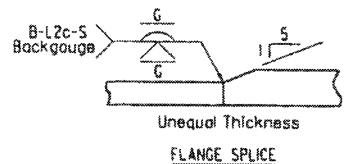


Plan-Unequal Width (Fig.)
FLANGE SPLICE

FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

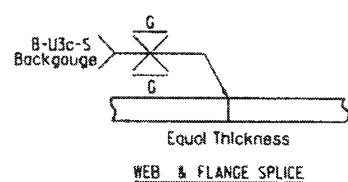


Equal Thickness
WEB & FLANGE SPLICE

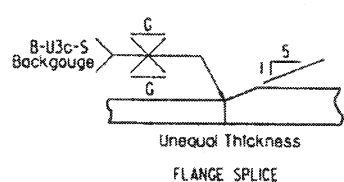


Unequal Thickness
FLANGE SPLICE

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



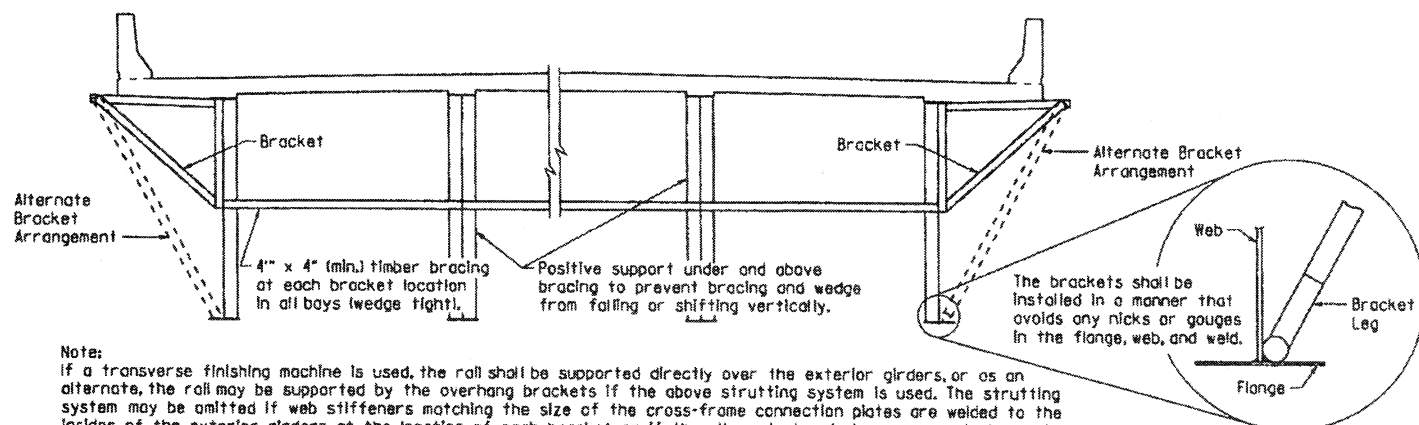
Equal Thickness
WEB & FLANGE SPLICE



Unequal Thickness
FLANGE SPLICE

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

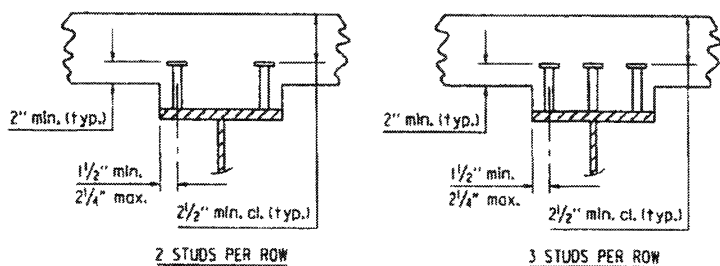
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



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

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)

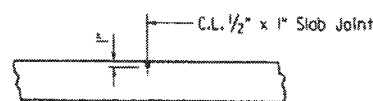


2 STUDS PER ROW

3 STUDS PER ROW

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

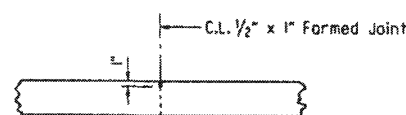
SHEAR CONNECTOR DETAIL



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

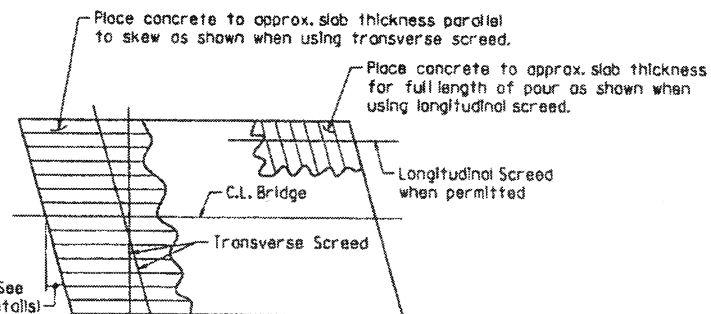
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED: Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

TRANSVERSE SLAB JOINT DETAIL



Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

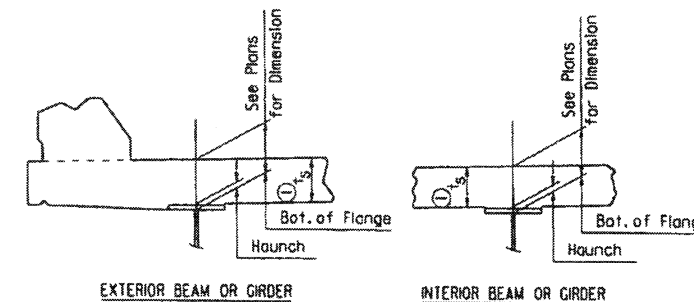
LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW

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



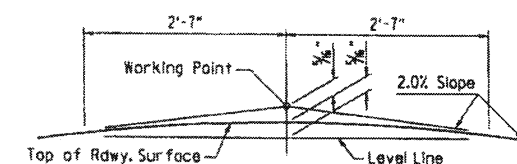
Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	Must Be Used
Over 3/4"	5/8"	

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

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

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

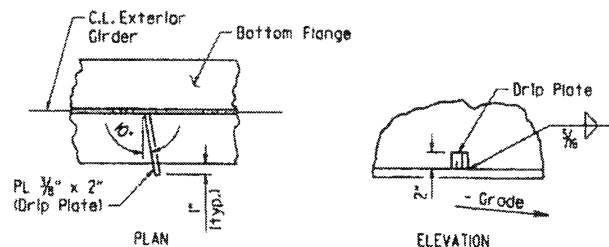
STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn
 CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale
 DESIGNED BY: STD. DATE: —

DRAWING NO. 55007



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

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

BOTTOM FLANGE DRIP PLATE

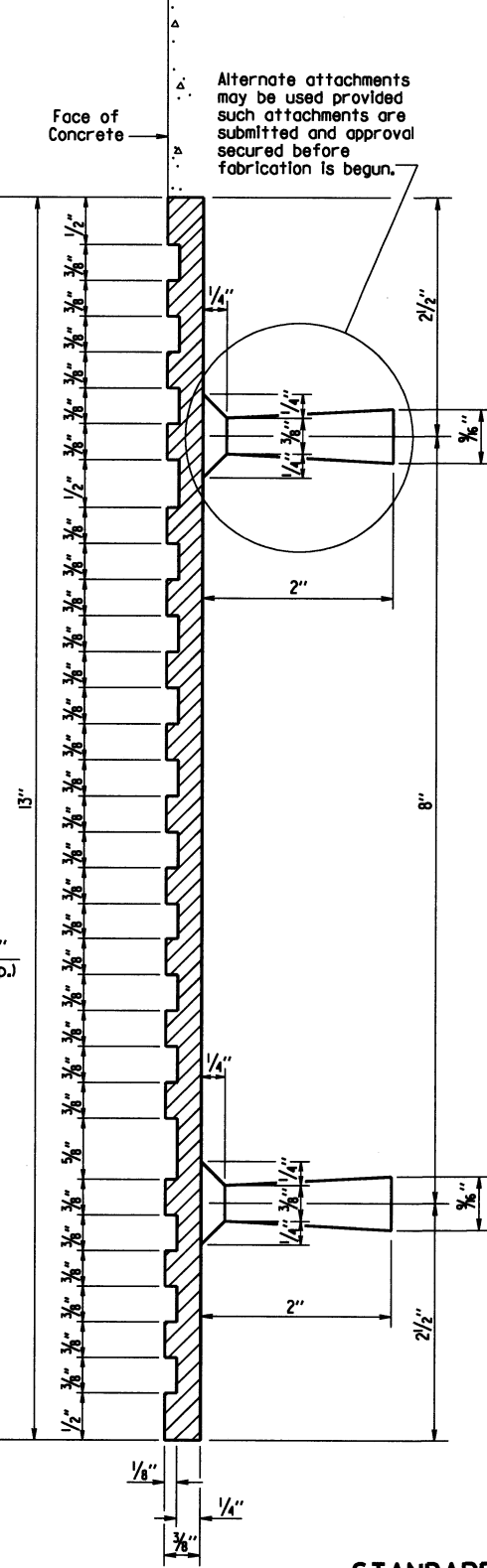
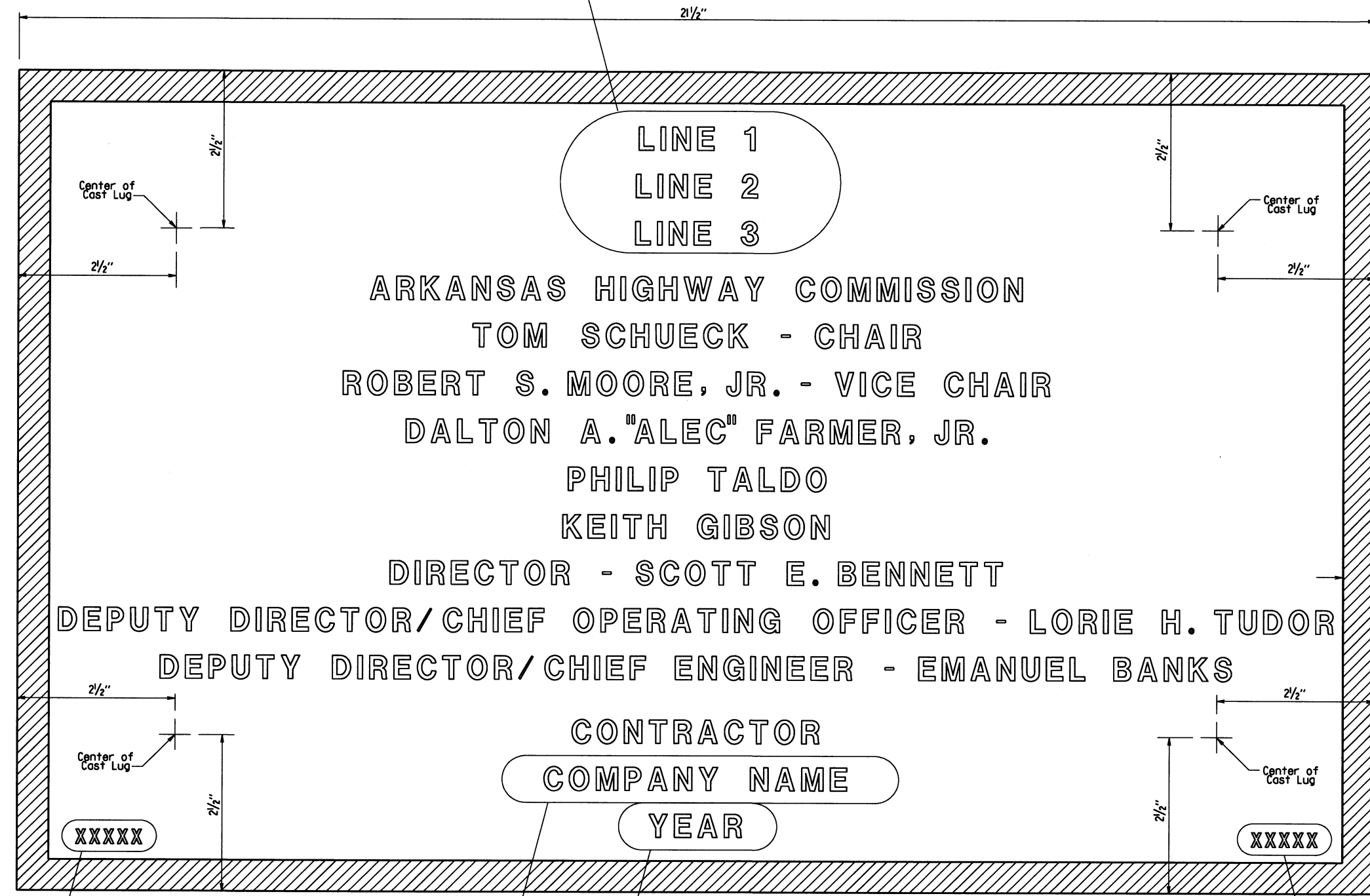
(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND LWT OR SPAN IS NOT IN LEVEL GRADE)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14		1-15-19		6	ARK.			
1-14-15				JOB NO.				
1-17-17								

① TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	Highway 5
Line 2	Relief	Railroad	River	
Line 3		Overpass	Relief	



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 1/4" thick and shall include four tapering cone lugs 3/8" to 1/4" x 2" long. The border and all lettering shall be raised 1/8" 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.

- ▲ Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE
- ▲ Added New Commissioner
1-17-17 KDH Checked By: CRE
- ▲ Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE
- ▲ Revised Deputy Director/Chief Engineer Added Deputy Director/Chief Operating Officer
12-1-14 KDH Checked By: CRE

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples: HS 20 HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example: 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples: A1234 05432

TYPICAL BRIDGE NAME PLATE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

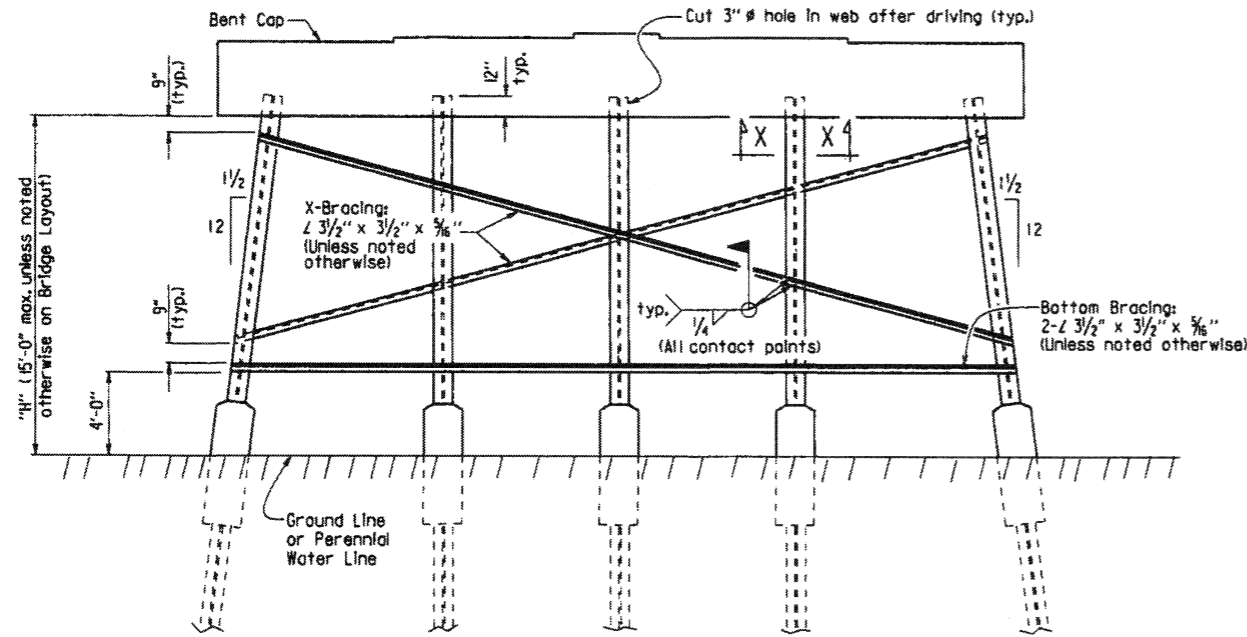
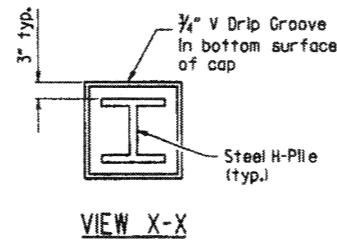
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

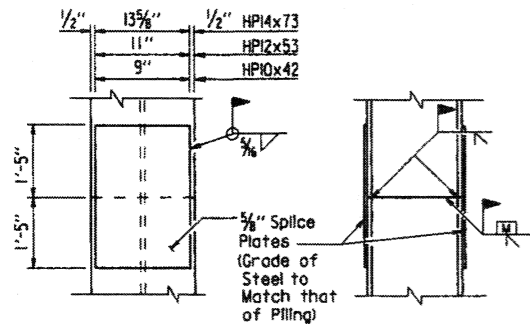
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.
 See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.
 Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.
 Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



Notes:
 All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.
 Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.
 Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.
 When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.
 Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

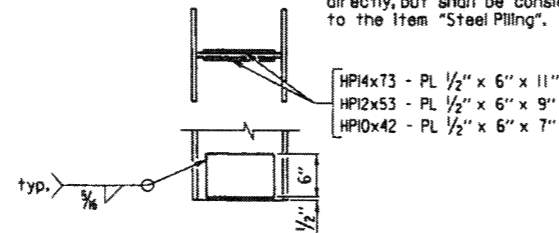
TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT
 (Shown with Partial Height Encasement)



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

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/8 inch fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

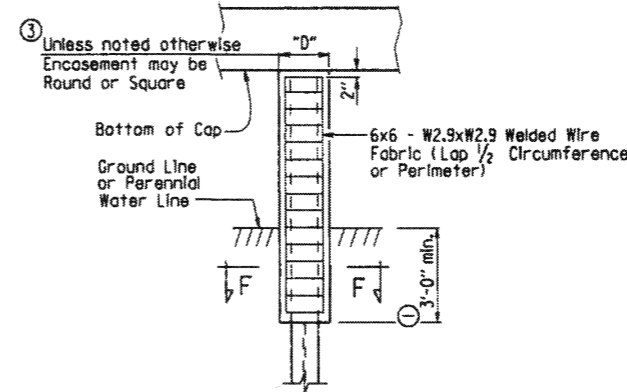
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

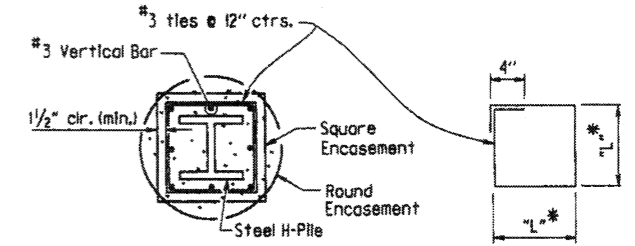
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

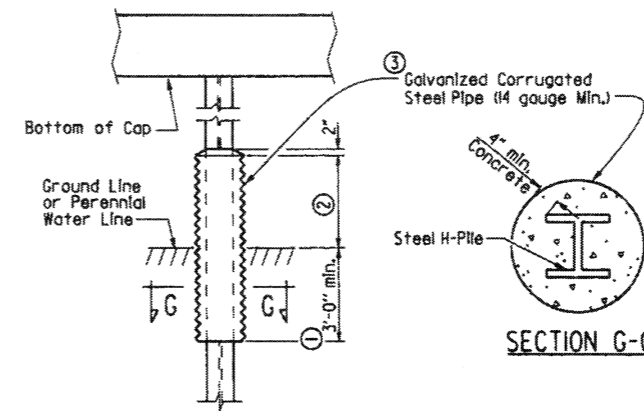


SECTION F-F

* Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

- Unless otherwise noted on Bridge Layout.
- 3'-0" minimum or as shown on Bridge Layout.
- Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 1/2" and a minimum clearance of 1/4" from the pile.
- Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

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



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

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

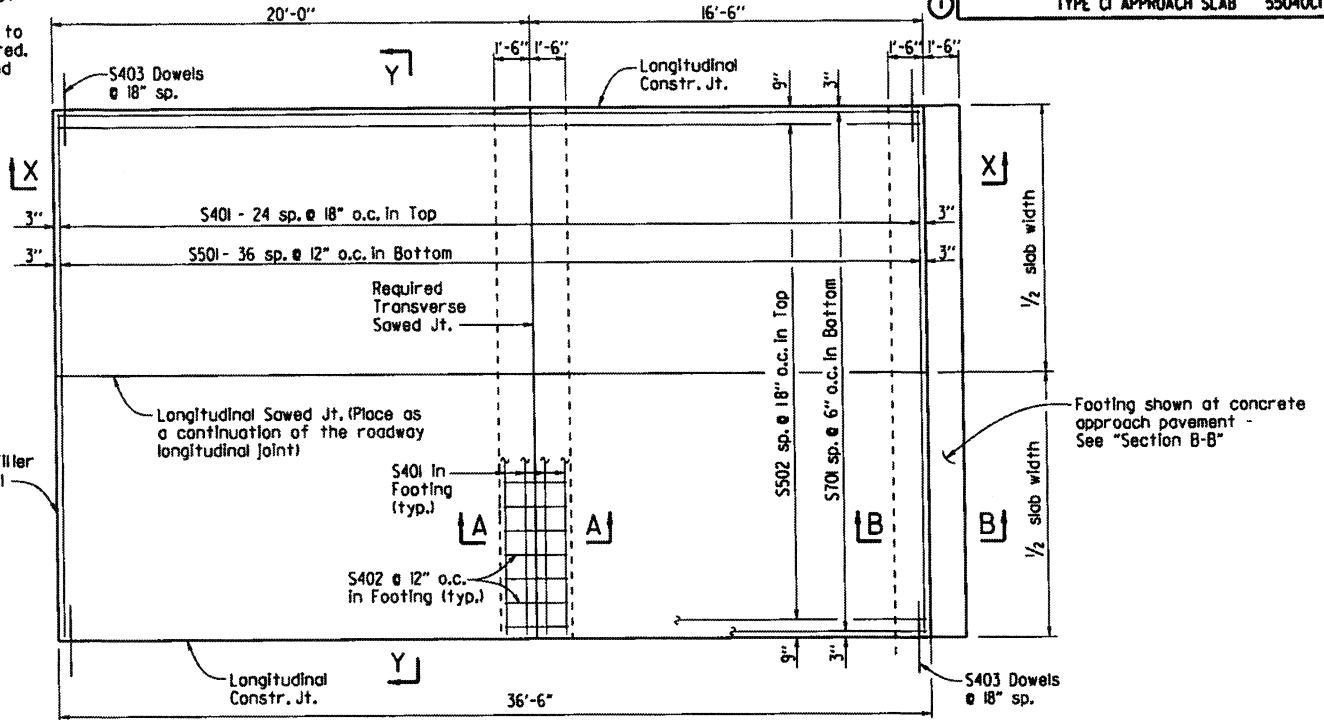
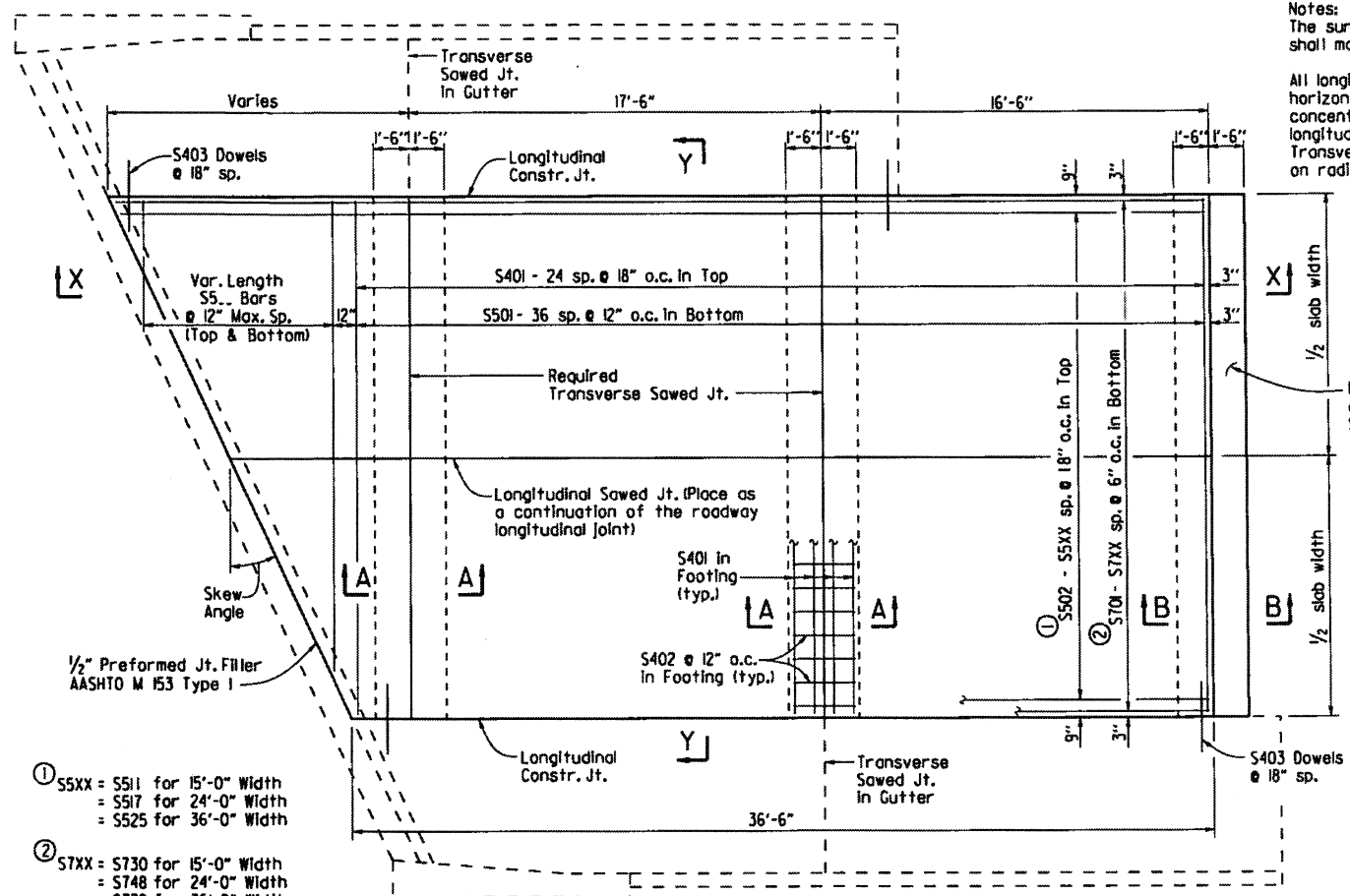
BRIDGE ENGINEER

DRAWING NO. 55020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				8	ARK.			
							1	STEEL H-PILES 55020

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.							TYPE CI APPROACH SLAB 55040CI	

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



- ① SSXX = SS11 for 15'-0" Width
= SS17 for 24'-0" Width
= SS25 for 36'-0" Width
- ② STXX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

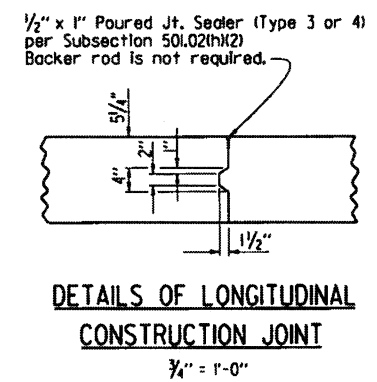
PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS
1/4" = 1'-0"

PLAN - SQUARE APPROACH SLAB
1/4" = 1'-0"

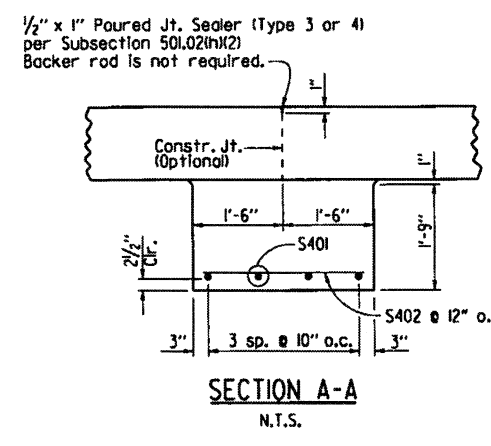
BAR LIST
(Square & Skewed Approach Slabs)

Slab Width	Square				Skewed			
	Mark	No. Req'd.	Length	No. Req'd.	Length			
15'-0"	S401	33	14'-8"	37	14'-8"			
	S402	30	2'-8"	45	2'-8"			
	S403	50	3'-0"	*	3'-0"			
	S501	37	14'-8"	37	14'-8"			
	S502	10	36'-2"					
	S502 - S511				1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)		
	S5...				2 Ea.	14.7' - 0.75' / (tan skew angle) to 2'-0" Min.		
24'-0"	S701	30	36'-2"					
	S701 - S730				1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)		
	S401	33	23'-8"	37	23'-8"			
	S402	48	2'-8"	72	2'-8"			
	S403	50	3'-0"	*	3'-0"			
	S501	37	23'-8"	37	23'-8"			
	S502	16	36'-2"					
36'-0"	S502 - S517				1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)		
	S5...				2 Ea.	23.7' - 0.75' / (tan skew angle) to 2'-0" Min.		
	S701	48	36'-2"					
	S701 - S748				1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)		
	S401	33	35'-8"	37	35'-8"			
	S402	72	2'-8"	108	2'-8"			
	S403	50	3'-0"	*	3'-0"			
36'-0"	S501	37	35'-8"	37	35'-8"			
	S502	24	36'-2"					
	S502 - S525				1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)		
	S5...				2 Ea.	35.7' - 0.75' / (tan skew angle) to 2'-0" Min.		
	S701	72	36'-2"					
S701 - S772				1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)			

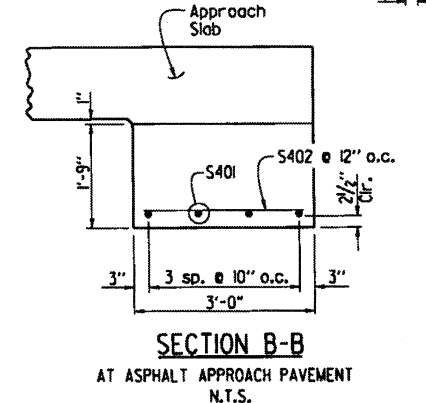
* Varies with skew angle



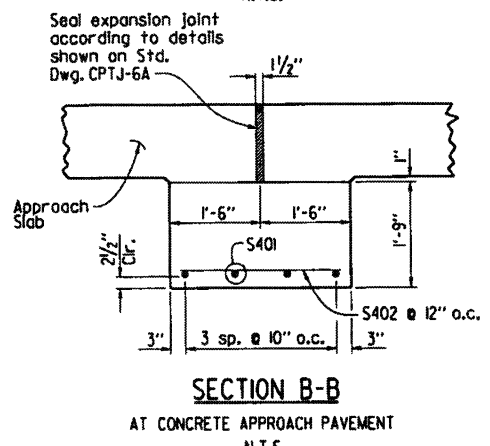
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
3/4" = 1'-0"



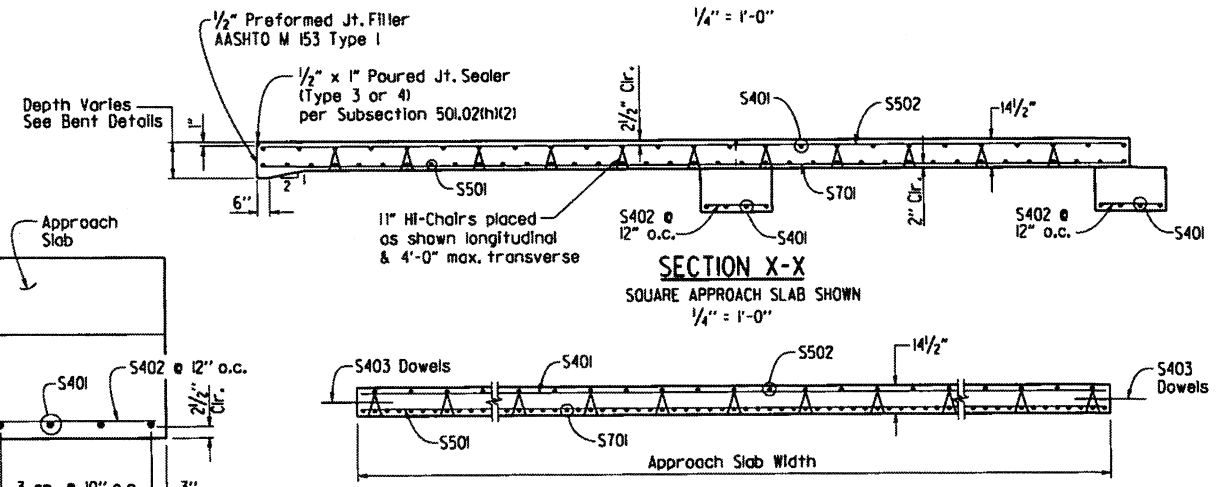
SECTION A-A
N.T.S.



SECTION B-B
AT ASPHALT APPROACH PAVEMENT
N.T.S.



SECTION B-B
AT CONCRETE APPROACH PAVEMENT
N.T.S.



SECTION X-X
SQUARE APPROACH SLAB SHOWN
1/4" = 1'-0"

SECTION Y-Y
N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB
(FOR INFORMATION ONLY)

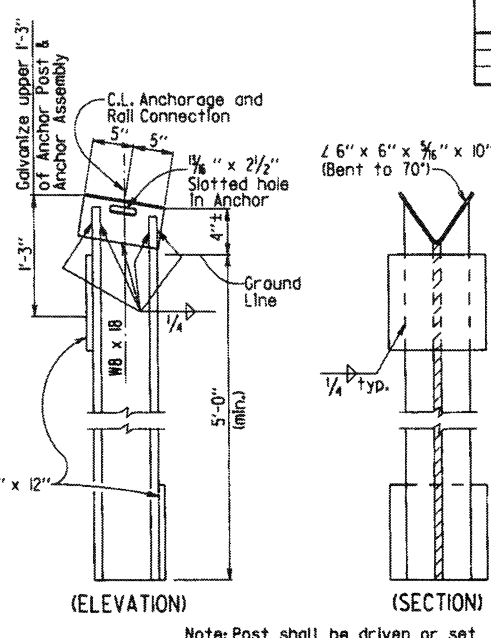
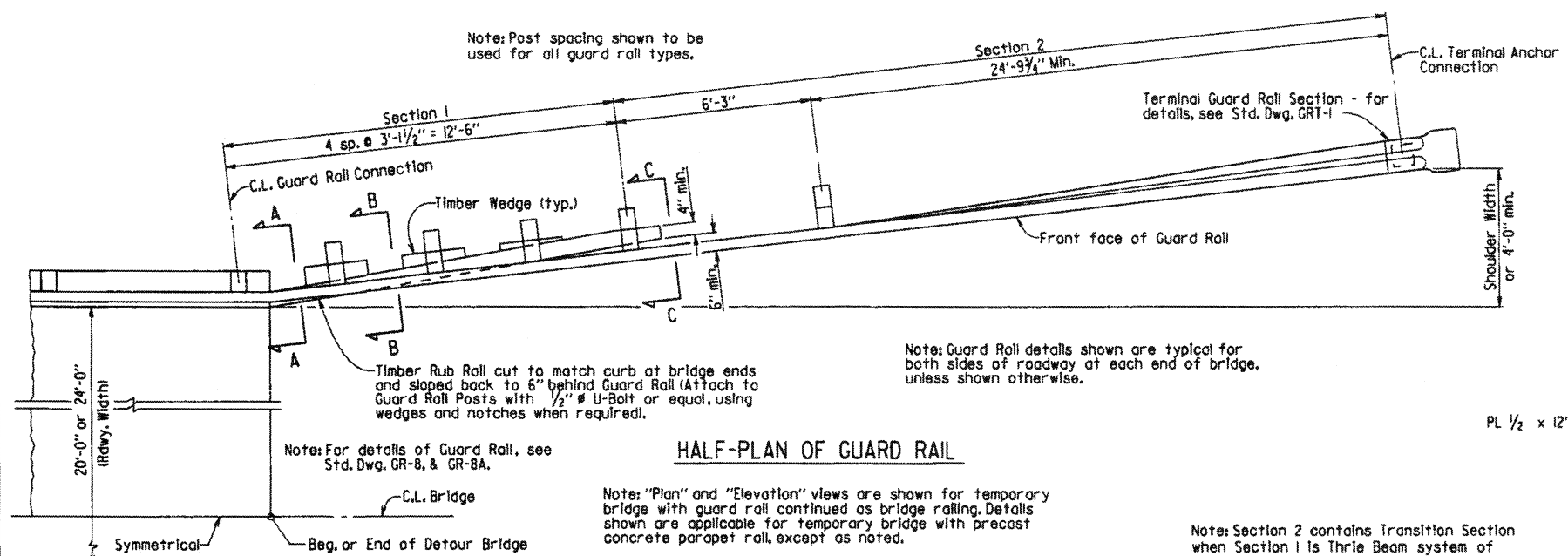
Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone I and for the maximum skew angles shown below:
15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°
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 CI APPROACH SLAB
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE: _____
DRAWING NO. 55040CI

DATE REVISION	DATE FILMED	DATE REVISION	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.							TEMP. BRIDGE	55054



GENERAL NOTES

Bridge End Protection is required on both sides of roadway at both ends of temporary bridge. The end protection system shall consist of a minimum of two end sections (Section 1 and Section 2). If additional guard rail is used, it shall be placed in Section 2 and shall have a maximum post spacing of 6'-3".

If W-Beam Guard Rail is also used as Bridge Rail, it shall be continuous from terminal anchor post to terminal anchor post with splices as shown on Std. Dwg. GR-8.

A doubled guard rail beam section (One W-Beam Rail section or one Thrie Beam Rail section nested inside the other) shall be required for Section 1 if the guard rail is not continued as bridge rail, but connects directly to a precast concrete parapet bridge rail end.

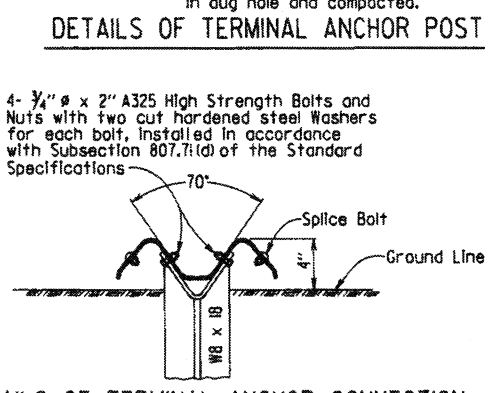
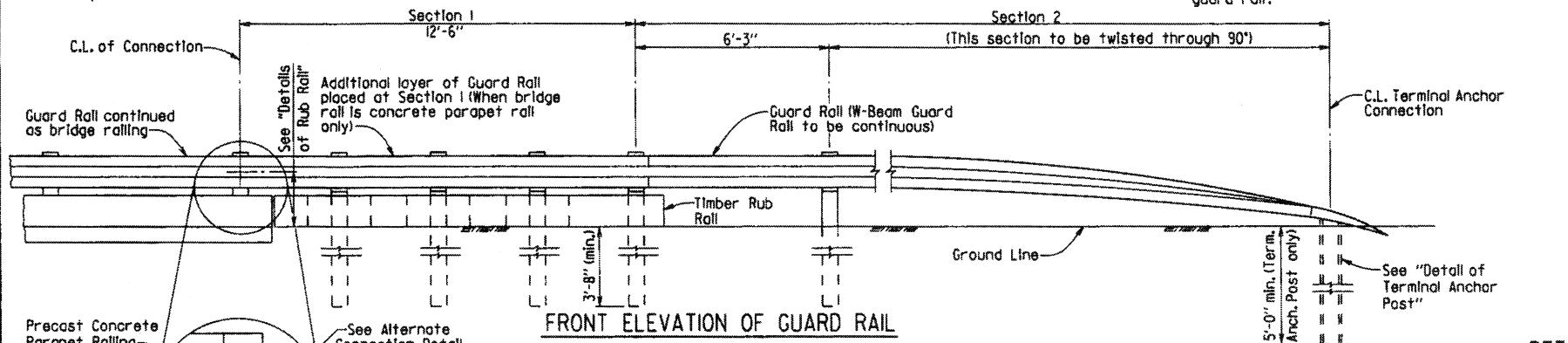
Rub rails shown in Section 1 are representative of members required to transition the curb or wheel guard section to a minimum distance behind the face of guard rail.

Timber rub rail, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

Except as noted, bolts shall conform to the requirements of ASTM A 307 and minimum dimensions as shown. Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. High strength bolts shall conform to Section 807.

Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blackouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.



Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

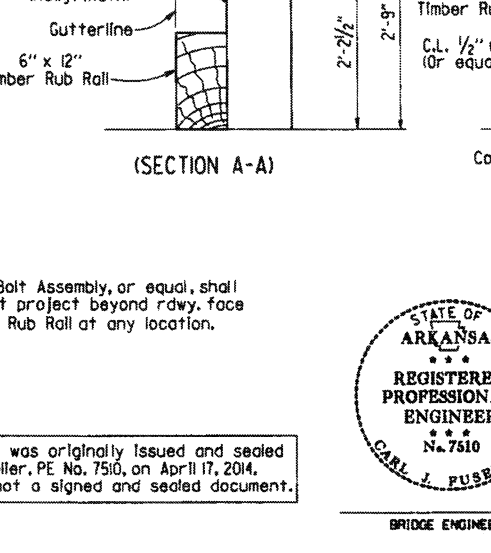
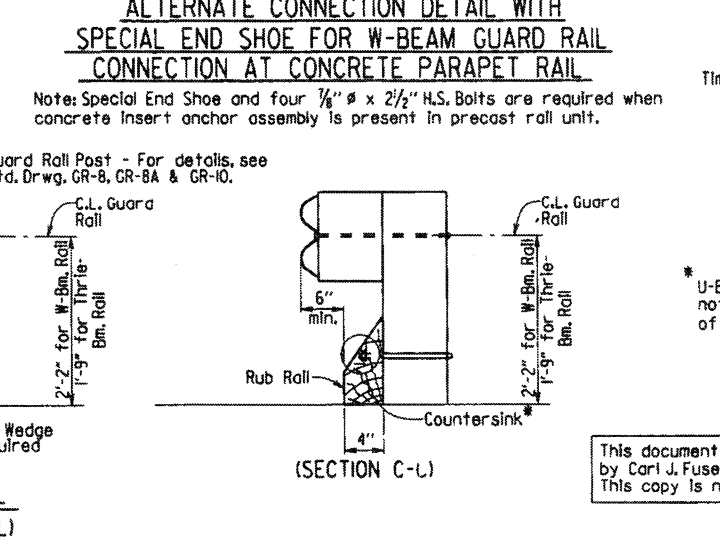
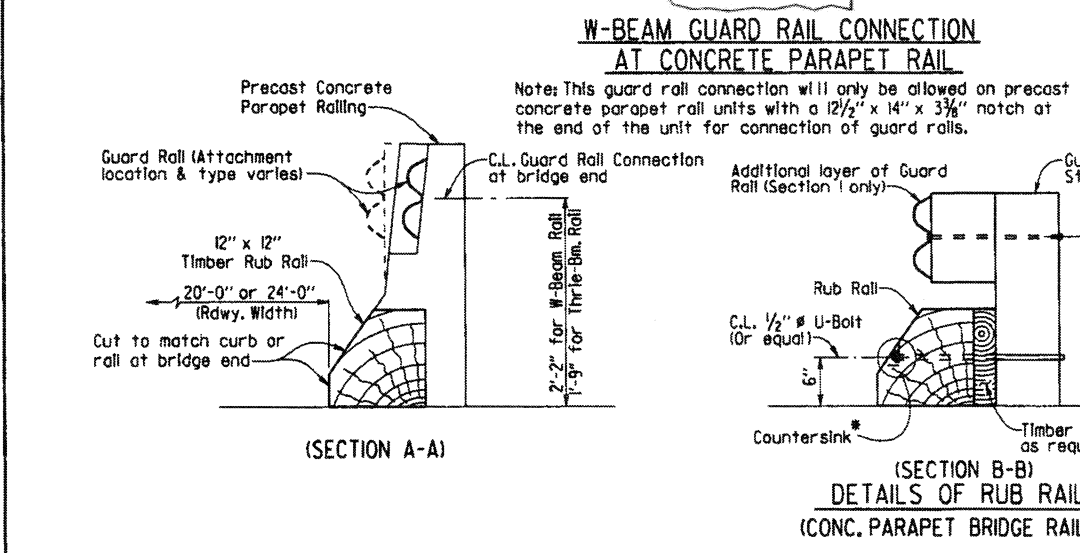
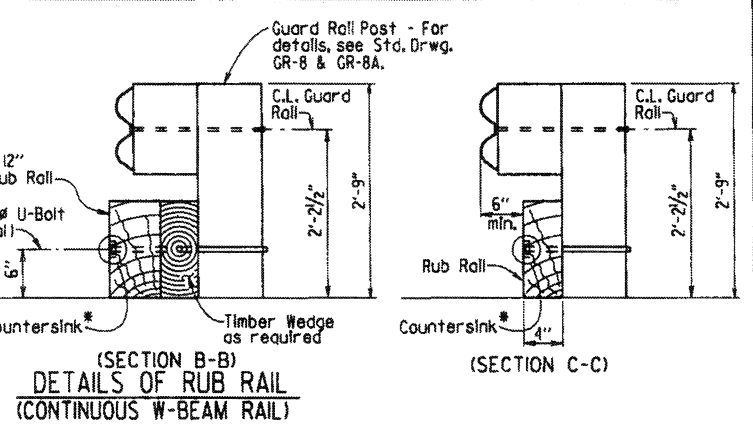
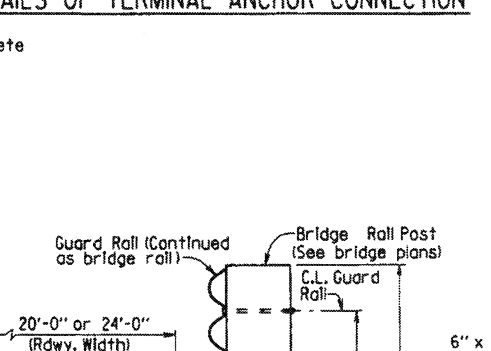
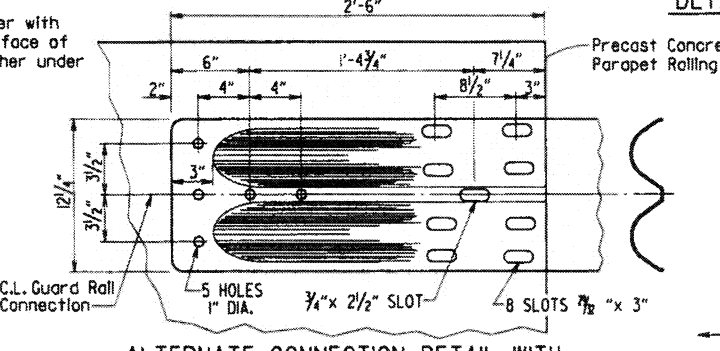
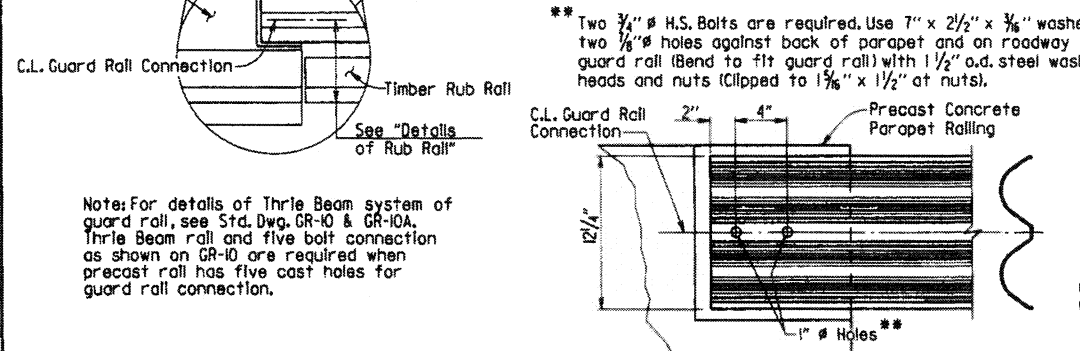
Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blackouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.

Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

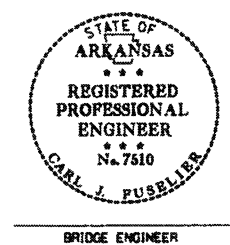
Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blackouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.

GUARD RAIL CONNECTION COMBINATIONS

BRIDGE RAIL TYPE	GUARD RAIL AND CONNECTION TYPE
Guard Rail continued as bridge railing	W-Beam Guard Rail. See Std. Dwg. GR-8 for splice details.
Concrete Parapet with 12 1/2" x 14" x 3 3/8" notch and two cast in holes	W-Beam Guard Rail fastened with two high-strength bolts as shown; blunt end on guard rail. Guard Rail doubled at Section 1.
Concrete Parapet with Concrete Insert Anchor assembly (4-Bolt embedded Anchor) flush with rail face	W-Beam Guard Rail fastened with four high-strength bolts; Special End Shoe. Guard Rail doubled at Section 1.
Concrete Parapet with 5 cast in holes	Thrie Beam Guard Rail; five high-strength through bolts with back-up plate; special end shoe as shown on Std. Dwg. GR-10. Guard Rail doubled at Section 1. Section 2 contains transitional rail and W-Beam Guard Rail.



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STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55054.dgn
CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
DESIGNED BY: STD. DATE: _____

BRIDGE ENGINEER

DRAWING NO. 55054

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							1	
							TEMP. BRIDGE	55055

GENERAL NOTES
 DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 2002 Edition, with current Interim specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable special provisions and supplemental specifications.

SEISMIC PERFORMANCE ZONE: I
 DESIGN LIVE LOADS: H 15-44 (No Overload).

DESIGN DEAD LOADS: 50 lbs. per cu. ft. for lumber
 150 lbs. per cu. ft. for concrete

Precast Concrete Units shall comply with the requirements of AHTD standard drawings and special provisions. Drawings for old style units are within the drawing series 5291 thru 5307 and 14800 thru 14899. New style units (Current Design) are within the drawing series 15190 thru 15400.

Load Factor Design is used for the new style precast concrete units. Allowable Stress Design is used for the old style precast concrete units and timber components. The allowable unit stresses used assume normal duration of loading for stress grades of sawn lumber and are as follows:
 $f_b = 2000 \text{ psi}$
 $f_v = 85 \text{ psi}$

Concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3500 \text{ psi}$ unless otherwise noted.

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

Structural Steel shall be AASHTO M 270, Grade 36 unless otherwise noted.

Timber piling shall comply with Section 818 of the Standard Specifications and shall be driven to a minimum bearing capacity of 20 tons per pile. Steel piling shall be HP12x53 and shall be driven to a minimum bearing capacity of 44 tons per pile.

Malleable or cast iron washers shall be used under all bolt heads and nuts bearing on timber. Standard washers shall be provided under all bolt heads and nuts in connection with concrete.

Boils shall conform to the requirements of ASTM A 307. ASTM A 307 Threaded Rods may be used in lieu of bolts. Minimum dimensions are shown for bolts, dowels, and drift pins.

Grout placed around Drift Pins in piles shall be allowed to cure for 72 hours before caps are used to support the superstructure. Grout to consist of one part portland cement to two parts sand.

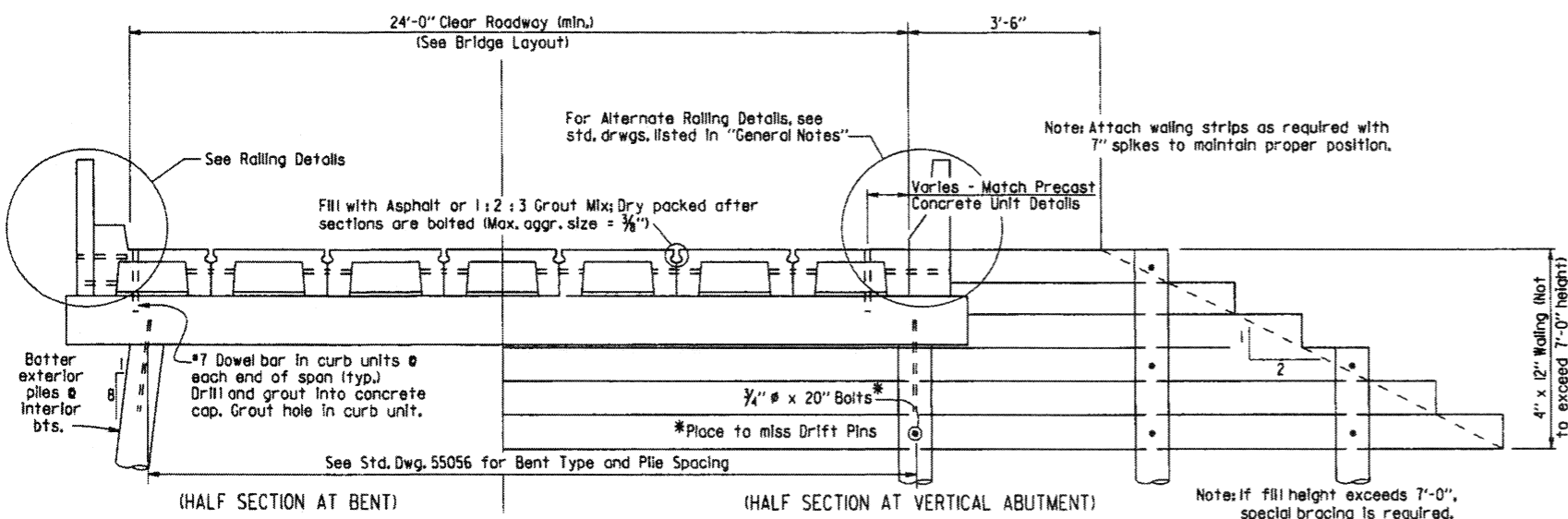
Melted sulfur may be used in lieu of grout placed around drift pins. The superstructure may be placed as soon as the sulfur has hardened.

Bent caps to be handled from points approximately 5' from the ends.

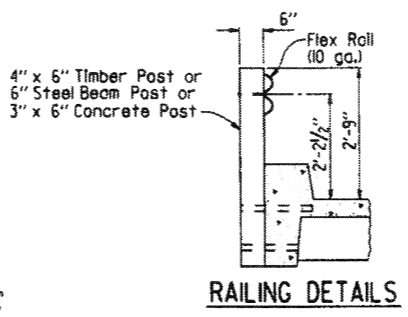
Timber material, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

For additional notes concerning "Bridge End Protection System", see Std. Dwg. 55054.

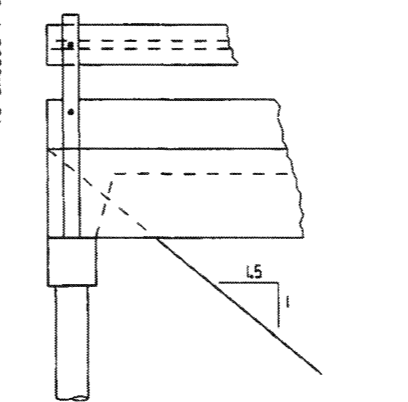
Unless otherwise noted, the Temporary Bridge Structure shall comply with and be paid for in accordance with Section 603.



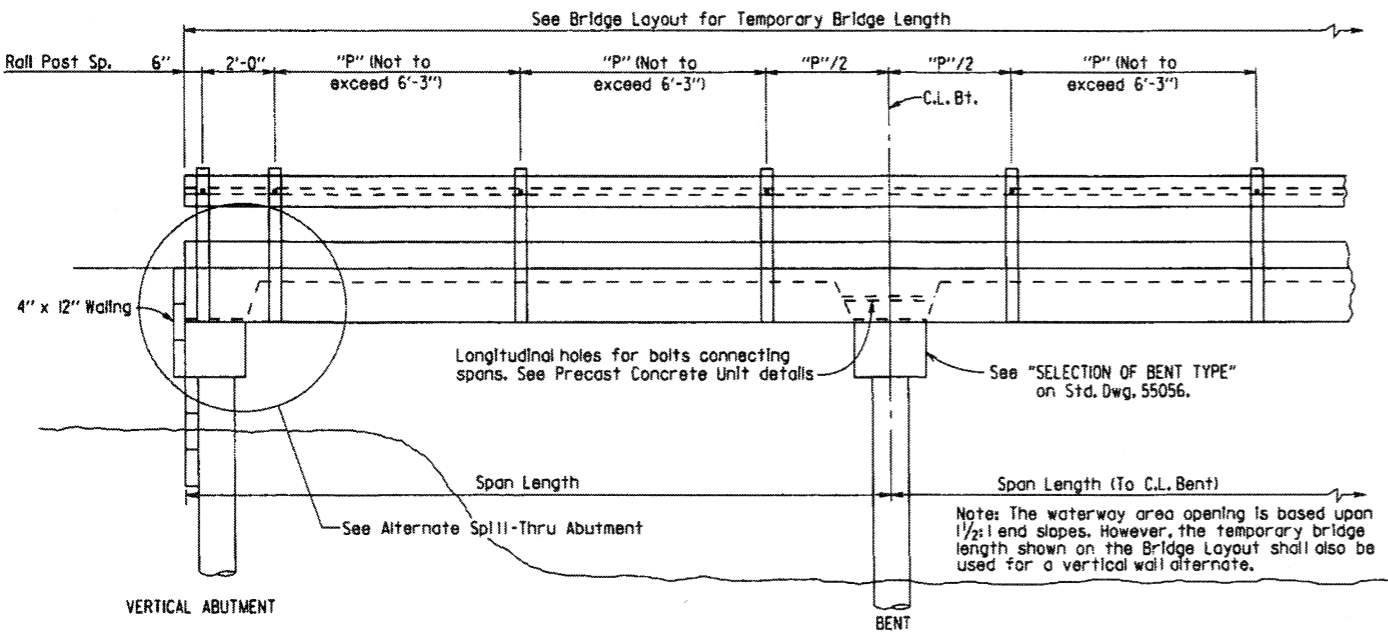
TYPICAL ROADWAY SECTION



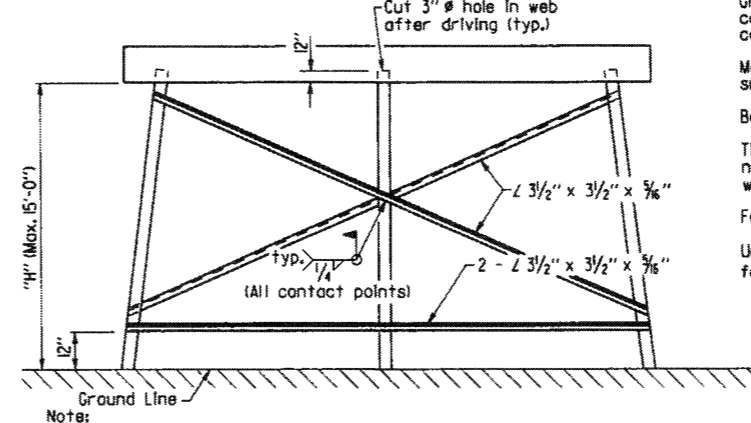
RAILING DETAILS



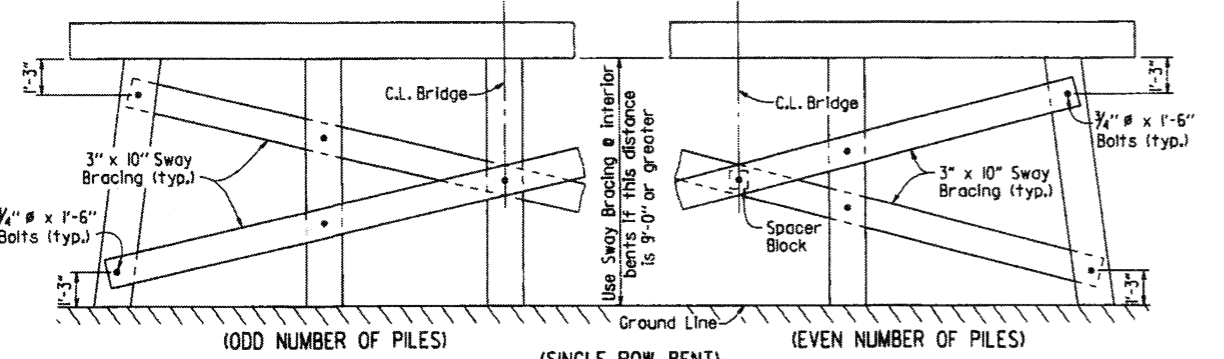
ALTERNATE SPILL-THRU ABUTMENT



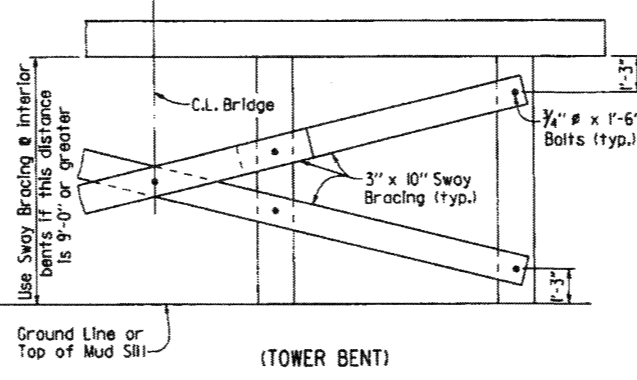
LONGITUDINAL SECTION



DETAILS OF BRACING FOR STEEL PILES



DETAILS OF SWAY BRACING FOR TIMBER PILES



(TOWER BENT)

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BRIDGE ENGINEER

Note: The Contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft. A proprietary steel pile splicer sufficient to develop the full strength of the section may be substituted for the details shown. Pile splicers shall be installed in accordance with manufacturer's recommendations.

PILE SPLICE DETAIL SHEET 1 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 24' ROADWAY WIDTH

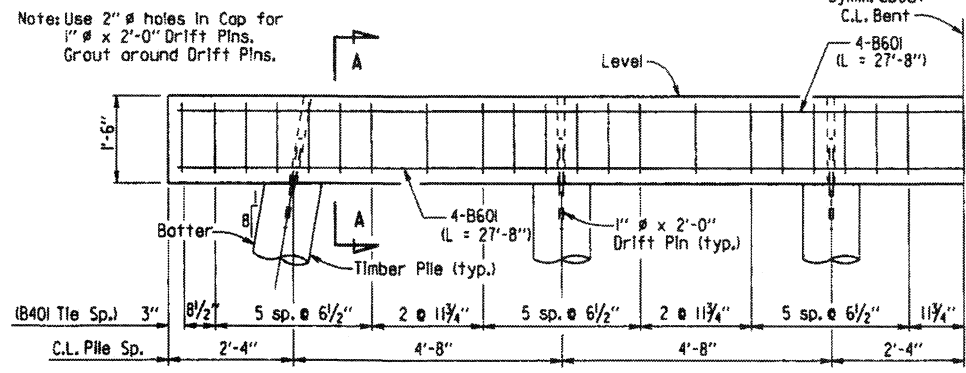
ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55055.dgn
 CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
 DESIGNED BY: STD DATE: —

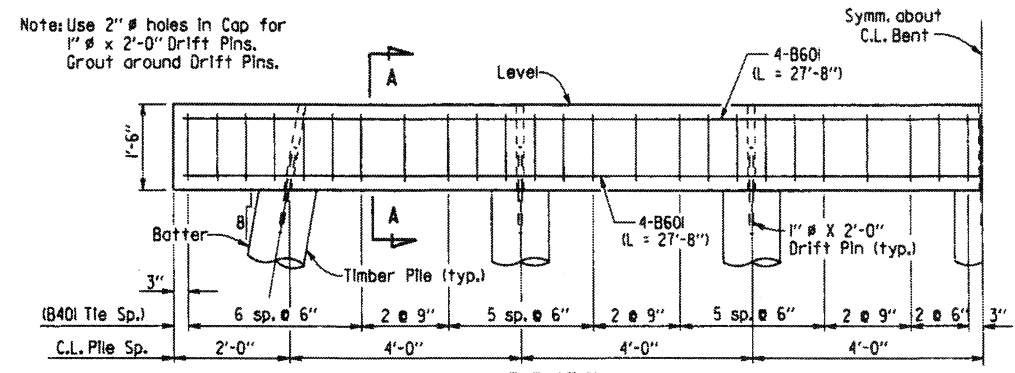
DRAWING NO. 55055

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.							TEMP. BRIDGE	55056

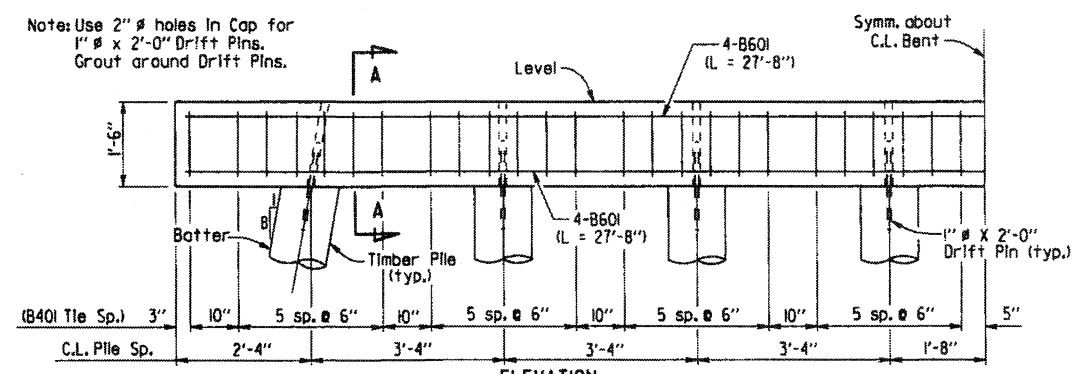
Note: Reinforcing steel in cap shall be placed to not interfere with dowel bars.



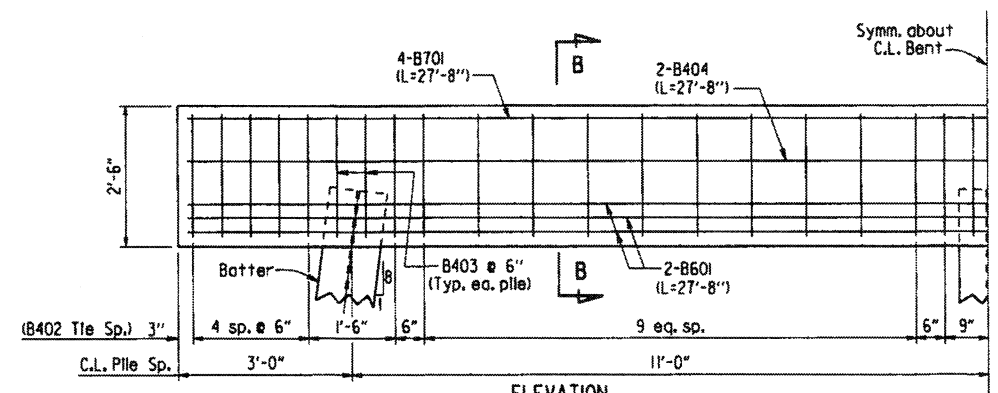
PRECAST CAP & TIMBER PILES
($"S1" + "S2" \leq 38'$)



PRECAST CAP & TIMBER PILES
($38' < "S1" + "S2" \leq 50'$)

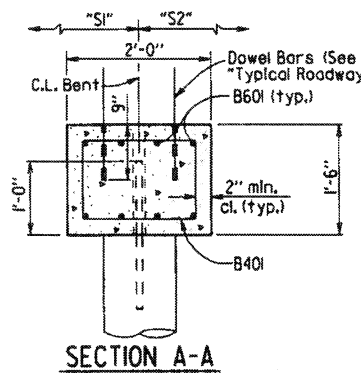


PRECAST CAP & TIMBER PILES
($50' < "S1" + "S2" \leq 62'$)

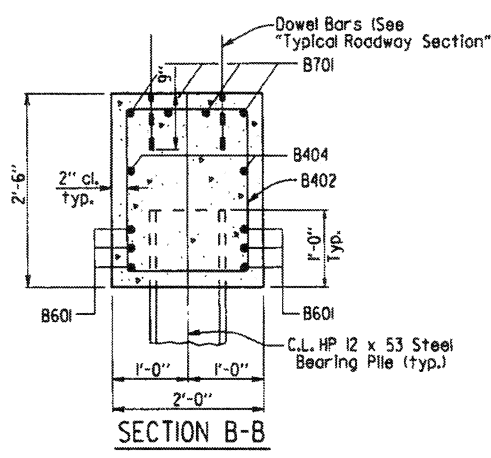


CAST IN PLACE CAP & HP 12X53 PILES

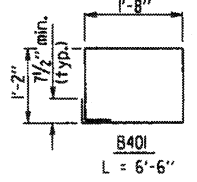
NOTE: THE ENDS OF ALL PRECAST SPANS SHALL BE FIXED TO THE CAP USING 1 DOWEL BAR IN EACH OF THE CURB UNITS.



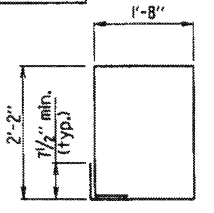
SECTION A-A



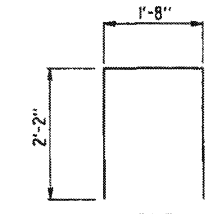
SECTION B-B



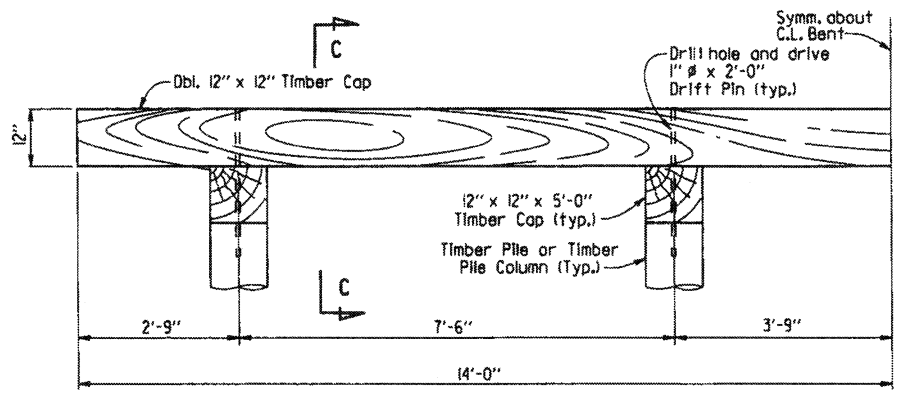
B401
L = 6'-6"



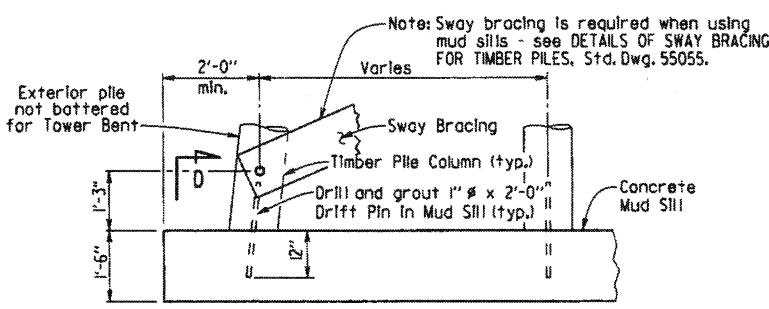
B402
L = 8'-6"



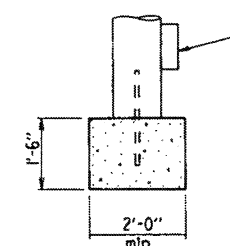
B403
L = 5'-10"



TOWER BENT - TIMBER CAP & PILES

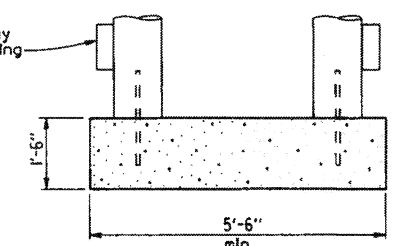


PART ELEVATION MUD SILL DETAILS



SECTION D-D

(When bottom of cap to top of mud sill is 10' or less)



SECTION D-D

(When bottom of cap to top of mud sill is greater than 10')

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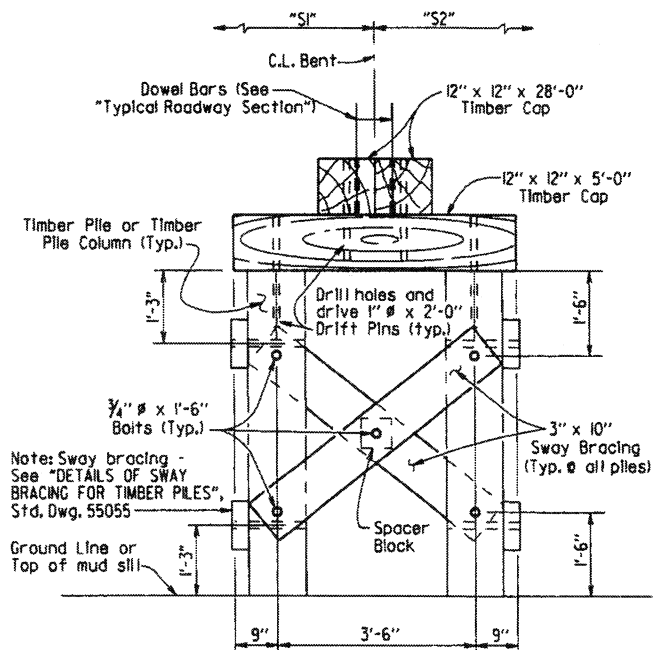
BRIDGE ENGINEER

SELECTION OF BENT TYPES

- Driven timber piles with precast concrete cap.
- Driven steel HP 12x53 piles with cast in place concrete cap.
- Tower bent with driven timber piles and timber cap.
- Mud sill with timber pile columns and precast concrete cap.
- Tower bent with mud sill and timber pile columns and timber cap.

Guidelines to be used in determining the appropriate bent type are:

- 1) Driven piles may be used at intermediate bents if a pile penetration of at least 15' below the ground line can be obtained. At end bents, a pile penetration of at least 5' below the bottom of cap is required. Pile penetration measurements at end bents can include embankment, but fill material may not be placed around intermediate bent piles in order to meet the 15' requirement.
- 2) If driven timber piles are used at intermediate bents and the distance from the bottom of cap to ground line exceeds 15' at any intermediate bent, tower bents must be used at the minimum rate of one tower bent for every 160' of total bridge length. Tower bent(s), when required, shall be placed at the bent location(s) having the greatest distance from bottom of cap to ground line.
- 3) If piles cannot be practically driven at a bent, mud sills shall be used. All soft and yielding material shall be removed from the bearing area before placing the sill concrete.
- 4) Timber piles shall be used as columns in mud sills. The column spacing shall be the same as that used for driven timber pile bents for the appropriate span lengths involved.
- 5) If a mud sill is to be used and the distance from the bottom of cap to ground line is more than 10', a tower bent with mud sill must be used at that location.
- 6) A timber cap may be used only if tower bents are used.



SECTION C-C

SHEET 2 OF 2
STANDARD DETAILS FOR
TEMPORARY BRIDGE STRUCTURE
PRECAST CONCRETE SPANS
24' ROADWAY WIDTH

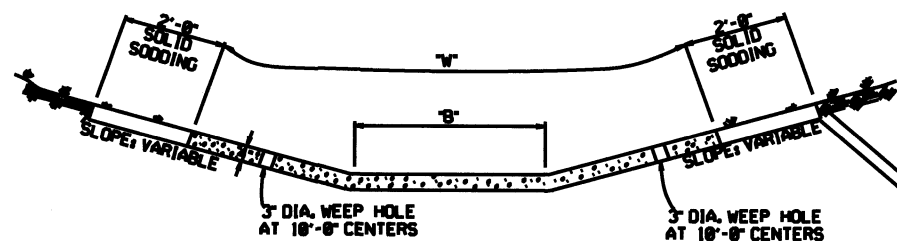
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55055.dgn
CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
DESIGNED BY: STD DATE: —

DRAWING NO. 55056

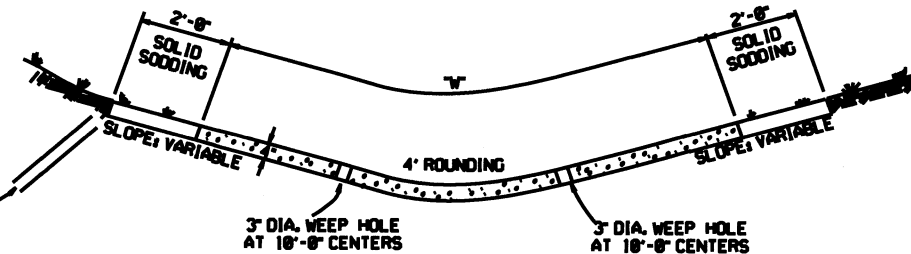
REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS

REFER TO TABULATION OF QUANTITIES FOR "W" DIMENSIONS



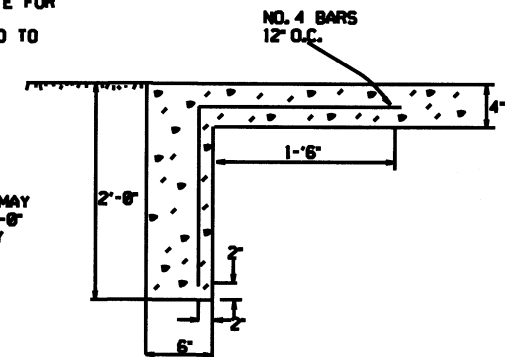
TYPE A

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



TYPE B

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



TOE WALL DETAIL FOR CONCRETE DITCH PAVING

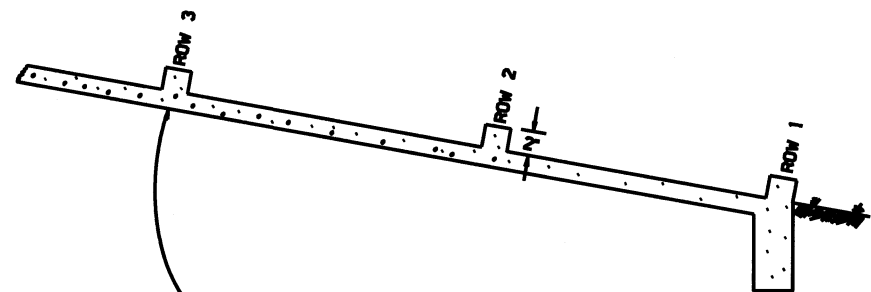
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

GENERAL NOTES:

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

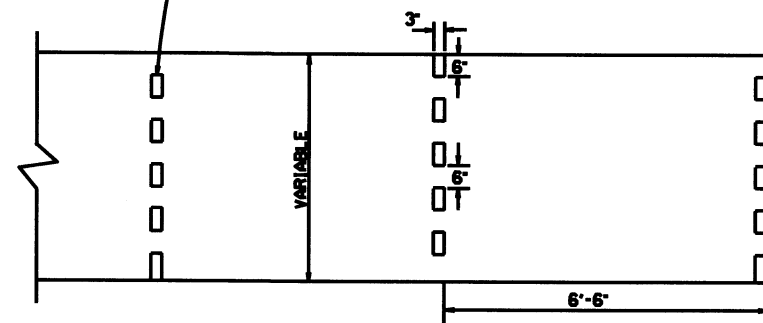
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

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



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



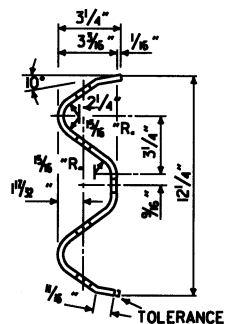
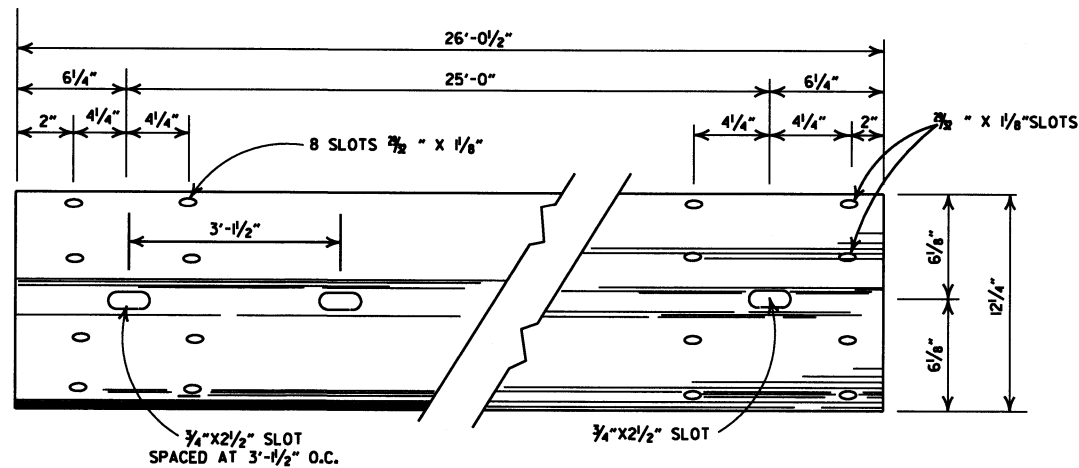
ENERGY DISSIPATORS (NO SCALE)

12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
11-2-74	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-2-74	ESTIMATED MIN. ROWS OF ELEMENTS	111-30-89
7-18-88	REVISED DISSIPATOR NOTE	893-2-15-88
4-9-87	REVISED ENERGY DISSIPATOR	871-4-8-87
1-9-87	ADDED NOTE ON ENERGY DISSIP.	882-1-2-87
11-2-86	ADDED NOTE TO ENERGY DISSIP.	888-11-2-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	808-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	808-10-2-72
	DATE REVISION	DATE FILM'D

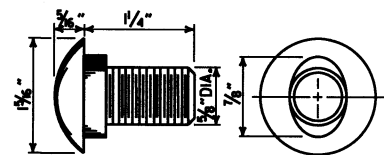
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

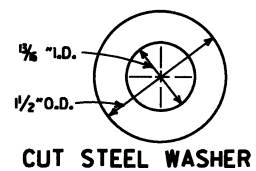
STANDARD DRAWING CDP-1



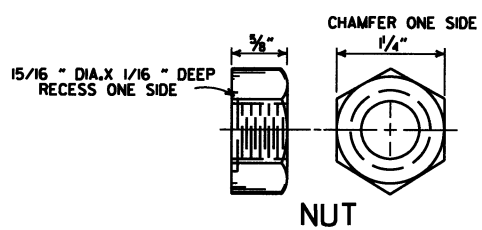
DETAILS OF W-BEAM GUARD RAIL
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



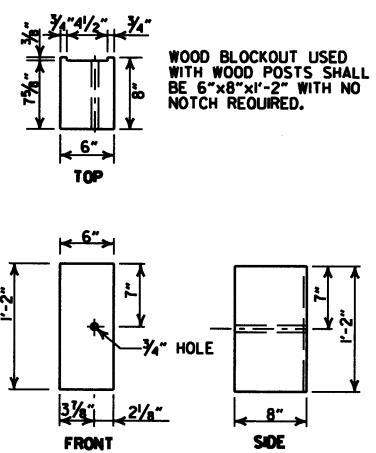
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



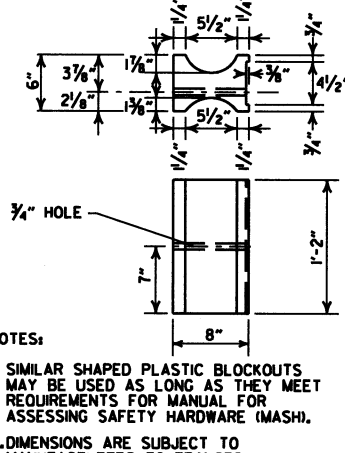
CUT STEEL WASHER



NUT

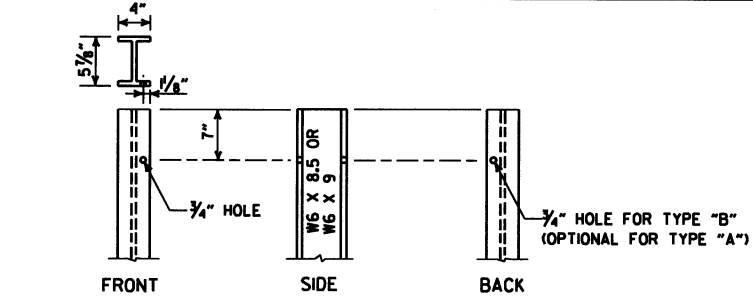


WOOD BLOCKOUT (W-BEAM)

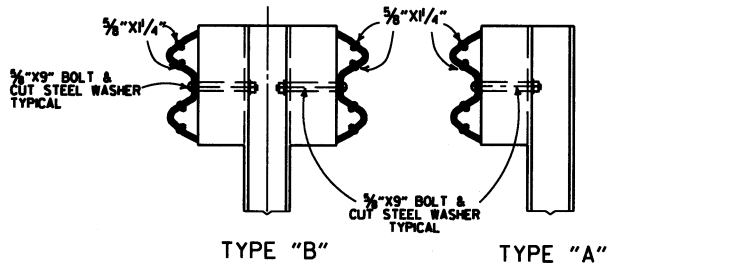


PLASTIC BLOCKOUT (W-BEAM)

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.



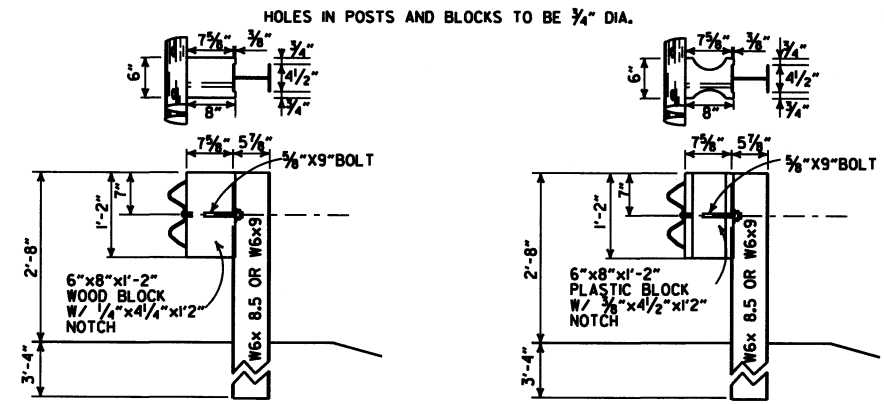
STEEL POST



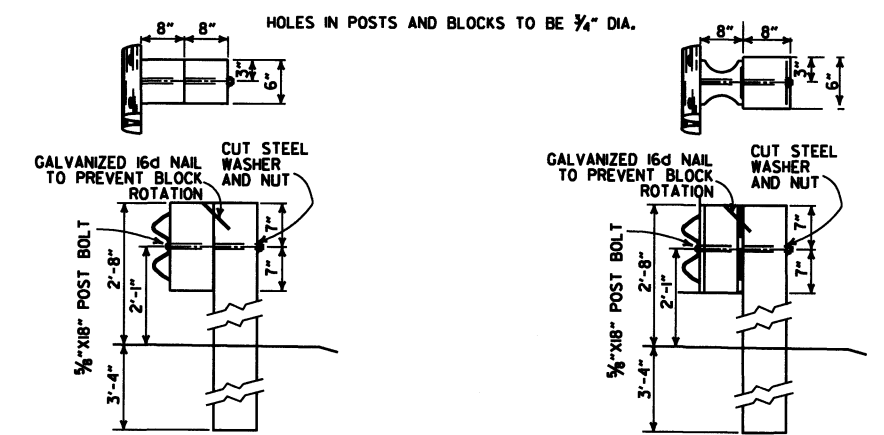
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.
USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL 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 (400 f) OR NO. 1 1350 f SOUTHERN PINE.
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.



WOOD BLOCKOUT CONNECTIONS **PLASTIC BLOCKOUT CONNECTIONS**
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



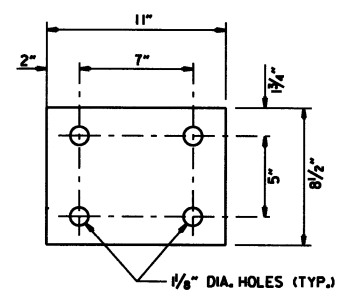
WOOD BLOCKOUT CONNECTIONS **PLASTIC BLOCKOUT CONNECTIONS**
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILED
11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 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 GUARD RAIL 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 GUARD RAIL REPLACE BEHIND CURB & DET. OF POST PLACE IN SOLID ROCK & ADDED DETAILS OF STEEL LINE POST CONNL. 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

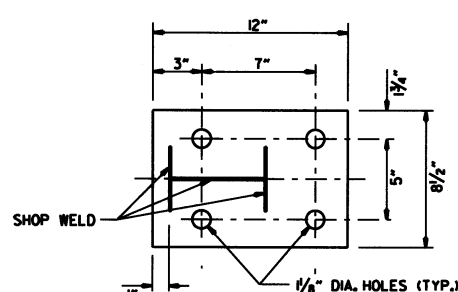
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

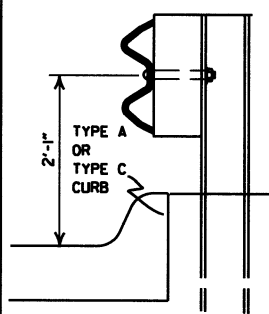


WASHER PLATE

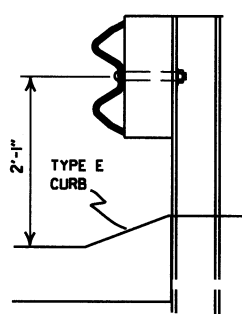


BASE PLATE

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



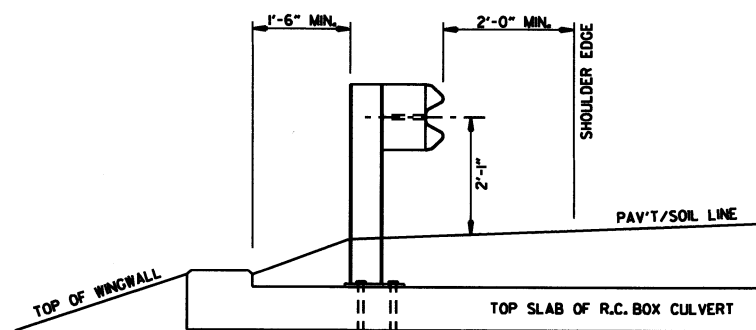
FOR DESIGN SPEEDS OF 50 MPH OR LESS
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.



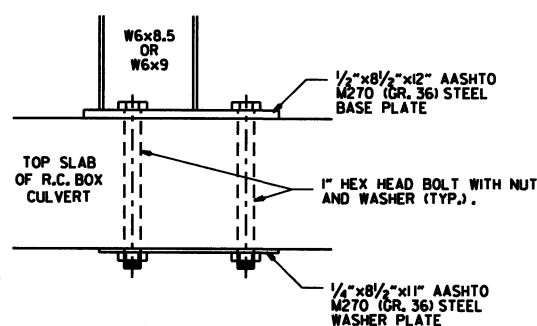
FOR DESIGN SPEEDS OF 55 MPH OR MORE
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

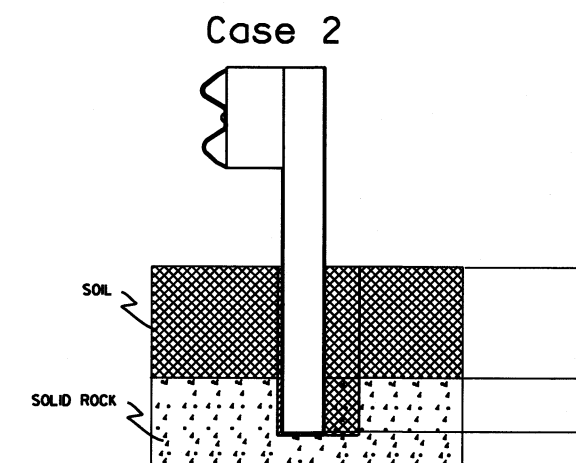
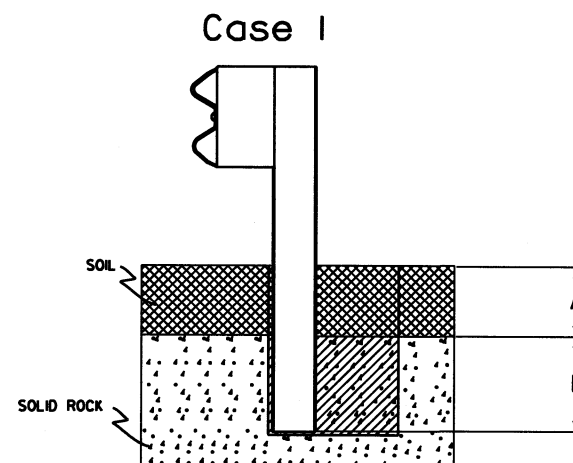
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

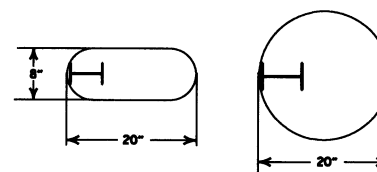


DETAIL OF CONNECTION



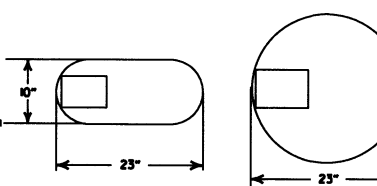
Plan View Steel Posts

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".

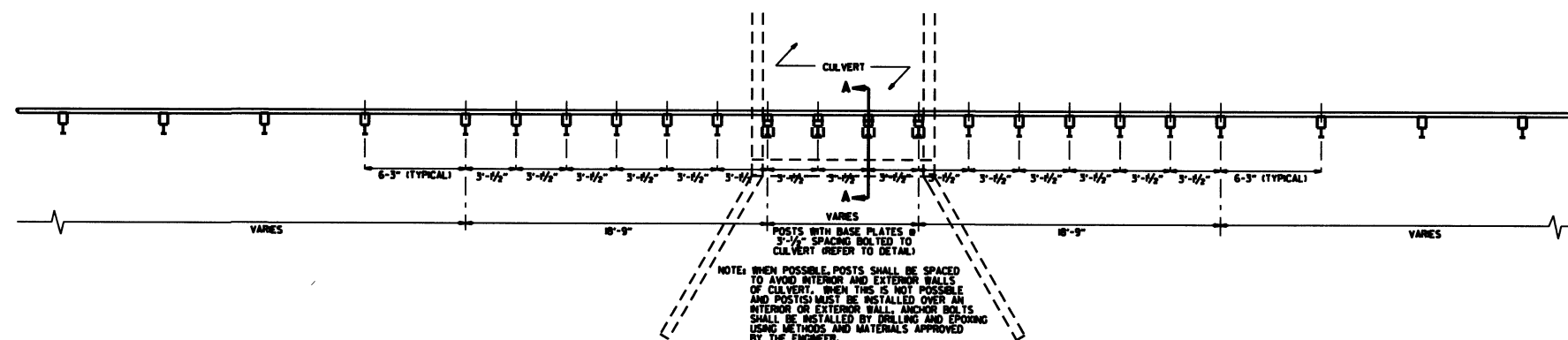
Zone A: Backfill according to Section 617.03(a).

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 GUARD RAIL AT LOW-FILL CULVERTS

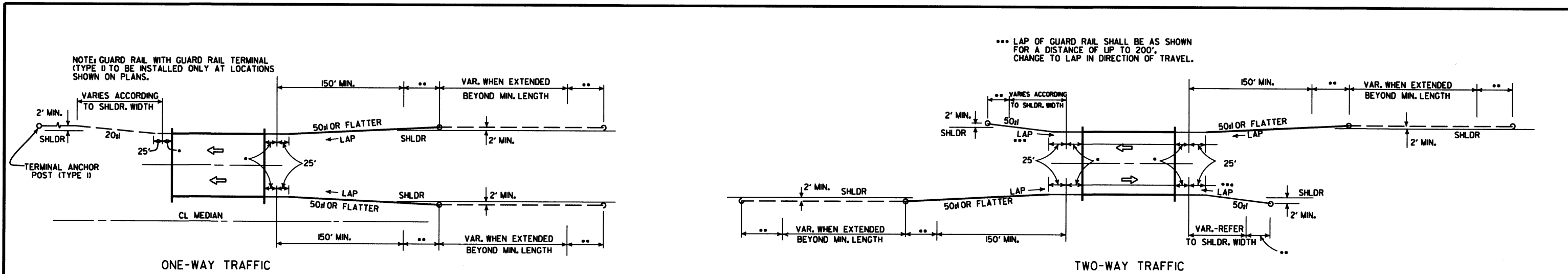
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8.

11-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
04-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARD RAIL 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 GUARD RAIL CONNECTION TO R.C. BOX CULVERT, DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-95	REV. ASTM REF. TO AASHTO	
8-22-95	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
07-5-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	7/2-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	5/47-10-30-87
10-09-87	REDRAWN & REVISED	8/3-10-9-87
DATE	REVISION	FILMED

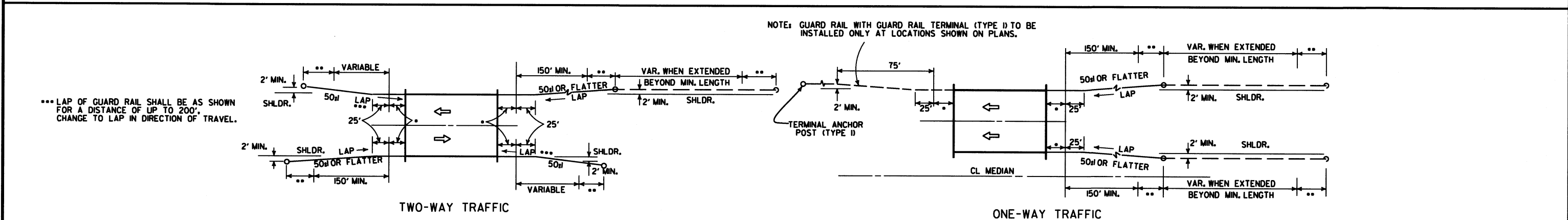
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

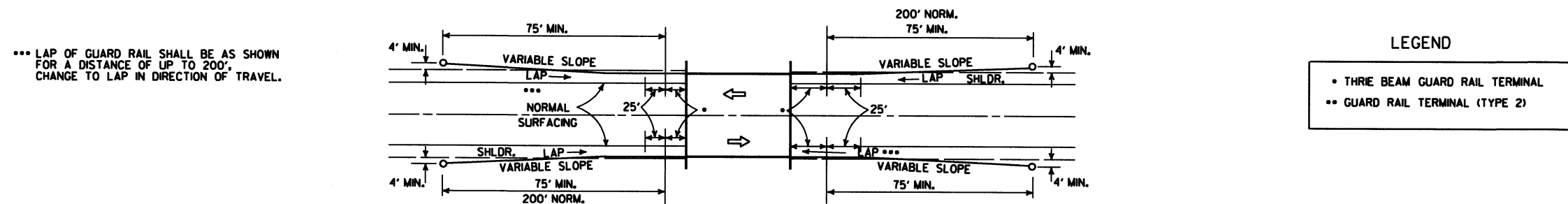
STANDARD DRAWING GR-8A



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

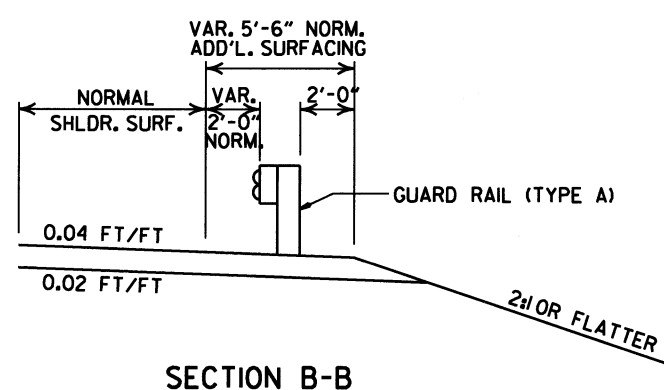
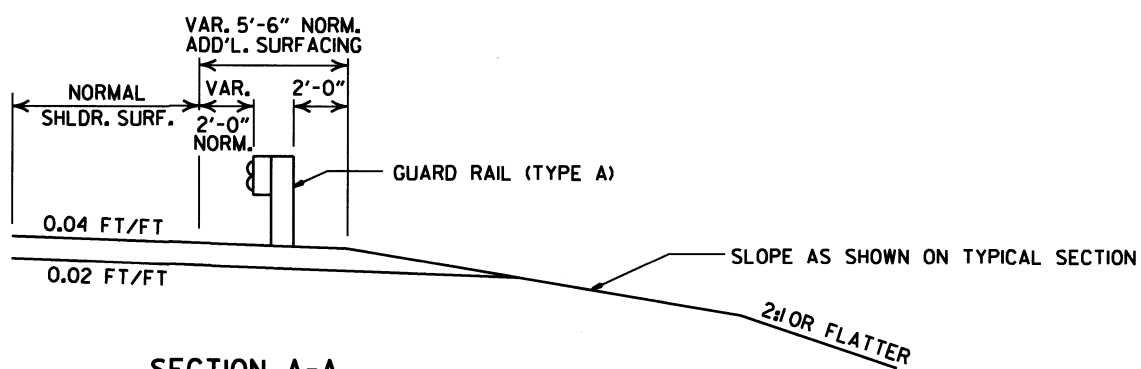
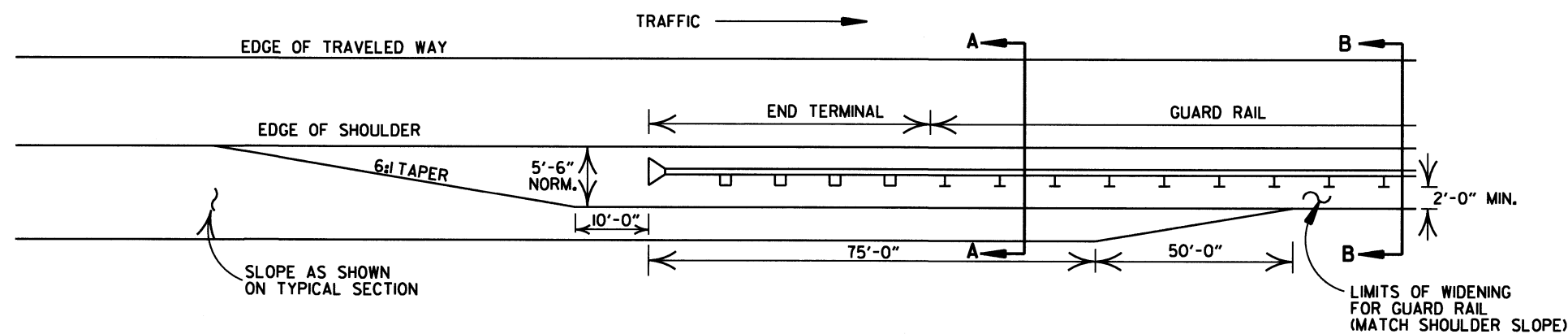


METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

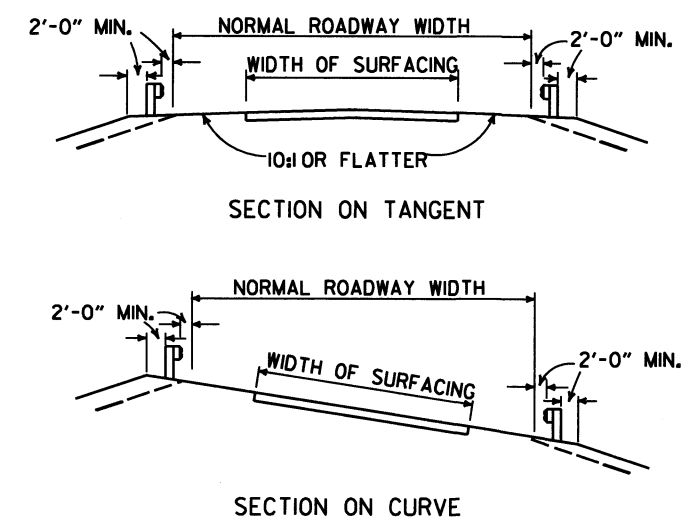


METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

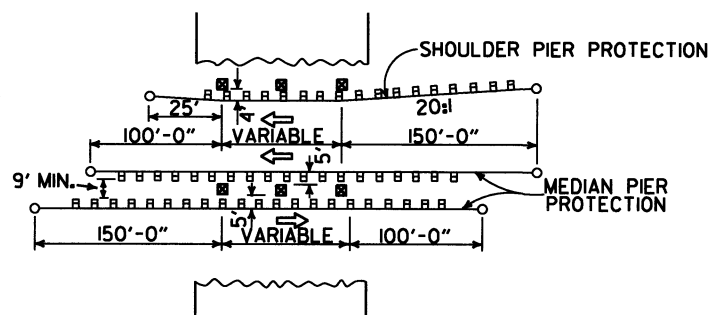
ARKANSAS STATE HIGHWAY COMMISSION		
GUARD RAIL DETAILS		
STANDARD DRAWING GR-9		
4-17-08	REVISED LAYOUTS	
8-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
8-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 2)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	
DATE	REVISION	DATE FILED



DETAILS OF WIDENING FOR GUARD RAIL

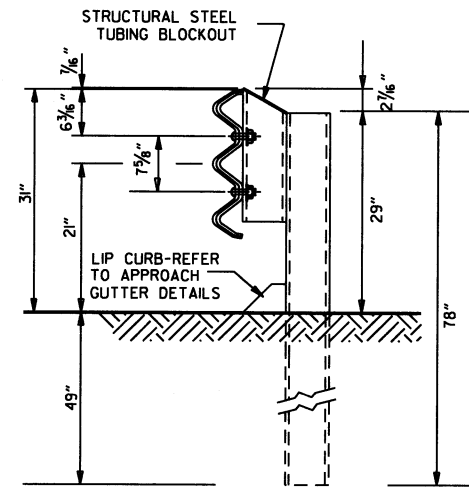


DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

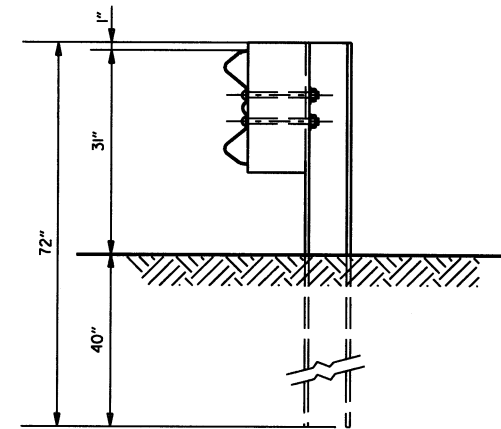


METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

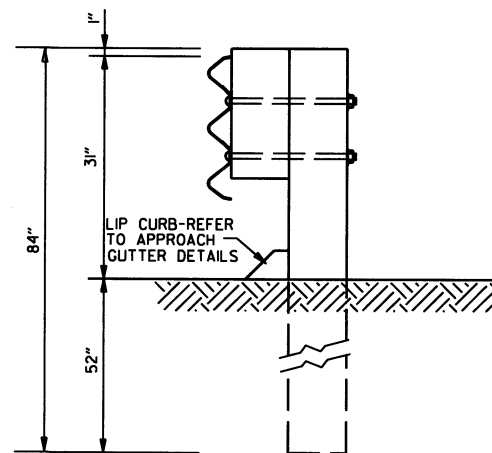
ARKANSAS STATE HIGHWAY COMMISSION			
GUARD RAIL DETAILS			
STANDARD DRAWING GR-9A			
4-17-08	MINOR REVISION		
11-10-05	DRAWN		
DATE	REVISION	DATE	F.I.M.



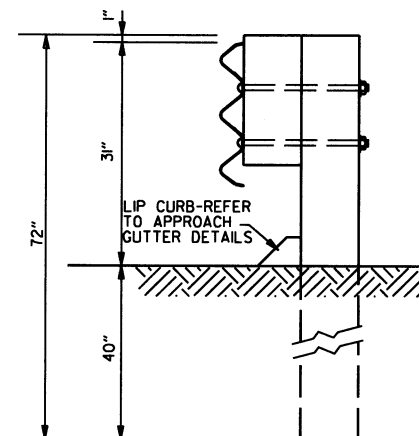
**THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7**



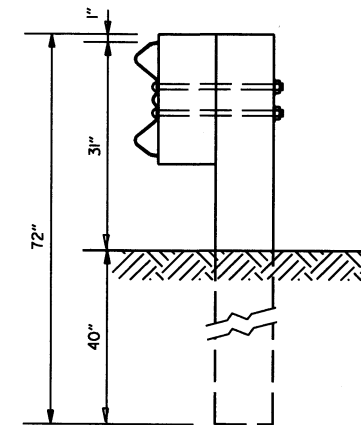
**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8**



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



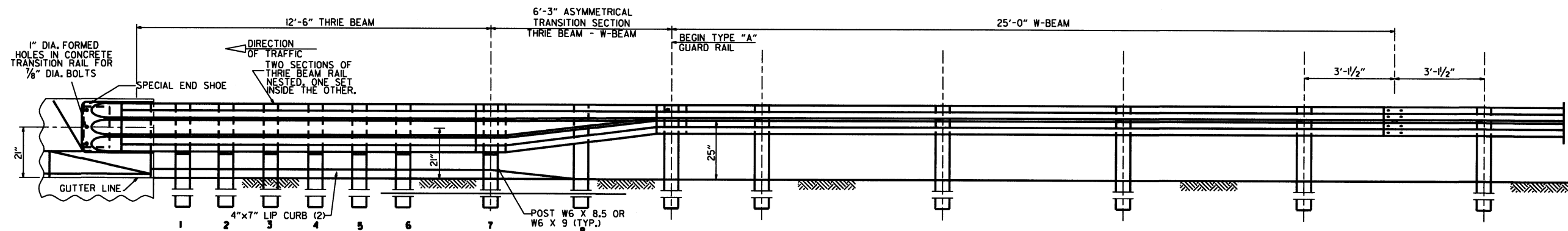
**THRIE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 7**



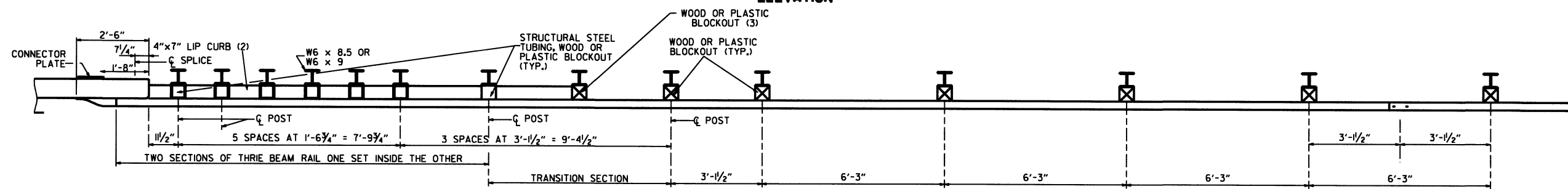
**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 8**

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. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

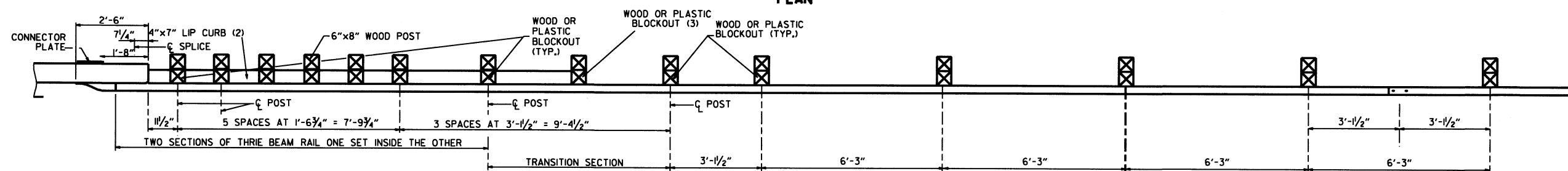
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
11-16-17	REVISED GUARD RAIL HEIGHT, CHANGED STD. DRG. NUMBER FROM GR-10A TO GR-II		STANDARD DRAWING GR-II
07-14-10	REVISED POST 8 DIMENSIONS		
11-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		
03-30-00	DRAWN & ISSUED		
DATE	REVISION	FILED	



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 GUARD RAIL 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 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-9 & GR-13.

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

USE THRIE BEAM GUARD RAIL 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.

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GR-12
8-16-17	RE-DRAWN FROM STD. DRWG. GR-10 & ISSUED		
DATE	REVISION	FILMED	

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA. INCHES	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51¼	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA. INCHES	AASHTO M 207	
	SPAN INCHES	RISE 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).

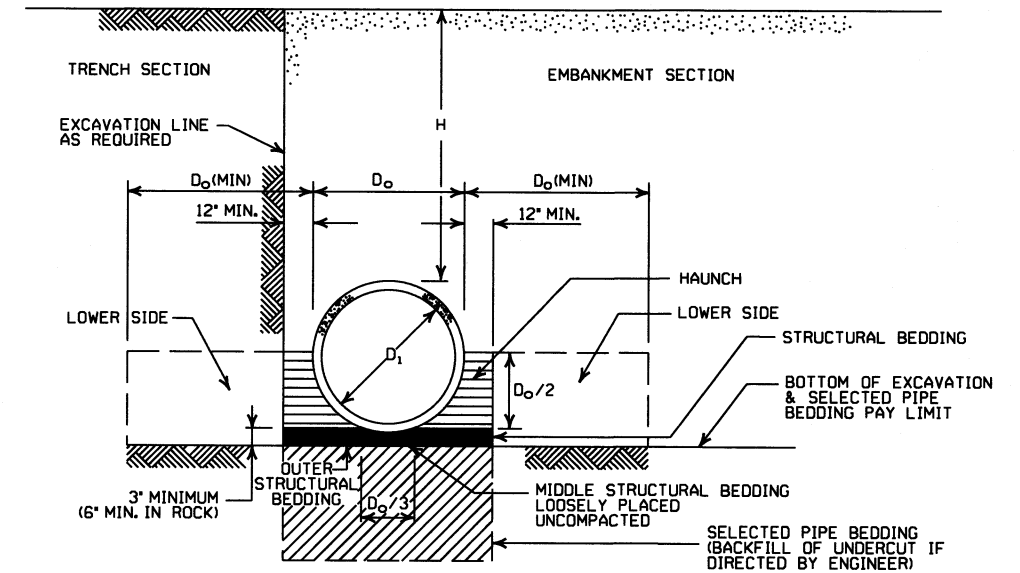
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D₁ = 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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT 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 M10, 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

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
PIPE ID (IN.)	TYPE 1 OR 2	TYPE 3	ALL	ALL
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



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >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"

NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

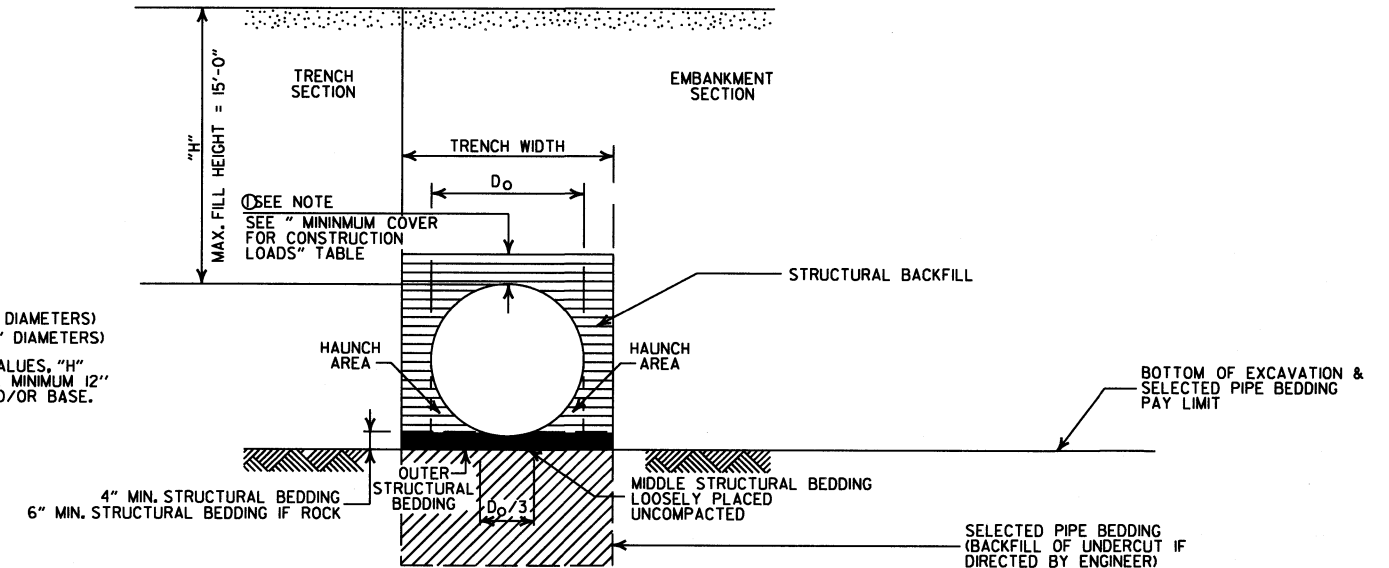
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

==== = STRUCTURAL BACKFILL MATERIAL
===== = UNDISTURBED SOIL

GENERAL NOTES

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

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 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF 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"

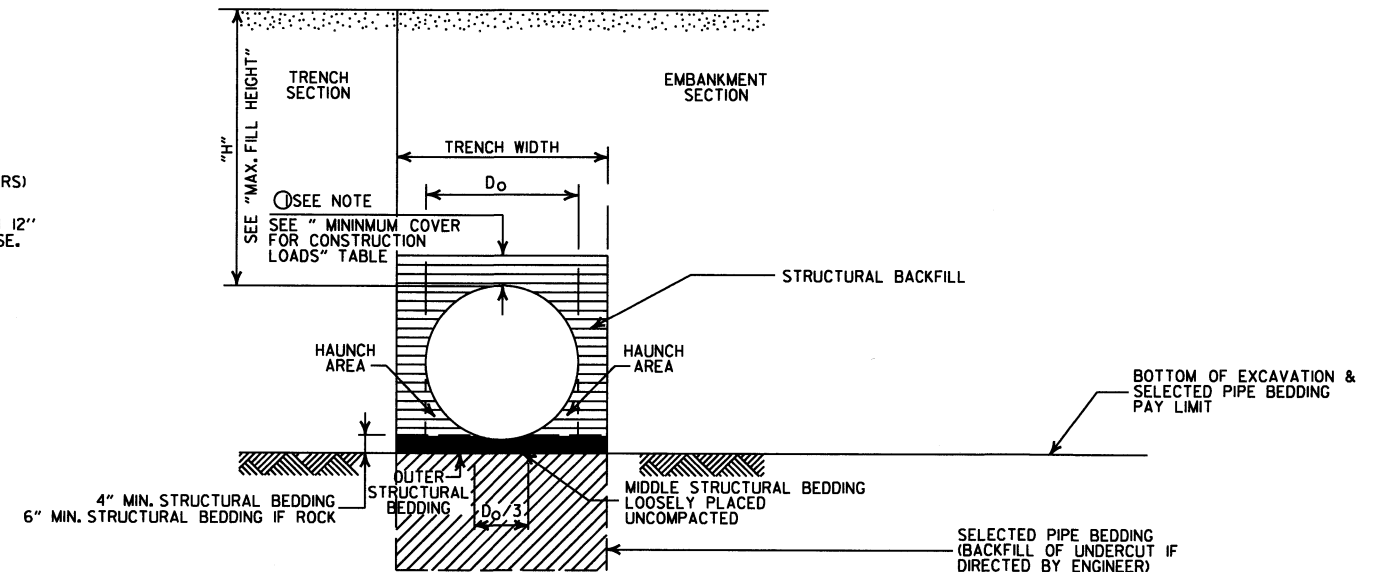
GENERAL NOTES

- 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).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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.

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

- H = FILL HEIGHT (FT.)
Do = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
||||||| = UNDISTURBED SOIL

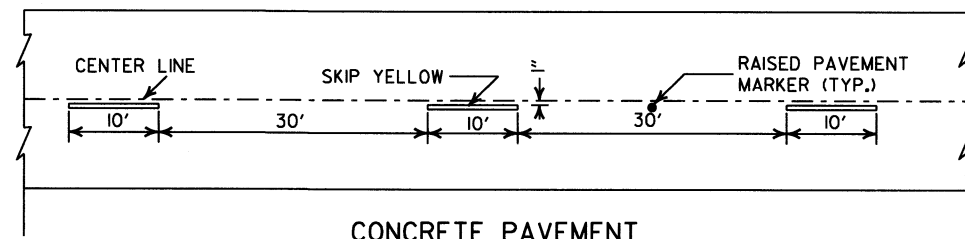
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

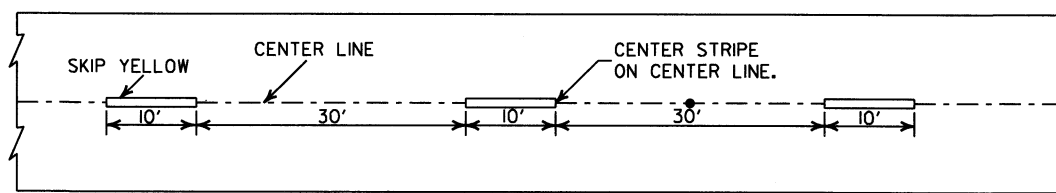
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2



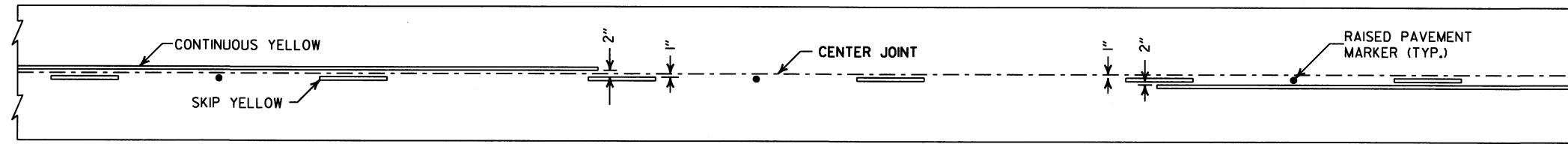


CONCRETE PAVEMENT

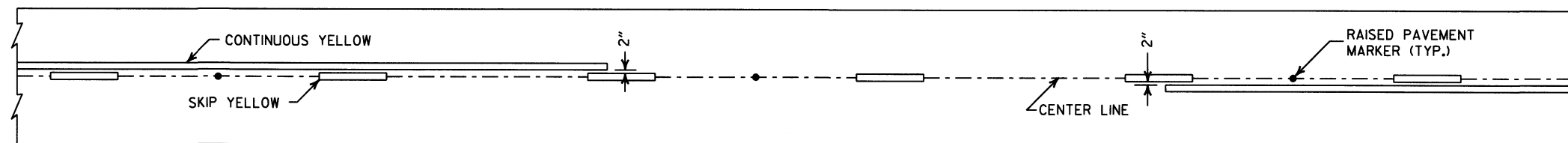


ASPHALT PAVEMENT

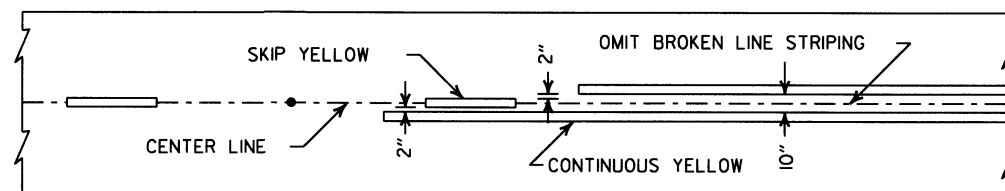
BROKEN LINE STRIPING



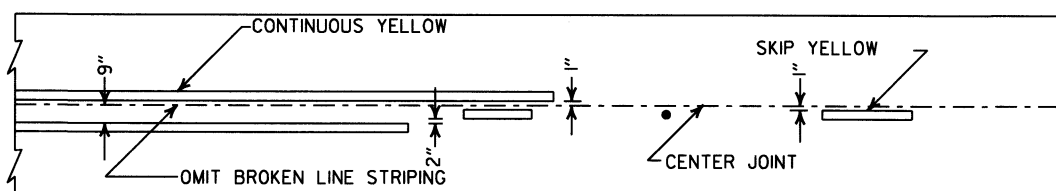
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

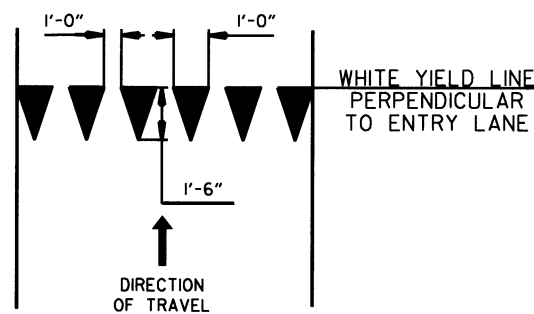


ASPHALT PAVEMENT

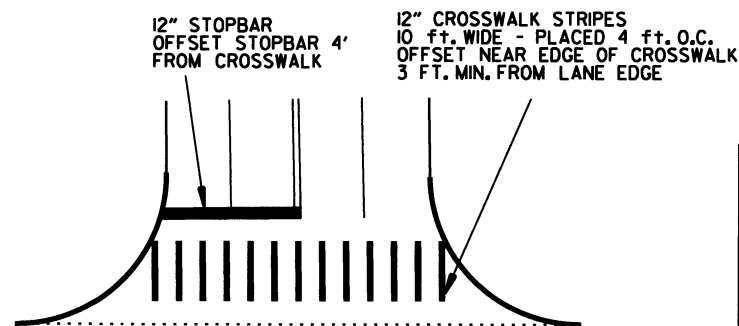


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

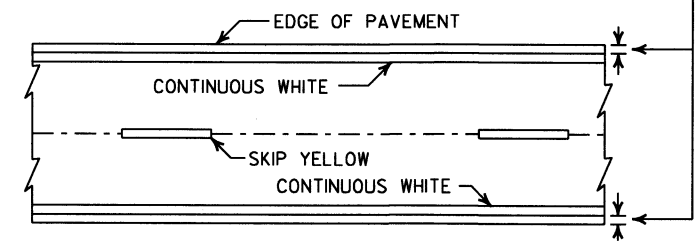


CROSSWALK AND STOPBAR DETAILS

NOTES:

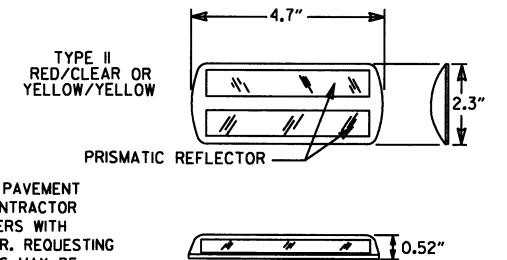
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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



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 AHTD QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

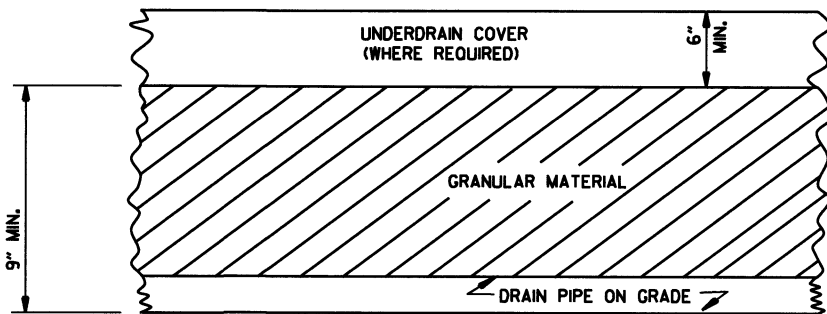
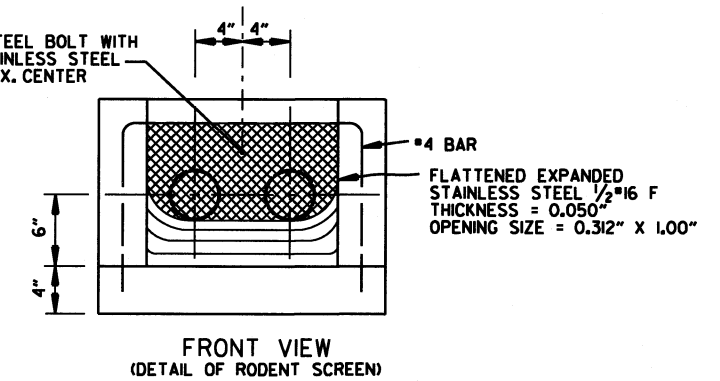
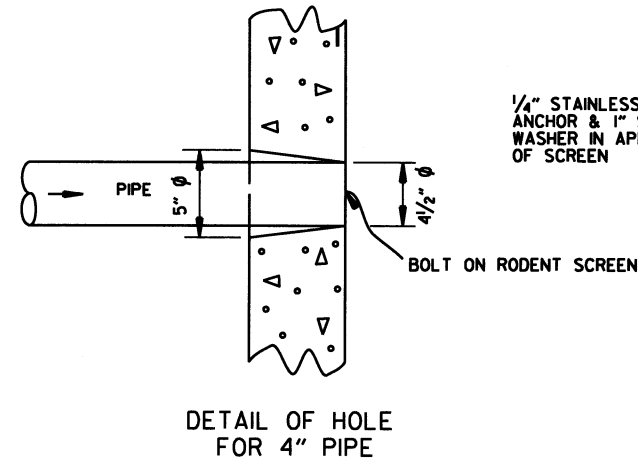
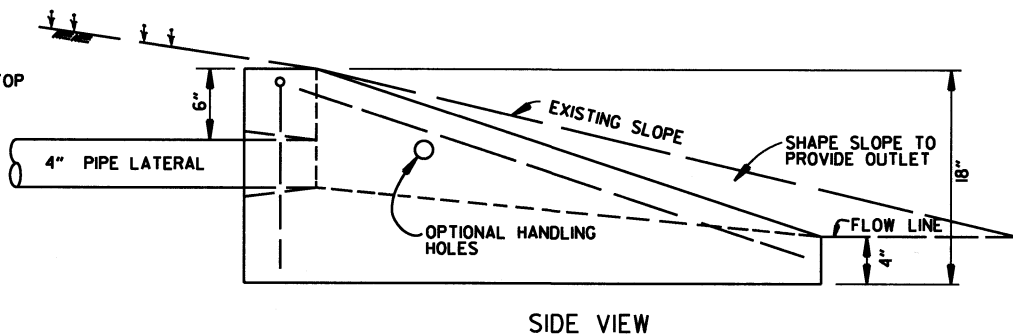
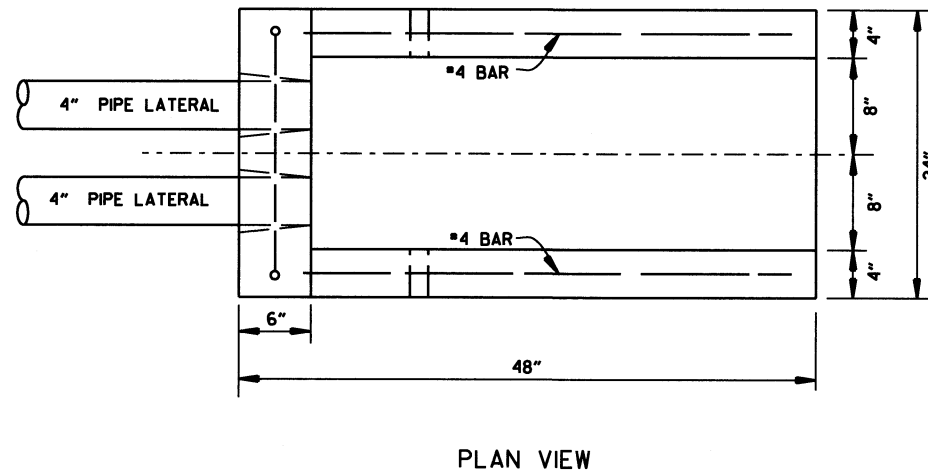
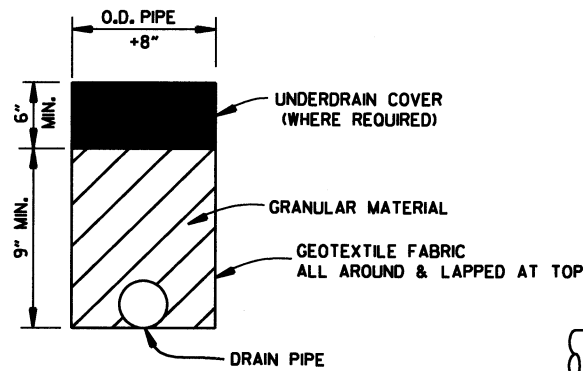
DATE	REVISION	FILMED
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED FLOWABLE PAVT. MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAVT. 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.



DETAILS OF PIPE UNDERDRAIN

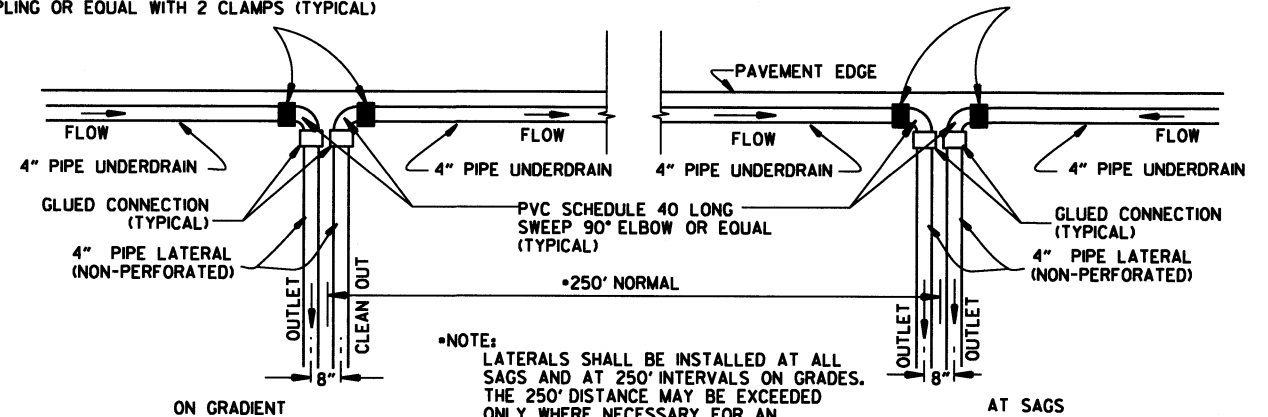
NOTES FOR PIPE UNDERDRAINS

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

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



*NOTE:
 LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE


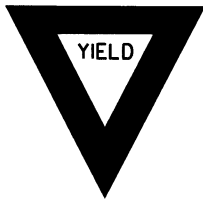



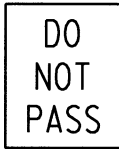
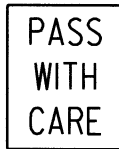


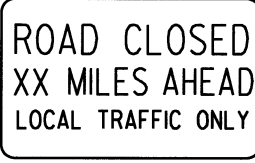
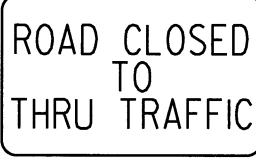

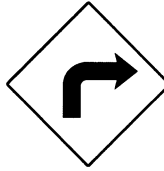





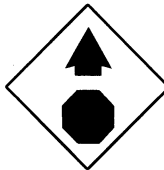
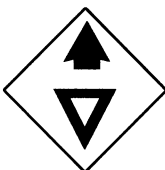
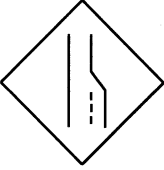

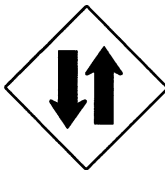




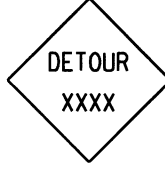







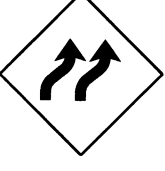




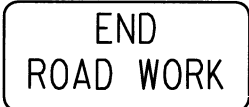
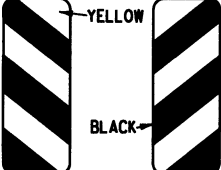


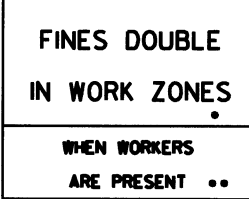
NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

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: 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>
<p>W20-3</p>  <p>STD. 48"x48"</p>	<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>500 FEET 24" W6-2</p> <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>
<p>W1-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>	<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>
<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>				

ADVANCE DISTANCES (XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

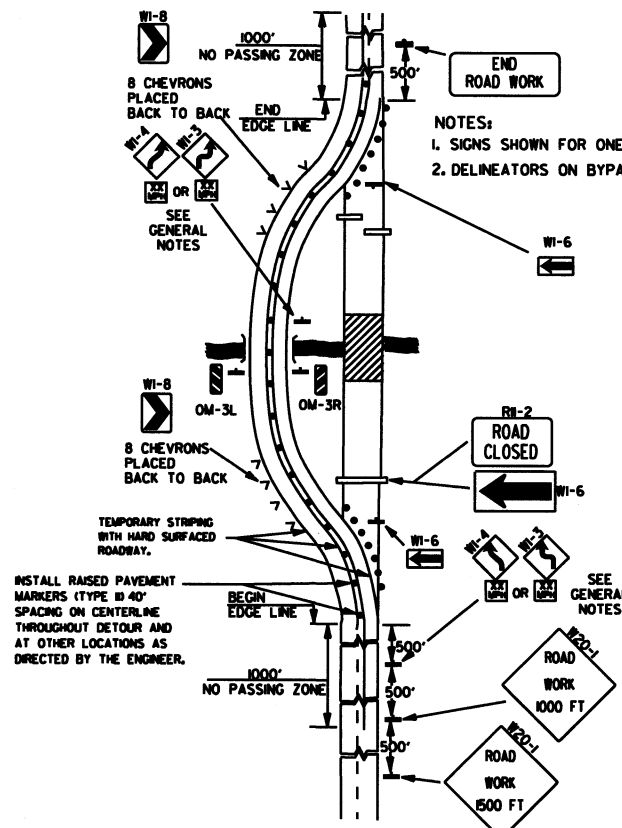
GENERAL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- 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.
- 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.

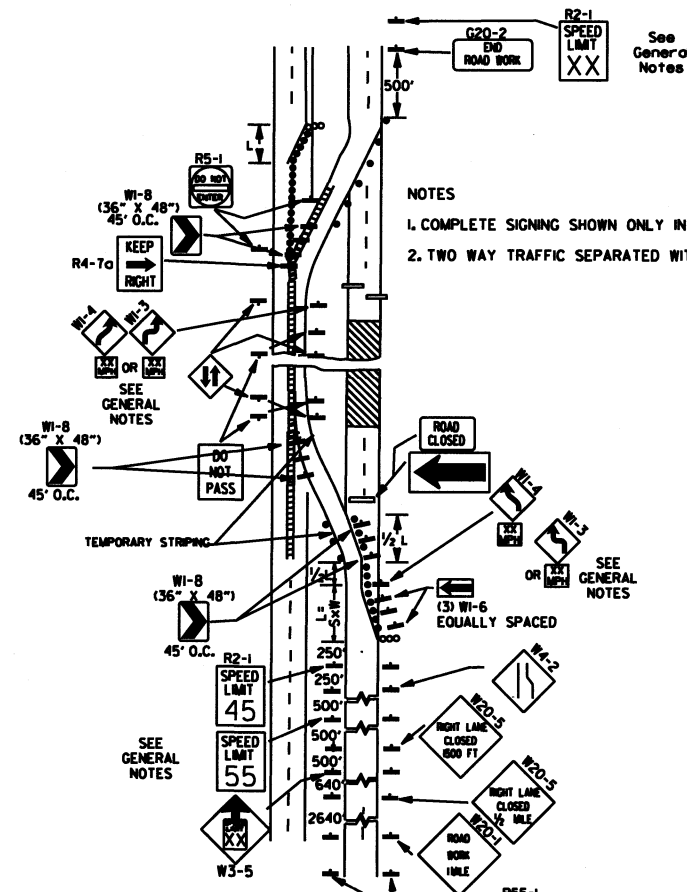
NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-95	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-81	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
1-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
1-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	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	
8-5-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILED

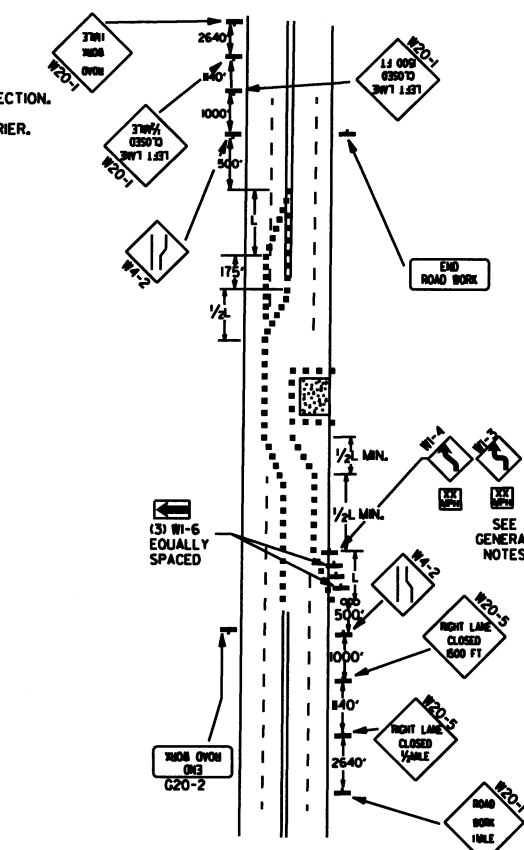
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



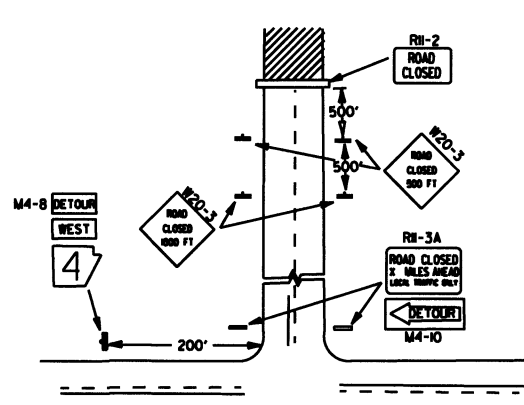
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



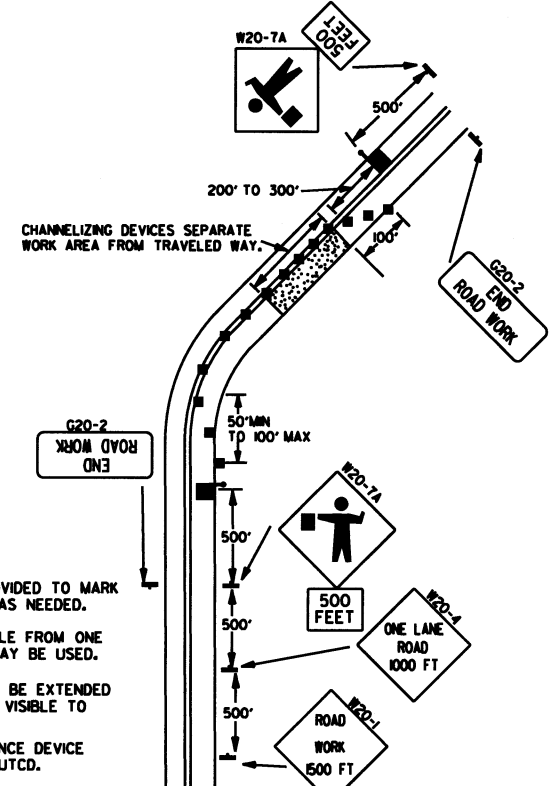
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



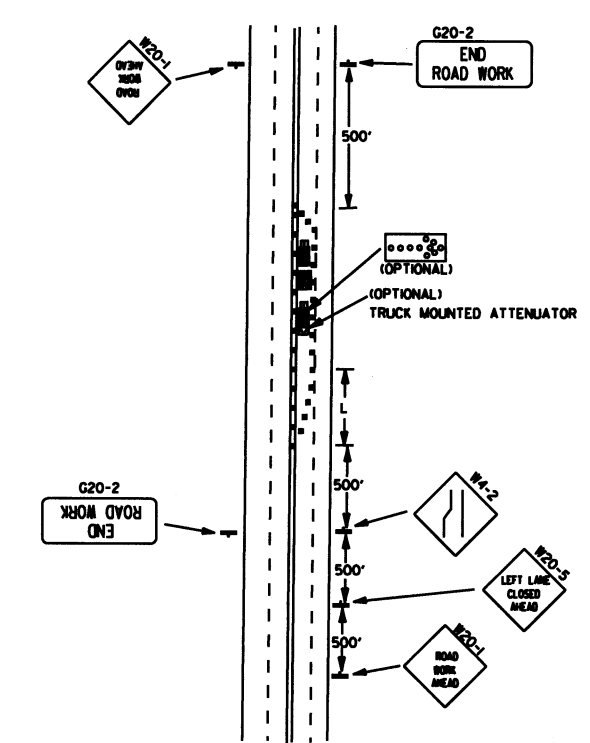
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



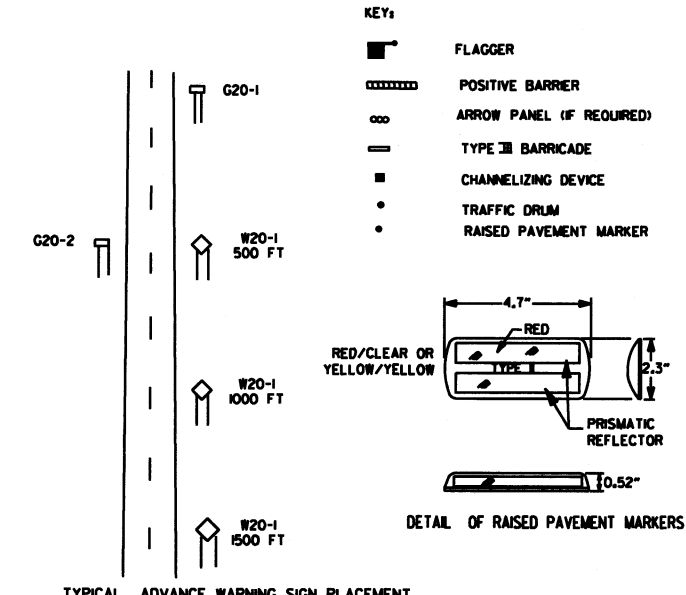
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



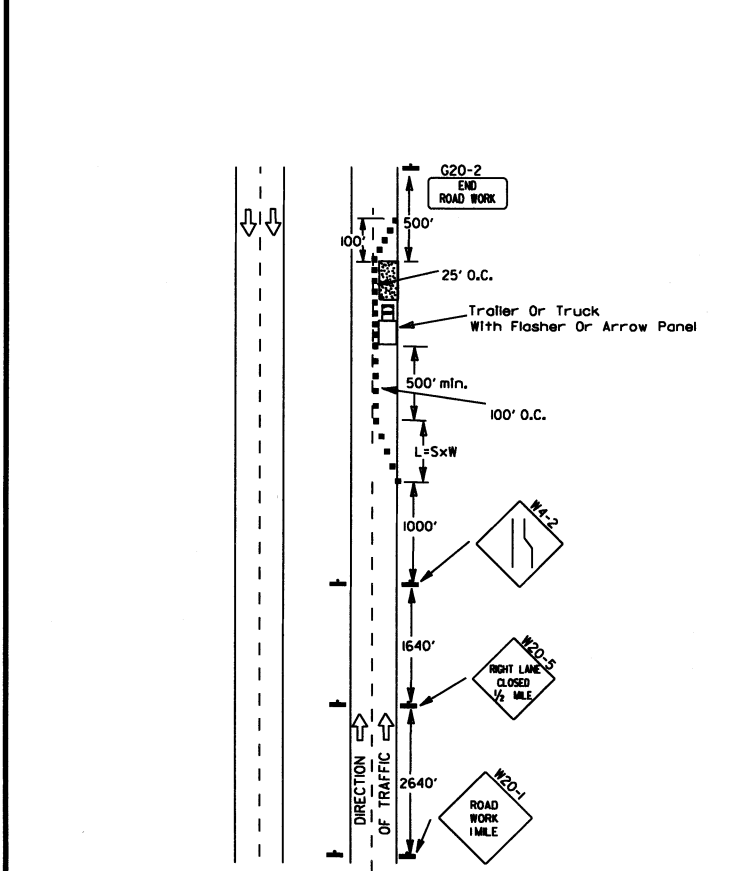
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.



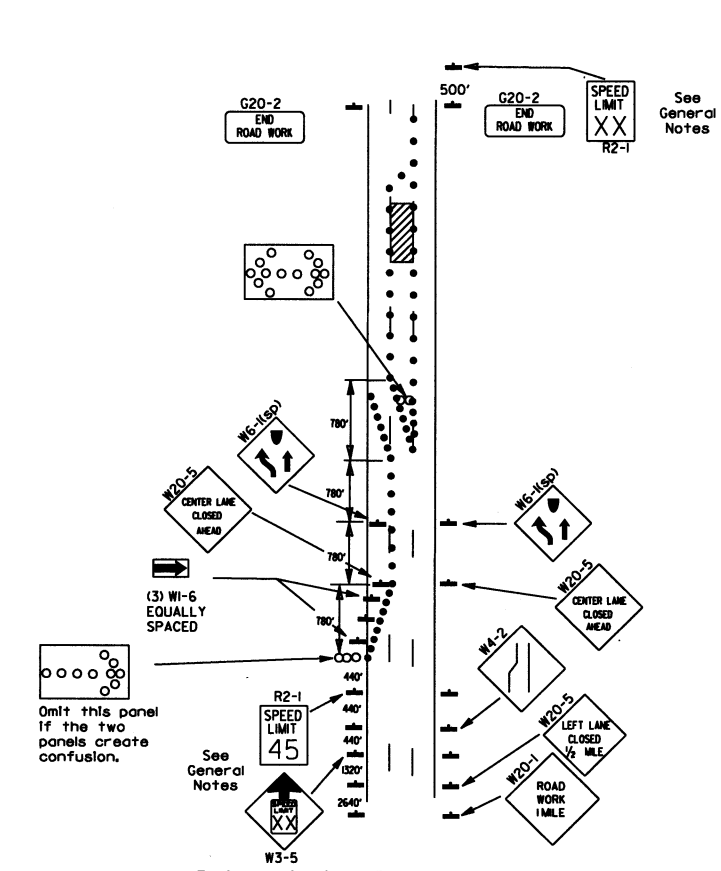
TAPER FORMULAE:
 $L = SXW$ FOR SPEEDS OF 45MPH OR MORE.
 $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
 WHERE:
 L = MINIMUM LENGTH OF TAPER.
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
 W = WIDTH OF OFFSET.

- GENERAL NOTES:**
- ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-K65 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 - TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 - DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

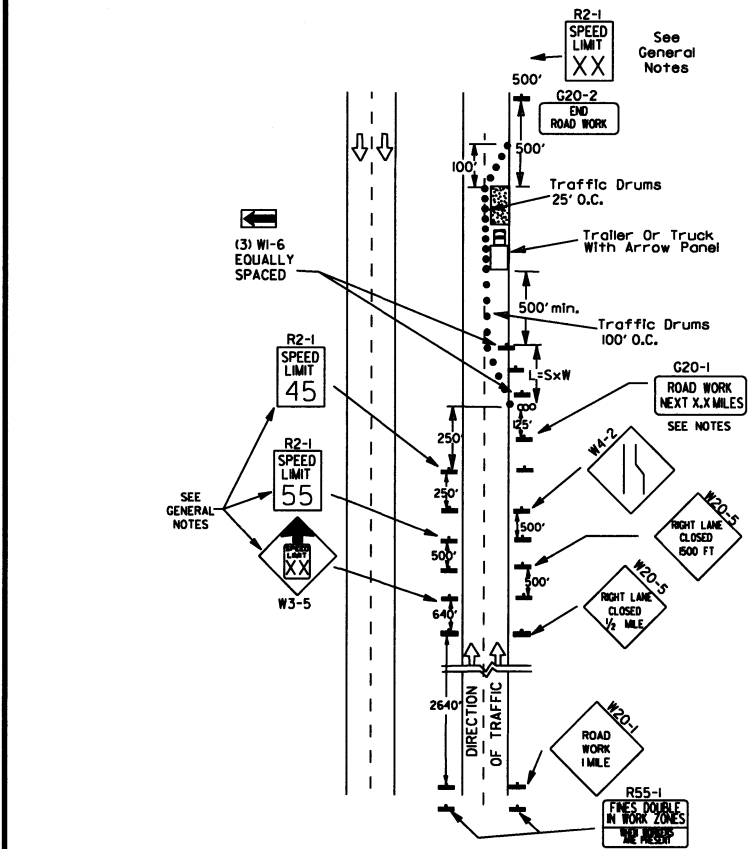
DATE	REVISION	FILED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
1-20-08	REVISED SIGN DESIGNATIONS	
1-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	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	



(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.



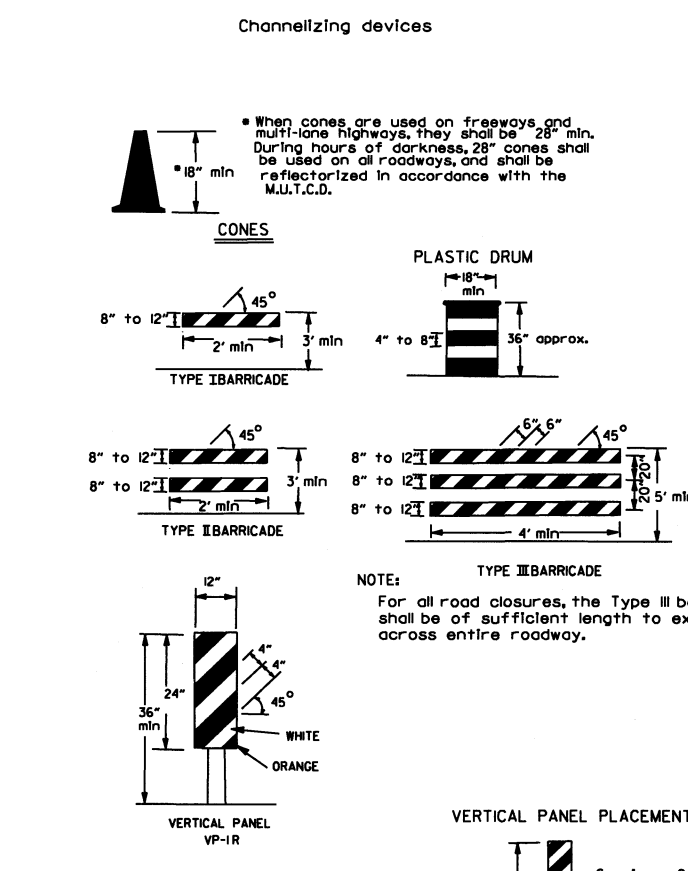
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

- Arrow Panel (if Required)
- Channelizing Device
- Traffic drum

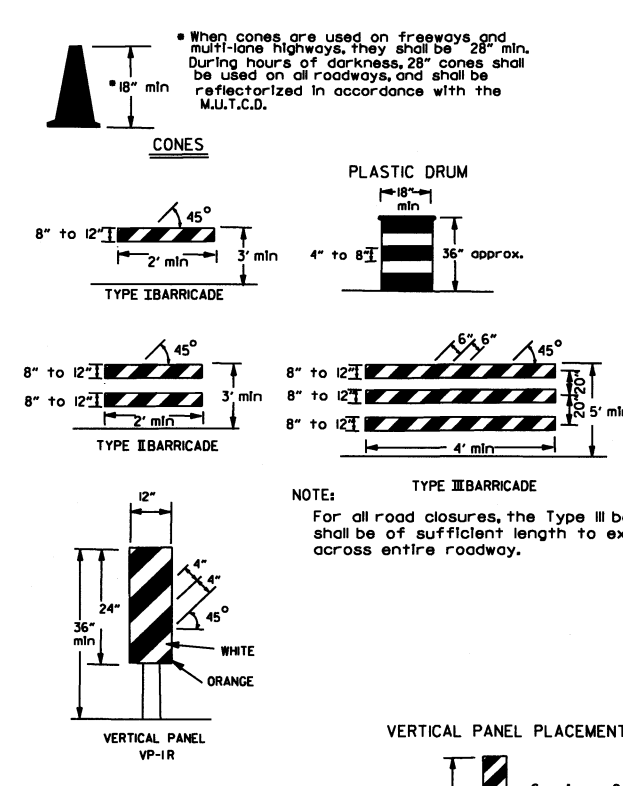
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or 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.



(D) Typical application - closing multiple lanes of a multilane highway.

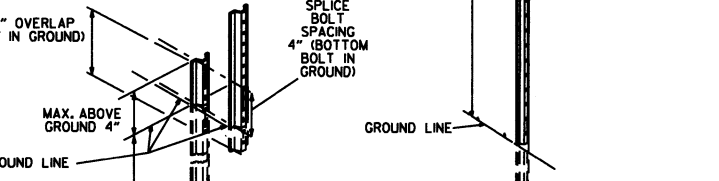
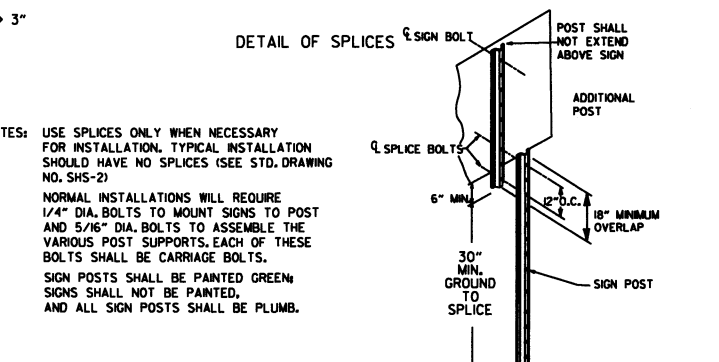
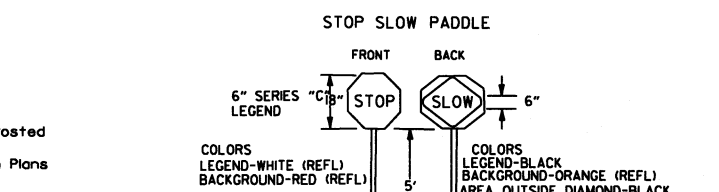
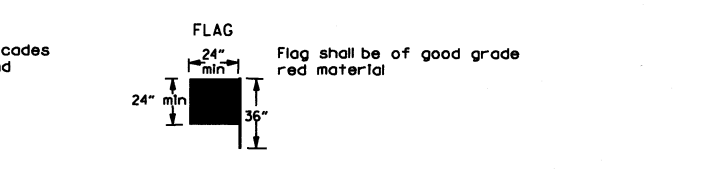
Channelizing devices



TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



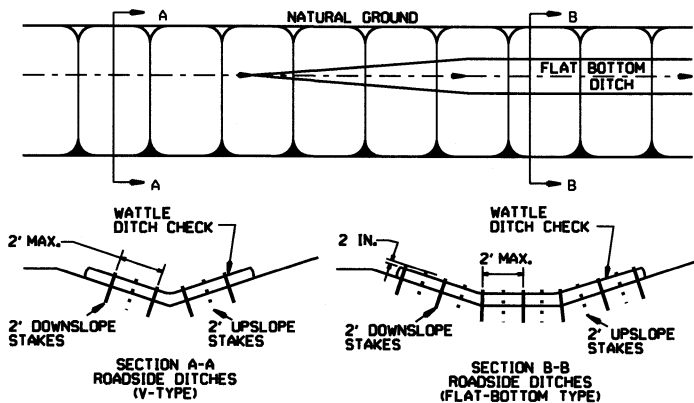
NOTES:

1. USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
2. NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.
3. SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
1-20-08	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	

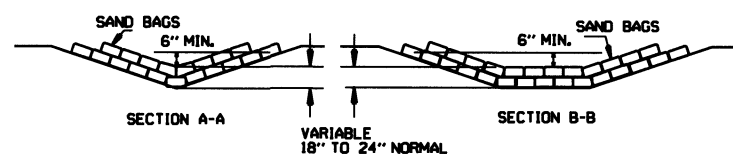
GENERAL NOTES

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

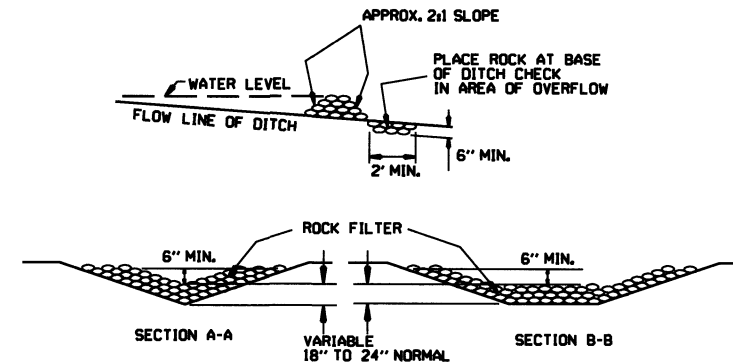


WATTLE DITCH CHECK (E-1)

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

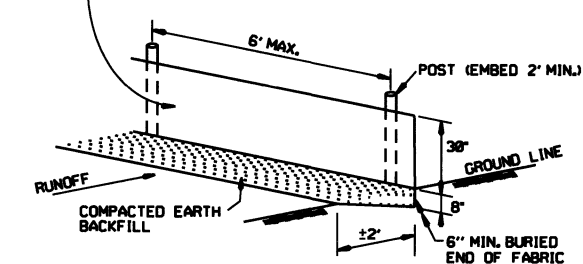


SAND BAG DITCH CHECK (E-5)

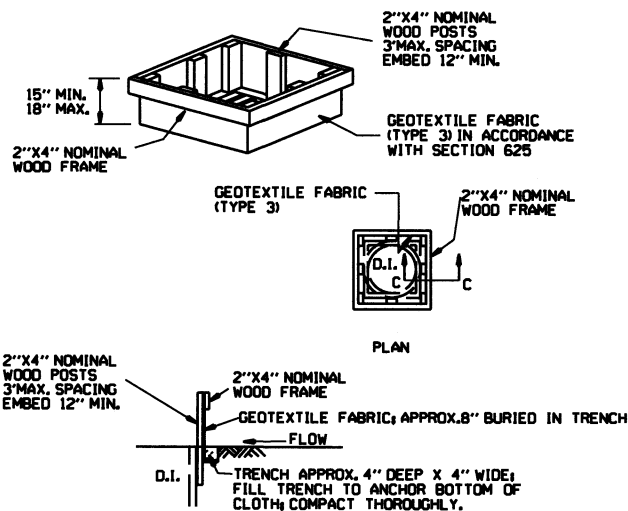


ROCK DITCH CHECK (E-6)

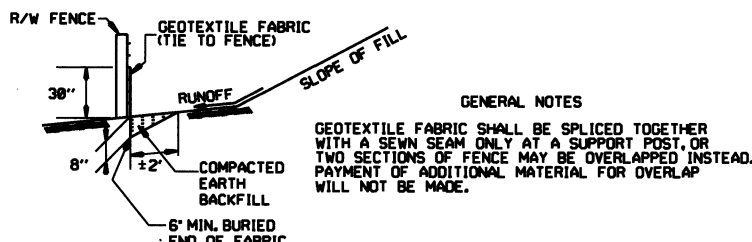
GENERAL NOTES
 GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625
 GEOTEXTILE FABRIC SHALL BE SPliced TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

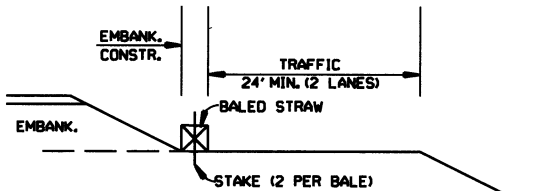


DROP INLET SILTS FENCE (E-7)

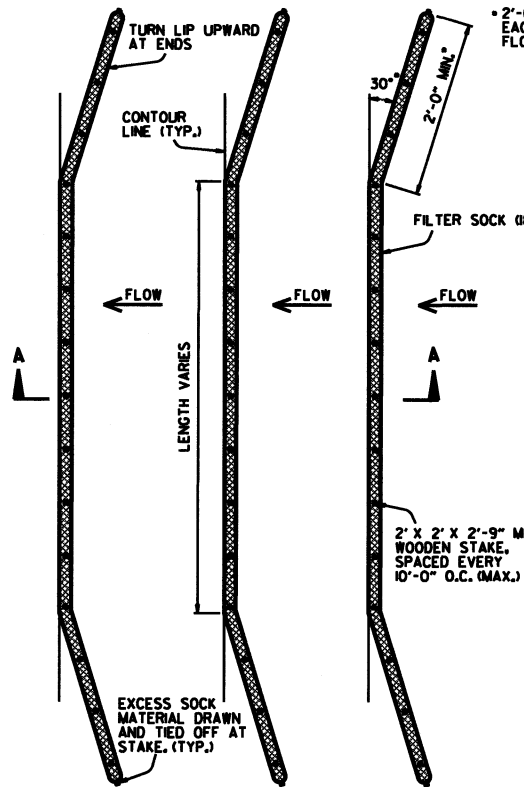


SILT FENCE ON R/W FENCE (E-4)

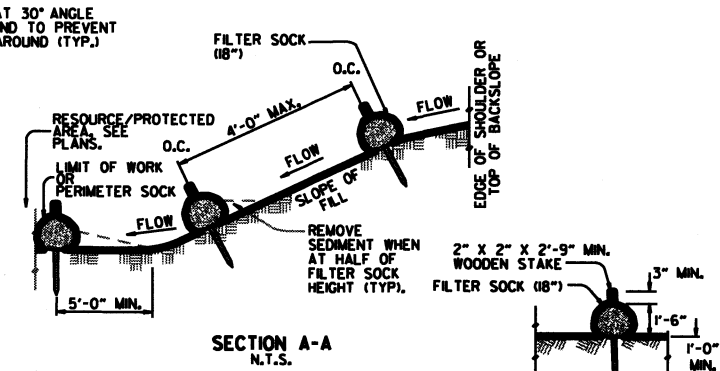
GENERAL NOTES
 1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 36 INCHES IN LENGTH.
 2. NO GAPS SHALL BE LEFT BETWEEN BALES.
 3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED 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)



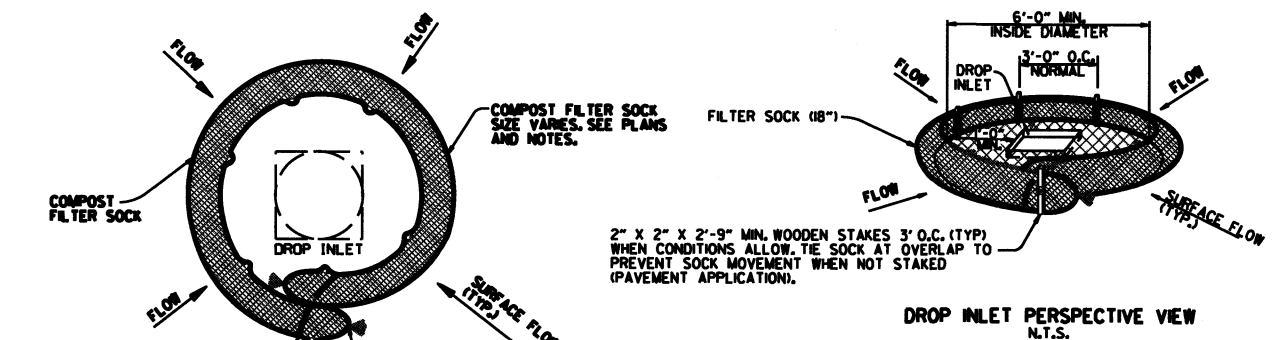
PLAN VIEW N.T.S.



STAKING DETAIL N.T.S.

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 125 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 SUBSIDIARY TO "FILTER SOCK (18\"/>

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW N.T.S.

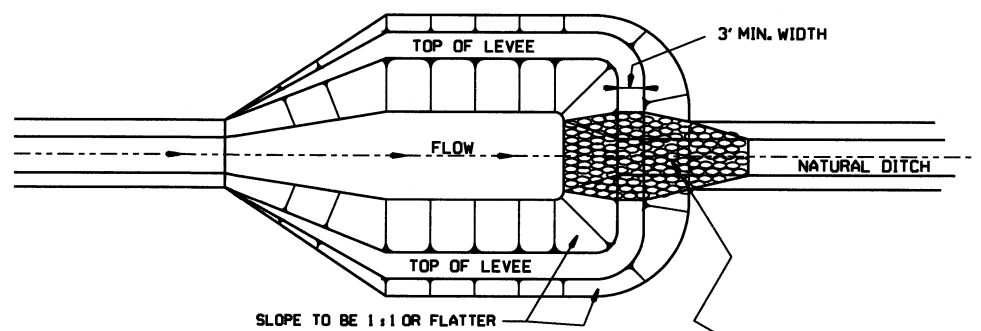
DROP INLET PERSPECTIVE VIEW N.T.S.

NOTES:
 1. OVERLAP ENDS OF SOCK (1\"/>

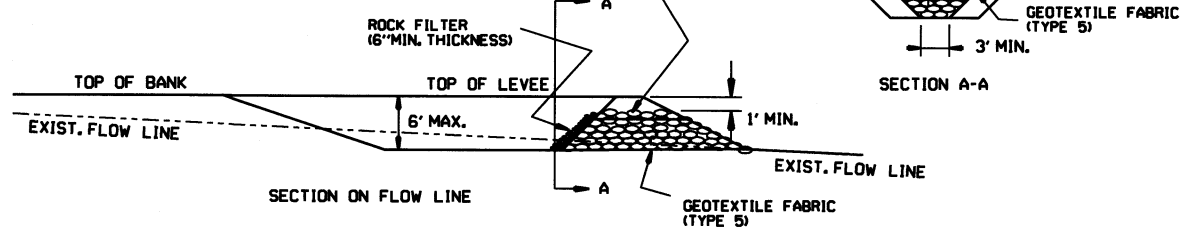
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

8-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
1-18-98	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. 1 1/2\"/>	
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-T-28-76
DATE	REVISION	FILMED

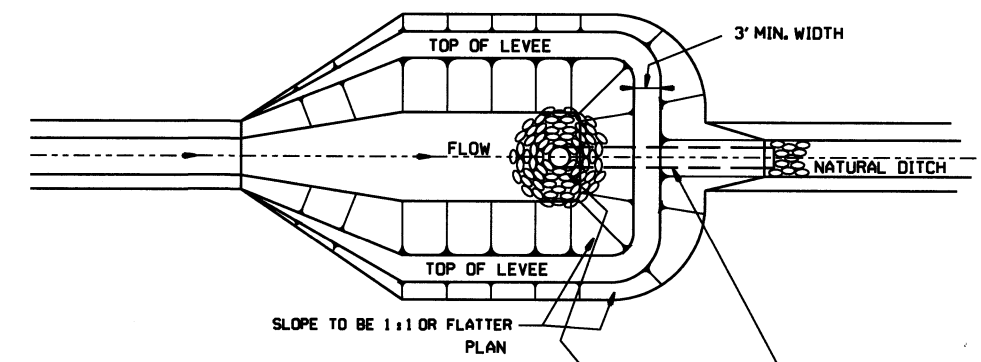
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-1



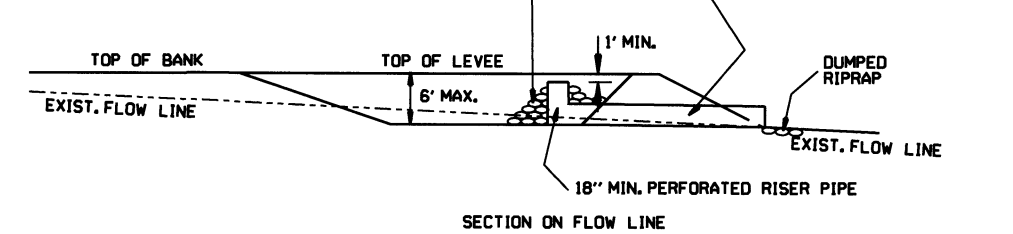
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



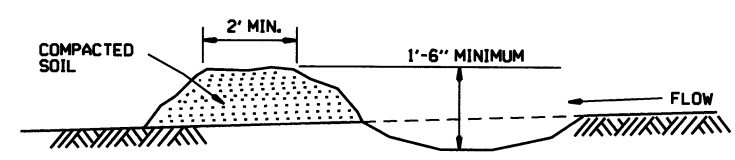
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



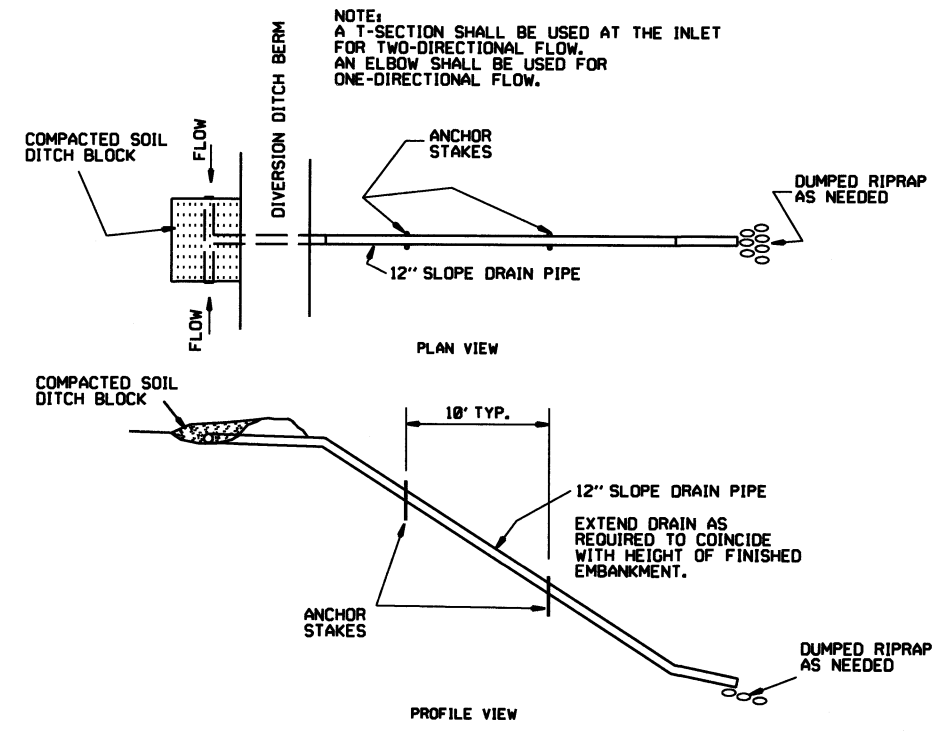
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



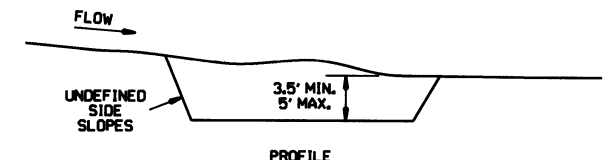
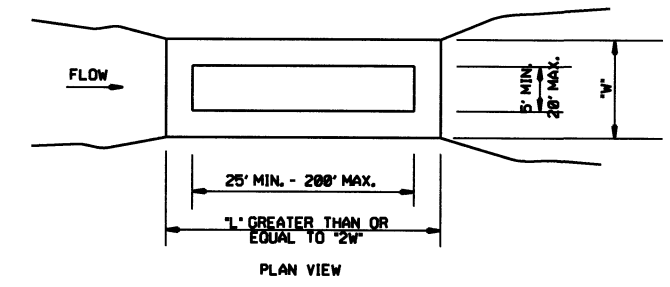
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

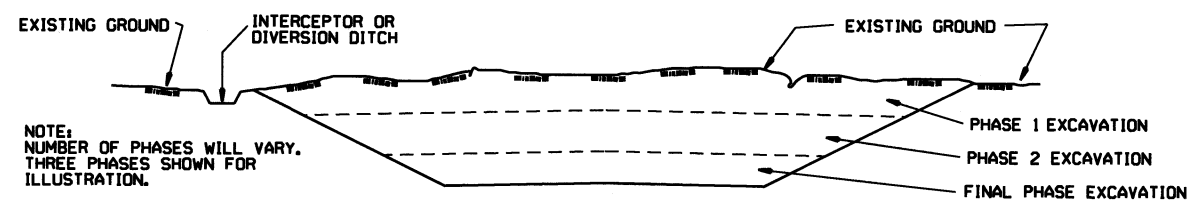
ARKANSAS STATE HIGHWAY COMMISSION
**TEMPORARY EROSION
CONTROL DEVICES**
STANDARD DRAWING TEC-2

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



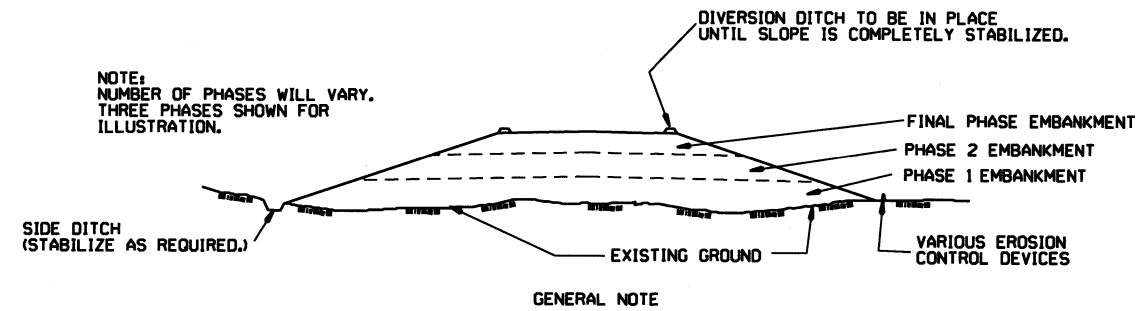
GENERAL NOTE

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



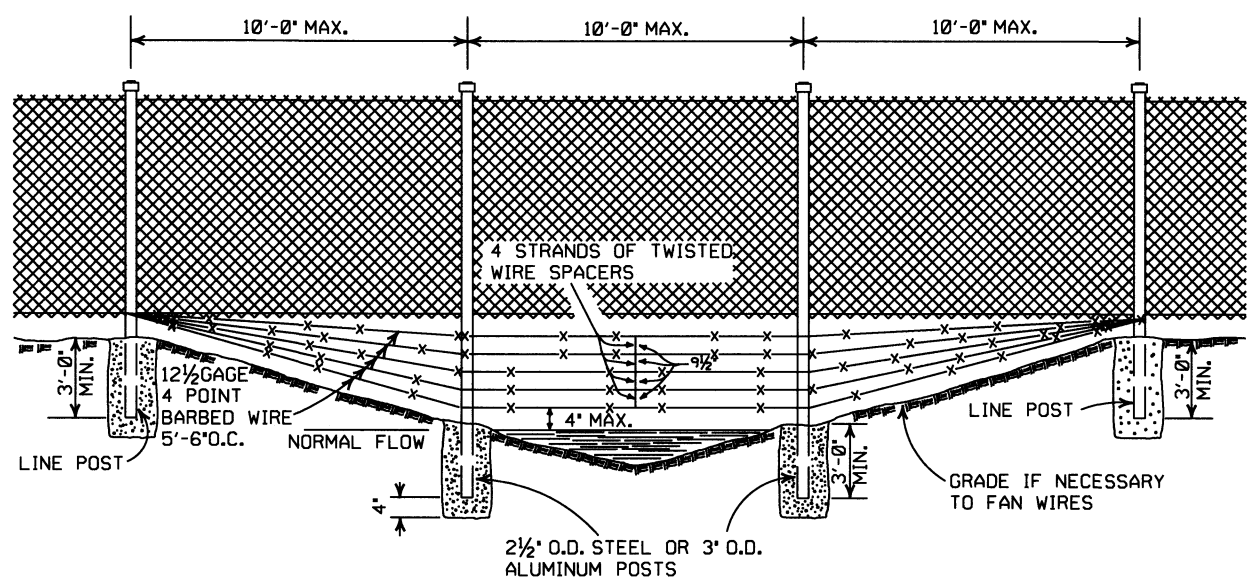
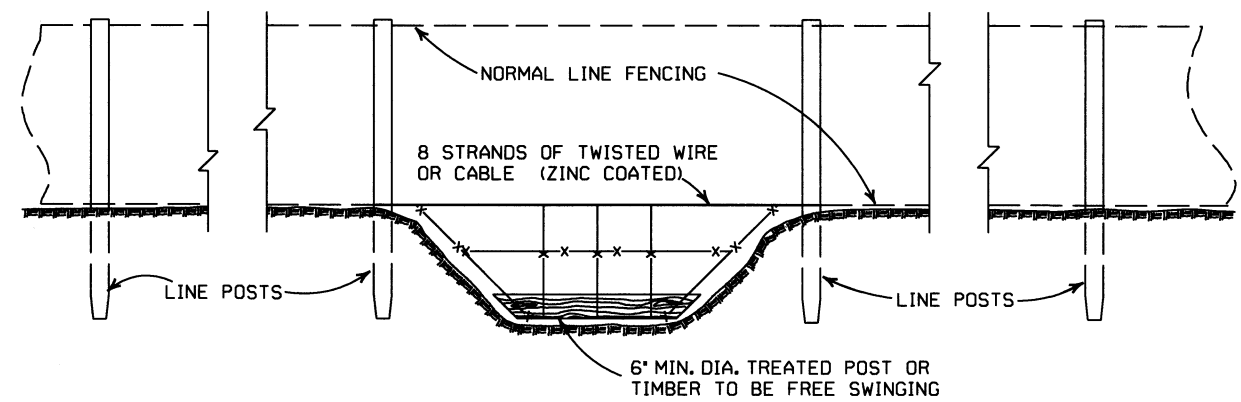
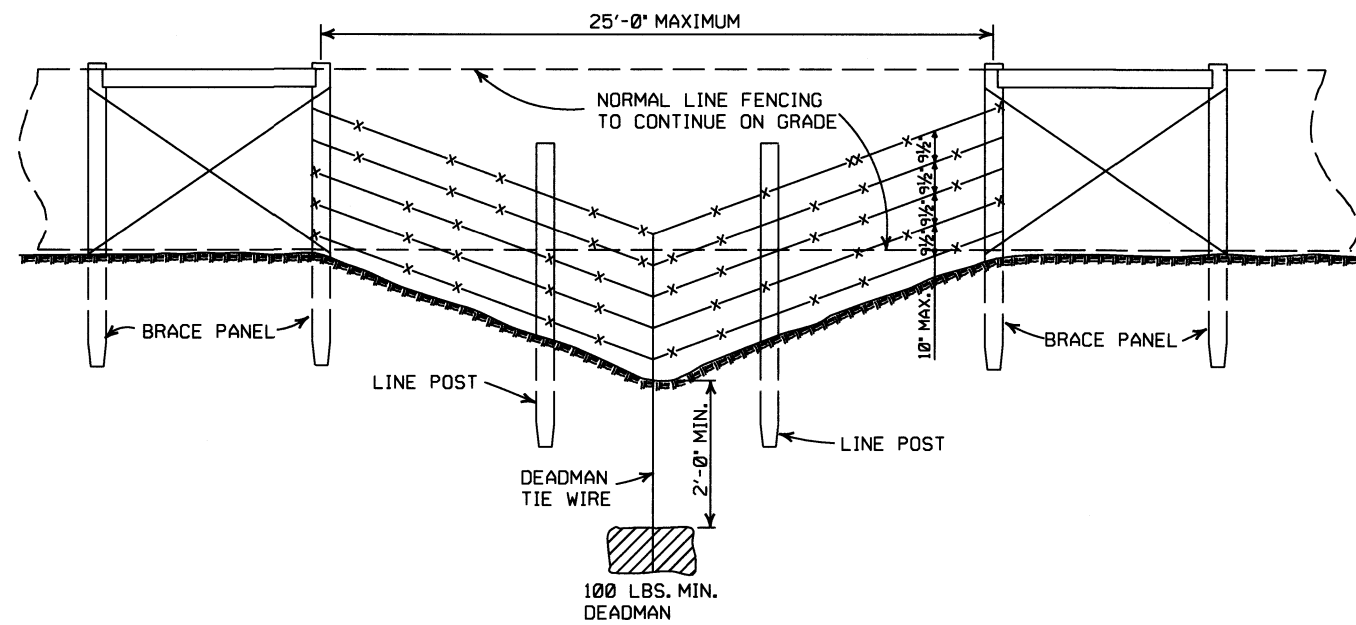
GENERAL NOTE

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.

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED
STANDARD DRAWING TEC-3		



GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

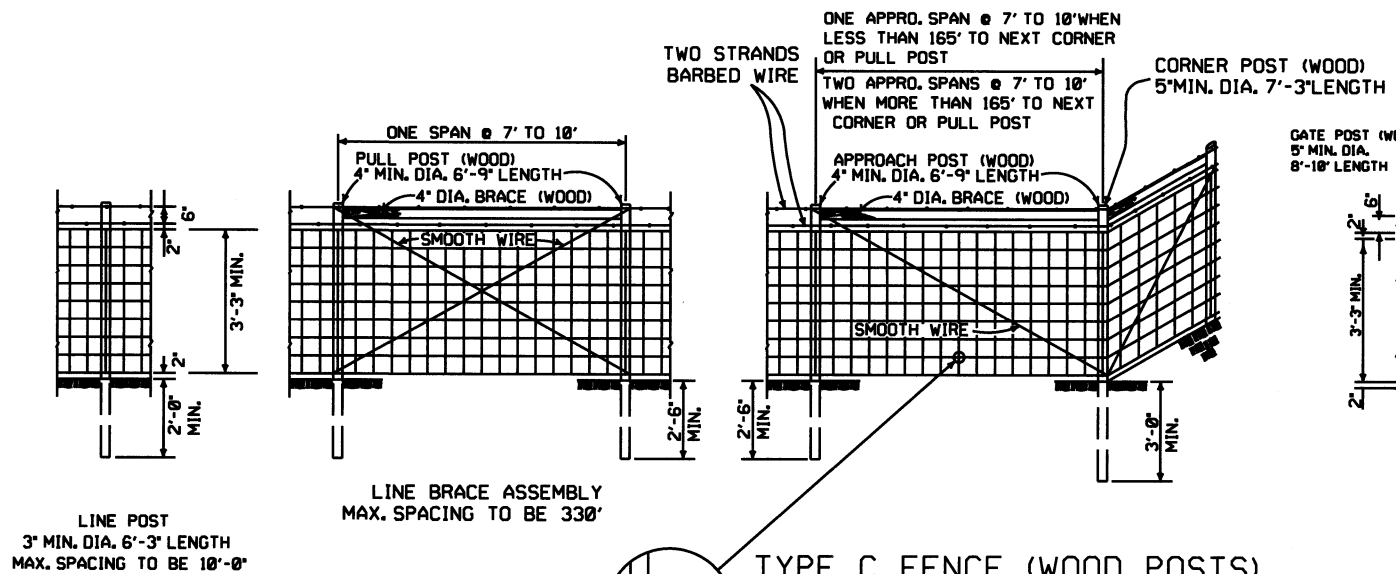
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72
DATE	REVISION	FILMED

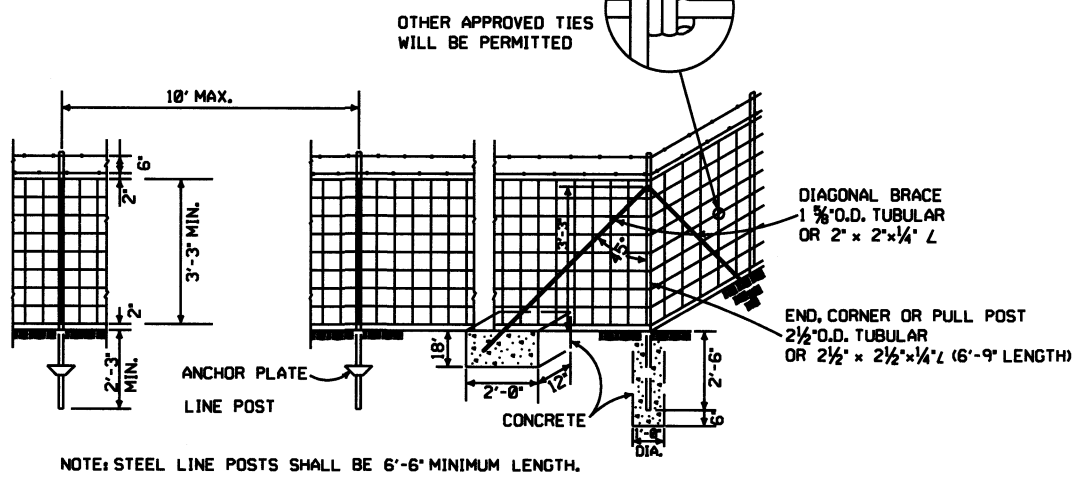
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

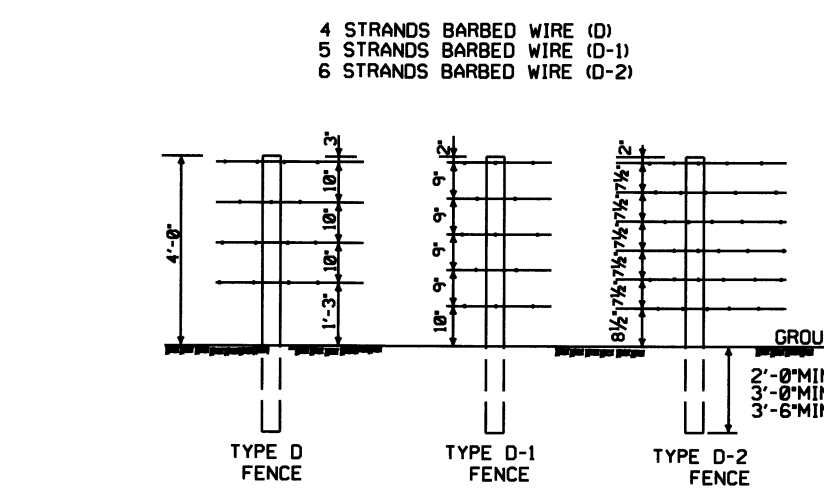
STANDARD DRAWING WF-2



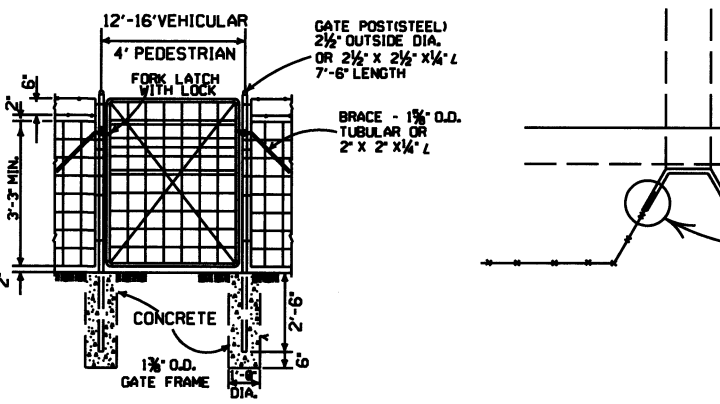
TYPE C FENCE (WOOD POSTS)



TYPE C FENCE (STEEL POSTS)



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



GENERAL NOTES:

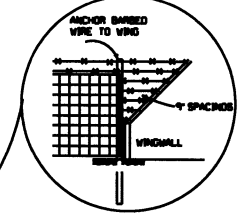
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE. AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE -1" TO +2". TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

NOTE: USE 3/4" x 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.

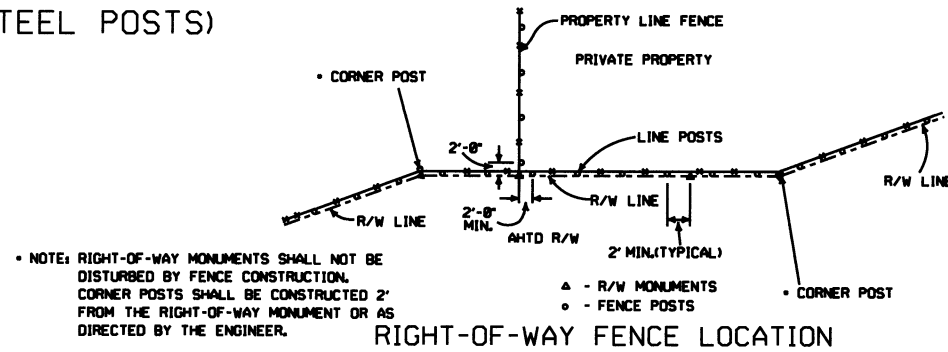


DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

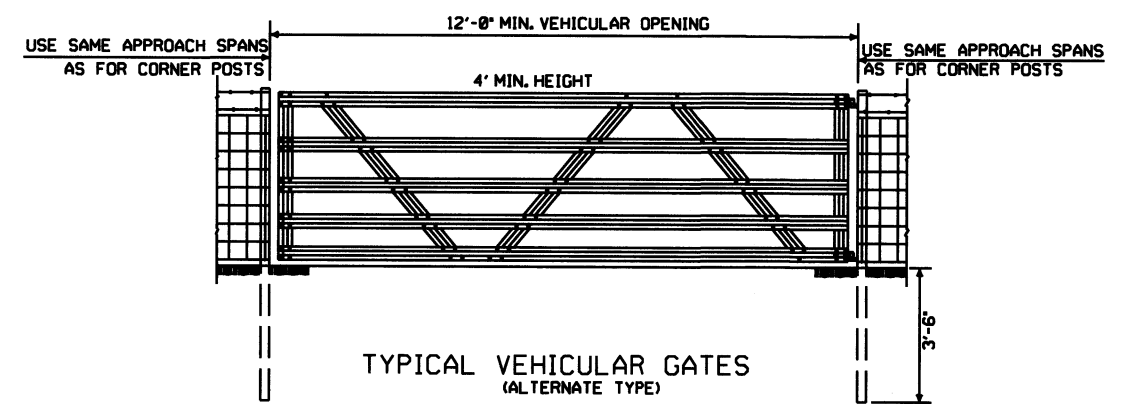
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

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

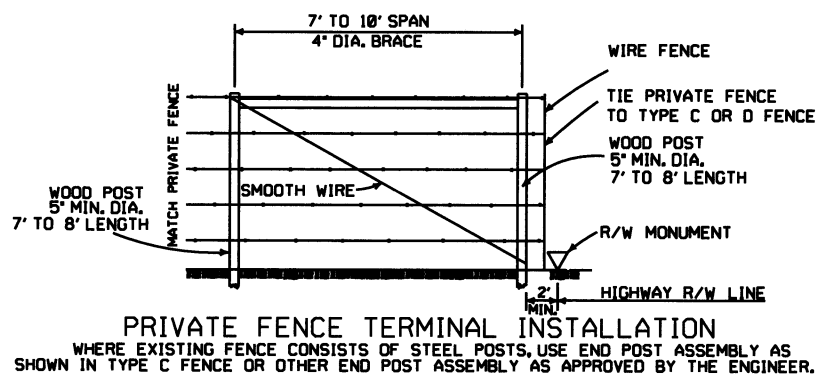
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



RIGHT-OF-WAY FENCE LOCATION



TYPICAL VEHICULAR GATES (ALTERNATE TYPE)



PRIVATE FENCE TERMINAL INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4