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.		030458	1	98
				(2) LITTLE MISSOURI RIVER & RELIEF STRS. & APPRS. (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

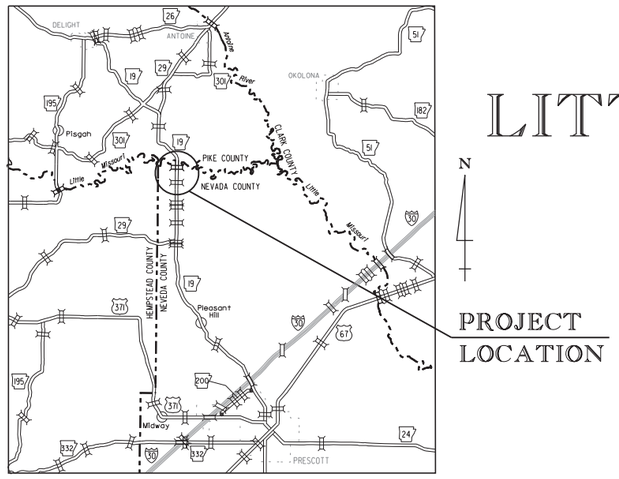
LITTLE MISSOURI RIVER & RELIEF STRS. & APPRS. (S)

NEVADA & PIKE COUNTIES

ROUTE 19 SECTIONS 5 & 6

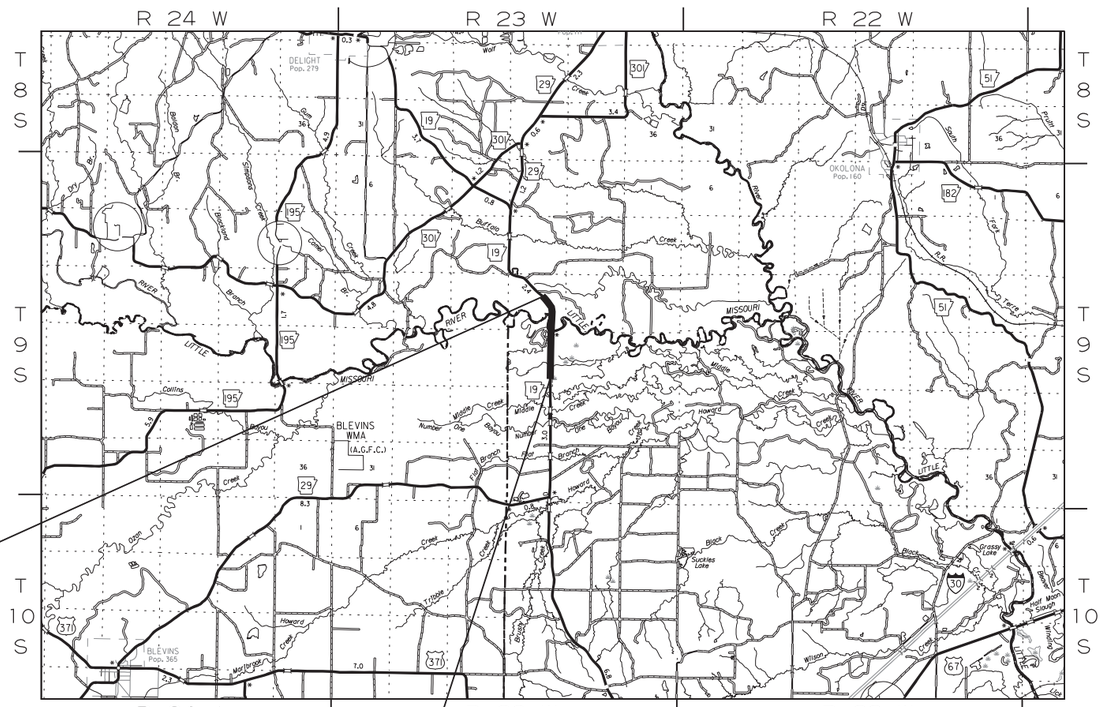
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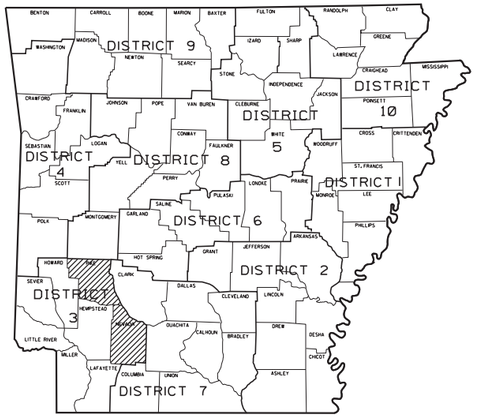
FEDERAL AID PROJECT NHPP-0050(33)



VICINITY MAP

NOT TO SCALE





ARKANSAS HIGHWAY DISTRICT 3

BRIDGE CONSTRUCTION DATA

(1) STA. 24+29.96 BRIDGE END
BRIDGE NO. 06347 OVER LITTLE MISSOURI RIVER RELIEF
425'-0" R.C. DECK GIRDER
40'-0" CLEAR ROADWAY
STA. 28+54.96 BRIDGE END
RETAIN AND REPAIR

(2) STA. 55+78.92 BRIDGE END
BRIDGE NO. 07479 OVER LITTLE MISSOURI RIVER
500'-0" CONT. PLATE GIRDER UNIT (100'-150'-150'-100')
40'-0" CLEAR ROADWAY
502'-2" BRIDGE LENGTH
STA. 60+81.08 BRIDGE END

· DESIGN TRAFFIC DATA ·

DESIGN YEAR	2040
2020 ADT	920
2040 ADT	1,000
2040 DHV	110
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	30%
DESIGN SPEED	55 MPH

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LATITUDE	N 33°56'44"	N 33°57'17"	N 33°57'49"
LONGITUDE	W 93°26'39"	W 93°26'37"	W 93°26'43"
STATION	21+00.00	54+75.00	88+50.00

GROSS LENGTH OF PROJECT	6750.00	FEET OR	1.278 MILES
NET LENGTH OF ROADWAY	5822.84	FEET OR	1.103 MILES
NET LENGTH OF BRIDGES	927.16	FEET OR	0.175 MILES
NET LENGTH OF PROJECT	6750.00	FEET OR	1.278 MILES

GARVER LLC — CERTIFICATE OF AUTHORIZATION — No. 766 — ARKANSAS ENGINEER

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 13422 — JOHN F. CANTABERRY

DIGITALLY SIGNED 4/10/2020

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				6	ARK.			
				JOB NO.		030458	2	98
				(2)	INDEX OF SHEETS AND STANDARD DRAWINGS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 7	TYPICAL SECTIONS OF IMPROVEMENT		
8 - 11	SPECIAL DETAILS		
12 - 20	TEMPORARY EROSION CONTROL DETAILS		
21 - 27	MAINTENANCE OF TRAFFIC DETAILS		
28 - 30	PERMANENT PAVEMENT MARKING DETAILS		
31	SOIL BORING LOG		
32 - 34	QUANTITIES		
35	SCHEDULE OF BRIDGE QUANTITIES	06347, 07479	61492
36	SUMMARY OF QUANTITIES AND REVISIONS		
37 - 40	SURVEY CONTROL DETAILS		
41 - 45	PLAN AND PROFILE SHEETS		
46	DRIVEWAY PROFILES		
47	LAYOUT OF BRIDGE HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF (SHEET 1 OF 2)	06347	61493
48	LAYOUT OF BRIDGE HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF (SHEET 2 OF 2)	06347	61494
49	DETAILS OF STAGED CONSTRUCTION (SHEET 1 OF 3)	06347	61495
50	DETAILS OF STAGED CONSTRUCTION (SHEET 2 OF 3)	06347	61496
51	DETAILS OF STAGED CONSTRUCTION (SHEET 3 OF 3)	06347	61497
52	DETAILS OF PRECAST BENT CAPS (SHEET 1 OF 2)	06347	61498
53	DETAILS OF PRECAST BENT CAPS (SHEET 2 OF 2)	06347	61499
54	DETAILS OF BENT CAP REPAIRS	06347	61500
55	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 1 OF 6)	06347	61501
56	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 2 OF 6)	06347	61502
57	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 3 OF 6)	06347	61503
58	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 4 OF 6)	06347	61504
59	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 5 OF 6)	06347	61505
60	DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS (SHEET 6 OF 6)	06347	61506
61	DETAILS OF MOCK CLOSURE POUR PANEL	06347	61507
62	DETAILS OF PRECAST CAP MOCKUP	06347	61508
63	LAYOUT OF BRIDGE HIGHWAY 19 OVER LITTLE MISSOURI RIVER (SHEET 1 OF 3)	07479	61509
64	LAYOUT OF BRIDGE HIGHWAY 19 OVER LITTLE MISSOURI RIVER (SHEET 2 OF 3)	07479	61510
65	LAYOUT OF BRIDGE HIGHWAY 19 OVER LITTLE MISSOURI RIVER (SHEET 3 OF 3)	07479	61511
66	DETAILS OF END BENTS (SHEET 1 OF 3)	07479	61512
67	DETAILS OF END BENTS (SHEET 2 OF 3)	07479	61513
68	DETAILS OF END BENTS (SHEET 3 OF 3)	07479	61514
69	INTERMEDIATE BENT DETAILS (SHEET 1 OF 3)	07479	61515
70	INTERMEDIATE BENT DETAILS (SHEET 2 OF 3)	07479	61516
71	INTERMEDIATE BENT DETAILS (SHEET 3 OF 3)	07479	61517
72	DETAILS OF ELASTOMERIC BEARINGS	07479	61518
73	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 1 OF 6)	07479	61519
74	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 2 OF 6)	07479	61520
75	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 3 OF 6)	07479	61521
76	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 4 OF 6)	07479	61522
77	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 5 OF 6)	07479	61523
78	DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 6 OF 6)	07479	61524
79	DETAILS OF TYPE SPECIAL APPROACH GUTTERS	07479	61525
80 - 98	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR POURED SILICONE JOINTS	02-11-16
55009	STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	11-07-19
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	11-07-19
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	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-4	WIRE FENCE TYPE C AND D	08-22-02

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				(2)	GOVERNING SPECIFICATIONS AND GENERAL NOTES			

GOVERNING SPECIFICATIONS

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

NUMBER **TITLE**

ERRATA____ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__ REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__ SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__ SUPPLEMENT - TRAINING PROGRAM - JOB 030458
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
210-1_____ UNCLASSIFIED EXCAVATION
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
404-3_____ DESIGN OF ASPHALT MIXTURES
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
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____ CONCRETE DITCH PAVING
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
620-1_____ MULCH COVER
621-1_____ FILTER SOCKS
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
804-2_____ REINFORCING STEEL FOR STRUCTURES
807-2_____ STEEL STRUCTURES
808-1_____ INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____ ELASTOMERIC BEARINGS
JOB 030458__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 030458__ BRIDGE DECK REPAIR FOR POLYMER OVERLAYS
JOB 030458__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 030458__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 030458__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 030458__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 030458__ CLEARING AND GRUBBING
JOB 030458__ COLD MILLING ASPHALT PAVEMENT
JOB 030458__ COMPACTED EMBANKMENT
JOB 030458__ CONCRETE FOR CLOSURE POUR
JOB 030458__ CONCRETE REPAIRS
JOB 030458__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 030458__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 030458__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 030458__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 030458__ DRILLED SHAFT FOUNDATIONS
JOB 030458__ EXCAVATION AND REMOVAL OF EXISTING WORK ROAD MATERIAL
JOB 030458__ FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB 030458__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 030458__ JOINT REHABILITATION FOR BRIDGE DECKS
JOB 030458__ MANDATORY ELECTRONIC CONTRACT
JOB 030458__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 030458__ NESTING SITES OF MIGRATORY BIRDS
JOB 030458__ NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 030458__ OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 030458__ PARTNERING REQUIREMENTS
JOB 030458__ PLASTIC PIPE
JOB 030458__ POLYMER OVERLAY
JOB 030458__ PORTABLE TRAFFIC SIGNAL SYSTEM
JOB 030458__ PRECAST BENT CAPS
JOB 030458__ PREFABRICATED SUPERSTRUCTURE MODULES
JOB 030458__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 030458__ SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 030458__ SELF-CONSOLIDATING CONCRETE
JOB 030458__ SHORING FOR CULVERTS
JOB 030458__ SITE USE (A+B+C METHOD)
JOB 030458__ SOIL STABILIZATION
JOB 030458__ STORM WATER POLLUTION PREVENTION PLAN
JOB 030458__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 030458__ UTILITY ADJUSTMENTS
JOB 030458__ VALUE ENGINEERING
JOB 030458__ WARM MIX ASPHALT
JOB 030458__ ZEBRA MUSSEL CONTAINMENT

STATE OF ARKANSAS
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No.14994
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GENERAL NOTES

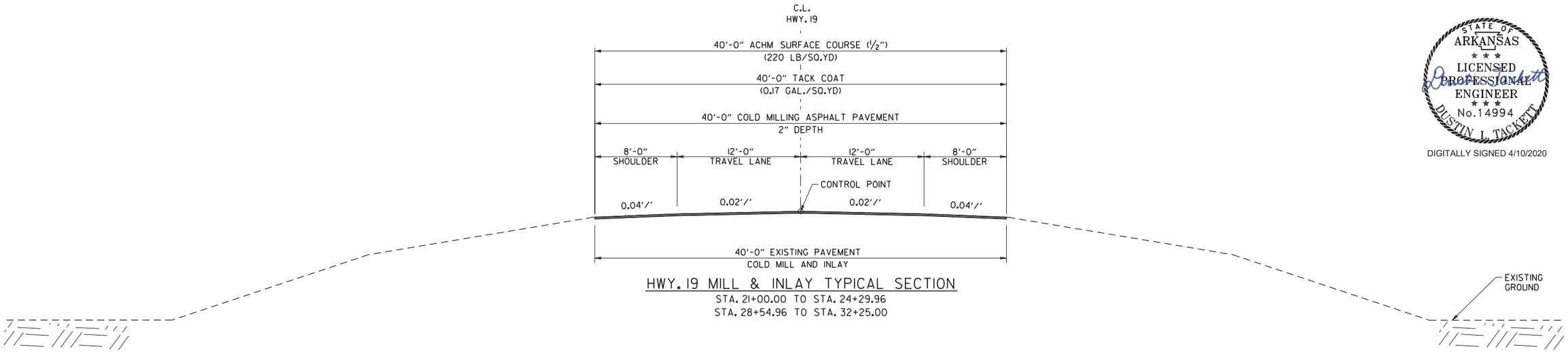
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY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

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(2) TYPICAL SECTIONS OF IMPROVEMENT

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HWY. 19 MILL & INLAY TYPICAL SECTION

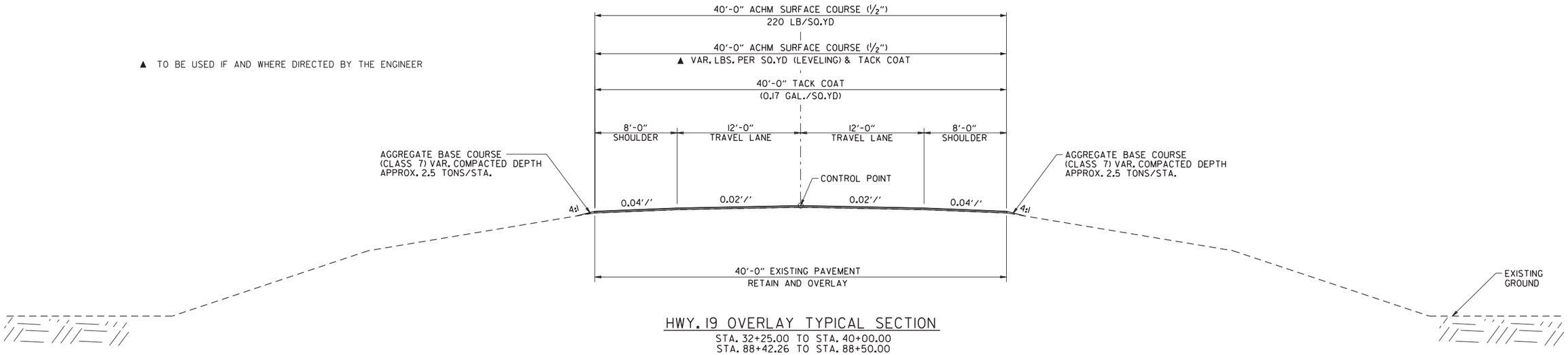
STA. 21+00.00 TO STA. 24+29.96
STA. 28+54.96 TO STA. 32+25.00

NOTES:

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

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

▲ TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



HWY. 19 OVERLAY TYPICAL SECTION

STA. 32+25.00 TO STA. 40+00.00
STA. 88+42.26 TO STA. 88+50.00

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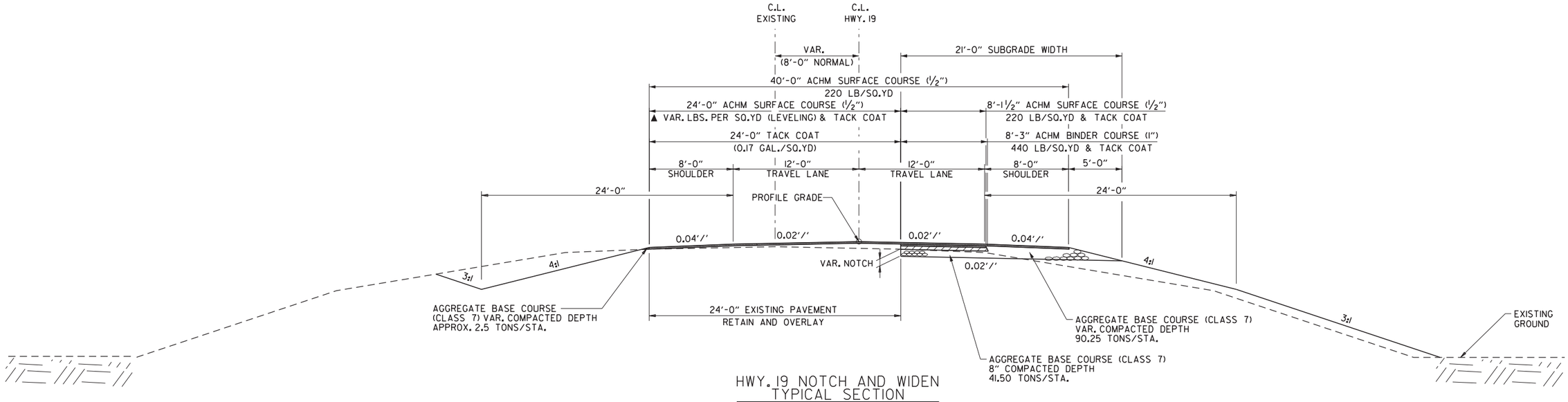
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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
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DUSTIN L. TACKETT

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HWY. 19 NOTCH AND WIDEN TYPICAL SECTION

STA. 40+00.00 TO STA. 47+39.93

NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

▲ TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

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

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

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

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

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TYPICAL SECTIONS OF IMPROVEMENT

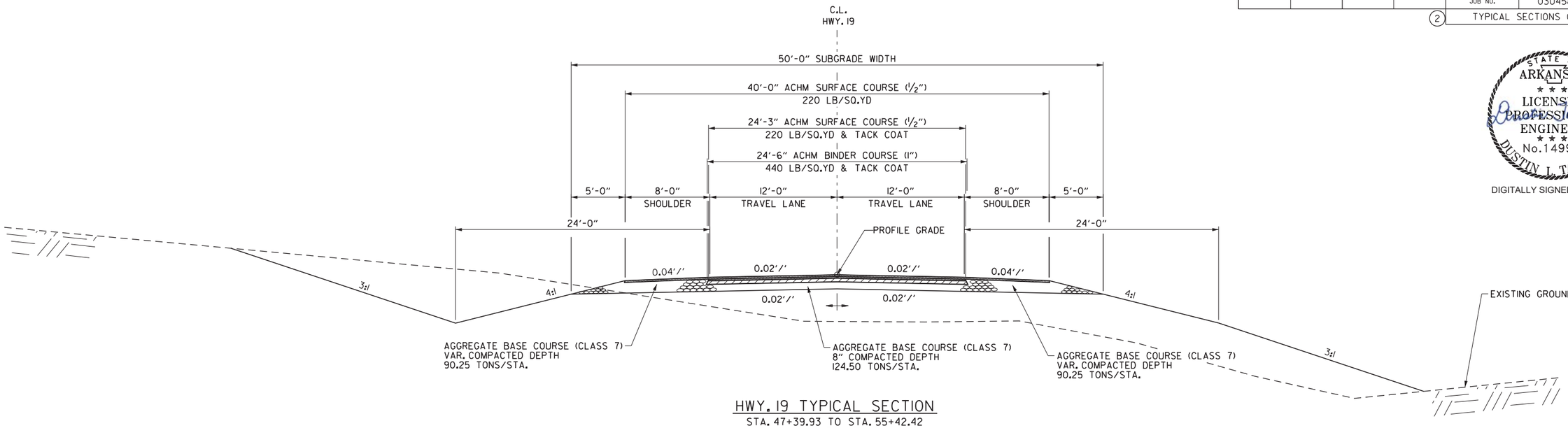
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FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	6	98

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020



HWY. 19 TYPICAL SECTION

STA. 47+39.93 TO STA. 55+42.42
STA. 61+17.58 TO STA. 71+24.24

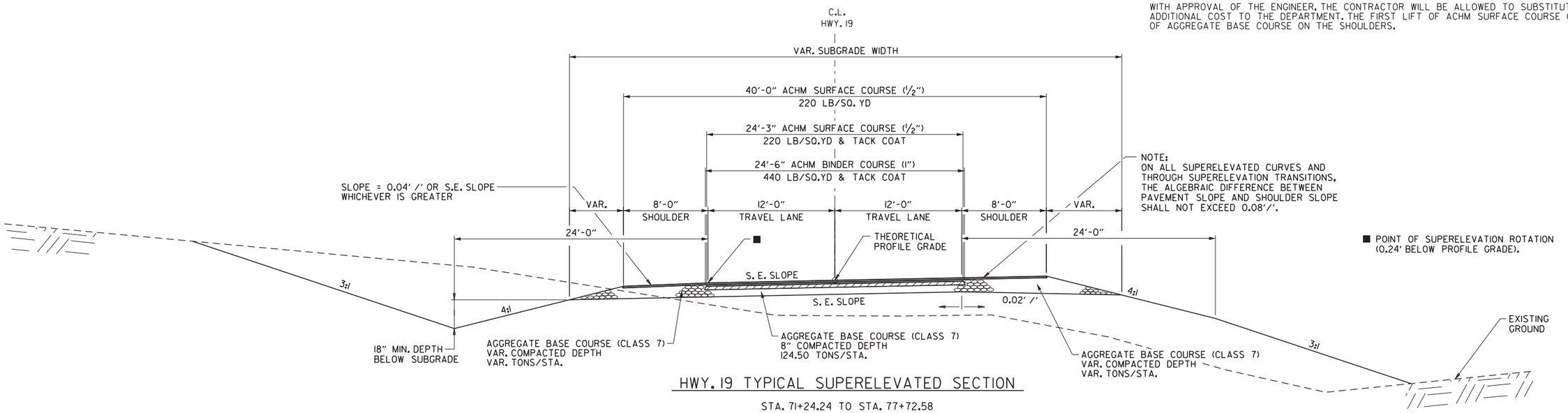
NOTES:

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

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

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

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

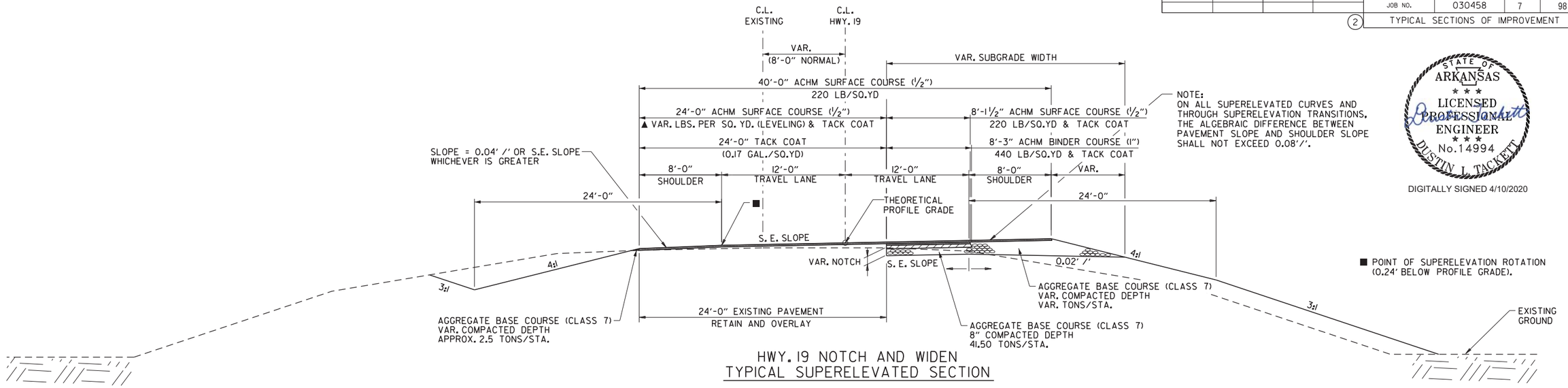


HWY. 19 TYPICAL SUPERELEVATED SECTION

STA. 71+24.24 TO STA. 77+72.58

DLTackett 4/9/2020 3:05:06 PM
WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	7	98
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			



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

■ POINT OF SUPERELEVATION ROTATION (0.24' BELOW PROFILE GRADE).

HWY. 19 NOTCH AND WIDEN
TYPICAL SUPERELEVATED SECTION

STA. 77+72.58 TO STA. 86+17.26

NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

▲ TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

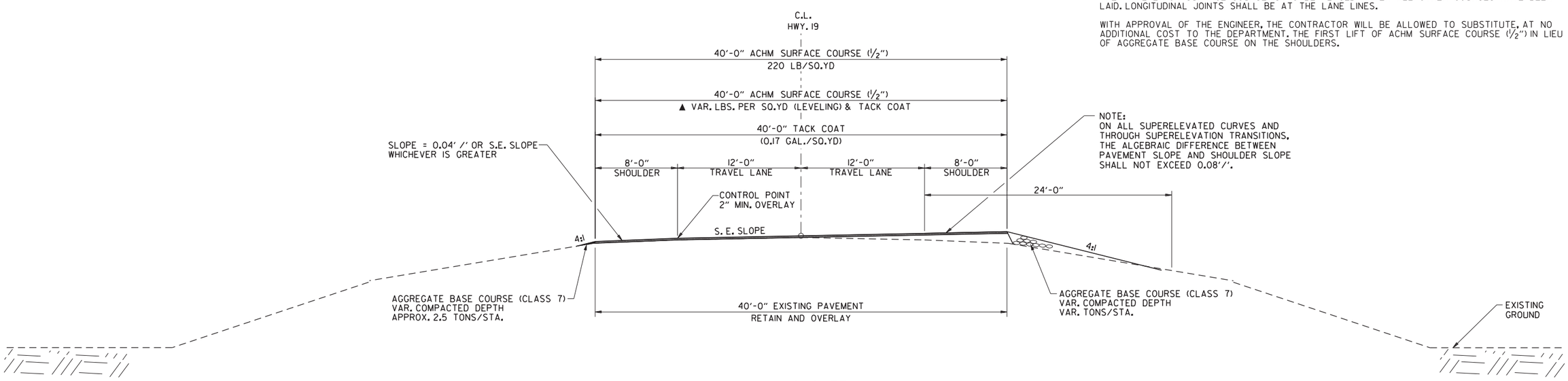
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020



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

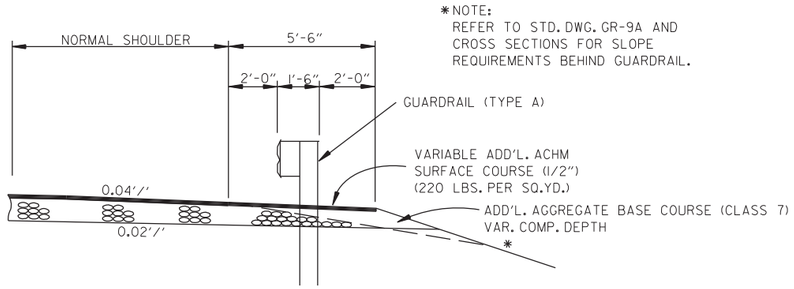
HWY. 19 OVERLAY
TYPICAL SUPERELEVATED SECTION

STA. 86+17.26 TO STA. 88+42.26

TYPICAL SECTIONS OF IMPROVEMENT

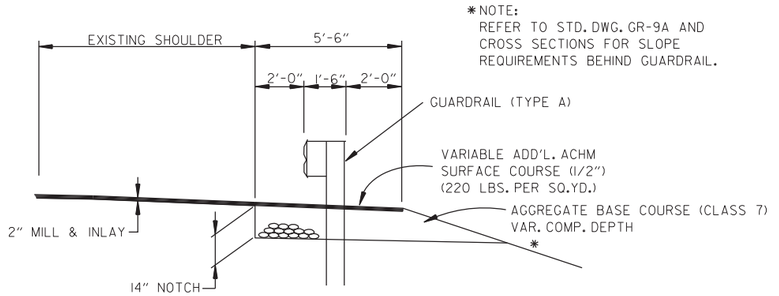
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				6	ARK.			
				JOB NO.		030458	8	98
				(2)	SPECIAL DETAILS			



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

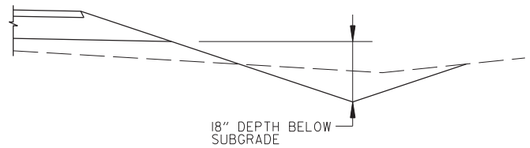
WIDENING FOR GUARDRAIL AT PROPOSED SHOULDER EDGE



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

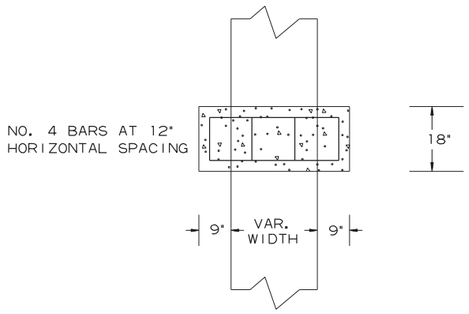
WIDENING FOR GUARDRAIL AT EXISTING SHOULDER EDGE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

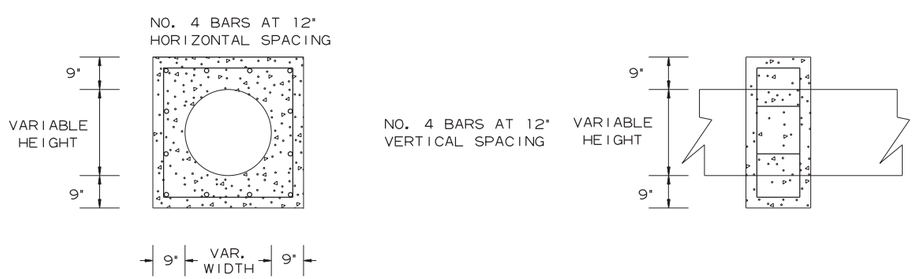


DETAIL FOR DRIVEWAY DITCH

DRIVE 53+00 STA. 6+80.00 TO STA. 9+88.00 LT.
DRIVE 64+00 STA. 5+56.68 TO STA. 8+85.00 RT.

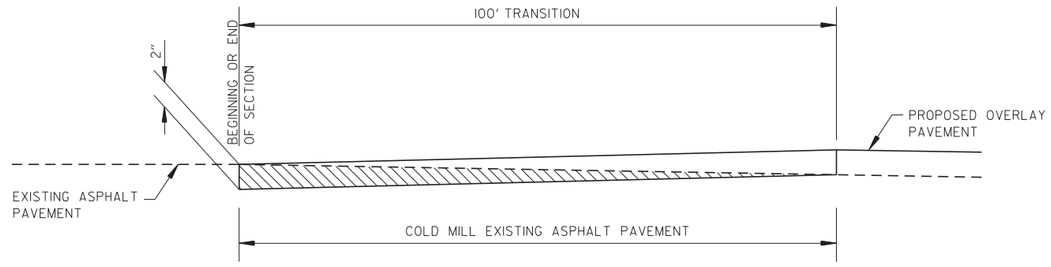


TOP VIEW

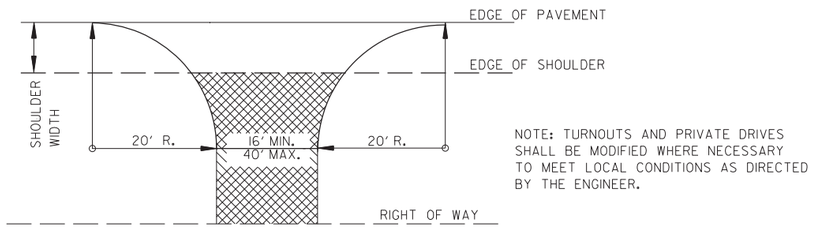


FRONT VIEW SIDE VIEW

SINGLE PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



DETAIL FOR TRANSITIONS



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

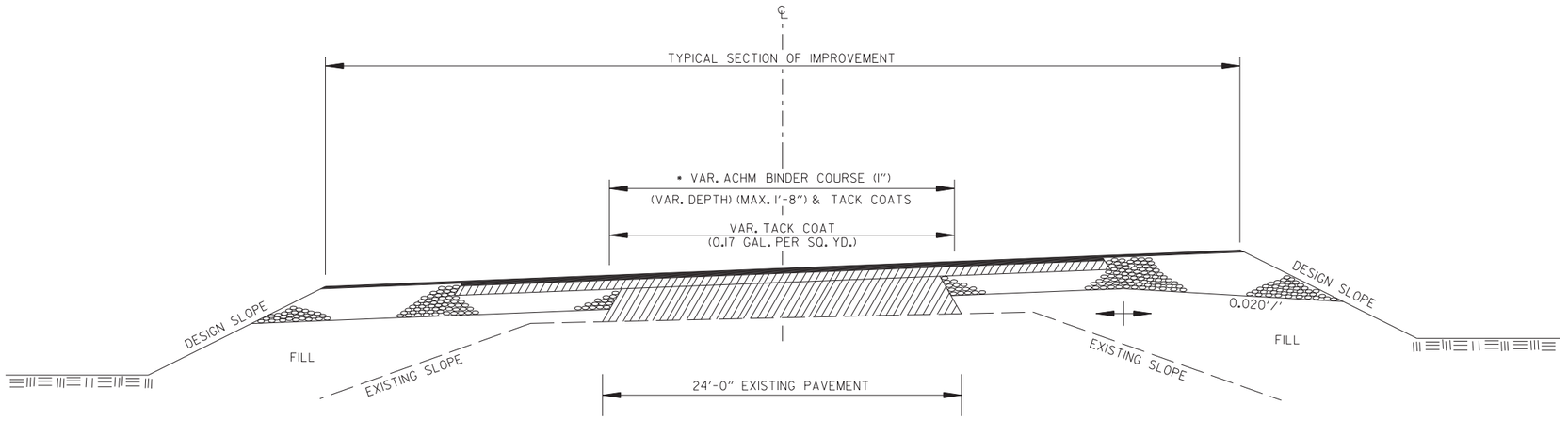
ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXISTS: OR 6" CONCRETE IF CONCRETE DRIVE EXISTS

DETAIL FOR DRIVEWAY TURNOUTS

DLTackett 4/9/2020 3:05:55 PM
WORKSPACE: AHTD
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REVISED DATE:

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				JOB NO.		030458	9	98
				(2)	SPECIAL DETAILS			

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* 8" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (I")

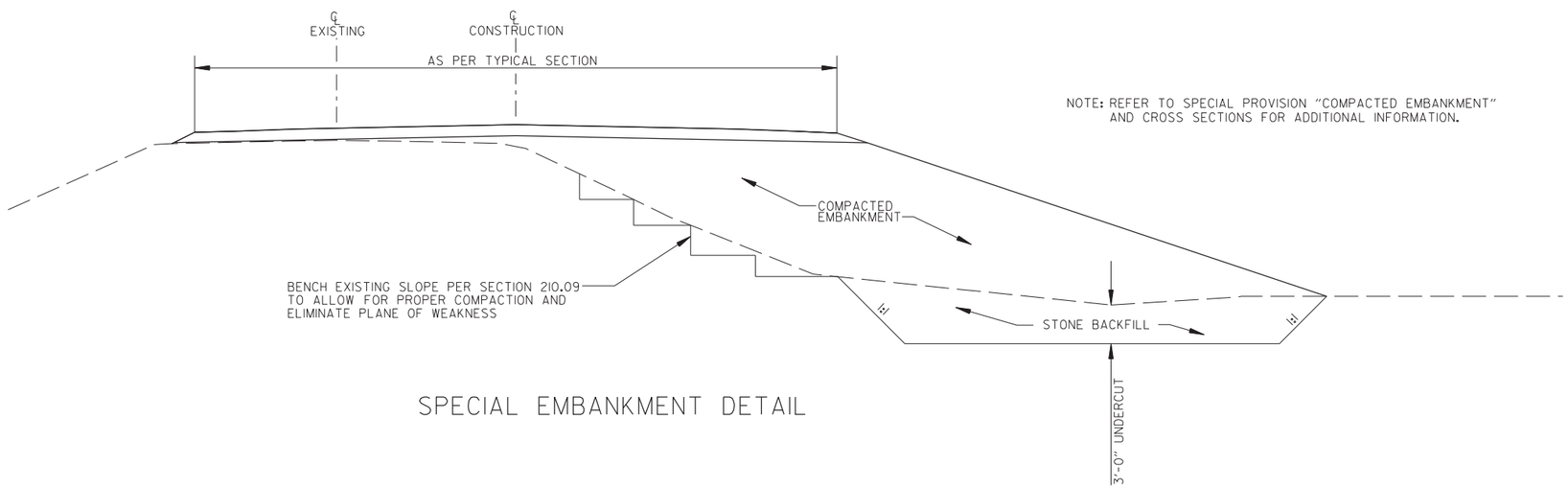
METHOD OF RAISING GRADE

NOTES:

(I) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.

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

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



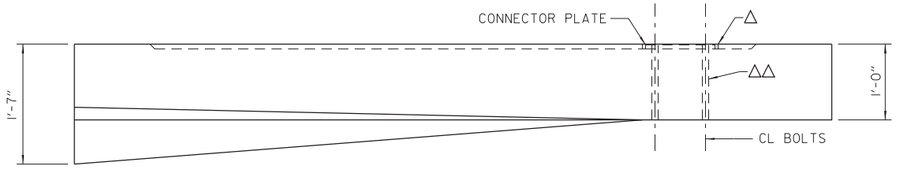
NOTE: REFER TO SPECIAL PROVISION "COMPACTED EMBANKMENT" AND CROSS SECTIONS FOR ADDITIONAL INFORMATION.

SPECIAL EMBANKMENT DETAIL

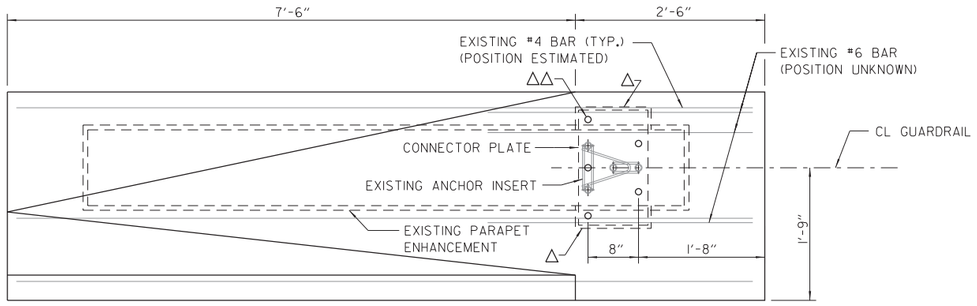
SPECIAL DETAILS

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REVISED DATE:

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				(2)	SPECIAL DETAILS			



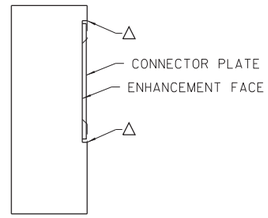
PLAN OF GUARDRAIL CONNECTION AT BRIDGE END (BRIDGE 06347)



ELEVATION OF GUARDRAIL CONNECTION AT BRIDGE END (BRIDGE 06347)

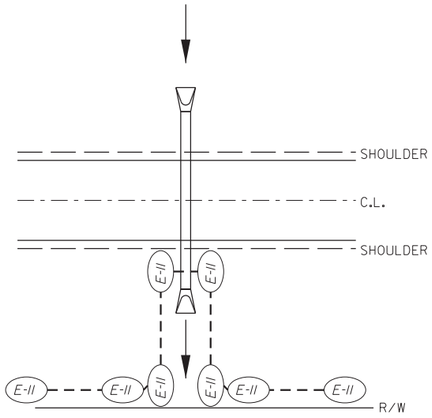
△ SAW CUT, CHIP OUT CONCRETE & GROUT AS NEEDED TO MAKE CONNECTOR PLATE FLUSH WITH ENHANCEMENT FACE.

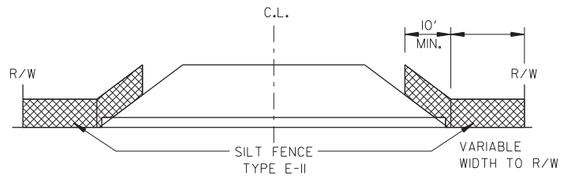
△△ DRILL 5 - 1" Ø HOLES IN EXISTING RAIL TO ACCOMMODATE NEW THRIE BEAM CONNECTION.



END VIEW
(SHOWN @ CONNECTOR PLATE)

NOTE:
ALL WORK ASSOCIATED WITH NEW THRIE BEAM CONNECTIONS WILL BE SUBSIDIARY TO THRIE BEAM GUARDRAIL TERMINAL.





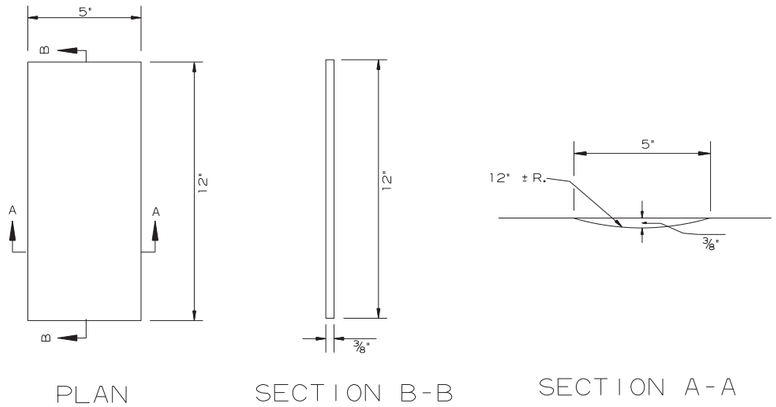
DETAILS OF SILT FENCE
AT CROSS DRAINS

STATE OF ARKANSAS
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REVISED DATE:

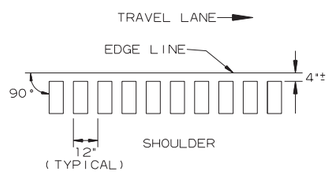
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				6	ARK.			
				JOB NO.		030458	11	98
				(2)		SPECIAL DETAILS		

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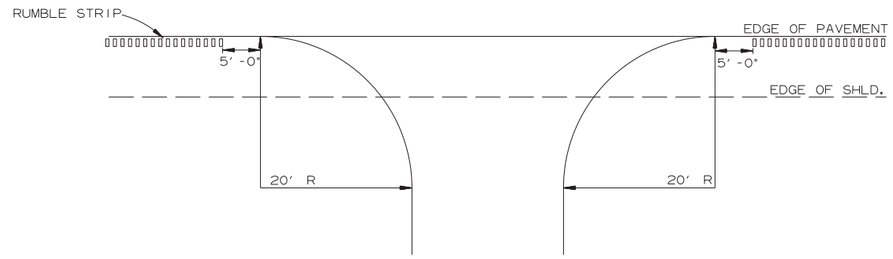


PLAN SECTION B-B SECTION A-A

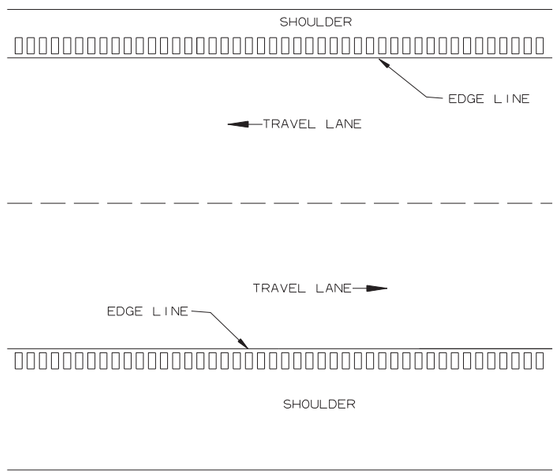
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



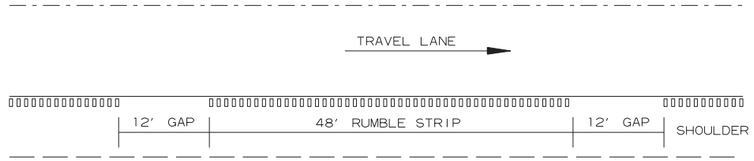
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

SPECIAL DETAILS

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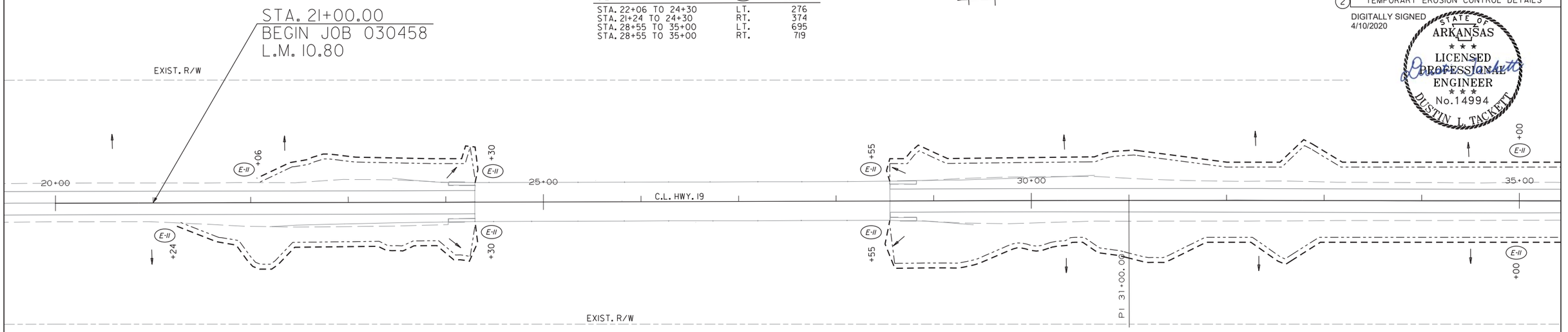
(2) TEMPORARY EROSION CONTROL DETAILS

DIGITALLY SIGNED
4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

HWY. 19

SILT FENCE	E-11	LIN. FT.
STA. 22+06 TO 24+30	LT.	276
STA. 21+24 TO 24+30	RT.	374
STA. 28+55 TO 35+00	LT.	695
STA. 28+55 TO 35+00	RT.	719



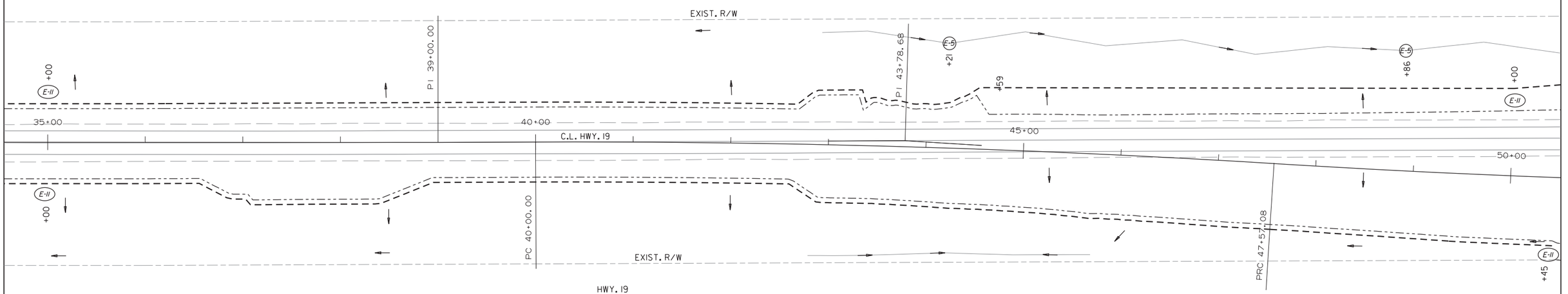
LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-3 = FILTER SOCK
E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION



HWY. 19

SILT FENCE	E-11	LIN. FT.
STA. 35+00 TO 50+45	RT.	1560
STA. 35+00 TO 50+00	LT.	1524

SAND BAG DITCH CHECK	E-5	INSTALLATION
STA. 44+21	LT.	1
STA. 48+86	LT.	1

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING STAGE

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REVISED DATE:

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				6	ARK.			
				JOB NO.		030458	13	98

(2) TEMPORARY EROSION CONTROL DETAILS

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 50+00 TO 54+32	LT.	462
STA. 60+33 TO 65+00	LT.	486

HWY. 19

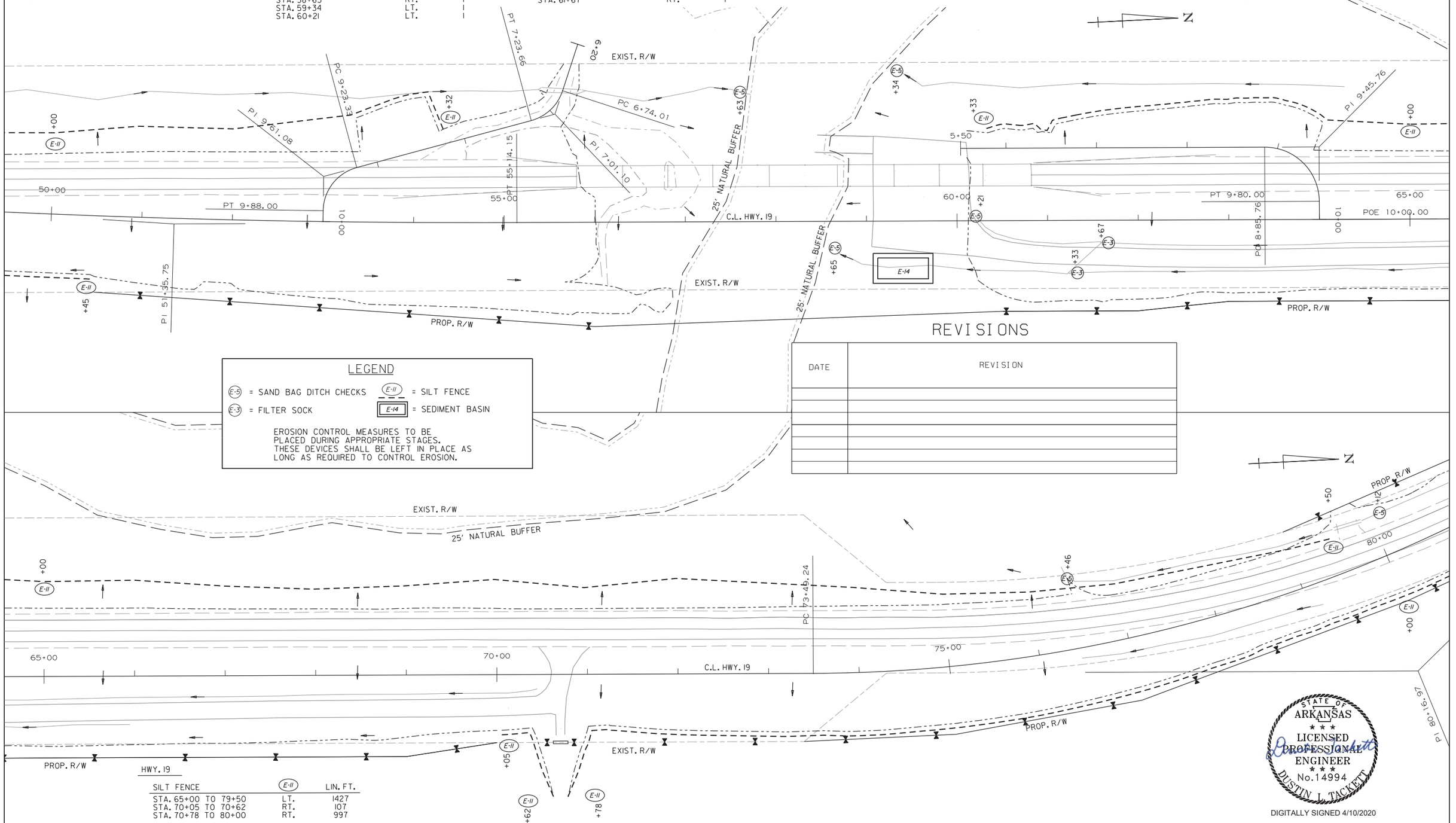
SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 57+63	LT.	1
STA. 58+65	RT.	1
STA. 59+34	LT.	1
STA. 60+21	LT.	1

HWY. 19

FILTER SOCK	(E-3)	INSTALLATION
STA. 61+33	RT.	1
STA. 61+67	RT.	1

HWY. 19

SEDIMENT BASIN	E-14	CU. YD.
STA. 59+40	RT.	400



LEGEND

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

(E-3) = FILTER SOCK E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 65+00 TO 79+50	LT.	1427
STA. 70+05 TO 70+62	RT.	107
STA. 70+78 TO 80+00	RT.	997

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 76+46	LT.	1

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DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

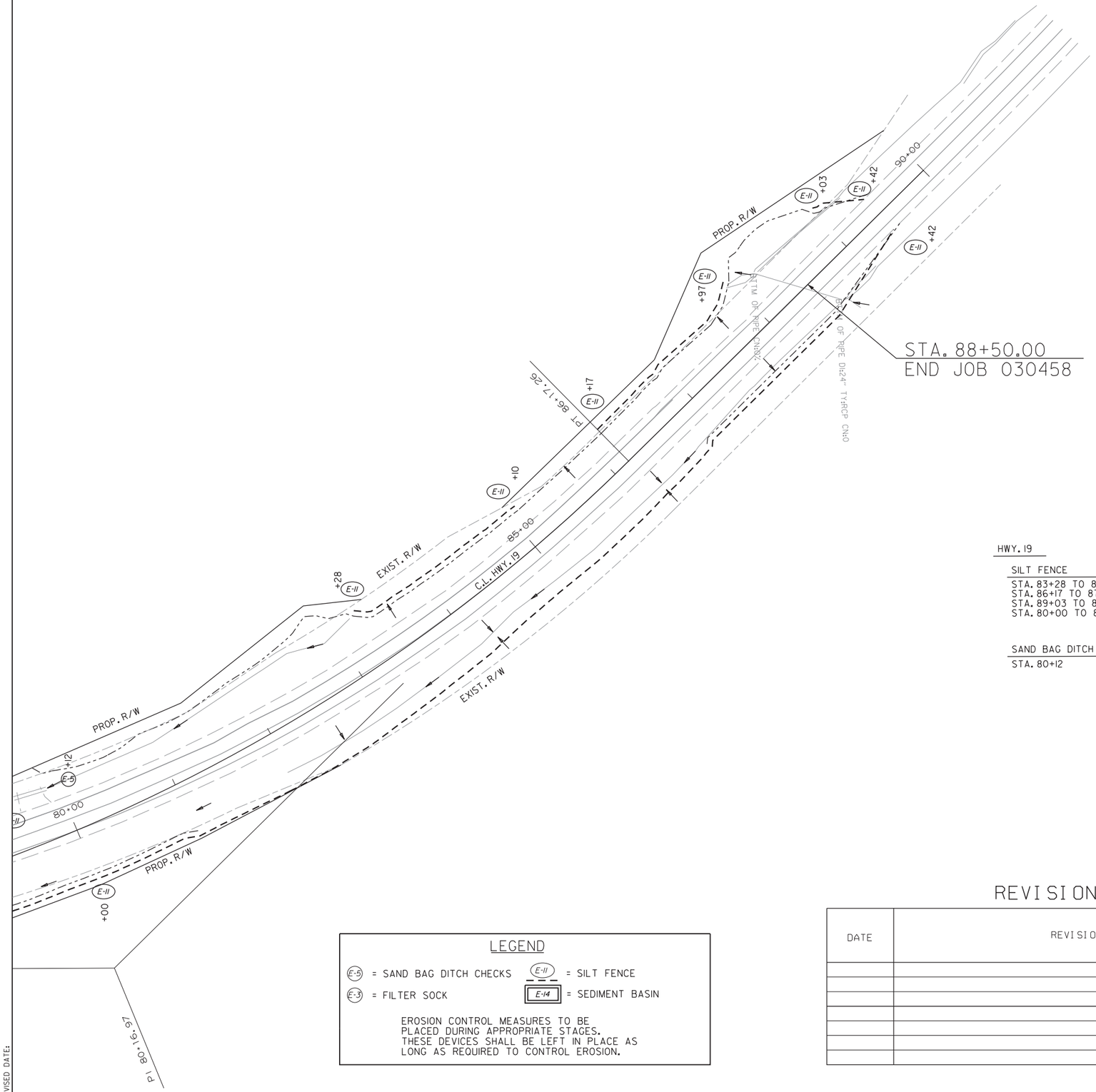
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING STAGE

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	14	98

(2) TEMPORARY EROSION CONTROL DETAILS



N

HWY. 19

SILT FENCE	(E-II)	LIN. FT.
STA. 83+28 TO 85+10	LT.	181
STA. 86+17 TO 87+97	LT.	185
STA. 89+03 TO 89+42	LT.	50
STA. 80+00 TO 89+42	RT.	968

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 80+12	LT.	1

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-3) = FILTER SOCK
(E-II) = SILT FENCE
E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING STAGE

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	15	98

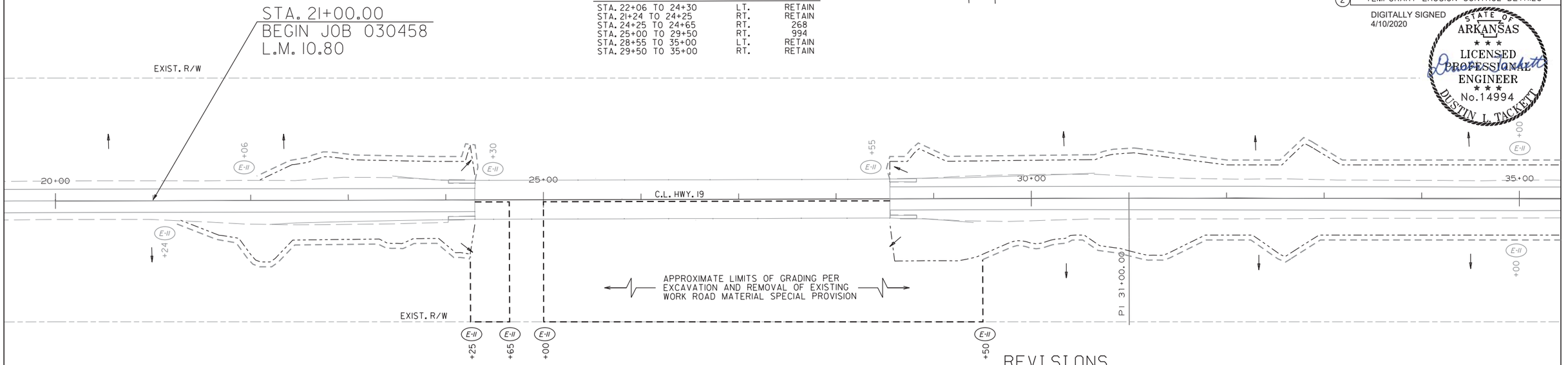
(2) TEMPORARY EROSION CONTROL DETAILS

DIGITALLY SIGNED
4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 22+06 TO 24+30	LT.	RETAIN
STA. 21+24 TO 24+25	RT.	RETAIN
STA. 24+25 TO 24+65	RT.	268
STA. 25+00 TO 29+50	RT.	994
STA. 28+55 TO 35+00	LT.	RETAIN
STA. 29+50 TO 35+00	RT.	RETAIN



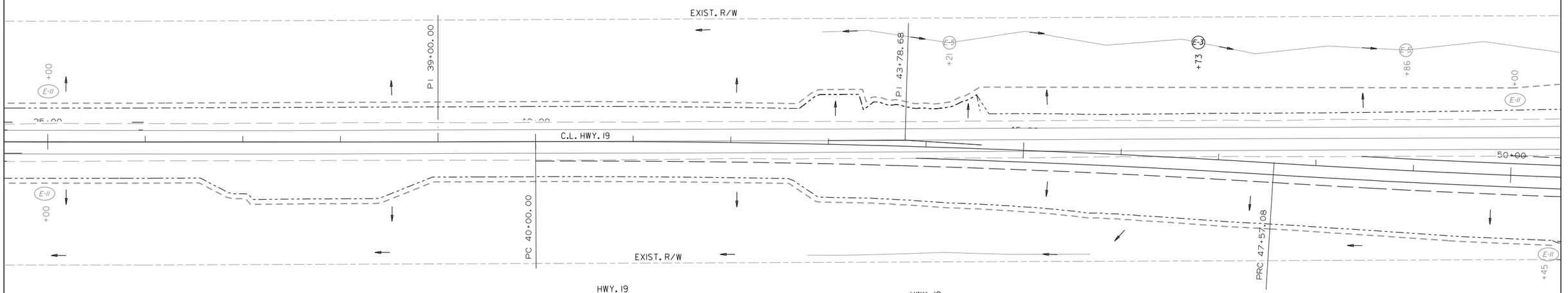
LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-3) = FILTER SOCK
[E-14] = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION



HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 35+00 TO 50+45	RT.	RETAIN
STA. 35+00 TO 44+59	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 44+21	LT.	RETAIN
STA. 48+86	LT.	RETAIN

HWY. 19

FILTER SOCK	(E-3)	INSTALLATION
STA. 46+73	LT.	1

SITE 1
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

DLTackett 4/9/2020 3:06:46 PM
WORKSPACE: AHTD
L:\2017\17017550 - Little Missouri River and Relief\Drawings\R030458_EC_STG1_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	16	98

(2) TEMPORARY EROSION CONTROL DETAILS

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 53+35 TO 54+32	LT.	RETAIN
STA. 60+33 TO 63+99	LT.	RETAIN

HWY. 19

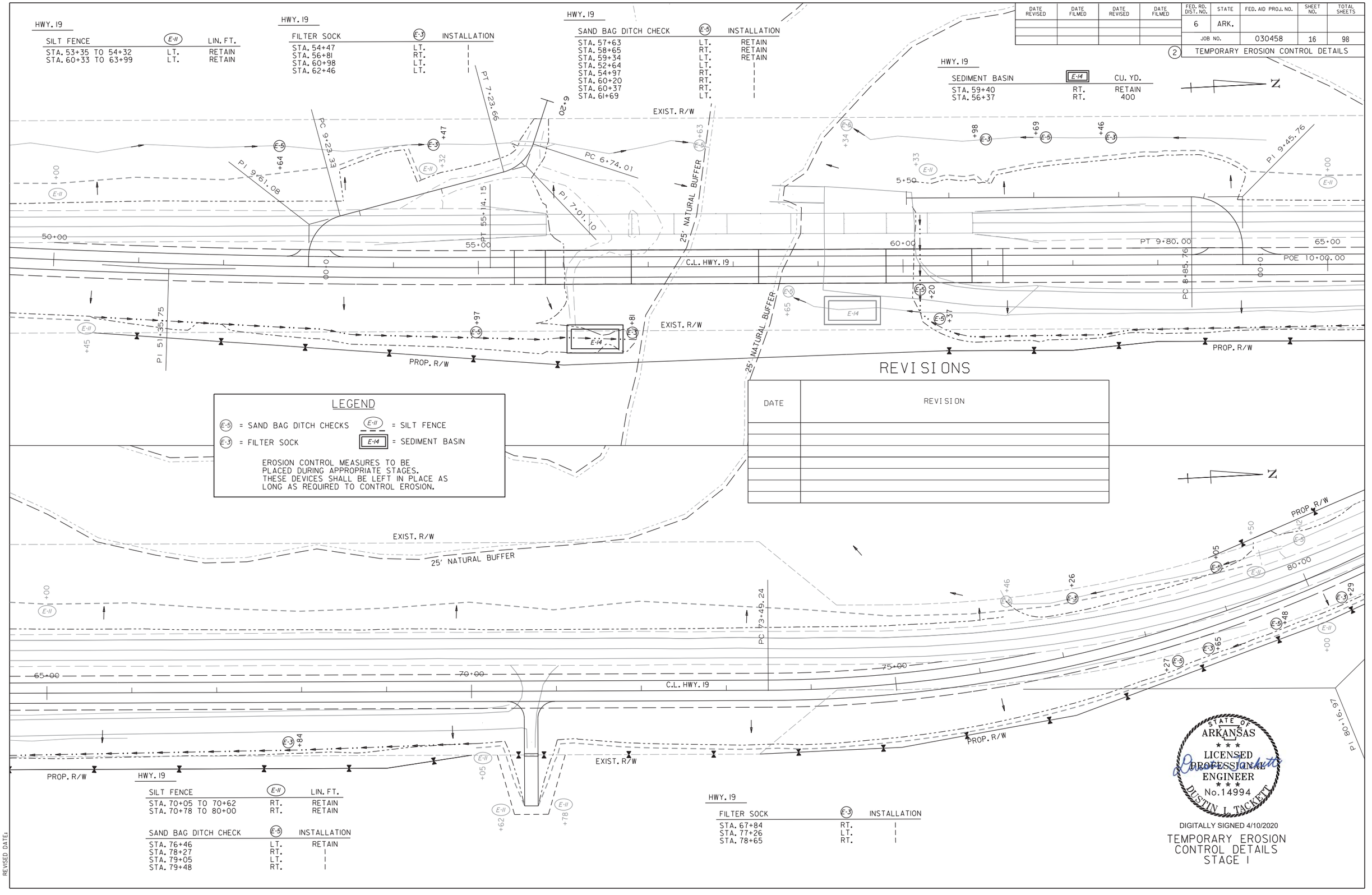
FILTER SOCK	(E-3)	INSTALLATION
STA. 54+47	LT.	I
STA. 56+81	RT.	I
STA. 60+98	LT.	I
STA. 62+46	LT.	I

HWY. 19

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 57+63	LT.	RETAIN
STA. 58+65	RT.	RETAIN
STA. 59+34	LT.	RETAIN
STA. 52+64	LT.	I
STA. 54+97	RT.	I
STA. 60+20	RT.	I
STA. 60+37	RT.	I
STA. 61+69	LT.	I

HWY. 19

SEDIMENT BASIN	(E-14)	CU. YD.
STA. 59+40	RT.	RETAIN
STA. 56+37	RT.	400



LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-3) = FILTER SOCK
(E-14) = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 70+05 TO 70+62	RT.	RETAIN
STA. 70+78 TO 80+00	RT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 76+46	LT.	RETAIN
STA. 78+27	RT.	I
STA. 79+05	LT.	I
STA. 79+48	RT.	I

HWY. 19

FILTER SOCK	(E-3)	INSTALLATION
STA. 67+84	RT.	I
STA. 77+26	LT.	I
STA. 78+65	RT.	I

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

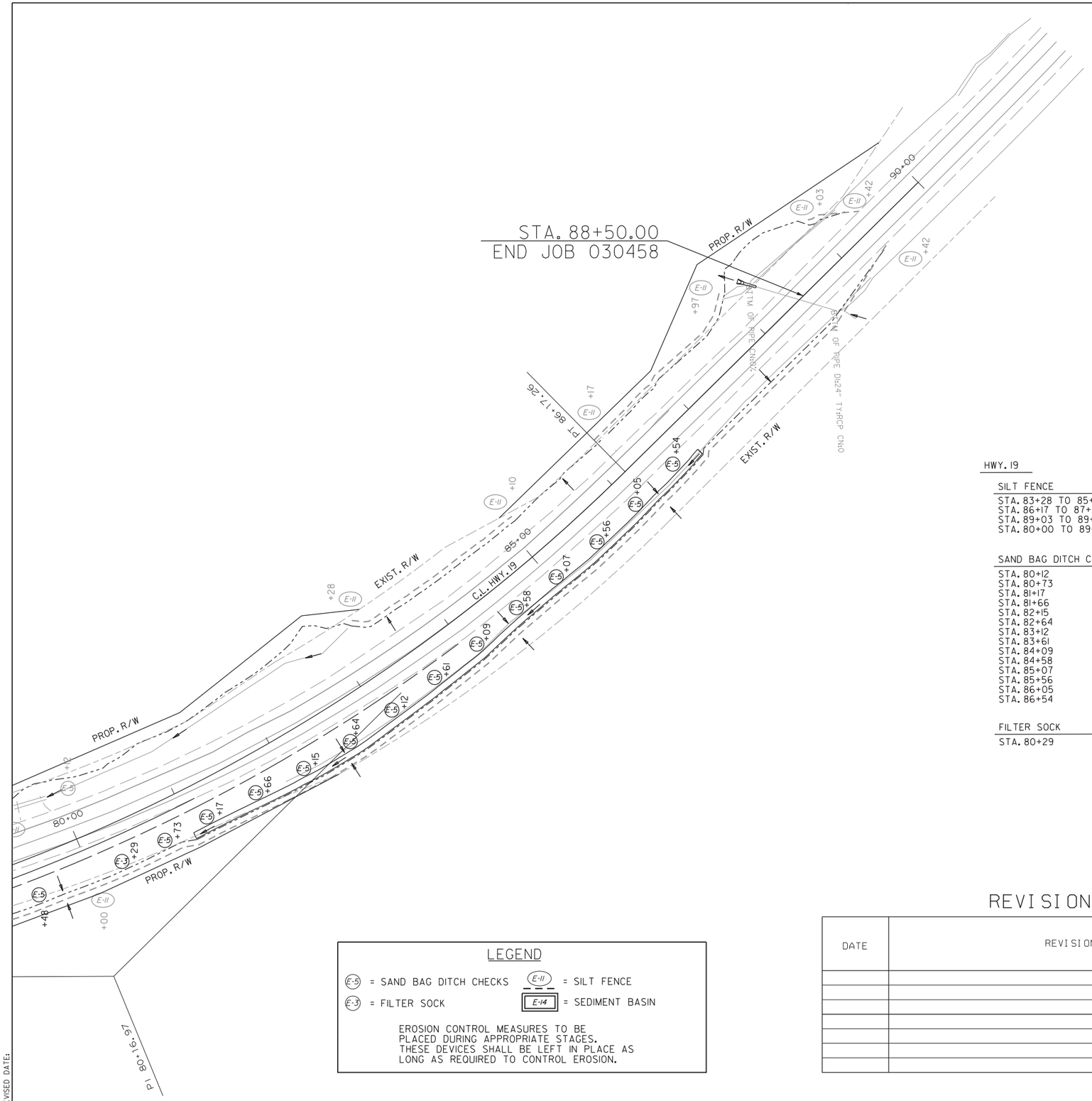
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TEMPORARY EROSION CONTROL DETAILS STAGE I

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	17	98

(2) TEMPORARY EROSION CONTROL DETAILS



N

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 83+28 TO 85+10	LT.	RETAIN
STA. 86+17 TO 87+97	LT.	RETAIN
STA. 89+03 TO 89+42	LT.	RETAIN
STA. 80+00 TO 89+42	RT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 80+12	LT.	RETAIN
STA. 80+73	RT.	I
STA. 81+17	RT.	I
STA. 81+66	RT.	I
STA. 82+15	RT.	I
STA. 82+64	RT.	I
STA. 83+12	RT.	I
STA. 83+61	RT.	I
STA. 84+09	RT.	I
STA. 84+58	RT.	I
STA. 85+07	RT.	I
STA. 85+56	RT.	I
STA. 86+05	RT.	I
STA. 86+54	RT.	I

FILTER SOCK	(E-3)	INSTALLATION
STA. 80+29	RT.	I

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-3) = FILTER SOCK
E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS STAGE I

DLTackett 4/9/2020 3:06:51 PM
WORKSPACE: AHTD
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REVISED DATE:

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				6	ARK.			
				JOB NO.		030458	18	98

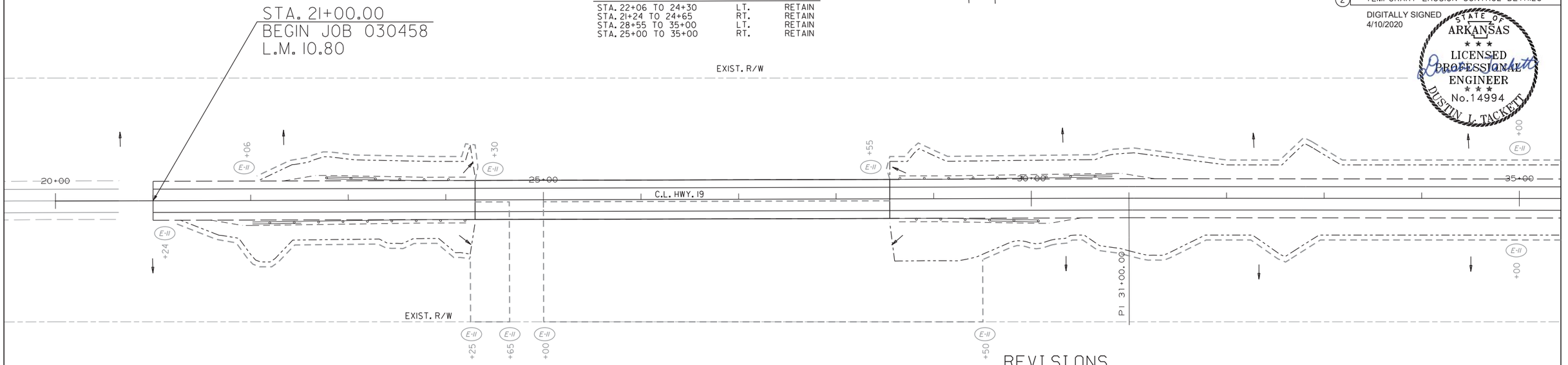
(2) TEMPORARY EROSION CONTROL DETAILS

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4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 22+06 TO 24+30	LT.	RETAIN
STA. 21+24 TO 24+65	RT.	RETAIN
STA. 28+55 TO 35+00	LT.	RETAIN
STA. 25+00 TO 35+00	RT.	RETAIN



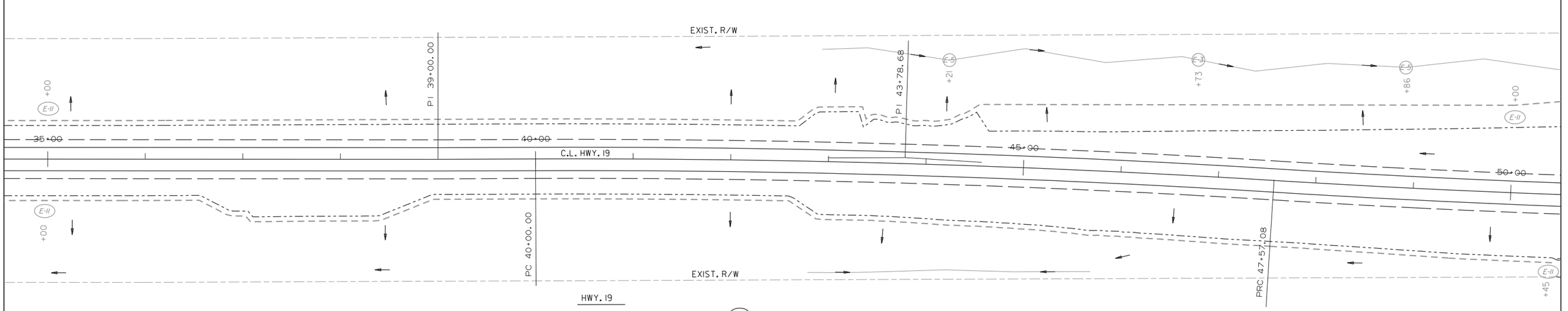
LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-3) = FILTER SOCK
E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION



HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 35+00 TO 50+45	RT.	RETAIN
STA. 35+00 TO 44+59	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 44+21	LT.	RETAIN
STA. 48+86	LT.	RETAIN

HWY. 19

FILTER SOCK	(E-3)	INSTALLATION
STA. 46+73	LT.	RETAIN

TEMPORARY EROSION CONTROL DETAILS STAGE 2

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	19	98

(2) TEMPORARY EROSION CONTROL DETAILS

HWY. 19

FILTER SOCK	(E-3)	INSTALLATION
STA. 54+47	LT.	RETAIN
STA. 56+81	RT.	RETAIN
STA. 60+98	LT.	RETAIN
STA. 62+46	LT.	RETAIN

HWY. 19

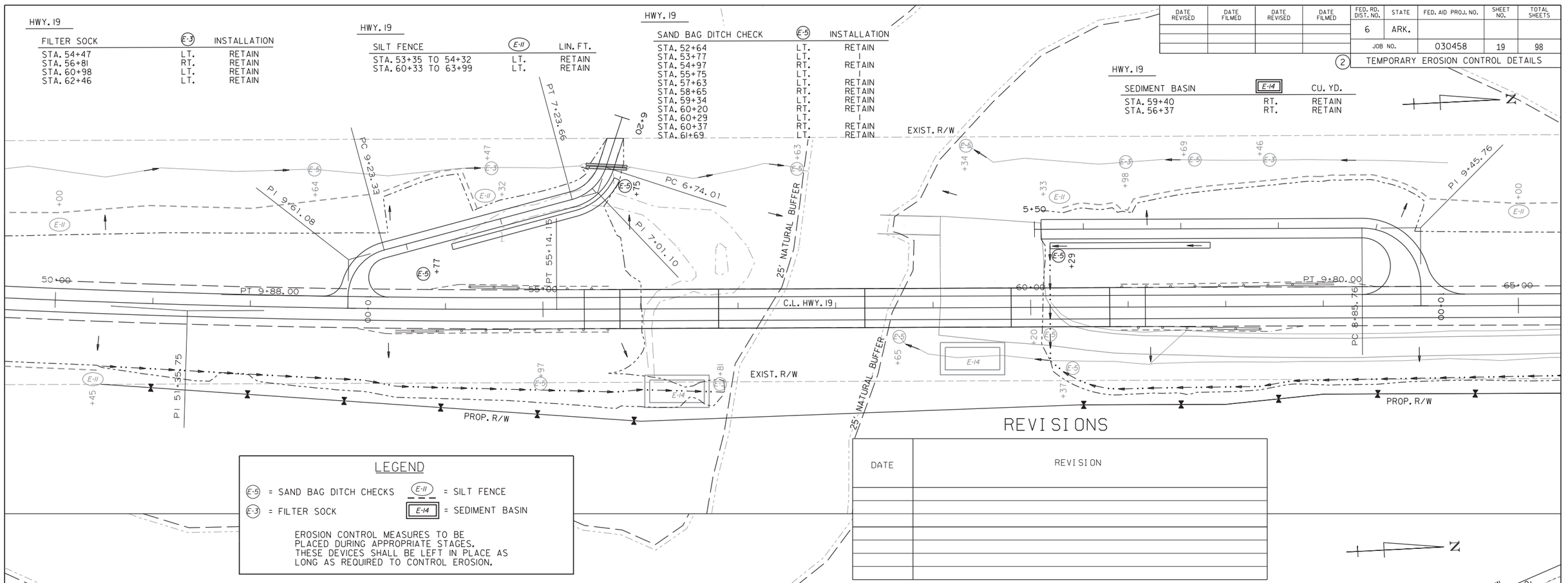
SILT FENCE	(E-11)	LIN. FT.
STA. 53+35 TO 54+32	LT.	RETAIN
STA. 60+33 TO 63+99	LT.	RETAIN

HWY. 19

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 52+64	LT.	RETAIN
STA. 53+77		I
STA. 54+97	RT.	RETAIN
STA. 55+75	LT.	I
STA. 57+63	LT.	RETAIN
STA. 58+65	RT.	RETAIN
STA. 59+34	LT.	RETAIN
STA. 60+20	RT.	RETAIN
STA. 60+29	LT.	I
STA. 60+37	RT.	RETAIN
STA. 61+69	LT.	RETAIN

HWY. 19

SEDIMENT BASIN	(E-14)	CU. YD.
STA. 59+40	RT.	RETAIN
STA. 56+37	RT.	RETAIN



LEGEND

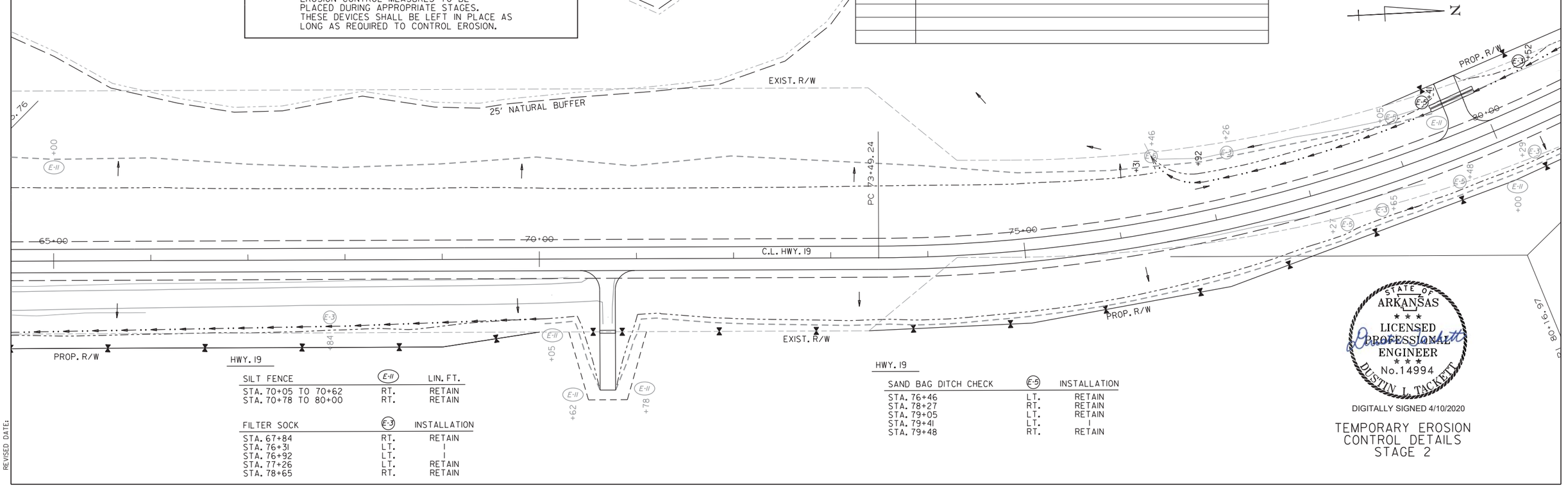
(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE

(E-3) = FILTER SOCK E-14 = SEDIMENT BASIN

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

REVISIONS

DATE	REVISION



HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 70+05 TO 70+62	RT.	RETAIN
STA. 70+78 TO 80+00	RT.	RETAIN

FILTER SOCK	(E-3)	INSTALLATION
STA. 67+84	RT.	RETAIN
STA. 76+31	LT.	I
STA. 76+92	LT.	I
STA. 77+26	LT.	RETAIN
STA. 78+65	RT.	RETAIN

HWY. 19

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 76+46	LT.	RETAIN
STA. 78+27	RT.	RETAIN
STA. 79+05	LT.	RETAIN
STA. 79+41	LT.	I
STA. 79+48	RT.	RETAIN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

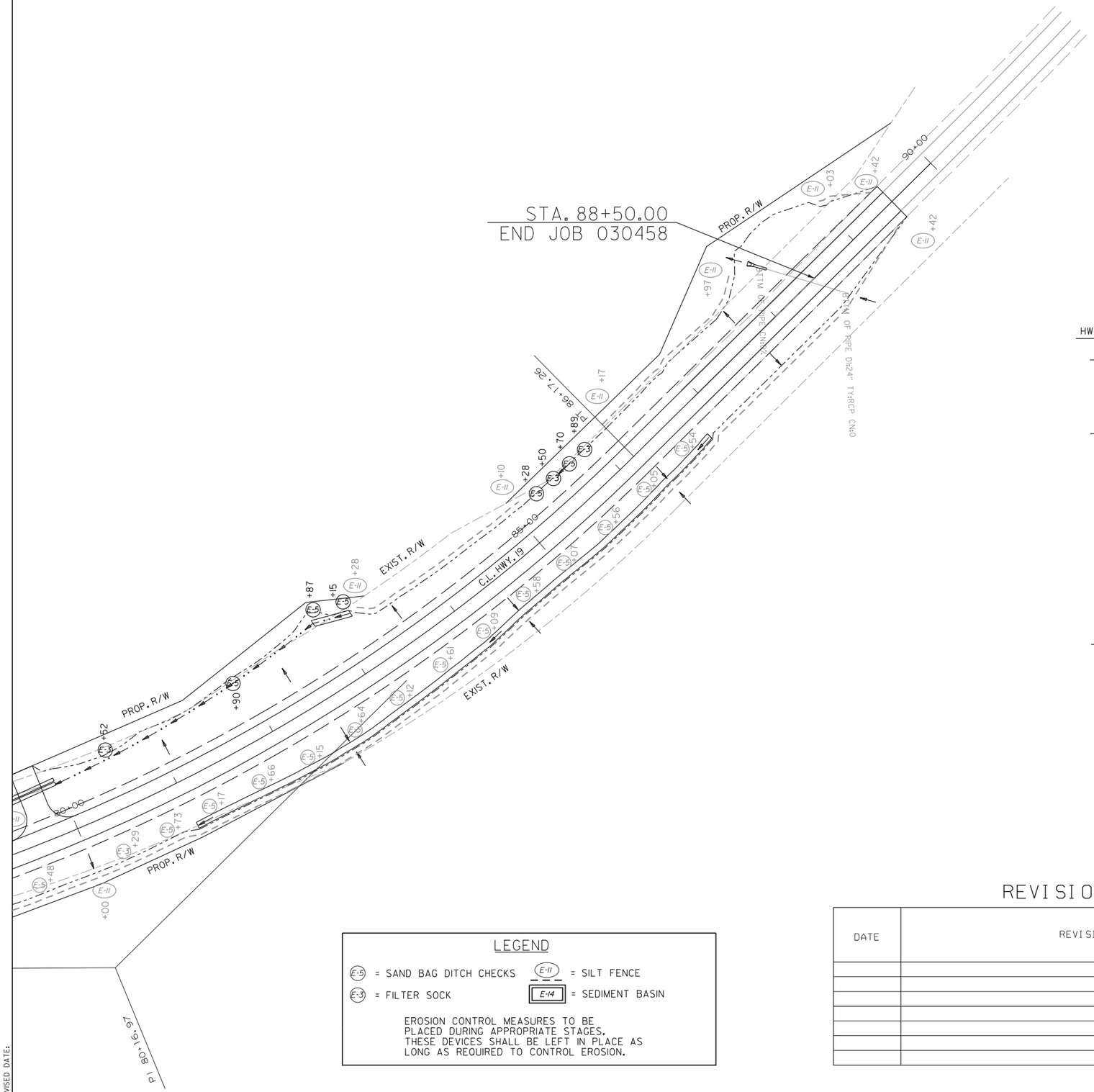
TEMPORARY EROSION CONTROL DETAILS STAGE 2

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	20	98

(2) TEMPORARY EROSION CONTROL DETAILS



N

HWY. 19

SILT FENCE	(E-11)	LIN. FT.
STA. 83+28 TO 85+10	LT.	RETAIN
STA. 86+17 TO 87+97	LT.	RETAIN
STA. 89+03 TO 89+42	LT.	RETAIN
STA. 80+00 TO 89+42	RT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 80+73	RT.	RETAIN
STA. 81+17	RT.	RETAIN
STA. 81+66	RT.	RETAIN
STA. 81+90	LT.	I
STA. 82+15	RT.	RETAIN
STA. 82+64	RT.	RETAIN
STA. 82+87	LT.	I
STA. 83+12	RT.	RETAIN
STA. 83+15	LT.	I
STA. 83+61	RT.	RETAIN
STA. 84+09	RT.	RETAIN
STA. 84+58	RT.	RETAIN
STA. 85+07	RT.	RETAIN
STA. 85+56	RT.	RETAIN
STA. 86+05	RT.	RETAIN
STA. 85+28	LT.	I
STA. 85+70	LT.	I
STA. 86+54	RT.	RETAIN

FILTER SOCK	(E-3)	INSTALLATION
STA. 80+29	RT.	RETAIN
STA. 80+52	LT.	I
STA. 85+50	LT.	I
STA. 85+89	LT.	I

STATE OF ARKANSAS
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No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-3) = FILTER SOCK
E-14 = SEDIMENT BASIN

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

REVISIONS

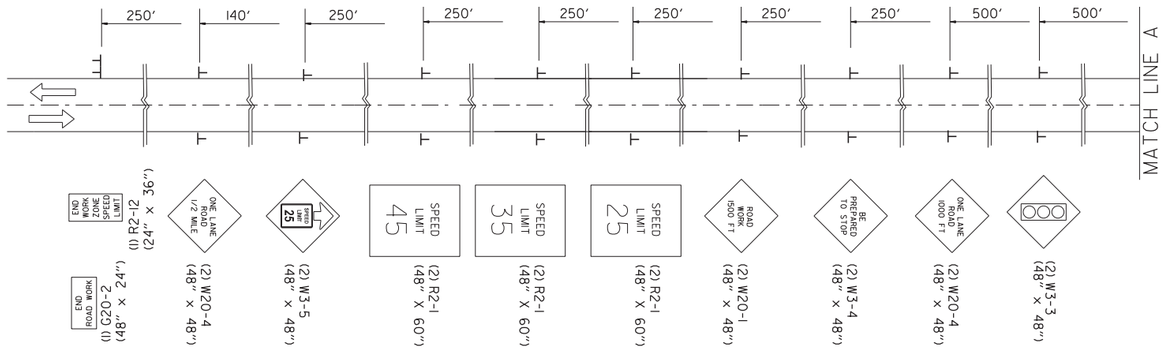
DATE	REVISION

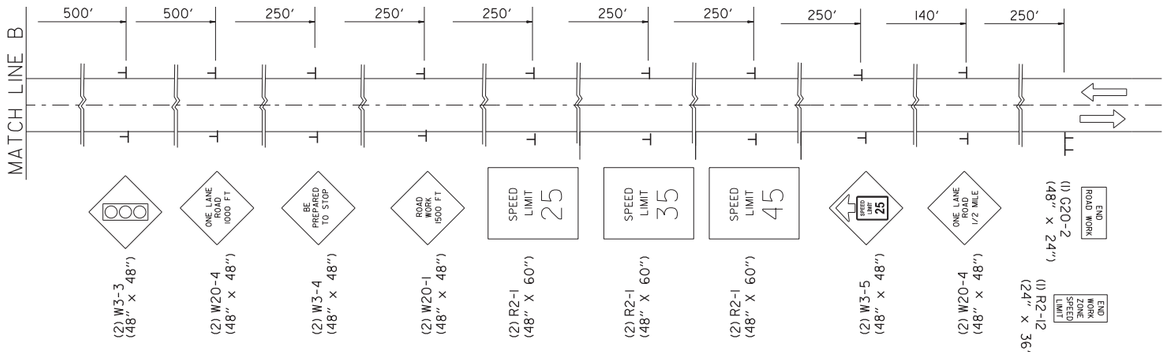
TEMPORARY EROSION CONTROL DETAILS STAGE 2

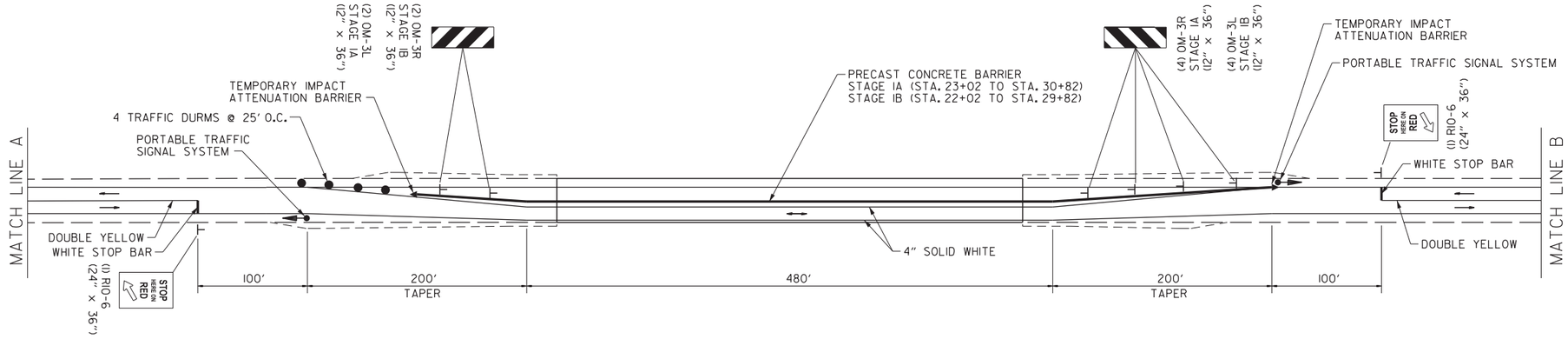
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	21	98

(2) MAINTENANCE OF TRAFFIC DETAILS







STAGE 1A
CONSTRUCTION SEQUENCE NOTES

1. INSTALL ADVANCED WARNING SIGNS.
2. FURNISH AND INSTALL P.C.C.B., TEMPORARY IMPACT ATTENUATION BARRIERS, & PORTABLE TRAFFIC SIGNAL SYSTEM.
3. REPAIR BRIDGE DECK - SOUTHBOUND (WEST SIDE).
4. CONSTRUCT LEFT SIDE GUARDRAIL WIDENING AND INSTALL GUARDRAIL

STAGE 1B
CONSTRUCTION SEQUENCE NOTES

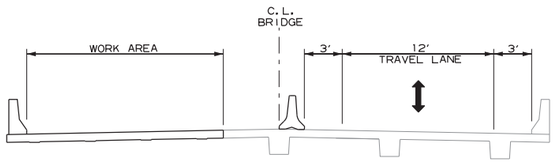
1. INSTALL ADVANCED WARNING SIGNS.
2. RELOCATE P.C.C.B. & TEMPORARY IMPACT ATTENUATION BARRIERS TO SHIFT TRAFFIC TO WEST SIDE OF BRIDGE. REMOVE CONFLICTING PAVEMENT MARKINGS AND INSTALL STAGE 1B CONSTRUCTION PAVEMENT MARKINGS.
3. REPAIR BRIDGE DECK - NORTHBOUND (EAST SIDE).
4. CONSTRUCT RIGHT SIDE GUARDRAIL WIDENING AND INSTALL GUARDRAIL.

NOTE:

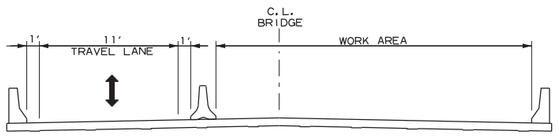
STAGE 1A AND 1B MAY BE CONSTRUCTED INDEPENDENT OF WORK SHOWN IN STAGES 1 AND 2 AS APPROVED BY THE ENGINEER.

CONTRACTOR SHALL MAINTAIN 1 (ONE) LANE OF TRAFFIC (MINIMUM WIDTH AS SHOWN) AT ALL TIMES.

SHOWN FOR SOUTHBOUND (WEST SIDE) REPAIR. MIRROR FOR NORTHBOUND (EAST SIDE) REPAIR.



STAGE IA TYPICAL SECTION
(LOOKING AHEAD)



STAGE IB TYPICAL SECTION
(LOOKING AHEAD)

STAGE IA - CONSTRUCTION PAVEMENT MARKINGS

WHITE SOLID STOP LINE = 24 LIN. FT.

WHITE SOLID LINE = 1760 LIN. FT.

DOUBLE YELLOW CENTERLINE = 2000 LIN. FT.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 1760 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1400 LIN. FT.

STAGE IB - CONSTRUCTION PAVEMENT MARKINGS

WHITE SOLID STOP LINE = 24 LIN. FT.

WHITE SOLID LINE = 910 LIN. FT.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 934 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 455 LIN. FT.

STAGE IB - REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

WHITE SOLID LINE = 850 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

MAINTENANCE OF TRAFFIC DETAILS
STAGES IA & IB

DLTackett 4/9/2020 3:07:15 PM
WORKSPACE: AHTD
L:\2017\17017550 - Little Missouri River and Relief\Drawings\R030458_MOT_SD_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	22	98

(2) MAINTENANCE OF TRAFFIC DETAILS

DIGITALLY SIGNED
4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

STAGE I
CONSTRUCTION SEQUENCE NOTES

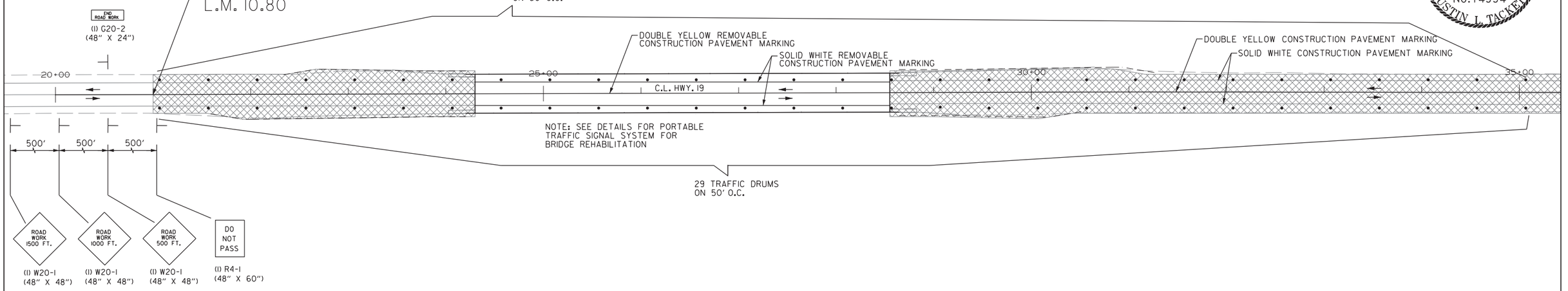
1. MAINTAIN TRAFFIC ON EXISTING LANES.
2. INSTALL ADVANCE WARNING SIGNS AS SHOWN.
3. CONSTRUCT HWY. 19 GRADING AND PAVING AS SHOWN.
4. CONSTRUCT LITTLE MISSOURI BRIDGE.
5. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2 TRAFFIC CONFIGURATION.

CONSTRUCTION PAVEMENT MARKINGS
DOUBLE YELLOW CENTERLINE = 11846 LIN. FT.
WHITE SOLID LINE = 11846 LIN. FT.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
DOUBLE YELLOW CENTERLINE = 1854 LIN. FT.
WHITE SOLID LINE = 1854 LIN. FT.

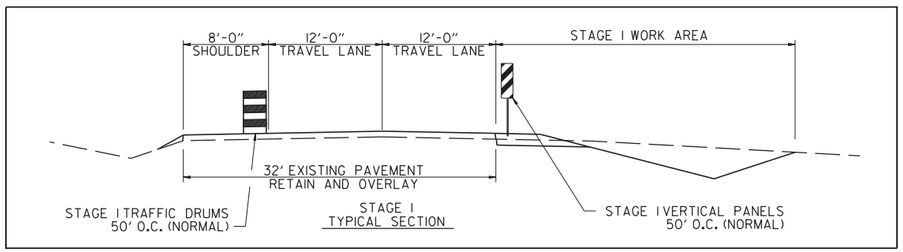
TRAFFIC DRUMS = 166 EACH
VERTICAL PANELS = 41 EACH
BARRICADES = 64 LIN. FT.
SIGNS = 208 SQ. FT.

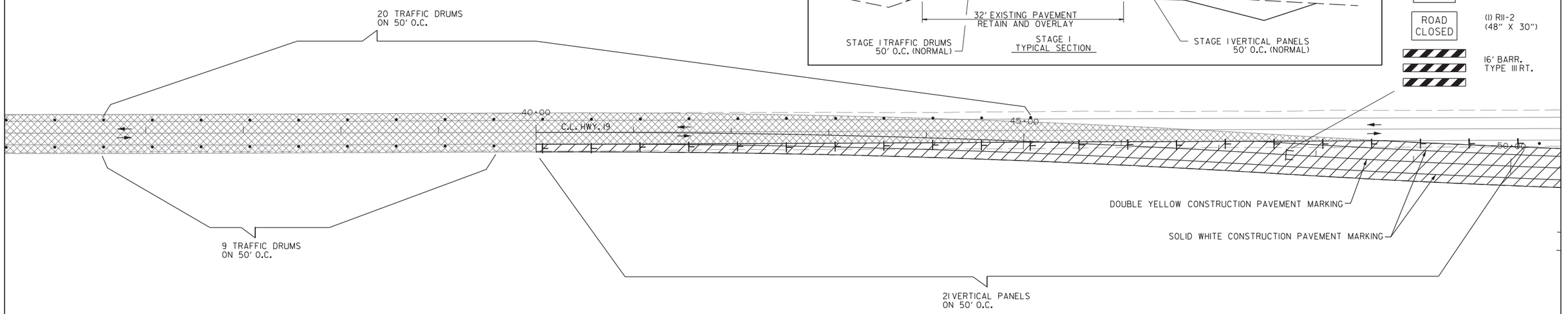
N
1" = 100'



- STAGE I CONSTRUCTION
- STAGE I OVERLAY OR METHOD OF RAISING GRADE UNDER TRAFFIC
- STAGE I TRAFFIC
- TRAFFIC DRUMS
- VERTICAL PANELS

N
1" = 100'





MAINTENANCE OF TRAFFIC DETAILS
STAGE I

DLTackett 4/9/2020 3:07:46 PM
WORKSPACE: AHTD
L:\2017\17017550 - Little Missouri River and Relief\Drawings\R030458_MOT_ST01.01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	23	98
				(2) MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

N
1" = 100'

9 TRAFFIC DRUMS ON 50' O.C.

8 TRAFFIC DRUMS ON 50' O.C.

50+00 55+00 60+00 65+00

C.L. HWY. 19

ROAD CLOSED

(1) RII-2 (48" X 30")

8' BARR. TYPE III LT.

8' BARR. TYPE III RT.

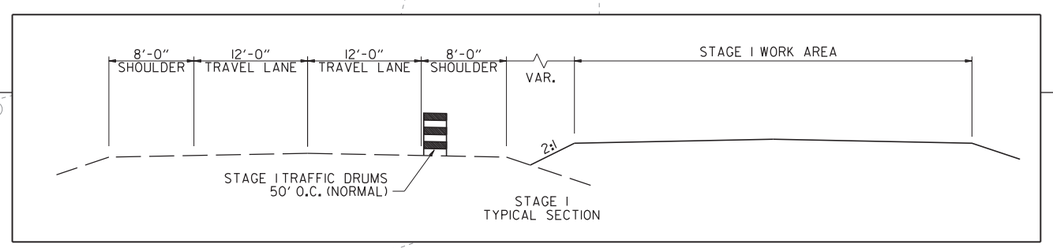
ROAD CLOSED

(1) RII-2 (48" X 30")

8' BARR. TYPE III LT.

8' BARR. TYPE III RT.

- STAGE I CONSTRUCTION
- STAGE I OVERLAY OR METHOD OF CHANGING GRADE UNDER TRAFFIC
- STAGE I TRAFFIC
- TRAFFIC DRUMS
- VERTICAL PANELS



N
1" = 100'

(1) WI-6 (48" X 24")

ROAD CLOSED

(1) RII-2 (48" X 30")

16' BARR. TYPE III LT.

22 TRAFFIC DRUMS ON 50' O.C.

65+00 70+00 75+00 80+00

C.L. HWY. 19

7 VERTICAL PANELS ON 50' O.C.

13 TRAFFIC DRUMS @ DRIVEWAY ON 10' O.C.

STA. 70+00 INSTALL 18" TEMPORARY R.C. PIPE CULVERT

STA. 73+00 INSTALL 18" TEMPORARY R.C. PIPE CULVERT

ROAD CLOSED

(1) RII-2 (48" X 30")

8' BARR. TYPE III LT.

8' BARR. TYPE III RT.

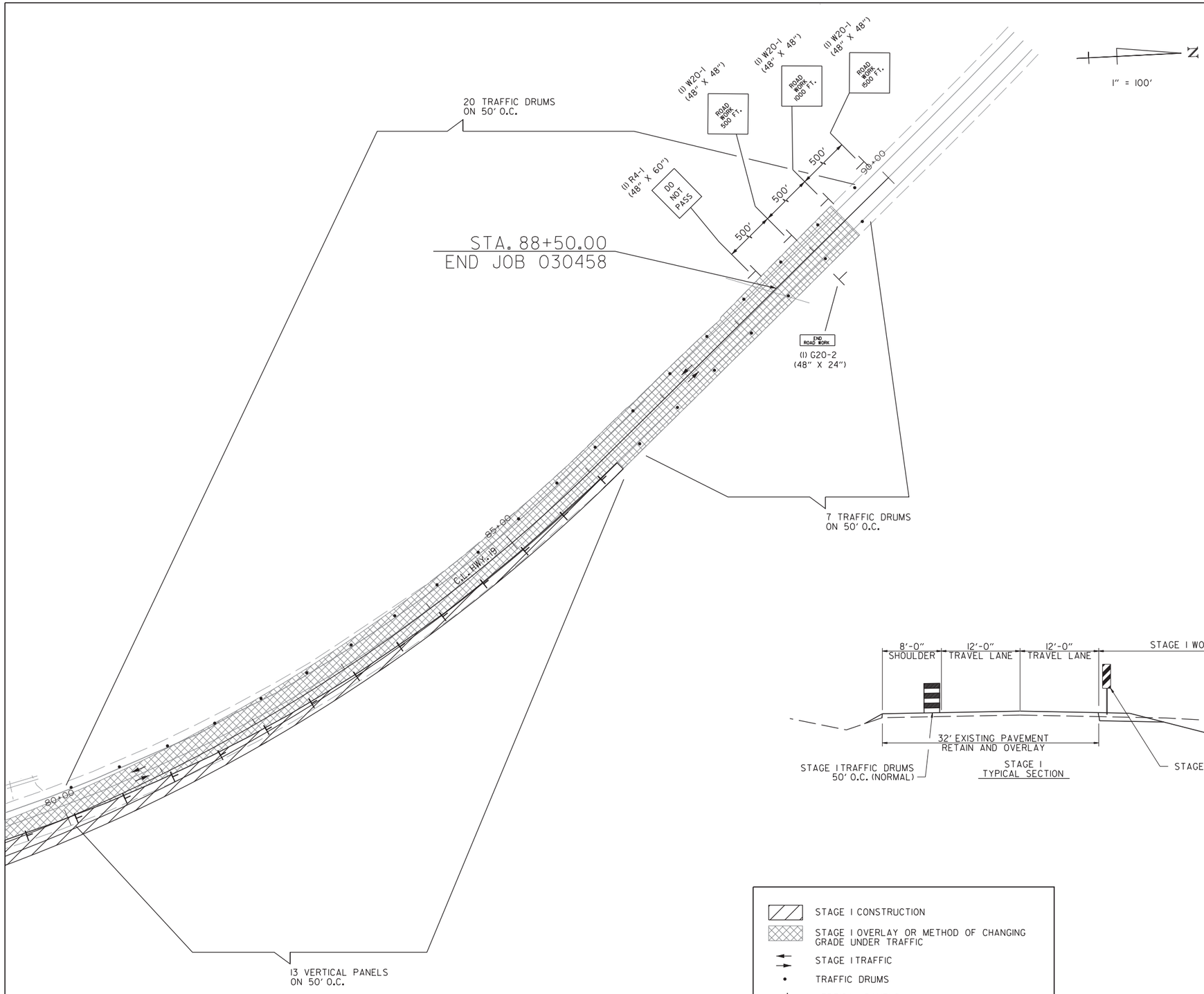
MAINTENANCE OF TRAFFIC DETAILS
STAGE I

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	24	98

(2) MAINTENANCE OF TRAFFIC DETAILS

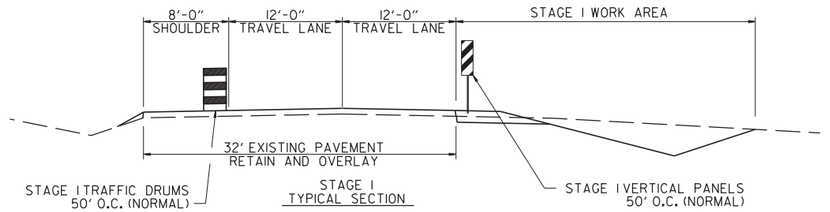


N

1" = 100'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020



STAGE I
TYPICAL SECTION

- STAGE I CONSTRUCTION
- STAGE I OVERLAY OR METHOD OF CHANGING GRADE UNDER TRAFFIC
- STAGE I TRAFFIC
- TRAFFIC DRUMS
- VERTICAL PANELS

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

DLTackett 4/9/2020 3:07:51 PM
WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	25	98
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STAGE 2
CONSTRUCTION SEQUENCE NOTES

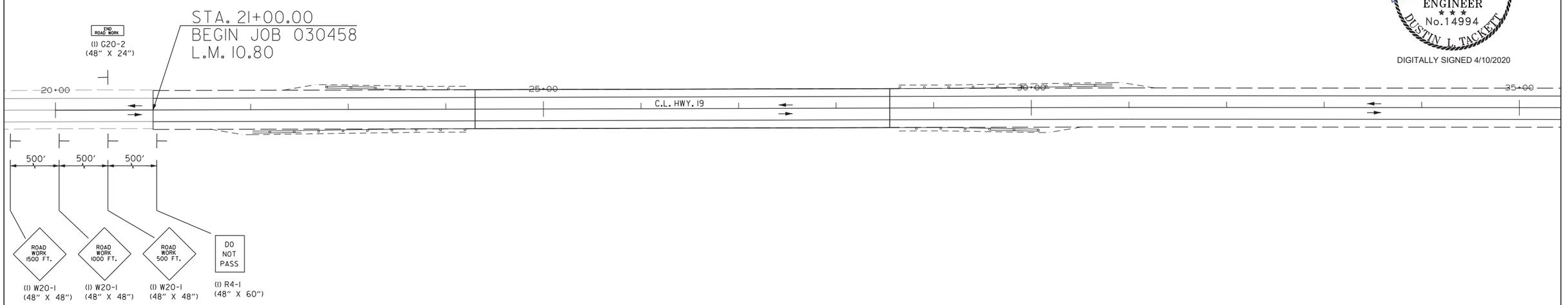
1. MOVE TRAFFIC TO NEWLY CONSTRUCTED LANES.
2. RETAIN ADVANCE WARNING SIGNS AS SHOWN.
3. CONSTRUCT HWY. 19 AS SHOWN AND REMOVE THE EXISTING BRIDGE STRUCTURE.
4. CONSTRUCT THE FINAL 2" OF ACHM SURFACE COURSE ON HWY. 19.
5. PLACE FINAL PERMANENT PAVEMENT MARKINGS.

N

1" = 100'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

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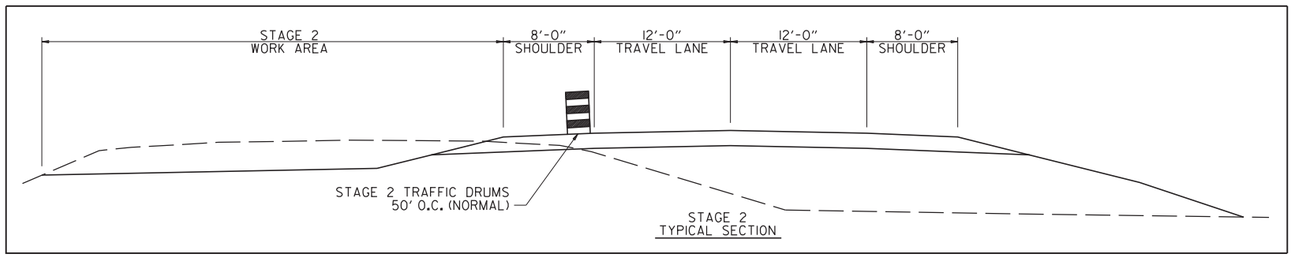


STAGE 2 CONSTRUCTION

STAGE 2 TRAFFIC

TRAFFIC DRUMS

VERTICAL PANELS



STAGE 2
TYPICAL SECTION

N

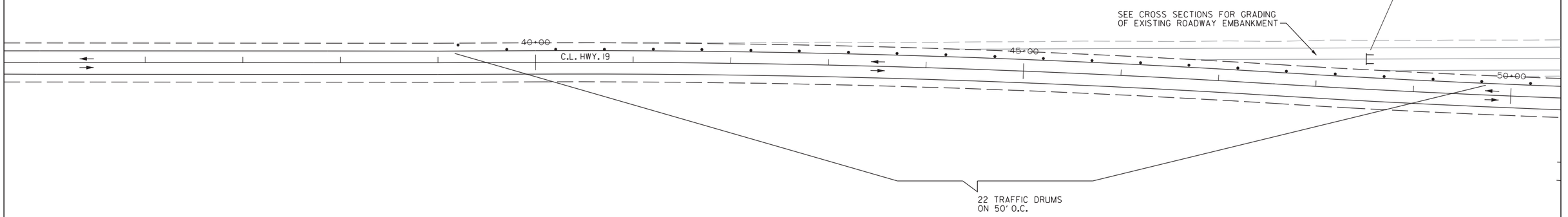
1" = 100'

(1) W1-6 (48" X 24")

ROAD CLOSED

(1) R11-2 (48" X 30")

16' BARR. TYPE III LT.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DLTackett 4/9/2020 3:07:55 PM
WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	26	98

(2) MAINTENANCE OF TRAFFIC DETAILS

DIGITALLY SIGNED
4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L TACKETT

N
1" = 100'

17 TRAFFIC DRUMS @ DRIVEWAY ON 10' O.C.

SEE CROSS SECTIONS FOR GRADING OF EXISTING ROADWAY EMBANKMENT

ROAD CLOSED

(1) RII-2 (48" X 30")

8' BARR. TYPE III LT.

8' BARR. TYPE III RT.

50+00 55+00 60+00 65+00

C.L. HWY. 19

T.I.A.B.

220' P.C.C.B. STA. 53+47 TO STA. 55+67

SPECIAL END UNIT

120' P.C.C.B. STA. 54+47 TO STA. 55+67

12 TRAFFIC DRUMS ON 50' O.C.

SEE CROSS SECTIONS FOR GRADING OF EXISTING ROADWAY EMBANKMENT

12 TRAFFIC DRUMS @ DRIVEWAY ON 10' O.C.

SPECIAL END UNIT

120' P.C.C.B. STA. 60+93 TO STA. 62+13

T.I.A.B.

220' P.C.C.B. STA. 60+93 TO STA. 63+13

8 TRAFFIC DRUMS ON 50' O.C.

STAGE 2 CONSTRUCTION

STAGE 2 TRAFFIC

TRAFFIC DRUMS

VERTICAL PANELS

PRECAST CONCRETE BARRIER (P.C.C.B.)

TEMPORARY IMPACT ATTENUATION BARRIER (T.I.A.B.)

STAGE 2 WORK AREA | 8'-0" SHOULDER | 12'-0" TRAVEL LANE | 12'-0" TRAVEL LANE | 8'-0" SHOULDER

STAGE 2 TRAFFIC DRUMS 50' O.C. (NORMAL)

STAGE 2 TYPICAL SECTION

N
1" = 100'

7 TRAFFIC DRUMS @ DRIVEWAY ON 10' O.C.

29 TRAFFIC DRUMS ON 50' O.C.

SEE CROSS SECTIONS FOR GRADING OF EXISTING ROADWAY EMBANKMENT

65+00 70+00 75+00

C.L. HWY. 19

(1) WI-6 (48" X 24")

ROAD CLOSED

(1) RII-2 (48" X 30")

16' BARR. TYPE III RT.

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

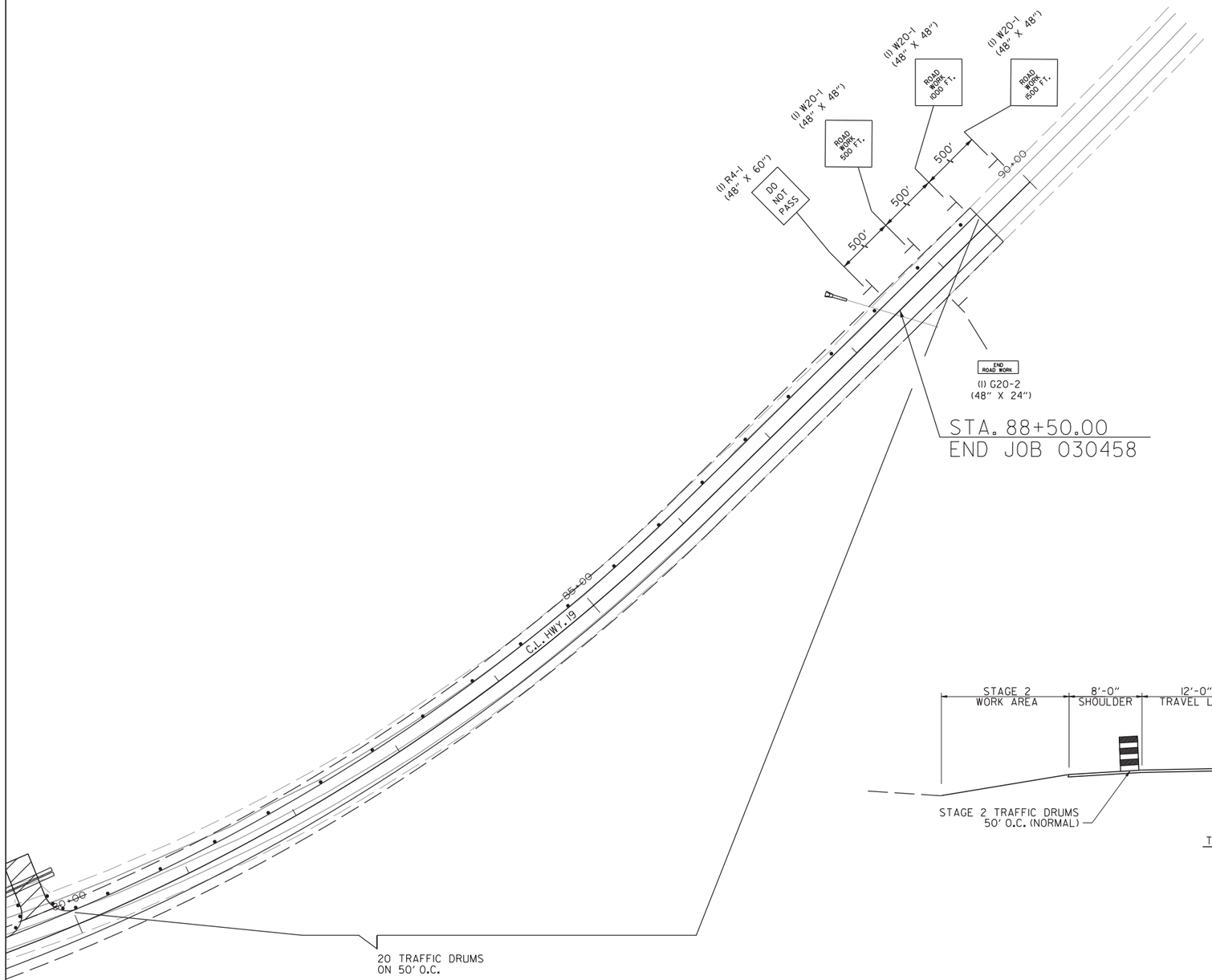
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	27	98

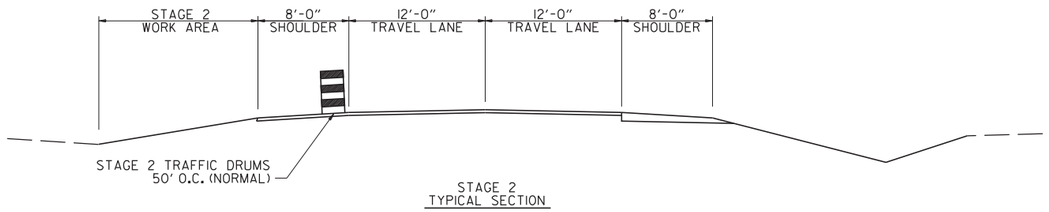
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020



N

1" = 100'



STAGE 2
TYPICAL SECTION

STAGE 2 CONSTRUCTION

STAGE 2 TRAFFIC

TRAFFIC DRUMS

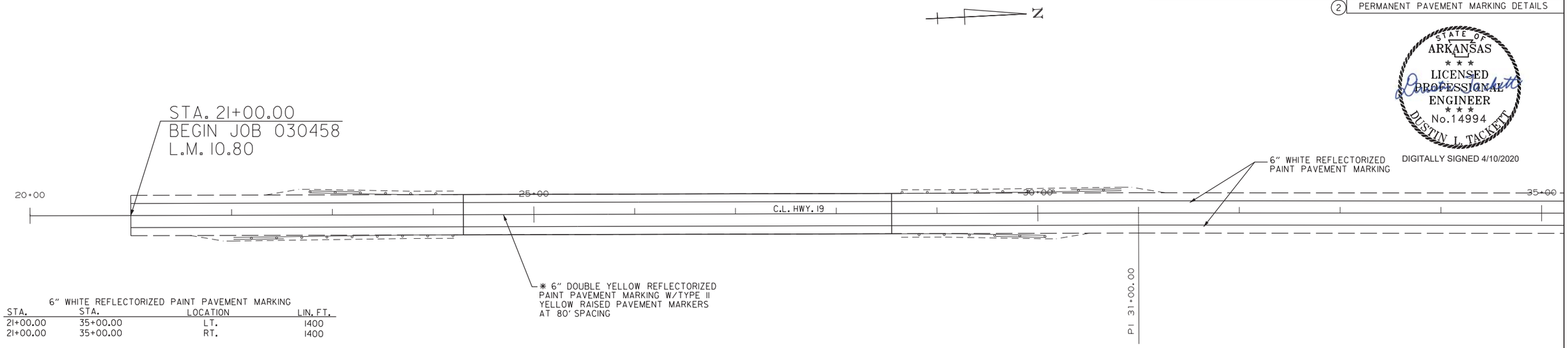
VERTICAL PANELS

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DLTackett 4/9/2020 3:08:00 PM
WORKSPACE: AHTD
L:\201\1701550 - Little Missouri River and Relief\Drawings\R030458_MOT_ST02_03.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	28	98
				(2)	PERMANENT PAVEMENT MARKING DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020



6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
21+00.00	35+00.00	LT.	1400
21+00.00	35+00.00	RT.	1400

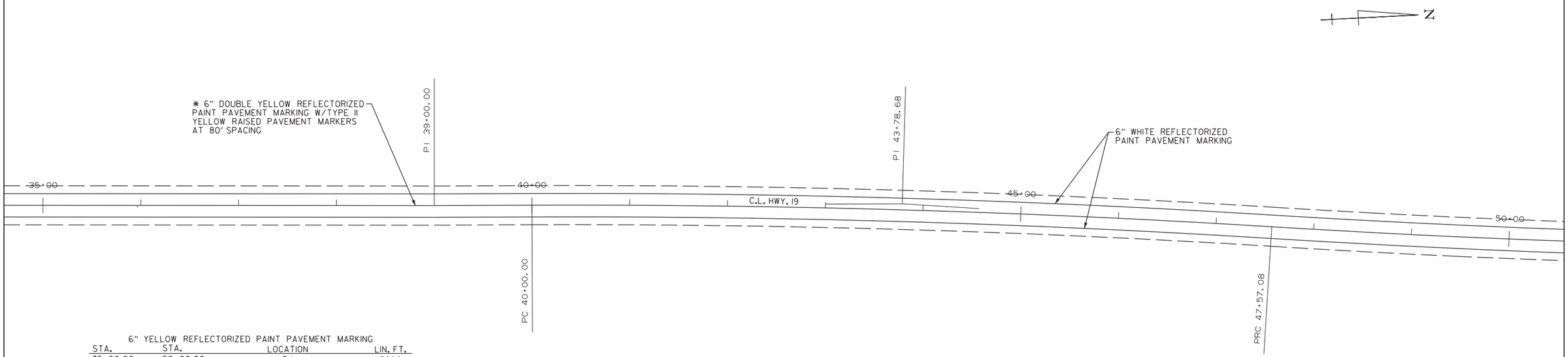
6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
21+00.00	35+00.00	C.L.	2800

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
21+00.00	35+00.00	C.L.	18

*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.



6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
35+00.00	50+00.00	C.L.	3000

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
35+00.00	50+00.00	C.L.	19

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
35+00.00	50+00.00	LT.	1500
35+00.00	50+00.00	RT.	1500

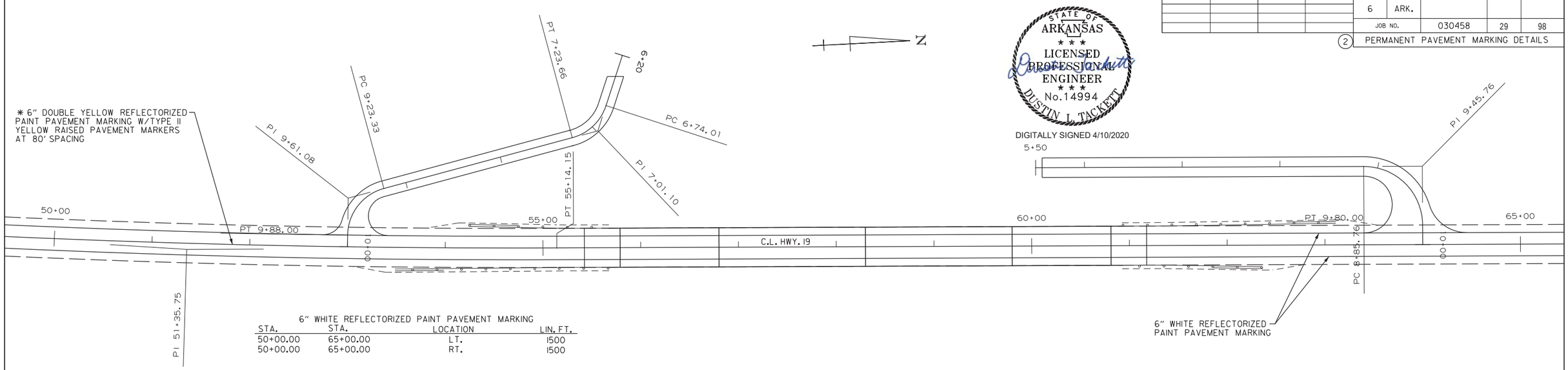
PERMANENT PAVEMENT MARKING DETAILS

DLTackett
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	29	98

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020



6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
50+00.00	65+00.00	LT.	1500
50+00.00	65+00.00	RT.	1500

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
50+00.00	65+00.00	C.L.	3000

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
50+00.00	65+00.00	C.L.	19

* 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.

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

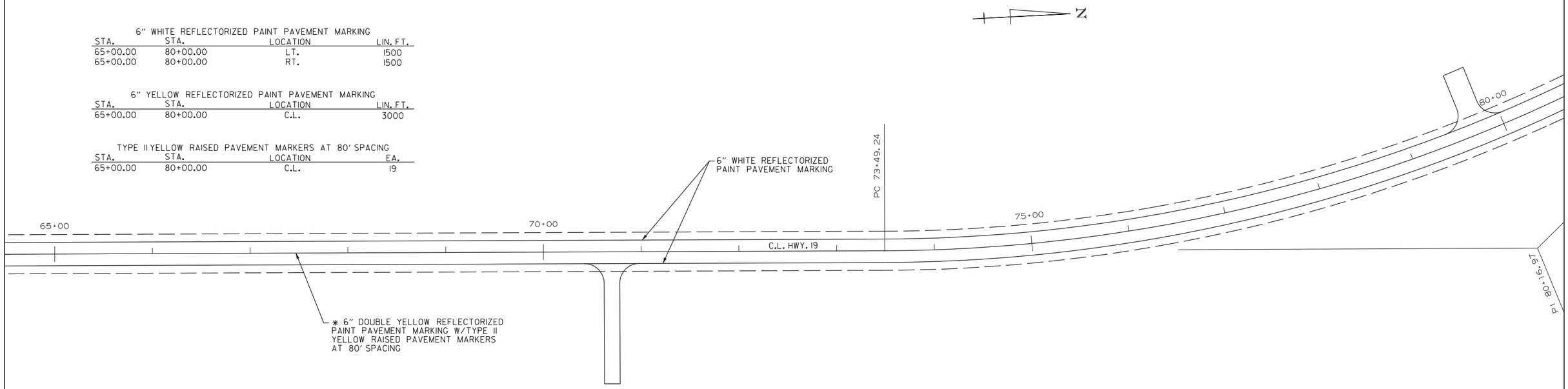
STA.	STA.	LOCATION	LIN. FT.
65+00.00	80+00.00	LT.	1500
65+00.00	80+00.00	RT.	1500

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
65+00.00	80+00.00	C.L.	3000

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
65+00.00	80+00.00	C.L.	19



PERMANENT PAVEMENT MARKING DETAILS

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REVISED DATE:

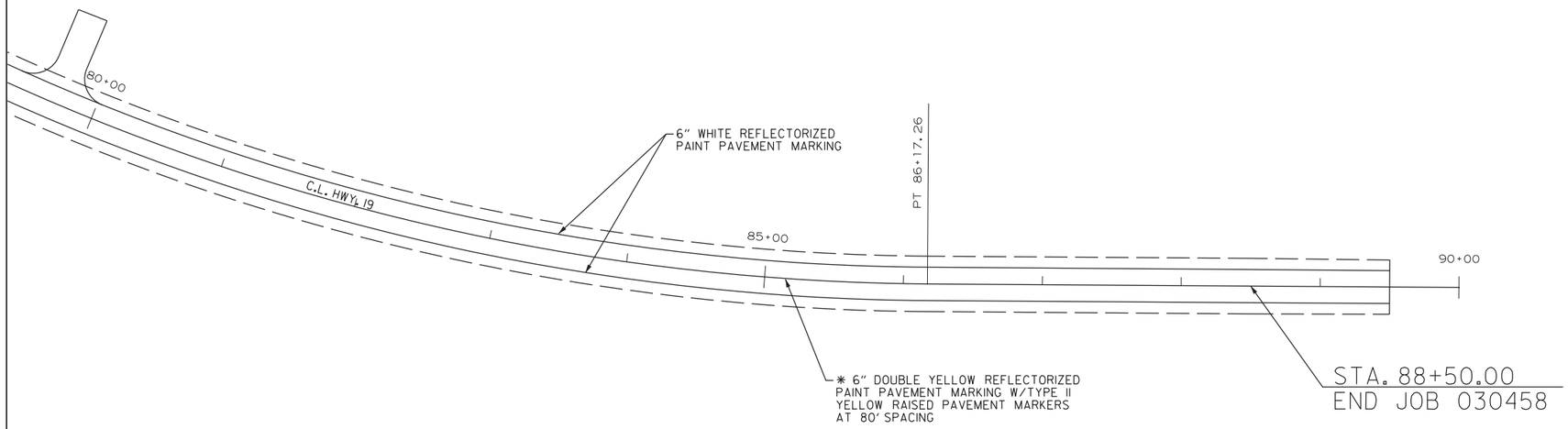
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	30	98

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020



6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
80+00.00	89+50.00	LT.	950
80+00.00	89+50.00	RT.	950

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
80+00.00	89+50.00	C.L.	1900

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
80+00.00	89+50.00	C.L.	12

* 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.

PERMANENT PAVEMENT MARKING DETAILS

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	31	98

(2) SOIL BORING LOG

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

SOIL BORING LOG

BORING or TEST PIT NO.	APPROX. STATION	SAMPLE DEPTH (ft)	WATER CONTENT (%)	ATTERBERG LIMITS			PERCENT PASSING #200, %	UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
1	60+85, 30' RT	4.5-5.5	21	NON-PLASTIC			44	SM	A-4
1	60+85, 30' RT	9-10	21	----	----	----	13	SM	A-2-4
1	60+85, 30' RT	14-15	10	----	----	----	1	GW	A-1-a
1	60+85, 30' RT	29-30	21	75	26	49	64	CH	A-7-6
1	60+85, 30' RT	34-35	22	70	22	48	88	CH	A-7-6
2	59+80, CL	9-10	26	21	20	1	74	ML	A-4
2	59+80, CL	14-15	17	---	---	---	6	SM-SP	A-3
2	59+80, CL	24-25	9	---	---	---	1	GP	A-1-a
2	59+80, CL	33-34	20	51	20	31	81	MARL	
2	59+80, CL	53-54	21	62	23	39	89	MARL	
3	59+15, CL	14-15	9	----	----	----	7	GM-GW	A-1-a
3	59+15, CL	33-34	27	63	23	40	97	MARL	
3	59+15, CL	64-65	20	62	20	42	----	MARL	
4	57+10, 10' LT	2.5-3.5	20	35	20	15	79	CL	A-6
4	57+10, 10' LT	6.5-7.5	19	21	16	5	50	SM-SC	A-4
4	57+10, 10' LT	9-10	18	----	----	----	35	SM	A-2-4
4	57+10, 10' LT	19-20	12	----	----	----	7	SM-SP	A-1-a
4	57+10, 10' LT	59-60	26	65	20	45	----	MARL	
5	55+80, 20' RT	6.5-7.5	16	----	----	----	60	ML	A-4
5	55+80, 20' RT	9-10	23	----	----	----	17	SM	A-2-4
5	55+80, 20' RT	14-15	16	----	----	----	4	GP	A-2-4
5	55+80, 20' RT	19-20	8	----	----	----	4	GP	A-1-a
5	55+80, 20' RT	39-40	22	70	22	48	----	MARL	
6	53+40, 35' LT	1-1.5	32	72	24	48	88	CH	A-7-6
6	53+40, 35' LT	6.5-7.5	14	26	16	10	84	CL	A-4
7	50+70, 30' LT	0.5-1.5	7	24	15	9	11	SC-SP	A-2-4
7	50+70, 30' LT	2.5-3.5	32	64	23	41	89	CH	A-7-6
8	63+40, 35' RT	0.5-1.5	6	----	----	----	12	GC-GP	A-2-4
8	63+40, 35' RT	3-3.5	18	----	----	----	55	ML	A-4
8	63+40, 35' RT	6.5-7.5	25	----	----	----	35	SM	A-2-4
9	66+00, 35' RT	0.5-1	6	18	16	2	17	GM	A-1-b
9	66+00, 35' RT	2.5-3.5	25	23	20	3	85	ML	A-4
9	66+00, 35' RT	4.5-5.5	21	----	---	----	39	SM	A-4

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

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	32	98

(2) QUANTITIES

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1A	STAGE 1B	STAGE 1	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
								TYPE II	6"	
								(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.				EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1400	455		1855						
CONSTRUCTION PAVEMENT MARKINGS	3784	934	23692		28410					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	1784	934				2718				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		850	3708				4558			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)								87		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")									13700	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")										13700
TOTALS:				**1855**	**28410**	**2718**	**4558**	**87**	**13700**	**13700**

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

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

NOTE: NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED. IN ADDITION, NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	TEMP. IMPACT ATTEN.BARR. (RELOCATION)	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED
												RIGHT	LEFT						
			LIN. FT. - EACH					NO.	SQ. FT.	EACH				LIN. FT.			EACH		LUMP SUM
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	2	2	4	4	64.0										
W20-1	ROAD WORK 1000 FT.	48"x48"			2	2	2	2	32.0										
W20-1	ROAD WORK 500 FT.	48"x48"			2	2	2	2	32.0										
W20-4	ONE LANE ROAD 1000 FT	48"X48"	4	4			4	4	64.0										
W3-3	SIGNAL AHEAD	48"X48"	4	4			4	4	64.0										
W3-4	BE PREPARED TO STOP	48"X48"	4	4			4	4	64.0										
W3-5	SPEED LIMIT 25 ↑	48"X48"	4	4			4	4	64.0										
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	2	16.0										
R11-2	ROAD CLOSED	48"x30"			5	6	6	6	60.0										
OM-3L	OBJECT MARKER	12"x36"	6	6			6	6	18.0										
OM-3R	OBJECT MARKER	12"x36"	6	6			6	6	18.0										
W1-6	LARGE ARROW	48"x24"			2	2	2	2	16.0										
R2-1	SPEED LIMIT 25	48"X60"	4	4			4	4	80.0										
R2-1	SPEED LIMIT 35	48"X60"	4	4			4	4	80.0										
R2-1	SPEED LIMIT 45	48"X60"	4	4			4	4	80.0										
R2-12	END WORK ZONE SPEED LIMIT	24"X36"	2	2			2	2	12.0										
R4-1	DO NOT PASS	24"x30"			2	2	2	2	10.0										
W20-4	ONE LANE ROAD 1/2 MILE	48"x48"	4	4			4	4	64.0										
R10-6	STOP HERE ON RED	24"X36"	2	2			2	2	12.0										
	VERTICAL PANELS				41		41			41									
	TRAFFIC DRUMS		4	4	166	127	166				166								
	TRAFFIC CONES																		
	TYPE III BARRICADE-RT. (6')				3	4	4					32							
	TYPE III BARRICADE-LT. (8')				3	4	4						32						
	TYPE III BARRICADE-RT. (16')				1	1	1					16							
	TYPE III BARRICADE-LT. (16')				1	1	1						16						
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		780			680	1460							1460					
	RELOCATING PRECAST CONCRETE BARRIER			780			780								780				
	TEMPORARY IMPACT ATTENUATION BARRIER		2			2	4									4			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	2		2	6										6		
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)			2			2											2	
	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED		1	1			2												1
TOTALS:									**850.0**	**41**	**166**	**48**	**48**	**1460**	**780**	**4**	**6**	**2**	**1.00**

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
53+00	HWY. 19 LT. 24" & 36" SIDE DRAIN	2
61+40	HWY. 19 RT. 15" SIDE DRAIN	1
79+72	HWY. 19 LT. DBL. 24" SIDE DRAIN	2
TOTAL:		**5**

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

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
22+20	24+20	HWY. 19 RT	200
23+45	24+20	HWY. 19 LT.	75
28+65	30+65	HWY. 19 LT.	200
28+68	29+41	HWY. 19 RT.	75
53+80	55+80	HWY. 19 RT.	200
55+05	55+80	HWY. 19 LT.	75
60+85	62+85	HWY. 19 LT.	200
60+85	61+60	HWY. 19 RT.	75
TOTAL:			**1100**

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.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)
			CU.YD.	CU.YD.	POUND
55+42.42	55+78.92	HWY. 19 - LT.	14.20		765
55+42.42	55+78.92	HWY. 19 - RT.	14.20		765
60+81.08	61+17.58	HWY. 19 - LT.	14.20		765
60+81.08	61+17.58	HWY. 19 - RT.	14.20		765
55+42.42	55+78.92	HWY. 19		49.15	5775
60+81.08	61+17.58	HWY. 19		49.15	5775
TOTALS:			**56.80**	**98.30**	**14610**

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
5/11/2020				6	ARK.			
				JOB NO.		030458	33	98

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 5/11/2020

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 SOCKS (18") (E-3)	SAND BAG DITCH CHECKS (E-5)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING														
ENTIRE	PROJECT	STAGE 1	7.48	14.96	7.48	763.0	7.48				20	176	10011	400	400	781
ENTIRE	PROJECT	STAGE 2	5.61	11.22	5.61	572.2	5.61				80	484	1262	400	400	477
											50	198				14
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								25.02	25.02	510.4	100	220		300	300	320
TOTALS:			**13.09**	**26.18**	**13.09**	**1335.2**	**13.09**	**25.02**	**25.02**	**510.4**	**250**	**1078**	**11273**	**1100**	**1100**	**1592**

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
FILTER SOCKS.....10 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS.....22 BAGS / 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.

GUARDRAIL

	STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
				LIN. FT.	EACH	
	22+01.81	24+20.56	HWY. 19 RT.	150	1	1
	22+76.81	24+20.56	HWY. 19 LT.	75	1	1
	28+64.36	30+08.11	HWY. 19 RT.	75	1	1
	28+64.36	30+83.11	HWY. 19 LT.	150	1	1
	53+48.77	55+67.52	HWY. 19 RT.	150	1	1
	54+23.77	55+67.52	HWY. 19 LT.	75	1	1
	60+92.48	62+36.23	HWY. 19 RT.	75	1	1
	60+92.48	63+11.23	HWY. 19 LT.	150	1	1
TOTALS:				**900**	**8**	**8**

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
50+50	56+00	HWY. 19 RT.	550	
60+00	70+62	HWY. 19 RT.	1062	
70+78	82+40	HWY. 19 RT.	1162	1
79+00	79+64	HWY. 19 LT.	64	
79+80	90+00	HWY. 19 LT.	1020	1
TOTALS:			**3858**	**2**

NOTE: WORK FOR REMOVAL AND DISPOSAL OF FENCE INCLUDED IN PRICE BID FOR CLEARING AND GRUBBING.

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-1)	* 16'-0" GATES
			LIN. FT.	EACH
50+50	56+00	HWY. 19 RT.	550	
60+00	70+62	HWY. 19 RT.	1062	
70+78	82+40	HWY. 19 RT.	1162	1
79+00	79+64	HWY. 19 LT.	64	
79+80	90+00	HWY. 19 LT.	1020	1
TOTALS:			**3858**	**2**

* DENOTES ALTERNATE BID ITEM.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
24+25	SW CORNER OF BRIDGE NO. 06347	1
55+73	SW CORNER OF BRIDGE NO. 07479	1
TOTAL:		**2**

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

COLD MILLING ASPHALT PAVEMENT

	STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
				FEET	SQ. YD.
*	21+00.00	24+29.96	HWY. 19	40.00	1466
*	28+54.96	31+25.00	HWY. 19	40.00	1200
**	31+25.00	32+25.00	HWY. 19	40.00	444
**	88+50.00	89+50.00	HWY. 19	40.00	444
TOTAL:					**3554**

*AVERAGE MILLING DEPTH 2"
**AVERAGE MILLING DEPTH 1"

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
43+00	57+50	HWY. 19	15	15
58+50	89+50	HWY. 19	31	31
TOTALS:			**46**	**46**

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.		EACH	SQ.YD.	M.GAL.	
88+45	EXTEND HWY. 19 CROSS DRAIN 8' LT. AND CONSTRUCT F.E.S. ON LT.		12	1	8	0.10	PCC-1, FES-1, FES-2
70+00	CONSTRUCT HWY. 19 TEMP. CROSS DRAIN	67					PCC-1
73+00	CONSTRUCT HWY. 19 TEMP. CROSS DRAIN	73					PCC-1
TOTALS:		**140**	**12**	**1**	**8**	**0.10**	

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

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

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	STONE BACKFILL	* SOIL STABILIZATION
				CU. YD.		TON	
	ENTIRE	PROJECT	STAGE 1 - HWY. 19	1335	72808	43091	
	ENTIRE	PROJECT	STAGE 2 - HWY. 19	9217	2963		
	ENTIRE	PROJECT	DRIVEWAYS	2431	2786		
	24+25	29+50	EXISTING WORK ROAD REMOVAL	1550			
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER				100
TOTALS:				**14533**	**78557**	**43091**	**100**

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
21+00	24+30	HWY. 19 LT.	264
28+55	55+42	HWY. 19 LT.	2088
61+18	88+50	HWY. 19 LT.	2035
21+00	24+30	HWY. 19 RT.	264
28+55	55+42	HWY. 19 RT.	2150
61+18	88+50	HWY. 19 RT.	2133
TOTAL:			**8934**

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
50+50.00	56+85.00	HWY. 19 RT.	635	564
60+20.00	68+00.00	HWY. 19 RT.	780	693
68+00.00	70+00.00	HWY. 19 RT.	200	178
80+00.00	82+85.00	HWY. 19 LT.	285	253
TOTAL:				**1688**

NOTE: AVERAGE WIDTH = 8'-0"

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			500	4
TOTALS:				**500**	**4**

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
70+00	HWY. 19 - 18" TEMP. CROSS DRAIN	5
73+00	HWY. 19 - 18" TEMP. CROSS DRAIN	5
TOTAL:		**10**

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				6	ARK.			
				JOB NO.		030458	34	98
				(2)	QUANTITIES			

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
							24"	36"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
53+00	LT.	HWY. 19	16	622.79	68.51	254.31	84		PCC-1, PCM-1, PCP-1, PCP-2
64+00	LT.	HWY. 19	20	1032.22	113.54	421.49			
70+70	RT.	HWY. 19	16	207.84	22.86	84.87			
79+72	LT.	HWY. 19	22	123.49	13.58	50.43		100	PCC-1, PCM-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						100.00			
TOTALS:				**1986.34**	**218.49**	**911.10**	**84**	**100**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% 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.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	32	64
DIRECTED BY THE ENGINEER		
TOTALS:	**32**	**64**

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

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

SELECTED PIPE BEDDING

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
06+80.00	08+55.00	DRIVE @ 53+00 HWY. 19 LT.	175.00	6.00	116.67	77.78	0.98
60+20.00	61+84.00	HWY. 19 LT.	164.00	6.00	109.33	72.89	0.92
81+00.00	86+80.00	HWY. 19 RT.	580.00	6.00	386.67	257.78	3.25
82+85.00	83+20.00	HWY. 19 LT.	35.00	6.00	23.33	15.56	0.20
TOTALS:					**636.00**	**424.01**	**5.35**

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

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
6+65	DRIVE 53+00 LT. - OUTLET OF PIPE CULVERTS	68	135
7+65	DRIVE 64+00 LT. - FILL SLOPE	685	1370
TOTALS:		**753**	**1505**

NOTE: AVERAGE DEPTH = 1'-6"

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100
DIRECTED BY THE ENGINEER	
TOTAL:	**100**

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")					ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET	TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																										
21+00.00	24+29.96	HWY. 19 - MILL AND INLAY	329.96						40.00	1466.49	249.30	249.30					40.00	1466.49	220.00	161.31					161.31
28+54.96	32+25.00	HWY. 19 - MILL AND INLAY	370.04						40.00	1644.62	279.59	279.59					40.00	1644.62	220.00	180.91					180.91
32+25.00	40+00.00	HWY. 19 - OVERLAY	775.00	5.00	38.75				40.00	3444.44	585.55	585.55					40.00	3444.44	220.00	378.89					378.89
40+00.00	47+39.93	HWY. 19 - NOTCH AND WIDEN	739.93	134.25	993.36	16.38	1346.67	67.33	24.00	1973.15	335.44	402.77	8.25	678.27	440.00	149.22	40.00	3288.58	220.00	361.74	8.13	668.40	220.00	73.52	435.26
47+39.93	55+42.42	HWY. 19 - FULL DEPTH	802.49	305.00	2447.59	48.75	4346.82	217.34				217.34	24.50	2184.56	440.00	480.60	40.00	3566.62	220.00	392.33	24.25	2162.26	220.00	237.85	630.18
61+17.58	71+24.24	HWY. 19 - FULL DEPTH	1006.66	305.00	3070.31	48.75	5452.74	272.64				272.64	24.50	2740.35	440.00	602.88	40.00	4474.04	220.00	492.14	24.25	2712.39	220.00	298.36	790.50
71+24.24	77+72.58	HWY. 19 - FULL DEPTH	648.34	305.00	1977.44	48.75	3511.84	175.59				175.59	24.50	1764.93	440.00	388.28	40.00	2881.51	220.00	316.97	24.25	1746.92	220.00	192.16	509.13
77+72.58	86+17.26	HWY. 19 - NOTCH AND WIDEN	844.68	134.25	1133.98	16.38	1536.85	76.84	24.00	2252.48	382.92	459.76	8.25	774.29	440.00	170.34	40.00	3754.13	220.00	412.95	8.13	763.03	220.00	83.93	496.88
86+17.26	88+42.26	HWY. 19 - OVERLAY	225.00	5.00	11.25				40.00	1000.00	170.00	170.00					40.00	1000.00	220.00	110.00					110.00
88+42.26	88+50.00	HWY. 19 - OVERLAY	7.74	5.00	0.39				40.00	34.40	5.85	5.85					40.00	34.40	220.00	3.78					3.78
88+50.00	89+50.00	HWY. 19 - TRANSITION	100.00						40.00	444.44	75.55	75.55					40.00	444.44	220.00	48.89					48.89
ADDITIONAL FOR LEVELING																									
32+25.00	40+00.00	HWY. 19	775.00			40.00	3444.44	172.22				172.22					40.00	3444.44	VAR.	95.72					95.72
40+00.00	47+39.93	HWY. 19	739.93			24.00	1973.15	98.66				98.66					24.00	1973.15	VAR.	251.34					251.34
84+00.00	86+17.26	HWY. 19	217.26			32.69	789.14	39.46				39.46					32.69	789.14	VAR.	241.26					241.26
86+17.26	88+42.26	HWY. 19	225.00			40.00	1000.00	50.00				50.00					40.00	1000.00	VAR.	58.95					58.95
88+42.26	88+50.00	HWY. 19	7.74			40.00	34.40	1.72				1.72					40.00	34.40	VAR.	0.68					0.68
ADDITIONAL FOR SUPERELEVATION																									
71+24.24	77+72.58	HWY. 19	648.34	VAR.	491.76																				
77+72.58	86+17.26	HWY. 19	844.68	VAR.	625.39																				
86+17.26	88+42.26	HWY. 19	225.00	VAR.	41.89																				
ADDITIONAL FOR METHOD OF RAISING GRADE																									
77+72.58	84+00.00	HWY. 19 - FULL DEPTH	627.42			32.38	2257.32	112.87				112.87	16.25	1132.84	440.00	249.22					16.13	1124.48	220.00	123.69	123.69
77+72.58	84+00.00	HWY. 19 - GRADE RAISE	627.42			14.36	1001.08	50.05	14.36	1001.08	170.18	220.23	14.36	1001.08	VAR.	475.14									
ADDITIONAL FOR GUARDRAIL WIDENING																									
21+59.31	24+20.56	HWY. 19	261.25	VAR.	152.61												VAR.	1085.90	220.00	119.45					119.45
22+31.81	24+20.56	HWY. 19	188.75	VAR.	88.03												VAR.	751.94	220.00	82.71					82.71
28+62.46	30+51.11	HWY. 19	188.65	VAR.	60.65												VAR.	752.80	220.00	82.81					82.81
28+64.36	31+26.05	HWY. 19	261.69	VAR.	172.14												VAR.	1100.81	220.00	121.09					121.09
53+05.77	55+67.52	HWY. 19	261.75	VAR.	62.68												VAR.	1060.19	220.00	116.62					116.62
53+80.77	55+67.52	HWY. 19	186.75	VAR.	52.42												VAR.	753.98	220.00	82.94					82.94
60+92.48	62+79.23	HWY. 19	186.75	VAR.	44.16												VAR.	748.87	220.00	82.38					82.38
60+92.48	63+53.73	HWY. 19	261.25	VAR.	84.94												VAR.	1082.99	220.00	119.13					119.13
ADDITIONAL FOR MOT VERTICAL TRANSITIONS																									
44+00.00	49+00.00	HWY. 19	500.00			24.00	1333.33	66.67	24.00	1333.33	226.67	293.34					24.00	1333.33	VAR.	44.29					44.29
75+00.00	84+00.00	HWY. 19	900.00			24.00	2400.00	120.00	24.00	2400.00	408.00	528.00	24.00	2400.00	VAR.	326.19	24.00	2400.00	VAR.	207.02					207.02
TOTALS:					**11549.74**		**30427.78**	**1521.39**		**16994.43**	**2889.05**	**4410.44**		**12676.32**		**2841.87**		**44311.21**		**4566.30**		**9177.48**		**1009.51**	**5575.81**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% 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.

DLTackett 4/9/2020 3:09:16 PM
WORKSPACE: AHTD
L:\2017\170755O - Little Missouri River and Relief\Drawings\R030458_QTY_OLdgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	35	98
				(1) 06347 & 07479 QUANTITIES				61492

SCHEDULE OF BRIDGE QUANTITIES - JOB. NO. 030458

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	SP & 509	801	SS & 802	SP, SS, & 802	SS, SP, & 802	803	SS & 804	SS & 804	SS & 805	SP, SS & 807	SS & 807	SS & 807	SS & 808	SS & 809	SS & 809	812	816	816	821
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	JOINT REHABILITATION (TYPE A)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	PRECAST CONCRETE BENT CAPS	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP14x73) (1)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	(2) STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	PAINTING STRUCTURAL STEEL (3)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	ARMORED JOINT WITH NEOPRENE STRIP SEAL	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. _)
			UNIT	LUMP SUM	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	EACH	GAL.	LB.	LB.	LIN. FT.	LB.	LB.	TON	CU. IN.	LIN. FT.	LIN. FT.	EACH	CU. YD.	SQ. YD.	LUMP SUM
06347	LITTLE MISSOURI RELIEF (6)	BENT NO. 9																					
		BENT NO. 10							1						1,804								
		BENT NO. 11							1						1,804								
		BENT NO. 12							1						1,804								
		BENT NO. 13							1						1,804								
		BENT NO. 14							1						1,804								
		BENT NO. 15																					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 9)								0.5						3.9		43					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 10)								0.5						4.3		43					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 11)								0.5						4.3		43					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 12)								0.5						4.3		43					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 13)								0.5						4.3		43					
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 14)								0.5						3.9							
		EXISTING BR. NO. 06347			360							(4)(5) 470											1
		TOTALS FOR BRIDGE NO. 06347			360				5	3.0		(4)(5) 470			9,020	25.0		215					
07479	HIGHWAY 19 OVER LITTLE MISSOURI RIVER	END BENT NO. 1				3	48.47			0.1	5,196		623	951			3,705.7				285	469	
		BENT NO. 2					62.23				15,188						6,352.8				275	489	
		BENT NO. 3					69.50				16,862						4,785.0						
		BENT NO. 4					62.23				15,188						6,352.8						
		END BENT NO. 5				5	48.47			0.1	5,196		614	951			3,705.7				330	544	
		500'-0" CONT. PL GIRDER UNIT						645.70		8.3		160,710		741,468		12.5			84	1			
		SITE NO. 2 (EXISTING BR. NO. 03095)		1																			
		TOTALS FOR BRIDGE NO. 07479				8	290.90	645.70		8.5	57,630	160,710	1,237	743,370		12.5	24,902.0		84	1	890	1,502	
		TOTALS FOR JOB NO. 030458			360	8	290.90	645.70	5	11.5	57,630	161,180	1,237	743,370	9,020	37.5	24,902.0	215	84	1	890	1,502	

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458	SP JOB 030458
			ITEM	SPALL REPAIR	SURFACE PATCHING	8'-10" EXT. PREFAB. MODULE	8'-10" INT. PREFAB. MODULE	7'-10" INT. PREFAB. MODULE	8'-10" EXT. PREFAB. MODULE W/ TURNDOWN	8'-10" INT. PREFAB. MODULE W/ TURNDOWN	7'-10" INT. PREFAB. MODULE W/ TURNDOWN	DRILLED SHAFT (84" DIAMETER)	PERMANENT STEEL CASING (90" DIAMETER)	CROSSHOLE SONIC LOGGING (84" DIAMETER)	THERMAL INTEGRITY PROFILING (84" DIAMETER)	CORING DRILLED SHAFT (5)	POLYMER OVERLAY	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS (5)
			UNIT	SQ. FT.	SQ. FT.	EACH	EACH	EACH	EACH	EACH	EACH	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	SQ. YD.	SQ. FT.
06347	LITTLE MISSOURI RELIEF (6)	BENT NO. 9		46	45													
		BENT NO. 10																
		BENT NO. 11																
		BENT NO. 12																
		BENT NO. 13																
		BENT NO. 14																
		BENT NO. 15		14	14													
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 9)							2	2	1							
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 10)				2	2	1										
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 11)				2	2	1										
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 12)				2	2	1										
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 13)				2	2	1										
		25'-0" PREFABRICATED COMPOSITE W-BEAM SPAN (SPAN NO. 14)							2	2	1							
		EXISTING BR. NO. 06347															1,889	550
		TOTALS FOR BRIDGE NO. 06347		(5) 60	(5) 59	8	8	4	4	4	2						1,889	550
07479	HIGHWAY 19 OVER LITTLE MISSOURI RIVER	END BENT NO. 1																
		BENT NO. 2										134	64	2	2	67		
		BENT NO. 3										150	52	2	2	75		
		BENT NO. 4										118	58	2	2	59		
		END BENT NO. 5																
		500'-0" CONT. PL GIRDER UNIT															2,223	
		SITE NO. 2 (EXISTING BR. NO. 03095)																
		TOTALS FOR BRIDGE NO. 07479										402	174	6	6	201	2,223	
		TOTALS FOR JOB NO. 030458		60	59	8	8	4	4	4	2	402	174	6	6	201	4,112	550

(1) All Steel piling shall be Grade 50 and are required to have QPL approved driving points which will not be paid for directly but will be considered subsidiary to the item "STEEL PILING (HP14x73)". All piles shall conform to Std. Dwg. No. 55020.

(2) Structural Steel paid for under this item shall consist of Type B fixed and expansion bearings along with anchor bolts. All other structural steel for Bridge 06347 shall be included in the cost of the prefabricated modules.

(3) All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within five feet and nine feet of the bridge deck expansion joints for Bridge Nos. 06347 & 07479, respectively, shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Fed. Std. 595 B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop.

(4) Quantity shown is to be used in conjunction with the item "BRIDGE DECK REPAIR FOR POLYMER OVERLAYS".

(5) Quantity shown is for estimating and bidding purposes only. Actual quantity, if any, will be determined in the field.

(6) A new name plate will not be provided. Name plate title shown is based on existing name plate that is to remain.

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA & PIKE COUNTIES
ROUTE 19 SEC. 5 & 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JAN. 2020 FILENAME: b030458_q.dgn
CHECKED BY: WMM DATE: JAN. 2020 SCALE: No Scale
DESIGNED BY: JJB DATE: JAN. 2020
BRIDGE NO. 06347 & 07479 DRAWING NO. 61492

obhall 3/18/2020 11:23:21 AM
WORKSPACE: ARDOT Bridge
L:\2017\1701550 - Little Missouri River and Relief\Drawings\b030458_QT.dgn
REVISED DATE:

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	46	STATION
SP & 201	GRUBBING	46	STATION
202	REMOVAL AND DISPOSAL OF GATES	2	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	5	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	1100	LIN. FT.
206	FLOWABLE SELECT MATERIAL	10	CU. YD.
207	STONE BACKFILL	43091	TON
SS & 210	UNCLASSIFIED EXCAVATION	14533	CU. YD.
SP & 210	COMPACTED EMBANKMENT	78557	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	12461	TON
SS & 401	TACK COAT	4474	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	2714	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	128	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	5493	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	301	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	3554	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	32	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
504	APPROACH SLABS	98.30	CU. YD.
504	APPROACH GUTTERS	56.80	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	850	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	166	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1460	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	780	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	28410	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	4558	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	2718	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1855	LIN. FT.
SS & 604	VERTICAL PANELS	41	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	636	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	140	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	12	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	84	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	100	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	1	EACH
606	SELECTED PIPE BEDDING	30	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
SS & 617	GUARDRAIL (TYPE A)	900	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	8	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	8	EACH
619	WIRE FENCE (TYPE D-1)	3858	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	2	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	2	EACH
620	LIME	26	TON
620	SEEDING	13.09	ACRE
SS & 620	MULCH COVER	38.11	ACRE
620	WATER	1851.1	M. GAL.
621	TEMPORARY SEEDING	25.02	ACRE
621	SILT FENCE	11273	LIN. FT.
621	SAND BAG DITCH CHECKS	1078	BAG
621	SEDIMENT BASIN	1100	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	1100	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	1545	CU. YD.
SS & 621	FILTER SOCK (18")	250	LIN. FT.
623	SECOND SEEDING APPLICATION	13.09	ACRE
624	SOLID SODDING	432	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	1688	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	8934	LIN. FT.
SP	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	11	WEEK
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	13700	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	13700	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	87	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	4	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	6	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	2	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	14610	POUND
816	FILTER BLANKET	1505	SQ. YD.
816	DUMPED RIPRAP	753	CU. YD.
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
SP & 509	JOINT REHABILITATION (TYPE A)	360	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	8	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	290.90	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	645.70	CU. YD.
SP	8'-10" EXT. PREFAB. MODULE	8	EACH
SP	8'-10" EXT. PREFAB. MODULE W/ TURNDOWN	4	EACH
SP	8'-10" INT. PREFAB. MODULE	8	EACH
SP	8'-10" INT. PREFAB. MODULE W/ TURNDOWN	4	EACH
SP	7'-10" INT. PREFAB. MODULE	4	EACH
SP	7'-10" INT. PREFAB. MODULE W/ TURNDOWN	2	EACH
SP	SURFACE PATCHING	59	SQ. FT.
SP	SPALL REPAIR	60	SQ. FT.
SP, SS, & 802	PRECAST CONCRETE BENT CAPS	5	EACH
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	11.5	GAL.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	57630	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	161180	POUND
SS & 805	STEEL PILING (HP 14X73)	1237	LIN. FT.
SP	CORING DRILLED SHAFT	201	LIN. FT.
SP	DRILLED SHAFT (84" DIAMETER)	402	LIN. FT.
SP	PERMANENT STEEL CASING (90" DIAMETER)	174	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (84" DIAMETER)	6	EACH
SS & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	9020	POUND
SP, SS, & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	743370	POUND
SS & 807	PAINTING STRUCTURAL STEEL	37.5	TON
SS & 808	ELASTOMERIC BEARINGS	24902.0	CU. IN.
SP	THERMAL INTEGRITY PROFILING (84" DIAMETER)	6	EACH
SS & 809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	84	LIN. FT.
SS & 809	SILICONE JOINT SEALANT	215	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	1502	SQ. YD.
816	DUMPED RIPRAP	890	CU. YD.
821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)	1.00	LUMP SUM
SP	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS	550	SQ. FT.
SP	POLYMER OVERLAY	4112	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
5/8/2020	CHANGED PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED PAY UNIT TO WEEK	32 & 36
5/11/2020	CHANGED UNCLASSIFIED EXCAVATION QUANTITY	33 & 36

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 5/11/2020

SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
5/8/2020			
5/11/2020			

(2) SUMMARY OF QUANTITIES & REVISIONS

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	36	98

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.		030458	37	98

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L TACKETT

DIGITALLY SIGNED 4/10/2020

SURVEY CONTROL COORDINATES

Project Name: s030458
Date: 2/1/2018
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1782506.0466	874553.2219	250.908	CTL	ARDOT STD. MON. STAMPED PN: 1
2	1783921.2765	874620.2197	251.921	CTL	ARDOT STD. MON. STAMPED PN: 2
3	1784421.7690	874644.4031	253.600	CTL	ARDOT STD. MON. STAMPED PN: 3
4	1784948.1603	874710.1158	253.385	CTL	ARDOT STD. MON. STAMPED PN: 4
5	1785689.3357	874702.4871	250.280	CTL	ARDOT STD. MON. STAMPED PN: 5
6	1786236.9479	874770.3422	248.618	CTL	ARDOT STD. MON. STAMPED PN: 6
7	1774827.4546	874358.7515	248.608	CTL	ARDOT STD. MON. STAMPED PN: 7
8	1775614.7932	874382.8617	247.458	CTL	ARDOT STD. MON. STAMPED PN: 8
9	1776178.2332	874402.7263	247.875	CTL	ARDOT STD. MON. STAMPED PN: 9
10	1776431.5526	874360.6536	247.704	CTL	ARDOT STD. MON. STAMPED PN: 10
11	1777114.2316	874376.5926	246.687	CTL	ARDOT STD. MON. STAMPED PN: 11
12	1777304.8992	874442.7646	246.797	CTL	ARDOT STD. MON. STAMPED PN: 12
13	1778071.9820	874464.7814	245.777	CTL	ARDOT STD. MON. STAMPED PN: 13
14	1778868.0405	874476.6837	245.616	CTL	ARDOT STD. MON. STAMPED PN: 14
15	1779680.7185	874490.9377	247.155	CTL	ARDOT STD. MON. STAMPED PN: 15
16	1780499.9111	874503.9335	247.697	CTL	ARDOT STD. MON. STAMPED PN: 16
17	1781217.1513	874538.2209	250.546	CTL	ARDOT STD. MON. STAMPED PN: 17
100	1781769.8790	874569.1965	249.702	GPS	ARDOT GPS *500008
101	1783173.2288	874583.5075	250.306	GPS	ARDOT GPS *500008A
900	1784436.3281	874649.9976	256.859	TBM	BRASS CAP IN SE CNR OF BRIDGE
901	1784936.6432	874700.5900	254.711	TBM	CHISELED SQUARE NE CORNER OF BRIDGE
902	1781725.0391	874512.9112	254.517	TBM	CHISELED SQUARE NW CORNER OF BRIDGE
903	1781290.9571	874492.8371	254.594	TBM	AHTD CAP PRESCOTT
904	1777200.1035	874389.7520	251.008	TBM	AHTD CAP PRESCOTT
905	1776195.1848	874359.1514	251.039	TBM	AHTD CAP PRESCOTT
1000	1785052.0033	874715.0871	253.159	CTL	ARDOT STD. MON. STAMPED PN: 1 JOB *030376
2000	1785676.0379	874701.8834	250.259	CTL	ARDOT STD. MON. STAMPED PN: 2 JOB *030376
6000	1786226.9834	874772.5475	248.034	CTL	ARDOT STD. MON. STAMPED PN: 6 JOB *030376

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999077124 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 s030458gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 500008 - 500008A
CONVERGENCE ANGLE: 00 48 29.04 LEFT AT LT: N 33-57-13.37 LG: W 093-26-37.58
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ALIGNMENT NAME: HWY. 19

POINT	STATION	TYPE	NORTHING	EASTING
8000	20+00.00	POB	1780860.0869	874492.0215
8001	31+00.00	PI	1781958.8104	874544.9999
8002	39+00.00	PI	1782757.7518	874586.1405
8003	40+00.00	PC	1782857.6421	874590.8231
8004	47+57.08	PRC	1783612.1684	874651.2210
8005	55+14.15	PT	1784366.6947	874711.6189
8006	73+49.24	PC	1786199.7687	874797.5491
8007	86+17.26	PT	1787365.3497	874384.6495
8008	90+00.00	POE	1787651.1341	874130.0549

ALIGNMENT NAME: DRIVE 53+00

POINT	STATION	TYPE	NORTHING	EASTING
8100	6+20.00	POB	1784463.6703	874518.4639
8101	6+74.01	PC	1784424.3620	874568.9137
8102	7+23.66	PT	1784388.2004	874599.9192
8103	9+23.33	PC	1784193.0197	874641.9894
8104	9+88.00	PT	1784153.6606	874687.6179
8105	10+00.00	POE	1784152.8809	874699.5925

ALIGNMENT NAME: DRIVE 64+00

POINT	STATION	TYPE	NORTHING	EASTING
8200	5+50.00	POB	1784859.9914	874654.6556
8201	8+85.76	PC	1785195.3800	874670.3778
8202	9+80.00	PT	1785252.5046	874733.1216
8203	10+00.00	POE	1785251.5681	874753.0997

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REVISED DATE:

SURVEY CONTROL DETAILS

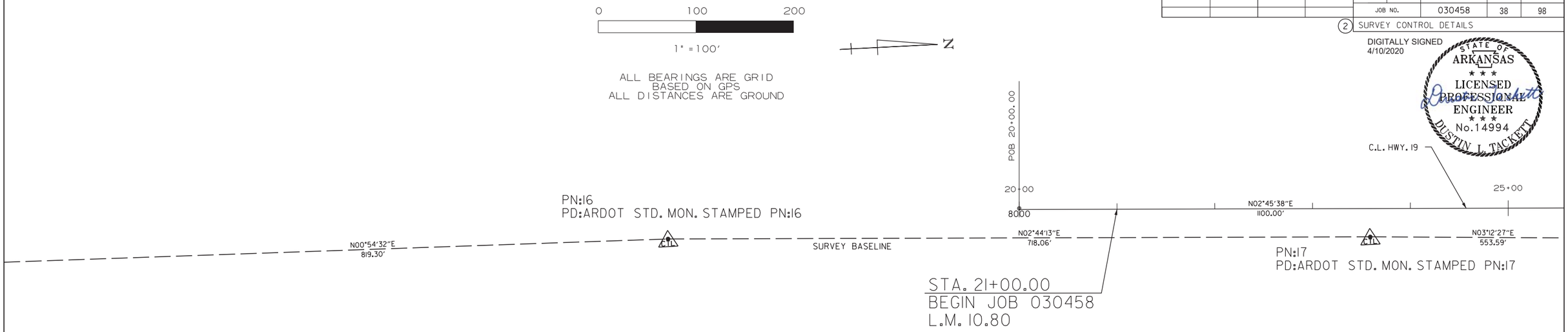
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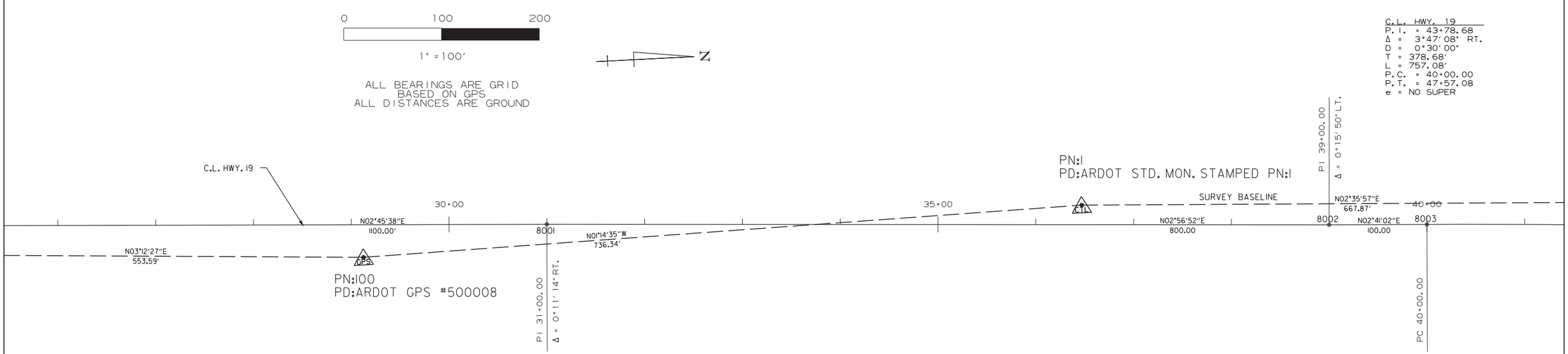
FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	38	98

(2) SURVEY CONTROL DETAILS

DIGITALLY SIGNED
4/10/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT





SURVEY CONTROL DETAILS

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	39	98

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

0 100 200
1" = 100'

N

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

C.L. HWY. 19
P.I. = 51+35.75
Δ = 3°47'08" LT.
D = 0°30'00"
T = 378.67'
L = 757.07'
P.C. = 47+57.08
P.T. = 55+14.15
e = NO SUPER

PN:101
PD:ARDOT GPS #500008A

PI 43+78.68

N02°35'57"E
667.87'

GPS

N02°41'02"E
378.68'

N06°28'10"E
378.68'

45+00

SURVEY BASELINE

N02°48'35"E
748.95'

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

N02°45'59"E
501.08'

C.L. HWY. 19

8004

50+00

PRC 47+57.08

N06°28'10"E
378.67'

N02°41'02"E
378.67'

PI 51+35.75

PT 9+88.00

8104

8105

10.00

S86°16'27"E
12.00'

S86°16'27"E
37.75'

8103

S12°09'49"E
37.75'

PI 9+61.08

PC 9+23.33

S12°09'49"E
199.67'

8102

S12°09'49"E
27.09'

C.L. DRIVE 53+00

PT 7+23.66

8100

6.20

S69°03'25"E
6.02'

8101

PC 6

S69°03'25"E
27.09'

PI 7+01.10

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

55+00

PT 55+14.15

8005

N02°41'02"E
1835.09'

C.L. HWY. 19
P.I. = 43+78.68
Δ = 3°47'08" RT.
D = 0°30'00"
T = 378.68'
L = 757.08'
P.C. = 40+00.00
P.T. = 47+57.08
e = NO SUPER

C.L. DRIVE 53+00
P.I. = 7+01.10
Δ = 56°53'36" RT.
D = 114°35'30"
T = 27.09'
L = 49.65'
P.C. = 6+74.01
P.T. = 7+23.66
e = NO SUPER

C.L. DRIVE 53+00
P.I. = 9+61.08
Δ = 74°06'38" LT.
D = 114°35'30"
T = 37.75'
L = 64.67'
P.C. = 9+23.33
P.T. = 9+88.00
e = NO SUPER

0 100 200
1" = 100'

N

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

C.L. DRIVE 64+00
P.I. = 9+45.76
Δ = 90°00'00" RT.
D = 95°29'35"
T = 60.00'
L = 94.24'
P.C. = 8+85.76
P.T. = 9+80.00
e = NO SUPER

8100

6.20

8101

PC 6+74.01

PI 7+01.10

C.L. DRIVE 64+00

5+50

8200

N02°41'02"E
335.76'

8201

N02°41'02"E
60.00'

PI 9+45.76

S87°18'58"E
60.00'

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

N07°06'57"E
530.48'

SURVEY BASELINE

N00°35'23"W
741.21'

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

N07°03'49"E
551.80'

PT 9+80.00

8202

S87°18'58"E
20.00'

60+00

65+00

70+00

N02°41'02"E
1835.09'

PC 8+85.76

8203

10.00

C.L. HWY. 19

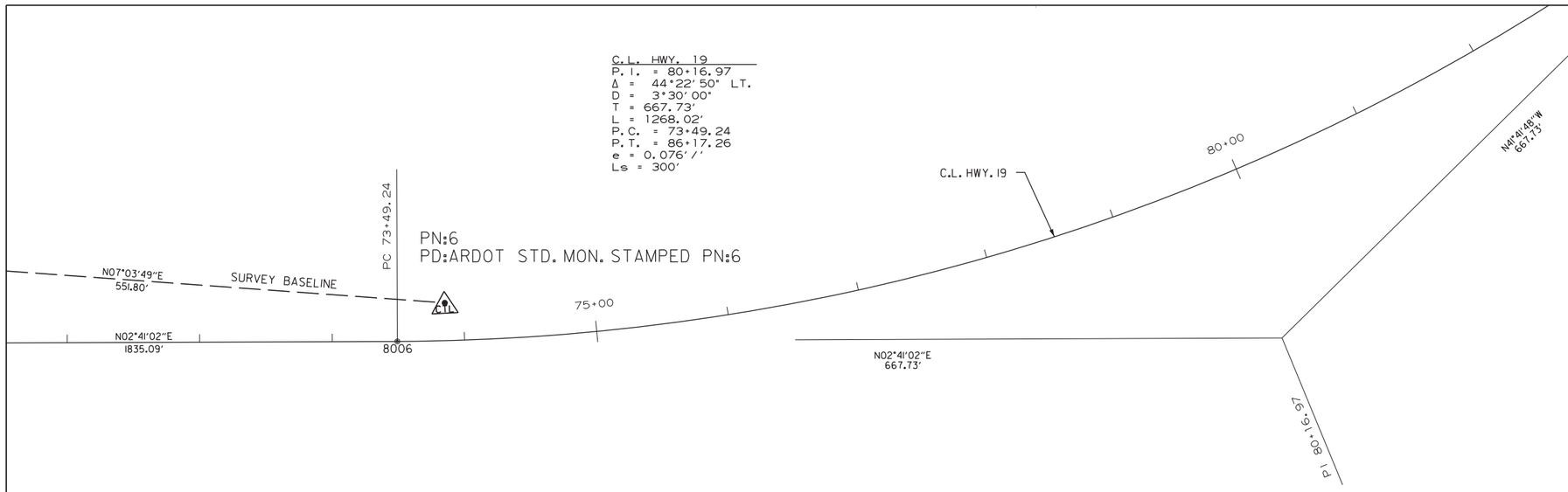
SURVEY CONTROL DETAILS

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

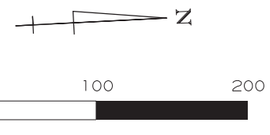
FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	40	98

(2) SURVEY CONTROL DETAILS

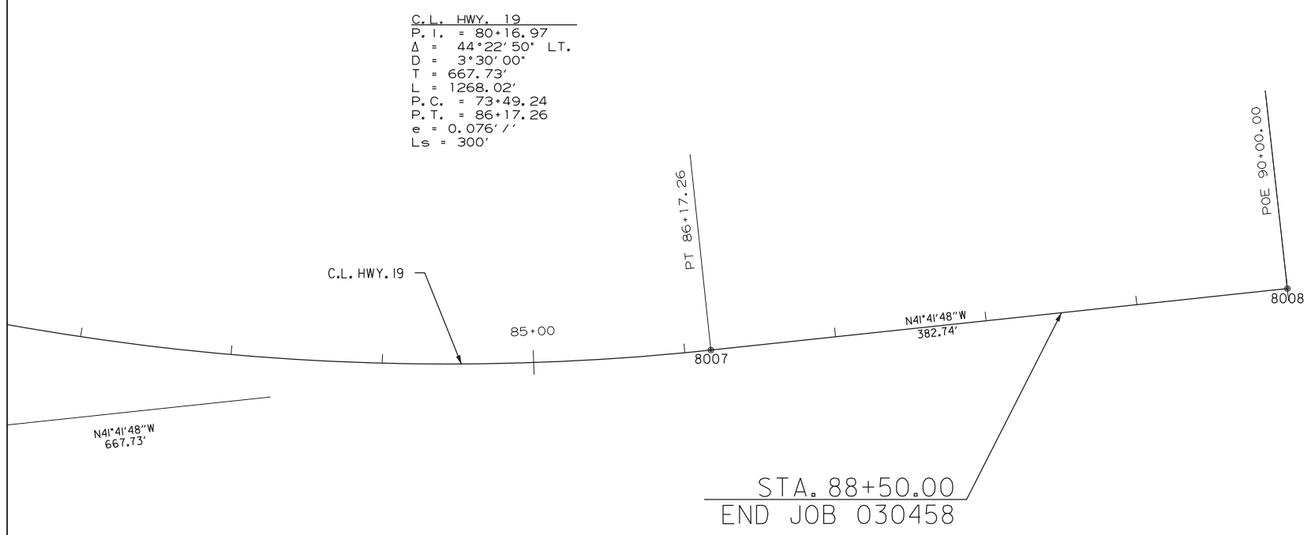


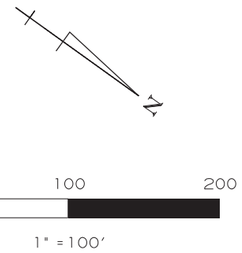
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020



ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND





ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

SURVEY CONTROL DETAILS

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	41	98
				(2)	PLAN AND PROFILE - HIGHWAY 19			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L TACKETT
DIGITALLY SIGNED 4/10/2020

N

SPECIAL FLOOD HAZARD AREA

EXIST. R/W

8' EX. SHLDR.
24' EX. LANES
8' EX. SHLDR.

20+00

8'
24'
8'

CONSTRUCTION LIMITS

BEGIN BRIDGE STA. 24+29.96

25+00

N 2°45'38" E

C.L. HWY. 19

STA. 24+29.96 TO STA. 28+54.96 IN PLACE
425' X 40' BRIDGE NO. 06347 CONSISTING OF
425'-0" R.C. DECK GIRDER
RETAIN AND REPAIR

END BRIDGE STA. 28+54.96

CONSTRUCTION LIMITS

30+00

N 2°56'52" E

8'
24'
8'

CONSTRUCTION LIMITS

PI 31+00.00
Δ = 0°11'14" RT.

EXIST. R/W

STA. 21+00.00
BEGIN JOB 030458
L.M. 10.80

EXIST. R/W

SPECIAL FLOOD HAZARD AREA

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	UNIT
22+20	24+20	RT.	200 LIN. FT.
23+45	24+20	LT.	75 LIN. FT.
28+65	30+65	LT.	200 LIN. FT.
28+66	29+41	RT.	75 LIN. FT.

C.L. HWY. 19 STATIONING	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE II)
STA. 22+01.81 TO STA. 24+20.56 RT.	= 150 LIN. FT.	1 EACH	1 EACH
STA. 22+76.81 TO STA. 24+20.56 LT.	= 75 LIN. FT.	1 EACH	1 EACH
STA. 28+64.36 TO STA. 30+08.11 RT.	= 75 LIN. FT.	1 EACH	1 EACH
STA. 28+64.36 TO STA. 30+83.11 LT.	= 150 LIN. FT.	1 EACH	1 EACH

HWY. 19

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

290
280
270
260
250
240
230
220
210
200

MILL & INLAY

+00.00

BEGIN BRIDGE STA. 24+29.96

MILL & INLAY

END BRIDGE STA. 28+54.96

100' VERTICAL TRANSITION TO MATCH EXISTING

OVERLAY

+25.00

+25.00

EXISTING GROUND

STA. 21+00.00
BEGIN JOB 030458
L.M. 10.80

19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	42	98

(2) PLAN AND PROFILE - HIGHWAY 19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

C.L. HWY. 19
P.I. = 43+78.68
Δ = 3°47'08" RT.
D = 0°30'00"
T = 378.68'
L = 757.08'
P.C. = 40+00.00
P.T. = 47+57.08
e = NO SUPER

C.L. HWY. 19
P.I. = 51+35.75
Δ = 3°47'08" LT.
D = 0°30'00"
T = 378.67'
L = 757.07'
P.C. = 47+57.08
P.T. = 55+14.15
e = NO SUPER

N

SPECIAL FLOOD HAZARD AREA

EXIST. R/W

PI 39+00.00
Δ = 0°15'50" LT.

CONSTRUCTION LIMITS

8'
24'
8'

35+00

N 2°56'52" E

C.L. HWY. 19

40+00

N 2°41'02" E

PK NAIL FOUND ON ROOT STD. MON. STAMPED PNI

PC 40+00.00

PI 43+78.68

GPS FOUND ROOT GPS #5 10008A

N 6°28'10" E

45+00

CONSTRUCTION LIMITS

PRC 47+57.08

SPECIAL FLOOD HAZARD AREA

EXIST. R/W

8'
24'
8'

EXIST. R/W

HWY. 19

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

290
280
270
260
250
240
230
220
210
200

OVERLAY

PVI 40+00.00
ELEV. 251.74

PROFILE GRADE

0.10%

EXISTING GROUND

34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	43	98

(2) PLAN AND PROFILE - HIGHWAY 19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

SPECIAL FLOOD HAZARD AREA

C.L. HWY. 19
P.I. = 51+35.75
Δ = 3°47'08" LT.
D = 0°30'00"
T = 378.67'
L = 757.07'
P.C. = 47+57.08
P.T. = 55+14.15
e = NO SUPER

C.L. DRIVE 53+00
P.I. = 7+01.10
Δ = 56°53'36" RT.
D = 114°35'30"
T = 27.09'
L = 49.65'
P.C. = 6+74.01
P.T. = 7+23.66
e = NO SUPER

C.L. DRIVE 53+00
P.I. = 9+61.08
Δ = 74°06'38" LT.
D = 114°35'30"
T = 37.75'
L = 64.67'
P.C. = 9+23.33
P.T. = 9+88.00
e = NO SUPER

STA. 53+00 IN PLACE
24" X 41' CMP LT. SIDE DRAIN AND
36" X 43' CMP LT. SIDE DRAIN
REMOVE AND INSTALL DOUBLE 24" X 42'
PIPE CULVERT LT. SIDE DRAIN
CONSRUCT APPROACH = 1338 CU. YDS.

BRIDGE NO. 03095 IN PLACE
502'-2" X 26'-0" BRIDGE CONSISTING OF
A STEEL SUPERSTRUCTURE SUPPORTED
BY A CONCRETE SUBSTRUCTURE. REMOVE AS
EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM

C.L. DRIVE 64+00
P.I. = 9+45.76
Δ = 90°00'00" RT.
D = 95°29'35"
T = 60.00'
L = 94.24'
P.C. = 8+85.76
P.T. = 9+80.00
e = NO SUPER

STA. 64+00.00 CONSTRUCT
APPROACH ON LT. = 3050 CU. YDS.

DUMPED RIPRAP AND FILTER BLANKET

SPECIAL FLOOD HAZARD AREA TO COUNTY LINE

EXIST. R/W

CONSTRUCTION LIMITS

C.L. DRIVE 53+00

PI 9+61.08

PC 9+23.33

PT 7+23.66

S 69°02'25" E 62.9

+06 175'

PC 6+74.01

+84 116'

PI 7+01.10

S 12°09'49" E 51'

PI 55+14.15

PT 55+14.15

S 86°16'27" E

50+00

PT 9+88.00

N 6°28'10" E

C.L. HWY. 19

55+00

BEGIN BRIDGE STA. 55+78.92

STA. 55+78.92 TO STA. 60+81.08
CONSTRUCT 502'-2" X 40' CLEAR ROADWAY
500'-0" CONTINUOUS COMPOSITE PLATE
GIRDER UNIT (100'-150'-150'-100')

STA. 60+20, 63.11' LT.
BEGIN SP. DT. -2.62%
ELEV. 240.05

POB 5+50.00

+11 100'

5+50

DUMPED RIPRAP AND FILTER BLANKET

CONSTRUCTION LIMITS

+80 130'

+40 130'

PI 9+45.76

+35 76'

20'

N 02°41'02" E

C.L. DRIVE 64+00

60+00

PT 9+80.00

S 87°18'58" E

N 2°41'02" E

PC 8+85.76

8'

24'

8'

EXIST. R/W

+50 84.47'

PI 51+35.75

CONSTRUCTION LIMITS

PROP. R/W

+00 115'

STA. 60+20, 54.59' RT.
END SP. DT. -2.62%
ELEV. 236.97

END BRIDGE STA. 60+81.08

EXIST. R/W

+50 100'

PROP. R/W

+00 100'

+00 90'

LITTLE MISSOURI RIVER

EXISTING GROUND

3:1 3:1

SPECIAL DITCH STA. 60+20
TYPICAL SECTION

FENCING

STA.	STA.	SIDE	TYPE	UNIT
50+50	56+00	HWY. 19 - RT.	D-1	550 LIN. FT.
60+00	70+62	HWY. 19 - RT.	D-1	1062 LIN. FT.

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	UNIT
53+80	55+80	RT.	200 LIN. FT.
55+05	55+80	LT.	75 LIN. FT.
60+85	62+85	LT.	200 LIN. FT.
60+85	61+60	RT.	75 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
6+80	8+55	LT. = 175 LIN. FT.	6'-0"	117
60+20	61+84	LT. = 164 LIN. FT.	6'-0"	109

C.L. HWY. 19 STATIONING	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE II)
STA. 53+48.77 TO STA. 55+67.52 RT.	= 150 LIN. FT.	1EACH	1EACH
STA. 54+23.77 TO STA. 55+67.52 LT.	= 75 LIN. FT.	1EACH	1EACH
STA. 60+92.48 TO STA. 62+36.23 RT.	= 75 LIN. FT.	1EACH	1EACH
STA. 60+92.48 TO STA. 63+11.23 LT.	= 150 LIN. FT.	1EACH	1EACH

HWY. 19

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

STREAM NAME: LITTLE MISSOURI RIVER
STATION: 57+00-58+70
STREAM TYPE: PERENNIAL
TOP OF CHANNEL: 239 FT.

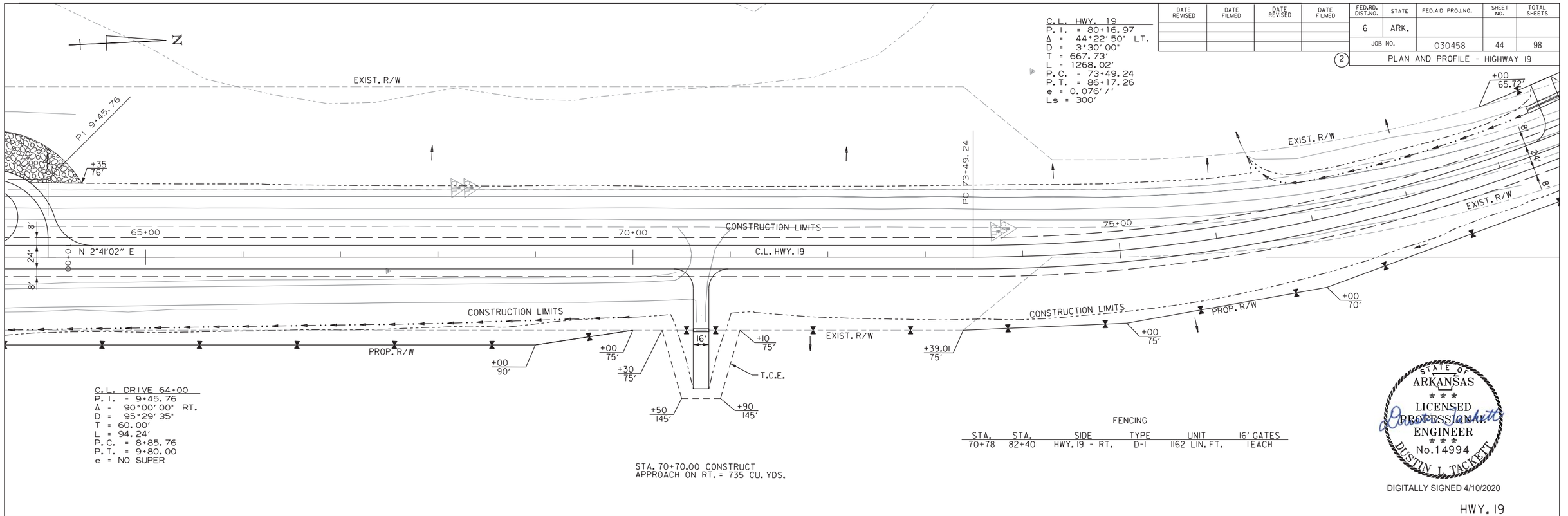
PVC 50+00.00 ELEV. 252.74
VC=200.00' K 285.71 e=0.18'
PVT 52+00.00 ELEV. 253.64
PVI 51+00.00 ELEV. 252.84
0.10%
0.80%
EXISTING GROUND
-0.30% RIGHT DITCH GRADE
+50.00 RT. 238.36
BEGIN BRIDGE STA. 55+78.92
PVC 56+90.00 ELEV. 257.56
+85.00 RT. 236.46
PVI 58+30.00 ELEV. 258.68
VC=280.00' K 175.00 e=-0.56'
DESIGN H.W. (Q50) ELEV. 248.3
PVT 59+70.00 ELEV. 257.36
END BRIDGE STA. 60+81.08
-0.80%
+20.00 RT. 236.97
PVC 61+40.00 ELEV. 256.20
PROFILE GRADE
VC=200.00' K 400.00 e=0.13'
PVI 62+40.00 ELEV. 255.40
PVT 63+40.00 ELEV. 255.10
-0.30%
0.20% RIGHT DITCH GRADE

290 280 270 260 250 240 230 220 210 200
49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00

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L:\20\T01\7550 - Little Missouri River and Relief\Drawings\R030458_PP_03.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	44	98

(2) PLAN AND PROFILE - HIGHWAY 19



STA. 70+70.00 CONSTRUCT APPROACH ON RT. = 735 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	UNIT	16' GATES
70+78	82+40	HWY. 19 - RT.	D-1	1162 LIN. FT.	1 EACH

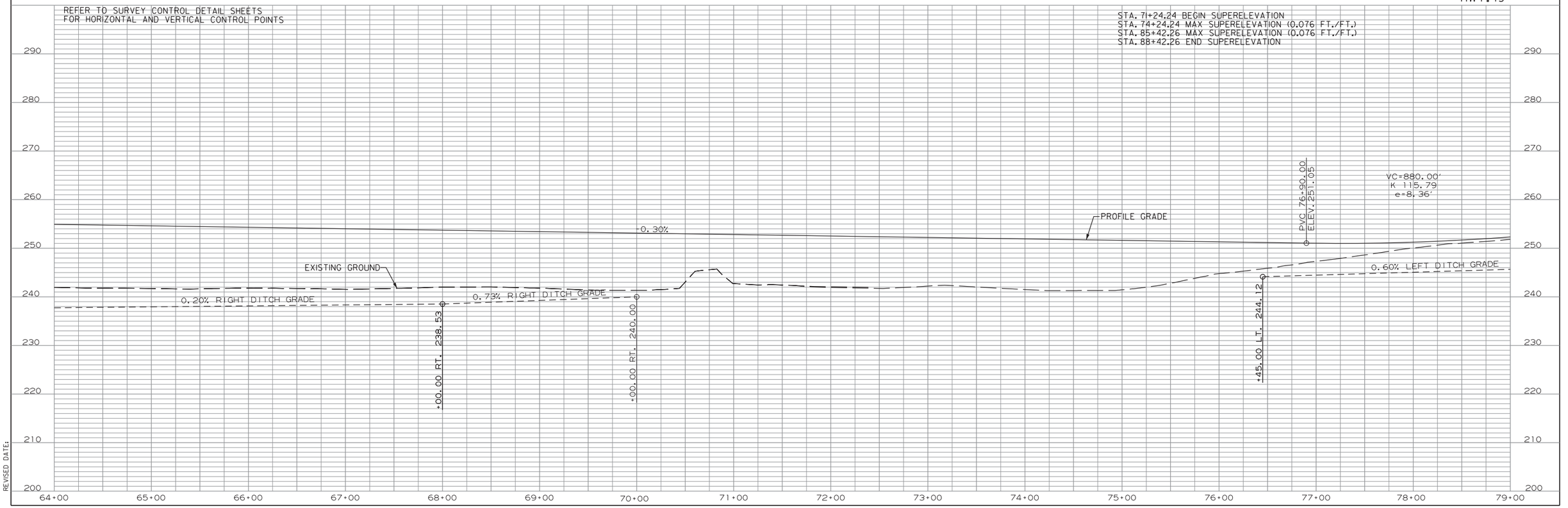
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT

DIGITALLY SIGNED 4/10/2020

HWY. 19

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

STA. 71+24.24 BEGIN SUPERELEVATION
STA. 74+24.24 MAX SUPERELEVATION (0.076 FT./FT.)
STA. 85+42.26 MAX SUPERELEVATION (0.076 FT./FT.)
STA. 88+42.26 END SUPERELEVATION



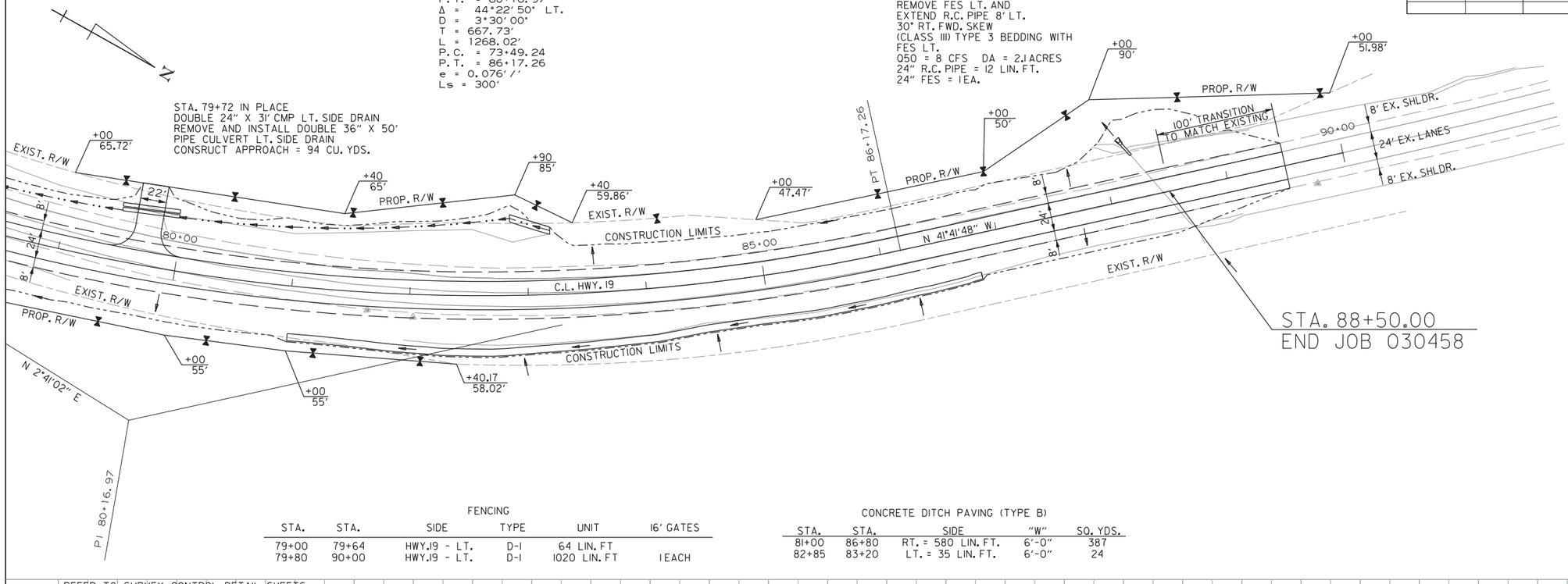
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	45	98
				(2)	PLAN AND PROFILE - HIGHWAY 19			

C.L. HWY. 19
P.I. = 80+16.97
Δ = 44°22'50" LT.
D = 3°30'00"
T = 667.73'
L = 1268.02'
P.C. = 73+49.24
P.T. = 86+17.26
e = 0.076'/'
Ls = 300'

STA. 79+72 IN PLACE
DOUBLE 24" X 31' CMP LT. SIDE DRAIN
REMOVE AND INSTALL DOUBLE 36" X 50'
PIPE CULVERT LT. SIDE DRAIN
CONSRUCT APPROACH = 94 CU. YDS.

STA. 88+44.73 IN PLACE
24" X 83' R.C. PIPE CULVERT
WITH FES LT. AND RT.
REMOVE FES LT. AND
EXTEND R.C. PIPE 8' LT.
30° RT. FWD. SKEW
(CLASS III) TYPE 3 BEDDING WITH
FES LT.
Q50 = 8 CFS DA = 2.1 ACRES
24" R.C. PIPE = 12 LIN. FT.
24" FES = 1EA.



FENCING

STA.	STA.	SIDE	TYPE	UNIT	16' GATES
79+00	79+64	HWY.19 - LT.	D-1	64 LIN. FT	
79+80	90+00	HWY.19 - LT.	D-1	1020 LIN. FT	1EACH

CONCRETE DITCH PAVING (TYPE B)

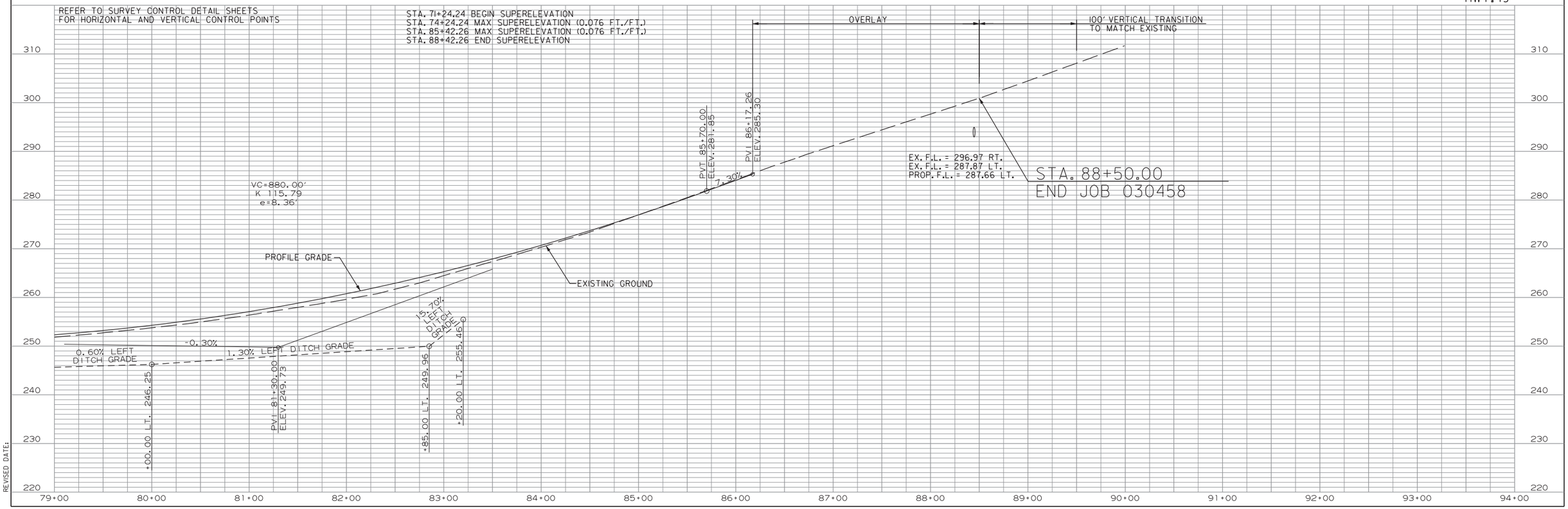
STA.	STA.	SIDE	"W"	SQ. YDS.
81+00	86+80	RT. = 580 LIN. FT.	6'-0"	387
82+85	83+20	LT. = 35 LIN. FT.	6'-0"	24

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 4/10/2020

HWY. 19

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

STA. 71+24.24 BEGIN SUPERELEVATION
STA. 74+24.24 MAX SUPERELEVATION (0.076 FT./FT.)
STA. 85+42.26 MAX SUPERELEVATION (0.076 FT./FT.)
STA. 88+42.26 END SUPERELEVATION



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REVISED DATE:

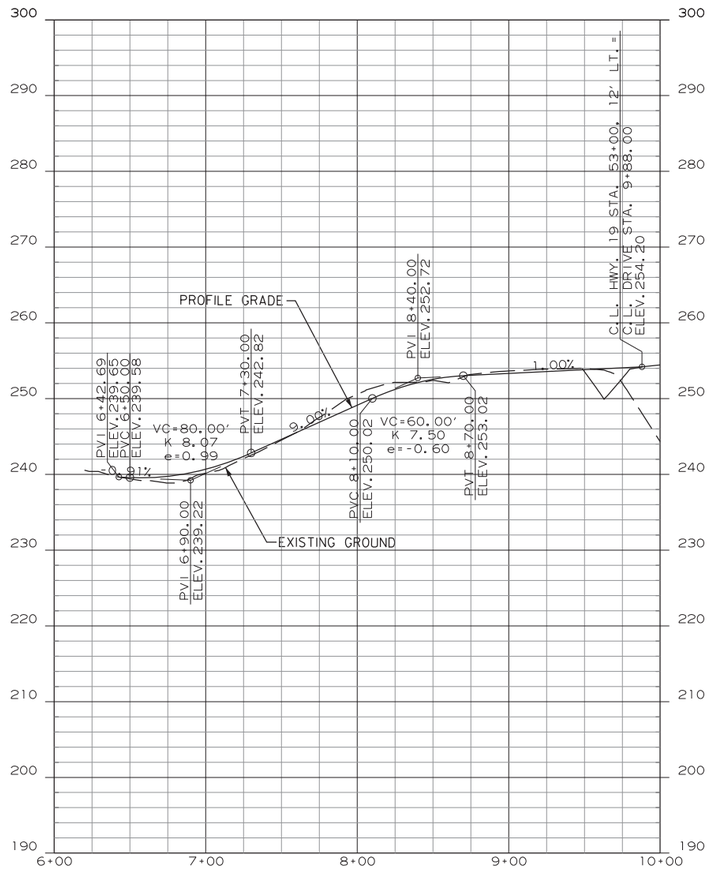
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6	ARK.			
JOB NO.		030458	46	98

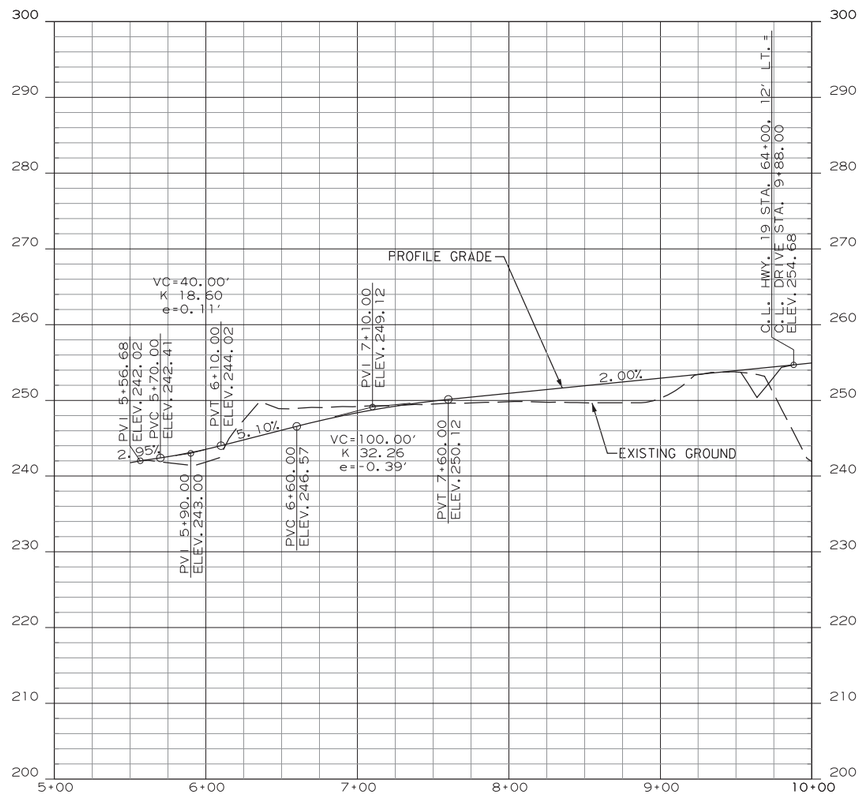
(2) DRIVEWAY PROFILES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT

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DRIVE STATION 53+00



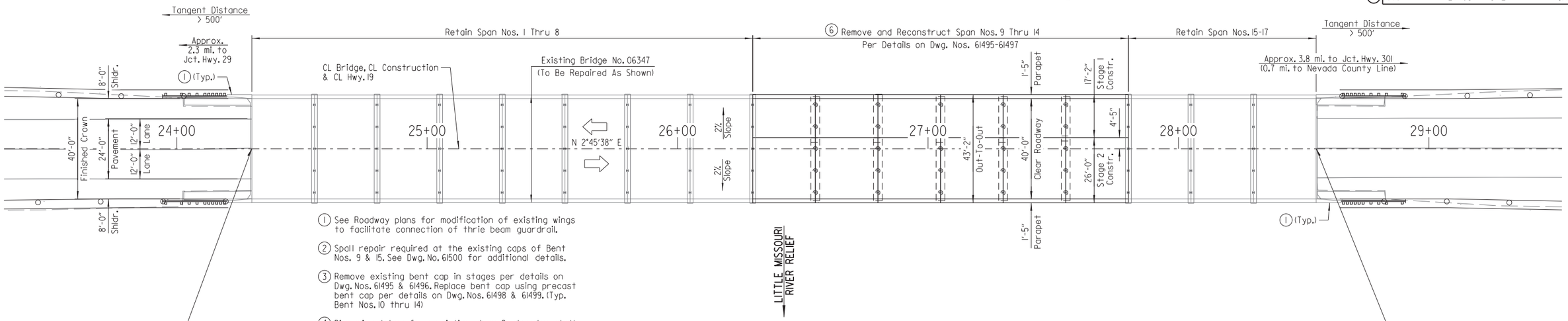
DRIVE STATION 64+00

DRIVEWAY PROFILES

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WORKSPACE: AHTD
L:\2017\170175550 - Little Missouri River and Relief\Drawings\R030458_PP_DRIVES.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	47	98
(1) 06347		LAYOUT - SITE 1		61493



PLAN

(1) See Roadway plans for modification of existing wings to facilitate connection of thrie beam guardrail.

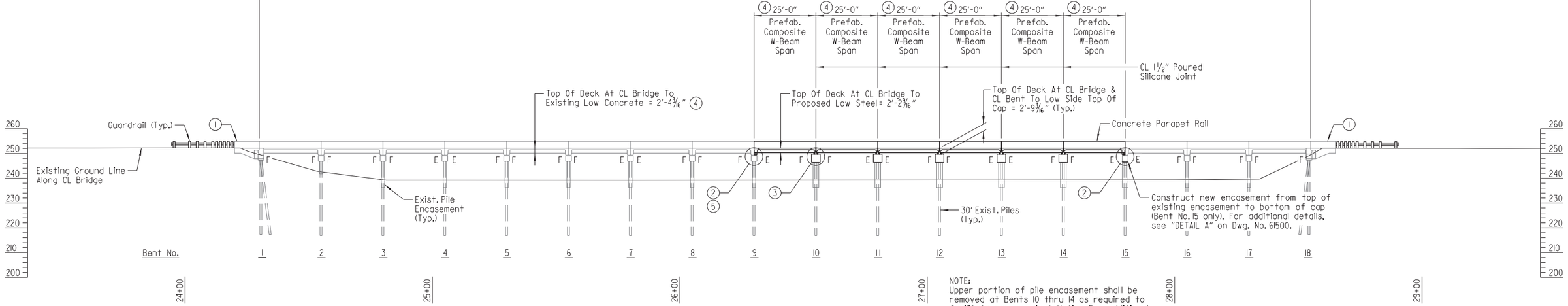
(2) Spall repair required at the existing caps of Bent Nos. 9 & 15. See Dwg. No. 61500 for additional details.

(3) Remove existing bent cap in stages per details on Dwg. Nos. 61495 & 61496. Replace bent cap using precast bent cap per details on Dwg. Nos. 61498 & 61499. (Typ. Bent Nos. 10 thru 14)

(4) Dimension taken from existing plans. Contractor shall field verify. See "GENERAL NOTES" on Dwg. No. 61494 for verification requirements.

(5) Remove dowels extending from existing bent cap flush with top of cap - Bent No. 9 only. See Dwg. No. 61503 for additional information.

(6) Cost associated with the removal of portions of the existing bridge shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)".



NOTE:
Upper portion of pile encasement shall be removed at Bents 10 thru 14 as required to facilitate new cap installation. For additional details, see Dwg. No. 61499.

ELEVATION

LEGEND

——— Existing bridge elements to remain

——— New bridge elements to be constructed

E = Expansion
F = Fixed

NOTE:
For "GENERAL NOTES", see Dwg. No. 61494.

FOR R/W DATA AND GUARDRAIL DETAILS, SEE ROADWAY PLANS

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LICENSED PROFESSIONAL ENGINEER
No. 14498
ADAM B. HALL

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BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF
LITTLE MISSOURI RIVER & RELIEF STRS. & APPRS. (S)
NEVADA COUNTY
ROUTE 19 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2018 FILENAME: b030458xl_l1.dgn
CHECKED BY: JHR DATE: MAY 2019 SCALE: 1" = 20'-0"
DESIGNED BY: ABH DATE: DEC. 2018

BRIDGE NO. 06347 DRAWING NO. 61493

abhall 3/18/2020 11:23:22 AM
WORKSPACE: ARDOT Bridge
L:\20\7\0\7550 - Little Missouri River and Relief\Drawings\b030458xl_l1 Relief Bridge.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	48	98
(1) 06347		LAYOUT - SITE 1		61494

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 17th Edition

LIVE LOADING: HS20

METHOD OF DESIGN: Load Factor Design

SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the Manufacturer's recommendations at no cost to the Department.

BRIDGE DECK: The bridge deck shall be given a polymer overlay as specified in Special Provision Job No. 030458 "POLYMER OVERLAY".

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

ACCELERATED BRIDGE CONSTRUCTION: The use of prefabricated bent caps and precast superstructure modules will be required. Precast bent caps shall be manufactured in accordance with Section 802.21 and Special Provision Job No. 030458 "PRECAST BENT CAPS". Prefabricated Superstructure Modules shall be fabricated in accordance with Special Provision Job No. 030458 "PREFABRICATED SUPERSTRUCTURE MODULES".

EXISTING BRIDGE: Existing Bridge No. 06347 (Log Mile 10.86) is 425' in length, 42.83' wide and consists of reinforced concrete deck girder spans supported by steel H-pile bents. See "REFERENCE TABLE" for a list of existing bridge drawings.

REMODELING OF THE EXISTING BRIDGE: The proposed work consists of removing and replacing the entire superstructure unit for Spans 9 thru 14; removing and replacing intermediate bent caps for Bents 10 thru 14; extending concrete encasement for the existing piles at Bent 15; spall repair where shown in the plans; and a polymer overlay of the new and existing bridge deck. For additional requirements in conducting the work, see Section 821. The cost associated with the removal and disposal of portions of the existing bridge shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)".

VERIFICATION: Except as noted, components of the existing bridge are to be retained and joined to the proposed work. The information and dimensions shown are based on existing bridge plans. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to proposed work to the existing structure. See Section 821 for additional requirements. Payment for this work shall be considered subsidiary to the pay item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)". Verification of the existing bridge geometry must be completed prior to the submission of structural steel shop drawings.

REMOVAL AND SALVAGE: All material removed from the existing bridge under Item 821 shall be disposed of according to Section 205. All material from the existing bridge shall become property of the Contractor.

JOINT REHABILITATION: After placement of the Polymer Overlay, existing joints at Bents 2 thru 8, 16, and 17 shall be given a Type A Joint Rehabilitation as specified in Section 509 and Special Provision Job No. 030458 "JOINT REHABILITATION FOR BRIDGE DECKS".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

DETAIL DRAWINGS:	DRAWING NO.
Staged Construction	61495-61497
Precast Bent Caps	61498-61499
Bent Cap Repairs	61500
25'-0" Prefabricated Composite W-Beam Span	61501-61506
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Poured Silicone Joints	55008

REFERENCE TABLE	
BRIDGE NO.	EXISTING DRAWING NO.
06347	30720-30722

PREFABRICATED SUPERSTRUCTURE MODULES

The prefabricated superstructure modules shall be fabricated and assembled in accordance with Special Provision Job No. 030458 "PREFABRICATED SUPERSTRUCTURE MODULES".

The contractor shall be required to submit a Module Fabrication Plan and Assembly Plan in accordance with the requirements of Special Provision Job No. 030458 "PREFABRICATED SUPERSTRUCTURE MODULES". All costs associated with the design, development and execution of the Module Fabrication Plan and Assembly Plan shall be considered subsidiary to the cost of the prefabricated superstructure modules.

SUPERSTRUCTURE MODULE FABRICATION

The contractor is strongly encouraged to combine framing/casting operation for all modules within a given span simultaneously under temporary support conditions that correspond to the relative position of the final bridge substructure seat elevations. Support structural steel framing only at designated bearing locations to allow for accurate deflection of the module units during deck placement.

The contractor is further encouraged to place concrete for given span in one combined pour, using formed blockouts at locations of planned closure pour construction joints.

MOCK CLOSURE POUR PANEL

The contractor shall be required to construct a concrete mock closure pour panel to demonstrate joint surface preparation and closure pour forming and placement operations. See Dwg. No. 61507 for details. The cost of the mock closure pour panel and field cast demonstration shall be considered subsidiary to the prefabricated superstructure modules.

PRECAST BENT CAP FABRICATION

The contractor is strongly encouraged to combine the casting of the staged segments of the precast bent caps in one operation. Form and place concrete for all precast bent caps for the final complete length of the cap using form blockouts at the locations of the planned closure pour construction joints.

PRECAST BENT CAP MOCKUP

The contractor shall be required to construct a precast cap mockup to demonstrate forming and self-consolidating concrete placement operations, See Dwg. No. 61508 for details. The cost of the mockup and field cast demonstration shall be considered subsidiary to the precast bent caps.

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

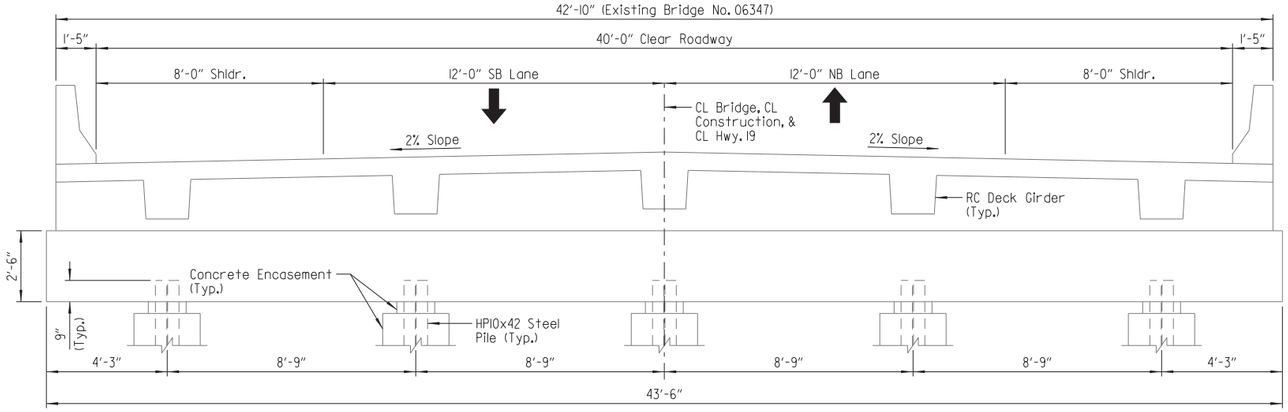
SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA COUNTY
ROUTE 19 SEC. 5
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: ABH DATE: DEC. 2018

BRIDGE NO. 06347 DRAWING NO. 61494

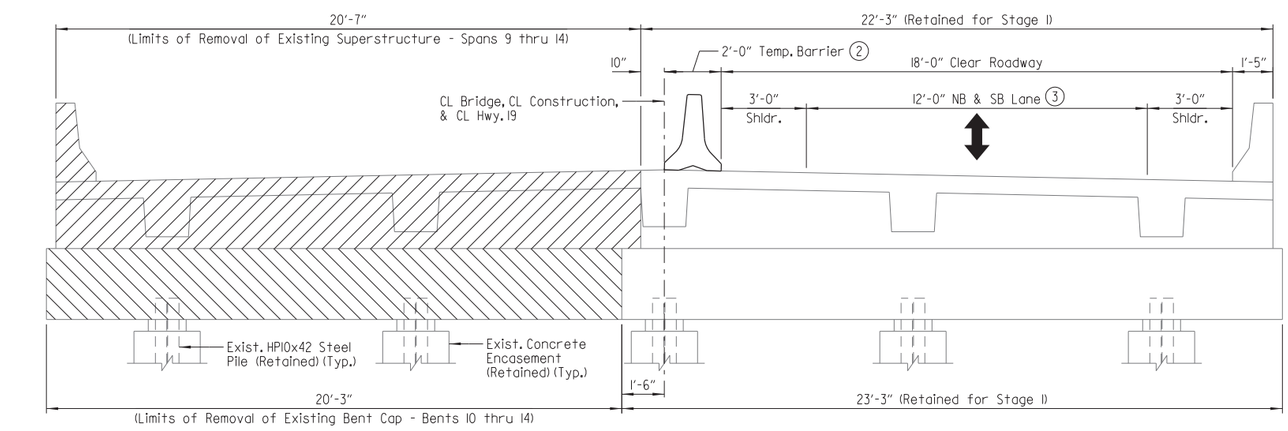
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	49	98
				(1) 06347		STAGE CONST.		61495



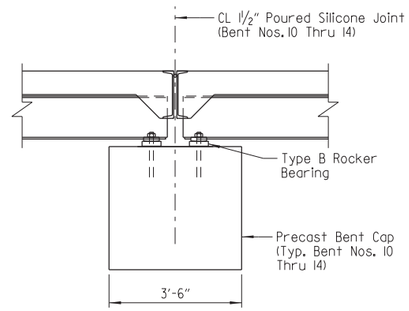
TYPICAL SECTION - EXISTING CONDITION

(Bent Nos. 10-15 shown; other bents similar)
(Looking Ahead)
Scale: 3/8" = 1'-0"



TYPICAL SECTION - STAGE I DEMOLITION

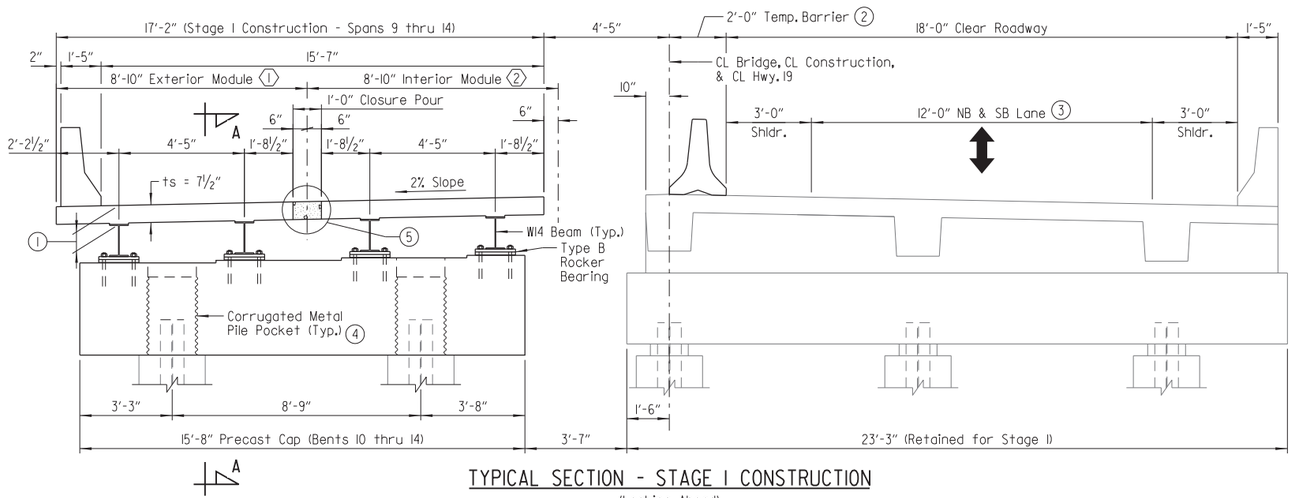
(Looking Ahead)
Scale: 3/8" = 1'-0"



SECTION A-A

Scale: ½" = 1'-0"

(X) = Module Number



TYPICAL SECTION - STAGE I CONSTRUCTION

(Looking Ahead)
Scale: 3/8" = 1'-0"

(1) 8" from top of deck to top of beam flange @ CL Beam (typ.).

(2) Connect Temporary Precast Barrier to deck on Spans 9 thru 14 per Std. Dwg. TC-4. Do not connect temporary barrier to deck on Spans 1 thru 8 and 15 thru 17.

(3) Temporary traffic signal required for maintenance of traffic during construction, see Roadway Plans.

(4) Fill corrugated metal pile pockets with self-consolidating concrete to connect existing piling to new precast bent cap.

(5) See "LONGITUDINAL CLOSURE POUR DETAIL" on Dwg. No. 61502.

STATE OF ARKANSAS
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ADAM B. HALL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA COUNTY

ROUTE 19 SEC. 5

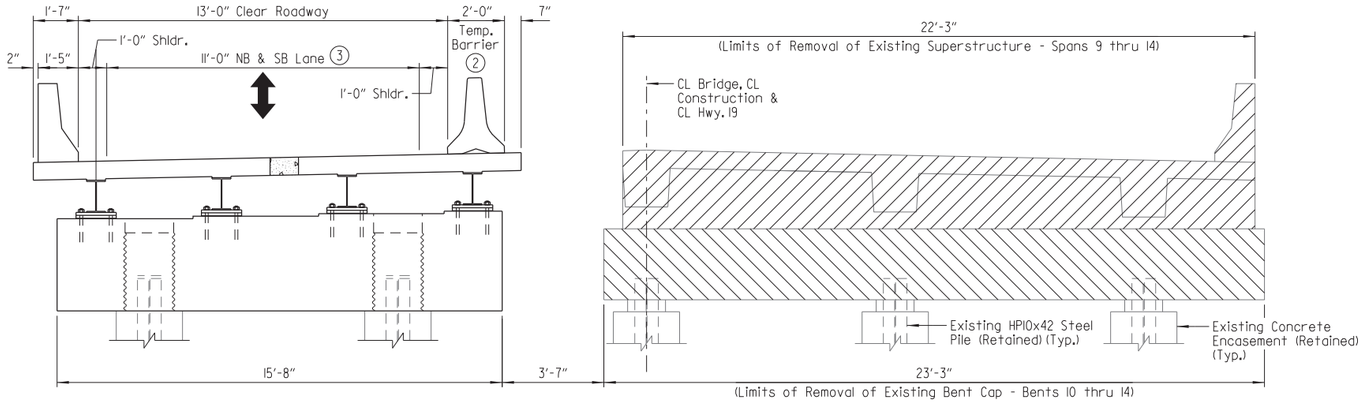
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: MAY 2019 SCALE: As Shown
DESIGNED BY: ABH DATE: APR. 2019

BRIDGE NO. 06347 DRAWING NO. 61495

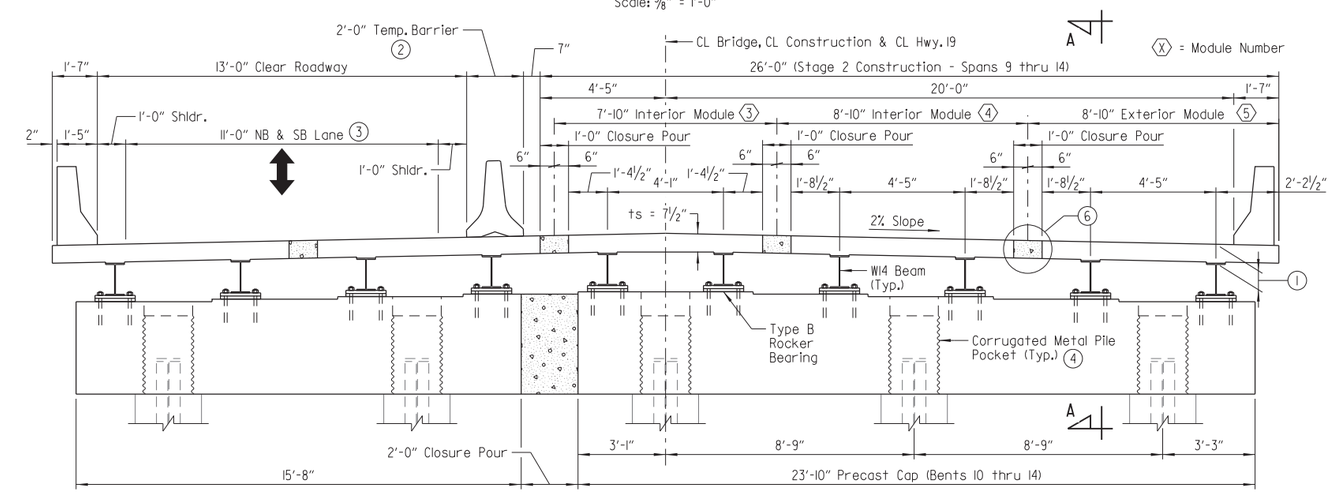
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WORKSPACE: ARDOT Bridge
L:\2017\170175\50 - Little Missouri River and Relief\Drawings\B030458x1_SI Relief Bridge1.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	50	98
				(1) 06347		STAGE CONST.		61496



TYPICAL SECTION - STAGE 2 DEMOLITION

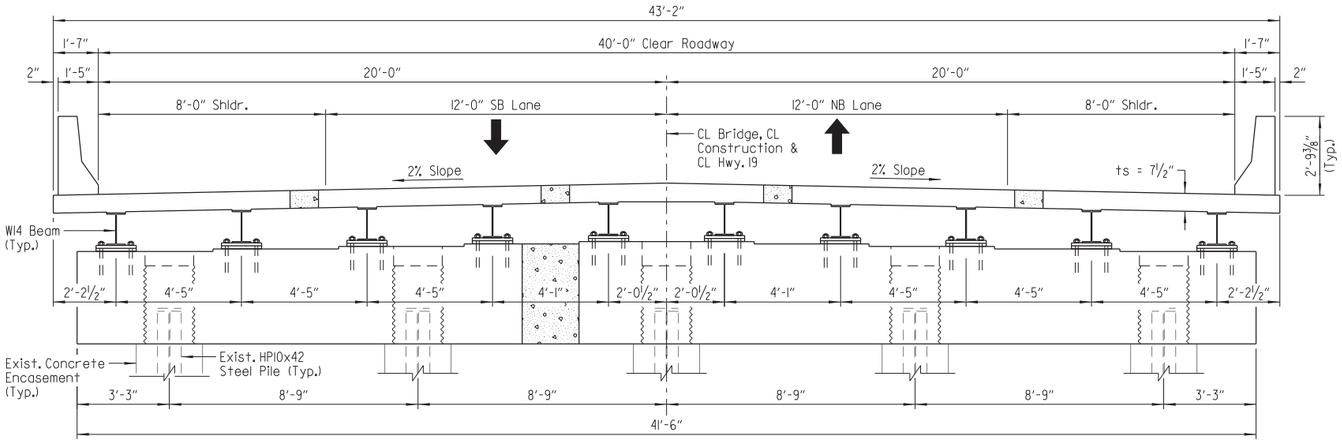
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Scale: 3/8" = 1'-0"



TYPICAL SECTION - STAGE 2 CONSTRUCTION

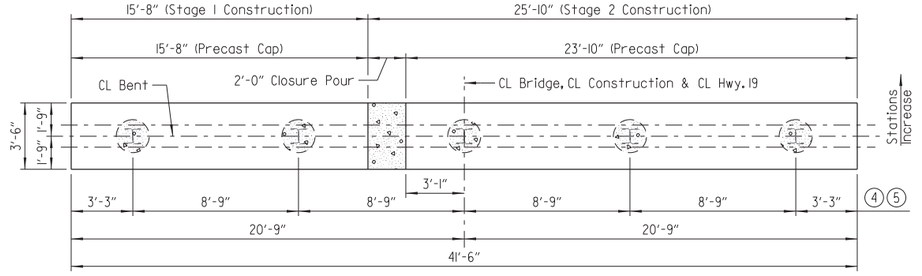
NOTE:
For "SECTION A-A", see Dwg. No. 61495.

(Looking Ahead)
Scale: 3/8" = 1'-0"



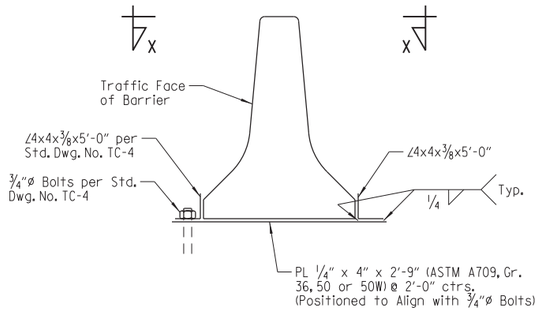
TYPICAL SECTION - FINAL CONDITION (SPANS 9 THRU 14)

(Bents 10-14 shown; see Dwg. No. 61497 for Bents 9 & 15)
(Looking Ahead)
Scale: 3/8" = 1'-0"



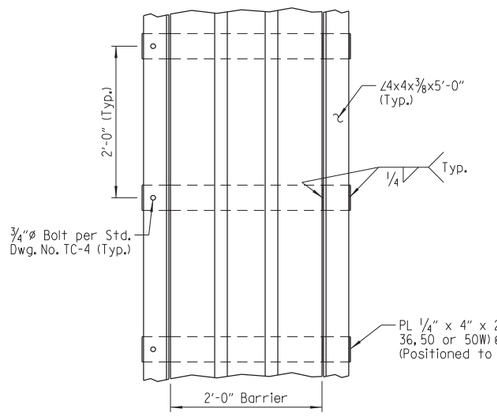
PLAN OF NEW BENT CAP AT BENTS 10-14

Scale: 1/4" = 1'-0"



STAGE 2 BARRIER STABILIZATION DETAIL

Scale: 1" = 1'-0"



VIEW X-X

Scale: 1" = 1'-0"

(1) 8" from top of deck to top of beam flange @ CL Beam (typ.).

(2) Connect Temporary Precast Barrier to deck on Spans 9 thru 14 per "STAGE 2 BARRIER STABILIZATION DETAIL". Do not connect temporary barrier to deck on Spans 1 thru 8 and 15 thru 17.

(3) Temporary traffic signal required for maintenance of traffic during construction, see Roadway Plans.

(4) Fill corrugated metal pile pockets with self-consolidating concrete to connect existing piling to new precast bent cap.

(5) Existing HP10x42 Steel Pile and new Corrugated Metal Pile Pocket spacing.

(6) See "LONGITUDINAL CLOSURE POUR DETAIL" on Dwg. No. 61502.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14498
ADAM B. HALL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF
LITTLE MISSOURI RIVER & RELIEF STRS. & APPRS. (S)
NEVADA COUNTY

ROUTE 19 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION

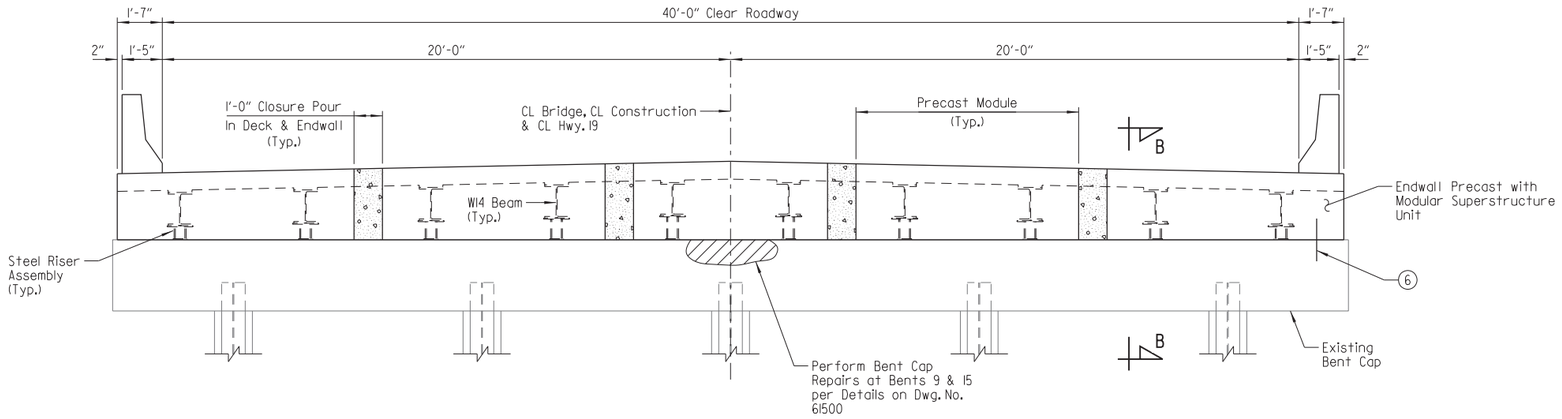
LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: MAY 2019 SCALE: As Shown
DESIGNED BY: ABH DATE: APR. 2019
BRIDGE NO. 06347 DRAWING NO. 61496

abhall 3/18/2020 11:23:25 AM
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REVISED DATE:

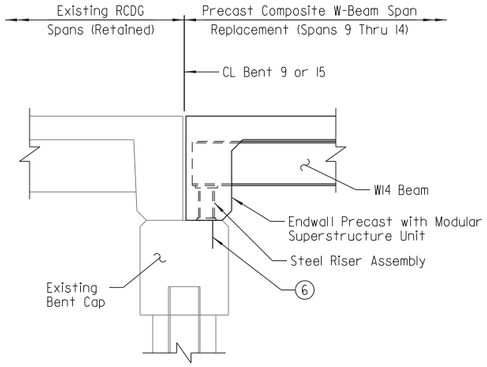
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6	ARK.			
JOB NO.		030458	51	98
(1) 06347		STAGE CONST.		61497



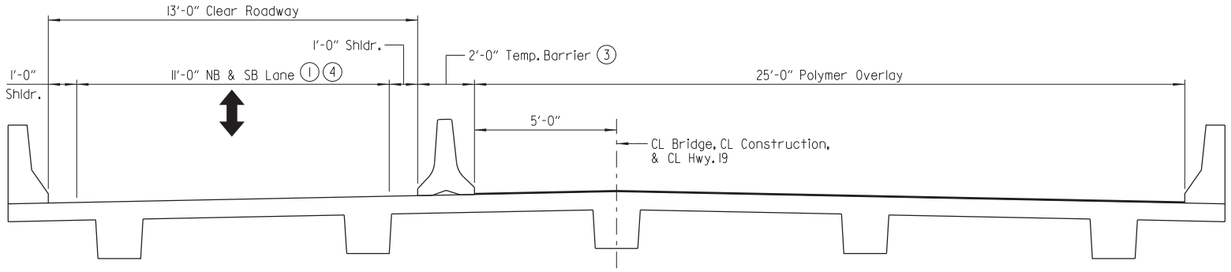
TYPICAL SECTION AT BENTS 9 & 15 - FINAL CONDITION (SPANS 9 THRU 14)

(Looking Ahead)
Scale: 3/8" = 1'-0"



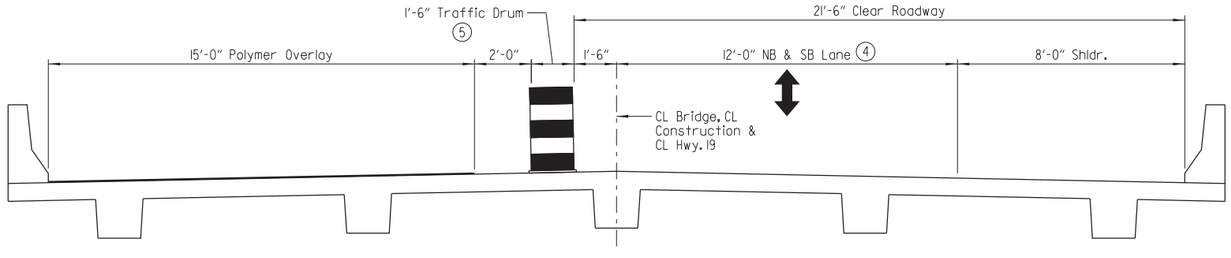
SECTION B-B

Scale: 1/2" = 1'-0"



(2) TYPICAL SECTION - STAGE 2 CONSTRUCTION POLYMER OVERLAY

(Looking Ahead)
Scale: 3/8" = 1'-0"



(2) TYPICAL SECTION - STAGE 3 CONSTRUCTION POLYMER OVERLAY

(Looking Ahead)
Scale: 3/8" = 1'-0"

(1) Refer to Dwg. No. 61496 for more information regarding Maintenance of Traffic during Stage 2.

(2) Typical section depicts existing superstructure for Spans 1 thru 8 and 15 thru 17. Superstructure replacement on Spans 9 thru 14 shall be overlaid in a similar fashion.

(3) Temporary Precast Barrier, see Std. Dwg. TC-4. Do not connect to deck.

(4) Temporary traffic signal required for maintenance of traffic during construction, see Roadway Plans.

(5) See Std. Dwg. TC-3.

(6) Remove existing No. 4 dowels flush with top of cap - Bent No. 9 only.

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SHEET 3 OF 3
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 19 OVER LITTLE MISSOURI RIVER RELIEF
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA COUNTY
ROUTE 19 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

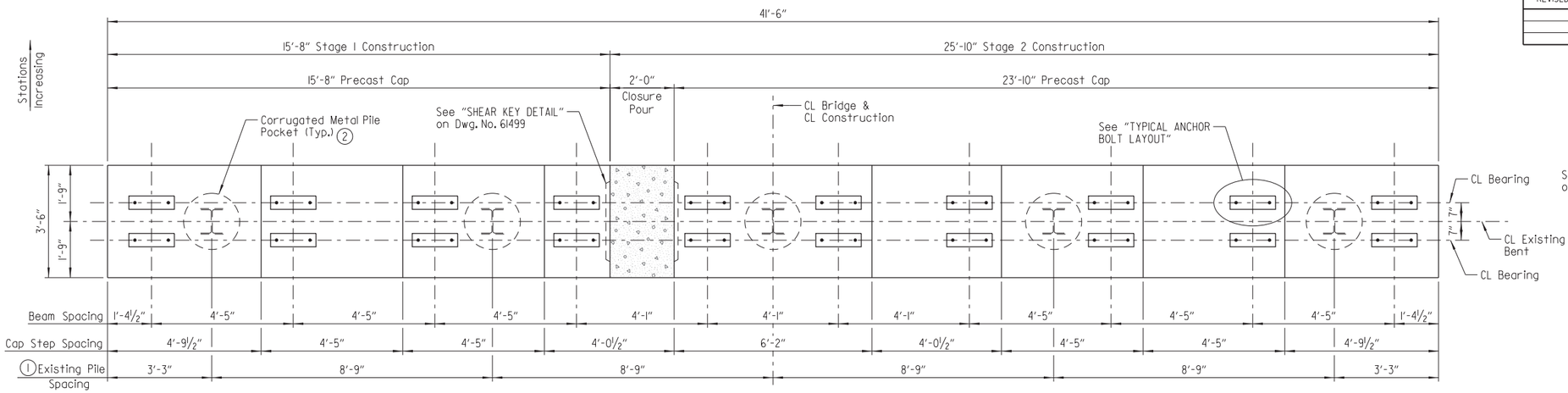
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DESIGNED BY: JHR DATE: MAY 2019

BRIDGE NO. 06347 DRAWING NO. 61497

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L:\20ITV1701750 - Little Missouri River and Relief\Drawings\B030458xl_S3 (Relief Bridge).dgn
REVISED DATE:

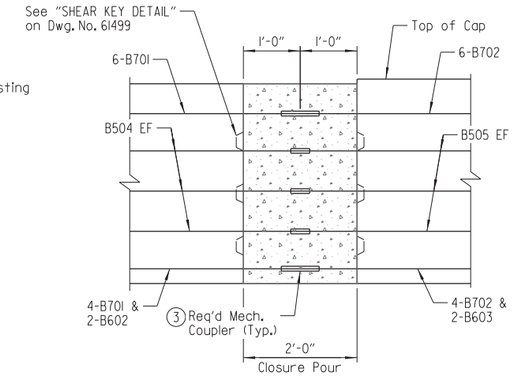
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6	ARK.			
JOB NO.		030458	52	98
① 06347		PRECAST CAP		61498



PLAN - BENT NOS. 10 THRU 14

Scale: ½" = 1'-0"

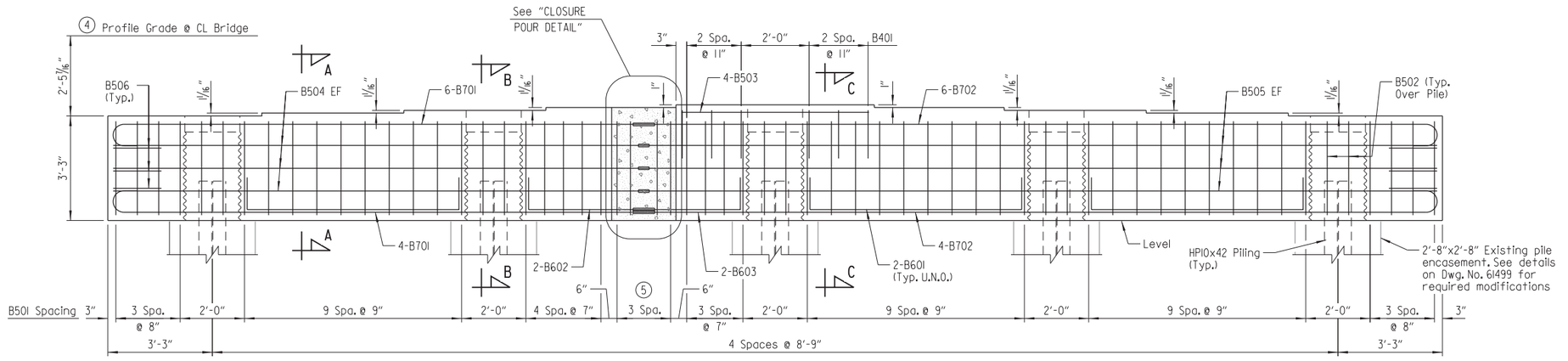


CLOSURE POUR DETAIL

Scale: ¾" = 1'-0"

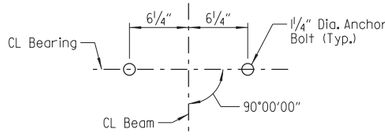
LEGEND

EF = Each Face
U.N.O. = Unless Noted Otherwise



ELEVATION - BENT NOS. 10 THRU 14

(Looking Ahead)
Scale: ½" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale

NOTE:
For "SECTION A-A", "SECTION B-B", "SECTION C-C" and "BAR LIST" see Dwg. No. 61499.

① Pile spacing shown is based on existing plans. See "VERIFICATION" note on Dwg. No. 61494 for more information regarding verification of existing dimensions.

② Pile pockets shall consist of galvanized steel corrugated metal pipe (CMP), Type I, 16 Gage, in accordance with ASTM A760 and Special Provision Job No. 030458 "PRECAST BENT CAPS". CMP for individual pockets shall consist of a single length of pipe splicing of pipe will not be allowed). Nominal CMP size shall be 21". The pile pocket shall be filled to the top of cap using Self-consolidating Concrete in accordance with Special Provision Job No. 030458 "SELF-CONSOLIDATING CONCRETE".

③ The mechanical couplers shall be Dayton Superior D25OSCA Barlock Couplers or approved equal. Due to space constraints, the shear bolts on the couplers shall not be tightened until both the Stage 1 and Stage 2 caps are in their final positions. It will be necessary to loosely install the couplers on the Stage 1 longitudinal cap reinforcing, remove the center stop pins, and slide the couplers against the Stage 1 cap concrete immediately prior to setting the Stage 2 cap. Once the Stage 2 cap is in place, the mechanical couplers shall be slid over the Stage 2 cap reinforcing and centered between the ends of the Stage 1 and Stage 2 longitudinal bars, prior to re-inserting the center stop pins and torquing the shear bolts.

To ensure proper rebar alignment, it is highly recommended that each longitudinal reinforcing bar be fabricated and placed as one continuous piece while forming the bent caps, and that each continuous reinforcing bar be cut immediately prior to lifting the Stage 1 cap into its final position. See Special Provision Job No. 030458 "PRECAST BENT CAPS" for additional information.

The cost of mechanical couplers shall not be measured for separate payment but shall be considered subsidiary to the item "PRECAST BENT CAPS". Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.

④ Contractor shall field verify determine profile grade and adjust elevation of precast cap as required.

⑤ Space B501 Bars within closure pour as required to maintain cover on mech. couplers.

NOTES:
1. Precast bent caps at Bent Nos. 10 through 14 shall be fabricated and installed in accordance with Special Provision Job No. 030458 "PRECAST BENT CAPS".
2. Measurement of each cap shall be based on the final completed length of cap at each bent. Cost associated with constructing the precast caps in two segments with a field cast closure pour shall be included in the unit price per each precast cap.
3. The cost of the concrete and reinforcing steel, including mechanical couplers, shall be included in the unit price bid per each precast cap.
4. Concrete used in the closure pour shall be either Class S concrete or self-consolicating concrete similar to the material used to fill the CMP pile pockets. The closure pour shall be completed and adequate strength gained prior to erecting the precast superstructure modules on the precast cap. See Special Provision Job No. 030458 "PRECAST BENT CAPS" for additional information.
5. For Standard General Notes, see Std. Dwg. No. 55006.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 8017
JOHN H. RUDDELL
DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF PRECAST BENT CAPS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

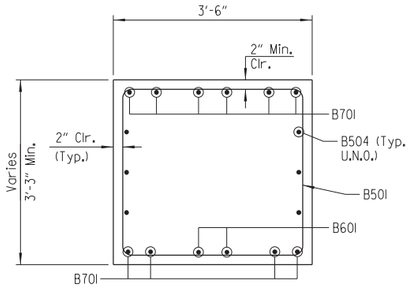
LITTLE ROCK, ARK.

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DESIGNED BY: JHR DATE: DEC. 2019

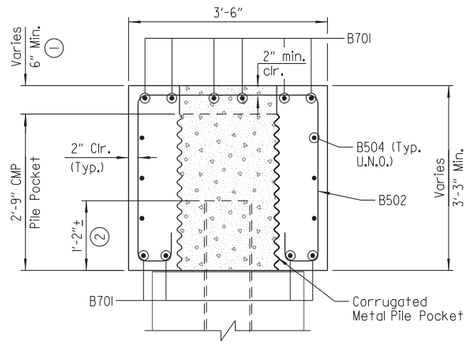
BRIDGE NO. 06347 DRAWING NO. 61498

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REVISED DATE:

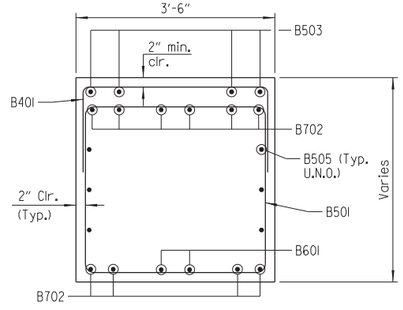
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				6	ARK.			
				JOB NO.		030458	53	98
				(1) 06347		PRECAST CAP		61499



SECTION A-A
Scale: 3/4" = 1'-0"



SECTION B-B
Scale: 3/4" = 1'-0"



SECTION C-C
Scale: 3/4" = 1'-0"

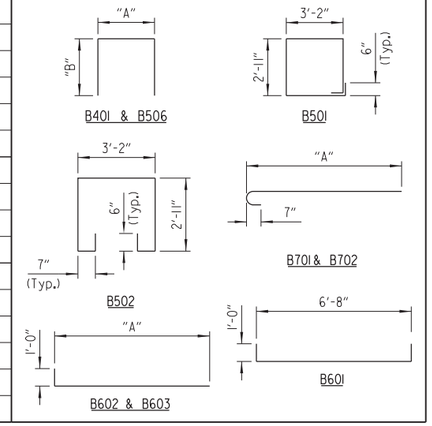
(1) Form 21" diameter blockout above CMP pile pocket using conventional forming.

(2) Contractor shall field verify top of pile elevation. If pile embedment exceeds the dimension shown, the pile shall be cut-off to provide the noted pile embedment.

LEGEND

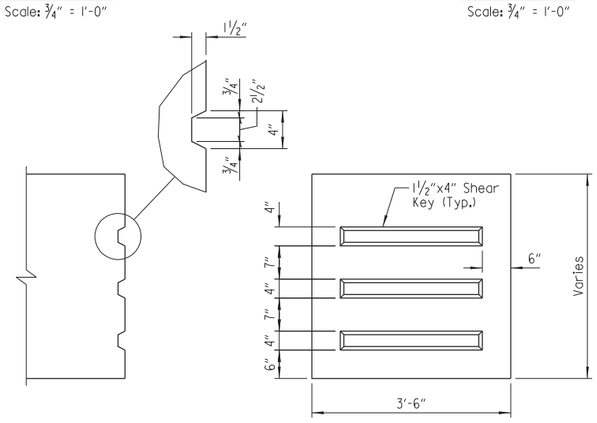
U.N.O. = Unless Noted Otherwise

BAR LIST						BAR BENDING DIAGRAMS
MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.	
B401	6	7'-0"	3'-2"	2'-0"	2"	
B501	51	12'-8"			2½"	
B502	10	10'-7"			2½"	
B503	4	5'-10"			Str.	
(4) B504	6	16'-6"			Str.	
(4) B505	6	24'-8"			Str.	
B506	6	7'-10"	3'-0"	2'-6"	2½"	
B601	6	8'-4"			4½"	
(4) B602	2	4'-6"	3'-8"		4½"	
(4) B603	2	3'-10"	3'-0"		4½"	
(4) B701	10	17'-4"	16'-6"		5¼"	
(4) B702	10	25'-6"	24'-8"		5¼"	



NOTES:
Dimension of Bars Are Out-To-Out.

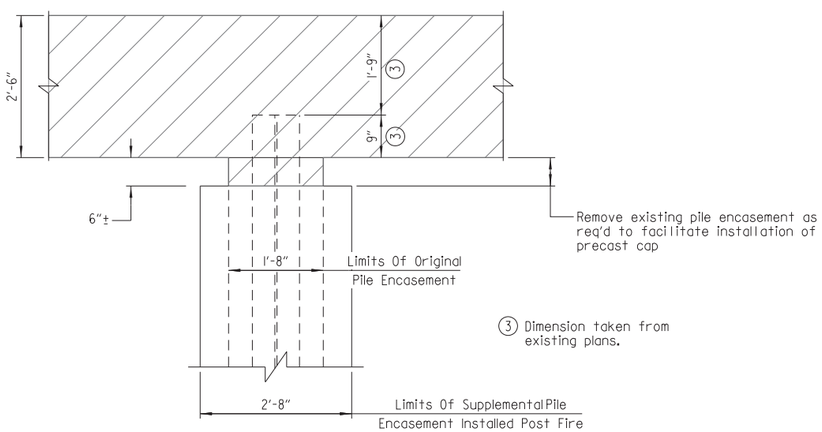
(4) Lengths shown shall be adjusted as required to accommodate mechanical couplers.



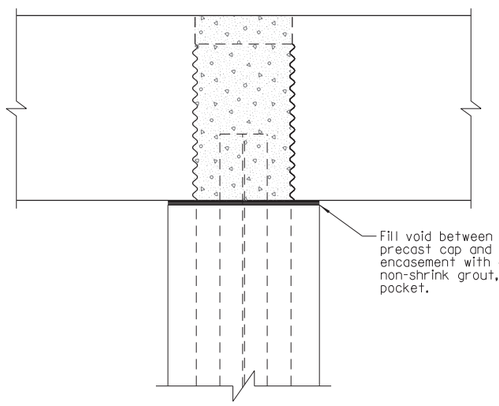
SECTION

END ELEVATION

SHEAR KEY DETAIL



EXISTING ENCASEMENT MODIFICATION
Scale: 3/4" = 1'-0"



PROPOSED ENCASEMENT
Scale: 3/4" = 1'-0"

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LICENSED PROFESSIONAL ENGINEER
No.8017
JOHN H. RUDDELL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

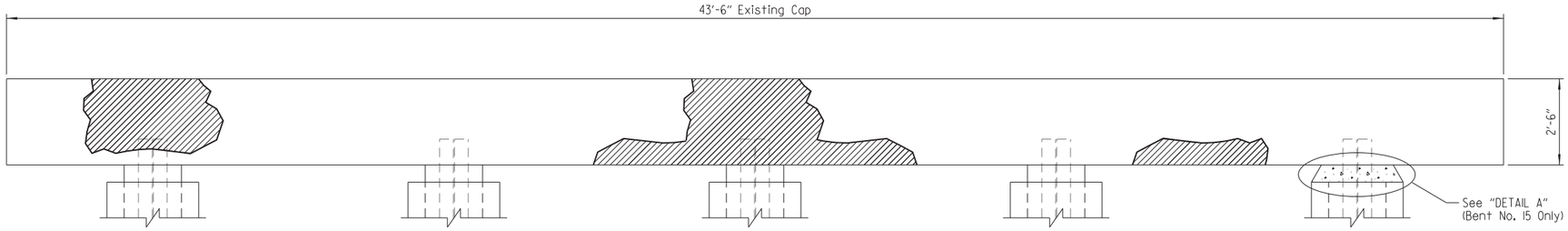
SHEET 2 OF 2
DETAILS OF PRECAST BENT CAPS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: WMM DATE: JAN. 2020 SCALE: As Shown
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BRIDGE NO. 06347 DRAWING NO. 61499

abhall 3/18/2020 11:23:26 AM
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REVISED DATE:

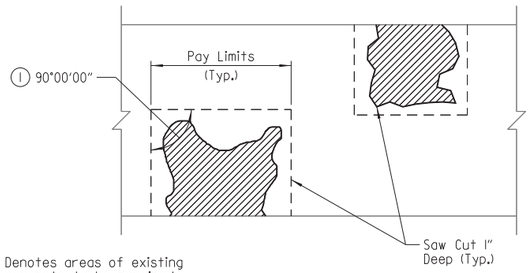
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	54	98
(1) 06347		CAP REPAIRS		61500



BENT CAP REPAIR - BENT NOS. 9 & 15

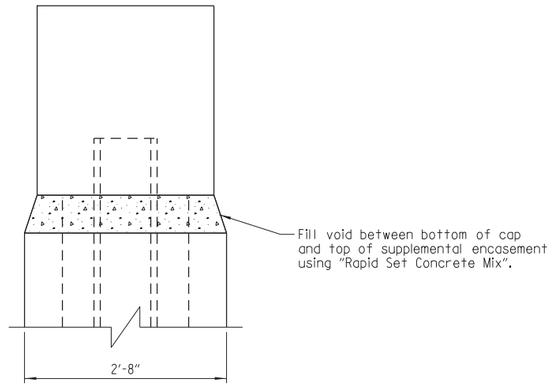
Scale: 1½" = 1'-0"



Denotes areas of existing concrete to be repaired.

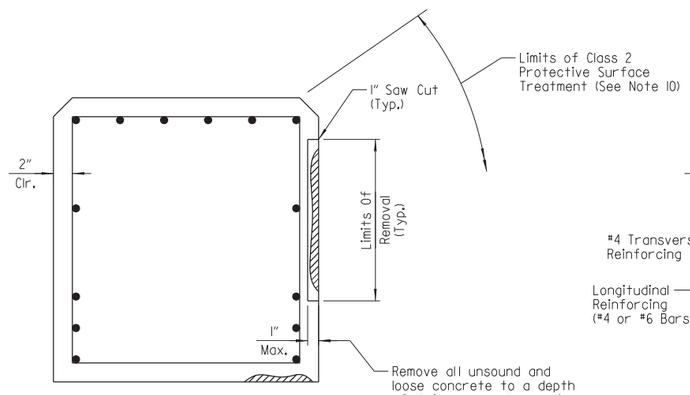
(1) Saw cut existing concrete 1" deep so as to obtain a rectangular area.

SAW CUT DEAL



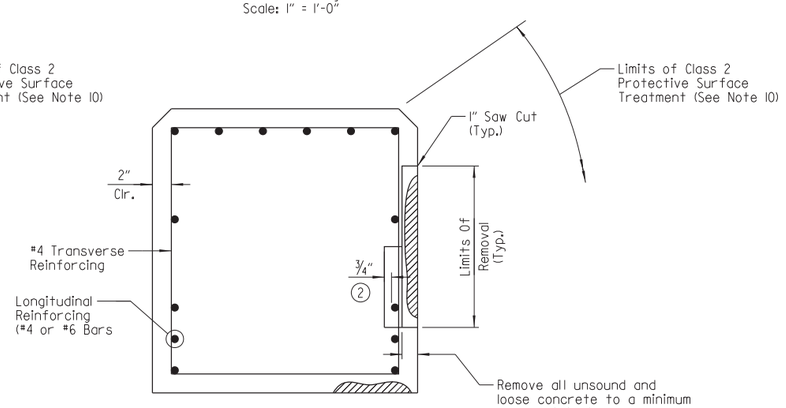
DETAIL "A"

(Bent No. 15 Only)
Scale: 1" = 1'-0"



SURFACE PATCH DETAIL

Scale: 1½" = 1'-0"



SPALL REPAIR DETAIL

Scale: 1½" = 1'-0"

(2) Where unsound concrete is still present beyond 2" removal depth, further concrete removal is required to achive a minimum ¾" depth beyond longitudinal reinforcing.

CONCRETE REPAIR NOTES

1. Concrete repairs at Bent Nos. 9 and 15 shall be performed in accordance with Special Provision Job No. 030458 "CONCRETE REPAIRS".
2. Limits shown are not exact areas and locations but are representative of potential spall repair areas to be encountered. The final limits and locations shall be determined by the Engineer after the concrete bent cap has been sounded.
3. Concrete repairs shall consist of removing all unsatisfactory concrete described as follows: any loose, delaminated, unsound, severely spalled or deteriorated concrete from the existing bent cap and replacing with an approved material suitable for the type of repair.
4. Saw cut around all damaged areas as shown on the "SAW CUT DETAIL". Exercise caution during the saw cutting operation. Any reinforcement damaged during saw cutting will be replaced at the contractor's expense.
5. Concrete repairs shall be paid for under the item "SURFACE PATCHING" when the depth of repair is 1" or less.
6. Concrete repairs shall be paid for under the item "SPALL REPAIR" when the depth of repair exceeds 1". The minimum depth of spall repair shall extend to the face of transverse reinforcing steel in the cap or to sound concrete. The exposed reinforcing steel shall be blast cleaned prior to applying the concrete repair mortar.
7. The surface of the concrete for Surface Patching and Spall Repair shall be prepared in accordance with the repair mortar manufacturer's recommendations.
8. Areas to be repaired under the item "SURFACE PATCHING" shall utilize "Rapid Set Mortar Mix" manufactured by CTS Cement. The contractor may submit an alternate product for review and approval.
9. Areas to be repaired under the item "SPALL REPAIR" shall utilize either "Rapid Set Mortar Mix" or "Rapid Set Concrete Mix" manufactured by CTS Cement. The appropriate product shall be determined by the actual depth of repair encountered. The Contractor may submit an alternate product for review and approval.
10. After all concrete repairs are completed, the entire concrete cap surfaces of Bent Nos. 9 & 15 shall recieve a Class 2 Protective Surface Treatment. The cost of the Class 2 Treatment shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)".

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DETAILS OF BENT CAP REPAIRS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

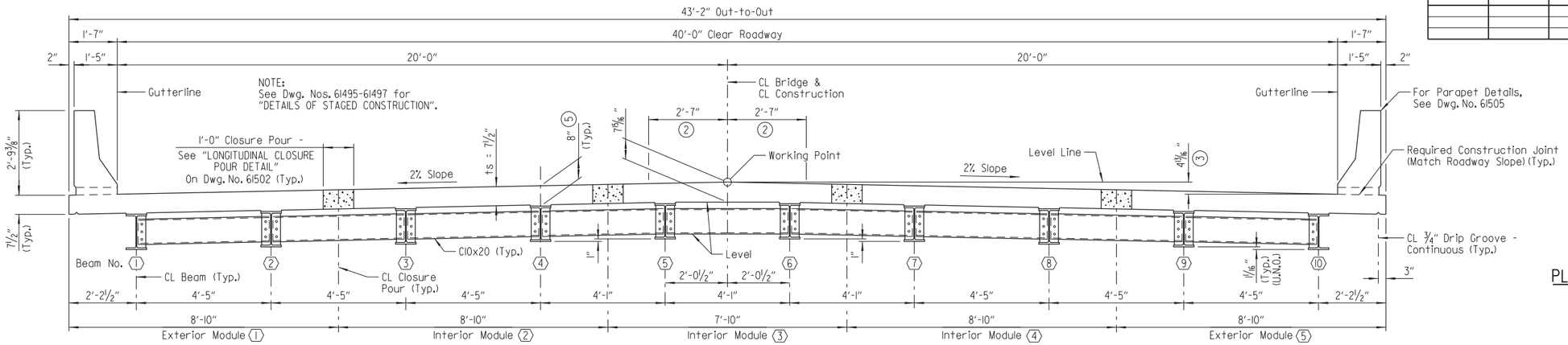
LITTLE ROCK, ARK.

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CHECKED BY: ABH DATE: JAN. 2020 SCALE: As Shown
DESIGNED BY: JHR DATE: SEP. 2019

BRIDGE NO. 06347 DRAWING NO. 61500

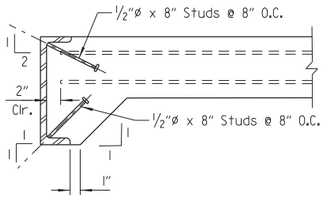
abhall 3/18/2020 11:23:27 AM
WORKSPACE: ARDOT Bridge
L:\20\7\170\7550 - Little Missouri River and Relief\Drawings\B030458xl_S203_BE (Relief Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	55	98
				(1) 06347		25' PREFAB. SPANS		61501



TYPICAL ROADWAY SECTION

Scale: ½" = 1'-0"

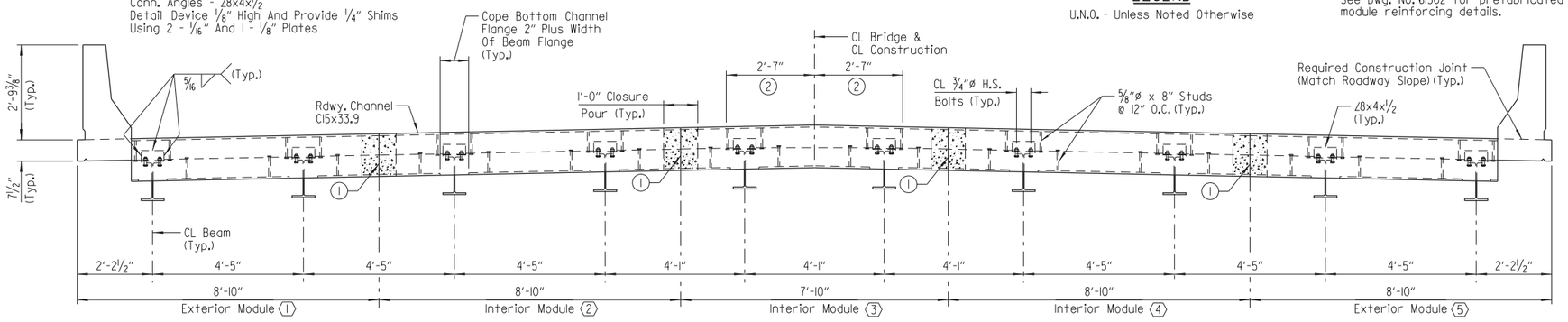


DETAIL OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

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

EXPANSION DEVICE:
Rdwy. Channel - C15x33.9
Conn. Angles - ∠8x4x½
Detail Device ⅛" High And Provide ¼" Shims Using 2 - 1⁄16" And 1 - ⅛" Plates

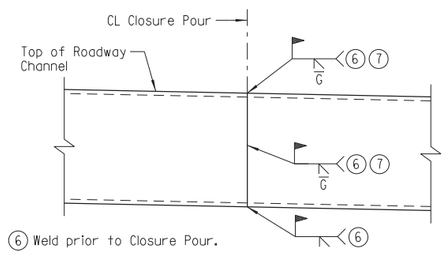


LEGEND

U.N.O. - Unless Noted Otherwise

NOTE:
See Dwg. No. 61502 for prefabricated module reinforcing details.

(1) See "WELD DETAIL FOR EXPANSION DEVICE".
(2) See "ROUNDING DETAIL" on Std. Dwg. No. 55007.
(3) Working Point to Gutterline
(4) Measured from Working Point to top of existing cap. Dimension shown taken from existing plans. Contractor shall field verify.
(5) Measured from top of deck to top of beam flange at CL Bearing.



(6) Weld prior to Closure Pour.
(7) Grind flush from top of deck to top of bumper plate.

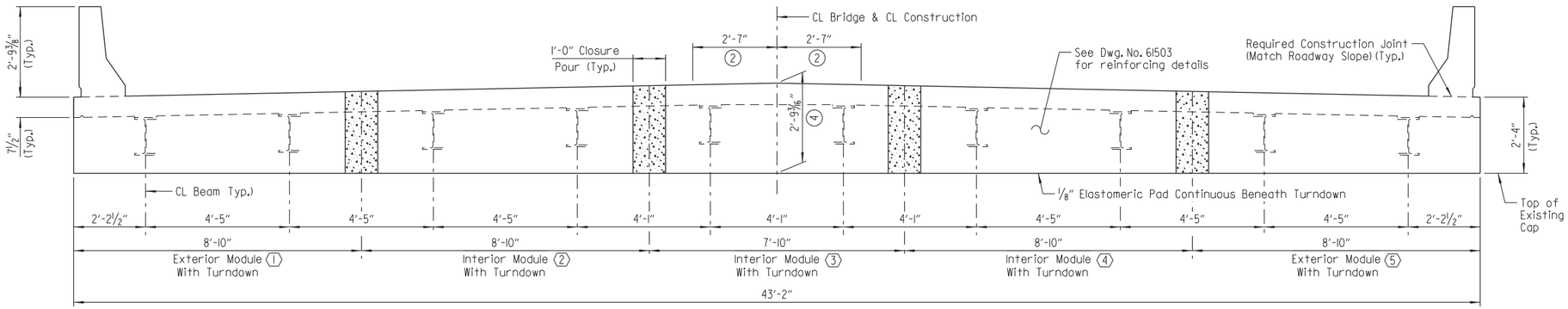
WELD DETAIL FOR EXPANSION DEVICE

No Scale

NOTE:
For additional details of poured silicone joint, see Std. Dwg. No. 55008.

TYPICAL SECTION THRU JOINT AT BENT NOS. 10-14

Scale: ½" = 1'-0"



TYPICAL SECTION THRU JOINT AT BENT NOS. 9 & 15

Scale: ½" = 1'-0"

(X) = Module Number

NOTES:
For Standard General Notes and Details, See Std. Dwg. Nos. 55006 & 55007.

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

The bridge deck shall be given a polymer overlay as specified in Special Provision Job No. 030458 "POLYMER OVERLAY".

SILICONE JOINT DATA

Location	"A" Width Perpendicular To Joint At 24 Hour Average Temperature (8) Of:			"B" Width Perpendicular To Joint At 60°F	Bumper Plate Size
	40°F	60°F	80°F		
Bent Nos. 10, 12 & 14	1½"	1½"	1½"	2½"±	1" x ¾"
Bent Nos. 11 & 13	1⅞16"	1½"	1⅞16"	2½"±	1" x ¾"

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 8017
JOHN H. RUDDELL
DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2019 FILENAME: b030458x1_sl.dgn
CHECKED BY: ABH DATE: JAN. 2020 SCALE: As Shown
DESIGNED BY: CSW DATE: DEC. 2019

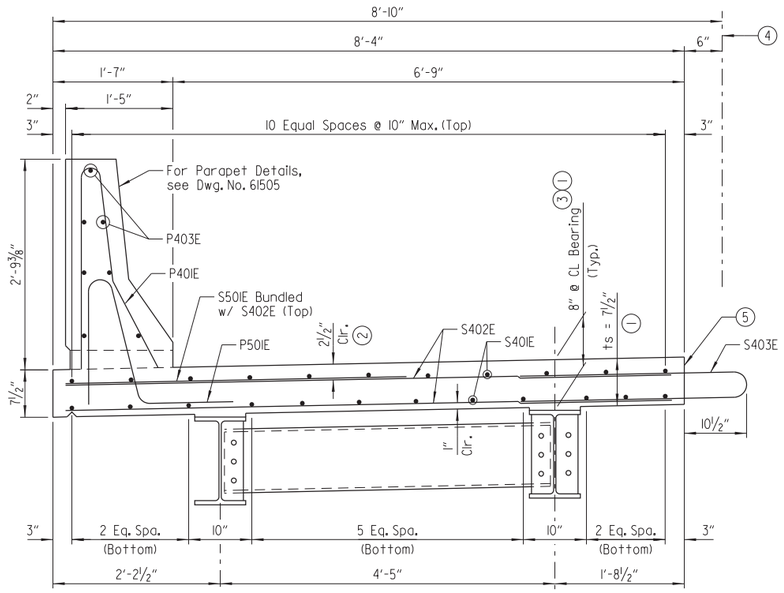
BRIDGE NO. 06347 DRAWING NO. 61501

abhall 3/18/2020 11:23:28 AM
WORKSPACE: ARDOT Bridge
L:\201\T01\550 - Little Missouri River and Relief\Drawings\B030458x1_S401_SX (Relief Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	56	98
(1) 06347		25' PREFAB. SPANS		61502

SLAB REINFORCING:
Transverse: S402E, S404E or S405E @ 5" o.c. Top and Bottom
S403E @ 5" o.c. (Bundled with No. 4 Bars As Shown)
S501E @ 5" o.c. (Bundled with S402E Beneath Barrier)
Longitudinal: S401E In Top and Bottom As Shown

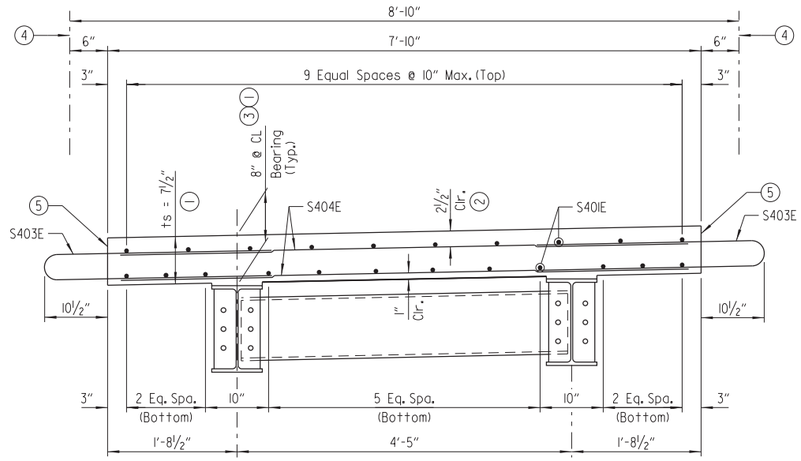


8'-10" EXTERIOR MODULE (1) & (5) REINFORCING DETAIL

Drawn for Module (1)
Module (5) Similar
Scale: 1" = 1'-0"

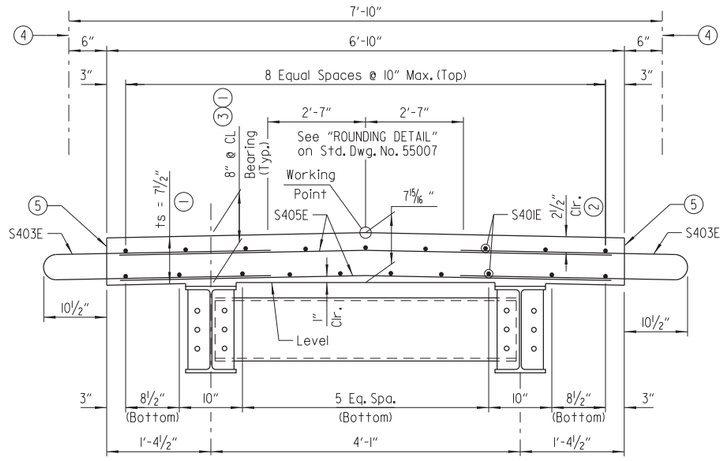
(X) = Module Number

NOTE:
Parapet to be poured during construction of precast 8'-10" Exterior Modules (1) & (5) prior to lifting.



8'-10" INTERIOR MODULE (2) & (4) REINFORCING DETAIL

Drawn for Module (2)
Module (4) Similar
Scale: 1" = 1'-0"



7'-10" INTERIOR MODULE (3) REINFORCING DETAIL

Scale: 1" = 1'-0"

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

(2) TOLERANCE:
Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance - See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(3) Measured from top of deck to top of beam flange.

(4) CL 1'-0" Closure Pour. See "LONGITUDINAL CLOSURE POUR DETAIL"

(5) Surface shall be roughened to ¼" amplitude.

(6) Use High Early Strength Concrete within Closure Pour. See Special Provision Job No. 030458 "CONCRETE FOR CLOSURE POUR".

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

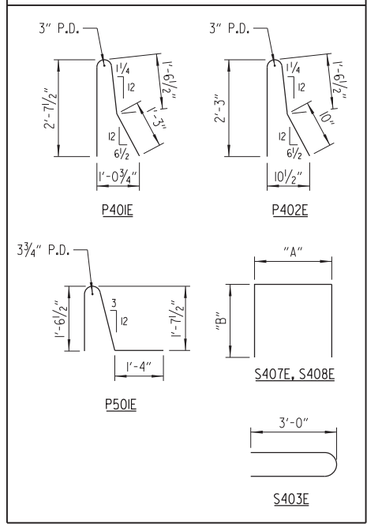
BAR LIST (SPANS 9 & 14)

MARK	NO. REQ.D	LENGTH	"A"	"B"	P.D.
S401E	125	24'-6"			Str.
S402E	248	8'-0"			Str.
S403E	476	6'-2"			3"
S404E	252	7'-6"			Str.
S405E	124	6'-6"			Str.
S406E	36	2'-1"			Str.
S407E	48	4'-4"	9"	1'-10½"	2"
S408E	84	4'-7"	9"	2'-0"	2"
S409E	12	1'-9"			Str.
S501E	118	4'-6"			Str.
P401E	72	5'-6"			3"
P402E	28	4'-8½"			3"
P403E	28	12'-1"			Str.
P404E	8	5'-8"			Str.
P501E	72	4'-7"			3¾"

BAR LIST (SPANS 10-13)

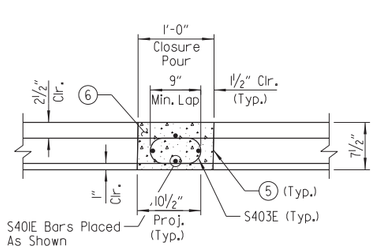
MARK	NO. REQ.D	LENGTH	"A"	"B"	P.D.
S401E	125	24'-6"			Str.
S402E	236	8'-0"			Str.
S403E	476	6'-2"			3"
S404E	240	7'-6"			Str.
S405E	118	6'-6"			Str.
S501E	118	4'-6"			Str.
P401E	72	5'-6"			3"
P402E	28	4'-8½"			3"
P403E	28	12'-1"			Str.
P404E	8	5'-8"			Str.
P501E	72	4'-7"			3¾"

BAR BENDING DIAGRAMS

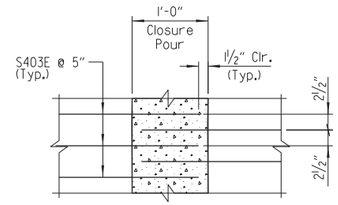


NOTES:
Number of bars shown is for each span.

Dimensions of bars are out-to-out.
Bar designations ending with "E" indicate epoxy coated bars.



SECTION



PLAN

LONGITUDINAL CLOSURE POUR DETAIL

Scale: 1" = 1'-0"

NOTES:
1. The prefabricated superstructure modules shall be fabricated and assembled in accordance with Special Provision Job No. 030458 "PREFABRICATED SUPERSTRUCTURE MODULES".

2. The cost of the concrete, reinforcing steel and structural steel shall be included in the unit cost of each prefabricated module.

3. The concrete used for the closure pour shall be in accordance with Special Provision Job No. 030458 "PREFABRICATED SUPERSTRUCTURE MODULES". The cost of the closure pour concrete will not be measured separately but shall be considered subsidiary to the cost of the prefabricated superstructure modules.

STATE OF ARKANSAS
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JOHN H. RUDDELL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

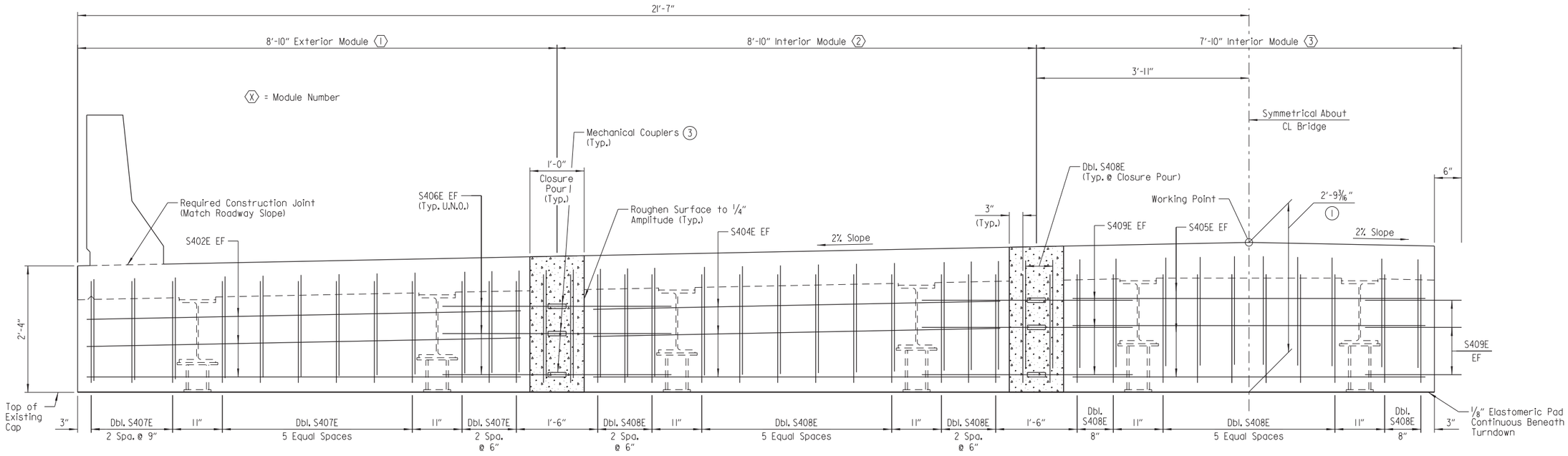
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: ABH DATE: JAN. 2020 SCALE: As Shown
DESIGNED BY: CSW DATE: DEC. 2019
BRIDGE NO. 06347 DRAWING NO. 61502

abhall 3/18/2020 11:23:29 AM
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REVISED DATE:

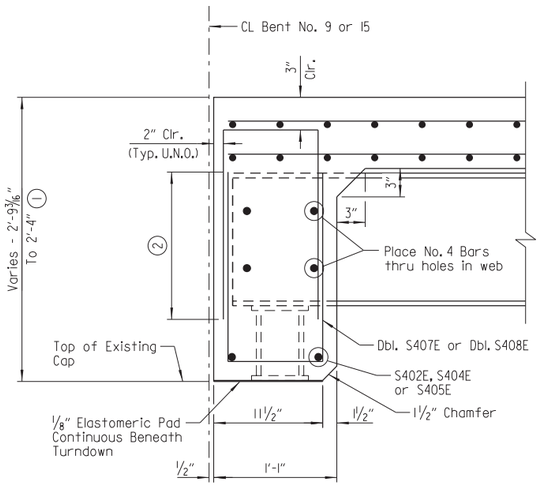
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6	ARK.			
JOB NO.		030458	57	98
① 06347		25' PREFAB. SPANS		61503



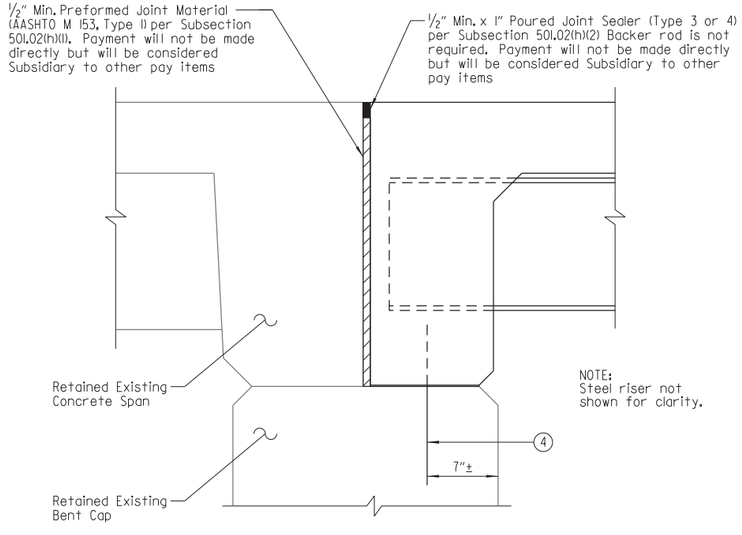
TURNDOWN REINFORCING - BENT NOS. 9 & 15

Scale: 1" = 1'-0"



SECTION THRU TURNDOWN

Scale: 1 1/2" = 1'-0"



JOINT DETAIL @ BENT NOS. 9 & 15

Scale: 1 1/2" = 1'-0"

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

(1) Dimension shown taken from plans of existing bridge. Contractor shall field verify.

(2) Provide 1'-8" min. lap splice.

(3) The mechanical couplers shall be Dayton Superior D250SCA Barlock Couplers or approved equal and shall maintain the clearance shown. Due to space constraints, the shear bolts on the couplers between adjacent modules shall not be tightened until both modules are in their final positions. It will be necessary to loosely install the couplers on each module's longitudinal reinforcing, remove the center stop pins, and slide the couplers against the module's concrete immediately prior to setting an adjacent module. Once the adjacent module is in place, the mechanical couplers shall be slid over the adjacent module's reinforcing and centered between the ends of the modules, prior to re-inserting the center stop pins and torquing the shear bolts.

The cost of mechanical couplers shall not be measured for separate payment but shall be included in the price bid for the prefabricated module. Mechanical couplers shall develop at least 125% of the specified yield strength of the reinforcing steel.

(4) Remove No. 4 existing dowels (28 total) flush with top of cap - Bent No. 9 only. Payment for removal of dowel bars shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06347)".

STATE OF ARKANSAS
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BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

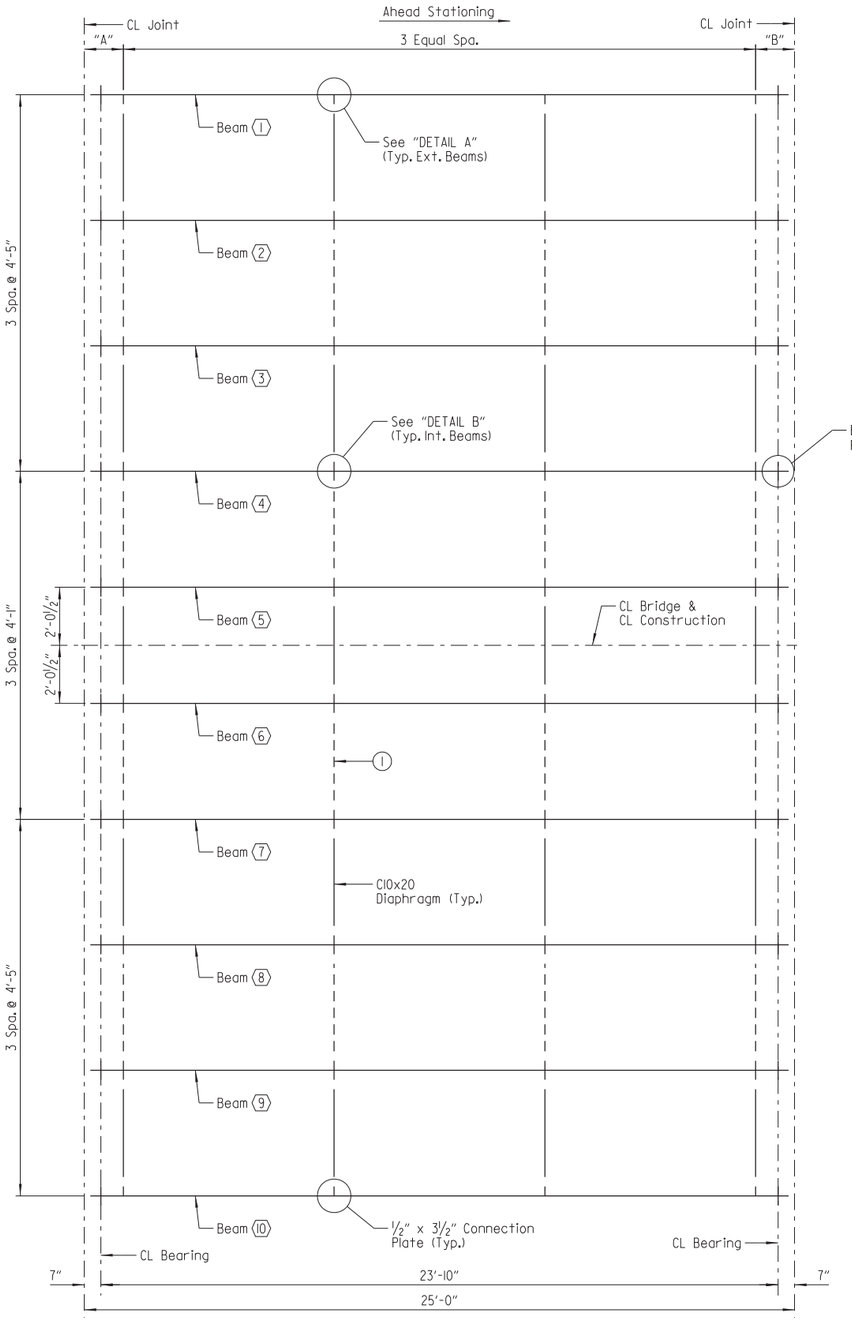
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BRIDGE NO. 06347 DRAWING NO. 61503

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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	58	98
(1) 06347		25' PREFAB. SPANS		61504

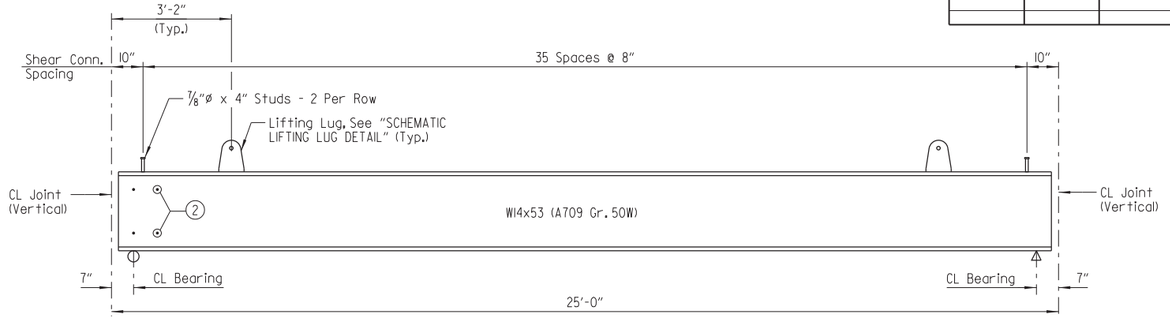


(X) = Beam Number

FRAMING PLAN
Scale: 3/8" = 1'-0"

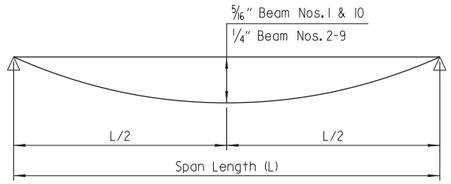
(1) Diaphragms between modules shall be installed after precast modules are installed and prior to constructing closure pours.

TABLE OF VARIABLES		
SPAN	"A"	"B"
9	2'-0"	1'-1"
10-13	1'-1"	1'-1"
14	1'-1"	2'-0"



(2) 3/4" Dia. Holes thru web. See "DETAIL C" - Spans 9 & 14 only @ ends with turndown slab.

BEAM ELEVATION
No Scale



DEAD LOAD DEFLECTION
Install beam with mill camber upwards. Dead load deflection shown is for total dead load and shall be accounted for in the forming of the deck.

NOTES:
For Standard General Notes, see Std. Dwg. No. 55006.

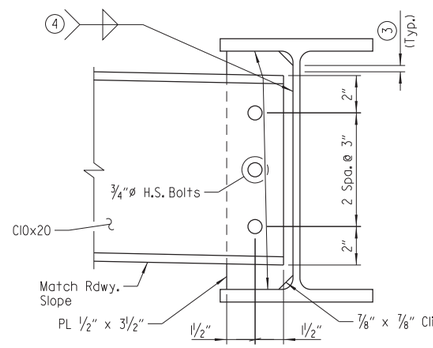
All structural steel shall be ASTM A709, Gr. 50W unless noted otherwise. The cost of the structural steel shall be included in the price per each of the Prefabricated Superstructure Modules in which the structural steel is assembled. Diaphragms placed between individual modules shall be included in the cost of the prefabricated modules.

For "SHEAR CONNECTOR DETAIL", see Std. Dwg. No. 55007.

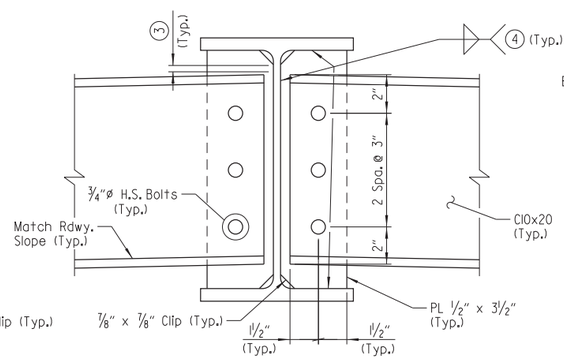
For painting of girder ends, see "GENERAL NOTES" on Dwg. No. 61494.

(3) Stop weld 1/4" to 1" from end of clip.

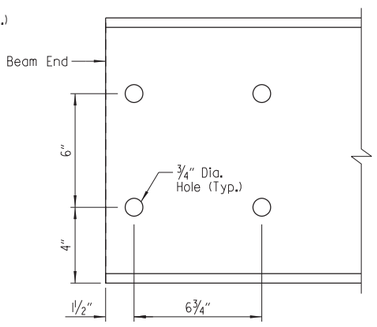
(4) See "WELD TABLE" on Std. Dwg No. 55007 for min. weld size.



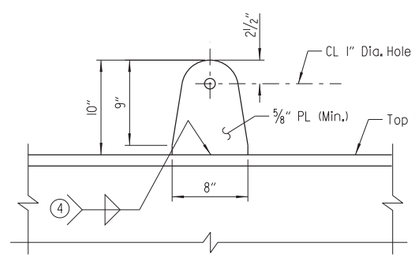
DETAIL A
No Scale



DETAIL B
No Scale



DETAIL C
No Scale



SCHEMATIC LIFTING LUG DETAIL
No Scale

NOTE:
Final size, location and orientation of lifting lug shall be determined by contractor.

STATE OF ARKANSAS
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BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: DEC. 2019 FILENAME: b030458xl_s4.dgn
CHECKED BY: ABH DATE: JAN. 2020 SCALE: As Shown
DESIGNED BY: WWM DATE: DEC. 2019

BRIDGE NO. 06347 DRAWING NO. 61504

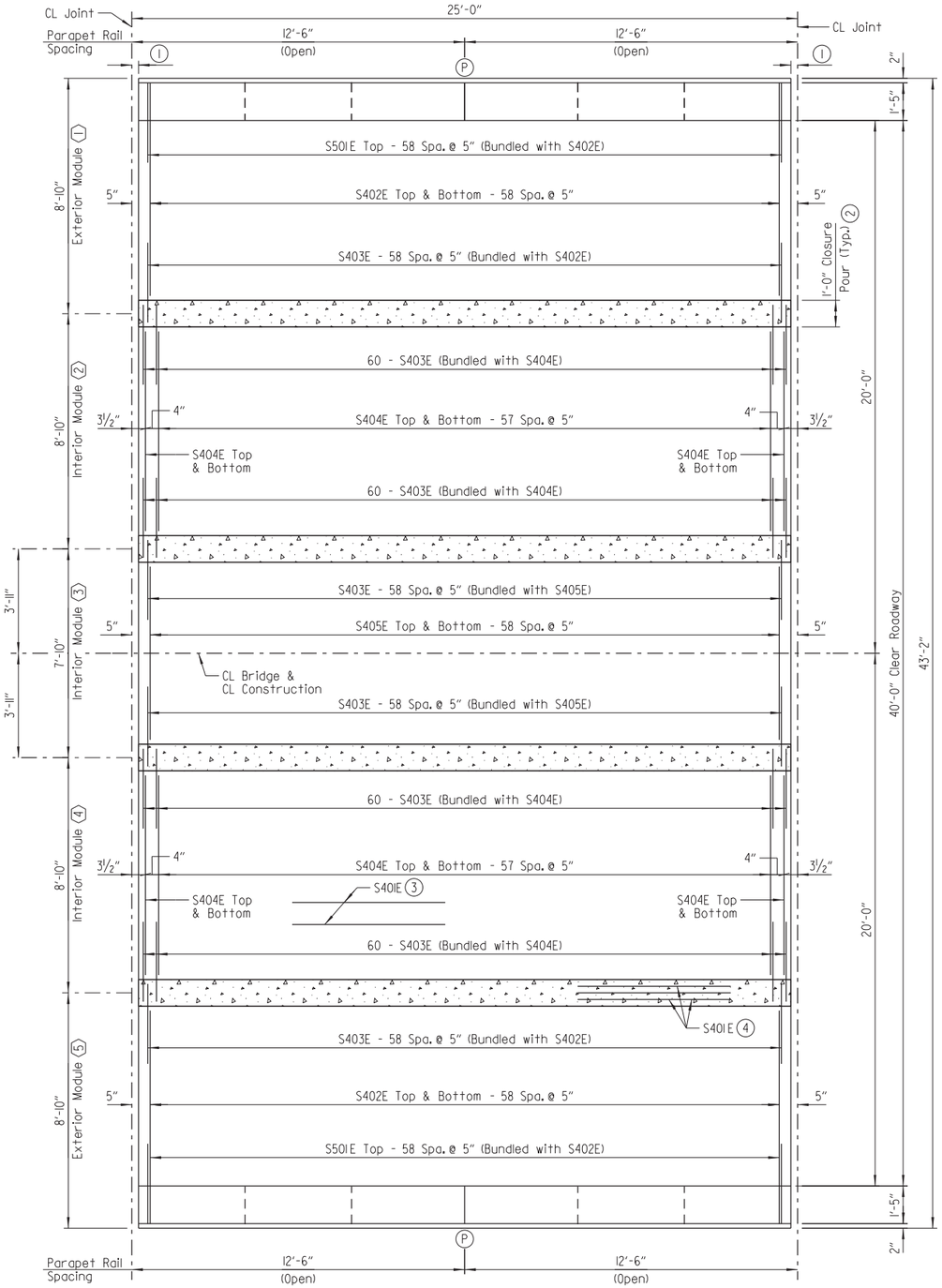
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	59	98
				(I) 06347		25' PREFAB. SPANS		61505

(P) CL Partial-Depth Parapet Joint (1/4" to 1" Max.). Stop 1'-2" from top of slab.

(1) 1/2" Bents 9 and 15
3/4" Bents 10-14

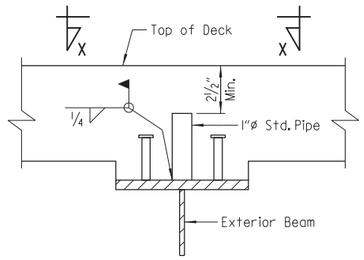
(2) See "LONGITUDINAL CLOSURE POUR DETAIL" on Dwg. No. 61502.



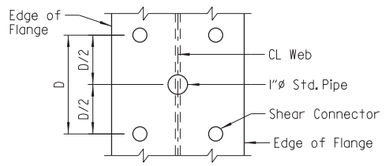
SLAB PLAN
Scale: 3/8" = 1'-0"

(X) = Module Number

(3) S401E bars placed as shown in "EXTERIOR MODULE (1) & (5) REINFORCING DETAIL", "INTERIOR MODULE (2) & (4) REINFORCING DETAIL", AND "INTERIOR MODULE (3) REINFORCING DETAIL", Dwg. No. 61502.

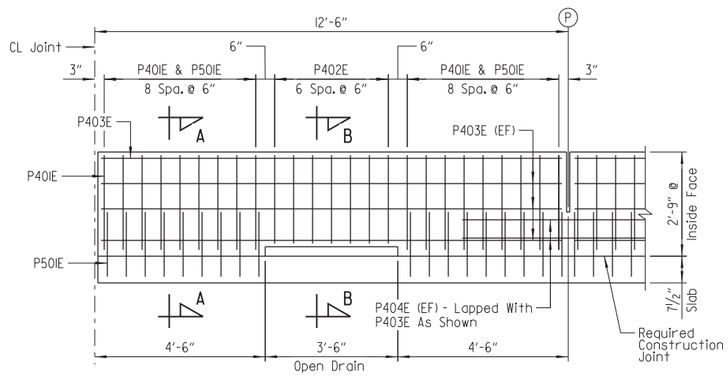


TRANSVERSE SCREED RAIL SUPPORT DETAIL
No Scale

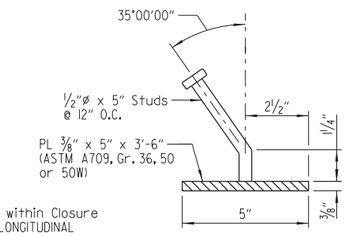


VIEW X-X
No Scale

NOTE:
If a transverse screed is utilized, the contractor shall support screed rail on exterior beam.



TYPICAL OPEN PARAPET RAIL ELEVATION
Scale: 1/2" = 1'-0"



DETAIL Y
No Scale

(4) S401E Placed within Closure Pour. See "LONGITUDINAL CLOSURE POUR DETAIL" on Dwg. No. 61502.

NOTES:
Parapet studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807.

The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop.

Payment for studs, plate and painting will not be made directly but will be considered subsidiary to other pay items.

NOTES:
Concrete in bridge superstructure shall be placed, consolidated and screeded off before any concrete has taken its initial set.

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

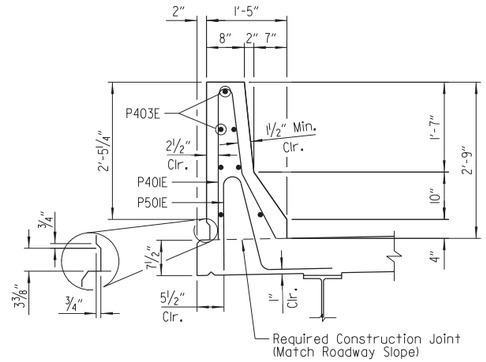
NOTES:
The transverse screed rail supports shall be centered over the beam web and centered longitudinally between adjacent rows of shear connectors.

The pipe shall not interfere with the proper vertical position of the deck reinforcing steel.

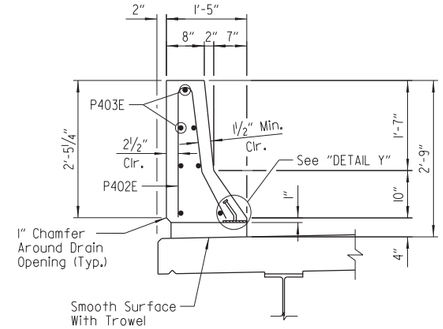
The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.

Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.

All welding shall be performed by a certified welder and in accordance with Subsections 802.13 and 807.26.



SECTION A-A
Scale: 3/4" = 1'-0"



LEGEND
EF = Each Face

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

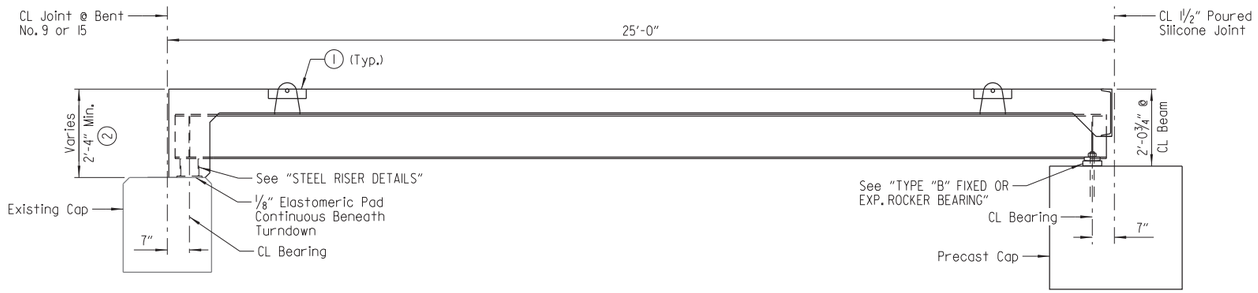
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DESIGNED BY: CSW DATE: DEC. 2019

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abhall 3/18/2020 11:23:30 AM
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L:\20TV\170\7550 - Little Missouri River and Relief\Drawings\B030458xl_S405_SB (Relief Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	60	98
① 06347		25' PREFAB. SPANS		61506

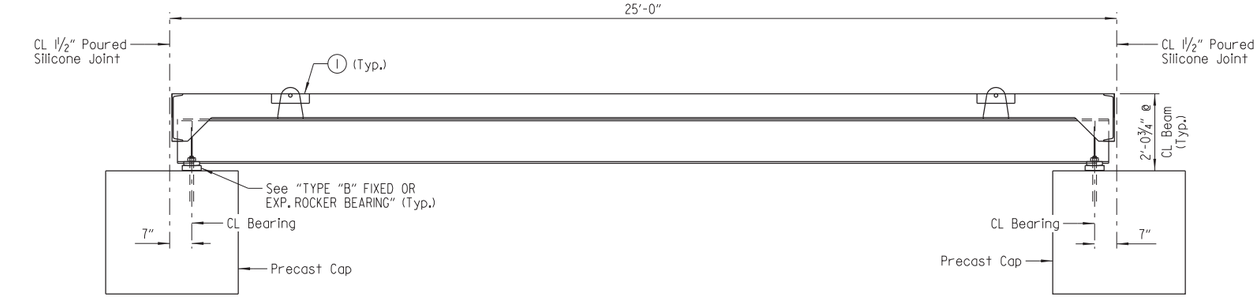


LONGITUDINAL SECTION - SPAN NOS. 9 & 14

Scale: ½" = 1'-0"

① Blockout for Lifting Lug. Blockout area shall be filled with non-shrink grout. See "BLOCKOUT DETAIL".

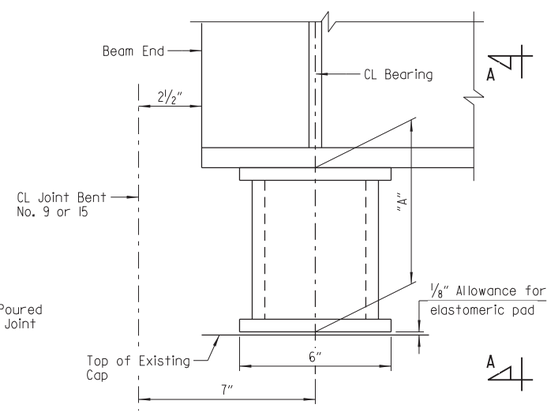
② Dimension based on existing bridge plans. Contractor shall field verify.



LONGITUDINAL SECTION - SPAN NOS. 10-13

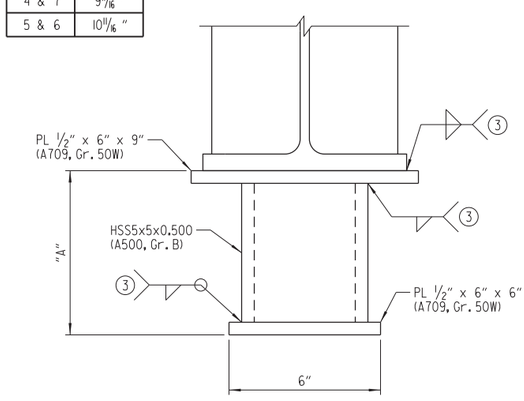
Scale: ½" = 1'-0"

BEAM LINE	"A" ③
1 & 10	6½"
2 & 9	7⁹⁄₁₆"
3 & 8	8⅝"
4 & 7	9¹¹⁄₁₆"
5 & 6	10¹¹⁄₁₆"



SIDE VIEW

NOTE:
Concrete turndown omitted from this view for clarity.



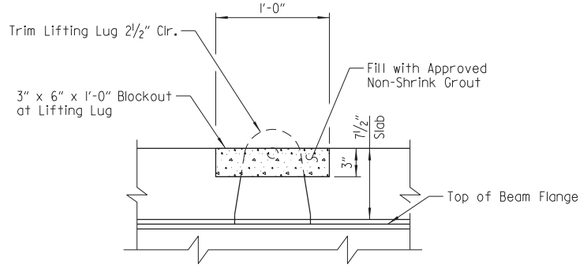
VIEW A-A

③ See "WELD TABLE" on Std. Dwg. No. 55007 for min. weld size.

STEEL RISER DETAILS

No Scale

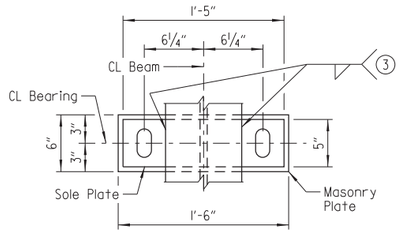
NOTE:
Cost of the steel riser shall be included in the cost of the prefabricated module.



BLOCKOUT DETAIL

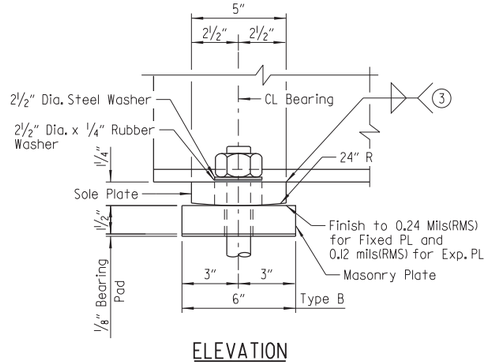
No Scale

Fixed Bearing: 1½" Dia. Holes in Sole Plate & Masonry Plate
Expansion Bearing: 3" x 1½" Slots in Sole Plate; 1½" Dia. Holes in Masonry Plate



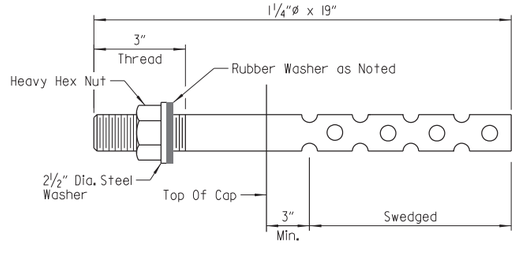
PLAN

Scale: 1½" = 1'-0"



ELEVATION

Scale: 3" = 1'-0"



ANCHOR BOLT DETAIL

No Scale

NOTES:
Anchor Bolt, Nut, and Washer 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.

Anchor Bolts shall be Grade 55.

Type "B" Bearings and anchor bolts shall be included in the item "STRUCTURAL STEEL IN BEAM SPANS (A709, Gr. 50W).

TYPE "B" FIXED OR EXP. ROCKER BEARING

NOTE:
Plates for Type "B" Bearings Shall be ASTM A709 Gr. 50W. For painting requirements, see "GENERAL NOTES" on Dwg. No. 61494.

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 25'-0" PREFABRICATED COMPOSITE W-BEAM SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

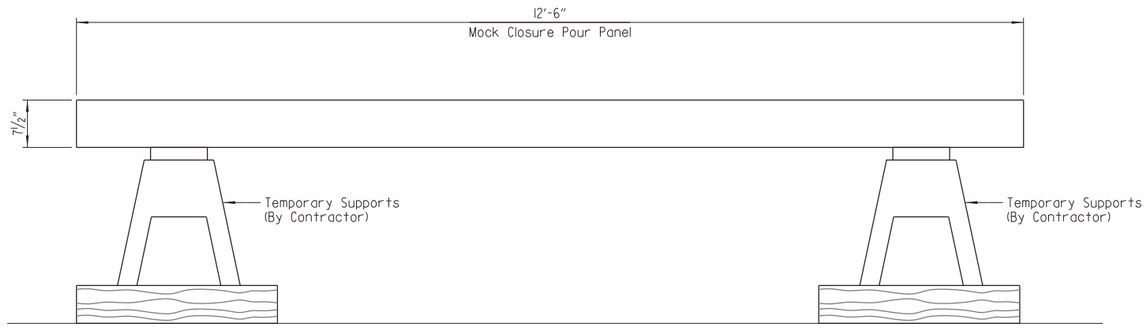
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DESIGNED BY: CSW DATE: DEC. 2019

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REVISED DATE:

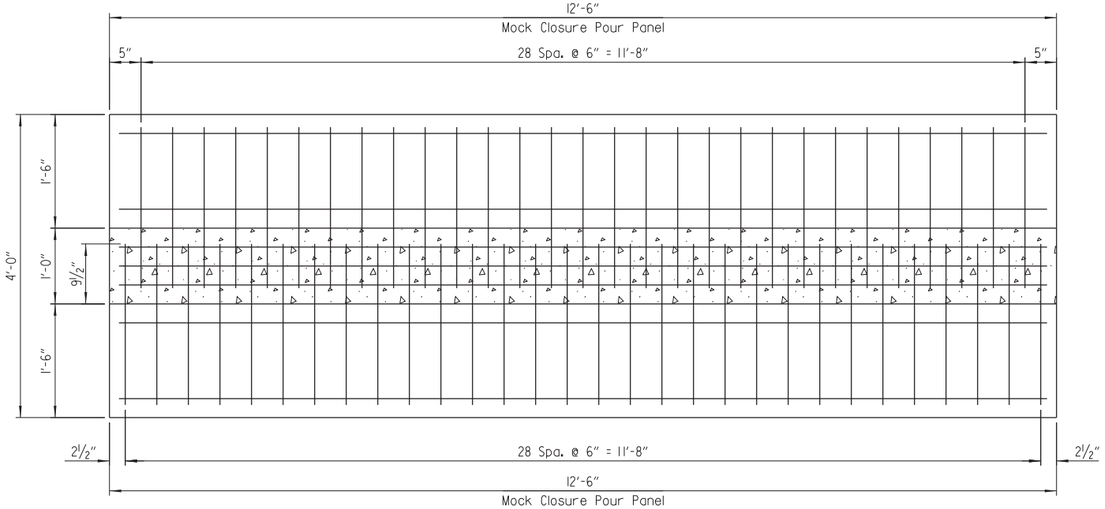
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	61	98
(1) 06347	MOCK CLOSURE POUR			61507



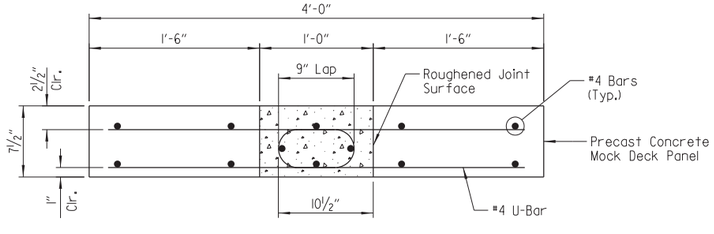
MOCK CLOSURE POUR PANEL - ELEVATION

Scale: 1" = 1'-0"



MOCK CLOSURE POUR PANEL - PLAN

Scale: 1" = 1'-0"



SECTION THROUGH MOCK CLOSURE POUR PANEL

Scale: 1½" = 1'-0"

MOCK CLOSURE POUR NOTES:

The Contractor shall be required to construct a concrete mock closure pour panel, as detailed in these plans, to demonstrate joint surface preparation and closure pour forming and placement operations. The mock closure pour panel shall be available for review and approval by the Engineer no less than 28 calendar days prior to scheduled date of closure pour placement for the bridge superstructure modules. Final prepared (roughened) joint surfaces must be reviewed and approved by the Engineer prior to placement of concrete within the mock closure pour. Representatives of the Engineer and Manufacturer shall be present during placement of the closure pour.

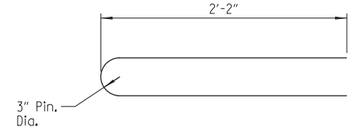
Precast concrete joint surfaces shall be roughened to a minimum ¼" amplitude or rougher. Methods to achieve joint surface texture shall match the methods intended for use on the superstructure modules.

Methods and materials for forming and placing the mock closure pour joint shall match those intended for use on the superstructure modules.

The mock closure pour panel shall be supported above grade. The Contractor shall be responsible for providing an appropriate means to support the mock panel during demonstration closure pour placement.

Following set of the closure pour concrete and development of sufficient strength, the completed mock closure pour panel shall be cut transversely by the Contractor at two locations, to be determined by the Engineer, to allow for visual inspection by the Engineer of the joint interface and material bond.

All costs associated with construction of the mock closure pour panel shall be subsidiary to the prefabricated superstructure modules.



#4 U-Bar

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

DETAILS OF MOCK CLOSURE POUR PANEL

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

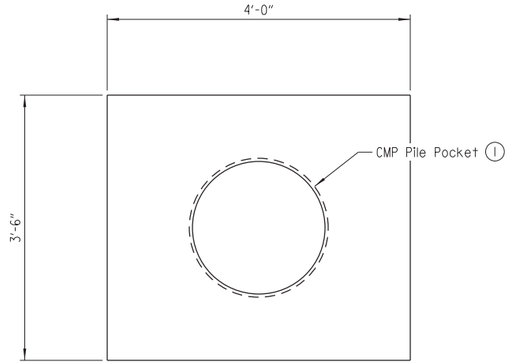
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DESIGNED BY: JHR DATE: FEB. 2020

BRIDGE NO. 06347 DRAWING NO. 61507

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WORKSPACE: ARDOT Bridge
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REVISED DATE:

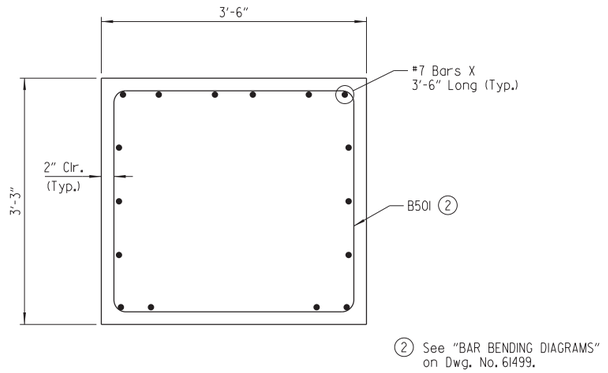
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6	ARK.			
JOB NO.		030458	62	98
(1) 06347	PRECAST CAP MOCKUP			61508



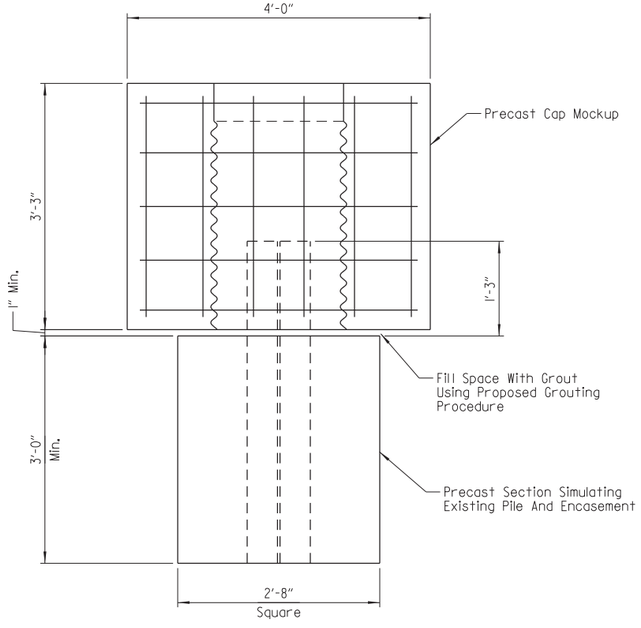
PLAN
Scale: 1" = 1'-0"

(1) CMP Pile Pocket size shall match details proposed for final production of precast bent caps.

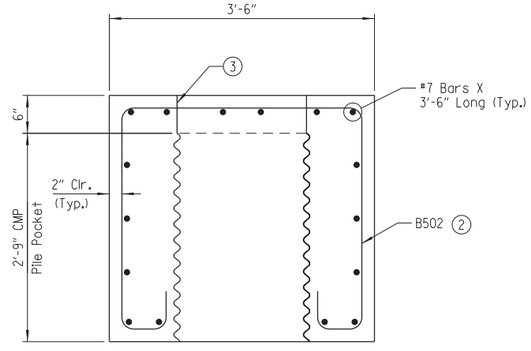


(2) See "BAR BENDING DIAGRAMS" on Dwg. No. 61499.

SECTION THRU PRECAST MOCKUP
Scale: 1" = 1'-0"



ELEVATION
Scale: 1" = 1'-0"



(3) Form blockout above CMP Pile Pocket using forming procedures proposed for final production of precast bent caps.

SECTION THRU CMP PILE POCKET
Scale: 1" = 1'-0"

PRECAST CAP MOCKUP NOTES:

The Contractor shall be required to construct a precast cap mockup, as detailed in these plans, to demonstrate CMP pile pocket forming and self-consolidating concrete placement operations. The precast cap mockup shall be available for review and approval by the Engineer no less than 28 calendar days prior to scheduled date of placement for the precast bent caps.

Representatives of the Engineer and Manufacturer shall be present during placement of the self-consolidating concrete.

Methods and materials for forming and supporting the mockup shall match those intended for use on the precast bent cap.

All costs associated with construction of the precast cap mockup panel shall be subsidiary to the precast bent caps.

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

DETAILS OF PRECAST CAP MOCKUP

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: FEB. 2020 FILENAME: b030458xl_s8.dgn
CHECKED BY: ABH DATE: FEB. 2020 SCALE: As Shown
DESIGNED BY: JHR DATE: FEB. 2020

BRIDGE NO. 06347 DRAWING NO. 61508

abnall 3/18/2020 11:23:31 AM
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L:\ZOT\TOI7550 - Little Missouri River and Relief\Drawings\B030458xl_S502_MU (Relief Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	63	98

1	07479	LAYOUT - SITE 2
		61509

Tangent Distance = 64.77'

Limits of Cut (See Rdwy. Plans)

Approx. 2.9 mi. to Jct. Hwy. 29

Existing Bridge No. 03095 (To Be Removed)

Approximate Limits of Existing Dumped Riprap

Exist. Boat Ramp (4) (To Be Retained)

5+50

CL New Boat Ramp Access (See Rdwy. Plans)

20'-0"

Tangent Distance > 500'

Approx. 2.4 mi. to Jct. Hwy. 29

Toe of Fill Slope

8'-0" Shldr.

1V:3H

Finished Crown 40'-0"

24'-0" Pavement

12'-0" Lane

12'-0" Lane

56+00

57+00

58+00

59+00

60+00

61+00

B-4

B-5

B-3

B-2

B-1

N 2°41'02" E

CL Bridge, CL Construction & CL Hwy. 19

2% Slope

2% Slope

1'-2½" Parapet

42'-6" Out-To-Out

40'-0" Clear Roadway

1'-2½" Parapet

USGS Gage (To Be Removed)

Existing Asphalt Parking Lot (To Be Modified & Retained)

Point of Min. Vertical Clearance over Asphalt Parking Lot

Top of Cut Slope

Toe of Fill Slope

Top of Cut Slope

Toe of Fill Slope

1V:2H

New Northern Limit of Asphalt Parking Lot

(4) Existing Boat Ramp Access Rd.

10'-0" (Typ.)

NOTE:
Place 1'-6" Dumped Riprap on top of filter blanket in the limits shown. See Std. Dwg. No. 55001 (typ. both ends of bridge).

Extend Dumped Riprap on Filter Blanket as shown. See Std. Dwg. No. 55001 & "LOCATION SKETCH" on Dwg. No. 61511 for additional information.

NEVADA COUNTY
PIKE COUNTY
LITTLE MISSOURI RIVER

(4) Features noted were present at time of survey but were damaged during subsequent flooding. Any remmants remaining shall be removed as directed by the Engineer. Cost of removal of any remnant portions to be included in the "REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)".

Remove remaining portion of existing Boat Ramp Access Road as shown

Top of Cut Slope

Toe of Fill Slope

NOTES:
Use Type CI Approach Slab (Width = 24'-0") at each end of bridge. See Std. Dwg. No. 55040CI.

Use Type Special Approach Gutters (W = 8'-0") at each end of bridge. See Dwg. No. 61525.

CL Ditch (Typ.) (See Rdwy. Plans)

BEGIN BRIDGE
STA. 55+78.92

END BRIDGE
STA. 60+81.08

PLAN

Total Length of Bridge = 502'-2"

1'-1"

500'-0" Continuous Plate Girder Unit
(100'-150'-150'-100')

1'-1"

CL 2½" Strip Seal Joint (4" Movement Rating)

Slope Intercept Sta. 55+67.42

Proposed Grade Line Along CL Bridge

Elev. 256.67

CL Deck To Low Steel = 5'-10⅜" (1)

Design H.W. To Low Steel = 2.5' (1)

PVC Sta. 56+90.00

CL Bent No. 2 Sta. 56+80.00 Elev. 257.48

CL Deck At CL Bent To Low Side Top Of Cap = 6'-6⅛"

CL Bent No. 3 Sta. 58+30.00 Elev. 258.12

CL Deck At CL Bent To Low Side Top Of Cap = 6'-5⅝"

Concrete Parapet Rail

PVT Sta. 59+70.00

CL Bent No. 4 Sta. 59+80.00 Elev. 257.48

CL Deck At CL Bent To Low Side Top Of Cap = 6'-6⅛"

CL 2½" Strip Seal Joint (4" Movement Rating)

Elev. 256.67

Slope Intercept Sta. 60+92.58

Guardrail, See Roadway Plans (Typ.)

Exp.

Design H.W. (Q_{50}) Elev. 248.3 (3)

Fix.

18'-0"

Exp.

Exp.

Dumped Riprap (Typ.)

Existing Ground Line Along CL Bridge

13'-0"

Elev. 237.97

Elev. 233.69

13'-0"

Elev. 237.97

CL Ditch

Asphalt Parking Lot

67' Piles

84"ø Drilled Shaft with 90"ø Permanent Casing

69' Piles

66' Piles

70' Piles

71' Piles

70' Piles

67'-0"

75'-0"

59'-0"

84"ø Drilled Shaft with 90"ø Permanent Casing

84"ø Drilled Shaft with 90"ø Permanent Casing

Elev. 178.97

Bent No. 1 2 3 4 5

56+00 57+00 58+00 59+00

Elev. 170.97

Elev. 158.69

(3) Elevation corresponds to future embankment preventing overtopping. See "HYDRAULIC DATA" on Dwg. No. 61511.

(1) Low Bridge chord elevation of 250.77 occurs at Sta. 55+80.00, 18'-6" Left of CL Construction

(2) Existing min. vertical clearance over parking lot = 9'-7"

Proposed min. vertical clearance over parking lot = 10'-1"

NOTE:
Stations shown are along CL Construction. Elevations shown are theoretical working point elevations at CL Bridge. Any vertical dimension referenced to CL Deck is based on theoretical working point elevation at CL Bridge. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for additional information.

PVI Sta. 58+30.00
Elev. 258.68
V.C. = 280'
+0.80% -0.80%

VERTICAL CURVE DATA

Hwy. 19
(Profile Grade Along CL Bridge)

ELEVATION

NOTE:
For soil boring information, see Dwg. No. 61510.

For "LOCATION SKETCH", "GENERAL NOTES" and "HYDRAULIC DATA", see Dwg. No. 61511.

FOR R/W DATA AND GUARDRAIL DETAILS, SEE ROADWAY PLANS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14498
ADAM B. HALL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 19 OVER LITTLE MISSOURI RIVER
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA & PIKE COUNTIES

ROUTE 19 SEC. 5 & 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

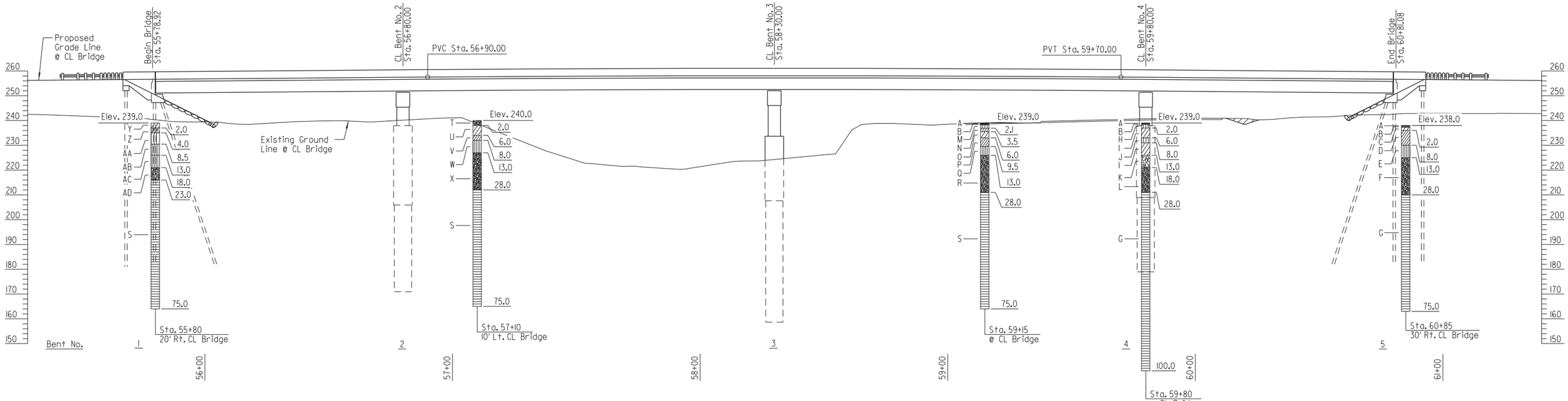
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BRIDGE NO. 07479 DRAWING NO. 61509

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WORKSPACE: ARDOT Bridge
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	64	98
(1) 07479		LAYOUT - SITE 2		61510



ELEVATION OF SOIL BORINGS

BORING LEGEND

A - Asphalt Concrete
B - Aggregate Base (clayey fine to coarse gravel)
C - Firm brown and tan fine sandy clay (fill)
D - Medium dense brown clayey fine sand
E - Loose tan and brown silty fine to medium sand
F - Medium dense tan sandy fine to coarse gravel
G - Moderately hard dark gray marl, fossiliferous and calcareous, micaceous
H - Medium dense brown and tan silt w/ a little fine gravel (fill)
I - Soft brown silty clay
J - Very loose brown silt
K - Medium dense brown fine to coarse sand w/ some fine gravel
L - Medium dense brown sandy fine to coarse gravel
M - Medium dense tan silt w/ a little fine gravel (fill)
N - Loose reddish brown and tan clayey fine sand (fill)
O - Very soft brownish gray and gray silty clay w/ organic and ferrous stains
P - Very loose to loose gray and tan clayey fine sand
Q - Loose tan silty fine sand w/ a little fine gravel
R - Medium dense brown and tan sandy fine to coarse gravel
S - Low hardness dark gray marl, calcareous and fossiliferous, micaceous
T - Stiff reddish brown silty clay w/ some fine to coarse gravel (fill)
U - Stiff reddish tan silty clay w/ organic stains
V - Medium dense reddish tan and tan clayey fine sand
W - Medium dense reddish brown silty fine sand
X - Medium dense reddish tan silty fine to coarse gravel, sandy
Y - Very soft to soft reddish brown fine sandy clay (fill)
Z - Very soft to soft yellowish tan and tan silty clay w/ ferrous stains
AA - Medium dense gray and tan fine sandy silt
AB - Very loose tan and gray silty fine to medium sand
AC - Medium dense reddish brown silty fine to coarse sand w/ a little fine gravel
AD - Dense brown sandy fine to coarse gravel

N VALUES

Sta. 55+80 Offset 20' Rt.	Sta. 57+10 Offset 10' Lt.	Sta. 59+15 @ Centerline	Sta. 59+80 @ Centerline	Sta. 60+85 Offset 30' Rt.
0.5-1.5, N=4	0.5-1.5, N=15	1.0-2.0, N=11	0.5-1.5, N=17	1.0-2.0, N=7
2.5-3.5, N=4	2.5-3.5, N=10	2.5-3.5, N=9	2.5-3.5, N=4	2.5-3.5, N=23
4.5-5.5, N=13	4.5-5.5, N=5	4.5-5.5, N=O/WOH	4.5-5.5, N=5	4.5-5.5, N=6
6.5-7.5, N=14	6.5-7.5, N=12	6.5-7.5, N=4	6.5-7.5, N=2	6.5-7.5, N=O/WOH
9.0-10.0, N=3	9.0-10.0, N=14	9.0-10.0, N=6	9.0-10.0, N=5	9.0-10.0, N=9
14.0-15.0, N=12	14.0-15.0, N=18	14.0-15.0, N=27	14.0-15.0, N=20	14.0-15.0, N=12
19.0-20.0, N=32	19.0-20.0, N=44	19.0-20.0, N=42	19.0-20.0, N=16	19.0-20.0, N=33
24.0-25.0, N=39	24.0-25.0, N=19	24.0-25.0, N=50/8"	24.0-25.0, N=27	24.0-25.0, N=26
29.0-30.0, N=39	29.0-30.0, N=17	29.0-30.0, N=36"	29.0-30.0, N=50/10"	29.0-30.0, N=50/11"
34.0-35.0, N=50/11"	34.0-35.0, N=50/8"	34.0-35.0, N=48	34.0-35.0, N=50/9"	34.0-35.0, N=50/8"
39.0-40.0, N=50/8"	39.0-40.0, N=50/8"	39.0-40.0, N=47	39.0-40.0, N=50/9"	39.0-40.0, N=50/9"
44.0-45.0, N=50/9"	44.0-45.0, N=50/11"	44.0-45.0, N=50	44.0-45.0, N=50/9"	44.0-45.0, N=50/3"
49.0-50.0, N=50/11"	49.0-50.0, N=50/11"	49.0-50.0, N=50/10"	49.0-50.0, N=50/9"	49.0-50.0, N=50/9"
54.0-55.0, N=50/10"	54.0-55.0, N=50	54.0-55.0, N=50/10"	54.0-55.0, N=50/6"	54.0-55.0, N=50/8"
59.0-60.0, N=50/10"	59.0-60.0, N=46	59.0-60.0, N=50/7"	59.0-60.0, N=50/9"	59.0-60.0, N=50/3"
64.0-65.0, N=50/8"	64.0-65.0, N=50/10"	64.0-65.0, N=50/8"	64.0-65.0, N=50/7"	64.0-65.0, N=50/4"
69.0-70.0, N=50/10"	69.0-70.0, N=50/10"	69.0-70.0, N=50/4"	69.0-70.0, N=50/10"	69.0-70.0, N=50/5"
74.0-75.0, N=50/11"	74.0-75.0, N=50/5"	74.0-75.0, N=50/10"	74.0-75.0, N=50/10"	74.0-75.0, N=50/4"
			79.0-80.0, N=50	
			84.0-85.0, N=50	
			89.0-90.0, N=50/11"	
			94.0-95.0, N=50/10"	
			99.0-100.0, N=50/9"	

WOH = Weight of Hammer

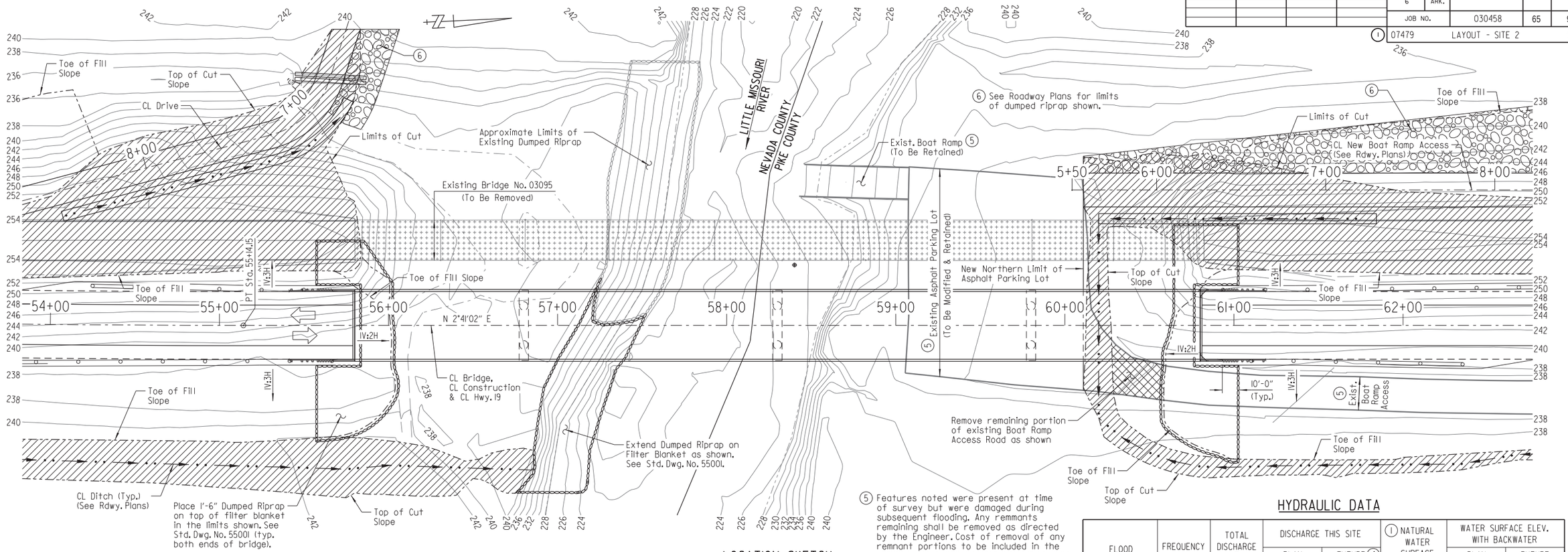
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14498
ADAM B. HALL
DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 19 OVER LITTLE MISSOURI RIVER
LITTLE MISSOURI RIVER & RELIEF
STRS. & APPRS. (S)
NEVADA & PIKE COUNTIES
ROUTE 19 SEC. 5 & 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: MAY 2019 SCALE: 1" = 20'-0"
DESIGNED BY: ABH DATE: MAY 2019
BRIDGE NO. 07479 DRAWING NO. 61510

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WORKSPACE: ARDOT Bridge
L:\20\7\170\7550 - Little Missouri River and Relief\Drawings\b030458x2_l2 (River Bridge).dgn
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	65	98
				(1) 07479		LAYOUT - SITE 2		61511



LOCATION SKETCH

(5) Features noted were present at time of survey but were damaged during subsequent flooding. Any remmants remaining shall be removed as directed by the Engineer. Cost of removal of any remnant portions to be included in the "REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)".

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	TOTAL DISCHARGE (2)	DISCHARGE THIS SITE		(1) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER	
			PLAN EMBANKMENT	FUTURE (4) EMBANKMENT		PLAN EMBANKMENT	FUTURE EMBANKMENT
	YEARS	CFS	CFS	CFS	FEET	FEET	FEET
DESIGN	50	64,314	27,591	28,611	246.2	247.7	248.3
BASE	100	74,638	30,047	35,310	246.7	248.2	249.0
EXTREME	500	100,948	35,300	40,862	247.8	249.4	250.8
OVERTOPPING	(3) 18	47,866	22,885	N/A	N/A	246.7	N/A

Drainage Area = 709 square miles
Historical High Water Elev. = 246.70

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

(2) The total discharge includes flow at this site and Little Missouri Relief (Br. 06347), Middle Creek (Br. 06346) & Number One Bayou (Br. 06345).

Q100 backwater elevation for existing structure = 248.4
Proposed Low Bridge Chord Elev. = 250.77 (Sta. 55+80.00, 18'-4" Left of CL Construction)
Existing Low Bridge Chord Elev. = 250.52 (existing bridge plans & survey)

(3) Overtopping event occurs outside limits of Job 030458. The location of overtopping is approximately 9600 feet north of the intersection of Hwy. 19 and 29 (approximately 1600 feet north of Bridge No. 06346).

(4) Future embankment elevation is assumed to be 251.0 and overtopped at flows greater than the Q100. If the embankment is raised above this assumed elevation, additional waterway opening may be required.

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2014, 7th Edition) with current interims

LIVE LOADING: HL-93

SEISMIC ZONE: I S_{DI} : 0.14g Site Class: D

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: All piling shall be HP14x73 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum ultimate bearing capacity of 154 tons per pile and to a minimum tip elevation of 210.0 or lower at Bents 1 & 5. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities only. Actual pile lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). The Contractor shall use approved steel H-Pile driving points on all piles.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)." It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles will be 40,000 foot pounds per blow.

DRILLED SHAFTS: Drilled shafts at Bents 2 thru 4 shall be constructed in accordance with Special Provision Job No. 030458 "DRILLED SHAFT FOUNDATIONS". Drilled shafts shall be socketed to the minimum embedment shown on Dwg. No. 61515 into material designated as Marl on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

NONDESTRUCTIVE TESTING: Crosshole Sonic Logging (CSL) and Thermal Integrity Profiling (TIP) shall be performed on each drilled shaft in accordance with Special Provision Job No. 030458 "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS".

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within nine feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the Manufacturer's recommendations at no cost to the Department.

BRIDGE DECK: The bridge deck shall be given a polymer overlay as specified in Special Provision Job No. 030458 "POLYMER OVERLAY".

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

EXISTING BRIDGE: Existing Bridge No. 03095 (Log Mile 11.46) is 502.0' in length, 28.5' wide (24.0' clear roadway) and consists of a concrete slab on I-beam spans (9 spans total) supported by concrete columns on concrete spread footings in the main channel and supported by precast concrete pile bents elsewhere.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. 03095 shall be removed in accordance with Section 205. Existing USGS gage equipment and any exposed substructures from previous construction shall also be removed. Exposed substructures from previous construction shall be removed to a depth of 2' below subgrade or final ground surface. This work shall be considered subsidiary to the item "REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)". All material from the existing bridge and previous construction shall become property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	61512-61514
Intermediate Bents	61515-61517
Elastomeric Bearings	61518
500'-0" Continuous Plate Girder Unit	61519-61524
Type Special Approach Gutters	61525
Dumped Riprap	55001
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Neoprene Strip Seal Joints	55009 & 61522
Steel Piling	55020
Type CI Approach Slabs	55040CI

STATE OF ARKANSAS
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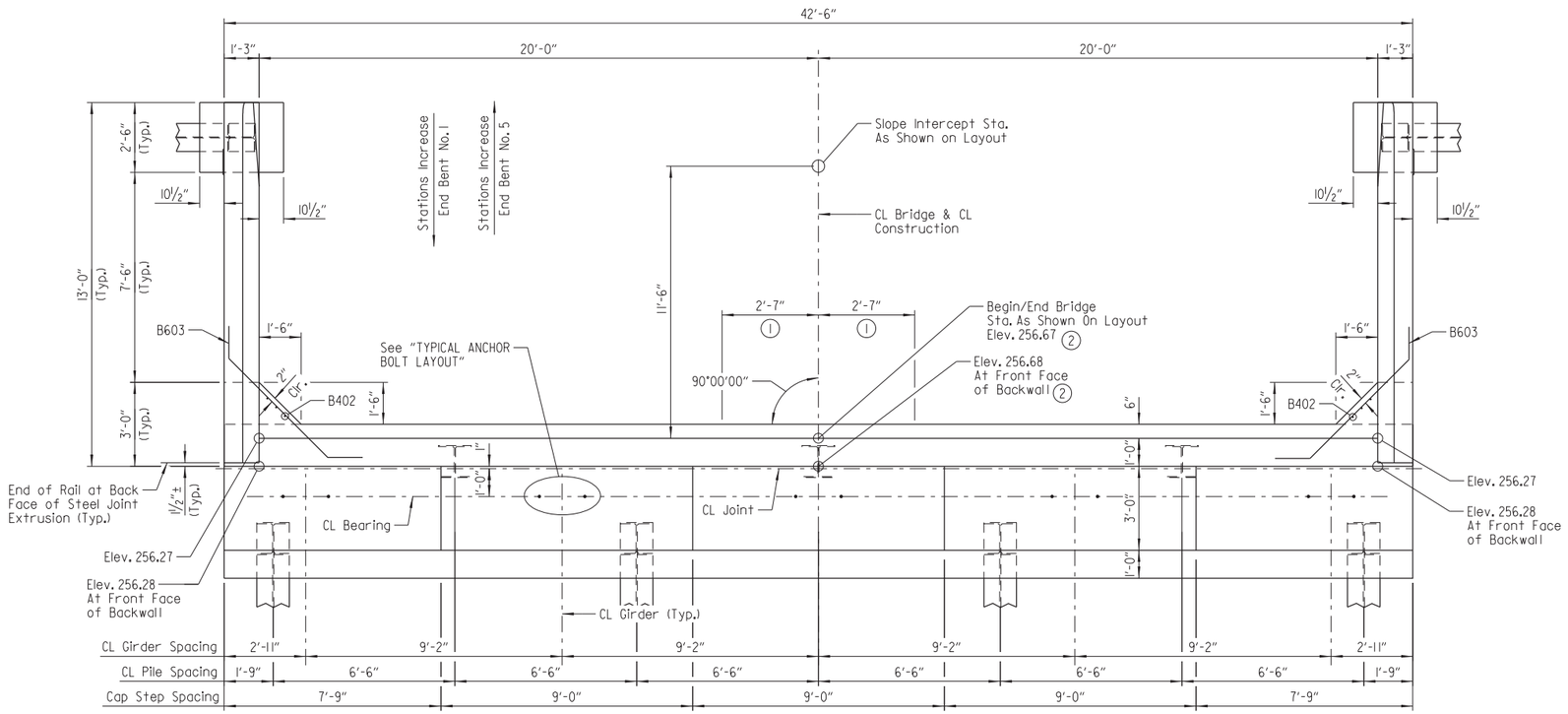
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BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 19 OVER LITTLE MISSOURI RIVER
LITTLE MISSOURI RIVER & RELIEF
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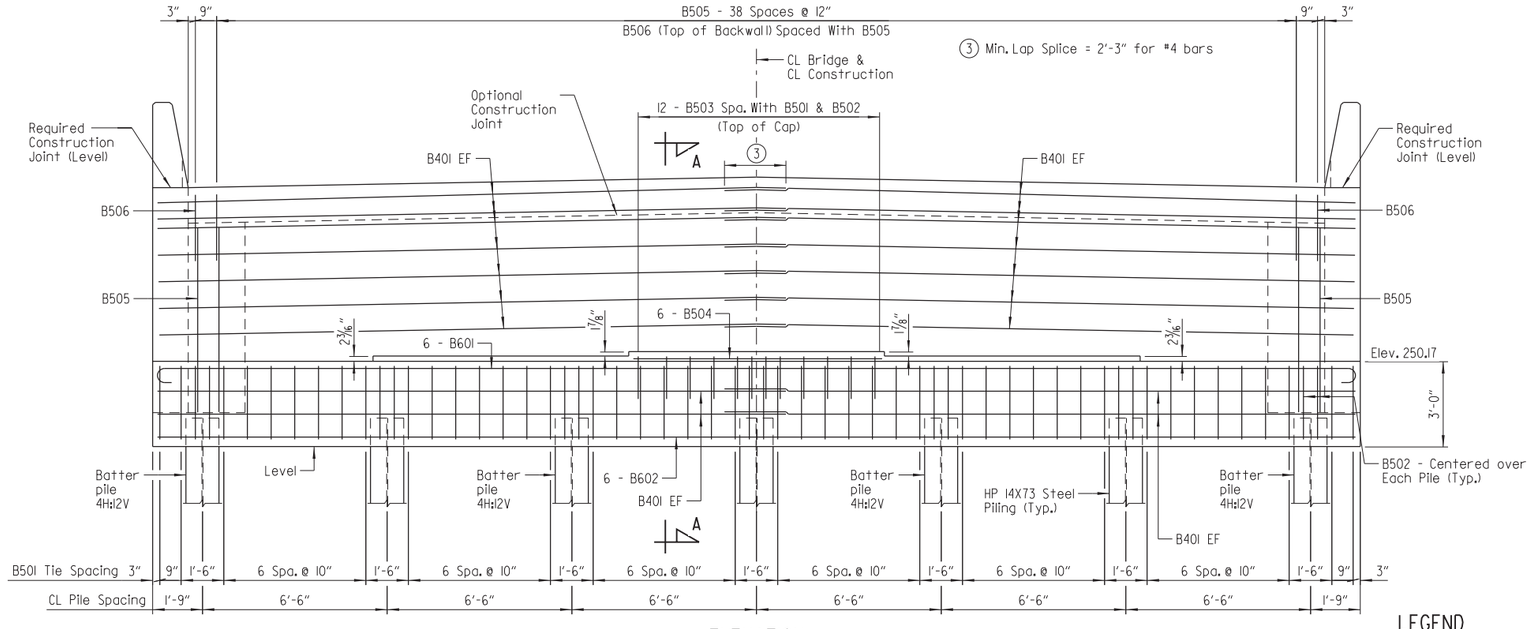
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REVISED DATE:

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				6	ARK.			
				JOB NO.		030458	66	98
				(1) 07479		END BENT		61512



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

(Looking Back - End Bent No. 1)
(Looking Ahead - End Bent No. 5)
Scale: ⅜" = 1'-0"

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

GENERAL NOTES

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

All piles shall be HP14x73 (ASTM A709, Gr. 50).

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

For additional information, see LAYOUT.

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

(1) See "ROUNDING DETAIL" on Std. Dwg. No. 55007.

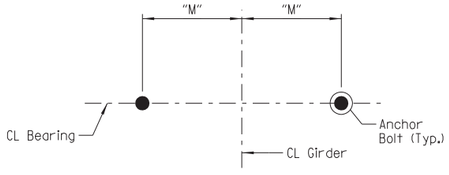
(2) Elevation At Working Point

NOTES:
For details of Wing & Rail, see Dwg. No. 61513.

For "SECTION A-A" and "BAR LIST", see Dwg. No. 61514.

NOTE:
No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55009.

No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.



TYPICAL ANCHOR BOLT LAYOUT

No Scale

NOTE:
For Details of Elastomeric Bearings, see Dwg. No. 61518.

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SHEET 1 OF 3
DETAILS OF END BENTS

ROUTE SEC.

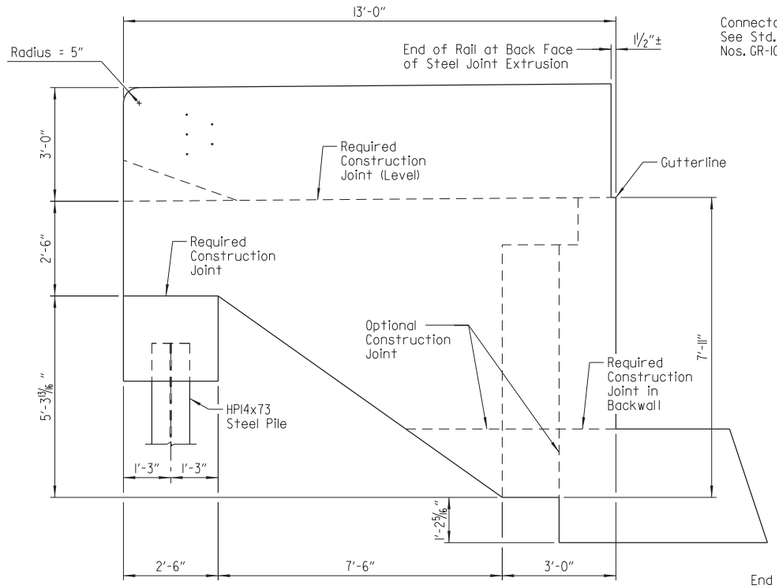
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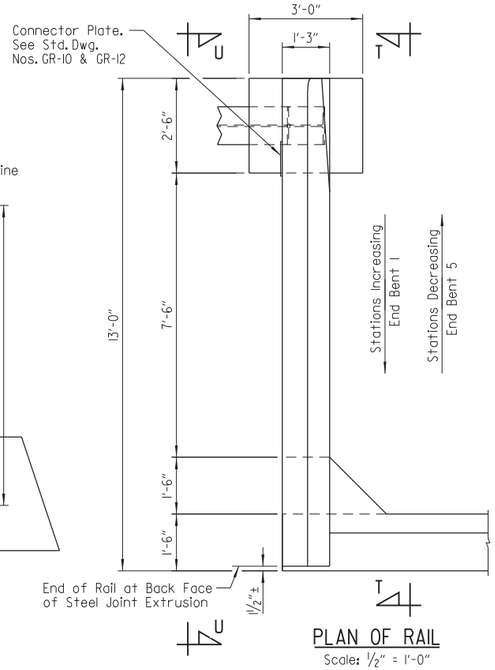
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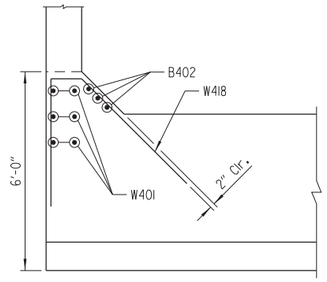
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				JOB NO.		030458	67	98
				(1) 07479		END BENT		61513



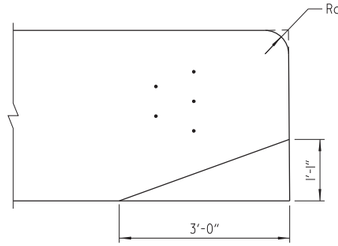
VIEW U-U
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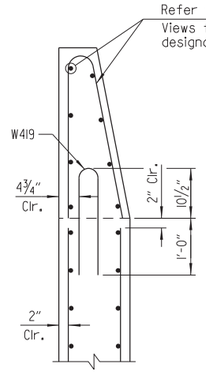
PLAN OF RAIL
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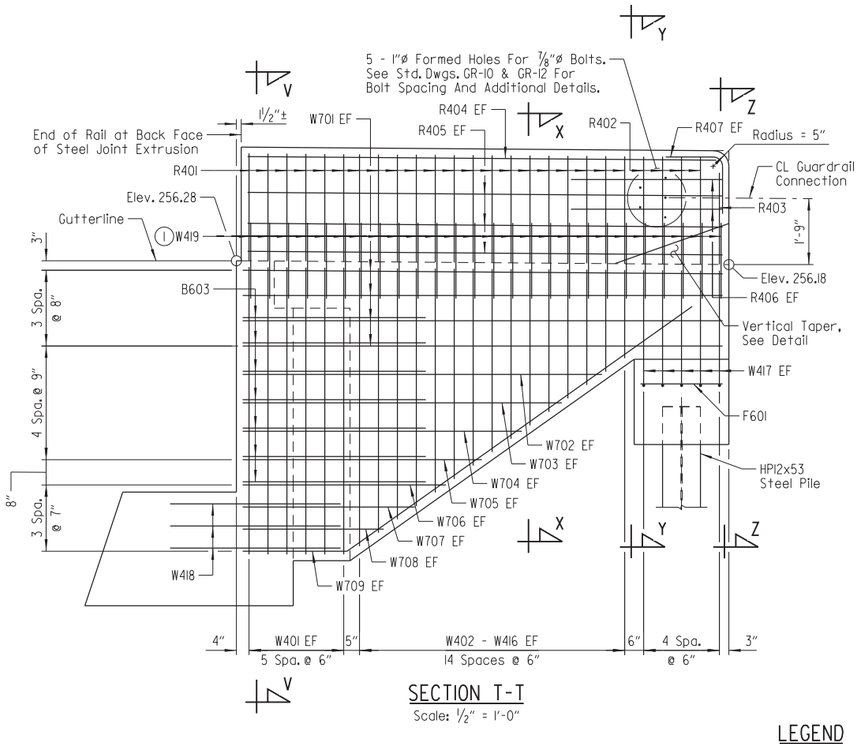
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VERTICAL TAPER
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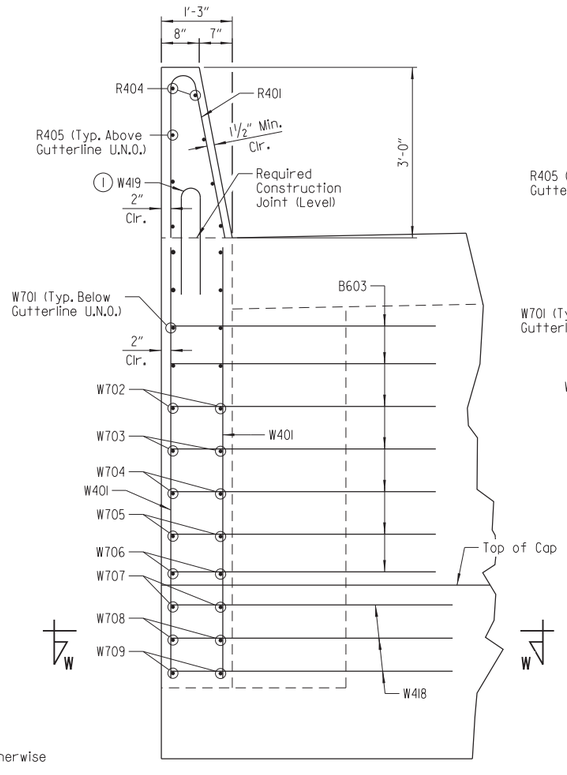


DETAIL A
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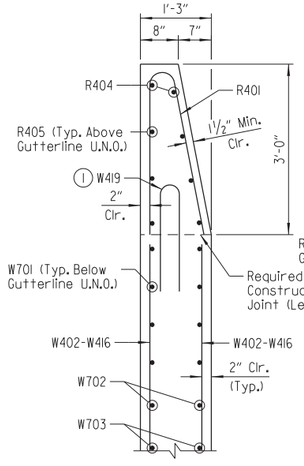


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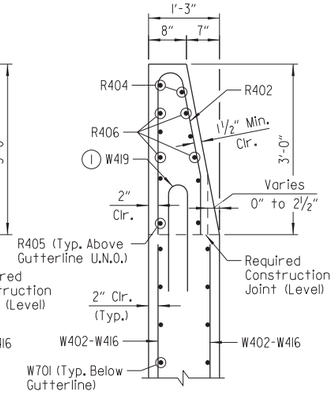
(1) See "DETAIL A" for placement of Bars W419.



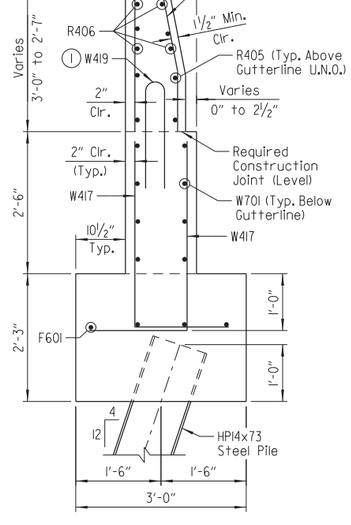
SECTION V-V
Scale: ¾" = 1'-0"



SECTION X-X
Scale: ¾" = 1'-0"



SECTION Y-Y
Scale: ¾" = 1'-0"



SECTION Z-Z
Scale: ¾" = 1'-0"

LEGEND
U.N.O. = Unless Noted Otherwise
EF = Each Face

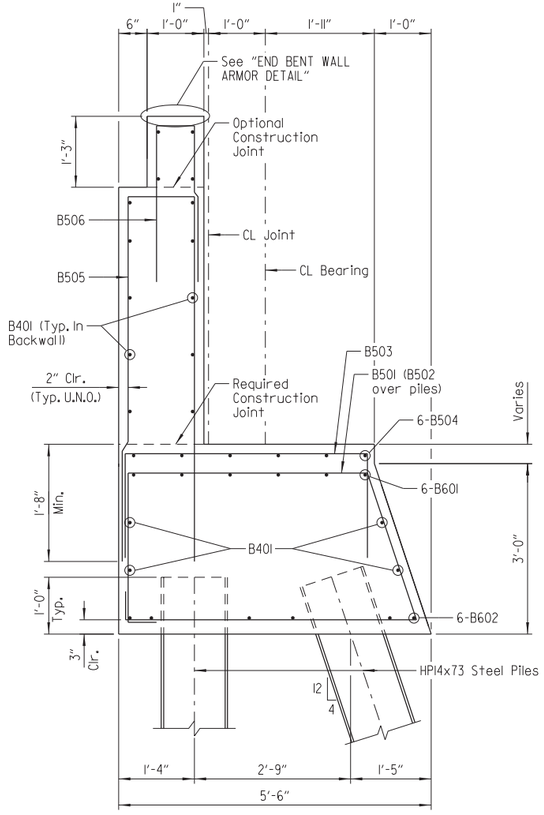
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No.8017
JOHN H. RUDDELL
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BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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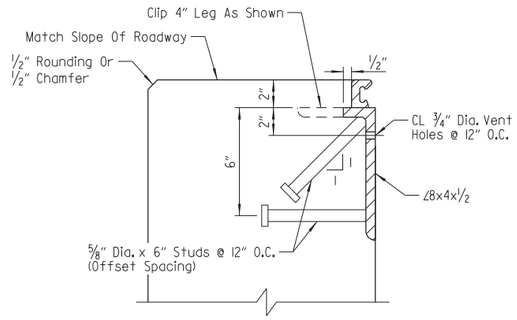
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WORKSPACE: ARDOT Bridge
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	68	98
				(1) 07479		END BENT		61514



SECTION A-A

Scale: 3/4" = 1'-0"



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

Concrete shall be hand packed under joint armor.

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

END BENT WALL ARMOR DETAIL

No Scale

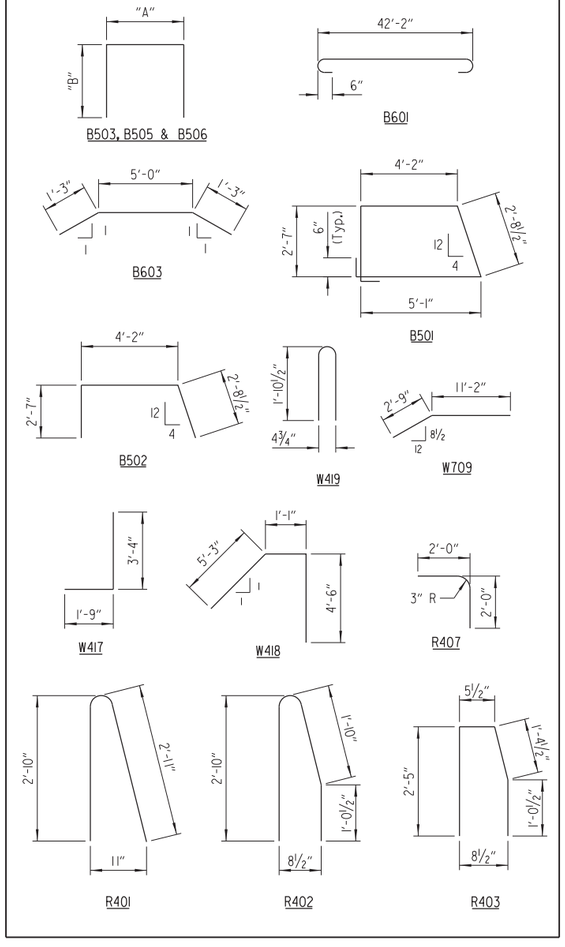
LEGEND

U.N.O. = Unless Noted Otherwise

BAR LIST (EACH END BENT)

MARK	NO. REQ.D	LENGTH	"A"	"B"	P.D.
B401	36	22'-3"			Str.
B402	6	6'-1"			Str.
B501	46	15'-1"			2 1/2"
B502	14	9'-3"			2 1/2"
B503	12	7'-8"	4'-2"	1'-10"	2 1/2"
B504	6	8'-8"			Str.
B505	41	14'-0"	1'-2"	6'-6"	2 1/2"
B506	41	6'-0"	8"	2'-9"	2 1/2"
B601	6	43'-6"			4 1/2"
B602	6	42'-2"			Str.
B603	14	7'-6"			4 1/2"
R401	42	5'-11"			3 3/4"
R402	8	5'-10"			3 3/4"
R403	2	5'-2"			2"
R404	4	12'-4"			Str.
R405	12	12'-6"			Str.
R406	8	4'-0"			Str.
R407	4	3'-11"			3"
W401	24	7'-6"			Str.
W402 To W416	4 Ea.	7'-3" To 2'-3"			Str.
W417	20	5'-0"			2"
W418	6	10'-9"			2"
W419	52	3'-11"			3 3/4"
W701	16	12'-8"			Str.
W702 To W708	4 Ea.	9'-4" To 3'-7"			Str.
W709	4	13'-11"			5 1/4"
F601	8	2'-2"			Str.

BAR BENDING DIAGRAMS



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

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No.8017
JOHN H. RUDDELL

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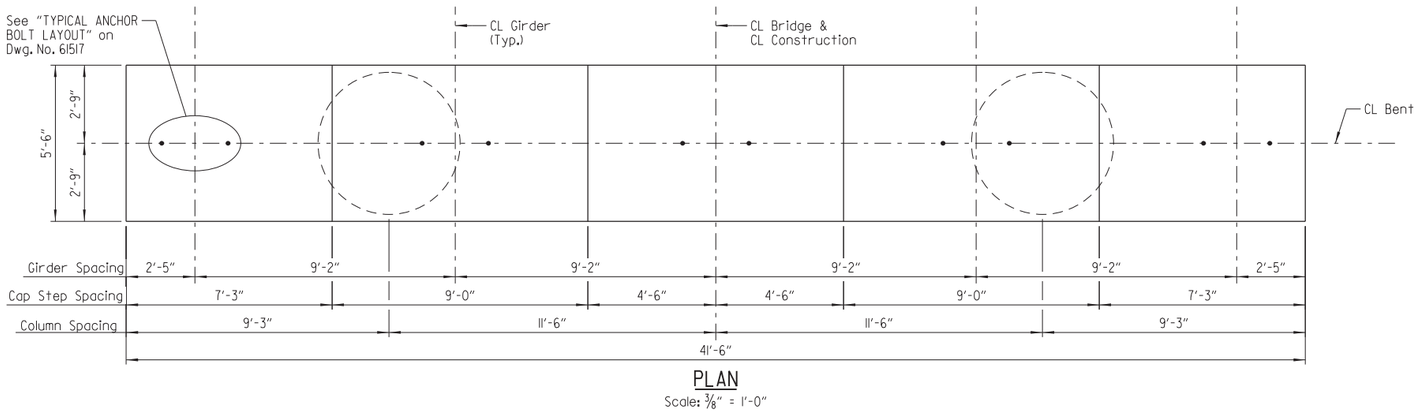
SHEET 3 OF 3
DETAILS OF END BENTS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
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BRIDGE NO. 07479 DRAWING NO. 61514

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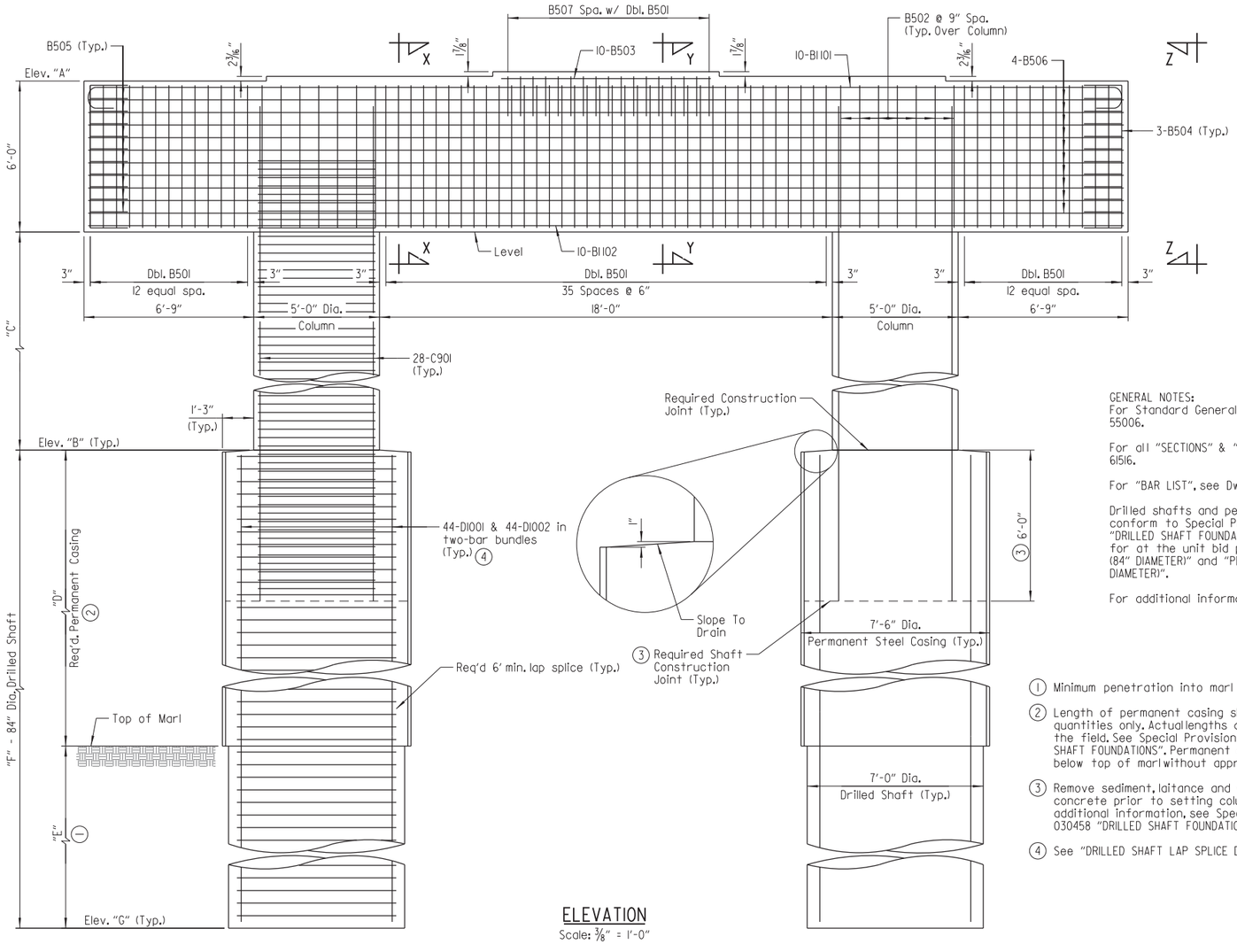
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6	ARK.			
JOB NO.		030458	69	98
(1) 07479		INT. BENT		61515



PLAN

Scale: 3/8" = 1'-0"

TABLE OF VARIABLES									
BENT NO.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
2	250.97	237.97	7'-0"	32'-0"	35'-0"	67'-0"	170.97	38	121
3	251.69	233.69	12'-0"	26'-0"	49'-0"	75'-0"	158.69	53	137
4	250.97	237.97	7'-0"	29'-0"	30'-0"	59'-0"	178.97	38	105



ELEVATION

Scale: 3/8" = 1'-0"

GENERAL NOTES:
For Standard General Notes, see Std. Dwg. No. 55006.

For all "SECTIONS" & "VIEW Z-Z", see Dwg. No. 61516.

For "BAR LIST", see Dwg. No. 61517.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 030458 "DRILLED SHAFT FOUNDATIONS" and shall be paid for at the unit bid price for "DRILLED SHAFT (84" DIAMETER)" and "PERMANENT STEEL CASING (90" DIAMETER)".

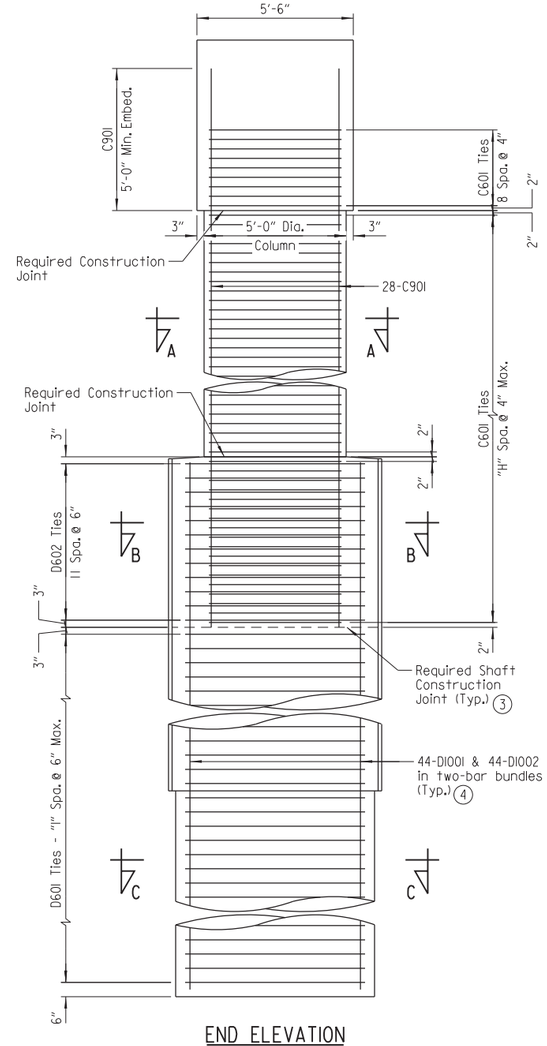
For additional information, see "LAYOUT".

(1) Minimum penetration into marl below permanent casing.

(2) Length of permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 030458 "DRILLED SHAFT FOUNDATIONS". Permanent casing shall not extend below top of marl without approval from the Engineer.

(3) Remove sediment, laitance and weak concrete to sound concrete prior to setting column reinforcement. For additional information, see Special Provision Job No. 030458 "DRILLED SHAFT FOUNDATIONS".

(4) See "DRILLED SHAFT LAP SPLICE DETAIL" on Dwg. No. 61517.



END ELEVATION

Scale: 3/8" = 1'-0"

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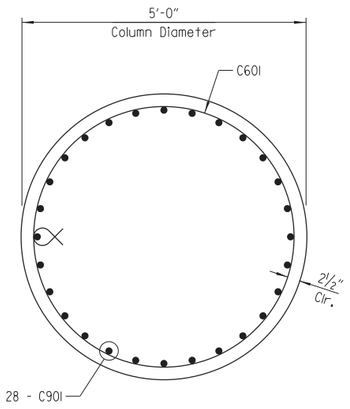
SHEET 1 OF 3
INTERMEDIATE BENT DETAILS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: JJB DATE: DEC. 2019
BRIDGE NO. 07479 DRAWING NO. 61515

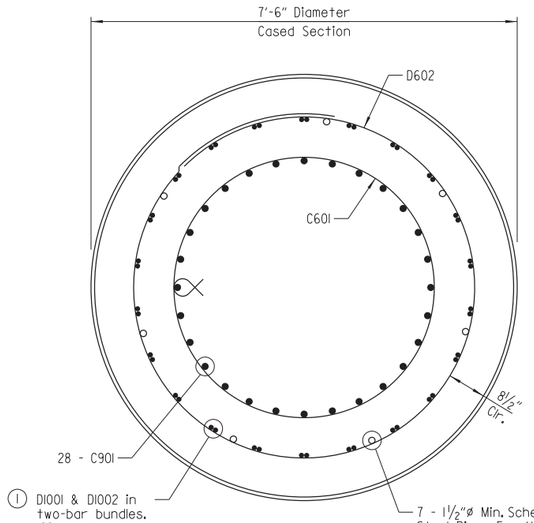
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	70	98
(1) 07479		INT. BENT		61516



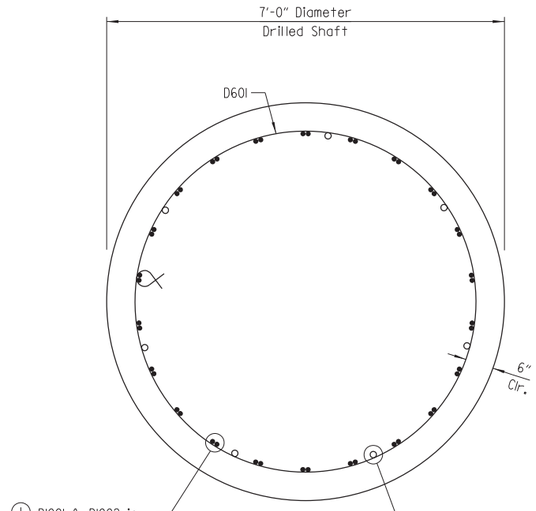
SECTION A-A
Scale: ¾" = 1'-0"



(1) D1001 & D1002 in two-bar bundles. (22 total bundles)

7 - 1½"ø Min. Schedule 40 Steel Pipes Equally Spaced (Approx.). Shift as required to center pipes between adjacent bar bundles. See Special Provision Job No. 030458 "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS"

SECTION B-B
Scale: ¾" = 1'-0"

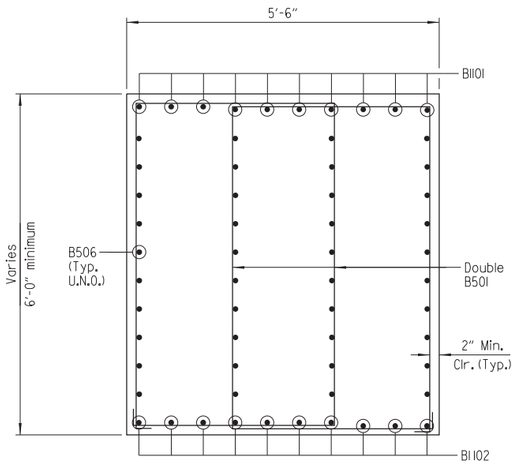


(1) D1001 & D1002 in two-bar bundles. (22 total bundels)

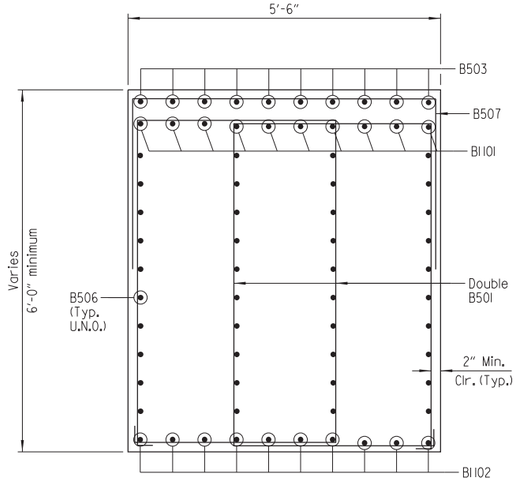
7 - 1½"ø Min. Schedule 40 Steel Pipes Equally Spaced (Approx.). Shift as required to center pipes between adjacent bar bundles. See Special Provision Job No. 030458 "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS"

SECTION C-C
Scale: ¾" = 1'-0"

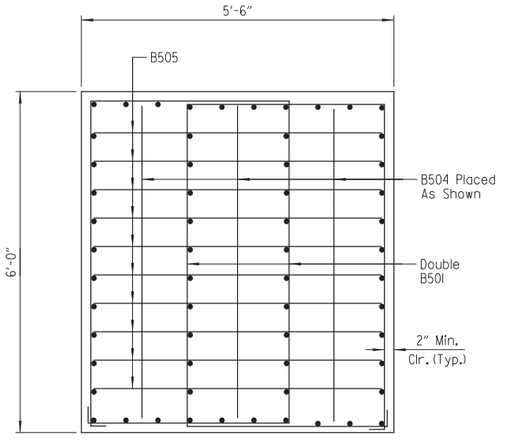
(1) See "DRILLED SHAFT LAP SPLICE DETAIL" on Dwg. No. 61517.



SECTION X-X
Scale: ¾" = 1'-0"



SECTION Y-Y
Scale: ¾" = 1'-0"



VIEW Z-Z
Typ. both ends of cap
Scale: ¾" = 1'-0"

LEGEND
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JOHN H. RUDDELL

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SHEET 2 OF 3
INTERMEDIATE BENT DETAILS
ROUTE SEC.
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CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
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BRIDGE NO. 07479 DRAWING NO. 61516

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WORKSPACE: ARDOT Bridge
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REVISED DATE:

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6	ARK.			
JOB NO.		030458	71	98
(I) 07479		INT. BENT		61517

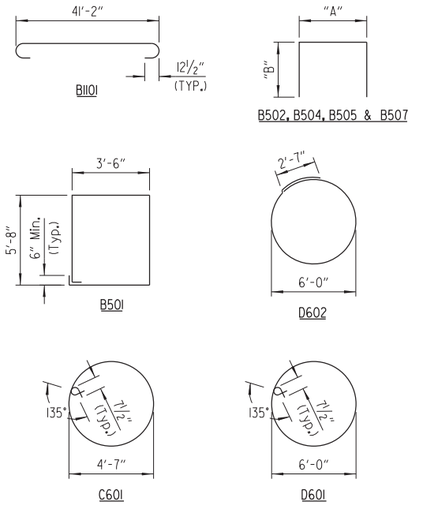
BAR LIST - PER BENT

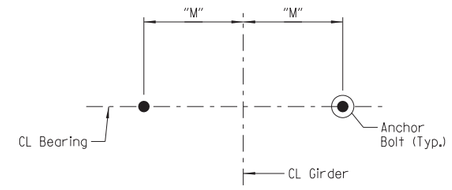
	MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
COMMON BARS	B501	124	18'-10"			2½"
	B502	14	15'-11½"	5'-2"	5'-6"	2½"
	B503	10	8'-4"			Str.
	B504	6	10'-4"	5'-6"	2'-6"	2½"
	B505	20	9'-10"	5'-0"	2'-6"	2½"
	B506	40	41'-2"			Str.
	B507	17	10'-0"	5'-2"	2'-6"	2½"
	B1101	10	44-2"			11¼"
	B1102	10	41'-2"			Str.
BENT NO. 2	C601	96	16'-0"			4½"
	C901	56	18'-0"			Str.
	(I) D601	244	20'-6"			4½"
	(I) D602	24	21'-3"			4½"
	(I) D1001	88	33'-3"			Str.
	(I) D1002	88	39'-3"			Str.
BENT NO. 3	C601	126	16'-0"			4½"
	C901	56	23'-0"			Str.
	(I) D601	276	20'-6"			4½"
	(I) D602	24	21'-3"			4½"
	(I) D1001	88	37'-3"			Str.
	(I) D1002	88	43'-3"			Str.
BENT NO. 4	C601	96	16'-0"			4½"
	C901	56	18'-0"			Str.
	(I) D601	212	20'-6"			4½"
	(I) D602	24	21'-3"			4½"
	(I) D1001	88	29'-3"			Str.
	(I) D1002	88	35'-3"			Str.

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

(I) Non-pay item. Subsidiary to the pay item "DRILLED SHAFT (84" DIAMETER)".

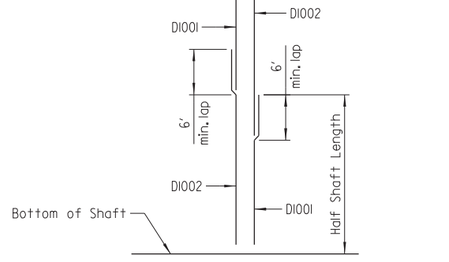
BAR BENDING DIAGRAMS





NOTE:
For Details of Elastomeric Bearings, see Dwg. No. 61518

TYPICAL ANCHOR BOLT LAYOUT
No Scale



DRILLED SHAFT LAP SPLICE DETAIL
No Scale

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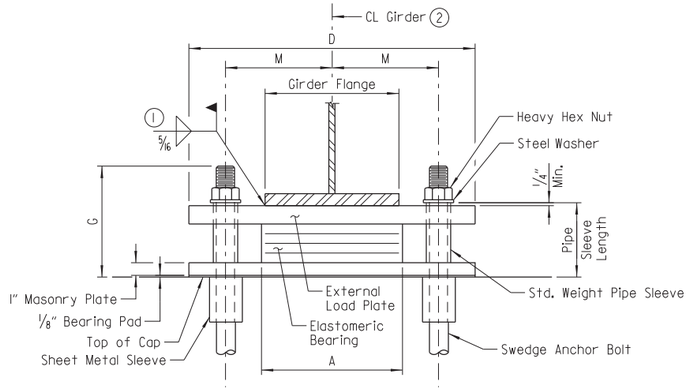
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SHEET 3 OF 3
INTERMEDIATE BENT DETAILS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

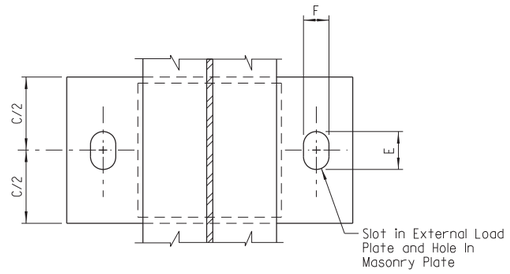
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WORKSPACE: ARDOT Bridge
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	72	98
				①	07479	ELASTOMERIC BEARINGS		61518



FRONT VIEW - AT BENT NOS. 1 & 5

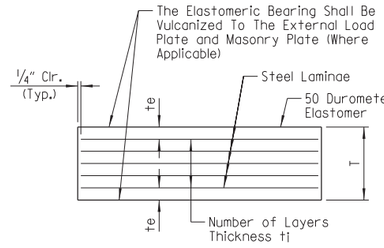


PLAN VIEW - AT BENT NOS. 1 & 5

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

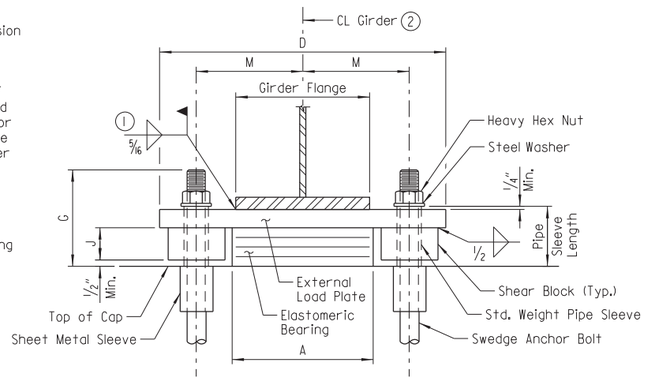
Care shall be taken to ensure that the external load plate is in full and complete contact with the girder flange before welding begins.

② CL elastomeric pad shall be aligned with CL girder.

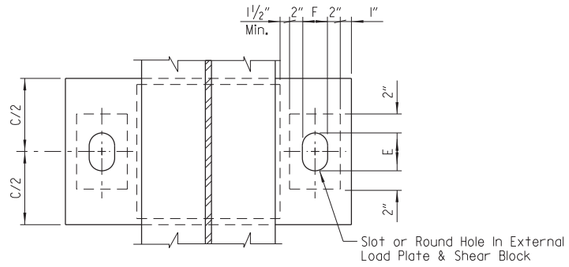


t_e = Thickness Of Elastomer Cover On Top And Bottom Of Pad
t_i = Thickness Of Elastomer Between Steel Laminae
N = Number Of Elastomer Layers Of Thickness t_i

ELASTOMERIC BEARING



FRONT VIEW - AT BENT NOS. 2, 3 & 4



PLAN VIEW - AT BENT NOS. 2, 3 & 4

GENERAL NOTES

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

External load plates, masonry plates and shear blocks shall conform to ASTM A709, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

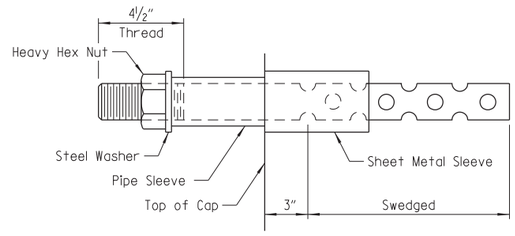
Anchor bolts, washers and nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "TABLE OF FABRICATOR VARIABLES". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe sleeves, anchor bolts, washers and nuts shall be paid for at the unit price bid for "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)". External load plates, masonry plates, 1/8" bearing pads and shear blocks will not be measured or paid for separately but will be considered incidental to the unit price bid for "ELASTOMERIC BEARINGS".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66.

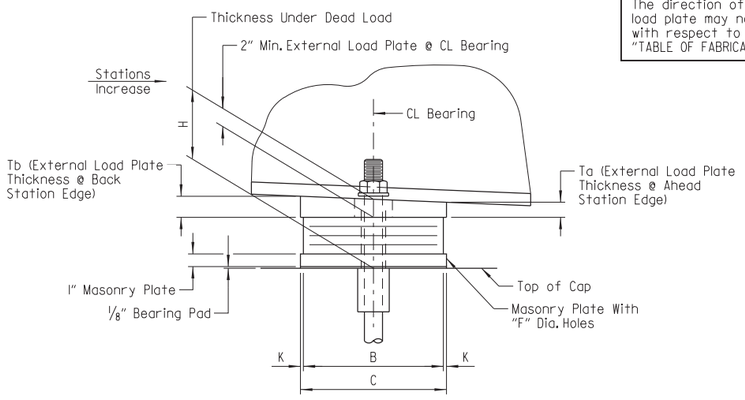
Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "ELASTOMERIC BEARINGS" and will not be paid for directly.

Prior to erection of the girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.

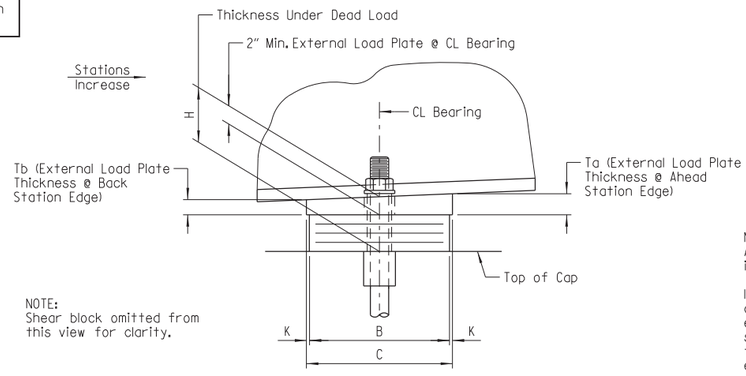


ANCHOR BOLT DETAIL

NOTE:
The direction of the bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in "TABLE OF FABRICATOR VARIABLES".



SIDE VIEW - AT BENT NOS. 1 & 5



NOTE:
Shear block omitted from this view for clarity.

SIDE VIEW - AT BENT NOS. 2, 3 & 4

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

If anchor bolts are to be drilled and grouted in place, the galvanized sheet metal sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Sheet metal sleeves will not be paid for directly but will be considered subsidiary to the item "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)".

③ Maximum Design Load = Service I Limit State

④ Shear blocks 4" or thicker may be fabricated from built-up plates with a 5/16" groove weld on all sides. No plate shall be less than 2" nominal thickness.

TABLE OF FABRICATOR VARIABLES

Location		Bearing Type	No. Of Bearings Each Bent	③Maximum Design Load (Kips)	Elastomeric Pad							External Load Plate									Anchor Bolt				
Bent No.	Girder No.				G	H	A	B	N	t_i	t_e	No. & Thickness Of Steel Laminae	T	C	D	E	F	④ J	K	M	T_a	T_b	Anchor Bolt (Dia. x L)	Anchor Bolt Grade	Pipe Sleeve Size (Dia. x L)	Sheet Metal Sleeve Size (Dia. x L)	Steel Washer Size (O.D.)
1	All	Exp.	5	139	10 7/8"	7 7/8"	14"	11"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	12"	25 1/2"	6 1/2"	2 5/8"	-	1/2"	9 3/4"	2.05"	1.95"	1 3/4" x 33"	55	2" x 8 1/8"	4" x 8"	3 3/8"
2	All	Exp.	5	418	10"	6 3/4"	22"	12"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	13"	41 1/4"	5 1/2"	3 1/8"	4 1/4"	1/2"	16 1/16"	2.05"	1.95"	2" x 34"	55	2 1/2" x 7"	4" x 8"	3 3/4"
3	All	Fixed	5	471	9 1/16"	5 3/16"	22"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	13"	41 1/4"	3 1/8"	3 1/8"	3 1/16"	1/2"	16 1/16"	2.00"	2.00"	2 1/4" x 36"	55	2 1/2" x 5 13/16"	4" x 8"	4"
4	All	Exp.	5	418	10"	6 3/4"	22"	12"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	13"	41 1/4"	5 1/2"	3 1/8"	4 1/4"	1/2"	16 1/16"	1.95"	2.05"	2" x 34"	55	2 1/2" x 7"	4" x 8"	3 3/4"
5	All	Exp.	5	139	10 7/8"	7 7/8"	14"	11"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	12"	25 1/2"	6 1/2"	2 5/8"	-	1/2"	9 3/4"	1.95"	2.05"	1 3/4" x 33"	55	2" x 8 1/8"	4" x 8"	3 3/8"

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DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

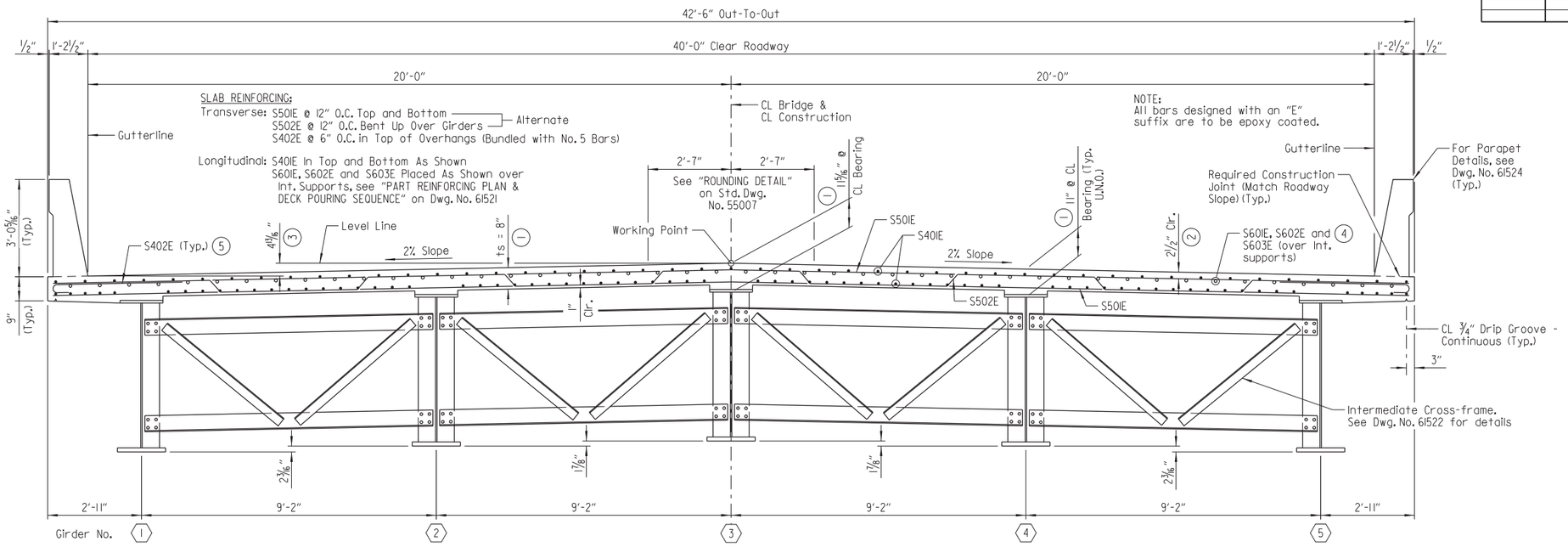
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CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
DESIGNED BY: RHE DATE: SEP. 2019

BRIDGE NO. 07479 DRAWING NO. 61518

abhall 3/18/2020 11:23:39 AM
WORKSPACE: ARDOT Bridge
L:\2017\17017550 - Little Missouri River and Relief\Drawings\B030458x2_S30i.BG (River Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	73	98
(1) 07479		500' PL GIRDER UNIT		61519



TYPICAL ROADWAY SECTION

(Looking Ahead)
Scale: 1/2" = 1'-0"

EXPANSION DEVICE:

Rdwy. Channel - MC18x42.7
Conn. Angles - Split C15x33.9
Detail Device 1/8" High And Provide 1/4" Shims Using 2 - 1/16" And 1 - 1/8" Plates

LEGEND

U.N.O. = Unless Noted Otherwise

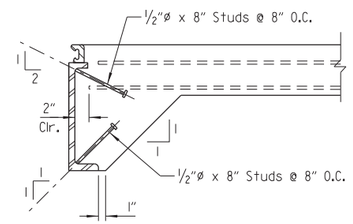
(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(2) TOLERANCE:
Minus = 1/4"
Plus = Amount of slab thickening used to meet slab thickness tolerance - See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(3) Working Point to Gutterline

(4) See "PART REINFORCING PLAN & DECK POURING SEQUENCE" on Dwg. No. 61521 for more information.

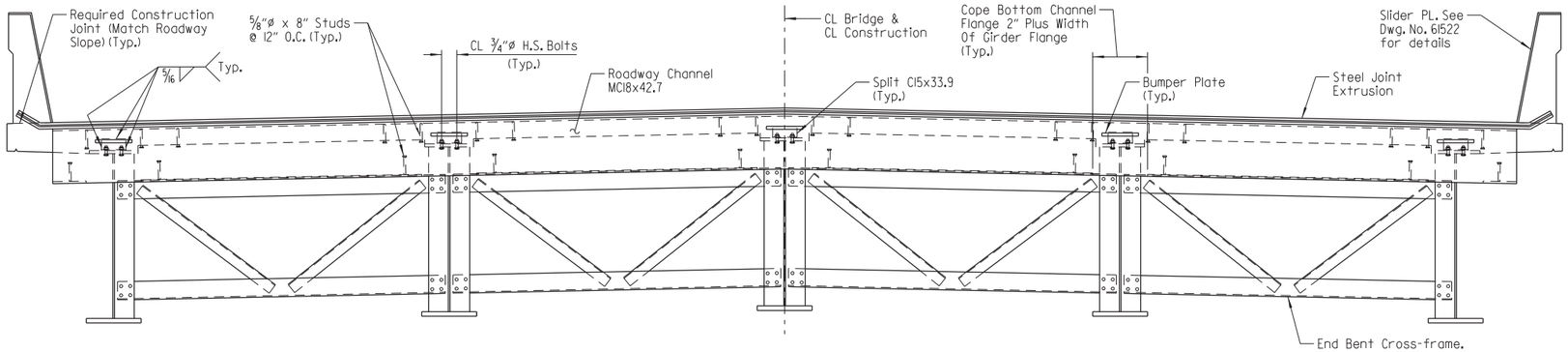
(5) Bundle with S501E and S502E (Typ. In Overhang). Rotate S402E as required to provide clearance to hooks.



DETAIL OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

NOTE:
As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of Structural Steel in anchors.



TYPICAL SECTION THRU STRIP SEAL JOINT

(Looking Ahead - Bent No. 1)
Scale: 1/2" = 1'-0"

NOTES:
For Standard General Notes and Details, see Std. Dwg. Nos. 55006 & 55007.

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

The bridge deck shall be given a polymer overlay as specified in Special Provision Job No. 030458 "POLYMER OVERLAY".

At the Contractor's option, two straight epoxy coated No. 5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

For "SCREED RAIL SUPPORT FOR PLATE GIRDERS", see Std. Dwg. No. 55007.

NOTE:
For additional details of Strip Seal Joint, see Std. Dwg. No. 55009 & Dwg. No. 61522.

STRIP SEAL JOINT DATA

Bent No.	Movement Rating	"A" Width Perpendicular To Joint At 24 Hour Average Temperature (6) Of:			"B" Width Perpendicular To Joint At 24 Hour Average Temperature (6) Of:			"C" Perpendicular To Joint At 24 Hour Average Temperature Of 60°F
		40°F	60°F	80°F	40°F	60°F	80°F	
1 & 5	4"	2 3/8"	2"	1 5/8"	2 7/8"	2 1/2"	2 1/8"	2 1/2"±

(6) The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature.

Installation is limited to 40°F min. and 80°F max. Interpolation of the table may be necessary. The temperature limitations of the lubricant-adhesive Manufacturer shall be observed.

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SHEET 1 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

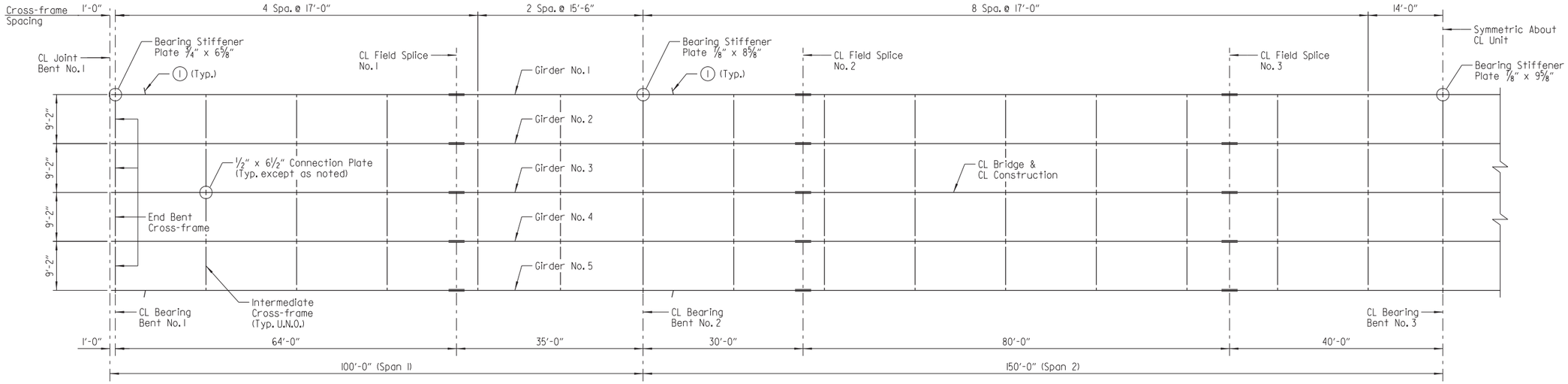
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CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
DESIGNED BY: RH DATE: SEP. 2019

BRIDGE NO. 07479 DRAWING NO. 61519

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WORKSPACE: ARDOT Bridge
L:\20\7\1017550 - Little Missouri River and Relief\Drawings\B030458x2_S401_SX (River Bridge).dgn
REVISED DATE:

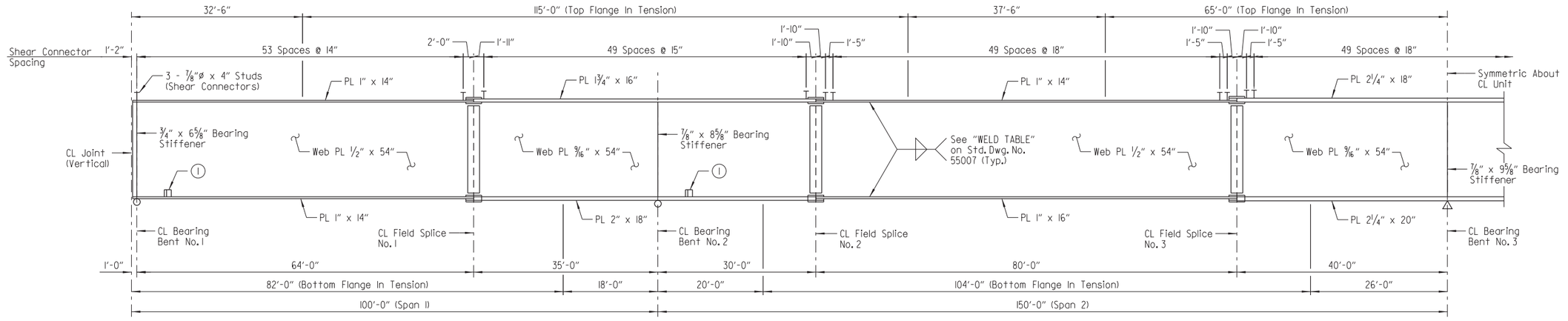
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	74	98
(1) 07479		500' PL GIRDER UNIT		61520



PART FRAMING PLAN

Scale: 3/32 " = 1'-0"



PART GIRDER ELEVATION

No Scale

(1) Drip plate welded to the outer side of the bottom flange of the exterior girders. Locate drip plates 5'-0" from CL Bearing at locations shown. See "BOTTOM FLANGE DRIP PLATE" on Std. Dwg. No. 55007 for additional details. Stop drip plate weld 1" from face of web.

NOTES:
For Standard General Notes, see Std. Dwg. No. 55006.

All structural steel shall be ASTM A709, Gr. 50W unless noted otherwise and shall be paid for at the unit price per pound bid for "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)".

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.

For "DETAILS OF WELDED SPLICES FOR PLATE GIRDERS" and "SHEAR CONNECTOR DETAIL", see Std. Dwg. No. 55007.

For cross-frame and stiffener details, see Std. Dwg. No. 61522.

For details of field splices, see Dwg. No. 61523.

For painting of girder ends, see "GENERAL NOTES" on Dwg. No. 61510.

LEGEND

U.N.O. - Unless Noted Otherwise

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No. 8017
JOHN H. RUDDELL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: SEP. 2019 FILENAME: b030458x2_s2.dgn
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DESIGNED BY: RH DATE: SEP. 2019

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REVISED DATE:

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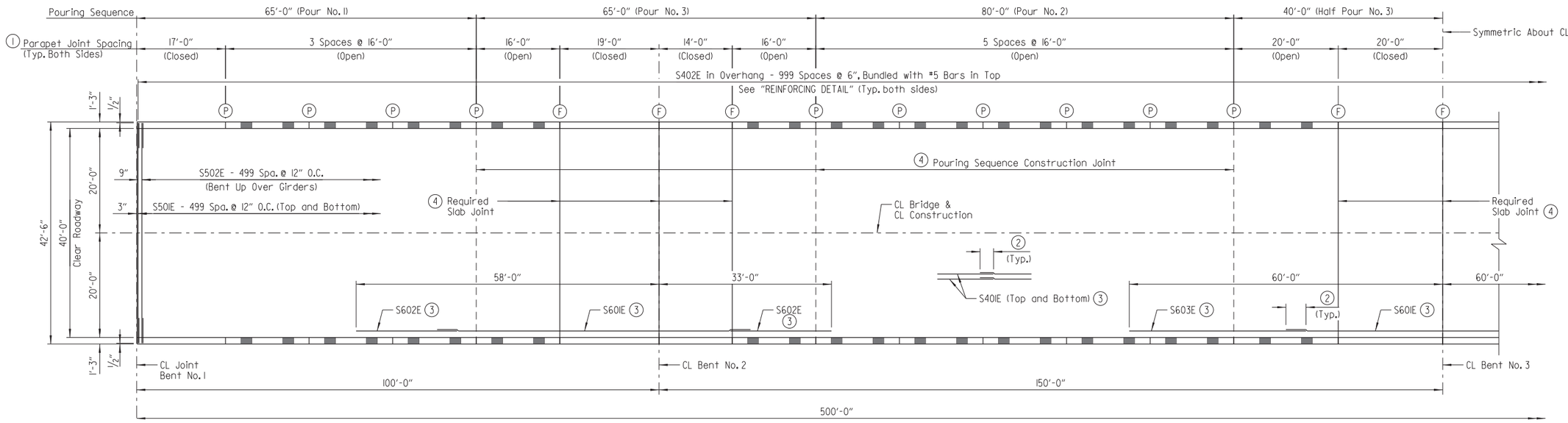
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6	ARK.			
JOB NO.		030458	75	98
(1) 07479		500' PL GIRDER UNIT		61521

(1) Parapet joint spacing (measured along roadway face of railing) - Parapet joints designated with symbol (F) shall be stopped 4" from top of slab. All other parapet joints with symbol (P) shall be partial depth joints stopped 1'-4" from top of slab.

(2) #4 Bar = 2'-7" Min. Lap
#6 Bar = 3'-10" Min. Lap

(3) Place as shown in "TYPICAL ROADWAY SECTION" on Dwg. No. 61519.

(4) See "TRANSVERSE SLAB JOINT DETAIL" on Std. Dwg. No. 55007.

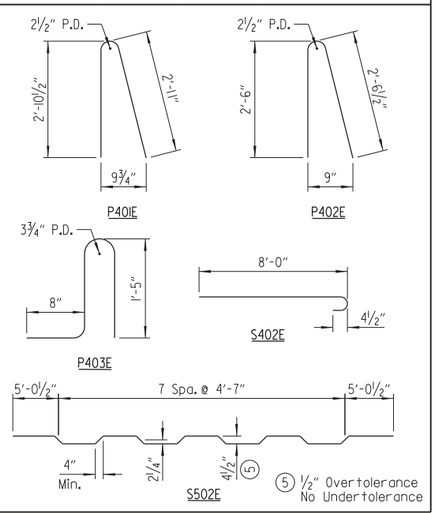


PART REINFORCING PLAN & DECK POURING SEQUENCE

Scale: 3/32 " = 1'-0"

BAR LIST			
MARK	NO. REQ'D	LENGTH	P.D.
P401E	1840	5'-11"	2½"
P402E	352	5'-2"	2½"
P403E	1840	3'-7"	3"
P404E	160	5'-8"	Str.
P405E	32	16'-8"	Str.
P406E	320	15'-8"	Str.
P407E	32	18'-8"	Str.
P408E	32	13'-8"	Str.
P409E	64	19'-8"	Str.
S401E	1638	38'-2"	Str.
S402E	2000	8'-6"	6"
S501E	1000	42'-2"	Str.
S502E	500	43'-0"	3"
S601E	138	60'-0"	Str.
S602E	184	19'-4"	Str.
S603E	92	33'-10"	Str.

BAR BENDING DIAGRAMS



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

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

NOTES:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3) 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.

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.

72 hours shall elapse between the completion of the entire deck slab and the start of a railing pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

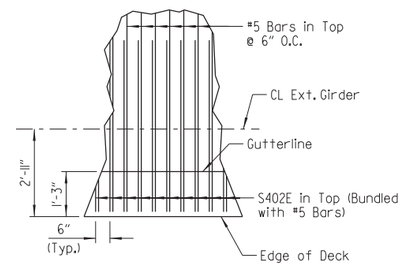
No deviations from the pouring sequence shown will be allowed.

Required slab joints and pouring sequence joints shall align with the parapet joint at the front face of parapet.

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

Unless noted otherwise, spacing shown for all transverse reinforcing is measured along CL Bridge.

For parapet reinforcing details, see Dwg. No. 61524.



REINFORCING DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 8017
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SHEET 3 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT

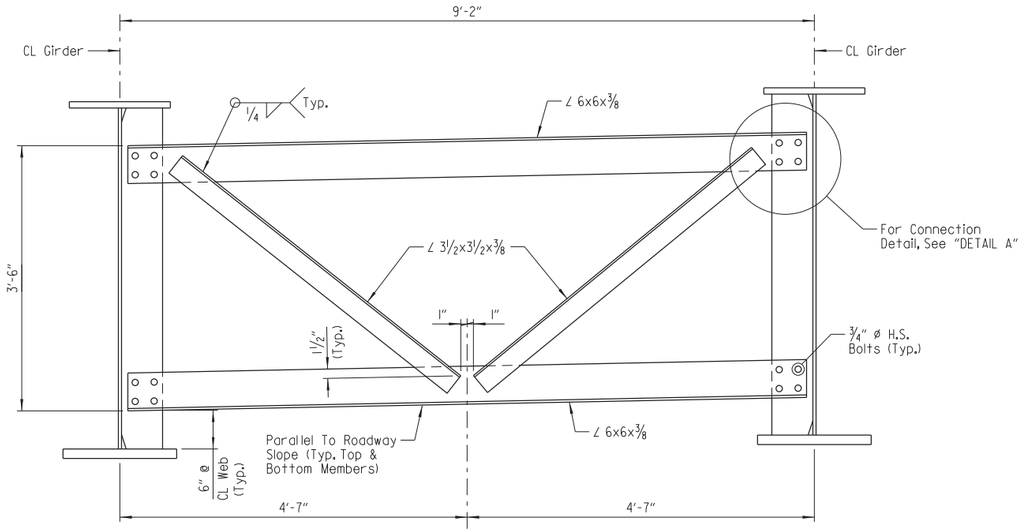
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ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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BRIDGE NO. 07479 DRAWING NO. 61521

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L:\2017\170\7550 - Little Missouri River and Relief\Drawings\b030458x2_S403.SB (River Bridge).dgn
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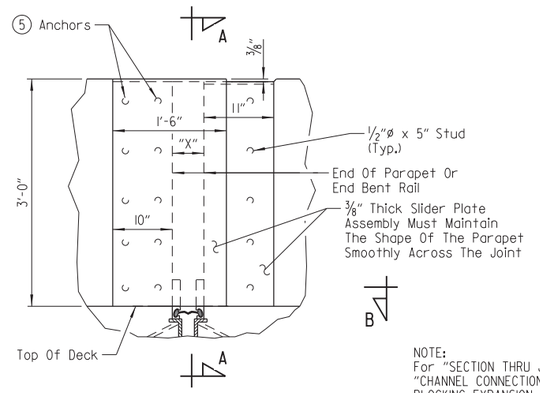
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				6	ARK.			
				JOB NO.		030458	76	98
				(1) 07479		500' PL GIRDER UNIT		61522



NOTE:
Cross-frames at end bents shall be fabricated such that horizontal legs of cross-frame members point away from CL Joint.

CROSS-FRAME DETAIL

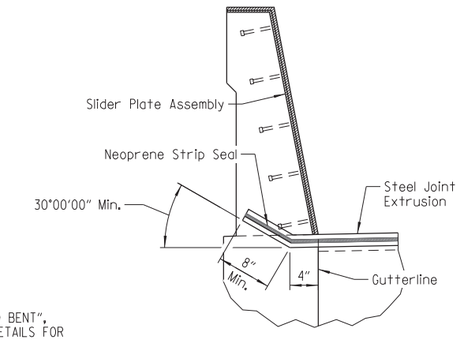
Scale: 1" = 1'-0"



DETAILS OF PARAPET SLIDER PLATES

Scale: 1" = 1'-0"

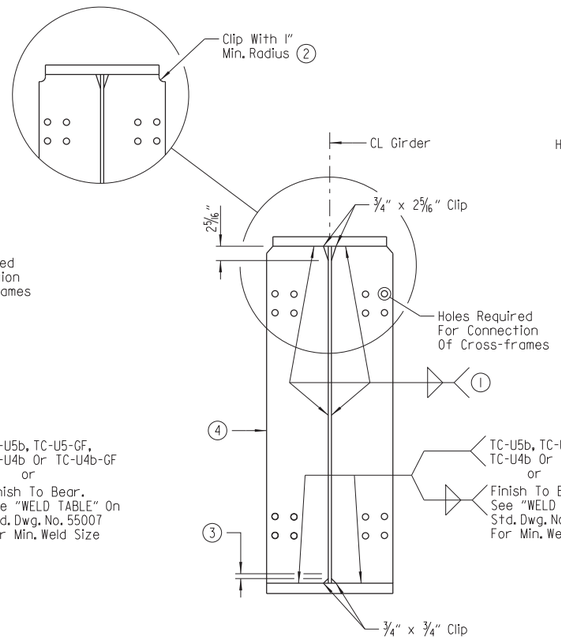
NOTE:
For "SECTION THRU JOINT AT END BENT", "CHANNEL CONNECTION DETAIL", "DETAILS FOR BLOCKING EXPANSION JOINT DEVICE", "DETAILS OF STRIP SEAL JOINT" and General Notes for Neoprene Strip Seal Joints, see Std. Dwg. No. 55009.



SECTION A-A

Scale: 1" = 1'-0"

NOTE:
Details of joint turn-up in parapet are general and show basic design controls only. See Section 809. Method of installation and fabrication shall be determined by the Manufacturer.



CROSS-FRAME CONNECTION PLATE DETAIL

Scale: 1" = 1'-0"

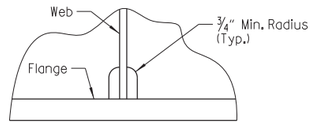
BEARING STIFFENER @ BENT NOS. 1 & 5

Scale: 1" = 1'-0"

BEARING STIFFENER @ BENT NOS. 2, 3 & 4

Scale: 1" = 1'-0"

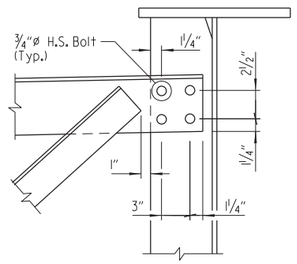
NOTE:
Bearing stiffeners shall be fabricated to be vertical in their final positions. Bearing Stiffeners are to be placed on both sides of all girder webs at Bent locations.



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

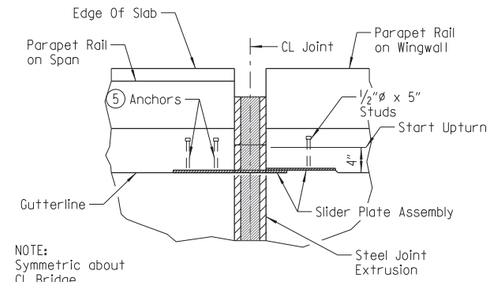
ALTERNATE CLIP DETAIL

(For Bearing Stiffeners and Cross-frame Connection Plates)
No Scale



DETAIL A

Scale: 1 1/2" = 1'-0"



NOTE:
Symmetric about CL Bridge.

SECTION B-B

Scale: 1" = 1'-0"

(5) The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors will not be paid for directly but will be considered subsidiary to "ARMORED JOINT WITH NEOPRENE STRIP SEAL".

Method of installation and fabrication shall be determined by the Manufacturer.

NOTE:
For "TABLE OF DEAD LOAD DEFLECTIONS", see Dwg. No. 61523.

(1) See "WELD TABLE" on Std. Dwg. No. 55007 For Min. Weld Size.

(2) If permanent deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form supports.

(3) Stop weld 1/4" to 1" from end of clip (Typ.)

(4) See "PART FRAMING PLAN" and "PART GIRDER ELEVATION" on Dwg. No. 61520 for sizes and locations.

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SHEET 4 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT

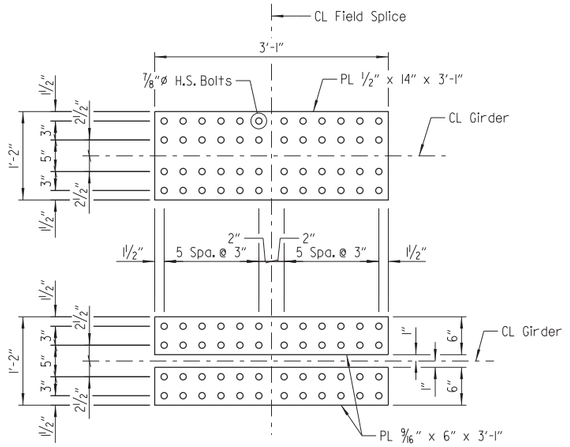
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ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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BRIDGE NO. 07479 DRAWING NO. 61522

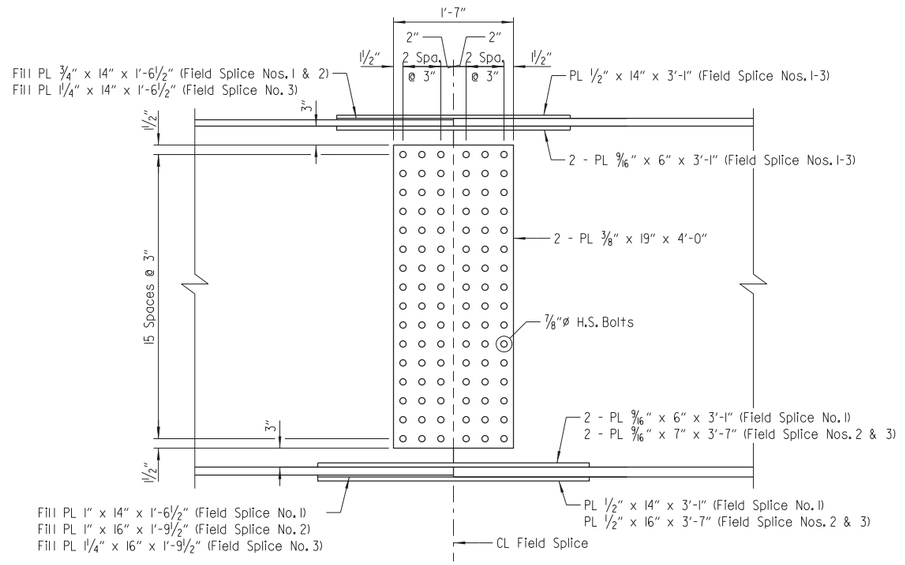
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	77	98
				(1) 07479		500' PL GIRDER UNIT		61523



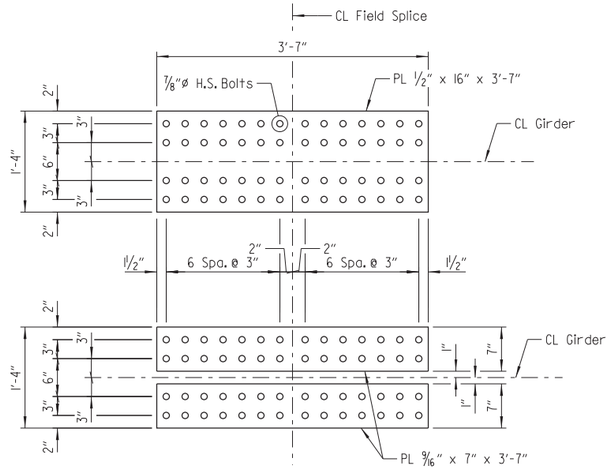
TOP FLANGE SPLICE - FIELD SPLICE NOS. 1-3
BOTTOM FLANGE SPLICE - FIELD SPLICE NO. 1

Scale: 1" = 1'-0"



ELEVATION OF FIELD SPLICE

Scale: 1" = 1'-0"



BOTTOM FLANGE SPLICE - FIELD SPLICE NOS. 2 & 3

Scale: 1" = 1'-0"

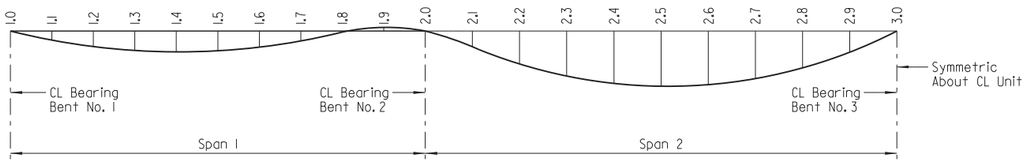
NOTES:
All field splice bolts shall be 7/8"ø high-strength bolts.

All holes for field splice bolts shall be 15/16 "ø.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Point Of Deflection	Girders 1 & 5			Girders 2-4		
	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet
1.0	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.066	0.308	0.333	0.069	0.359	0.382
1.2	0.119	0.553	0.598	0.125	0.646	0.688
1.3	0.151	0.696	0.752	0.158	0.812	0.865
1.4	0.158	0.720	0.778	0.166	0.840	0.895
1.5	0.141	0.631	0.681	0.148	0.735	0.783
1.6	0.105	0.458	0.494	0.110	0.533	0.567
1.7	0.062	0.256	0.275	0.065	0.297	0.315
1.8	0.022	0.076	0.081	0.023	0.088	0.092
1.9	-0.004	-0.031	-0.035	-0.004	-0.036	-0.040
2.0	0.000	0.000	0.000	0.000	0.000	0.000
2.1	0.079	0.381	0.416	0.084	0.447	0.481
2.2	0.209	0.993	1.083	0.220	1.159	1.245
2.3	0.344	1.625	1.771	0.362	1.897	2.036
2.4	0.439	2.059	2.243	0.462	2.404	2.579
2.5	0.463	2.153	2.345	0.487	2.513	2.696
2.6	0.410	1.882	2.051	0.431	2.196	2.357
2.7	0.297	1.339	1.461	0.312	1.561	1.677
2.8	0.163	0.724	0.790	0.171	0.843	0.906
2.9	0.050	0.218	0.238	0.052	0.253	0.272
3.0	0.000	0.000	0.000	0.000	0.000	0.000

This table is symmetric about CL Unit.



PART DEAD LOAD DEFLECTION

No Scale

Camber for Dead Load Deflection plus vertical curve +/- 1/4" tolerance. Deflections shown are along CL Girder from a chord from CL Bearing to CL Bearing. Negative sign (-) indicates a point above chord. Vertical curve corrections not included.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 8017
JOHN H. RUDDELL
DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

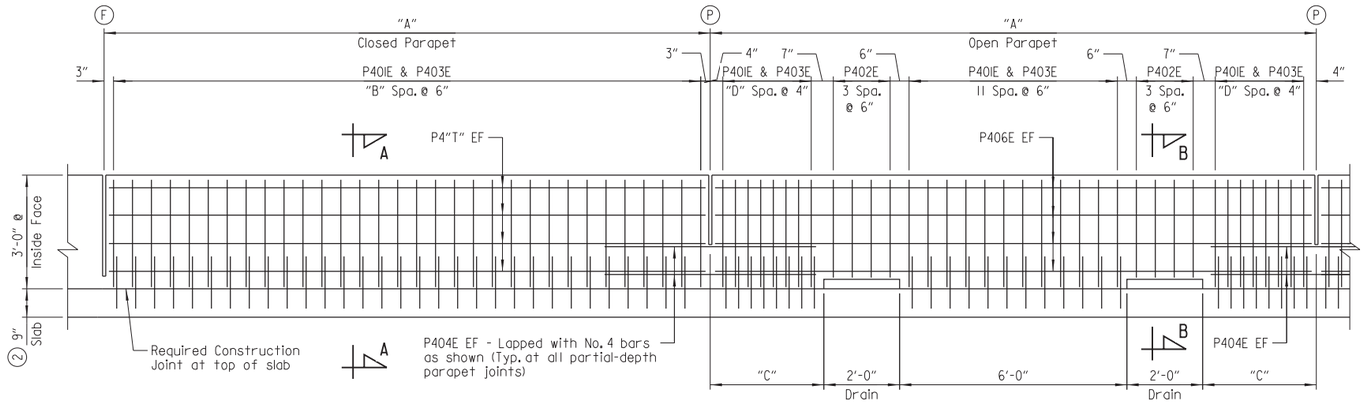
SHEET 5 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: SEP. 2019 FILENAME: b030458x2_s5.dgn
CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
DESIGNED BY: RH DATE: SEP.2019
BRIDGE NO. 07479 DRAWING NO. 61523

abnall 3/18/2020 11:23:42 AM
WORKSPACE: ARDOT Bridge
L:\2017\1701750 - Little Missouri River and Relief\Drawings\B030458x2_S405_SD2 (River Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	78	98
(1) 07479		500' PL GIRDER UNIT		61524



(2) Measured at edge of deck.

DETAILS OF PARAPET RAIL

Scale: 1/2" = 1'-0"

TABLE OF PARAPET VARIABLES				
PANEL LENGTH		CLOSED PARAPET	OPEN PARAPET	
"A"	"T"	"B"	"C"	"D"
17'-0"	05E	33	-	-
16'-0"	06E	-	3'-0"	7
19'-0"	07E	37	-	-
14'-0"	08E	27	-	-
20'-0"	09E	39	5'-0"	13

LEGEND

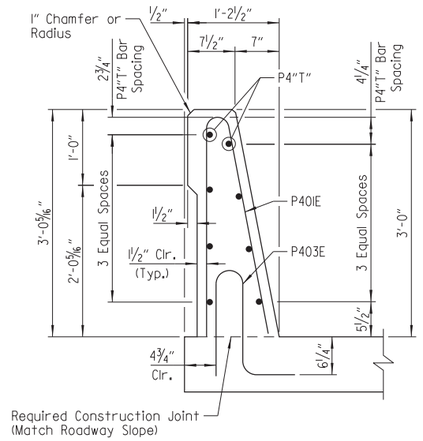
EF = Each Face

(F) CL Full-Depth Parapet Joint (1/4"-1" max.) Stop 4" from Top of Slab.

(P) CL Partial-Depth Parapet Joint (1/4"-1" max.) Stop 1'-4" from Top of Slab.

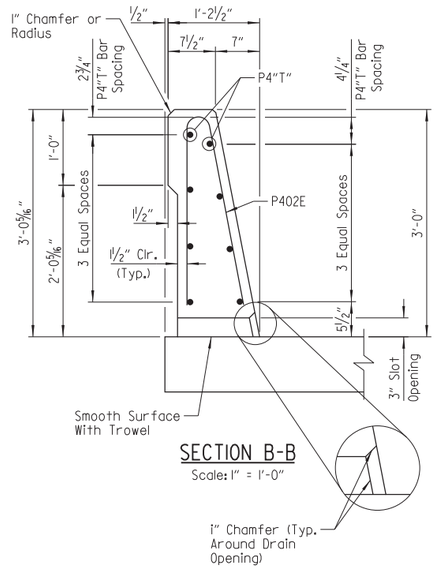
NOTE:
For locations of full-depth and partial-depth parapet joints, see "PART REINFORCING PLAN AND DECK POURING SEQUENCE" on Dwg. No. 61521.

For locations of open and closed parapet panels, see Dwg. No. 61521.



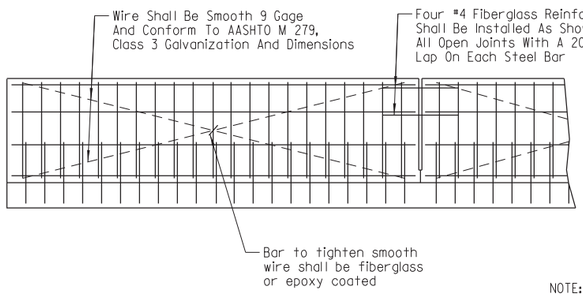
SECTION A-A

Scale: 1" = 1'-0"

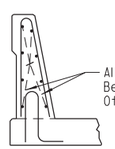


SECTION B-B

Scale: 1" = 1'-0"



NOTE:
For actual placement of reinforcing steel, see "DETAILS OF PARAPET RAIL".

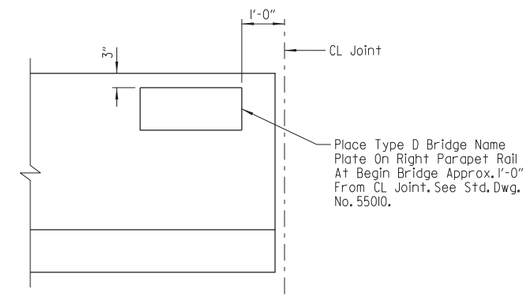


NOTE:
All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

NOTE:
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



VIEW SHOWING LOCATION OF NAME PLATE

(Showing Inside Face Of Parapet)
No Scale

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

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 500'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

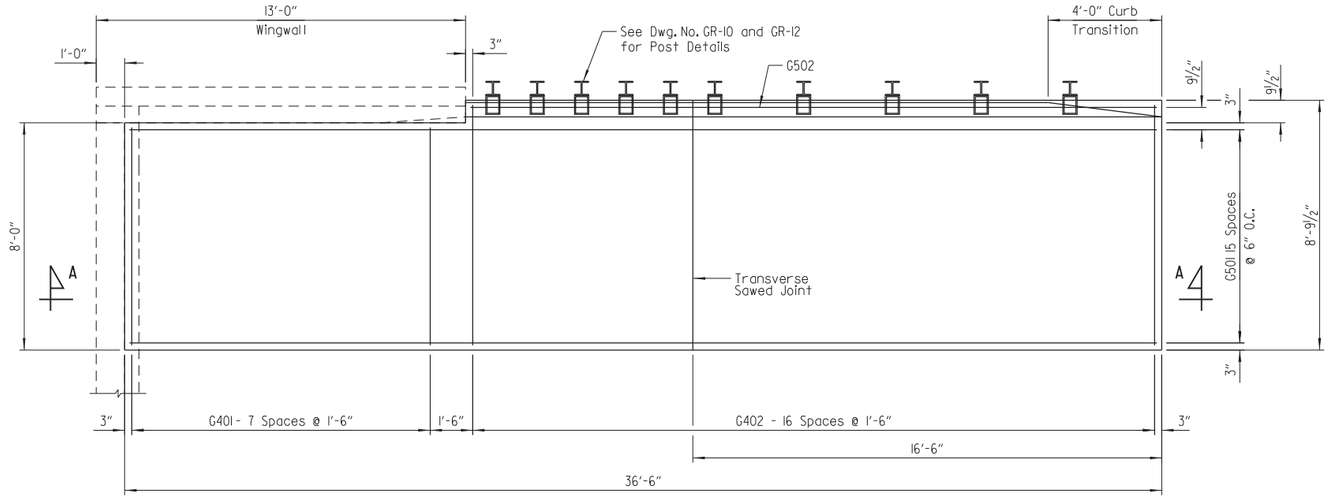
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: SEP. 2019 FILENAME: b030458x2_s6.dgn
CHECKED BY: JHR DATE: DEC. 2019 SCALE: As Shown
DESIGNED BY: RH DATE: SEP. 2019

BRIDGE NO. 07479 DRAWING NO. 61524

abhall 3/18/2020 11:23:43 AM
WORKSPACE: ARDOT Bridge
L:\20TN\T017550 - Little Missouri River and Relief\Drawings\B030458x2_S406_PT (River Bridge).dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		030458	79	98
				(1) 07479		APPR. GUTTER		61525

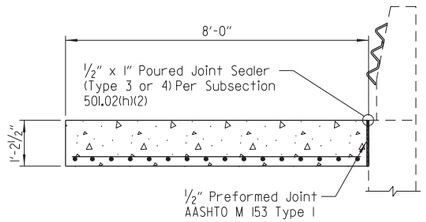


HALF PLAN OF APPROACH GUTTERS

Scale: ⅜" = 1'-0"

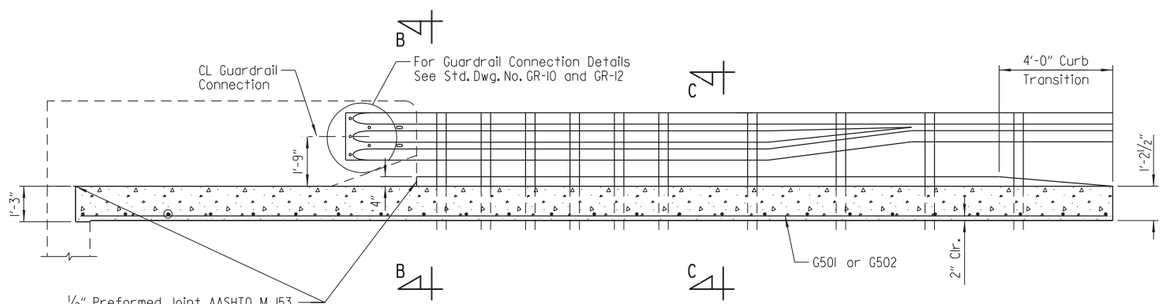
BAR LIST		
MARK	NO. REQ'D	LENGTH
G401	8	7'-8"
G402	17	8'-5"
G501	16	36'-2"
G502	1	24'-2"

NOTE:
Number of bars shown is for one gutter.



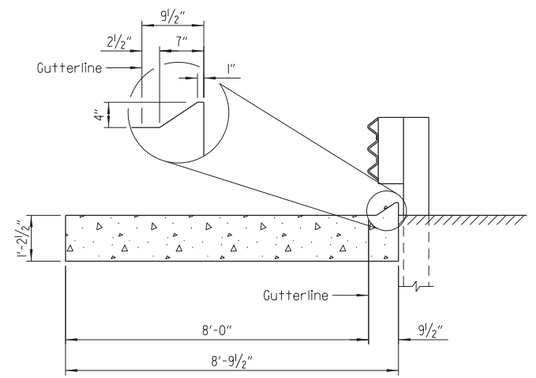
SECTION B-B

Scale: ½" = 1'-0"



SECTION A-A

Scale: ⅜" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
765	14.20

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.

Approch Gutters will be measured and paid for in accordance with Section 504.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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JOHN H. RUDDELL

DIGITALLY SIGNED 4/10/2020
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

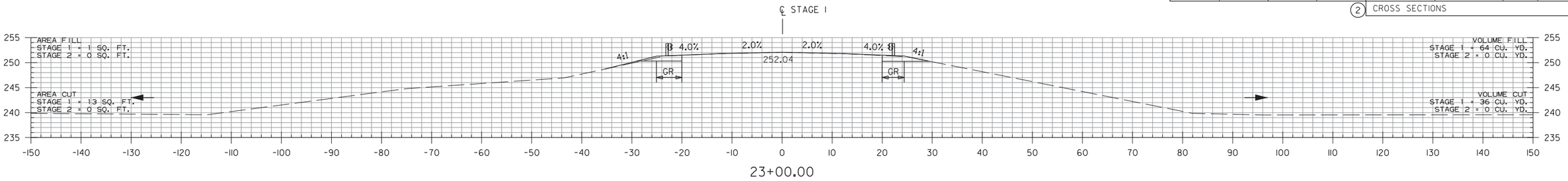
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CHECKED BY: WMM DATE: FEB. 2020 SCALE: As Shown
DESIGNED BY: JHR DATE: FEB. 2020

BRIDGE NO. 07479 DRAWING NO. 61525

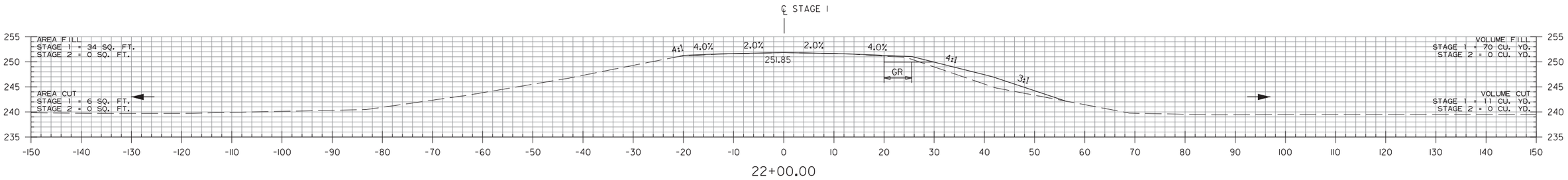
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	80	98

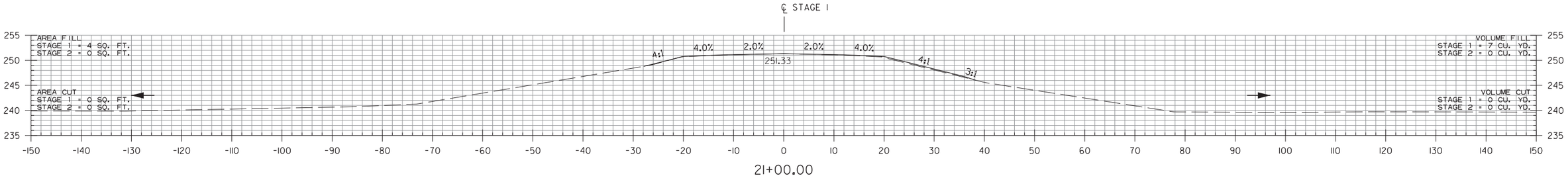
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23+00.00

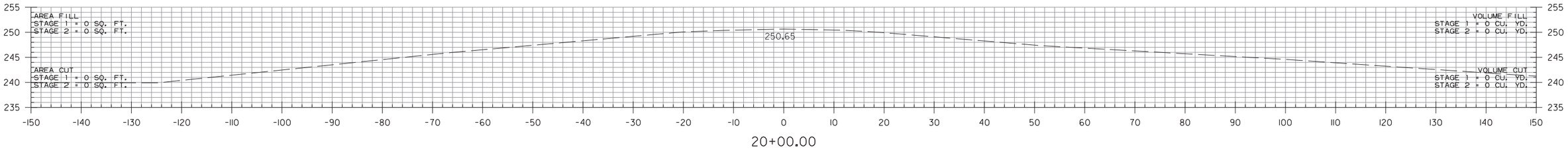


22+00.00



21+00.00

STA. 21+00.00 BEGIN JOB 030458



20+00.00

STA. 20+00 TO STA. 23+00

DLTackett 4/9/2020 3:13:37 PM
WORKSPACE: AHTD
L:\2017\170175\0 - Little Missouri River and Relief\Drawings\R030458_CX_HWY 19.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	81	98

(2) CROSS SECTIONS

AREA FILL
STAGE 1 = 151 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME FILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

STA. 28+54.96 END BRIDGE

AREA CUT
STAGE 1 = 3 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

NOTE: SEE BRIDGE LAYOUTS FOR IMPROVEMENTS
BETWEEN STA. 24+29.96 TO STA. 28+54.96

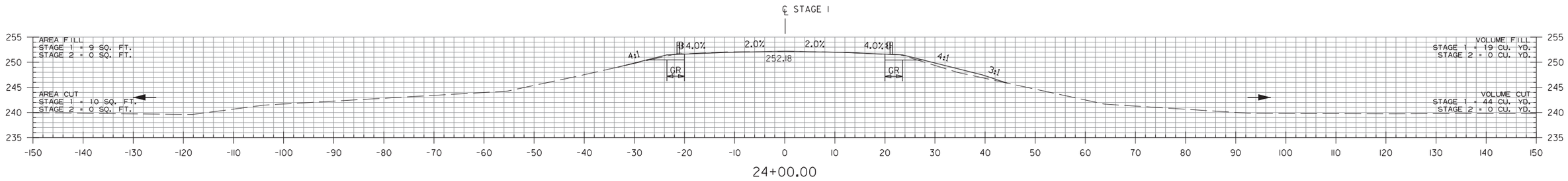
AREA FILL
STAGE 1 = 9 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME FILL
STAGE 1 = 10 CU. YD.
STAGE 2 = 0 CU. YD.

STA. 24+29.96 BEGIN BRIDGE

AREA CUT
STAGE 1 = 10 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME CUT
STAGE 1 = 11 CU. YD.
STAGE 2 = 0 CU. YD.

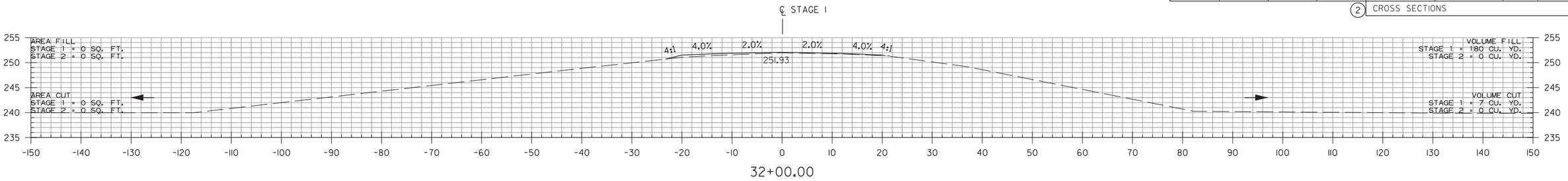


STA. 24+00 TO STA. 28+00

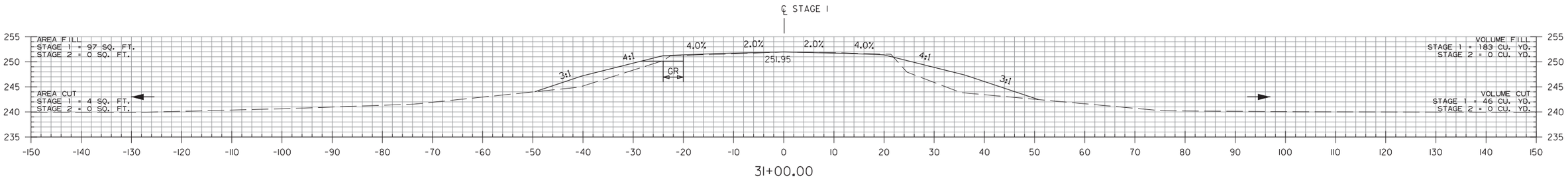
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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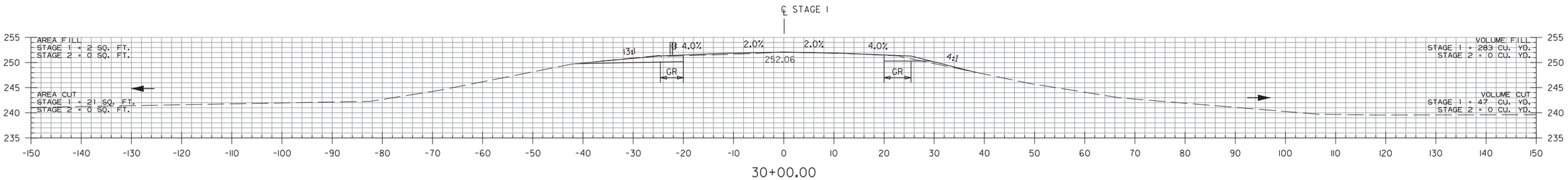
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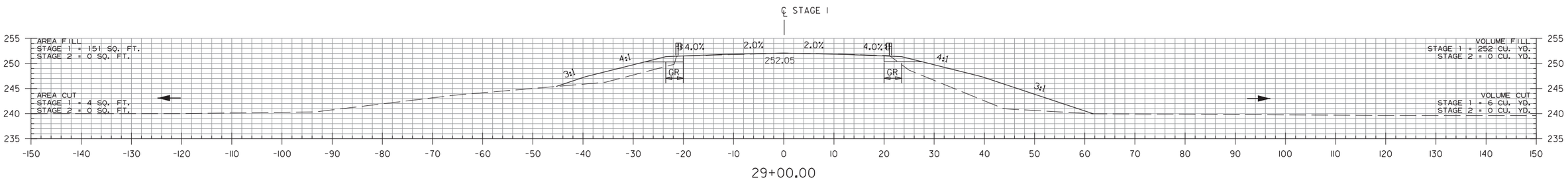
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31+00.00



30+00.00



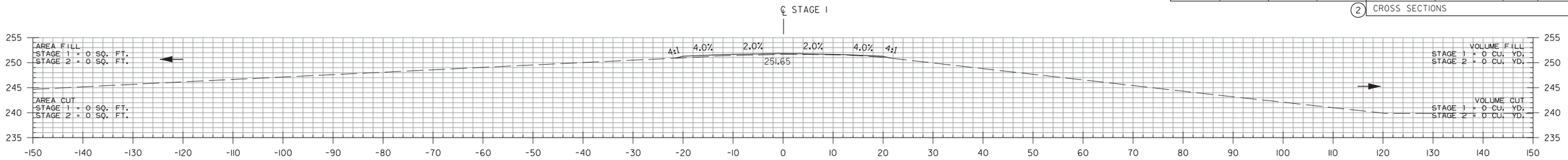
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STA. 29+00 TO STA. 32+00

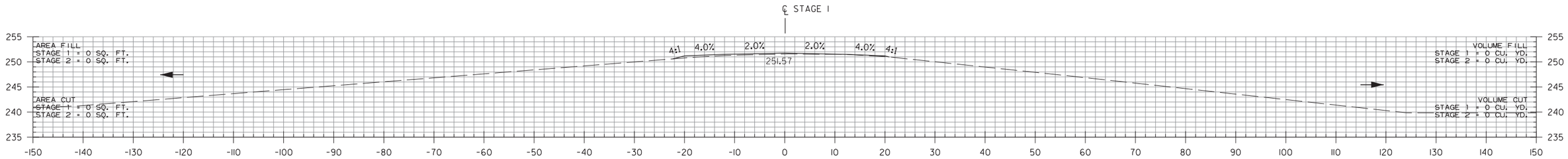
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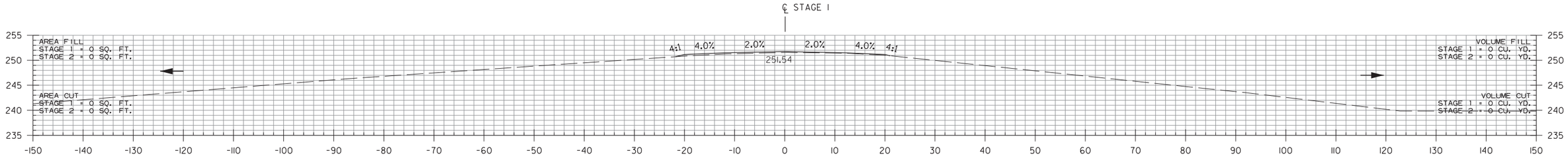
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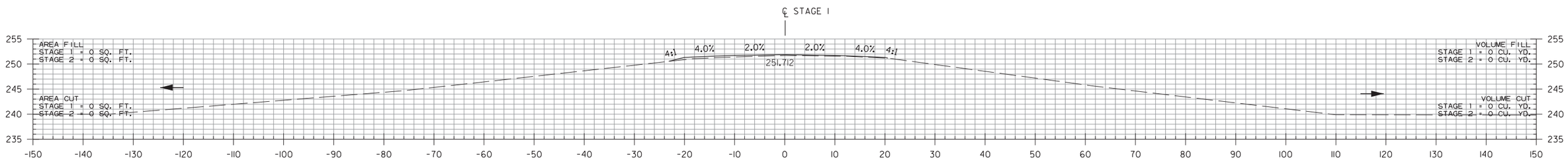
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34+00.00



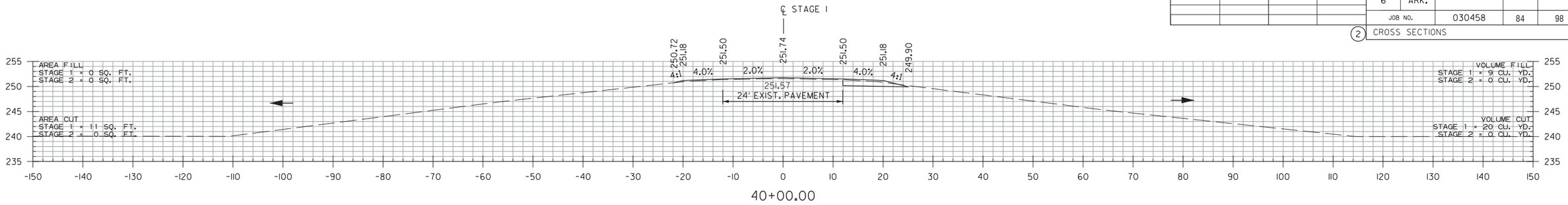
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STA. 33+00 TO STA. 36+00

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REVISED DATE:

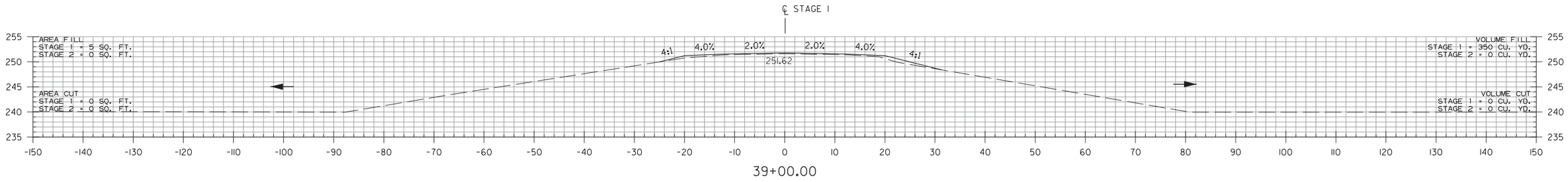
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(2) CROSS SECTIONS

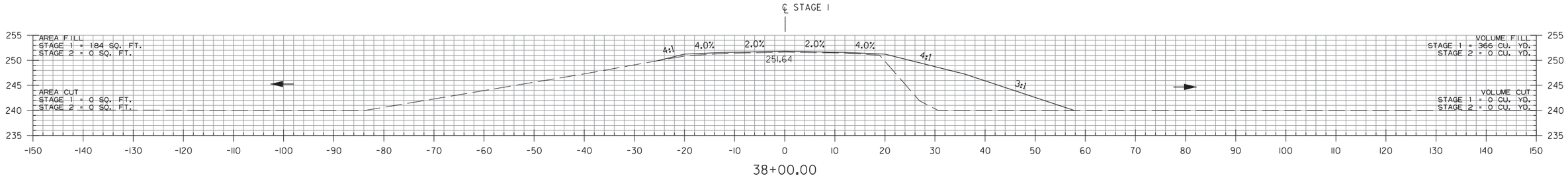


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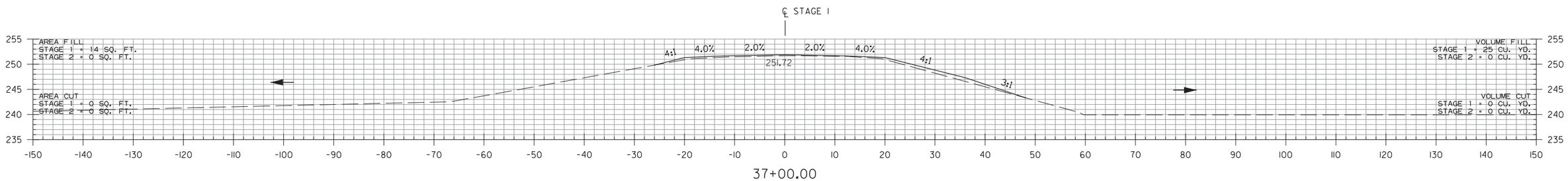
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39+00.00



38+00.00



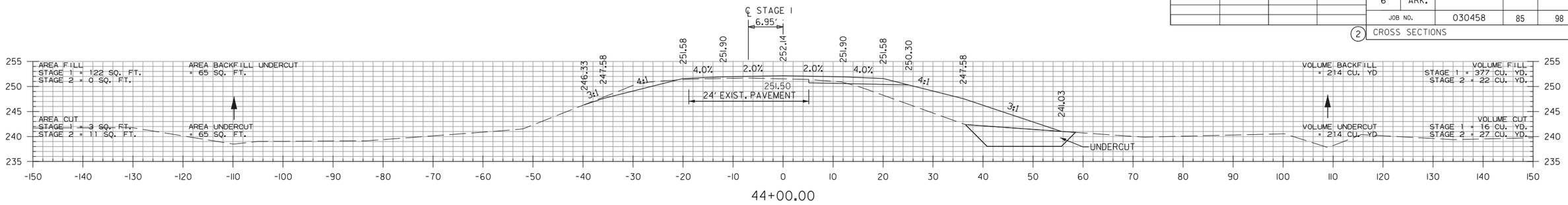
37+00.00

STA. 37+00 TO STA. 40+00

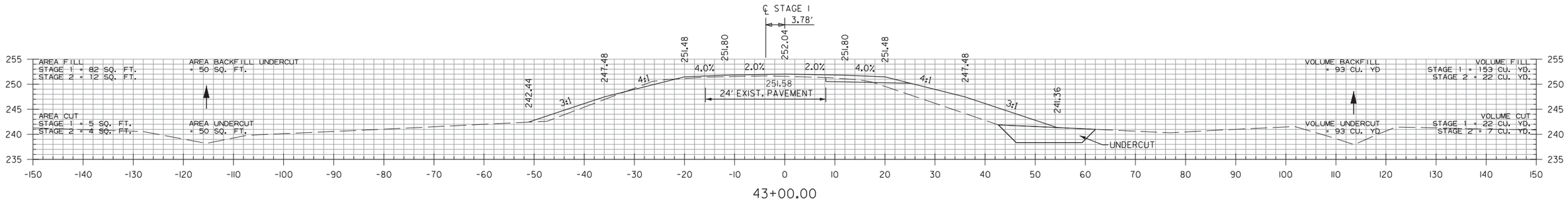
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REVISED DATE:

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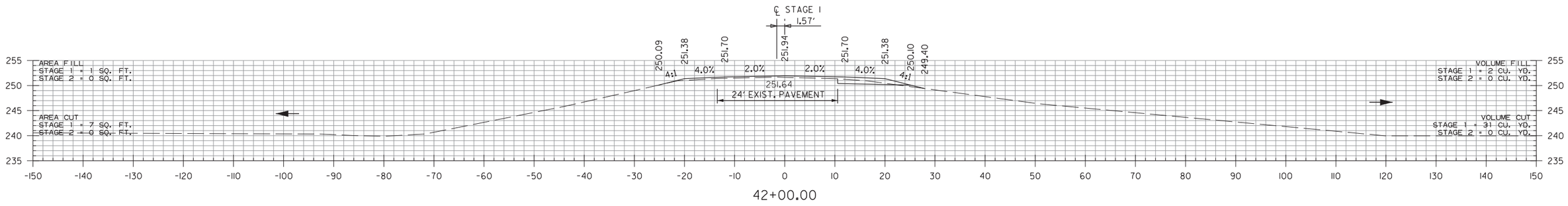
(2) CROSS SECTIONS



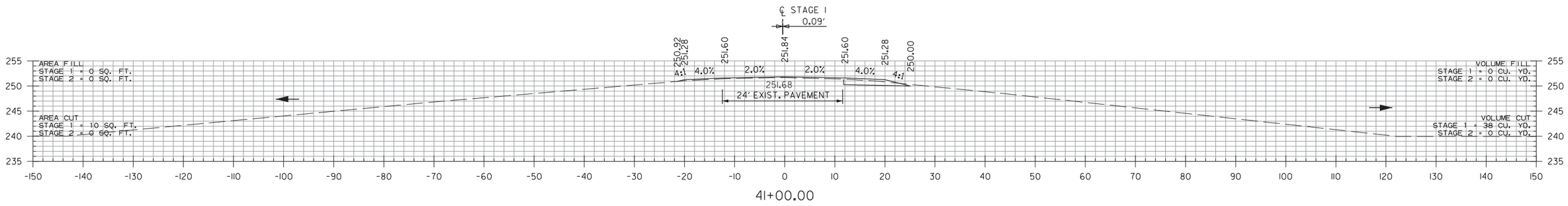
44+00.00



43+00.00



42+00.00



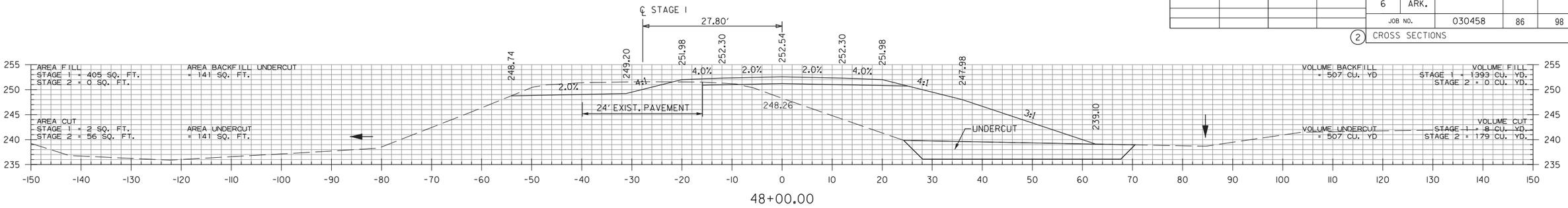
41+00.00

STA. 41+00 TO STA. 44+00

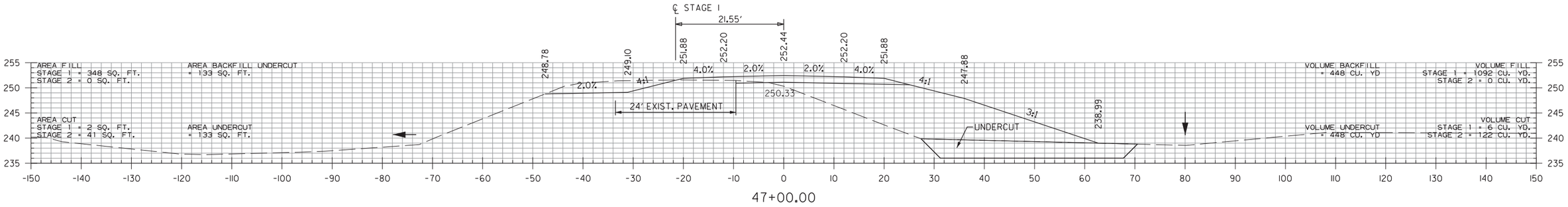
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L:\2017\170175\50 - Little Missouri River and Relief\Drawings\R030458_CX_HWY 19.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030458	86	98

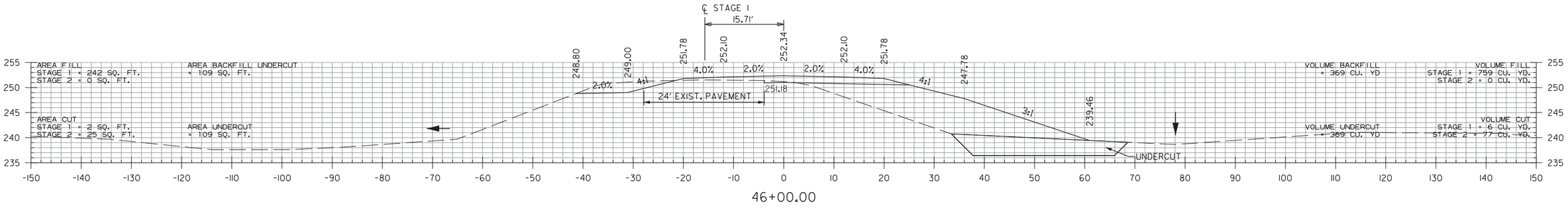
(2) CROSS SECTIONS



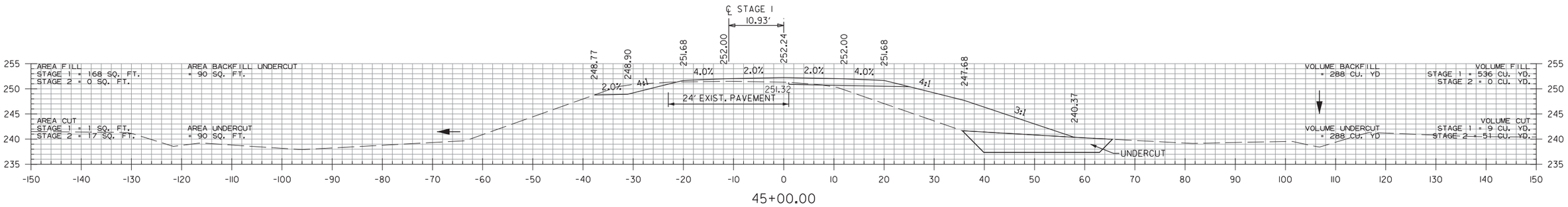
48+00.00



47+00.00



46+00.00



45+00.00

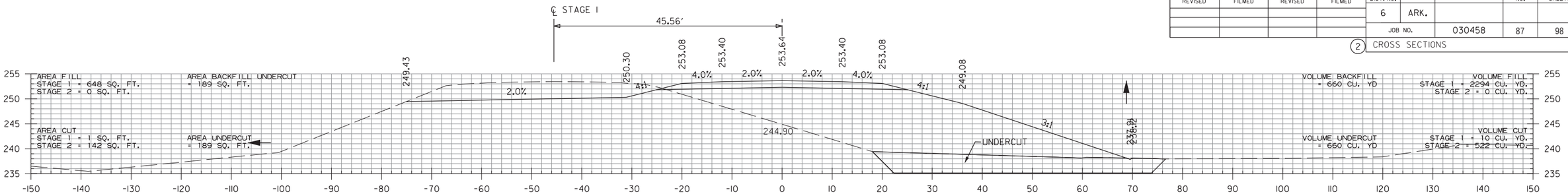
STA. 44+60
BEGIN SP. DT. LT. 0.30%
ELEV. 246.50

STA. 45+00 TO STA. 48+00

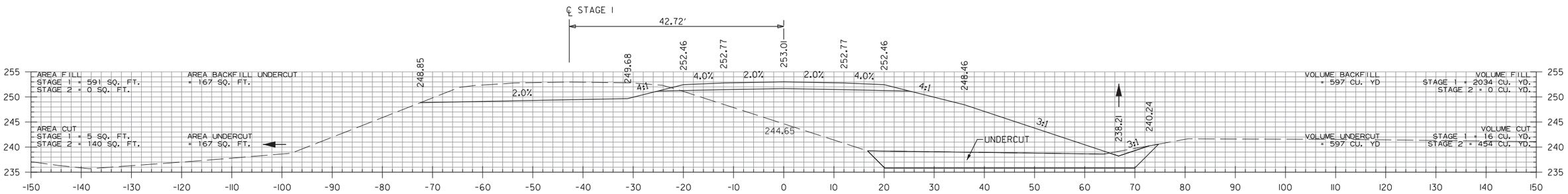
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				6	ARK.			
				JOB NO.		030458	87	98

(2) CROSS SECTIONS



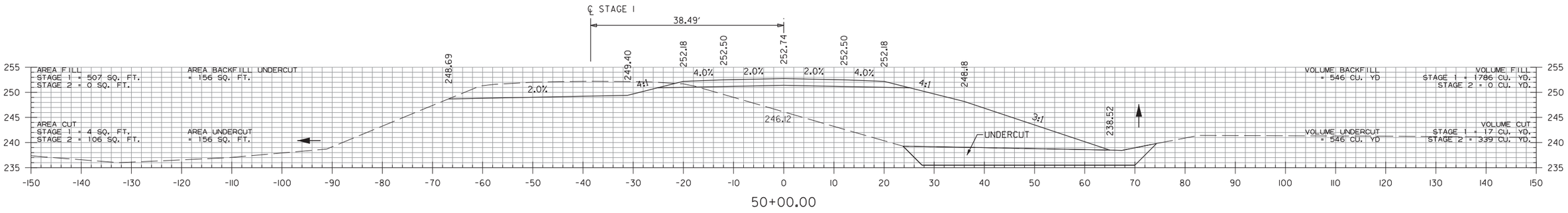
52+00.00



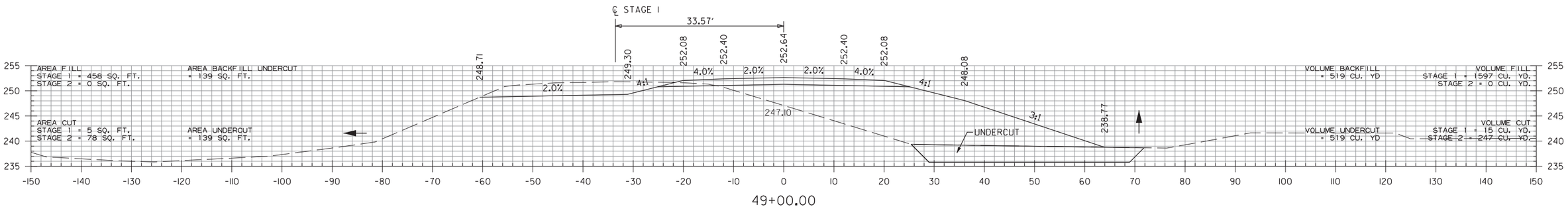
51+00.00

STA. 50+60
END SP. DT. LT. 0.30%
ELEV. 248.30

STA. 50+50
BEGIN SP. DT. RT. -0.30%
ELEV. 238.36



50+00.00



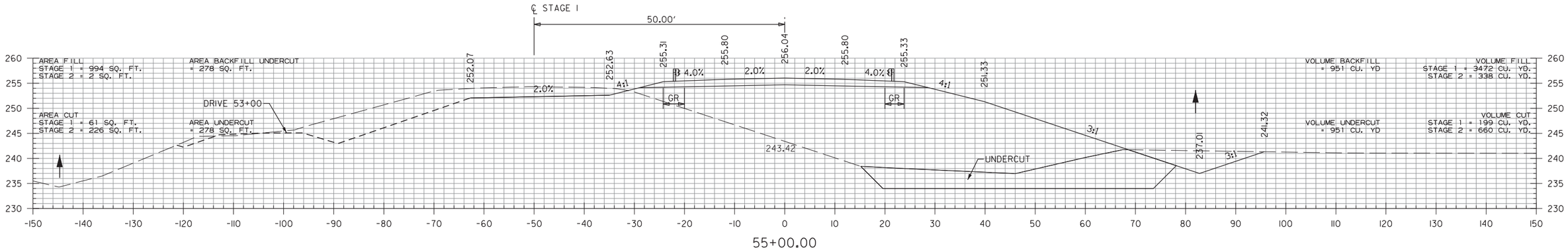
49+00.00

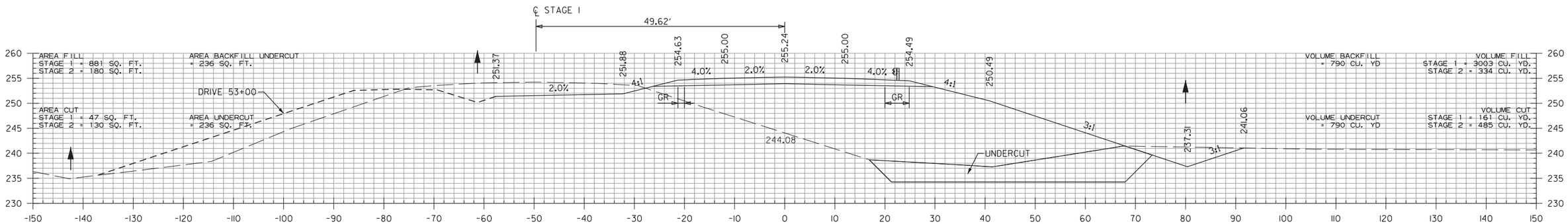
STA. 49+00 TO STA. 52+00

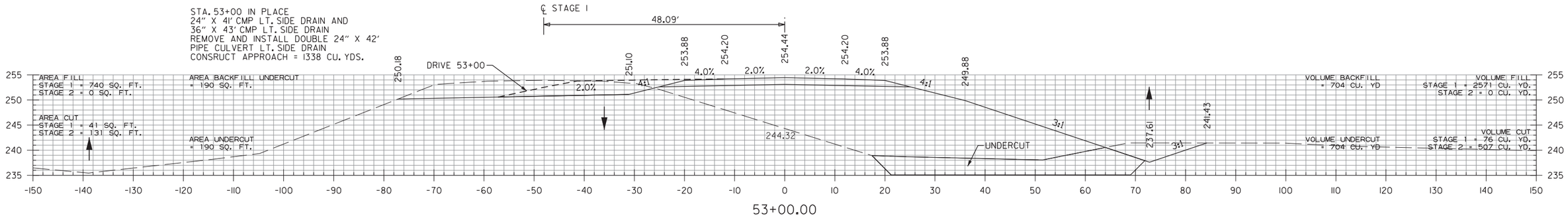
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				6	ARK.			
				JOB NO.		030458	88	98

(2) CROSS SECTIONS





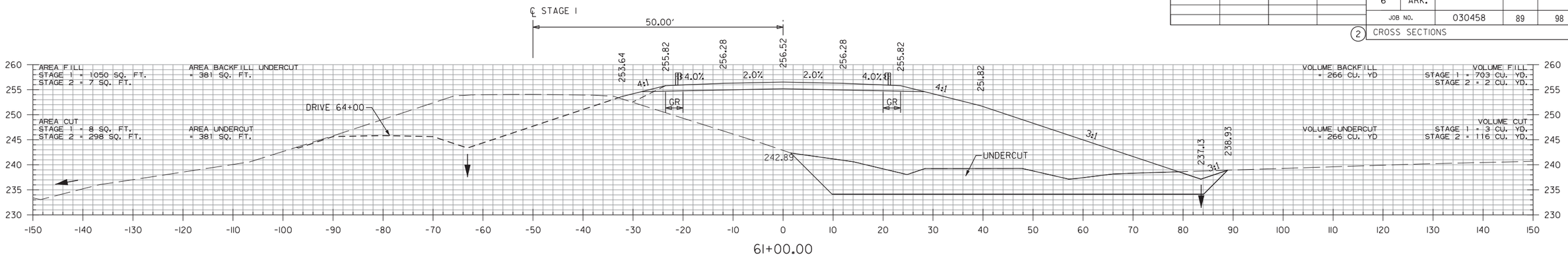


STA. 53+00 TO STA. 55+00

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REVISED DATE:

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				6	ARK.			
				JOB NO.		030458	89	98

(2) CROSS SECTIONS



61+00.00

AREA FILL
STAGE 1 = 1050 SQ. FT.
STAGE 2 = 7 SQ. FT.

AREA BACKFILL UNDERCUT
= 381 SQ. FT.

AREA CUT
STAGE 1 = 8 SQ. FT.
STAGE 2 = 298 SQ. FT.

AREA UNDERCUT
= 381 SQ. FT.

VOLUME BACKFILL
= 266 CU. YD

VOLUME FILL
STAGE 1 = 703 CU. YD.
STAGE 2 = 2 CU. YD.

VOLUME UNDERCUT
= 266 CU. YD

VOLUME CUT
STAGE 1 = 3 CU. YD.
STAGE 2 = 116 CU. YD.

AREA FILL
STAGE 1 = 956 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
= 380 SQ. FT.

AREA CUT
STAGE 1 = 1 SQ. FT.
STAGE 2 = 35 SQ. FT.

AREA UNDERCUT
= 380 SQ. FT.

VOLUME BACKFILL
= 775 CU. YD

VOLUME FILL
STAGE 1 = 975 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME UNDERCUT
= 775 CU. YD

VOLUME CUT
STAGE 1 = 1 CU. YD.
STAGE 2 = 35 CU. YD.

STA. 60+81.08 END BRIDGE

AREA FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
= 380 SQ. FT.

AREA CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA UNDERCUT
= 380 SQ. FT.

VOLUME BACKFILL
= 0 CU. YD

VOLUME FILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME UNDERCUT
= 0 CU. YD

VOLUME CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

STA. 60+25.99 BEGIN TOE OF SLOPE
AT ELEVATION 240.33'

STA. 60+20
BEGIN SP. DT. RT. 0.20%
ELEV. 236.97

AREA FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
= 303 SQ. FT.

AREA CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA UNDERCUT
= 303 SQ. FT.

VOLUME BACKFILL
= 283 CU. YD

VOLUME FILL
STAGE 1 = 471 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME UNDERCUT
= 283 CU. YD

VOLUME CUT
STAGE 1 = 22 CU. YD.
STAGE 2 = 26 CU. YD.

STA. 56+04.07 END TOE OF SLOPE
AT ELEVATION 239.41'

STA. 56+85
END SP. DT. RT. -0.30%
ELEV. 236.46

AREA FILL
STAGE 1 = 1012 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
= 303 SQ. FT.

AREA CUT
STAGE 1 = 48 SQ. FT.
STAGE 2 = 57 SQ. FT.

AREA UNDERCUT
= 303 SQ. FT.

VOLUME BACKFILL
= 849 CU. YD

VOLUME FILL
STAGE 1 = 2932 CU. YD.
STAGE 2 = 3 CU. YD.

VOLUME UNDERCUT
= 849 CU. YD

VOLUME CUT
STAGE 1 = 159 CU. YD.
STAGE 2 = 413 CU. YD.

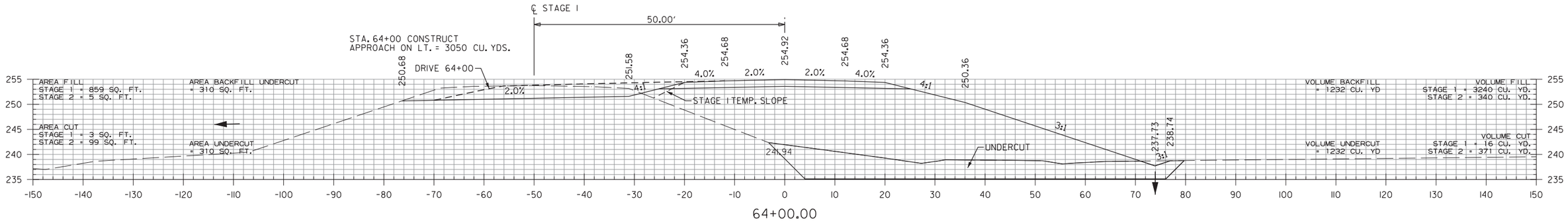
STA. 55+78.92 BEGIN BRIDGE

STA. 55+79 TO STA. 61+00

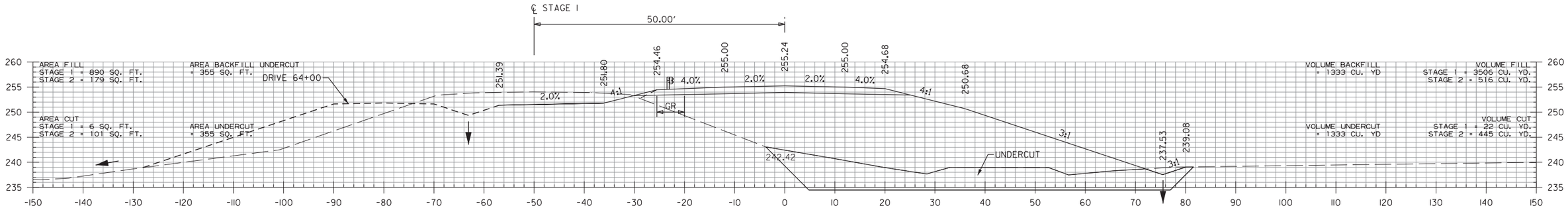
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				6	ARK.			
				JOB NO.		030458	90	98

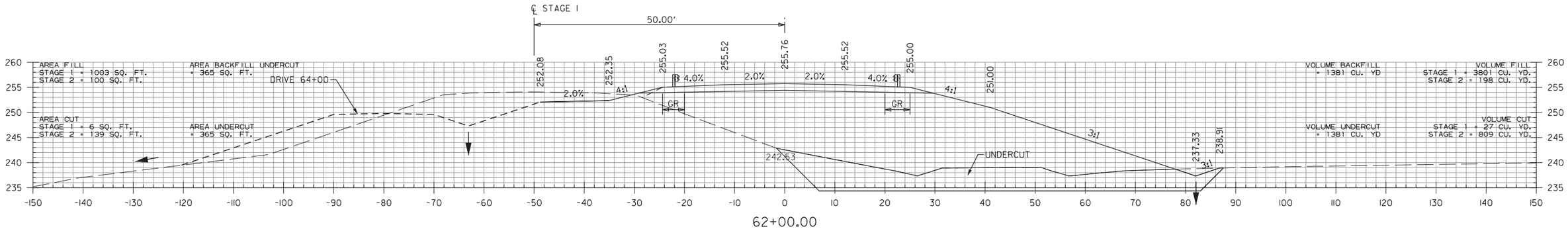
(2) CROSS SECTIONS



64+00.00



63+00.00



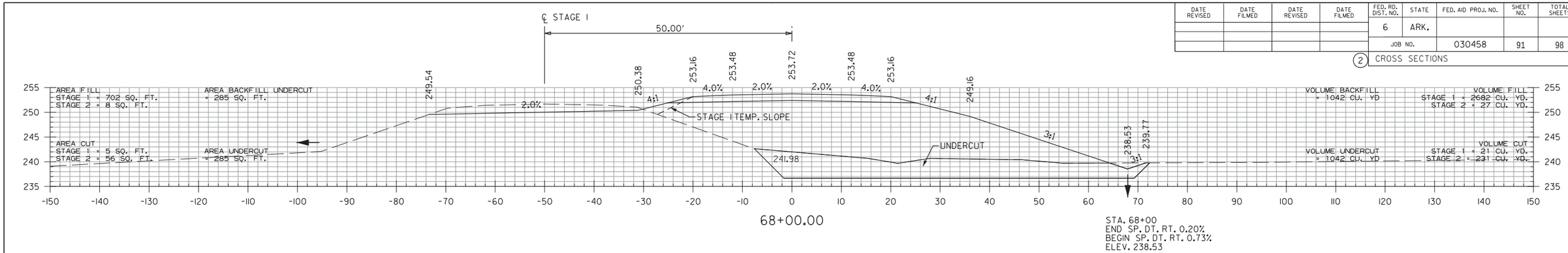
62+00.00

STA. 62+00 TO STA. 64+00

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L:\201\1701550 - Little Missouri River and Relief\Drawings\R030458_CX_HWY 19.dgn
REVISED DATE:

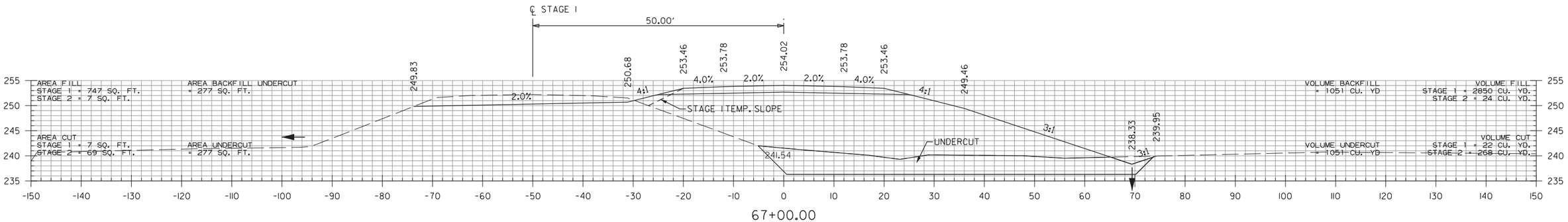
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				6	ARK.			
				JOB NO.		030458	91	98

(2) CROSS SECTIONS

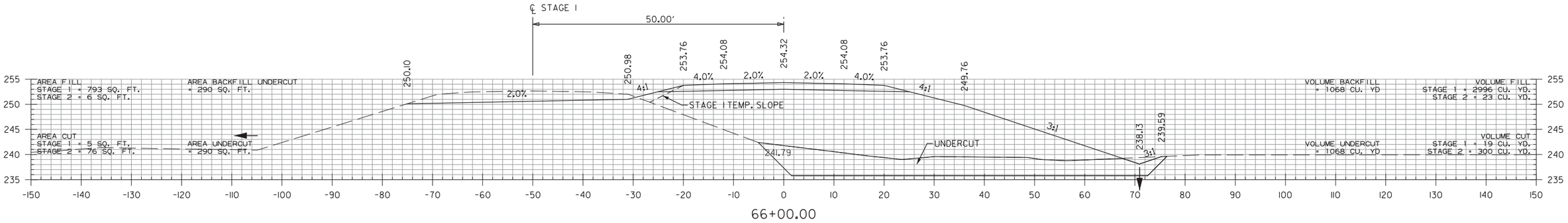


68+00.00

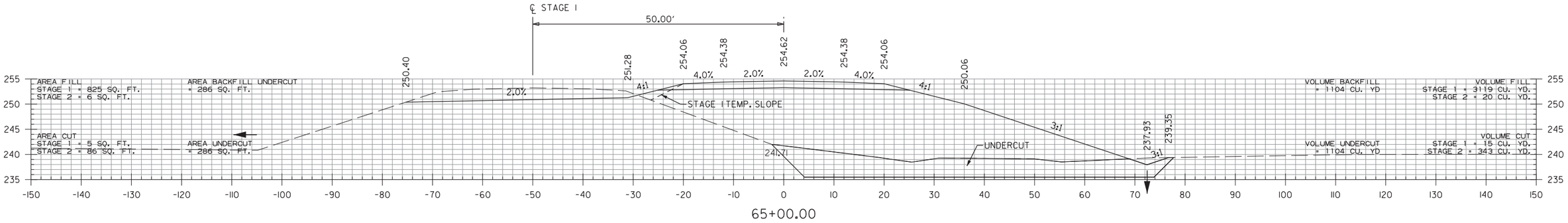
STA. 68+00
END SP. DT. RT. 0.20%
BEGIN SP. DT. RT. 0.73%
ELEV. 238.53



67+00.00



66+00.00



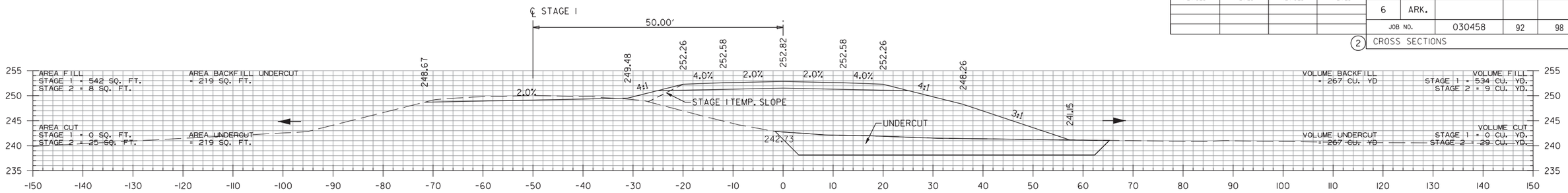
65+00.00

STA. 65+00 TO STA. 68+00

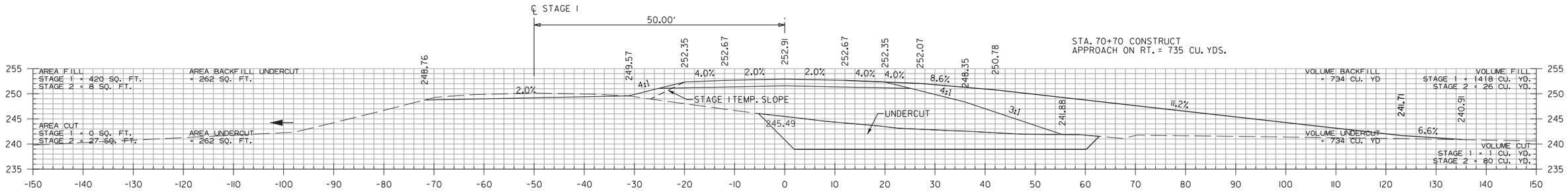
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(2) CROSS SECTIONS

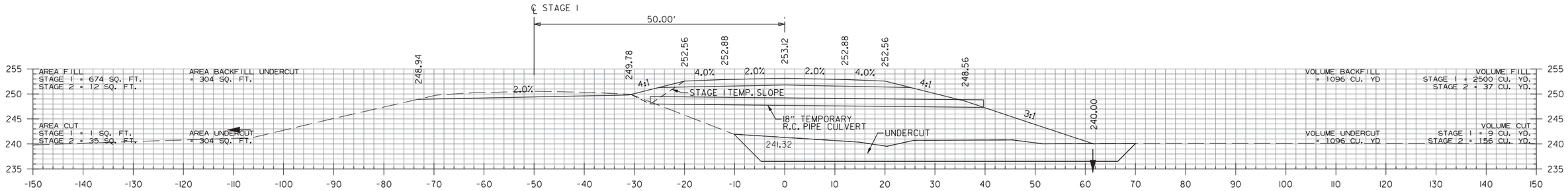


71+00.00



STA. 70+70 CONSTRUCT
APPROACH ON RT. = 735 CU. YDS.

70+70.00

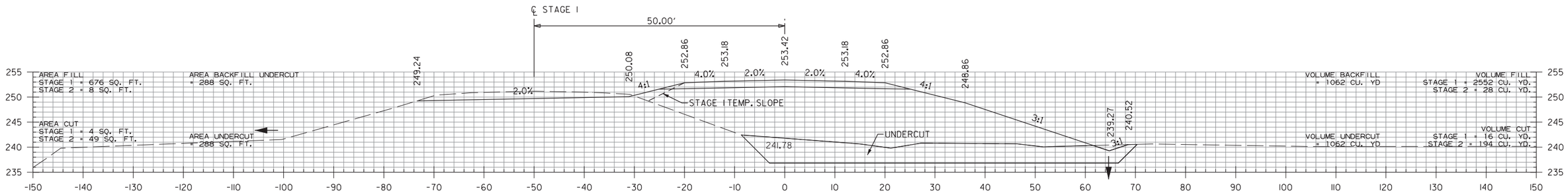


TEMP. F.L. = 248.00 LT.

70+00.00

TEMP. F.L. = 247.33 RT.

STA. 70+00
END SP. DT. RT. 0.73%
ELEV. 240.00



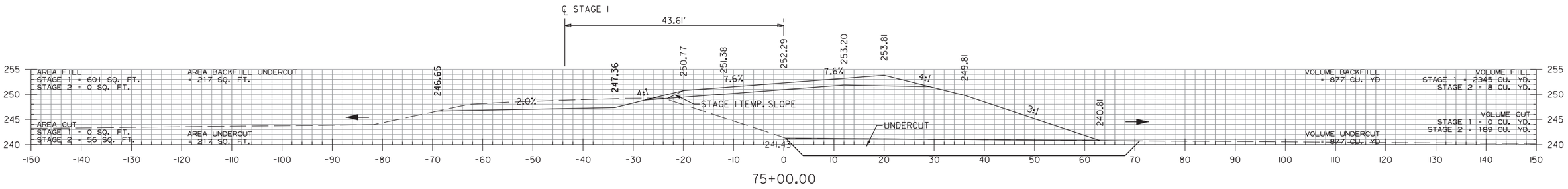
69+00.00

STA. 69+00 TO STA. 71+00

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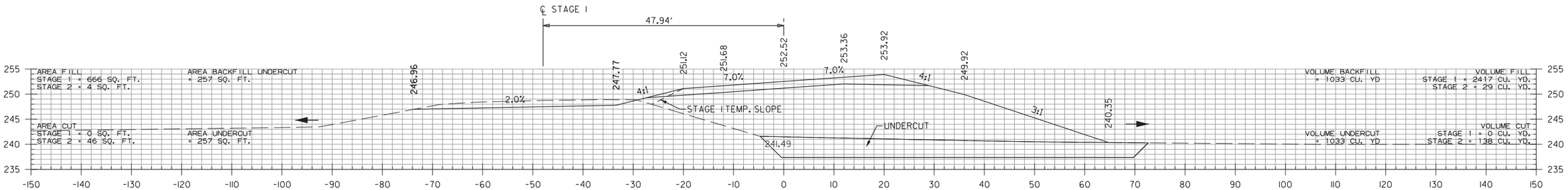
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		030458	93	98

(2) CROSS SECTIONS

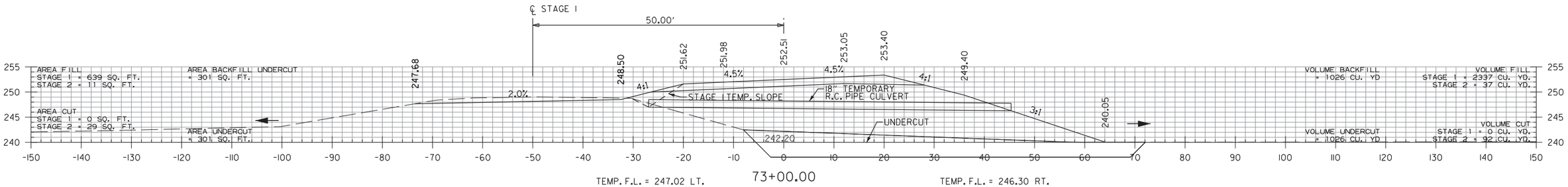


75+00.00

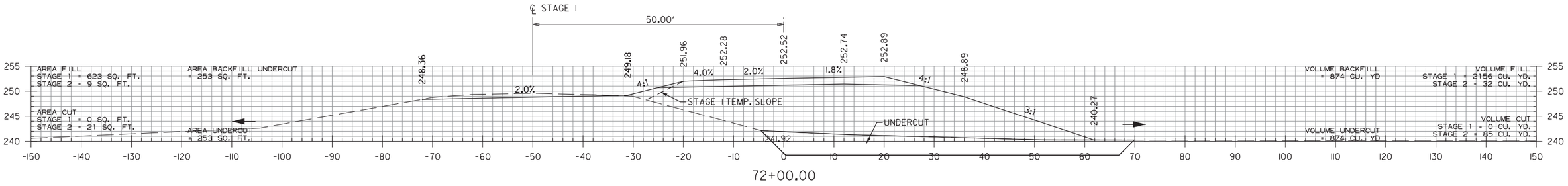
STA. 74+24.24 MAX SUPERELEVATION (0.076 FT./FT.)



74+00.00



TEMP. F.L. = 247.02 LT. 73+00.00 TEMP. F.L. = 246.30 RT.



72+00.00

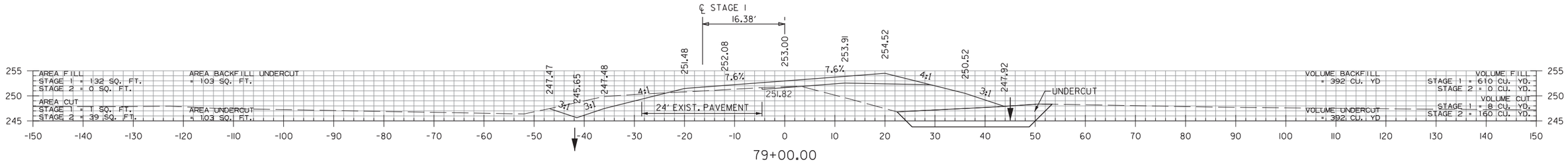
STA. 71+24.24 BEGIN SUPERELEVATION

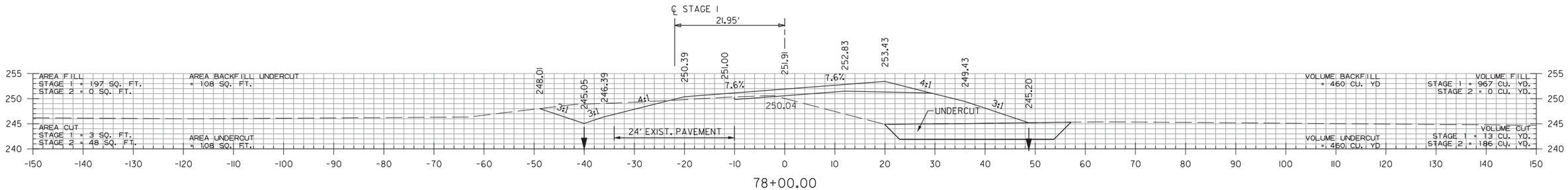
STA. 72+00 TO STA. 75+00

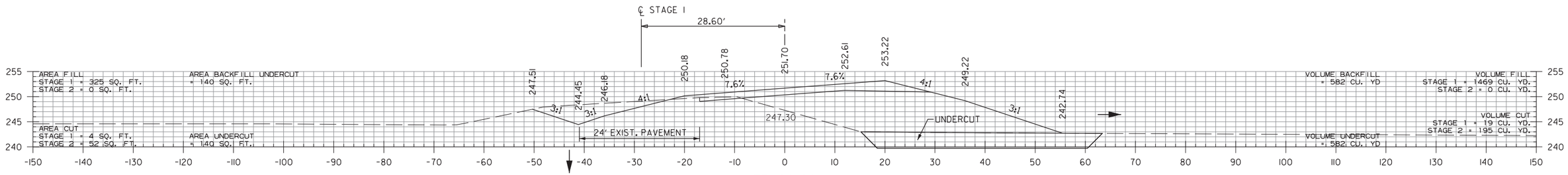
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				JOB NO.		030458	94	98

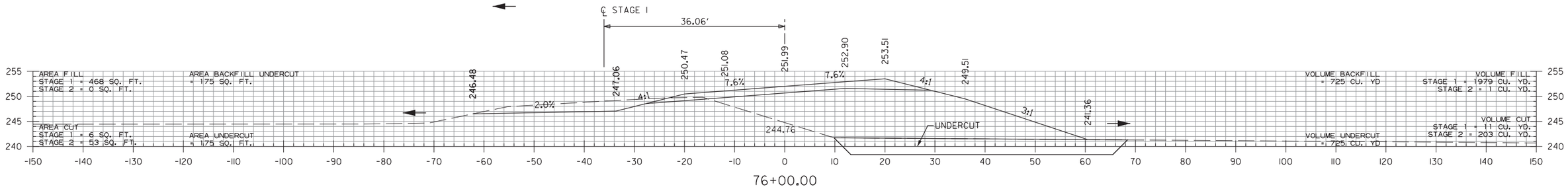
(2) CROSS SECTIONS







STA. 76+45
BEGIN SP. DT. LT. 0.60%
ELEV. 244.12

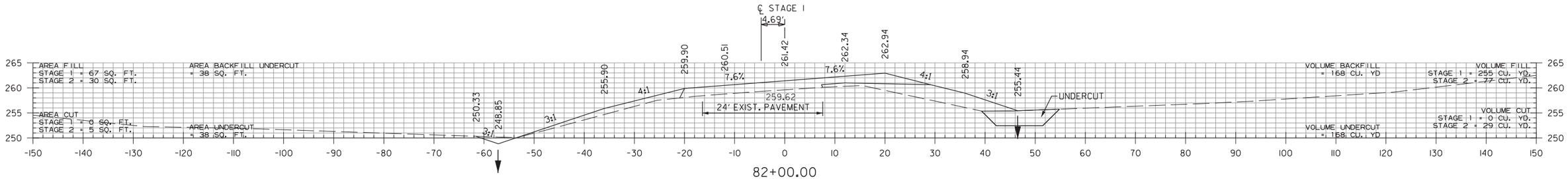


STA. 76+00 TO STA. 79+00

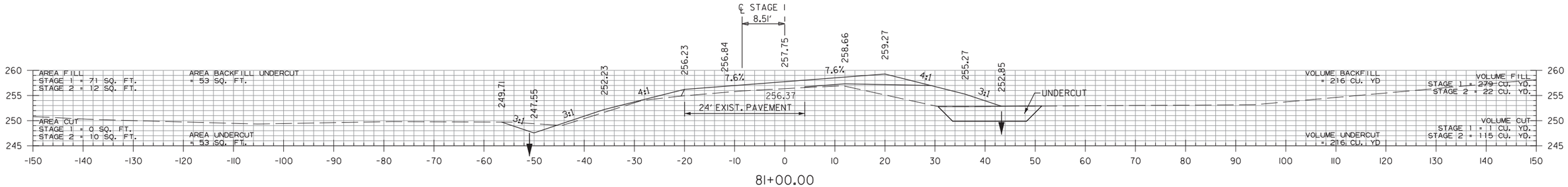
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				6	ARK.			
				JOB NO.		030458	95	98

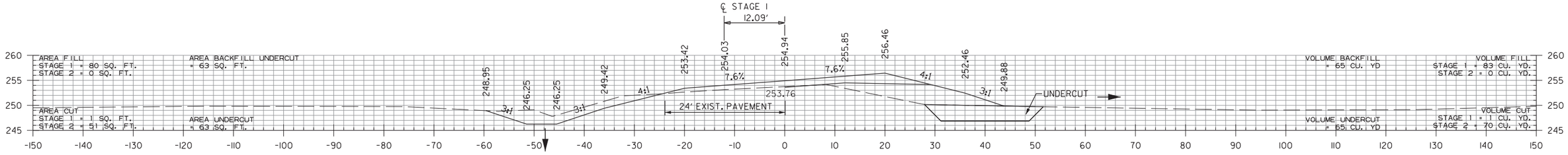
(2) CROSS SECTIONS



82+00.00



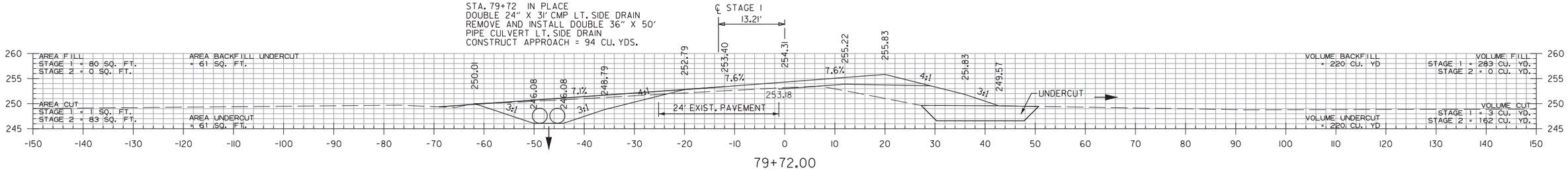
81+00.00



80+00.00

STA. 80+00
END SP. DT. LT. 0.60%
BEGIN SP. DT. LT. 1.30%
ELEV. 246.25

STA. 79+72 IN PLACE
DOUBLE 24" X 31' CMP LT. SIDE DRAIN
REMOVE AND INSTALL DOUBLE 36" X 50'
PIPE CULVERT LT. SIDE DRAIN
CONSTRUCT APPROACH = 94 CU. YDS.



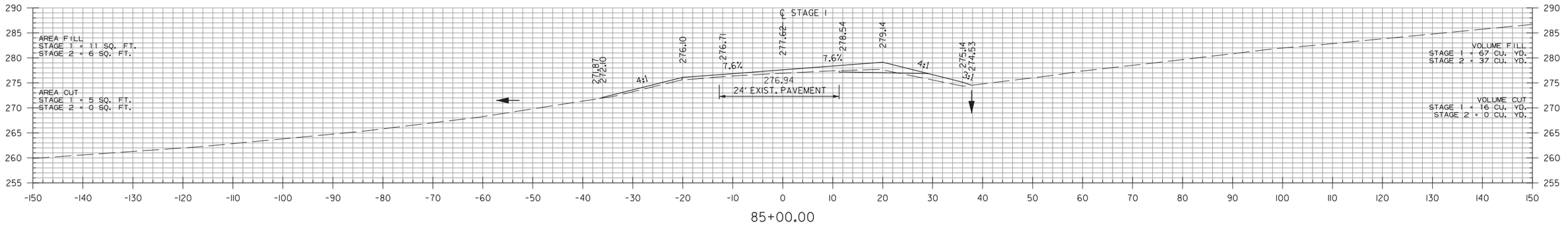
79+72.00

STA. 79+72 TO STA. 82+00

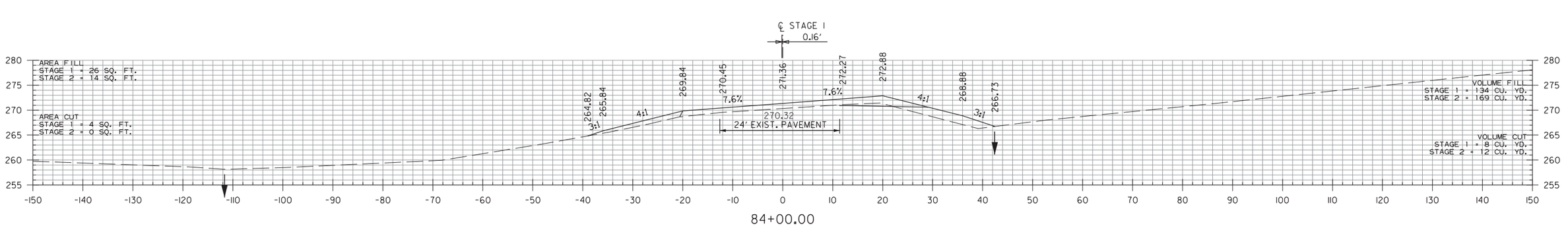
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REVISED DATE:

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				6	ARK.			
				JOB NO.		030458	96	98

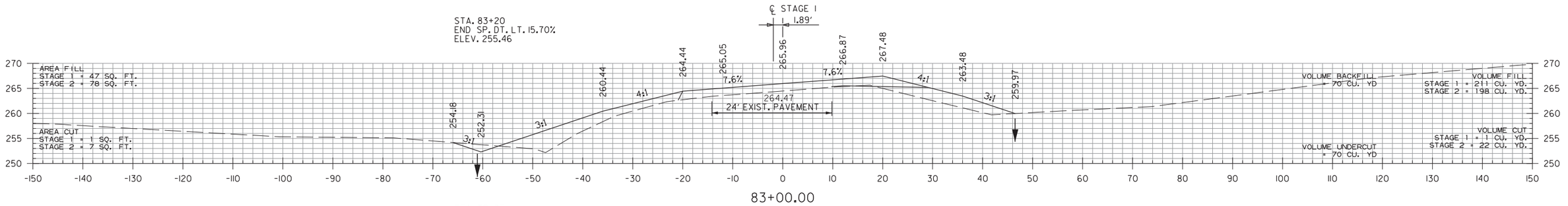
(2) CROSS SECTIONS



85+00.00



84+00.00



83+00.00

STA. 82+85
END SP. DT. LT. 1.30%
BEGIN SP. DT. LT. 15.70%
ELEV. 249.96

STA. 83+00 TO STA. 85+00

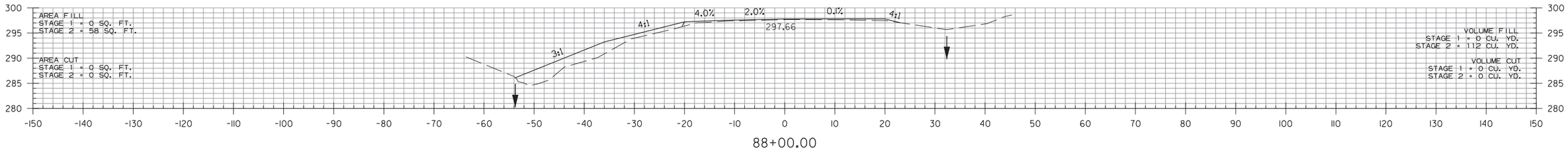
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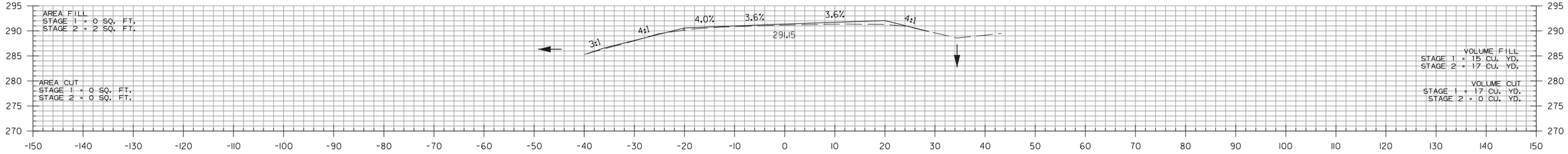
FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	97	98

(2) CROSS SECTIONS

STA. 88+42.26 END SUPERELEVATION

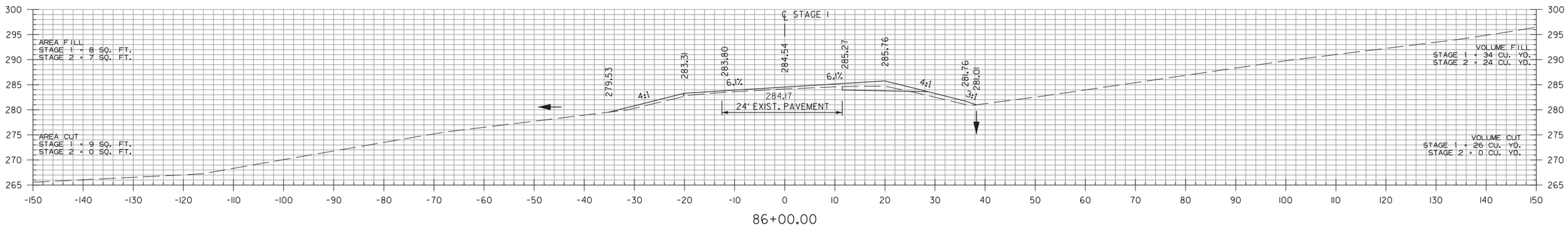


88+00.00



87+00.00

STA. 86+17.26 END PROFILE GRADE



86+00.00

STA. 85+42.26 MAX SUPERELEVATION (0.076 FT./FT.)

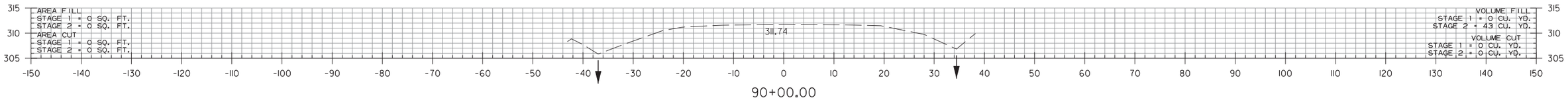
STA. 86+00 TO STA. 88+00

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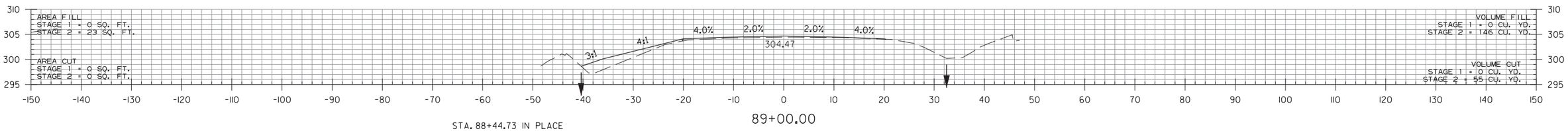
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FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030458	98	98

(2) CROSS SECTIONS



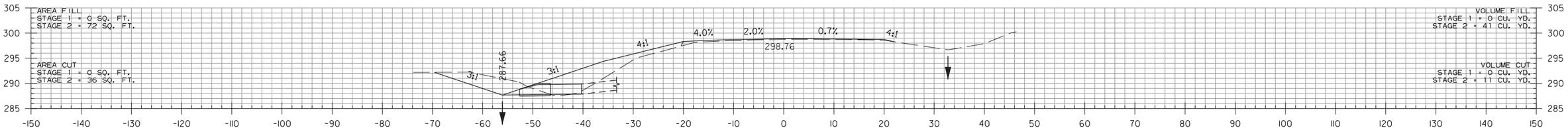
90+00.00



89+00.00

STA. 88+44.73 IN PLACE
24" X 83' R.C. PIPE CULVERT
WITH FES LT. AND RT.
REMOVE FES LT. AND
EXTEND R.C. PIPE 8' LT.
30° RT. FWD. SKEW
(CLASS III) TYPE 3 BEDDING WITH
FES LT.
050 = 8 CFS DA = 2.1 ACRES
24" R.C. PIPE = 12 LIN. FT.
24" FES = 1EA.

STA. 88+50.00 END JOB 030458



EX. F.L. = 287.87 LT.
PROP. F.L. = 287.66 LT.

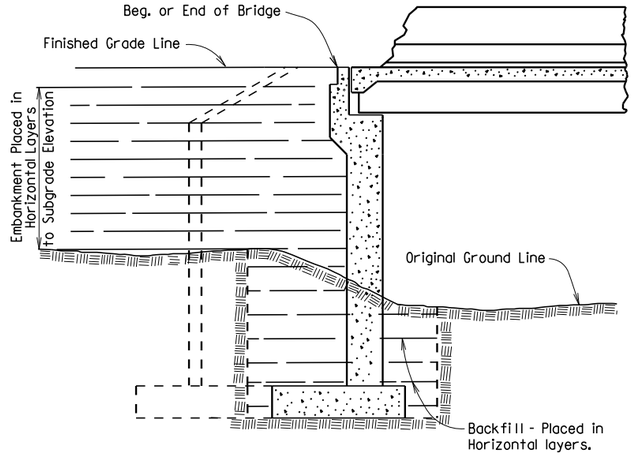
88+16.96

STA. 88+00 TO STA. 90+00

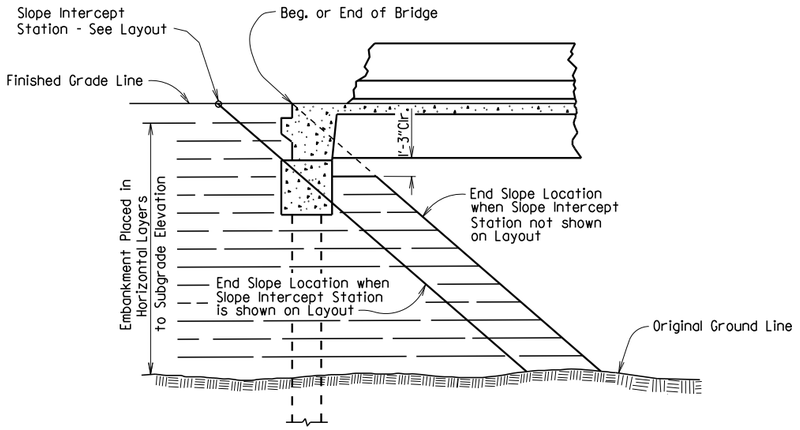
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				6	ARK.			
				JOB NO.				

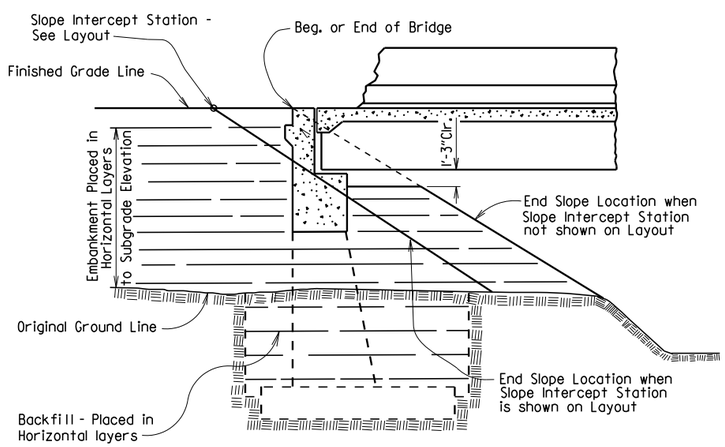
1 EMBANKMENT & BACKFILL 55000



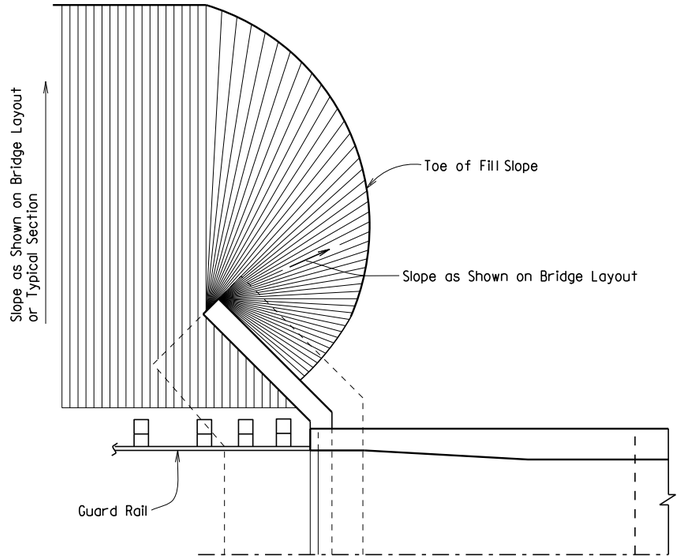
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



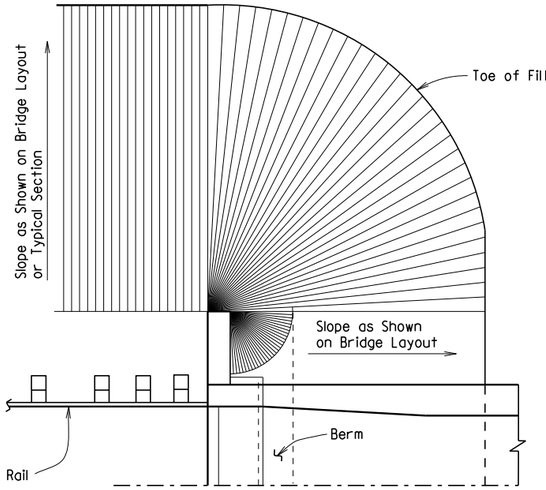
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



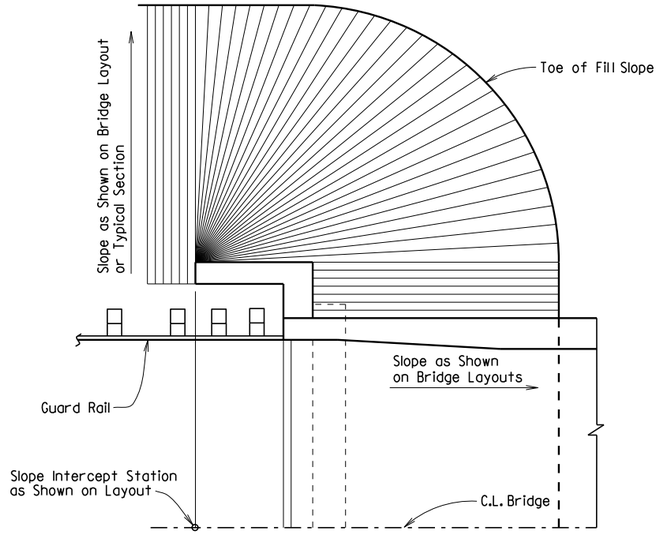
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



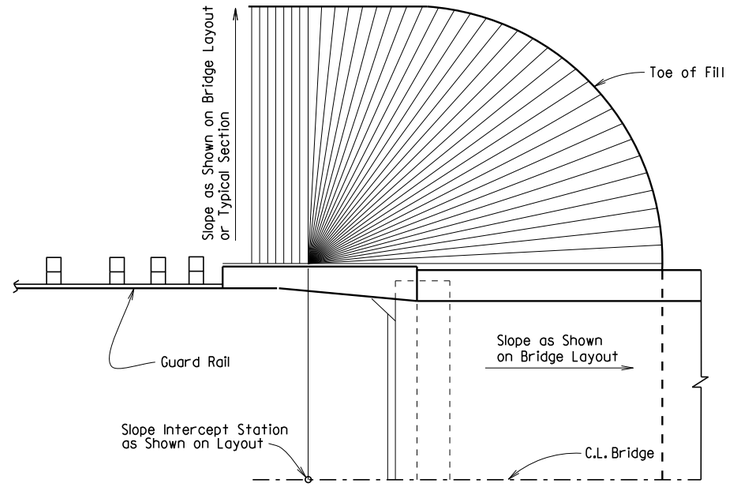
VERTICAL WALL ABUTMENTS



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

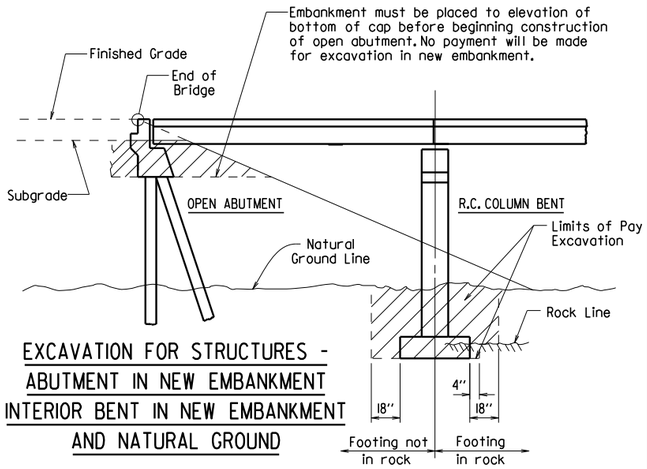
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DESIGNED BY: STD. DATE: -

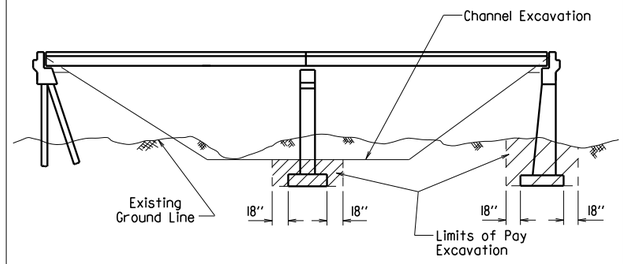
DRAWING NO. 55000

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				JOB NO.				

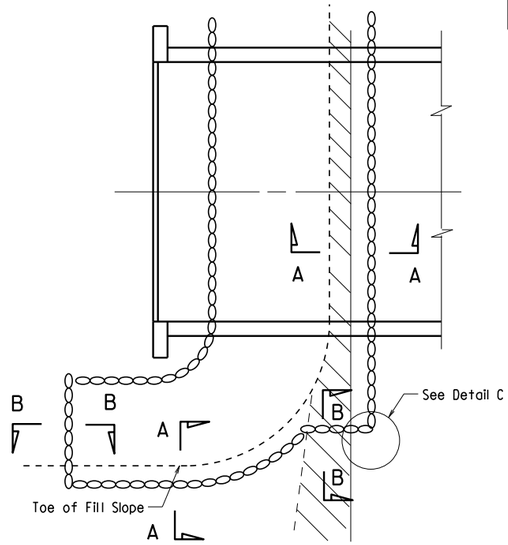
1 RIPRAP & EXCAV. 55001



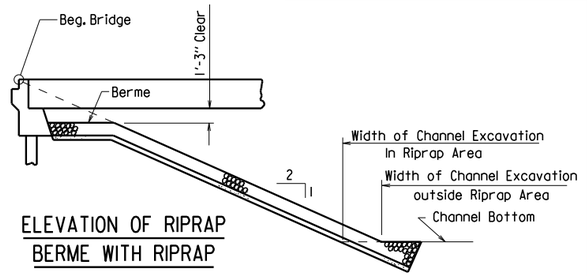
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



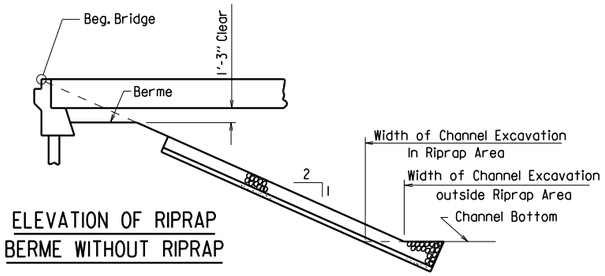
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



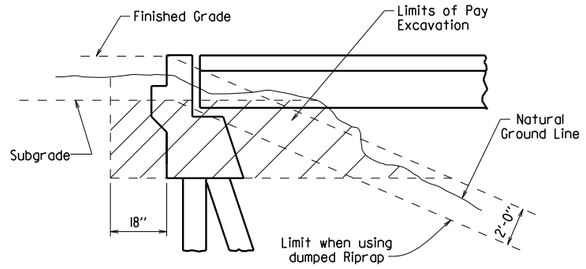
PLAN OF DUMPED RIPRAP



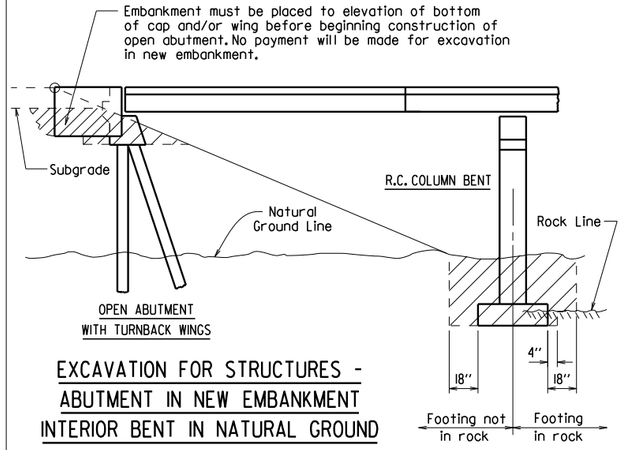
ELEVATION OF RIPRAP BERME WITH RIPRAP



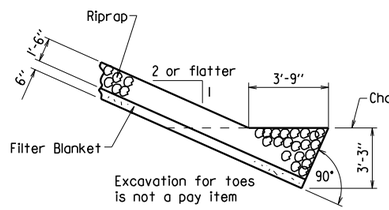
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

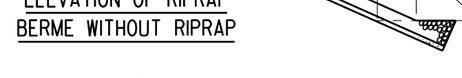


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

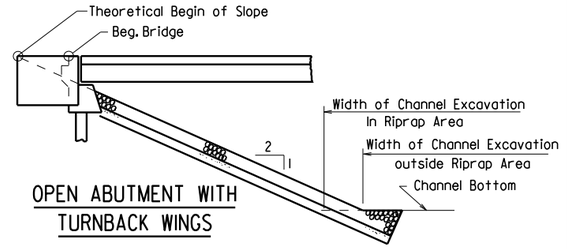


SECTION A-A

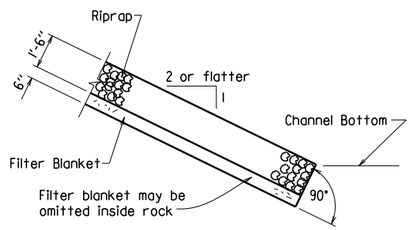
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



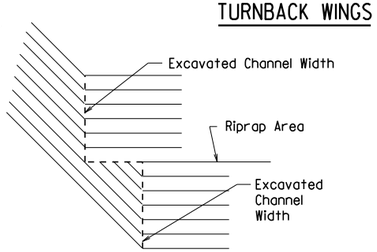
SECTION A-A

(Toe Excavation in Rock)

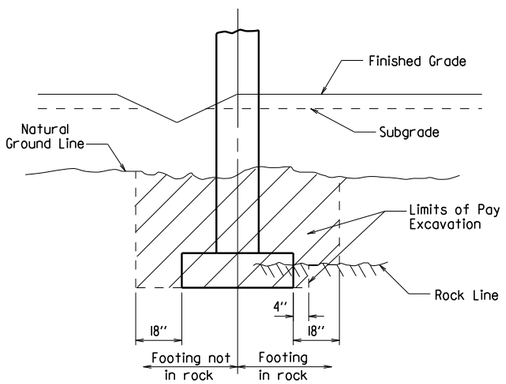
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

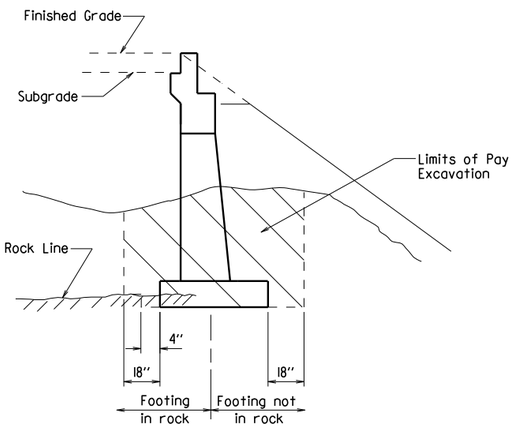
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

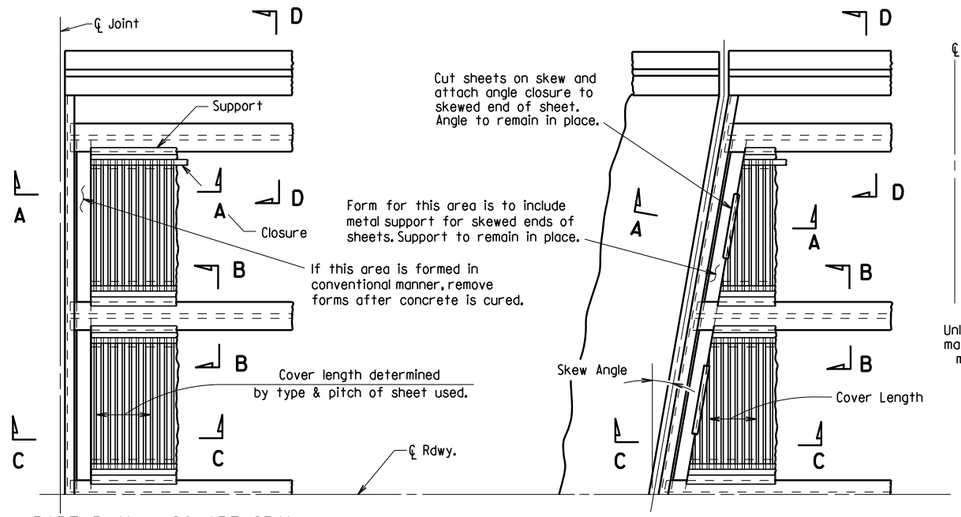
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CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

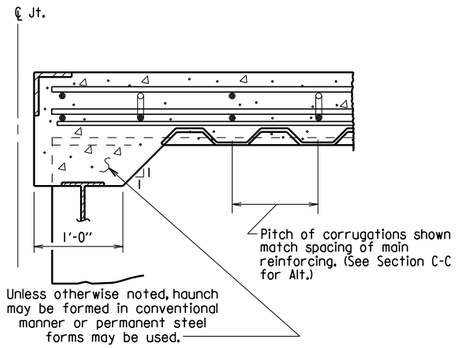


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

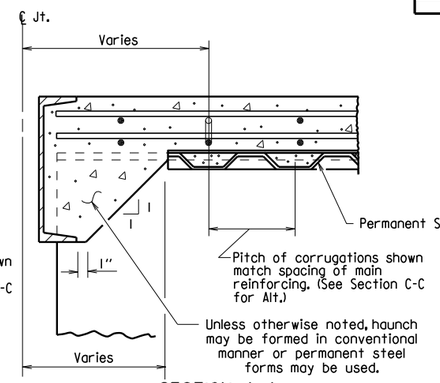
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



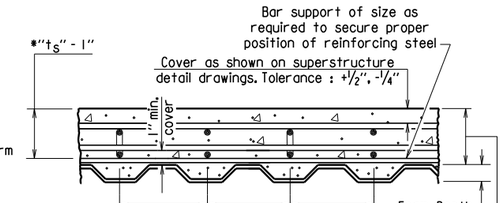
SECTION A-A

N.T.S.
(Angle at end of span)



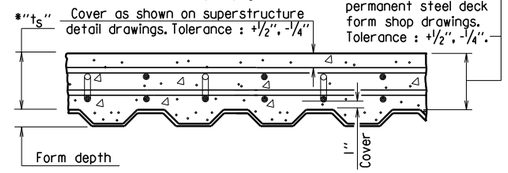
SECTION A-A

N.T.S.
(Channel at end of span)



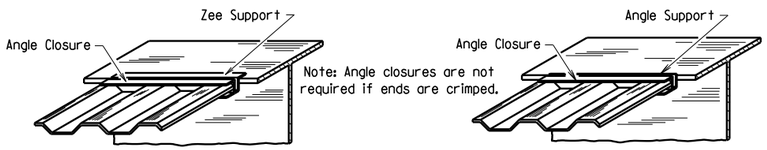
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

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

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

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

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

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

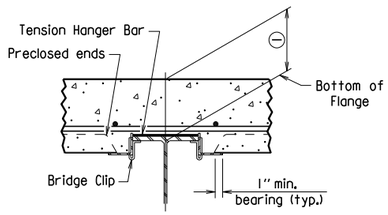
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

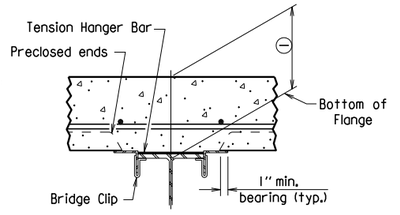
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



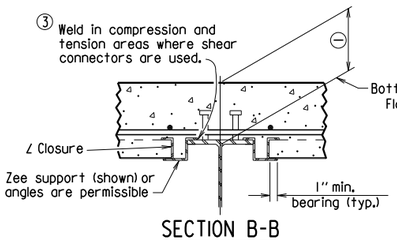
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



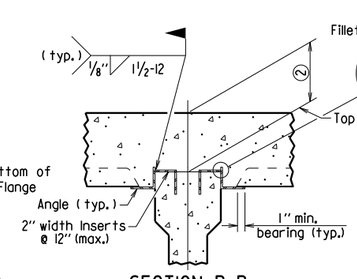
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



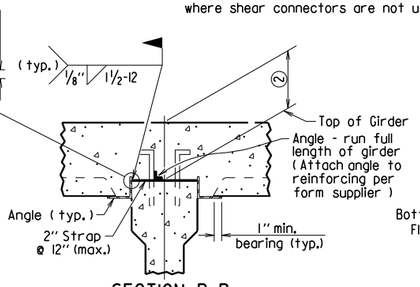
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



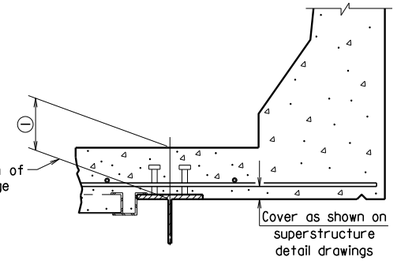
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

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

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		GENERAL NOTES		55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

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

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

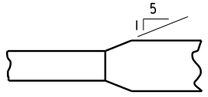
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

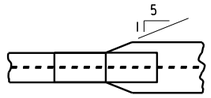
PRINT DATE: 11/7/2019

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

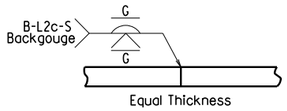


Plan-Unequal Width (Flg.)

FLANGE SPLICE

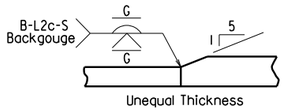


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

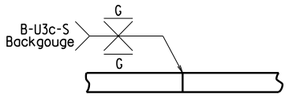
WEB & FLANGE SPLICE



Unequal Thickness

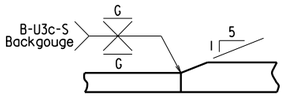
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

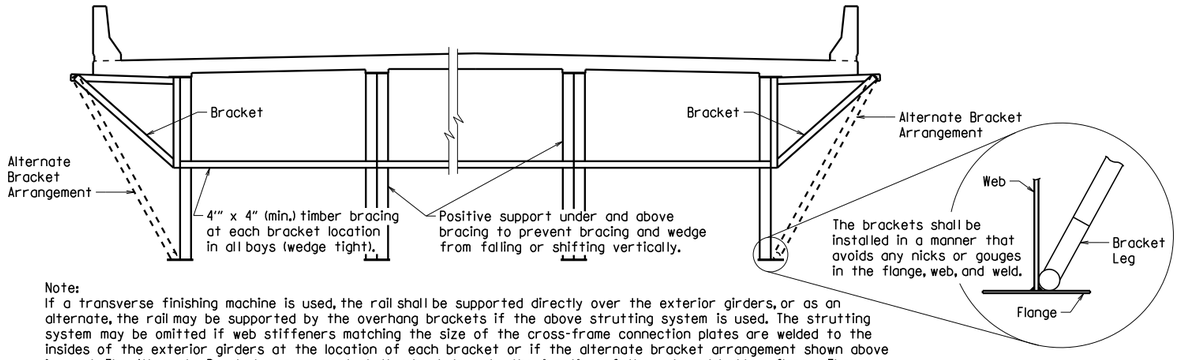


Unequal Thickness

FLANGE SPLICE

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

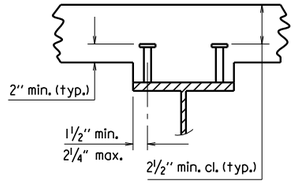
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



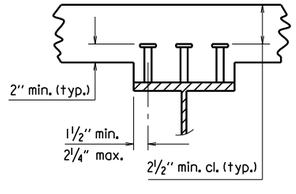
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the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

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



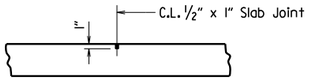
2 STUDS PER ROW



3 STUDS PER ROW

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

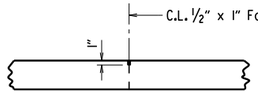
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

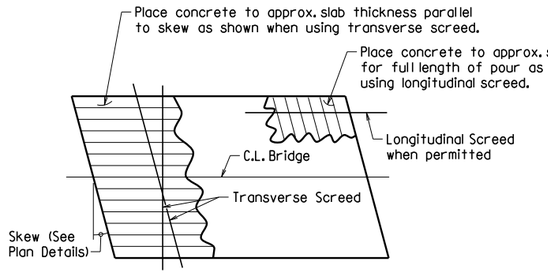
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

TRANSVERSE SLAB JOINT DETAIL



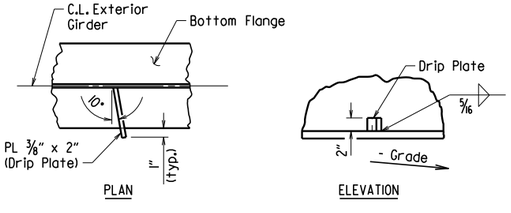
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

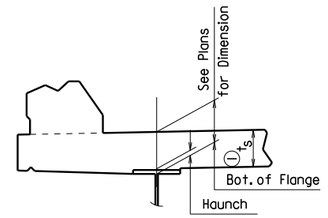
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

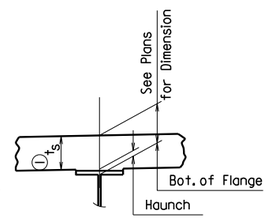
BOTTOM FLANGE DRIP PLATE

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

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



EXTERIOR BEAM OR GIRDER



INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

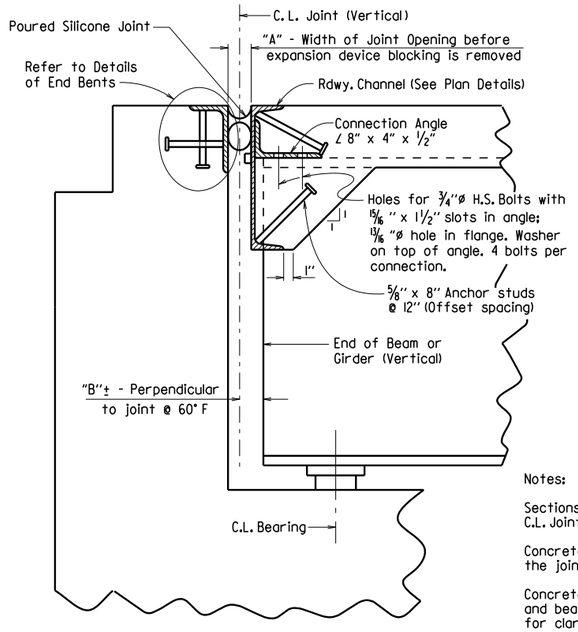
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

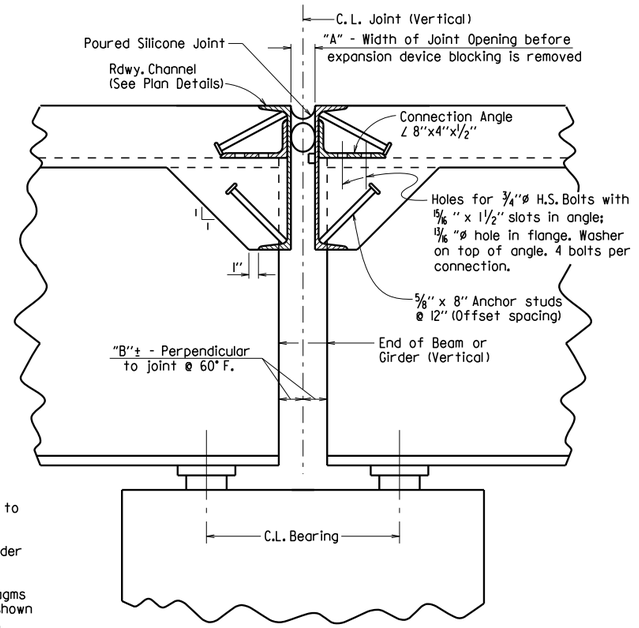
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	POURED SILICONE JOINT			55008



SECTION THRU JOINT AT END BENT



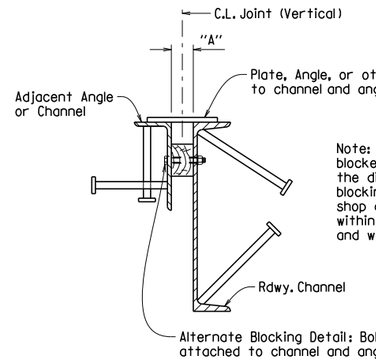
SECTION THRU JOINT AT INTERMEDIATE BENT

Notes:

Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

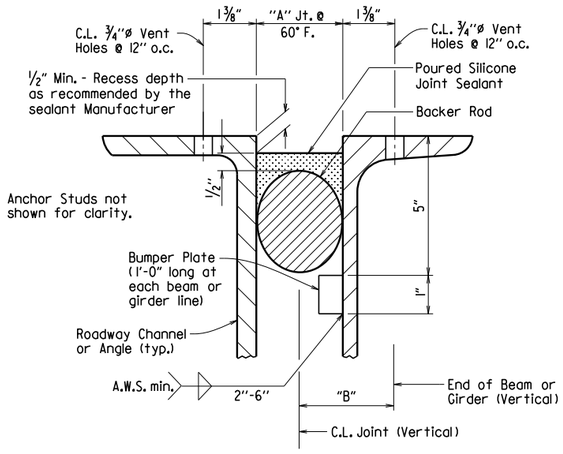
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



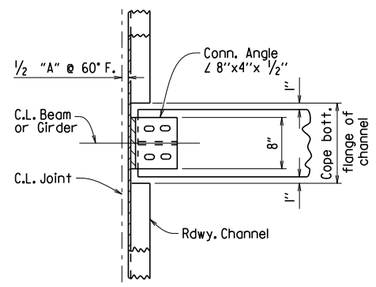
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

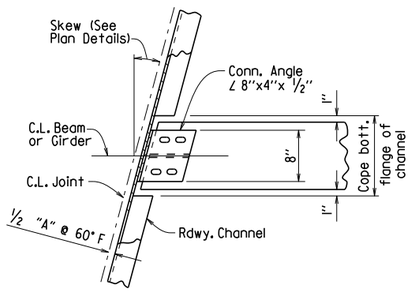
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



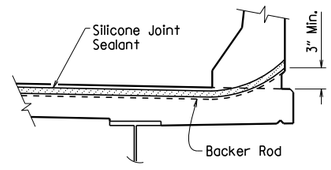
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

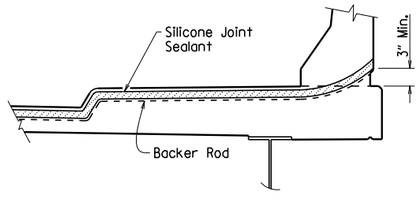


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT RAIL



JOINT SEAL PLACEMENT AT SIDEWALK

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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

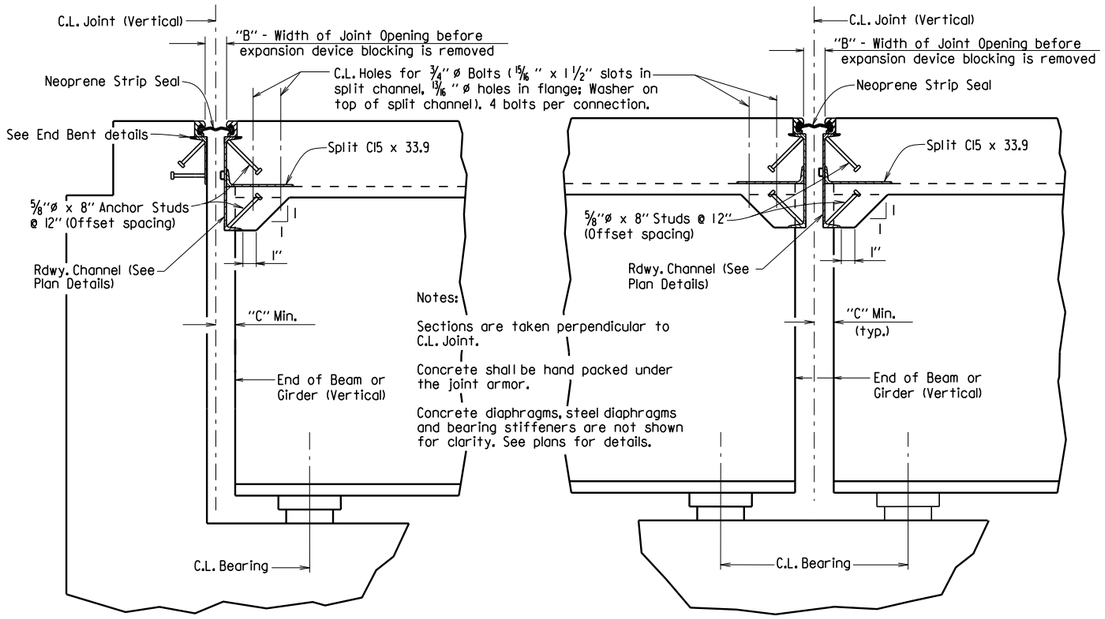
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

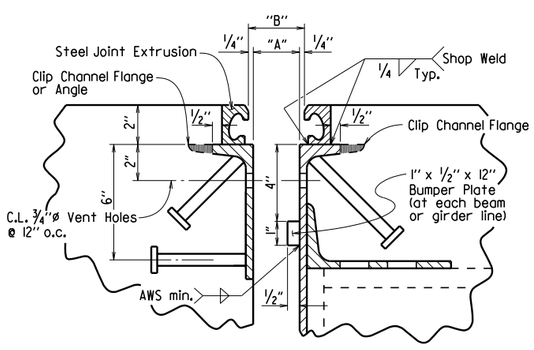
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 STRIP SEAL JOINT 55009



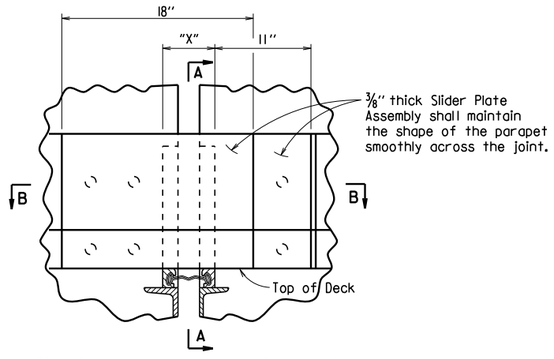
SECTION THRU JOINT AT END BENT

SECTION THRU JOINT AT INTERMEDIATE BENT



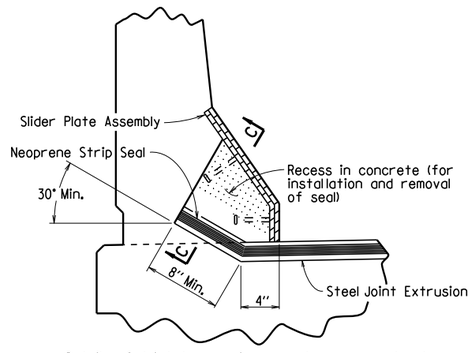
DETAIL OF STRIP SEAL JOINT

Detail shown at End Bent,
Details similar at Intermediate Bent



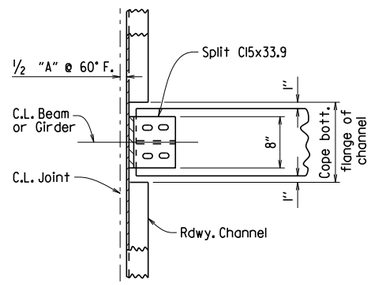
Dimension "X" equals the width of opening in parapet to allow for removal or repair of joint.

DETAIL OF PARAPET SLIDER PLATES



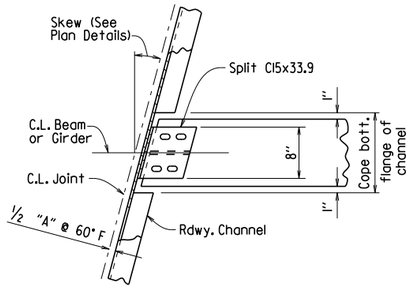
Details of Joint turn-up in parapet are general and show basic design controls only. See plan details for joint installation at sidewalks.

SECTION A-A



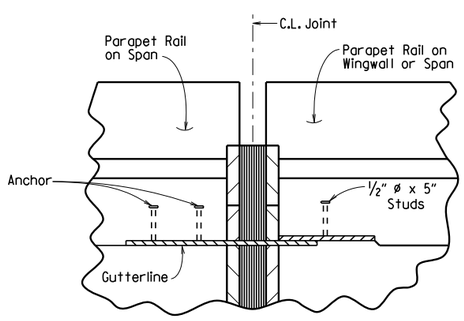
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW

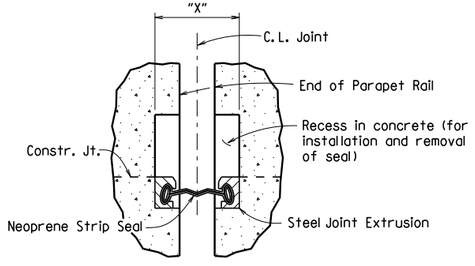


The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

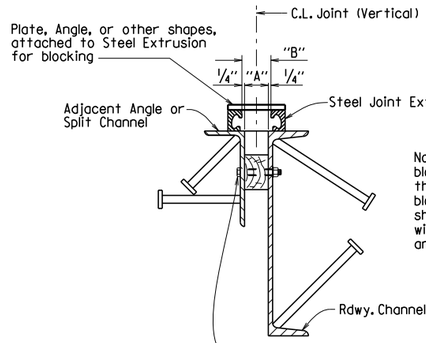
Method of installation and fabrication shall be determined by the Manufacturer.

SECTION B-B

BENTS WITHOUT SKEW SHOWN



SECTION C-C



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:

The steel extrusion and neoprene strip seal material and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA" in the plan details. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). The parapet slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel shall be as specified in the plans.

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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF STRIP SEAL JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A", "B", AND "C".

STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: L.J.B. DATE: 2/11/2016 FILENAME: b55009.dgn
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55009

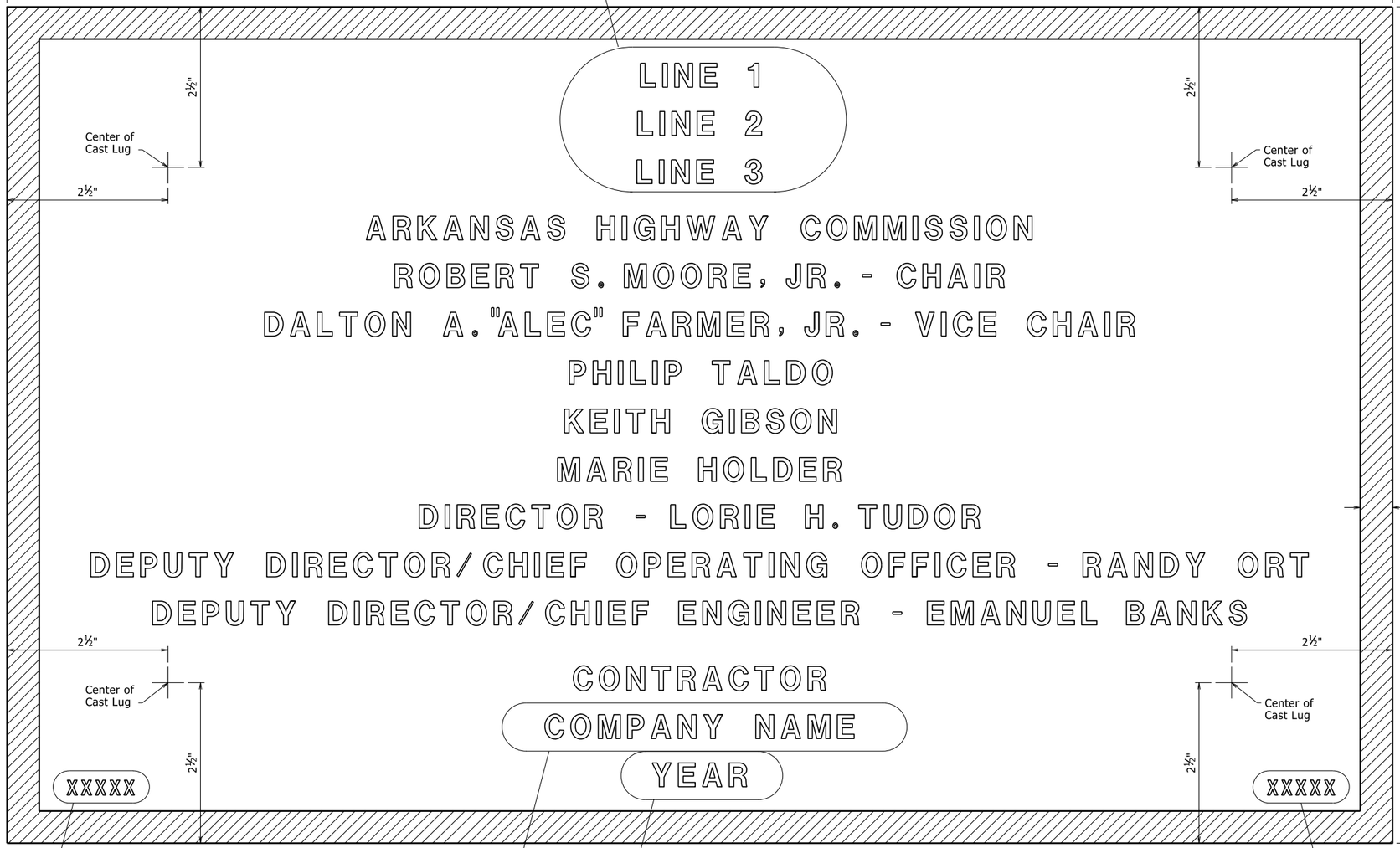
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-1-14		1-15-19	
1-14-15		3-24-2020	
1-17-17			

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

(1) TYPE D NAME PLATE - 55010

The name of the bridge as shown on the plans shall be placed on Lines 1-3 using ⅛" raised letters and numerals ⅜" high.

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



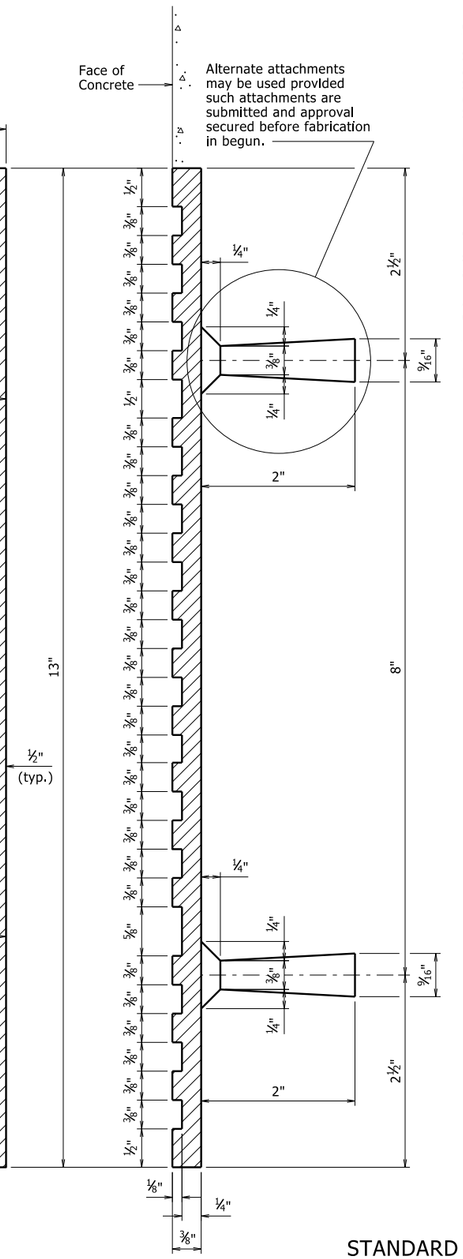
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

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

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

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

(5) Revised Director, Deputy Director/Chief Operating Officer, Chair, Vice Chair and added New Commissioner
3-24-2020 CGP Checked By: CRE

(4) Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE

(3) Added New Commissioner
1-17-17 KDH Checked By: CRE

(2) Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

(1) Revised Deputy DIrector/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

PRINT DATE: 4/6/2020

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

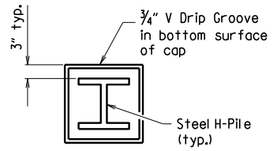
GENERAL NOTES FOR STEEL H-PILES:

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

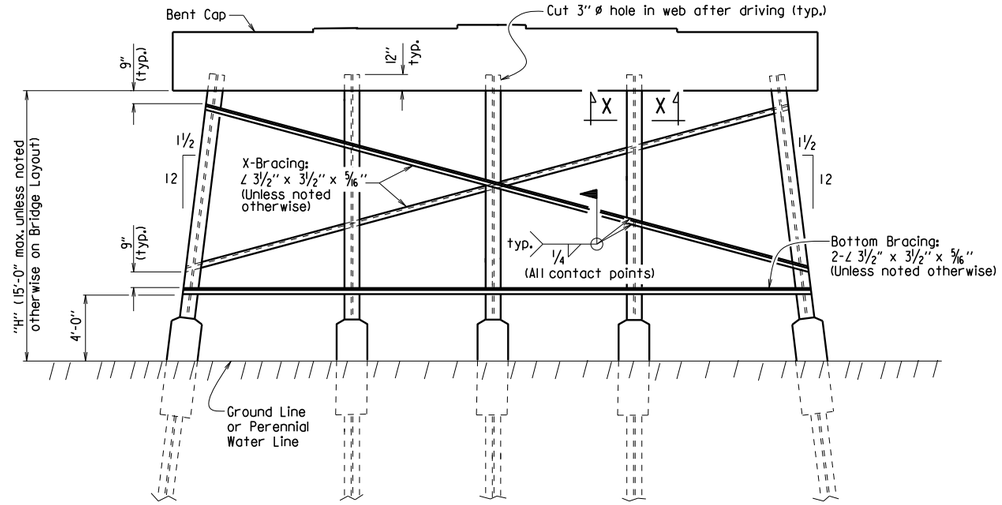
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

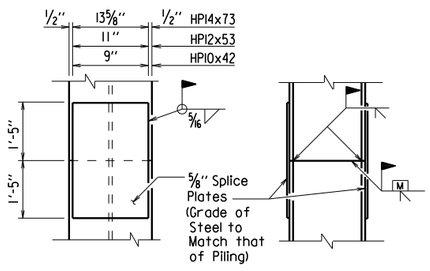
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



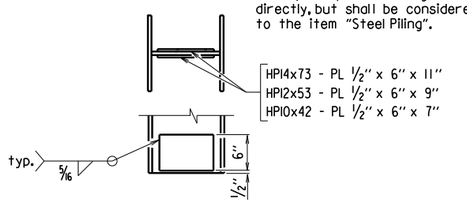
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

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

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

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



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

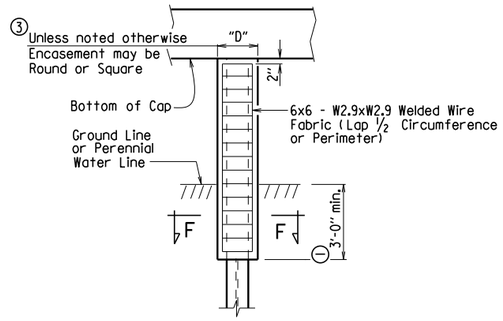
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

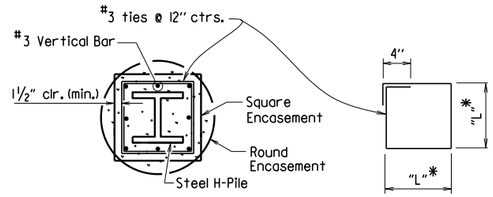
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

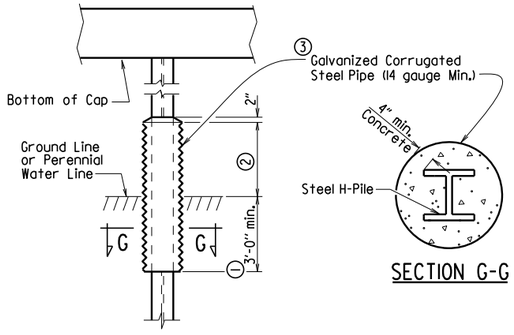


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



SECTION G-G

① Unless otherwise noted on Bridge Layout.

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

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

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

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

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

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

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

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

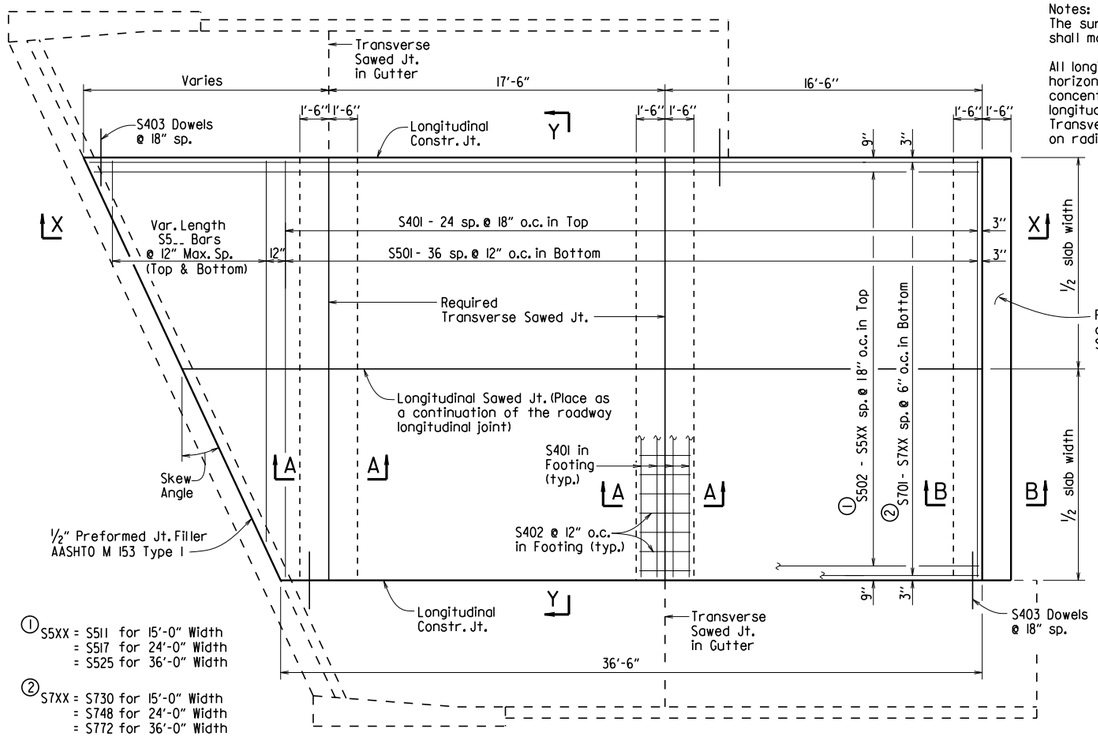
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CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

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

TYPE CI APPROACH SLAB 55040CI



① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

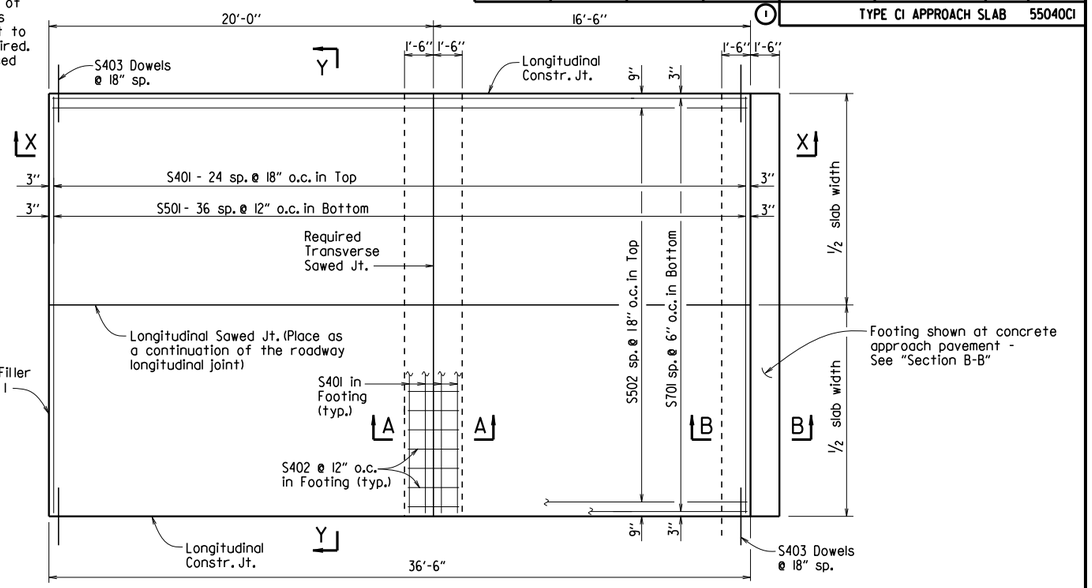
② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"

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.



PLAN - SQUARE APPROACH SLAB

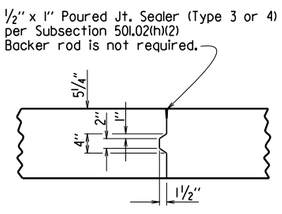
1/4" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

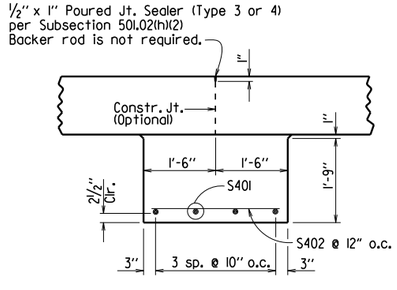
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—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



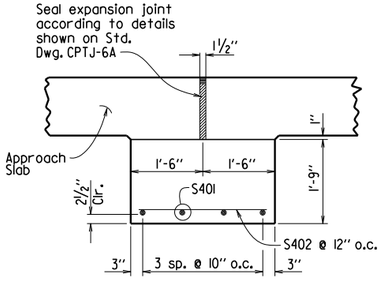
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



SECTION A-A

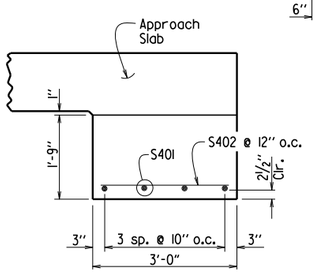
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

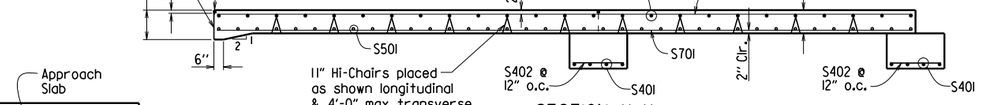
N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

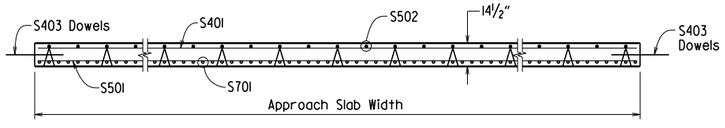
N.T.S.



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 1 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.

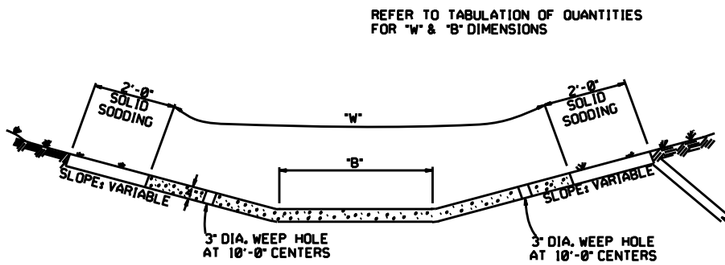
STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

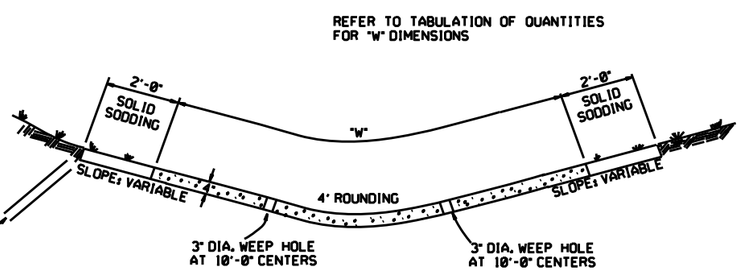
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CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040CI



TYPE A

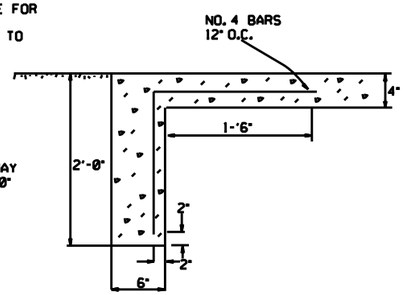
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



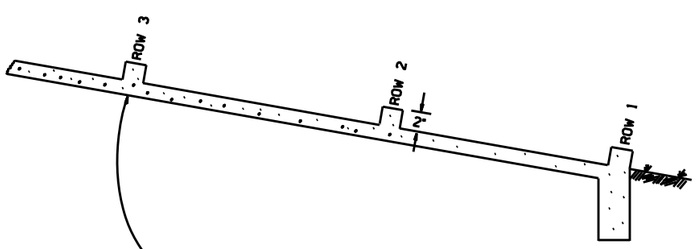
TYPE B

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

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

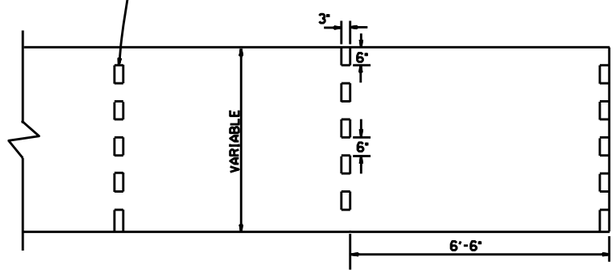


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

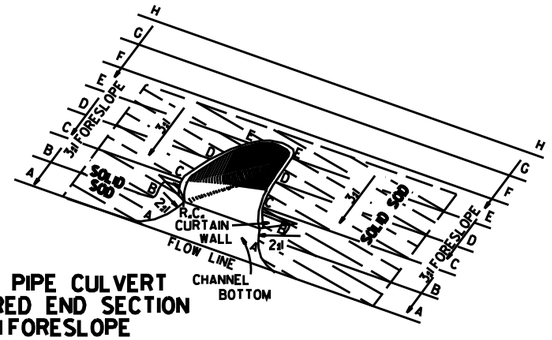
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

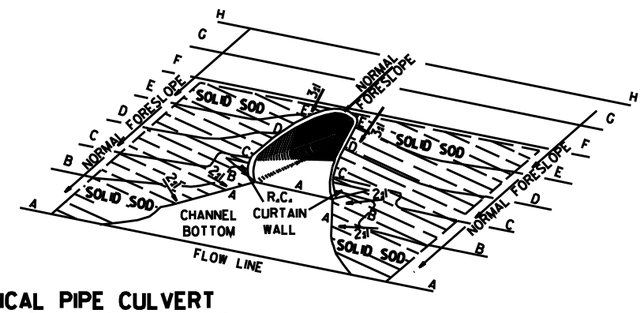
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

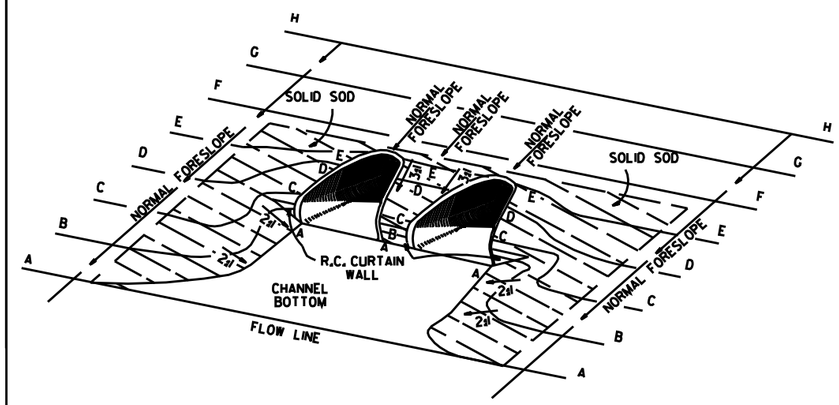
STANDARD DRAWING CDP-1



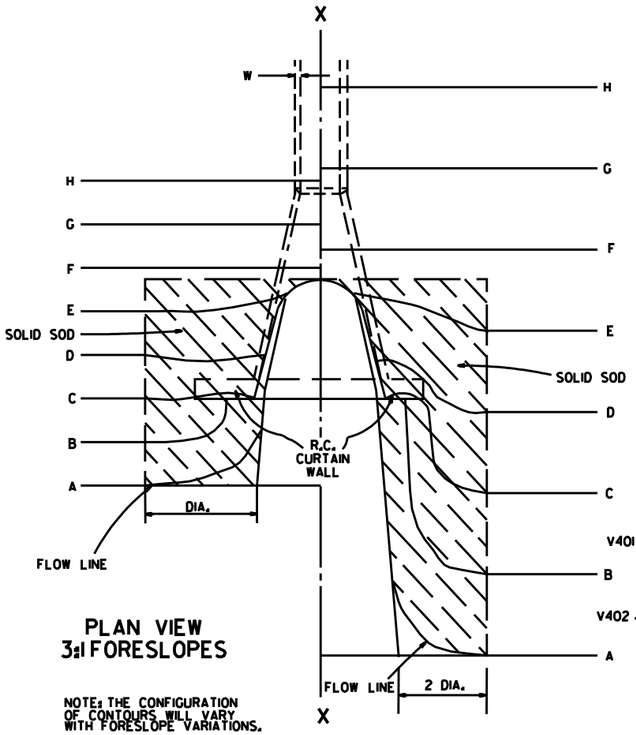
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

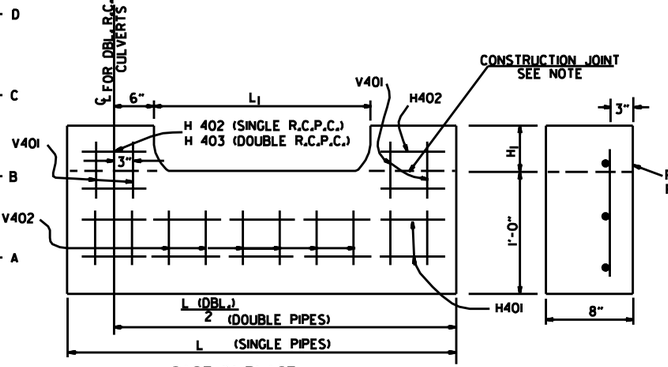
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

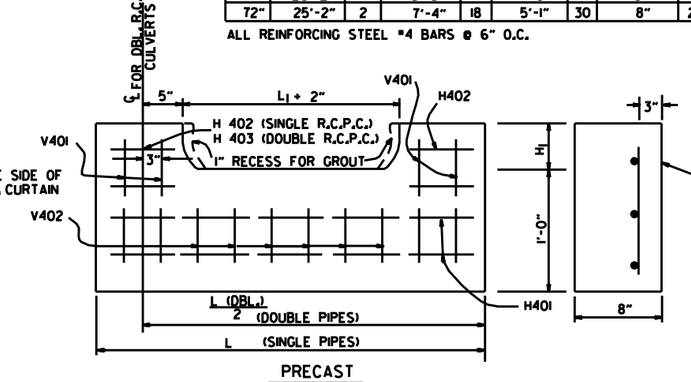
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

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



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

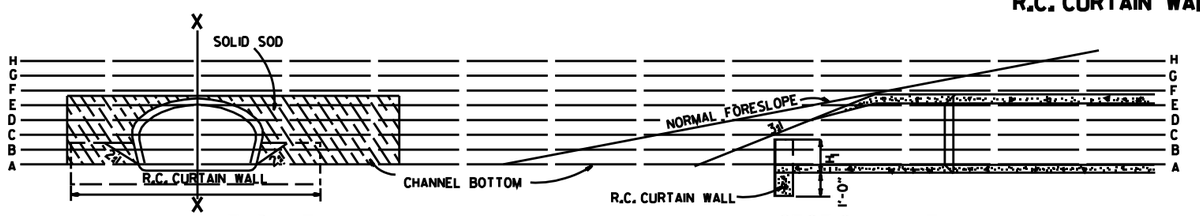
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

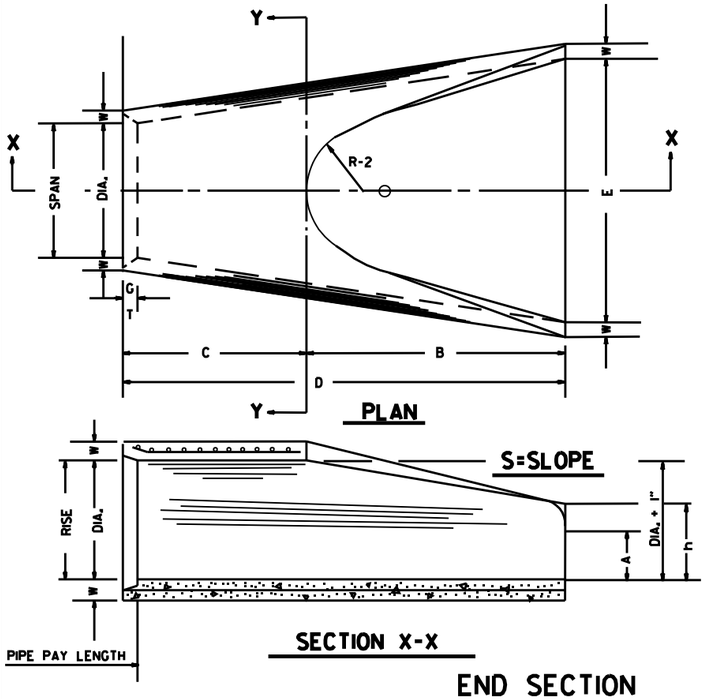
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

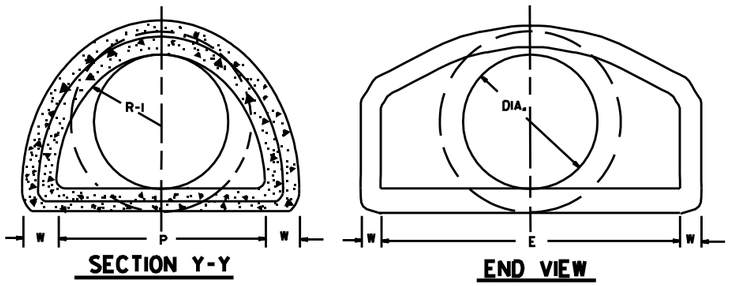
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3st	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3st	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3st	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3st	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3st	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3st	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3st	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3st	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3st	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"

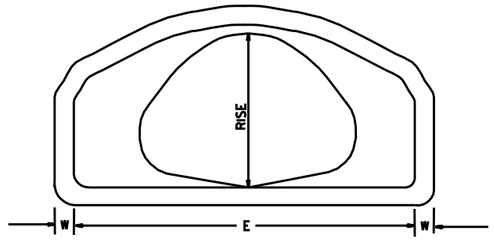


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

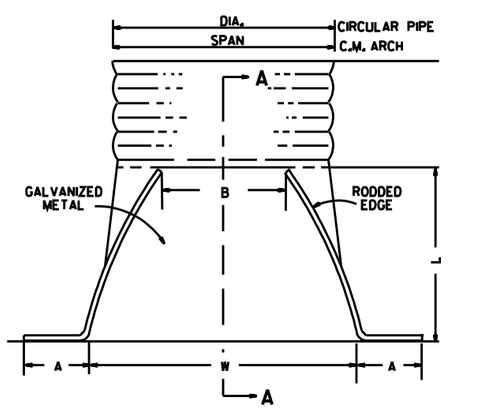
ARCH PIPE

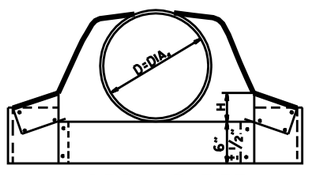
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½st
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½st
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½st
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅛"	15"	2½"	2½st
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½st
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½st
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½st
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅜"	24"	4¼"	2½st
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼st
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼st

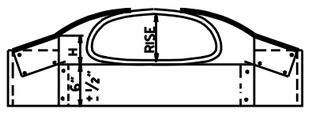
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE







CIRCULAR PIPE

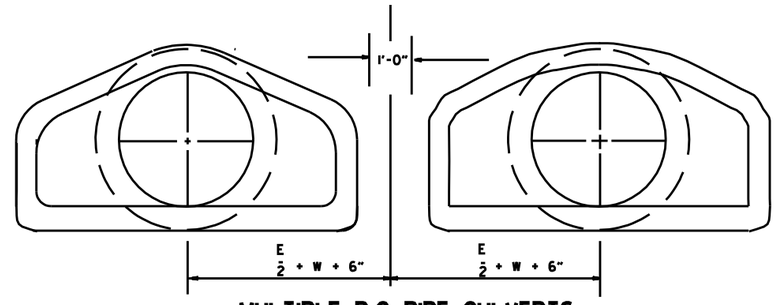
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½st
15	16	7	8	6	26	30	2½st
18	16	8	10	6	31	36	2½st
21	16	9	12	6	36	42	2½st
24	16	10	13	6	41	48	2½st
30	14	12	16	8	51	60	2½st
36	14	14	19	9	60	72	2½st
42	12	16	22	11	69	84	2½st
48	12	18	27	12	78	90	2½st
54	12	18	30	12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

C.M. ARCH PIPE

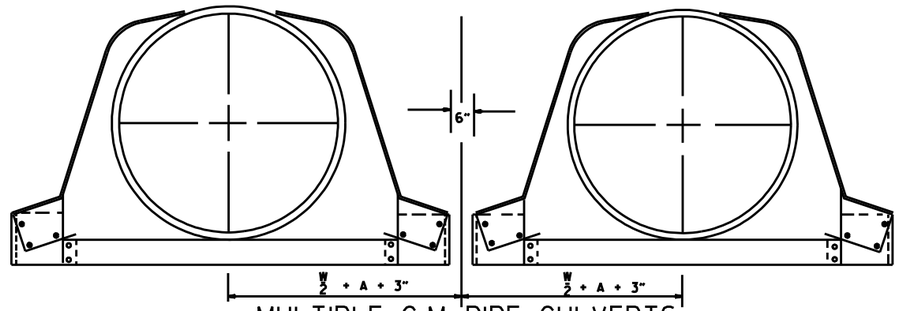
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½st	16
18"	21	15	7	10	6	23	36	2½st	16
21"	24	18	8	12	6	28	42	2½st	16
24"	28	20	9	14	6	32	48	2½st	16
30"	35	24	10	16	6	39	60	2½st	14
36"	42	29	12	18	8	46	75	2½st	14
42"	49	33	13	21	9	53	85	2½st	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



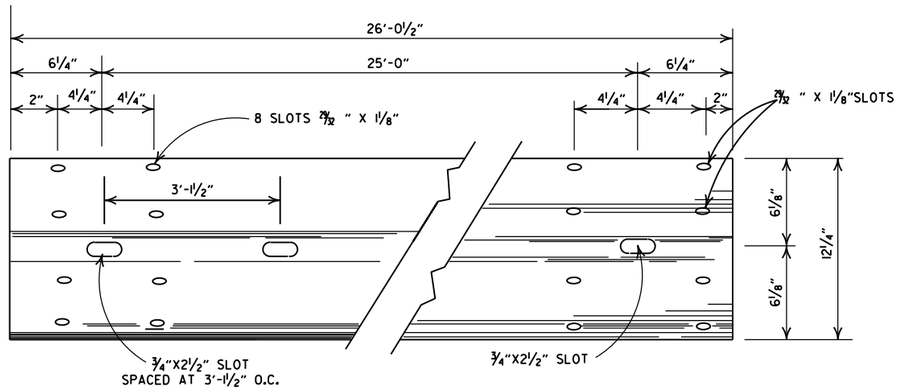
MULTIPLE C.M. PIPE CULVERTS

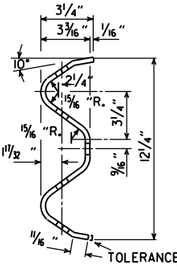
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

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FLARED END SECTION

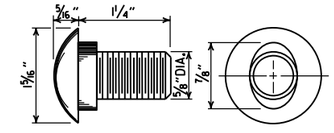
STANDARD DRAWING FES-2



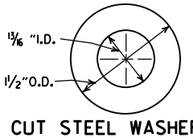


DETAILS OF W-BEAM GUARDRAIL

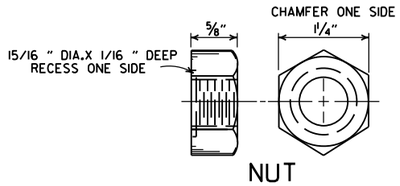
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



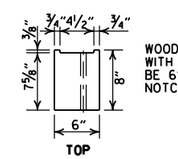
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



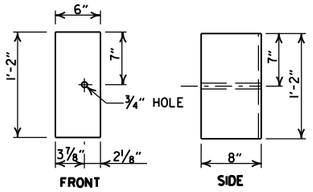
CUT STEEL WASHER



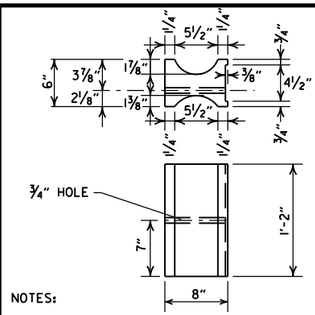
NUT



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



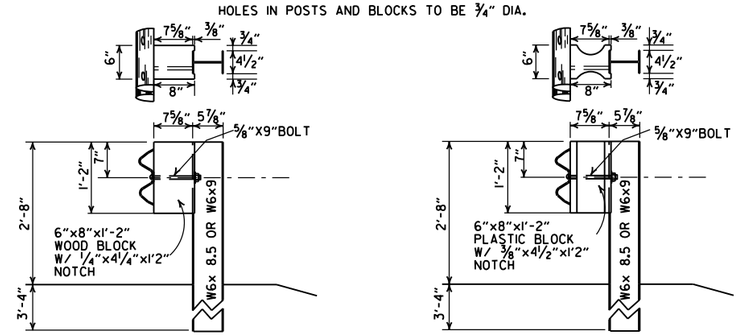
WOOD BLOCKOUT (W-BEAM)



NOTES:

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

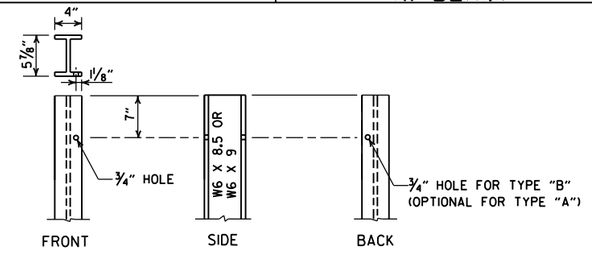
PLASTIC BLOCKOUT (W-BEAM)



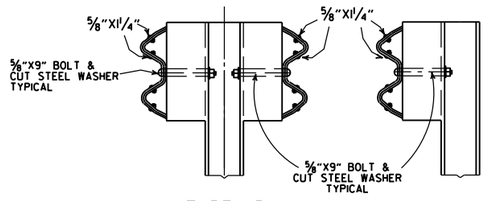
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

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

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

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

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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

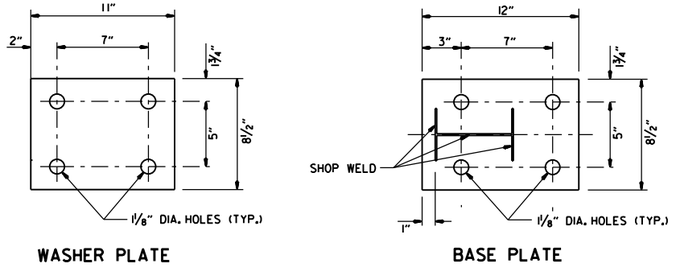
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

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

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GUARDRAIL DETAILS

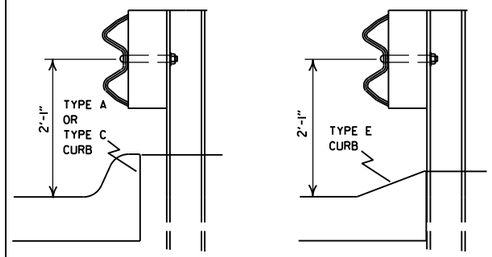
STANDARD DRAWING GR-6



WASHER PLATE

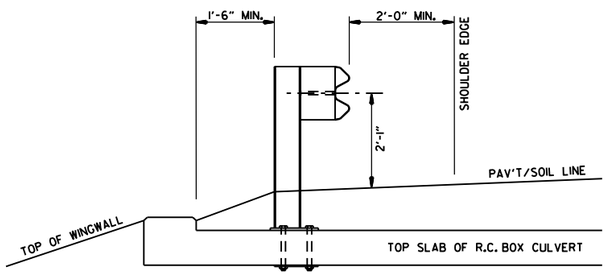
BASE PLATE

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

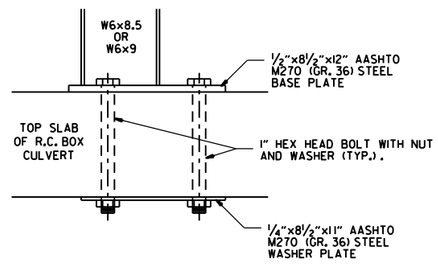


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

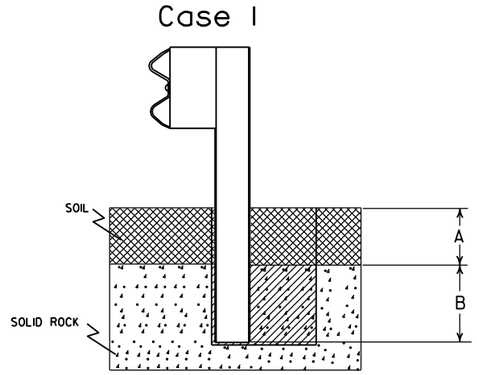
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

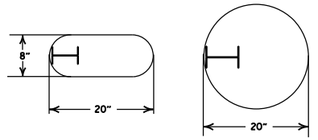


DETAIL OF CONNECTION



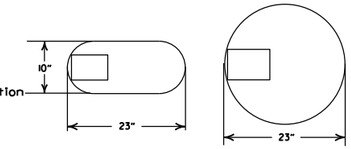
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

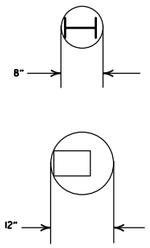
Either hole configuration acceptable



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

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

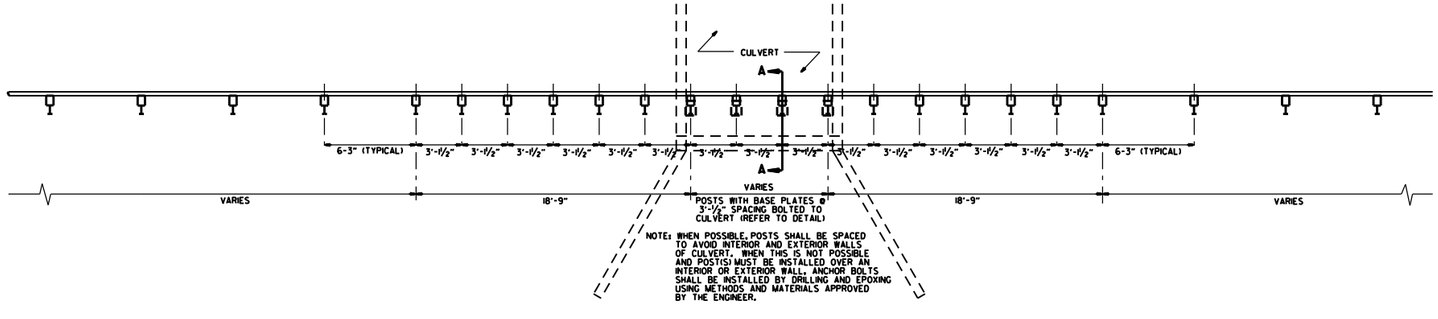
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



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

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

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



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

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

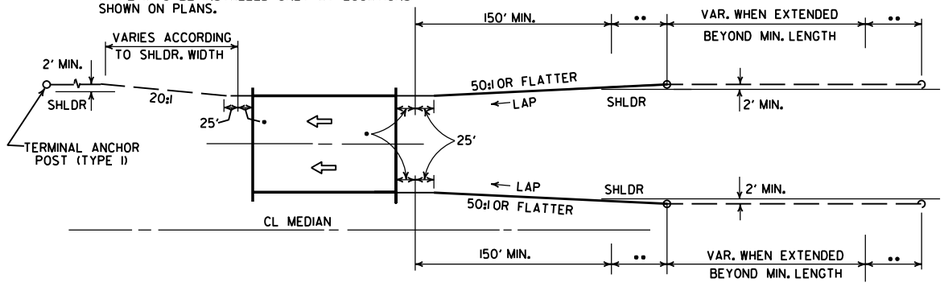
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

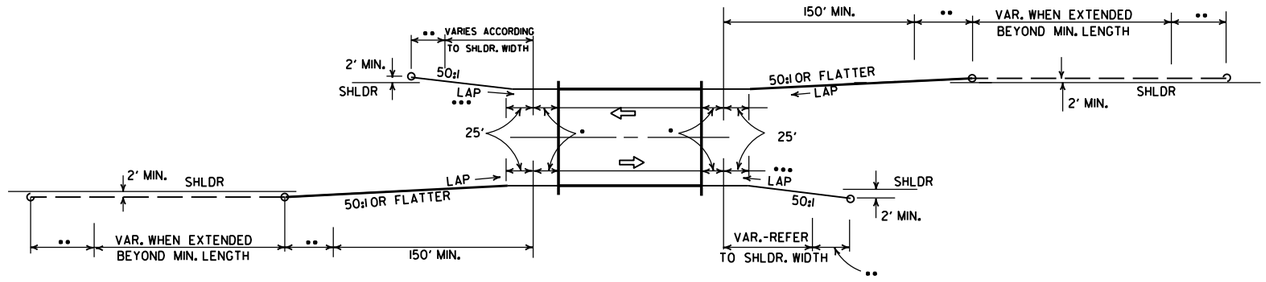
STANDARD DRAWING GR-7

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



ONE-WAY TRAFFIC

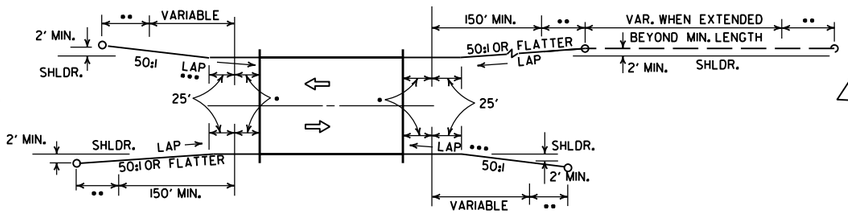
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

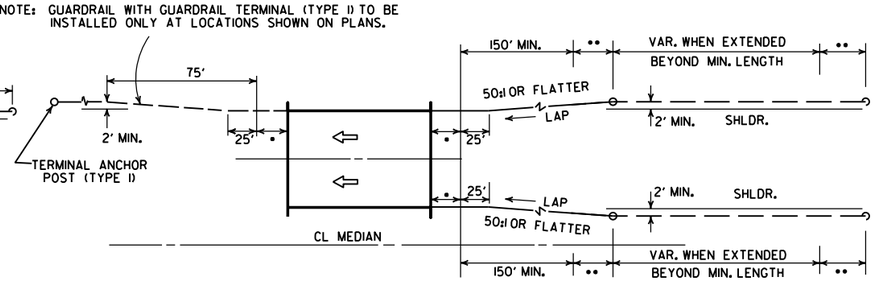
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

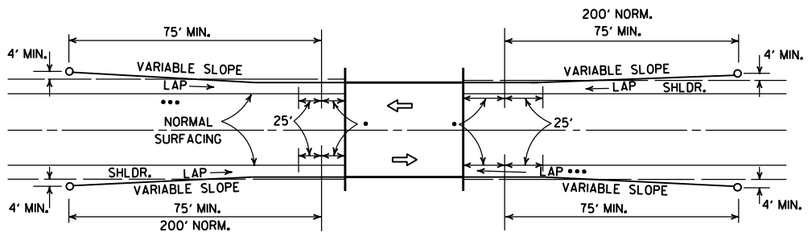
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

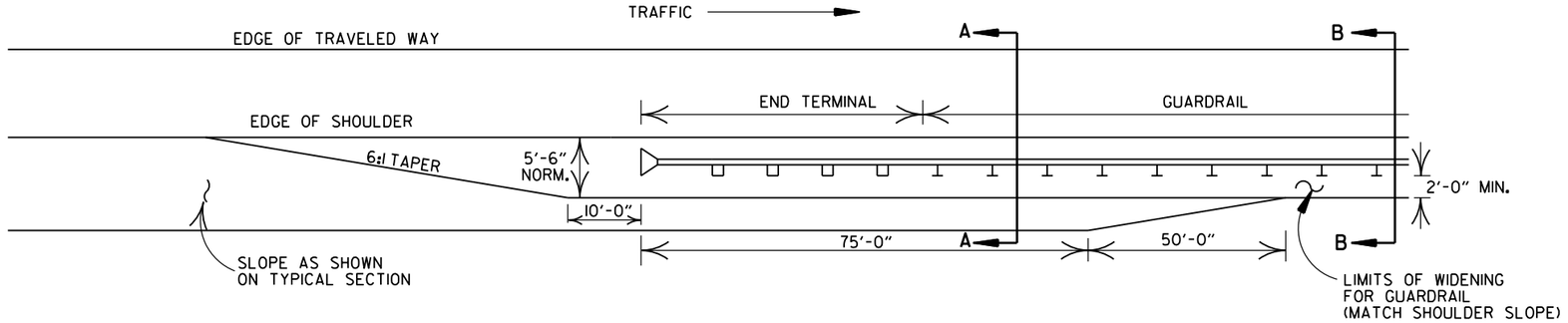
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

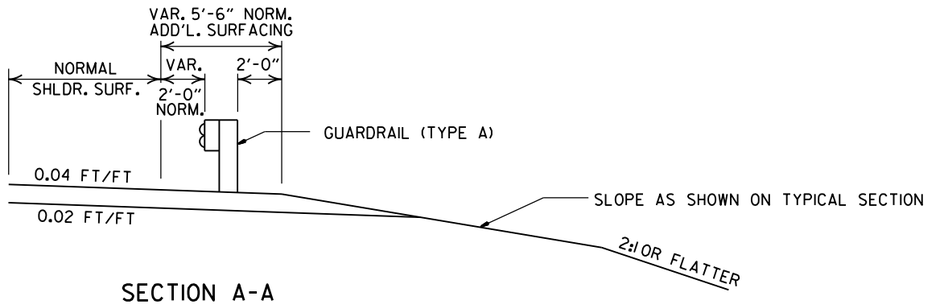
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

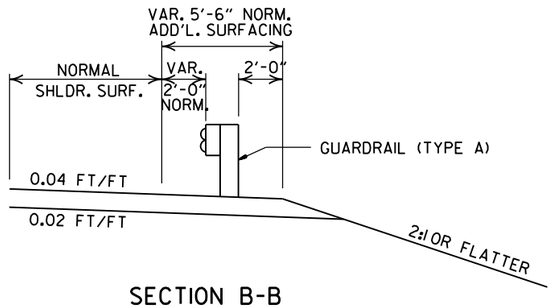
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



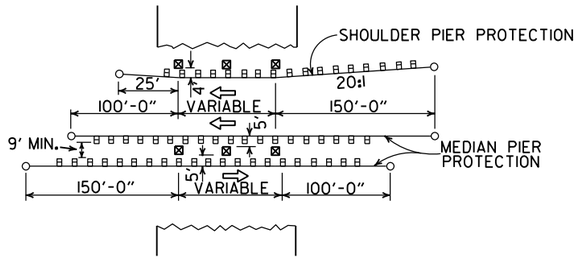


SECTION A-A



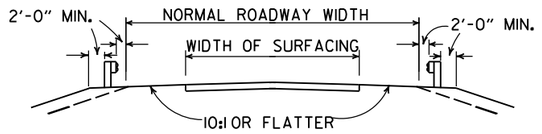
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

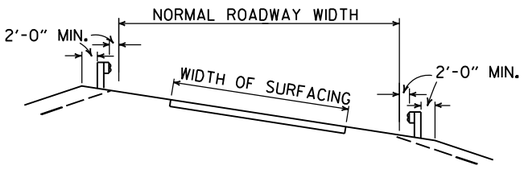


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

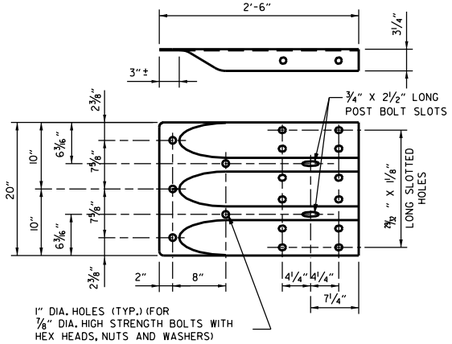
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

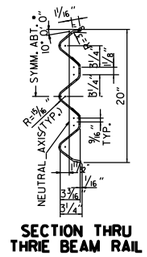
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

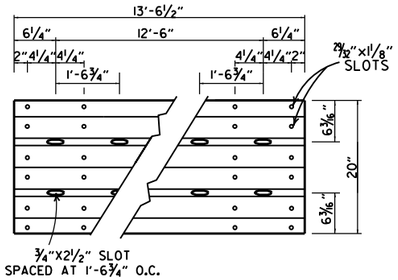
STANDARD DRAWING GR-9



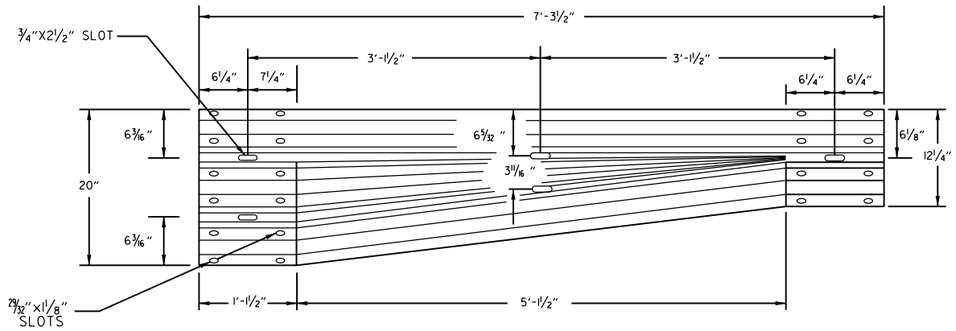
SPECIAL END SHOE



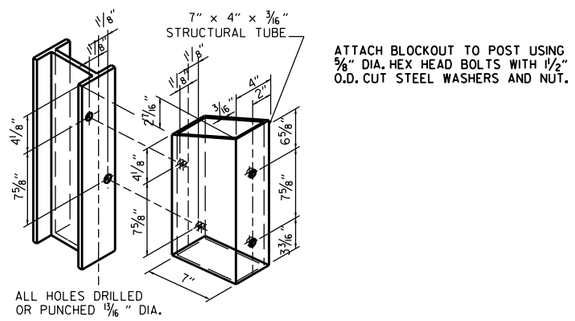
SECTION THRU THRIE BEAM RAIL



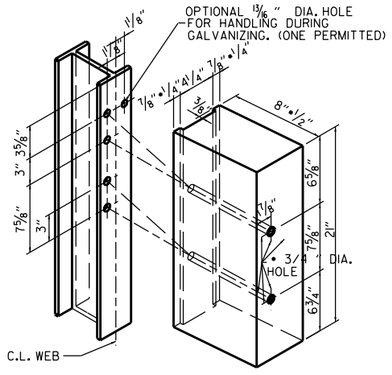
THRIE BEAM RAIL



TRANSITION SECTION



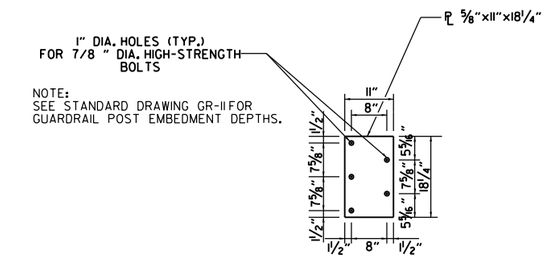
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

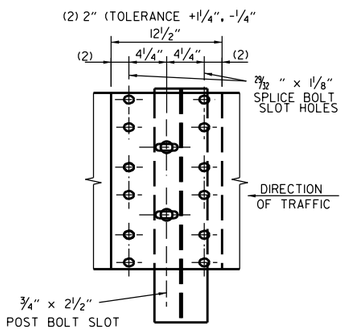
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

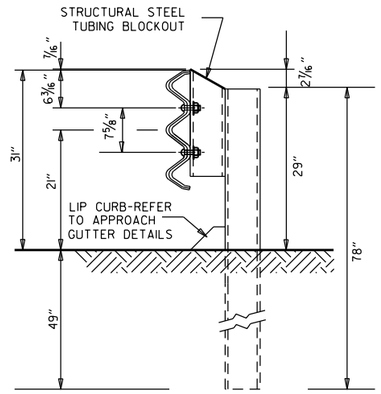
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

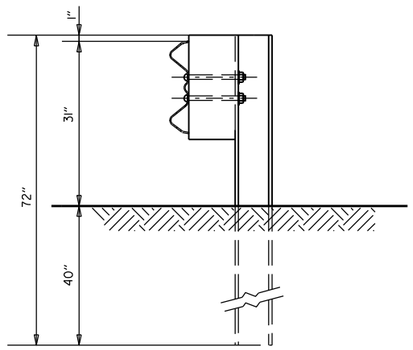
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

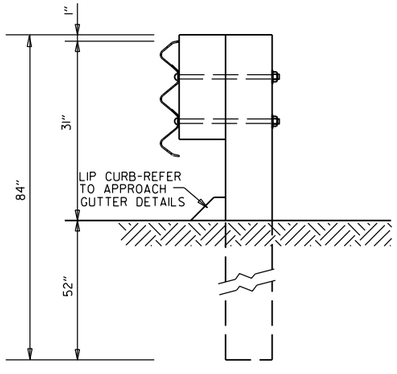
STANDARD DRAWING GR-10



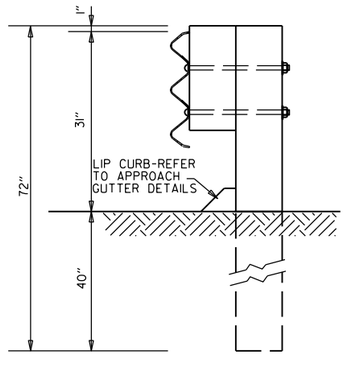
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



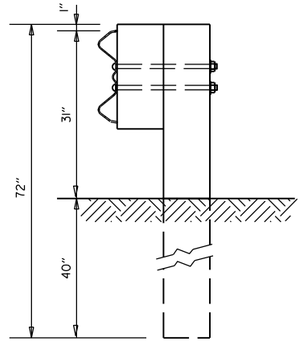
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

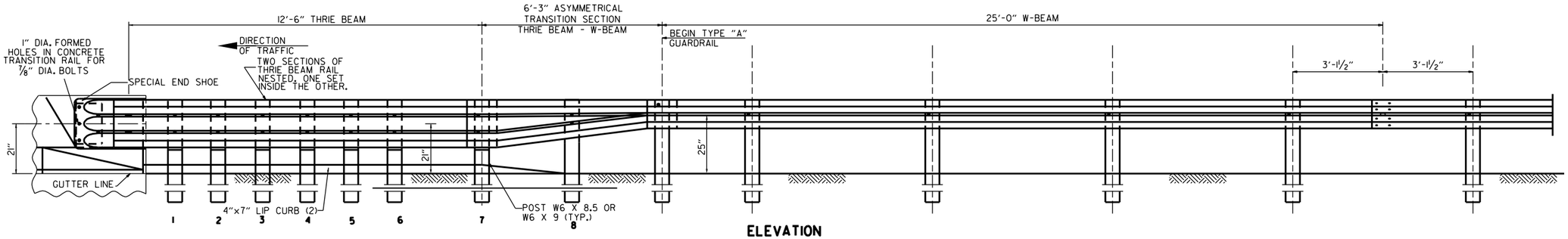
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

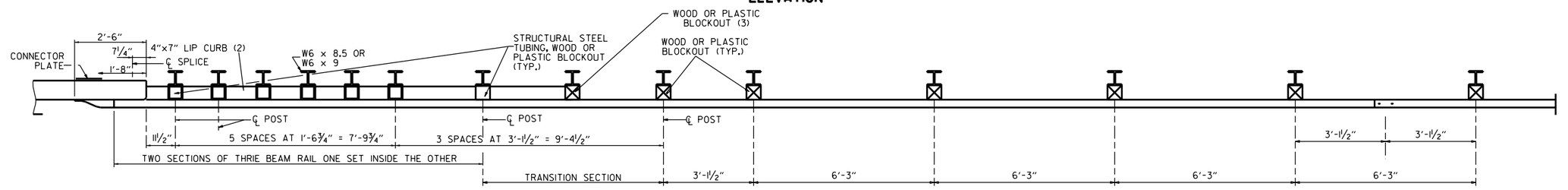
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

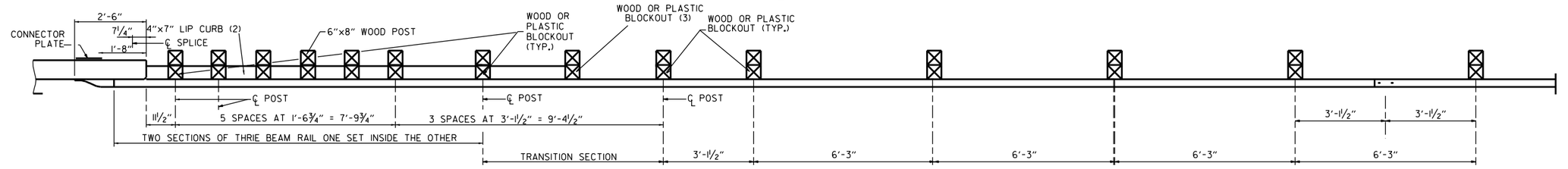
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

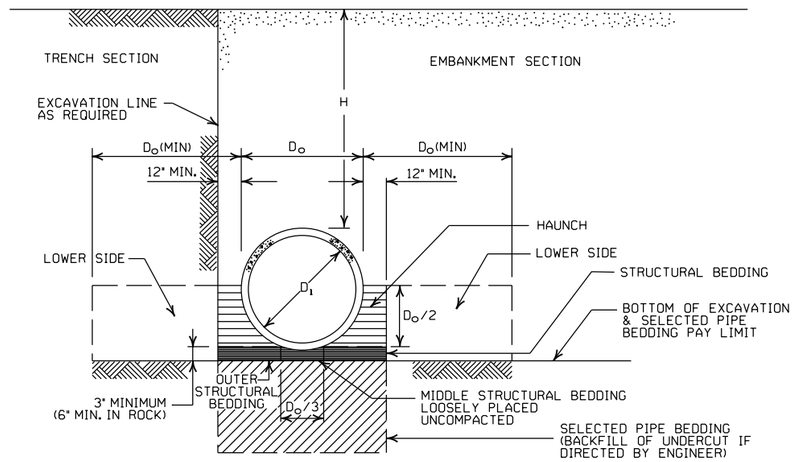
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

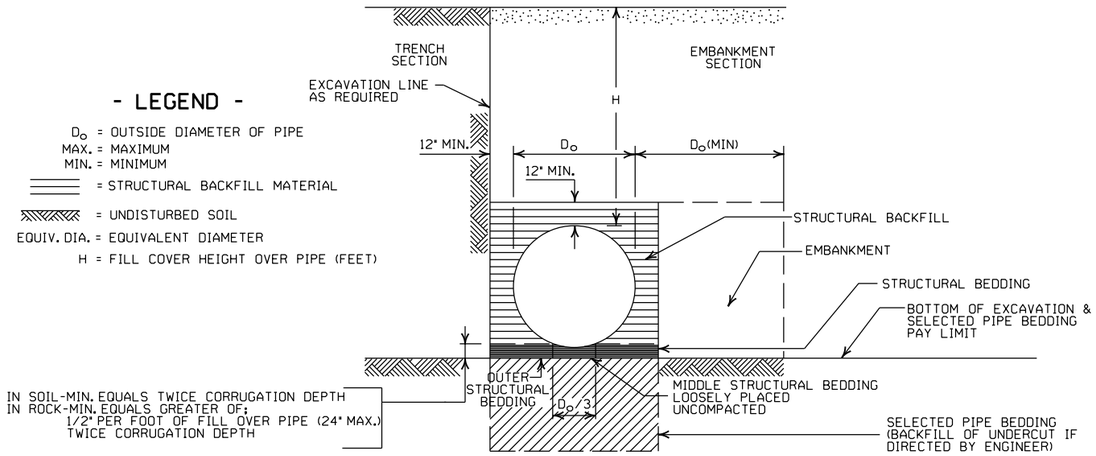
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

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

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

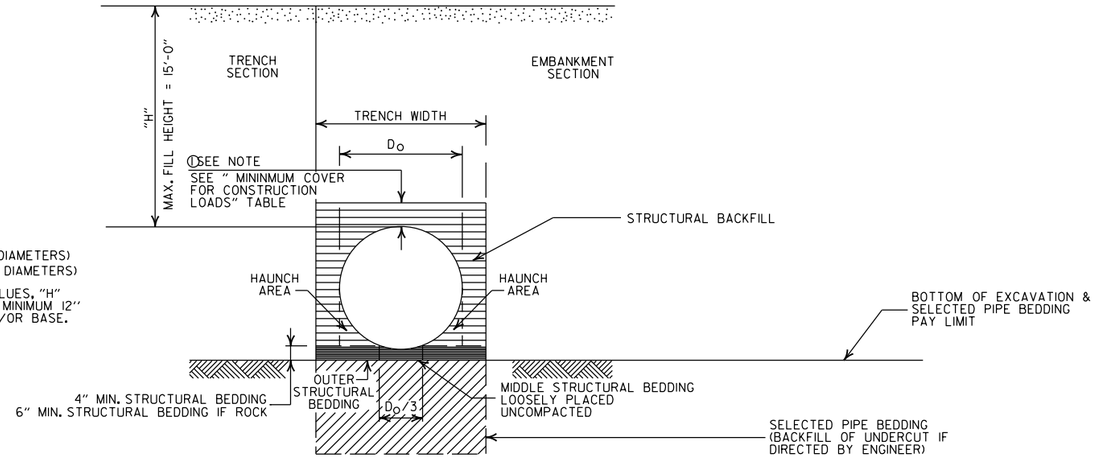
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

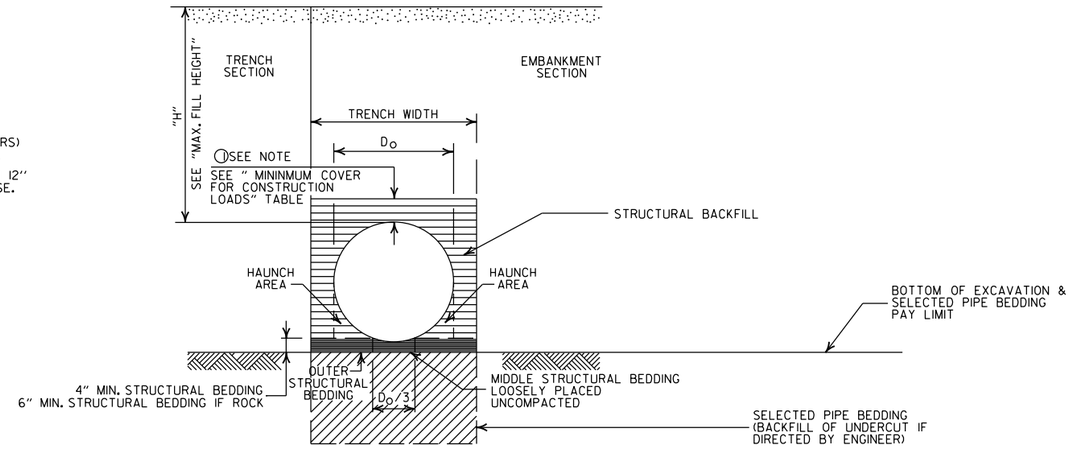
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

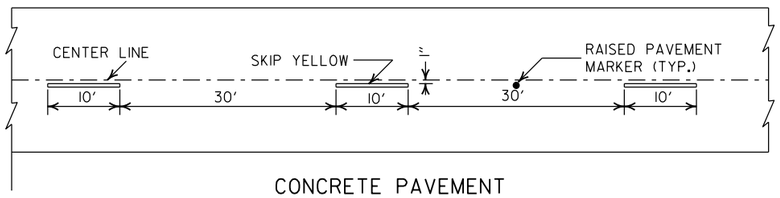
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

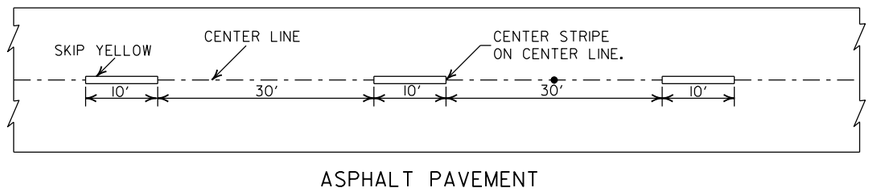
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

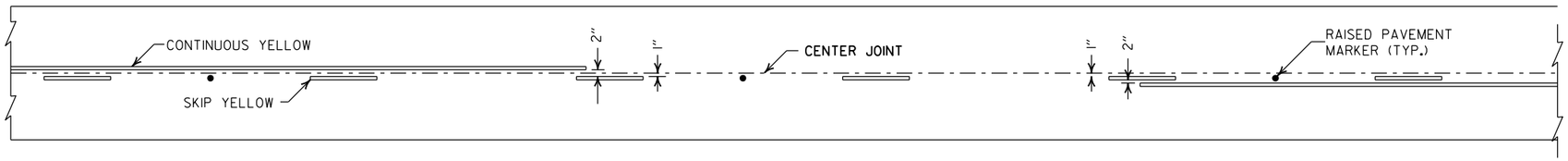


CONCRETE PAVEMENT

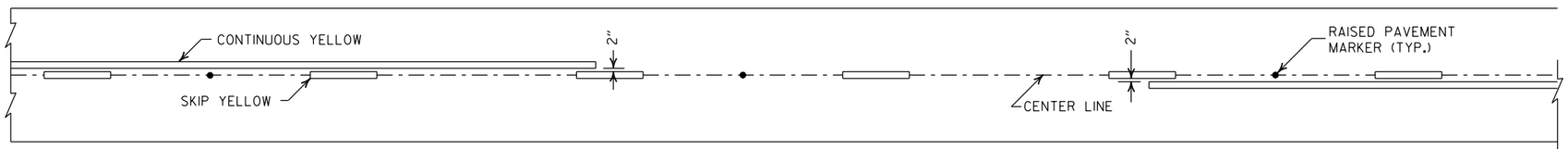


ASPHALT PAVEMENT

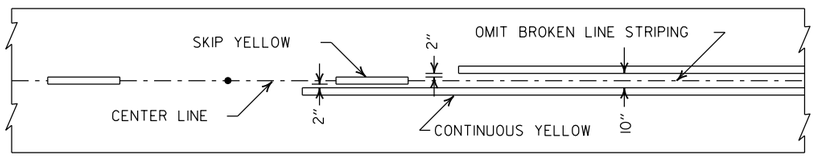
BROKEN LINE STRIPING



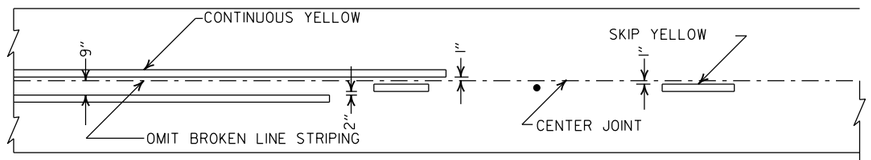
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

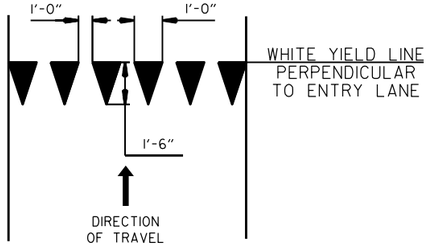


ASPHALT PAVEMENT

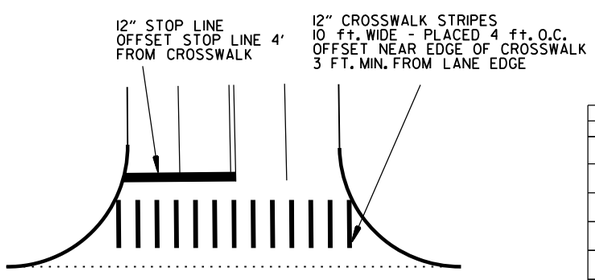


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

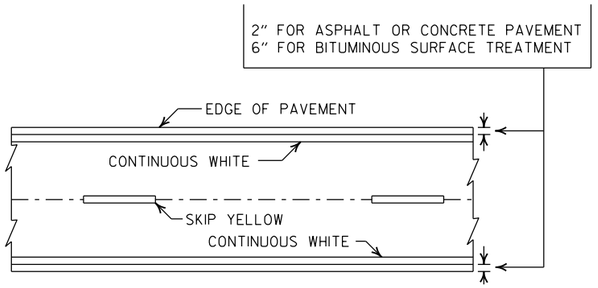


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

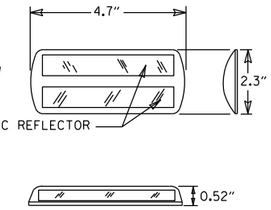
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

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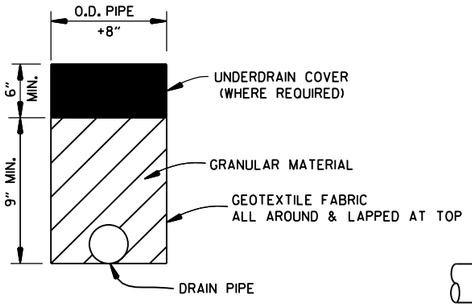
PAVEMENT MARKING DETAILS

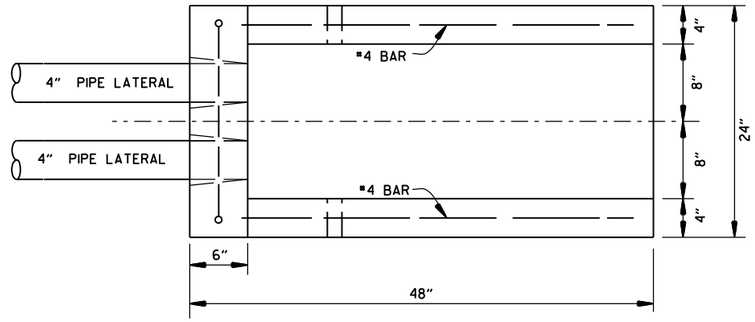
STANDARD DRAWING PM-1

NOTE:

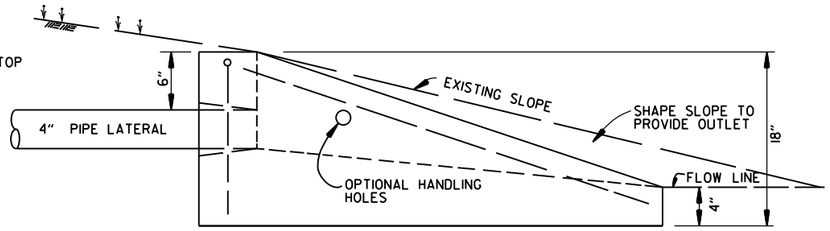
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

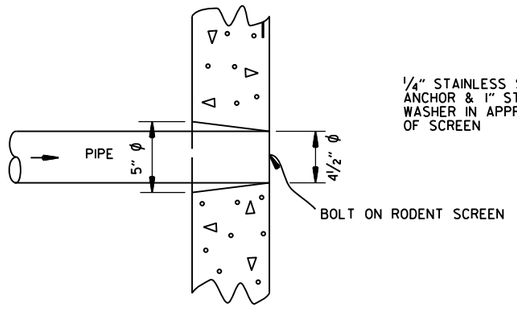




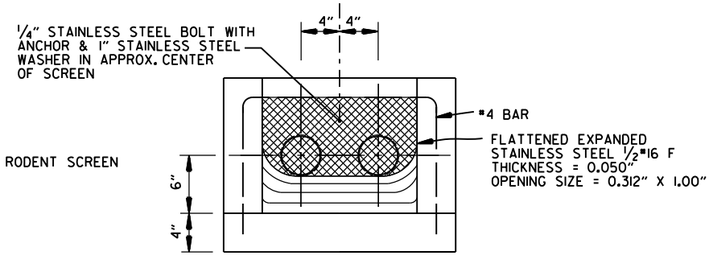
PLAN VIEW



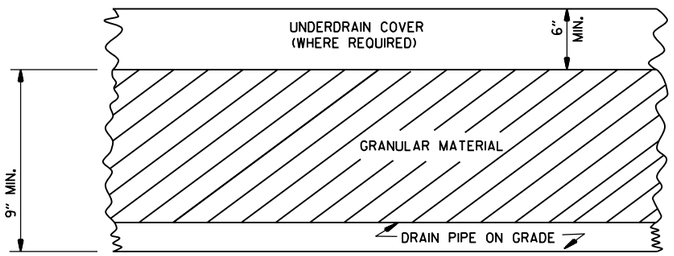
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

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

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

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

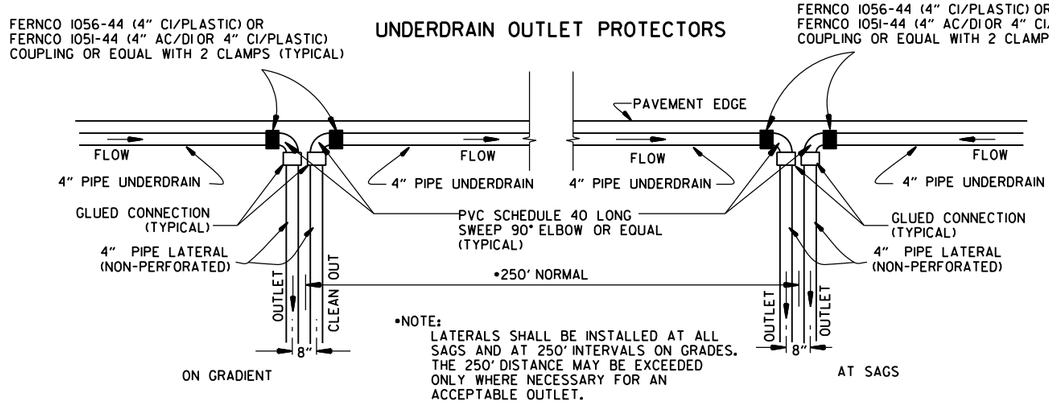
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

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

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

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

ABBREVIATIONS

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

GENERAL NOTES

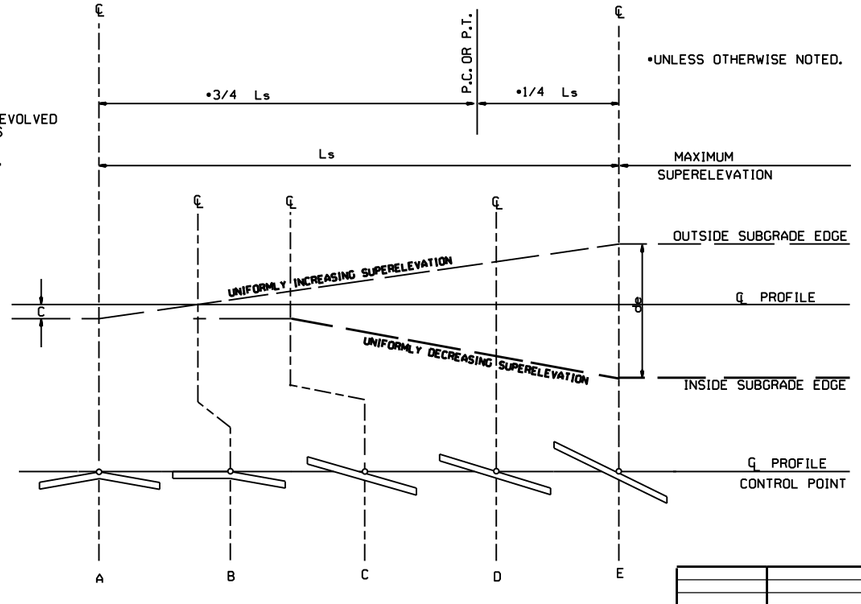
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

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

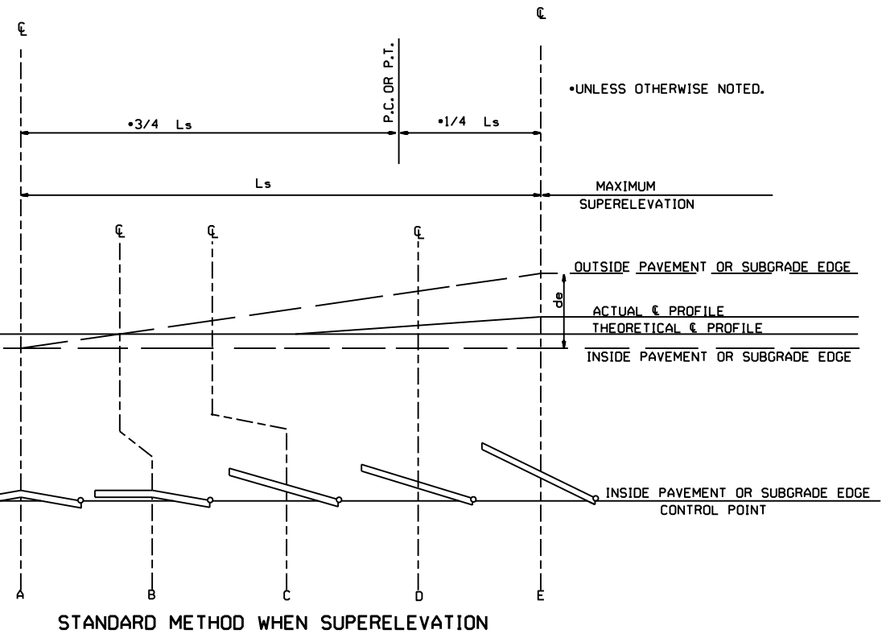
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

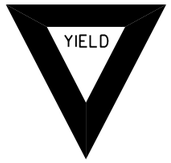
STANDARD DRAWING SE-2

R1-1



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

R1-2



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

R2-1



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

W3-5



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

W3-5a



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

R4-1



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

R4-2



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

R5-1



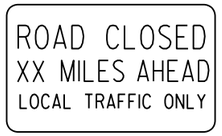
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a



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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



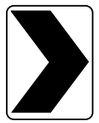
STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



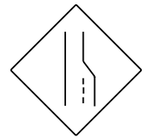
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



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

W9-2



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

W13-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



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

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



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

W8-9



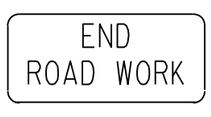
STD. 36"X36"
FWY. 48"X48"

G20-1



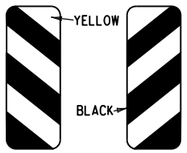
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

M4-9



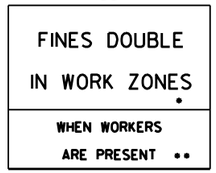
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

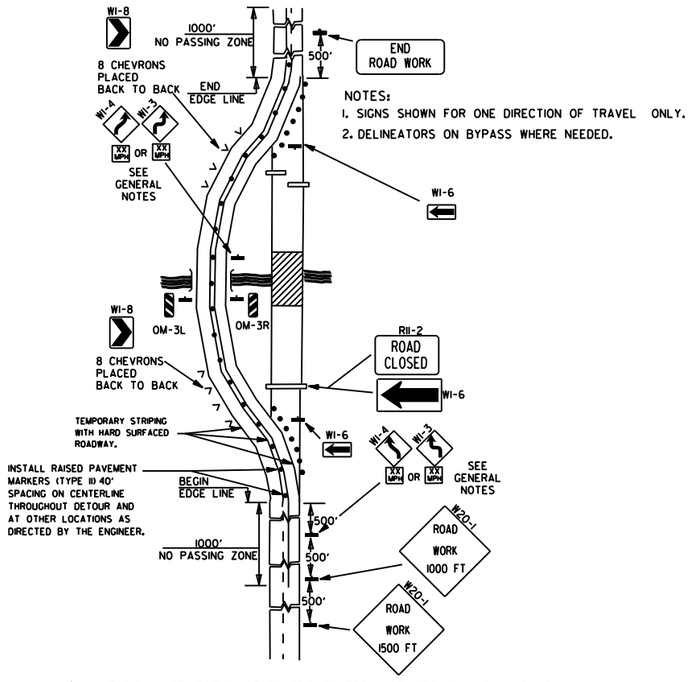
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

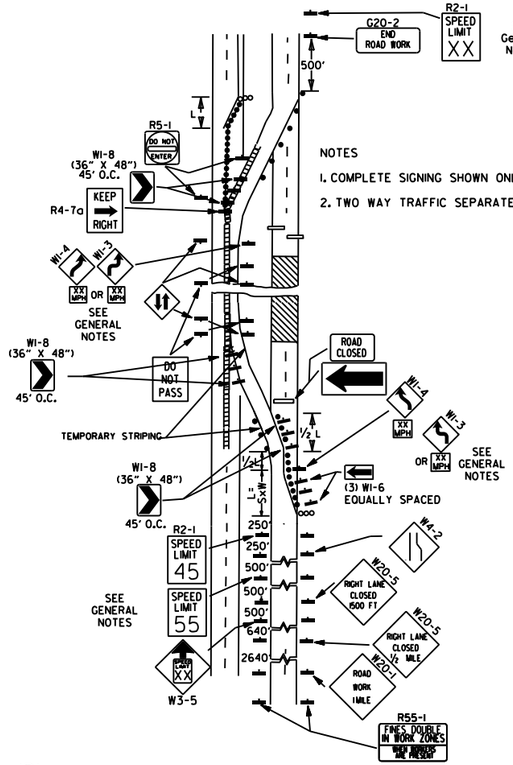
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



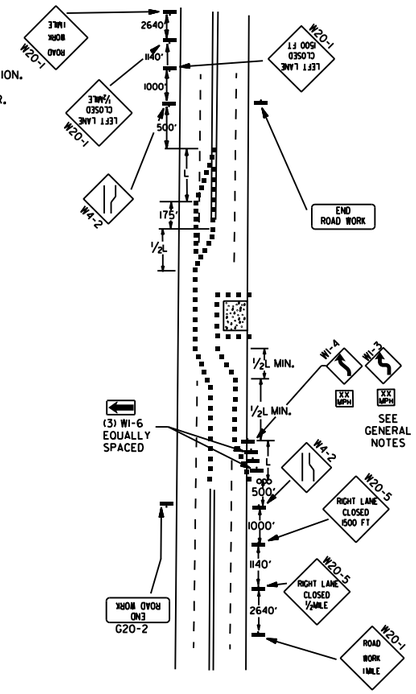
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

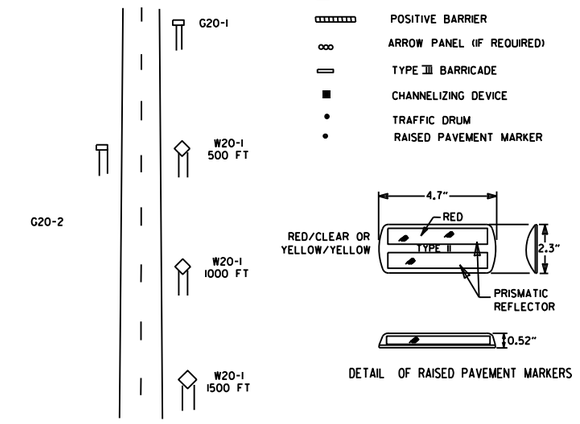


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

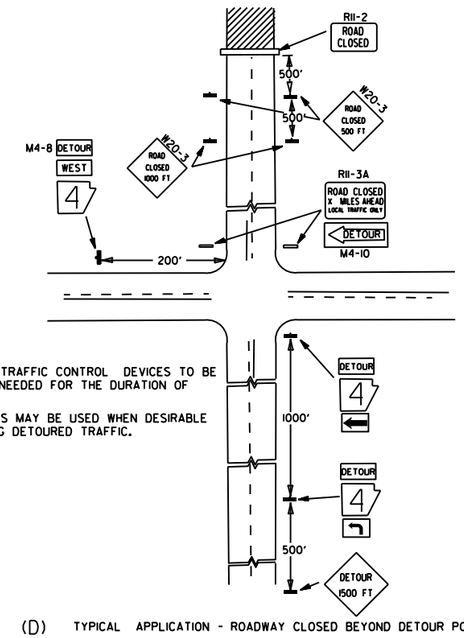
L= MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

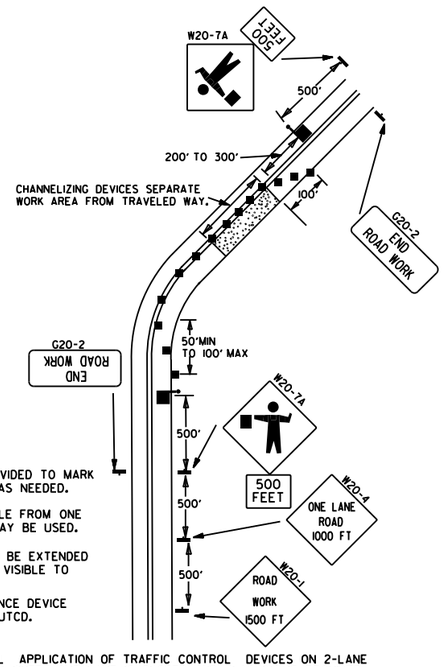
GENERAL NOTES:

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



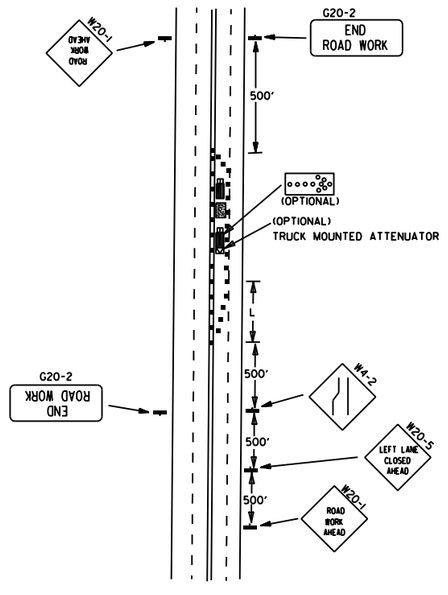
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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



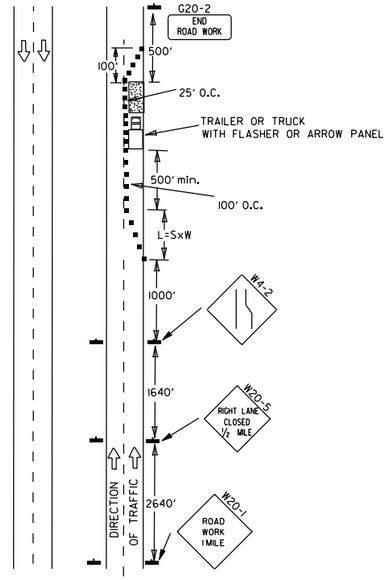
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

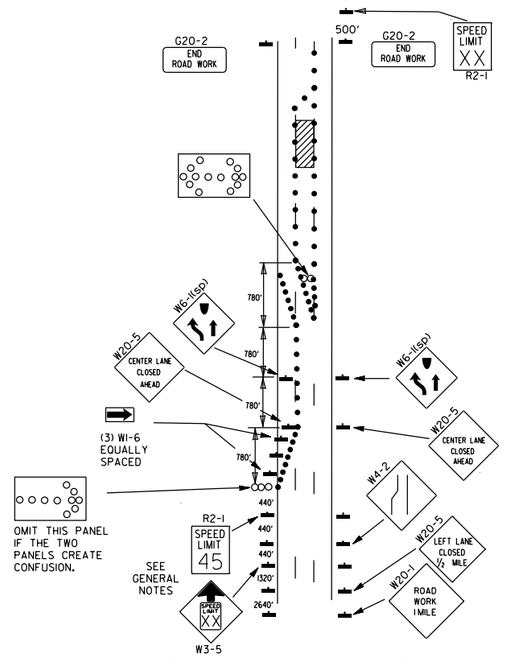
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

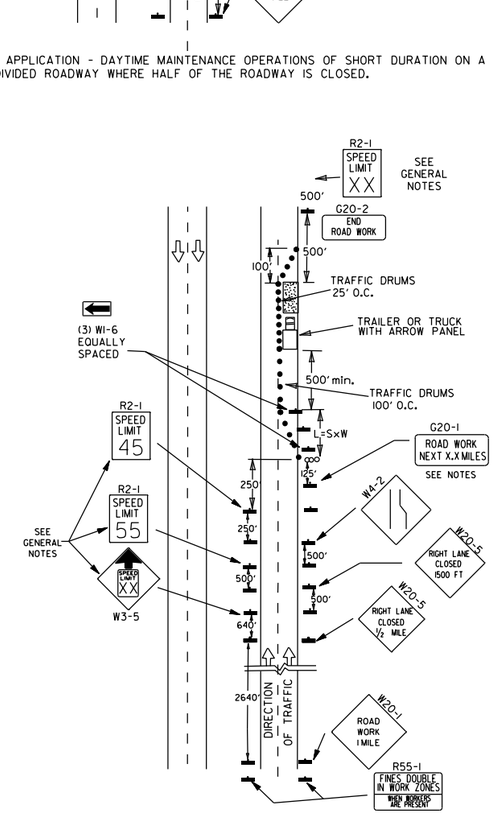
STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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



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

KEY:

ooo ARROW PANEL (IF REQUIRED)

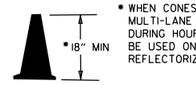
■ CHANNELIZING DEVICE

● TRAFFIC DRUM

GENERAL NOTES:

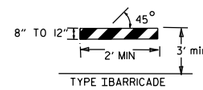
1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

CHANNELIZING DEVICES

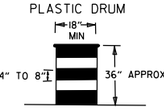


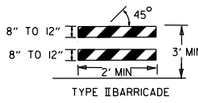
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

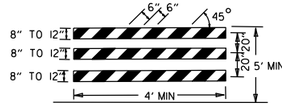
CONES



PLASTIC DRUM

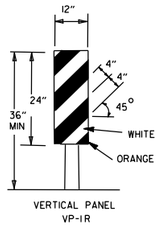




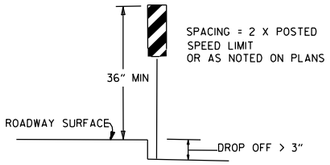


TYPE III BARRICADE

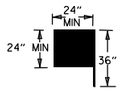
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



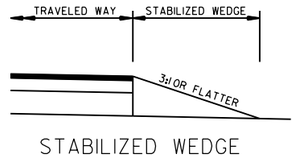
VERTICAL PANEL PLACEMENT



FLAG

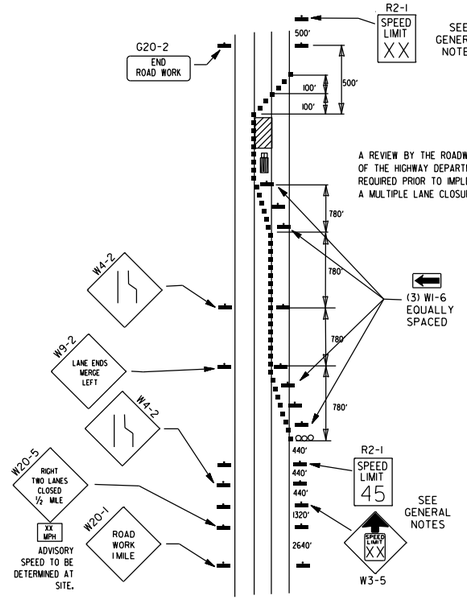


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

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



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

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL ≤ 45 MPH	TRAFFIC CONTROL > 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS(3)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

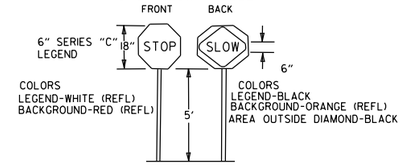
INTERSTATE AND NON-INTERSTATE

FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

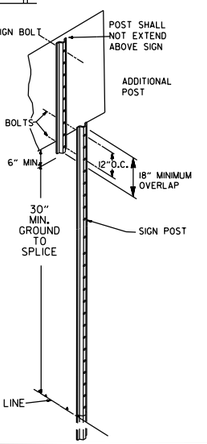
GENERAL NOTES:

1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

STOP SLOW PADDLE



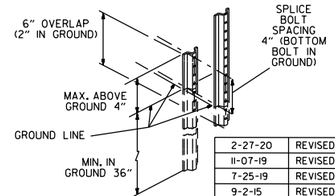
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



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

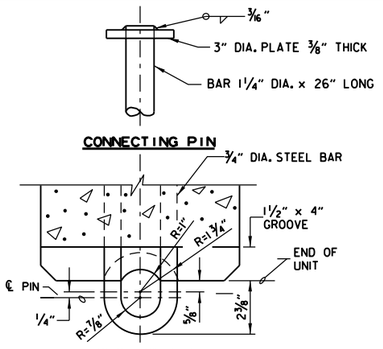
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

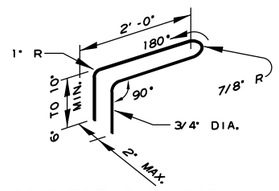
REINFORCING BAR TABLE PER BARRIER UNIT

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

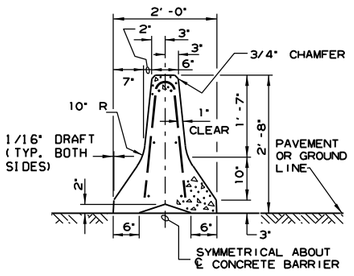


SECTION E-E

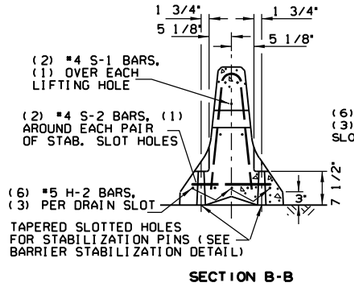
CONNECTION DETAILS



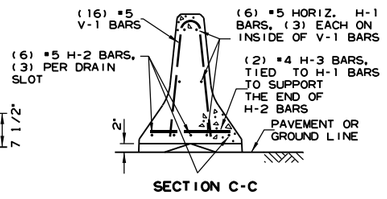
CONNECTION LOOP



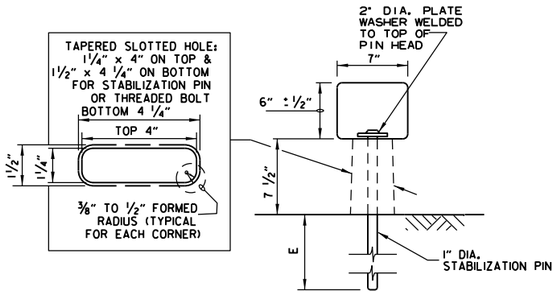
SECTION A-A



SECTION B-B



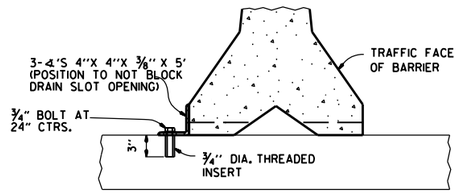
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

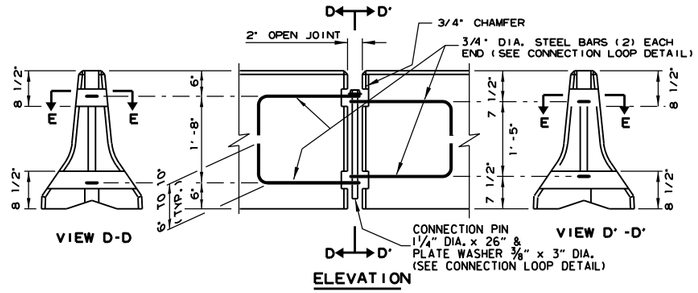
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



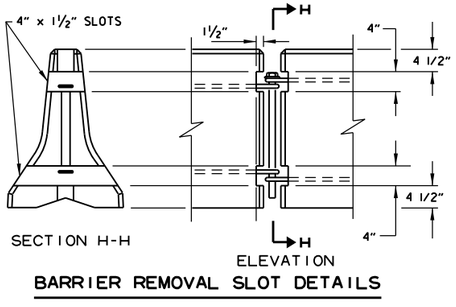
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

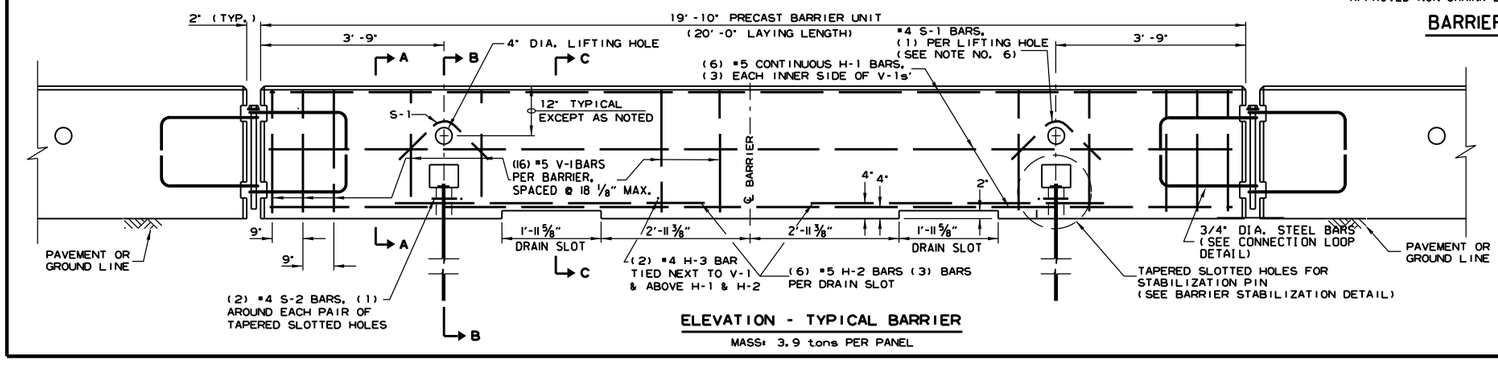
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

GENERAL NOTES

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

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

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

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

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

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

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

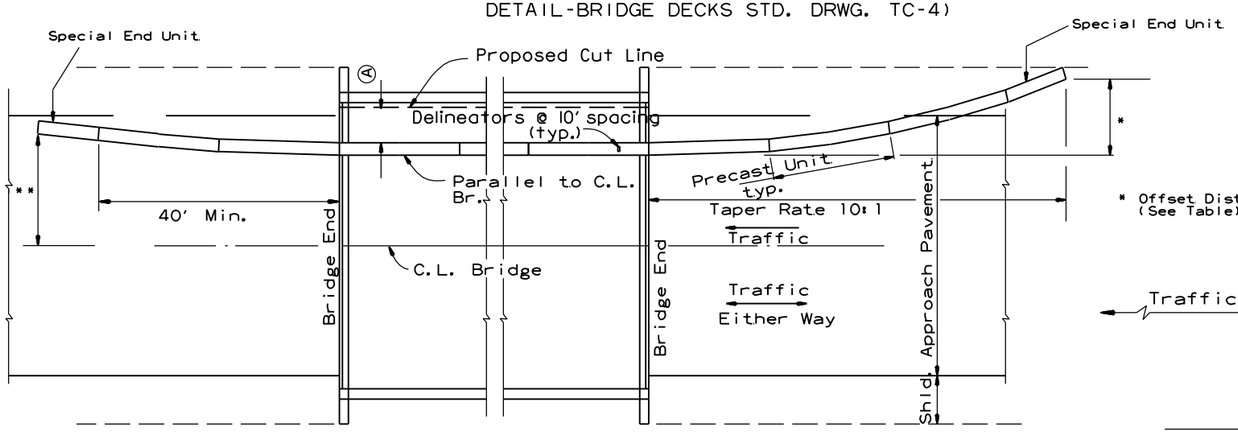
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

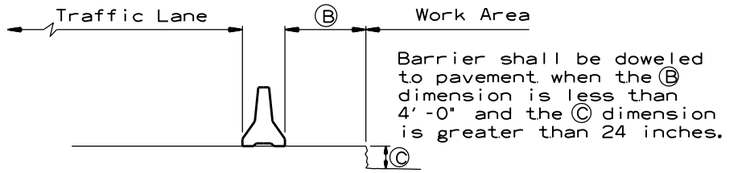
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

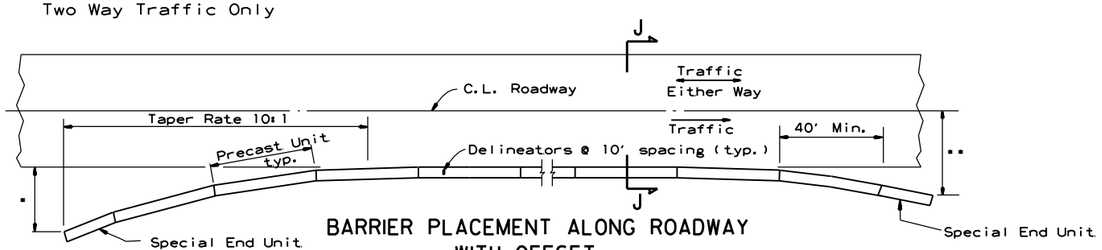


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

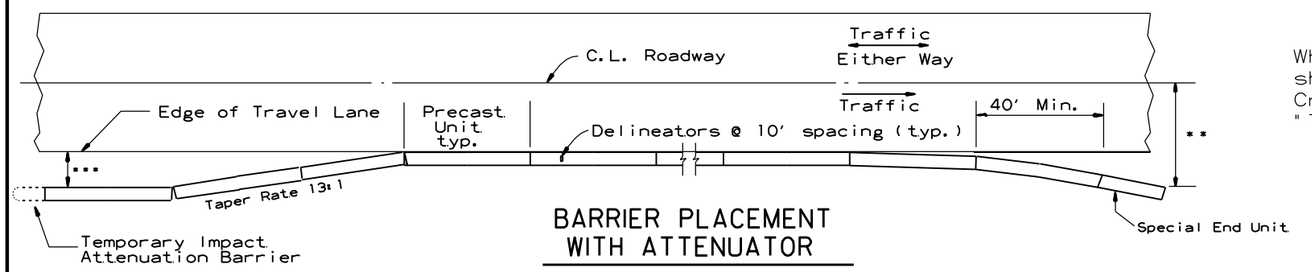
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

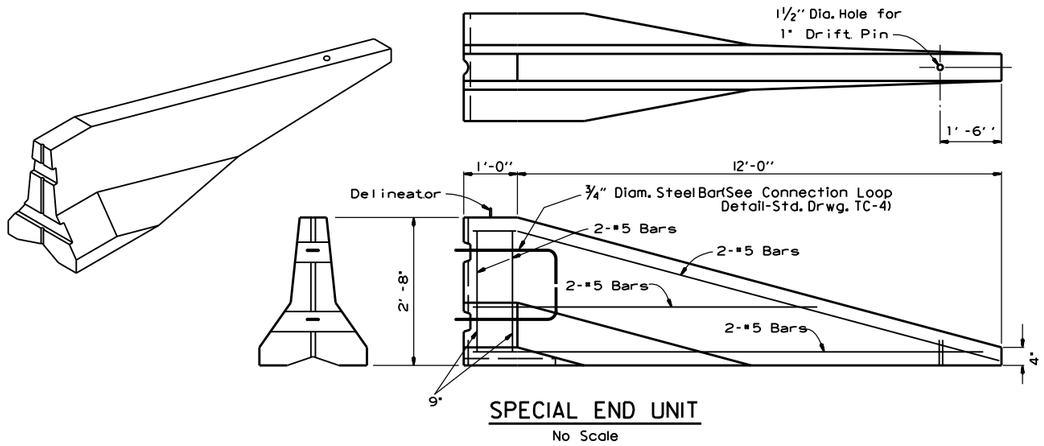


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

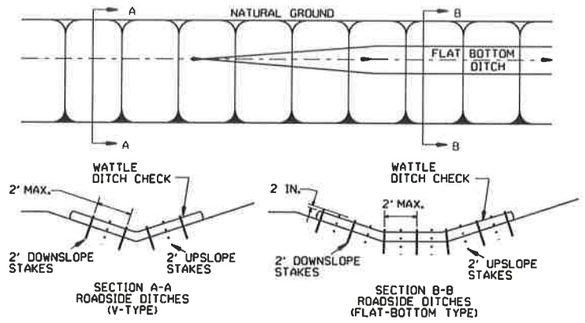
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

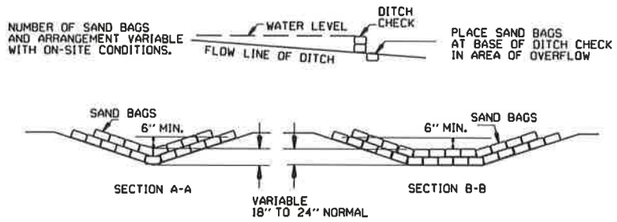
STANDARD DRAWING TC-5

GENERAL NOTES

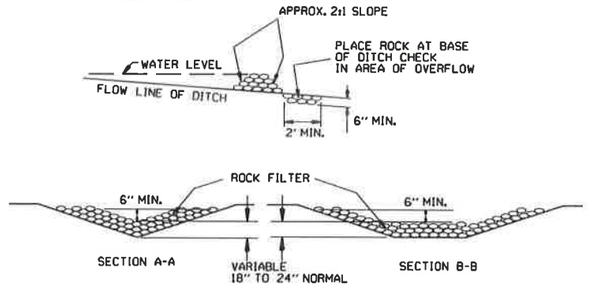
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

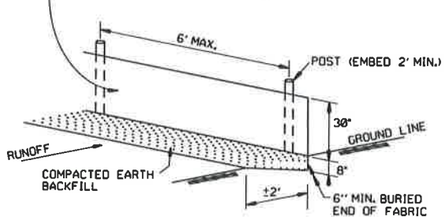


ROCK DITCH CHECK (E-6)

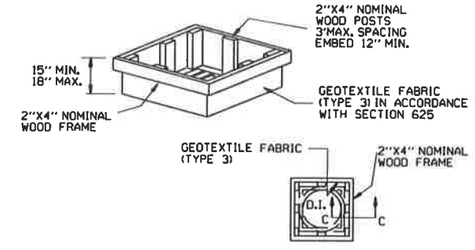
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

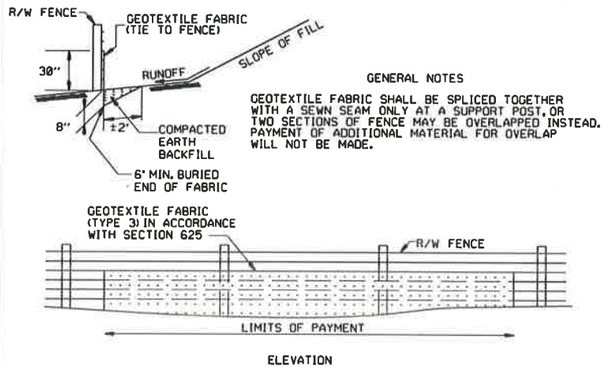
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

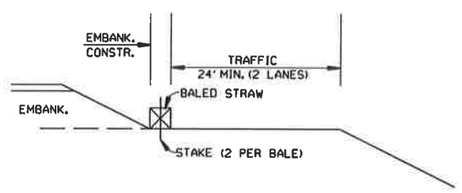
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

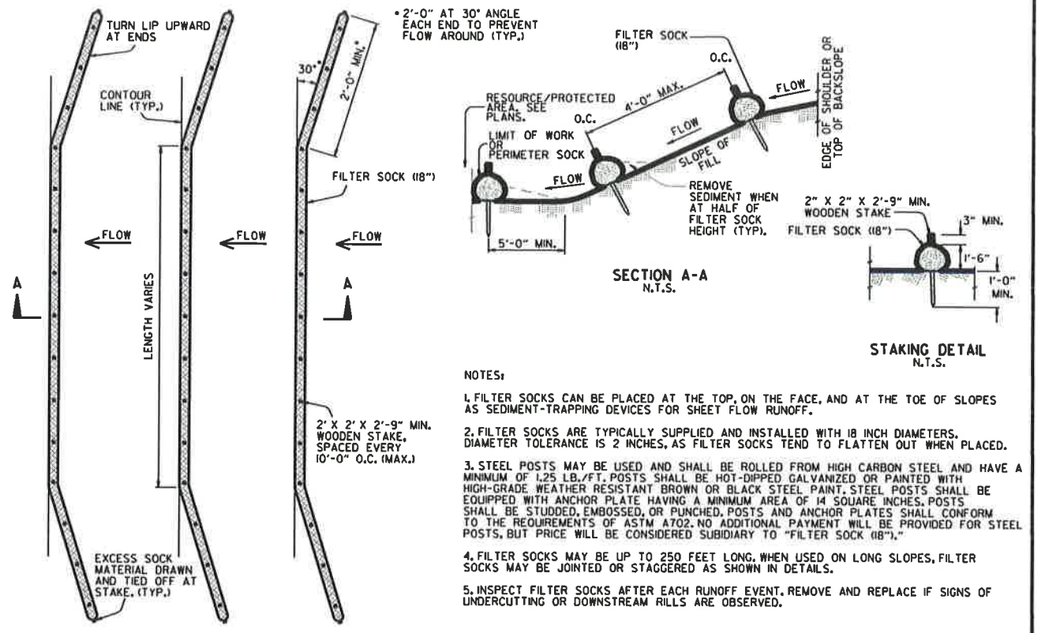
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

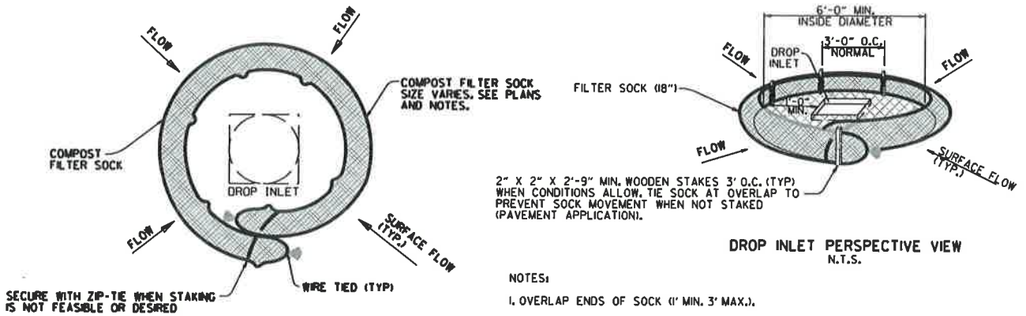
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

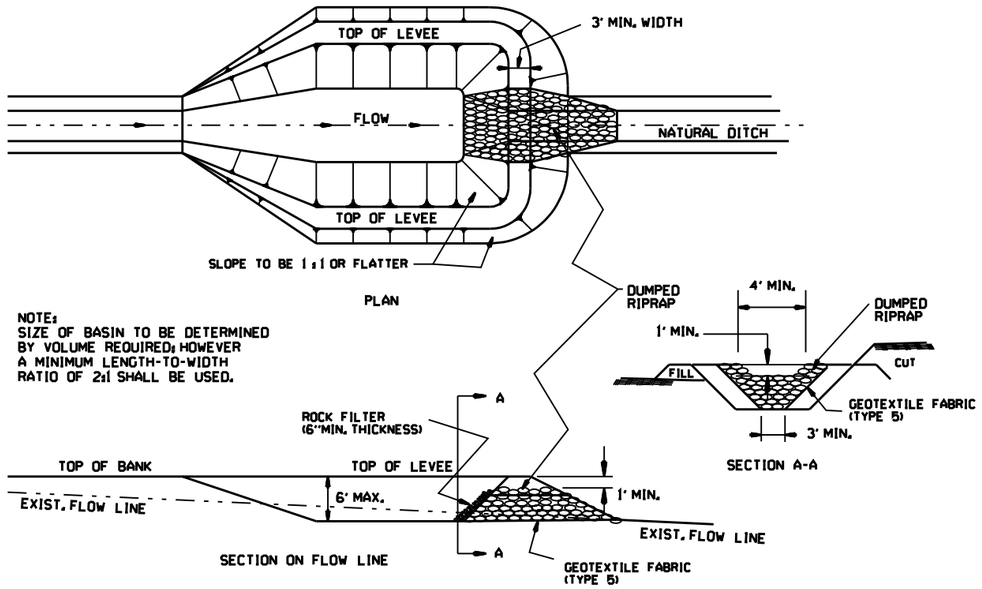
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

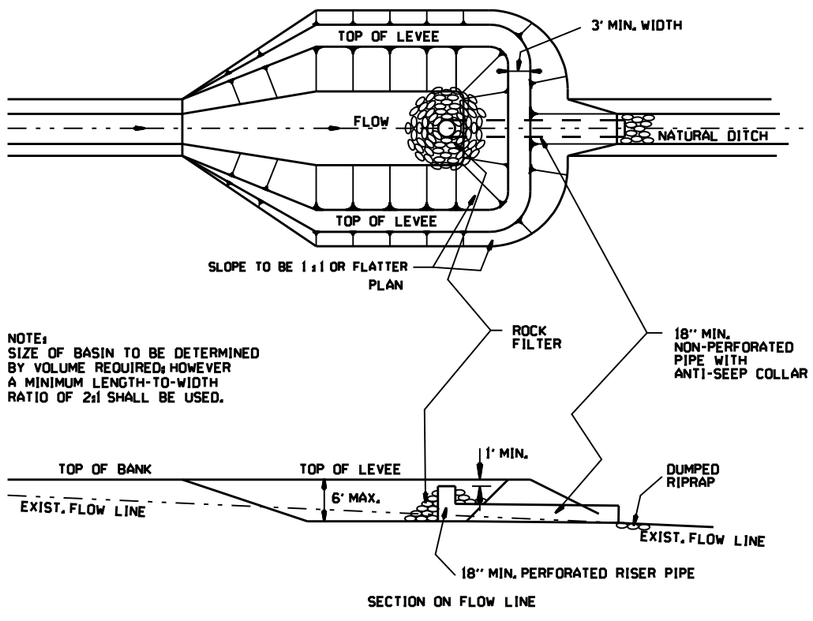
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

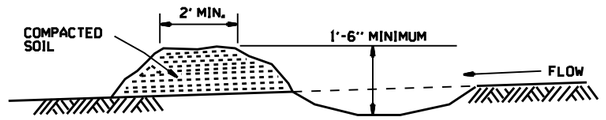
STANDARD DRAWING TEC-1



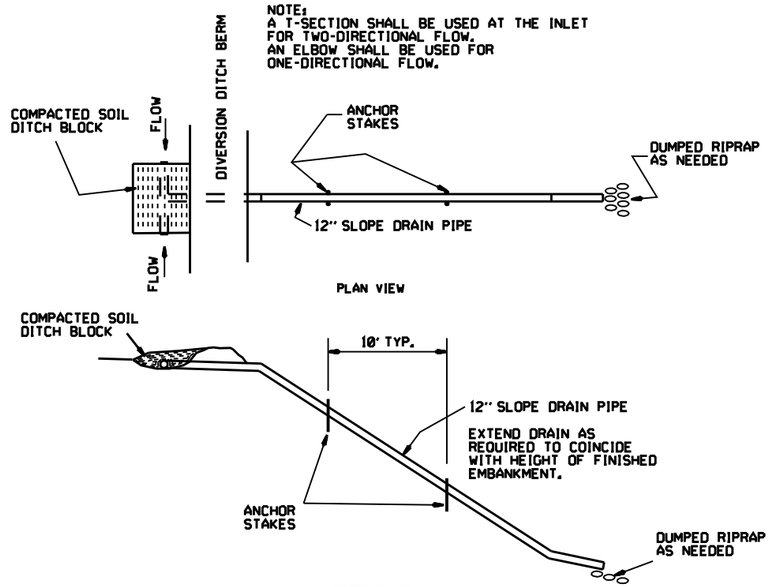
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



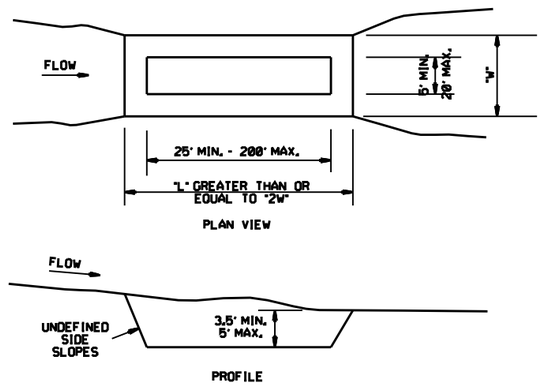
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

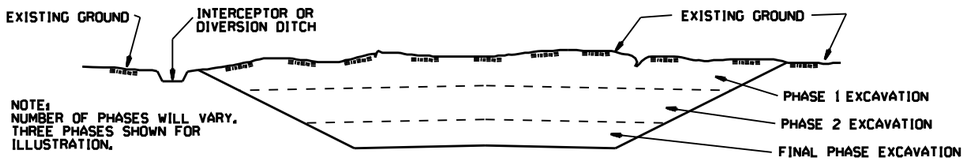
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



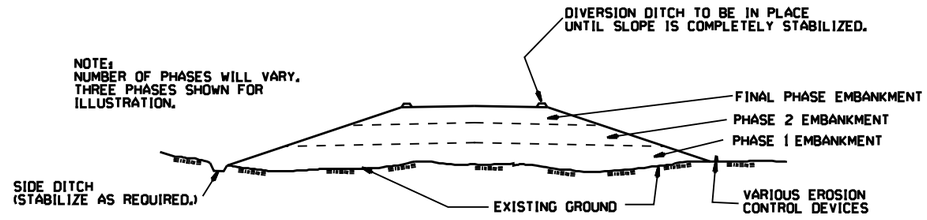
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

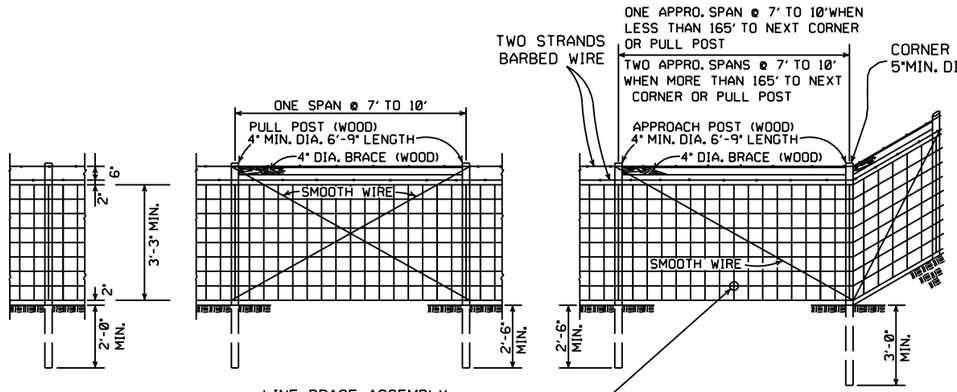
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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

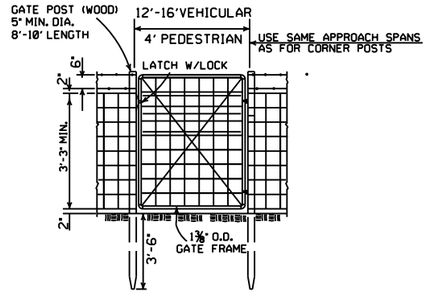
ARKANSAS STATE HIGHWAY COMMISSION

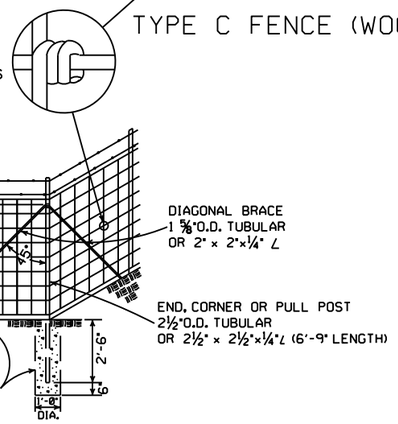
TEMPORARY EROSION CONTROL DEVICES

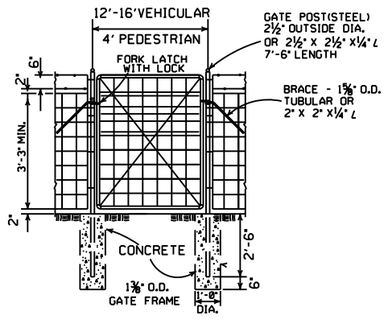
STANDARD DRAWING TEC-3



TYPE C FENCE (WOOD POSTS)

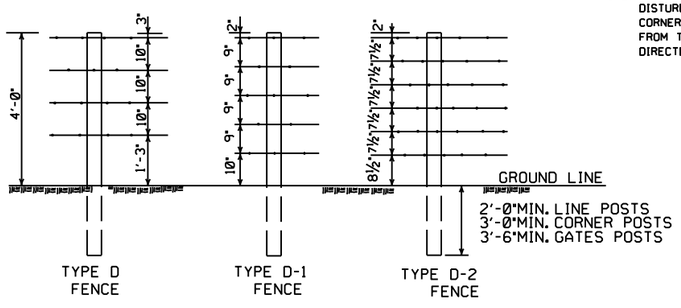




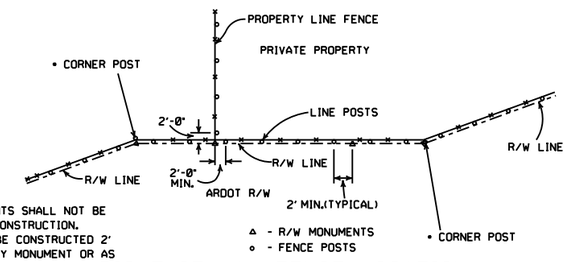


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

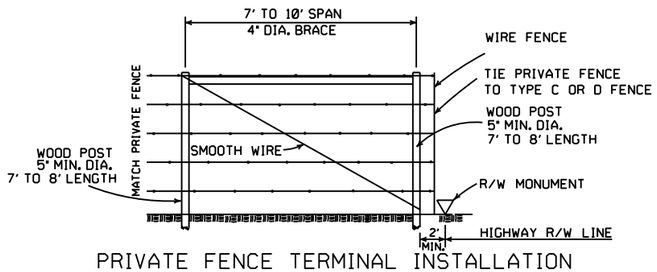


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



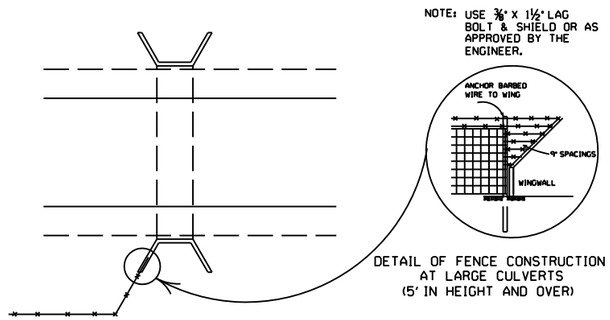
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION

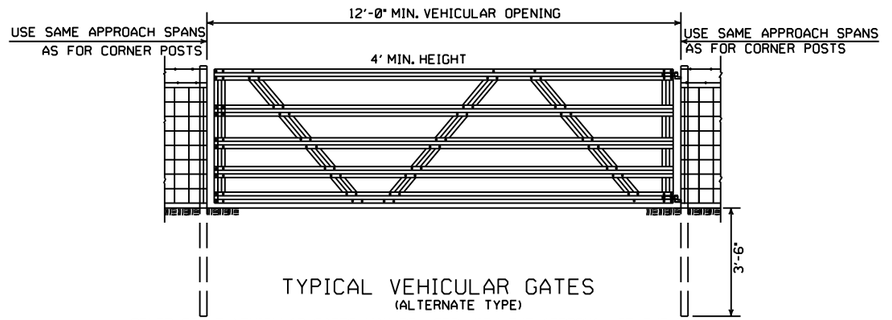


PRIVATE FENCE TERMINAL INSTALLATION

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



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



TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

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WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4