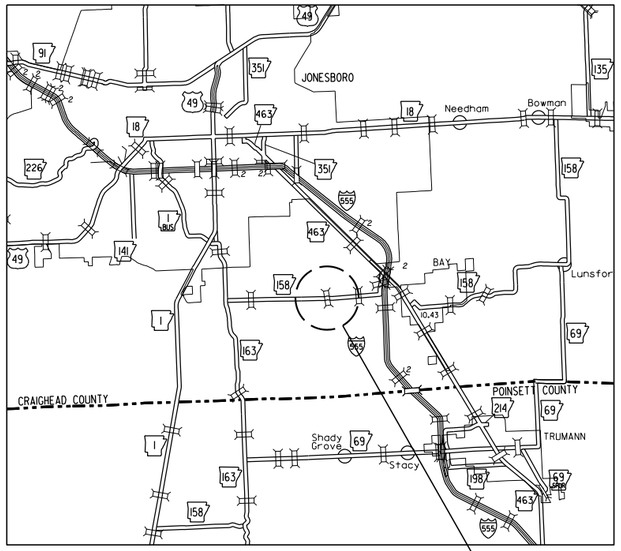
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	1	43
		WHITEMAN CREEK STR. & APPRS. (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

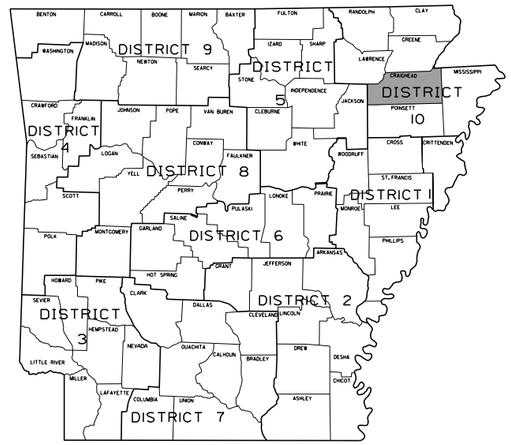
WHITEMAN CREEK
STR. & APPRS. (S)

CRAIGHEAD COUNTY
ROUTE 158 SECTION 5
JOB 101126
FED. AID PROJ. NHPP-0016(90)



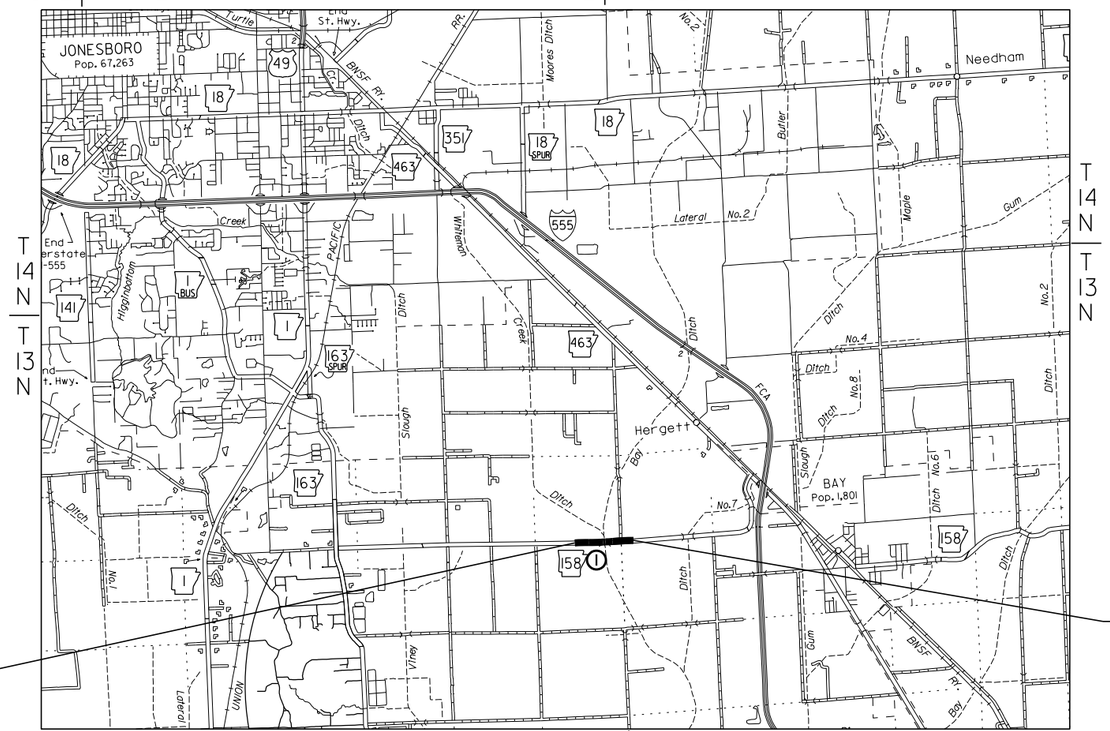
VICINITY MAP

NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 10

R 3 E | R 4 E — R 4 E | R 5 E



BRIDGE CONSTRUCTION DATA

① STA. 311+00.00 BRIDGE END
BRIDGE NO. 07639 OVER LITTLE BAY DITCH
180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
(55'-70'-55')
36'-0" CLEAR ROADWAY
181'-0" BRIDGE LENGTH
STA. 312+81.00 BRIDGE END

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2044
2024 ADT	1,400
2044 ADT	1,700
2044 DHV	187
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	10%
DESIGN SPEED	55 MPH

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N35° 44' 52"	N35° 44' 52"	N35° 44' 52"
LON.	W90° 36' 26"	W90° 36' 40"	W90° 36' 54"

LENGTH OF PROJECT CALCULATED ALONG C.L.
GROSS LENGTH OF PROJECT 2300.00 FEET OR 0.436 MILES
NET LENGTH OF ROADWAY 2119.00 FEET OR 0.402 MILES
NET LENGTH OF BRIDGES 181.00 FEET OR 0.034 MILES
NET LENGTH OF PROJECT 2300.00 FEET OR 0.436 MILES

CERTIFICATE OF AUTHORIZATION
HDR ENGINEERING INC. No. 446
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 06-17-2024

JUCARNEY 6/13/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	2	43
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023

INDEX OF SHEETS

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030F	STANDARD DETAILS FOR TYPE F APPROACH GUTTERS	04-08-21
55040F1	STANDARD DETAILS FOR TYPE F APPROACH SLAB	09-07-23
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
GR-6	GUARDRAIL DETAILS	05-19-22
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	3	43
		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 - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
102-3_____	PREQUALIFICATION OF BIDDERS
103-2_____	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4_____	MAINTENANCE DURING CONSTRUCTION
107-2_____	RESTRAINING CONDITIONS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____	UNCLASSIFIED EXCAVATION
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
307-1_____	CEMENT
308-1_____	CEMENT
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____	LIQUID ANTI-STRIP ADDITIVE
400-7_____	TRACKLESS TACK
404-3_____	DESIGN OF ASPHALT MIXTURES
409-2_____	ASPHALT LABORATORY FACILITY
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4_____	EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1_____	RECYCLED ASPHALT PAVEMENT
501-2_____	CEMENT
600-2_____	INCIDENTAL CONSTRUCTION
603-1_____	LANE CLOSURE NOTIFICATION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
617-2_____	GUARDRAIL DELINEATORS
620-1_____	MULCH COVER
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
802-4_____	CEMENT
804-2_____	REINFORCING STEEL FOR STRUCTURES
807-2_____	STEEL STRUCTURES
JOB 101126__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 101126__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 101126__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 101126__	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 101126__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 101126__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 101126__	COLD MILLING – COUNTY PROPERTY
JOB 101126__	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 101126__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 101126__	CULVERT CLEAN OUT
JOB 101126__	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 101126__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 101126__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 101126__	FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 101126__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 101126__	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 101126__	LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES
JOB 101126__	MANDATORY ELECTRONIC CONTRACT
JOB 101126__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 101126__	NESTING SITES OF MIGRATORY BIRDS
JOB 101126__	PARTNERING REQUIREMENTS
JOB 101126__	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 101126__	PILE DRIVING SYSTEM
JOB 101126__	PLASTIC PIPE
JOB 101126__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 101126__	PRICE ADJUSTMENT FOR FUEL
JOB 101126__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 101126__	SHORING FOR CULVERTS
JOB 101126__	SOIL STABILIZATION
JOB 101126__	STORM WATER POLLUTION PREVENTION PLAN
JOB 101126__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 101126__	UTILITY ADJUSTMENTS
JOB 101126__	VALUE ENGINEERING
JOB 101126__	WARM MIX ASPHALT
JOB 101126__	WATER POLLUTION CONTROL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 06-17-2024

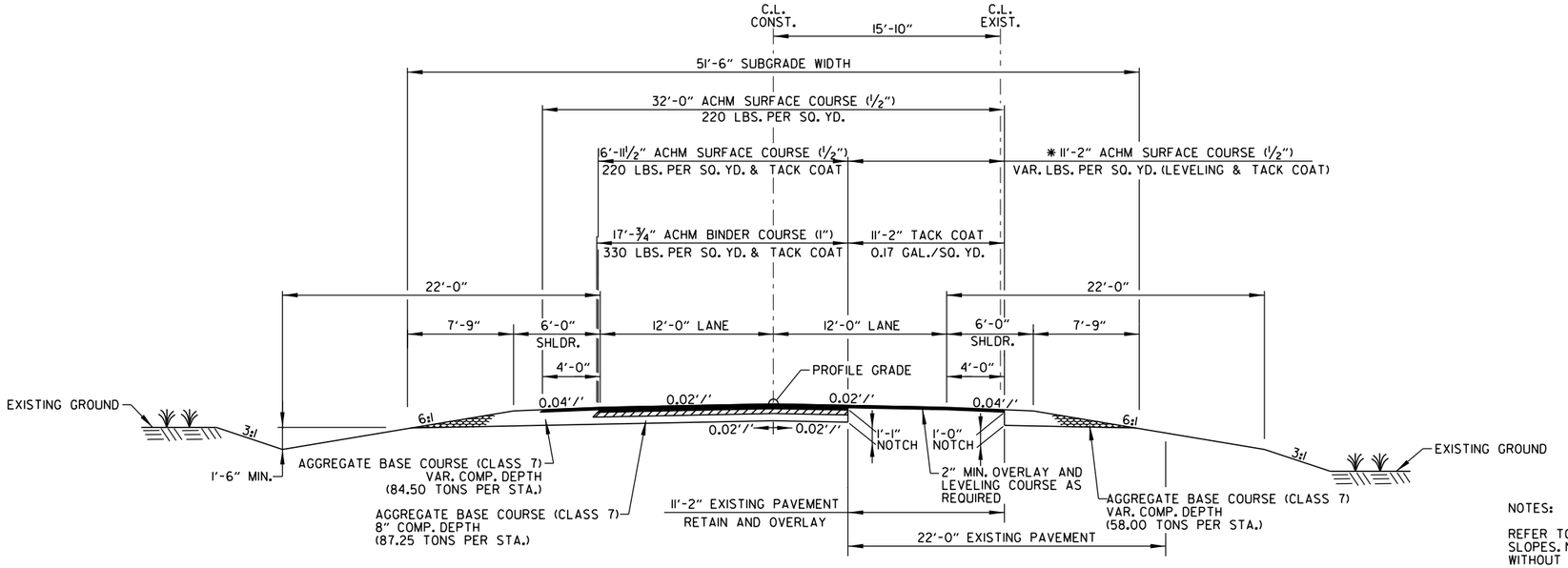
GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

JUCARNEY 6/17/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	4	43
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023



HWY. 158 - NOTCH AND WIDEN SECTION

STA. 302+10.97 TO STA. 305+19.38
STA. 317+49.56 TO STA. 320+45.65

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

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.

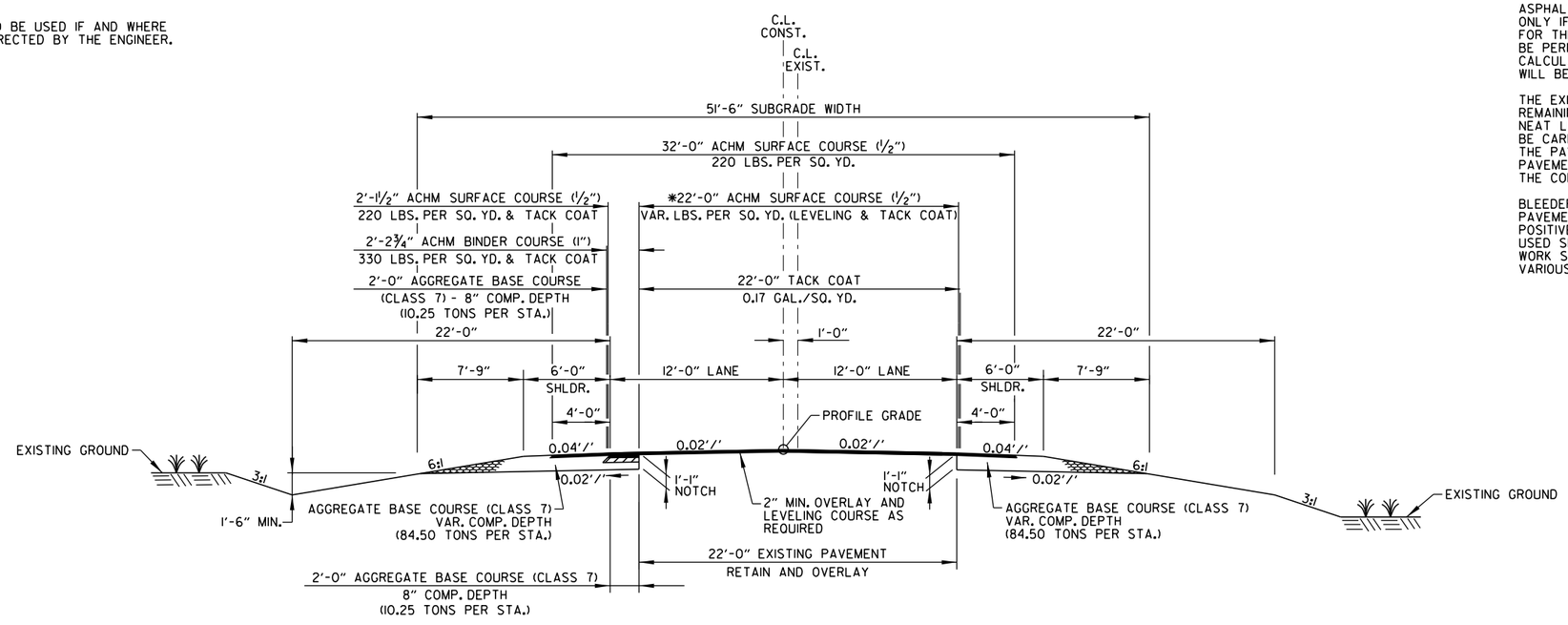
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

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 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.

BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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



HWY. 158 - NOTCH AND WIDEN SECTION

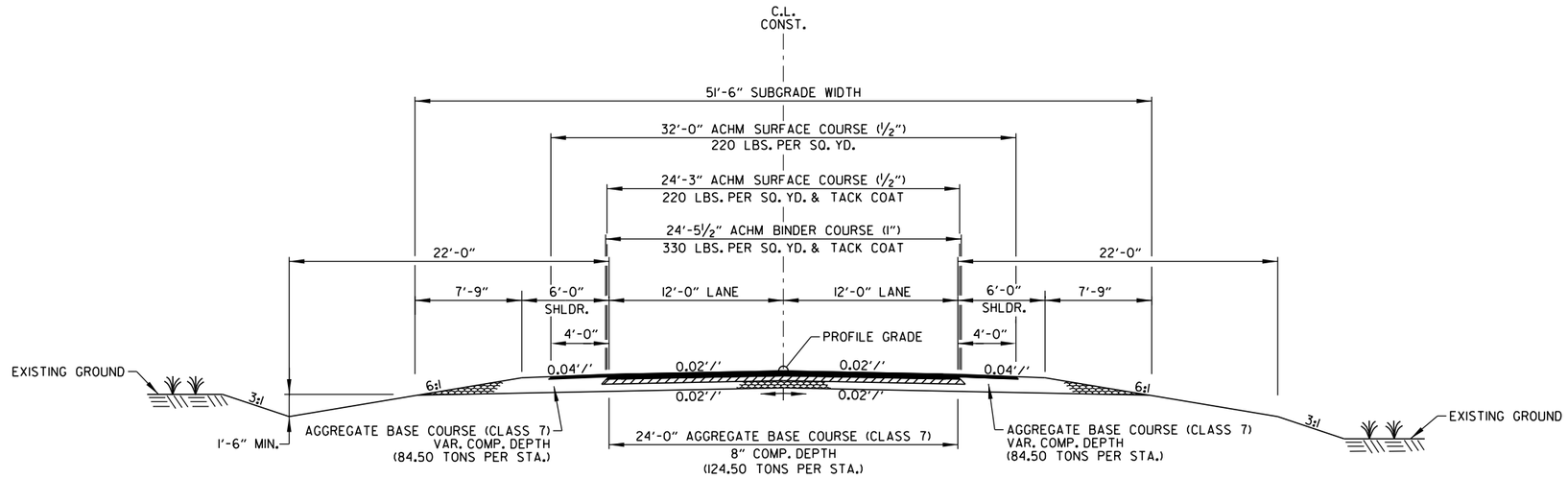
STA. 300+00.00 TO STA. 302+10.97
STA. 320+45.65 TO STA. 323+00.00

10/19/2023
JUCARNEY

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	5	43
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023



HWY. 158 - FULL DEPTH SECTION

STA. 305+19.38 TO STA. 310+65.00
STA. 313+16.00 TO STA. 317+49.56

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.

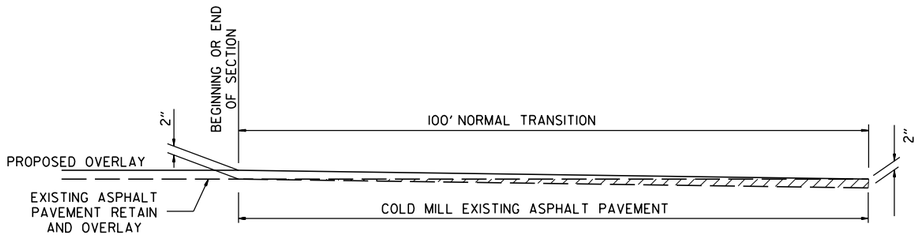
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

JUCARNEY 10/19/2023

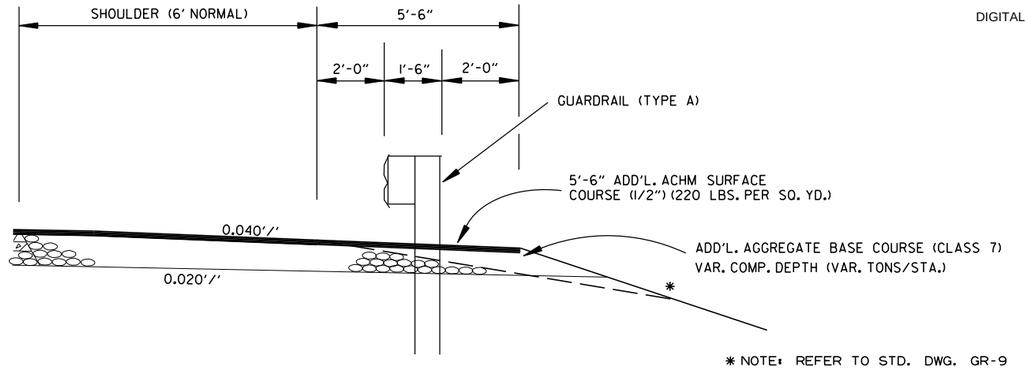
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	6	43
		SPECIAL DETAILS				

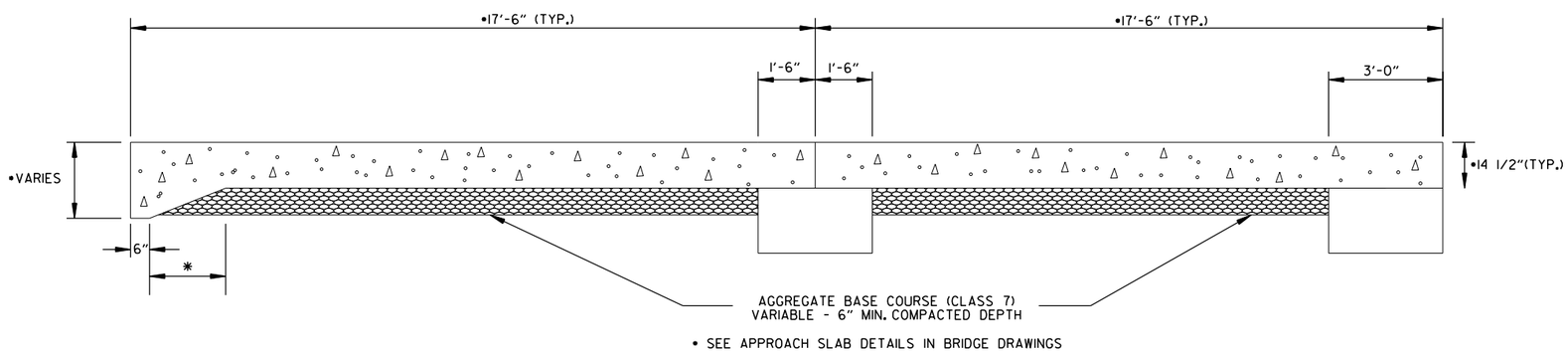
STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023



DETAIL FOR TRANSITIONS



WIDENING FOR GUARDRAIL



• SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB
(FOR ASPHALT PAVEMENT)

JUCARNEY 10/19/2023

SPECIAL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	7	43
		TEMPORARY EROSION CONTROL DETAILS				

TEMPORARY EROSION CONTROL GENERAL NOTES:

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

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

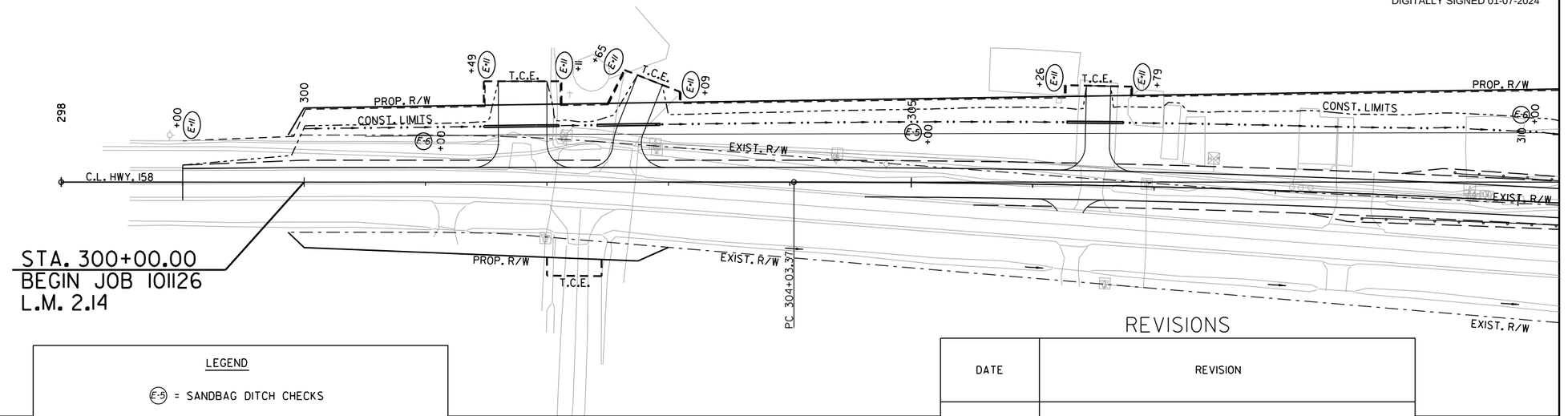
EROSION CONTROL MEASURE TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

SILT FENCE (E-11)		LIN. FT.
STA. 299+00 TO 301+49	LT.	284
STA. 302+11 TO 302+65	LT.	90
STA. 303+09 TO 306+26	LT.	339
STA. 306+79 TO 311+39	LT.	693
STA. 312+61 TO 314+91	LT.	557
STA. 315+50 TO 324+00	LT.	879

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 301+00	LT.	1
STA. 310+00	LT.	1
STA. 311+61	LT.	1
STA. 312+07	LT.	1
STA. 312+25	LT.	1
STA. 322+00	LT.	1

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 305+00	LT.	1
STA. 311+50	LT.	1
STA. 317+00	LT.	1



LEGEND

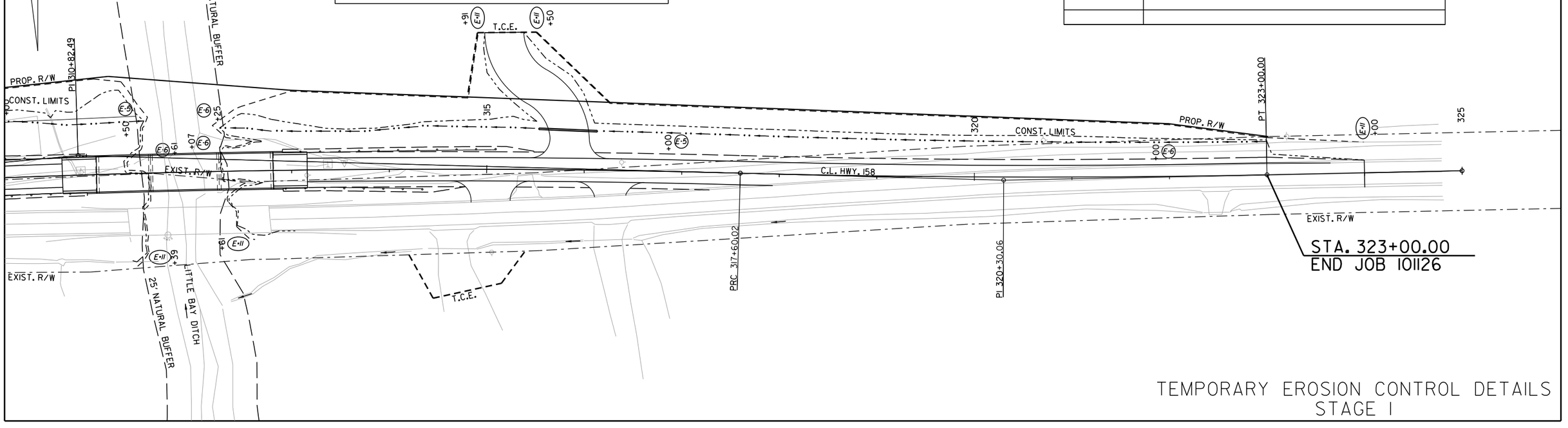
(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

1/7/2024
JAJONES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	8	43
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

SILT FENCE (E-11)		LIN. FT.
STA. 299+00 TO 301+49	LT.	RETAINED
STA. 299+00 TO 301+11	RT.	217
STA. 301+28 TO 303+01	RT.	90
STA. 302+11 TO 302+65	LT.	RETAINED
STA. 302+44 TO 306+23	RT.	396
STA. 303+09 TO 306+26	LT.	RETAINED
STA. 306+40 TO 311+39	RT.	497
STA. 306+79 TO 311+39	LT.	RETAINED
STA. 312+61 TO 314+91	LT.	RETAINED
STA. 312+61 TO 314+46	RT.	217
STA. 315+14 TO 316+11	RT.	114
STA. 315+50 TO 324+00	LT.	RETAINED
STA. 316+42 TO 322+37	RT.	598
STA. 322+63 TO 324+00	RT.	139

TEMPORARY EROSION CONTROL GENERAL NOTES:

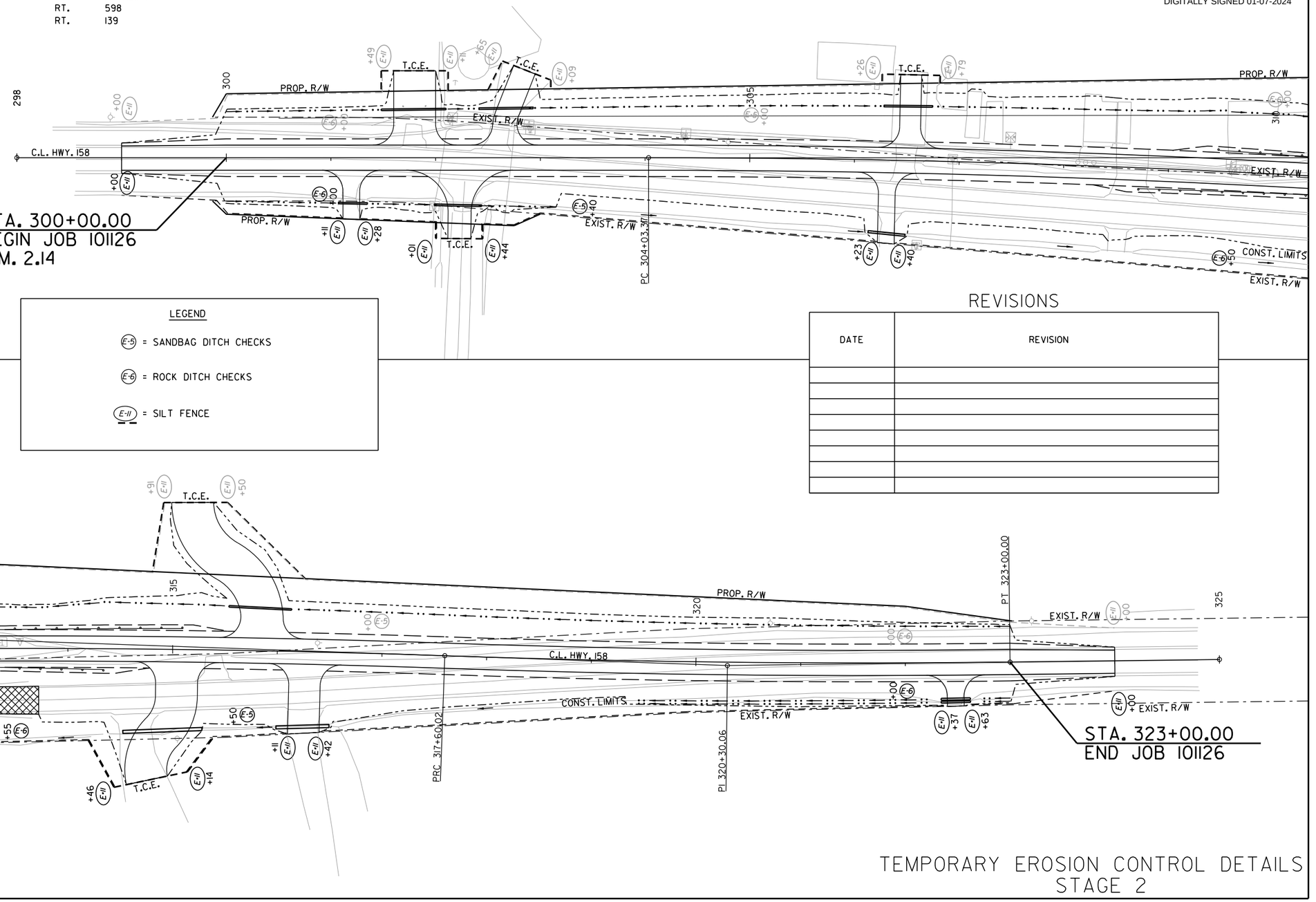
THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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

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

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 301+00	LT.	RETAINED
STA. 301+00	RT.	I
STA. 309+50	RT.	I
STA. 310+00	LT.	RETAINED
STA. 311+61	LT.	RETAINED
STA. 312+07	LT.	RETAINED
STA. 312+25	LT.	RETAINED
STA. 313+55	RT.	I
STA. 322+00	LT.	RETAINED
STA. 322+00	RT.	I

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 303+40	RT.	I
STA. 305+00	LT.	RETAINED
STA. 311+05	RT.	I
STA. 311+50	LT.	RETAINED
STA. 315+50	RT.	I
STA. 317+00	LT.	RETAINED



LEGEND

(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

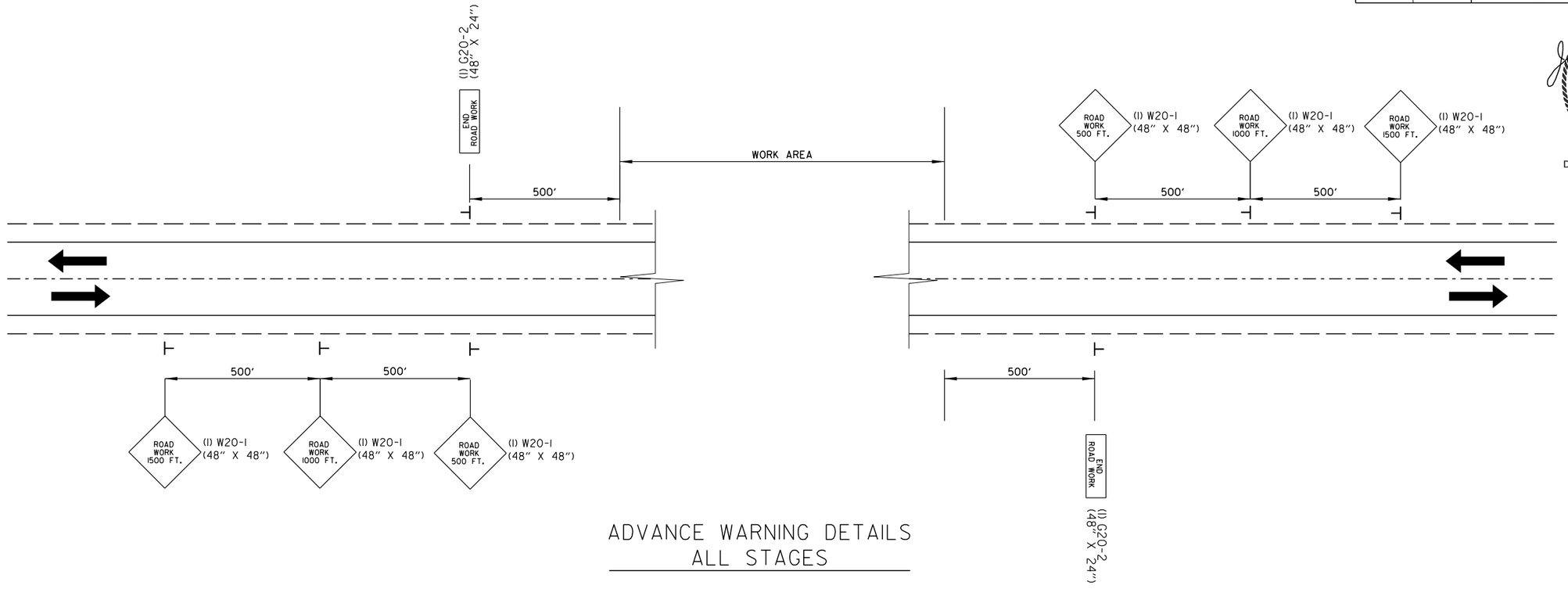
DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

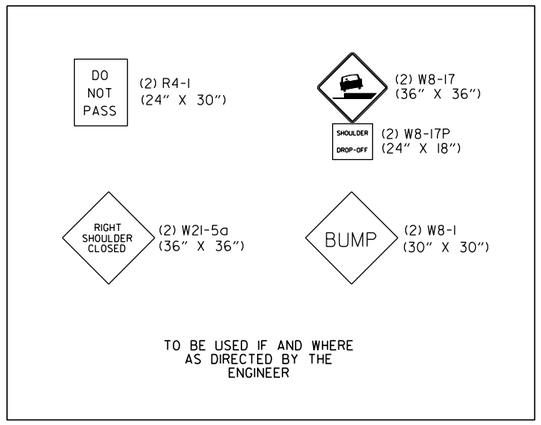
1/7/2024
JUCARNEY

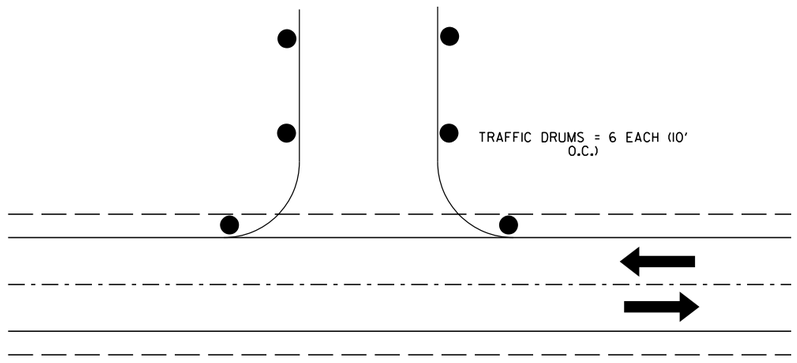
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	9	43
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023



ADVANCE WARNING DETAILS
ALL STAGES





DRIVEWAY/TRAFFIC DRUM DETAIL

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	10	43
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 12-05-2023

STAGE I CONSTRUCTION SEQUENCE NOTES

1. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON THE ADVANCE WARNING DETAILS.
2. CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
3. INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT EMBANKMENT, ROADWAY, BRIDGE, AND DRAINAGE FOR HWY. 158 AS SHOWN IN STAGE I MAINTENANCE OF TRAFFIC DETAILS.
4. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2 TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.

STA. 299+00 TO STA. 308+50
20 TRAFFIC DRUMS
@ 50' OFFSET EDGE OF TRAVELED LANE

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

230' P.C.C.B. STA. 309+00 TO STA. 311+30

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

STA. 300+00.00
BEGIN JOB 101126
L.M. 2.14

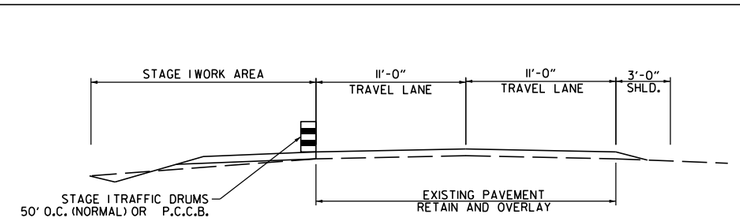
298 300 305 310

C.L. HWY. 158

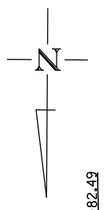
PC 304+03.37

TEMPORARY IMPACT ATTENUATION BARRIER

STAGE I CONSTRUCTION
STAGE I GRADING
STAGE I OVERLAY UNDER TRAFFIC
PRECAST CONCRETE BARRIER (P.C.C.B)
STAGE I TRAFFIC
TRAFFIC DRUMS
TYPE III BARICADE
TEMPORARY IMPACT ATTENUATION BARRIER



STAGE I
TYPICAL SECTION



PI 310+82.49

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

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

315 320 325

STA. 313+20 TO STA. 324+00
23 TRAFFIC DRUMS
@ 50' OFFSET EDGE OF TRAVELED LANE

PT 323+00.00

C.L. HWY. 158

PRC 317+60.02

PI 320+30.06

STA. 323+00.00
END JOB 101126

12/5/2023
JUCARNEY

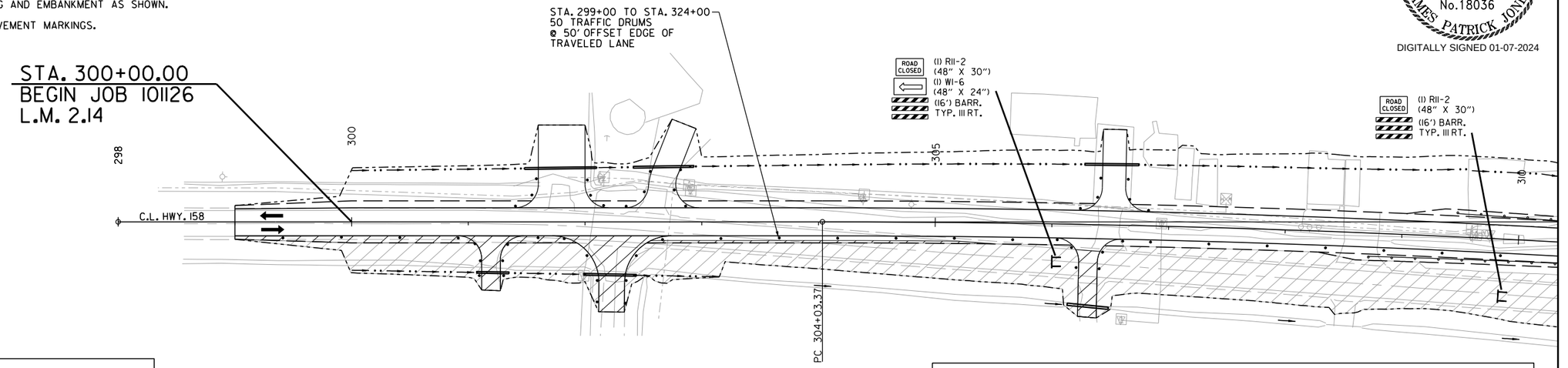
MAINTENANCE OF TRAFFIC DETAILS
STAGE I

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	11	43
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

STAGE 2
CONSTRUCTION SEQUENCE NOTES

1. INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO THE PROPOSED ALIGNMENT.
3. REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN.
4. CONSTRUCT REMAINING NOTCH AND WIDENING AREAS, ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT AS SHOWN.
5. PLACE FINAL PERMANENT PAVEMENT MARKINGS.



STAGE 2 CONSTRUCTION

STAGE 2 GRADING

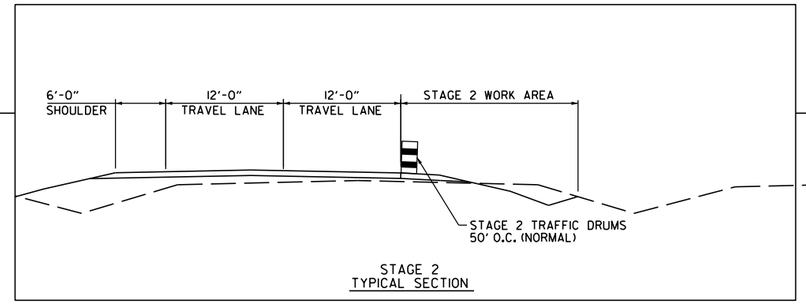
STAGE 2 TRAFFIC

TRAFFIC DRUMS

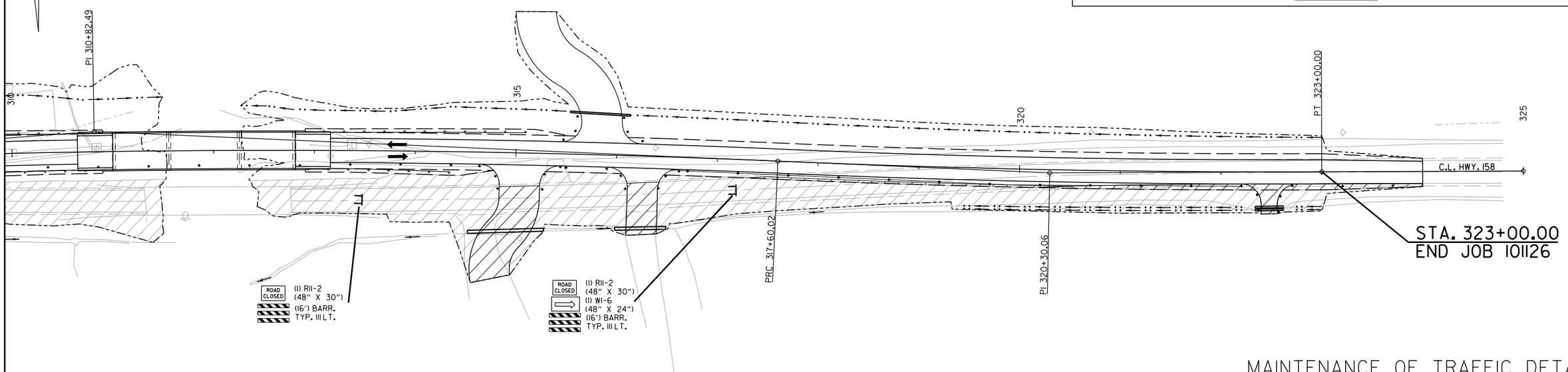
TYPE III BARICADE

CONSTRUCTION PAVEMENT MARKINGS

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 1028 LIN. FT.
DOUBLE YELLOW CENTERLINE = 4486 LIN. FT.
WHITE SOLID LINE = 4486 LIN. FT.



STAGE 2
TYPICAL SECTION



1/7/2024
JUCARNEY

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	12	43
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS WHITE SOLID EDGE LINE

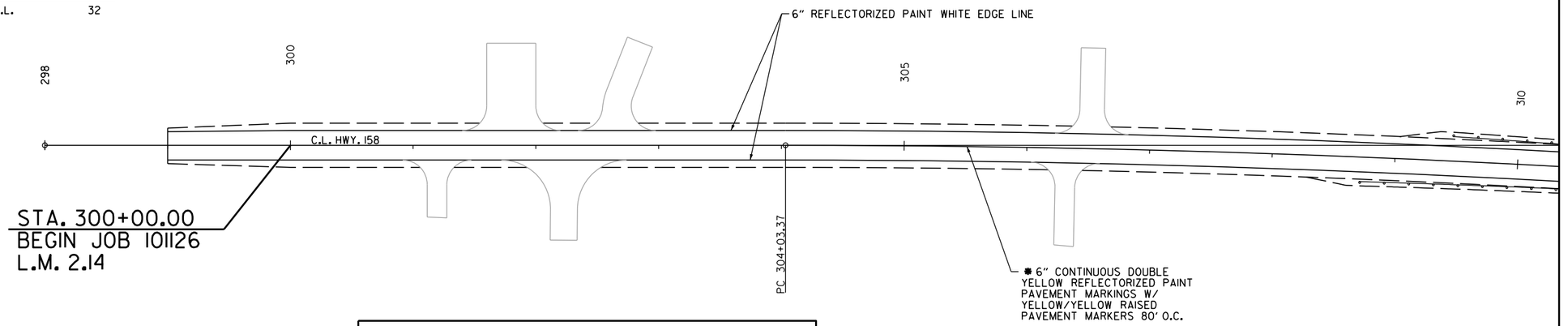
STA.		LOCATION	LIN. FT.
STA. 299+00.00	TO STA. 324+00.00	LT	2500
STA. 299+00.00	TO STA. 324+00.00	RT	2500

REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW

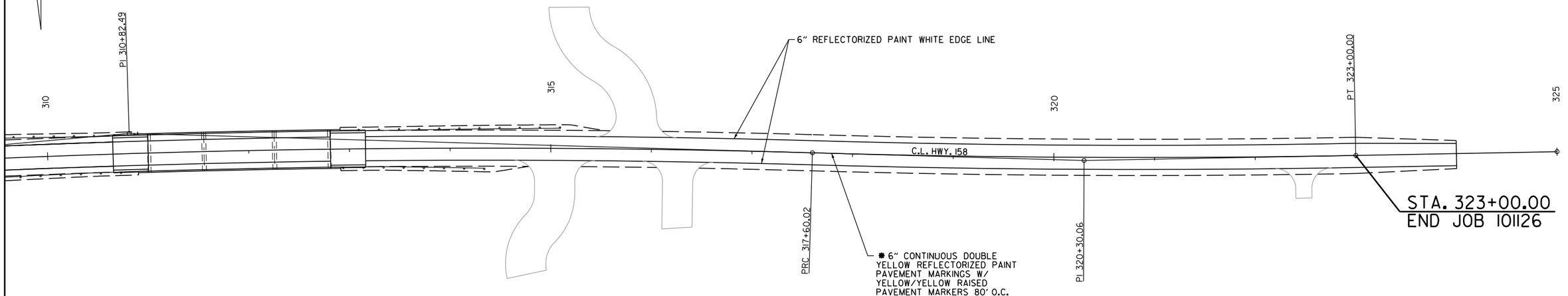
STA.		LOCATION	LIN. FT.
STA. 299+00.00	TO STA. 324+00.00	C.L.	5000

TYPE II (YELLOW/YELLOW) RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
STA. 299+00.00	TO STA. 324+00.00	C.L.	32



* 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.



1/7/2024
JUCARNEY

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	13	43
		SOIL BORING LOG				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023

SOIL LOG

BORING	STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	% Fines	USCS CLASSIFICATION	AASHTO CLASSIFICATION
1	311+08	HWY. 158 - 24' LT.	2.5 - 4.0	-	-	-	18	-	-
1	311+08	HWY. 158 - 24' LT.	5.0 - 6.5	-	-	-	-	-	-
1	311+08	HWY. 158 - 24' LT.	7.5 - 9.0	-	-	-	54	-	-
1	311+08	HWY. 158 - 24' LT.	10.0 - 11.5	NP			11	SP-SM	A-2-4
1	311+08	HWY. 158 - 24' LT.	15.0 - 16.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	20.0 - 21.5	NP			93	ML	A-4
1	311+08	HWY. 158 - 24' LT.	25.0 - 26.5	NP			6	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	30.0 - 31.5	NP			4	SP	A-3
1	311+08	HWY. 158 - 24' LT.	35.0 - 36.5	NP			3	SP	A-3
1	311+08	HWY. 158 - 24' LT.	40.0 - 41.5	NP			10	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	45.0 - 46.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	50.0 - 51.5	NP			3	SP	A-3
1	311+08	HWY. 158 - 24' LT.	55.0 - 56.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	60.0 - 61.5	NP			3	SP	A-3
1	311+08	HWY. 158 - 24' LT.	65.0 - 66.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	70.0 - 71.5	NP			6	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	75.0 - 76.5	NP			2	SP	A-3
1	311+08	HWY. 158 - 24' LT.	80.0 - 81.5	NP			3	SP	A-3
1	311+08	HWY. 158 - 24' LT.	85.0 - 86.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	90.0 - 91.5	NP			3	SP	A-3
1	311+08	HWY. 158 - 24' LT.	95.0 - 96.5	NP			4	SP	A-3
1	311+08	HWY. 158 - 24' LT.	100.0 - 101.5	NP			4	SP	A-3
1	311+08	HWY. 158 - 24' LT.	105.0 - 106.5	NP			4	SP	A-3
1	311+08	HWY. 158 - 24' LT.	110.0 - 111.5	NP			5	SP-SM	A-3
1	311+08	HWY. 158 - 24' LT.	115.0 - 116.5	NP			5	SP-SM	A-3
2	314+01	HWY. 158 - 26' RT.	4.5 - 6.0	-	-	-	51	-	-
2	314+01	HWY. 158 - 26' RT.	9.5 - 11.0	39	23	23	72	CL	A-6
2	314+01	HWY. 158 - 26' RT.	15.0 - 16.5	-	-	-	63	-	-
2	314+01	HWY. 158 - 26' RT.	20.0 - 21.5	28	11	11	79	CL	A-6
2	314+01	HWY. 158 - 26' RT.	25.0 - 26.5	31	13	13	90	CL	A-6
2	314+01	HWY. 158 - 26' RT.	30.0 - 31.5	NP			11	SP-SM	A-2-4
2	314+01	HWY. 158 - 26' RT.	55.0 - 56.5	NP			5	SP-SM	A-3
2	314+01	HWY. 158 - 26' RT.	80.0 - 81.5	NP			9	SP-SM	A-3
2	314+01	HWY. 158 - 26' RT.	95.0 - 96.5	NP			5	SP-SM	A-3
2	314+01	HWY. 158 - 26' RT.	100.0 - 101.5	NP			5	SP-SM	A-3

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

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	14	43
		QUANTITIES				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
									RIGHT	LEFT			
			LIN. FT. - EACH			NO.	SQ. FT.	EACH	LIN. FT.			EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0						
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						
G20-2	END ROAD WORK	48"x24"	2	2	2	2	16.0						
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	40.0						
W1-6	LARGE ARROW	48"x24"	2	2	2	2	16.0						
* R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0						
* W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	18.0						
* W8-1	BUMP	30"x30"	2	2	2	2	12.5						
* W8-17	SHOULDER DROP OFF	36"X36"	2	2	2	2	18.0						
* W8-17P	SHOULDER DROP-OFF	24"x18"	2	2	2	2	6.0						
	TRAFFIC DRUMS		97	108	108			108					
	TYPE III BARRICADE-RT. (16')		2	2	2				32				
	TYPE III BARRICADE-LT. (16')		2	2	2					32			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		230		230						230		
	TEMPORARY IMPACT ATTENUATION BARRIER		1		1							1	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1		1								1
TOTALS:							**232.5**	**108**	**32**	**32**	**230**	**1**	**1**

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
					TYPE II	6"	
					(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH		LIN. FT.	LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	8972		8972				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1028			1028			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)		32			32		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		5000				5000	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		5000					5000
TOTALS:			**8972**	**1028**	**32**	**5000**	**5000**

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.

JUCARNEY 1/7/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	15	43
		QUANTITIES				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 06-10-2024

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	FOUNDATIONS	GUARDRAIL
			SQ. YD.	LIN. FT.
306+34	306+69	HWY. 158 LT.	237	
306+77	307+06	HWY. 158 LT.	80	
307+06	307+21	HWY. 158 LT.	66	
307+23	307+42	HWY. 158 LT.	73	
308+14	308+50	HWY. 158 LT.	215	
308+50	308+63	HWY. 158 LT.	56	
309+54	310+45	HWY. 158 LT.	439	
310+83	311+31	HWY. 158 RT.		62
310+45	311+33	HWY. 158 RT.		100
312+76	313+63	HWY. 158 RT.		100
312+78	313+67	HWY. 158 RT.		100
TOTALS:			1166	362

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.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
312+81	NW CORNER OF BRIDGE NO. 07639	1
TOTAL:		1

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
308+71.11	310+89.86	HWY. 158 RT.	150	1	1
309+46.39	310+90.14	HWY. 158 LT.	75	1	1
312+90.86	315+09.61	HWY. 158 LT.	150	1	1
312+91.14	314+34.89	HWY. 158 RT.	75	1	1
TOTALS:			450	4	4

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1									66	18	2842			114
ENTIRE	PROJECT	STAGE 2									66	12	2268			91
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.56	7.12	3.56	363.1	3.56	3.56	3.56	72.6	110	15		100	100	110
TOTALS:			3.56	7.12	3.56	363.1	3.56	3.56	3.56	72.6	242	45	5110	100	100	315

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
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
312+00	315+00	HWY. 158	3	3
TOTALS:			3	3

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
301+19	HWY. 158 RT. - 18" SIDE DRAIN	1
302+24	HWY. 158 RT. - 18" SIDE DRAIN	1
302+65	HWY. 158 LT. - 15" SIDE DRAIN	1
306+32	HWY. 158 RT. - 24" SIDE DRAIN	1
306+53	HWY. 158 RT. - 15" SIDE DRAIN	1
308+53	HWY. 158 RT. 24" SIDE DRAIN	1
308+66	HWY. 158 RT. - 15" SIDE DRAIN	1
311+19	HWY. 158 LT. - 24" SIDE DRAIN	1
313+21	HWY. 158 LT. - 19" SIDE DRAIN	1
315+04	HWY. 158 RT. - 15" SIDE DRAIN	1
315+68	HWY. 158 RT. - 18" SIDE DRAIN	1
316+26	HWY. 158 RT. - 18" SIDE DRAIN	1
322+48	HWY. 158 RT. - 15" SIDE DRAIN	1
TOTAL:		13

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1000	8
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1000	8

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

CULVERT CLEAN OUT

STATION	LOCATION	EACH
* ENTIRE PROJECT TO BE USED IF AND		5
WHERE DIRECTED BY THE ENGINEER		
TOTAL:		5

* 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	40
ENGINEER	
TOTAL:	40

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1 - HWY. 158	3100	10361
ENTIRE	PROJECT	STAGE 2 - HWY. 158	4126	513
ENTIRE	PROJECT	APPROACHES	70	765
ENTIRE	PROJECT	BRIDGE EXCAVATION	1298	
TOTALS:			8594	11639

NOTE: EARTHWORK QUANTITIES SHALL BE PAID AS PLAN QUANTITY.

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
* ENTIRE	PROJECT	TO BE USED IF AND WHERE	200
		DIRECTED BY THE ENGINEER	
TOTAL:			200

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
310+65.00	311+00.00	HWY. 158 RT.	4.20		210	
310+62.00	311+00.00	HWY. 158		63.19	7634	34.22
310+65.00	311+00.00	HWY. 158 LT.	4.20		210	
312+81.00	313+16.00	HWY. 158 RT.	4.20		210	
312+81.00	313+19.00	HWY. 158		63.19	7634	34.22
312+81.00	313+16.00	HWY. 158 LT.	4.20		210	
TOTALS:			16.80	126.38	16108	68.44

6/10/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	16	43
		QUANTITIES				

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
299+00.00	300+00.00	HWY. 158	28.00	311.11
323+00.00	324+00.00	HWY. 158	28.00	311.11
TOTAL:				**622.22**

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

ACHM PATCHING OF EXISTING ROADWAY

	DESCRIPTION	TON
*	ENTIRE PROJECT - TO BE USED IF AND WHERE	25
	DIRECTED BY THE ENGINEER	
	TOTAL:	**25**

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	12	24
DIRECTED BY THE ENGINEER		
TOTALS:	**12**	**24**

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

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
							18"	24"	36"	21"X15"	
			FEET	SQ. YD.	TON	TON	LIN. FT.				
301+19	RT.	HWY. 158	16	78.00	8.58	31.85	36				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
301+80	LT.	HWY. 158	40	294.43	32.39	120.23	62				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
302+24	RT.	HWY. 158	22	188.27	20.71	76.88	48				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
302+65	LT.	HWY. 158	22	181.68	19.98	74.19	52				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
306+32	RT.	HWY. 158	16	115.66	12.72	47.23		30			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
306+53	LT.	HWY. 158	20	147.69	16.25	60.31	54				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
315+04	RT.	HWY. 158	40	516.38	56.80	210.86			76		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
315+85	LT.	HWY. 158	40	657.18	72.29	268.35	60				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
316+26	RT.	HWY. 158	30	208.91	22.98	85.30			46		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
322+48	RT.	HWY. 158	16	47.64	5.24	19.45				56	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES						200.00					
TOTALS:				**2435.84**	**267.94**	**1194.65**	**312**	**30**	**122**	**56**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER

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

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

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 06-10-2024

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.)															
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																								
299+00.00	300+00.00	HWY. 158 - TRANSITION	100.00	VAR.	89.63				22.00	244.44	41.55	41.55					30.00	333.33	220.00	36.67					36.67
300+00.00	302+10.97	HWY. 158 - NOTCH AND WIDEN	210.97	179.25	378.16	26.35	617.67	30.88				30.88	2.23	52.27	330.00	8.62	32.00	750.12	220.00	82.51	2.13	49.93	220.00	5.49	88.00
302+10.97	305+19.38	HWY. 158 - NOTCH AND WIDEN	308.41	229.75	708.57	45.19	1548.56	77.43				77.43	17.06	584.61	330.00	96.46	32.00	1096.57	220.00	120.62	16.96	581.18	220.00	63.93	184.55
305+19.38	310+65.00	HWY. 158 - FULL DEPTH	545.62	293.50	1601.39	48.71	2953.02	147.65				147.65	24.46	1482.87	330.00	244.67	32.00	1939.98	220.00	213.40	24.25	1470.14	220.00	161.72	375.12
313+16.00	317+49.56	HWY. 158 - FULL DEPTH	433.56	293.50	1272.50	48.71	2346.52	117.33				117.33	24.46	1178.32	330.00	194.42	32.00	1541.55	220.00	169.57	24.25	1168.20	220.00	128.50	298.07
317+49.56	320+45.65	HWY. 158 - NOTCH AND WIDEN	296.09	229.75	680.27	45.19	1486.70	74.34				74.34	17.06	561.26	330.00	92.61	32.00	1052.76	220.00	115.80	16.96	557.97	220.00	61.38	177.18
320+45.65	323+00.00	HWY. 158 - NOTCH AND WIDEN	254.35	179.25	455.92	26.35	744.68	37.23				37.23	2.23	63.02	330.00	10.40	32.00	904.36	220.00	99.48	2.13	60.20	220.00	6.62	106.10
323+00.00	324+00.00	HWY. 158 - TRANSITION	100.00	VAR.	89.63				22.00	244.44	41.55	41.55					30.00	333.33	220.00	36.67					36.67
ADDITIONAL FOR LEVELING																									
300+00.00	302+10.97	HWY. 158 - NOTCH AND WIDEN	210.97						22.00	515.70	25.79	25.79					22.00	523.07	VAR.	47.83					47.83
302+10.97	305+19.38	HWY. 158 - NOTCH AND WIDEN	308.41						11.17	382.77	19.14	19.14					11.17	382.77	VAR.	75.56					75.56
317+49.56	320+45.65	HWY. 158 - NOTCH AND WIDEN	296.09						11.17	367.48	18.37	18.37					11.17	367.48	VAR.	66.77					66.77
320+45.65	323+00.00	HWY. 158 - NOTCH AND WIDEN	254.35						22.00	621.74	31.09	31.09					22.00	753.83	VAR.	50.61					50.61
ADDITIONAL FOR GUARDRAIL WIDENING																									
308+28.11	308+61.11	HWY. 158 - RT. SIDE	33.00	15.00	4.95																2.75	10.08	220.00	1.11	1.11
308+61.11	308+71.11	HWY. 158 - RT. SIDE	10.00	29.75	2.98																5.50	6.11	220.00	0.67	0.67
308+71.11	310+46.11	HWY. 158 - RT. SIDE	175.00	25.75	45.06																4.50	87.50	220.00	9.63	9.63
310+46.11	310+89.86	HWY. 158 - RT. SIDE	43.75	21.75	9.52																3.50	17.01	220.00	1.87	1.87
309+03.39	309+36.39	HWY. 158 - LT. SIDE	33.00	15.00	4.95																2.75	10.08	220.00	1.11	1.11
309+36.39	309+46.39	HWY. 158 - LT. SIDE	10.00	29.75	2.98																5.50	6.11	220.00	0.67	0.67
309+46.39	310+46.39	HWY. 158 - LT. SIDE	100.00	25.75	25.75																4.50	50.00	220.00	5.50	5.50
310+46.39	310+90.14	HWY. 158 - LT. SIDE	43.75	21.75	9.52																3.50	17.01	220.00	1.87	1.87
312+90.86	313+34.61	HWY. 158 - LT. SIDE	43.75	21.75	9.52																3.50	17.01	220.00	1.87	1.87
313+34.61	315+09.61	HWY. 158 - LT. SIDE	175.00	25.75	45.06																5.50	106.94	220.00	11.76	11.76
315+09.61	315+19.61	HWY. 158 - LT. SIDE	10.00	29.75	2.98																4.50	5.00	220.00	0.55	0.55
315+19.61	315+52.61	HWY. 158 - LT. SIDE	33.00	15.00	4.95																3.50	12.83	220.00	1.41	1.41
312+91.14	313+34.89	HWY. 158 - RT. SIDE	43.75	21.75	9.52																3.50	17.01	220.00	1.87	1.87
313+34.89	314+34.89	HWY. 158 - RT. SIDE	100.00	25.75	25.75																5.50	61.11	220.00	6.72	6.72
314+34.89	314+44.89	HWY. 158 - RT. SIDE	10.00	29.75	2.98																4.50	5.00	220.00	0.55	0.55
314+44.89	314+77.89	HWY. 158 - RT. SIDE	33.00	15.00	4.95																3.50	12.83	220.00	1.41	1.41
ADDITIONAL FOR MOT TRANSITIONS																									
302+10.97	305+19.38	HWY. 158 - OVERLAY EXISTING PAVEMENT	308.41						10.75	368.38	18.42	18.42					10.75	368.38	220.00	40.52					40.52
317+49.56	320+45.65	HWY. 158 - OVERLAY EXISTING PAVEMENT	296.09						10.76	353.99	17.70	17.70					10.76	353.99	220.00	38.94					38.94
TOTALS:					**5487.49**		**9697.15**	**484.86**		**3098.94**	**213.61**	**698.47**		**3922.35**		**647.18**		**10701.52**		**1194.95**		**4329.25**		**476.21**	**1671.16**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

6/10/2024
JUCARNEY

QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	17	43
		07639		- QUANTITIES -		66563

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 101126

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	205	801	SP, SS, & 802	SP, SS, & 802	SP & 803	SS & 804	SS & 804	SP, SS, & 805	SP, SS, & 805	SS & 805	SS & 805	SP, SS, & 807	SS & 807	812	SS & 816	SS & 816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHELL PILING (20" DIAMETER) ①	STEEL SHELL PILING (24" DIAMETER) ①②	PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709-GR.50W)	PAINTING STRUCTURAL STEEL	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	POUND	TON	EACH	SQ. YD.	CU. YD.
07639	HIGHWAY 158 OVER LITTLE BAY DITCH																		
		END BENT NO. 1			17	18.39			6,852	811	357			70				343	228
		INTERMEDIATE BENT NO. 2				25.82			7,908	195		310	45						
		INTERMEDIATE BENT NO. 3				25.82			7,908	195		330	45						
		END BENT NO. 4			46	18.37			6,852	811	378			70				232	159
		180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT					292.60	798.1		75,618					151,970	33.4	1		
		SITE NO. 1 (EXISTING BR. NO. M4060)		1															
TOTALS FOR JOB NO. 101126					63	88.40	292.60	798.1	29,520	77,630	735	640	90	140	151,970	33.4	1	575	387

① Steel shell piles shall conform to ASTM A252, Grade 3, Fy = 45 ksi.

② The top of the 24" steel shell piling shall be fitted with an Annular Ring Plate in accordance with the details shown on Dwg. No. 66568. The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the Item "STEEL SHELL PILING (24" DIA)".

TABLE OF APPROACH SLAB QUANTITIES

(FOR INFORMATION ONLY)

BRIDGE NO.	ITEM	REINFORCING STEEL	CONCRETE
	UNIT	LB.	CU. YDS.
07639	BEGIN BRIDGE	7,634	63.19
	END BRIDGE	7,634	63.19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023

BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SCHEDULE OF BRIDGE QUANTITIES
WHITEMAN CREEK STR. & APPRS. (S)
CRAIGHEAD COUNTY
ROUTE 158 SECTION 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: MAR. 2022 FILENAME: b101126_q1.dgn
CHECKED BY: LWM DATE: APR. 2023
DESIGNED BY: - DATE: -
BRIDGE NO. 07639 SCALE: No Scale
DRAWING NO. 66563

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
07/19/2024		6	ARK.	101126	18	43
		SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 07-19-2024

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	3	STATION
201	GRUBBING	3	STATION
202	REMOVAL AND DISPOSAL OF FOUNDATIONS	1166	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	13	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	362	LIN. FT.
SP, SS, & 210	UNCLASSIFIED EXCAVATION	8594	CU. YD.
SP & 210	COMPACTED EMBANKMENT	11639	CU. YD.
SP & 210	SOIL STABILIZATION	200	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	6751	TON
SS & 401	TACK COAT	722	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	621	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	26	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1831	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	15	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	94	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	622	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	12	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	25	TON
SP, SS, & 504	APPROACH SLABS	126.38	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.80	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	233	SQ. FT.
SS & 604	BARRICADES	64	LIN. FT.
SS & 604	TRAFFIC DRUMS	108	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	230	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	8972	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1028	LIN. FT.
SP	CULVERT CLEAN OUT	5	EACH
SP, SS, & 606	18" SIDE DRAIN	312	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	30	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	122	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN	56	LIN. FT.
SS & 606	SELECTED PIPE BEDDING	40	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	1000	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	7	TON
620	SEEDING	3.56	ACRE
SS & 620	MULCH COVER	7.12	ACRE
620	WATER	435.7	M. GAL.
621	TEMPORARY SEEDING	3.56	ACRE
621	SILT FENCE	5110	LIN. FT.
621	SAND BAG DITCH CHECKS	242	BAG
621	SEDIMENT BASIN	100	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	100	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	315	CU. YD.
621	ROCK DITCH CHECKS	45	CU. YD.
623	SECOND SEEDING APPLICATION	3.56	ACRE
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	5000	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	5000	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	32	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	1	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	16108	POUND
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	63	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	88.40	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	292.60	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	798.1	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	29520	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	77630	POUND
SP, SS, & 805	STEEL SHELL PILING (20" DIAMETER)	735	LIN. FT.
SP, SS, & 805	STEEL SHELL PILING (24" DIAMETER)	640	LIN. FT.
SS & 805	PILE ENCASEMENT	90	LIN. FT.
SS & 805	PREBORING	140	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	151970	POUND
SS & 807	PAINTING STRUCTURAL STEEL	33.4	TON
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	FILTER BLANKET	575	SQ. YD.
SS & 816	DUMPED RIPRAP	387	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
7/19/2024	REMOVED SP FROM 21" X 15" SIDE DRAIN ITEM NUMBER, REVISED ORDER OF UTILITY ADJUSTMENT SPECIAL PROVISION APPENDIX	18

7/9/2024
JUCARNEY

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	19	43
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023

SURVEY CONTROL COORDINATES

Project Name: s10X106
Date: 2/5/2021
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS STATIC OBS PN: 1 & 5
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	517763.8650	1722926.9196	230.865	CTL	ARDOT STD MON STAMPED PN: 1
2	517756.9712	1723822.7572	229.143	CTL	ARDOT STD MON STAMPED PN: 2
3	517755.0647	1724673.0686	229.385	CTL	ARDOT STD MON STAMPED PN: 3
4	517743.0898	1725557.1904	229.745	CTL	ARDOT STD MON STAMPED PN: 4
5	517786.6549	1726418.2615	229.367	CTL	ARDOT STD MON STAMPED PN: 5
900	517738.6879	1722930.7439	234.000	TBM	X CUT ON BOLT OF FH
901	517763.3197	1724620.1169	232.004	TBM	SQUARE CUT ON SE CRNR BR
902	517751.8112	1726195.3597	225.315	TBM	RBR W/ ALUM CAP

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999289914 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 s10X106gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

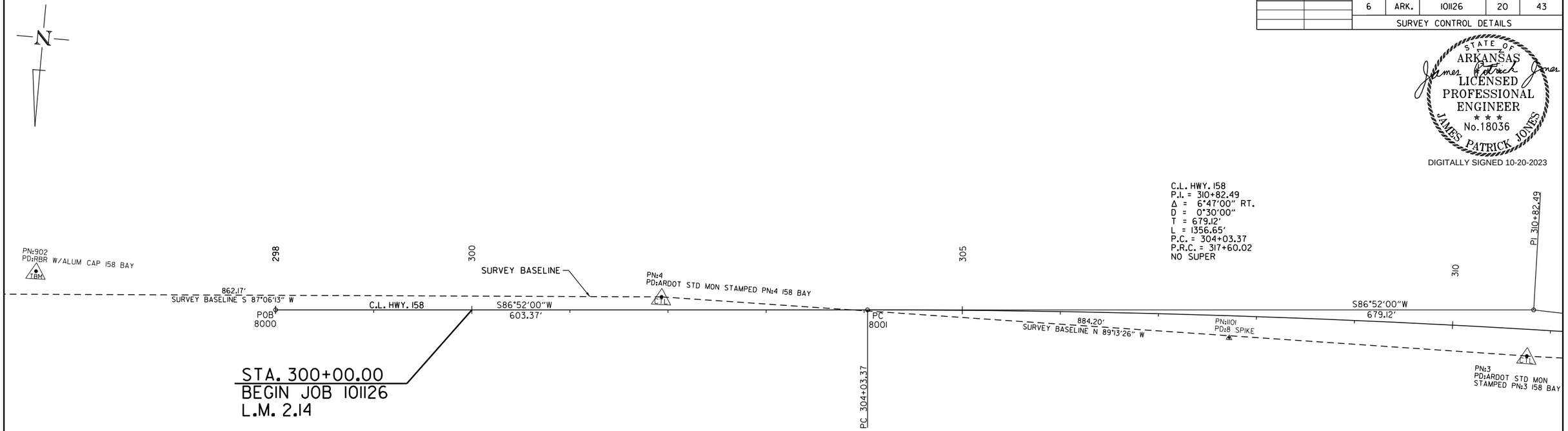
BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: GPS STATIC OBS PN: 1 & 5
CONVERGENCE ANGLE: 00 48 30.2 RIGHT AT PN: 3 LT: N35°44'51.7798 LG: W90°36'38.7740
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

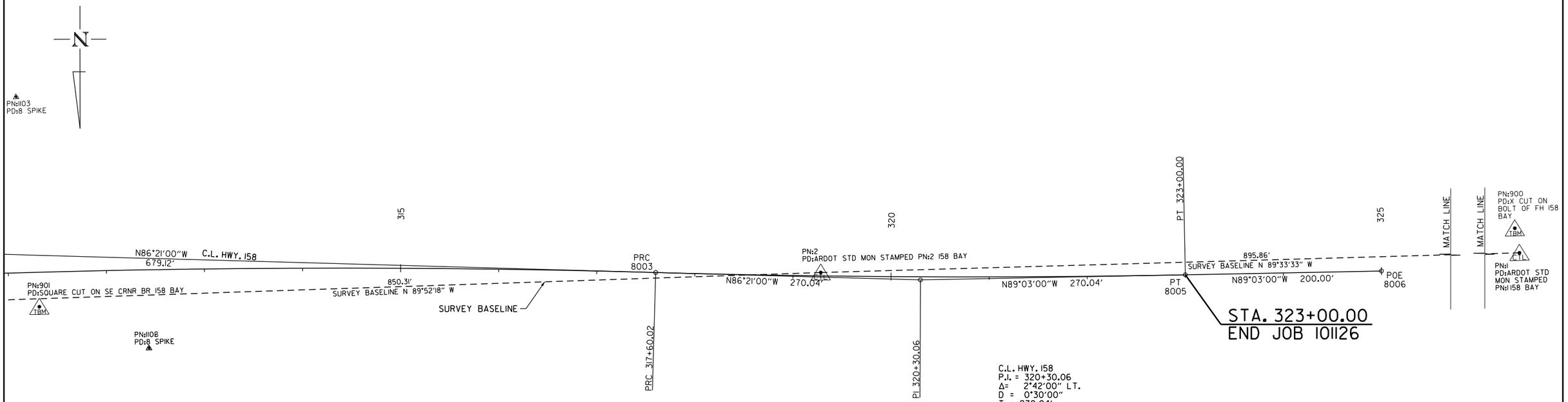
ALIGNMENT NAME: HWY. 158

POINT	STATION	TYPE	NORTHING	EASTING
8000	298+00.00	POB	517777.8542	1725949.2732
8001	304+03.37	PC	517744.8740	1725346.8026
8003	317+60.02	PRC	517750.9860	1723990.9614
8005	323+00.00	PT	517772.6539	1723451.4661
8006	325+00.00	POE	517775.9699	1723251.4936

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	20	43
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 10-20-2023





JUCARNEY 10/19/2023

SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	21	43
		PLAN AND PROFILE SHEETS				

REMOVAL AND DISPOSAL OF FOUNDATIONS

STA. 306+34 TO STA. 306+69	LT. OF C.L. HWY. 158 =	237 SQ. YD.
STA. 306+77 TO STA. 307+06	LT. OF C.L. HWY. 158 =	80 SQ. YD.
STA. 307+06 TO STA. 307+21	LT. OF C.L. HWY. 158 =	66 SQ. YD.
STA. 307+23 TO STA. 307+42	LT. OF C.L. HWY. 158 =	73 SQ. YD.
STA. 308+14 TO STA. 308+50	LT. OF C.L. HWY. 158 =	215 SQ. YD.
STA. 308+50 TO STA. 308+63	LT. OF C.L. HWY. 158 =	56 SQ. YD.
STA. 309+54 TO STA. 310+45	LT. OF C.L. HWY. 158 =	439 SQ. YD.

C.L. HWY. 158
P.I. = 310+82.49
Δ = 6°47'00" RT.
D = 0°30'00"
T = 679.12'
L = 1356.65'
P.C. = 304+03.37
P.R.C. = 317+60.02
NO SUPER

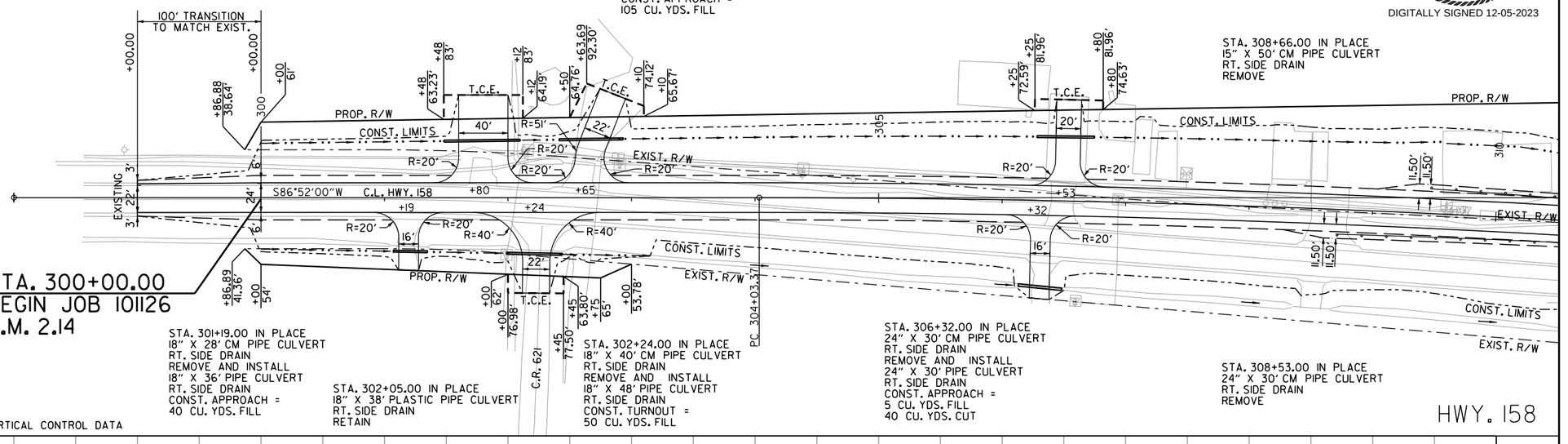
STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 12-05-2023

STA. 301+80.00 INSTALL
18" X 62' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
145 CU. YDS. FILL

STA. 302+65.00 IN PLACE
15" X 30' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
105 CU. YDS. FILL

STA. 306+53.00 IN PLACE
15" X 30' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
90 CU. YDS. FILL

STA. 308+66.00 IN PLACE
15" X 50' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE



STA. 300+00.00
BEGIN JOB 101126
L.M. 2.14

STA. 301+19.00 IN PLACE
18" X 28' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =
40 CU. YDS. FILL

STA. 302+05.00 IN PLACE
18" X 38' PLASTIC PIPE CULVERT
RT. SIDE DRAIN
RETAIN

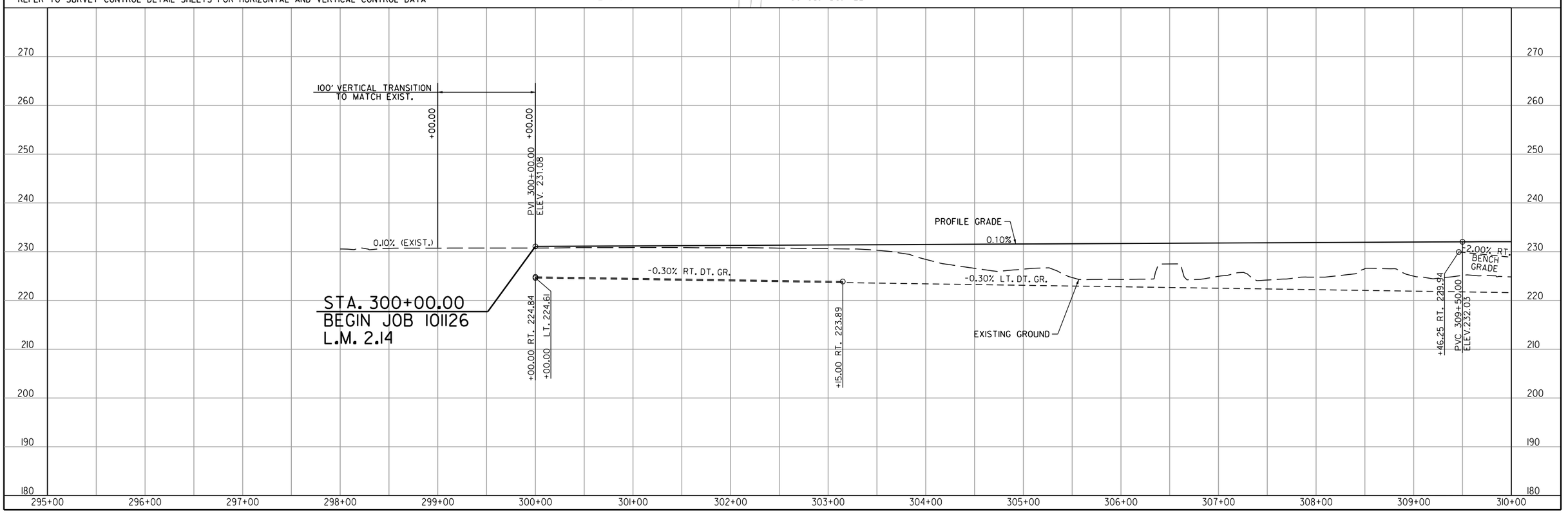
STA. 302+24.00 IN PLACE
18" X 40' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT =
50 CU. YDS. FILL

STA. 306+32.00 IN PLACE
24" X 30' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =
5 CU. YDS. FILL
40 CU. YDS. CUT

STA. 308+53.00 IN PLACE
24" X 30' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE

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

HWY. 158



12/5/2023
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	22	43
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 01-07-2024

C.L. HWY. 158
P.I. = 310+82.49
Δ = 6°47'00" RT.
D = 0°30'00"
T = 679.12'
L = 1356.65'
P.C. = 304+03.37
P.R.C. = 317+60.02
NO SUPER

STA. 311+19.00 IN PLACE
24" X 32' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 311+00.00 BRIDGE END
BRIDGE NO. 07639 OVER LITTLE BAY DITCH
180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
(55'-70'-55')
36'-0" CLEAR ROADWAY
181'-0" BRIDGE LENGTH
STA. 312+81.00 BRIDGE END

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 310+83 TO STA. 311+31	RT. OF C.L. HWY. 158 =	62 LIN. FT.
STA. 310+45 TO STA. 311+33	RT. OF C.L. HWY. 158 =	100 LIN. FT.
STA. 312+76 TO STA. 313+63	RT. OF C.L. HWY. 158 =	100 LIN. FT.
STA. 312+78 TO STA. 313+67	RT. OF C.L. HWY. 158 =	100 LIN. FT.

STA.	STA.	LOCATION	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
308+71.11	310+89.86	RT. OF C.L. HWY. 158	150	1	1
309+46.39	310+90.14	LT. OF C.L. HWY. 158	75	1	1
312+91.14	314+34.89	RT. OF C.L. HWY. 158	75	1	1
312+90.86	315+09.61	LT. OF C.L. HWY. 158	150	1	1

STA. 313+21.00 IN PLACE
19" X 21' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 315+85.00 IN PLACE
18" X 30' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 60' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
155 CU. YDS. FILL

APPROXIMATE
100-YEAR FLOODPLAIN
LIMITS

C.L. HWY. 158
P.I. = 320+30.06
Δ = 2°42'00" LT.
D = 0°30'00"
T = 270.04'
L = 539.98'
P.R.C. = 317+60.02
P.T. = 323+00.00
NO SUPER

100' TRANSITION
TO MATCH EXIST.

PROP. R/W
CONST. LIMITS
EXIST. R/W
BEGIN BRIDGE
STA. 311+00.00
END BRIDGE
STA. 312+81.00
C.L. HWY. 158
N86°21'00"W
N89°03'00"W
LITTLE BAY DITCH
EXISTING

STA. 323+00.00
END JOB 101126

STA. 310+60.00 IN PLACE
18" X 17' CM PIPE CULVERT
RT. SIDE DRAIN
RETAIN

STA. 311+31.65 TO STA. 312+76.65
EXISTING BRIDGE NO. M4060
145.0' X 30.8' BRIDGE CONSISTING OF A
STEEL SUPERSTRUCTURE SUPPORTED BY A
TIMBER SUBSTRUCTURE
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

STA. 311+39.00 IN PLACE
24" X 44' CM PIPE CULVERT
RT. SIDE DRAIN
RETAIN

LEGEND
PAVEMENT OBLITERATION

STA. 315+04.00 IN PLACE
15" X 49' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
36" X 76' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =
160 CU. YDS. FILL
15 CU. YDS. CUT

STA. 316+26.00 IN PLACE
18" X 50' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
36" X 46' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =
10 CU. YDS. FILL
15 CU. YDS. CUT

STA. 322+48.00 IN PLACE
15" X 27' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 21" X 15" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS FILL

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

HWY. 158

STREAM	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
LITTLE BAY DITCH	311+10-312+70	PERENNIAL	226 FT. MSL

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

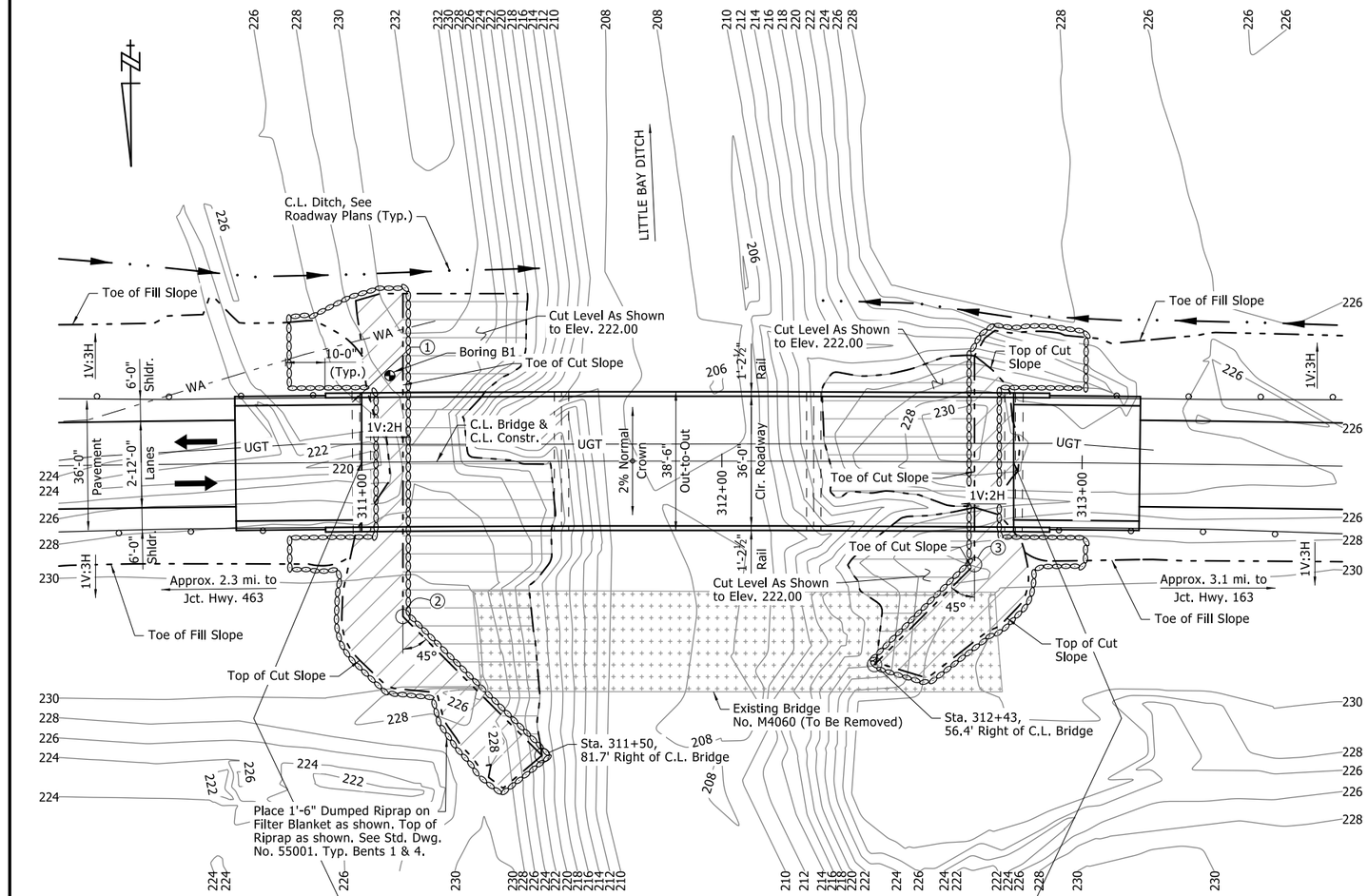
VC=440.00'
K=977.78
e=-0.25'
PVI 311+70.00
ELEV. 232.25
PVRC 313+90.00
ELEV.231.48
VC=200.00'
K=571.43
e=0.09'
PVT 315+90.00
ELEV.231.13
PVI 314+90.00
ELEV. 231.13
PROFILE GRADE
EXISTING GROUND
100' VERTICAL TRANSITION
TO MATCH EXIST.
PVI 323+00.00
ELEV. 231.13
0.10%
-0.35%
0.00%
0.30% LT. DT. GR.
0.33% RT. DT. GR.
0.00% (EXIST.)
-2.00% RT.
BENCH GRADE
+00.00 RT. 226.87
+50.00 LT. 221.46
050 = 226.5
+34.67 LT. 224.75
+40.00 RT. 226.66
+00.00 RT. 227.85
+00.00 LT. 227.95

STA. 323+00.00
END JOB 101126

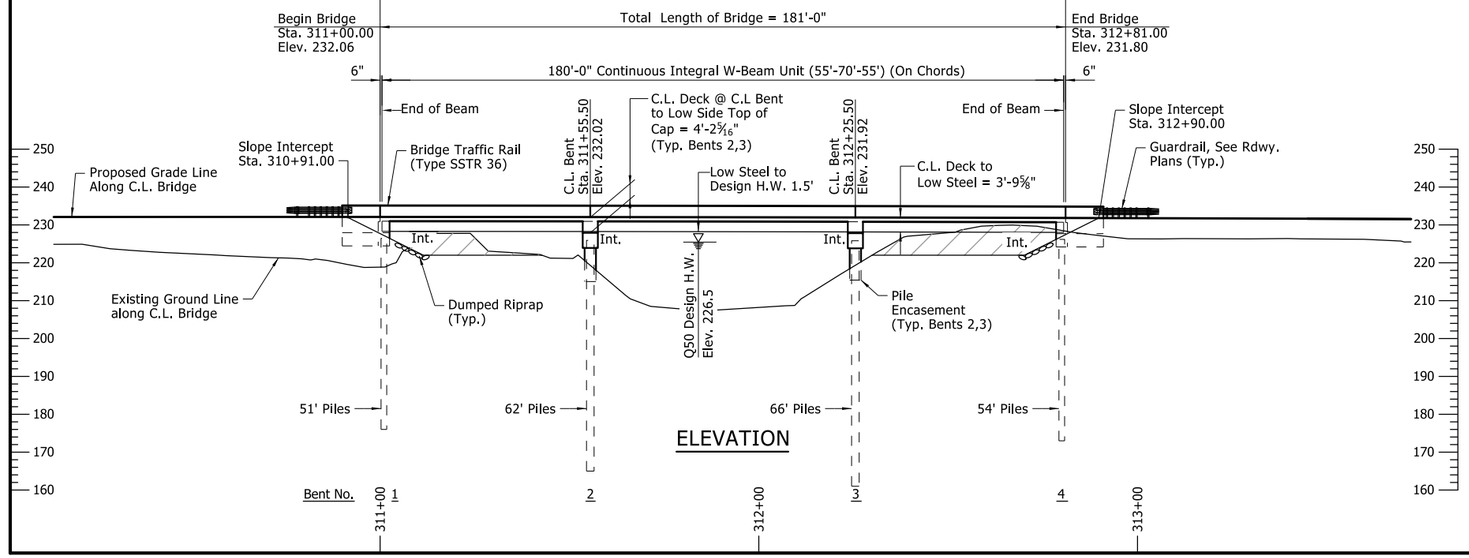
1/7/2024
JAJONES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	23	43
		07639		- LAYOUT -		66564

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



PLAN



ELEVATION

10/19/2023
JUCARNEY

NOTES:
For "GENERAL NOTES", and "ELEVATION OF SOIL BORINGS", see Dwg. No. 66565.

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

C.L. Bridge is on a 0°30'00" curve right. All longitudinal lines shall be constructed on curves concentric with C.L. Bridge. Begin/End Bridge lines, C.L. Interior Bents, and C.L. Anchor Bolts are normal to beams built on 181'-0" chords. For more information refer to "STAKING DIAGRAM" on Dwg. No. 66566.

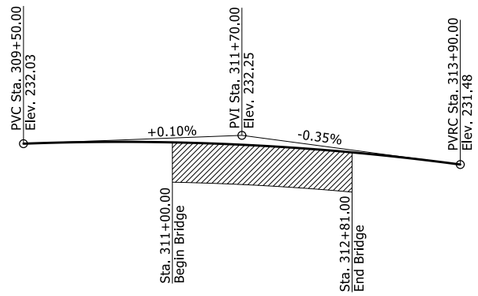
Place Type F Approach Gutters and Type F Approach Slab (width = 32'-0") at both ends of bridge. For details, see Std. Dwg. Nos. 55030F and 55040F1 respectively.

The Contractor shall excavate the existing embankment as shown at both ends of the bridge. Approx. 1298 cubic yards of excavation (excluding ditch excavation).

① Install 4" Ø Pipe Underdrain with Outlet Protectors at both Bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 66575. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "UNCLASSIFIED EXCAVATION".

② Sta. 311+11,
42.9' Right of C.L. Bridge

③ Sta. 312+70
28.5 Right of C.L. Bridge



VERTICAL CURVE DATA
(Theoretical Grade Along C.L. Construction)

HORIZONTAL CURVE DATA
C.L. Construction

P.I. Sta. = 310+82.49
Δ = 6°47'00" RT.
D = 0°30'00"
T = 679.12'
L = 1356.65'
R = 11459.16
P.C. Sta. = 304+03.37
P.R.C. Sta. = 317+60.02

EXISTING UTILITIES LEGEND

UGT = Underground Cable
WA = Water Line

NOTE:
Utilities shown are based on locations at time of survey and do not reflect any potential utility relocations prior to construction.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	④NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	7,550	225.8	226.5
Base	100	8,750	225.9	226.8
Extreme	500	11,800	226.3	227.5
Overtopping	>500	-	-	-

④ Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 226.9 ft.

Proposed Low Bridge Chord Elevation = 228.01 feet
Existing Low Bridge Chord Elev. = 227.92 (survey data)

Drainage area = 62.1 square miles.

Historical H.W Elevation = N/A

PILE BEARING TABLE

BENTS	REQUIRED MINIMUM ULTIMATE BEARING CAPACITY (TONS)	MIN. TIP ELEVATION	ANTICIPATED DRIVING RESISTANCE AT MIN. TIP (TONS)	ESTIMATED MIN. RATED HAMMER ENERGY (FT.-LBS. PER BLOW)
1	166	176.00	280	40,600
2	415	165.00	535	66,200
3	415	161.00	515	66,200
4	166	173.00	385	40,600

NOTE:
Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity after an allowance for water jetting or any other methods employed to facilitate pile installation.

Anticipated Driving Resistance corresponds to the resistance to be overcome to achieve minimum tip elevation without any water jetting or other methods employed to facilitate pile installation.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 158 OVER LITTLE BAY DITCH
WHITEMAN CREEK STR. & APPRS. (S)
CRAIGHEAD COUNTY
ROUTE 158 SECTION 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	OCT. 2021	FILENAME:	b101126_l1.dgn
CHECKED BY:	CDB	DATE:	OCT. 2021		
DESIGNED BY:	JPC	DATE:	OCT. 2021	SCALE:	1" = 20'
BRIDGE NO.	07639			DRAWING NO.	66564

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	24	43
		07639		- LAYOUT -		66565

GENERAL NOTES

BENCH MARK: 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, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2017, 8th Edition)
AASHTO Guide Specifications for LRFD Seismic Bridge Design (2011, 2nd Edition) with current interims

LIVE LOADING: HL-93

SEISMIC DESIGN CATEGORY (SDC): D S_{D1}= 0.634g SITE CLASS = D

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)		f'c = 4,000 psi
Class S Concrete (substructure)		f'c = 3,500 psi
Reinforcing Steel	(AASHTO M 31 or M 322, Type A, 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
Pipe Pile	(ASTM A252, Grade 3)	Fy = 45,000 psi

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

STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 20" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66564. Piling in Bents 2 and 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66564. All piling shall be driven with an approved air, steam or diesel hammer to the minimum tip elevations shown in the "PILE BEARING TABLE" on Dwg. No. 66564. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. 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). No piles will be paid for as test piles.

Water Jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the Item "STEEL SHELL PILING (20" DIA.)" and "STEEL SHELL PILING (24" DIA.)".

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural ground. Corrugated steel pipe shall not be used for the pile encasement. See Std. Dwg. No. 55021 for additional information.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diameter of the pile for a depth of 10' below the bottom of the cap. The void space around the pile after completion of driving shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casings will not be paid for directly, but shall be considered subsidiary to the Item "PREBORING".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)" and SP "PILE DRIVING SYSTEM". See the "PILE BEARING TABLE" on Dwg. No. 66564 for the estimated minimum rated hammer energy required to overcome the anticipated driving resistance for all piles at each bent. If the Contractor elects to use water jetting or other approved methods to obtain the minimum tip elevations shown while driving only to the required minimum ultimate bearing capacity, the minimum rated hammer energy required will be lower and shall be accounted for in the driving system chosen by the Contractor.

PAINTING: The following weathering steel surfaces shall be painted as specified in Subsection 807.75:
- All steel surfaces within the end 5 feet of integral abutments, including the section encased in concrete.
- All steel surfaces 3 feet each side of concrete diaphragms or integral intermediate bents, including the section encased in concrete.
- All steel surfaces exposed to the outside face of the bridge, including outside faces & bottom of the exterior beams or girders, splice plates and bolts, stiffeners, drip plates and bearings.

ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted.
Galvanized members and surfaces in contact with concrete shall not be painted.
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. 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.

Galvanized members and surfaces in contact with concrete shall not be painted unless otherwise noted above. 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. 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 concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

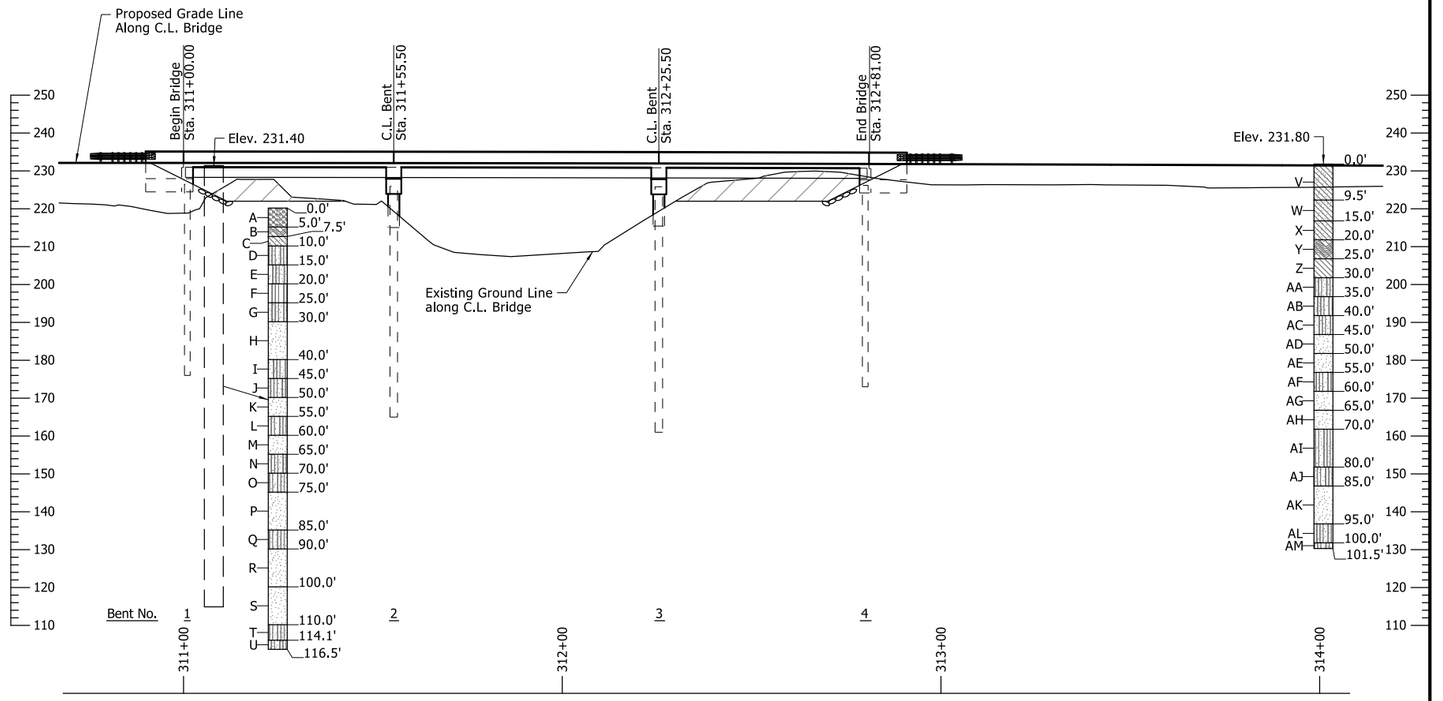
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of the concrete bridge rails. Class 2 Protective Surface Treatment shall meet the requirements of Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bent 1	66567
Intermediate Bents	66568
End Bent 4	66569
180'-0" Continuous Integral W-Beam Unit	66570 - 66575
Dumped Riprap	55001
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Concrete Filled Steel Shell Piling	55021
Type F Approach Gutters	55030F
Type F Approach Slab	55040F1
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. M4060 (Log Mile 2.35) is 30.8' wide (28.0' clear roadway) and 145.0' long and consists of steel W-beam spans (5 spans total) supported by timber pile bents. The existing bridge is located approximately 30' upstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the construction of the new bridge is complete and open to traffic, the Contractor shall remove existing Bridge No. M4060 in accordance with Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

BORING LEGEND

A- Dry, Medium Dense, Brown Clayey Sand with Gravel
B- Dry, Brown, Very Stiff Clay with Organic Matter (Wood)
C- Moist, Soft, Gray Sandy Clay
D- Moist, Medium Dense, Brown and Gray Poorly Graded Sand with Silt
E- Wet, Medium Dense, Brown and Gray Poorly Graded Sand with Silt
F- Wet, Medium Dense, Gray Silt
G- Wet, Medium Dense, Gray Poorly Graded Sand with Silt
H- Wet, Dense, Gray Poorly Graded Sand
I- Wet, Medium Dense, Gray Poorly Graded Sand with Silt
J- Wet, Dense, Gray Poorly Graded Sand with Silt
K- Wet, Medium Dense, Gray Poorly Graded Sand
L- Wet, Dense, Gray Poorly Graded Sand with Silt
M- Wet, Dense, Gray Poorly Graded Sand
N- Wet, Dense, Gray Poorly Graded Sand with Silt
O- Wet, Medium Dense, Gray Poorly Graded Sand with Silt and Trace Gravel
P- Wet, Dense, Gray Poorly Graded Sand
Q- Wet, Dense, Gray Poorly Graded Sand with Silt
R- Wet, Medium Dense, Gray Poorly Graded Sand
S- Wet, Dense, Gray Poorly Graded Sand
T- Wet, Very Dense, Gray Sand with Silt
U- Wet, Dense, Gray Poorly Graded Sand with Silt and Some Gravel
V- Wet, Soft, Brown Sandy Clay with Some Gravel
W- Moist, Medium Stiff, Gray Lean Clay with Sand and Some Gravel
X- Moist, Medium Stiff, Gray Sandy Clay
Y- Wet, Soft, Gray Lean Clay with Sand and Organic Matter (Wood)
Z- Wet, Soft, Gray Lean Clay
AA- Wet, Dense, Gray Poorly Graded Sand with Silt
AB- Wet, Medium Dense, Gray Sand with Silt
AC- Wet, Dense, Gray Sand with Silt
AD- Wet, Dense, Gray Sand
AE- Wet, Medium Dense, Gray Sand
AF- Wet, Dense, Gray Poorly Graded Sand with Silt
AG- Wet, Medium Dense, Gray Sand
AH- Wet, Dense, Gray Sand
AI- Wet, Medium Dense, Gray Sand with Silt
AJ- Wet, Dense, Gray Poorly Graded Sand with Silt
AK- Wet, Dense, Gray Sand
AL- Wet, Very Dense, Gray Poorly Graded Sand with Silt
AM- Wet, Dense, Gray Poorly Graded Sand with Silt

"N" VALUES

Boring B1 Sta. 311+08 - 24' Left		Boring B2 Sta. 314+01 - 26' Right	
3.0 - 4.0	N=18	5.0 - 6.0	N=4
5.5 - 6.5	N=17	10.0 - 11.0	N=7
7.5 - 8.5	N=3	15.5 - 16.5	N=7
10.5 - 11.5	N=14	20.5 - 21.5	N=2
15.5 - 16.5	N=17	25.5 - 26.5	N=2
20.5 - 21.5	N=12	30.5 - 31.5	N=38
25.5 - 26.5	N=26	35.5 - 36.5	N=30
30.5 - 31.5	N=31	40.5 - 41.5	N=31
35.5 - 36.5	N=34	45.5 - 46.5	N=38
40.5 - 41.5	N=36	50.5 - 51.5	N=27
45.5 - 46.5	N=47	55.5 - 56.5	N=40
50.5 - 51.5	N=21	60.5 - 61.5	N=27
55.5 - 56.5	N=45	65.5 - 66.5	N=39
60.5 - 61.5	N=36	70.5 - 71.5	N=29
65.5 - 66.5	N=44	75.5 - 76.5	N=25
70.5 - 71.5	N=26	80.5 - 81.5	N=39
75.5 - 76.5	N=35	85.5 - 86.5	N=32
80.5 - 81.5	N=38	90.5 - 91.5	N=35
85.5 - 86.5	N=45	95.5 - 96.5	N=53
90.5 - 91.5	N=19	100.5 - 101.5	N=39
95.5 - 96.5	N=26		
100.5 - 101.5	N=41		
105.5 - 106.5	N=38		
110.5 - 111.5	N=76		
115.5 - 116.5	N=48		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 158 OVER LITTLE BAY DITCH
WHITEMAN CREEK STR. & APPRS. (S)
CRAIGHEAD COUNTY
ROUTE 158 SECTION 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

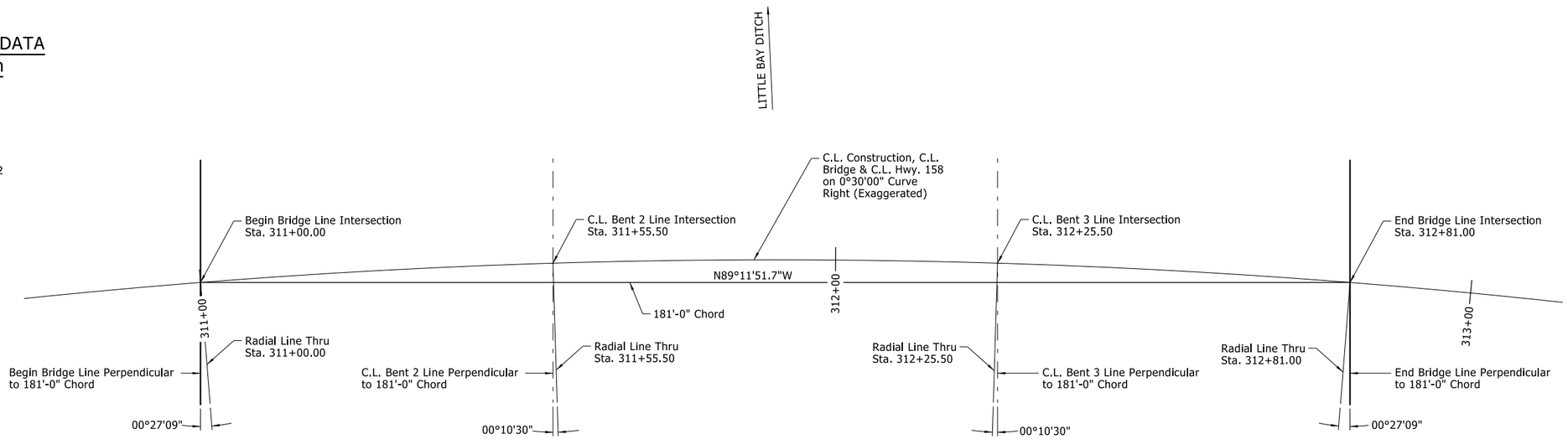
DRAWN BY: JPC DATE: OCT. 2021 FILENAME: b101126_l1.dgn
CHECKED BY: CDB DATE: OCT. 2021
DESIGNED BY: JPC DATE: OCT. 2021 SCALE: 1" = 20'
BRIDGE NO. 07639 DRAWING NO. 66565

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	25	43
		07639		- LAYOUT -		66566

HORIZONTAL CURVE DATA
C.L. Construction

P.I. Sta. = 310+82.49
Δ = 6°47'00" RT.
D = 0°30'00"
T = 679.12'
L = 1356.65'
R = 11459.16
P.C. Sta. = 304+03.37
P.R.C. Sta. = 317+60.02



STAKING DIAGRAM

JUCARNEY 10/19/2023

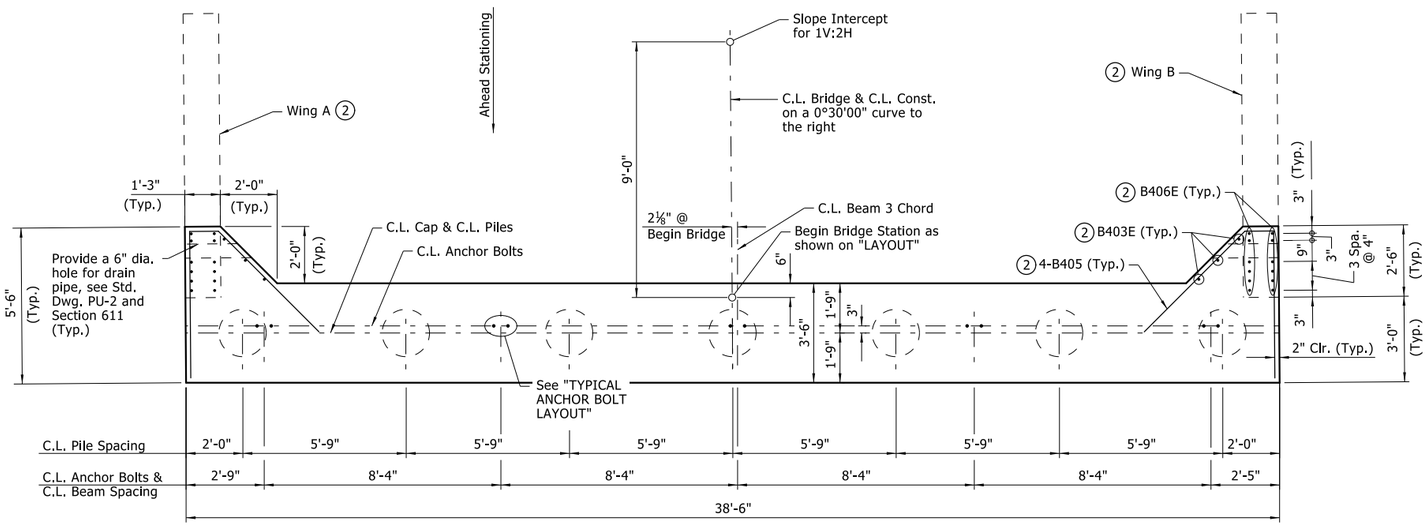
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 158 OVER LITTLE BAY DITCH
WHITEMAN CREEK STR. & APPRS. (S)
CRAIGHEAD COUNTY
ROUTE 158 SECTION 5
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: OCT. 2021 FILENAME: b101126_l1.dgn
CHECKED BY: CDB DATE: OCT. 2021
DESIGNED BY: JPC DATE: OCT. 2021 SCALE: No Scale
BRIDGE NO. 07639 DRAWING NO. 66566

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	26	43
		07639		- END BENT 1 -		66567



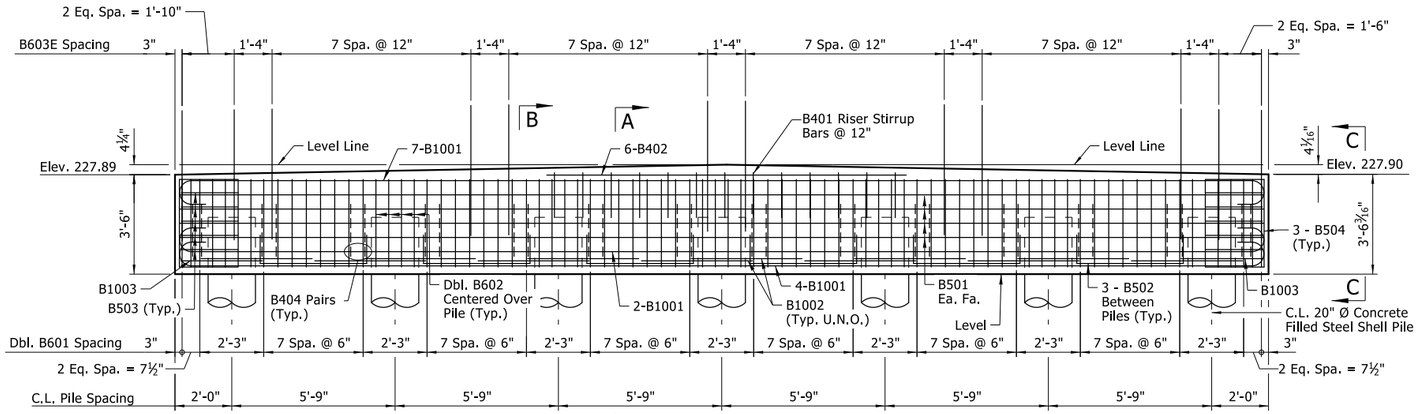
PLAN

⅜" = 1'-0"

Note:
C.L. Anchor Bolts, Begin Bridge, C.L. Cap, and C.L. Piles lines are perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. For additional information, See "STAKING DIAGRAM" on Dwg. No. 66566.

(1) For Details of 1½" Ø x 20" Anchor Bolt & 1" Bearing plate, See Dwg. No. 66574.

(2) See Dwg. No. 66575 for additional details.



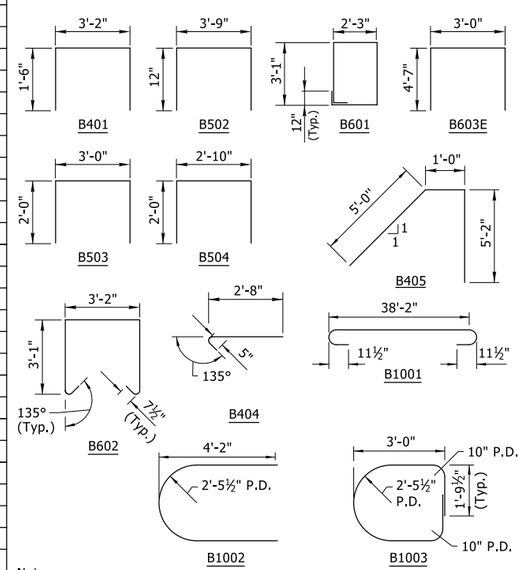
ELEVATION

(Looking Back)
⅜" = 1'-0"

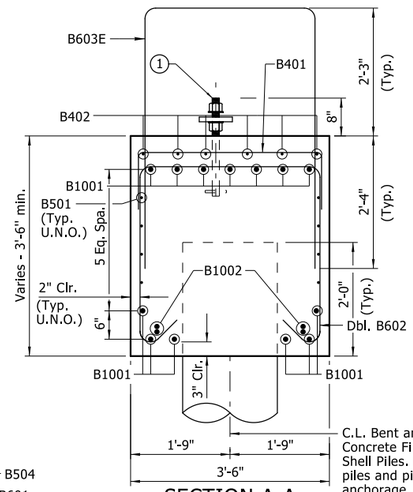
BAR LIST

MARK	NO. REQ'D	LENGTH	PIN. DIA.
B401	13	6'-0"	2"
B402	6	12'-8"	Str.
B403E	6	5'-8"	Str.
B404	224	3'-2"	3"
B405	8	11'-1"	2"
B406E	24	6'-11"	Str.
B501	8	38'-2"	Str.
B502	18	5'-6"	3¾"
B503	10	6'-10"	2½"
B504	6	6'-8"	2½"
B601	108	11'-10"	4½"
B602	56	10'-4"	4½"
B603E	38	11'-10"	4½"
B1001	13	41'-0"	10"
B1002	12	9'-10"	2'-5½"
B1003	2	10'-6"	2'-5½"

BENDING DIAGRAMS

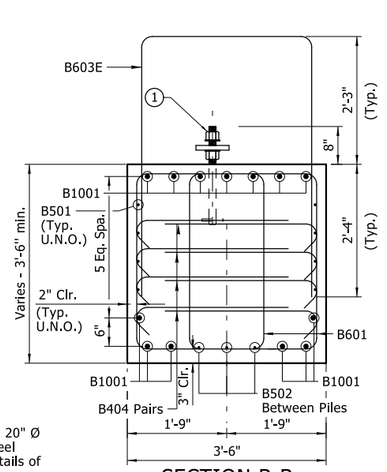


Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.



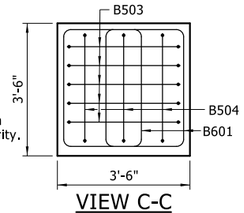
SECTION A-A

¾" = 1'-0"



SECTION B-B

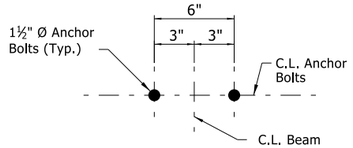
¾" = 1'-0"



Note:
Longitudinal Bars in cap omitted for clarity.

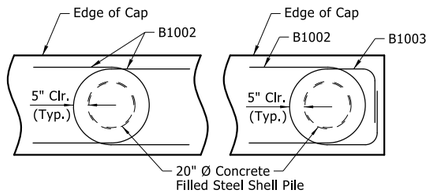
VIEW C-C

½" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale



PLAN OF B1002 AND B1003 PLACEMENT

⅜" = 1'-0"

GENERAL NOTES

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

Granular backfill & pipe underdrain required behind end bent cap. See "SECTION AT END BENT" on Dwg. No. 66574.

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

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

DETAILS OF END BENT 1

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_b1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66567

10/19/2023
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	27	43
		07639		- INT. BENTS -		66568

GENERAL NOTES

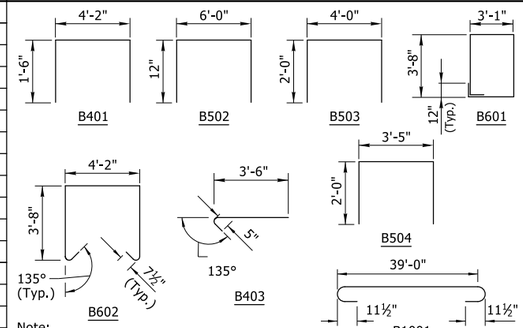
For General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

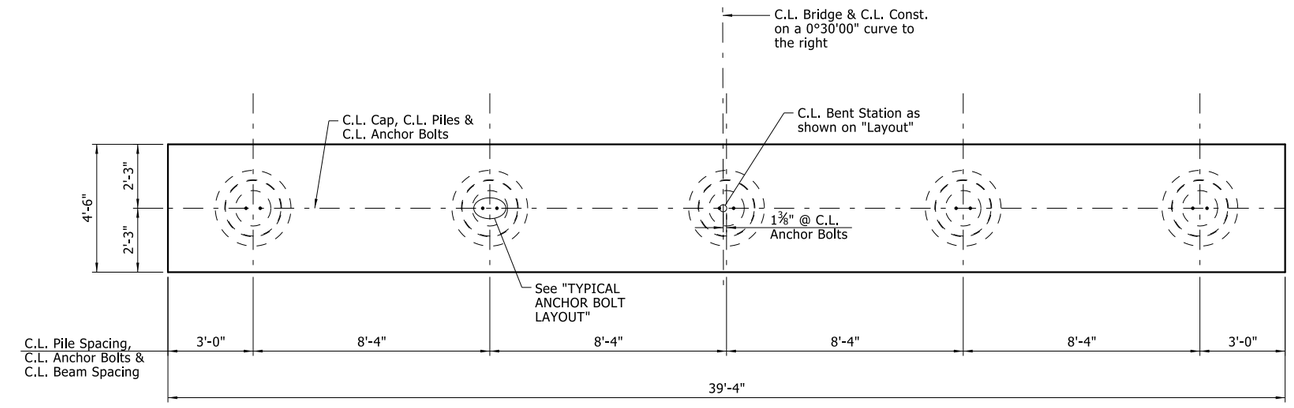
BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	PIN. DIA.
B401	13	7'-0"	2"
B402	6	12'-8"	Str.
B403	200	4'-0"	3"
B501	8	39'-0"	Str.
B502	16	7'-10"	3¾"
B503	10	7'-10"	2½"
B504	8	7'-3"	2½"
B601	112	14'-8"	4½"
B602	70	12'-6"	4½"
B603E	32	4'-0"	Str.
B1001	16	41'-10"	10"

BENDING DIAGRAMS



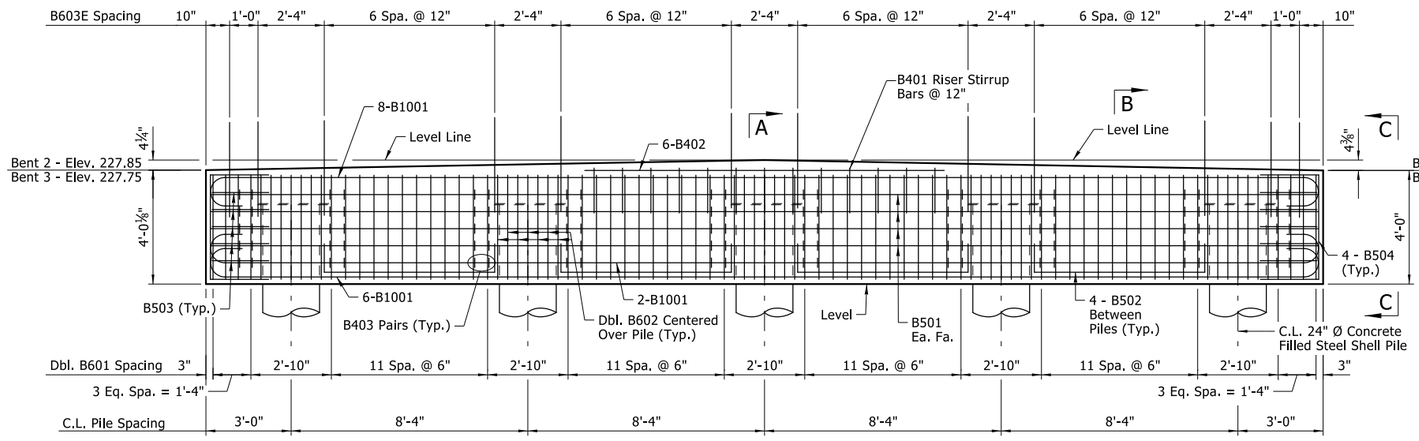
Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.



PLAN

⅜" = 1'-0"

Note:
C.L. Anchor Bolts, C.L. Cap, and C.L. Piles lines are perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. For additional information, See "STAKING DIAGRAM" on Dwg. No. 66566.

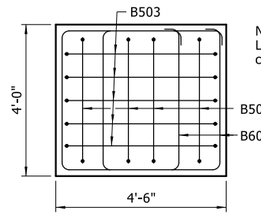


ELEVATION

(Looking Ahead)
⅜" = 1'-0"

① For Details of 1½" Ø x 21" Anchor Bolt & 1" Bearing plate, See Dwg. No. 66574.

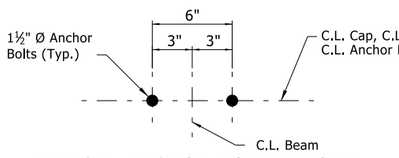
② Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.



VIEW C-C

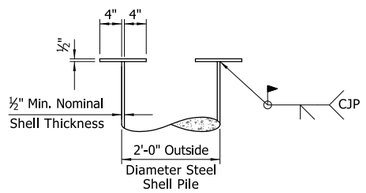
½" = 1'-0"

Note:
Longitudinal Bars in cap omitted for clarity.



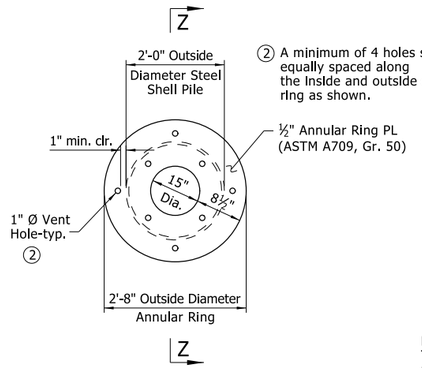
TYPICAL ANCHOR BOLT LAYOUT

No Scale



SECTION Z-Z

No Scale

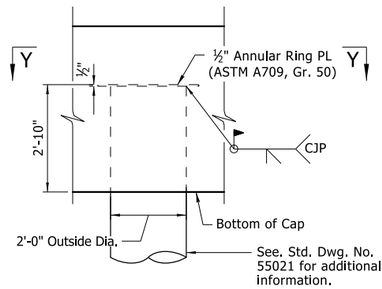


② A minimum of 4 holes shall be equally spaced along the Inside and outside of the ring as shown.

½" Annular Ring PL (ASTM A709, Gr. 50)

VIEW Y-Y

No Scale

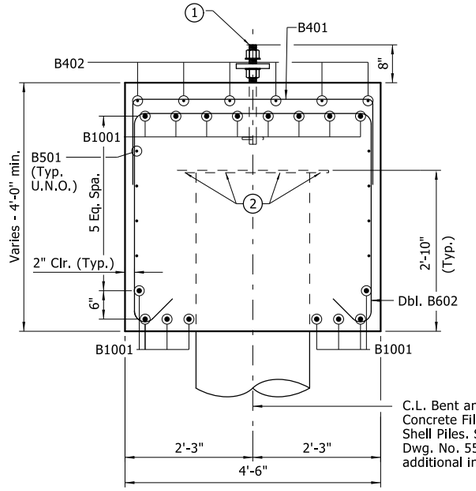


ANNULAR RING DETAIL

No Scale

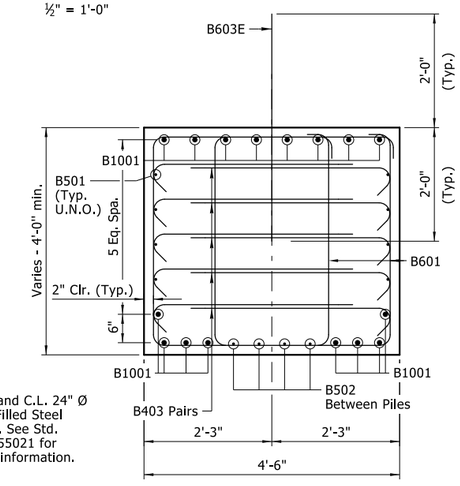
Note:
The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the Item "STEEL SHEEL PILING (24" DIA.)".

Annular Ring shall be welded to an undamaged portion of steel pile at the embedment shown. No additional payment will be made for any cut-off or build up necessary to provide an undamaged portion of pile for welding of the annular ring.



SECTION A-A

¾" = 1'-0"



SECTION B-B

¾" = 1'-0"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18018 JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023

BRIDGE ENGINEER

PRINT DATE: 10/19/2023

DETAILS OF INTERMEDIATE BENTS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

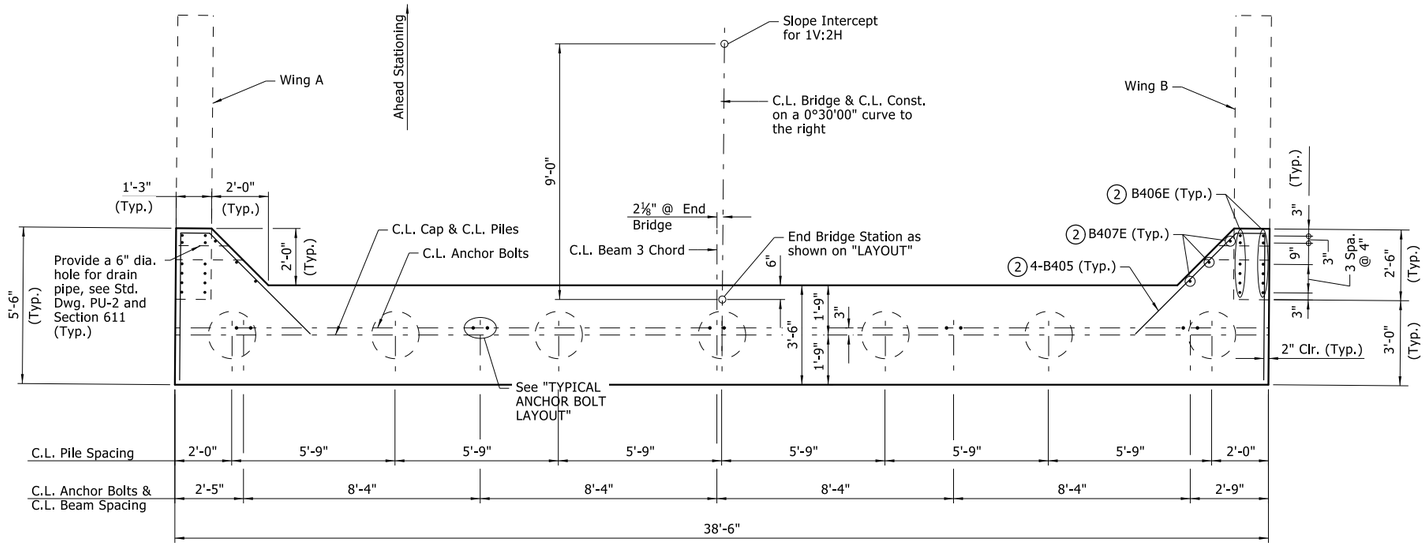
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_b1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66568

10/19/2023

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	28	43
		07639		- END BENT 4 -		66569



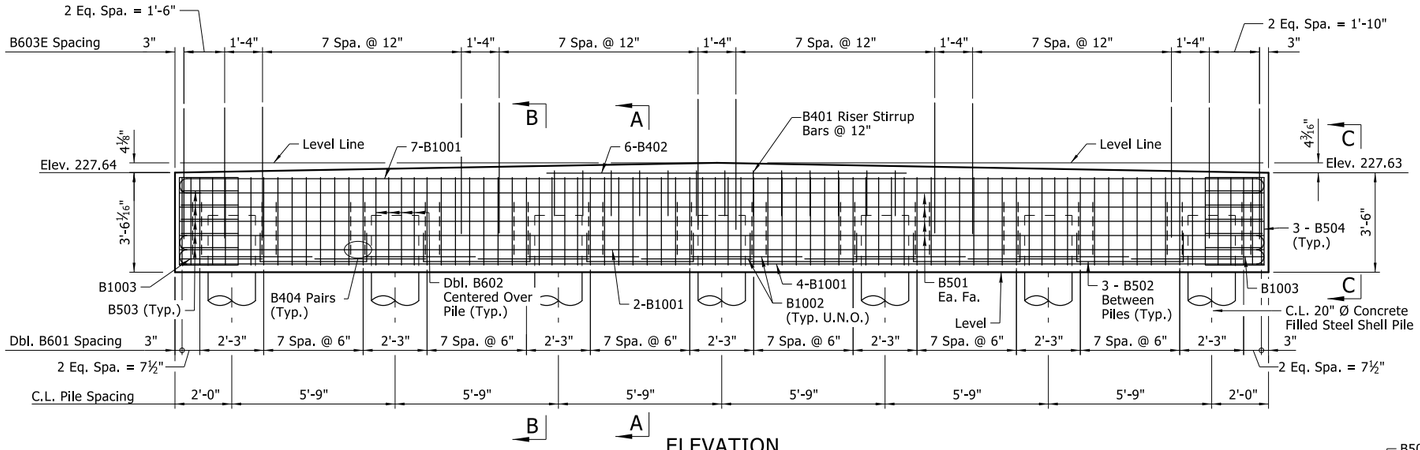
PLAN

⅜" = 1'-0"

Note:
C.L. Anchor Bolts, End Bridge, C.L. Cap, and C.L. Piles lines are perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. For additional information, See "STAKING DIAGRAM" on Dwg. No. 66566.

(1) For Details of 1½" Ø x 20" Anchor Bolt & 1" Bearing plate, See Dwg. No. 66574.

(2) See Dwg. No. 66575 for additional details.



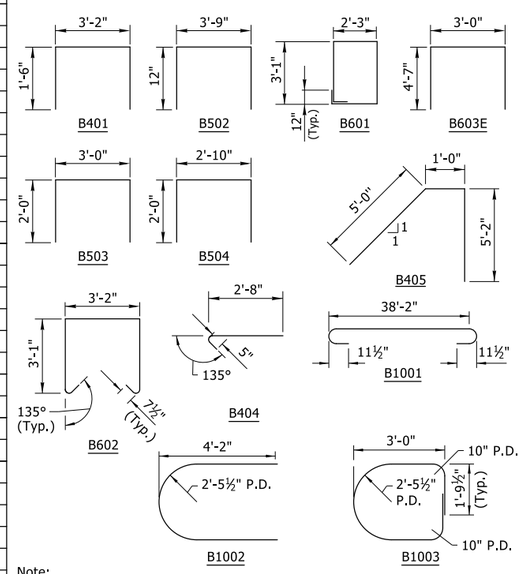
ELEVATION

(Looking Ahead)
⅜" = 1'-0"

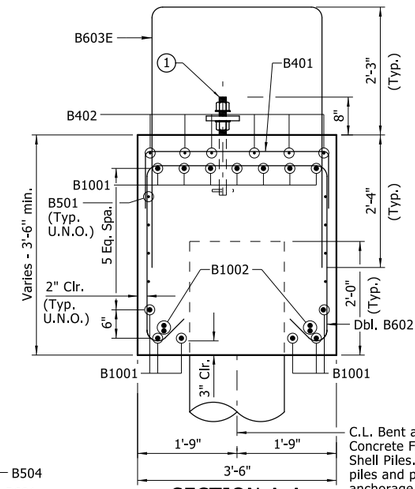
BAR LIST

MARK	NO. REQ'D	LENGTH	PIN. DIA.
B401	13	6'-0"	2"
B402	6	12'-8"	Str.
B403E	6	5'-8"	Str.
B404	224	3'-2"	3"
B405	8	11'-1"	2"
B406E	24	6'-11"	Str.
B501	8	38'-2"	Str.
B502	18	5'-6"	3¾"
B503	10	6'-10"	2½"
B504	6	6'-8"	2½"
B601	108	11'-10"	4½"
B602	56	10'-4"	4½"
B603E	38	11'-10"	4½"
B1001	13	41'-0"	10"
B1002	12	9'-10"	2'-5½"
B1003	2	10'-6"	2'-5½"

BENDING DIAGRAMS

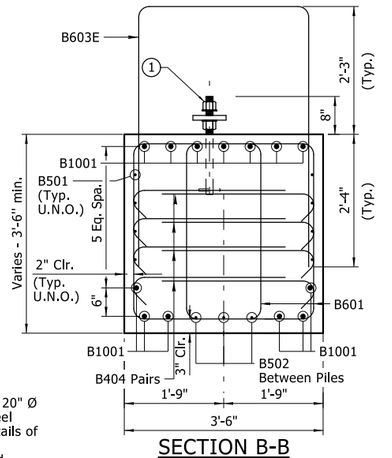


Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.



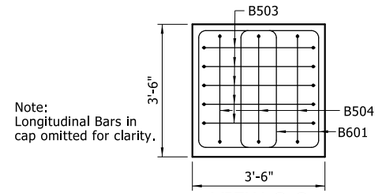
SECTION A-A

¾" = 1'-0"



SECTION B-B

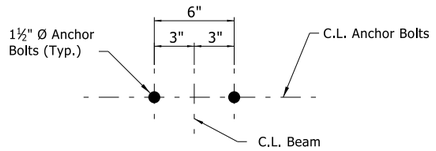
¾" = 1'-0"



Note:
Longitudinal Bars in cap omitted for clarity.

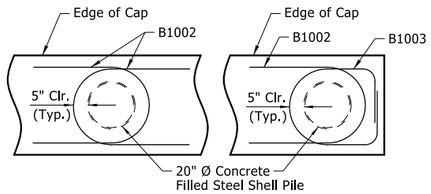
VIEW C-C

½" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale



PLAN OF B1002 AND B1003 PLACEMENT

⅜" = 1'-0"

GENERAL NOTES

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

Granular backfill & pipe underdrain required behind end bent cap. See "SECTION AT END BENT" on Dwg. No. 66574.

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

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

DETAILS OF END BENT 4

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_b1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66569

10/19/2023
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	29	43
		07639	- 180'-0" INT. UNIT -			66570

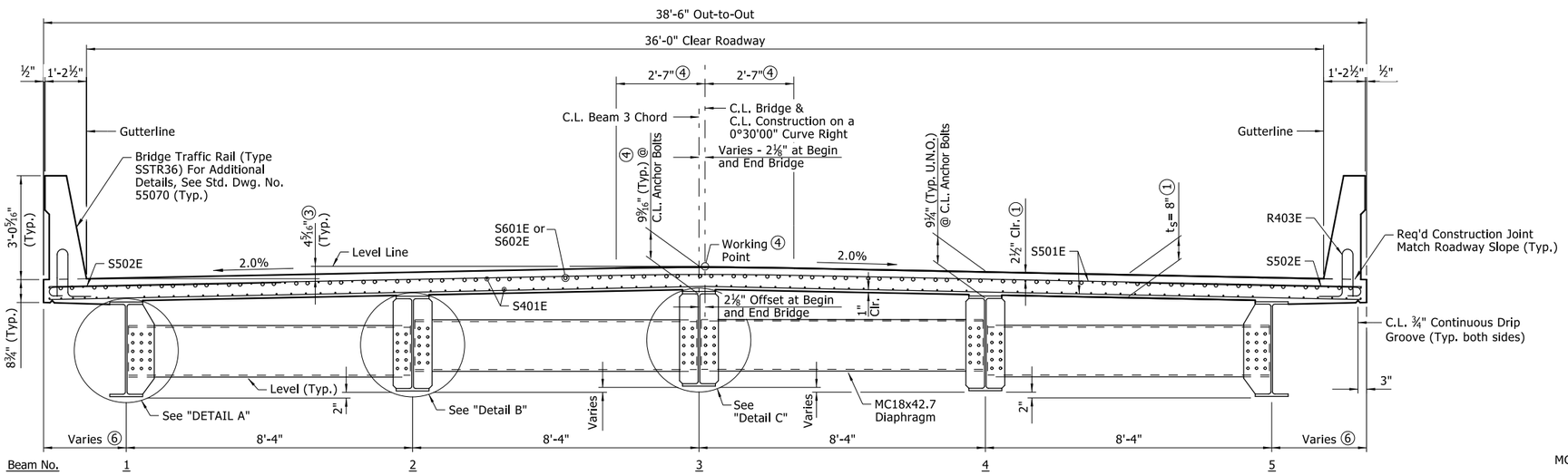
Slab Reinforcing:

Longitudinal: S401E placed as shown in top and bottom
S601E and S602E placed as shown, see "HALF REINFORCING PLAN AND POURING SEQUENCE", on Dwg. No. 66572.

Transverse: S501E @ 6" o.c. in Top & Bottom
S502E @ 6" in Top of Overhang (bundled with S501E bars in Top)

Notes:
Bar positions or 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 hi-chairs with full length lower runners directly on removable deck forms will not be allowed.

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Bridge Rail.

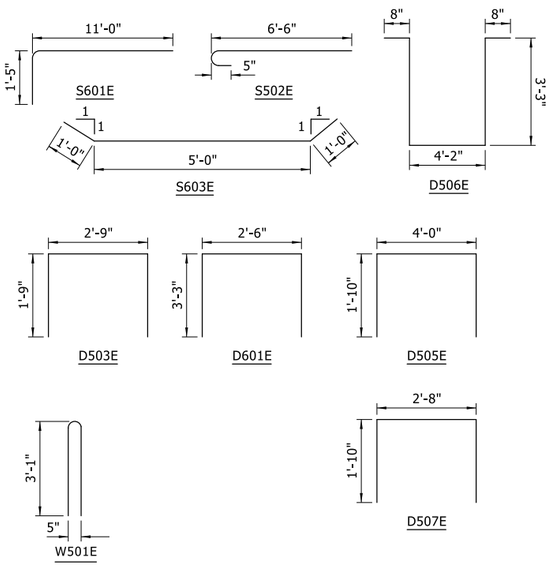


TYPICAL SECTION

(Looking Forward)
Shown Near Bridge Ends
½" = 1'-0"

BAR LIST

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
D501E	10	38'-2"	Str.	Note: Dimensions of bars are out-to-out. All bars designated with an "E" suffix are to be epoxy coated. For bars R400E, R401E, R403E, and W401E see Std. Dwg. No. 55070.
D502E	120	7'-1"	Str.	
D503E	16	6'-1"	2½"	
D504E	150	4'-6"	Str.	
D505E	20	7'-6"	2½"	
D506E	64	11'-7"	2½"	
D507E	28	6'-2"	2½"	
D601E	76	8'-8"	4½"	
S401E	620	38'-3"	Str.	
S501E	724	38'-2"	Str.	
S502E	724	7'-1"	¾"	
S503E	72	4'-0"	Str.	
S601E	156	11'-4"	4½"	
S602E	156	34'-0"	Str.	
S603E	20	7'-0"	4½"	
R400E	96	5'-3"	2½"	
R401E	792	6'-4"	2½"	
R402E	112	5'-6"	Str.	
R403E	712	3'-6"	¾"	
R404E	32	12'-8"	Str.	
R405E	96	15'-8"	Str.	
R406E	32	18'-8"	Str.	
R407E	16	4'-0"	Str.	
R408E	32	9'-8"	Str.	
R409E	32	10'-2"	Str.	
W401E	80	3'-11"	¾"	
W402E	120	3'-5"	Str.	
W501E	36	6'-4"	¾"	
W701E	64	12'-8"	Str.	



① See "Adjustment For Slab Thickness Tolerance" on Std. Dwg. No. 55007.

② Tolerance: Minus = ¼"; Plus equal the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment For Slab Thickness Tolerance" on Std. Dwg. No. 55007.

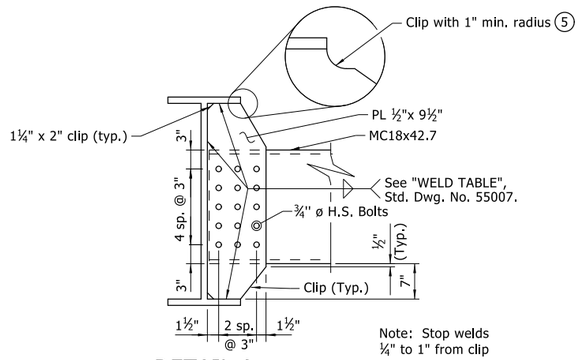
③ Working Point to Gutterline.

④ See "ROUNDING DETAIL" On Std. Dwg. No. 55007.

⑤ If permanent steel bridge deck forms are used, the fabricator shall clip plates as necessary to accommodate the deck form supports.

⑥ See "TABLE OF CANTILEVER OFFSETS" on Dwg. No. 66571.

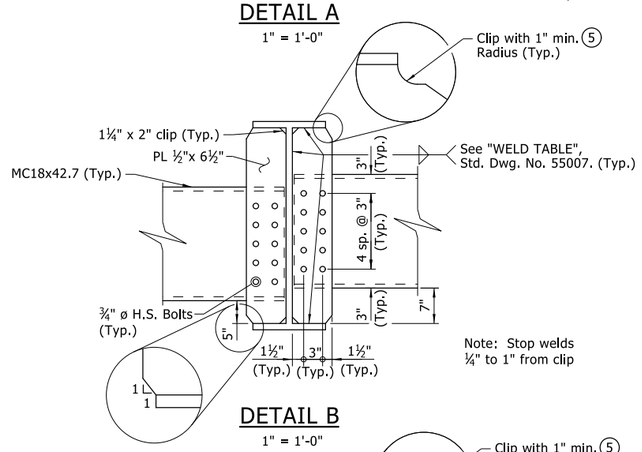
NOTE: See Std. Dwg. No. 55006 for General Notes



Note: Stop welds ¼" to 1" from clip

DETAIL A

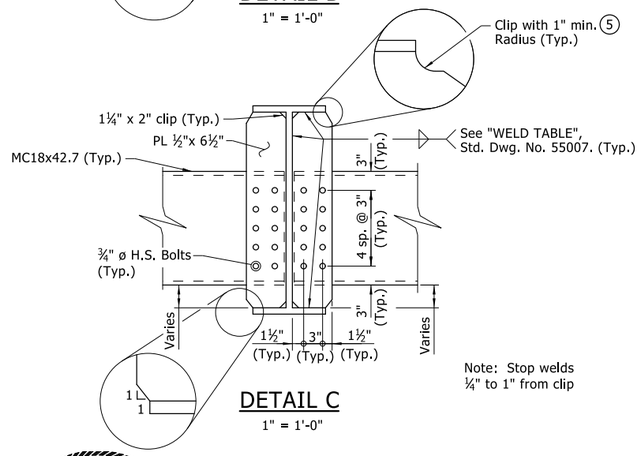
1" = 1'-0"



Note: Stop welds ¼" to 1" from clip

DETAIL B

1" = 1'-0"



Note: Stop welds ¼" to 1" from clip

DETAIL C

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 1 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT

ROUTE SECTION

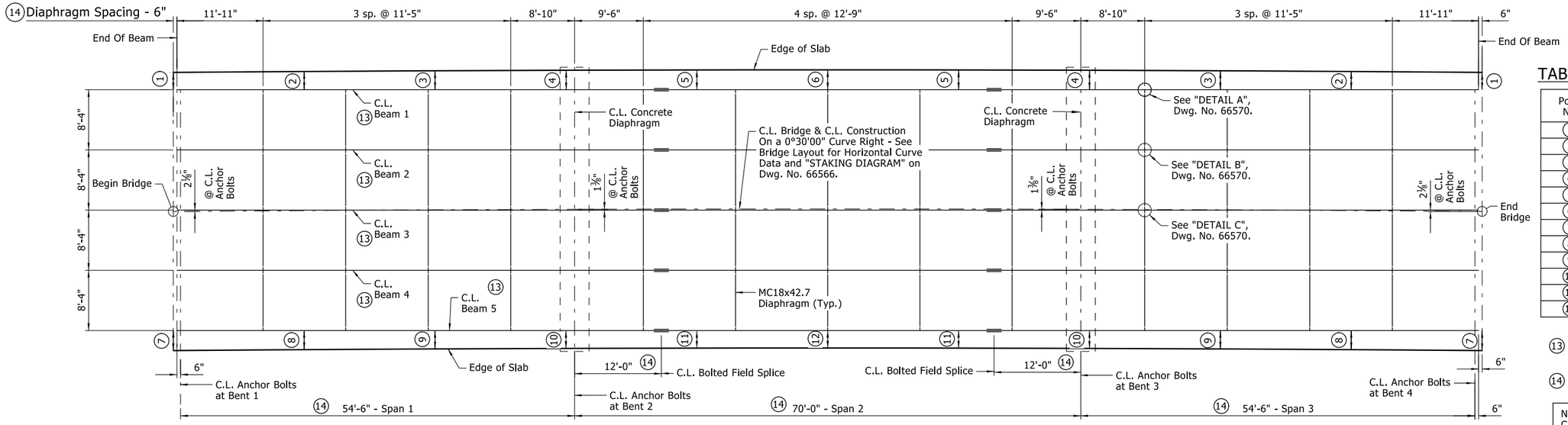
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME: b101126_s1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023	
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE: As Shown
BRIDGE NO.	07639		DRAWING NO.	66570

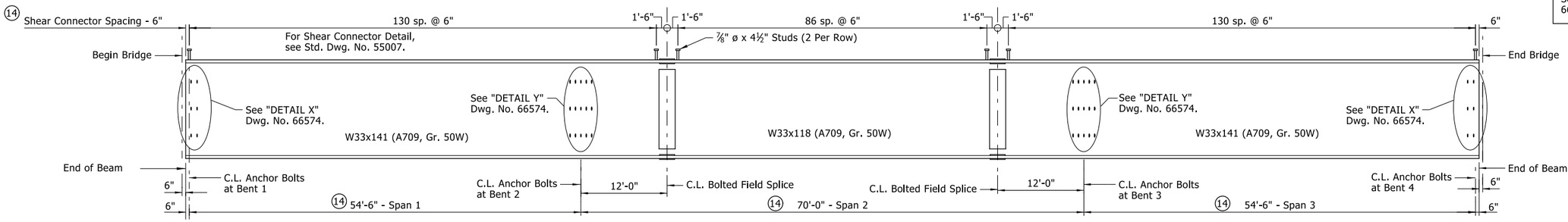
10/19/2023
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	30	43
		07639	- 180'-0" INT. UNIT -			66571



FRAMING PLAN

⅛" = 1'-0"



TYPICAL BEAM ELEVATION

No Scale

TABLE OF CANTILEVER OFFSETS

Point No.	Offset	Distance to Begin/End Bridge Along C.L. Beam
(1)	2'-4¾"	0'-0"
(2)	2'-6⁹⁄₁₆"	18'-0"
(3)	2'-7½"	36'-0"
(4)	2'-8⅜"	54'-0"
(5)	2'-8⅞"	72'-0"
(6)	2'-9⁹⁄₁₆"	90'-0"
(7)	2'-9¼"	0'-0"
(8)	2'-7¹¹⁄₁₆"	18'-0"
(9)	2'-6½"	36'-0"
(10)	2'-5⅝"	54'-0"
(11)	2'-5⅛"	72'-0"
(12)	2'-4¹⁵⁄₁₆"	90'-0"

(13) Placed parallel to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge.

(14) Dimensions measured along C.L. Beam.

Note:
C.L. Anchor Bolts, Begin Bridge, End Bridge, and End of Beam lines are perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. For additional information, See "STAKING DIAGRAM" on Dwg. No. 66566.

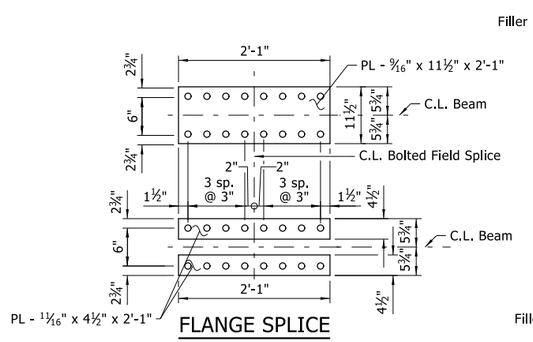
Notes:
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be ⅞" ø Hi-strength bolts.
All holes for splice bolts shall be ¹⁵⁄₁₆" ø.
All field splice plates shall be ASTM A709 Gr. 50W steel.

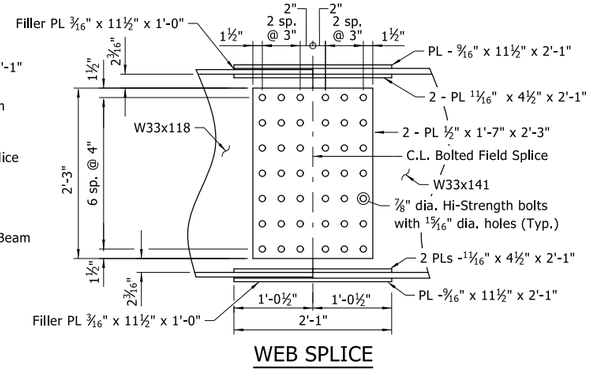
All structural steel shall be ASTM A709, Gr. 50W unless noted otherwise and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts for bolts shall be as specified in Subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (ASTM A709, Gr.50W)"

For Concrete Diaphragms at End Bents and Intermediate Bents, See Dwg. No. 66573.



FLANGE SPLICE



WEB SPLICE

DETAILS OF FIELD SPLICE

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

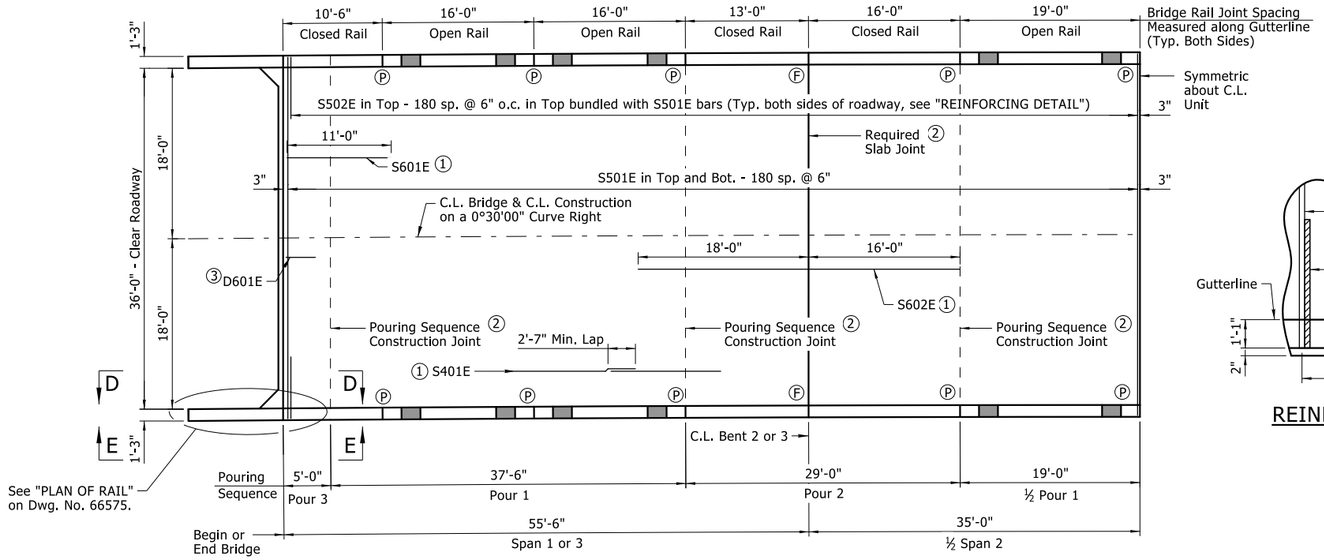
DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 2 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: MAR. 2022 FILENAME: b101126_s2.dgn
CHECKED BY: LWM DATE: APR. 2023
DESIGNED BY: JPC DATE: MAR. 2022 SCALE: As Shown
BRIDGE NO. 07639 DRAWING NO. 66571

10/19/2023
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	31	43
		07639	- 180'-0" INT. UNIT -			66572



HALF REINFORCING PLAN AND POURING SEQUENCE

⅛" = 1'-0"

Note:
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 before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck and the pouring of the bridge rail. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Concrete diaphragms at end bents shall be poured monolithically with the deck. A minimum of 48 hours shall elapse between the intermediate bent diaphragm pour and the deck slab pour.

Ⓟ Partial depth bridge rail joint at this location. (Stop 1'-4" above top of slab)

Ⓕ Full depth bridge rail joint at this location. (Stop 6" above top of slab)

① Placed as shown in "TYPICAL SECTION", See Dwg. No. 66570.

② Align with bridge rail open joint unless noted otherwise. See "TRANSVERSE SLAB JOINT DETAIL" on Std. Dwg. No. 55007.

③ Place as shown in "SECTION G-G" on Dwg. No. 66573.

All transverse reinforcing steel shall be placed on lines perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. Spacing shall be measured parallel to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge.

All longitudinal lines and longitudinal reinforcing steel shall be spaced on curves concentric with C.L. Bridge & C.L. Construction.

Span lengths, slab pour lengths and transverse reinforcing spacing shown are measured along C.L. Bridge & C.L. Construction.

Rails and wings are included in span construction and are included in span quantities.

Required slab joints and pouring sequence construction joints shall align with rail open joints at the gutterline.

For "BAR LIST", see Dwg. No. 66570.

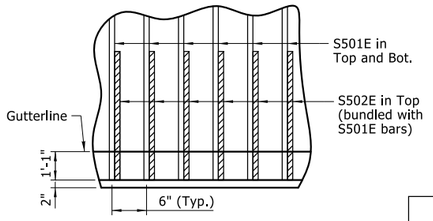
For "SECTION D-D" and "VIEW E-E", see Dwg. No. 66575.

Note:
Begin Bridge and End Bridge lines are perpendicular to a chord from C.L. Bridge at Begin Bridge to C.L. Bridge at End Bridge. For additional information, See "STAKING DIAGRAM" on Dwg. No. 66566.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
13'-0"	25	04	16'-0"	8	3'-0"	12	6'-0"	05
16'-0"	31	05	19'-0"	8	3'-0"	18	9'-0"	06
10'-6"	20	09						

Note: For bridge traffic rail reinforcing details and details of partial-depth and full-depth rail joints, see Std. Dwg. No. 55070.



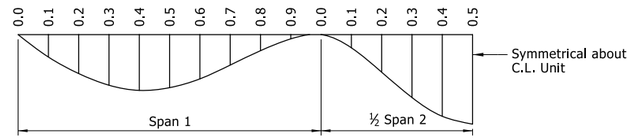
REINFORCING DETAIL

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	Point of Deflection	Beam 1			Beams 2, 3 & 4			Beam 5		
		Structural Steel	Structural Steel + Slab	Structural Steel + Slab+ Rail	Structural Steel	Structural Steel + Slab	Structural Steel + Slab+ Rail	Structural Steel	Structural Steel + Slab	Structural Steel + Slab+ Rail
Span 1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.025	0.131	0.142	0.027	0.153	0.163	0.025	0.135	0.146
	0.2	0.044	0.228	0.246	0.047	0.266	0.283	0.044	0.235	0.253
	0.3	0.057	0.292	0.316	0.061	0.341	0.364	0.057	0.301	0.325
	0.4	0.063	0.319	0.345	0.068	0.374	0.398	0.063	0.331	0.357
	0.5	0.060	0.298	0.323	0.065	0.352	0.375	0.060	0.310	0.335
	0.6	0.052	0.245	0.265	0.056	0.291	0.310	0.052	0.257	0.277
	0.7	0.037	0.162	0.175	0.039	0.195	0.207	0.037	0.173	0.186
	0.8	0.021	0.078	0.085	0.022	0.098	0.104	0.021	0.087	0.094
	0.9	0.007	0.015	0.016	0.007	0.021	0.023	0.007	0.020	0.021
½ Span 2	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.010	0.101	0.109	0.010	0.106	0.113	0.010	0.092	0.100
	0.2	0.031	0.273	0.293	0.033	0.293	0.313	0.031	0.255	0.275
	0.3	0.054	0.451	0.485	0.058	0.487	0.520	0.054	0.425	0.459
	0.4	0.071	0.581	0.625	0.077	0.628	0.670	0.071	0.549	0.592
	0.5	0.078	0.635	0.682	0.085	0.687	0.733	0.078	0.600	0.648

Table is symmetrical about the C.L. Unit.



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note:
Camber for Dead Load Deflection plus Vertical curve +/- ¼" tolerances.
Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Anchor Bolts to C.L. Anchor Bolts. Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18018 JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023

BRIDGE ENGINEER

PRINT DATE: 10/19/2023

JUCARNEY 10/19/2023

SHEET 3 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT

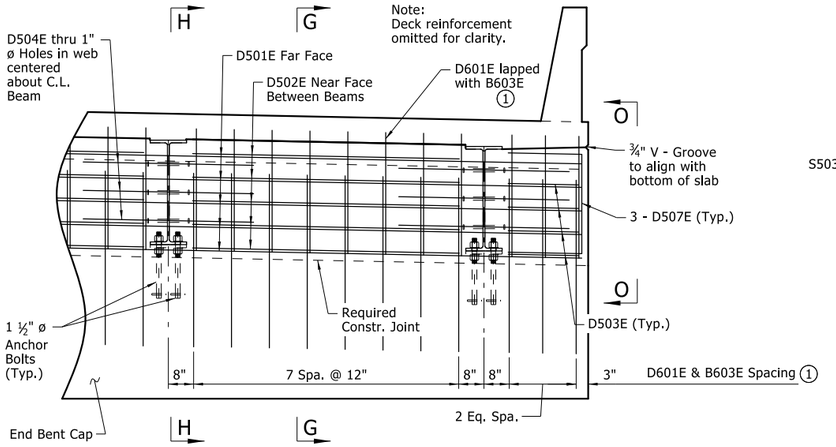
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

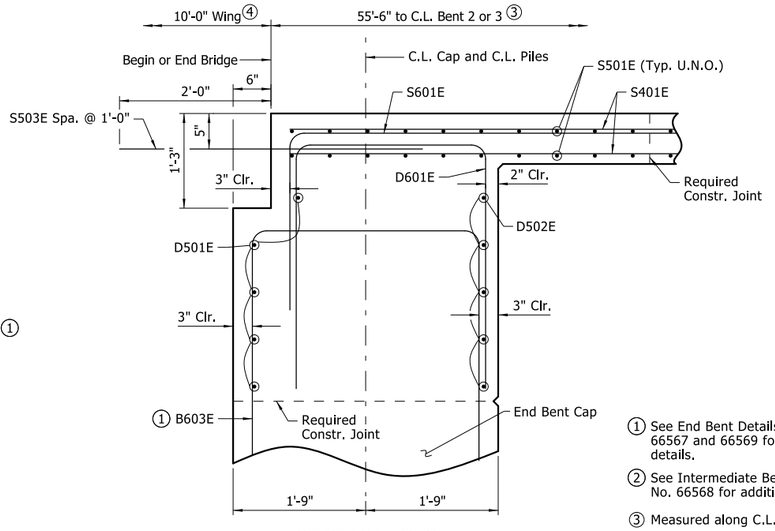
DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_s2.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66572

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	32	43
		07639	- 180'-0" INT. UNIT -			66573



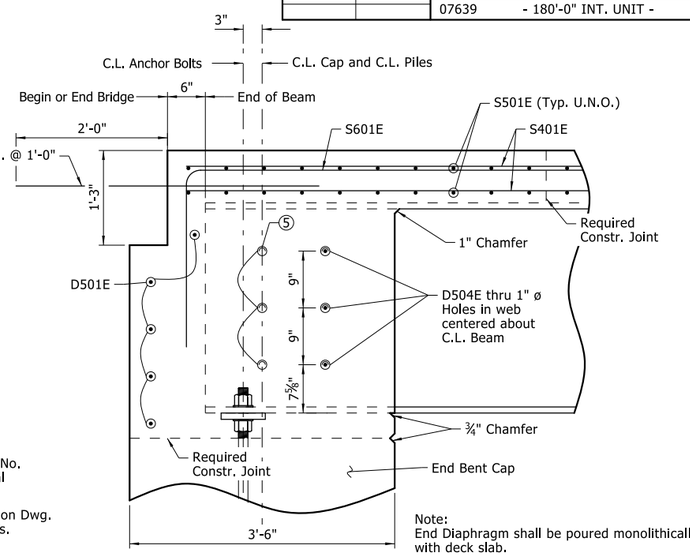
TYPICAL SECTION AT END BENT DIAPHRAGMS

½" = 1'-0"



SECTION G-G

1" = 1'-0"



Note:
End Diaphragm shall be poured monolithically with deck slab.

SECTION H-H

1" = 1'-0"

(1) See End Bent Details on Dwg. No. 66567 and 66569 for additional details.

(2) See Intermediate Bent Details on Dwg. No. 66568 for additional details.

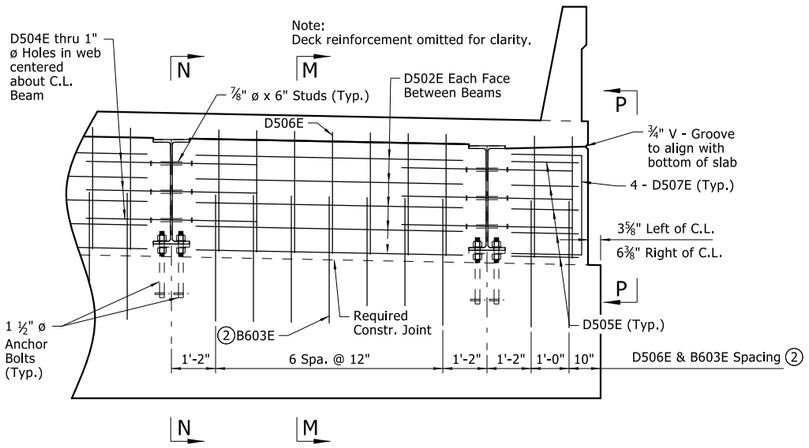
(3) Measured along C.L. Constr.

(4) Measured along gutterline

(5) ⅞" ø Studs, See "DETAIL X" on Dwg. No. 66574.

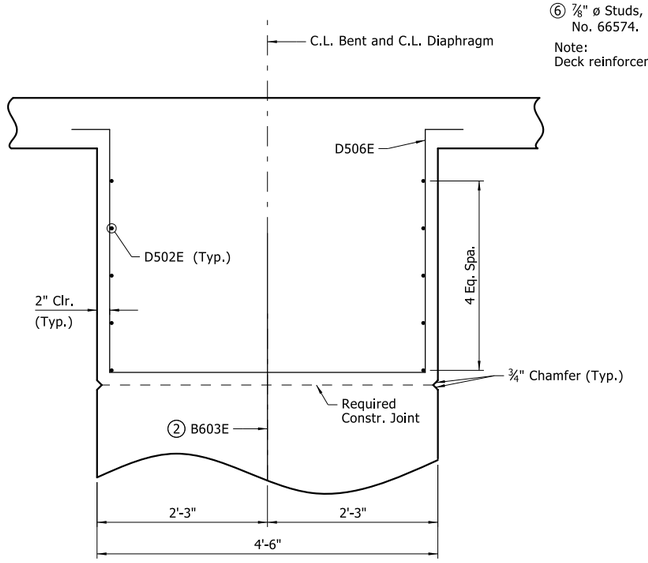
(6) ⅞" ø Studs, See "DETAIL Y" on Dwg. No. 66574.

Note:
Deck reinforcement omitted for clarity.



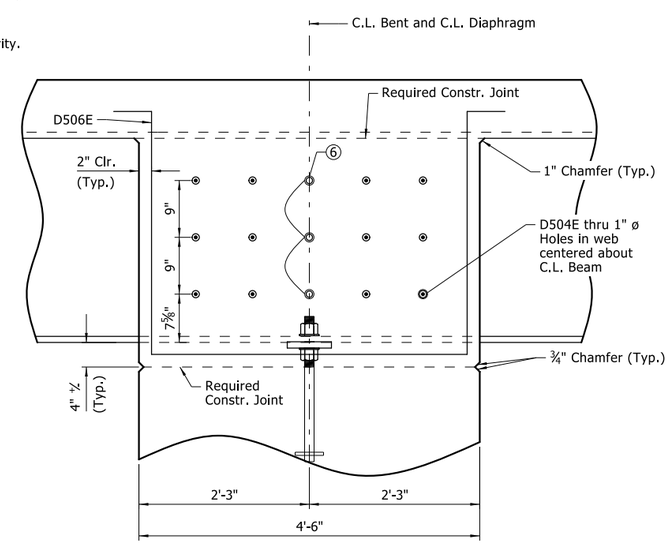
TYPICAL SECTION AT INTERMEDIATE BENT DIAPHRAGMS

½" = 1'-0"



SECTION M-M

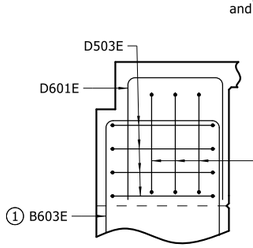
1" = 1'-0"



SECTION N-N

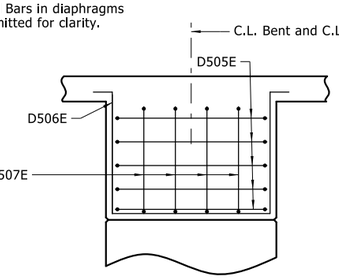
1" = 1'-0"

Note:
Longitudinal Bars in diaphragms and deck omitted for clarity.



VIEW O-O

½" = 1'-0"



VIEW P-P

½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

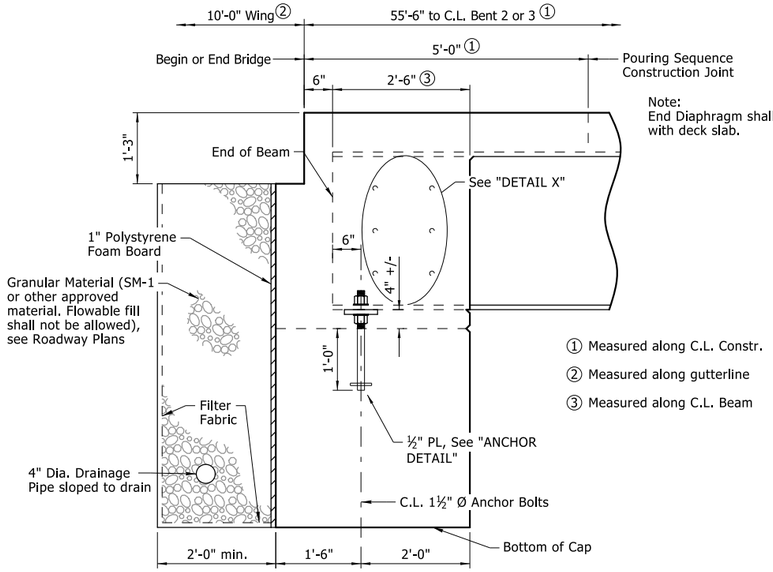
DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 4 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_s1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66573

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	33	43
		07639	- 180'-0" INT. UNIT -			66574



Note:
End Diaphragm shall be poured monolithically with deck slab.

① Measured along C.L. Constr.

② Measured along gutterline

③ Measured along C.L. Beam

SECTION AT END BENT

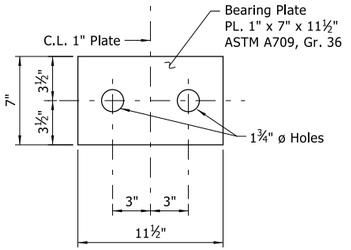
¾" = 1'-0"

Limits of concrete end diaphragm shall match plan dimension of end bent cap.

For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation - Bridge".

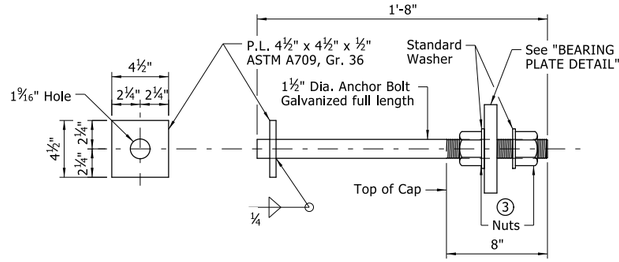
1" Polystyrene Foam Board, Filter Fabric & Granular Material will not be paid for directly, but shall be considered subsidiary to various bid items.

For additional details of diaphragm steel reinforcement, See Dwg. No. 66573.



BEARING PLATE DETAIL

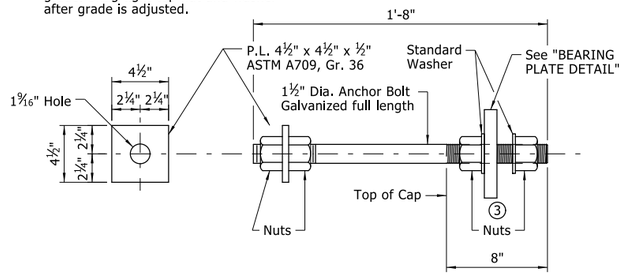
No Scale



ANCHOR BOLT DETAIL

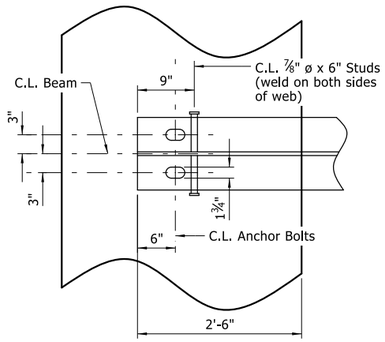
No Scale

③ Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



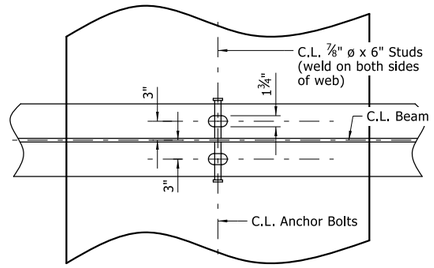
ALTERNATE ANCHOR BOLT DETAIL

No Scale



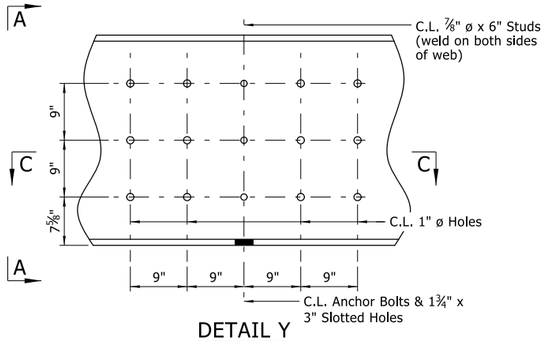
SECTION B-B

1" = 1'-0"



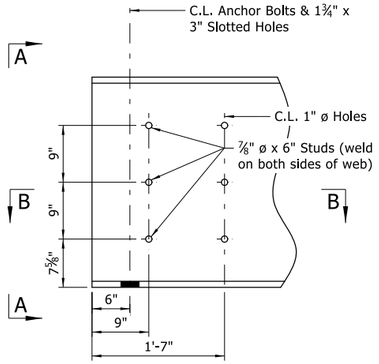
SECTION C-C

1" = 1'-0"



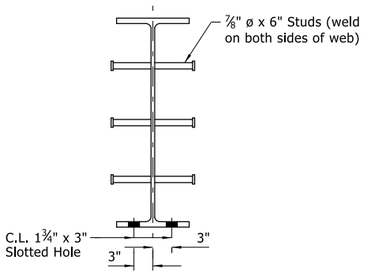
DETAIL Y

1" = 1'-0"



DETAIL X

1" = 1'-0"



VIEW A-A

1" = 1'-0"

10/19/2023

JUCARNEY

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 10-20-2023

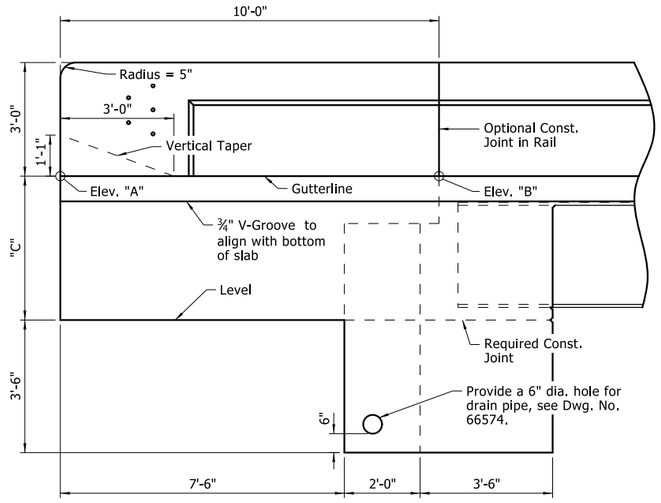
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 5 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_s1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66574

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	34	43
		07639	- 180'-0" INT. UNIT -			66575



VIEW E-E
½" = 1'-0"

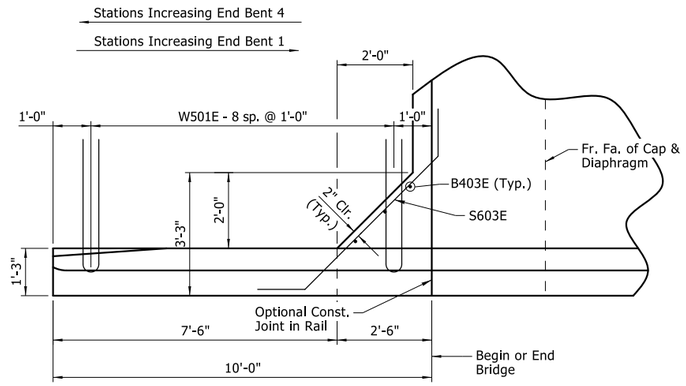
TABLE OF VARIABLES

Bent	Wing	Elev. "A"	Elev. "B"	Dim. "C"
1	A	231.71	231.71	3'-9 13/16"
	B	231.71	231.70	3'-9 11/16"
4	A	231.42	231.44	3'-9 5/16"
	B	231.42	231.44	3'-9 7/16"

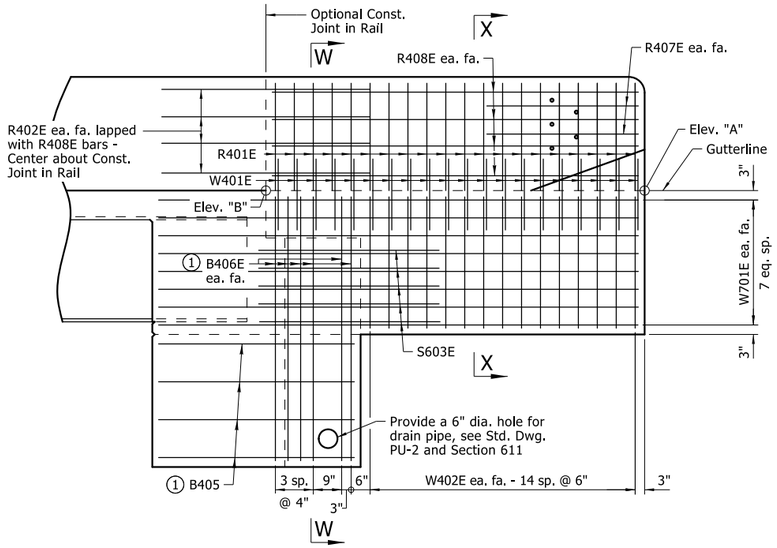
Notes:
For location of "SECTION D-D" & "VIEW E-E", see "HALF REINFORCING PLAN AND POURING SEQUENCE" on Dwg. No. 66572.

For reinforcement details, rail terminus details and other information for Bridge Traffic Rail, see Std. Dwg. No. 55070. R4XXE bars shall be spaced vertically as shown for Closed Panel Rails.

See Roadway Plans for guardrail locations.

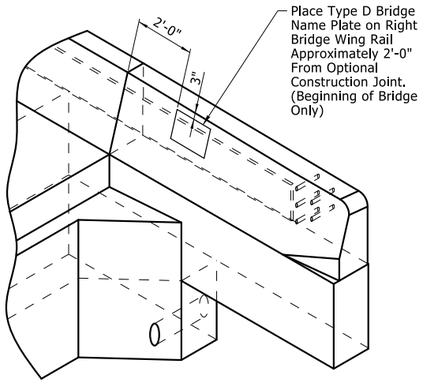


PLAN OF RAIL
½" = 1'-0"

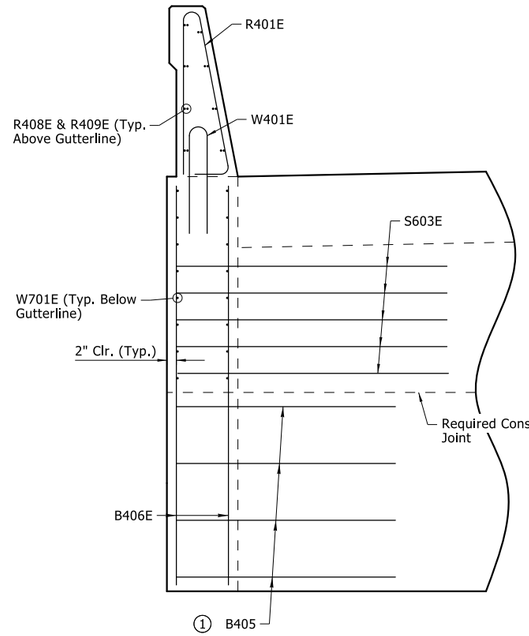


SECTION D-D
½" = 1'-0"

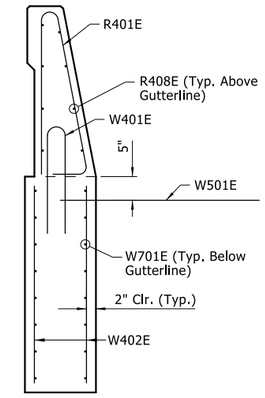
1 See End Bent Details on Dwg. Nos. 66567 and 66569 for reinforcing steel and additional details.



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



SECTION W-W
¾" = 1'-0"



SECTION X-X
¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY
DIGITALLY SIGNED 10-20-2023
BRIDGE ENGINEER
PRINT DATE: 10/19/2023

SHEET 6 OF 6
DETAILS OF 180'-0" CONTINUOUS INTEGRAL W-BEAM UNIT
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	MAR. 2022	FILENAME:	b101126_s1.dgn
CHECKED BY:	LWM	DATE:	APR. 2023		
DESIGNED BY:	JPC	DATE:	MAR. 2022	SCALE:	As Shown
BRIDGE NO.	07639			DRAWING NO.	66575

JUCARNEY 10/19/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	35	43
		CROSS SECTIONS				

STA. 298+00 TO STA. 301+19

10/19/2023

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	36	43
		CROSS SECTIONS				

12/5/2023

JUCARNEY

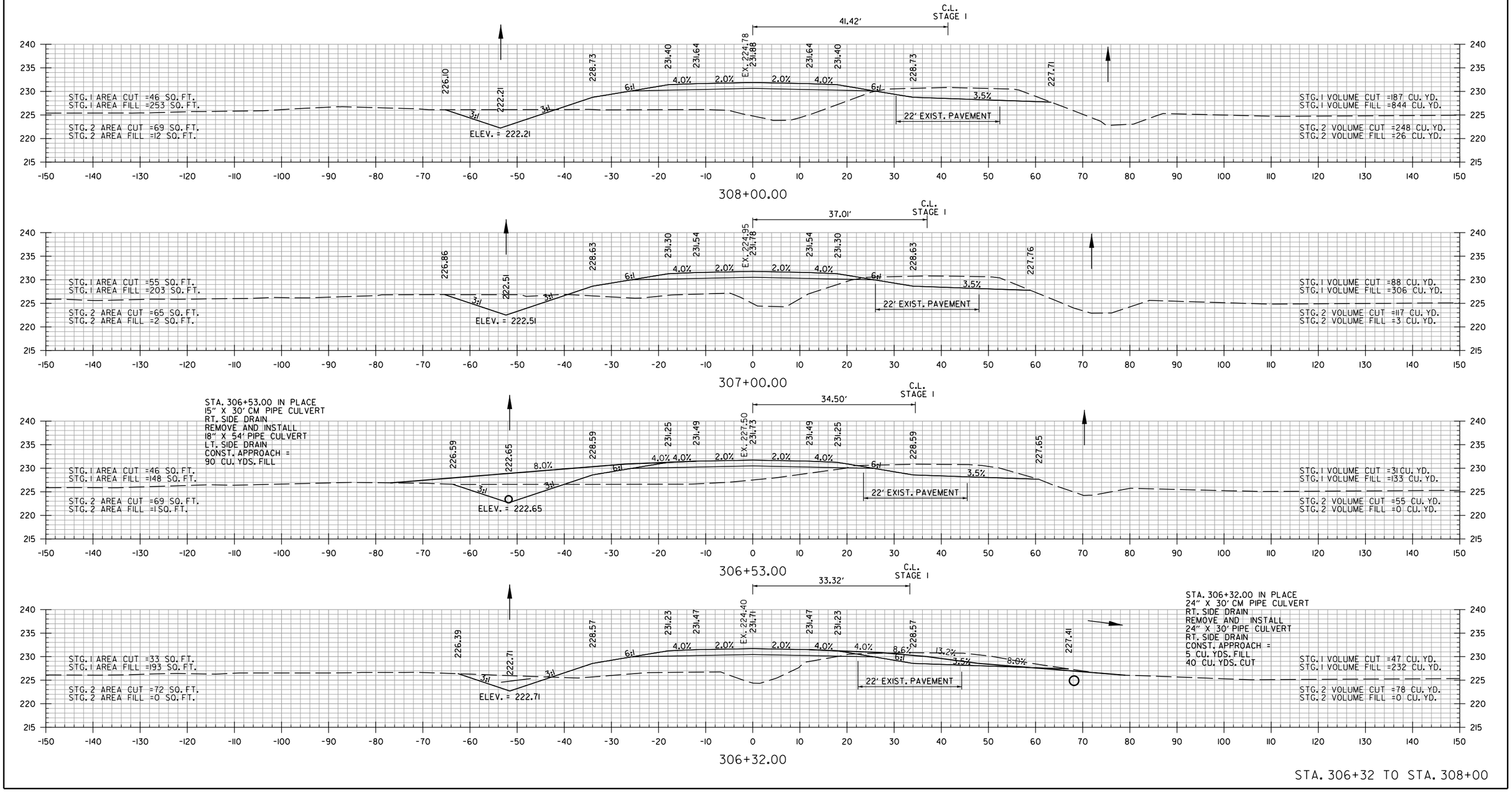
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	37	43
		CROSS SECTIONS				

STA. 303+00 TO STA. 306+00

10/19/2023

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	38	43
		CROSS SECTIONS				



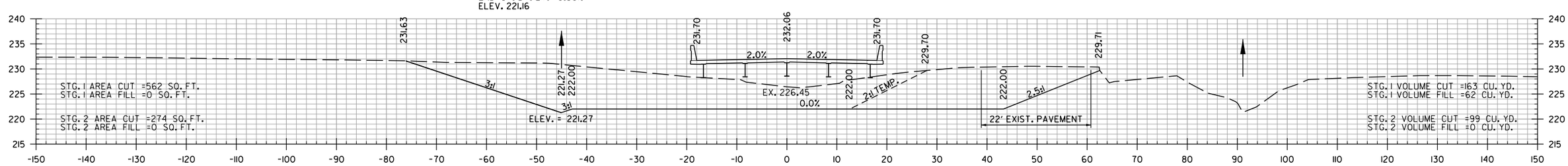
10/19/2023

JUCARNEY

STA. 306+32 TO STA. 308+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	39	43
		CROSS SECTIONS				

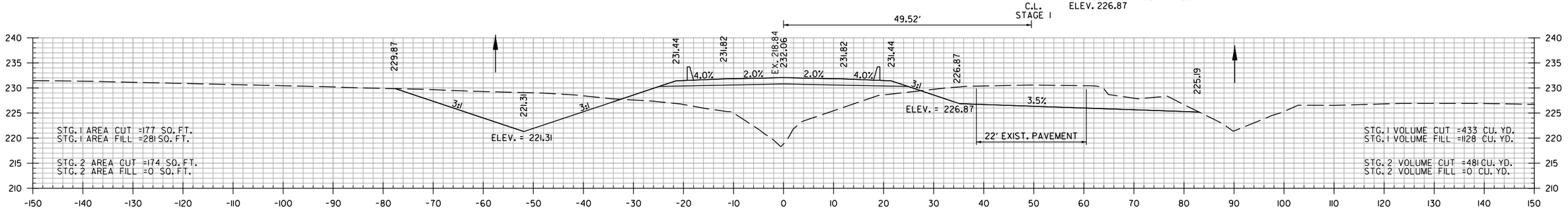
STA. 311+52.25 END BRIDGE EXCAVATION AT ELEVATION 222.00



311+11.89

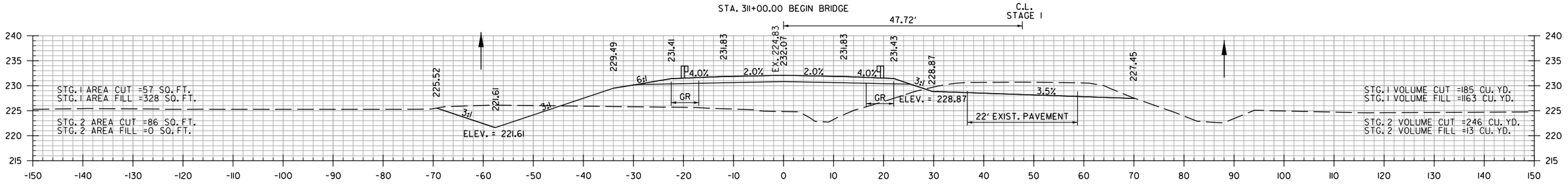
STA. 311+11.89 END TOE OF SLOPE AT ELEVATION 222.00

STA. 311+00.00
END BENCH GRADE RT. -2.00%
ELEV. 226.87



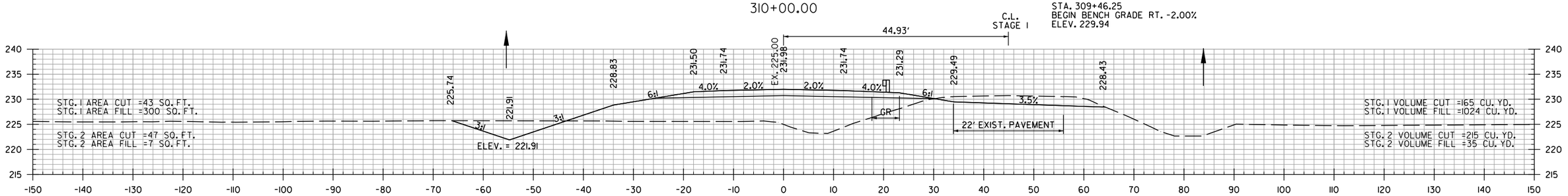
311+00.00

STA. 311+00.00 BEGIN BRIDGE



310+00.00

STA. 309+46.25
BEGIN BENCH GRADE RT. -2.00%
ELEV. 229.94



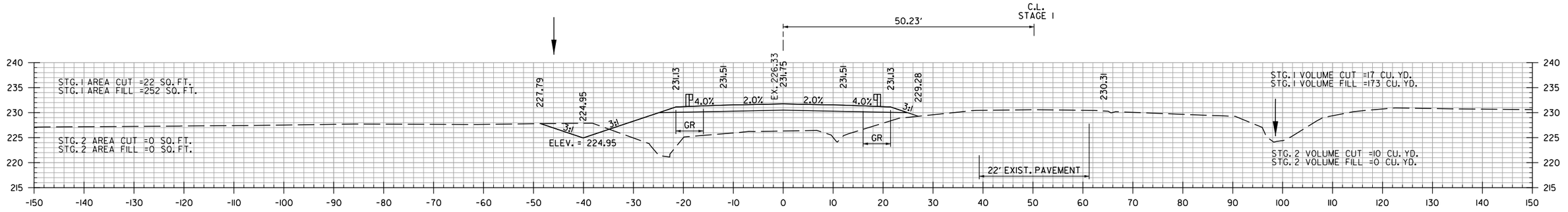
309+00.00

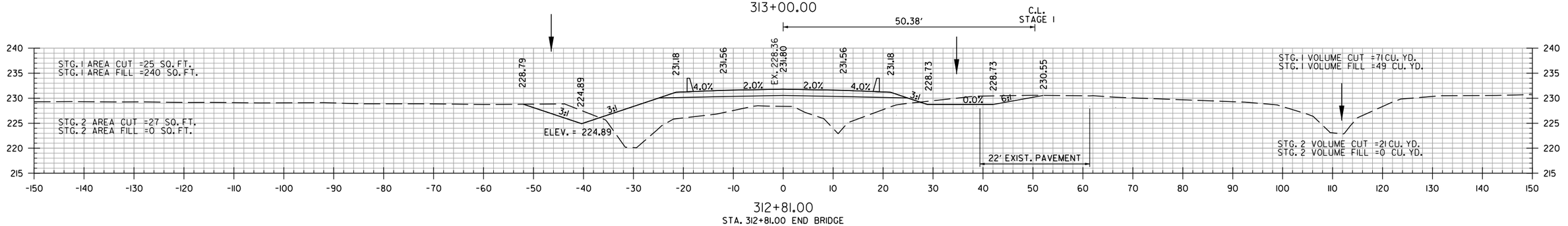
STA. 309+00 TO STA. 311+11.89

10/19/2023

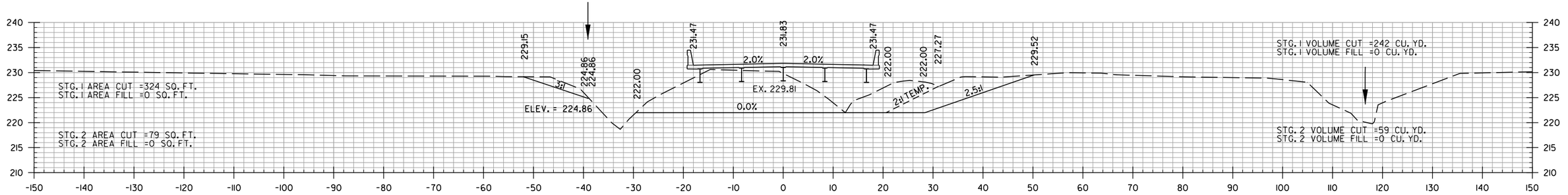
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	40	43
		CROSS SECTIONS				



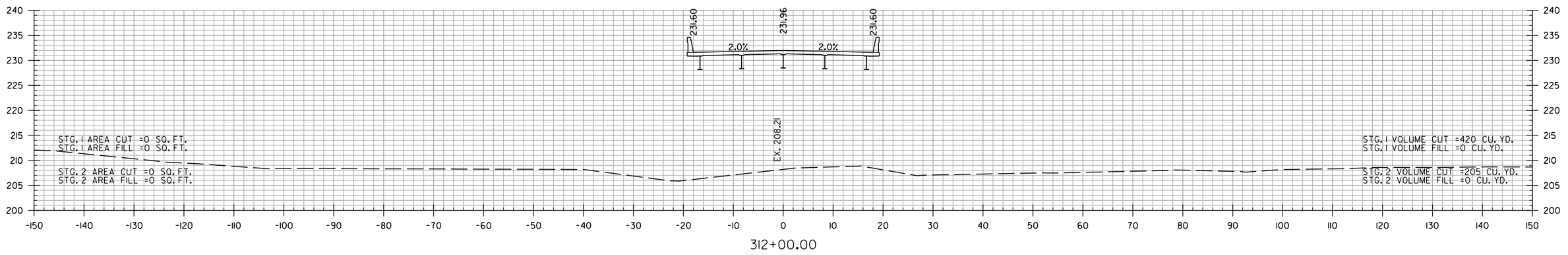


STA. 312+70.08 BEGIN TOE OF SLOPE AT ELEVATION 222.00



STA. 312+34.76
BEGIN SP. DT. LT. 0.30%
ELEV. 224.75

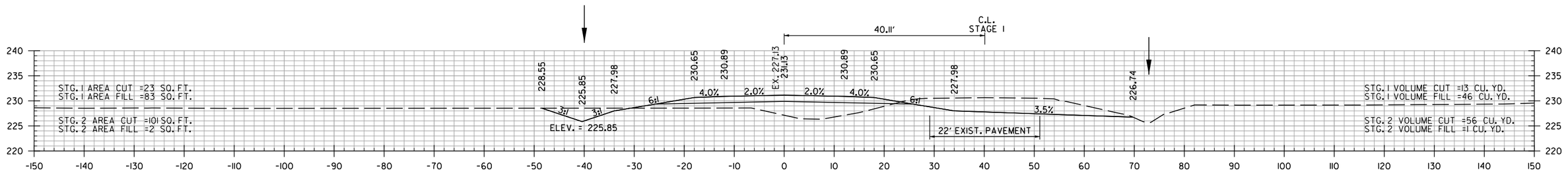
STA. 312+29.83 BEGIN BRIDGE EXCAVATION AT ELEVATION 222.00



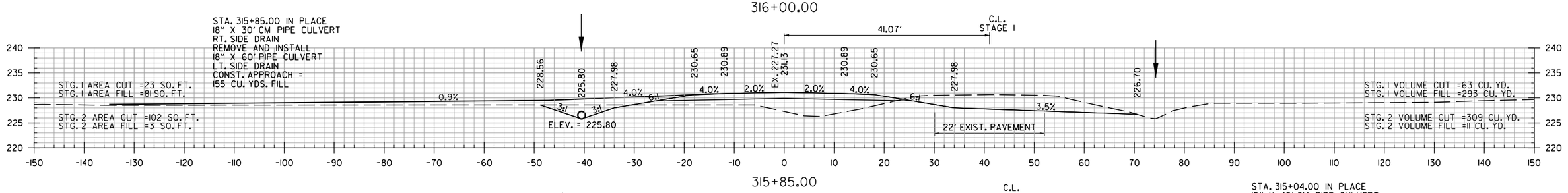
STA. 312+00 TO STA. 313+00

JUCARNEY 10/19/2023

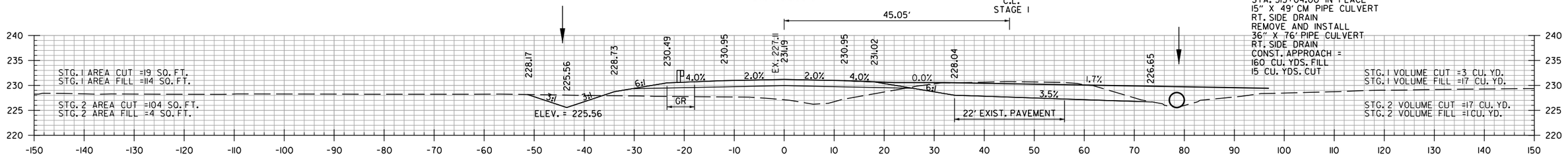
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	41	43
		CROSS SECTIONS				



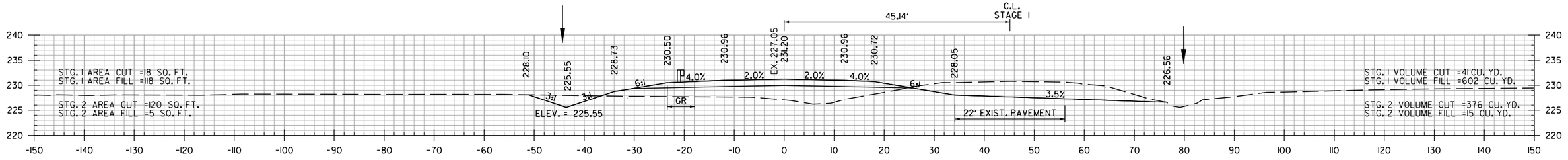
316+00.00



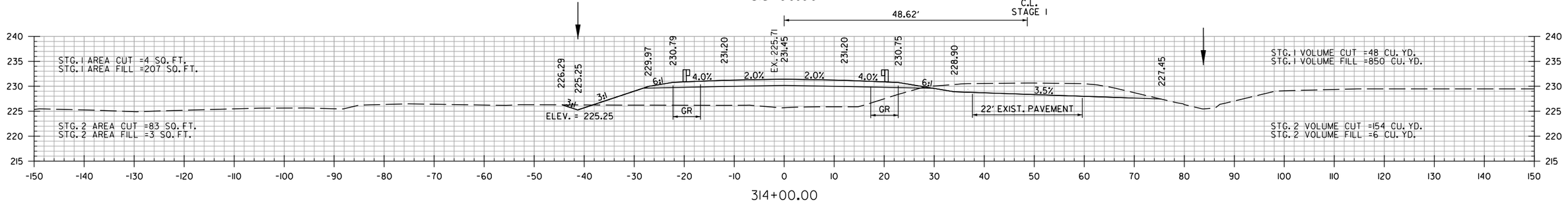
315+85.00



315+04.00



315+00.00



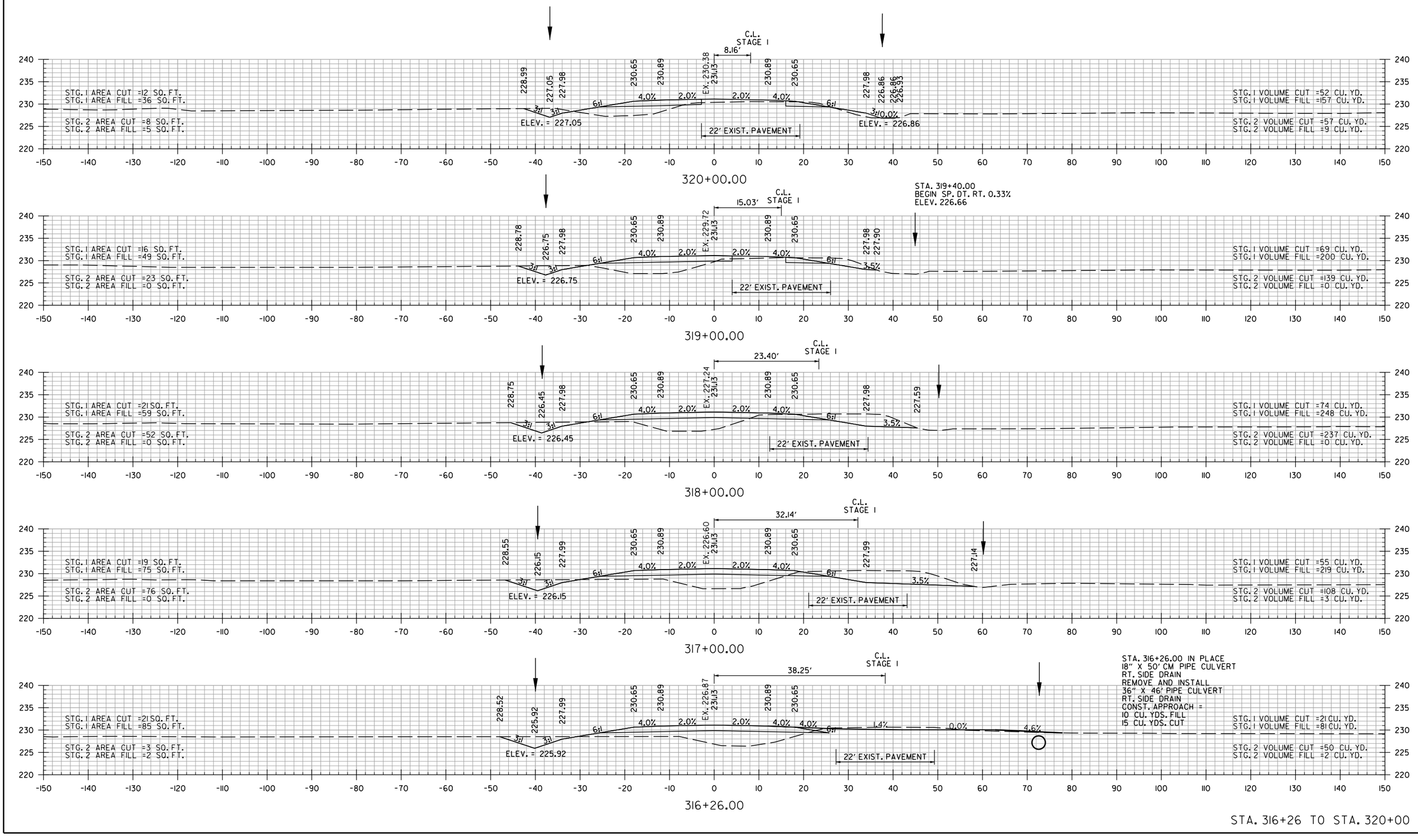
314+00.00

STA. 314+00 TO STA. 316+00

1/7/2024

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	42	43
		CROSS SECTIONS				

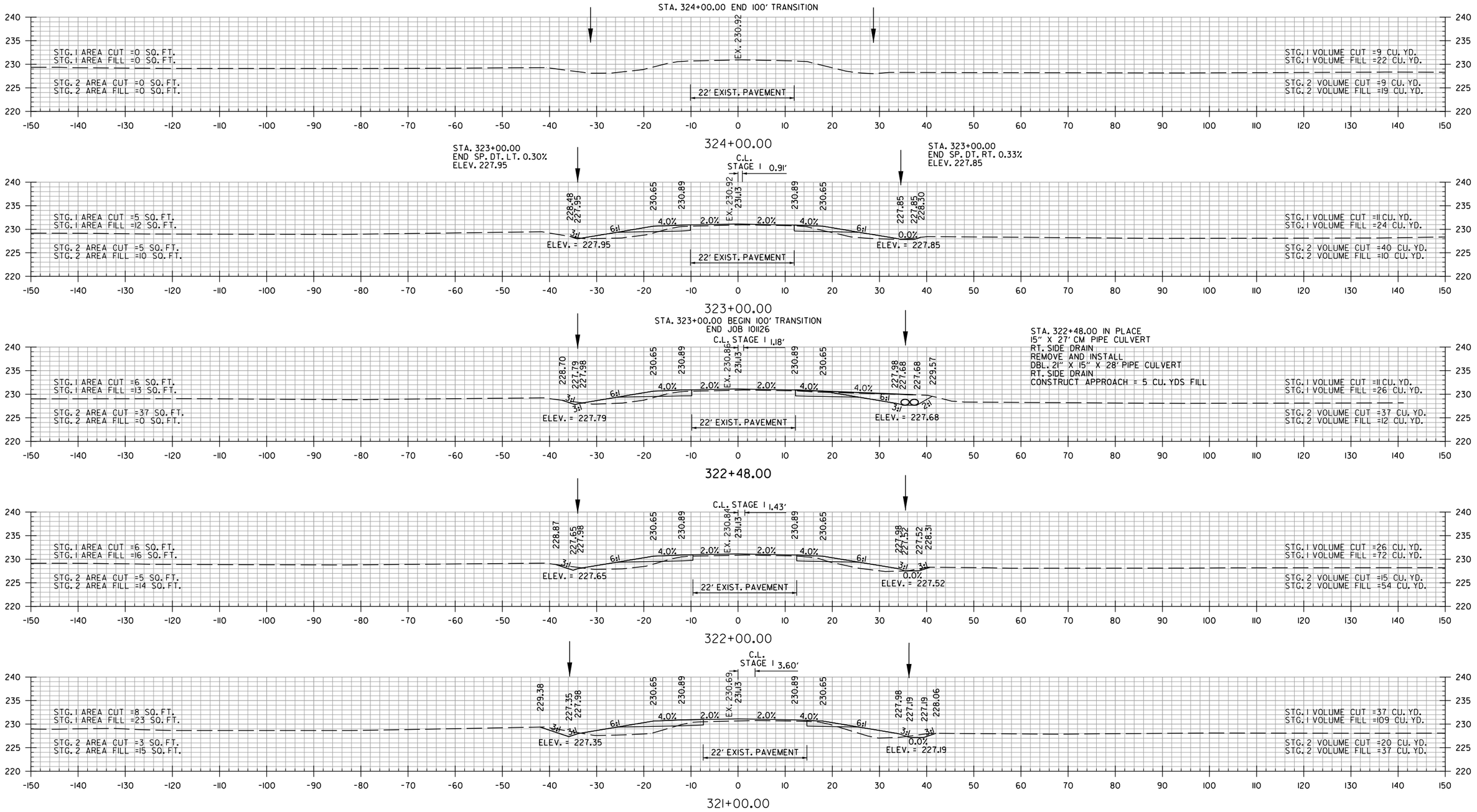


STA. 316+26 TO STA. 320+00

10/19/2023

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101126	43	43
		CROSS SECTIONS				



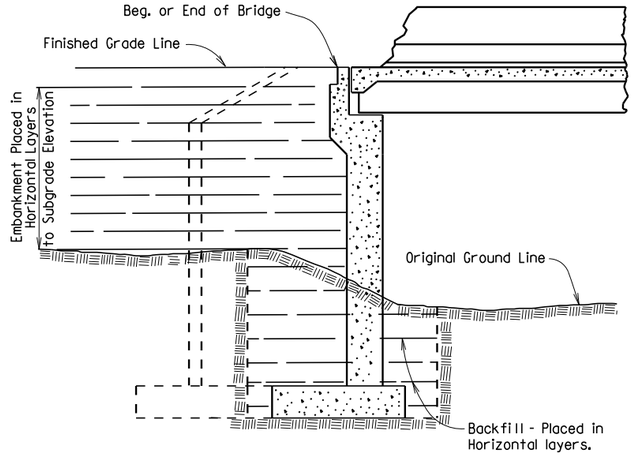
STA. 321+00 TO STA. 324+00

1/7/2024

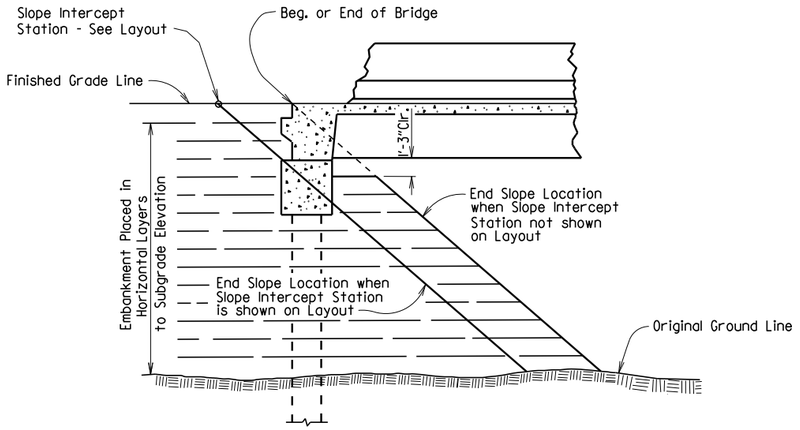
JUCARNEY

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

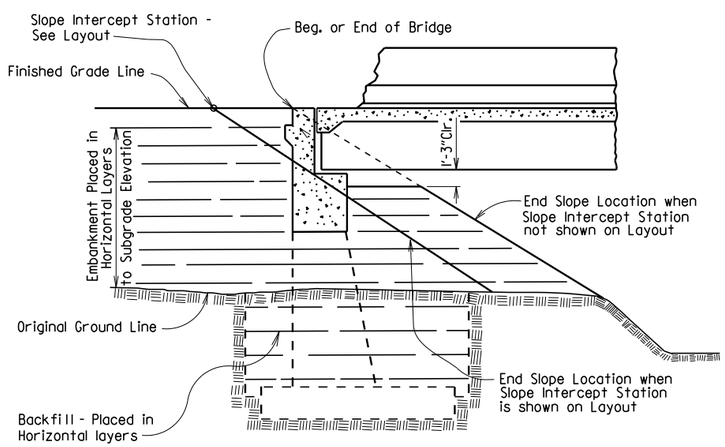
1 EMBANKMENT & BACKFILL 55000



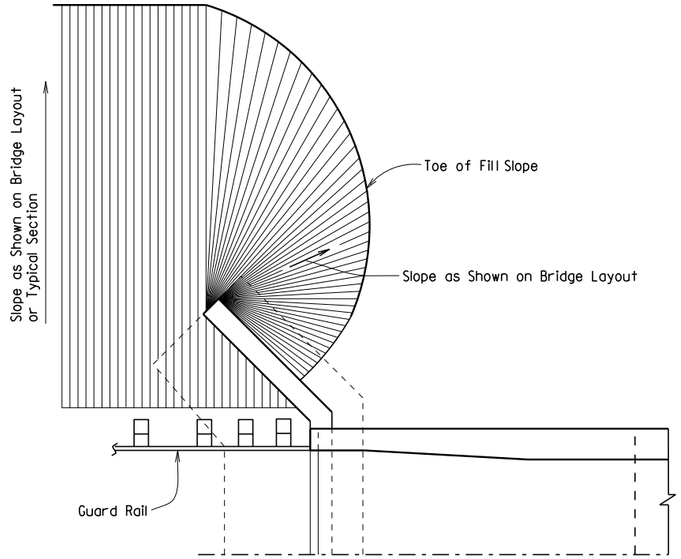
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



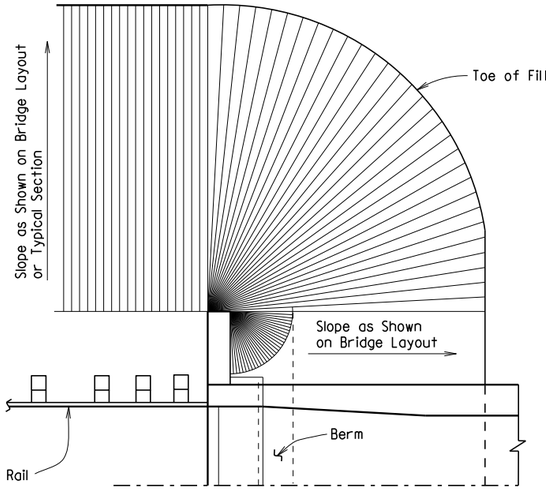
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



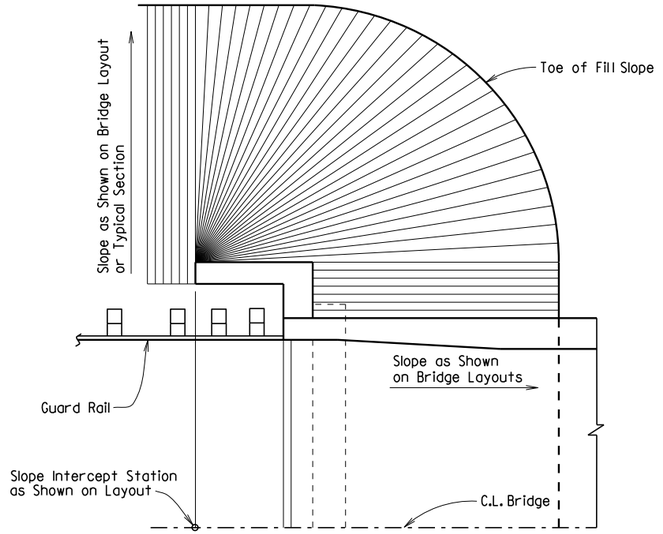
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



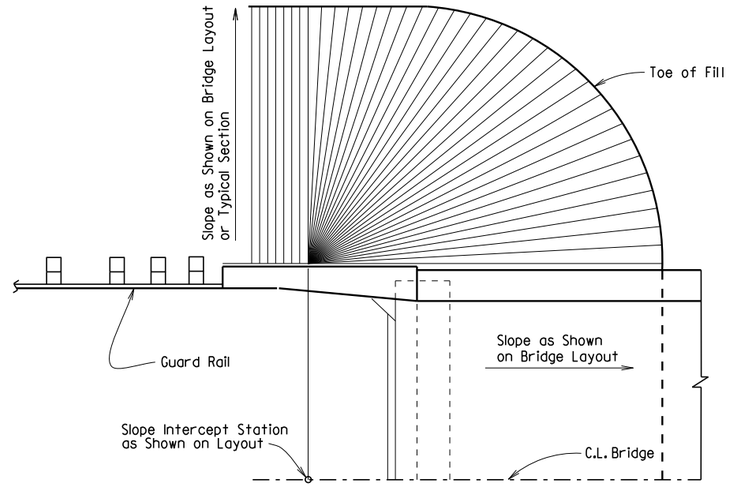
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

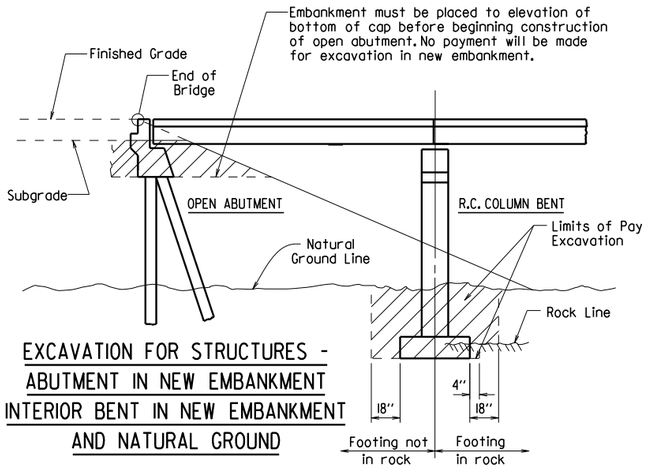
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

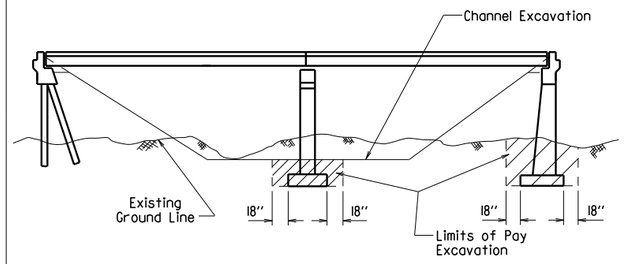
DRAWING NO. 55000

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

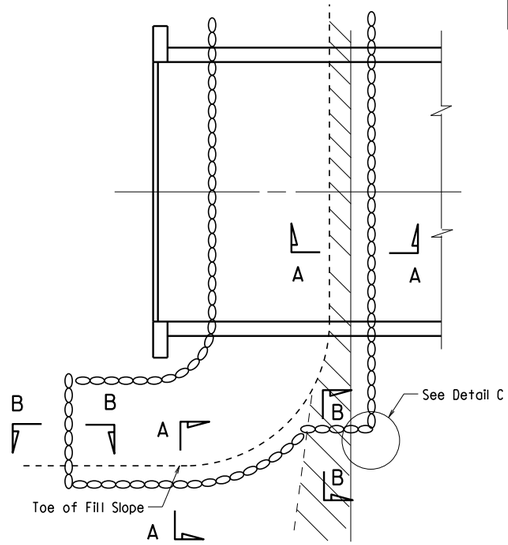
1 RIPRAP & EXCAV. 55001



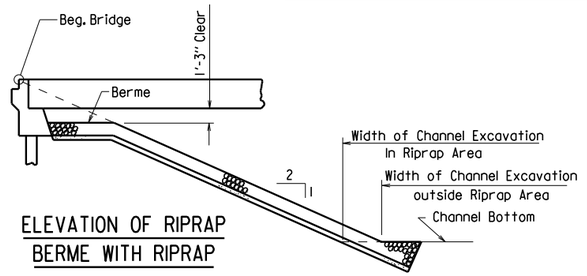
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



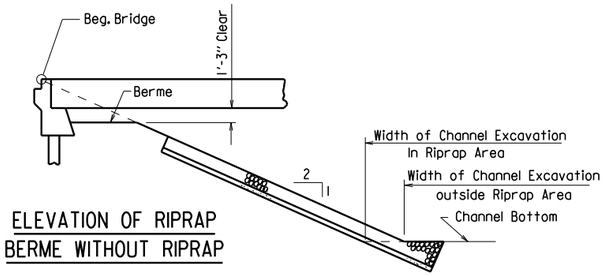
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



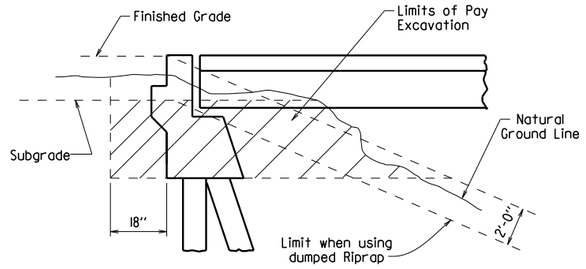
PLAN OF DUMPED RIPRAP



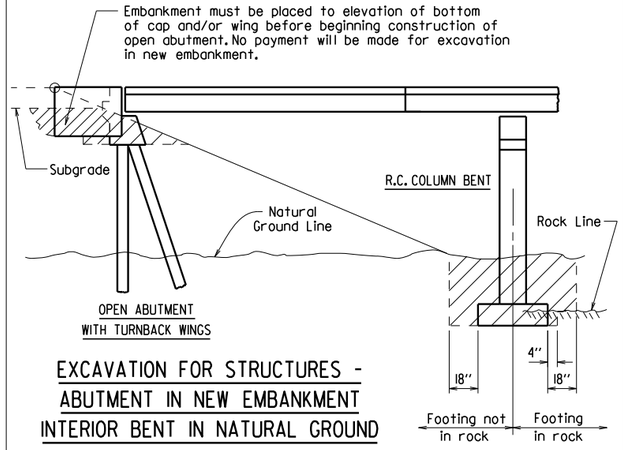
ELEVATION OF RIPRAP BERME WITH RIPRAP



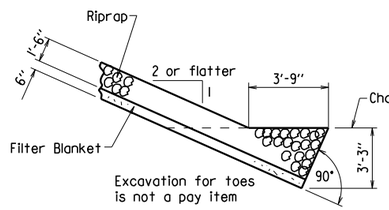
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



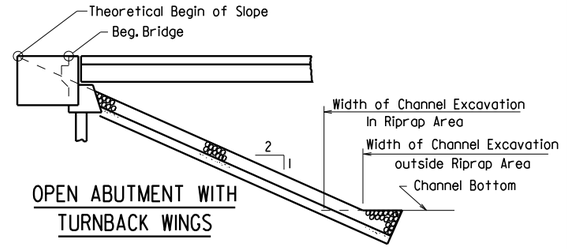
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



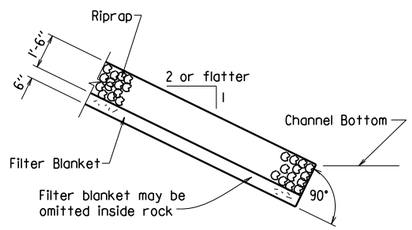
SECTION A-A

(Toe Excavation in Soil)

SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



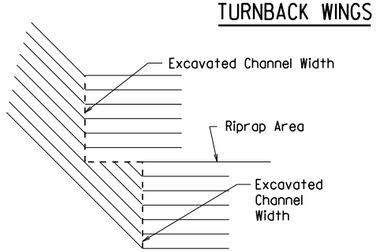
SECTION A-A

(Toe Excavation in Rock)

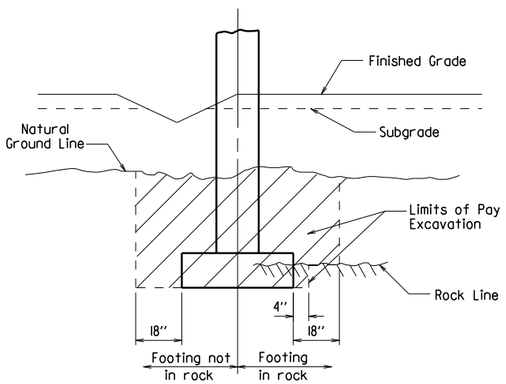
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

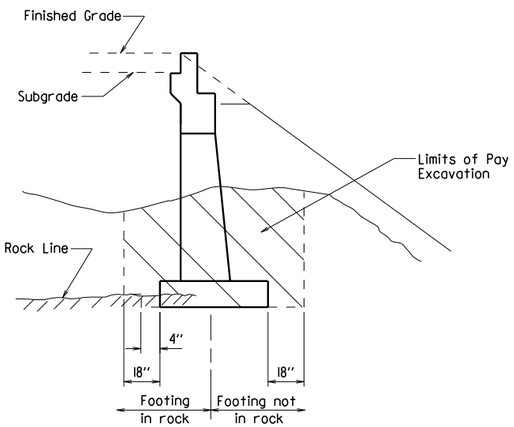
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

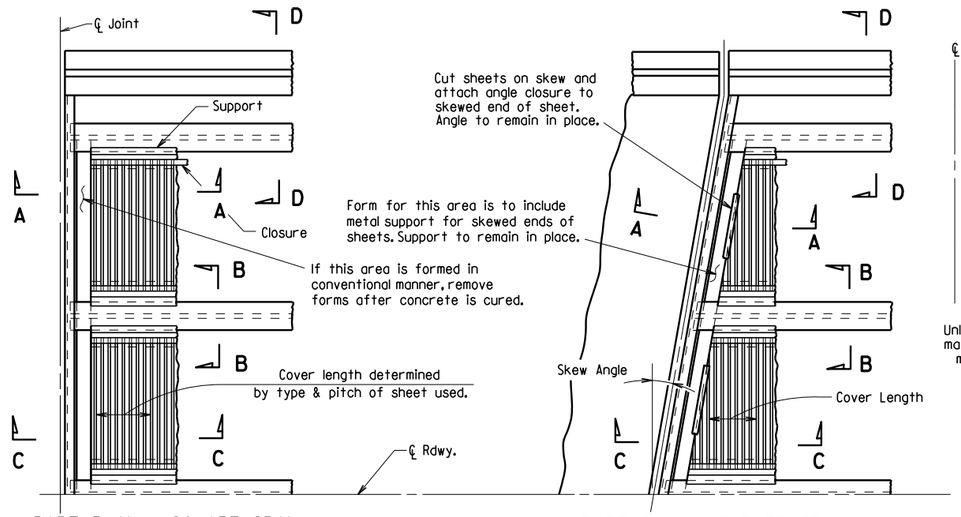
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

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

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

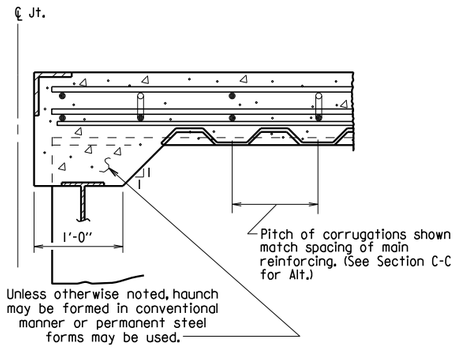


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

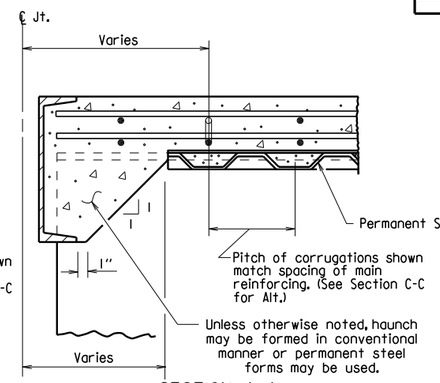
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



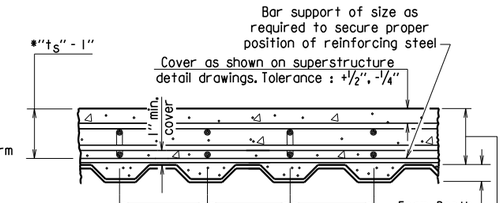
SECTION A-A

N.T.S.
(Angle at end of span)



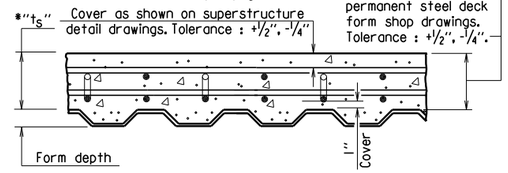
SECTION A-A

N.T.S.
(Channel at end of span)



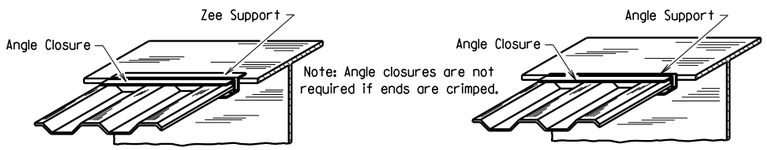
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

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

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

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

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

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

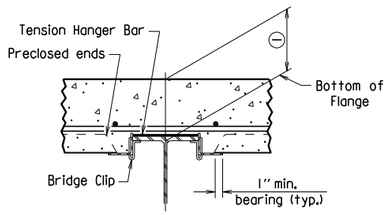
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

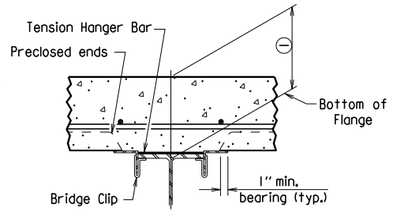
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



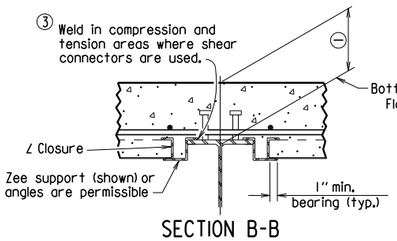
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



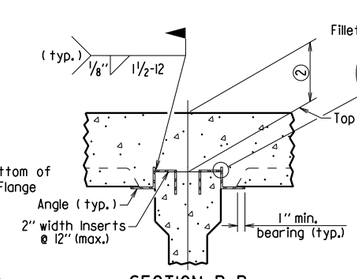
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



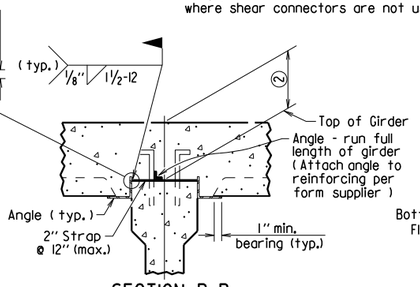
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



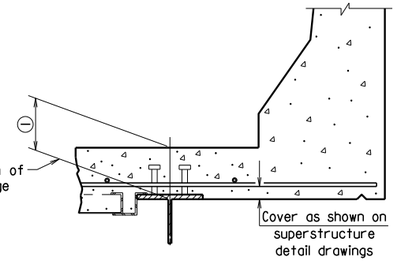
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

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

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

DATE REVISED	DATE 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

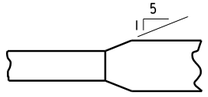
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

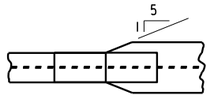
PRINT DATE: 11/7/2019

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			

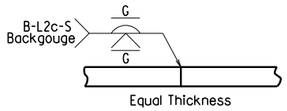


Plan-Unequal Width (Flg.)

FLANGE SPLICE

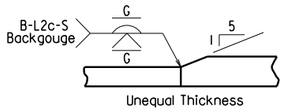


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

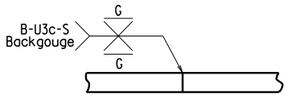
WEB & FLANGE SPLICE



Unequal Thickness

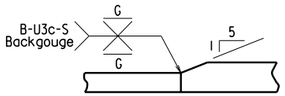
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

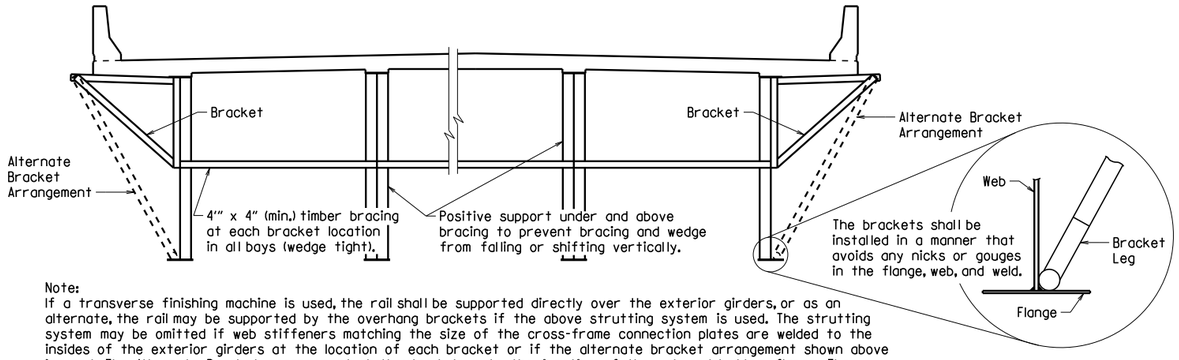


Unequal Thickness

FLANGE SPLICE

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

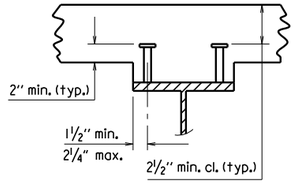
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



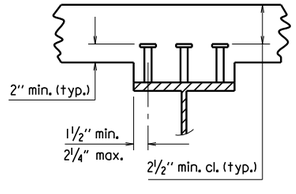
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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)



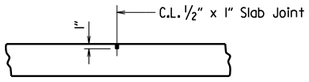
2 STUDS PER ROW



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.

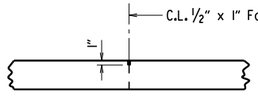
SHEAR CONNECTOR DETAIL



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.

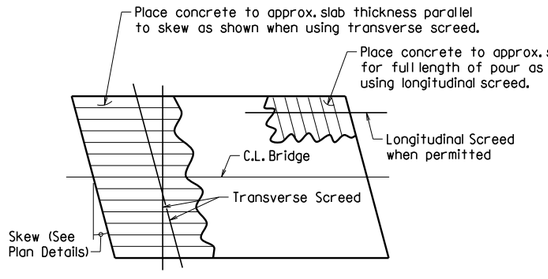
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck 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



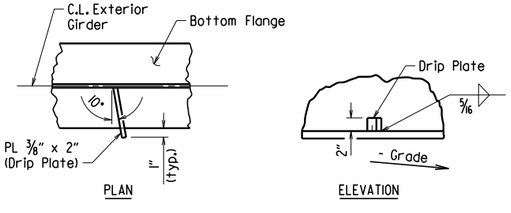
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

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

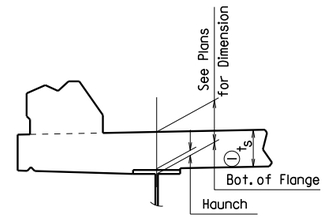
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

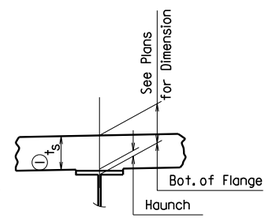
BOTTOM FLANGE DRIP PLATE

(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

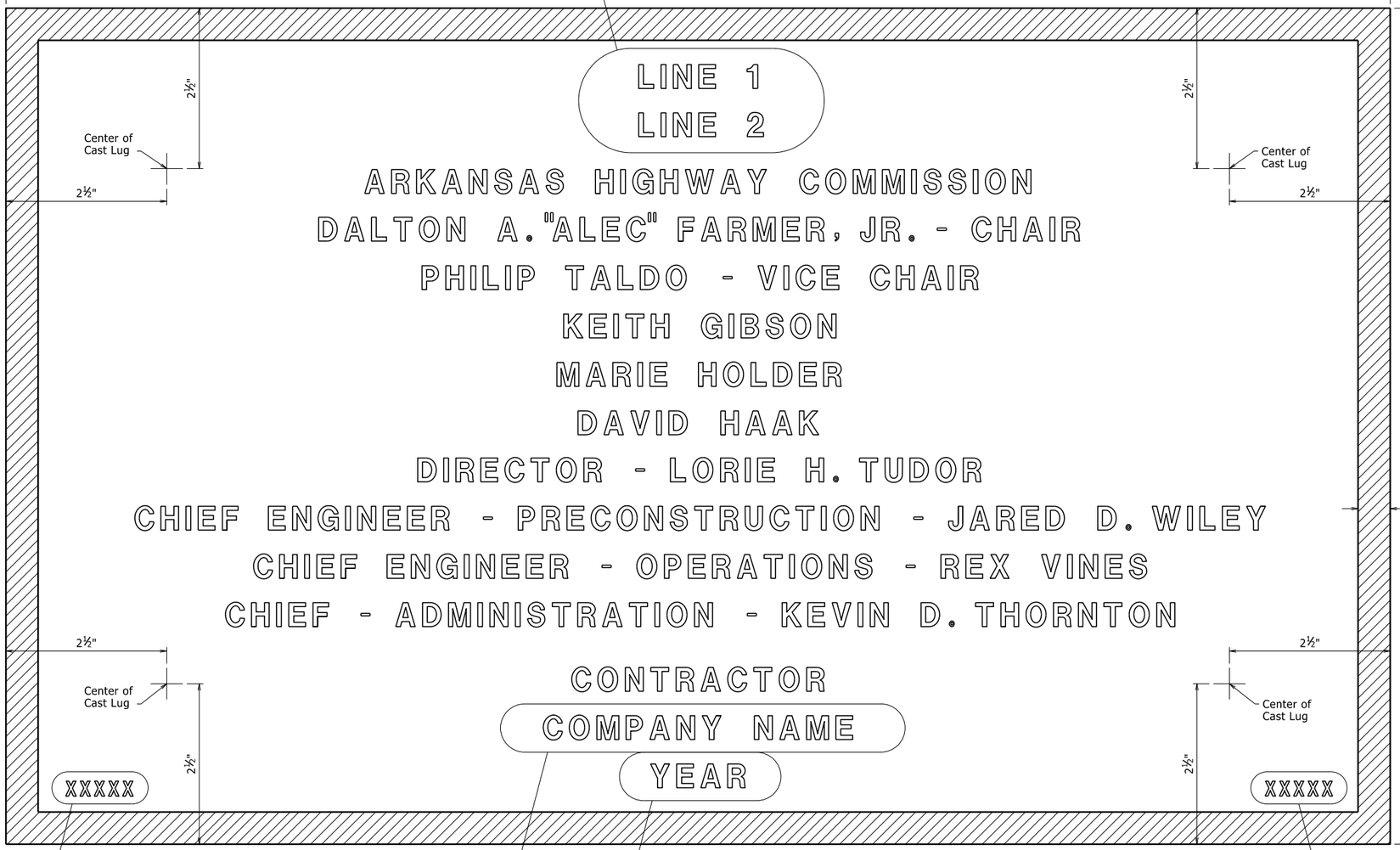
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

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

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

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



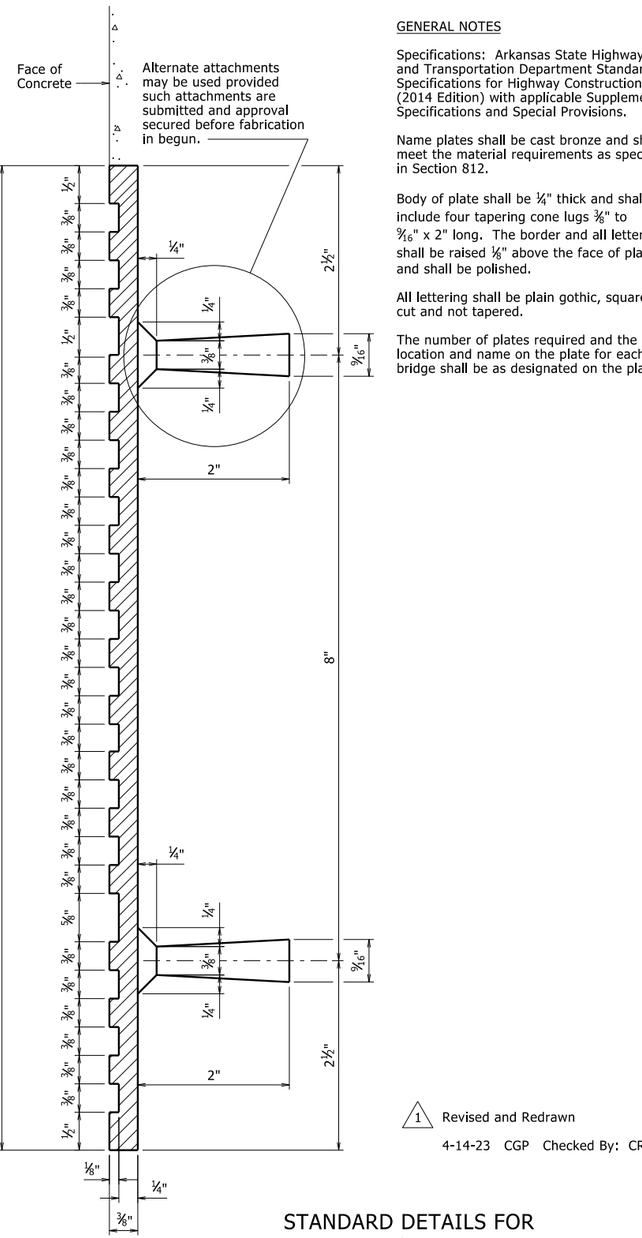
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

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

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

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

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

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

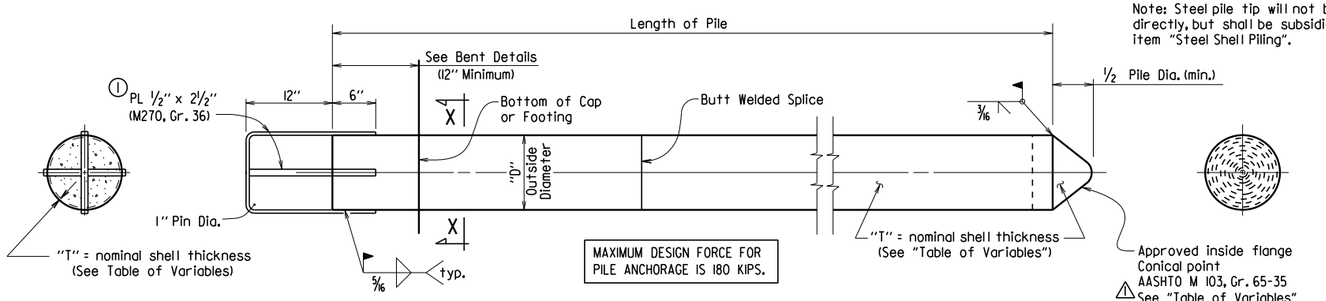
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55010

PRINT DATE: 4/20/2023

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

(1) STEEL SHELL PILES 55021

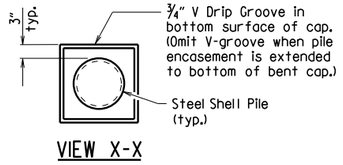


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

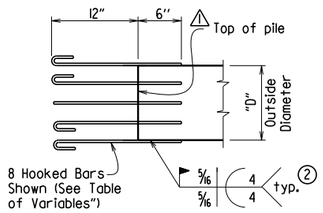
CONCRETE FILLED STEEL SHELL PILE

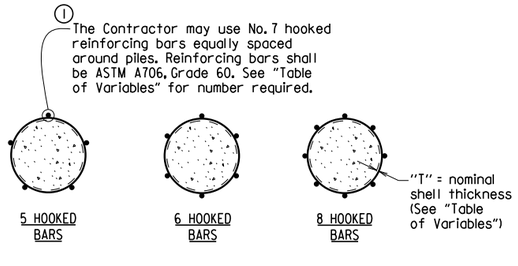
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(2) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



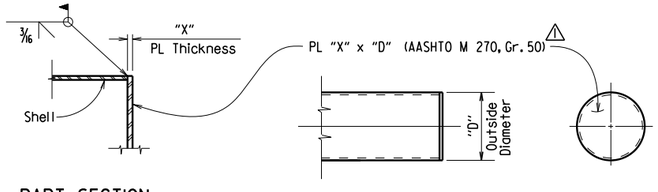
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.

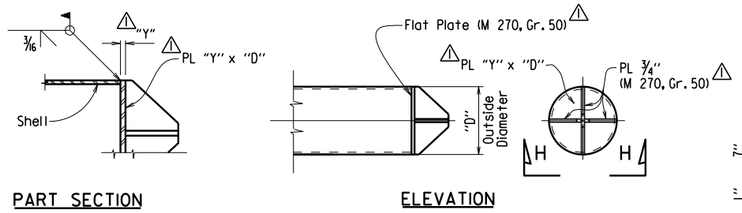


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.

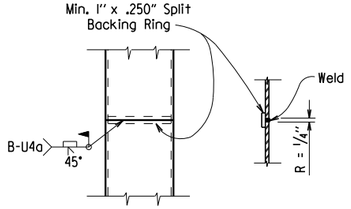


PART SECTION

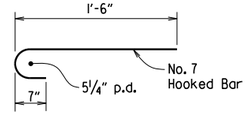
ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS



HOOKED BAR DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	(1) PLATE THICKNESS "X"	(1) PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	(1) MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2¼"	1½"	5	859
16"	0.50"	2¼"	1½"	5	986
18"	0.50"	2½"	1½"	6	1,114
20"	0.50"	2½"	1¾"	6	1,241
24"	0.50"	2¾"	1¾"	8	1,495

(1) Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

GENERAL NOTES FOR PILE ENCASEMENTS:

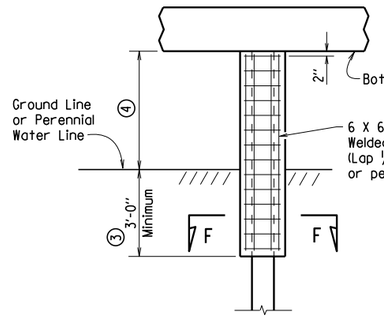
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

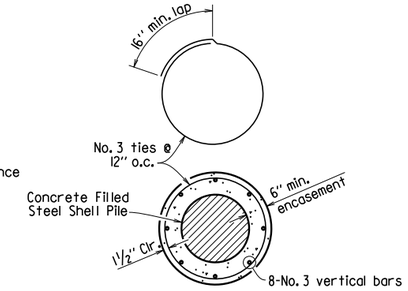
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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

Welded wire fabric shall conform to AASHTO M 55 or M 221.

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





SECTION F-F (REINF. ALTERNATE)

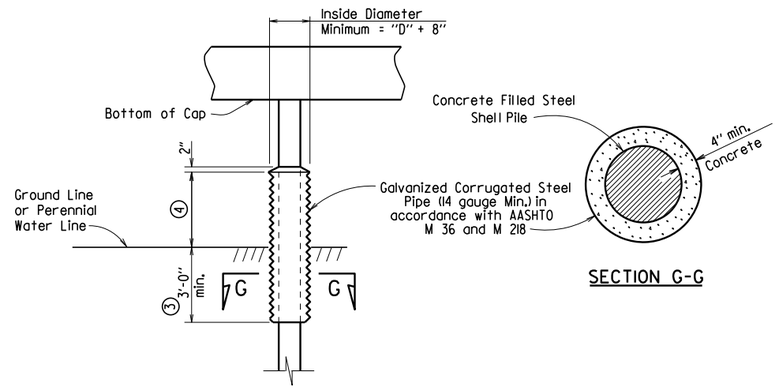
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(5) (Shown with Encasement to Bottom of Cap)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

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

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

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

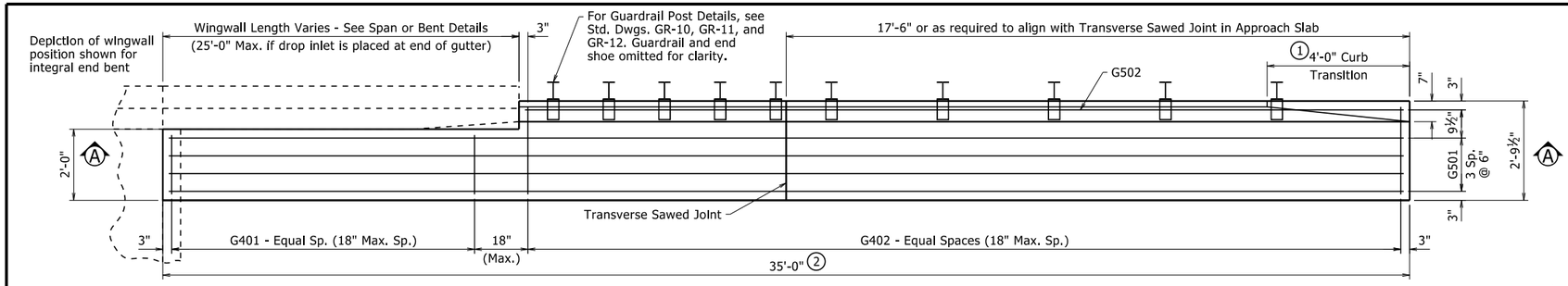
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55021.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55021

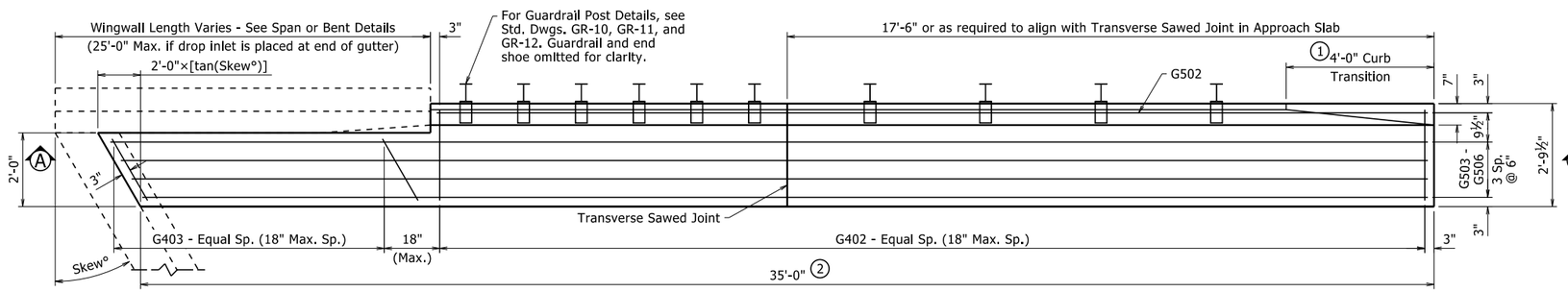
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

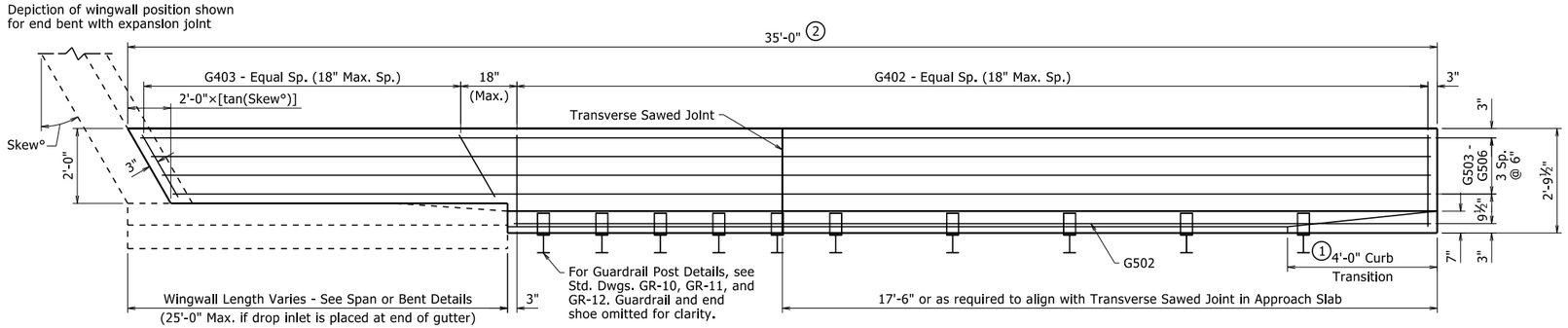
(1) Type F Approach Gutters - 55030F



HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"





PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"

QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

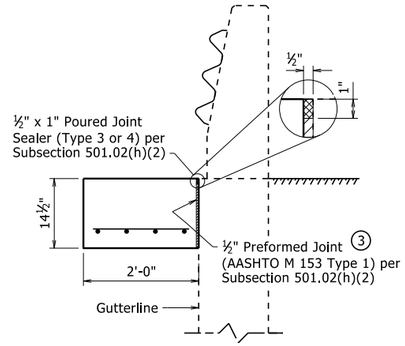
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

Quantities are based on one gutter for a square, integral end bent and a wingwall length of 10'-0"

BAR LIST FOR ONE APPROACH GUTTER

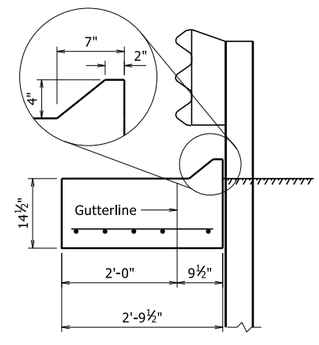
	Mark	No. Req'd.	Length
Square End Bent	G401	(4)	1'-8"
	G402	(4)	2'-5½"
	G501	4	34'-8"
	G502	1	(4)
Skewed End Bent	G402	(4)	2'-5½"
	G403	(4)	(4)
	G502	1	(4)
	G503 - G506	1 ea.	(4)

(4) Varies with Skew and/or Wingwall Length



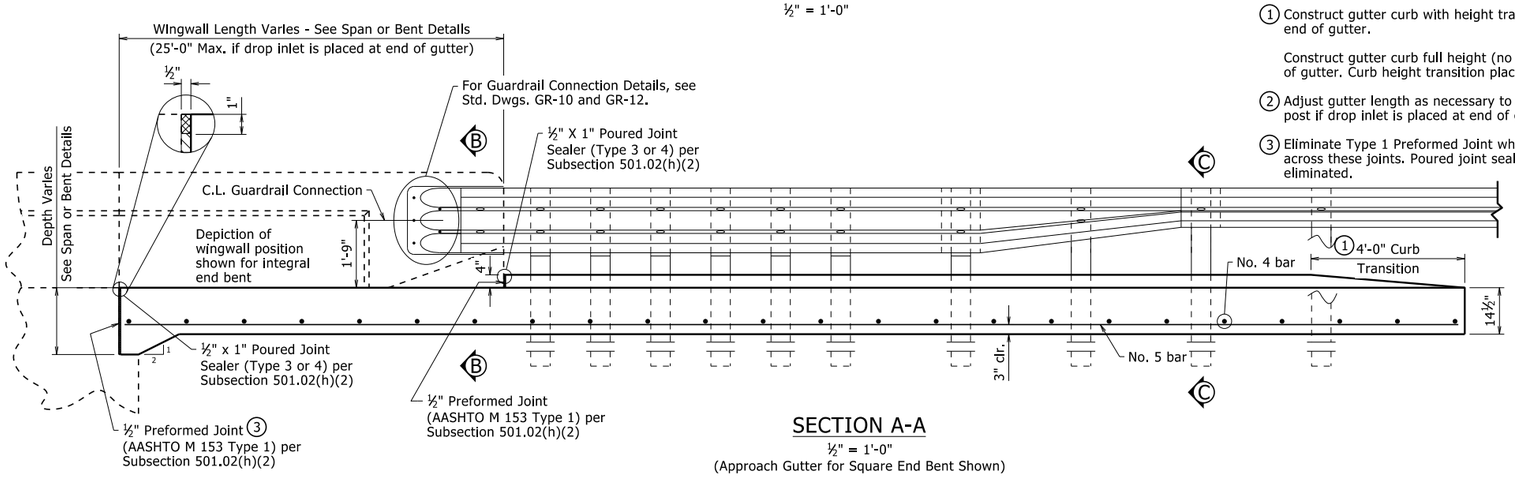
SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"



SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

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

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

(2) Adjust gutter length as necessary to avoid outlet pipe interference with guardrail post if drop inlet is placed at end of gutter.

(3) Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

GENERAL NOTES

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

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

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

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

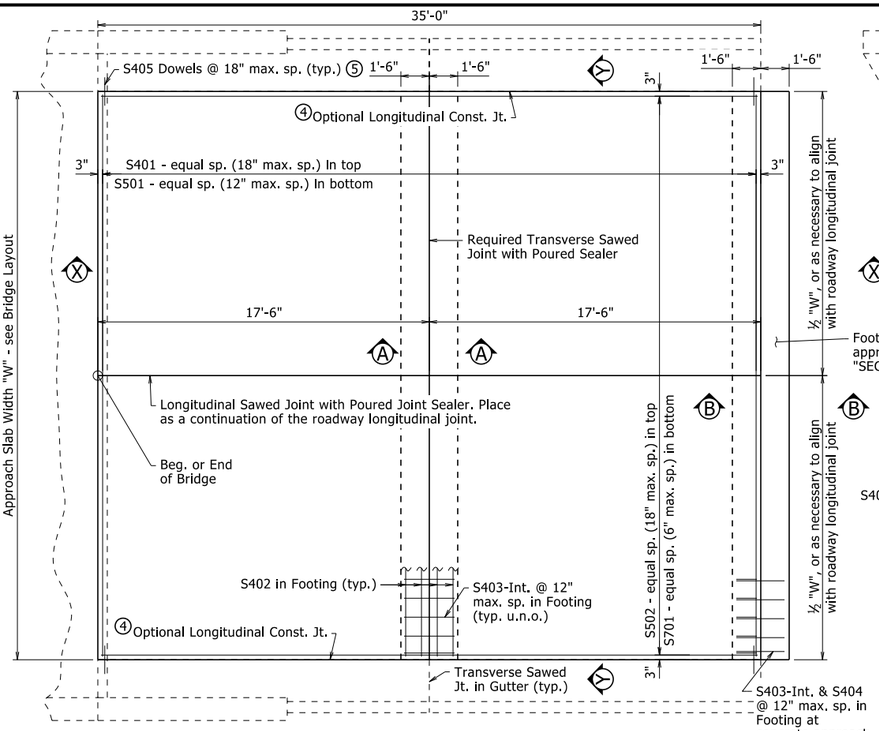
LITTLE ROCK, ARK.

DRAWN BY:	NAC	DATE:	4-8-2021	FILENAME:	b55030f.dgn
CHECKED BY:	LJB	DATE:	4-8-2021	SCALE:	AS NOTED
DESIGNED BY:	STD	DATE:	-		

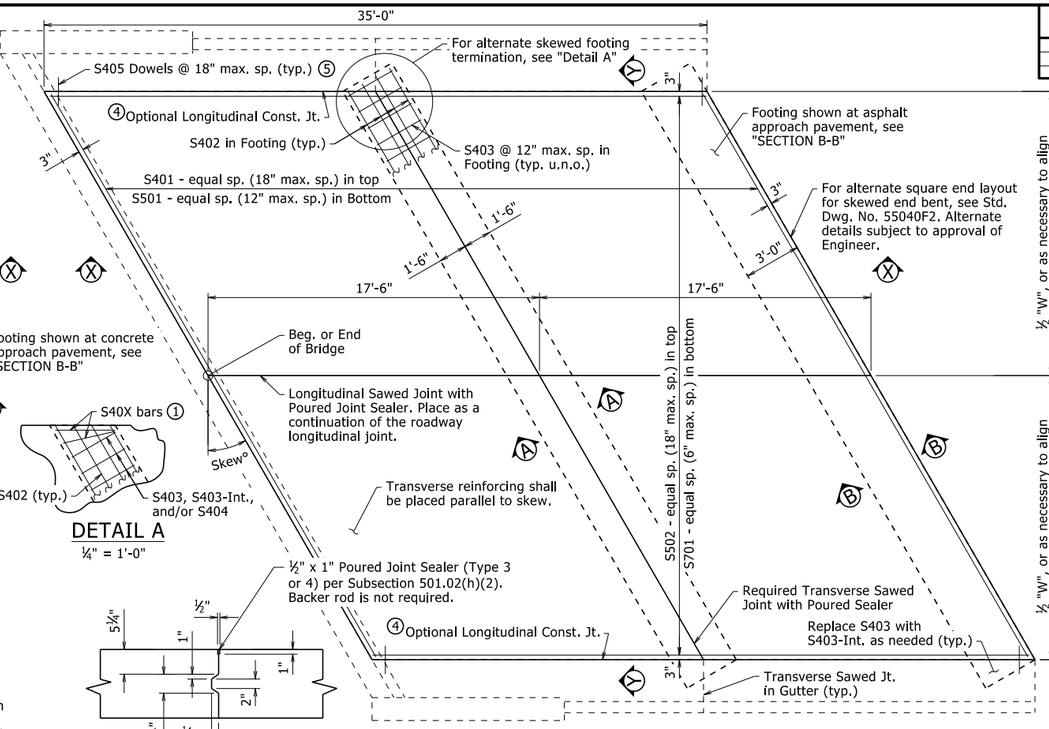
DRAWING NO. 55030F

PRINT DATE: 4/9/2021

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F1				

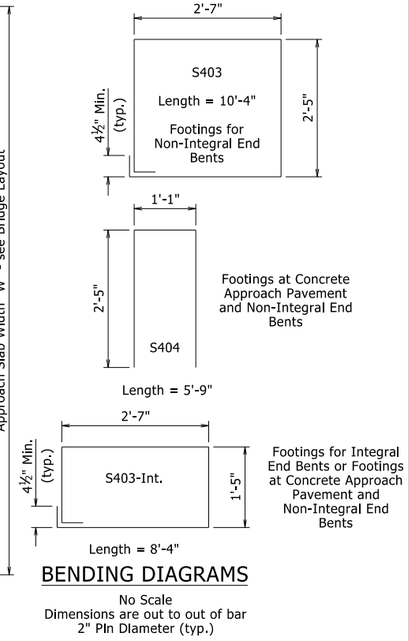


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

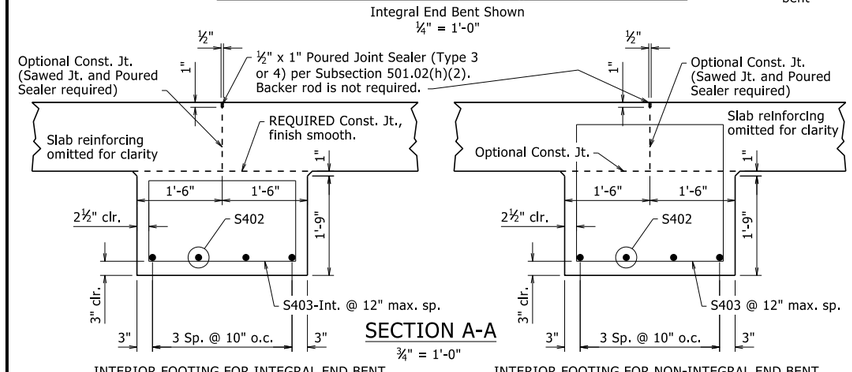


BENDING DIAGRAMS

No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

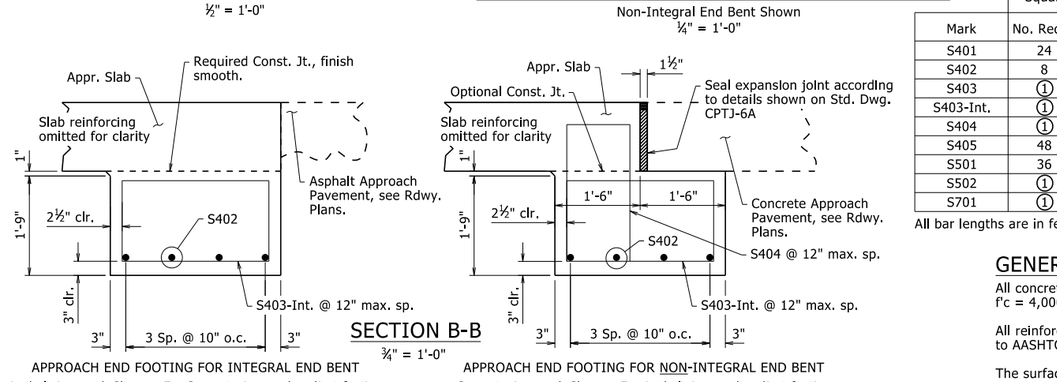
PLAN - APPROACH SLAB AT SKEWED END BENT

Non-Integral End Bent Shown
¼" = 1'-0"



INTERIOR FOOTING FOR INTEGRAL END BENT

INTERIOR FOOTING FOR NON-INTEGRAL END BENT



APPROACH END FOOTING FOR INTEGRAL END BENT

Asphalt Approach Shown. For Concrete Approach, adjust footing location by 1'-6" to add paving notch and include expansion joint.

APPROACH END FOOTING FOR NON-INTEGRAL END BENT

Concrete Approach Shown. For Asphalt Approach, adjust footing location by 1'-6", omit expansion joint, and replace bars S403-Int. & S404 with S403.

BAR LIST - PER APPROACH SLAB

	Square End Bent		Skewed End Bent	
Mark	No. Req'd.	Length	No. Req'd.	Length
S401	24	"W" - 0.33'	24	("W" - 0.33') / cos (Skew°)
S402	8	"W" - 0.33'	8	"W"/cos(Skew°) + 3.0'×tan(Skew°) - 0.33'
S403	①	②	①	②
S403-Int.	①	②	①	②
S404	①	②	①	②
S405	48	1'-6"	48	1'-6"
S501	36	"W" - 0.33'	36	("W" - 0.33') / cos (Skew°)
S502	①	34'-8"	①	34'-8"
S701	①	34'-8"	①	34'-8"

All bar lengths are in feet.

① Varies with Approach Slab Type, Width and/or Skew.
② See "BENDING DIAGRAMS"

GENERAL NOTES

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

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

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

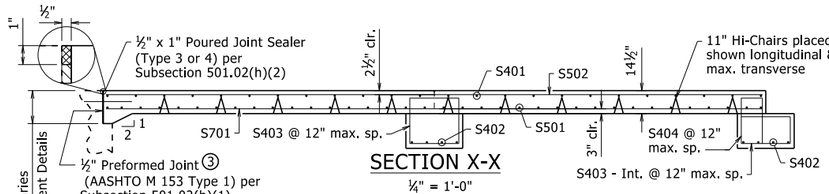
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

See Plans for actual Approach Slab Width, "W", end bent or span details, and approach pavement. Units of "W" are in Feet.

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

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

For Table of Quantities, see "SCHEDULE OF BRIDGE QUANTITIES".



Approach Slab for Square Non-Integral End Bent at Concrete Approach Shown

MINIMUM BAR LAP LENGTH

#4	1'-8"
#5	2'-0"
#7	2'-10"

③ Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

④ When construction joint is eliminated, place 1" Sawed Joint with ½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2). Backer rod is not required.

⑤ Eliminate dowels when approach slab is adjacent to curb and gutter, or as directed by the Engineer.

The document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 7, 2023. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

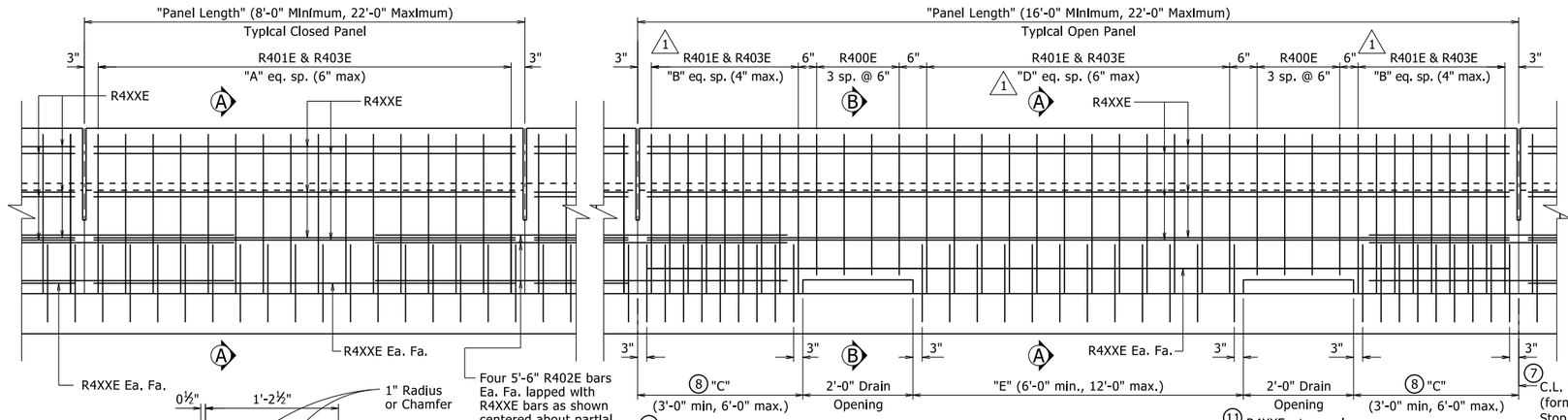
LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	05/12/2023	FILENAME:	b55040f.dgn
CHECKED BY:	JYP	DATE:	05/15/2023	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55040F1

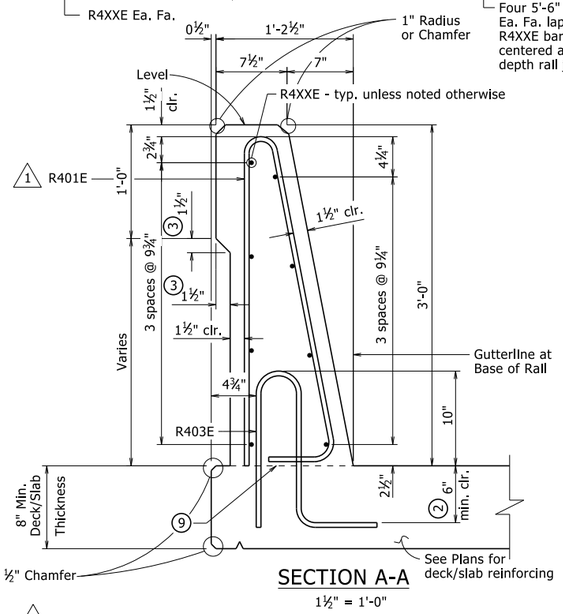
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



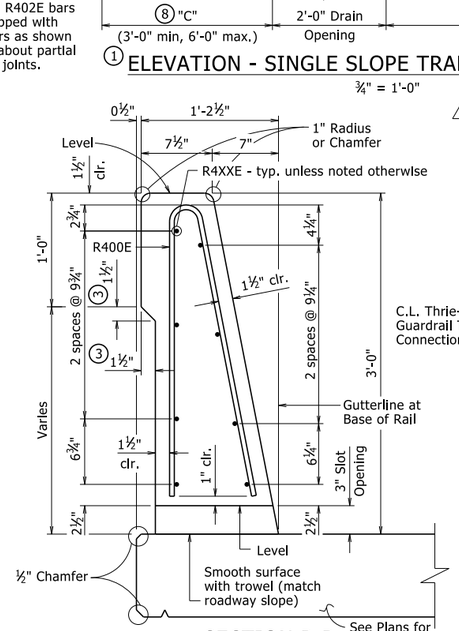
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



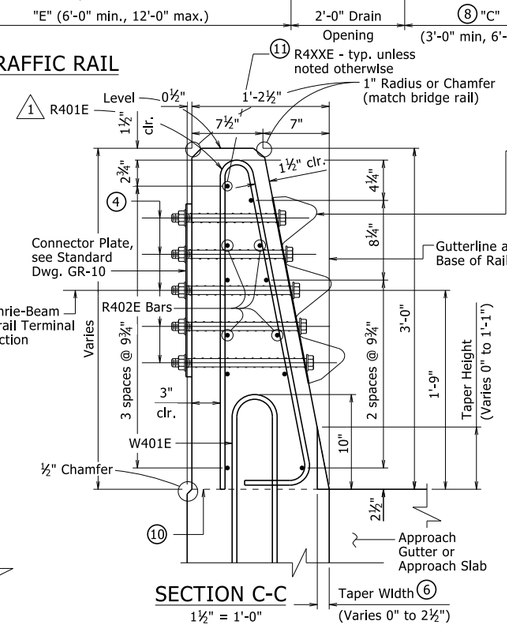
SECTION A-A

1½" = 1'-0"



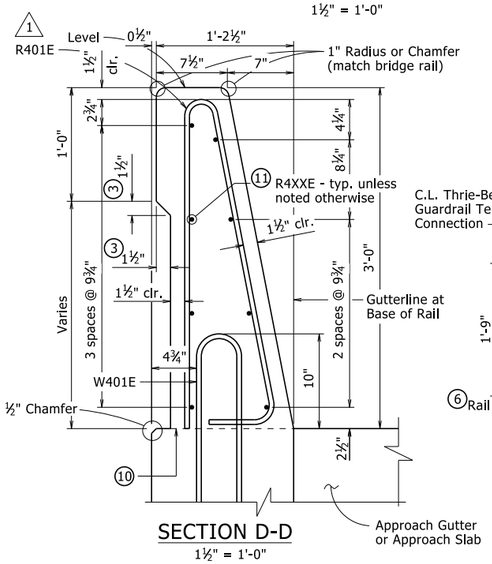
SECTION B-B

1½" = 1'-0"



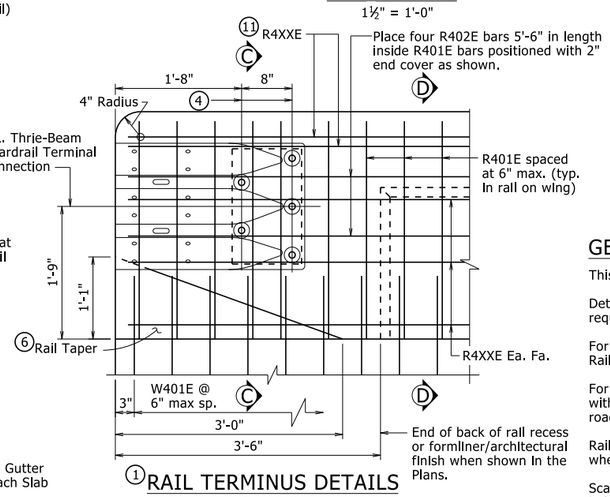
SECTION C-C

1½" = 1'-0"



SECTION D-D

1½" = 1'-0"



① RAIL TERMINUS DETAILS

1" = 1'-0"

⑦ C.L. Full-Depth Rail Joint (formed width ¼" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

⑦ C.L. Partial-Depth Rail Joint (formed width ¼" to 1" max). Stop 16" from top of deck/slab or sidewalk. Place at all remaining locations other than at intermediate bents.

① All measurements shown are along gutterline at base of rail.

② Minimum embedment into deck/slab.

③ Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

④ C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

⑤ Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.

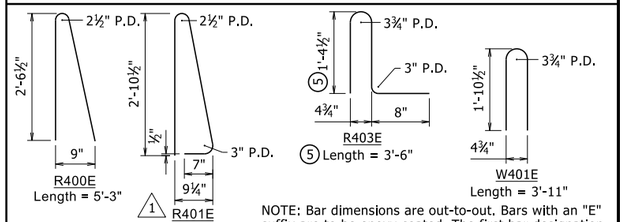
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

⑦ When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

⑧ End posts shall be the same length within a panel.

Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

BENDING DIAGRAM



NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.

⑨ Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

⑩ Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

⑪ These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE

See Plans for table with values.

GENERAL NOTES

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

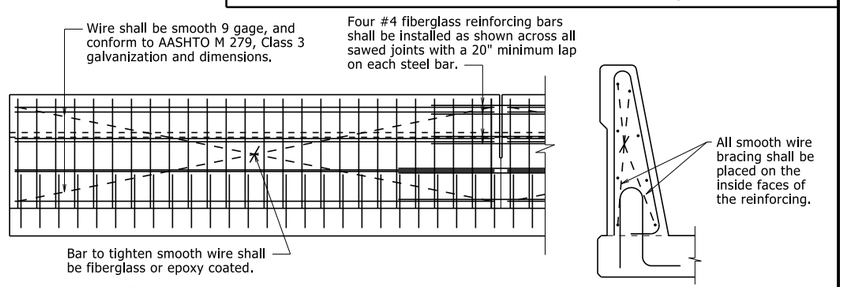
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.



The extruded rail shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish in place of Class 2, Rubbed Finish.

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

△1 Modified bending diagram and spacing for R401E bar.

By: CGP, Checked by: CMW 09/27/2022

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

BRIDGE ENGINEER

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

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

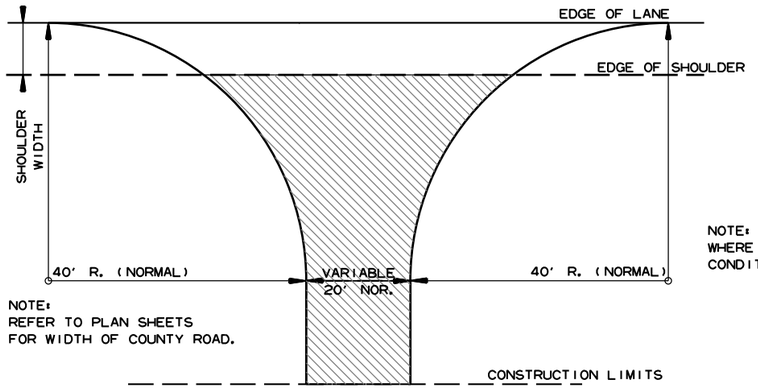
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 11/5/2020
CHECKED BY: LJB DATE: 11/5/2020
DESIGNED BY: STD. DATE: -----
FILENAME: b55070.dgn
SCALE: As Noted

DRAWING NO. 55070

PRINT DATE: 10/6/2022

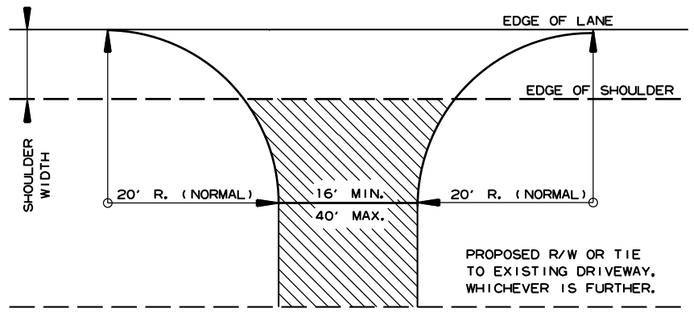


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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

ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH, UNLESS OTHERWISE
SPECIFIED IN PLANS.

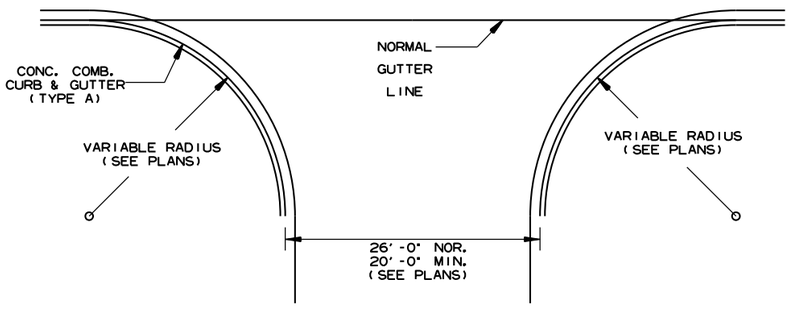
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

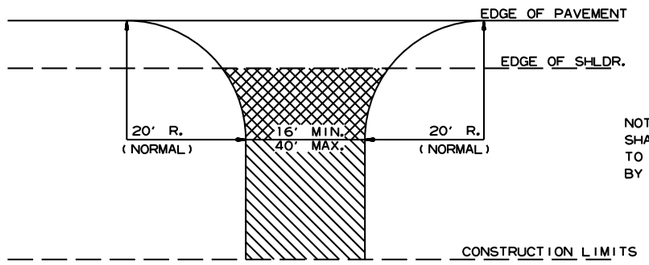
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS,
& COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION



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

ASPHALT CONCRETE HOT MIX SURFACE
COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM
TO EXISTING DRIVEWAY

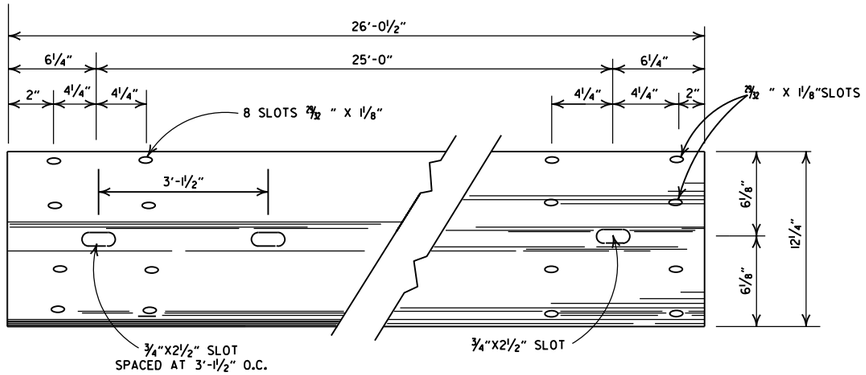
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

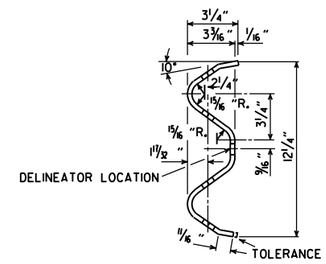
DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

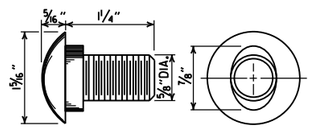
STANDARD DRAWING DR-2



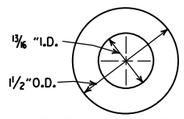


DETAILS OF W-BEAM GUARDRAIL

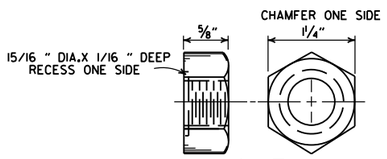
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



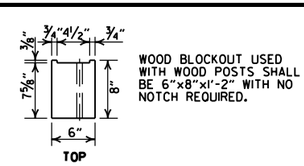
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

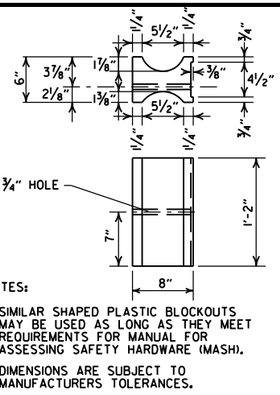


NUT



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

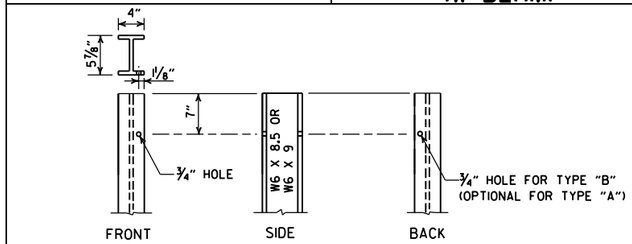
WOOD BLOCKOUT (W-BEAM)



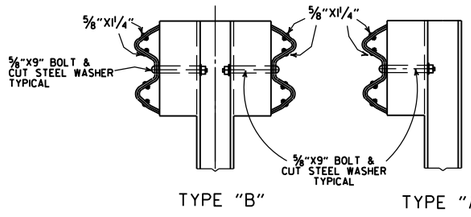
NOTES:

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

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

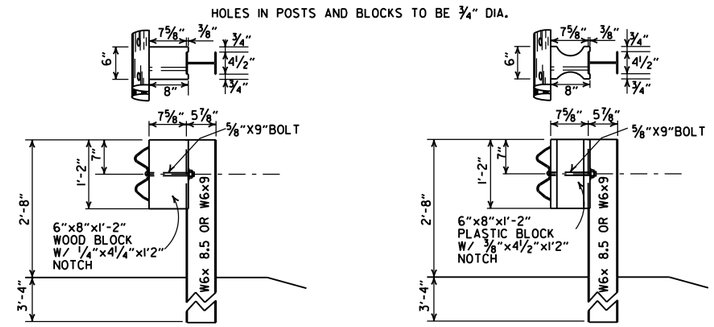
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

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

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

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



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

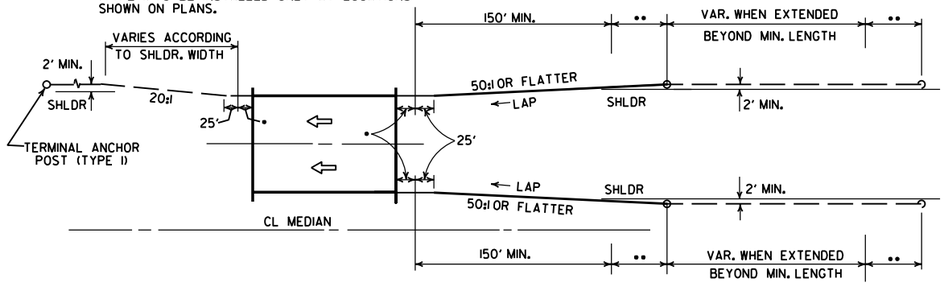
DATE	REVISION	FILMED
05-19-22	REVISED GENERAL NOTES, ADDED DELINEATOR LOCATION.	
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

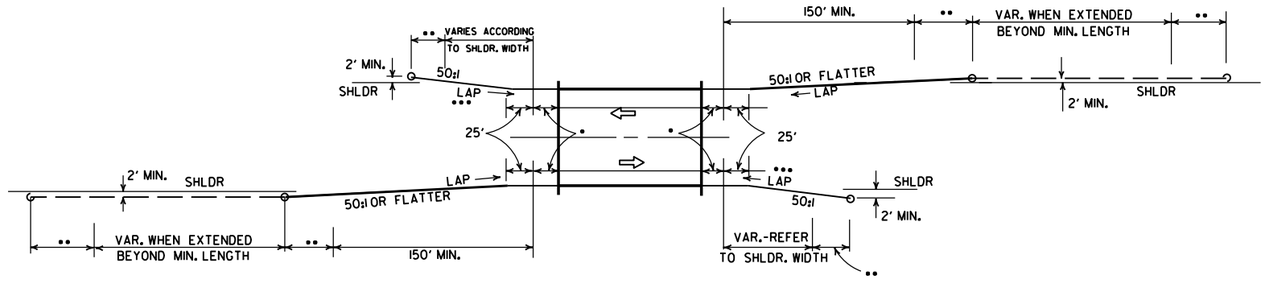
STANDARD DRAWING GR-6

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



ONE-WAY TRAFFIC

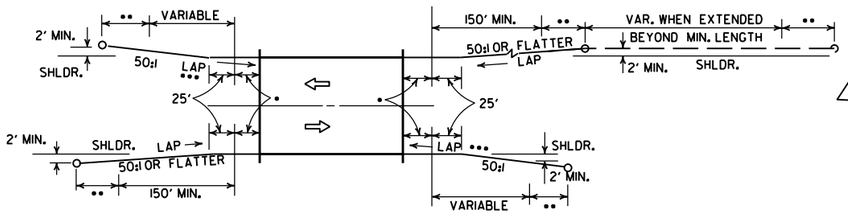
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

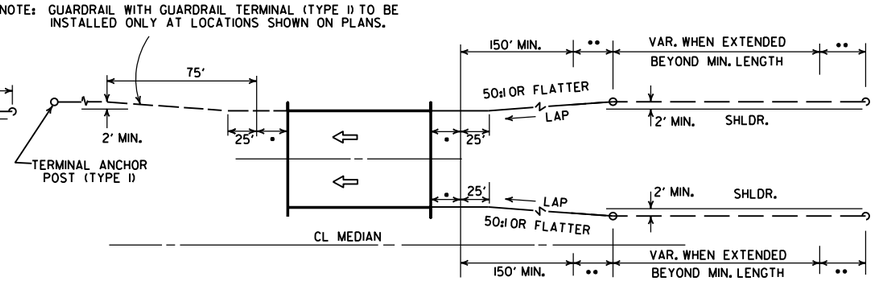
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

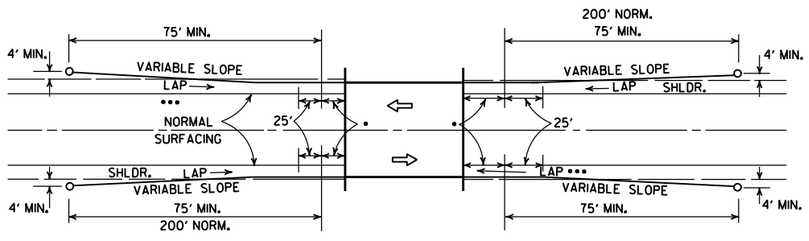
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

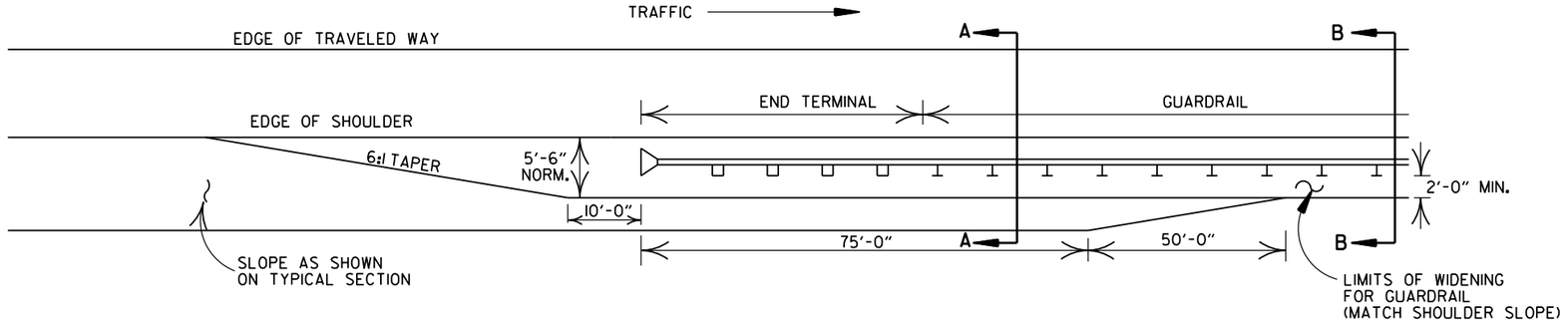
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

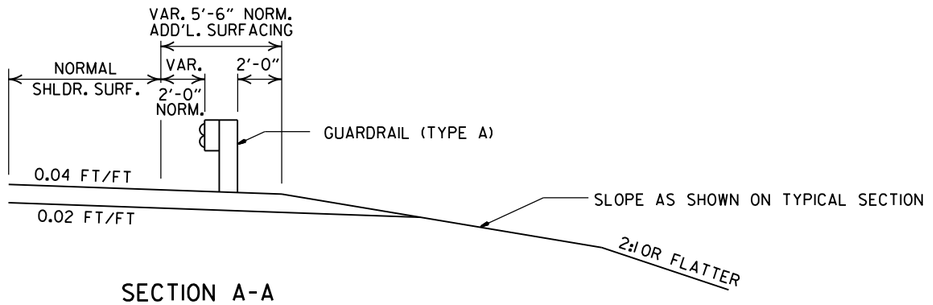
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

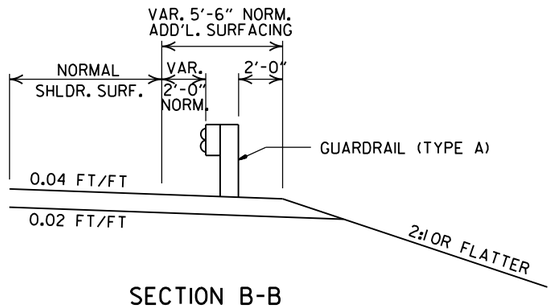
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



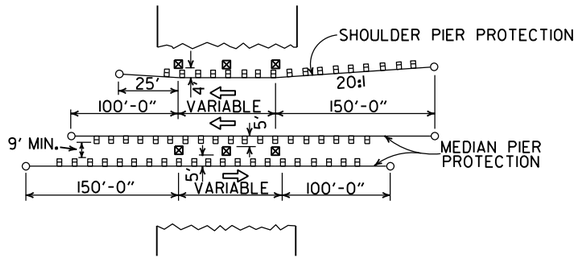


SECTION A-A



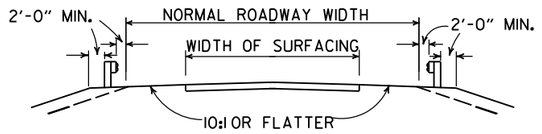
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

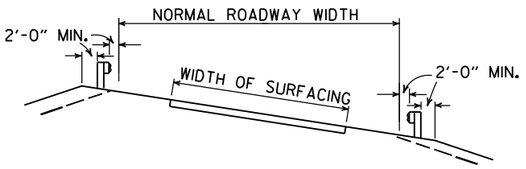


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

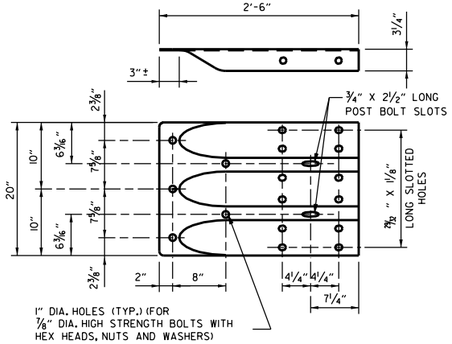
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

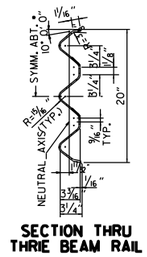
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

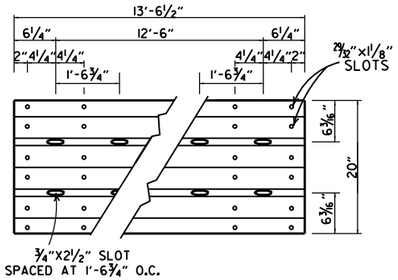
STANDARD DRAWING GR-9



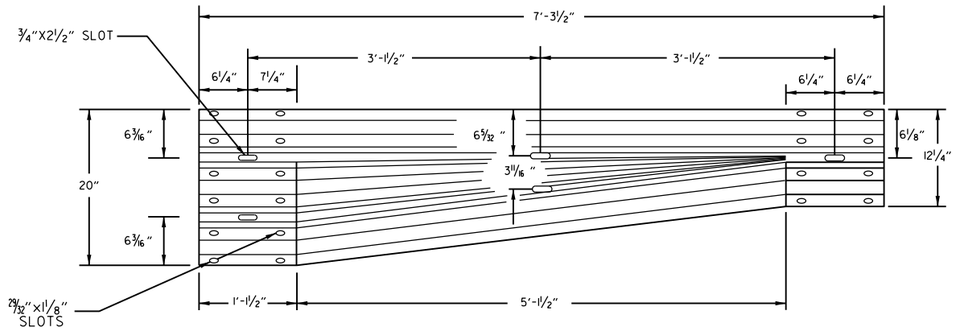
SPECIAL END SHOE



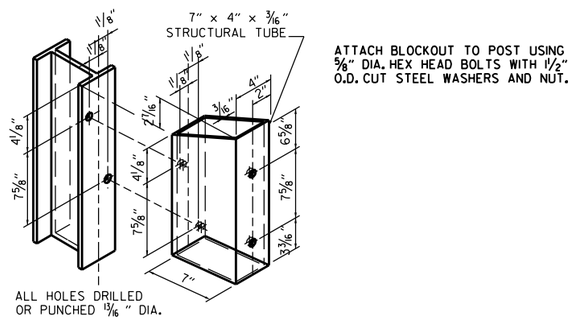
SECTION THRU THRIE BEAM RAIL



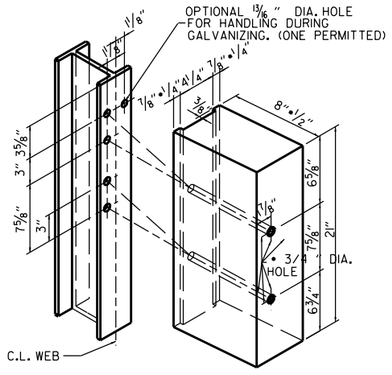
THRIE BEAM RAIL



TRANSITION SECTION



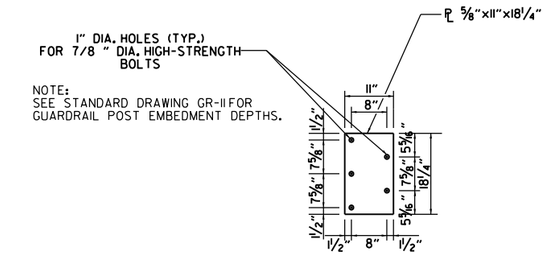
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

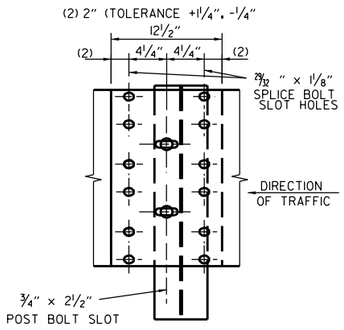
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

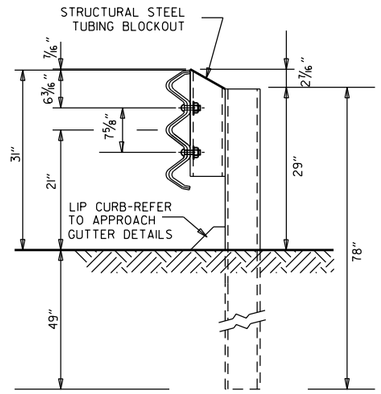
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

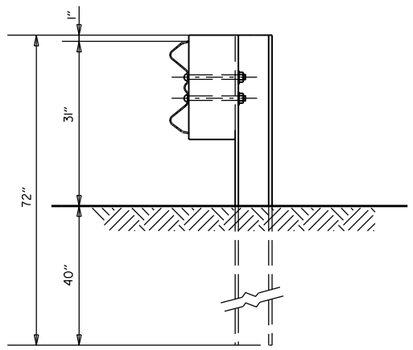
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

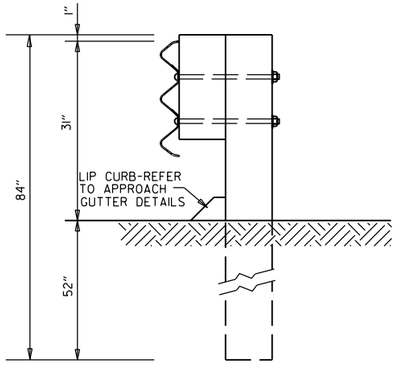
STANDARD DRAWING GR-10



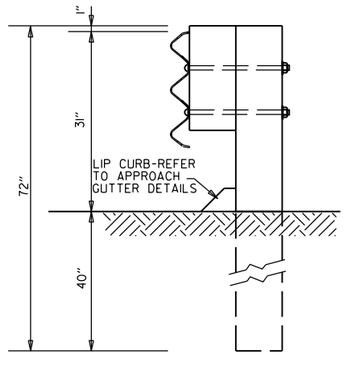
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



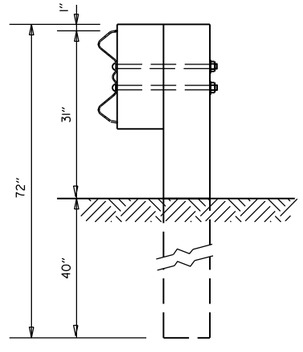
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

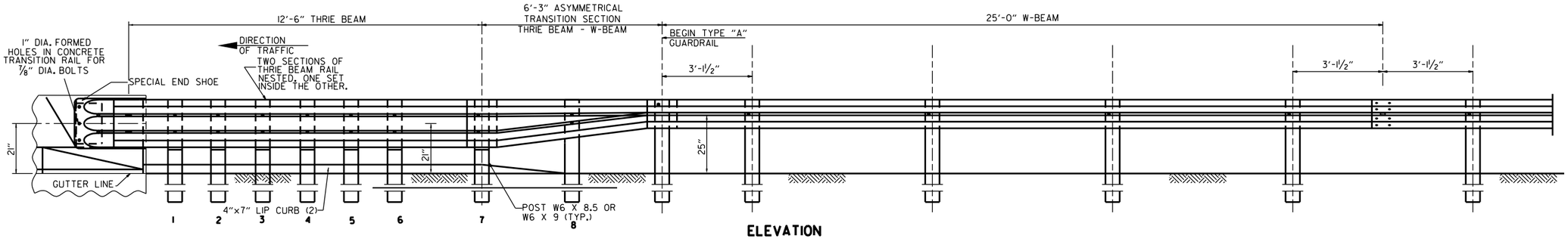
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

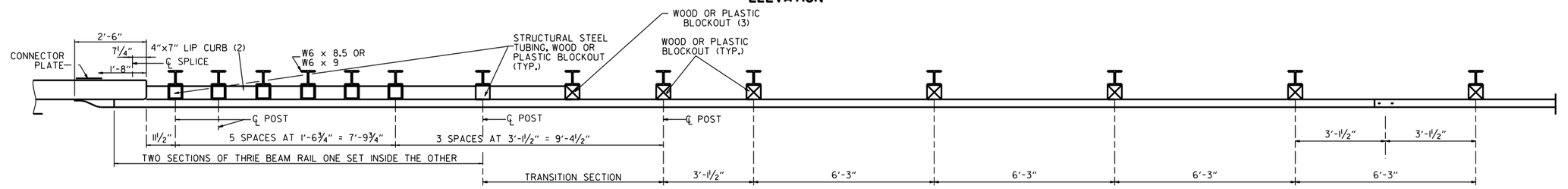
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

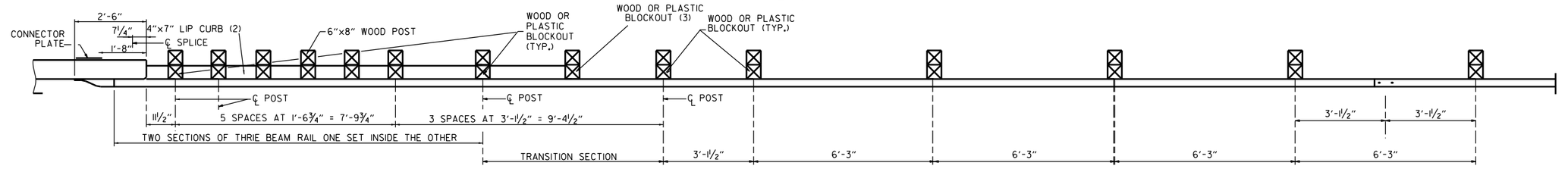
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

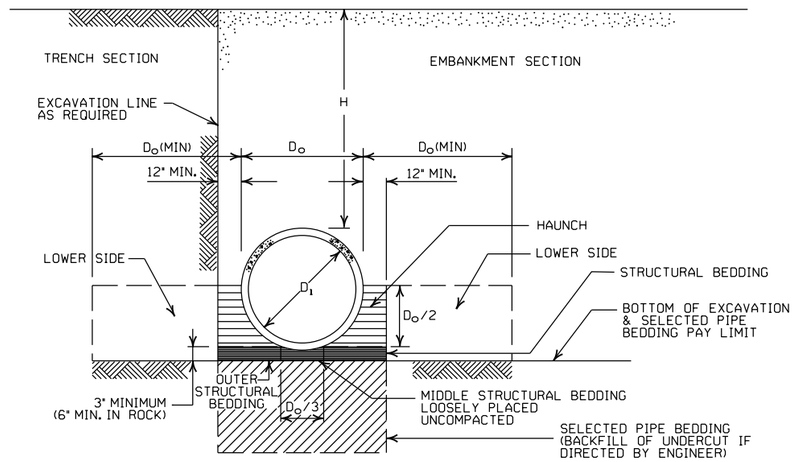
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

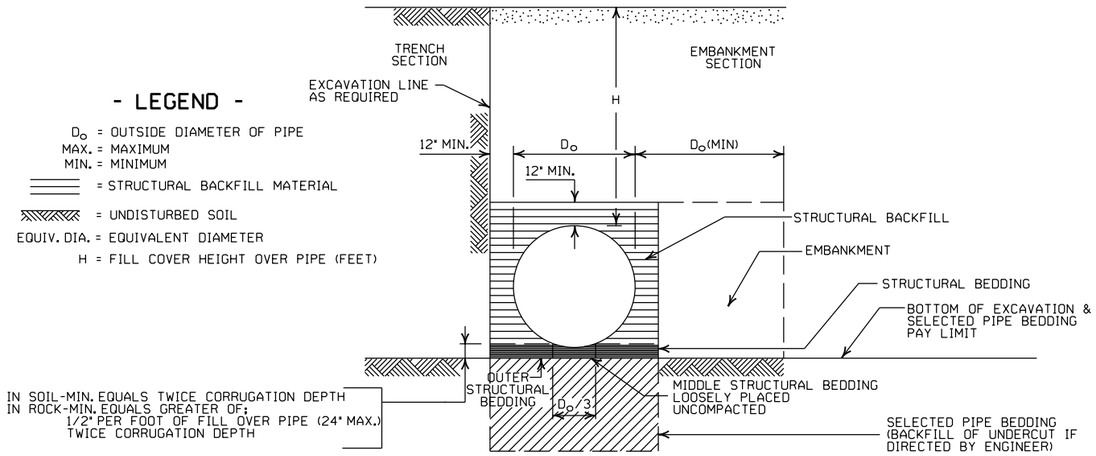
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

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

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

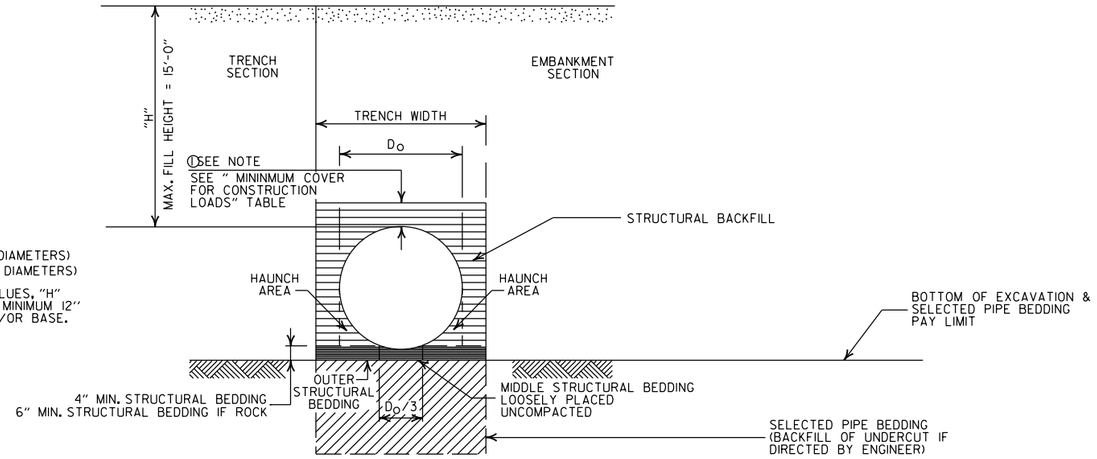
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

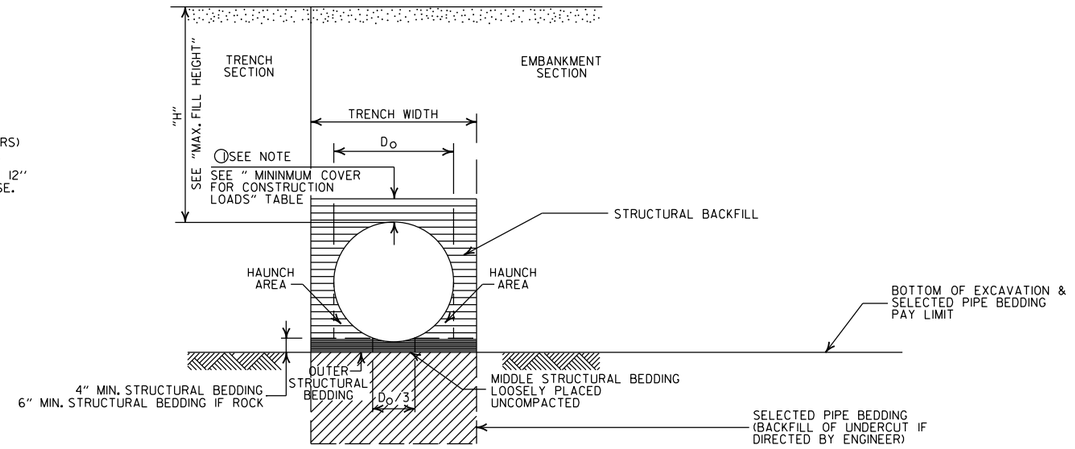
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

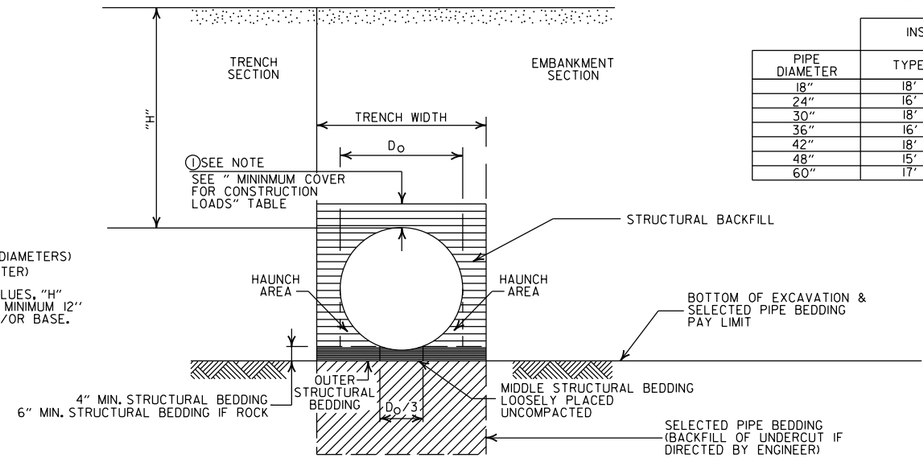
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

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

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

MAXIMUM HEIGHT OF FILL "H"

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



MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

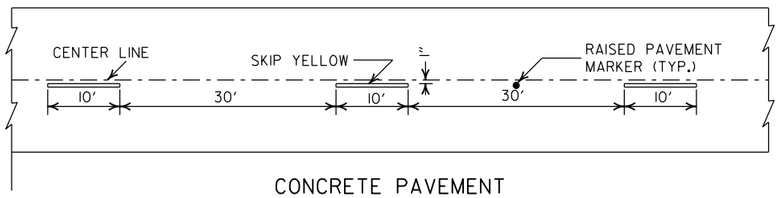
= UNDISTURBED SOIL

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

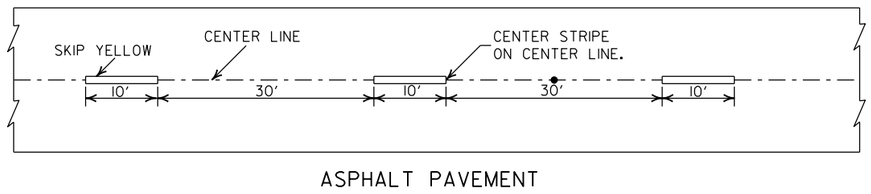
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

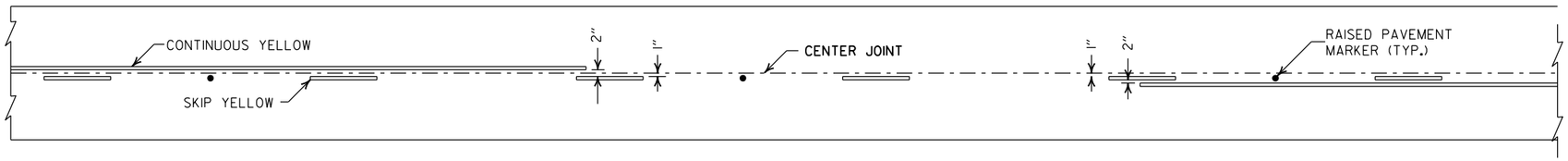


CONCRETE PAVEMENT

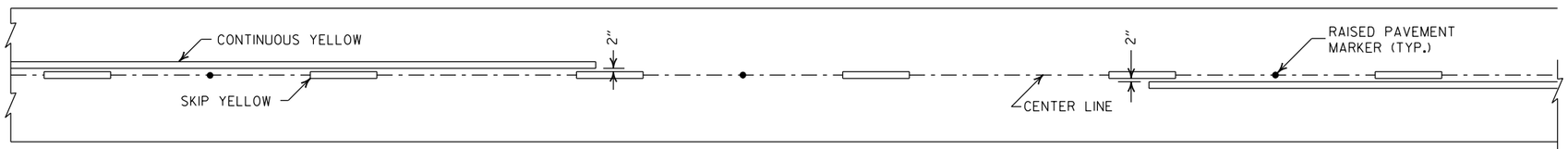


ASPHALT PAVEMENT

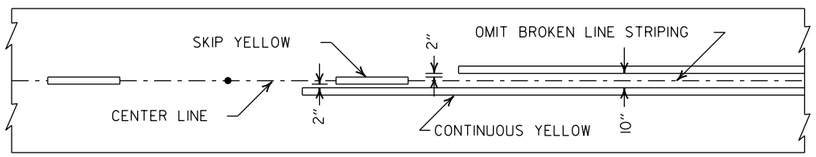
BROKEN LINE STRIPING



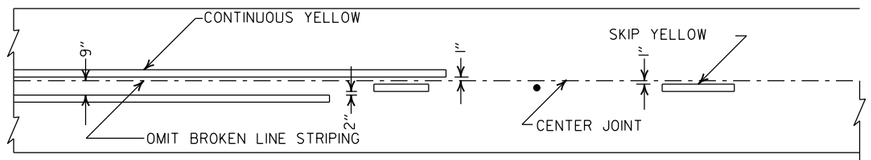
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

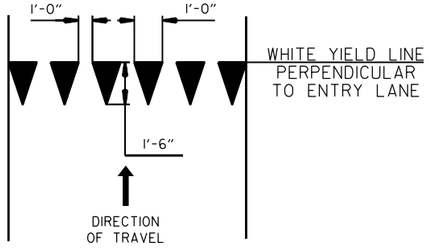


ASPHALT PAVEMENT

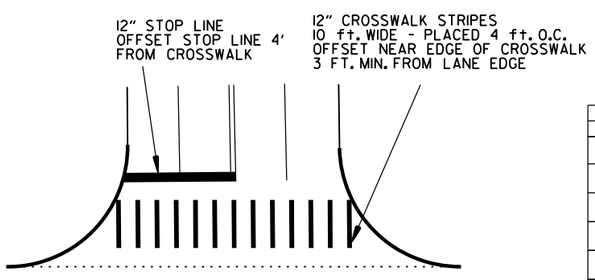


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

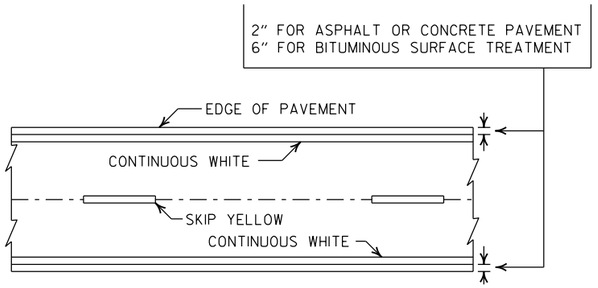


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

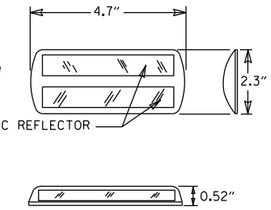
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

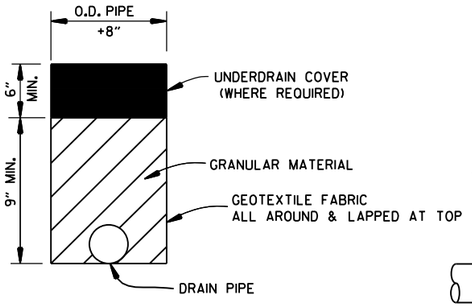
PAVEMENT MARKING DETAILS

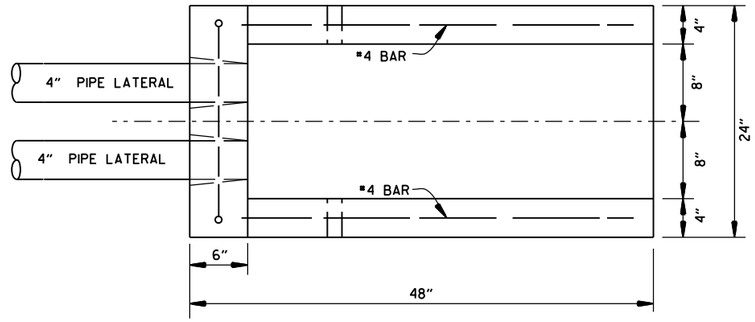
STANDARD DRAWING PM-1

NOTE:

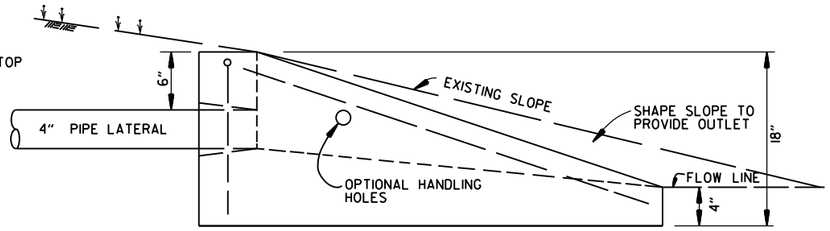
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

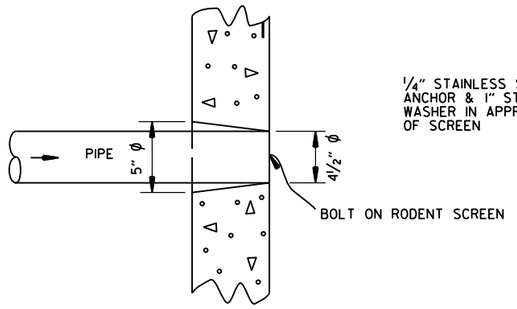




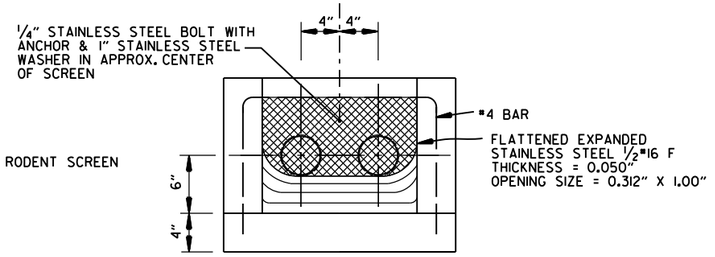
PLAN VIEW



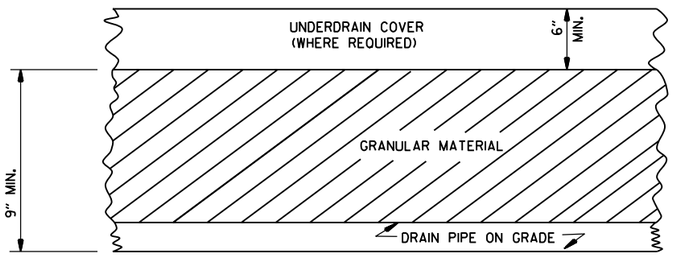
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

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

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

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

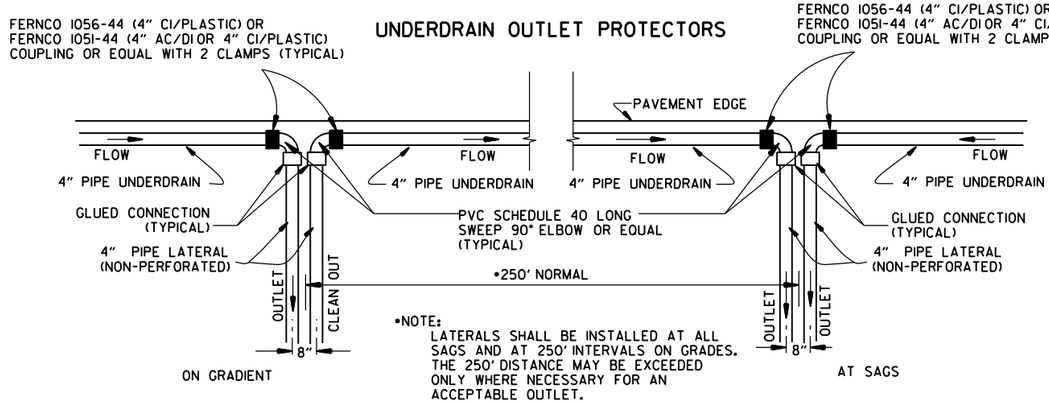
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

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

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

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

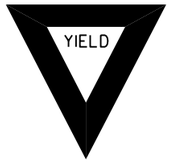
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

R1-1

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

R1-2



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

R2-1

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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

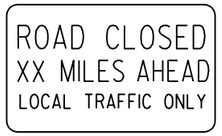
R5-1

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

R11-2

48"X30"

R11-3A



60"X30"

R11-4

60"X30"

W21-5a

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

W1-1

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

W1-2

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

W1-3

STD. 48"X48"

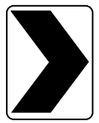
W1-4

STD. 48"X48"

W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

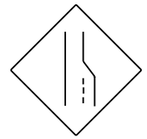
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

W8-9

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

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

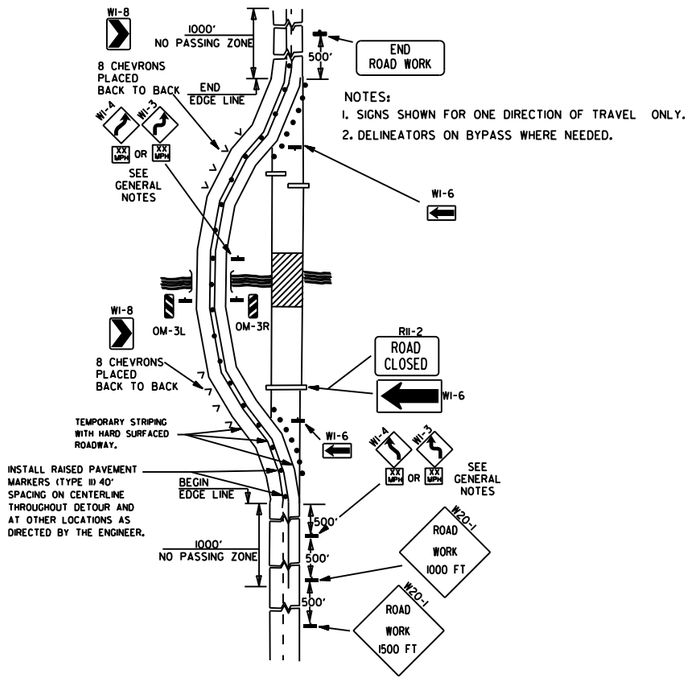
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

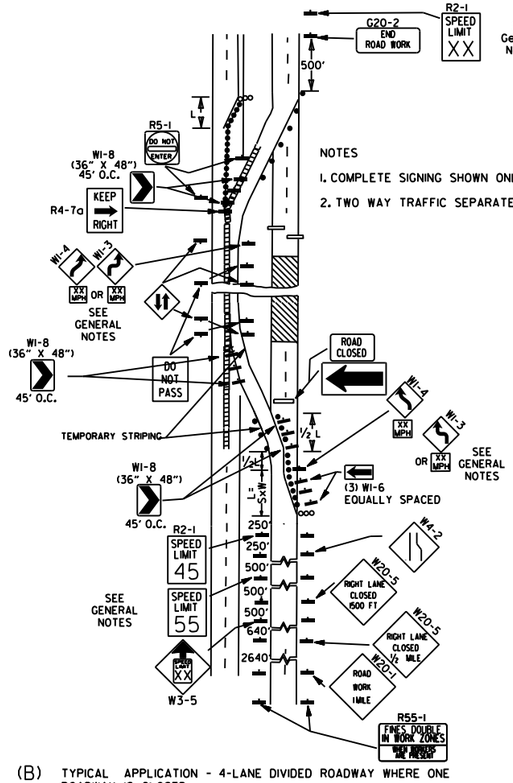
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



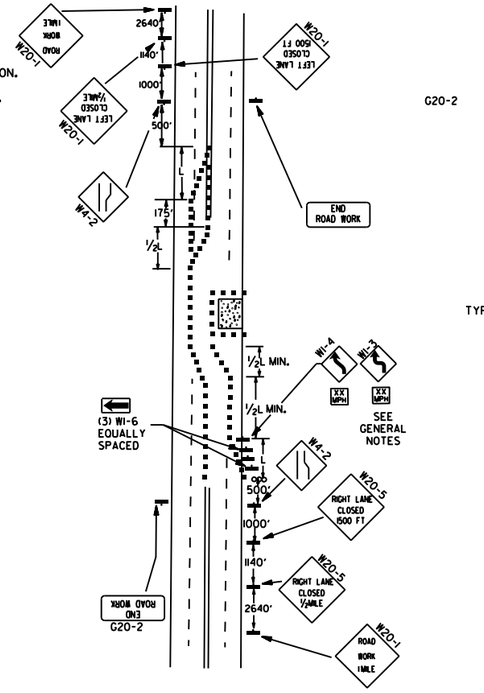
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

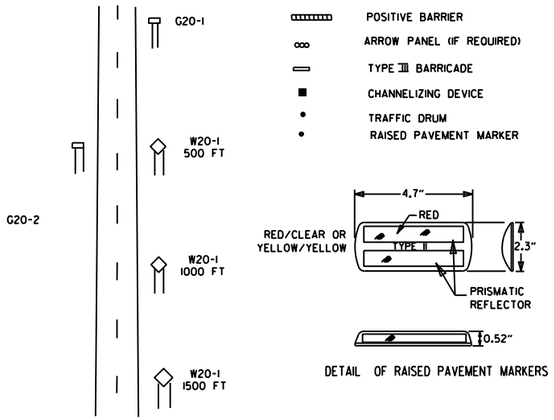


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

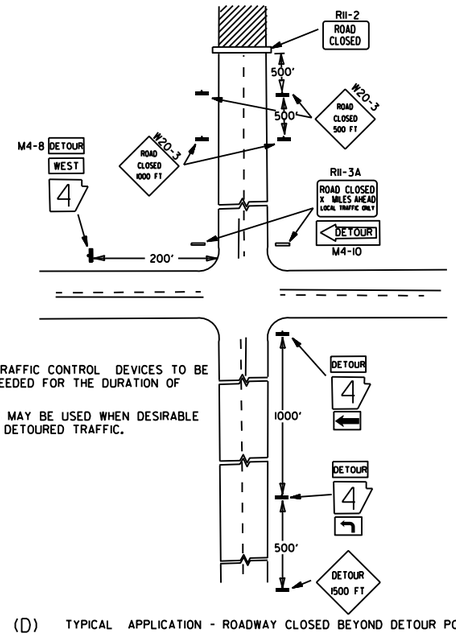
L= MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

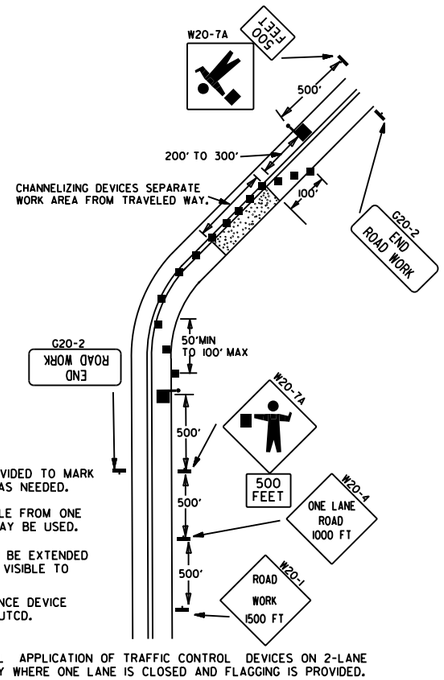
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



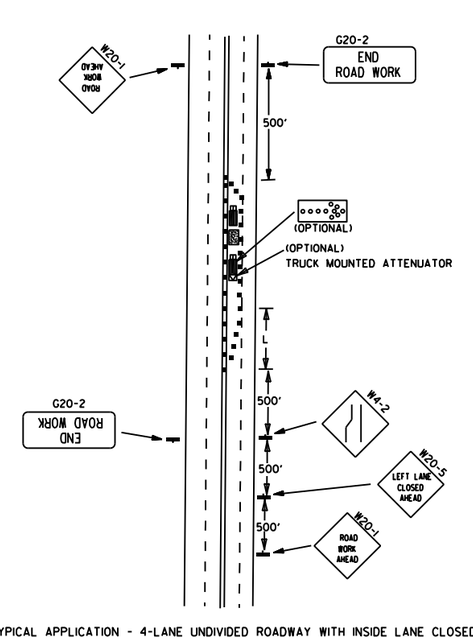
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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



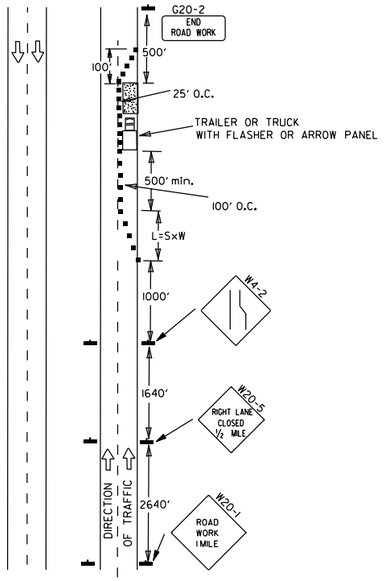
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
05-20-21	REVISED NOTE 7	
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

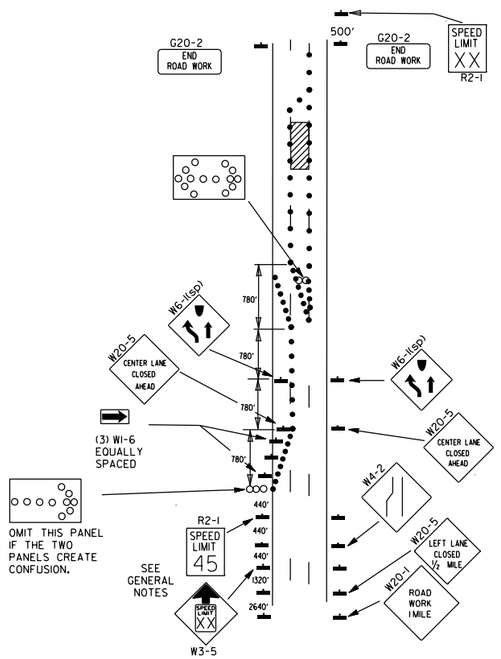
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

KEY:

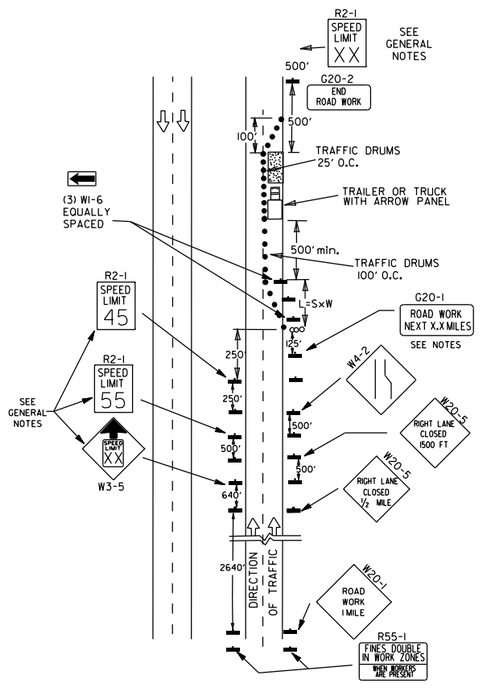
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

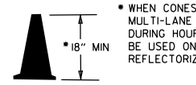
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



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

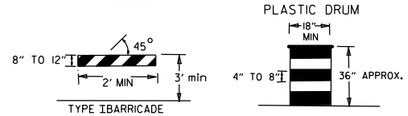
CHANNELIZING DEVICES



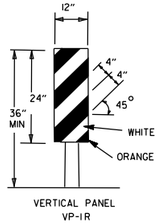
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

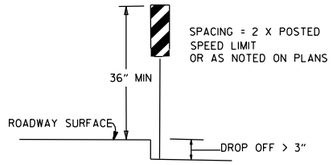
PLASTIC DRUM



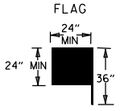
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

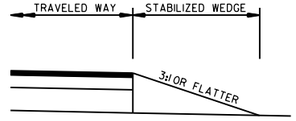
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS[1]	W8-9 AND TRAFFIC DRUMS[1]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS[3]
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER[4] & EDGE LINES	PRECAST CONCRETE BARRIER[4] & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:

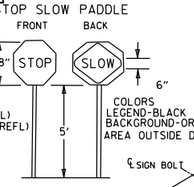
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

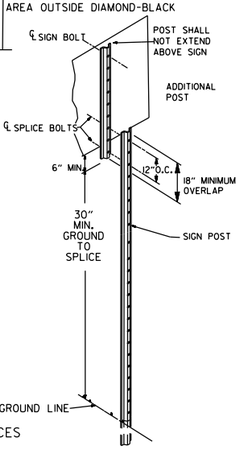


STABILIZED WEDGE

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

STOP SLOW PADDLE

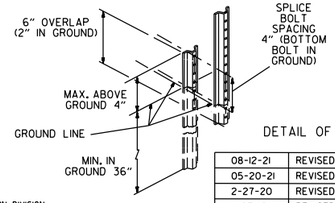




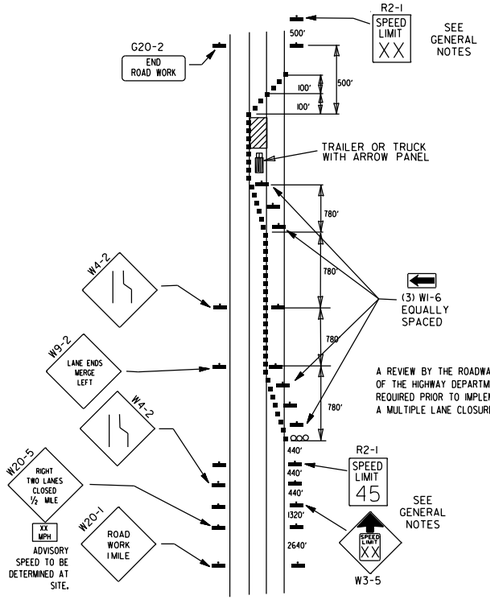
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DETAIL OF SPLICES



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

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

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

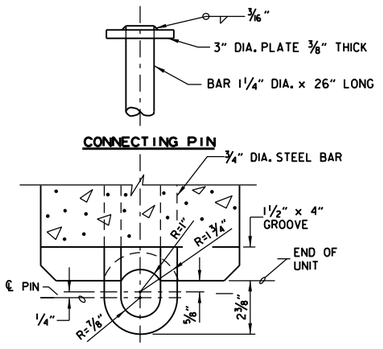
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

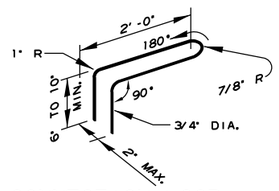
REINFORCING BAR TABLE PER BARRIER UNIT

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

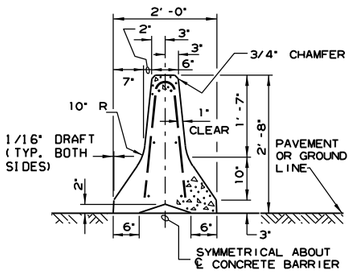


SECTION E-E

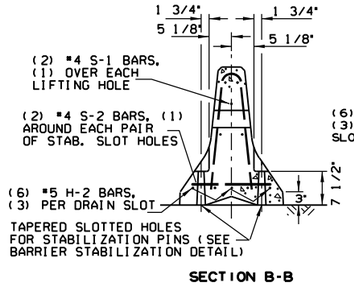
CONNECTION DETAILS



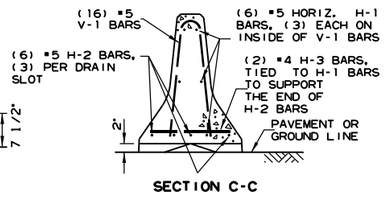
CONNECTION LOOP



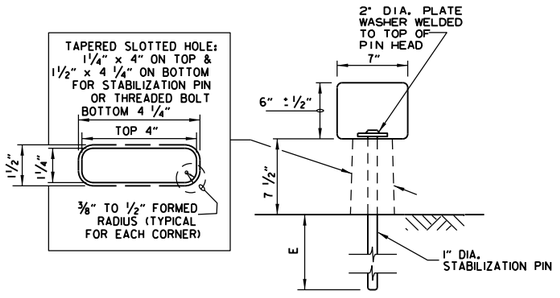
SECTION A-A



SECTION B-B



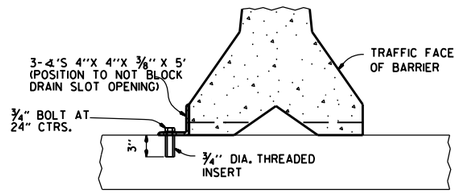
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

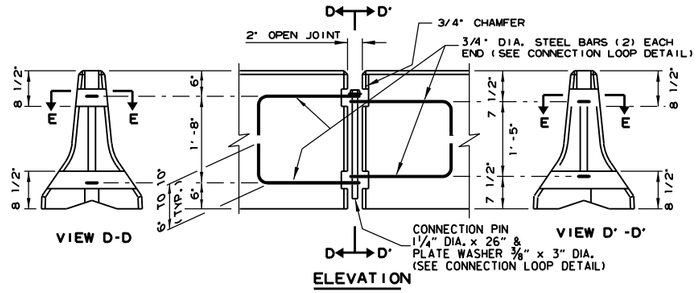
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



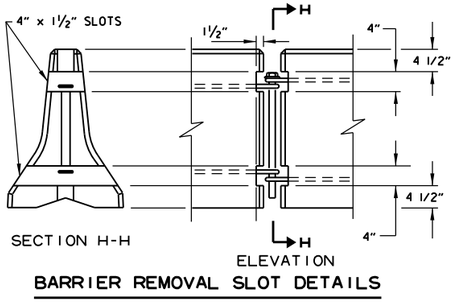
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

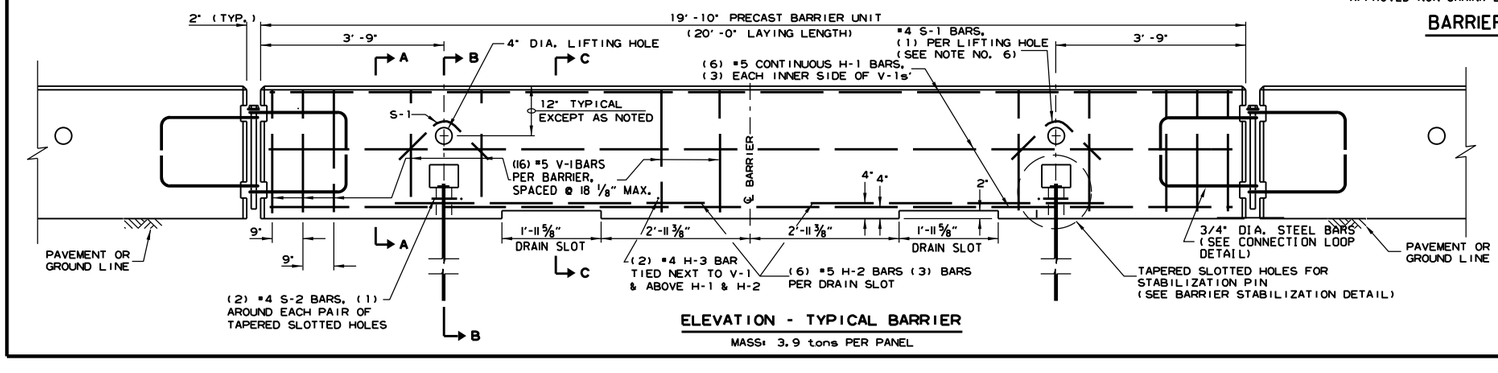
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

GENERAL NOTES

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

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

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

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

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

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

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

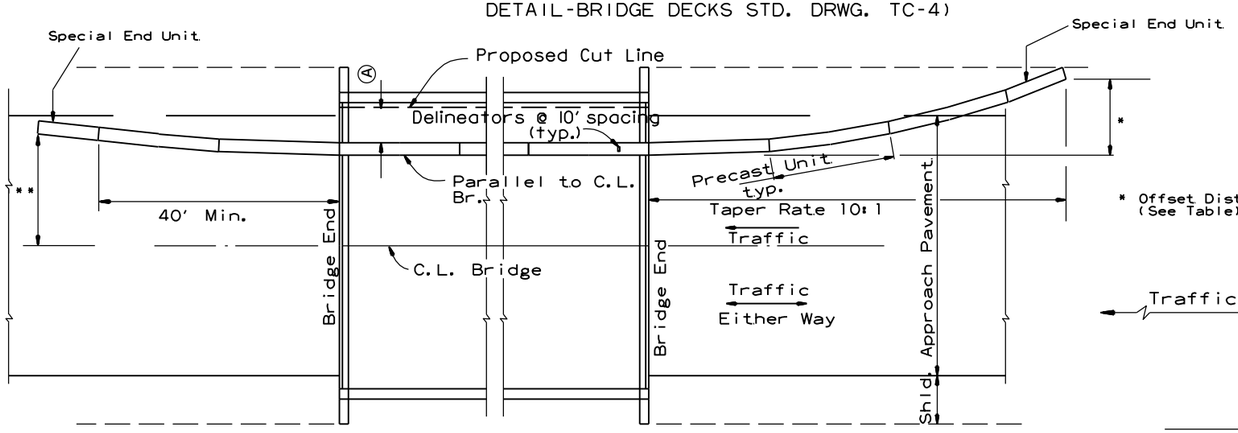
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

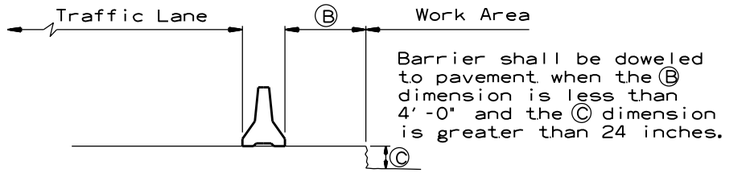
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

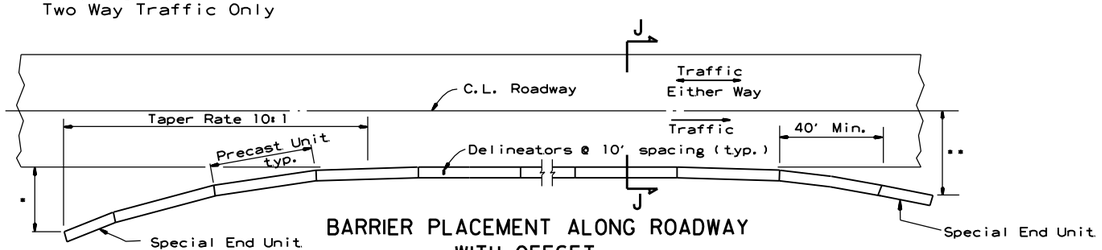


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

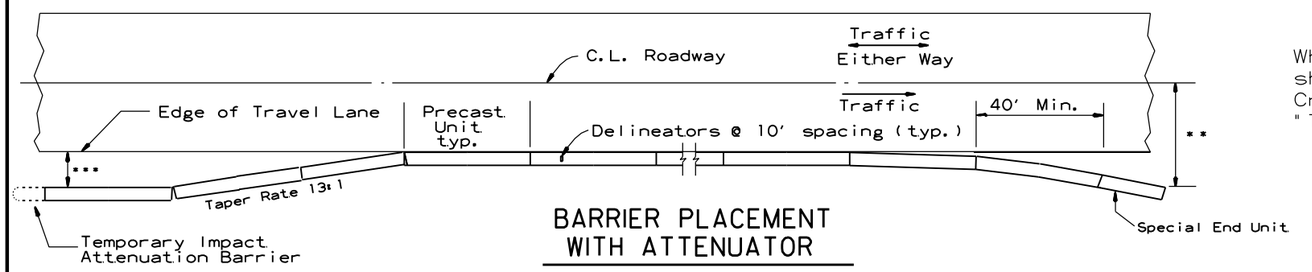
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

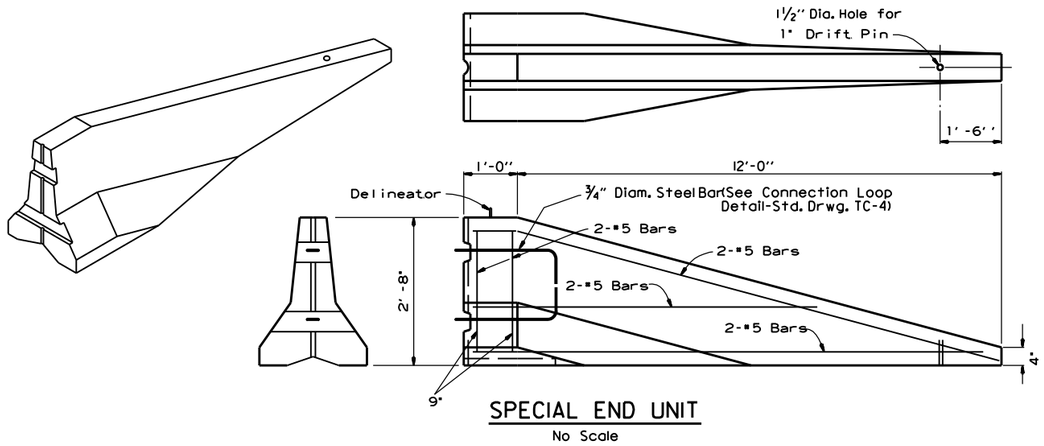


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

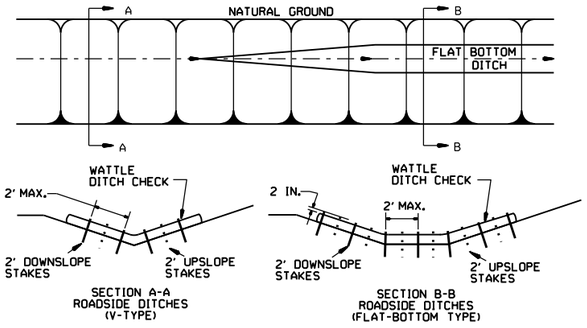
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

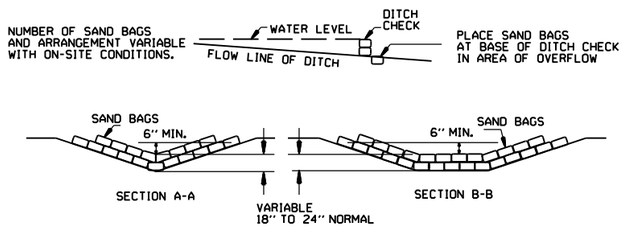
STANDARD DRAWING TC-5

GENERAL NOTES

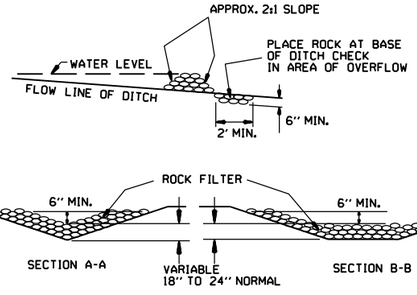
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

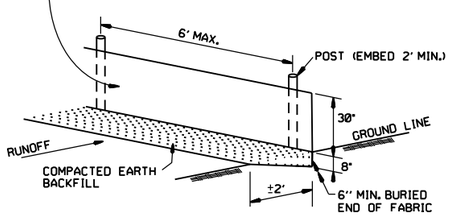


ROCK DITCH CHECK (E-6)

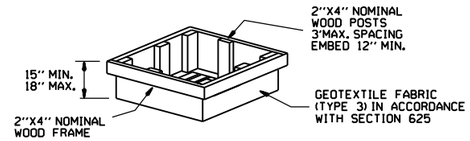
GENERAL NOTES

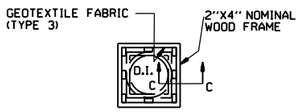
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

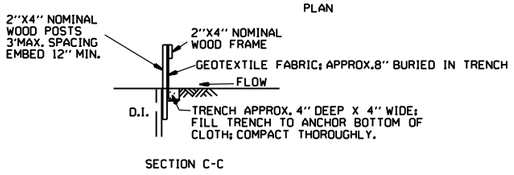
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



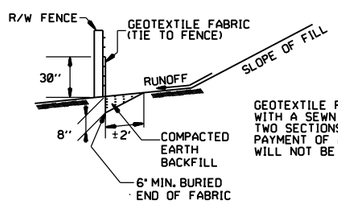
SILT FENCE (E-11)





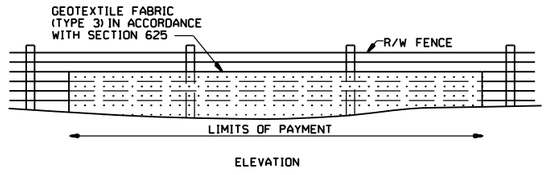


DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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



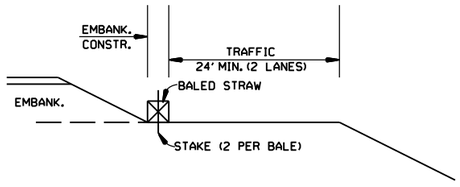
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

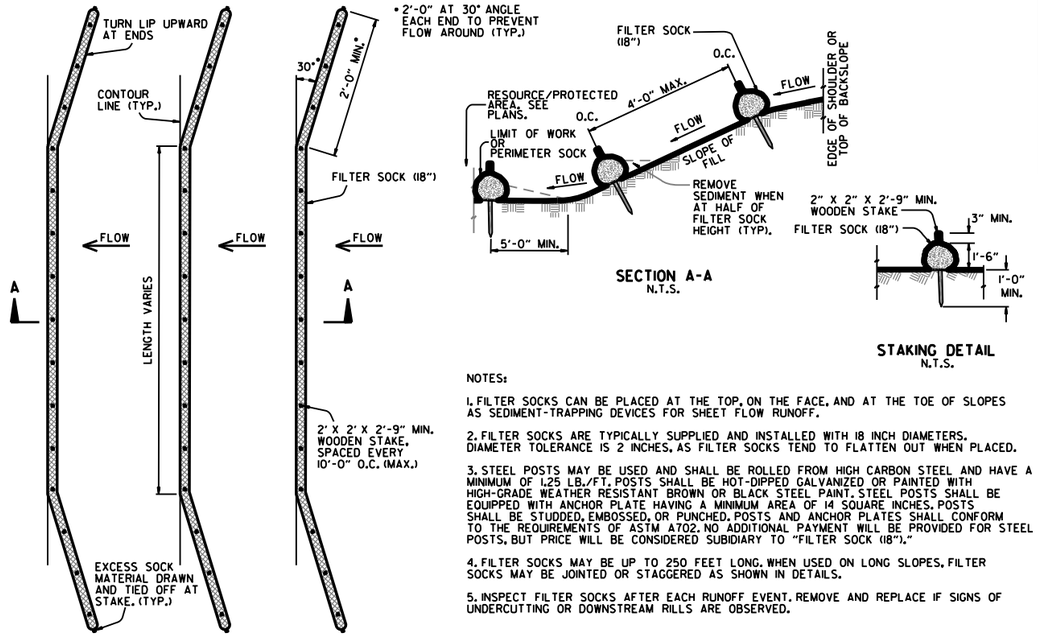
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

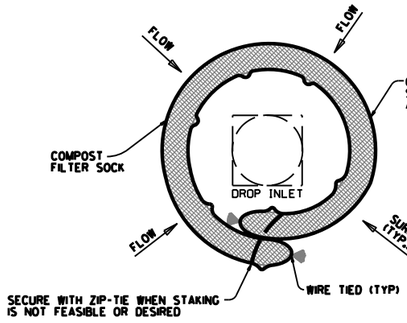
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

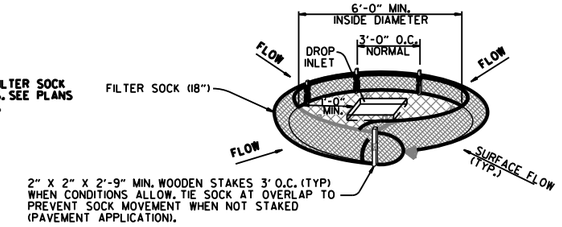
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

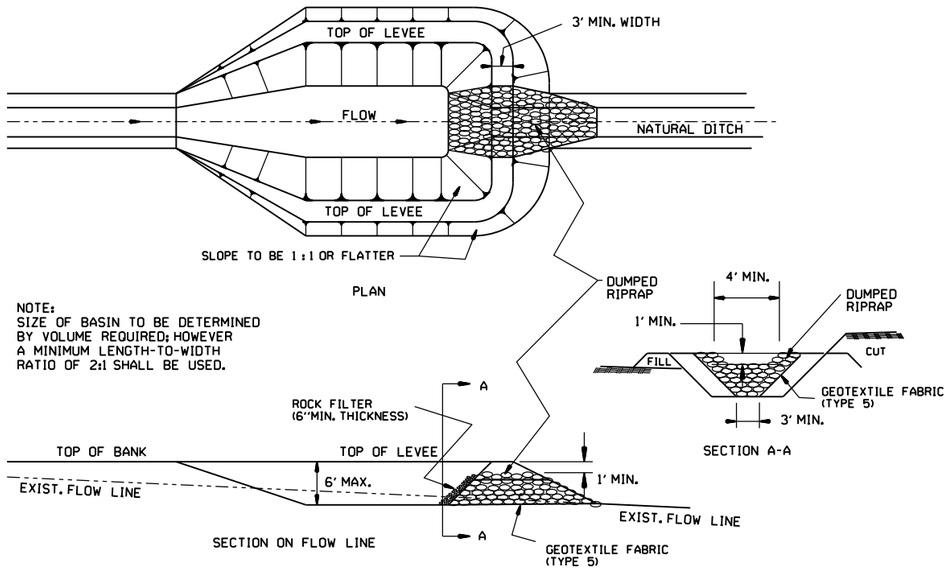
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

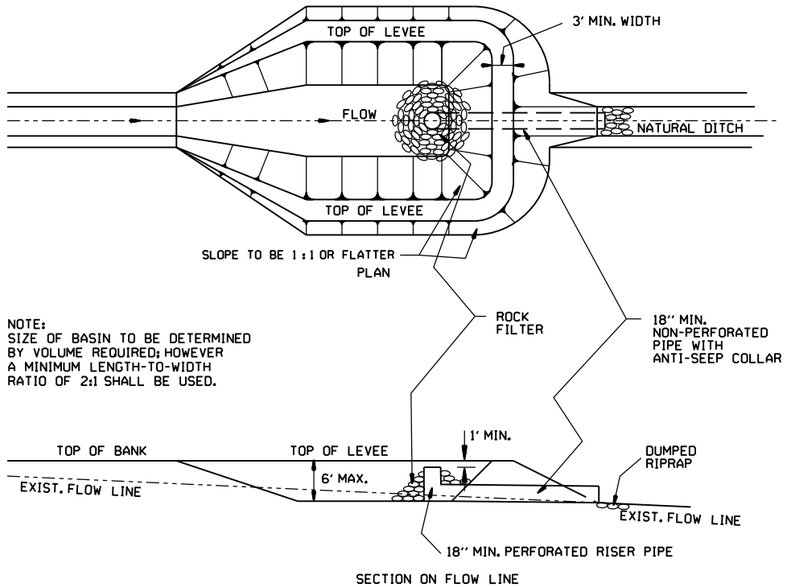
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

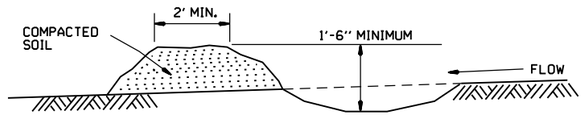
STANDARD DRAWING TEC-1



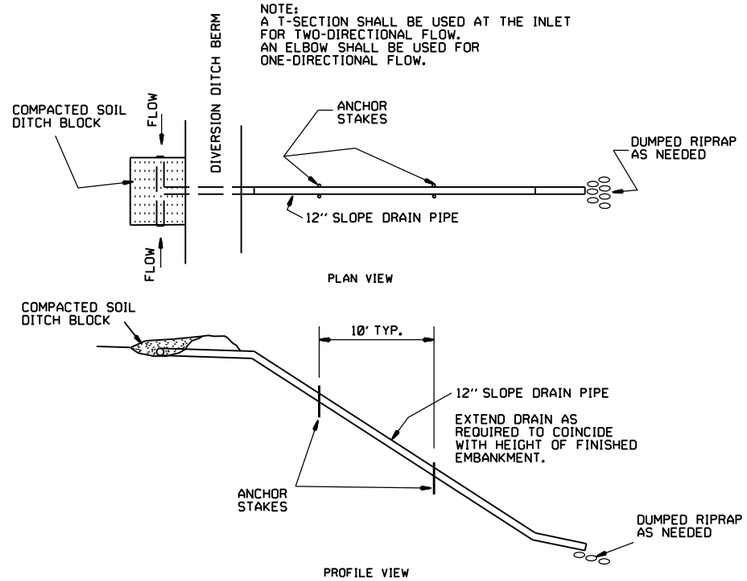
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



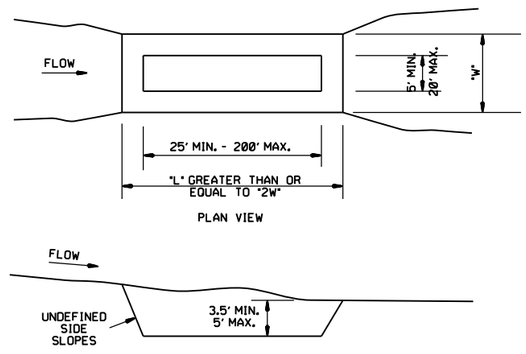
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

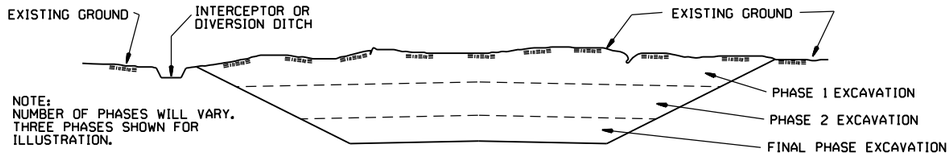
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



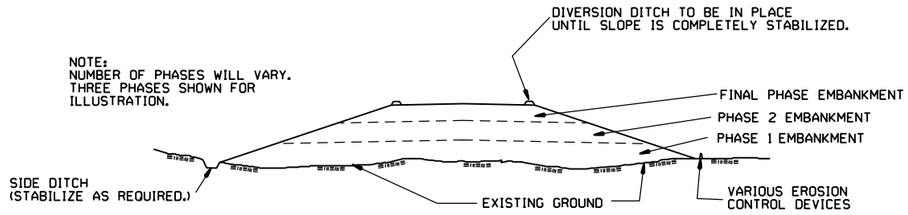
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3