DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	1	59
				(2)	BUFFALO HEAD SLOUGH STR. & APPRS. (S)			

ARKANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS FOR STATE HIGHWAY

BUFFALO HEAD SLOUGH

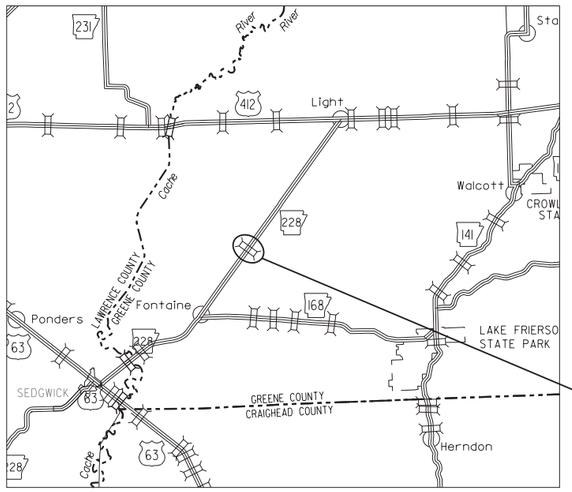
STR. & APPRS. (S)

GREENE COUNTY

ROUTE 228 SECTION 5

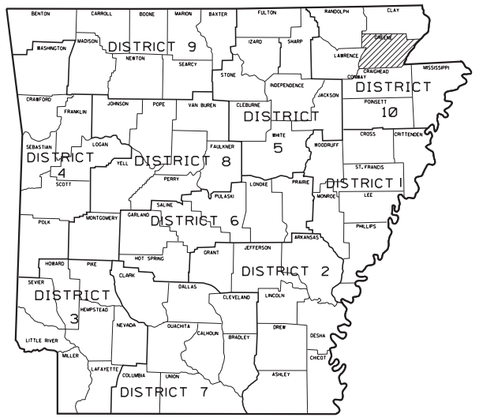
JOB 100997

FED. AID PROJ. NHPP-0028(51)



VICINITY MAP

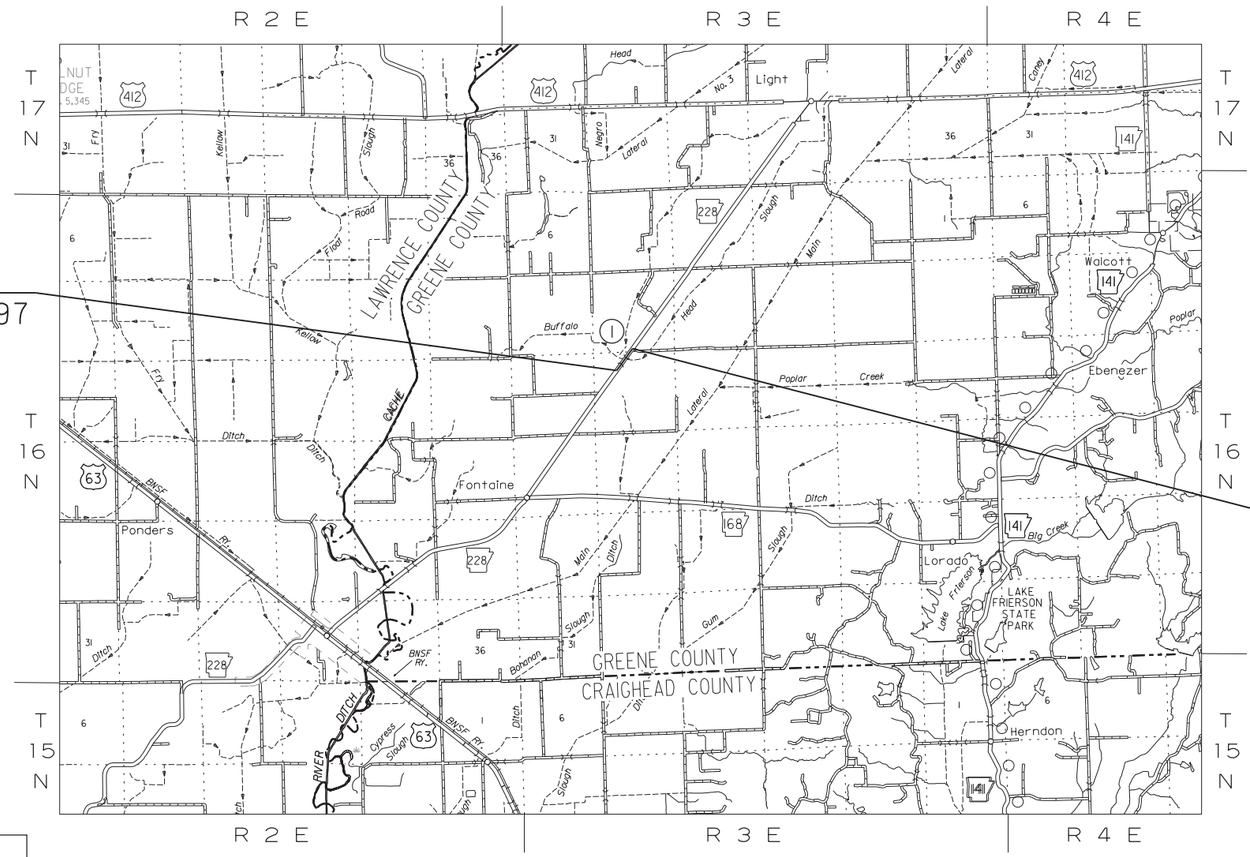
NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 10

BRIDGE CONSTRUCTION DATA

(1) STA. 110+86.00 BRIDGE END
BRIDGE NO. 07575 OVER BUFFALO HEAD SLOUGH
128'-8" INTEGRAL PRESTRESSED
CONCRETE GIRDER (39.33',50',39.33')
30'-0" CLEAR ROADWAY
15°00'00" RT. FWD. SKEW
130'-0" BRIDGE LENGTH
STA. 112+16.00 BRIDGE END



STA. 101+96.01
BEGIN JOB 100997
L.M. 4.15

STA. 121+07.19
END JOB 100997

DESIGN TRAFFIC DATA

DESIGN YEAR	2042
2022 ADT	580
2042 ADT	710
2042 DHV	78
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	6%
DESIGN SPEED	55 MPH

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LATITUDE	N 36°01'20"	N 36°01'27"	N 36°01'35"
LONGITUDE	W 90°47'36"	W 90°47'29"	W 90°47'21"
STATION	101+96.01	111+51.60	121+07.19

GROSS LENGTH OF PROJECT		1911.18	FEET OR	0.362	MILES
NET " " ROADWAY		1781.18	" "	0.337	MILES
NET " " BRIDGES		130.00	" "	0.025	MILES
NET " " PROJECT		1911.18	" "	0.362	MILES

GARVER LLC CERTIFICATE OF AUTHORIZATION No. 766 ARKANSAS–ENGINEER

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

DIGITALLY SIGNED 3-2-2022

DLTacket 3/2/2022 10:12:58 AM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CO_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		I00997	2	59
				(2)	INDEX OF SHEETS AND STANDARD DRAWINGS			

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

DIGITALLY SIGNED 2-18-2022

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4	TYPICAL SECTIONS OF IMPROVEMENT		
5 - 6	SPECIAL DETAILS		
7 - 9	TEMPORARY EROSION CONTROL DETAILS		
10 - 13	MAINTENANCE OF TRAFFIC DETAILS		
14	PERMANENT PAVEMENT MARKING DETAILS		
15	SOIL BORING LOG		
16 - 18	QUANTITIES		
19	SCHEDULE OF BRIDGE QUANTITIES	07575	64946
20	SUMMARY OF QUANTITIES AND REVISIONS		
21 - 22	SURVEY CONTROL DETAILS		
23 - 25	PLAN AND PROFILE SHEETS		
26	LAYOUT OF BRIDGE - HIGHWAY 228 OVER BUFFALO HEAD SLOUGH (SHEET 1 OF 2)	07575	64947
27	LAYOUT OF BRIDGE - HIGHWAY 228 OVER BUFFALO HEAD SLOUGH (SHEET 2 OF 2)	07575	64948
28	DETAILS OF STAGED CONSTRUCTION - HIGHWAY 228 OVER BUFFALO HEAD SLOUGH (SHEET 1 OF 2)	07575	64949
29	DETAILS OF STAGED CONSTRUCTION - HIGHWAY 228 OVER BUFFALO HEAD SLOUGH (SHEET 2 OF 2)	07575	64950
30	DETAILS OF END BENTS (SHEET 1 OF 3)	07575	64951
31	DETAILS OF END BENTS (SHEET 2 OF 3)	07575	64952
32	DETAILS OF END BENTS (SHEET 3 OF 3)	07575	64953
33	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 2)	07575	64954
34	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 2)	07575	64955
35	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 1 OF 10)	07575	64956
36	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 2 OF 10)	07575	64957
37	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 3 OF 10)	07575	64958
38	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 4 OF 10)	07575	64959
39	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 5 OF 10)	07575	64960
40	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 6 OF 10)	07575	64961
41	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 7 OF 10)	07575	64962
42	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 8 OF 10)	07575	64963
43	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 9 OF 10)	07575	64964
44	DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 10 OF 10)	07575	64965
45	DETAILS OF TYPE SPECIAL APPROACH SLABS (SHEET 1 OF 2)	07575	64966
46	DETAILS OF TYPE SPECIAL APPROACH SLABS (SHEET 2 OF 2)	07575	64967
47 - 59	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND EACKFILL 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 FCRMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	05-11-21
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
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	11-05-20

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
GR-6	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
MB-1	MAILBOX DETAILS	11-18-04
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-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

DLTackett 2/18/2022 1:06:25 PM
WORKSPACE: AHTD
L:\20\TOT\650 - ARDOT Job I00997\Drawings\rI00997_IDX_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
3/30/2022				6	ARK.			
				JOB NO.		100997	3	59
				(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES				

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - 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
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
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
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)
605-1_____	CONCRETE DITCH PAVING
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
620-1_____	MULCH COVER
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
802-4_____	CEMENT
804-2_____	REINFORCING STEEL FOR STRUCTURES
JOB 100997__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100997__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100997__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100997__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 100997__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 100997__	COLD MILLING - COUNTY PROPERTY
JOB 100997__	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 100997__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100997__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 100997__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 100997__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100997__	ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
JOB 100997__	EXCAVATION AND EMBANKMENT
JOB 100997__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100997__	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 100997__	MANDATORY ELECTRONIC CONTRACT
JOB 100997__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 100997__	NESTING SITES OF MIGRATORY BIRDS
JOB 100997__	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 100997__	PARTNERING REQUIREMENTS
JOB 100997__	PLASTIC PIPE
JOB 100997__	PORTABLE TRAFFIC SIGNAL SYSTEM
JOB 100997__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 100997__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 100997__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 100997__	SHORING
JOB 100997__	SHORING FOR CULVERTS
JOB 100997__	SOIL STABILIZATION
JOB 100997__	SPECIAL CLEARING PUP SEASON REQUIREMENTS
JOB 100997__	STORM WATER POLLUTION PREVENTION PLAN
JOB 100997__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100997__	UTILITY ADJUSTMENTS
JOB 100997__	VALUE ENGINEERING
JOB 100997__	WARM MIX ASPHALT

GENERAL NOTES

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

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

DIGITALLY SIGNED 3-30-2022

DLTackett 3/30/2022 11:09:33 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_IDX_01.dgn
REVISED DATE:

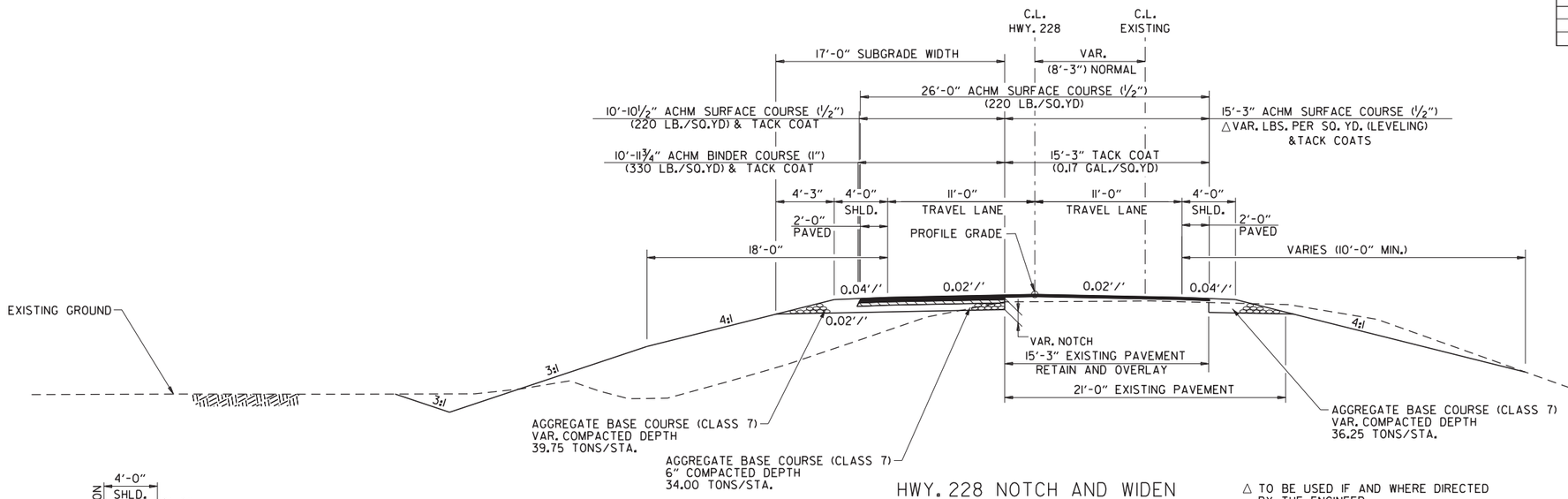
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	4	59

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

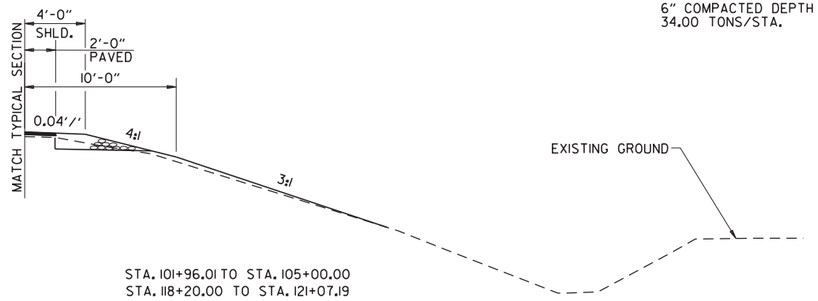
DIGITALLY SIGNED 2-18-2022



HWY. 228 NOTCH AND WIDEN TYPICAL SECTION

STA. 101+96.01 TO STA. 110+51.00
STA. 112+51.00 TO STA. 121+07.19

△ TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



NOTES:
1. SEE BRIDGE LAYOUTS FOR APPROACH SLABS AND BRIDGE STRUCTURE FROM STA. 110+51.00 TO STA. 112+51.00
2. DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

NOTES:

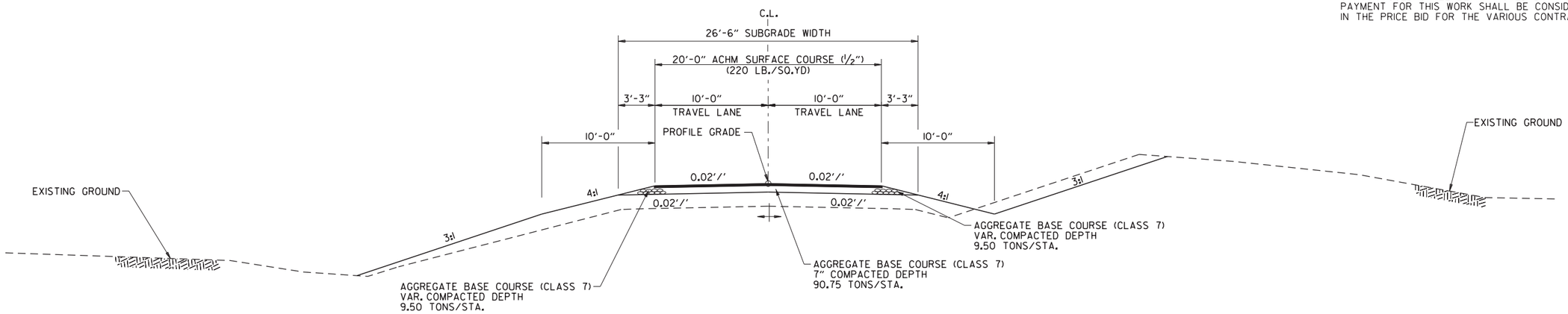
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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.



C.R. 306 TYPICAL SECTION

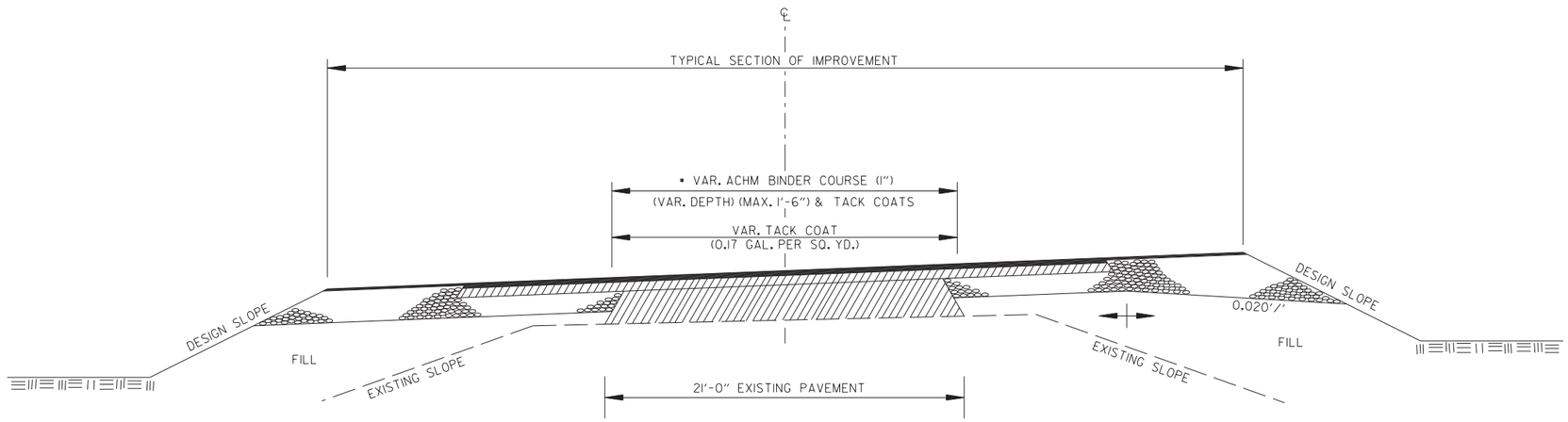
STA. 10+11.04 TO STA. 12+00.00

TYPICAL SECTIONS OF IMPROVEMENT

DLTackett 2/18/2022 10:6:44 PM
WORKSPACE: AHTD
L:\20171701650 - ARDOT Job 100997\Drawings\r100997_TYP.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	5	59
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022



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

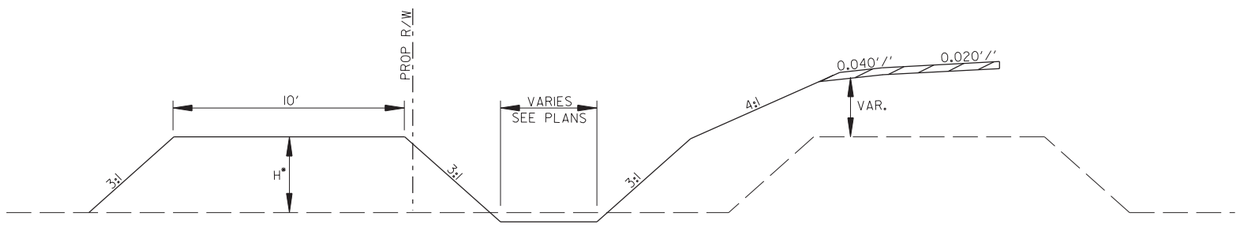
METHOD OF RAISING GRADE

NOTES:

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

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

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



*HEIGHT OF BERM, H, IS DETERMINED BY MATCHING TOP ELEVATION OF ADJACENT EXISTING BERM TO BE REMOVED. SEE CROSS SECTIONS FOR ELEVATIONS.

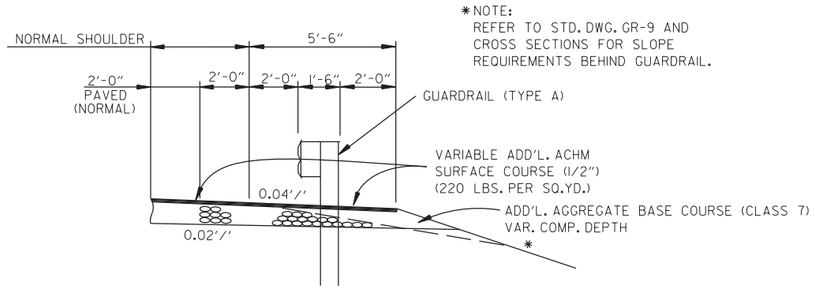
BERM DETAIL

STA. I0I+96.0I TO STA. I07+I5.00 LT.
STA. II2+40.00 TO STA. II6+I0.00 LT.

DLTackett 2/8/2022 I0:06:44 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job I00997\Drawings\r100997_SD_ALL.dgn
REVISED DATE:

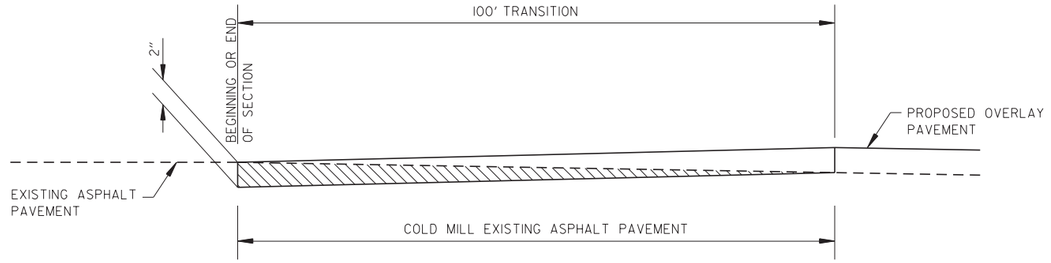
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	6	59
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

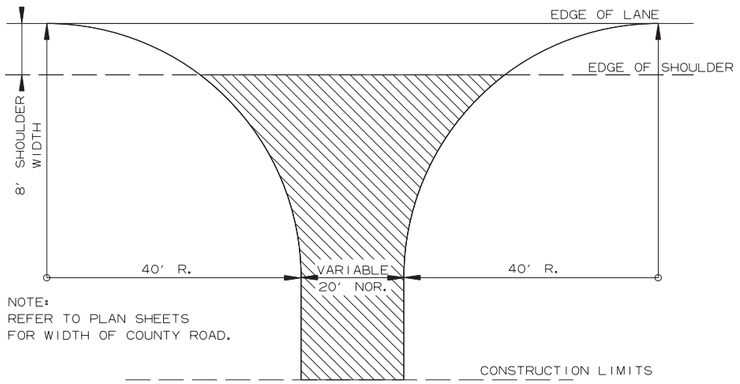


*NOTE:
REFER TO STD. DWG. GR-9 AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

WIDENING FOR GUARDRAIL AT PROPOSED SHOULDER EDGE



DETAIL FOR TRANSITIONS

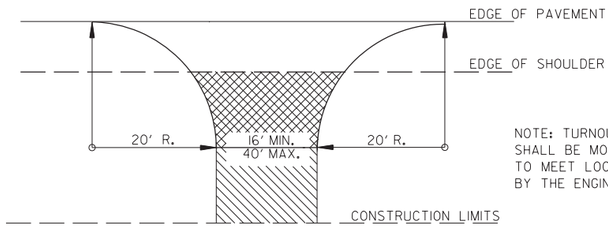


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

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.

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

DLTackett 2/8/2022 10:06:45 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_SD_ALL.dgn
REVISED DATE:

HWY. 228

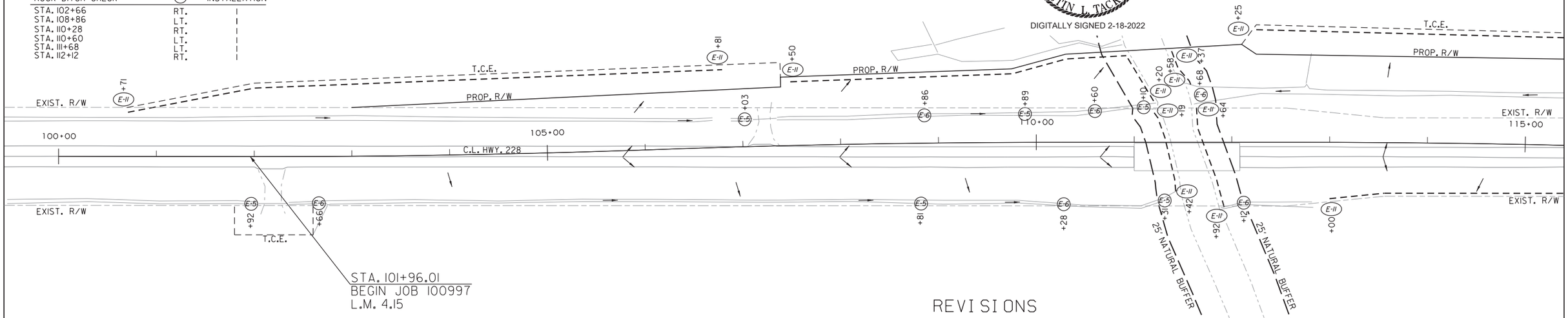
SILT FENCE	(E-11)	LIN. FT.
STA. 100+71 TO 106+81	LT.	610
STA. 107+50 TO 111+20	LT.	400
STA. 111+19 TO 111+42	LT./RT.	88
STA. 111+37 TO 111+58	LT.	43
STA. 111+64 TO 111+92	LT//RT.	110
STA. 112+25 TO 116+35	LT.	414

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 101+92	RT.	I
STA. 107+03	LT.	I
STA. 108+81	RT.	I
STA. 109+89	LT.	I
STA. 111+10	LT.	I
STA. 111+31	RT.	I

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 102+66	RT.	I
STA. 108+86	LT.	I
STA. 110+28	RT.	I
STA. 110+60	LT.	I
STA. 111+68	LT.	I
STA. 112+12	RT.	I

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	7	59
				(2)	TEMPORARY EROSION CONTROL DETAILS			



LEGEND

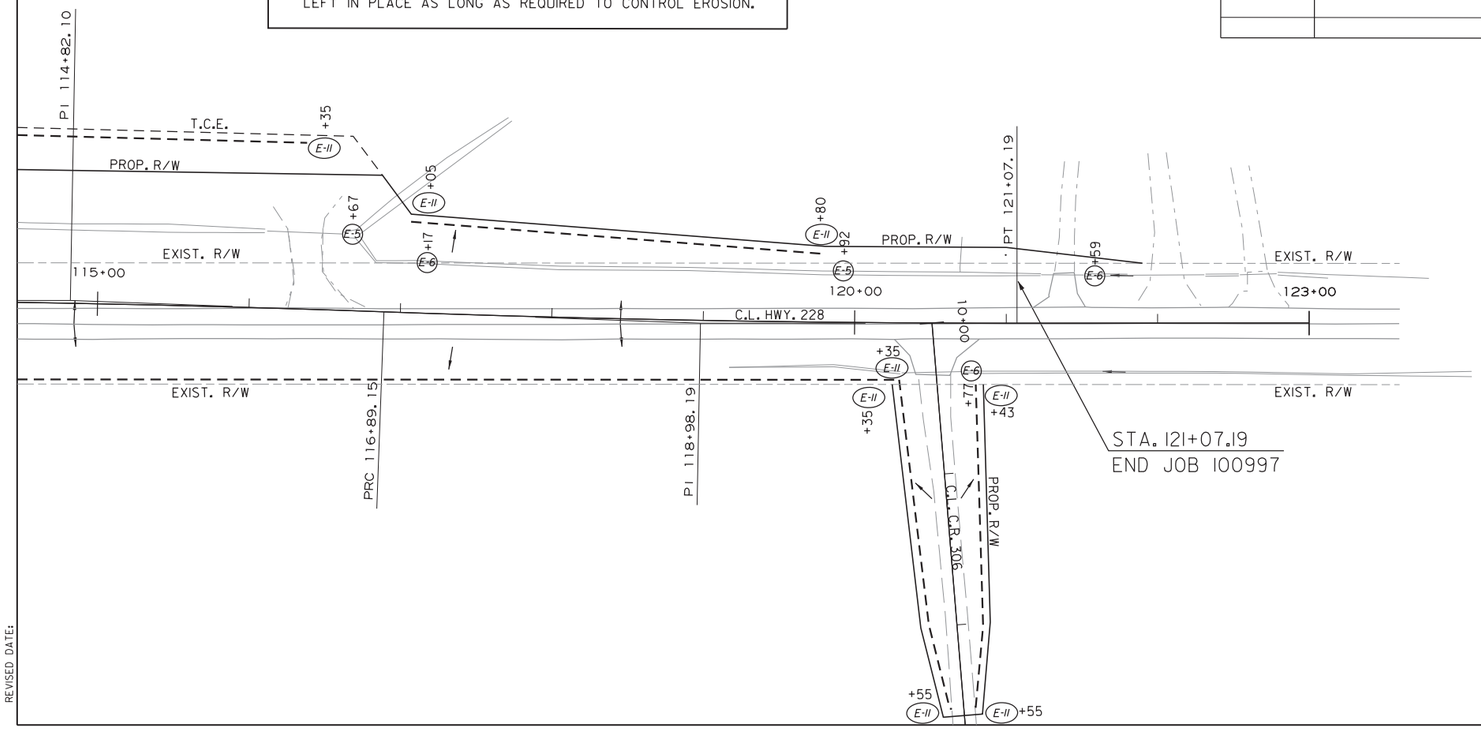
(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE

(E-6) = ROCK DITCH CHECKS

CLEARING AND GRUBBING EROSION CONTROL MEASURES TO BE PLACED BEFORE ANY CONSTRUCTION. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION



C.R. 306

SILT FENCE	(E-11)	LIN. FT.
STA. 10+35 TO 12+55	RT.	221
STA. 10+43 TO 12+55	LT.	214

HWY. 228

SILT FENCE	(E-11)	LIN. FT.
STA. 113+00 TO 120+30	RT.	730
STA. 117+05 TO 119+80	LT.	275

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 116+67	LT.	I
STA. 119+92	LT.	I

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 117+17	LT.	I
STA. 120+77	RT.	I
STA. 121+59	LT.	I

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

DLTackett 2/18/2022 1:06:46 PM
WORKSPACE: AHTD
L:\20\T\101\650 - ARDOT Job 100997\Drawings\r100997_EC_CG_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	8	59
				(2)	TEMPORARY EROSION CONTROL DETAILS			

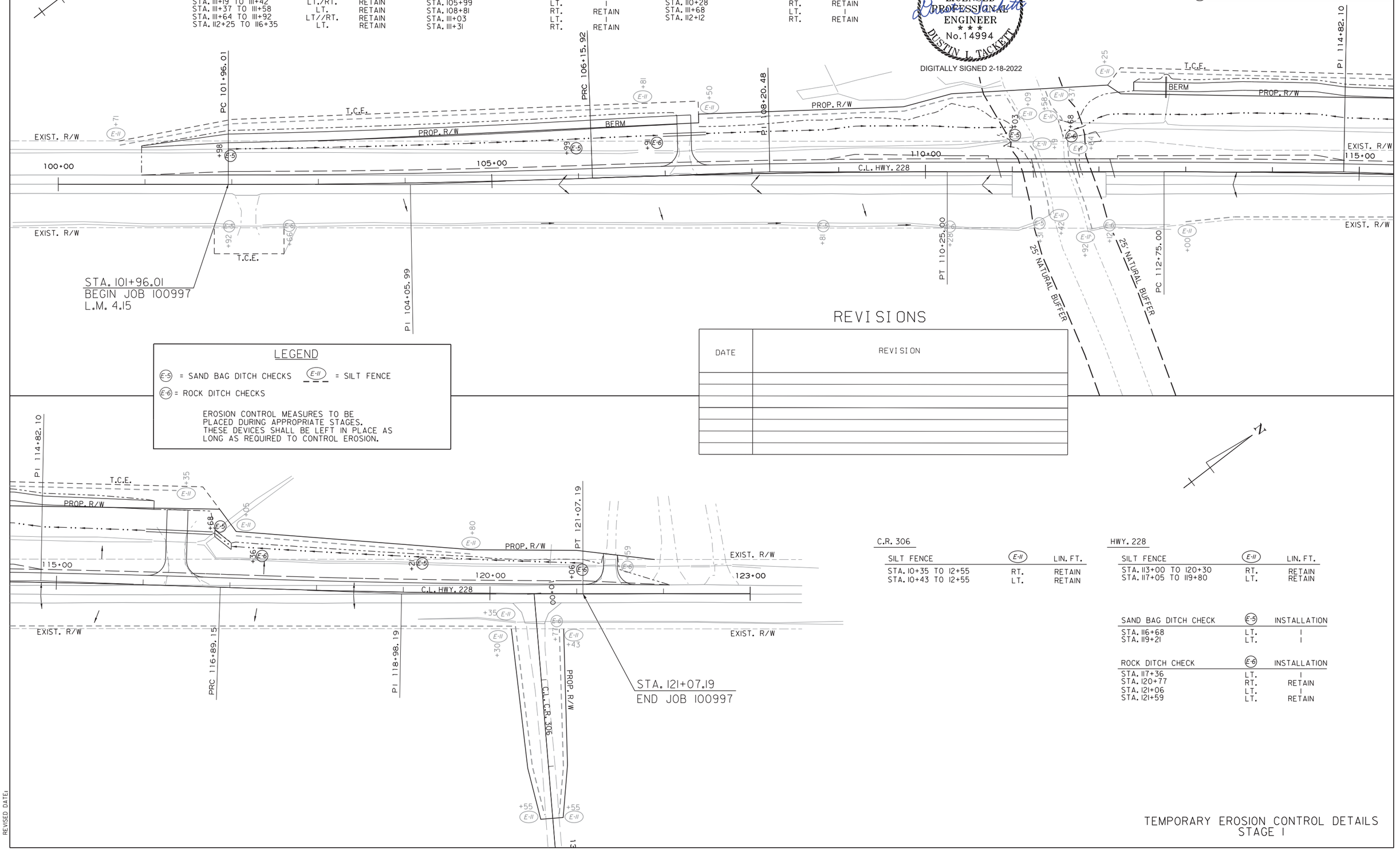
HWY. 228

SILT FENCE	(E-11)	LIN. FT.
STA. 100+71 TO 106+81	LT.	RETAIN
STA. 107+50 TO 111+20	LT.	RETAIN
STA. 111+19 TO 111+42	LT./RT.	RETAIN
STA. 111+37 TO 111+58	LT.	RETAIN
STA. 111+64 TO 111+92	LT//RT.	RETAIN
STA. 112+25 TO 116+35	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 101+92	RT.	RETAIN
STA. 101+98	LT.	I
STA. 105+99	LT.	I
STA. 108+81	RT.	RETAIN
STA. 111+03	LT.	I
STA. 111+31	RT.	RETAIN

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 102+66	RT.	RETAIN
STA. 106+91	LT.	I
STA. 110+28	RT.	RETAIN
STA. 111+68	LT.	I
STA. 112+12	RT.	RETAIN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L TACKETT
DIGITALLY SIGNED 2-18-2022



LEGEND

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

(E-6) = ROCK DITCH CHECKS

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

REVISIONS

DATE	REVISION

C.R. 306

SILT FENCE	(E-11)	LIN. FT.
STA. 10+35 TO 12+55	RT.	RETAIN
STA. 10+43 TO 12+55	LT.	RETAIN

HWY. 228

SILT FENCE	(E-11)	LIN. FT.
STA. 113+00 TO 120+30	RT.	RETAIN
STA. 117+05 TO 119+80	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 116+68	LT.	I
STA. 119+21	LT.	I

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 117+36	LT.	I
STA. 120+77	RT.	RETAIN
STA. 121+06	LT.	I
STA. 121+59	LT.	RETAIN

TEMPORARY EROSION CONTROL DETAILS
STAGE I

DLTackett 2/18/2022 1:06:46 PM
WORKSPACE: AHTD
L:\20\7\1701650 - ARDOT Job 100997\Drawings\r100997_EC_STGI_01.dgn
REVISED DATE:

HWY. 228

SILT FENCE	(E-11)	LIN. FT.
STA. 100+71 TO 106+81	LT.	RETAIN
STA. 107+50 TO 111+20	LT.	RETAIN
STA. 111+19 TO 111+42	LT./RT.	RETAIN
STA. 111+37 TO 111+58	LT.	RETAIN
STA. 111+64 TO 111+92	LT//RT.	RETAIN
STA. 112+25 TO 116+35	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 101+98	LT.	RETAIN
STA. 101+82	RT.	I
STA. 105+99	LT.	RETAIN
STA. 108+81	RT.	RETAIN
STA. 111+03	LT.	RETAIN
STA. 111+31	RT.	RETAIN

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 102+66	RT.	RETAIN
STA. 106+91	LT.	RETAIN
STA. 110+28	RT.	RETAIN
STA. 111+68	LT.	RETAIN
STA. 112+12	RT.	RETAIN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	9	59
				(2)	TEMPORARY EROSION CONTROL DETAILS			

PC 101+96.01
PRC 106+15.92
PI 108+20.48
PI 114+82.10
PI 104+05.99
PT 110+25.00
PC 112+75.00
T.C.E.
BERM
PROP. R/W
EXIST. R/W
C.L. HWY. 228
100+00
105+00
110+00
115+00
25' NATURAL BUFFER

STA. 101+96.01
BEGIN JOB 100997
L.M. 4.15

LEGEND

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

(E-6) = ROCK DITCH CHECKS

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

REVISIONS

DATE	REVISION

PI 114+82.10
PRC 116+89.15
PI 118+98.19
PT 121+07.19
T.C.E.
PROP. R/W
EXIST. R/W
C.L. C.R. 306
115+00
120+00
123+00

STA. 121+07.19
END JOB 100997

C.R. 306

SILT FENCE	(E-11)	LIN. FT.
STA. 10+35 TO 12+55	RT.	RETAIN
STA. 10+43 TO 12+55	LT.	RETAIN

HWY. 228

SILT FENCE	(E-11)	LIN. FT.
STA. 113+00 TO 120+30	RT.	RETAIN
STA. 117+05 TO 119+80	LT.	RETAIN

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 116+68	LT.	RETAIN
STA. 118+50	LT.	I
STA. 119+21	LT.	RETAIN

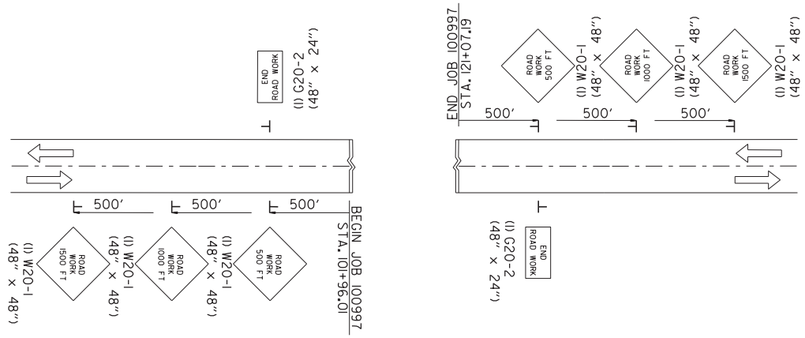
ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 117+36	LT.	RETAIN
STA. 120+96	RT.	I
STA. 121+06	LT.	RETAIN
STA. 121+59	LT.	RETAIN

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

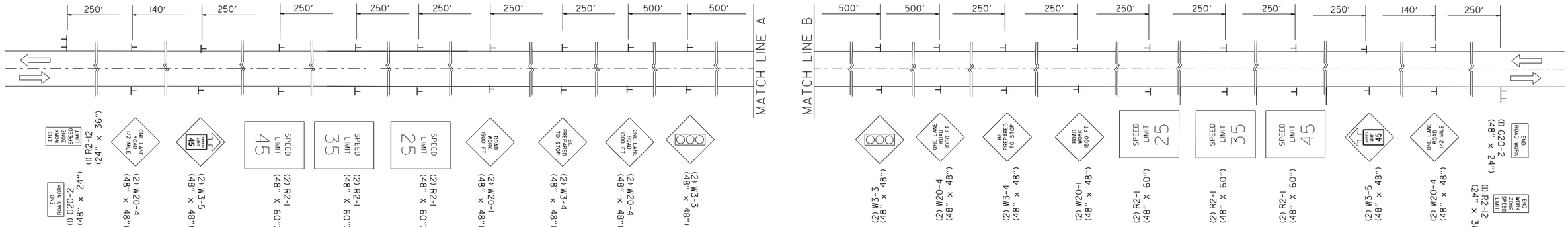
DLTackett 2/18/2022 1:06:47 PM
WORKSPACE: AHTD
L:\20\7\7017650 - ARDOT Job 100997\Drawings\r100997_EC_STG2_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	10	59
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

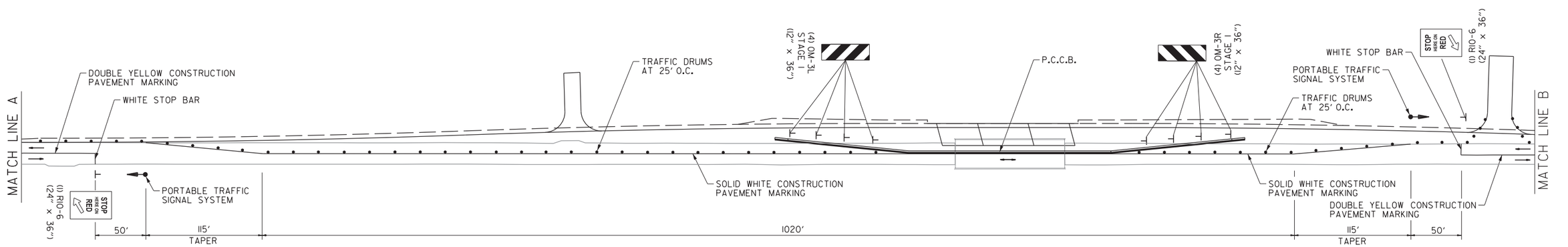
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

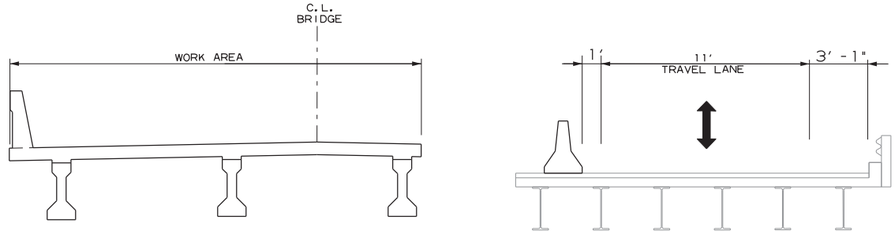


ADVANCE WARNING HWY. 228 (STAGE IA)



ADVANCE WARNING HWY. 228 (STAGE IB)





STAGE I TYPICAL SECTION (LOOKING AHEAD)

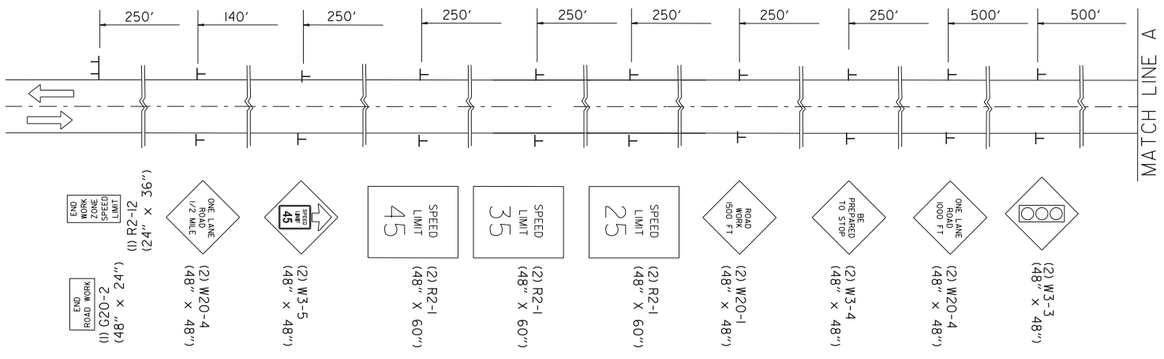
ADVANCED WARNING SIGNS AND PORTABLE TRAFFIC SIGNAL DETAILS MAINTENANCE OF TRAFFIC DETAILS STAGE I

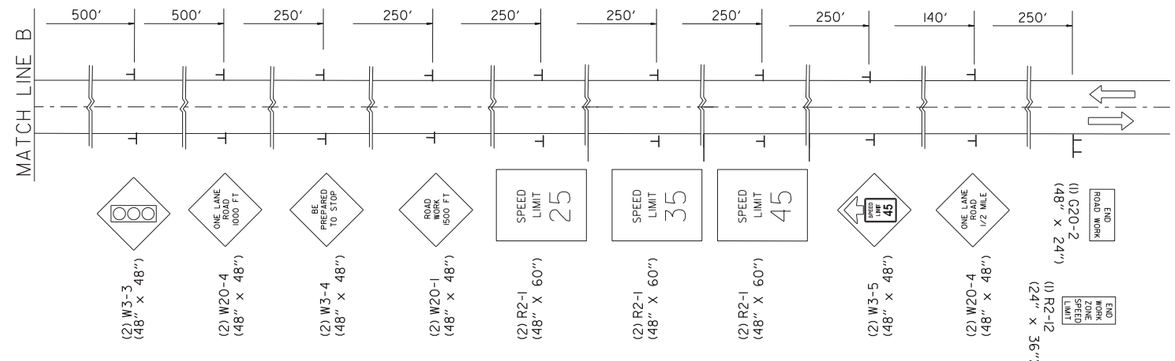
DLTackett 2/18/2022 10647 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_MOT_SD_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

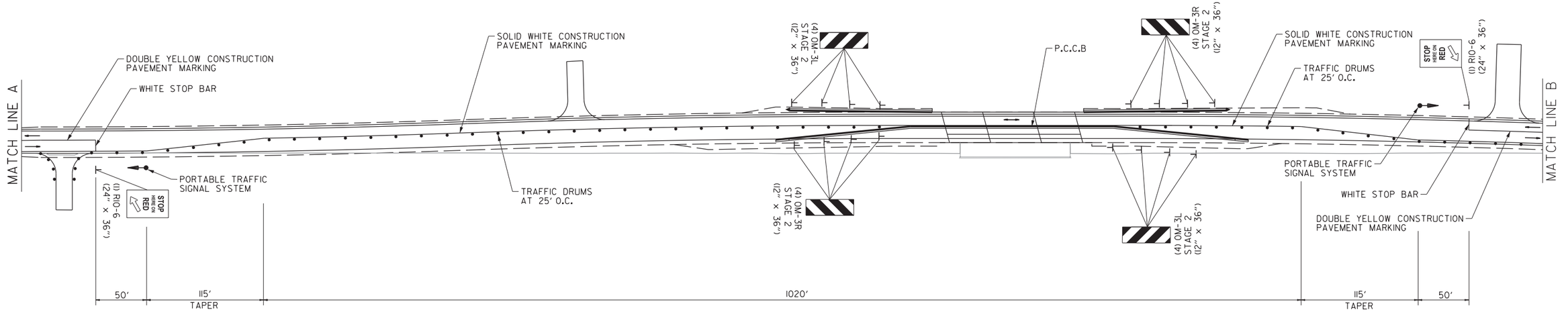
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	11	59
(2)	MAINTENANCE OF TRAFFIC DETAILS			

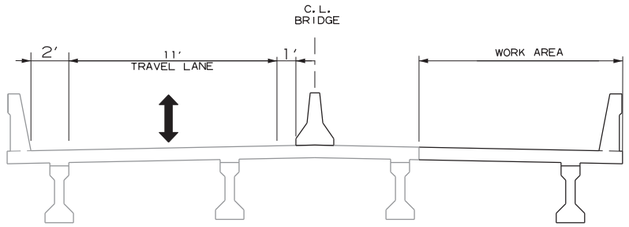
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022





ADVANCE WARNING HWY. 228 (STAGE 2)





STAGE 2 TYPICAL SECTION (LOOKING AHEAD)

ADVANCED WARNING SIGNS AND PORTABLE TRAFFIC SIGNAL DETAILS MAINTENANCE OF TRAFFIC DETAILS STAGE 2

DLTackett 2/18/2022 10:6:48 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_MOT_SD_02.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	12	59

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

AS PER TYPICAL SECTION AND METHOD OF RAISING GRADE SPECIAL DETAIL

100.00' TEMPORARY VERTICAL TIE
VAR. ACHM SURFACE COURSE
VAR. TONS/STA.

STA. 107+00 | STA. 108+00
0.10% | 0.36% | 0.14%
5.0"

TEMPORARY VERTICAL TIE
HWY. 228

N

STA. 101+96.01
BEGIN JOB 100997
L.M. 4.15

ROAD CLOSED (1) R11-2 (48" X 30") (1) W1-6 (48" X 24")
8' BARR. TYPE III LT.

ROAD CLOSED (1) R11-2 (48" X 30")
8' BARR. TYPE III RT.

120' P.C.C.B TAPER W/SPECIAL END UNIT

C.L. HWY. 228

100+00 | 105+00 | 110+00 | 115+00

PORTABLE SIGNAL SYSTEM
12" WHITE STOP LINE
DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

38 TRAFFIC DRUMS AT 25' O.C.
SOLID WHITE CONSTRUCTION PAVEMENT MARKING

100.00' TEMPORARY VERTICAL TIE
VAR. ACHM SURFACE COURSE
VAR. TONS/STA.
AS PER TYPICAL SECTION AND METHOD OF RAISING GRADE SPECIAL DETAIL

STA. 113+35 | STA. 114+35
0.04% | 0.28% | 0.20%
2.3"

TEMPORARY VERTICAL TIE
HWY. 228

440' P.C.C.B. 109+35 TO 113+75

ROAD CLOSED (1) R11-2 (48" X 30") (1) W1-6 (48" X 24")
8' BARR. TYPE III RT.

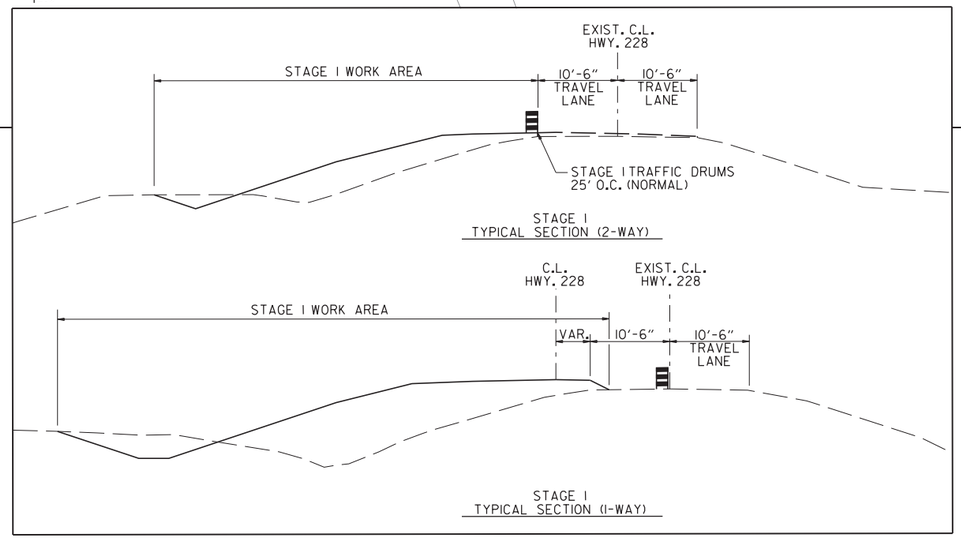
9 TRAFFIC DRUMS AT 25' O.C.
120' P.C.C.B TAPER W/SPECIAL END UNIT
SOLID WHITE CONSTRUCTION PAVEMENT MARKING

NOTE: SEE DETAILS FOR ADVANCED WARNING SIGNS AND PORTABLE TRAFFIC SIGNAL

- STAGE I CONSTRUCTION
- STAGE I OVERLAY OR METHOD OF RAISING GRADE UNDER TRAFFIC
- STAGE I GRADING
- STAGE I TRAFFIC
- TRAFFIC DRUMS
- PRECAST CONCRETE BARRIER (P.C.C.B.)

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER (ALL STAGES)

- BUMP — (4) W8-1 (30" X 30")
- DO NOT PASS — (4) R4-1 (24" X 30")
- RIGHT SHOULDER CLOSED — (4) W21-5a (36" X 36")
- SHOULDER DROP-OFF — (4) W8-17 (36" X 36"); (4) W8-17P (24" X 18")



6 TRAFFIC DRUMS AT 10' O.C.

C.L. HWY. 228

115+00 | 120+00 | 123+00

12" WHITE STOP LINE
PORTABLE SIGNAL SYSTEM
26 TRAFFIC DRUMS AT 25' O.C.
DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
6 TRAFFIC DRUMS AT 10' O.C.

STA. 121+07.19
END JOB 100997

C.L. C.R. 306

500'

131+00

END ROAD WORK — (1) G20-2 (48" X 24")

ROAD WORK AHEAD — (1) W20-1 (48" X 48")

NOTE: SEE DETAILS FOR ADVANCED WARNING SIGNS AND PORTABLE TRAFFIC SIGNAL

STAGE I
CONSTRUCTION SEQUENCE NOTES

1. INSTALL ADVANCE WARNING SIGNS (STAGE IA).
2. CONSTRUCT OVERLAY OR METHOD OF RAISING GRADE AND TEMPORARY VERTICAL TRANSITIONS AS SHOWN.
3. INSTALL ADVANCE WARNING SIGNS (STAGE IB), PORTABLE SIGNALS, AND CHANNELIZING DEVICES.
4. UTILIZING PORTABLE SIGNALS, SHIFT ALTERNATING ONE-WAY TRAFFIC TO THE RT. SIDE OF EXISTING HWY. 228.
5. CONSTRUCT THE LT. PORTION OF ROADWAY APPROACHES AND BRIDGE AS SHOWN.
6. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2 TRAFFIC CONFIGURATION.

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

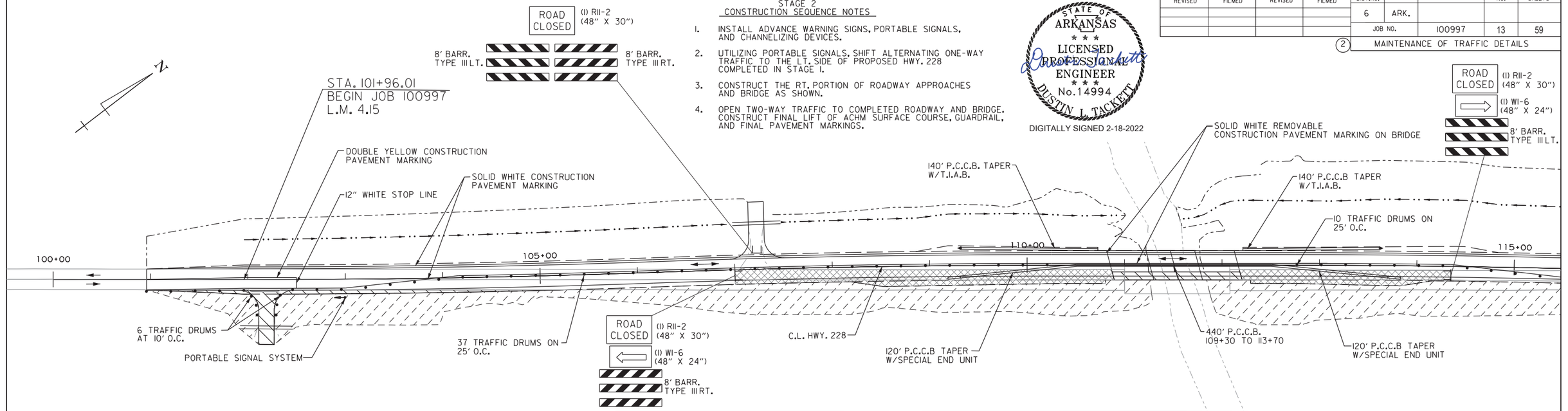
DLTackett 2/18/2022 10:6:49 PM
WORKSPACE: AHTD
L:\20\7\0\7650 - ARDOT Job 100997\Drawings\r100997_MOT_STG1_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	13	59
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

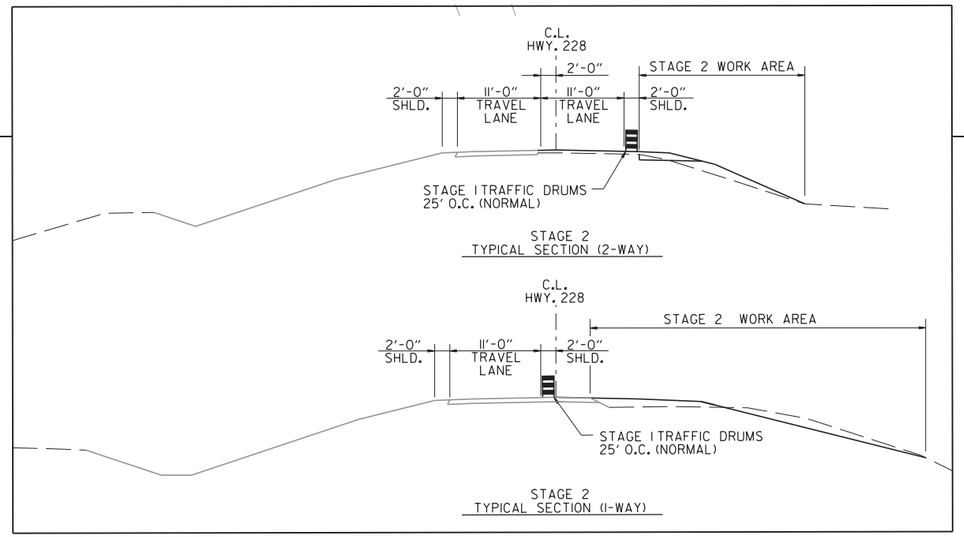
STAGE 2 CONSTRUCTION SEQUENCE NOTES

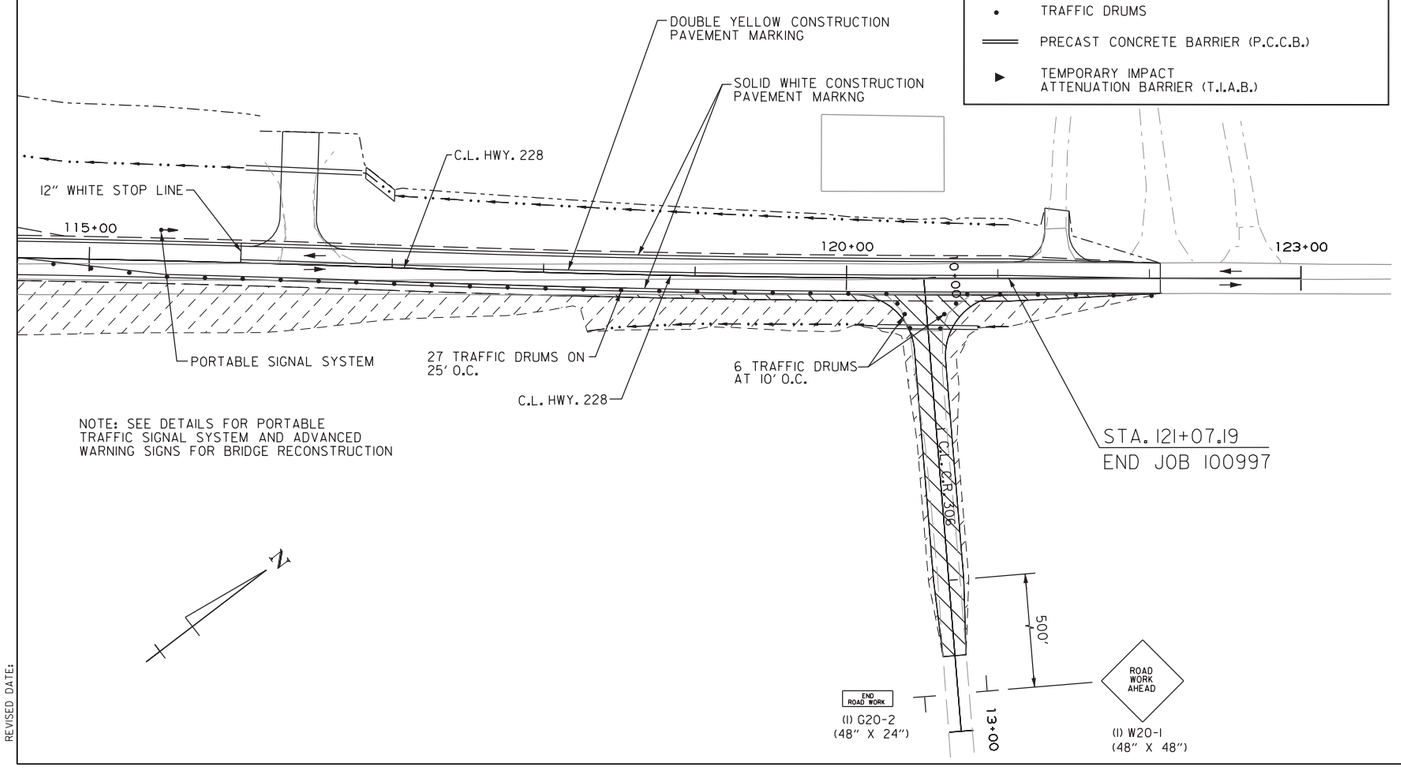
1. INSTALL ADVANCE WARNING SIGNS, PORTABLE SIGNALS, AND CHANNELIZING DEVICES.
2. UTILIZING PORTABLE SIGNALS, SHIFT ALTERNATING ONE-WAY TRAFFIC TO THE LT. SIDE OF PROPOSED HWY. 228 COMPLETED IN STAGE 1.
3. CONSTRUCT THE RT. PORTION OF ROADWAY APPROACHES AND BRIDGE AS SHOWN.
4. OPEN TWO-WAY TRAFFIC TO COMPLETED ROADWAY AND BRIDGE. CONSTRUCT FINAL LIFT OF ACHM SURFACE COURSE, GUARDRAIL, AND FINAL PAVEMENT MARKINGS.



NOTE: SEE DETAILS FOR PORTABLE TRAFFIC SIGNAL SYSTEM AND ADVANCED WARNING SIGNS FOR BRIDGE RECONSTRUCTION

- STAGE 2 CONSTRUCTION
- STAGE 2 OVERLAY OR METHOD OF RAISING GRADE UNDER TRAFFIC
- STAGE 2 GRADING
- STAGE 2 TRAFFIC
- TRAFFIC DRUMS
- PRECAST CONCRETE BARRIER (P.C.C.B.)
- TEMPORARY IMPACT ATTENUATION BARRIER (T.I.A.B.)





NOTE: SEE DETAILS FOR PORTABLE TRAFFIC SIGNAL SYSTEM AND ADVANCED WARNING SIGNS FOR BRIDGE RECONSTRUCTION

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DLTackett 2/18/2022 1:06:50 PM
WORKSPACE: AHTD
L:\201\701\7650 - ARDOT Job 100997\Drawings\r100997_MOT_STG2_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	14	59
				(2) PERMANENT PAVEMENT MARKING DETAILS				

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
100+96.01	115+00.00	LT.	1404
100+96.01	115+00.00	RT.	1404

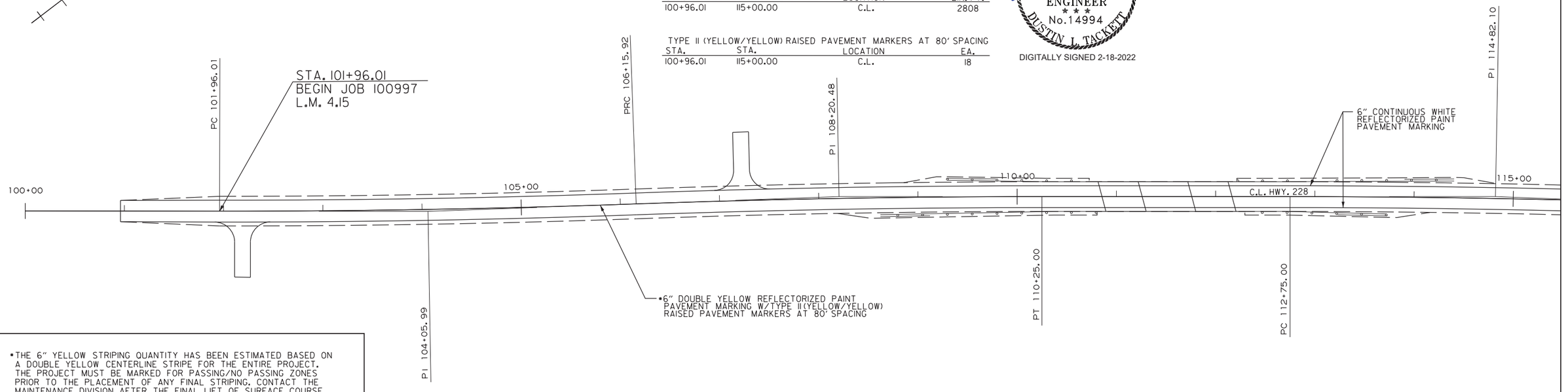
6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
100+96.01	115+00.00	C.L.	2808

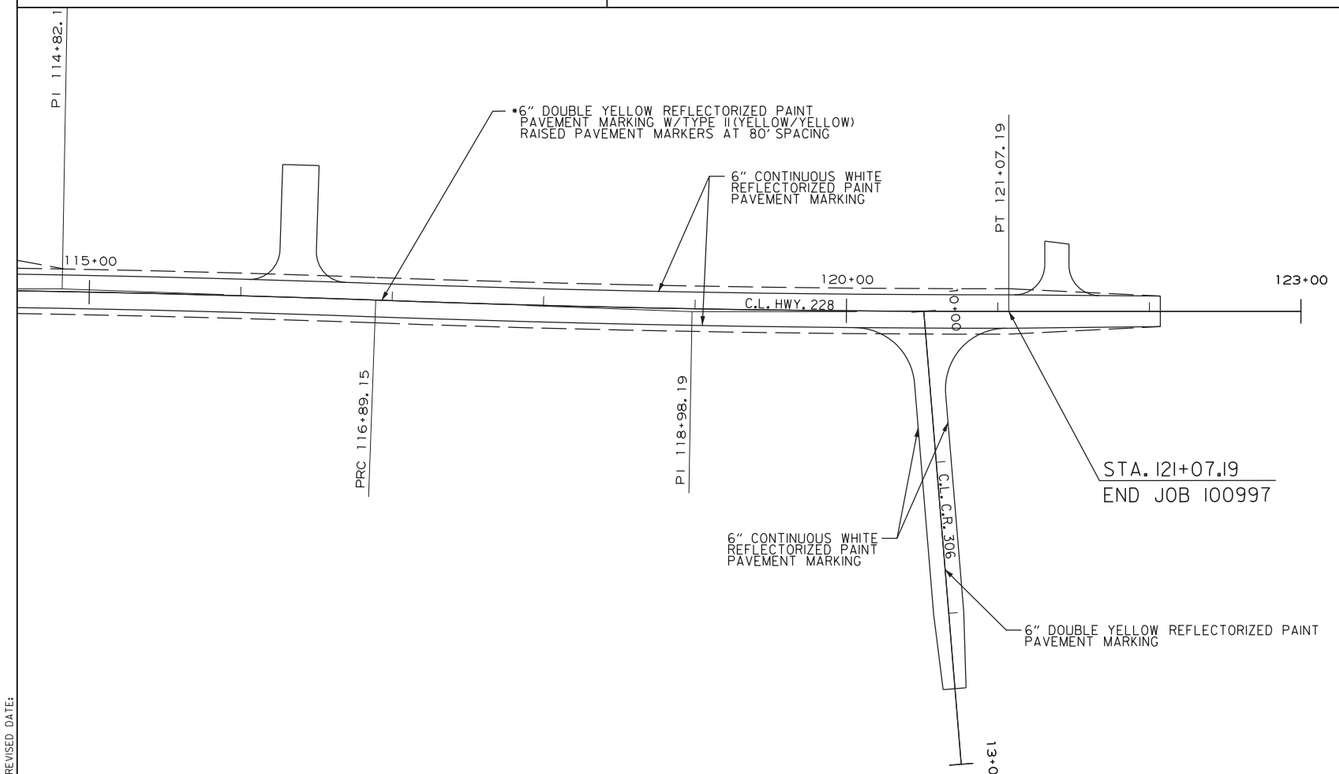
TYPE II (YELLOW/YELLOW) RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
100+96.01	115+00.00	C.L.	18

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022



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



6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
115+00.00	122+07.19	LT.	708
115+00.00	122+07.19	RT.	708
10+11.04	12+50.00	LT. CR. 306	239
10+11.04	12+50.00	RT. CR. 306	239

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
115+00.00	122+07.19	C.L.	1416
10+11.04	12+50.00	C.L. C.R. 306	478

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

STA.	STA.	LOCATION	EA.
115+00.00	122+07.19	C.L.	9

PERMANENT PAVEMENT MARKING DETAILS

DLTackett 2/18/2022 10:06:51 PM
WORKSPACE: AHTD
L:\2017\170176501 - ARDOT Job 100997\Drawings\r100997_PM_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		I00997	15	59

2 SOIL BORING LOG

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

DIGITALLY SIGNED 2-18-2022

SOIL BORING LOG								
BORING or TEST PIT NO.	APPROX. STATION	SAMPLE DEPTH (ft)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX	PERCENT PASSING #200, %	UNIFIED CLASS.	AASHTO CLASS.
3238-1	112+16.01, 3.54' LT	18.5	----	----	----	24	SM	A-2-4
3238-1	112+16.01, 3.54' LT	63.5	----	----	----	4.1	SP	A-3
3238-2	112+14.16, 32.54 RT	6	55	20	35	----	CH	A-7-6
3238-2	112+14.16, 32.54 RT	10	49	20	29	----	CL	A-7-6
3238-2	112+14.16, 32.54 RT	63.5	----	----	----	3.8	SP	A-3
3238-2	112+14.16, 32.54 RT	23.5	----	----	----	6.2	SP-SM	A-3
3238-3	100+92.12, 2.46 LT	8	56	21	35	----	CH	A-7-6
3238-3	100+92.12, 2.46 LT	20	38	22	16	----	CL	A-6
3238-3	100+92.12, 2.46 LT	28.5	----	----	----	6.2	SP-SM	A-3
3238-3	100+92.12, 2.46 LT	53.5	----	----	----	5	SP-SM	A-3
3238-3	100+92.12, 2.46 LT	83.5	----	----	----	3	SP	A-1-b
3238-4	100+90.10, 32.54 RT	10	53	19	34	51.8	CH	A-7-6(13)
3238-4	100+90.10, 32.54 RT	15	41	19	22	----	CL	A-7-6
3238-4	100+90.10, 32.54 RT	18.5	----	----	----	32.1	SC	A-2-7
3238-4	100+90.10, 32.54 RT	33.5	----	----	----	5.1	SP-SM	A-3
3238-4	100+90.10, 32.54 RT	73.5	----	----	----	4.6	SP	A-3
3238-5	113+10.00, 11.00 RT	3.5	49	20	29	----	CL	A-7-6
3238-5	113+10.00, 11.00 RT	6	54	22	32	----	CH	A-7-6
3238-5	113+10.00, 11.00 RT	18.5	----	----	----	26.2	SM	A-2-4
3238-5	113+10.00, 11.00 RT	28.5	----	----	----	35.2	SM	A-2-4
3238-6	109+98.00, 15.00 RT	1	51	18	33	----	CH	A-7-6
3238-6	109+98.00, 15.00 RT	3.5	39	17	22	----	CL	A-6
3238-6	109+98.00, 15.00 RT	18.5	44	22	22	73.5	CL	A-7-6(15)
3238-6	109+98.00, 15.00 RT	23.5	----	----	----	13.6	SM	A-2-4
3238-7	116+95.00, 3.00 RT	1	58	20	38	----	CH	A-7-6
3238-8	106+09.00, 13.00 RT	3.5	65	25	40	----	CH	A-7-6

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

DLTackett 2/18/2022 1:06:51 PM
WORKSPACE: AHTD
L:\20\7\7017650 - ARDOT Job 100997\Drawings\r100997_SBL_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	16	59
				(2)	QUANTITIES			

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
								TYPE II	6"	
								(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.		LIN. FT.		EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	639			639						
CONSTRUCTION PAVEMENT MARKINGS	6124	5497			11621					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	1767	446				2213				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		262					262			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)			27					27		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			4702						4702	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			5594							5594
TOTALS:				**639**	**11621**	**2213**	**262**	**27**	**4702**	**5594**

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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED
										RIGHT	LEFT					
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	LIN. FT.				EACH		LUMP SUM
W20-1	ROAD WORK 1500 FT.	48"x48"	2	4	4	4	4	64.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	2			2	2	32.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2			2	2	32.0								
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	1	16.0								
G20-2	END ROAD WORK	48"x24"	3	3	3	3	3	24.0								
W20-4	ONE LANE ROAD 1/2 MILE	48"x48"		4	4	4	4	64.0								
W20-4	ONE LANE ROAD 1000 FT.	48"x48"		4	4	4	4	64.0								
R11-2	ROAD CLOSED	48"x30"		3	3	3	3	30.0								
OM-3L	OBJECT MARKER	12"x36"		4	8	8	8	24.0								
OM-3R	OBJECT MARKER	12"x36"		4	8	8	8	24.0								
W1-6	LARGE ARROW	48"x24"		2	2	2	2	16.0								
W3-3	SIGNAL AHEAD	48"x48"		4	4	4	4	64.0								
W3-4	BE PREPARED TO STOP	48"x48"		4	4	4	4	64.0								
W3-5	SPEED LIMIT 45 MPH (ADVISORY)	48"x48"		4	4	4	4	64.0								
R2-1	SPEED LIMIT 45 MPH	48"X60"		4	4	4	4	80.0								
R2-1	SPEED LIMIT 35 MPH	48"X60"		4	4	4	4	80.0								
R2-1	SPEED LIMIT 25 MPH	48"X60"		4	4	4	4	80.0								
R2-12	END WORK ZONE SPEED LIMIT	24"X36"		2	2	2	2	12.0								
R10-6	STOP HERE ON RED	24"X36"		2	2	2	2	12.0								
R4-1	DO NOT PASS	24"x30"		4	4	4	4	20.0								
W8-1	BUMP	30"x30"		4	4	4	4	25.0								
W21-5A	RIGHT SHOULDER CLOSED	36"x36"		4	4	4	4	36.0								
W8-17	SHOULDER DROP-OFF	36"x36"		4	4	4	4	36.0								
W8-17P	SHOULDER DROP-OFF	24"x18"		4	4	4	4	12.0								
	TRAFFIC DRUMS			86	86	86			86							
	TYPE III BARRICADE-RT. (8')			2	2	2				16						
	TYPE III BARRICADE-LT. (8')			2	2	2					16					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			680	280	960						960				
	RELOCATING PRECAST CONCRETE BARRIER				680	680							680			
	TEMPORARY IMPACT ATTENUATION BARRIER				2	2								2		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)				2	2									2	
	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED			1	1	1										1.00
TOTALS:								**975.0**	**86**	**16**	**16**	**960**	**680**	**2**	**2**	**1.00**

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
107+80	111+00	HWY. 228	4	4
112+00	117+00	HWY. 228	5	5
TOTALS:			**9**	**9**

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
102+19	HWY. 228 RT. 30" SIDE DRAIN	1
107+23	HWY. 228 LT. 24" SIDE DRAIN	1
112+76	HWY. 228 LT. 12" SIDE DRAIN	1
116+37	HWY. 228 LT. 36" SIDE DRAIN	1
120+51	HWY. 228 RT. 24" SIDE DRAIN	1
TOTAL:		**5**

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL	MAILBOXES
			LIN. FT.	EACH
110+99	112+09	HWY. 228 RT.	110	
110+99	112+09	HWY. 228 RT.	110	
120+05		HWY. 228 RT.		1
121+42		HWY. 228 RT.		1
TOTALS:			**220**	**2**

DLTackett 2/18/2022 10:06:54 PM
WORKSPACE: AHTD
L:\2017\170176501 - ARDOT Job 100997\Drawings\r100997_QTY_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
3/30/2022				6	ARK.			
				JOB NO.		100997	17	59
				(2)		QUANTITIES		

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION			** COMPACTED EMBANKMENT	* SOIL STABILIZATION
			UNDERCUT	TYPICAL	TOTAL		
			CU. YD.				TON
ENTIRE	PROJECT	STAGE 1 - HWY. 228	1821	3291	5112	9119	
ENTIRE	PROJECT	STAGE 2 - HWY. 228		1073	1073	96	
ENTIRE	PROJECT	ADDITIONAL BRIDGE EXCAVATION		776	776		
ENTIRE	PROJECT	C.R. 306		28	28	32	
ENTIRE	PROJECT	DRIVEWAYS				168	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE					100
		DIRECTED BY THE ENGINEER					
TOTALS:			**1821**	**5168**	**6989**	**9415**	**100**

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

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY, EXCEPT FOR UNDERCUT AND COMPACTED EMBANKMENT FOR BACKFILL OF UNDERCUT.

** INCLUDES 1,821 CU. YDS. OF COMPACTED EMBANKMENT USED FOR BACKFILL OF UNDERCUT.

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
* ENTIRE PROJECT		4
TOTAL:		**4**

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

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

DIGITALLY SIGNED 3-30-2022

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
							36"	42"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
102+19	RT.	HWY. 228	16	36.89	4.06	48.31		54	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
107+23	LT.	HWY. 228	16	36.89	4.06	50.73	50		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
116+37	LT.	HWY. 228	24	51.11	5.62	100.01		77	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
121+39	LT.	HWY. 228	16	68.00	7.48	27.77			
* ENTIRE PROJECT		TEMPORARY DRIVES				100.00			
TOTALS:				**192.89**	**21.22**	**326.82**	**50**	**131**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2).....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS (TYPE 1 SPECIAL)	APPROACH SLABS (TYPE 2 SPECIAL)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	CU.YD.	POUND	TON
110+51.00	110+86.00	HWY. 228 LT.	4.20	36.94		4695	25.18
110+51.00	110+86.00	HWY. 228 RT.	4.20		15.07	2007	10.21
112+16.00	112+51.00	HWY. 228 LT.	4.20	36.94		4695	25.18
112+16.00	112+51.00	HWY. 228 RT.	4.20		15.07	2007	10.21
TOTALS:			**16.80**	**73.88**	**30.14**	**13404**	**70.78**

CONCRETE DITCH PAVING

STATION	STATION	LCCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
116+80.00	117+00.00	HWY. 228 LT.	20.00	6.00	13.33	8.89	0.11
TOTALS:					**13.33**	**8.89**	**0.11**

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

STRUCTURES

STATION	DESCRIPTION	SIDE DRAIN	TEMPORARY CULVERTS	STD. DWG. NOS.
		30"	12"	
		LIN. FT.		
120+51	HWY. 228 RT.	58		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT			60	
TOTALS:		**58**	**60**	

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.

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+96.01	101+96.01	HWY. 228	21.00	233.33
121+07.19	122+07.19	HWY. 228	21.00	233.33
TOTAL:				**466.66**

NOTE: AVERAGE MILLING DEPTH 1".

STOCKPILE LOCATION:
GREENE COUNTY ROAD DEPARTMENT
4600 FAIRVIEW RD., PARAGOULD, AR
LAT 36°04'52.78" N, LONG 90°32'47.38" W

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10	20
DIRECTED BY THE ENGINEER		
TOTALS:	**10**	**20**

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

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

SELECTED PIPE BEDDING

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

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

4" PIPE UNDERDRAIN

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

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.		EACH
108+61.87	110+80.62	HWY. 228 RT.	150	1	1
109+28.83	110+72.58	HWY. 228 LT.	75	1	1
112+21.38	114+40.13	HWY. 228 LT.	150	1	1
112+29.42	113+73.17	HWY. 228 RT.	75	1	1
TOTALS:			**450**	**4**	**4**

DLTackett 3/30/2022 11:09:44 PM
WORKSPACE: AHTD
L:\20\TOT\7650 - ARDOT Job 100997\Drawings\r100997_QTY_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	18	59
				(2)	QUANTITIES			

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						3.62	3.62	73.8	176	135	3105	132
ENTIRE	PROJECT	STAGE 1						2.42	2.42	49.4	110	60		9
ENTIRE	PROJECT	STAGE 2						1.20	1.20	24.5	44	15		3
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			4.93	9.86	4.93	502.9	4.93	1.81	1.81	36.9	83	53	776	29
TOTALS:			**4.93**	**9.86**	**4.93**	**502.9**	**4.93**	**9.05**	**9.05**	**184.6**	**413**	**263**	**3881**	**173**

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....15 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
100+96.01	101+91.07	HWY.228 RT.	95.06	84.50
100+96.01	106+95.08	HWY.228 LT.	599.07	532.51
102+46.92	110+89.50	HWY.228 RT.	842.58	748.96
107+50.92	110+81.46	HWY.228 LT.	330.54	293.81
112+12.50	116+05.09	HWY.228 LT.	392.59	348.97
112+20.54	120+05.47	HWY.228 RT.	784.93	697.72
116+68.91	121+10.83	HWY.228 LT.	441.92	392.82
121+05.40	122+07.19	HWY.228 RT.	101.79	90.48
121+66.83	122+07.19	HWY.228 LT.	40.36	35.88
TOTAL:				**3225.65**

NOTE: AVERAGE WIDTH = 8'-0"

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	2	2
TOTALS:	**2**	**2**

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
110+75	SW CORNER OF BRIDGE NO. 07575	1
TOTAL:		**1**

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
100+96.01	101+96.01	HWY. 228 - TRANSITION	100.00	VAR.	59.58				21.00	233.33	39.67	39.67					23.70	263.29	220.00	28.96					28.96
101+96.01	110+51.00	HWY. 228 - NOTCH AND WIDEN	854.99	110.00	940.49	21.87	2077.63	103.88	15.25	1448.73	246.28	350.16	10.99	1044.04	330.00	172.27	26.00	2469.97	220.00	271.70	10.88	1033.59	220.00	113.69	385.39
112+51.00	121+07.19	HWY. 228 - NOTCH AND WIDEN	856.19	110.00	941.81	21.87	2080.54	104.03	15.25	1450.77	246.63	350.66	10.99	1045.50	330.00	172.51	26.00	2473.44	220.00	272.08	10.88	1035.04	220.00	113.85	385.93
121+07.19	122+07.19	HWY. 228 - TRANSITION	100.00	VAR.	59.58				21.00	233.33	39.67	39.67					23.06	256.20	220.00	28.18					28.18
10+11.04	10+55.44	C.R. 306 - FULL DEPTH TURNOUT	44.40	VAR.	84.49												35.62	175.74	220.00	19.33					19.33
10+55.44	12+00.00	C.R. 306 - FULL DEPTH	144.56	109.75	158.65												20.00	321.24	220.00	35.34					35.34
12+00.00	12+50.00	C.R. 306 - TRANSITION	50.00	VAR.	39.98												17.61	97.82	220.00	10.76					10.76
ADDITIONAL FOR LEVELING																									
101+96.01	110+51.00	HWY. 228	854.99			15.25	1448.73	72.44	15.25	1448.73	246.28	318.72					15.25	1448.73	VAR.	184.18					184.18
112+51.00	121+07.19	HWY. 228	856.19			15.25	1450.77	72.54	15.25	1450.77	246.63	319.17					15.25	1450.77	VAR.	245.36					245.36
ADDITIONAL FOR METHOD OF RAISING GRADE																									
108+00.00	110+51.00	HWY. 228	251.00			15.25	425.31	21.27				21.27	15.25	425.31	VAR.	104.28									
112+51.00	113+35.00	HWY. 228	84.00			15.25	142.33	7.12				7.12	15.25	142.33	VAR.	36.57									
ADDITIONAL FOR GUARDRAIL WIDENING																									
108+06.87	110+80.62	HWY. 228 - RT	273.75	VAR.	62.78												5.87	178.59	220.00	19.64					19.64
108+73.83	110+72.58	HWY. 228 - LT	198.75	VAR.	41.42												5.42	119.66	220.00	13.16					13.16
112+21.38	114+95.13	HWY. 228 - LT	273.75	VAR.	62.78												5.60	170.28	220.00	18.73					18.73
112+29.42	114+28.17	HWY. 228 - RT	198.75	VAR.	41.42												5.49	121.16	220.00	13.33					13.33
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
101+96.01	108+00.00	HWY. 228	603.99														3.04	204.03	VAR.	31.30					31.30
113+35.00	121+07.19	HWY. 228	772.19														4.86	417.38	VAR.	14.27					14.27
TOTALS:					**2492.98**		**7625.31**	**381.28**		**6265.66**	**1065.16**	**1446.44**		**2657.18**		**485.63**		**10168.30**		**1206.32**		**2068.63**		**227.54**	**1433.86**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2).....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

DLTackett 2/18/2022 10:07:22 PM
WORKSPACE: AHTD
L:\20\T\10\7650 - ARDOT Job 100997\Drawings\r100997_QTY_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	19	59
07575		QUANTITIES		64946

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100997

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SS & 802	SP, SS & 802	SS & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	812	816	816	SP JOB 100997
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	PRESTRESSED CONCRETE GIRDERS (TYPE II)	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHELL PILING (14" DIA.) (1)	STEEL SHELL PILING (20" DIA.) (1)(2)	PILE ENCASEMENT	PREBORING	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SHORING (SITE NO. _)
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.	LUMP SUM
07575	BUFFALO HEAD SLOUGH	BENT NO. 1			13	16.45				4,904	1,070	232			40		280	159	
		BENT NO. 2				19.50				6,081	645		292	27					
		BENT NO. 3				19.50				6,081	645		292	27					
		BENT NO. 4			18	16.45				4,904	1,070	232			40		326	182	
		128'-8" INTEGRAL PRESTRESSED CONC. GIRDER UNIT					205.90	506.7	552.1		37,590					1			
		SITE NO. 1 (EXISTING BRIDGE NO. M3238)		1															1
		TOTALS FOR JOB NO. 100997			31	71.90	205.90	506.7	552.1	21,970	41,020	464	584	54	80	1	606	341	

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

(2) The top of the 20" steel shell piling shall be fitted with an Annular Ring Plate in accordance with the details shown on Dwg. No. 64955. 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 (20" DIA.)".

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HIGHWAY 228 OVER BUFFALO HEAD SLOUGH
BUFFALO HEAD SLOUGH STR. & APPRS. (S)
GREENE COUNTY
ROUTE 228 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JME DATE: DEC. 2021 FILENAME: b100997_q1.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: No Scale
DESIGNED BY: JME DATE: DEC. 2021

BRIDGE NO. 07575 DRAWING NO. 64946

abhall 2/18/2022 11:57:30 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S001_QT.dgn
REVISED DATE:

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	9	STATION
SP & 201	GRUBBING	9	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	5	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	220	LIN. FT.
202	REMOVAL AND DISPOSAL OF MAILBOXES	2	EACH
SS & 206	FLOWABLE SELECT MATERIAL	4	CU. YD.
SS & 210	UNCLASSIFIED EXCAVATION	6989	CU. YD.
SP & 210	COMPACTED EMBANKMENT	9415	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	2891	TON
SS & 401	TACK COAT	1466	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	466	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	20	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1381	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	74	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	467	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	10	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
SS & 504	APPROACH SLABS	104.02	CU. YD.
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
603	12" TEMPORARY CULVERT	60	LIN. FT.
SS & 604	SIGNS	975	SQ. FT.
SS & 604	BARRICADES	32	LIN. FT.
SS & 604	TRAFFIC DRUMS	86	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	960	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	680	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	11621	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	262	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	2213	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	639	LIN. FT.
SS & 605	CONCRETE DITCH PAVING (TYPE B)	13	SQ. YD.
SP, SS, & 606	30" SIDE DRAIN	58	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	50	LIN. FT.
SP, SS, & 606	42" SIDE DRAIN	131	LIN. FT.
606	SELECTED PIPE BEDDING	10	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	10	TON
620	SEEDING	4.93	ACRE
SS & 620	MULCH COVER	13.98	ACRE
620	WATER	687.6	M. GAL.
621	TEMPORARY SEEDING	9.05	ACRE
621	SILT FENCE	3881	LIN. FT.
621	SAND BAG DITCH CHECKS	413	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	173	CU. YD.
621	ROCK DITCH CHECKS	263	CU. YD.
623	SECOND SEEDING APPLICATION	4.93	ACRE
624	SOLID SODDING	9	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	3226	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
SP	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	4702	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	5594	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	27	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	2	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	2	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	13404	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	31	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	71.90	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	205.90	CU. YD.
SS & 802	PRESTRESSED CONCRETE GIRDERS (TYPE II)	506.7	LIN. FT.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	552.1	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	21970	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	41020	POUND
SS & 805	STEEL SHELL PILING (14" DIAMETER)	464	LIN. FT.
SS & 805	STEEL SHELL PILING (20" DIAMETER)	584	LIN. FT.
SS & 805	PREBORING	80	LIN. FT.
SS & 805	PILE ENCASEMENT	54	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	606	SQ. YD.
816	DUMPED RIPRAP	341	CU. YD.
SP	SHORING (SITE NO. 1)	1.00	LUMP SUM

REVISIONS

DATE	REVISION	SHEET NUMBER
3/30/2022	ADDED THE "SPECIAL CLEARING PUP SEASON REQUIREMENTS" SP. REMOVED THE 12" SIDE DRAIN ITEM IN THE STRUCTURES QUANTITY BOX. REMOVED THE 12" SIDE DRAIN PAY ITEM FROM THE SUMMARY OF QUANTITIES. REVISED NOTE FOR STA. 112+76 TO BE A REMOVAL ONLY NOTE.	3, 17, 20, 23

SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 3-30-2022

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
3/30/2022			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	100997	20	59

2 SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	21	59
				(2)	SURVEY CONTROL DETAILS			

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

DIGITALLY SIGNED 2-18-2022

SURVEY CONTROL COORDINATES

Project Name: s100997
Date: 9/10/2020
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, POSITIONS BASED ON STATIC GPS
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	608612.9617	1668576.5191	257.407	GPS	16' S OF CL HWY 168 141' NW OF
2	608564.9192	1669425.8849	257.104	CTL	16' N OD CL HWY 168 142' NE OF
3	608481.9145	1670242.0441	258.109	CTL	22' N OF CL HWY 168 24' NE OF N
4	608374.1735	1671135.5073	256.012	CTL	19' N OF CL HWY 168 20' S OF S
5	608284.6117	1671922.7807	255.942	GPS	21' N OF CL HWY 168 84' SE OF T
6	616333.6901	1668828.2799	262.728	GPS	15' E OF CL HWY 228 35' NW OF P
7	616962.2395	1669309.2759	262.910	CTL	15' E OF CL HWY 228 26' N OF CL
8	617652.4597	1669800.0843	262.375	CTL	16' W OF CL2 228 7' SW OF SW CR
9	618369.2376	1670386.0927	262.137	CTL	14' E OF CL HWY 228 33' S OF CL
10	619081.0882	1670932.2350	261.439	GPS	14' E OF CL HWY 228 91' NW OF P
900	608586.4597	1669196.0930	258.155	TBM	SQUARE CUT CNTR N HW
901	608446.9479	1670193.4692	252.636	TBM	SQUARE CUT SE CRNR BR
903	617725.6171	1669893.9167	263.834	TBM	SQUARE ON NE CRNR BR
904	618546.9528	1670367.8367	259.328	TBM	SQUARE CUT ON CONC SLAB

*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 0.999955713329 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 s100997gi.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:
LOCATION 1
CONVERGENCE ANGLE: 0°42'14.19" RIGHT AT PN: 3 LT: N35°59'56.17" LG: W90°47'24.97"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.
LOCATION 2
CONVERGENCE ANGLE: 0°42'11.85" RIGHT AT PN: 8 LT: N36°01'26.90" LG: W90°47'28.98"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ALIGNMENT NAME: HWY. 228

POINT	STATION	TYPE	NORTHING	EASTING
8000	100+00.00	POB	616775.3635	1669147.9932
8001	101+96.01	PC	616930.9025	1669267.2729
8002	106+15.92	PRC	617268.7193	1669516.6436
8003	110+25.00	PT	617597.9365	1669759.4257
8004	112+75.00	PC	617796.4614	1669911.3727
8005	116+89.15	PRC	618120.7167	1670168.9747
8006	121+07.19	PT	618448.0606	1670428.9397
8007	123+00.00	POE	618601.2141	1670546.0779

ALIGNMENT NAME: C.R. 306

POINT	STATION	TYPE	NORTHING	EASTING
8008	10+00.00	POB	618403.5158	1670394.6966
8009	13+00.00	POE	618241.4825	1670647.1747

DLTackett 2/18/2022 1:07:51PM
WORKSPACE: AHTD
L:\20\7\701\7650 - ARDOT Job 100997\Drawings\R100997_SC_01.dgn
REVISED DATE:

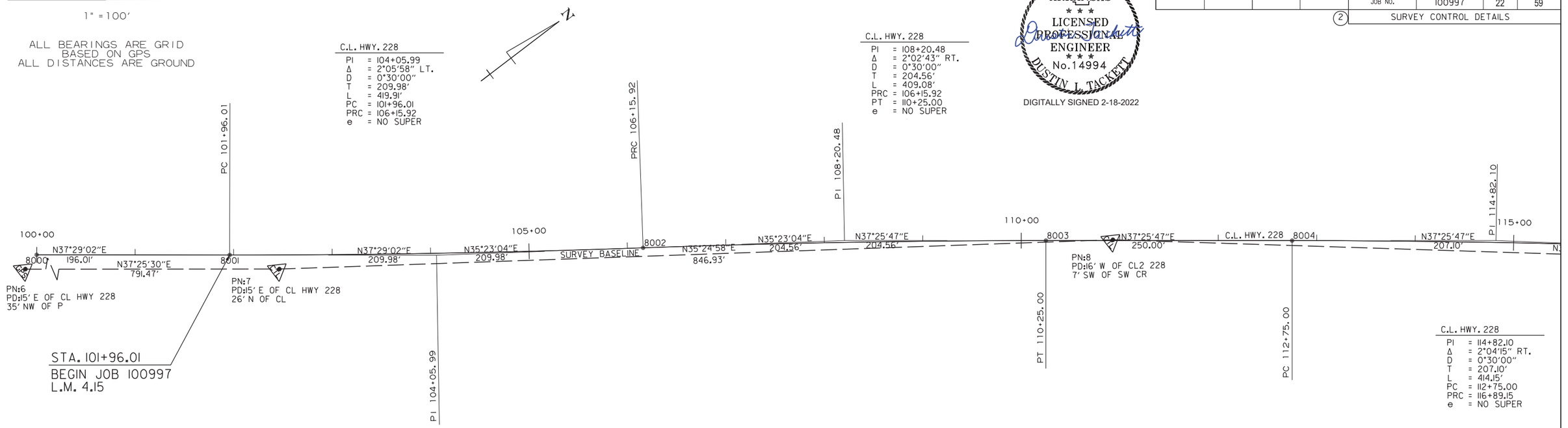
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	22	59

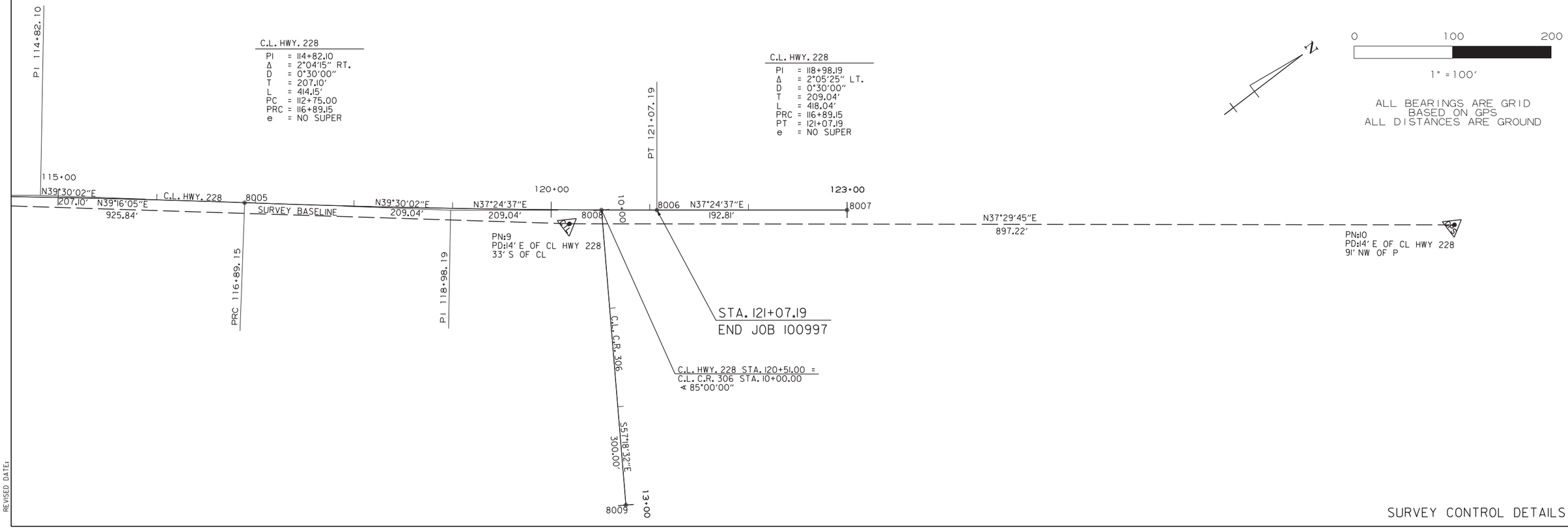
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

0 100 200
1" = 100'

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND





DLTackett 2/18/2022 10:07:53 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_SC_02.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
03/30/2022				6	ARK.			
				JOB NO.		100997	23	59

(2) PLAN AND PROFILE - HWY. 228

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 3-30-2022

STA. 110+86.00 BRIDGE END
BRIDGE NO. 07575 OVER BUFFALO HEAD SLOUGH
128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER (39.33',50',39.33')
30'-0" CLEAR ROADWAY
15°00'00" RT. FWD. SKEW
130'-0" BRIDGE LENGTH
STA. 112+16.00 BRIDGE END

C.L. HWY. 228
PI = 108+20.48
Δ = 2°02'43" RT.
D = 0°30'00"
T = 204.56'
L = 409.08'
PRC = 106+15.92
PT = 110+25.00
e = NO SUPER

C.L. HWY. 228
PI = 104+05.99
Δ = 2°05'58" LT.
D = 0°30'00"
T = 209.98'
L = 419.91'
PC = 101+96.01
PRC = 106+15.92
e = NO SUPER

STA. 107+23 IN PLACE
24" X 24' CM PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL 36" X 50'
PIPE CULVERT LT. SIDE DRAIN
CONSTRUCT APPROACH = 51 CU. YDS.

BRIDGE NO. M3238 IN PLACE
108'-0" X 29'-7" BRIDGE CONSISTING OF A STEEL AND TIMBER SUPERSTRUCTURE SUPPORTED BY A TIMBER SUBSTRUCTURE. REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

STA. 112+76 IN PLACE
12" X 32' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE

100' TRANSITION TO MATCH EXISTING

PC 101+96.01 | +00 75.00' | +00 49.66' | PRC 106+15.92 | +40 60.00' | +40 85.00' | +40 70.00' | PI 108+20.48 | +75 75.00' | +30 90.00' | +10 100.00' | +25 120.00' | PI 114+82.10

+70 50.02' | +80 49.93' | +80 80.00' | +60 80.00' | +60 50.07'

T.C.E. | CONSTRUCTION LIMITS | BERM | PROP. R/W | EXIST. R/W | 10' | 16' | 4' | 22' | 4' | 21' EXISTING

100+00 | 105+00 | 110+00 | 115+00

N 37°29'02" E | C.L. HWY. 228 | N 35°23'04" E | +19 | +23 | N 37°25'47" E

BEGIN BRIDGE STA. 110+86.00 | END BRIDGE STA. 112+16.00

CONSTRUCTION LIMITS | EXIST. R/W

PT 110+25.00 | PC 112+75.00

BUFFALO HEAD SLOUGH

STA. 101+96.01
BEGIN JOB 100997
L.M. 4.15

STA. 102+19 IN PLACE
30" X 30' CM PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL 42" X 54'
PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT APPROACH = 29 CU. YDS.

PI 104+05.99

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	UNIT
110+99	112+09	RT.	110 LIN. FT.
110+99	112+09	RT.	110 LIN. FT.

C.L. HWY. 228 STATIONING	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE II)
STA. 108+61.87 TO STA. 110+80.62 RT.	= 150 LIN. FT.	1 EACH	1 EACH
STA. 109+28.83 TO STA. 110+72.58 LT.	= 75 LIN. FT.	1 EACH	1 EACH
STA. 112+21.38 TO STA. 114+40.13 LT.	= 150 LIN. FT.	1 EACH	1 EACH
STA. 112+29.42 TO STA. 113+73.17 RT.	= 75 LIN. FT.	1 EACH	1 EACH

SPECIAL FLOOD HAZARD AREA

C.L. HWY. 228
PI = 114+82.10
Δ = 2°04'15" RT.
D = 0°30'00"
T = 207.10'
L = 414.15'
PC = 112+75.00
PRC = 116+89.15
e = NO SUPER

HWY. 228

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

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
BUFFALO HEAD SLOUGH	110+86 TO 112+16	INTERMITTENT	256 FT.

290 | 280 | 270 | 260 | 250 | 240 | 230 | 220 | 210 | 200

+96.01 | 100' VERTICAL TRANSITION TO MATCH EXISTING

PVI 101+96.01 ELEV. 263.96

STA. 101+96.01
BEGIN JOB 100997
BEGIN SITE 1
ELEV. 263.96

+96.01 LT. 256.77

0.10% | -0.30% LT. DITCH GRADE 4' FLAT BOTTOM | PROFILE GRADE | EXISTING GROUND

PVC 110+60.00 ELEV. 264.82 BEGIN BRIDGE STA. 110+86.00 | PVI 111+50.00 ELEV. 264.91 | END BRIDGE STA. 112+16.00 PVT 112+40.00 ELEV. 264.73

-0.20%

+00.00 LT. 254.06 | +40.00 LT. 248.96 | VC=180.00' K=600.00 e=-0.07'

025 DESIGN H.W. ELEV. = 256.60

0.20% LT. DITCH GRADE 6' FLAT BOTTOM

100+00 | 101+00 | 102+00 | 103+00 | 104+00 | 105+00 | 106+00 | 107+00 | 108+00 | 109+00 | 110+00 | 111+00 | 112+00 | 113+00 | 114+00 | 115+00

DLTackett 3/30/2022 11:10:25 PM
WORKSPACE: AHTD
L:\20\T\101\7650 - ARDOT Job 100997\Drawings\r100997_PP_01.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	24	59
				(2)	PLAN AND PROFILE - HWY. 228			

C.L. HWY. 228
PI = 114+82.10
Δ = 2°04'15" RT.
D = 0°30'00"
T = 207.10'
L = 414.15'
PC = 112+75.00
PRC = 116+89.15
e = NO SUPER

STA. 116+37 IN PLACE
36" X 50' CM PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL 42" X 77'
PIPE CULVERT LT. SIDE DRAIN
CONSRUCT APPROACH = 77 CU. YDS.

C.L. HWY. 228
PI = 118+98.19
Δ = 2°05'25" LT.
D = 0°30'00"
T = 209.04'
L = 418.04'
PRC = 116+89.15
PT = 121+07.19
e = NO SUPER

STA. 121+39 CONSTRUCT
APPROACH ON LT. =
11 CU. YDS.

PI 114+82.10
110'
T.C.E.
BERM
+65 115.00'
+85 90.00'
+05 65.00'
EXIST. R/W
115+00
24'
CONSTRUCTION LIMITS
C.L. HWY. 228
+37 N 39°30'02" E
CONSTRUCTION LIMITS
EXIST. R/W
PRC 116+89.15
PI 118+98.19
SPECIAL FLOOD
HAZARD AREA

C.L. HWY. 228 STA. 120+51.00 =
C.L. C.R. 306 STA. 10+00.00
Δ 85°00'00"

+80 50.00'
PROP. R/W
+00 50.00'
PT 121+07.19
100' TRANSITION
TO MATCH EXISTING
+90 39.47'
18" PECAN
16'
EXIST. R/W
120+00
+39 N 37°24'37" E
123+00
10.00'
22'
4'
EXISTING
20'
+25 40.69'
+85 40.46'
PROP. R/W
C.L. C.R. 306
+00 24.00'
+00 22.00'
EXIST. R/W

STA. 121+07.19
END JOB 100997

STA. 120+51 IN PLACE
24" X 40' CM PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL 30" X 58'
PIPE CULVERT RT. SIDE DRAIN

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
116+80	117+00	LT. = 20 LIN. FT.	6'-0"	13.33

HWY. 228

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022

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

PROFILE GRADE
-0.20%
EXISTING GROUND
18.50% LT. DITCH GRADE
0.20% LT. DITCH GRADE
6' FLAT BOTTOM
0.30% RT. DITCH GRADE
0.80% LT. DITCH GRADE
+80.00 LT. 250.04
+00.00 LT. 253.74
+30.00 RT. 256.00
PVI 121+07.19
ELEV. 263.00
+07.19
100' VERTICAL TRANSITION
TO MATCH EXISTING
+07.19 RT. 256.83
+07.19 LT. 257.00

STA. 121+07.19
END SITE 1
ELEV. 263.00

290 280 270 260 250 240 230 220 210 200
115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00

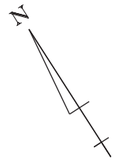
DLTackett
WORKSPACE: AHTD
L:\2017\1701650 - ARDOT Job 100997\Drawings\r100997_PP_02.dgn
2/18/2022 10:07:54 PM
REVISED DATE:

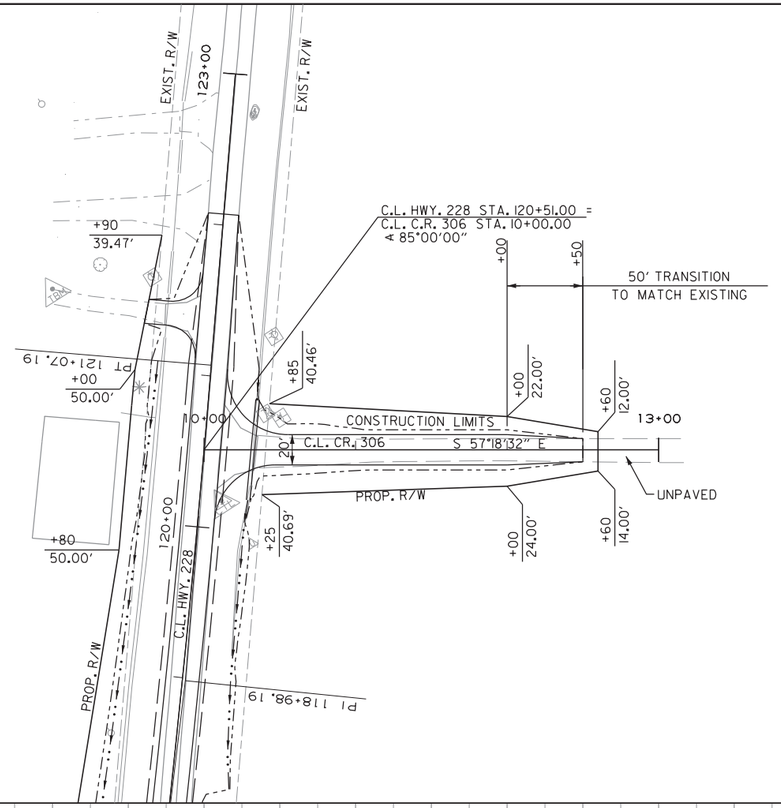
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	25	59

(2) PLAN AND PROFILE - C.R. 306

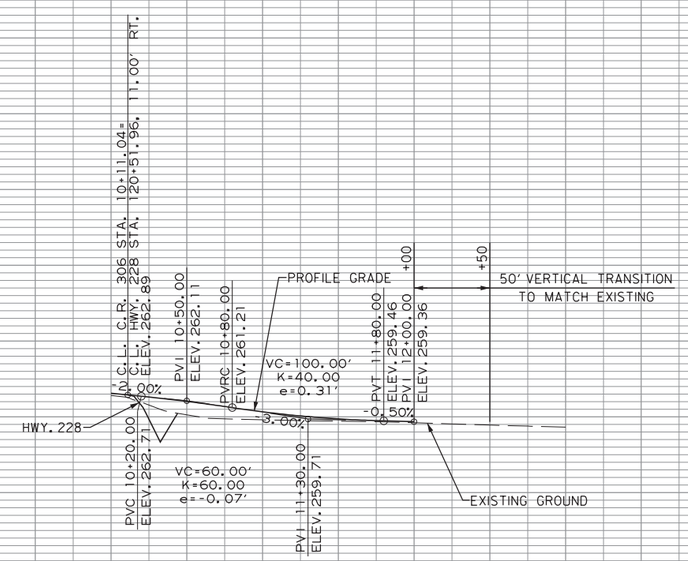
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 2-18-2022





C.R. 306

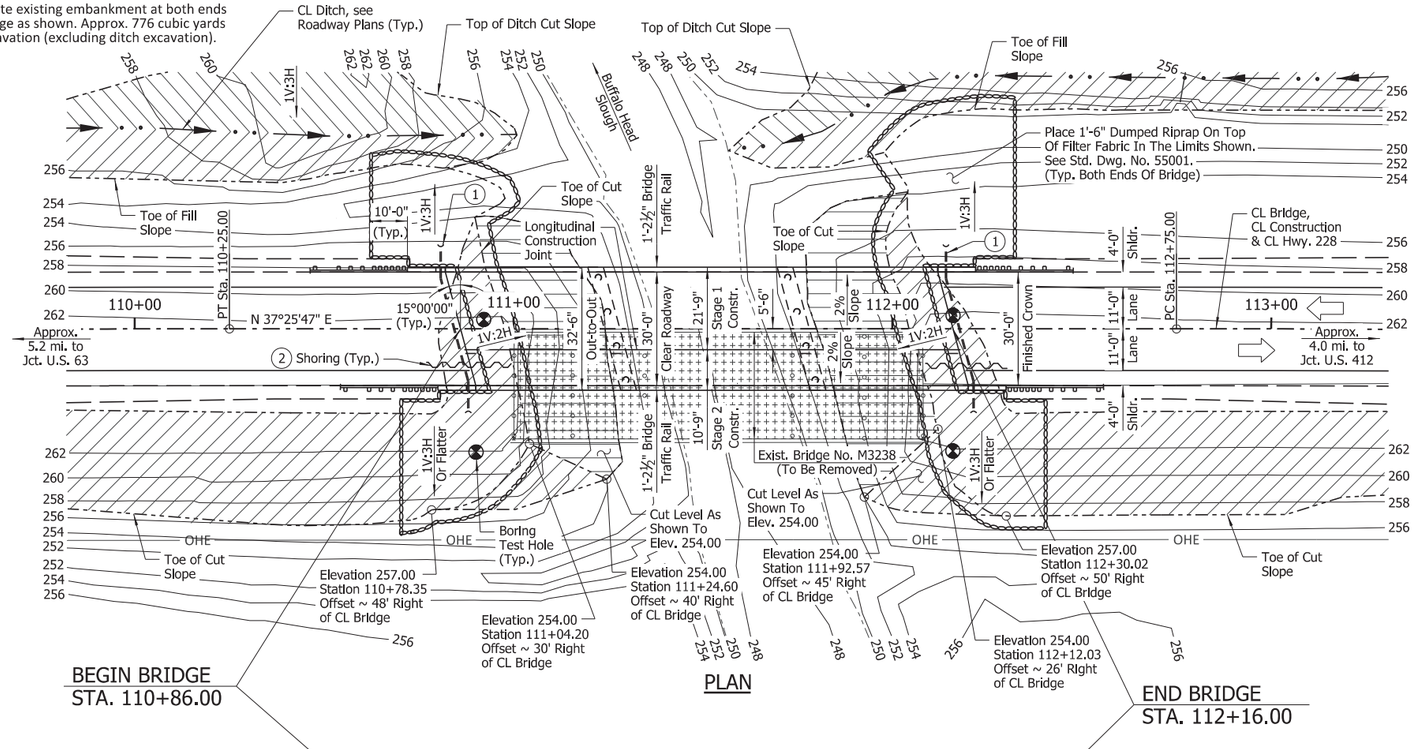
REFER TO SURVEY CONTROL DETAIL SHEETS
FOR HORIZONTAL AND VERTICAL CONTROL POINTS



DLTackett 2/18/2022 1:07:55 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_PP_03.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	26	59
				(1) 07575		LAYOUT		64947

NOTE:
Excavate existing embankment at both ends of bridge as shown. Approx. 776 cubic yards of excavation (excluding ditch excavation).

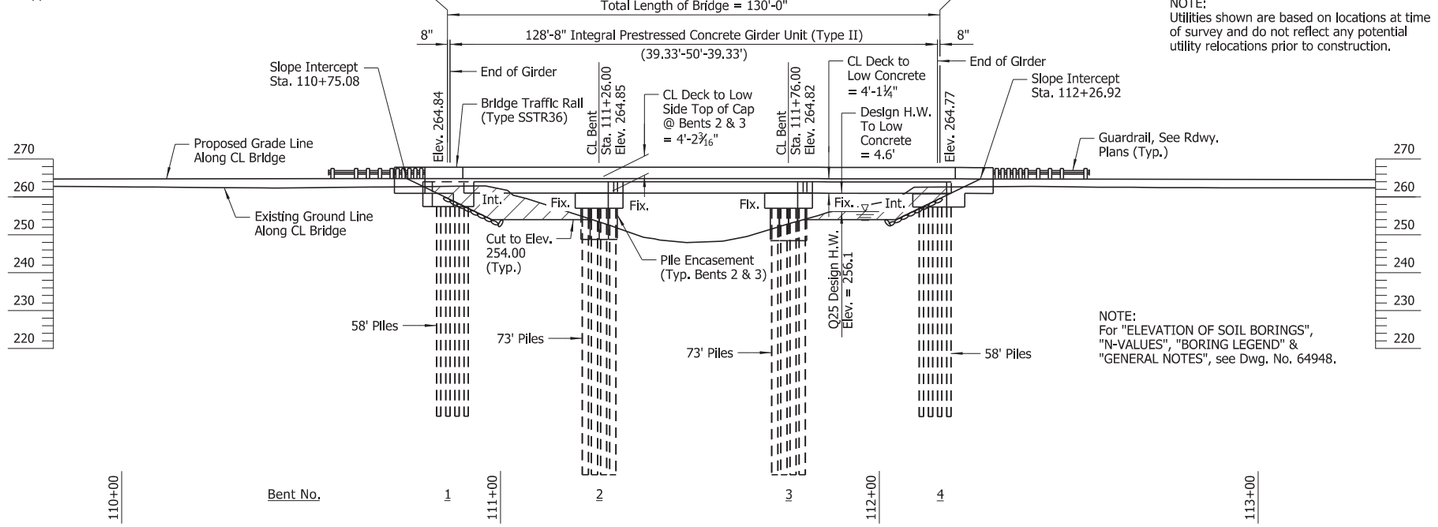


PLAN

BEGIN BRIDGE
STA. 110+86.00

END BRIDGE
STA. 112+16.00

NOTE:
The proposed bridge has been positioned to avoid interference with the existing piling. The Contractor shall verify measurements before driving any piling. Any adjustments necessary to fit the proposed bridge to the existing bridge location shall be submitted for the Engineer's approval.



ELEVATION

FOR R/W DATA,
SEE ROADWAY PLANS

EXISTING UTILITIES LEGEND

OHE = Overhead Electric Line

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

NOTE:
Stations shown are along CL Construction. Elevations shown are theoretical working point elevations at CL Bridge. Any vertical dimension referenced to CL Deck is based on theoretical working point elevation at CL Bridge. See "ROUNDING DETAIL" on Dwg. No. 64956 for additional information.

NOTE:
For "ELEVATION OF SOIL BORINGS", "N-VALUES", "BORING LEGEND" & "GENERAL NOTES", see Dwg. No. 64948.

NOTES:
Use Type F Approach Gutters at each end of bridge. See Std. Dwg. No. 55030F.

Use Type 1 and Type 2 Special Approach Slabs at each end of bridge. See Dwg. Nos. 64966-64967.

(1) Install 4" Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 64957. Pipe Underdrains will not be paid for directly, but shall be considered subsidiary to "UNCLASSIFIED EXCAVATION".

(2) See Special Provision "SHORING"

HORIZONTAL CURVE DATA

Highway 228
PI = 108+20.48
Δ = 2°02'43" Rt.
D = 0°30'00"
T = 204.56'
L = 409.08'
e = N.C.
R = 11,459.16'

HORIZONTAL CURVE DATA

Highway 228
PI = 114+82.10
Δ = 2°04'15" Rt.
D = 0°30'00"
T = 207.10'
L = 414.15'
e = N.C.
R = 11,459.16'

PVI Sta. 111+50.00
Elev. 264.91
V.C. = 180'
+0.10%
-0.20%

VERTICAL CURVE DATA

Highway 228
(Theoretical Grade Along CL Construction)

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(3) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	25	683	256.1	256.1
BASE	100	866	257.0	257.1
EXTREME	500	1,081	257.4	258.2
OVERTOPPING	N/A	N/A	N/A	N/A

(3) Unconstricted water surface without structure or roadway approaches

Q100 Backwater Elevation For Existing Structure = 257.1
Proposed Bridge Low Concrete Elev. = 260.67 (Sta. 112+18.95)
Existing Bridge Low Steel Elev. = 260.25 (survey data)

Drainage Area = 5.27 square miles
Historical High Water Elev. = 256.3

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 228 OVER BUFFALO HEAD SLOUGH
BUFFALO HEAD SLOUGH STR. & APPRS. (S)
GREENE COUNTY
ROUTE 228 SEC. 5
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: OCT. 2021 FILENAME: b100997_L1.dgn
CHECKED BY: JHR DATE: OCT. 2021 SCALE: 1" = 20'-0"
DESIGNED BY: JME DATE: OCT. 2021

BRIDGE NO. 07575 DRAWING NO. 64947

abhall 2/18/2022 11:57:31 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S101_LO.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	27	59
				07575		LAYOUT		64948

GENERAL NOTES:

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

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

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

LIVE LOADING: HL-93

SEISMIC ZONE: 3 S_{D1} = 0.39g 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
Class S Concrete (Prestressed Concrete Girders)	f'c = 8,000 psi
Prestressing Strands (AASHTO M203, Gr. 270)	fpu = 270,000 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

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

STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 14" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 153 tons per pile. Piling in Bents 2 and 3 shall be 20" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 355 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to a minimum tip elevation of 223.00 or lower at Bents 1 and 4 and to a minimum tip elevation of 215.00 or lower at Bents 2 and 3. 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 items "STEEL SHELL PILING (14" DIA.)" and "STEEL SHELL PILING (20" DIA.)".

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 casing will not be paid for directly, but shall be considered subsidiary to the item "PREBORING".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)." It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity will be 27,000 foot-pounds per blow at Bents 1 and 4, and will be 67,000 foot-pounds per blow at Bents 2 and 3.

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural or finished ground. See Standard Drawing Number 55021 for additional information. Galvanized corrugated steel pipe shall not be used to form pile encasement.

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 to the roadway face and top of the bridge traffic rail in accordance with Section 803.

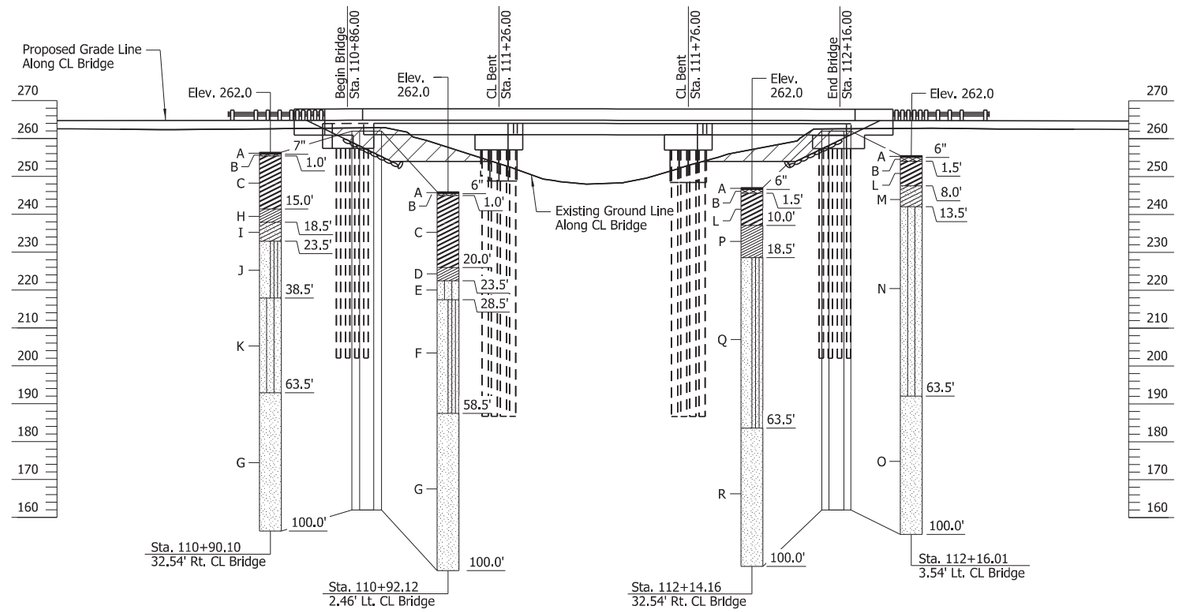
DETAIL DRAWINGS:	DRAWING NO(S):
Staged Construction	64949-64950
End Bents	64951-64953
Intermediate Bents	64954-64955
128'-8" Integral Prestressed Concrete Girder Unit	64956-64965
Type Special Approach Slabs	64966-64967
Dumped Riprap	55001
Concrete Filled Steel Shell Piling	55021
Type F Approach Gutters	55030F
Bridge Traffic Rail (Type SSTR36)	55070

EXISTING BRIDGE: Existing Bridge No. M3238 (Log Mile 4.30) is 29.6' wide (28.3' clear roadway), 108.0' long and consists of timber and steel I-beam spans (5 spans total) supported by timber piling. Plans of the existing bridge, if available, will be made available to the Contractor upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After Stage 1 construction is complete and open to traffic, the Contractor shall remove existing Bridge No. M3238 in accordance with Section 205. All material from the existing bridge shall become property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

NOTE:
For "HYDRAULIC DATA", see Dwg. No. 64947.



ELEVATION OF SOIL BORINGS

N-VALUES

Sta. 110+90.10 Offset 32.54' Rt	Sta. 110+92.12 Offset 2.46' Lt.	Sta. 112+14.16 Offset 32.54' Rt.	Sta. 112+16.01 Offset 3.54' Lt.
1.0 - 2.5, N = 4	1.0 - 2.5, N = 3	1.0 - 2.5, N = 7	1.0 - 2.5, N = 15
3.5 - 5.0, N = 9	3.5 - 5.0, N = 14	3.5 - 5.0, N = 5	3.5 - 5.0, N = 5
6.0 - 7.5, N = 2	6.0 - 7.5, N = 3	8.5 - 10.0, N = 3	6.0 - 7.5, N = 3
8.5 - 10.0, N = 4	13.5 - 15.0, N = 8	13.5 - 15.0, N = 11	13.5 - 15.0, N = 9
13.5 - 15.0, N = 8	18.5 - 20.0, N = 3	18.5 - 20.0, N = 4	18.5 - 20.0, N = 6
18.5 - 20.0, N = 4	23.5 - 25.0, N = 16	23.5 - 25.0, N = 16	23.5 - 25.0, N = 12
23.5 - 25.0, N = 7	28.5 - 30.0, N = 18	28.5 - 30.0, N = 16	28.5 - 30.0, N = 16
28.5 - 30.0, N = 12	33.5 - 35.0, N = 39	33.5 - 35.0, N = 41	33.5 - 35.0, N = 25
33.5 - 35.0, N = 5	38.5 - 40.0, N = 43	38.5 - 40.0, N = 58	38.5 - 40.0, N = 50
38.5 - 40.0, N = 54	43.5 - 45.0, N = 6	43.5 - 45.0, N = 49	43.5 - 45.0, N = 38
43.5 - 45.0, N = 44	48.5 - 50.0, N = 54	48.5 - 50.0, N = 41	48.5 - 50.0, N = 44
48.5 - 50.0, N = 54	53.5 - 55.0, N = 15	53.5 - 55.0, N = 10	53.5 - 55.0, N = 45
53.5 - 55.0, N = 24	58.5 - 60.0, N = 22	58.5 - 60.0, N = 32	58.5 - 60.0, N = 40
58.5 - 60.0, N = 31	63.5 - 65.0, N = 23	63.5 - 65.0, N = 11	63.5 - 65.0, N = 14
63.5 - 65.0, N = 30	68.5 - 70.0, N = 21	68.5 - 70.0, N = 21	68.5 - 70.0, N = 9
68.5 - 70.0, N = 30	73.5 - 75.0, N = 23	73.5 - 75.0, N = 24	73.5 - 75.0, N = 18
73.5 - 75.0, N = 28	78.5 - 80.0, N = 24	78.5 - 80.0, N = 23	78.5 - 80.0, N = 16
78.5 - 80.0, N = 32	83.5 - 85.0, N = 20	83.5 - 85.0, N = 18	83.5 - 85.0, N = 16
83.5 - 85.0, N = 40	88.5 - 90.0, N = 18	88.5 - 90.0, N = 16	88.5 - 90.0, N = 14
88.5 - 90.0, N = 26	93.5 - 95.0, N = 64	93.5 - 95.0, N = 21	93.5 - 95.0, N = 33
93.5 - 95.0, N = 53	98.5 - 100.0, N = 24	98.5 - 100.0, N = 22	98.5 - 100.0, N = 16
98.5 - 100.0, N = 38			

BORING LEGEND

A - ASPHALT
B - Base Material: Black sand and gravel
C - Soft to stiff, gray to brown and gray, FAT CLAY
D - Medium stiff, brown and gray, LEAN CLAY
E - Medium dense, gray, SILTY SAND
F - Loose to very dense, gray SAND with silt
G - Medium dense to very dense, gray SAND
H - Stiff, gray and brown, LEAN CLAY
I - Very loose, gray, CLAYEY SAND
J - Medium dense to loose, gray SAND with silt
K - Very dense to medium dense, gray, SILTY SAND
L - Stiff to soft, gray, FAT CLAY
M - Gray, CLAYEY SAND
N - Loose to very dense, gray, SILTY SAND
O - Medium dense to dense, gray SAND
P - Stiff, gray, LEAN CLAY, trace sand
Q - Very loose to very dense, gray and brown to gray SAND with silt
R - Medium dense, gray SAND

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

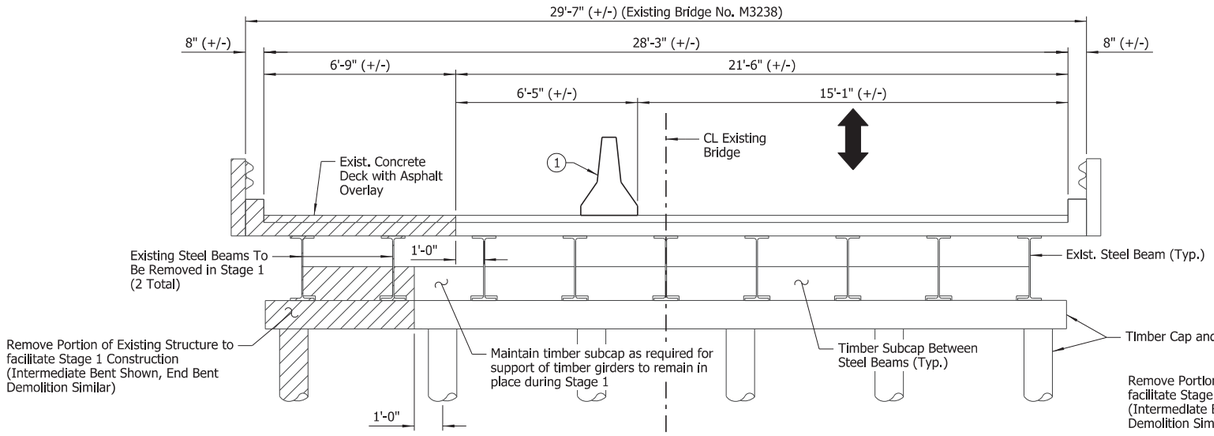
DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 228 OVER BUFFALO HEAD SLOUGH
BUFFALO HEAD SLOUGH STR. & APPRS. (S)
GREENE COUNTY
ROUTE 228 SEC. 5
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

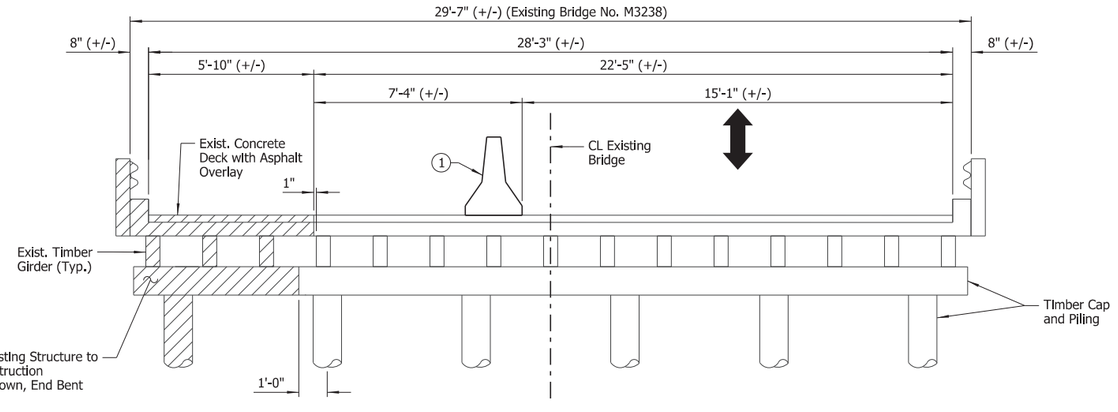
DRAWN BY: HEW DATE: OCT. 2021 FILENAME: b100997_L2.dgn
CHECKED BY: JHR DATE: OCT. 2021 SCALE: 1" = 20'-0"
DESIGNED BY: JME DATE: OCT. 2021
BRIDGE NO. 07575 DRAWING NO. 64948

abhall 2/18/2022 11:57:32 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S102_GN.dgn
REVISED DATE:

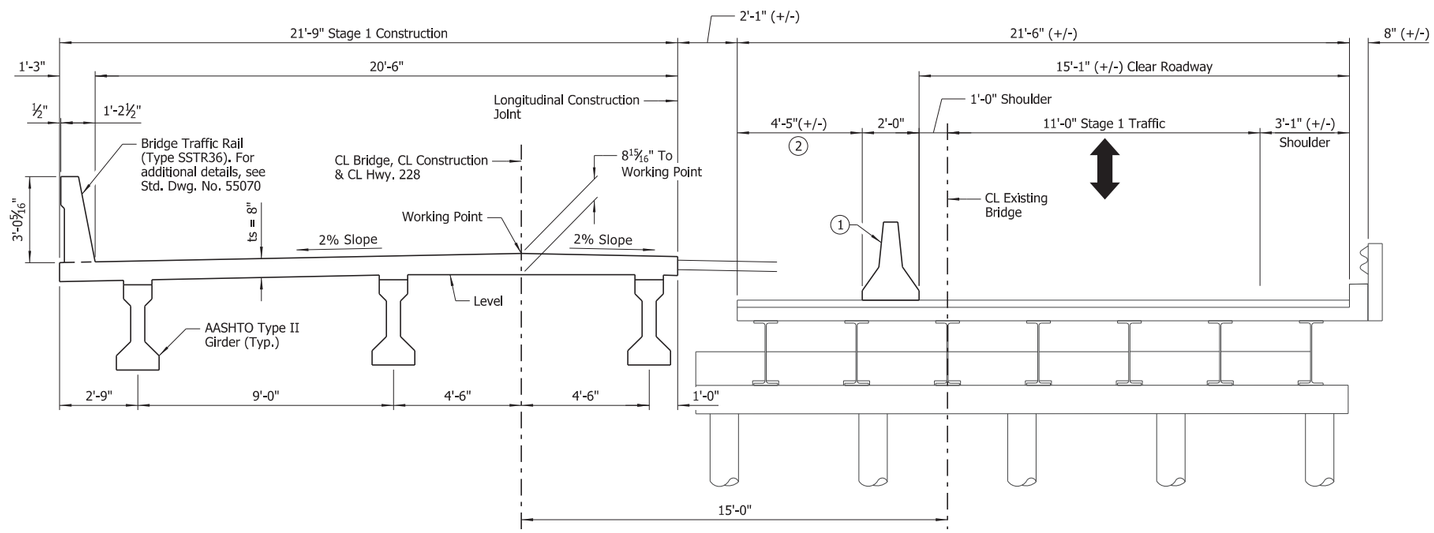
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	28	59
				(I) 07575		STAGED CONSTRUCTION		64949



TYPICAL SECTION - STAGE 1 DEMOLITION
(SHOWING PARTIAL REMOVAL OF EXISTING BRIDGE - SPAN 3)
(Looking Ahead)
Scale: ⅜" = 1'-0"



TYPICAL SECTION - STAGE 1 DEMOLITION
(SHOWING PARTIAL REMOVAL OF EXISTING BRIDGE - SPANS 1, 2, 4 & 5)
(Looking Ahead)
Scale: ⅜" = 1'-0"



TYPICAL SECTION - STAGE 1 CONSTRUCTION
(Existing Span 3 Shown, Existing Spans 1, 2, 4 & 5 Similar)
(Looking Ahead)
Scale: ⅜" = 1'-0"

(1) Temporary Construction Barrier. Do not connect to existing deck. (See Std. Dwg. TC-4)

(2) Construction vehicles shall not travel on and heavy equipment shall not be placed on this portion of the existing bridge deck.

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

NOTE:
Existing Bridge M3238 is currently posted for 3 tons. Construction equipment exceeding this limit shall not be allowed to cross the existing bridge. See Subsection 105.14 for additional information.

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 228 OVER BUFFALO HEAD SLOUGH
BUFFALO HEAD SLOUGH STR. & APPRS. (S)
GREENE COUNTY

ROUTE 228 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION

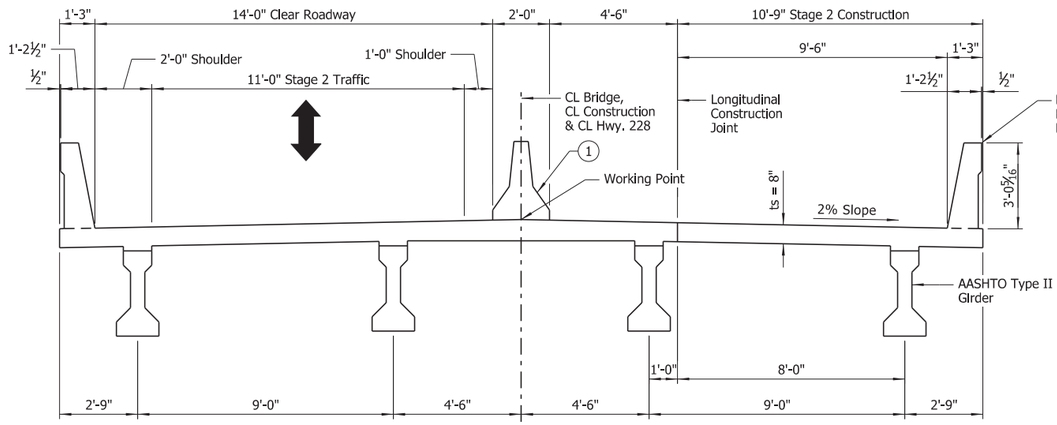
LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: MAR. 2021 FILENAME: b100997_L3.dgn
CHECKED BY: JHR DATE: OCT. 2021 SCALE: As Shown
DESIGNED BY: CSW DATE: MAR. 2021

BRIDGE NO. 07575 DRAWING NO. 64949

abhall 2/18/2022 11:57:34 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S103_SC.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	29	59
				(I) 07575		STAGED CONSTRUCTION		64950

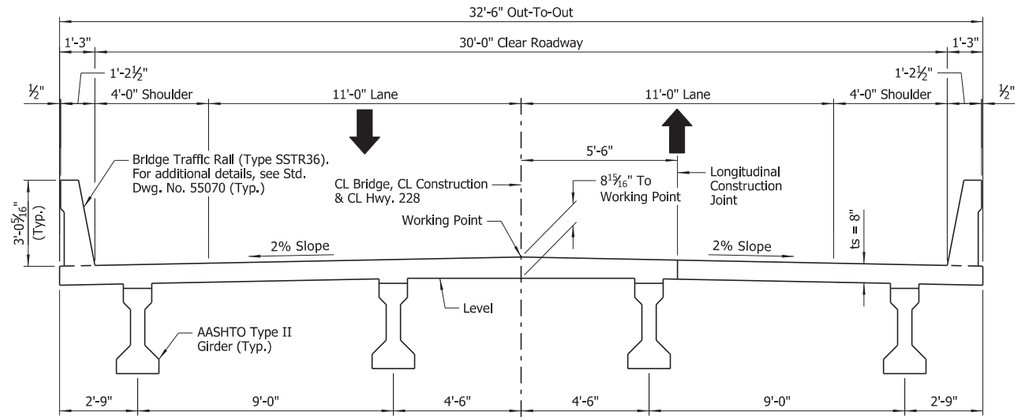


1 Temporary Construction Barrier. DO NOT CONNECT to new deck. (See Std. Dwg. TC-4)

TYPICAL SECTION - STAGE 2 CONSTRUCTION

(Looking Ahead)
Scale: ⅜" = 1'-0"

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



TYPICAL SECTION - FINAL CONDITION

(Looking Ahead)
Scale: ⅜" = 1'-0"

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF STAGED CONSTRUCTION
HIGHWAY 228 OVER BUFFALO HEAD SLOUGH
BUFFALO HEAD SLOUGH STR. & APPRS. (S)
GREENE COUNTY
ROUTE 228 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: MAR. 2021 FILENAME: b100997_L4.dgn
CHECKED BY: JHR DATE: OCT. 2021 SCALE: As Shown
DESIGNED BY: CSW DATE: MAR. 2021

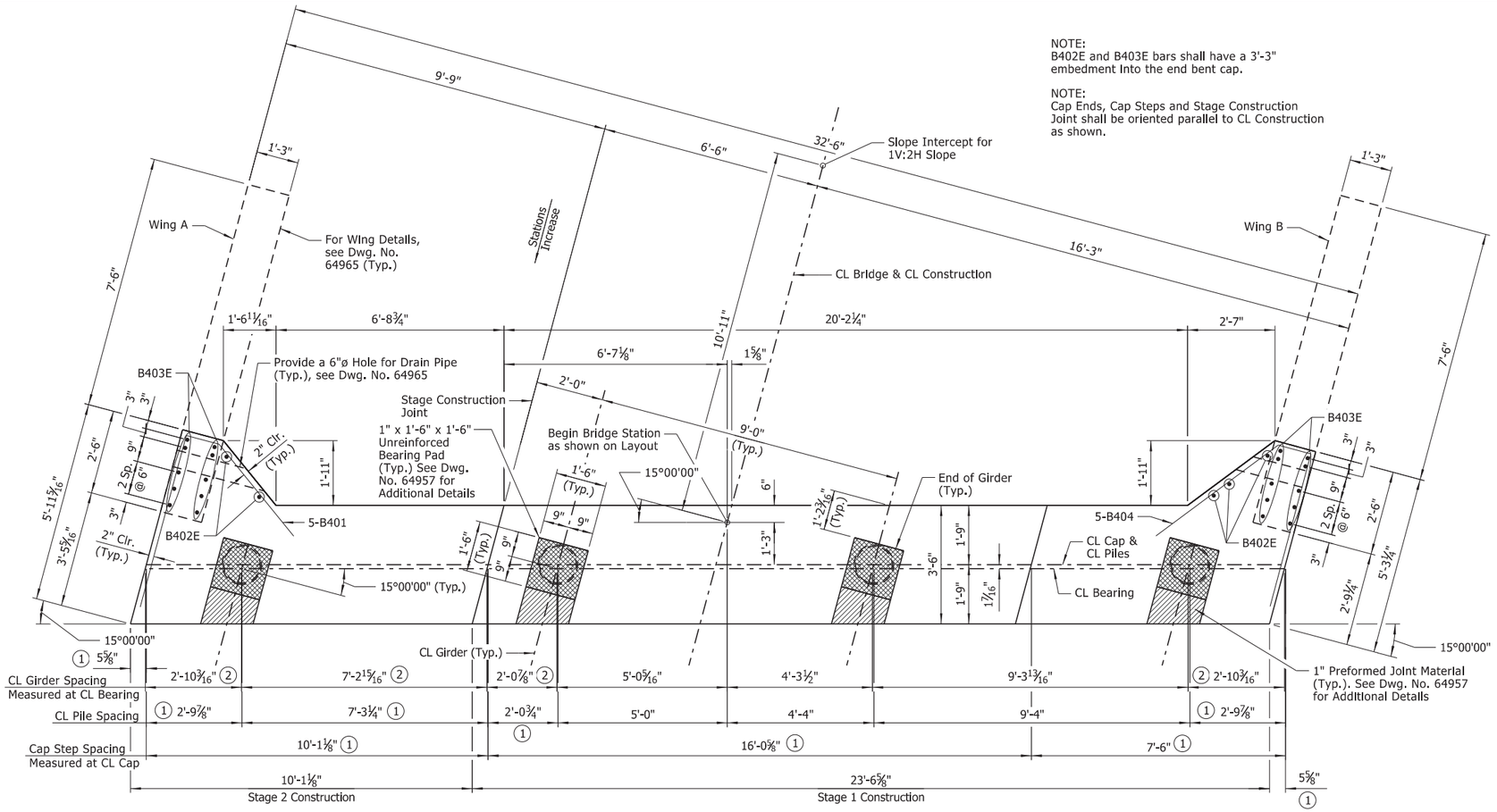
BRIDGE NO. 07575 DRAWING NO. 64950

abhall 2/18/2022 11:57:34 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S104_SC.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	30	59
				07575		END BENTS		64951

NOTE:
B402E and B403E bars shall have a 3'-3" embedment into the end bent cap.

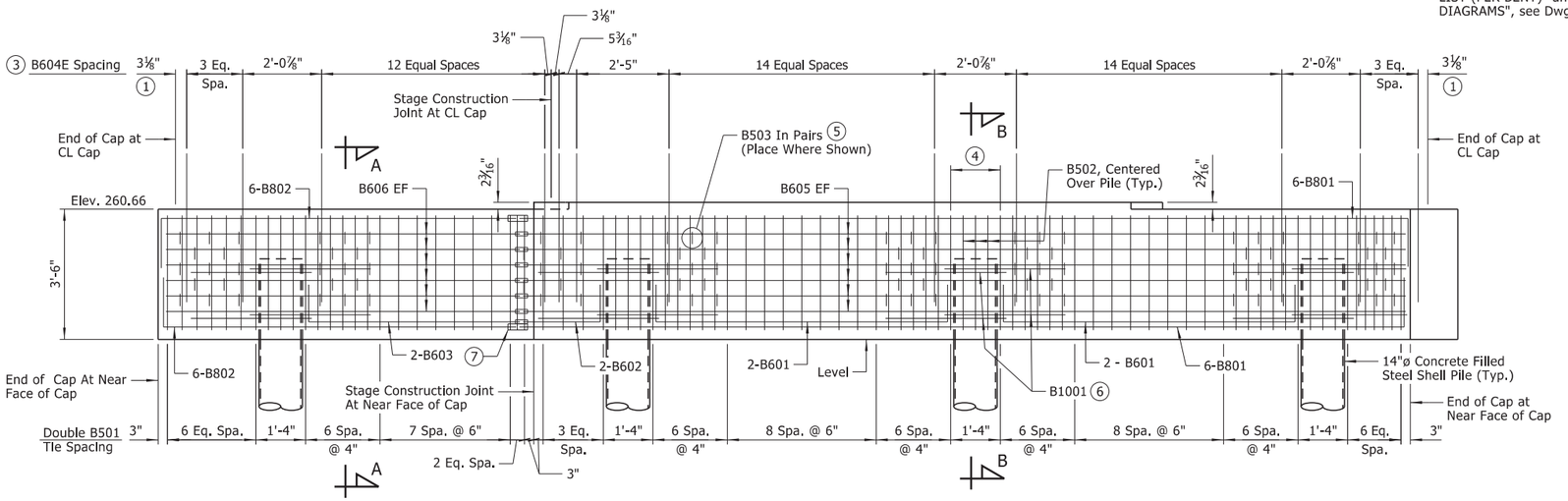
NOTE:
Cap Ends, Cap Steps and Stage Construction Joint shall be oriented parallel to CL Construction as shown.



PLAN - END BENT NO. 1

Scale: ½" = 1'-0"

NOTE:
For "SECTION A-A", "SECTION B-B", "BAR LIST (PER BENT)" and "BAR BENDING DIAGRAMS", see Dwg. 64953.



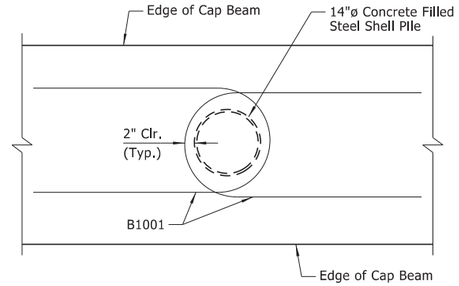
ELEVATION - END BENT NO. 1

(Looking Back)
Scale: ½" = 1'-0"

NOTE:
For plan view of Double B501 & B502 spacing, see "TRANSVERSE BAR SPACING PLAN - BENT NO. 1" on Dwg. No. 64953.

LEGEND

EF = Each Face



PLAN OF B1001 PLACEMENT

No Scale

(1) Measured to Intersection of CL Cap and End of Cap or Stage Construction Joint

(2) Measured to Intersection of CL Bearing and End of Cap or Stage Construction Joint

(3) Spacing shown measured along CL Cap. Place B604E Bars parallel to skew. Top of B604E Bars shall maintain 2" clear of paving notch in the End Bent Diaphragm.

(4) 4 Spa. @ 4" (Typ. over each pile)

(5) Orient each pair of B503 bars to be parallel to horizontal legs of adjacent Double B501 Tie.

(6) Position vertically each pair of B1001 bars as shown at each pile. Top pair may be adjusted slightly to rest on nearest layer of B503 bars. Top pair shall not be placed higher than top of pile. See "PLAN OF B1001 PLACEMENT" for additional details.

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

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

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.

Granular backfill and pipe underdrain required behind end bent caps. See Dwg. No. 64957 for details.

For additional information, see Layout on Dwg. No. 64947.

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2021 FILENAME: b100997_a1.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64951

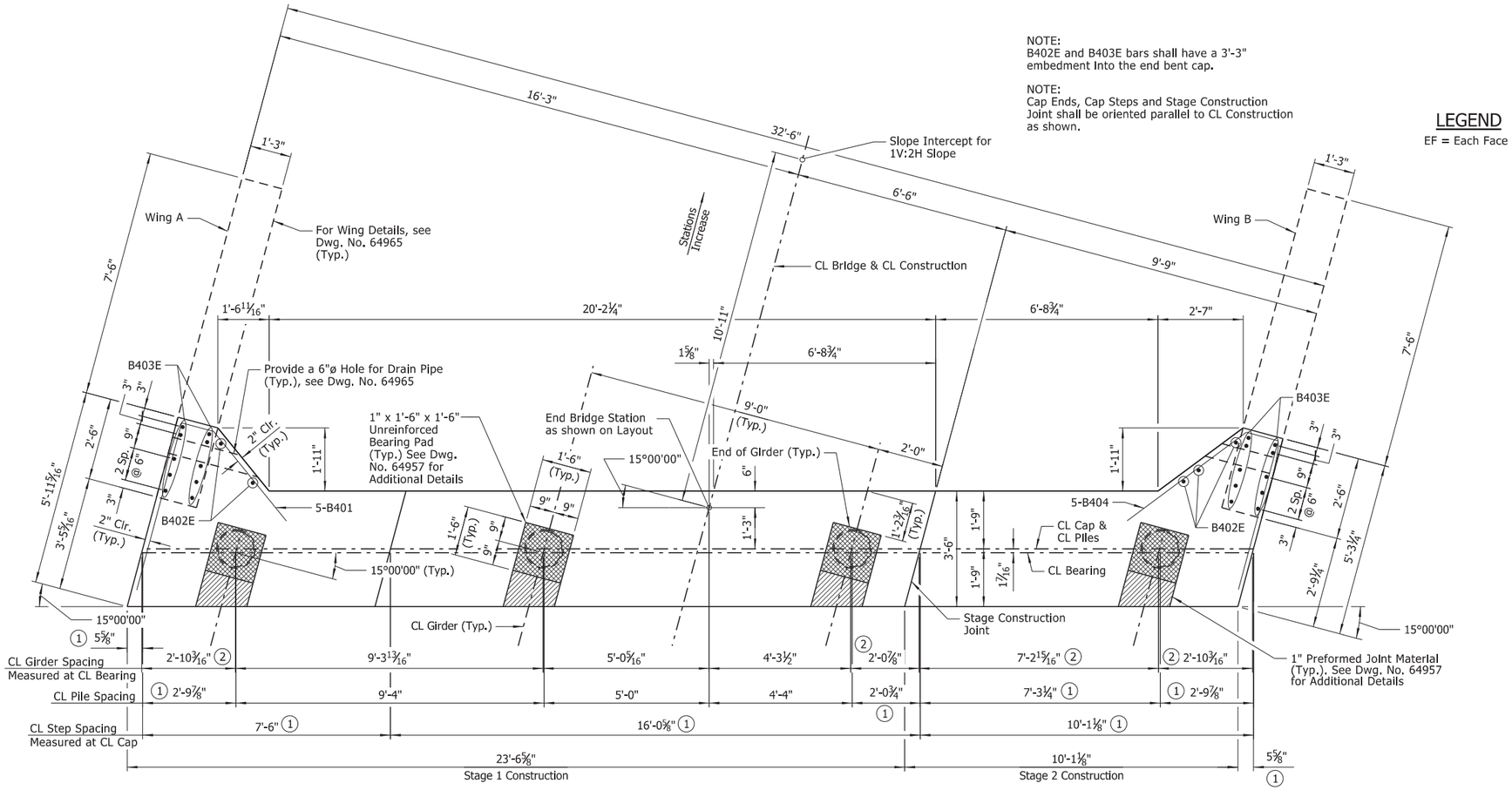
abhall 2/18/2022 11:57:35 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S201_AB.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	31	59
				(I) 07575		END BENTS		64952

NOTE:
B402E and B403E bars shall have a 3'-3" embedment into the end bent cap.

NOTE:
Cap Ends, Cap Steps and Stage Construction Joint shall be oriented parallel to CL Construction as shown.

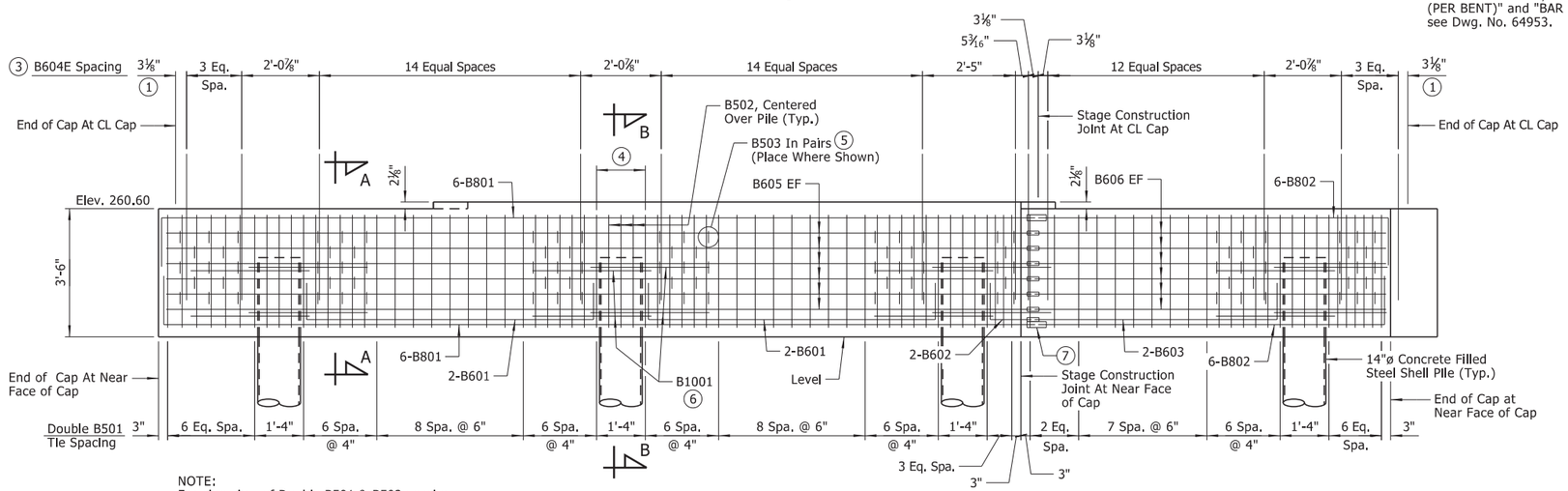
LEGEND
EF = Each Face



PLAN - END BENT NO. 4

Scale: ½" = 1'-0"

NOTE:
For "SECTION A-A", "SECTION B-B", "BAR LIST (PER BENT)" and "BAR BENDING DIAGRAMS", see Dwg. No. 64953.



NOTE:
For plan view of Double B501 & B502 spacing, see "TRANSVERSE BAR SPACING PLAN - BENT NO. 4" on Dwg. No. 64953.

ELEVATION - END BENT NO. 4

(Looking Ahead)
Scale: ½" = 1'-0"

(1) Measured to Intersection of CL Cap and End of Cap or Stage Construction Joint

(2) Measured to Intersection of CL Bearing and End of Cap or Stage Construction Joint

(3) Spacing shown measured along CL Cap. Place B604E Bars parallel to skew. Top of B604E Bars shall maintain 2" clear of paving notch in the End Bent Diaphragm.

(4) 4 Spa. @ 4" (Typ. over each pile)

(5) Orient each pair of B503 bars to be parallel to horizontal legs of adjacent Double B501 Tie.

(6) Position vertically each pair of B1001 bars as shown at each pile. Top pair may be adjusted slightly to rest on nearest layer of B503 bars. Top pair shall not be placed higher than top of pile See "PLAN OF B1001 PLACEMENT" on Dwg. No. 64951 for additional details.

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

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

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.

Granular backfill and pipe underdrain required behind end bent caps. See Dwg. No. 64957 for details.

For additional information, see Layout on Dwg. No. 64947.

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

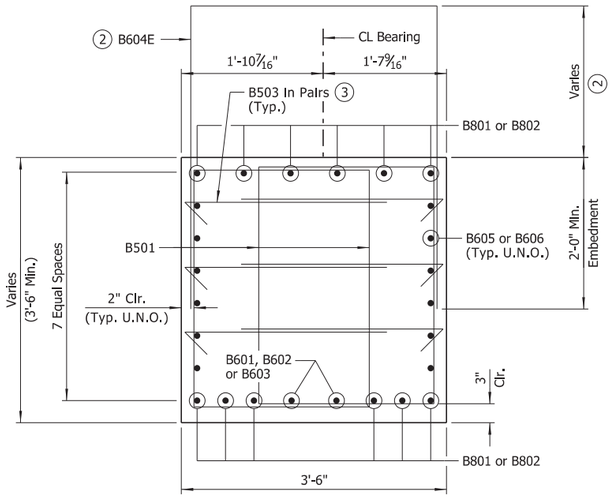
SHEET 2 OF 3
DETAILS OF END BENTS
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2021 FILENAME: b100997_a2.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: NOV. 2021
BRIDGE NO. 07575 DRAWING NO. 64952

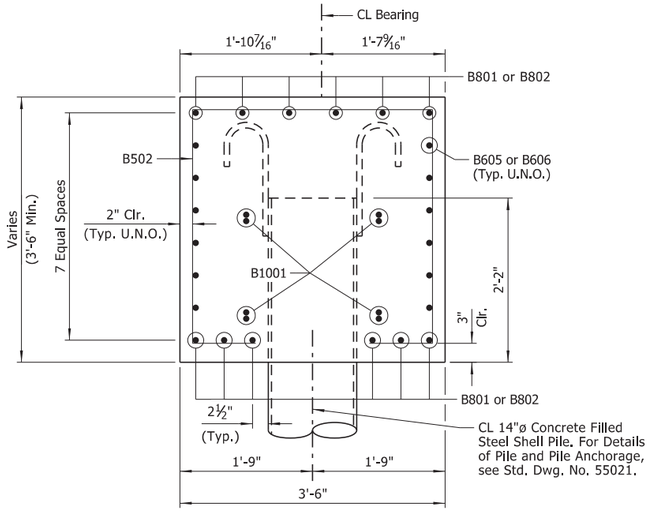
abhall 2/18/2022 11:57:37 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S202_A8.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	32	59
				(I) 07575		END BENTS		64953



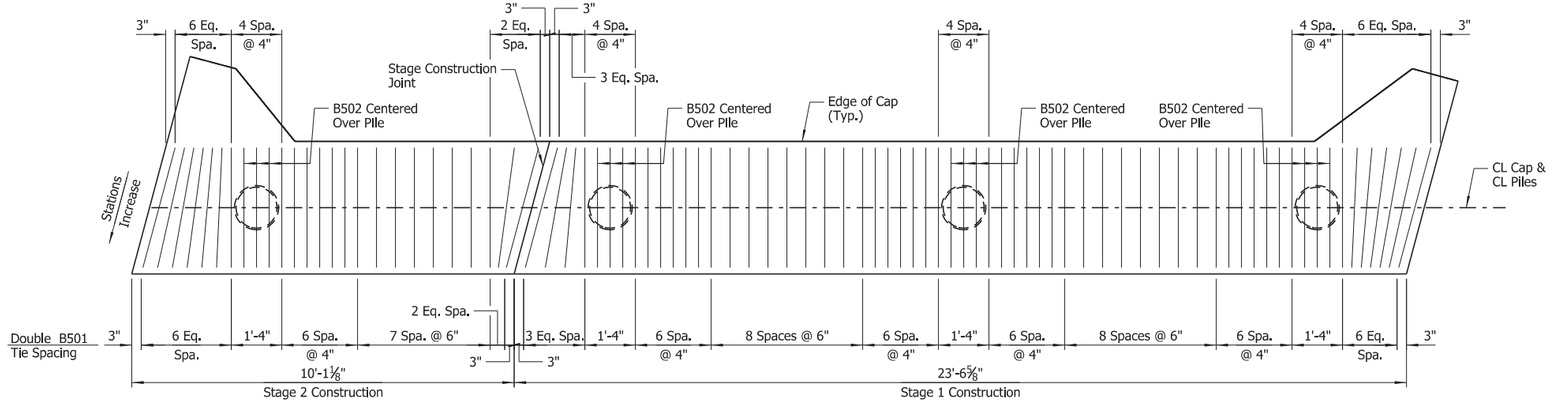
SECTION A-A

Scale: 1" = 1'-0"



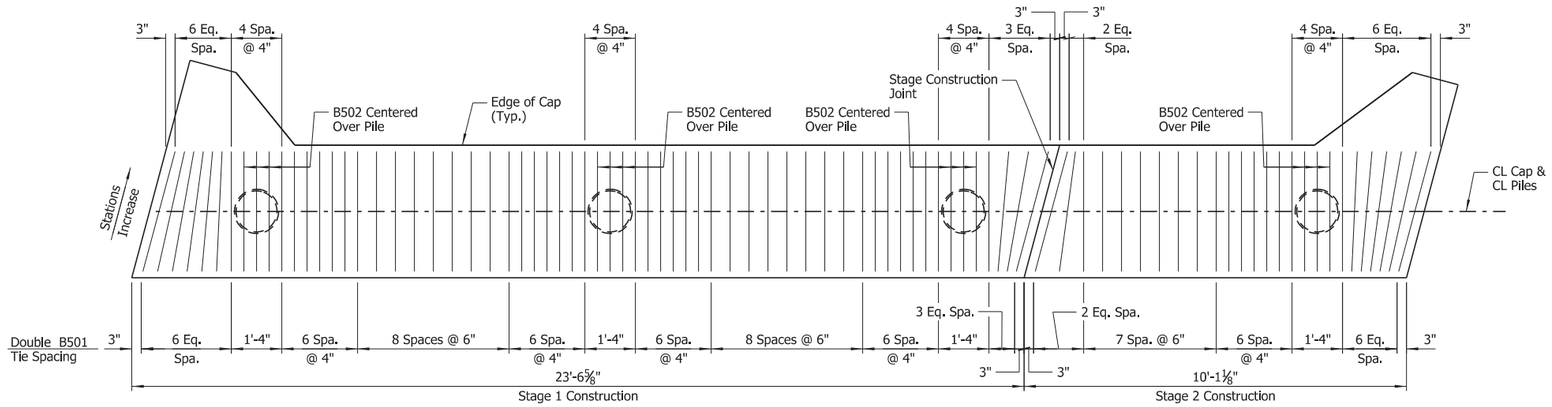
SECTION B-B

Scale: 1" = 1'-0"



TRANSVERSE BAR SPACING PLAN - BENT NO. 1

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



TRANSVERSE BAR SPACING PLAN - BENT NO. 4

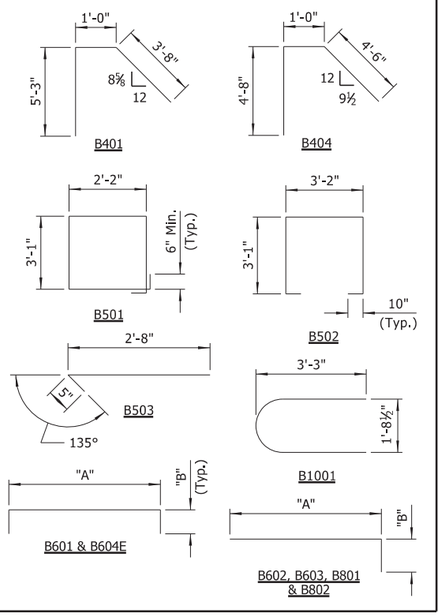
Scale: 1/2" = 1'-0"

BAR LIST (PER BENT)

	MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
	B401	5	9'-10"			2"
	B402E	5	5'-8"			Str.
	B403E	20	6'-11"			Str.
	B404	5	10'-1"			2"
	B501	152	11'-0"			2½"
	B502	12	10'-7"			2½"
	B503	198	3'-1"			3¾"
	B601	4	9'-7½"	7'-11"	1'-0"	4½"
(1)	B602	2	2'-10"	2'-0"	1'-0"	4½"
(1)	B603	2	6'-8"	5'-10"	1'-0"	4½"
	B604E	52	12'-3"	3'-3"	4'-8"	4½"
(1)	B605	12	23'-9"			Str.
(1)	B606	12	9'-3"			Str.
(1)	B801	12	25'-1½"	24'-0"	1'-4"	6"
(1)	B802	12	10'-4½"	9'-3"	1'-4"	6"
	B1001	16	7'-4"			1'-6"

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

BAR BENDING DIAGRAMS



(2) Place B604E Bars parallel to skew. Adjust projection of Bars B604E to maintain 2" clear of paving notch in the End Bent Diaphragm.

(3) See "ELEVATION - END BENT NO. 1" on Dwg. No. 64951 and "ELEVATION - END BENT NO. 4" on Dwg. No. 64952 for placement.

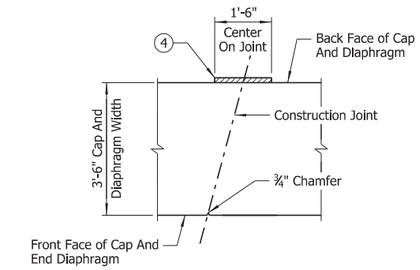
NOTES:
Number of bars shown is for one end bent only.

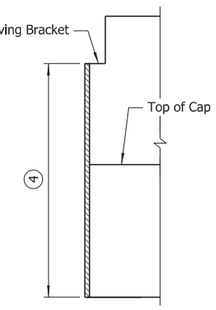
Dimensions of bars are out-to-out.

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

LEGEND

U.N.O. = Unless Noted Otherwise





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

(4) Membrane waterproofing Type "C" or approved equal, see Section 815. Membrane waterproofing shall extend from the bottom of the cap to the paving bracket.

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

CONSTRUCTION JOINT DETAIL

No Scale

SHEET 3 OF 3
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2021 FILENAME: b100997_a3.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64953

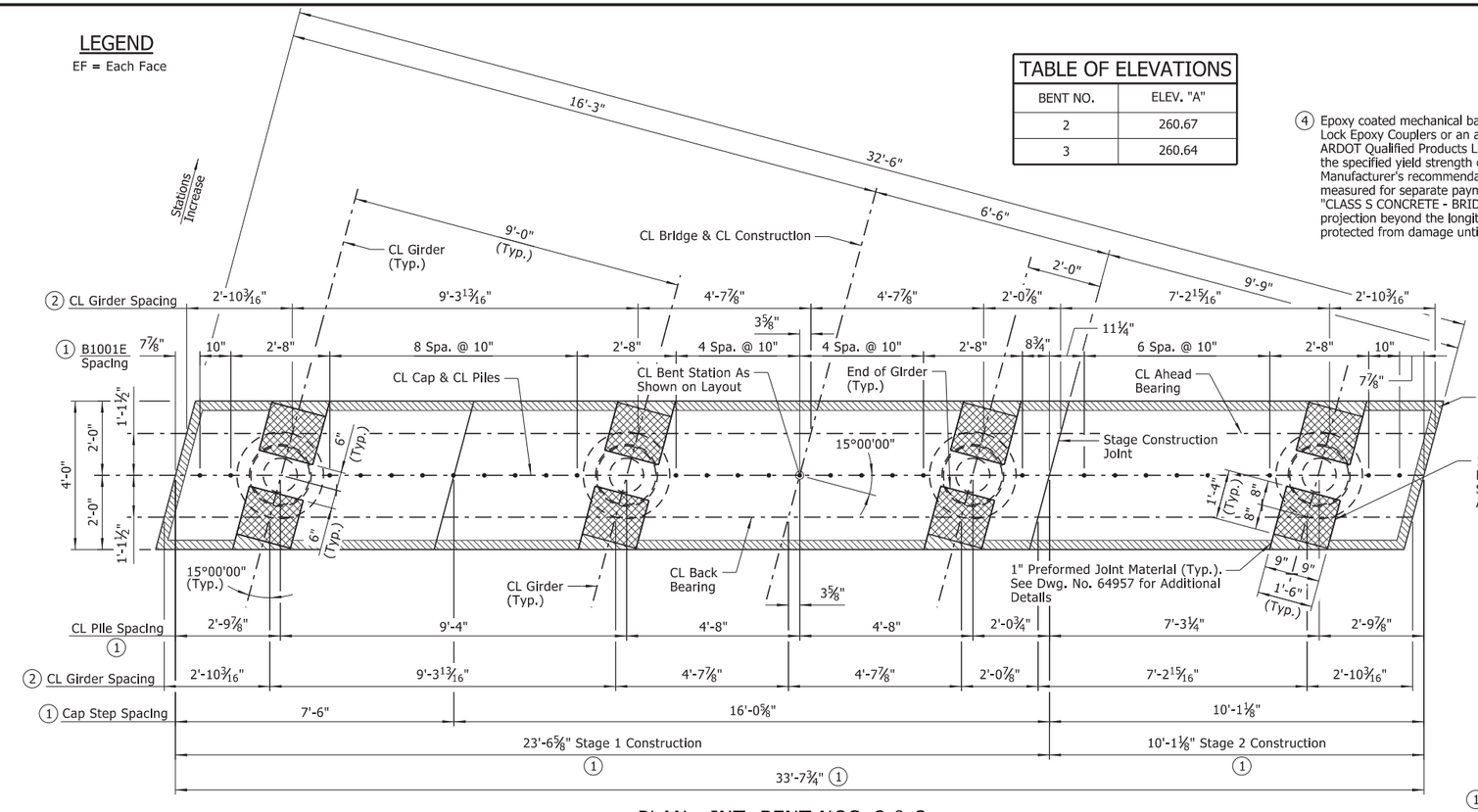
abhall 2/18/2022 11:57:39 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S203_AB.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	33	59
				07575		INT. BENTS		64954

LEGEND

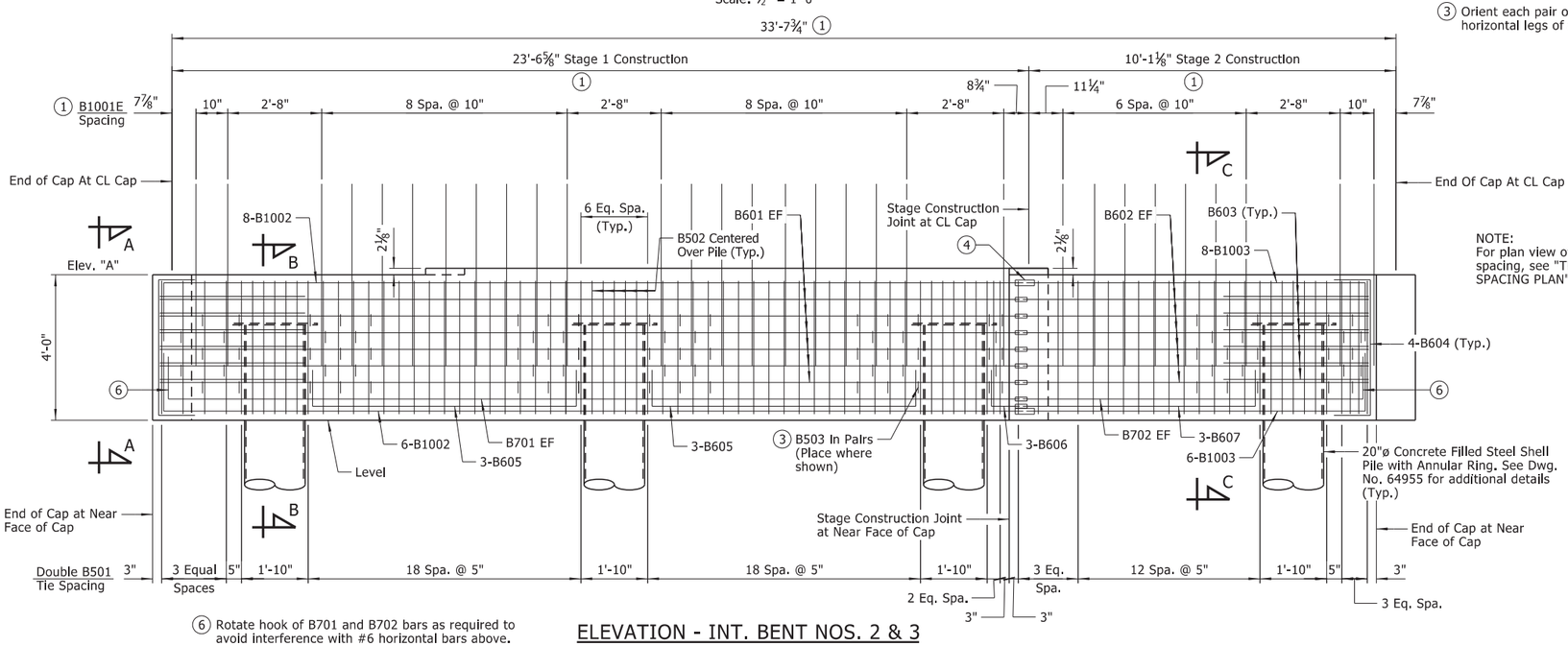
EF = Each Face

TABLE OF ELEVATIONS	
BENT NO.	ELEV. "A"
2	260.67
3	260.64



PLAN - INT. BENT NOS. 2 & 3

Scale: ½" = 1'-0"



(6) Rotate hook of B701 and B702 bars as required to avoid interference with #6 horizontal bars above.

ELEVATION - INT. BENT NOS. 2 & 3

(Looking Ahead)
Scale: ½" = 1'-0"

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

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

½" x 3" Preformed Joint Material (Typ. around perimeter of cap)

1" x 1'-4" x 1'-6" Unreinforced Bearing Pad (Typ.) See Dwg. No. 64957 For Additional Details

NOTE:
Cap Ends, Cap Steps and Stage Construction Joint shall be oriented parallel to CL Construction as shown.

NOTE:
For "VIEW A-A", "SECTION B-B" and "SECTION C-C", see Dwg. No. 64955.

(1) Measured along CL Cap

(2) Measured along CL Bearing

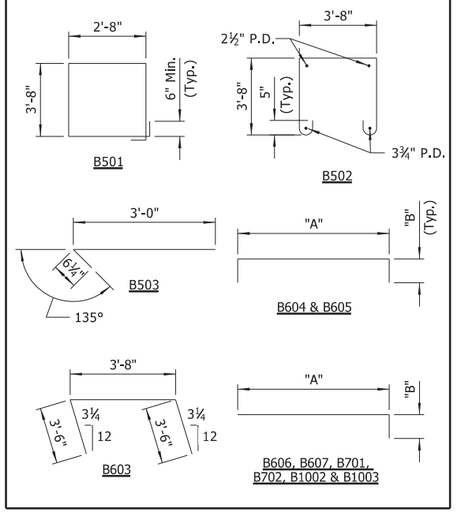
(3) Orient each pair of B503 bars to be parallel to horizontal legs of adjacent Double B501 Tie.

NOTE:
For plan view of Double B501 & B502 spacing, see "TRANSVERSE BAR SPACING PLAN" on Dwg. No. 64955.

BAR LIST (PER BENT)

	MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
	B501	134	13'-2"			2½"
	B502	20	11'-11½"			2½", 3¾"
	B503	186	3'-7"			3¾"
(5)	B601	12	23'-9"			Str.
(5)	B602	12	9'-3"			Str.
	B603	12	10'-5"			4½"
	B604	8	5'-3"	3'-6"	1'-0"	4½"
	B605	6	9'-2"	7'-5"	1'-0"	4½"
(5)	B606	3	2'-5"	1'-7"	1'-0"	4½"
(5)	B607	3	6'-7"	5'-9"	1'-0"	4½"
(5)	B701	2	24'-9"	23'-9"	1'-2"	5¼"
(5)	B702	2	10'-1"	9'-1"	1'-2"	5¼"
	B1001E	30	5'-0"			Str.
(5)	B1002	14	25'-7"	24'-1"	1'-9½"	10"
(5)	B1003	14	10'-8"	9'-2"	1'-9½"	10"

BAR BENDING DIAGRAMS



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

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

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

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.

For additional information, see Layout on Dwg. No. 64947.

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

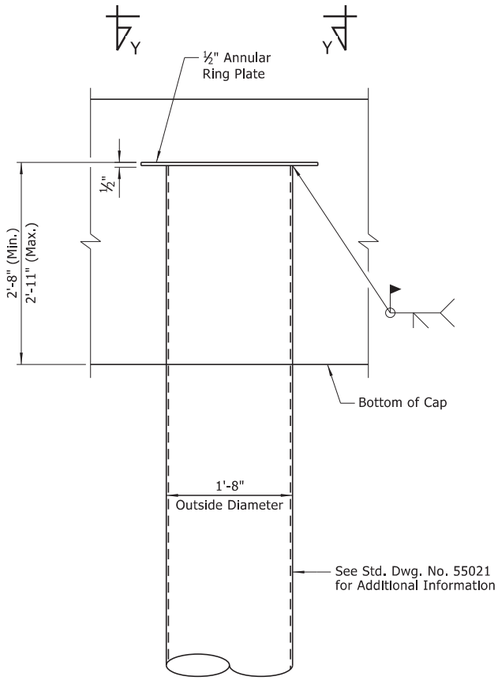
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: RAK DATE: NOV. 2021 FILENAME: b100997_b1.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64954

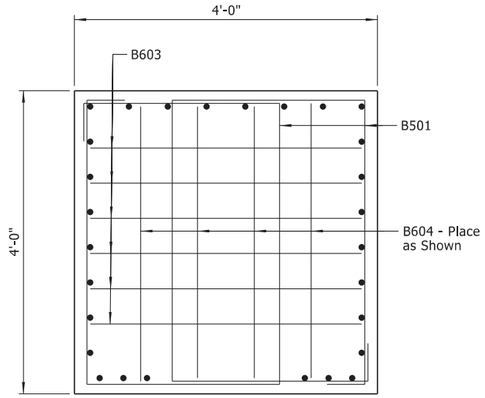
abhall 2/18/2022 11:57:40 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S204_BE.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	34	59
				07575		INT. BENTS		64955



ANNULAR RING DETAIL
Scale: 1" = 1'-0"

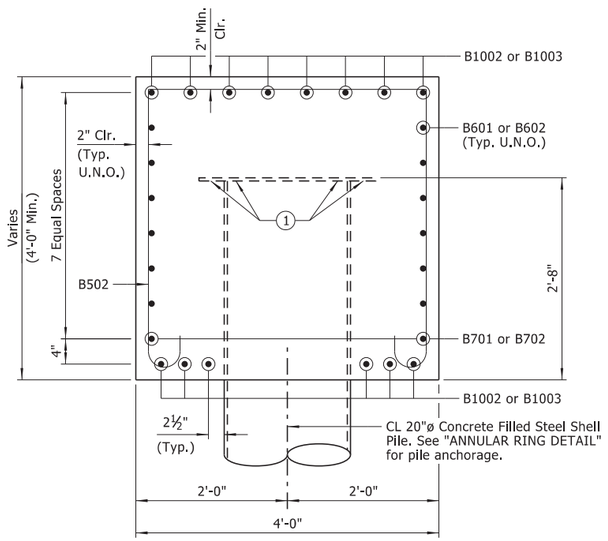
NOTE:
The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "STEEL SHELL PILING (20" DIA.)".



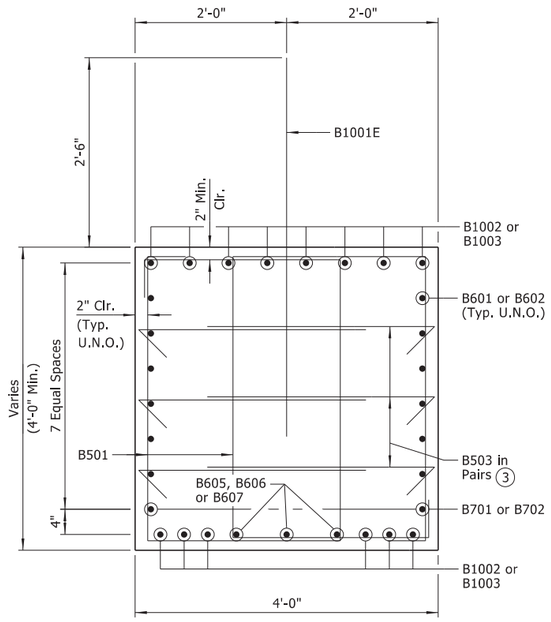
VIEW A-A
Scale: 1" = 1'-0"

LEGEND
U.N.O. = Unless Noted Otherwise

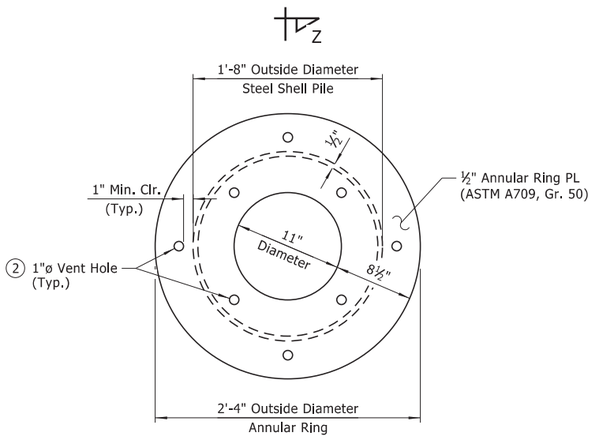
(1) Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.



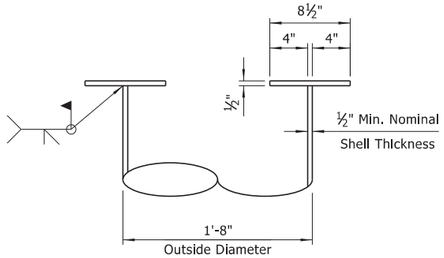
SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

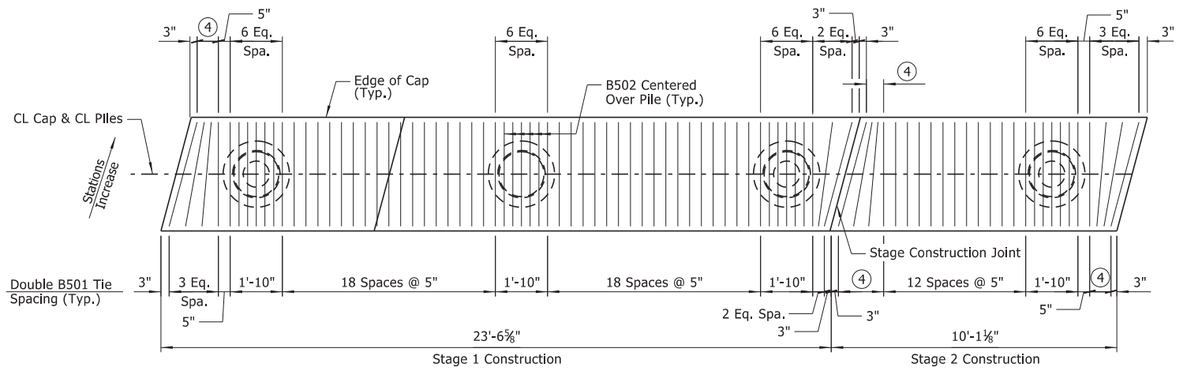


SECTION Y-Y
Scale: 1½" = 1'-0"



SECTION Z-Z
Scale: 1½" = 1'-0"

(2) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.



TRANSVERSE BAR SPACING PLAN
Scale: ⅜" = 1'-0"

(3) See "ELEVATION - INT. BENT NOS. 2 & 3" on Dwg. No. 64954 for placement.

(4) 3 Equal Spaces

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

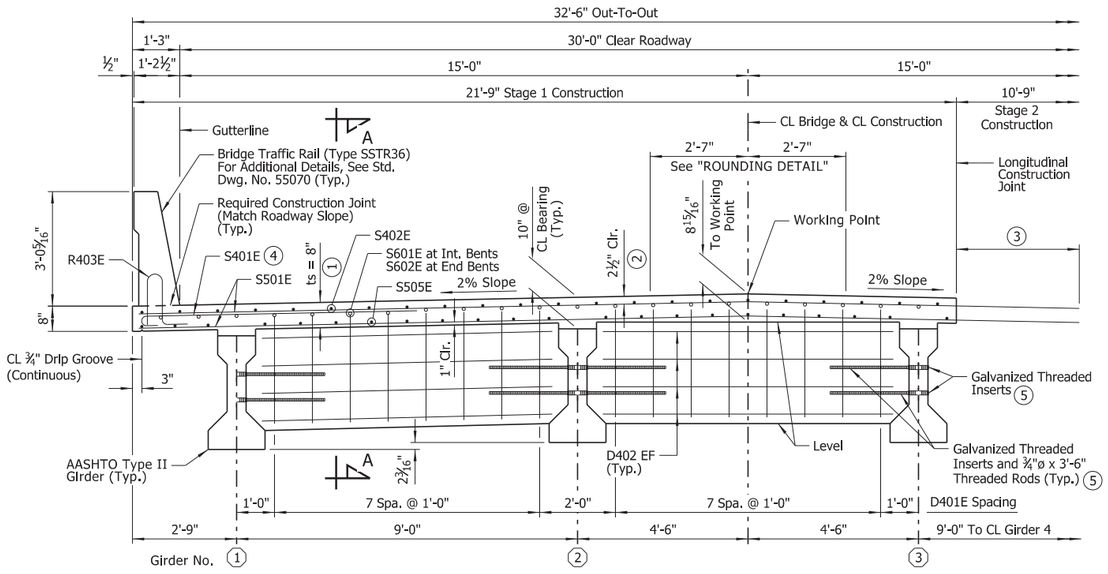
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: RAK DATE: NOV. 2021 FILENAME: b100997_b2.dgn
CHECKED BY: ABH DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: ERM DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64955

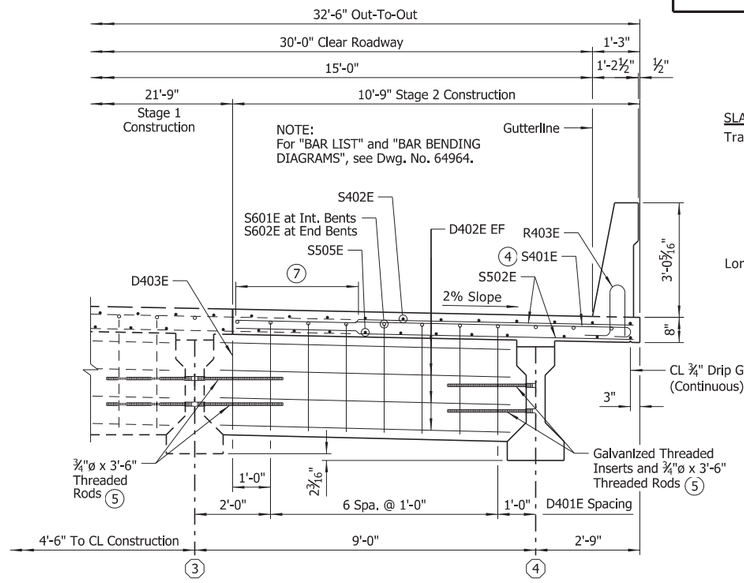
abhall 2/18/2022 11:57:41 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S205_BE.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	35	59
				(1) 07575		128'-8" UNIT		64956



TYPICAL ROADWAY SECTION - STAGE 1 CONSTRUCTION

(Showing Partial Depth Intermediate Diaphragms)
(Looking Ahead)
Scale: ½" = 1'-0"



TYPICAL ROADWAY SECTION - STAGE 2 CONSTRUCTION

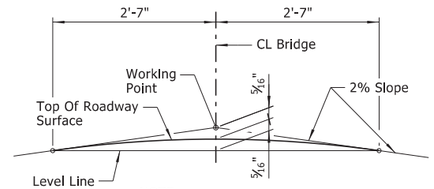
(Showing Partial Depth Intermediate Diaphragms)
(Looking Ahead)
Scale: ½" = 1'-0"

SLAB REINFORCING:

Transverse: Stage 1:
S501E @ 6" O.C. in Top and Bottom
S401E @ 6" O.C. in Top of Left Overhang (Bundled with S501E Bars)

Stage 2:
S502E @ 6" O.C. Top and Bottom
S401E @ 6" O.C. in Top of Right Overhang (Bundled with S502E Bars)

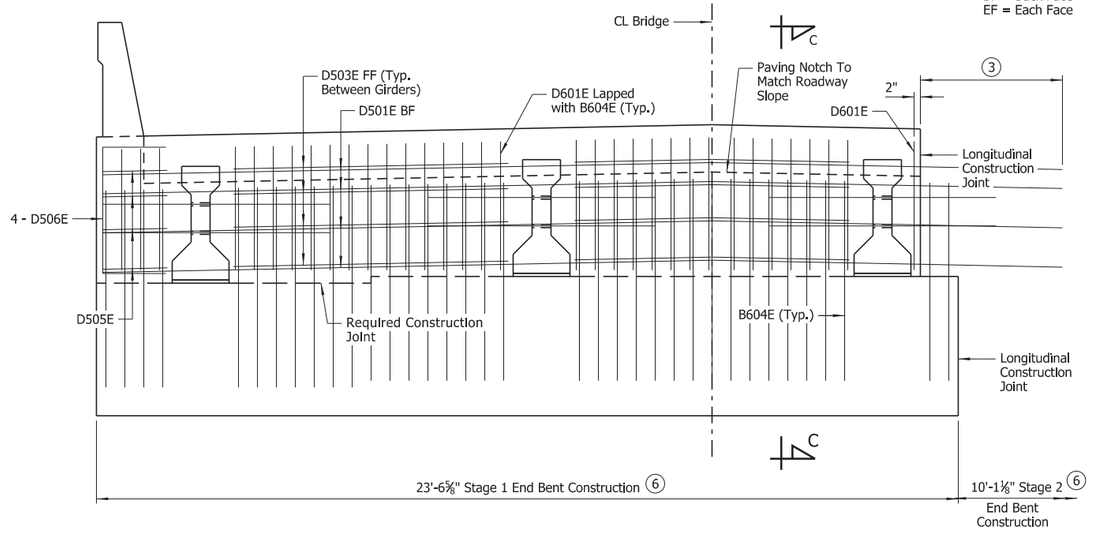
Longitudinal: Stages 1 & 2:
S402E in Top as Shown
S505E in Bottom as Shown
S601E in Top as Shown Over Int. Bents
S602E in Top as Shown at End Bents



NOTE:
Working Point matches Theoretical Grade.

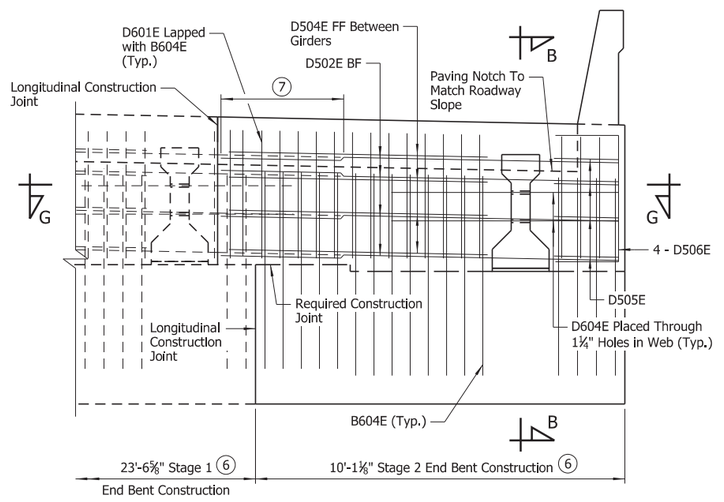
ROUNDING DETAIL

No Scale



TYPICAL SECTION AT END BENT DIAPHRAGMS - STAGE 1 CONSTRUCTION

(Looking Ahead at Bent 4, Bent 1 Similar)
Scale: ½" = 1'-0"



TYPICAL SECTION AT END BENT DIAPHRAGMS - STAGE 2 CONSTRUCTION

(Looking Ahead at Bent 4, Bent 1 Similar)
Scale: ½" = 1'-0"

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

NOTES:
Limits of the concrete End Bent Diaphragm shall match plan dimension of End Bent Cap.

Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the bridge traffic rail.

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

For "GENERAL NOTES - SUPERSTRUCTURE", see Dwg. No. 64963.

For "SECTION A-A", see Dwg. No. 64958.

For "SECTION B-B" and "SECTION C-C", see Dwg. No. 64957.

For "SECTION G-G", see Dwg. No. 64964.

(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 64963.

(2) Tolerance: Minus = ¼"
Plus = to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 64963.

(3) Bar Projection: 3'-9" Minimum for #5 Bars

(4) Bundle with S501E & S502E bars in top. Rotate as needed to avoid interference with bottom mat of deck reinforcement.

(5) Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾"ø Galvanized Threaded Rods shall be ASTM A709, Grade 36 or AASHTO M 31 or M 322 Type A, Grade 60. Galvanizing shall be in accordance with AASHTO M 232, Class C or ASTM B695, Class 50. These items will not be paid for directly but shall be considered subsidiary to the Item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

(6) Measured Along End Bent

(7) 3'-7" Minimum Lap Splice

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

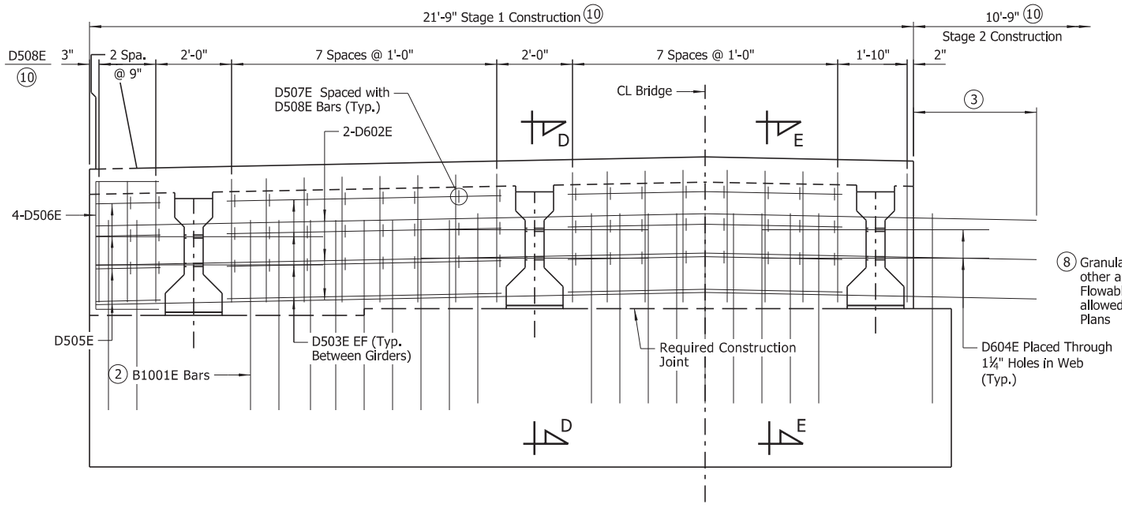
SHEET 1 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

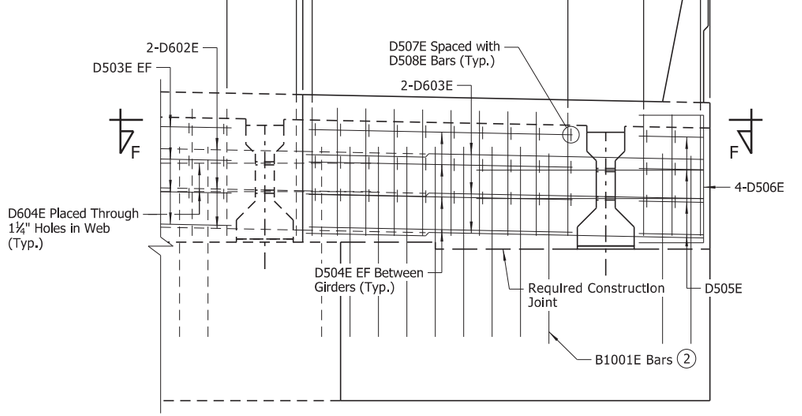
DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s1.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021
BRIDGE NO. 07575 DRAWING NO. 64956

abhall 2/18/2022 11:57:42 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S301_SX.dgn
REVISED DATE:



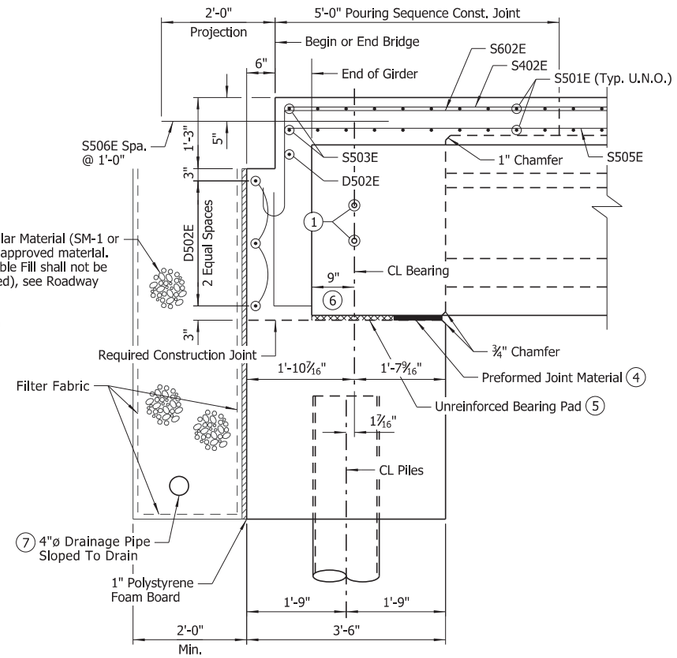
TYPICAL SECTION AT INTERMEDIATE BENT DIAPHRAGM - STAGE 1 CONSTRUCTION

(Looking Ahead)
Scale: ½" = 1'-0"



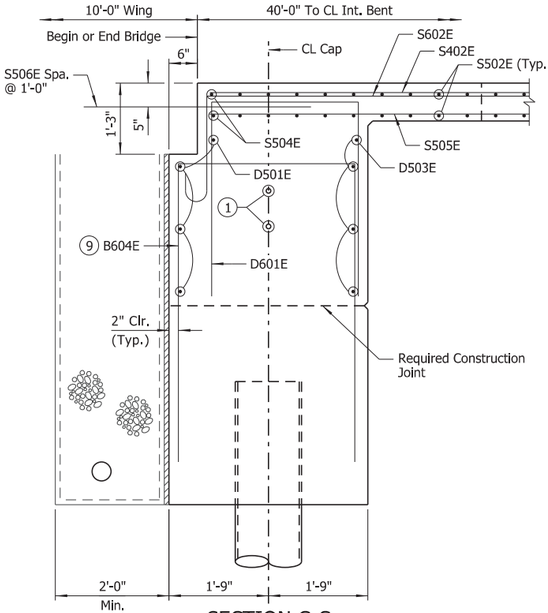
TYPICAL SECTION AT INTERMEDIATE BENT DIAPHRAGM - STAGE 2 CONSTRUCTION

(Looking Ahead)
Scale: ½" = 1'-0"



SECTION B-B

(Looking Normal To Bent)
Scale: ¾" = 1'-0"



SECTION C-C

(Looking Normal To Bent)
Scale: ¾" = 1'-0"

1 D604E through 1¼" ø holes in web

2 For additional details of B1001E bars, see Dwg. No. 64954.

3 Bar projection: 3'-9" for #5 Bars
4'-0" for #6 Bars

4 Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "CLASS S(AE) CONCRETE - BRIDGE". See "PLAN - INT. BENT NOS. 2 & 3" on Dwg. No. 64954.

5 Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary to the item "CLASS S(AE) CONCRETE - BRIDGE", see Dwg. No. 64954 for additional details.

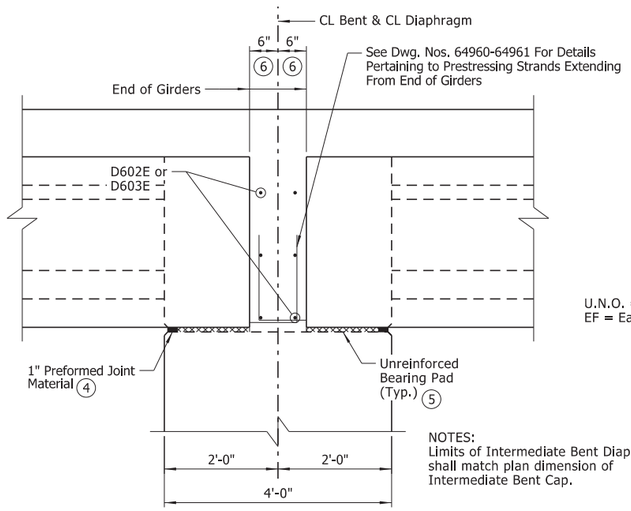
6 Measured along CL Girder

7 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 various bid items.

8 Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to various bid items.

9 For additional details, see End Bent Details on Dwg. Nos. 64951-64953.

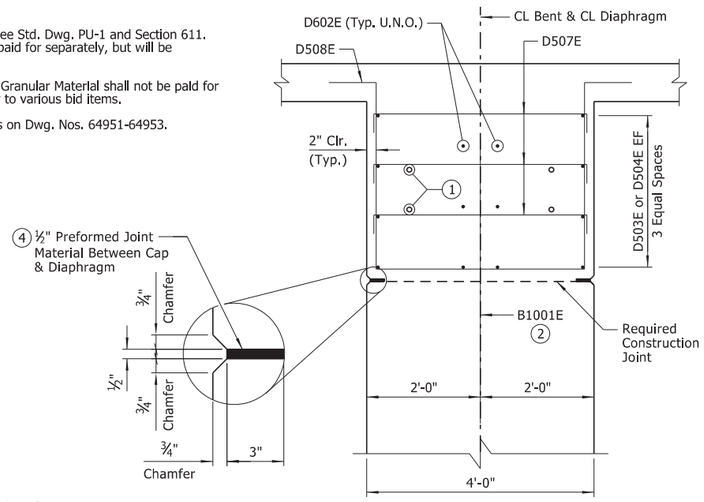
10 Measured perpendicular to CL Bridge.



SECTION D-D

Scale: ¾" = 1'-0"

NOTES:
Limits of Intermediate Bent Diaphragm shall match plan dimension of Intermediate Bent Cap.



SECTION E-E

Scale: ¾" = 1'-0"

LEGEND

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

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.		100997	36	59
				07575		128'-8" UNIT		64957

SHEET 2 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

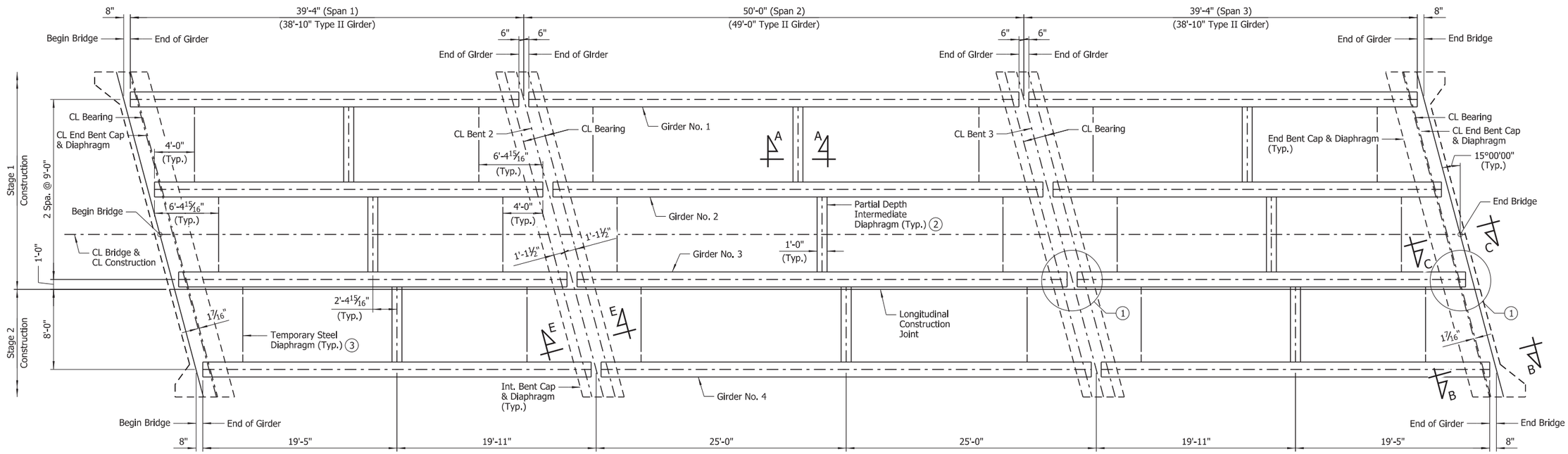
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s2.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64957

abhall
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S302_SX.dgn
REVISED DATE:
2/18/2022 11:57:43 AM

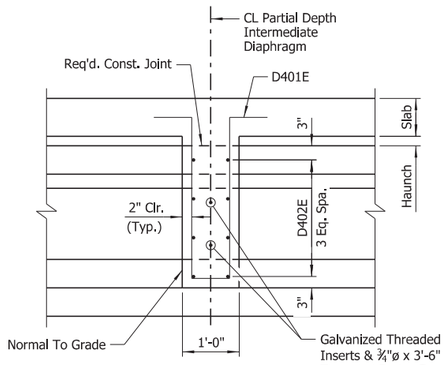
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	37	59
				07575		128'-8" UNIT		64958



FRAMING PLAN

Scale: 3/16" = 1'-0"

NOTE:
For "SECTION B-B", "SECTION C-C", "SECTION E-E" and details of End and Intermediate Bent Diaphragms, see Dwg. No. 64957. For additional details of Partial Depth Intermediate and End Bent Diaphragms, see Dwg. No. 64956.

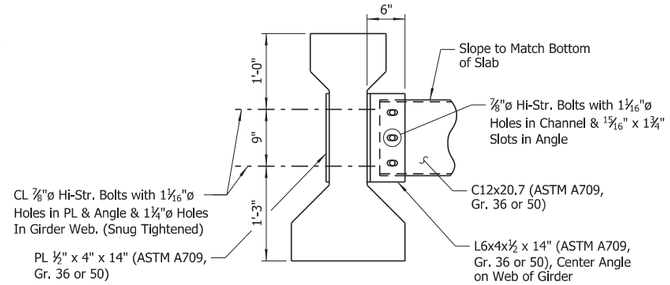


SECTION A-A

Scale: ¾" = 1'-0"

LEGEND

EF = Each Face



DETAILS OF STEEL DIAPHRAGM

No Scale

NOTES:
Steel Diaphragms shall be used at locations noted as "Temporary Steel Diaphragm". The Temporary Steel Diaphragm and components will not be paid for directly, but shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

Permanent Steel Diaphragms may be used in lieu of concrete diaphragms at locations noted as "Partial Depth Intermediate Diaphragm" and payment for permanent steel diaphragms and components will be based on concrete diaphragms.

All components of Steel Diaphragms (Permanent and Temporary) shall be galvanized in accordance with Section 807.19.

A standard washer shall be supplied under both the nut and the head of the ⅞"ø Hi-Str. Bolts. An additional plate washer shall cover the angle slots.

1. After erection, the ends of girders at all bents shall be blocked using temporary blocking to maintain proper location on bent caps. The ends of girders shall remain blocked until after the temporary steel diaphragms are in place.
2. For details of alternate steel diaphragm, see "DETAILS OF STEEL DIAPHRAGM".
3. After the concrete deck construction and curing are complete, the temporary steel diaphragm and connecting elements may remain in place or be removed and become the property of the Contractor. If removed, the holes in the girder webs shall be filled with a QPL approved non-shrink epoxy grout. For additional diaphragm details, see "DETAILS OF STEEL DIAPHRAGM".
4. Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾"ø Galvanized Threaded Rods shall be ASTM A709, Grade 36 or AASHTO M 31 or M 322 Type A, Grade 60. Galvanizing shall be in accordance with AASHTO M 232, Class C or ASTM B695, Class 50. These items will not be paid for directly but shall be considered subsidiary to the Item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 3 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

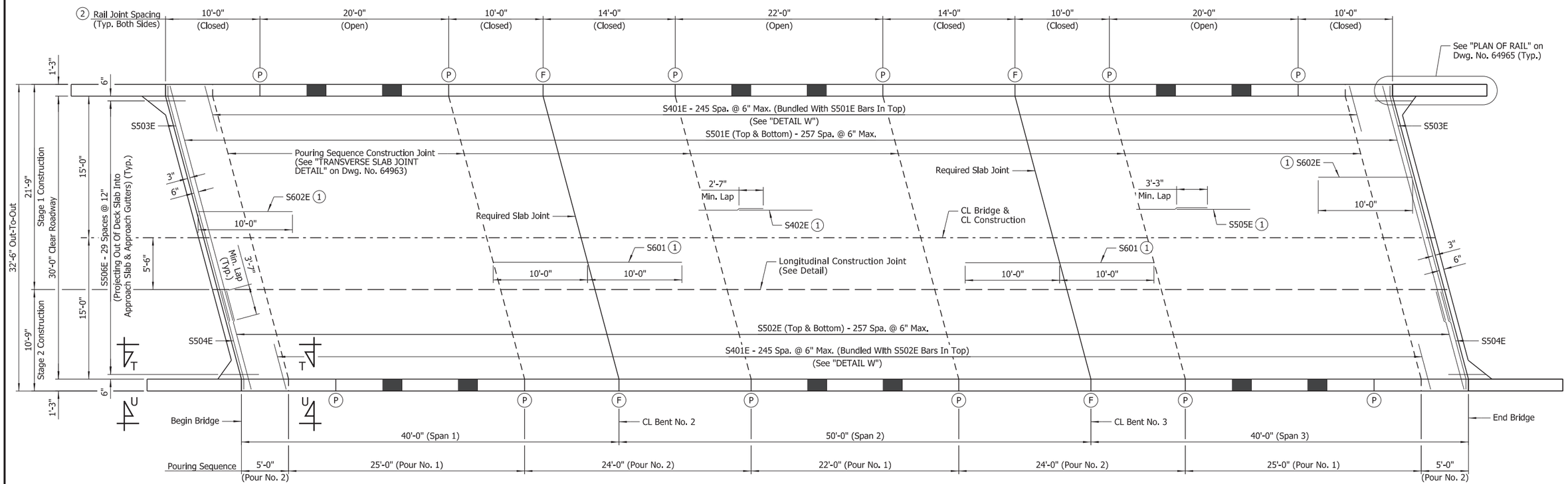
DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s3.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64958

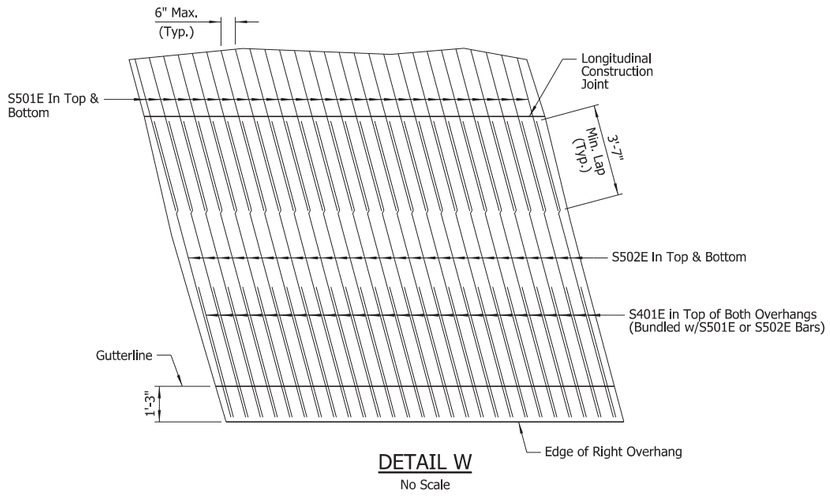
abhall 2/18/2022 11:57:44 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S303_SF.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	38	59
				07575		128'-8" UNIT		64959

(1) Placed as shown in "TYPICAL ROADWAY SECTION - STAGE 1 CONSTRUCTION" & "TYPICAL ROADWAY SECTION - STAGE 2 CONSTRUCTION" on Dwg. No. 64956.



(2) Rail joints designated with symbol (F) shall be stopped 6" from top of slab. All other rail joints with symbol (P) shall be partial depth joints stopped 16" from top of slab.



DETAIL W
No Scale

REINFORCING PLAN & SLAB POURING SEQUENCE
Scale: 3/16" = 1'-0"

SLAB POURING SEQUENCE NOTES:
Pours with the same number may be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour.

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

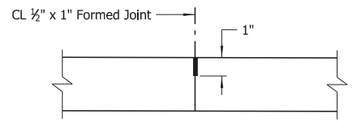
A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) shown.

Concrete diaphragms at end and intermediate bents shall be poured monolithically with the slab above the diaphragm.

All partial-depth diaphragms shall be cast in place and poured a minimum of 48 hours before the slab is poured.

Removable forms shall be used when pouring diaphragms.

The slab and diaphragms shall not be poured prior to 90 days following release of the prestressed girder strands.



LONGITUDINAL CONSTRUCTION JOINT
No Scale

NOTE:
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.

NOTES:
Rail panel spacing and joint depth shown are typical for both sides of roadway. For additional reinforcing details, see Std. Dwg. No. 55070.

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, unless noted otherwise.

For "BAR LIST", "BAR BENDING DIAGRAMS" and "ALTERNATE SLAB POURING SEQUENCE", see Dwg. No. 64964.

For "GENERAL NOTES - SUPERSTRUCTURE" and "CONCRETE PLACEMENT PROCEDURE", see Dwg. No. 64963.

For "SECTION T-T" & "VIEW U-U", see Dwg. No. 64965.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels						
Panel Length	A	R4XXE	Panel Length	B	C	D	E	F	R4XXE
10'-0"	19	04	20'-0"	9	14	5'-0"	11	6'-0"	06
14'-0"	27	05	22'-0"	11	17	6'-0"	11	6'-0"	07

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 4 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s4.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021
BRIDGE NO. 07575 DRAWING NO. 64959

abhall 2/18/2022 11:57:44 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S304_SB.dgn
REVISED DATE:

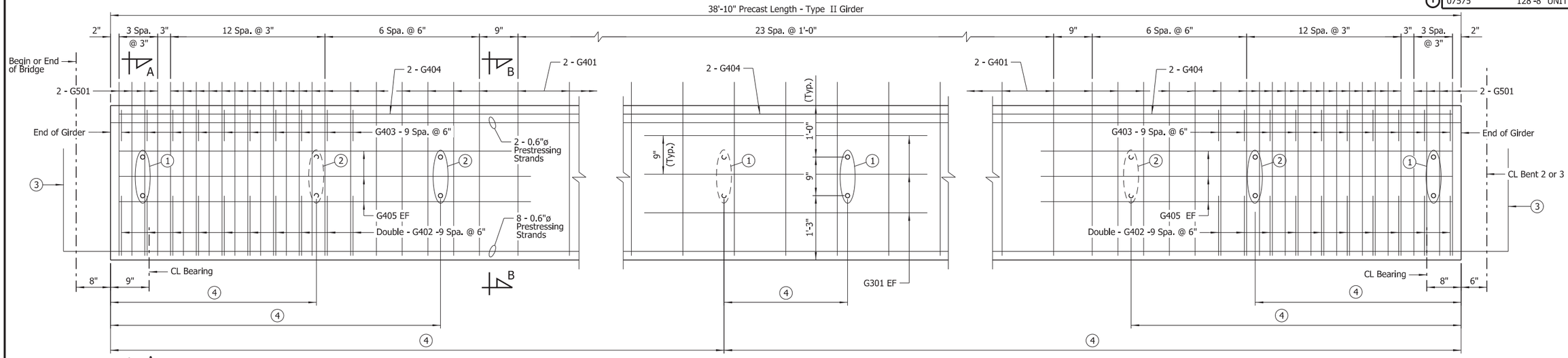
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	39	59
				07575		128'-8" UNIT		64960

(1) Connection for Bent Diaphragms: 1¼"ø holes. Connection for Partial Depth Diaphragms: ¾"ø threaded inserts. See Dwg. Nos. 64956 - 64958 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼"ø holes in web. See Dwg. No. 64958 for additional details.

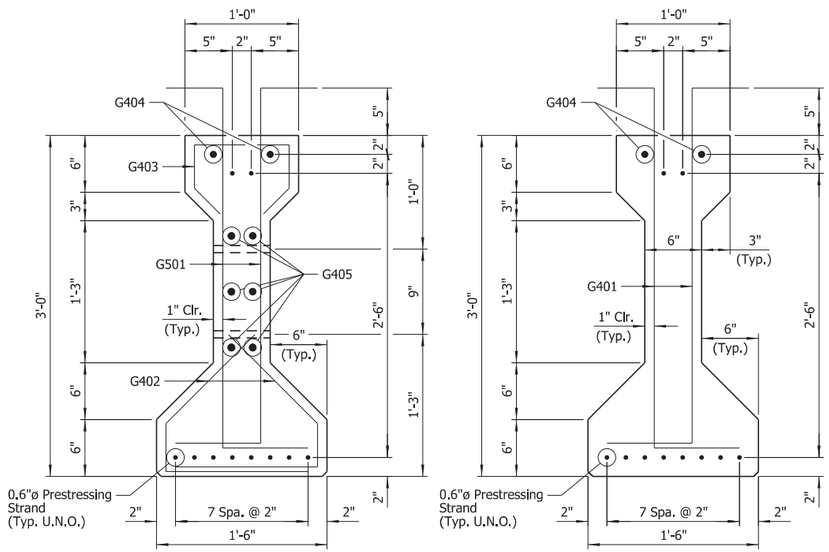
(3) Prestressing Strands bent up into end or intermediate bent diaphragm. See "END OF GIRDER VIEW - END BENT" and "END OF GIRDER VIEW - INT. BENT".

(4) See Dwg. No. 64958 for spacing of connections for temporary steel diaphragms and partial depth diaphragms.



TYPICAL GIRDER ELEVATION (TYPE II) - 38'-10"

(Span 1 Shown, Span 3 Similar)
Scale: 1" = 1'-0"

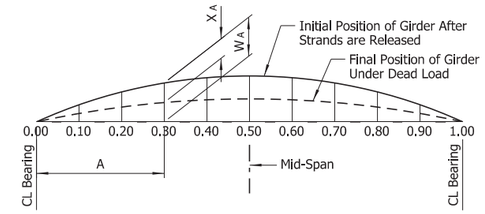


SECTION A-A

Scale: 1½" = 1'-0"

SECTION B-B

Scale: 1½" = 1'-0"



"W_A" is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X_A" Is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFLECTIONS (INCHES) - 38'-10" GIRDER

No Scale

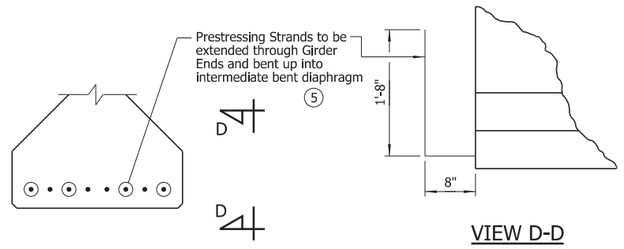
SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.170	0.059
0.20	0.306	0.121
0.30	0.401	0.170
0.40	0.456	0.199
0.50	0.474	0.211

Table symmetric about mid-span

NOTE:
Camber and Deflection Values shown are based on a concrete girder strength, f'c = 8000 psi. Greater strengths may require adjustments. See "SPECIAL CAMBER NOTES" on Dwg. No. 64963.

LEGEND

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



END OF GIRDER VIEW - INT. BENT

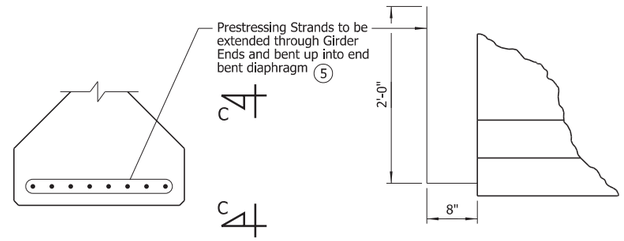
Scale: 1½" = 1'-0"

VIEW D-D

Scale: 1" = 1'-0"

(5) At End Bent Nos. 1 & 4, shop bend 8 bottom prestressing strands from the end of the girder into end bent diaphragms as shown. At Intermediate Bent Nos. 2 & 3, shop bend 4 bottom prestressing strands from the end of the girder into the intermediate bent diaphragms as shown.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strand flush with the end.



END OF GIRDER VIEW - END BENT

Scale: 1½" = 1'-0"

VIEW C-C

Scale: 1" = 1'-0"

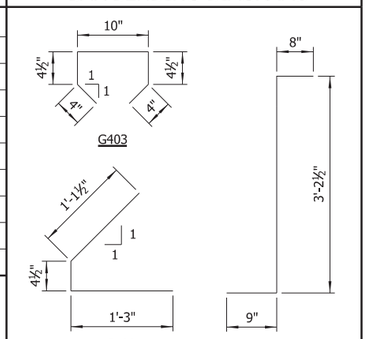
BAR LIST - PER GIRDER

MARK	NO. REQ'D	LENGTH	P.D.
G301	6	5'-6"	Str.
G401	124	4'-5½"	2"
G402	40	2'-8"	2"
G403	20	2'-1"	2"
G404	2	38'-6"	Str.
G405	12	8'-0"	Str.
G501	16	4'-5"	2½"

NOTES:
All bars in "BAR LIST - PER GIRDER" will not be paid for directly, but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)". At the Contractor's option, the two G402 bars may be furnished as one bar.

At the Contractor's option, ⅜" diameter strands pulled to 2,000 lbs. may be substituted for bars G404.

BAR BENDING DIAGRAMS



NOTES:
Dimensions are measured along girders.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

Prestressing strands shall be bonded along the entire length of the girder.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 5 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s5.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: DSB DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64960

abhall 2/18/2022 11:57:45 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S305_B8.dgn
REVISED DATE:

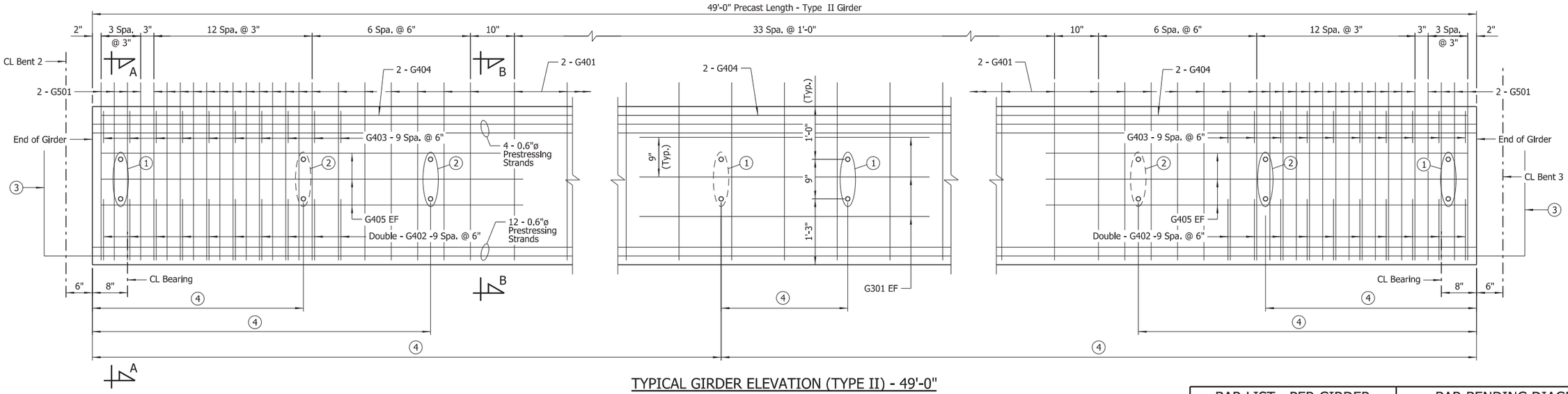
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	40	59
				07575		128'-8" UNIT		64961

(1) Connection for Bent Diaphragms: 1¼"ø holes. Connection for Partial Depth Diaphragms: ¾"ø threaded inserts. See Dwg. Nos. 64956 - 64958 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼"ø holes in web. See Dwg. No. 64958 for additional details.

(3) Prestressing Strands bent up into intermediate bent diaphragm. See "END OF GIRDER VIEW".

(4) See Dwg. No. 64958 for spacing of connections for temporary steel diaphragms and partial depth diaphragms.



TYPICAL GIRDER ELEVATION (TYPE II) - 49'-0"

Scale: 1" = 1'-0"

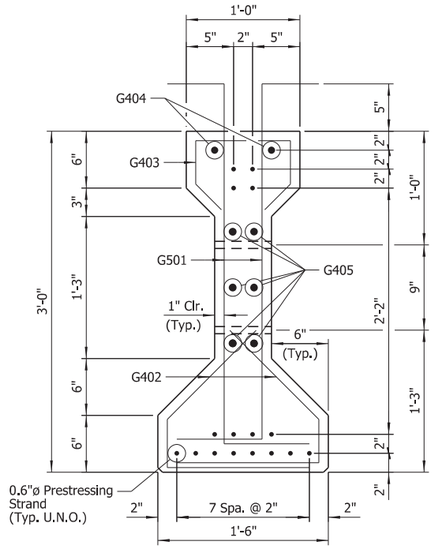
NOTES:
Dimensions are measured along girders.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

Prestressing strands shall be bonded along the entire length of the girder.

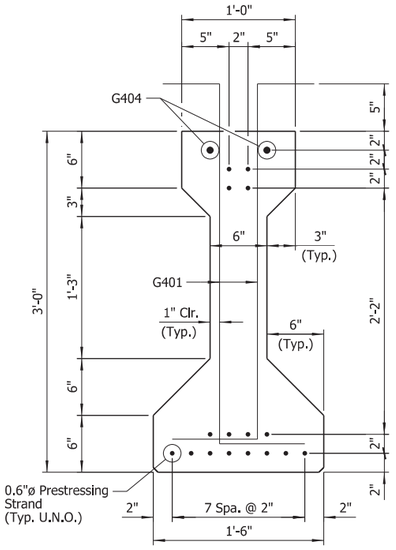
LEGEND

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



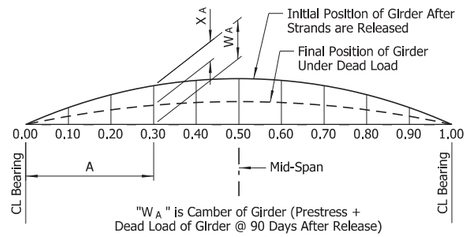
SECTION A-A

Scale: 1½" = 1'-0"



SECTION B-B

Scale: 1½" = 1'-0"

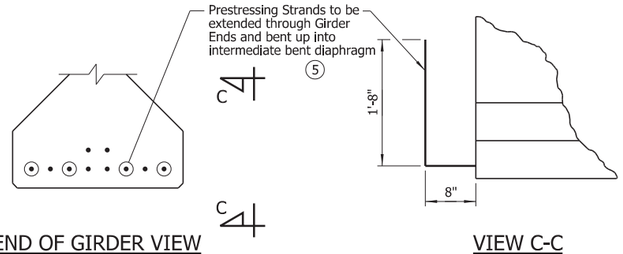


"W A " is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X A " Is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFLECTIONS (INCHES) - 49'-0" GIRDER

No Scale



END OF GIRDER VIEW

Scale: 1½" = 1'-0"

VIEW C-C

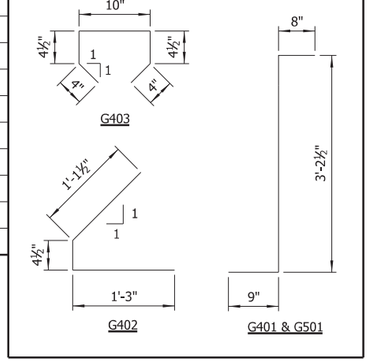
Scale: 1" = 1'-0"

(5) Shop bend 4 bottom prestressing strands from the end of the girder into intermediate bent diaphragms as shown.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strands flush with the end of the girder.

BAR LIST - PER GIRDER			
MARK	NO. REQ'D	LENGTH	P.D.
G301	6	5'-6"	Str.
G401	144	4'-5½"	2"
G402	40	2'-8"	2"
G403	20	2'-1"	2"
G404	2	48'-8"	Str.
G405	12	8'-0"	Str.
G501	16	4'-5"	2½"

BAR BENDING DIAGRAMS



SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.306	0.154
0.20	0.542	0.307
0.30	0.703	0.427
0.40	0.797	0.505
0.50	0.828	0.532

Table symmetric about mid-span

NOTE:
Camber and Deflection Values shown are based on a concrete girder strength, f'c = 8,000 psi. Greater strengths may require adjustments. See "SPECIAL CAMBER NOTES" on Dwg. No. 64963.

NOTES:
All bars in "BAR LIST - PER GIRDER" will not be paid for directly, but will be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)".

At the Contractor's option, the two G402 bars may be furnished as one bar.

At the Contractor's option, ⅜" diameter strands pulled to 2,000 lbs. may be substituted for bars G404.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 6 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

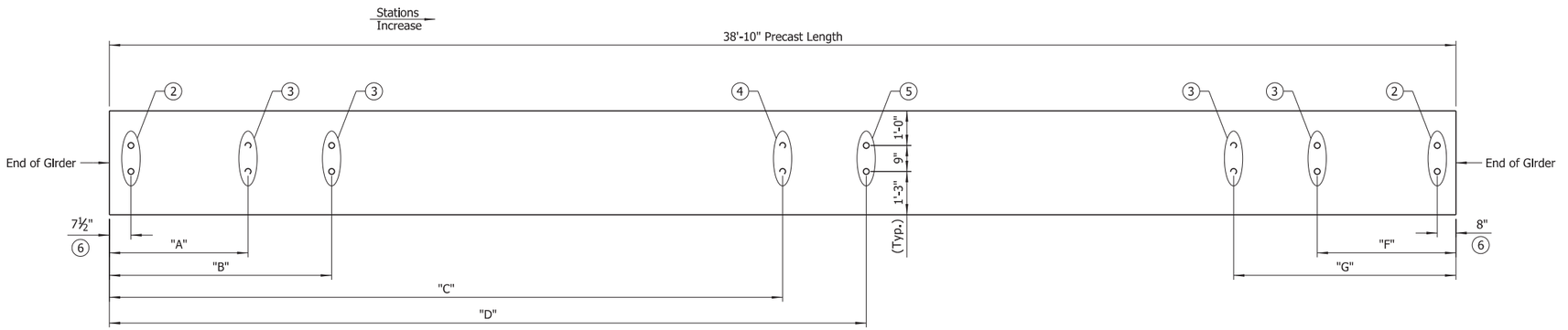
DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s6.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: DSB DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64961

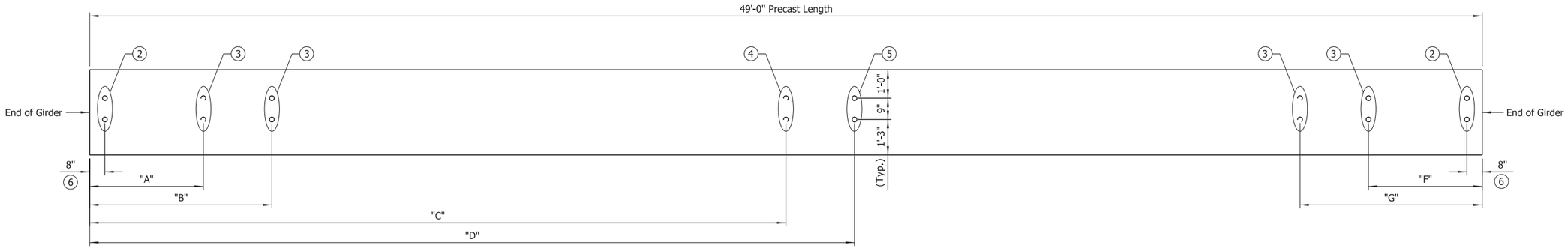
abhall 2/18/2022 11:57:46 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S306_BB.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

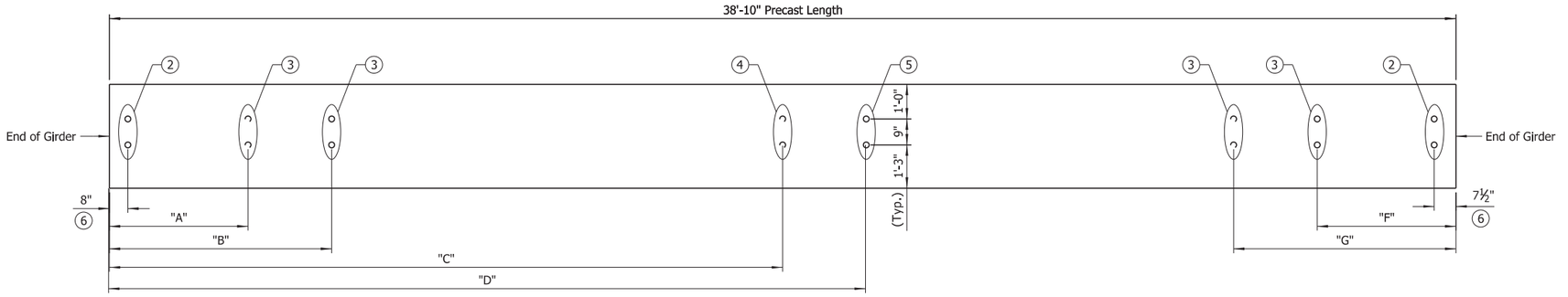
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	41	59
07575		128'-8" UNIT		64962



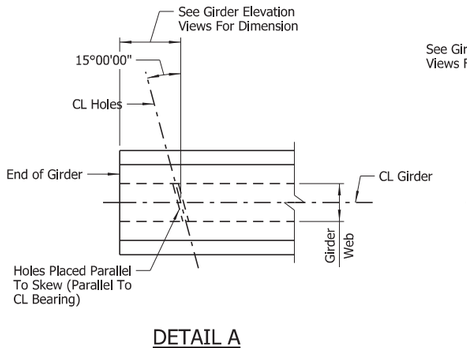
SPAN NO. 1
Scale: ½" = 1'-0"



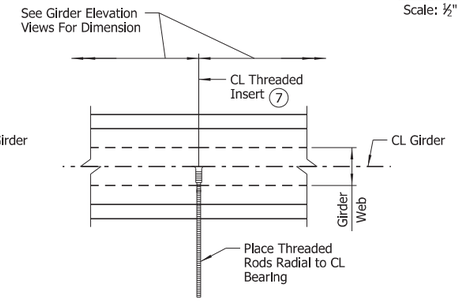
SPAN NO. 2
Scale: ½" = 1'-0"



SPAN NO. 3
Scale: ½" = 1'-0"



DETAIL A
(Plan View of Girder End)
No Scale



DETAIL B
(Plan View of Partial Depth Diaphragm)
No Scale

(1) This dimension is not applicable due to an exterior girder only having a diaphragm attached on one side at each location.

(2) 1¼"ø hole through web (Oriented parallel to skew)

(3) Connection for Temporary Steel Diaphragm: 1¼"ø holes in web.

(4) ¾" Galvanized Threaded Inserts placed in left-hand side of web for Girder Nos. 2-4.

(5) ¾" Galvanized Threaded Inserts placed in right-hand side of web for Girder Nos 1-3.

(6) Dimension measured from end of girder to intersection of CL Diaphragm & CL Girder. See "DETAIL A".

(7) Threaded insert on diaphragm side only. See "FRAMING PLAN" on Dwg. No. 64958.

TABLE OF VARIABLES

SPAN	GIRDER NO.	"A"	"B"	"C"	"D"	"F"	"G"
1	1	(1)	6'-4 15/16"	(1)	21'-9 15/16"	4'-0"	(1)
	2-3	4'-0"	6'-4 15/16"	19'-5"	21'-9 15/16"	4'-0"	6'-4 15/16"
	4	4'-0"	(1)	19'-5"	(1)	(1)	6'-4 15/16"
2	1	(1)	6'-4 15/16"	(1)	26'-10 15/16"	4'-0"	(1)
	2-3	4'-0"	6'-4 15/16"	24'-6"	26'-10 15/16"	4'-0"	6'-4 15/16"
	4	4'-0"	(1)	24'-6"	(1)	(1)	6'-4 15/16"
3	1	(1)	6'-4 15/16"	(1)	21'-9 15/16"	4'-0"	(1)
	2-3	4'-0"	6'-4 15/16"	19'-5"	21'-9 15/16"	4'-0"	6'-4 15/16"
	4	4'-0"	(1)	19'-5"	(1)	(1)	6'-4 15/16"

NOTE:
All measurements are along CL Girder.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 7 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s7.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: DSB DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64962

abhall 2/18/2022 11:57:47 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2021\17017650 - ARDOT Job 100997\Drawings\b100997x1_S307_BB.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	42	59
				① 07575		128'-8" UNIT		64963

GENERAL NOTES - SUPERSTRUCTURE

PRESTRESSED CONCRETE GIRDERS:

Pretensioning steel shall be 0.6"ø dia. low relaxation strands with a minimum ultimate strength of 270 ksi and shall conform to AASHTO M 203.

Distances from the forms and spacing of the prestressing steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the shop drawings.

All girders shall be Type II as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in Subsection 802.22.

Concrete shall be Class S and shall have a minimum 28-day compressive strength, f'c = 8,000 psi. The initial tensile force applied to each 0.6"ø strand shall be 43,950 lbs., except as noted. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 6,000 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

Holes and Inserts shall be cast into the girders. Field drilling of holes shall not be permitted.

The tops of girders shall be roughened to an amplitude of ¼" and shall be scrubbed transversely with a coarse wire brush to remove all laitance to produce an adequate surface for bonding to the slab.

Extreme care shall be exercised in handling and moving precast, prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

Girder lengths shown on the design plans are net lengths measured horizontally along the girder centerlines. The girder manufacturer shall make the necessary allowances for grade and shortening due to elastic shortening, creep, and shrinkage.

After detensioning, saw cut, grind, or bend up strands as designated by the plans. Heat-cutting or bending methods shall not be used within 6" of the girder.

The Contractor may submit alternate strand patterns with design calculations for review and approval in accordance with Subsection 802.22.

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

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)".

CONCRETE:

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

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.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the 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 railings.

STRUCTURAL STEEL:

All structural steel shall be ASTM A709 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) unless noted otherwise. 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 ASTM A709, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

Plan drawings show general features of design only. Shop drawings shall be prepared in accordance with the specifications, submitted and approval secured before fabrication begins.

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 temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26.

SPECIAL CAMBER NOTES

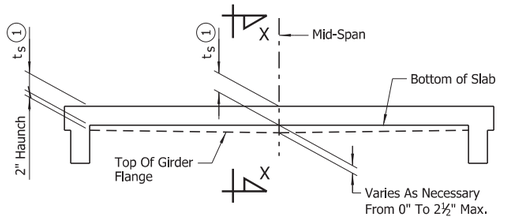
The camber and dead load deflection values shown on the plans are estimated based on the required minimum concrete strength for the prestressed concrete girders. The Contractor shall provide the Engineer with the following information:

A. Actual 28-Day concrete strength of prestressed concrete girders

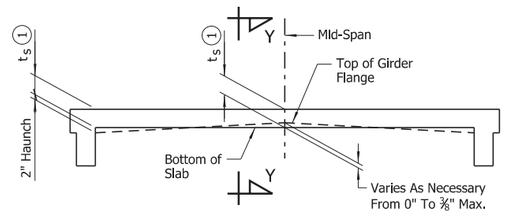
B. Estimated age of prestressed concrete girders at time of erection

C. Profile of each girder under its own weight in final position

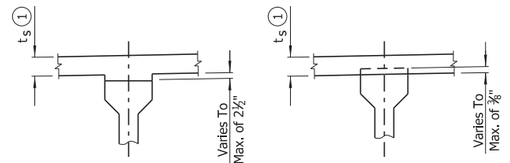
Following receipt of the above data, the Engineer will evaluate the dead load and, if necessary, will provide an updated deflection diagram to the Contractor.



GIRDER ELEVATION
No Scale



GIRDER ELEVATION
No Scale

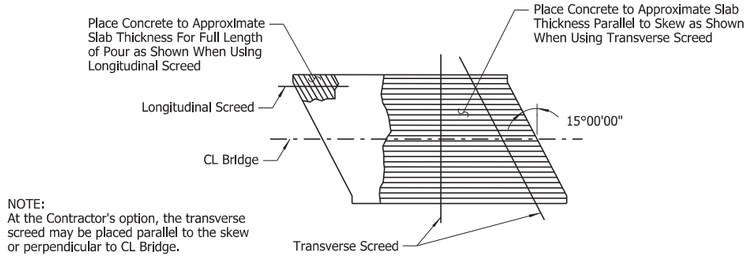


SECTION X-X
No Scale

SECTION Y-Y
No Scale

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

t_s = slab thickness as shown on superstructure details. See "TYPICAL ROADWAY SECTION - STAGE 1 CONSTRUCTION" and "TYPICAL ROADWAY SECTION - STAGE 2 CONSTRUCTION" on Dwg. No. 64956.



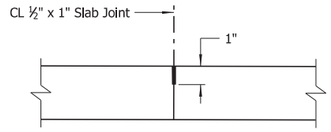
NOTE:
At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to CL Bridge.

CONCRETE PLACEMENT PROCEDURE

No Scale

① Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used.

"GIRDER ELEVATION" sketches show the range of acceptability of the top of girder relative to bottom of slab after the placement of the slab. When the top of the girder projects more than ⅜" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.



TRANSVERSE SLAB JOINT DETAIL

No Scale

NOTE:
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. Transverse Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the bridge traffic rail except at end bent diaphragms. Slab joints shall be installed before the bridge traffic rail 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 8 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s8.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64963

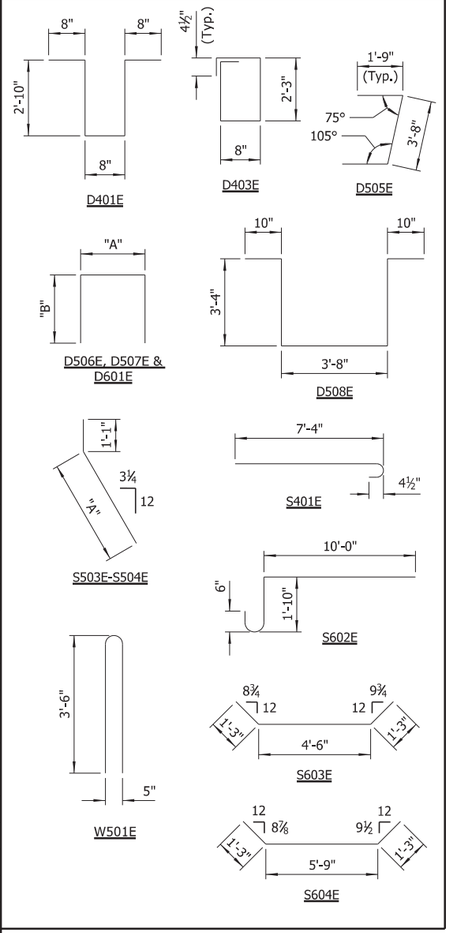
abhall 2/18/2022 11:57:47 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S308_GN.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	43	59
				07575		128'-8" UNIT		64964

BAR LIST

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
D401E	72	7'-4"			2"
D402E	72	7'-6"			Str.
D403E	3	6'-2"			2"
D501E	8	26'-3½"			Str.
D502E	8	10'-10"			Str.
D503E	48	7'-5"			Str.
D504E	8	7'-2"			Str.
D505E	16	6'-11"			3¾"
D506E	32	6'-5"	3'-4"	1'-8"	3¾"
D507E	180	5'-1"	3'-8"	10"	3¾"
D508E	66	11'-6"			3¾"
D601E	108	9'-1½"	2'-7"	3'-5"	4½"
D602E	12	26'-6"			Str.
D603E	12	10'-10"			Str.
D604E	48	6'-0"			Str.
R400E	48	5'-3"			2½"
R401E	552	5'-11"			2½"
R402E	96	5'-6"			Str.
R403E	536	3'-6"			3", 3¾"
R404E	96	9'-8"			Str.
R405E	32	13'-8"			Str.
R406E	32	19'-8"			Str.
R407E	16	21'-8"			Str.
S401E	492	7'-10"			3"
S402E	132	34'-5"			Str.
S501E	258	26'-3"			Str.
S502E	258	10'-10"			Str.
S503E	4	26'-3"	25'-2"		3¾"
S504E	4	10'-9"	9'-8"		3¾"
S505E	99	45'-5"			Str.
S506E	60	4'-0"			Str.
S601E	64	20'-0"			Str.
S602E	64	12'-6"			4½"
S603E	8	7'-0"			4½"
S604E	8	8'-3"			4½"
W401E	80	3'-11"			3¾"
W402E	120	3'-6"			Str.
W501E	32	7'-3"			3¾"
W701E	48	12'-5"			Str.

BAR BENDING DIAGRAMS

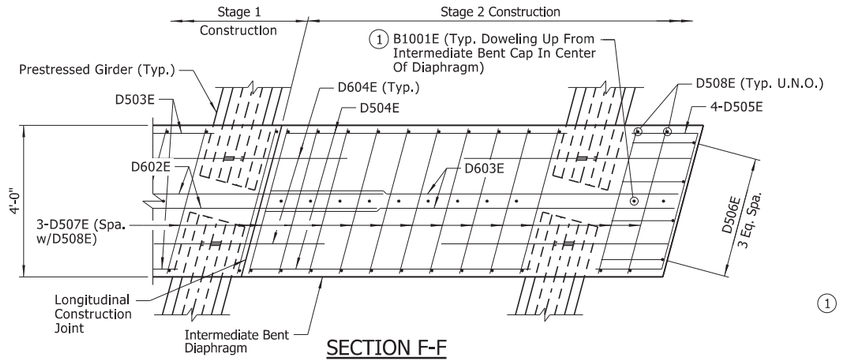


NOTES:
Dimensions of bars are out-to-out.

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

For bar bending diagrams of R400E, R401E, R403E & W401E, see Std. Dwg. No. 55070.

The first bar designation number indicates the reinforcing bar size.



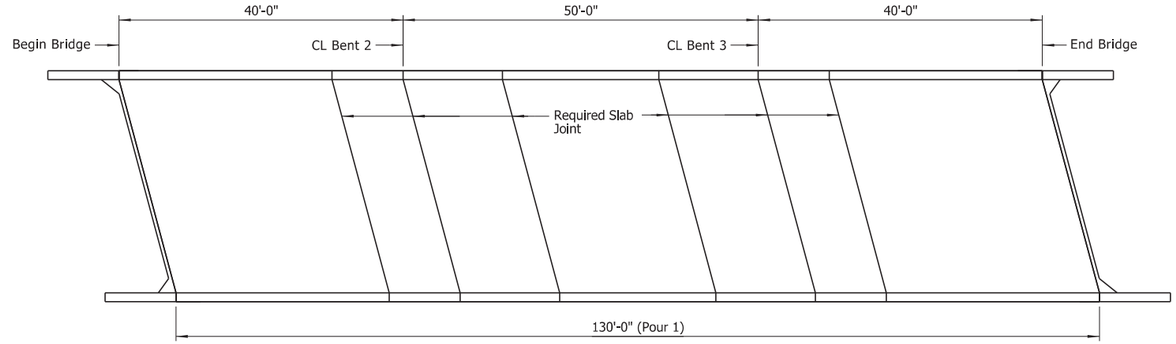
SECTION F-F

Scale: ½" = 1'-0"

LEGEND

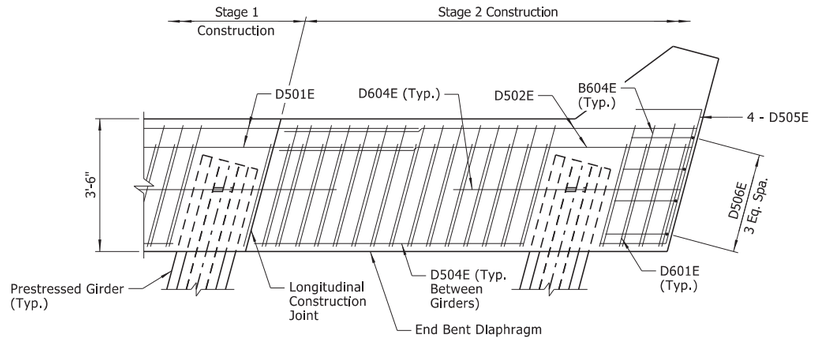
U.N.O. = Unless Noted Otherwise

1 For additional details of B1001E bars, see Dwg. No. 64954.



ALTERNATE SLAB POURING SEQUENCE

No Scale



SECTION G-G

Scale: ½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 9 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

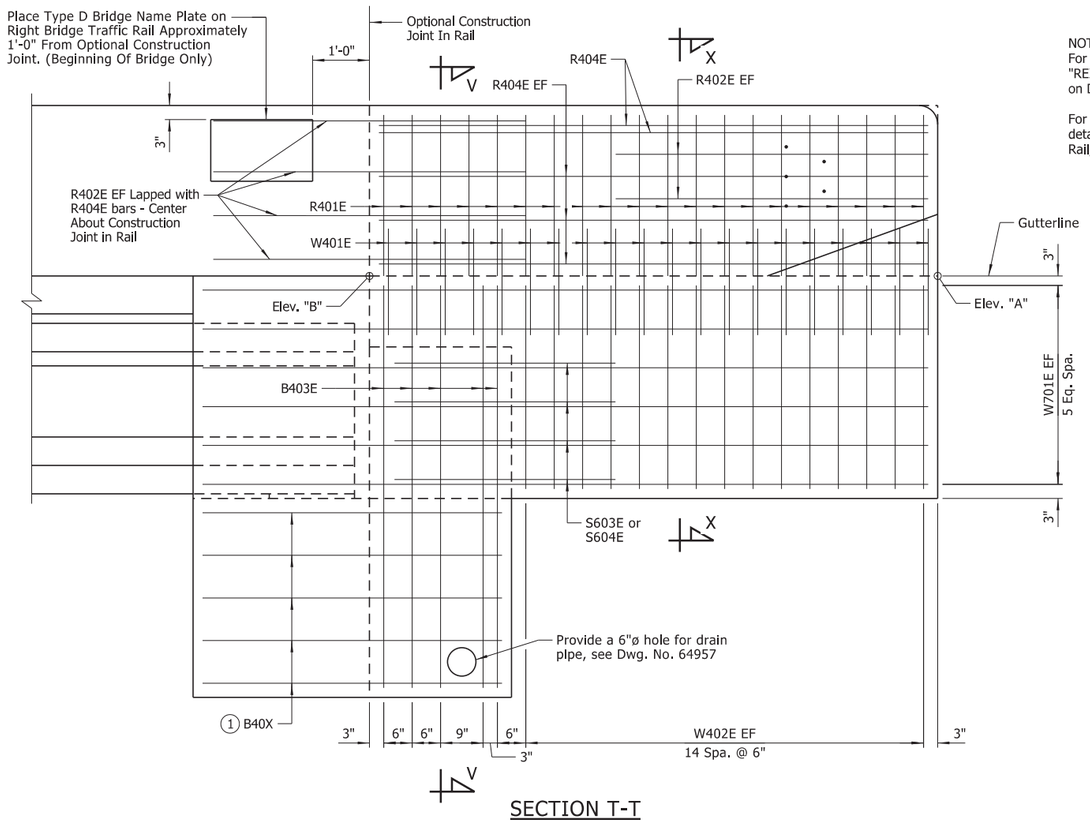
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s9.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64964

abhall 2/18/2022 11:57:48 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S309_MD.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	44	59
				07575		128'-8" UNIT		64965

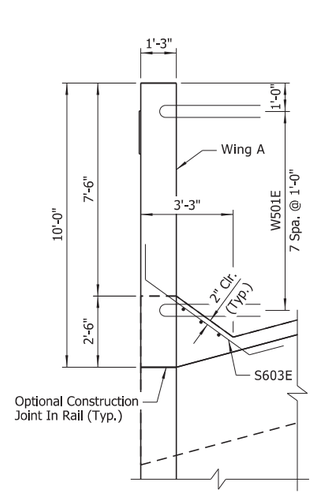


SECTION T-T

Scale: ¾" = 1'-0"

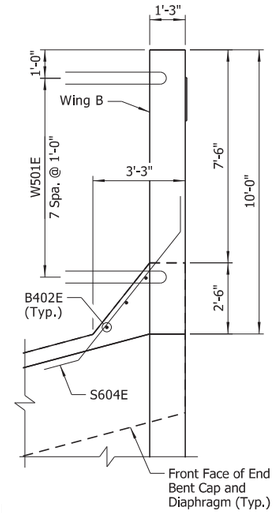
NOTES:
For Location of "SECTION T-T" & "VIEW U-U", see "REINFORCING PLAN & SLAB POURING SEQUENCE" on Dwg. No. 64959.

For reinforcement details, dimensions, rail terminus details and other information for the Bridge Traffic Rail, see Std. Dwg. No. 55070.



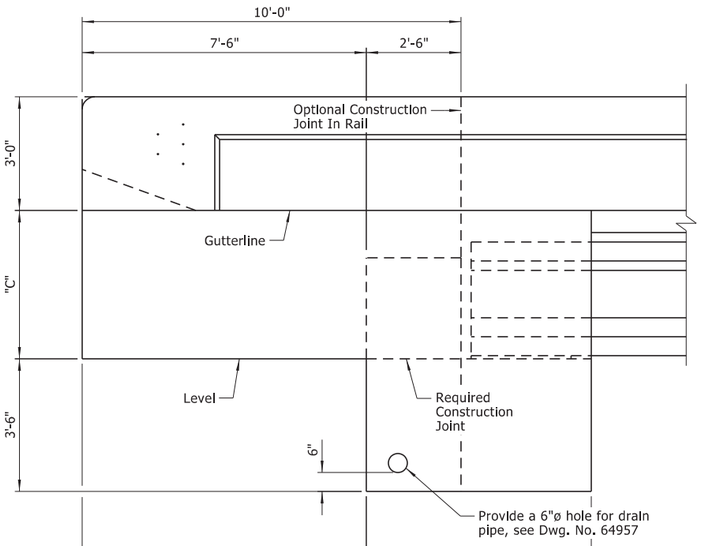
Stations Increasing
End Bent 1

Stations Increasing
End Bent 4



PLAN OF RAIL

Scale: ⅜" = 1'-0"



VIEW U-U

Scale: ½" = 1'-0"

TABLE OF VARIABLES				
Bent No.	Location	Elev. "A"	Elev. "B"	Dim. "C"
1	Wing A	264.54	264.54	3'-10 5/16"
1	Wing B	264.53	264.54	3'-10 7/16"
4	Wing A	264.46	264.48	3'-10 5/16"
4	Wing B	264.45	264.47	3'-10 3/16"

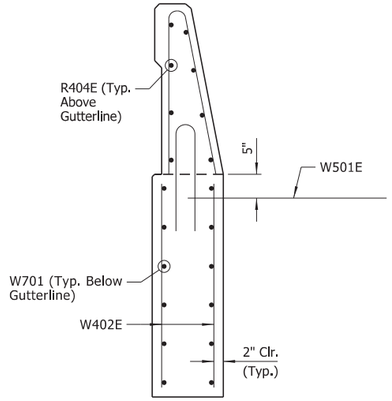
LEGEND

EF = Each Face

(1) See end bent details on Dwg. Nos. 64951-64952 for reinforcing steel and additional details.

SECTION V-V

Scale: ¾" = 1'-0"



SECTION X-X

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.16458
JOEL E. SKINNER

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 10 OF 10
DETAILS OF 128'-8" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

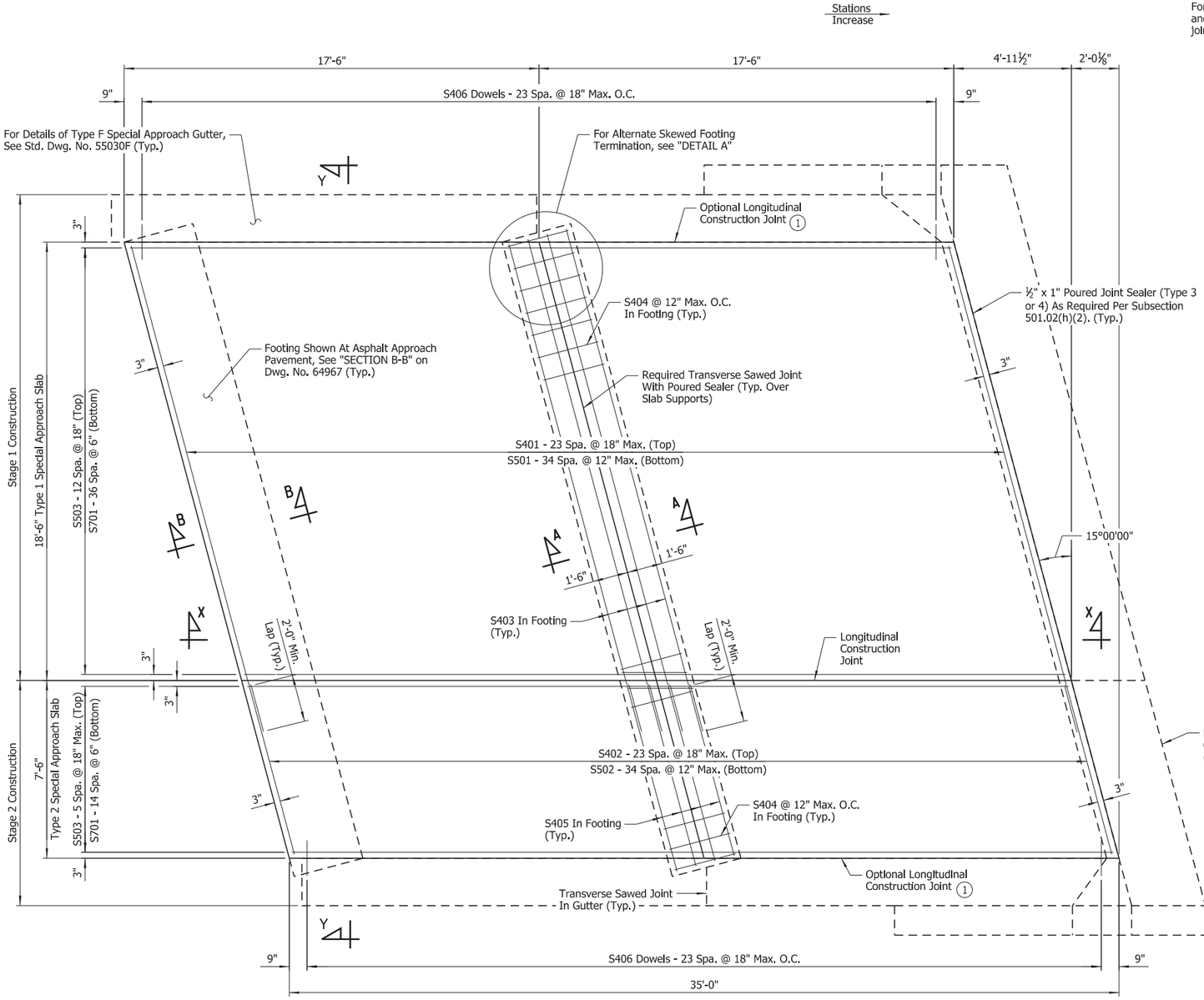
DRAWN BY: HEW DATE: NOV. 2021 FILENAME: b100997_s10.dgn
CHECKED BY: JES DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: JME DATE: NOV. 2021

BRIDGE NO. 07575 DRAWING NO. 64965

abhall 2/18/2022 11:57:49 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S310_MD.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	45	59
				07575		APPROACH SLABS		64966

NOTE:
For "SECTIONS", "GENERAL NOTES", and details of longitudinal construction joints, see Dwg. No 64967.



(1) 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.

PLAN - TYPES 1 & 2 SPECIAL APPROACH SLABS
(Shown For Begin Bridge, End Bridge Similar)
Scale: ⅜" = 1'-0"

BAR LIST - TYPE 1 SPECIAL APPROACH SLAB

Mark	No. Req'd	Length	Pin Dia.
S401	24	21'-3"	Str.
S403	8	21'-6"	Str.
S404	21	10'-4"	2"
S406	24	1'-6"	Str.
S501	35	21'-3"	Str.
S503	13	34'-7"	Str.
S701	37	34'-7"	Str.

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

BAR LIST - TYPE 2 SPECIAL APPROACH SLAB

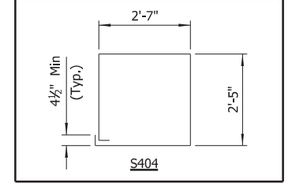
Mark	No. Req'd	Length	Pin Dia.
S402	24	7'-4"	Str.
S404	10	10'-4"	2"
S405	8	7'-10"	Str.
S406	24	1'-6"	Str.
S502	35	7'-4"	Str.
S503	6	34'-7"	Str.
S701	15	34'-7"	Str.

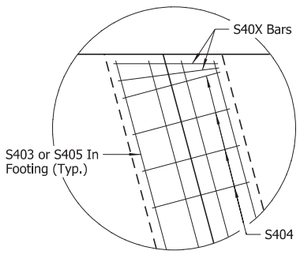
QUANTITIES
(FOR INFORMATION ONLY)

TYPE	Class S(AE) Concrete	Reinforcing Steel (Gr. 60)
Type 1 Special	36.94 Cu. Yds.	4,485 Lbs.
Type 2 Special	15.07 Cu. Yds.	1,797 Lbs.

NOTE:
Quantities shown are for one Type 1 Special and one Type 2 Special Approach Slab. Two Type 1 Special and two Type 2 Special Approach Slabs are required.

BAR BENDING DIAGRAM





DETAIL A
Scale: ½" = 1'-0"

NOTE:
Additional S40X bars required for alternate skewed footing are not included in bar list.

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

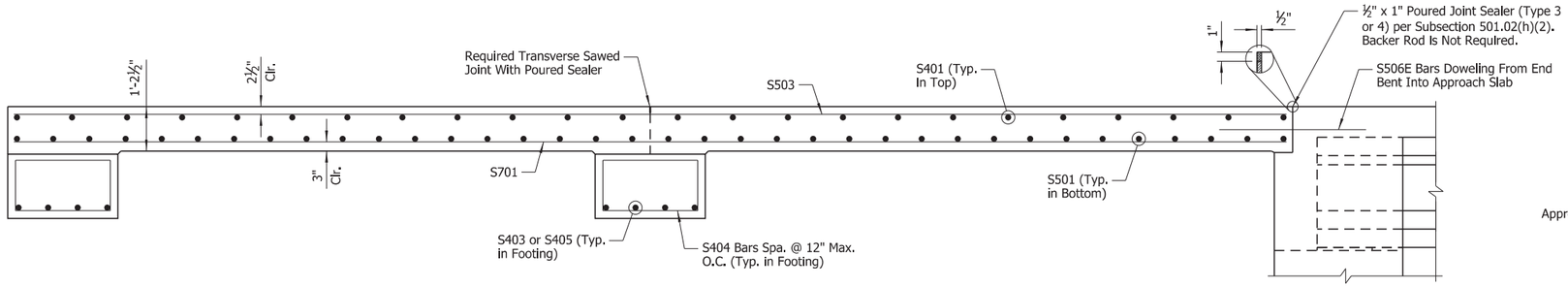
DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF TYPE SPECIAL APPROACH SLABS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

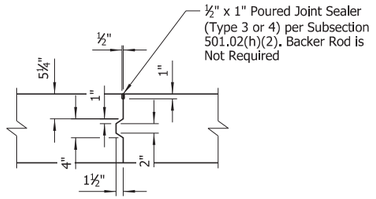
DRAWN BY: HEW DATE: OCT. 2021 FILENAME: b100997_as1.dgn
CHECKED BY: JME DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: RAK DATE: OCT. 2021
BRIDGE NO. 07575 DRAWING NO. 64966

abhall 2/18/2022 11:57:50 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S401_AS.dgn
REVISED DATE:

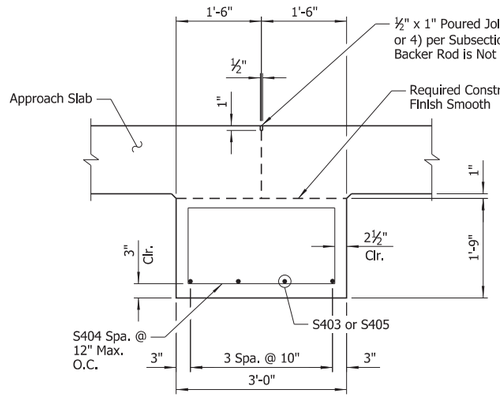
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	46	59
				07575		APPROACH SLABS		64967



SECTION X-X
Scale: ½" = 1'-0"



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
No Scale



SECTION A-A
Scale: ¾" = 1'-0"

NOTE:
Slab reinforcing omitted for clarity.

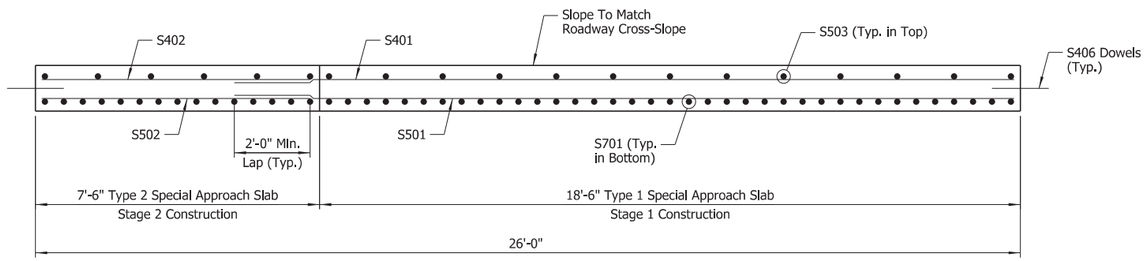
GENERAL NOTES

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.

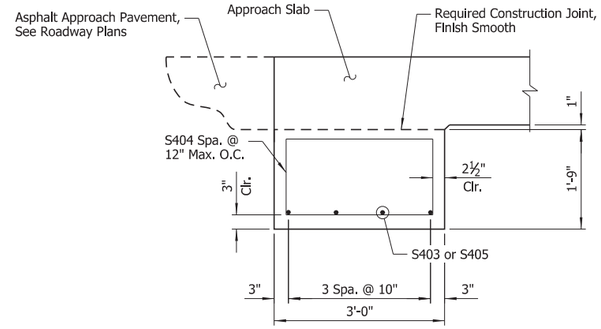
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

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



SECTION Y-Y
Scale: ½" = 1'-0"



SECTION B-B
Scale: ¾" = 1'-0"

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

DIGITALLY SIGNED 2-18-2022
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF TYPE SPECIAL APPROACH SLABS

ROUTE SEC.

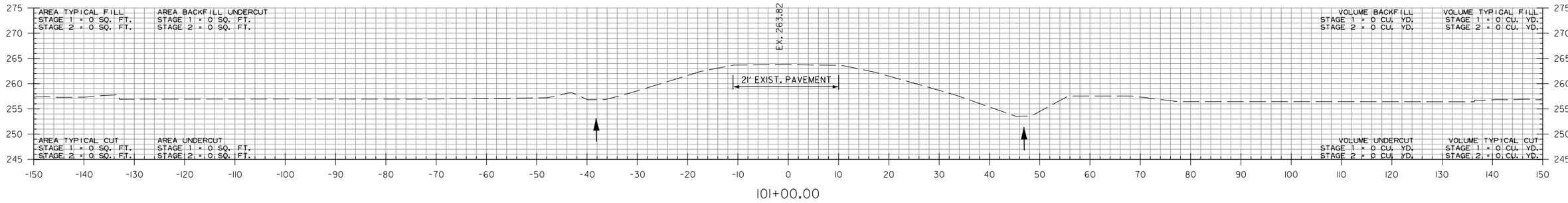
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: OCT. 2021 FILENAME: b100997_as2.dgn
CHECKED BY: JME DATE: DEC. 2021 SCALE: As Shown
DESIGNED BY: RAK DATE: OCT. 2021

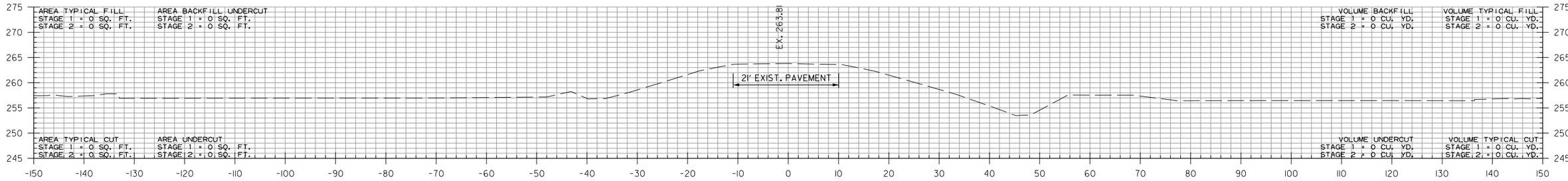
BRIDGE NO. 07575 DRAWING NO. 64967

abhall 2/18/2022 11:57:50 AM
WORKSPACE: ARDOT Bridge (2019)
L:\2017\17017650 - ARDOT Job 100997\Drawings\b100997x1_S402_AS.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	47	59
				(2)	CROSS SECTIONS			

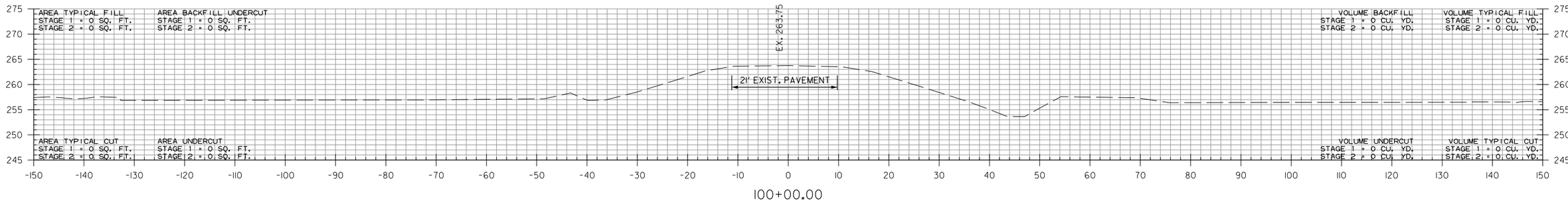


101+00.00



100+96.01

STA. 100+96.01 BEGIN 100' TRANSITION

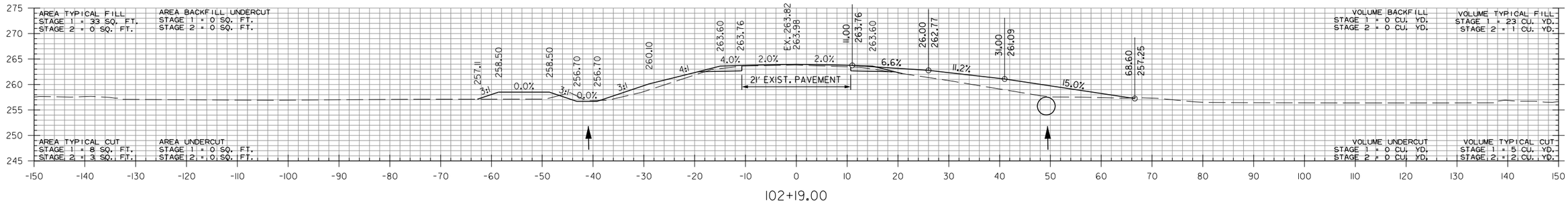


100+00.00

HWY. 228
STA. 100+00 TO STA. 101+00

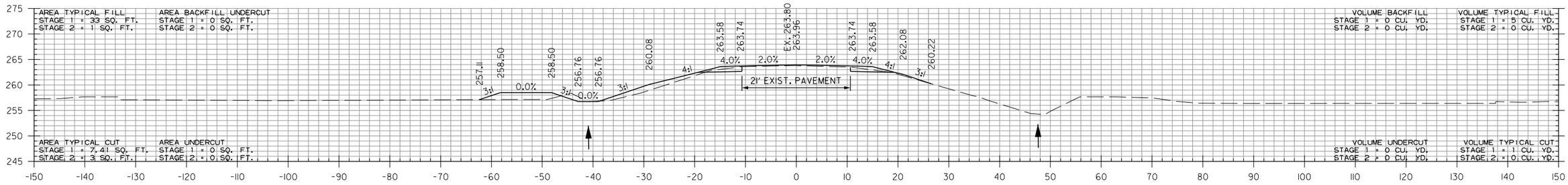
HJBeck 2/18/2022 12:10:08 PM
WORKSPACE: AHTD
L:\2017\1701650 - ARDOT Job 100997\Drawings\r100997.CX.HWY.228.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	48	59
				(2)	CROSS SECTIONS			

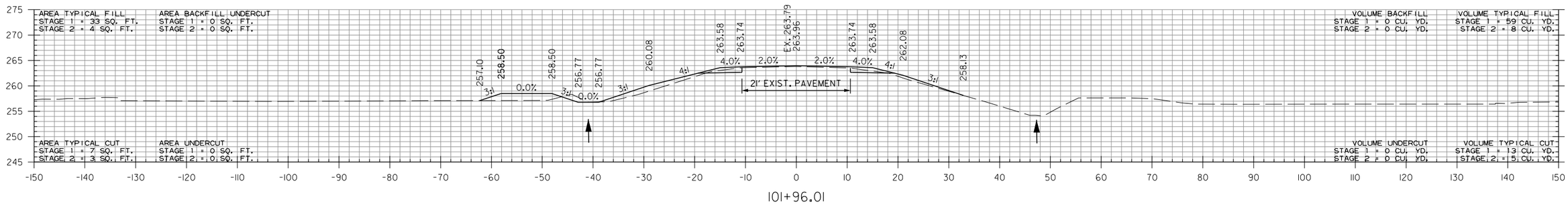


102+19.00

STA. 102+19 IN PLACE
30" X 30' CM PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL 42" X 54'
PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT APPROACH = 29 CU. YDS.



102+00.00



101+96.01

STA. 101+96.01
BEGIN SP. DT. LT. -0.30%
ELEV. 256.77

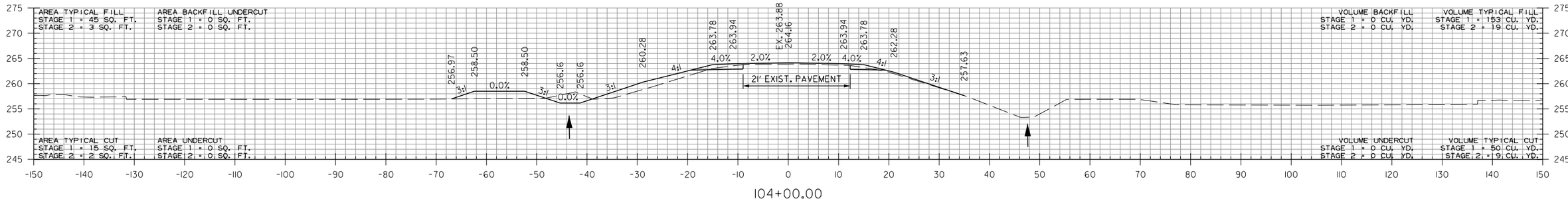
STA. 101+96.01 END 100' TRANSITION

STA. 101+96.01 BEGIN JOB 100997

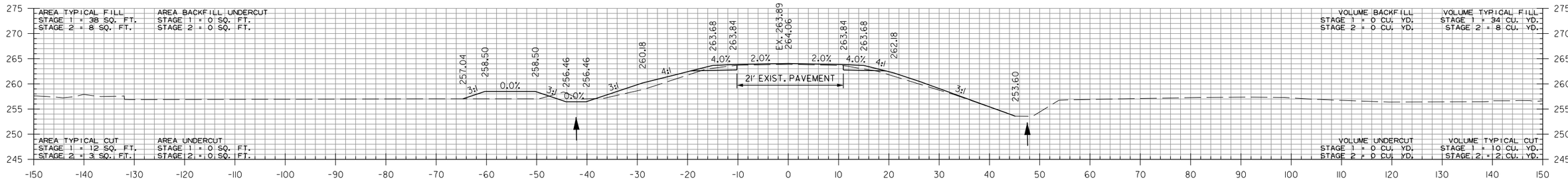
HWY. 228
STA. 101+96 TO STA. 102+19

H:Beck 2/8/2022 12:10:08 PM
WORKSPACE: AHTD
L:\2017\170765O - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
REVISED DATE:

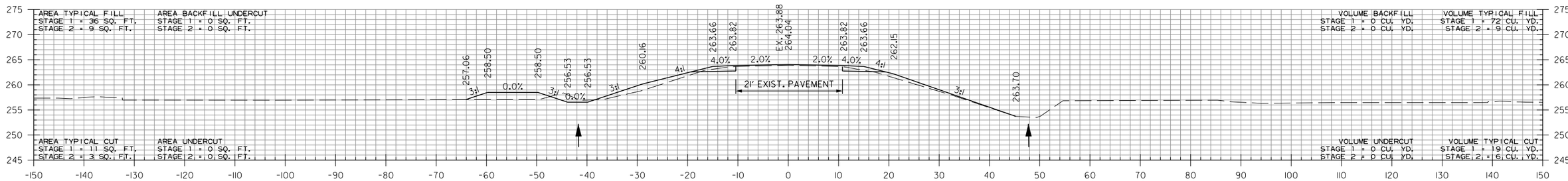
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	49	59
				(2)	CROSS SECTIONS			



104+00.00



103+00.00

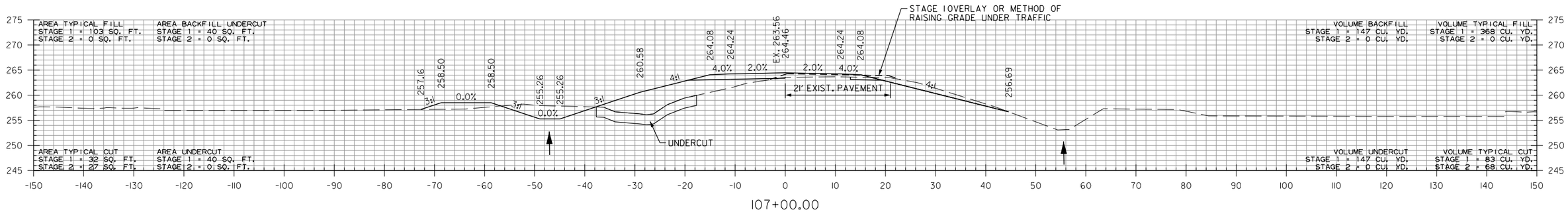


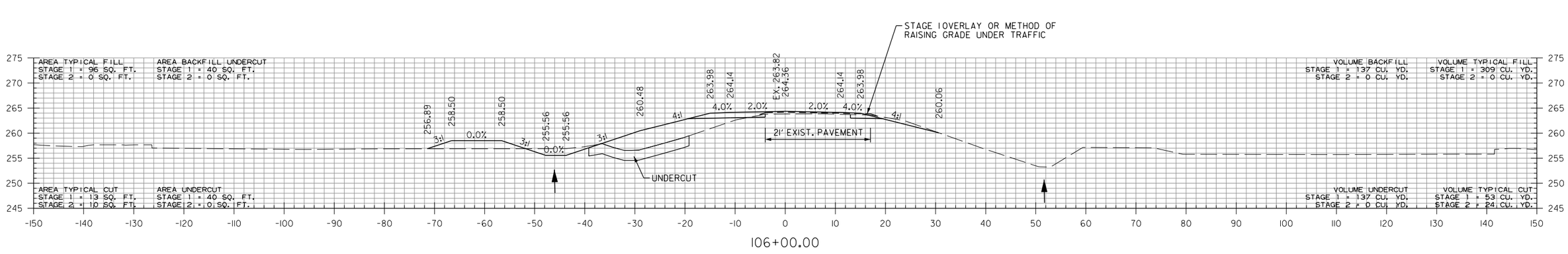
102+74.81

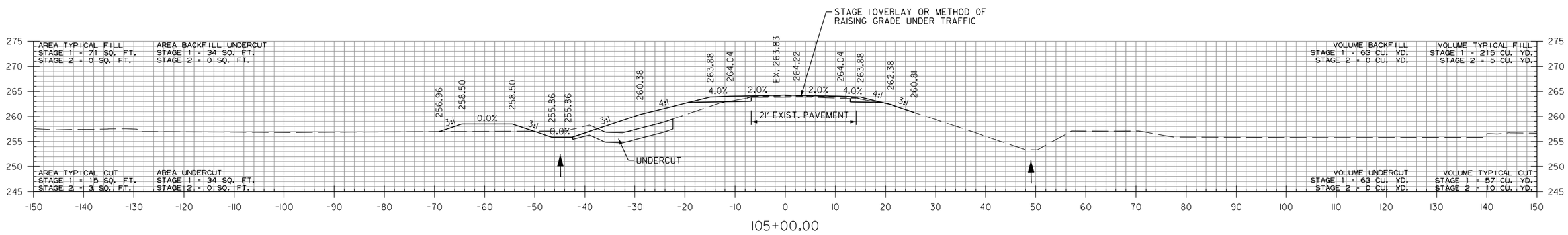
HWY. 228
STA. 102+75 TO STA. 104+00

H:Beck 2/8/2022 12:10:08 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	50	59
				(2)	CROSS SECTIONS			



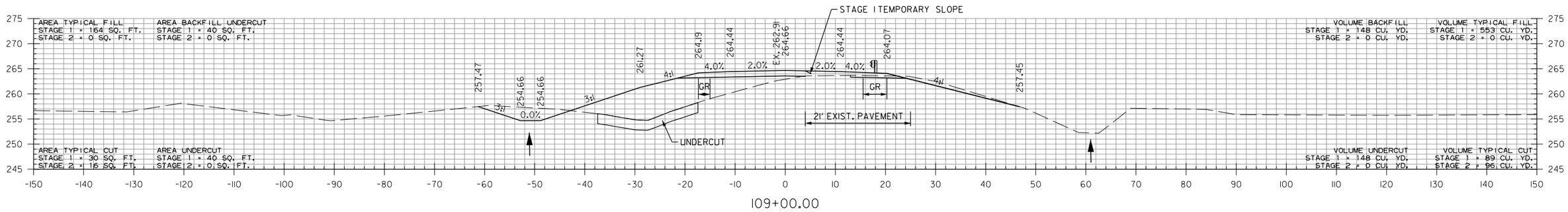


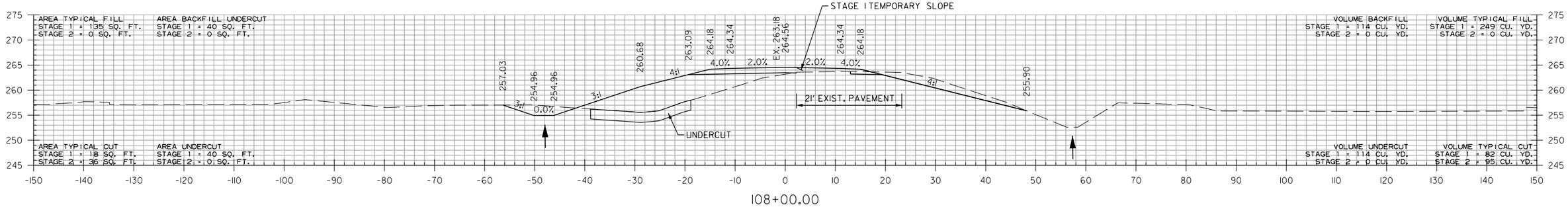


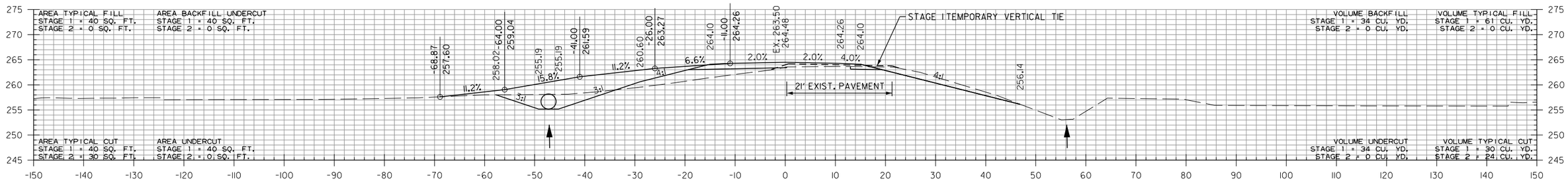
HWY. 228
STA. 105+00 TO STA. 107+00

HJBeck
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CX_HWY. 228.dgn
REVISED DATE:
2/18/2022 12:10:09 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	51	59
				(2)	CROSS SECTIONS			







STA. 107+23 IN PLACE
24" X 24' CM PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL 36" X 50'
PIPE CULVERT LT. SIDE DRAIN
CONSTRUCT APPROACH = 51 CU. YDS.

HWY. 228
STA. 107+23 TO STA. 109+00

HJBeck
2/18/2022 12:10:09 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	52	59
				(2)	CROSS SECTIONS			

AREA TYPICAL FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA TYPICAL CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA UNDERCUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

STA. 111+40.00
BEGIN SP. DT. LT. 0.20%
ELEV. 248.96

STA. 112+04.38 BEGIN TOE OF SLOPE
AT ELEVATION 254.00

STA. 111+79.92 END BRIDE EXCAVATION
AT ELEVATION 254.00

STA. 111+00.00
END SP. DT. LT. -0.30%
ELEV. 254.06

STA. 111+24.17 BEGIN BRIDGE EXCAVATION
AT ELEVATION 254.00

STA. 110+97.67 END TOE OF SLOPE
AT ELEVATION 254.00

VOLUME BACKFILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME TYPICAL FILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME UNDERCUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME TYPICAL CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

ADDITIONAL VOLUME CUT BRIDGE EXCAVATION = 776 CU. YD.

AREA TYPICAL FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA BACKFILL UNDERCUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA TYPICAL CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

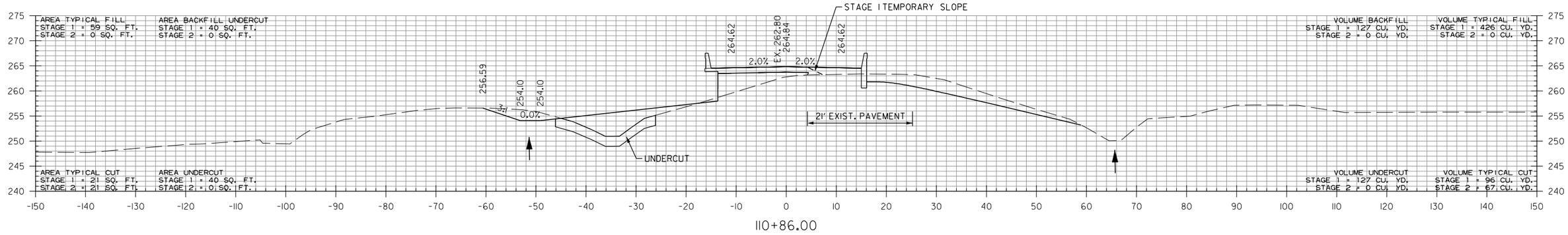
AREA UNDERCUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME BACKFILL
STAGE 1 = 9 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME TYPICAL FILL
STAGE 1 = 13 CU. YD.
STAGE 2 = 0 CU. YD.

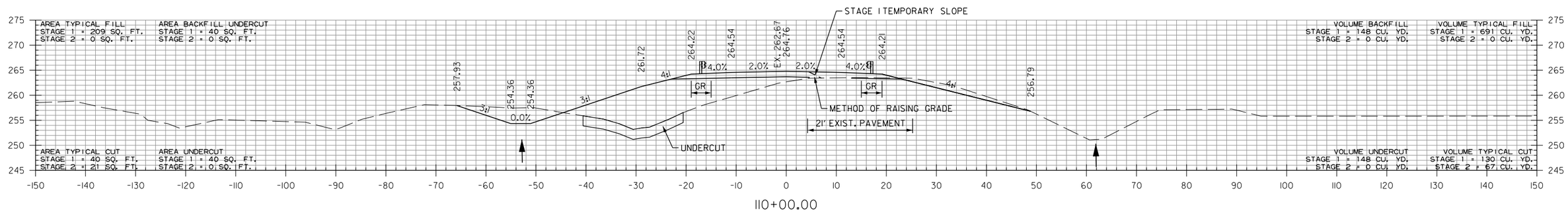
VOLUME UNDERCUT
STAGE 1 = 9 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME TYPICAL CUT
STAGE 1 = 5 CU. YD.
STAGE 2 = 5 CU. YD.



110+86.00

STA. 110+86.00 BEGIN BRIDGE

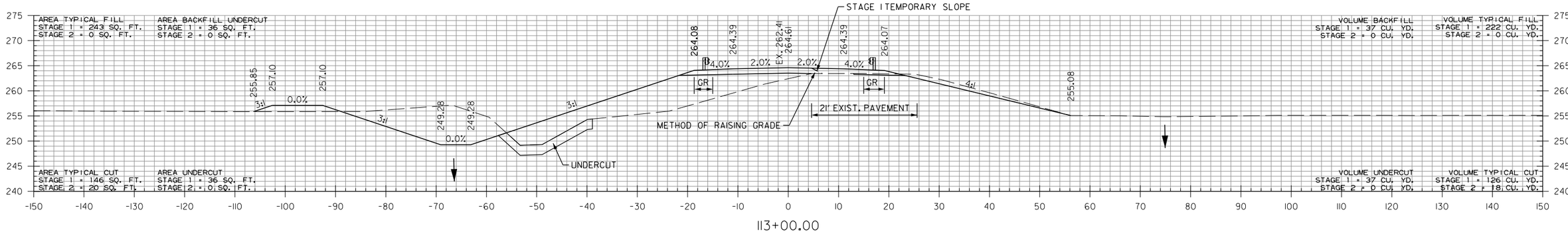


110+00.00

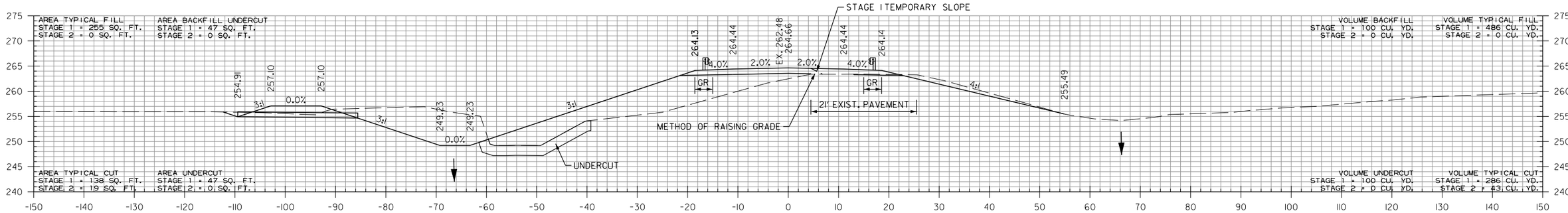
HWY. 228
STA. 110+00 TO STA. 111+00

HJBeck
WORKSPACE: AHTD
L:\20\TI01\7650 - ARDOT Job 100997\Drawings\r100997_CX_HWY. 228.dgn
REVISED DATE:
2/18/2022 12:03:09 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	53	59
				(2)	CROSS SECTIONS			

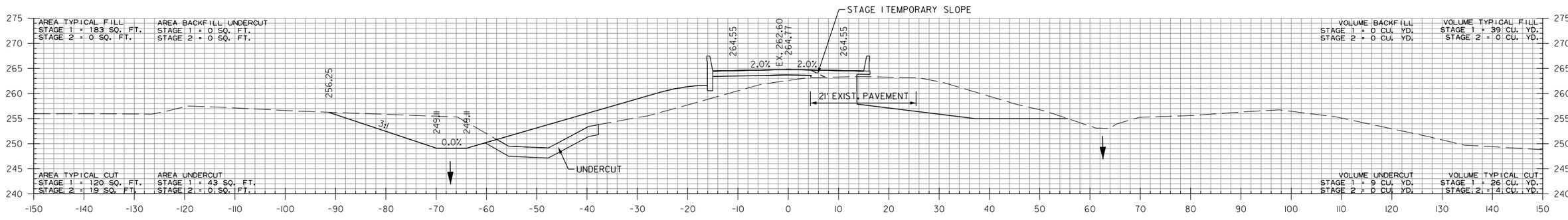


113+00.00



112+75.96

STA. 112+76 IN PLACE
12" X 32' CM PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL 12" X 24'
PIPE CULVERT LT. SIDE DRAIN



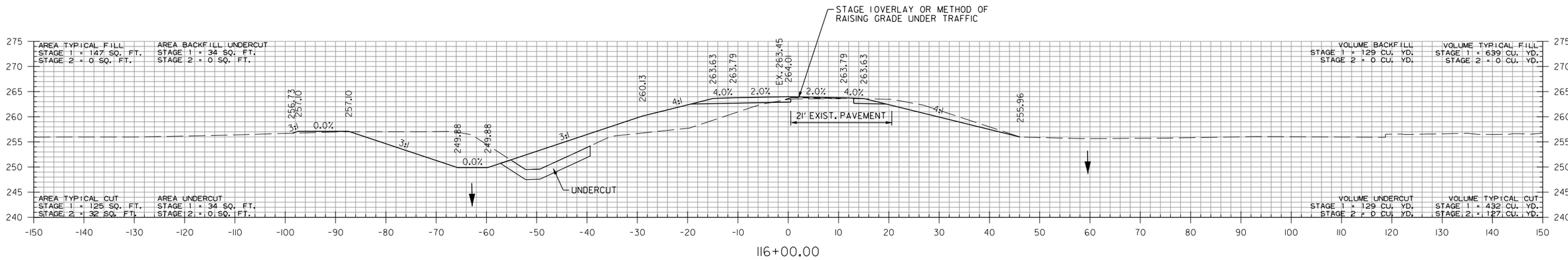
112+16.00

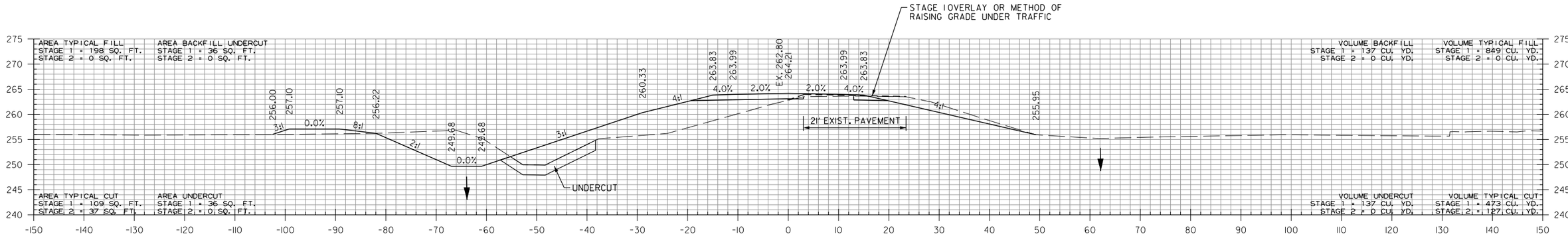
STA. 112+16.00 END BRIDGE

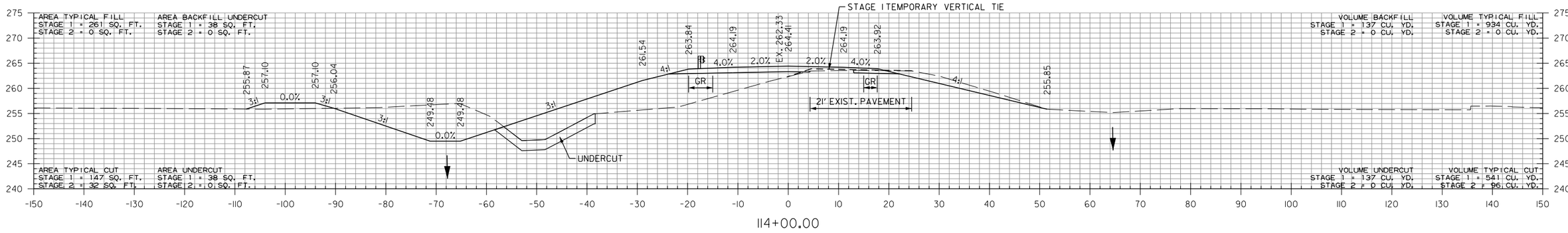
HWY. 228
STA. 112+16 TO STA. 113+00

H:\Beck
WORKSPACE: AHTD
L:\2017\170765O - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
2/18/2022 12:10:09 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	54	59
				(2)		CROSS SECTIONS		



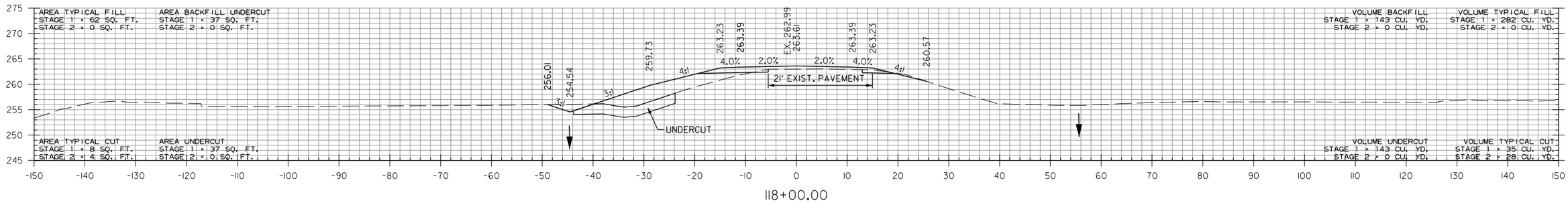




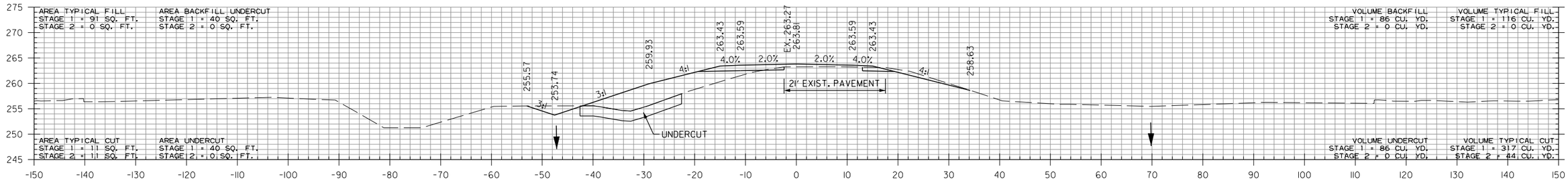
HWY. 228
STA. 114+00 TO STA. 116+00

H:\Beck
WORKSPACE: AHTD
L:\2017\170765O - ARDOT Job 100997\Drawings\r100997_CX_HWY. 228.dgn
2/18/2022 12:10:10 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	55	59
				(2)	CROSS SECTIONS			



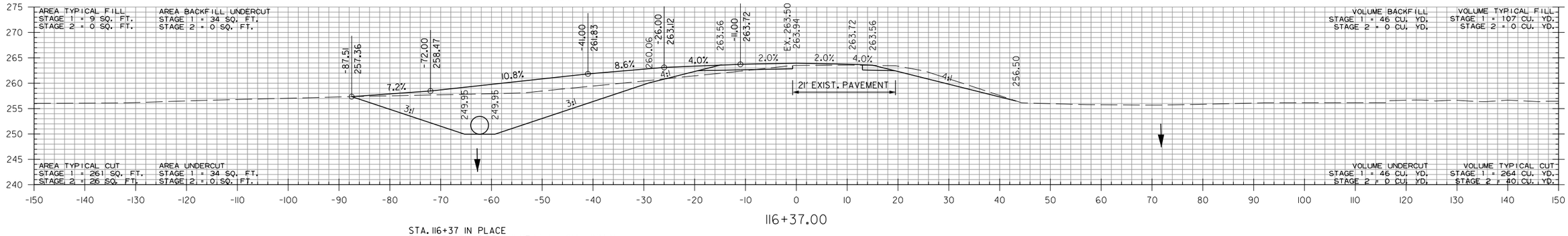
118+00.00



117+00.00

STA. 117+00.00
END SP. DT. LT. 18.50%
BEGIN SP. DT. LT. 0.80%
ELEV. 253.74

STA. 116+80.00
END SP. DT. LT. 0.20%
BEGIN SP. DT. LT. 18.50%
ELEV. 250.04



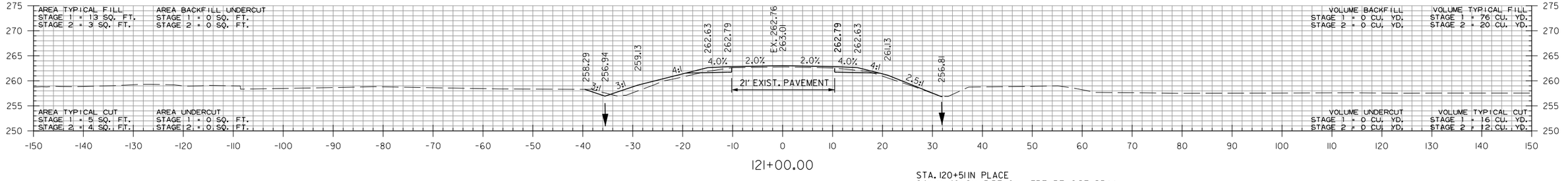
116+37.00

STA. 116+37 IN PLACE
36" X 50' CM PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL 42" X 77'
PIPE CULVERT LT. SIDE DRAIN
CONSRUCT APPROACH = 77 CU. YDS.

HWY. 228
STA. 116+37 TO STA. 118+00

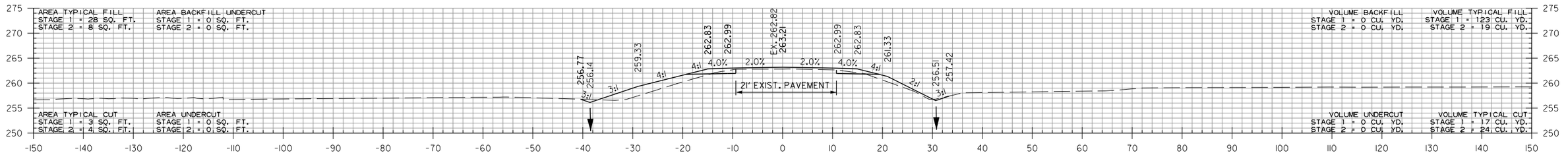
HJBeck
WORKSPACE: AHTD
L:\20IT\101\650 - ARDOT Job 100997\Drawings\r100997_CX_HWY. 228.dgn
2/18/2022 12:01:10 PM
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	56	59
				(2)		CROSS SECTIONS		

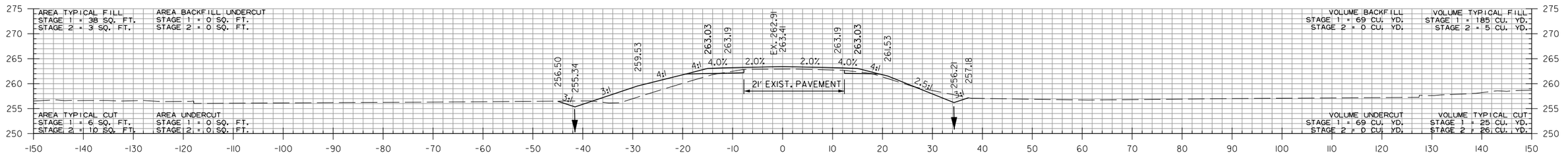


121+00.00

STA. 120+51 IN PLACE
24" X 40' CM PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL 30" X 58'
PIPE CULVERT RT. SIDE DRAIN



120+00.00



119+00.00

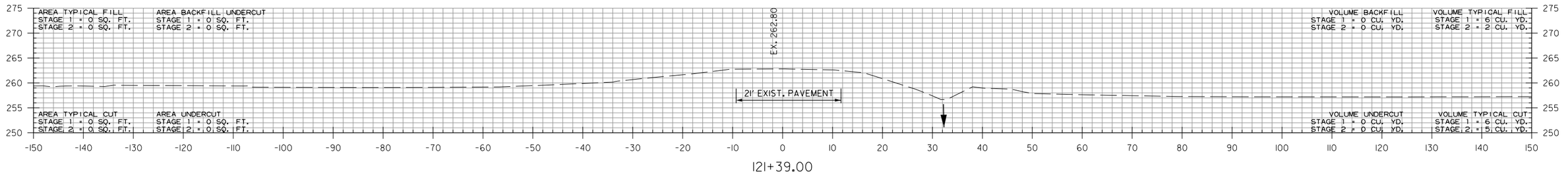
STA. 118+30.00
BEGIN SP. DT. RT. 0.30%
ELEV. 256.00

HWY. 228
STA. 119+00 TO STA. 121+00

H.Beck 2/18/2022 12:10:10 PM
WORKSPACE: AHTD
L:\2017\170176501 - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
REVISED DATE:

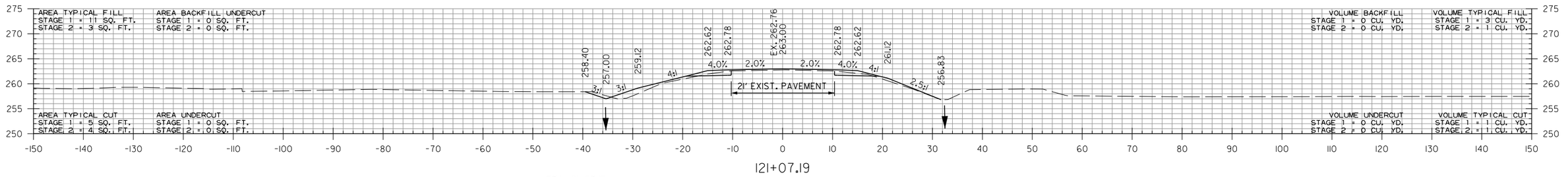
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	57	59
				(2)	CROSS SECTIONS			

122+00.00



121+39.00

STA. 121+39 CONSTRUCT
APPROACH ON LT. =
11 CU. YDS.



121+07.19

STA. 121+07.19
END SP. DT. LT. 0.80%
ELEV. 257.00

STA. 121+07.19 BEGIN 100' TRANSITION

STA. 121+07.19 END JOB 100997

STA. 121+07.19
END SP. DT. RT. 0.30%
ELEV. 256.83

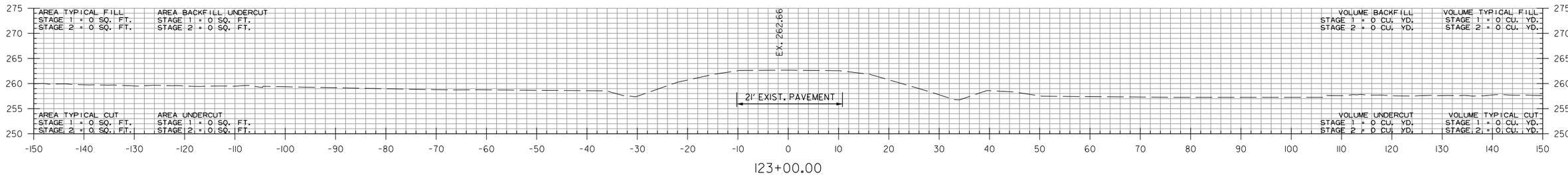
HWY. 228
STA. 121+07 TO STA. 122+00

H.Beck 2/18/2022 12:10:10 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CX_HWY. 228.dgn
REVISED DATE:

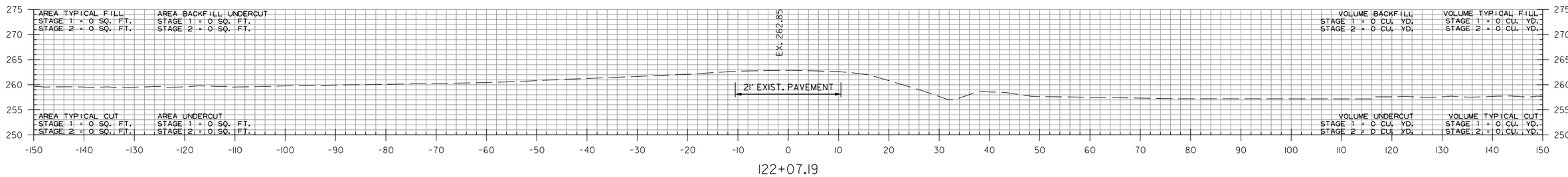
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100997	58	59

(2) CROSS SECTIONS



123+00.00



122+07.19

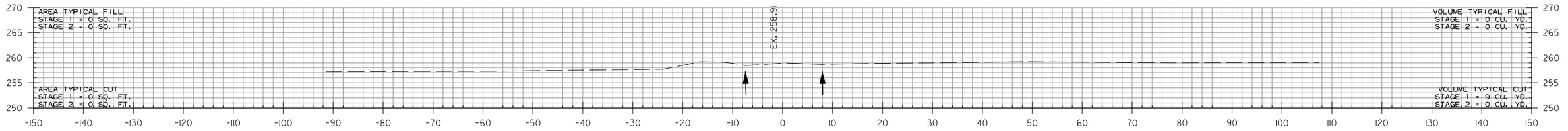
STA. 122+07.19 END 100' TRANSITION

HWY. 228
STA. 122+07 TO STA. 123+00

HJBeck 2/18/2022 12:10:11 PM
WORKSPACE: AHTD
L:\2017\17017650 - ARDOT Job 100997\Drawings\r100997_CX_HWY_228.dgn
REVISED DATE:

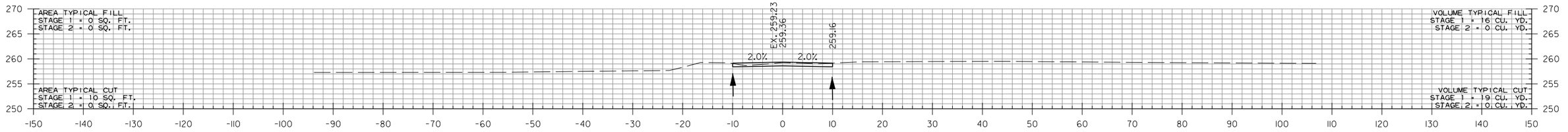
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100997	59	59

(2) CROSS SECTIONS



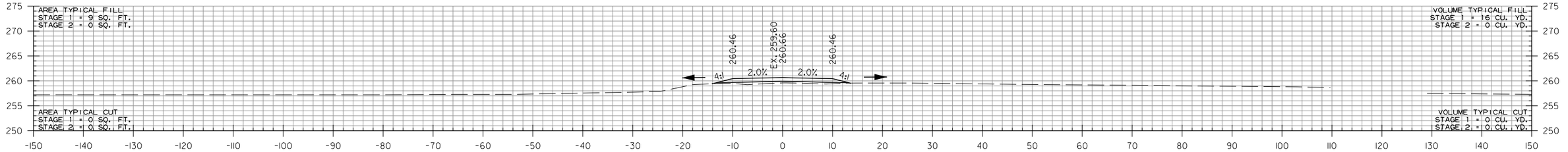
12+50.00

STA. 12+50.00 END 50' TRANSITION

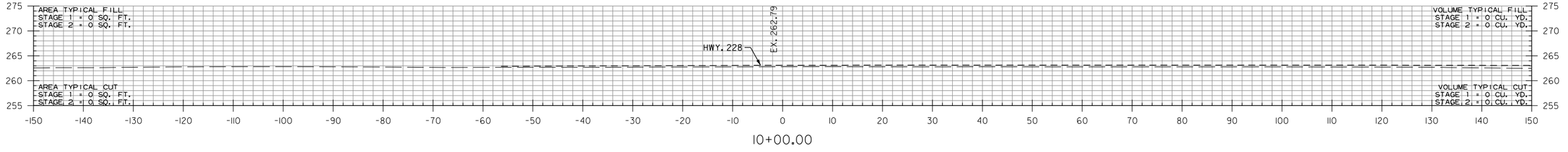


12+00.00

STA. 12+00.00 BEGIN 50' TRANSITION



11+00.00



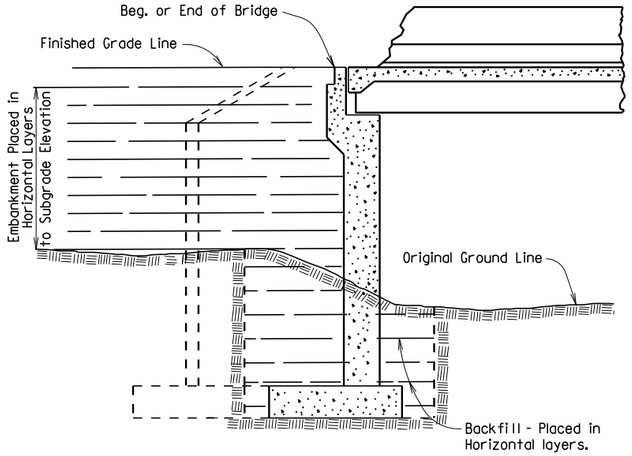
10+00.00

C.R. 306
STA. 10+00 TO STA. 12+50

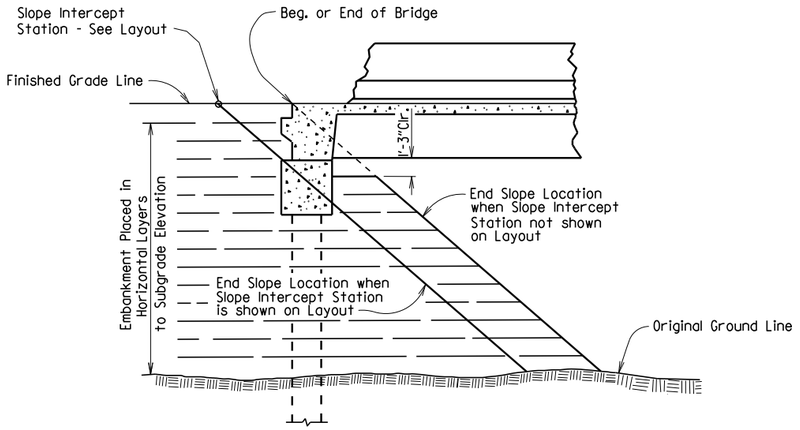
H.Beck 2/18/2022 12:01:11 PM
WORKSPACE: AHTD
L:\2017\170176501 - ARDOT Job 100997\Drawings\r100997_CX_C.R. 306.dgn
REVISED DATE:

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

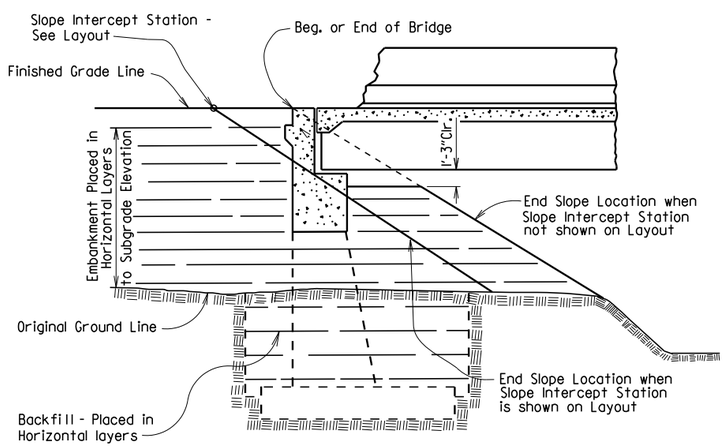
1 EMBANKMENT & BACKFILL 55000



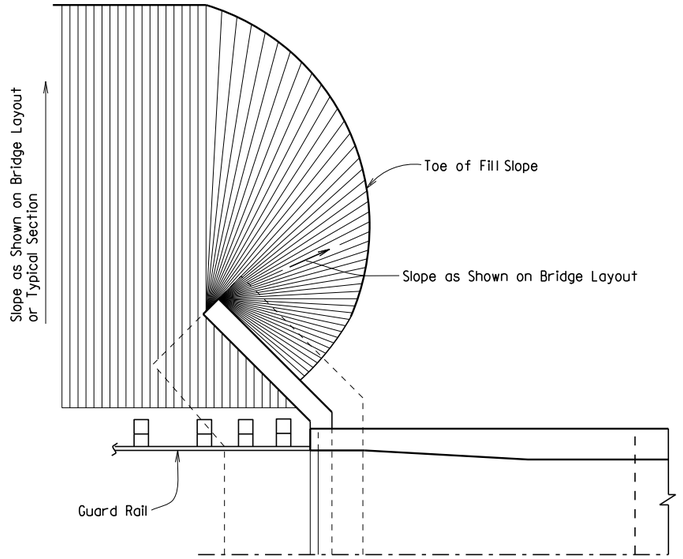
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



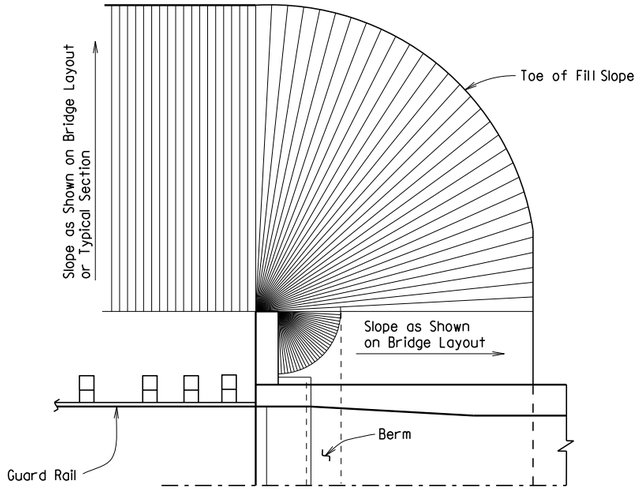
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



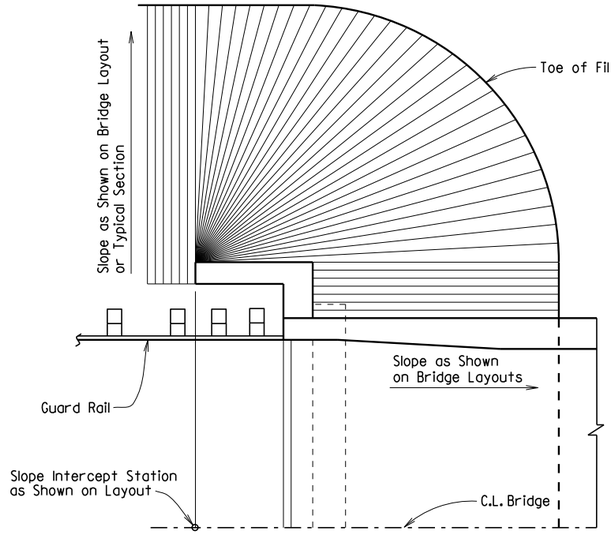
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



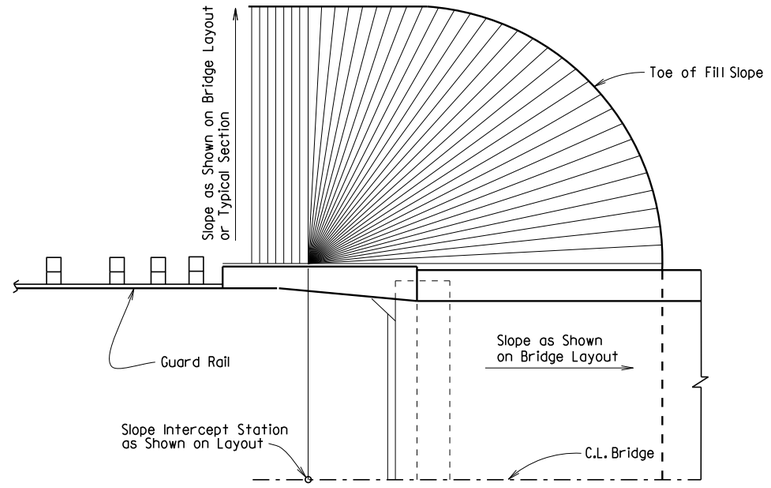
VERTICAL WALL ABUTMENTS



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

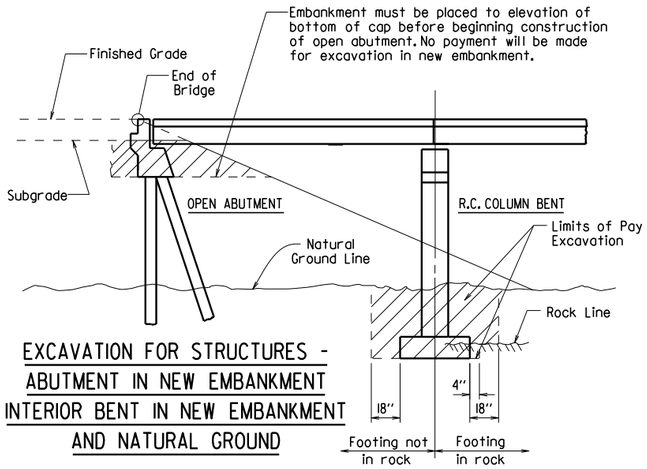
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

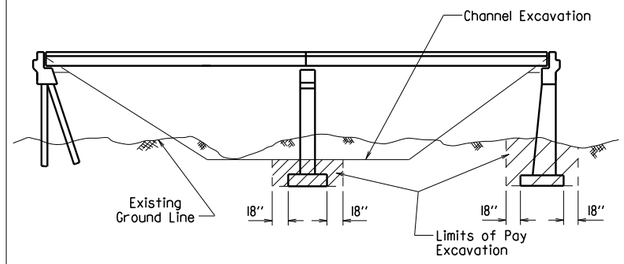
DRAWING NO. 55000

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.				

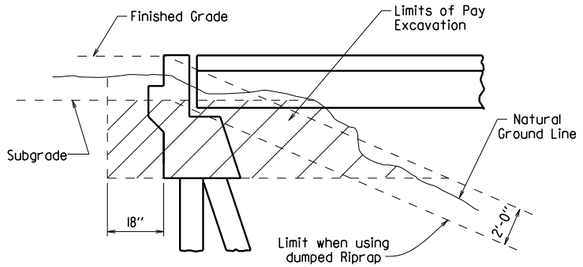
1 RIPRAP & EXCAV. 55001



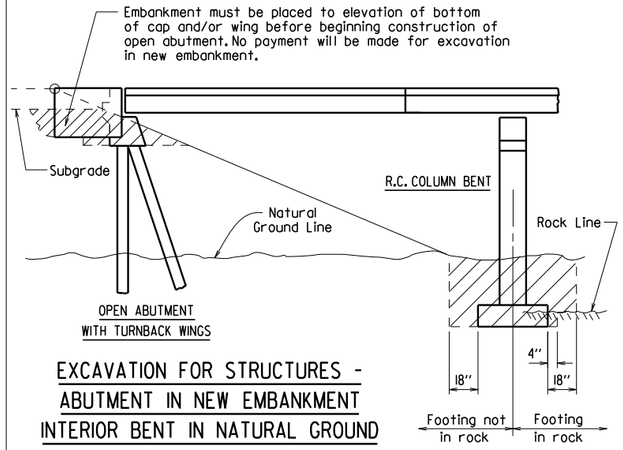
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



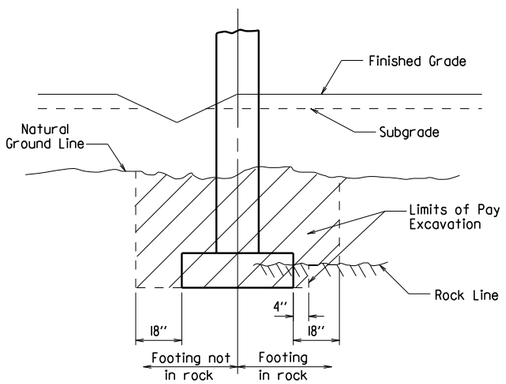
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



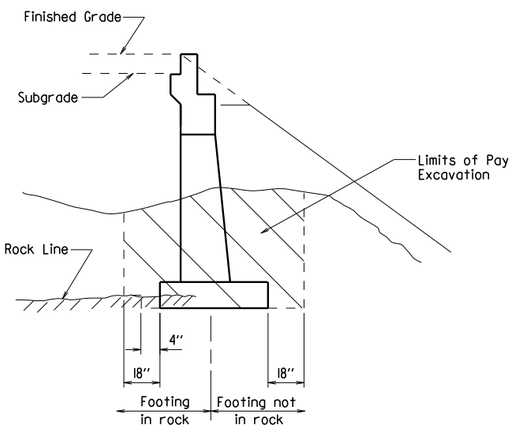
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



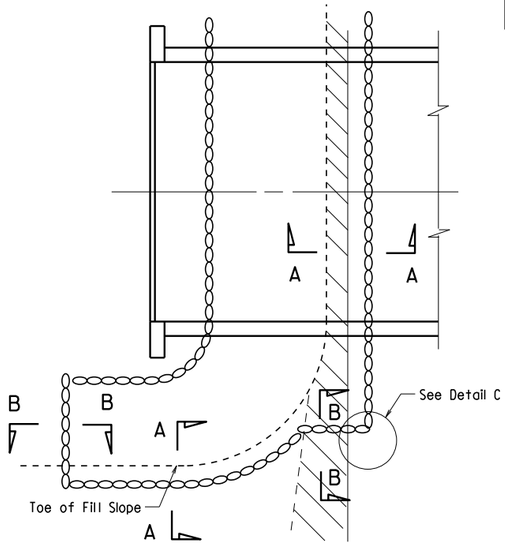
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



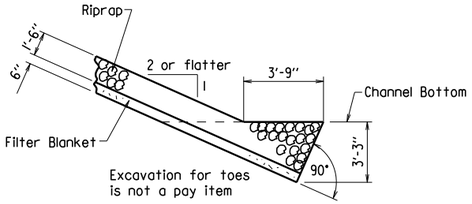
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

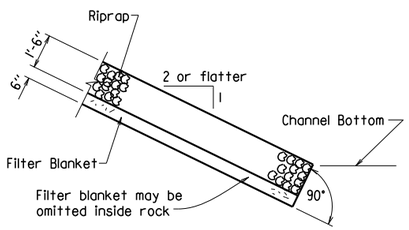


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



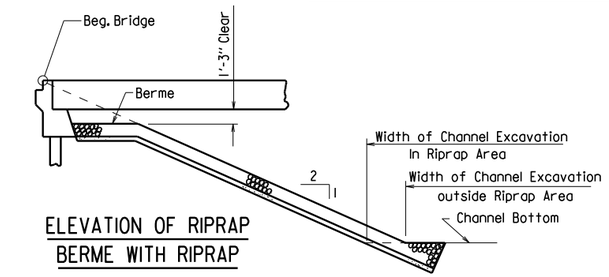
SECTION A-A

(Toe Excavation in Rock)

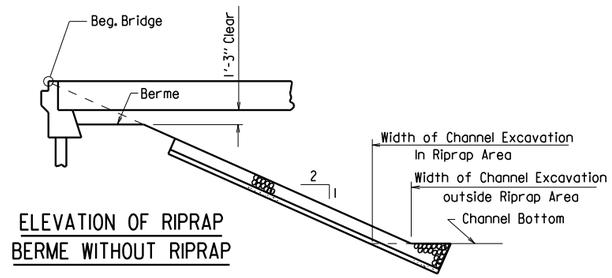
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

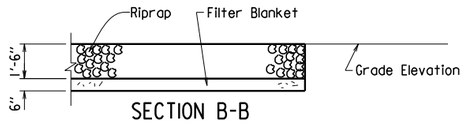
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



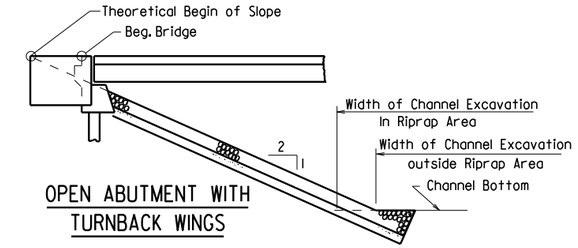
ELEVATION OF RIPRAP BERME WITH RIPRAP



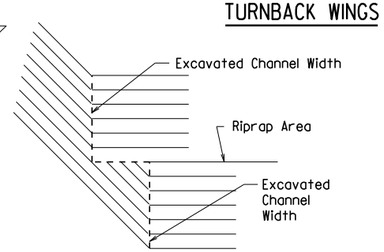
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

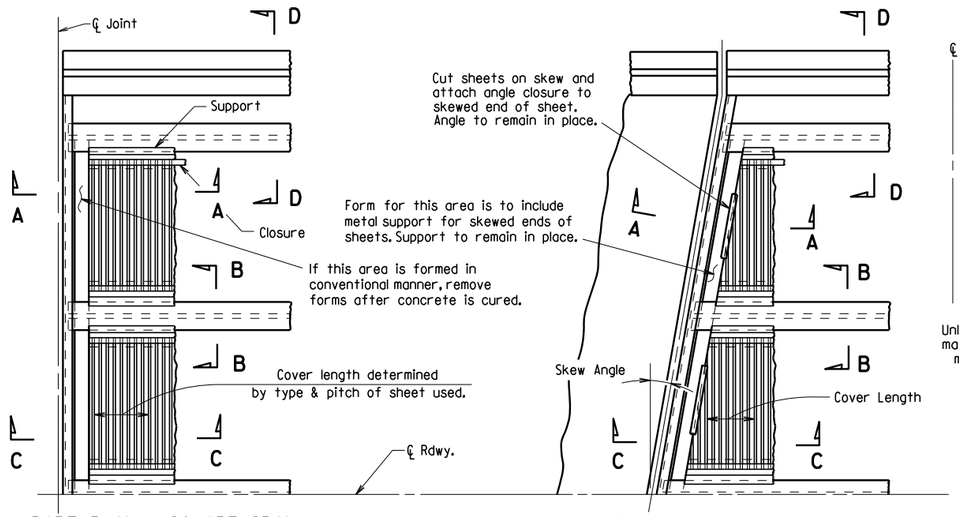
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE 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

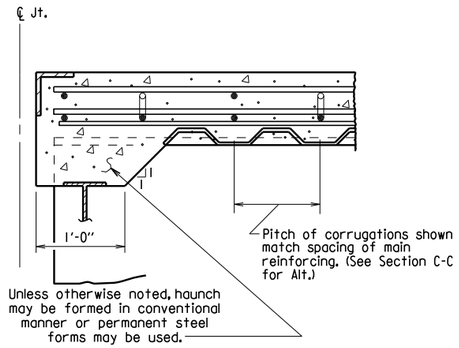


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

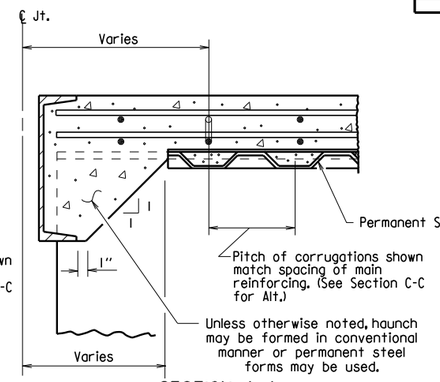
3/8" = 1'-0"



SECTION A-A

N.T.S.

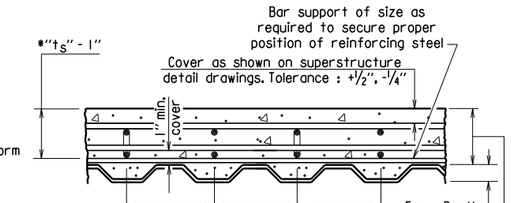
(Angle at end of span)



SECTION A-A

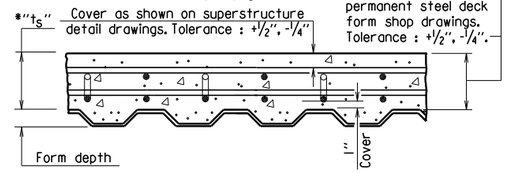
N.T.S.

(Channel at end of span)



SECTION C-C

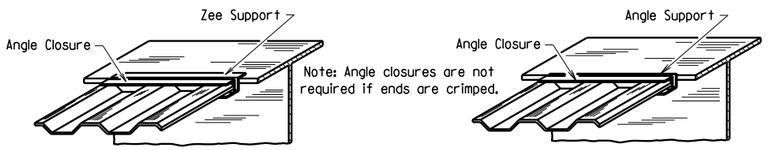
1" = 1'-0"



SECTION C-C - ALTERNATE

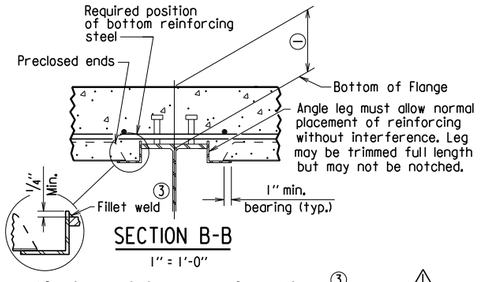
1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

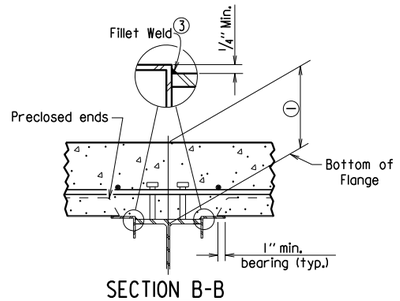


SECTION B-B

1" = 1'-0"

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

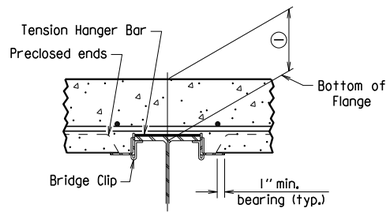
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

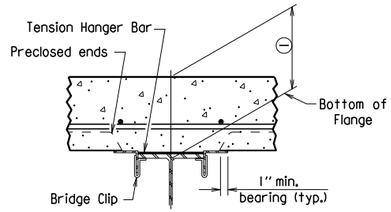
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

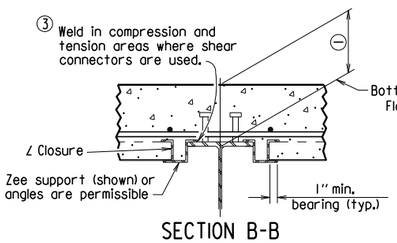
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

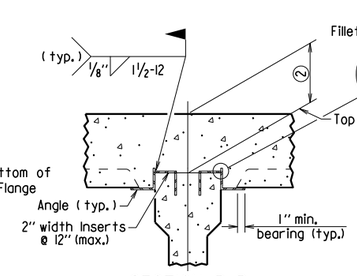
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

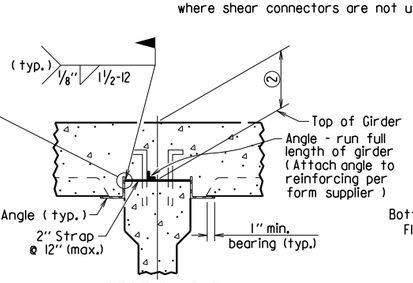


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

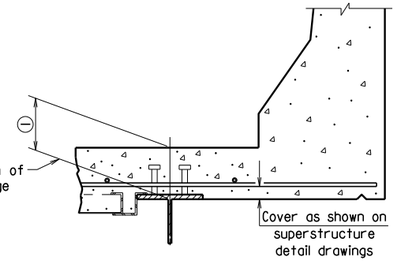


SECTION B-B

(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.

*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.

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: —

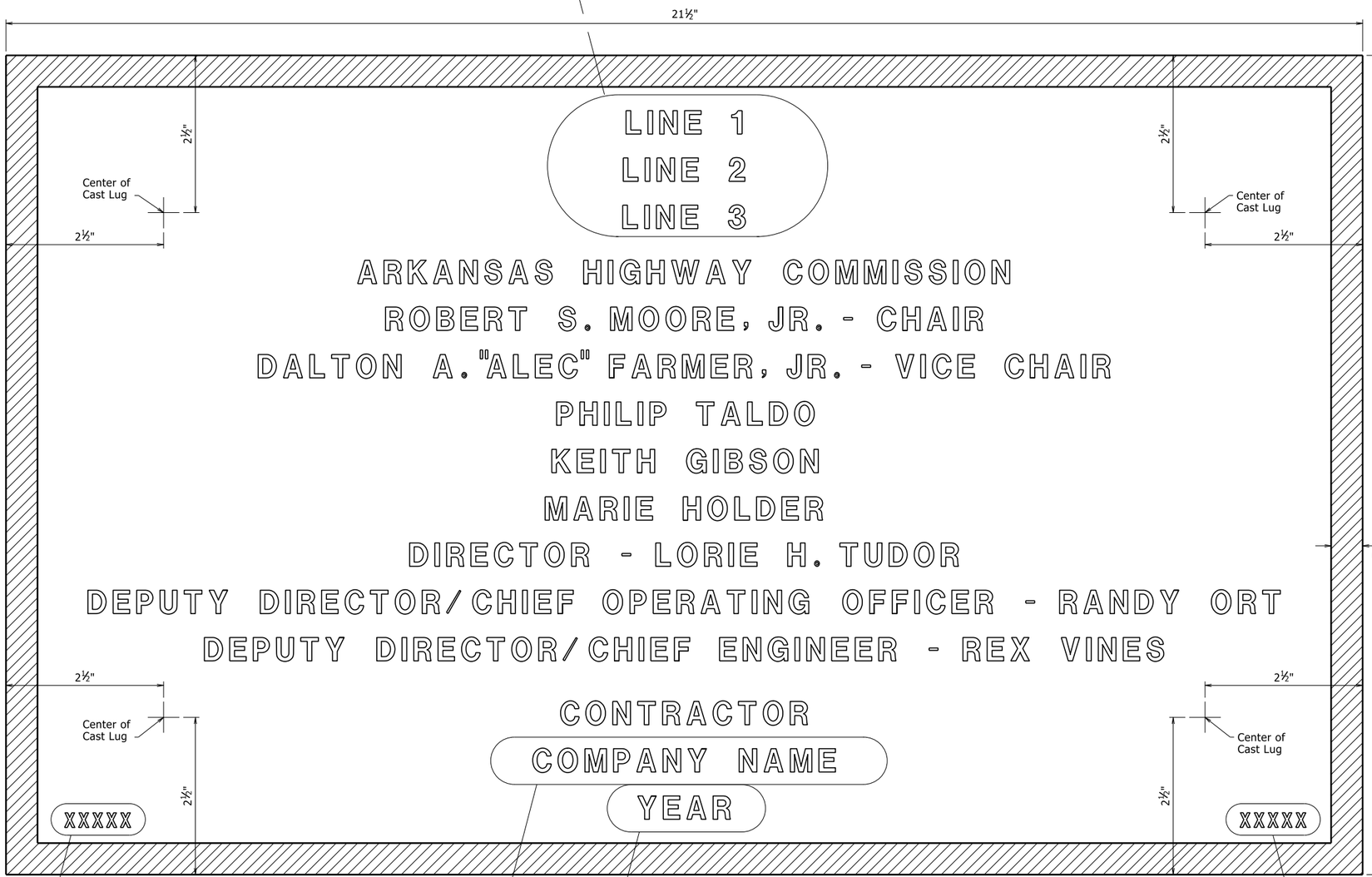
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14		1-15-19		6	ARK.			
1-14-15		3-24-2020		JOB NO.				
1-17-17		5-11-2021						

1 TYPE D NAME PLATE - 55010

The name of the bridge as shown on the plans shall be placed on Lines 1-3 using ⅛" raised letters and numerals ⅜" high.

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



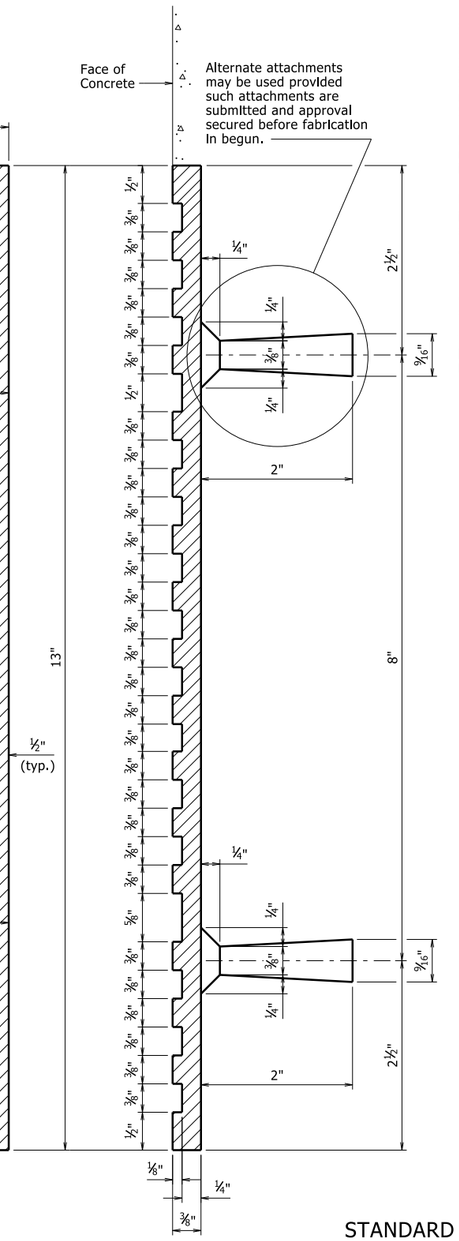
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

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

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

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

6 Revised Deputy Director/ Chief Engineer
5-11-2021 CGP Checked By: CRE

5 Revised Director, Deputy Director/Chief Operating Officer, Chair, Vice Chair and added New Commissioner
3-24-2020 CGP Checked By: CRE

4 Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

2 Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

1 Revised Deputy Director/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

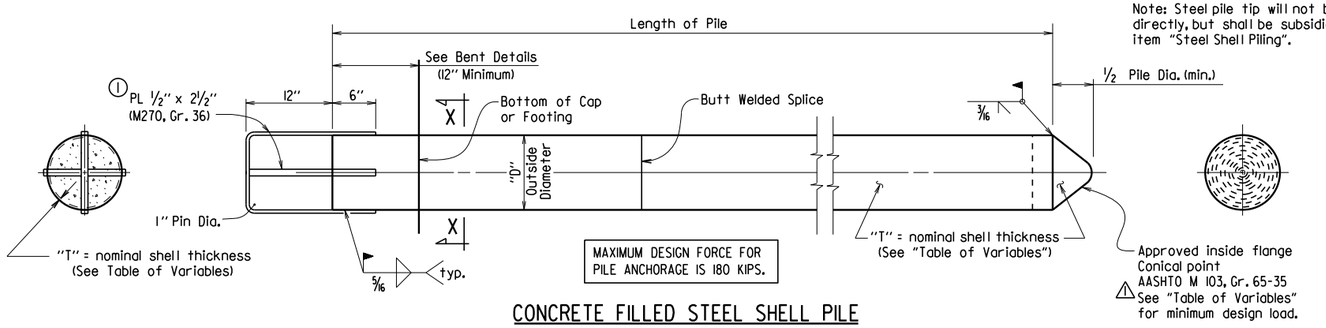
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55010

PRINT DATE: 5/11/2021

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

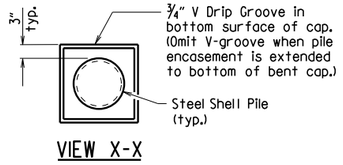


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

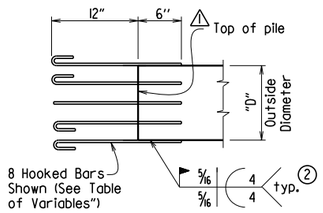
CONCRETE FILLED STEEL SHELL PILE

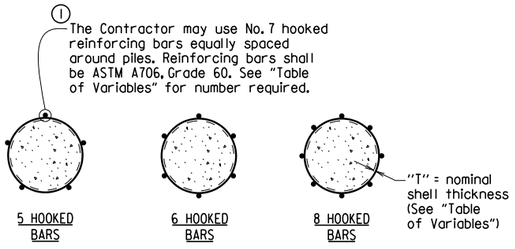
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(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.



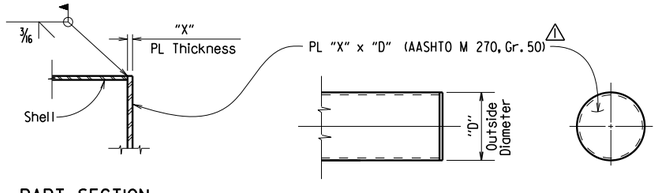
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

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

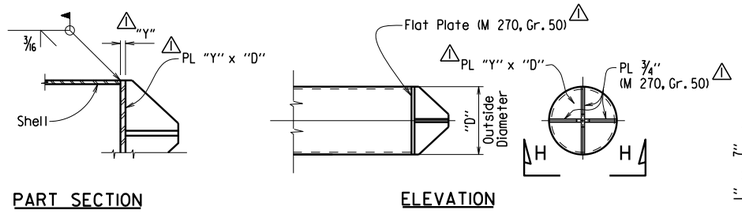


PART SECTION

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

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

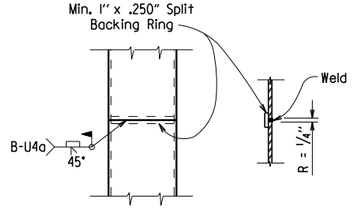
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

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.

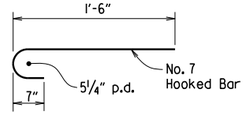
Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	⚠ PLATE THICKNESS "X"	⚠ PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	⚠ MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2 1/4"	1 1/2"	5	859
16"	0.50"	2 1/4"	1 1/2"	5	986
18"	0.50"	2 1/2"	1 1/2"	6	1,114
20"	0.50"	2 1/2"	1 3/4"	6	1,241
24"	0.50"	2 3/4"	1 3/4"	8	1,495



HOOKED BAR DETAIL

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

GENERAL NOTES FOR PILE ENCASEMENTS:

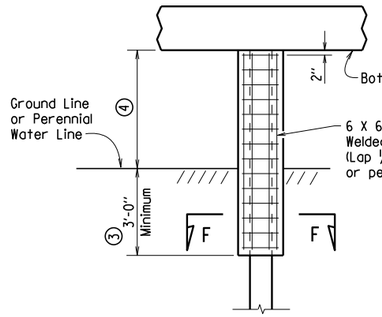
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

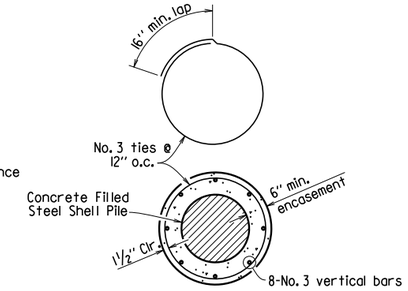
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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)

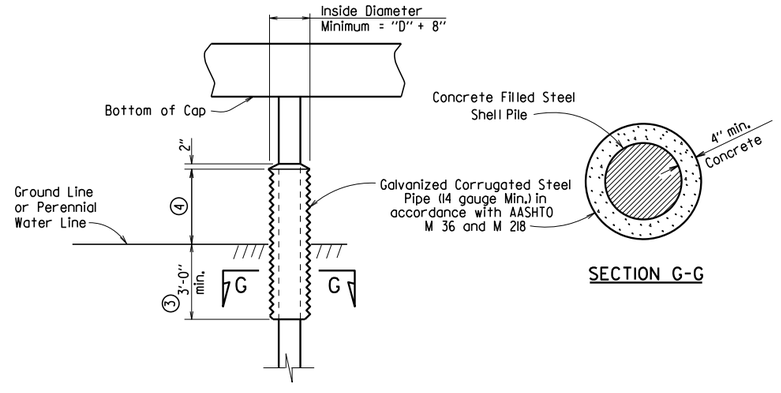
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(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

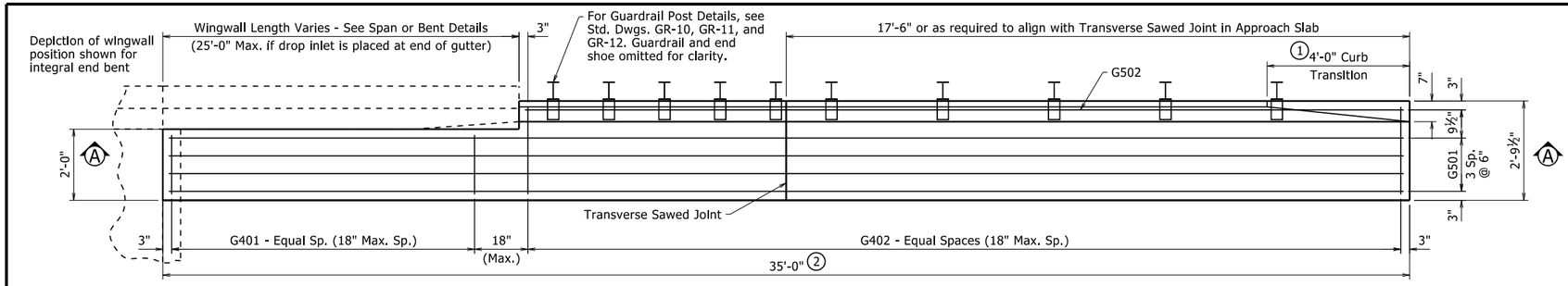
LITTLE ROCK, ARK.

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

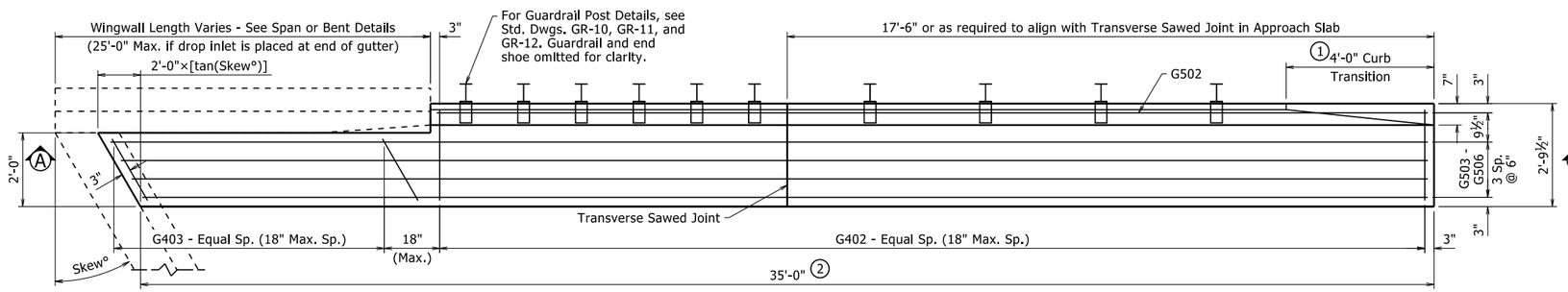
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

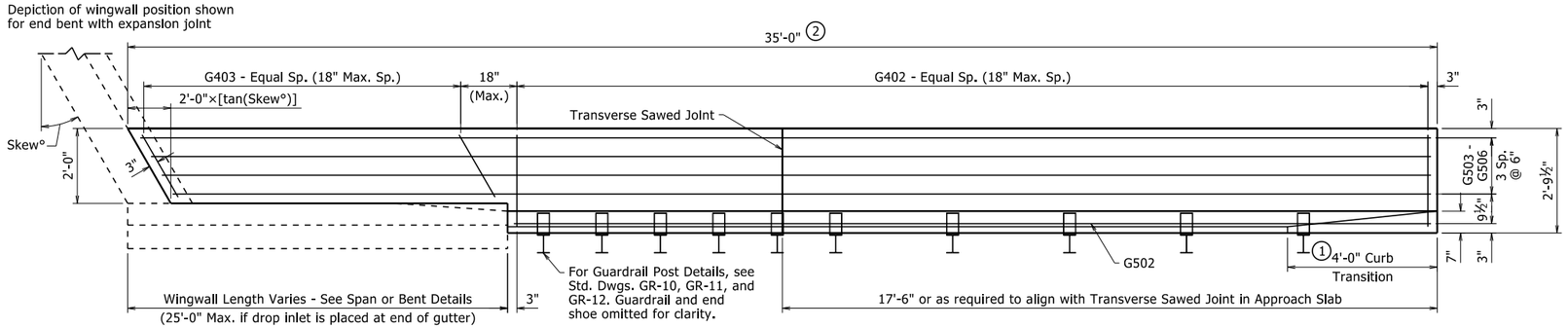
(1) Type F Approach Gutters - 55030F



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)

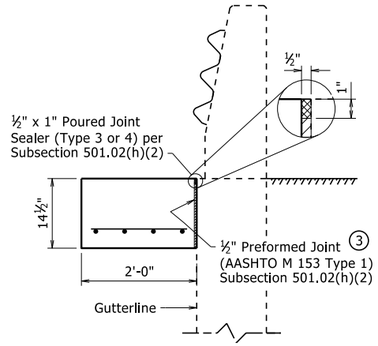
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

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

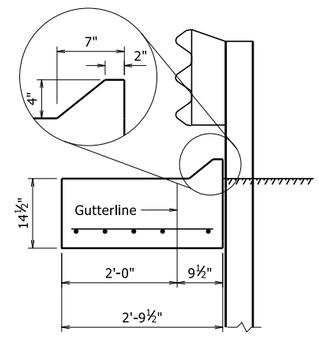
	Mark	No. Req'd.	Length
Square End Bent	G401	(4)	1'-8"
	G402	(4)	2'-5½"
	G501	4	34'-8"
	G502	1	(4)
Skewed End Bent	G402	(4)	2'-5½"
	G403	(4)	(4)
	G502	1	(4)
	G503 - G506	1 ea.	(4)

(4) Varies with Skew and/or Wingwall Length



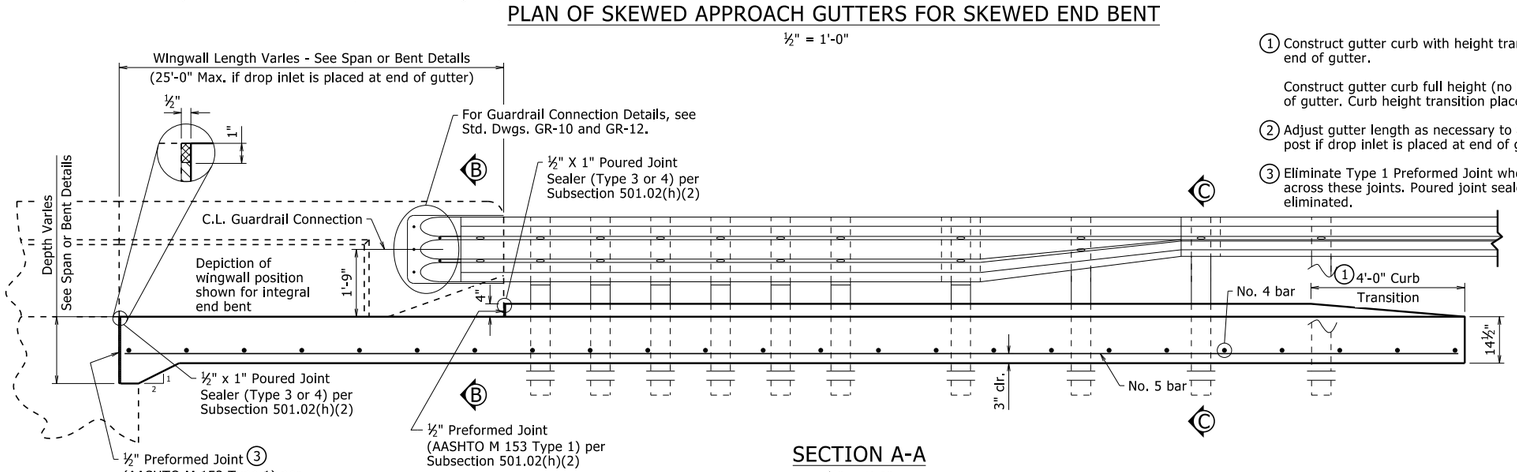
SECTION B-B

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.

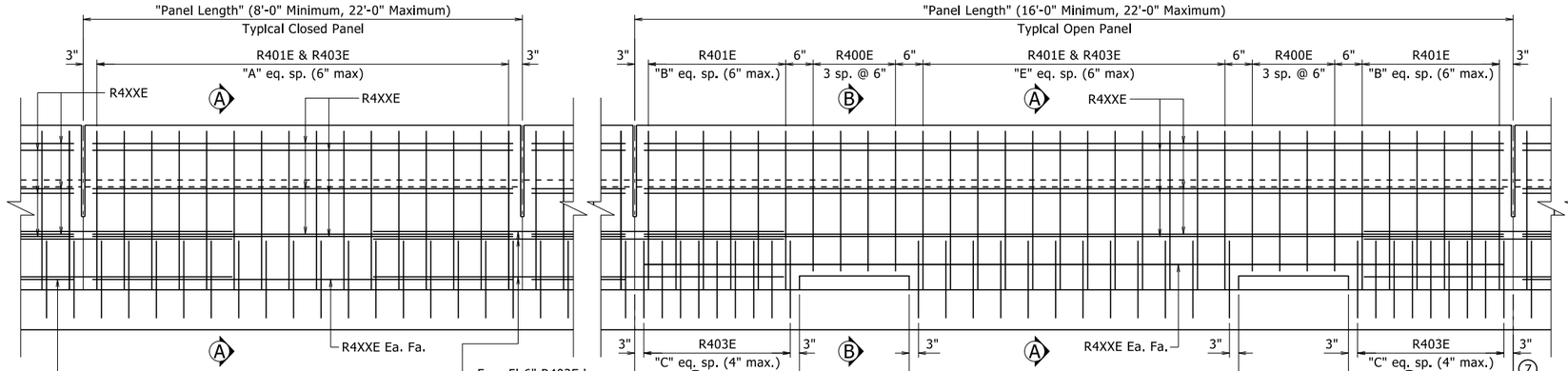
DRAWN BY:	NAC	DATE:	4-8-2021	FILENAME:	b55030f.dgn
CHECKED BY:	LJB	DATE:	4-8-2021	SCALE:	AS NOTED
DESIGNED BY:	STD	DATE:	-		

DRAWING NO. 55030F

PRINT DATE: 4/9/2021

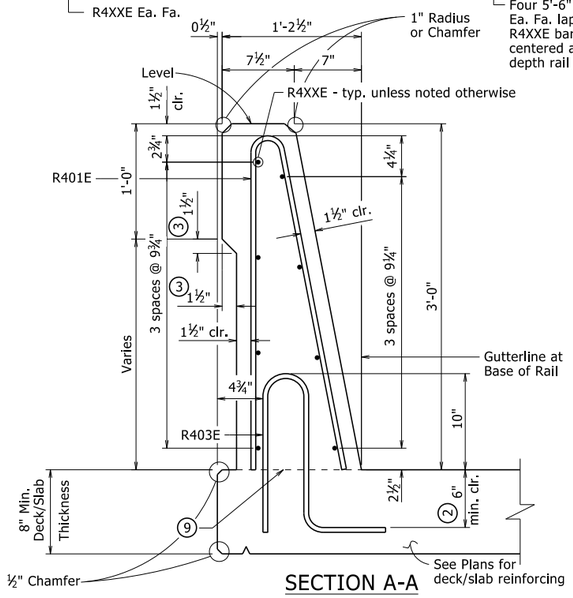
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

(1) TYPE SSTR36 - 55070



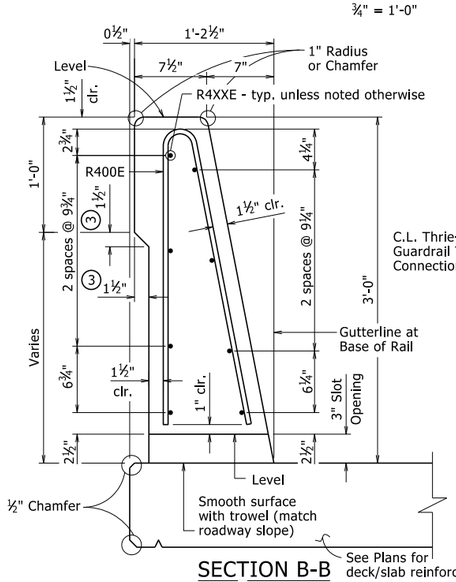
(1) ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



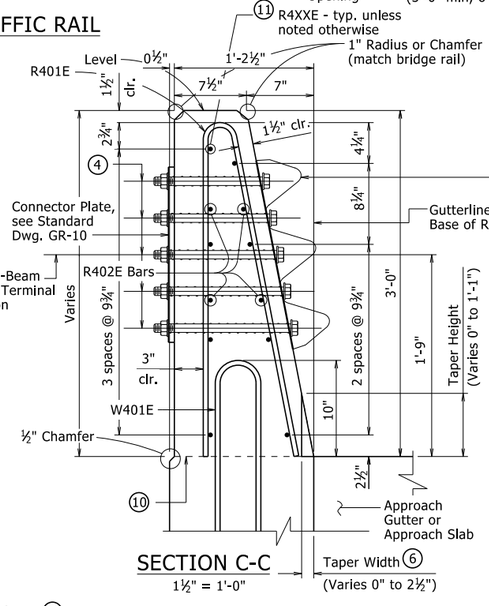
SECTION A-A

1½" = 1'-0"



SECTION B-B

1½" = 1'-0"



SECTION C-C

1½" = 1'-0"

Taper Width (6) (Varies 0" to 2½")

(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.

(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.

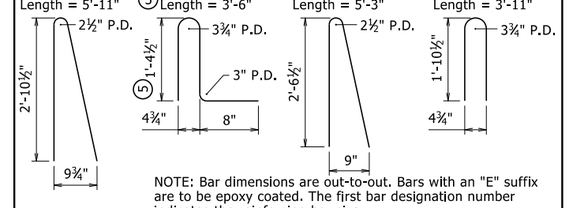
(6) Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

(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 ⅛", and must be controlled so it will follow the V-Groove.

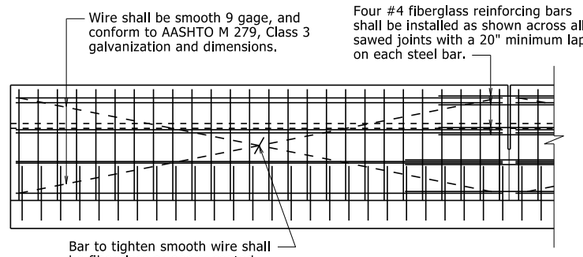
(8) End posts shall be the same length within a panel.

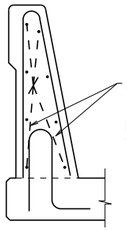
Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation 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.





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.

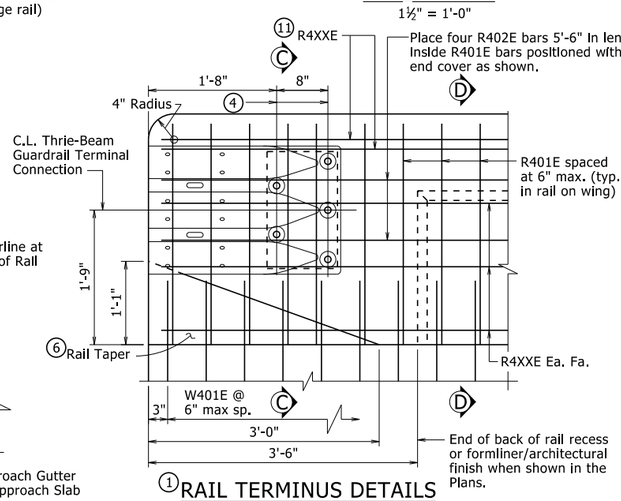
DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 5, 2020. This copy is not a signed and sealed document.

SECTION D-D

1½" = 1'-0"



(1) RAIL TERMINUS DETAILS

1" = 1'-0"

(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	F	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.

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

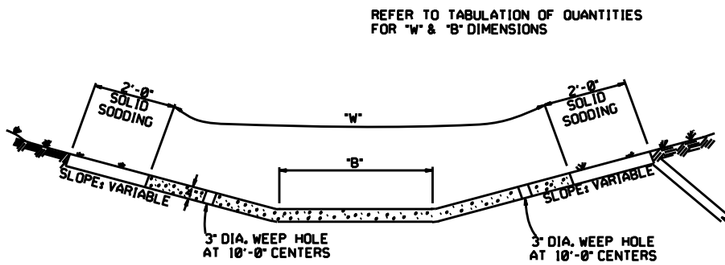
ARKANSAS STATE HIGHWAY COMMISSION

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

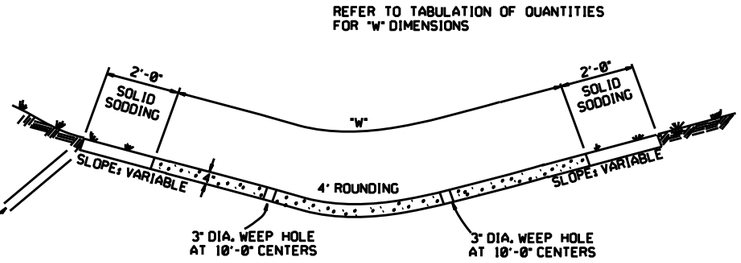
DRAWING NO. 55070

PRINT DATE: 4/9/2021



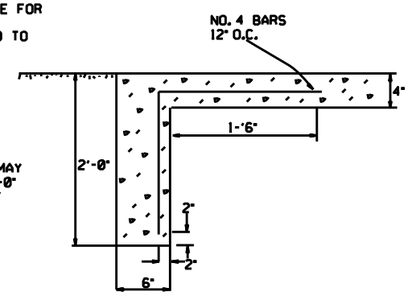
TYPE A

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



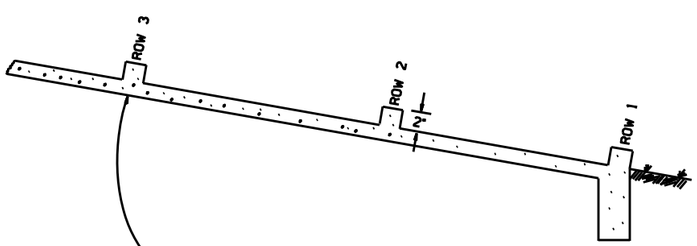
TYPE B

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



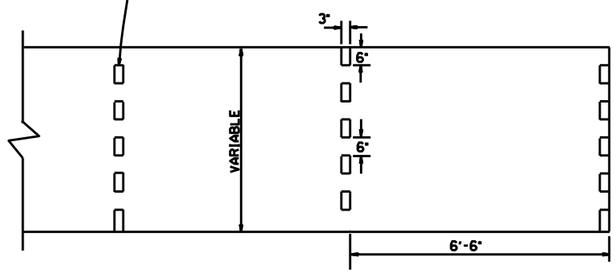
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

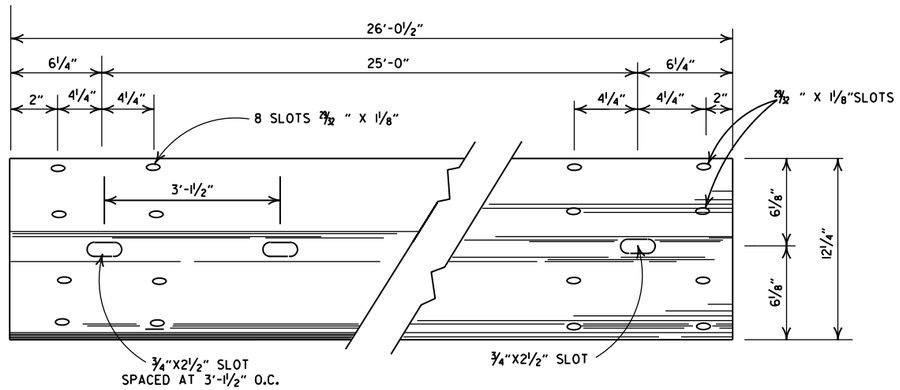
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

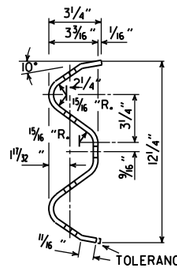
DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

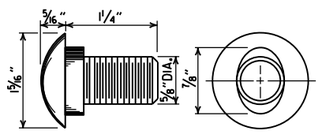
STANDARD DRAWING CDP-1



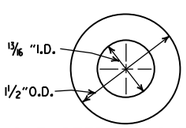


DETAILS OF W-BEAM GUARDRAIL

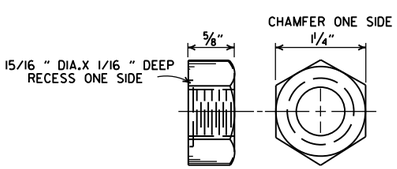
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



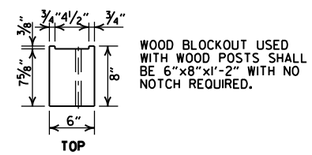
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



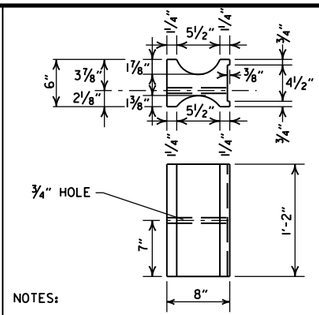
CUT STEEL WASHER



NUT



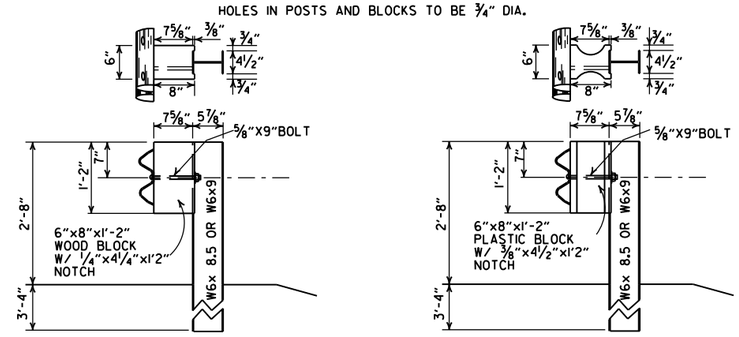
WOOD BLOCKOUT (W-BEAM)



NOTES:

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

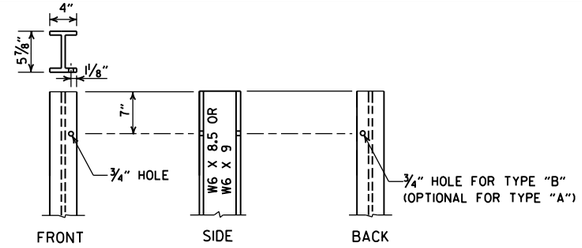
PLASTIC BLOCKOUT (W-BEAM)



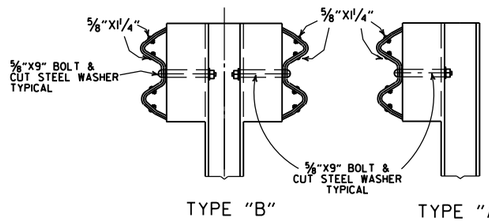
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

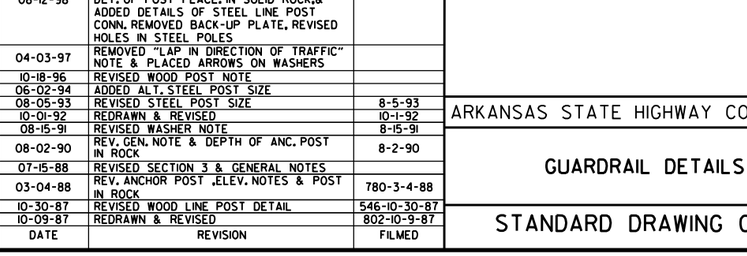
W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

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

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

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

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



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

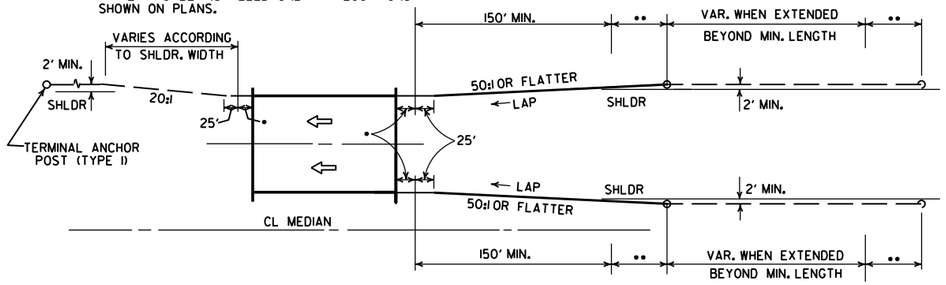
DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

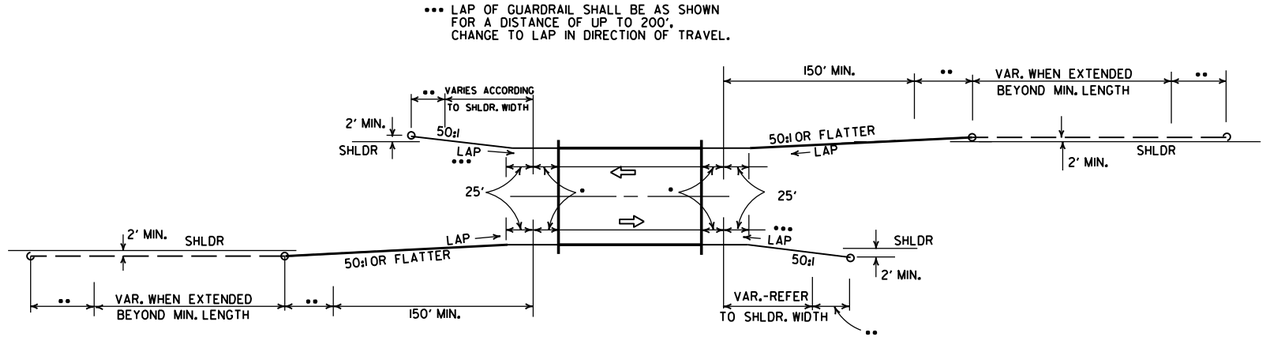
STANDARD DRAWING GR-6

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



ONE-WAY TRAFFIC

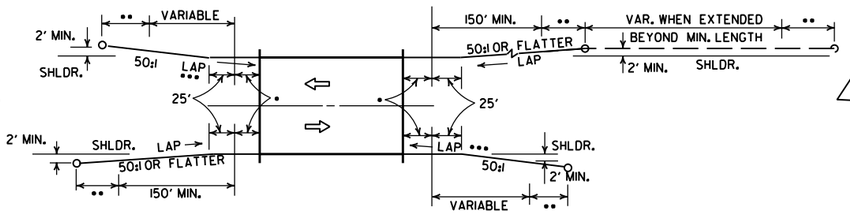
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

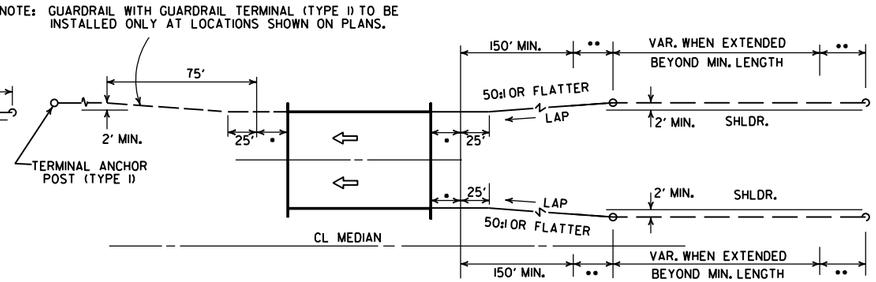
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

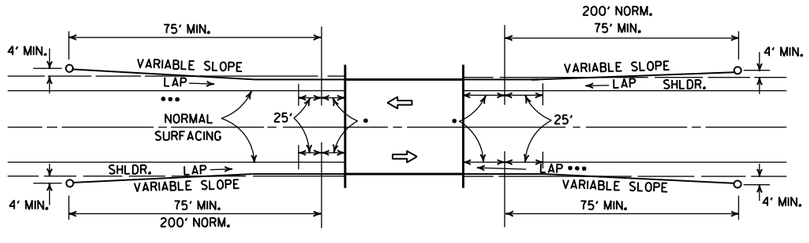
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



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.



LEGEND

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

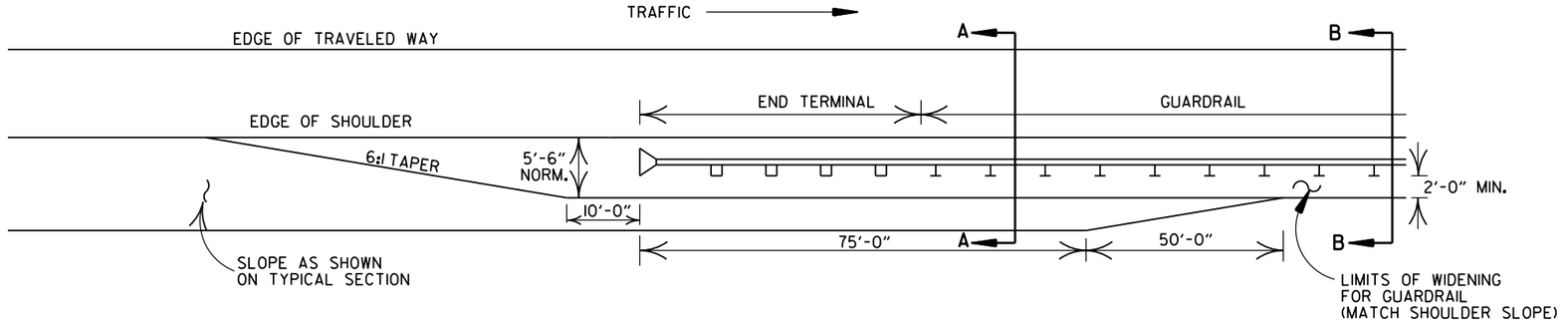
METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

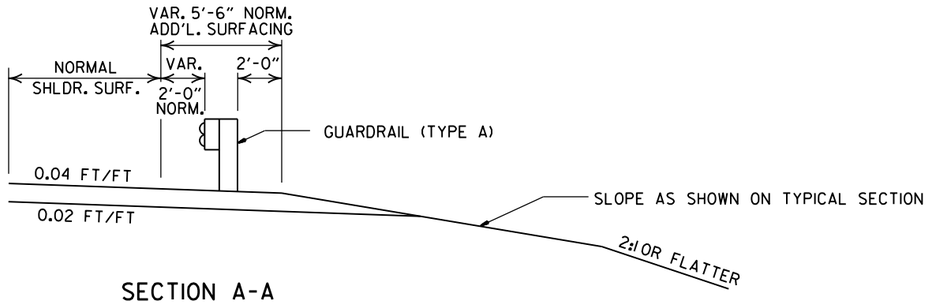
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

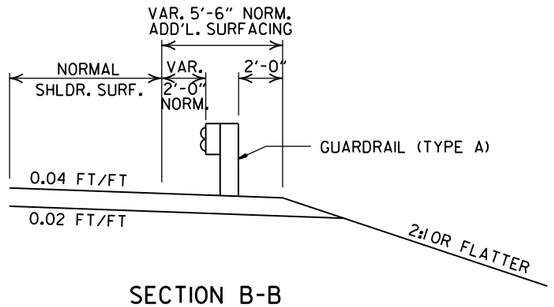
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



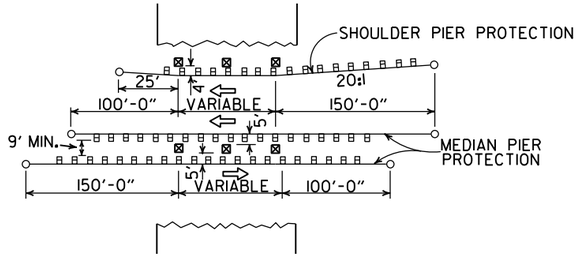


SECTION A-A



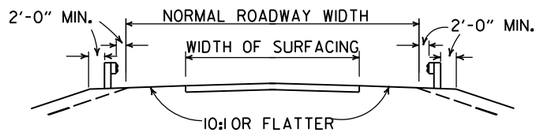
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

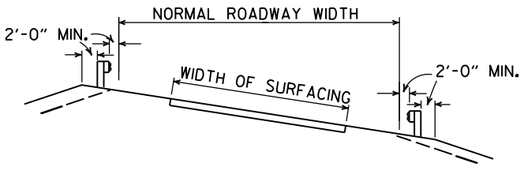


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

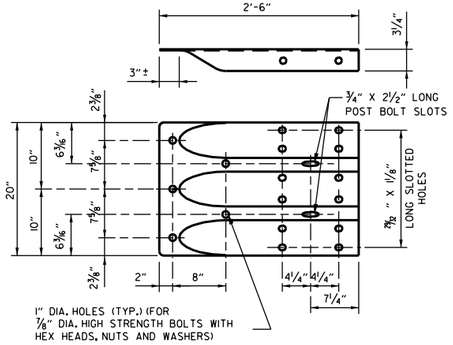
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

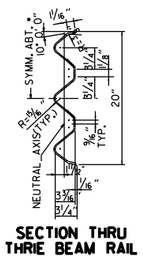
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

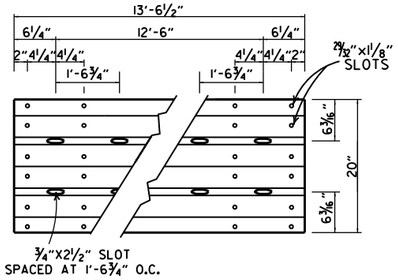
STANDARD DRAWING GR-9



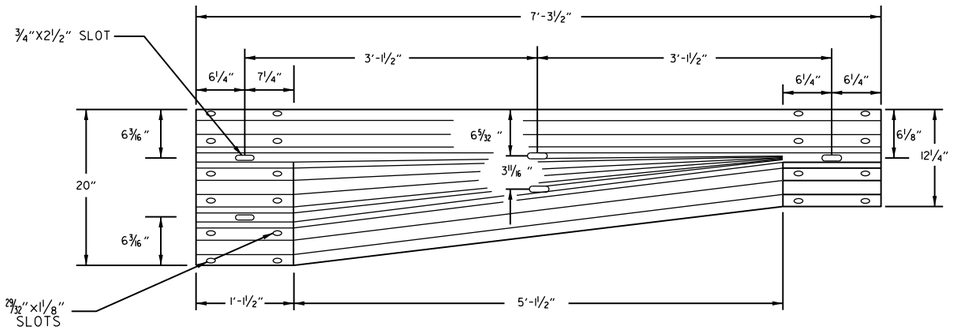
SPECIAL END SHOE



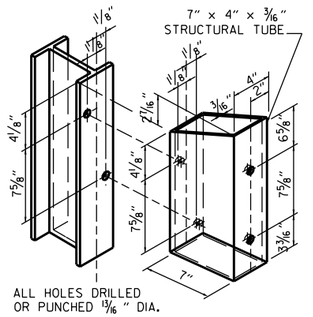
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

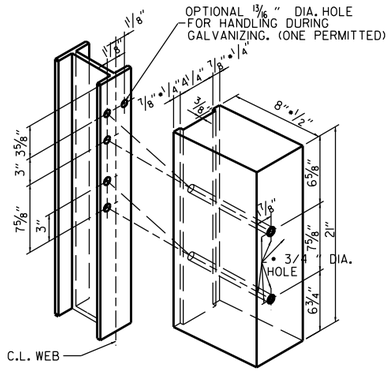


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING 5/8" DIA. HEX HEAD BOLTS WITH 1 1/2" O.D. CUT STEEL WASHERS AND NUT.

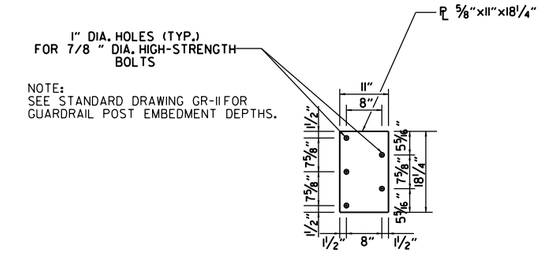
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

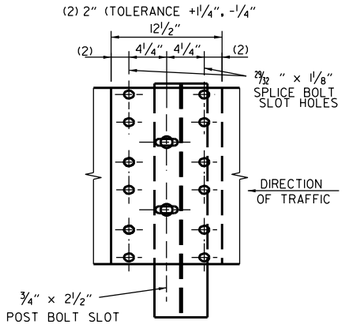
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



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

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8" 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 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.

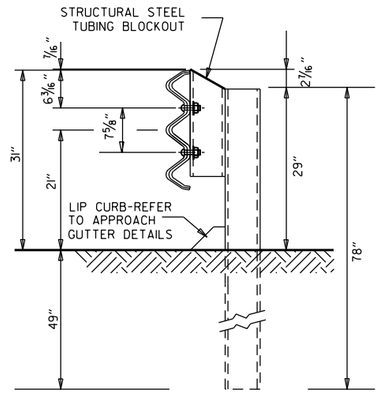
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

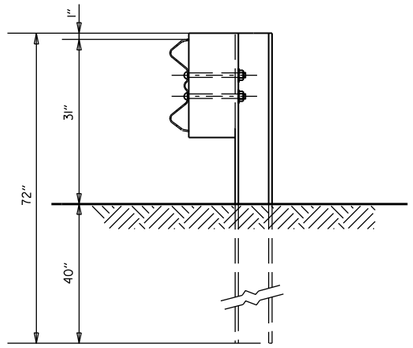
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

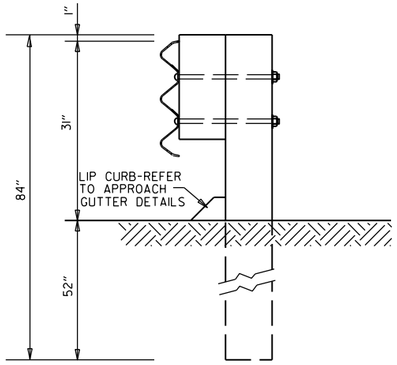
STANDARD DRAWING GR-10



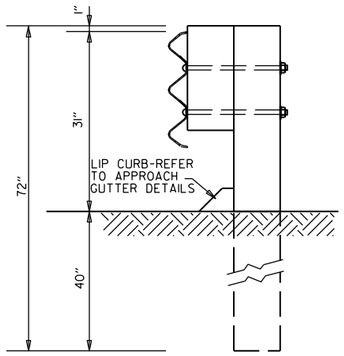
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



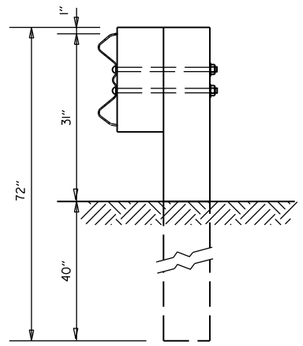
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

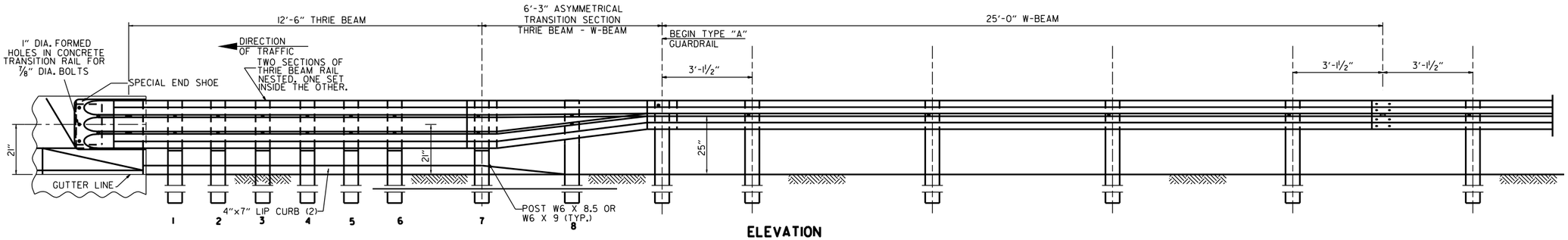
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

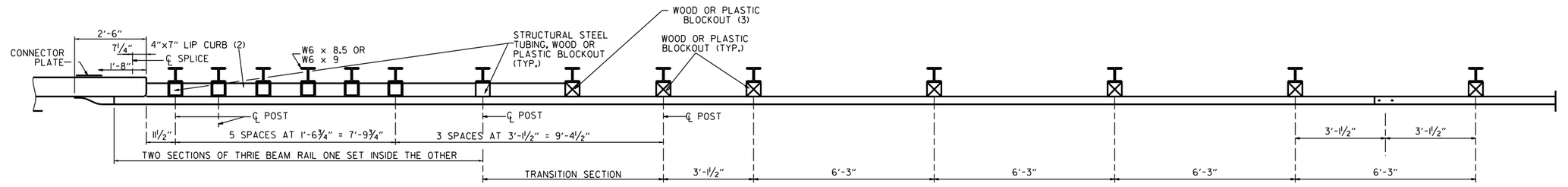
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

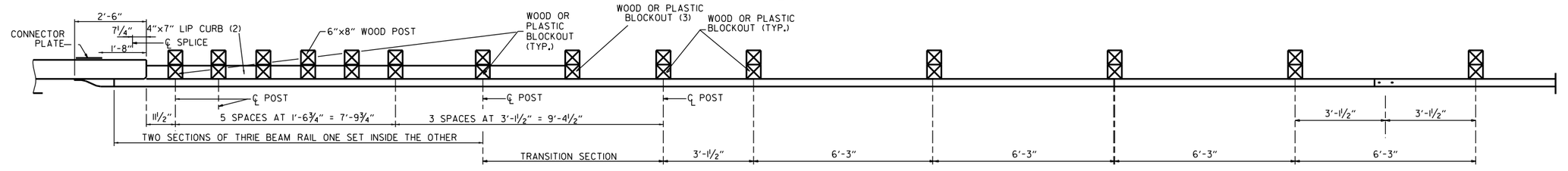
STANDARD DRAWING GR-11



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.

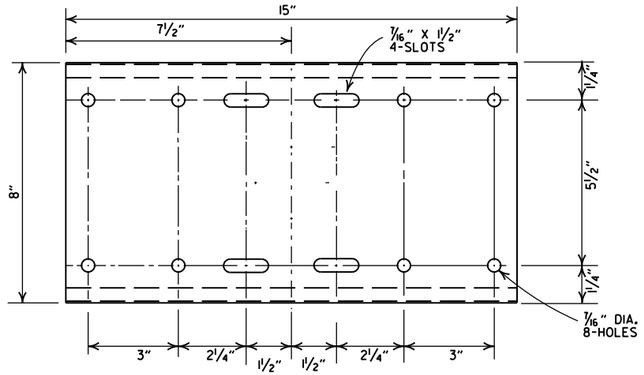
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

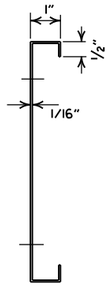
ARKANSAS STATE HIGHWAY COMMISSION

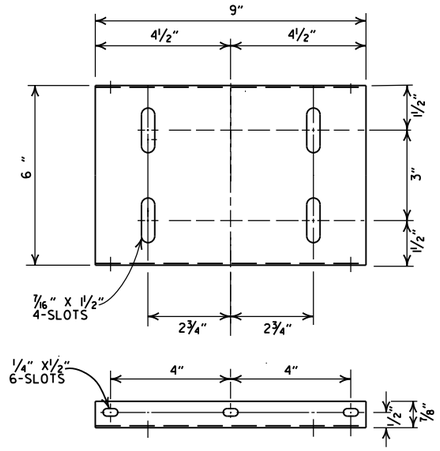
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

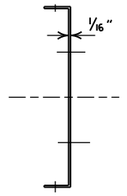


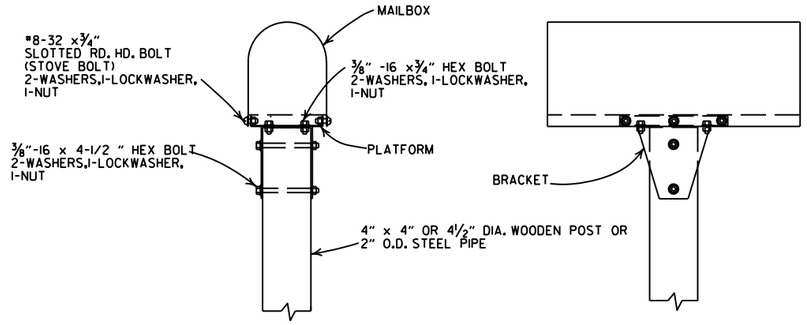
SHELF



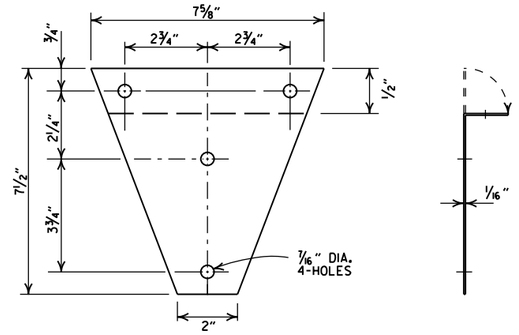


PLATFORM

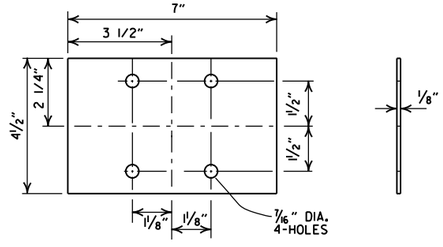




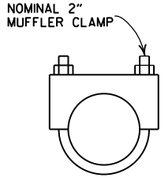
SINGLE INSTALLATION



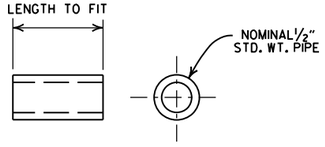
BRACKET



ANTI-TWIST PLATE



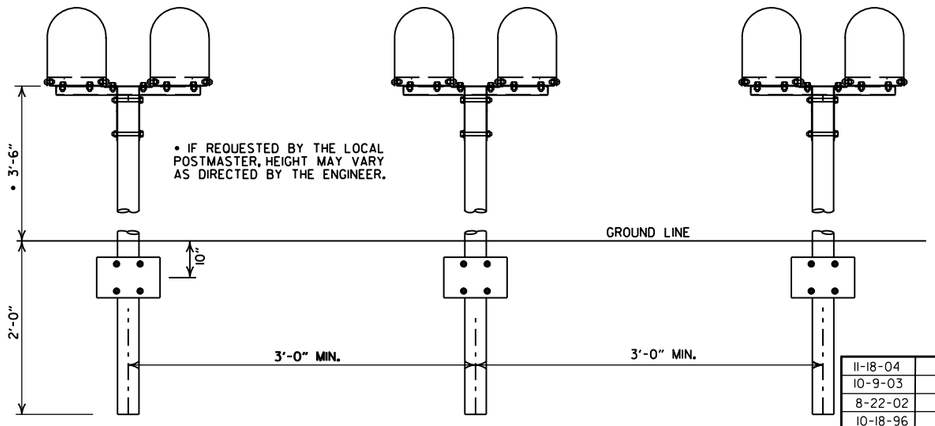
CLAMP



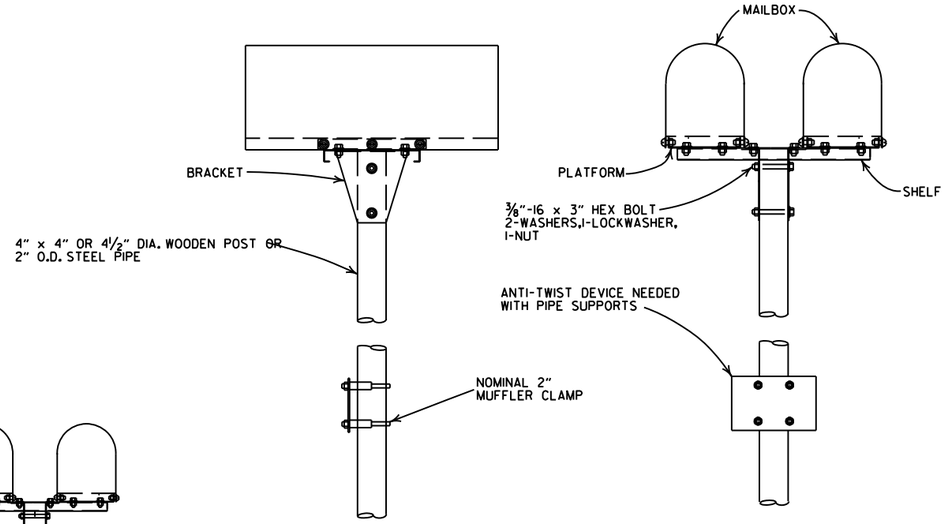
SPACER

GENERAL NOTES

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



SPACING FOR MULTIPLE POST INSTALLATION



DOUBLE INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

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

CORRUGATED METAL PIPE ARCHES

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

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.

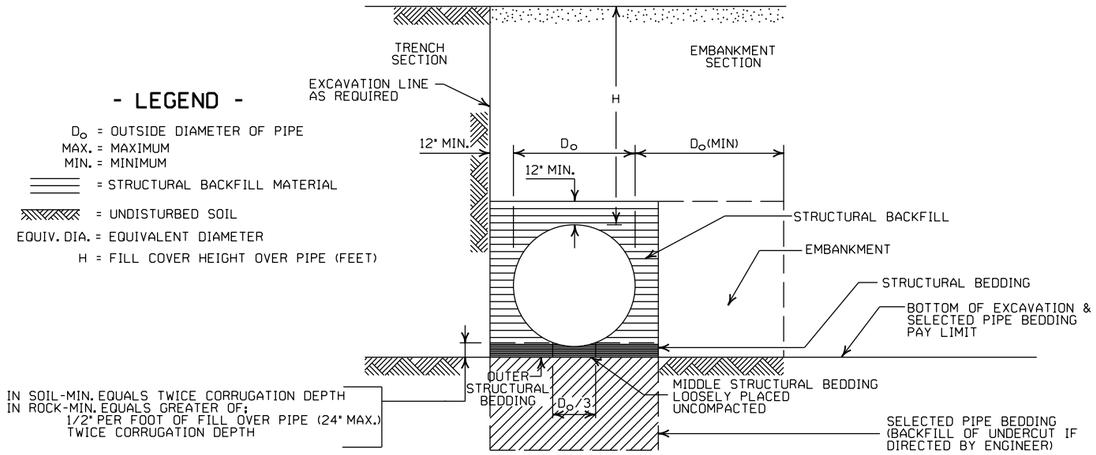
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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



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."

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.

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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

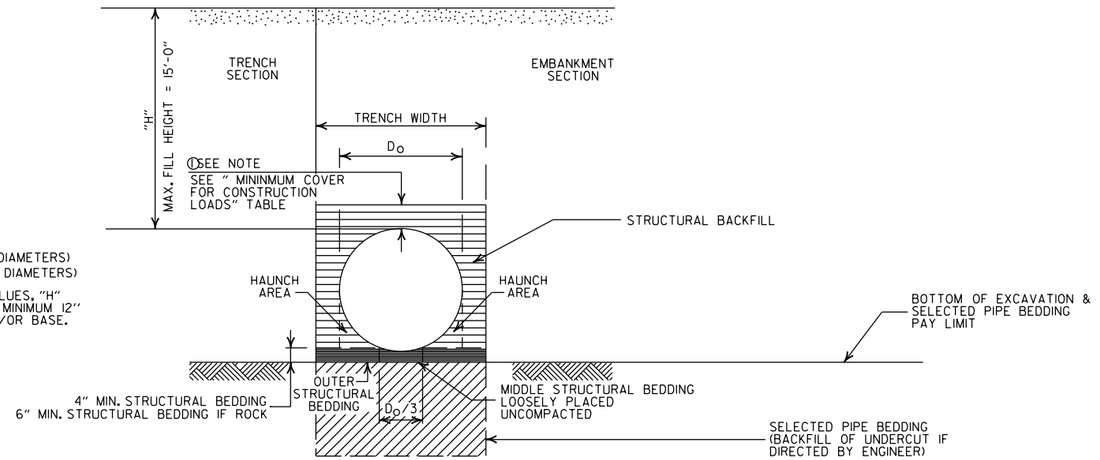
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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.



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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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.

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

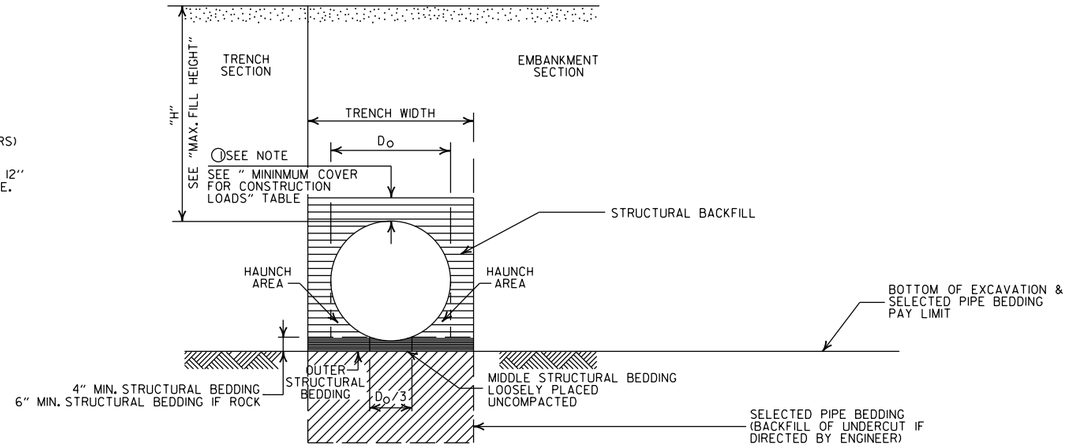
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

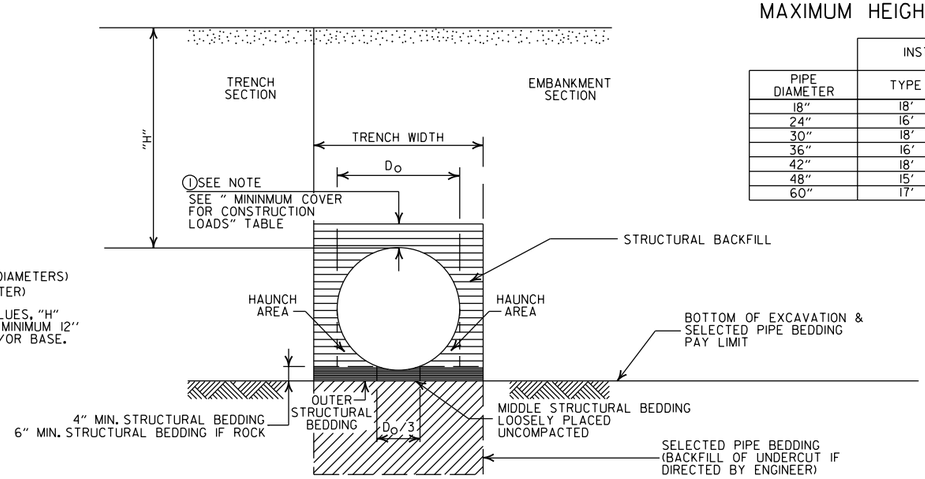
MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

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

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



MAXIMUM HEIGHT OF FILL "H"

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

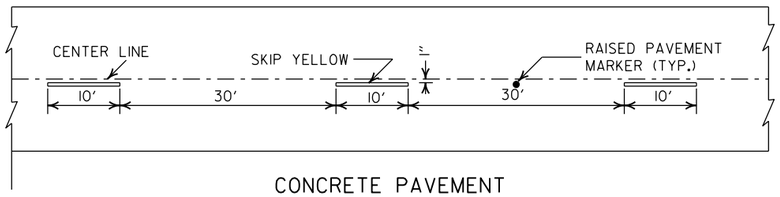
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

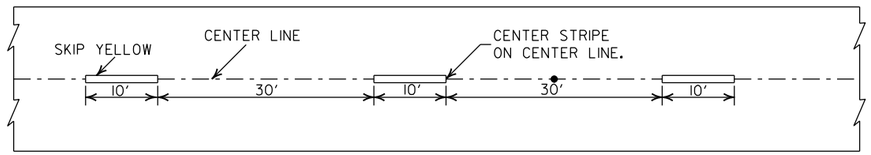
PLASTIC PIPE CULVERT
(POLYPROPYLENE)

STANDARD DRAWING PCP-3

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

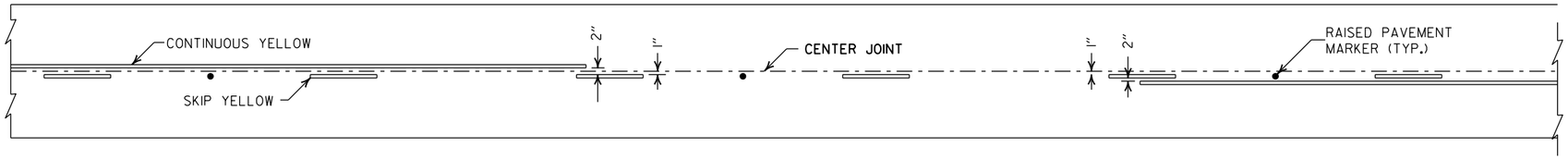


CONCRETE PAVEMENT

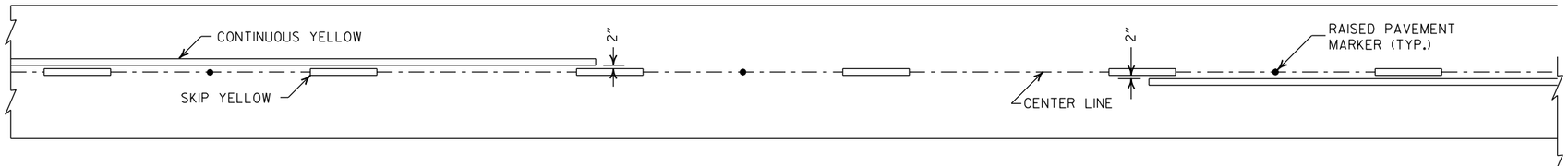


ASPHALT PAVEMENT

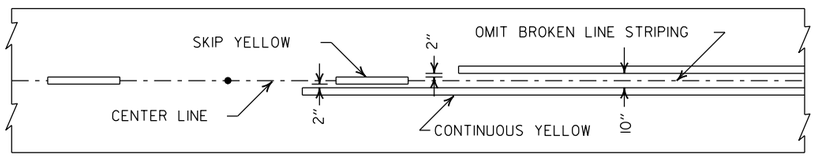
BROKEN LINE STRIPING



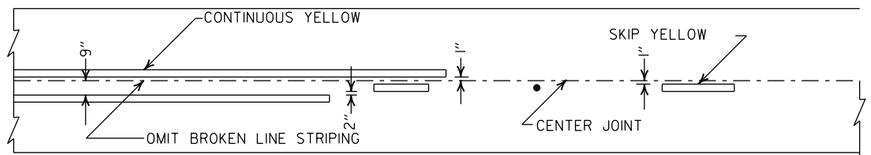
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

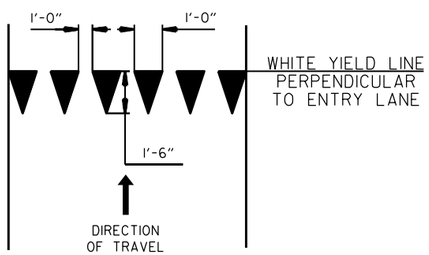


ASPHALT PAVEMENT

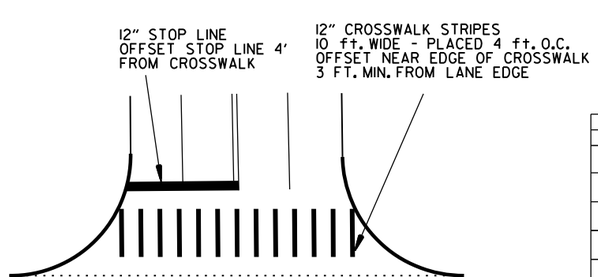


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

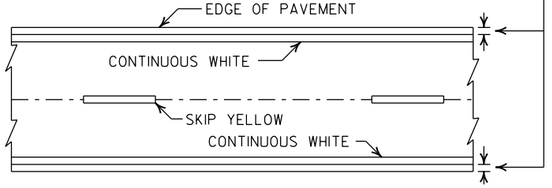


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

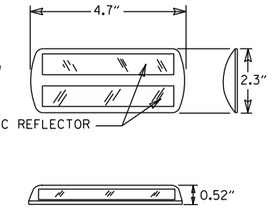
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

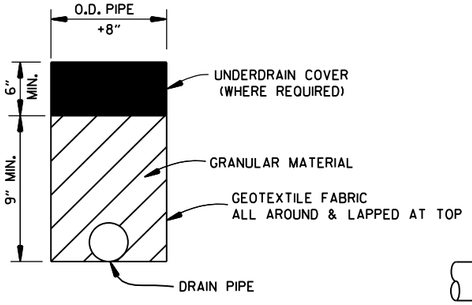
PAVEMENT MARKING DETAILS

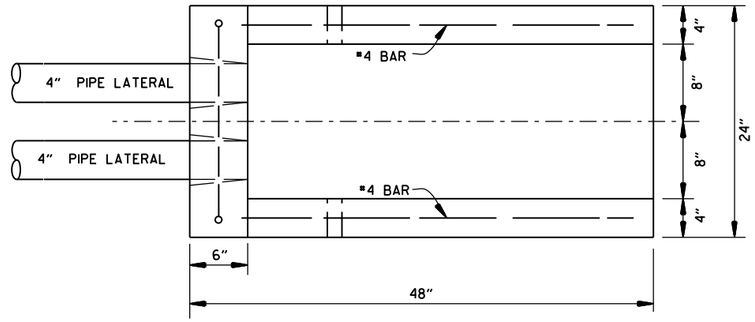
STANDARD DRAWING PM-1

NOTE:

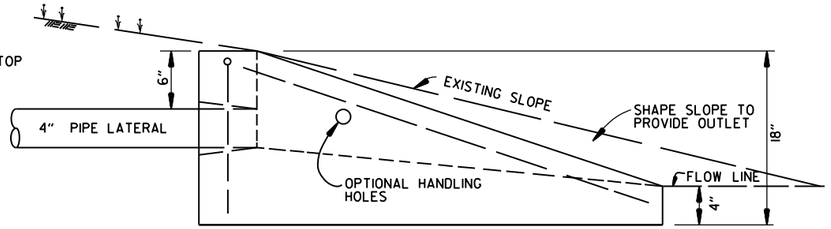
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

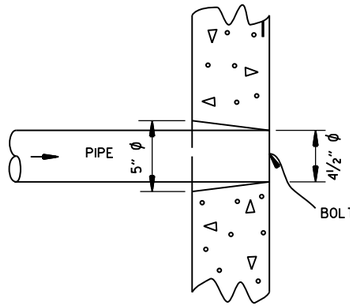




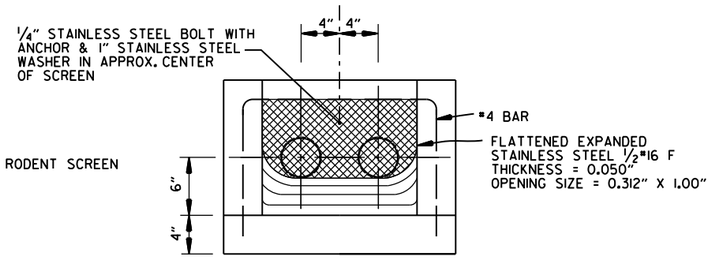
PLAN VIEW



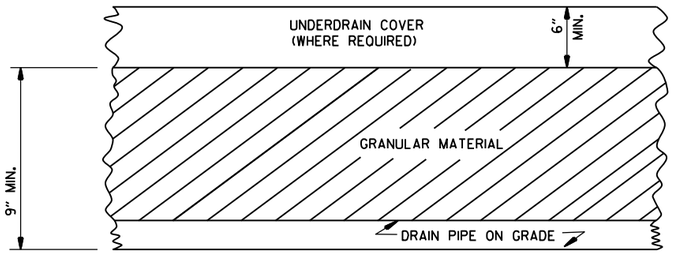
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

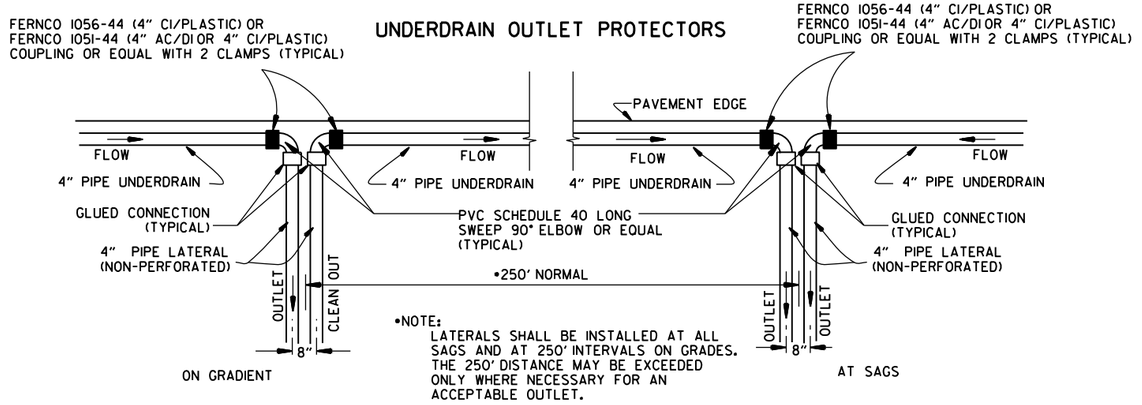


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 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.

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

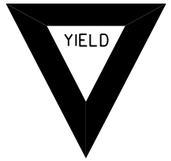
DETAILS OF PIPE UNDERDRAIN

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"

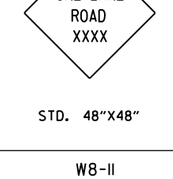
R4-1

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

R4-2

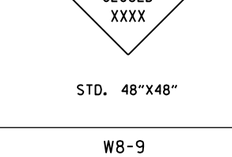
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



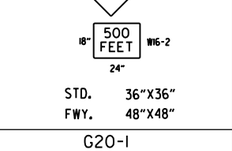
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



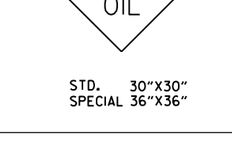
48"X30"

RII-3A



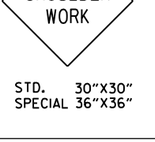
60"X30"

RII-4



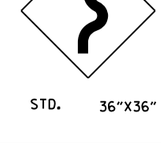
60"X30"

W21-5a



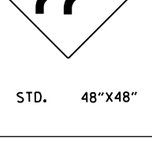
STD. 36"X36"
FWY. 48"X48"

WI-1



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

WI-2

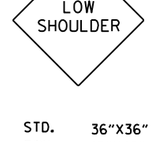


STD. 36"X36"
FWY. 48"X48"

WI-3

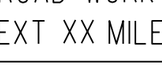
STD. 48"X48"

WI-4



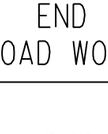
STD. 48"X48"

WI-6



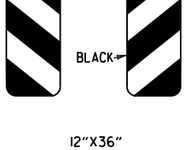
STD. 48"X24"
SPECIAL 60"X30"

WI-8



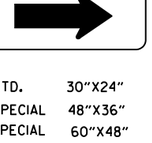
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



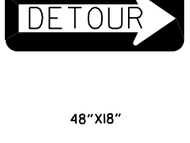
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

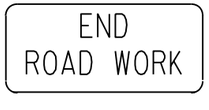
W8-9

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

G20-1

60"X24"

G20-2



48"X24"

OM-3L OM-3R

12"X36"

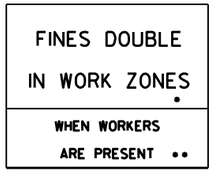
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

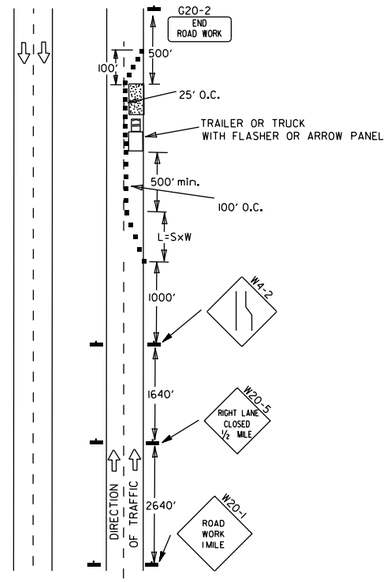
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

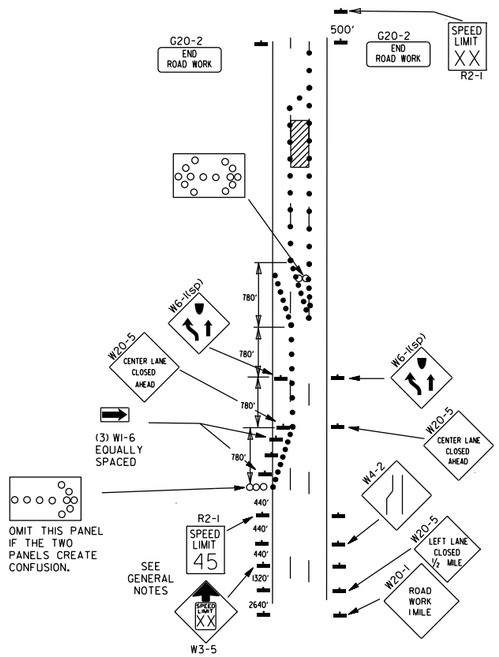
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



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



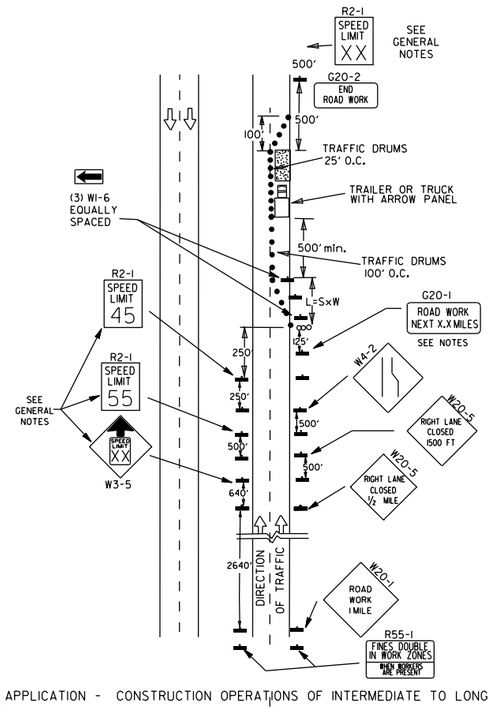
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

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

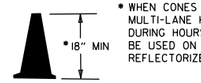
GENERAL NOTES:

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



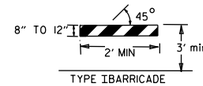
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



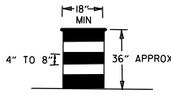
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

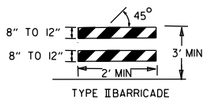
CONES



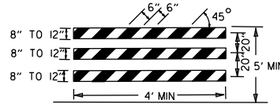
TYPE I BARRICADE

PLASTIC DRUM



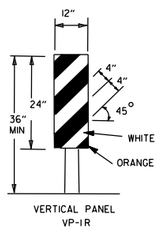


TYPE II BARRICADE



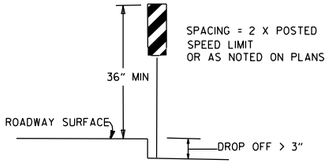
TYPE III BARRICADE

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

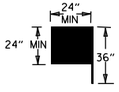


VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



FLAG



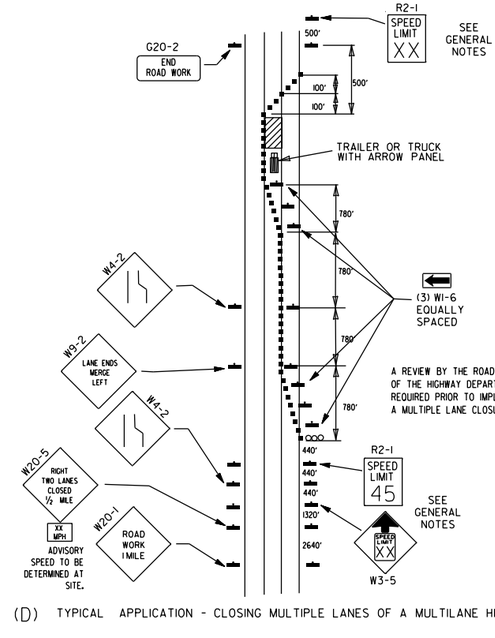
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

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).



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

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

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

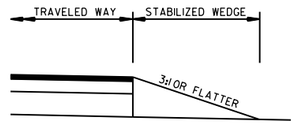
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 6"	EDGE OF TRAVELED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

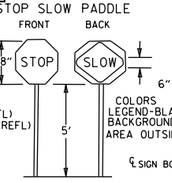
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL 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).

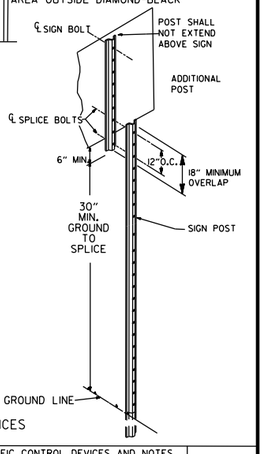


STABILIZED WEDGE

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

STOP SLOW PADDLE

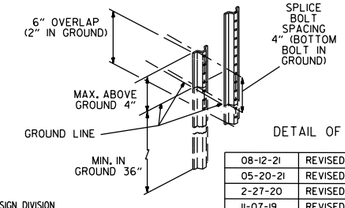




NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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

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	

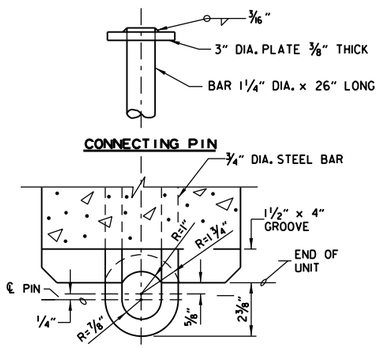
ARKANSAS STATE HIGHWAY COMMISSION

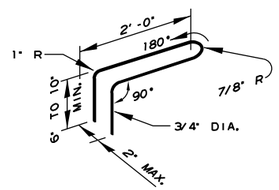
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

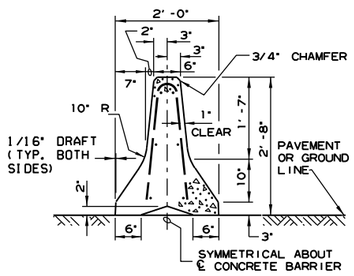
STANDARD DRAWING TC-3

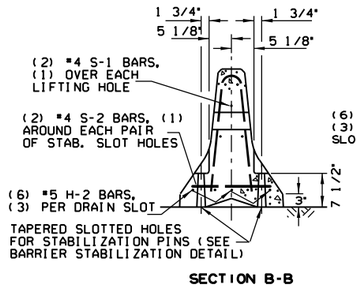
REINFORCING BAR TABLE PER BARRIER UNIT

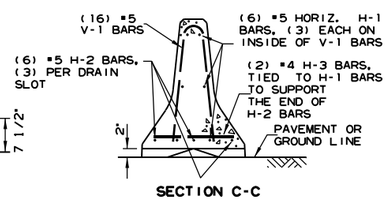
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. 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°, 9 1/2", 2'-1 3/8", 4 3/8"

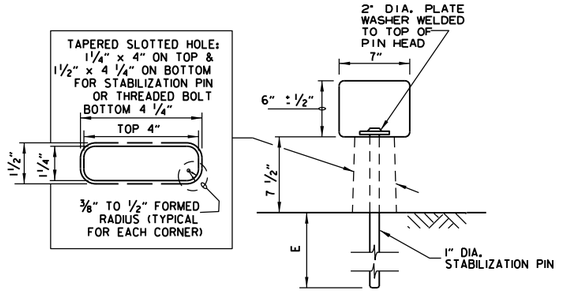




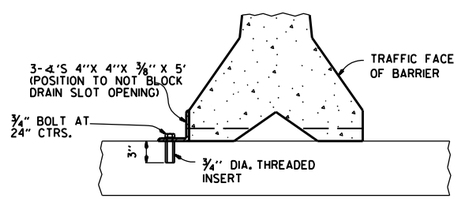






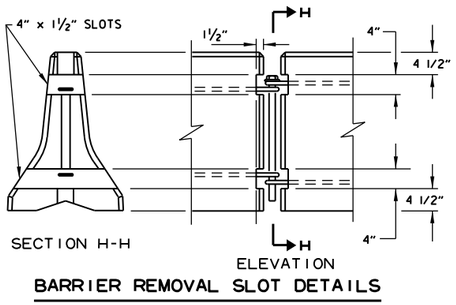


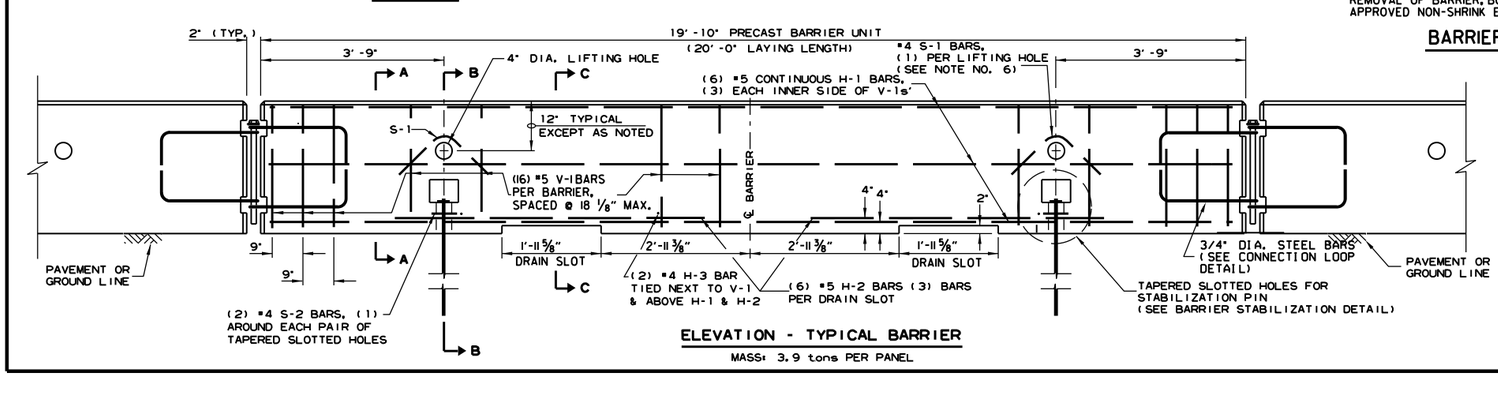
Ⓔ 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



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

BARRIER STABILIZATION DETAIL
BRIDGE DECKS





MASS: 3.9 tons PER PANEL

GENERAL NOTES

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

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

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

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

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

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

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

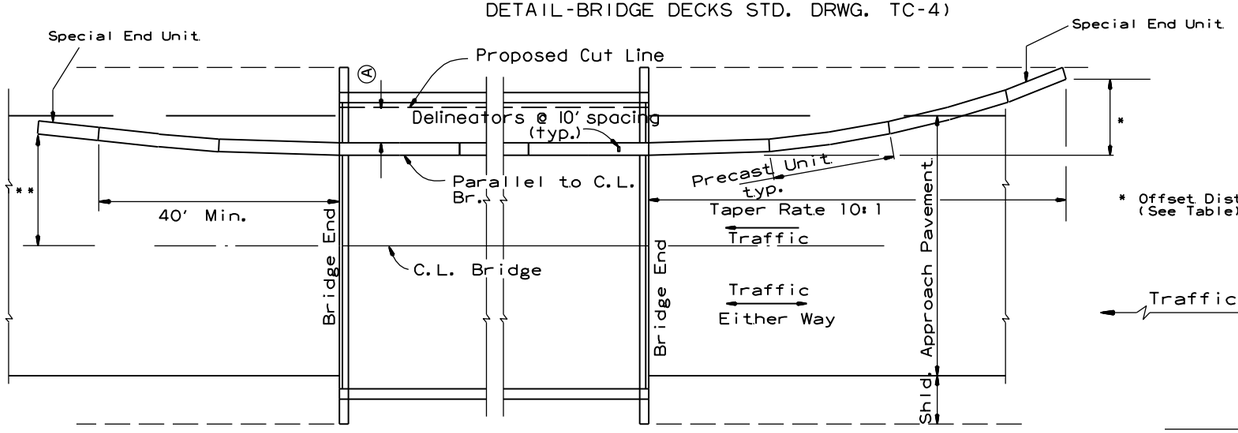
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

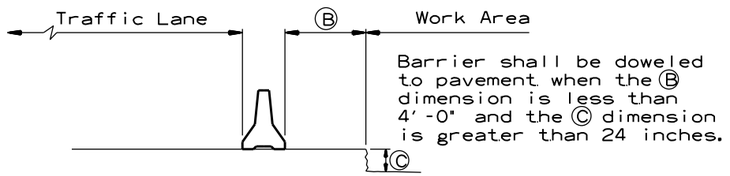


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

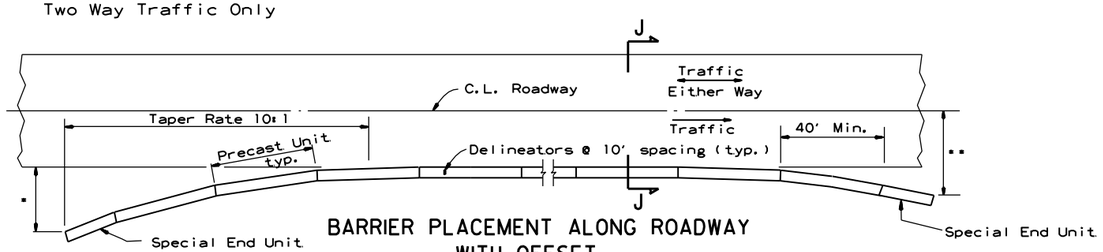
** Offset Distance for Two Way Traffic Only



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

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

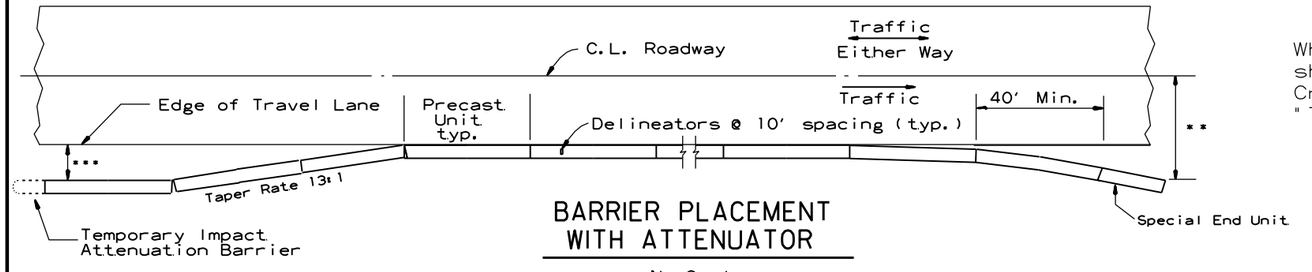
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

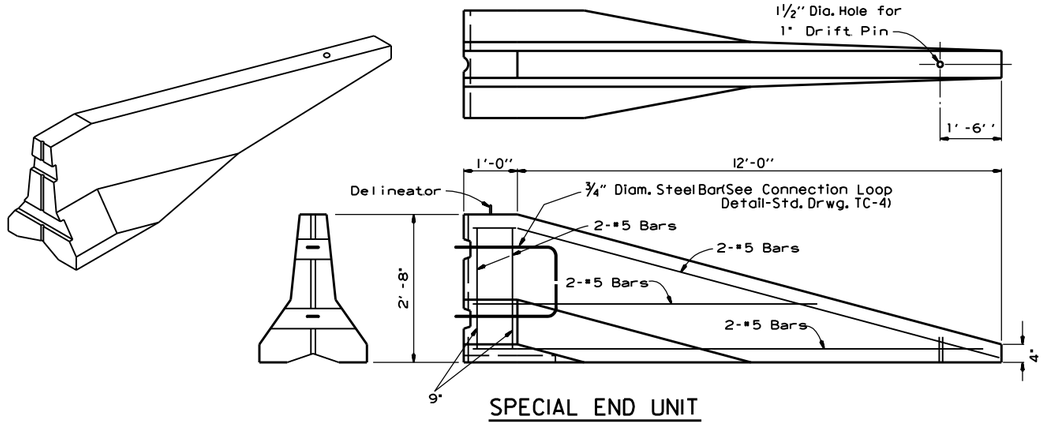


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

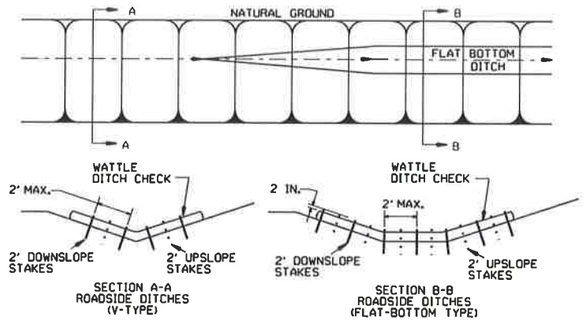
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

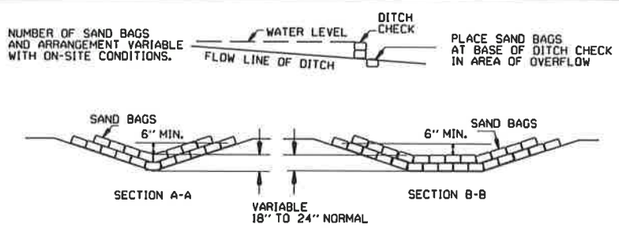
STANDARD DRAWING TC-5

GENERAL NOTES

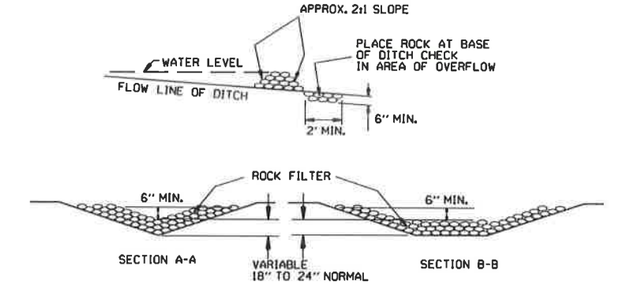
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

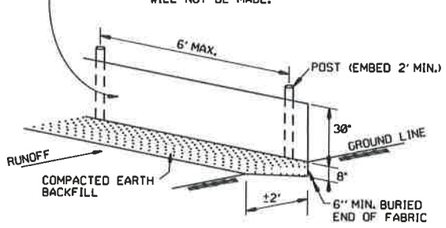


ROCK DITCH CHECK (E-6)

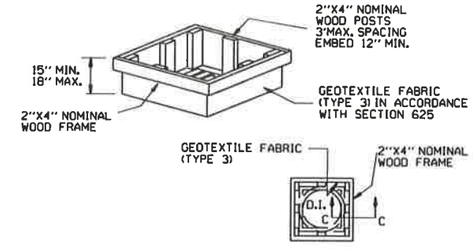
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

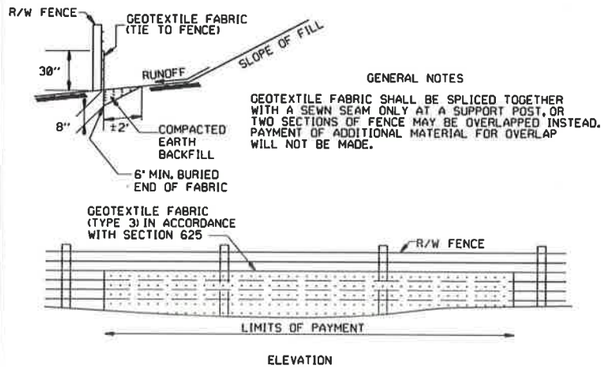
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

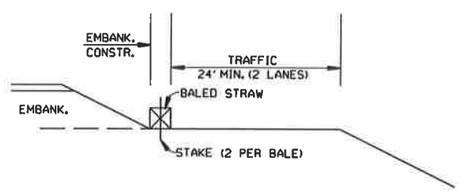
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

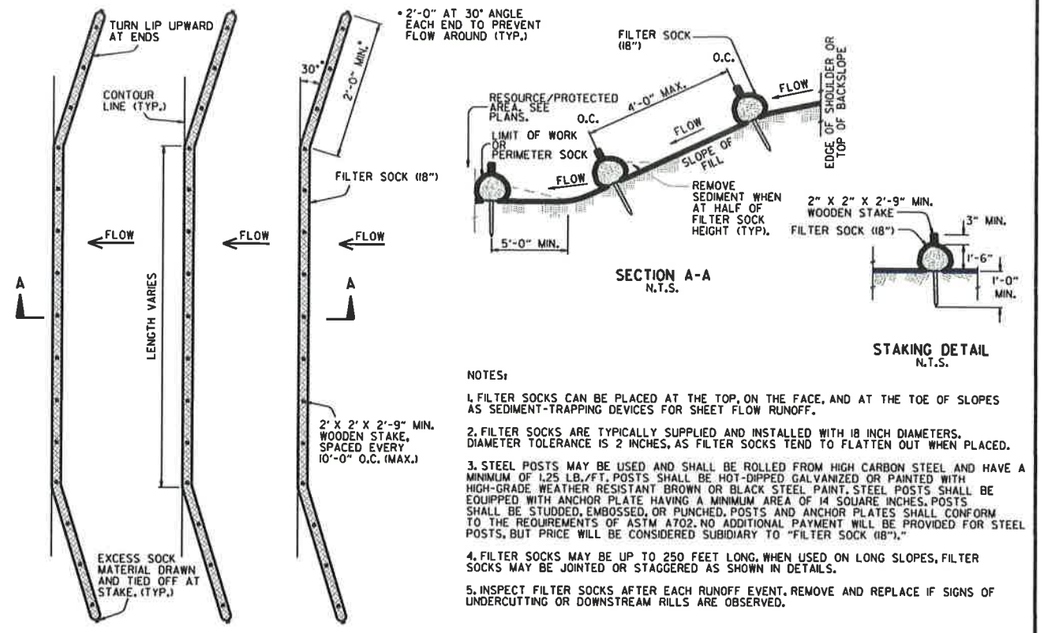
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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



BALED STRAW FILTER BARRIER (E-2)



NOTES:

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

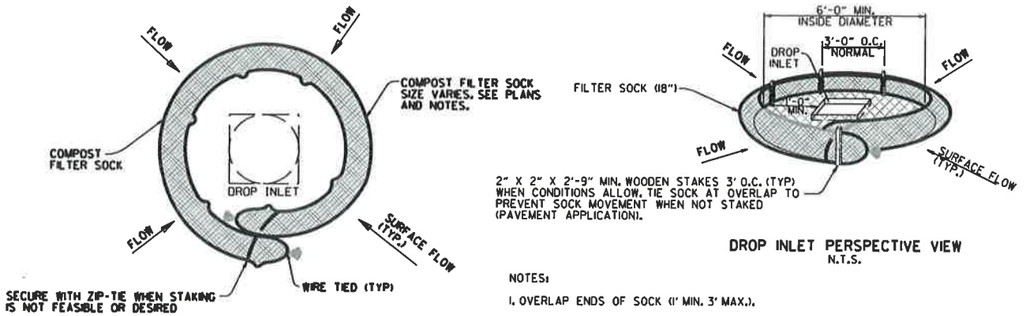
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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

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

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

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

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

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

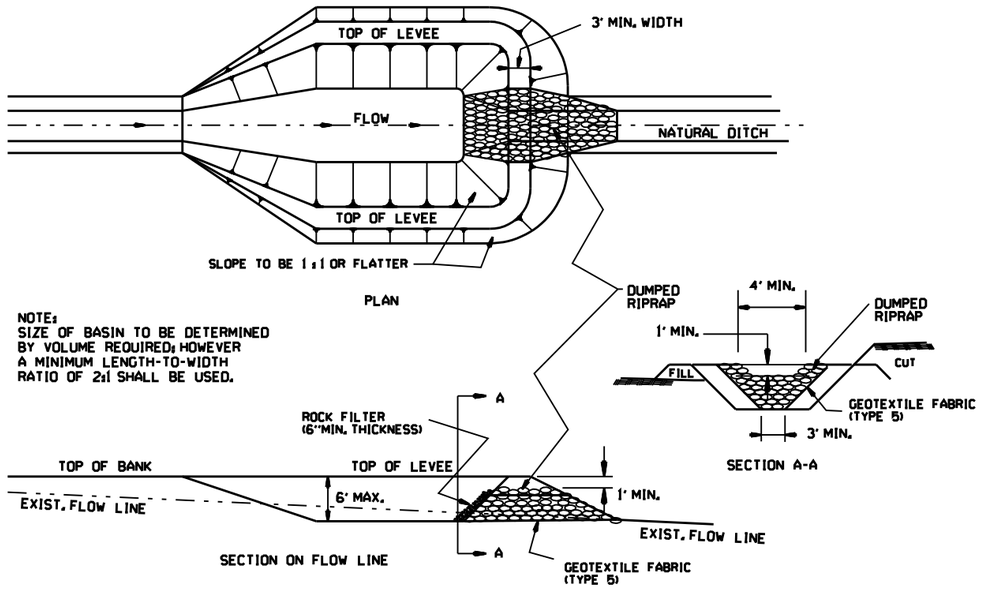
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

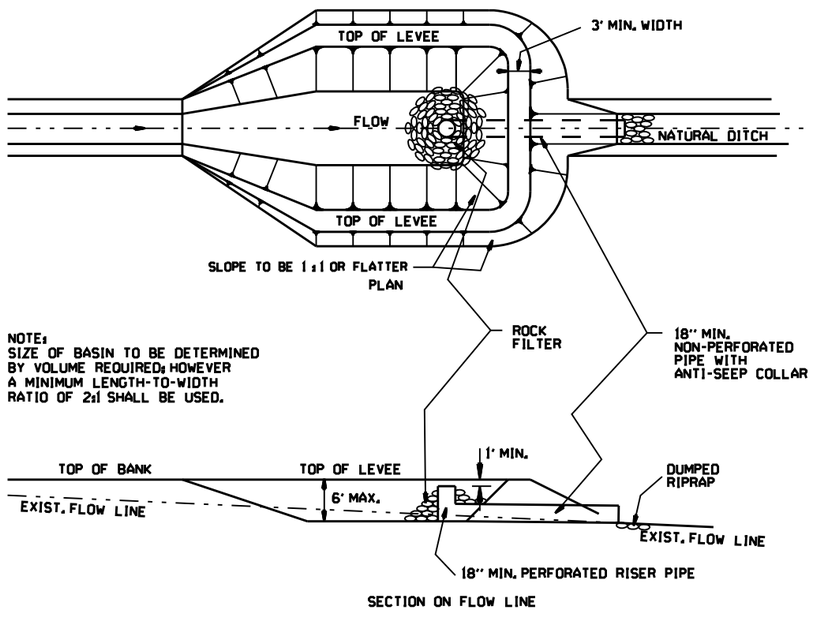
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

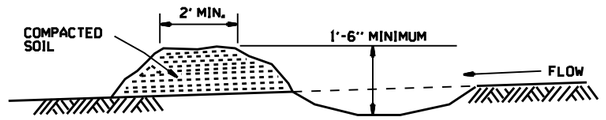
STANDARD DRAWING TEC-1



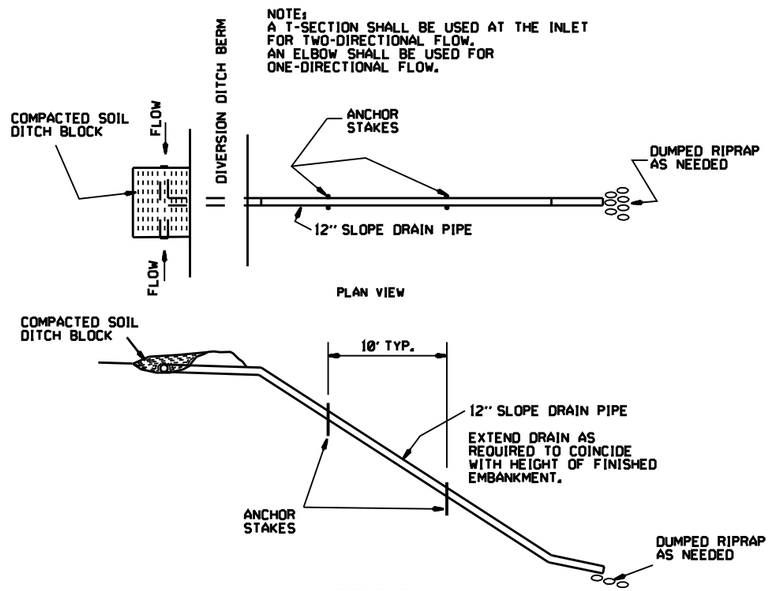
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



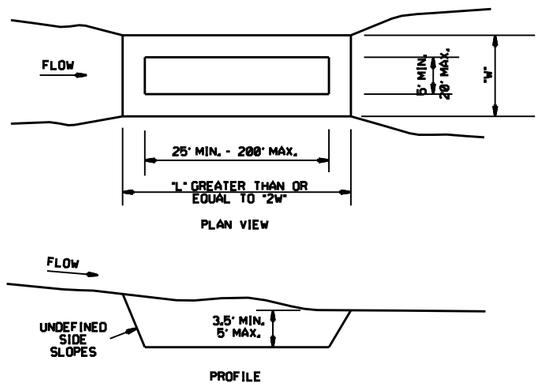
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

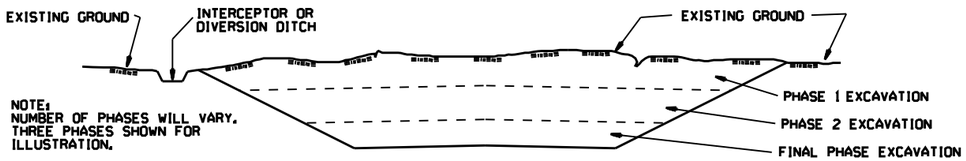
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



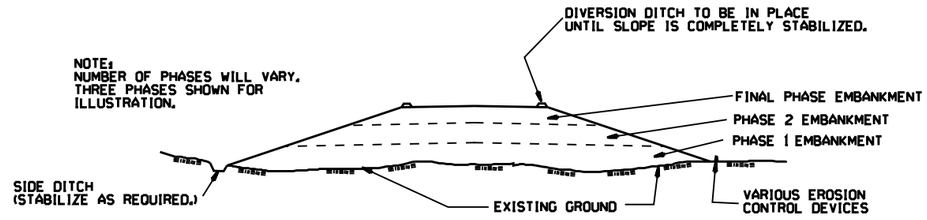
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3