

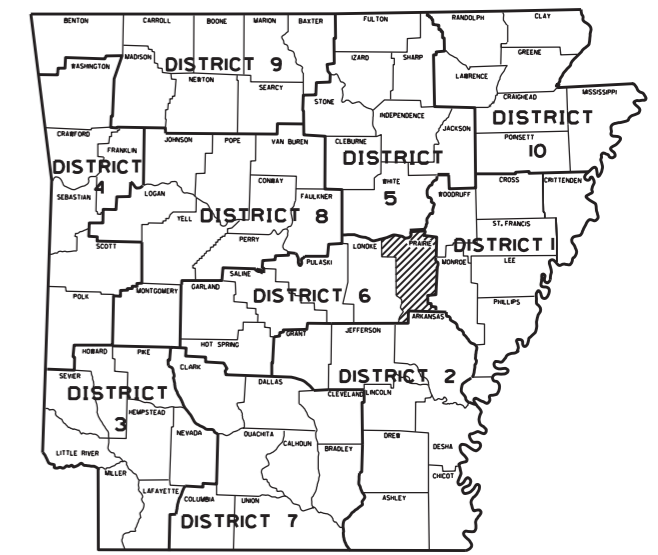
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	1	79
WATTENSAW BAYOU & RELIEF STRS. & APPRS. (S)						

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

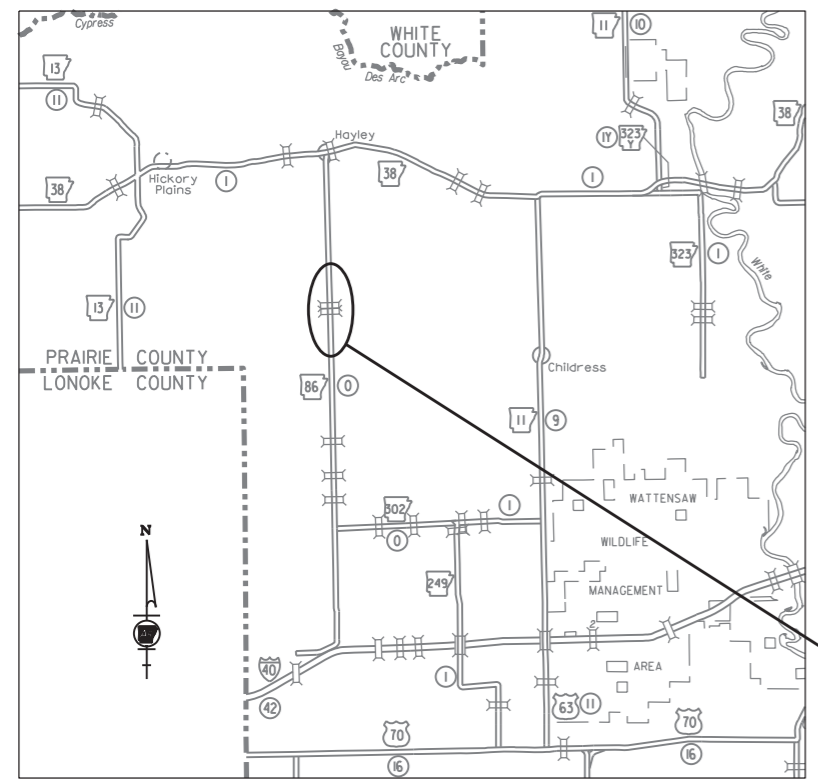
WATTENSAW BAYOU & RELIEF STRS. & APPRS. (S)

PRAIRIE COUNTY
ROUTE 86 SECTION 0
JOB 061614

FEDERAL AID PROJ. NHPP-BFP-0059(17)



ARK. HWY. DIST. NO. 6



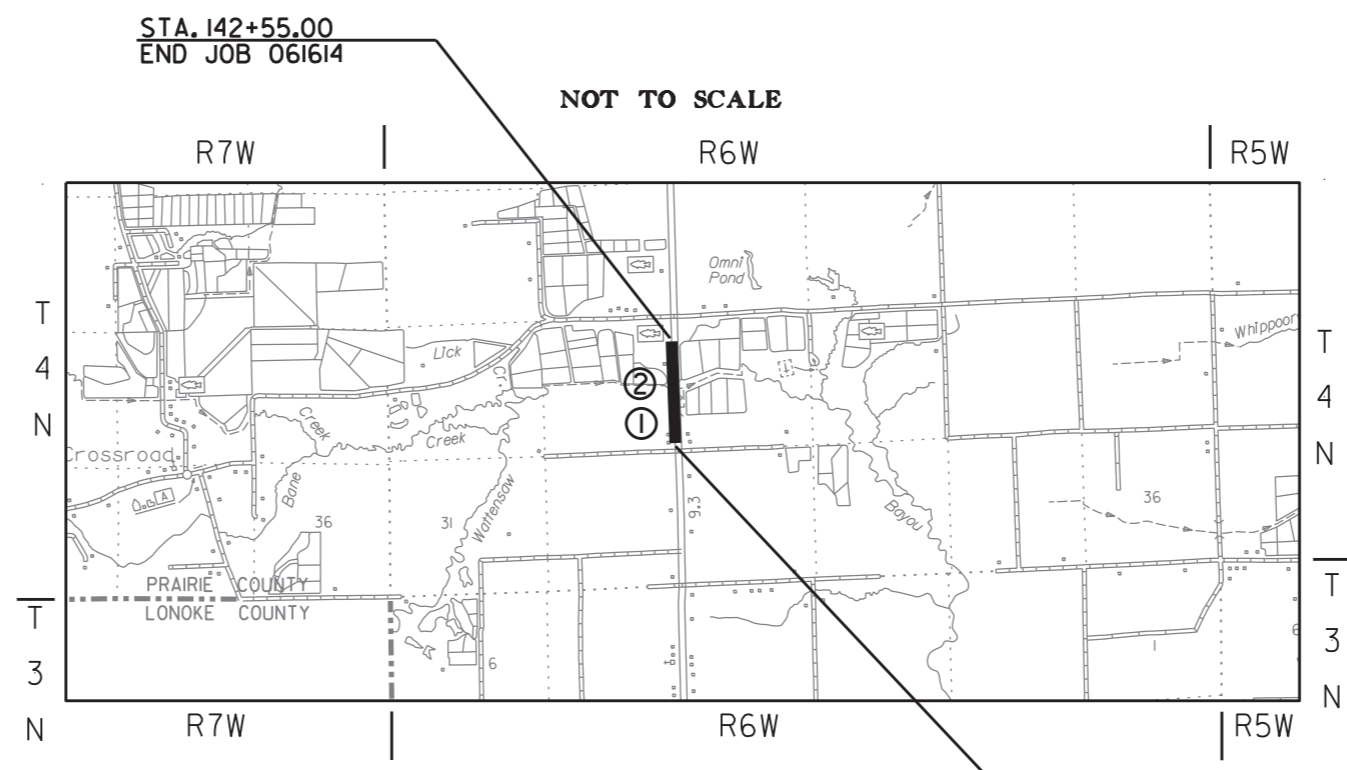
VICINITY MAP

PROJECT LOCATION

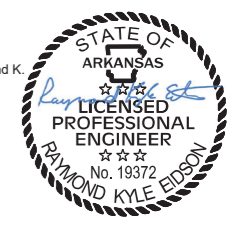
DESIGN TRAFFIC DATA

DESIGN YEAR	2044
2044 ADT	350
2044 ADT	400
2044 DHV	.44
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	8%
DESIGN SPEED	55 MPH

- BRIDGE DATA**
- ① STA. 116+19.50 BRIDGE END
BRIDGE NO. 07584
166'-0" BRIDGE LENGTH
30'-0" CLEAR ROADWAY
165' INTEGRAL CONTINUOUS W-BEAM UNIT (50', 65', 50')
STA. 117+85.50 BRIDGE END
 - ② STA. 122+88.73 BRIDGE END
BRIDGE NO. 07585
332'-6 1/2" BRIDGE LENGTH
30'-0" CLEAR ROADWAY
30° LT. FORWARD SKEW
330' CONTINUOUS W-BEAM UNIT (75', 90', 90', 75')
STA. 126+21.27 BRIDGE END



NOT TO SCALE



Digitally signed by Raymond K. Eidson
Date: 2024.02.22 16:09:13-06'00'

STA. 101+26.12
BEGIN JOB 061614
LOG MILE 4.23

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	4128.88 FEET	OR	0.782 MILES
NET ROADWAY	3630.34		0.688 MILES
NET BRIDGES	498.54		0.094 MILES
NET PROJECT	4128.88		0.782 MILES

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°56' 05"	N 34°56' 25"	N 34°56' 46"
LONGITUDE	W 91°39' 19"	W 91°39' 19"	W 91°39' 19"

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				6	ARK.			
				JOB NO.	061614	2	79	

② INDEX OF SHEETS AND STANDARD DRAWINGS



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 - 7	SPECIAL DETAILS		
8 - 13	TEMPORARY EROSION CONTROL DETAILS		
14 - 19	MAINTENANCE OF TRAFFIC DETAILS		
20	PERMANENT PAVEMENT MARKING DETAILS		
21 - 26	QUANTITIES		
27	SCHEDULE OF BRIDGE QUANTITIES	07584, 07585	65218
28 - 29	SUMMARY OF QUANTITIES AND REVISIONS		
30 - 32	SURVEY CONTROL DETAILS		
33 - 35	PLAN AND PROFILE SHEETS		
36	LAYOUT OF BRIDGE HIGHWAY 86 OVER WATTENSAW BAYOU RELIEF (SHEET 1 OF 2)	07584	65219
37	LAYOUT OF BRIDGE HIGHWAY 86 OVER WATTENSAW BAYOU RELIEF (SHEET 2 OF 2)	07584	65220
38	DETAILS OF END BENTS WATTENSAW BAYOU RELIEF	07584	65221
39	DETAILS OF INTERMEDIATE BENTS WATTENSAW BAYOU RELIEF	07584	65222
40	DETAILS OF ELASTOMERIC BEARINGS WATTENSAW BAYOU RELIEF	07584	65223
41	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 1 OF 6)	07584	65224
42	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 2 OF 6)	07584	65225
43	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 3 OF 6)	07584	65226
44	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 4 OF 6)	07584	65227
45	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 5 OF 6)	07584	65228
46	DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU RELIEF (SHEET 6 OF 6)	07584	65229
47	DETAILS OF TYPE SPECIAL APPROACH SLAB, WATTENSAW BAYOU RELIEF	07584	65229A
48	LAYOUT OF BRIDGE HIGHWAY 86 OVER WATTENSAW BAYOU (SHEET 1 OF 2)	07585	65230
49	LAYOUT OF BRIDGE HIGHWAY 86 OVER WATTENSAW BAYOU (SHEET 2 OF 2)	07585	65231
50	DETAILS OF END BENTS WATTENSAW BAYOU (SHEET 1 OF 3)	07585	65232
51	DETAILS OF END BENTS WATTENSAW BAYOU (SHEET 2 OF 3)	07585	65233
52	DETAILS OF END BENTS WATTENSAW BAYOU (SHEET 3 OF 3)	07585	65234
53	DETAILS OF INTERMEDIATE BENTS WATTENSAW BAYOU	07585	65235
54	DETAILS OF ELASTOMERIC BEARINGS WATTENSAW BAYOU	07585	65236
55	DETAILS OF 330' CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU (SHEET 1 OF 4)	07585	65237
56	DETAILS OF 330' CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU (SHEET 2 OF 4)	07585	65238
57	DETAILS OF 330' CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU (SHEET 3 OF 4)	07585	65239
58	DETAILS OF 330' CONTINUOUS W-BEAM UNIT WATTENSAW BAYOU (SHEET 4 OF 4)	07585	65240
59	DETAILS OF TYPE SPECIAL APPROACH SLAB, WATTENSAW BAYOU	07585	65240A
60 - 79	CROSS SECTIONS		

BRIDGE STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR Poured SILICONE JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030F	STANDARD DETAILS FOR TYPE F APPROACH GUTTERS	04-08-21
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	05-19-22
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
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
TEC-4	TEMPORARY EROSION CONTROL DEVICES	07-26-12

GOVERNING SPECIFICATIONS

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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2 GOVERNING SPECIFICATIONS AND GENERAL NOTES



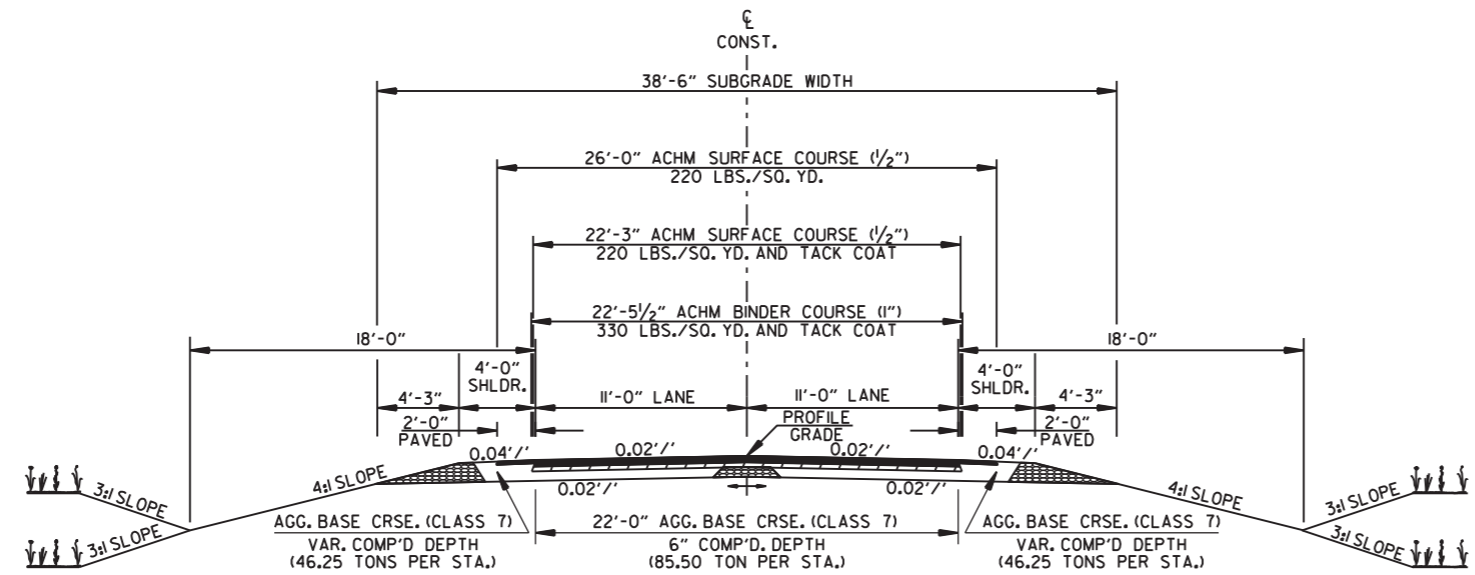
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB NO. 061614
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
103-2	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4	MAINTENANCE DURING CONSTRUCTION
107-2	RESTRAINING CONDITIONS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
210-1	UNCLASSIFIED EXCAVATION
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
307-1	CEMENT
308-1	CEMENT
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
400-7	TRACKLESS TACK
404-3	DESIGN OF ASPHALT MIXTURES
409-2	ASPHALT LABORATORY FACILITY
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4	EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1	RECYCLED ASPHALT PAVEMENT
501-2	CEMENT
600-2	INCIDENTAL CONSTRUCTION
603-1	LANE CLOSURE NOTIFICATION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1	PIPE CULVERTS FOR SIDE DRAINS
617-1	GUARDRAIL TERMINAL (TYPE 2)
617-2	GUARDRAIL DELINEATORS
620-1	MULCH COVER
621-1	FILTER SOCKS
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
802-4	CEMENT
804-2	REINFORCING STEEL FOR STRUCTURES
807-2	STEEL STRUCTURES
808-1	INSTALLATION OF ELASTOMERIC BEARINGS
808-2	ELASTOMERIC BEARINGS
JOB 061614	BIDDING REQUIREMENTS AND CONDITIONS
JOB 061614	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061614	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061614	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 061614	CARGO PREFERENCE ACT REQUIREMENTS
JOB 061614	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 061614	COLD MILLING - COUNTY PROPERTY
JOB 061614	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 061614	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061614	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 061614	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 061614	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 061614	DISPOSAL OF ILLEGAL DUMP MATERIAL
JOB 061614	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 061614	FLEXIBLE BEGINNING OF WORK
JOB 061614	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061614	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 061614	MANDATORY ELECTRONIC CONTRACT
JOB 061614	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 061614	NESTING SITES OF MIGRATORY BIRDS
JOB 061614	PARTNERING REQUIREMENTS
JOB 061614	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 061614	PLASTIC PIPE
JOB 061614	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 061614	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 061614	PRICE ADJUSTMENT FOR FUEL
JOB 061614	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 061614	SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 061614	SHORING FOR CULVERTS
JOB 061614	SOIL STABILIZATION
JOB 061614	STORM WATER POLLUTION PREVENTION PLAN
JOB 061614	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061614	UTILITY ADJUSTMENTS
JOB 061614	VALUE ENGINEERING
JOB 061614	WARM MIX ASPHALT

GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 23 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
- ARDOT WILL CONSTRUCT PERMANENT SIGNING.

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2 TYPICAL SECTIONS OF IMPROVEMENT



HWY. 86 - FULL DEPTH SECTION

STA. 108+44.00 TO STA. 116+19.50
 STA. 117+85.50 TO STA. 122+88.75
 STA. 126+21.25 TO STA. 134+01.00

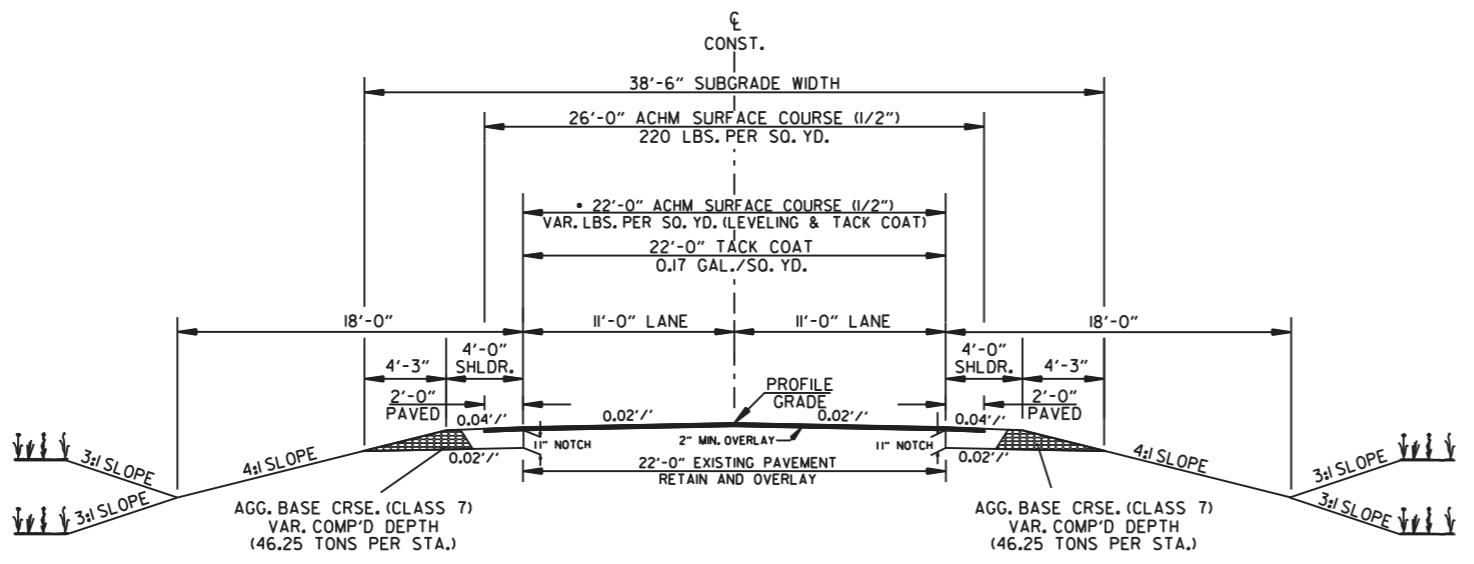
NOTES:

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

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

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

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



HWY. 86 - NOTCH AND WIDEN SECTION LEFT

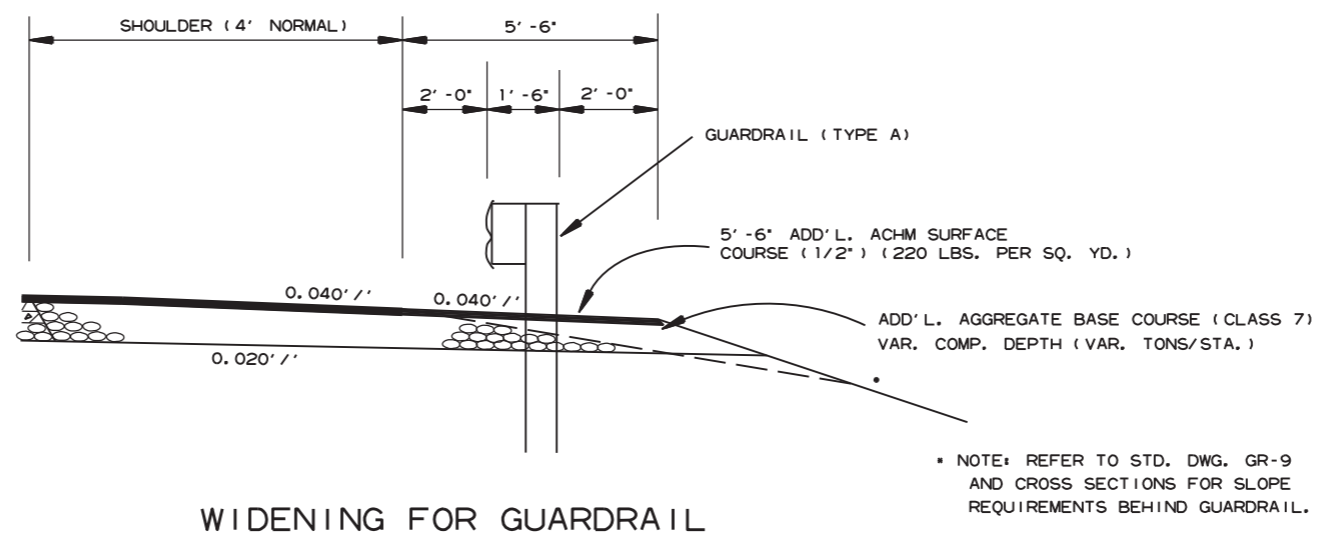
STA. 100+26.12 TO STA. 108+44.00
 STA. 134+01.00 TO STA. 142+55.00

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② SPECIAL DETAILS



WIDENING FOR GUARDRAIL

NOT TO SCALE

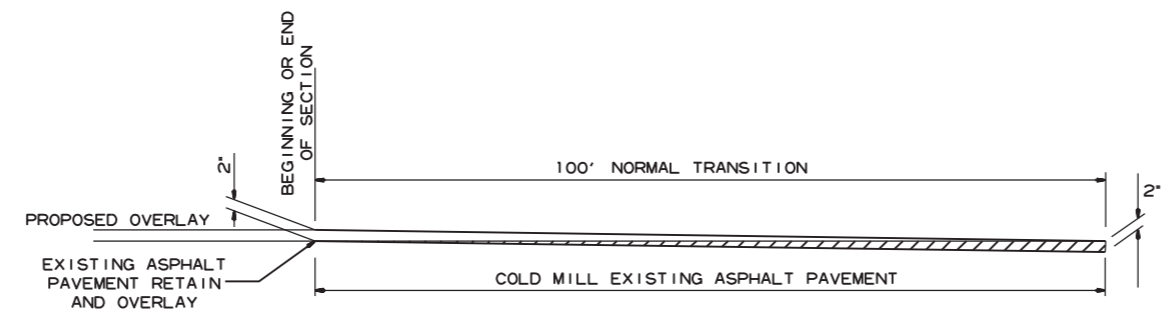
SPECIAL DETAILS

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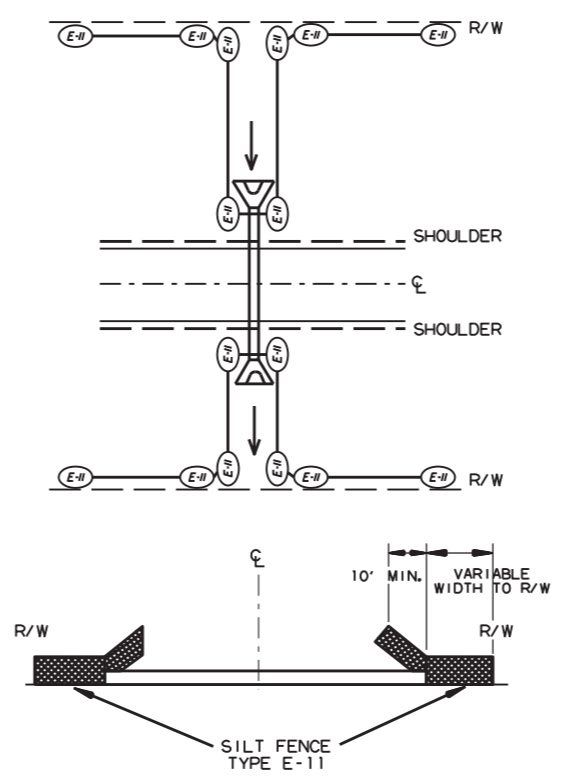
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2 SPECIAL DETAILS



DETAIL FOR TRANSITIONS



DETAIL OF SILT FENCE AT CROSS DRAINS

NOT TO SCALE

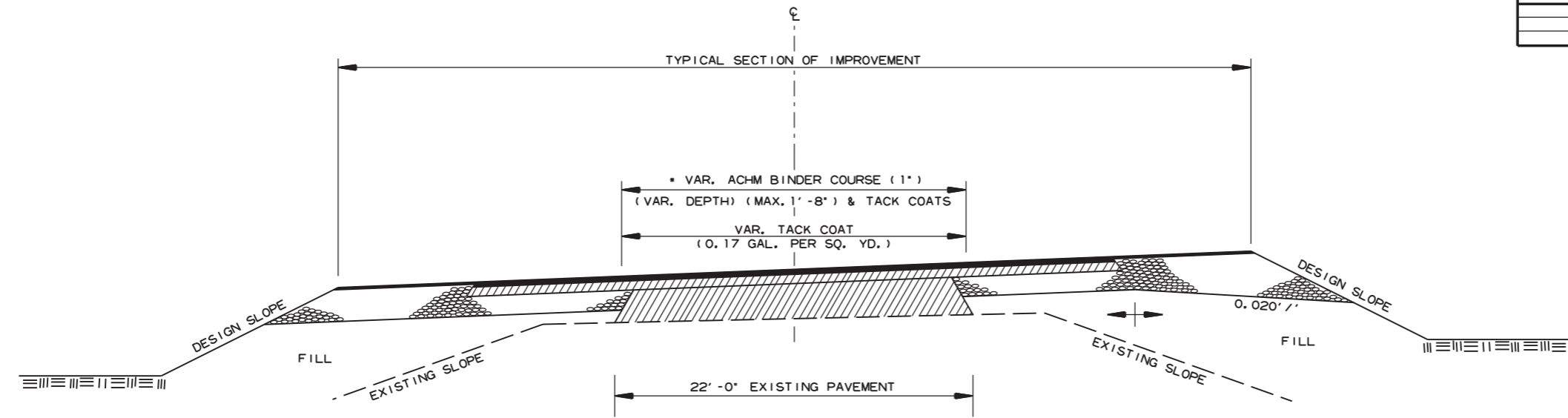
SPECIAL DETAILS

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2 SPECIAL DETAILS

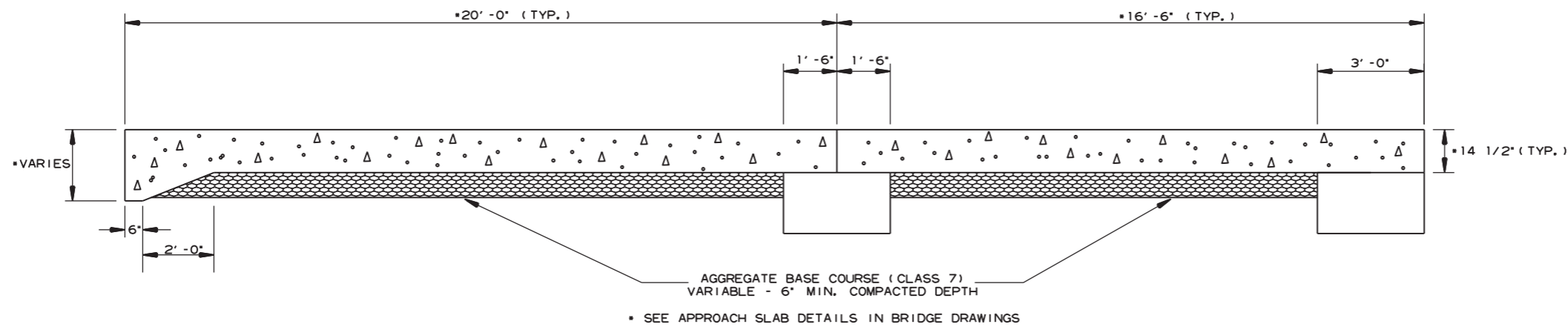


* 6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (1")

METHOD OF RAISING GRADE

NOTES:

- (1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
- (2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
- (3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.



SECTION OF APPROACH SLAB

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

NOT TO SCALE

SPECIAL DETAILS

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REVISIONS

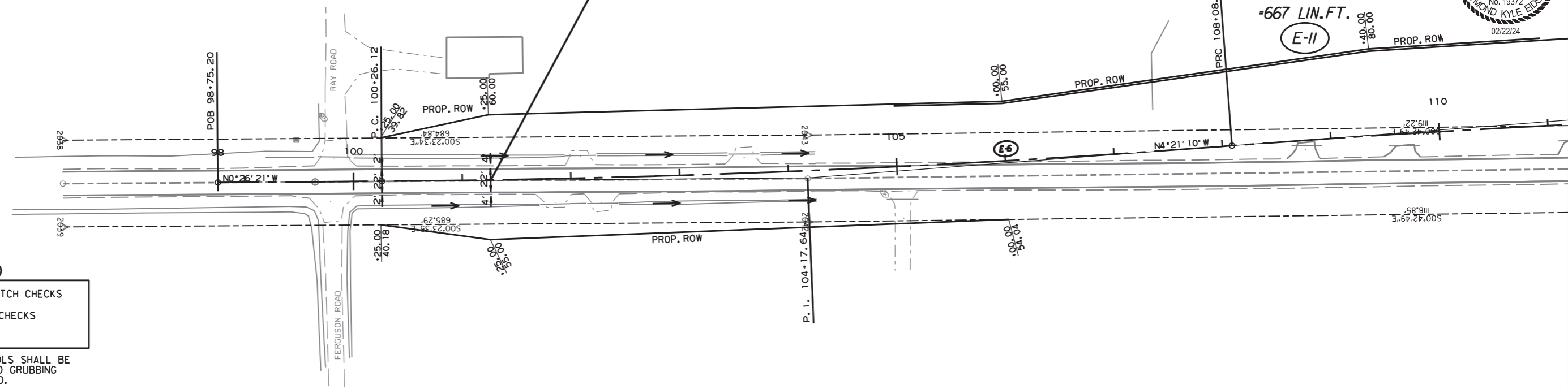
DATE OF REVISION	REVISION

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② TEMPORARY EROSION CONTROL DETAILS



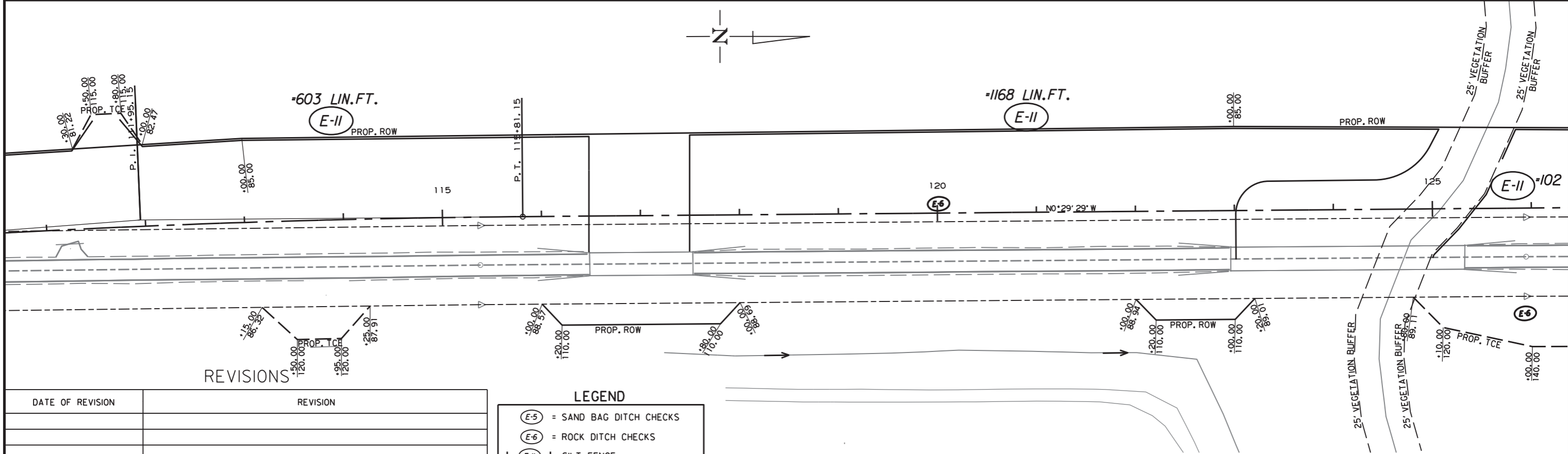
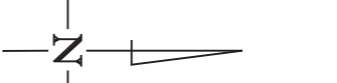
STA. 101+26.12
BEGIN JOB 061614



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

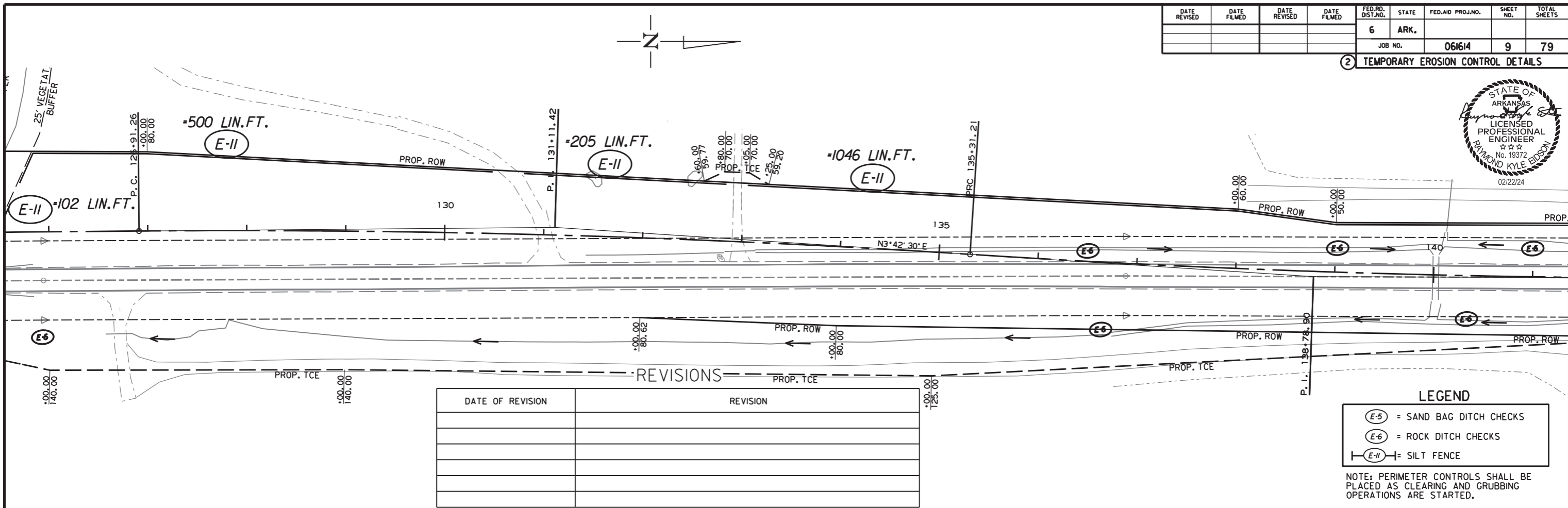
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

2/22/2024

R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	9	79

② TEMPORARY EROSION CONTROL DETAILS



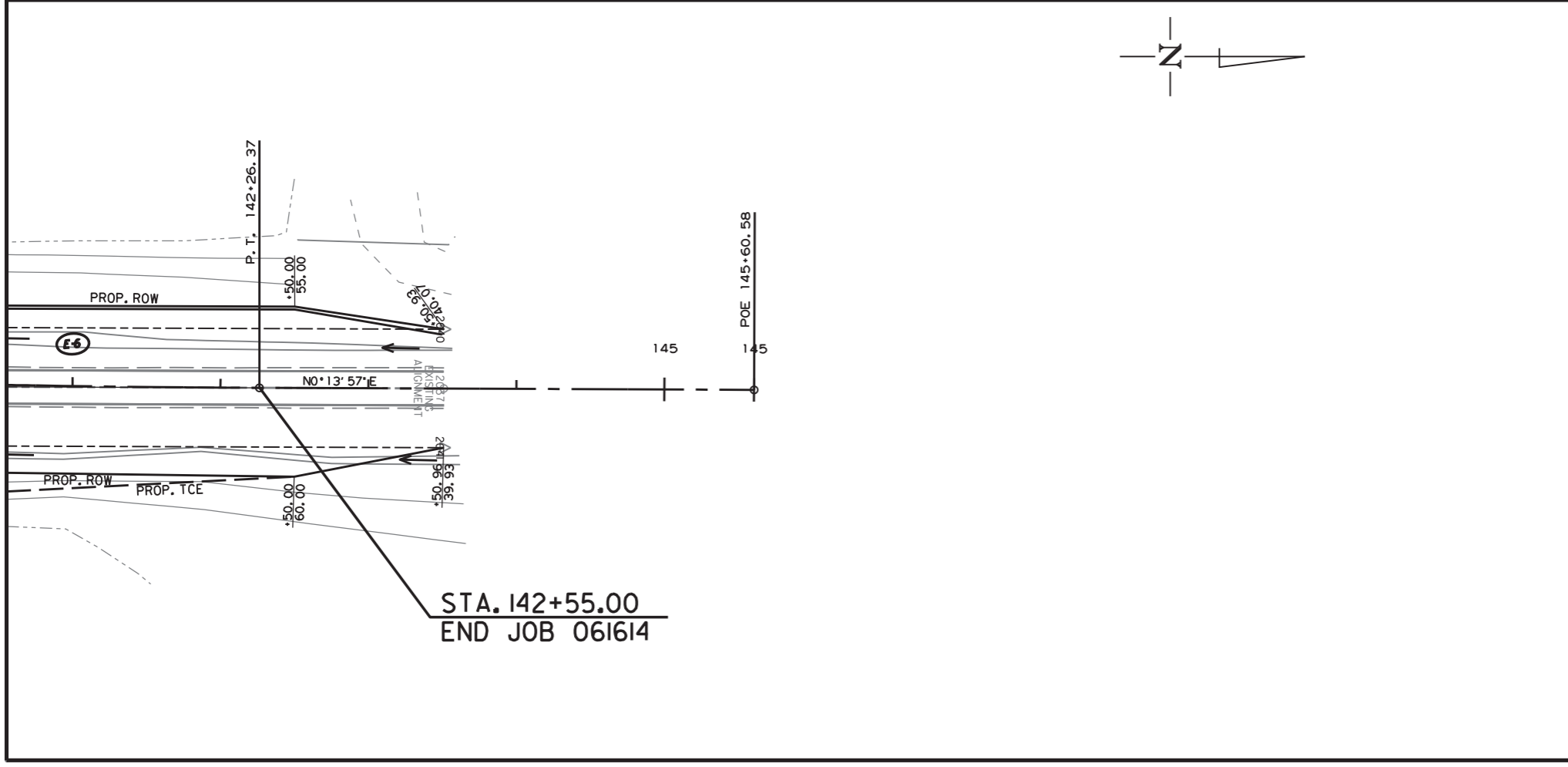
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- = SAND BAG DITCH CHECKS
- = ROCK DITCH CHECKS
- = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- = SAND BAG DITCH CHECKS
- = ROCK DITCH CHECKS
- = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

STA. 142+55.00
END JOB 061614

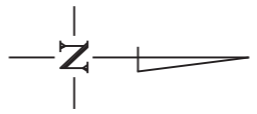
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

REVISIONS

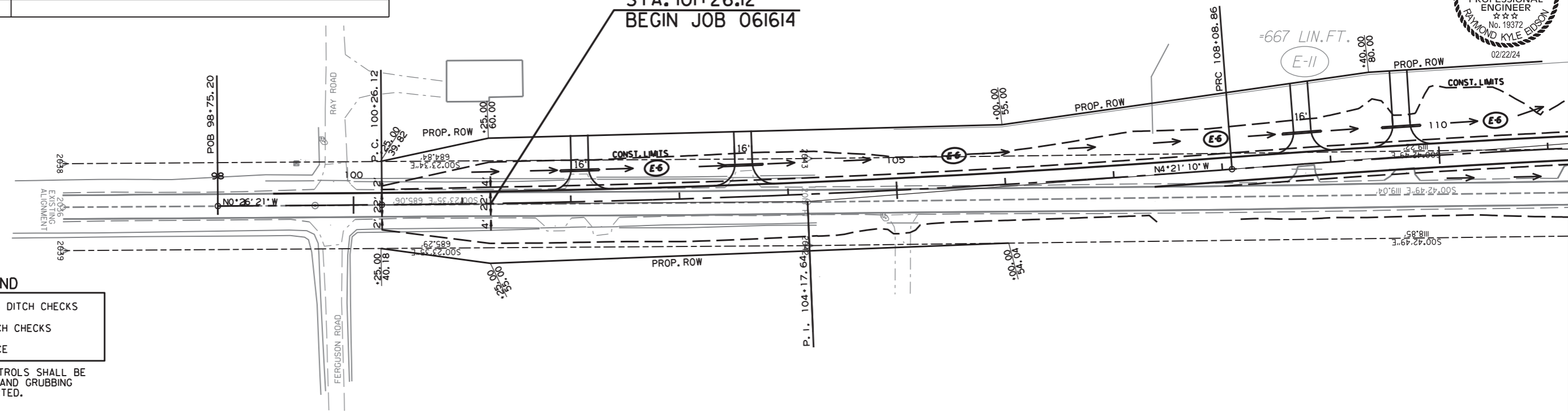
DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		10	79

② TEMPORARY EROSION CONTROL DETAILS



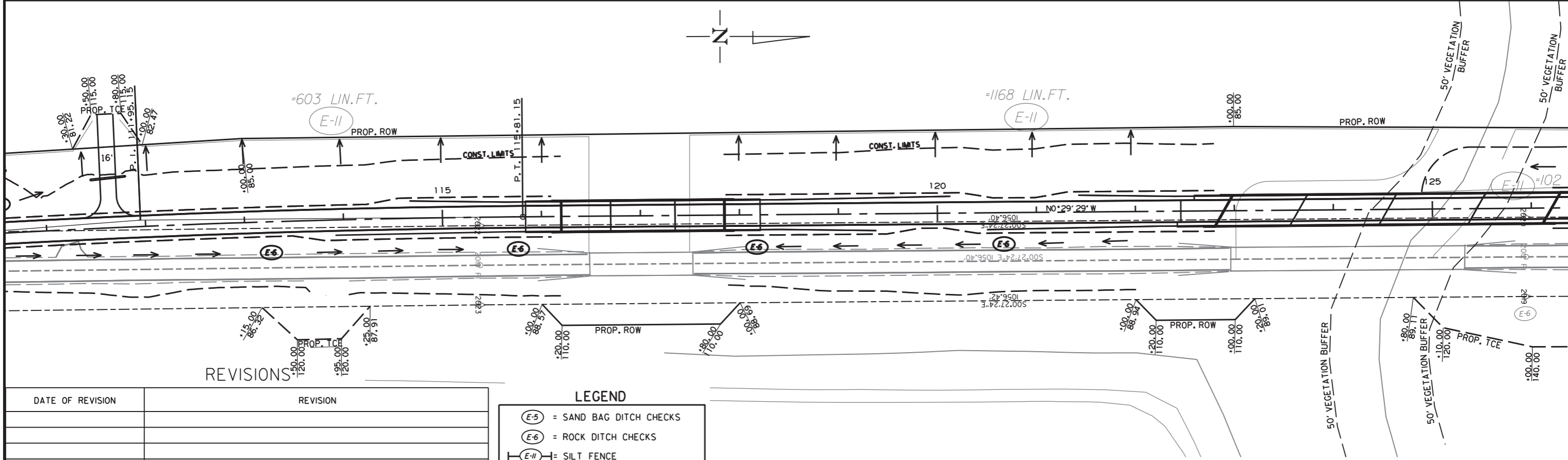
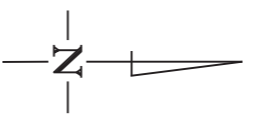
STA. 101+26.12
BEGIN JOB 061614



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

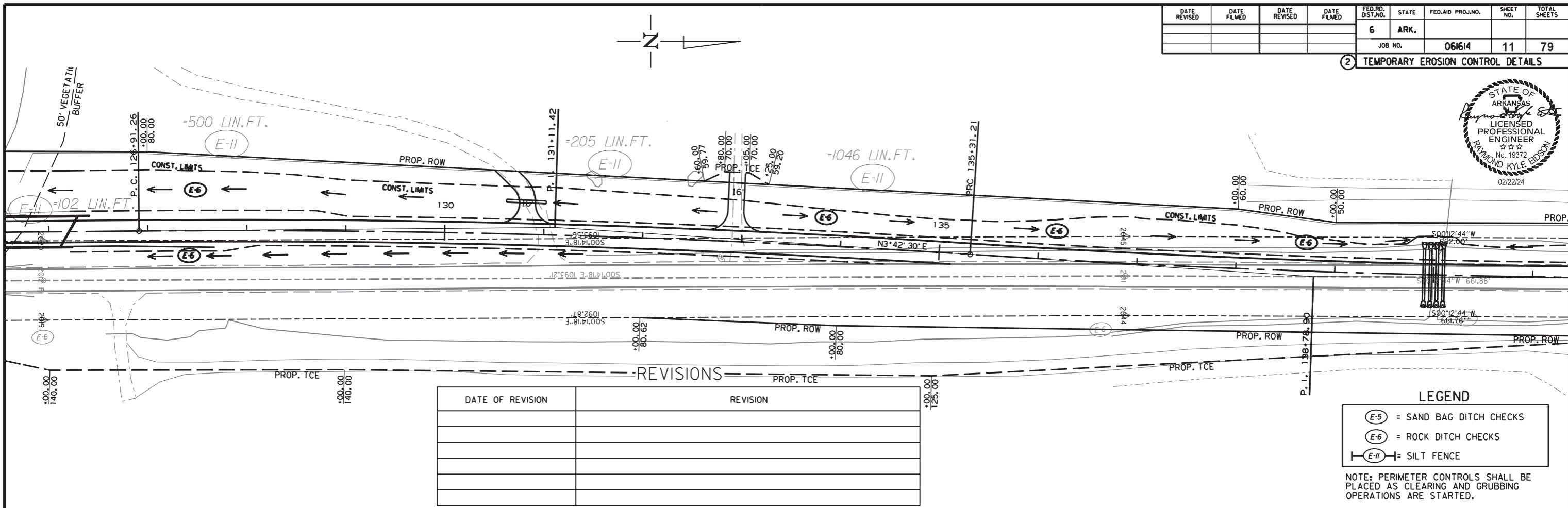
STAGE I
TEMPORARY EROSION CONTROL DETAILS

2/22/2024

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	11	79

② TEMPORARY EROSION CONTROL DETAILS



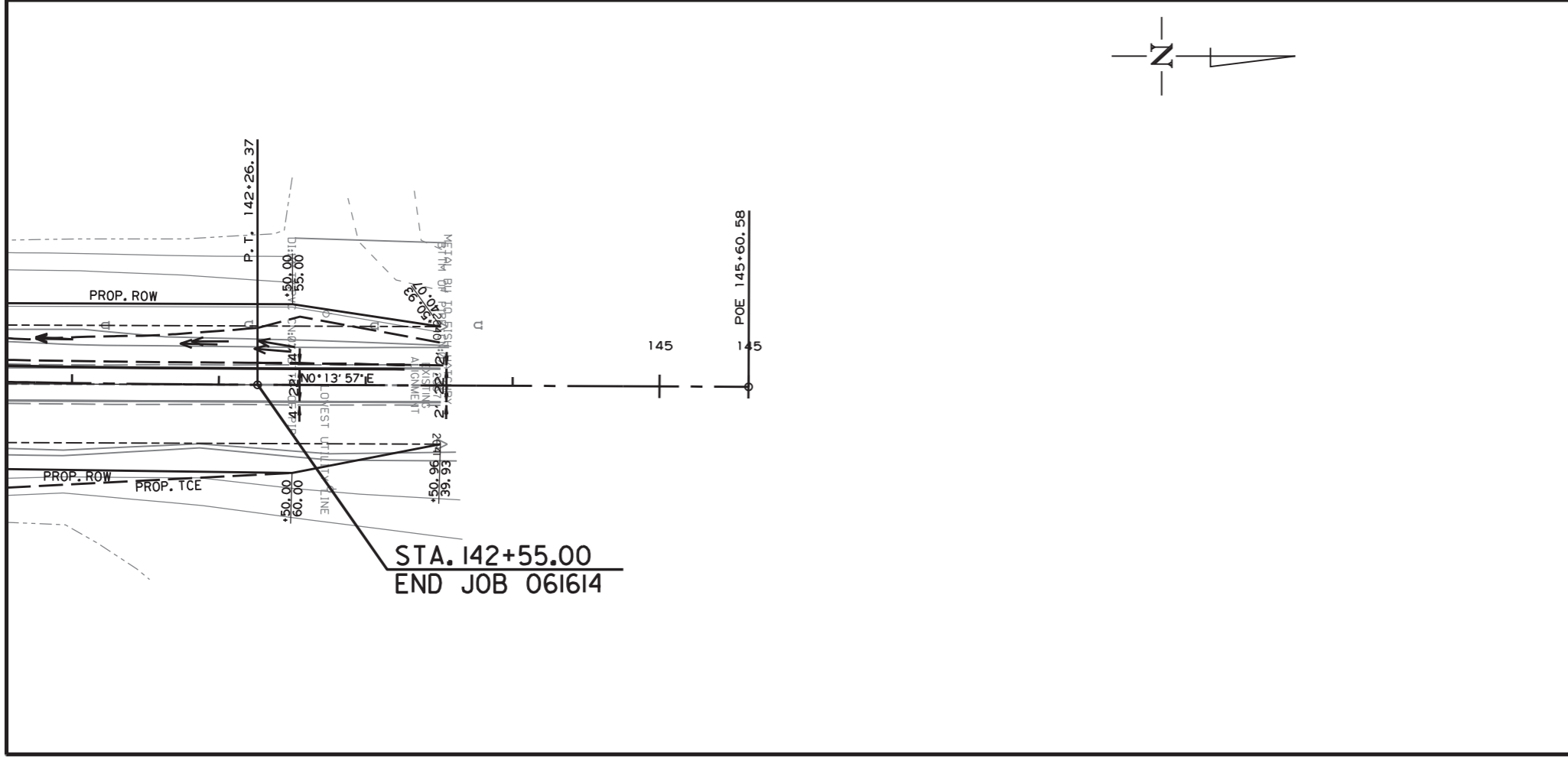
-REVISIONS-

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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STA. 142+55.00
END JOB 061614

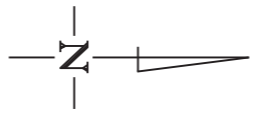
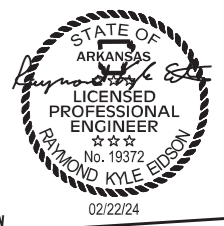
STAGE I
TEMPORARY EROSION CONTROL DETAILS

REVISIONS

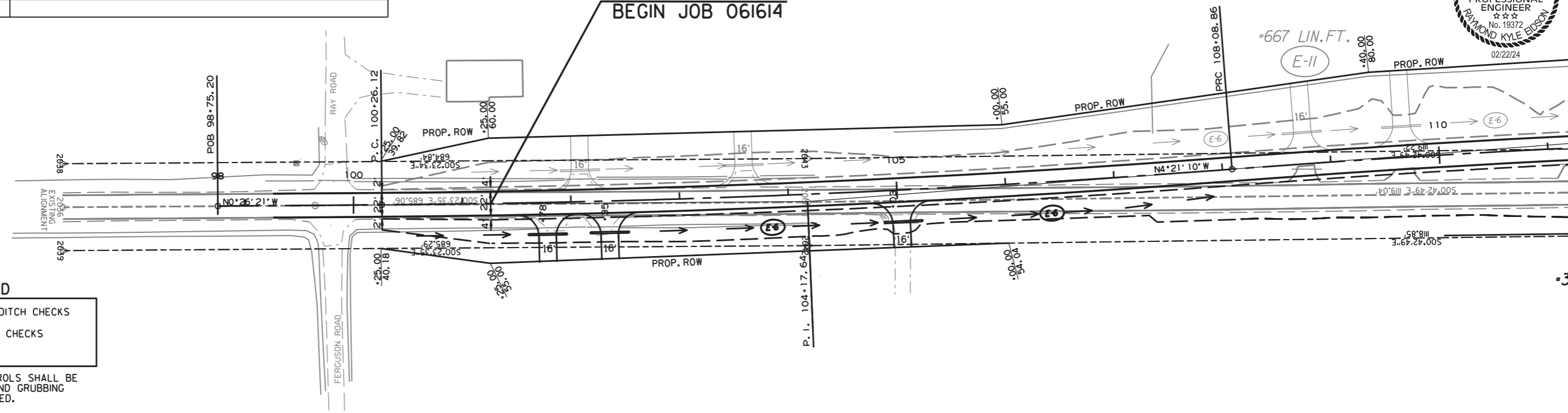
DATE OF REVISION	REVISION

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.						061614	12	79

② TEMPORARY EROSION CONTROL DETAILS



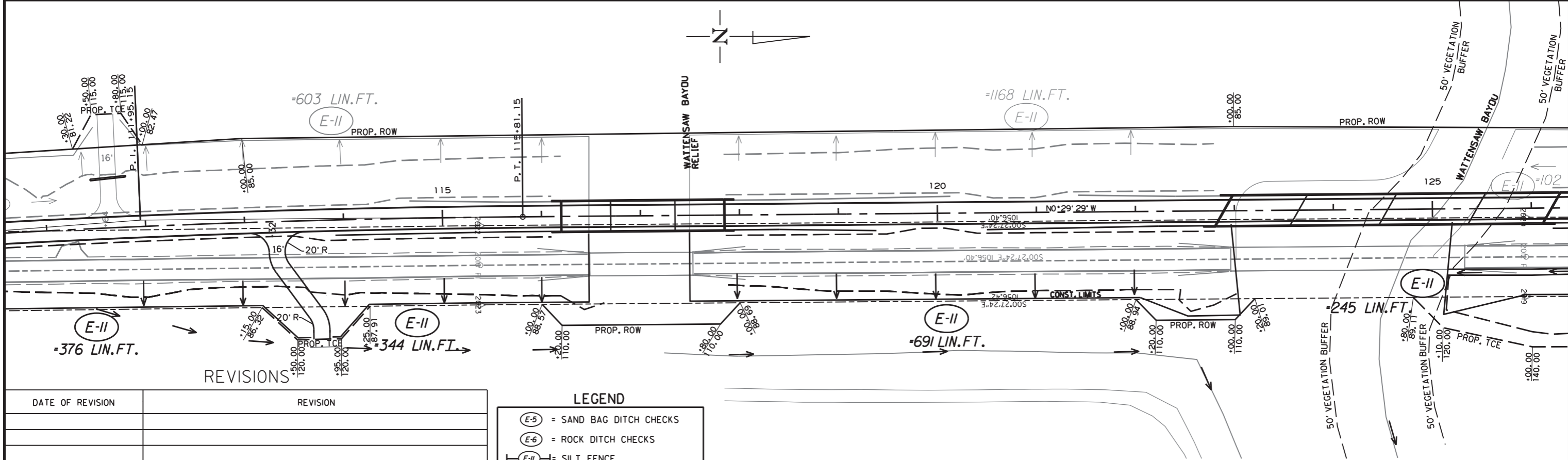
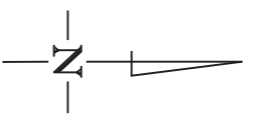
STA. 101+26.12
BEGIN JOB 061614



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

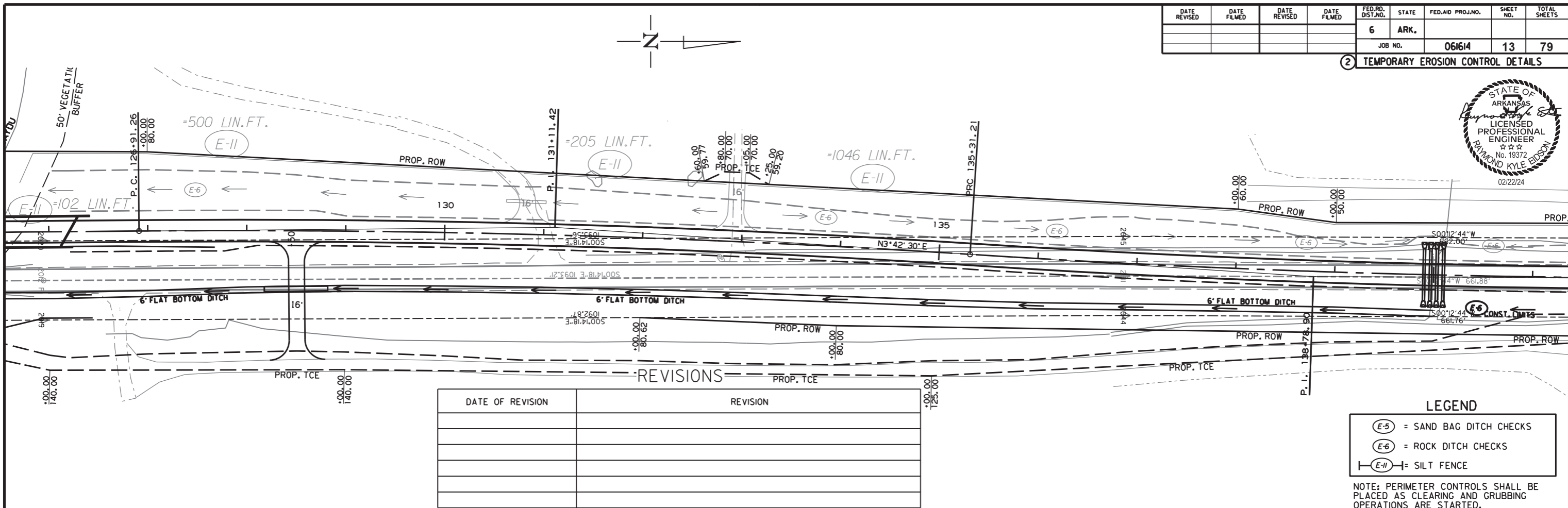
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	13	79

② TEMPORARY EROSION CONTROL DETAILS



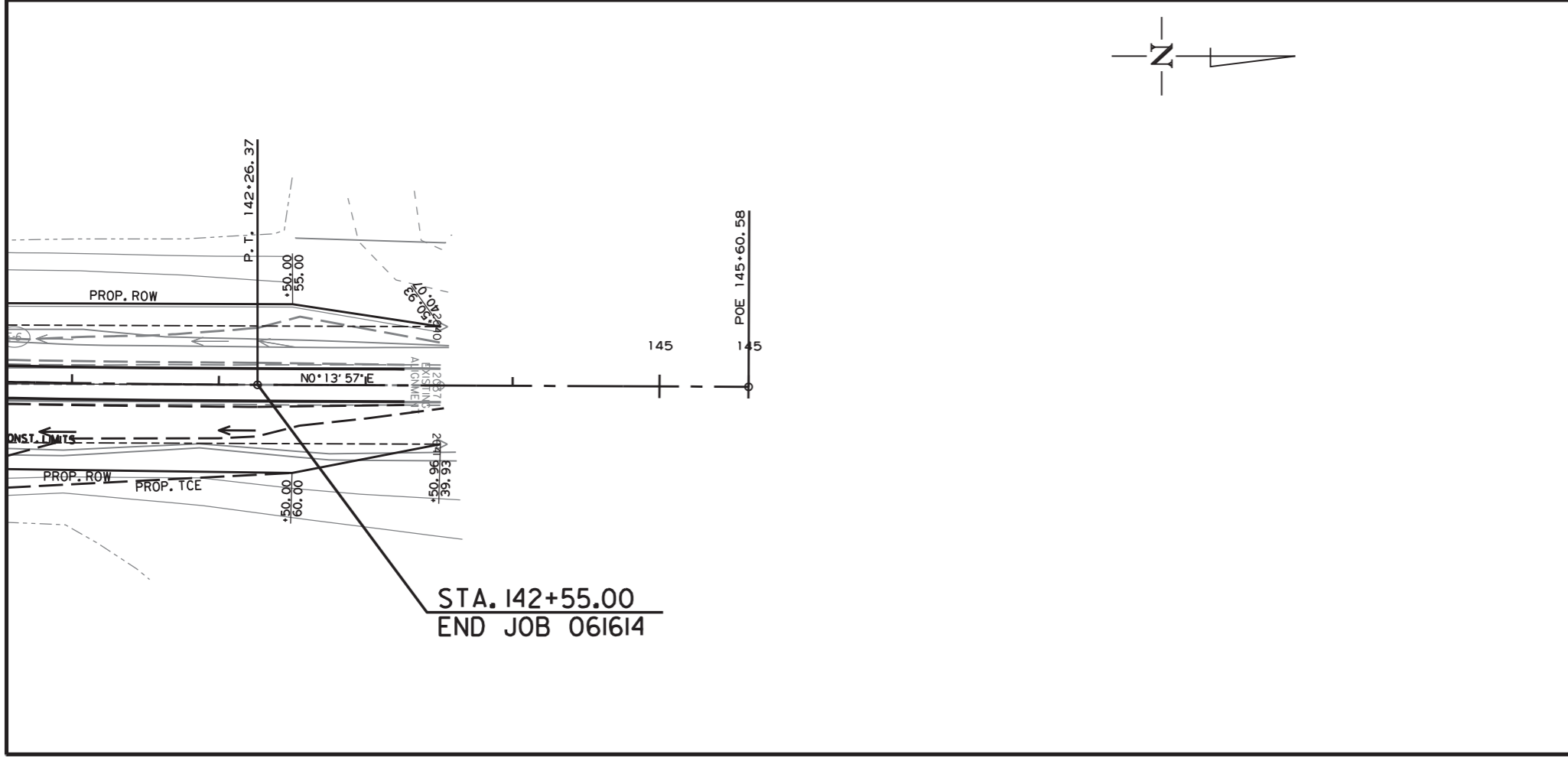
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- = SAND BAG DITCH CHECKS
- = ROCK DITCH CHECKS
- = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- = SAND BAG DITCH CHECKS
- = ROCK DITCH CHECKS
- = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

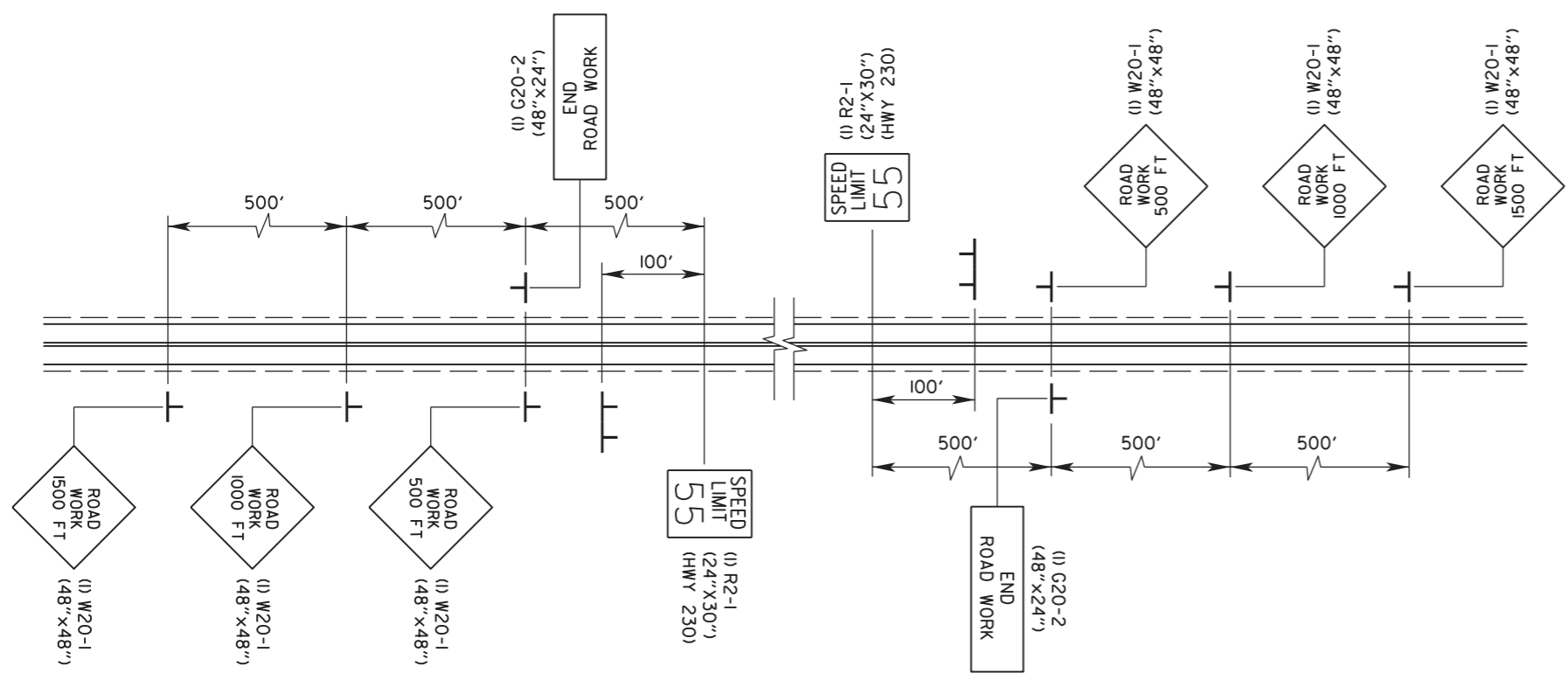
2/22/2024

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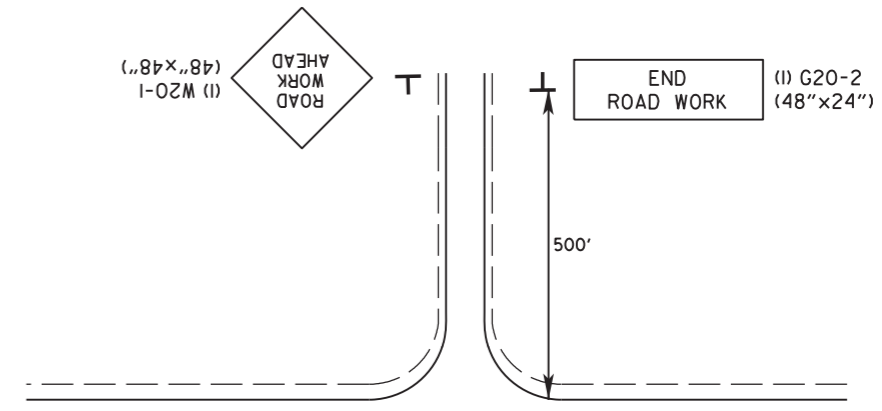
STA. 142+55.00
END JOB 061614

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. 061614	14	79

② MAINTENANCE OF TRAFFIC DETAILS



ADVANCE WARNING (DETOUR & RELOCATION)



ADVANCE WARNING - SIDE ROADS (ALL STAGES)

SEQUENCE OF CONSTRUCTION

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AS SHOWN. INSTALL TRAFFIC DRUMS AND VERTICAL PANELS TO DELINEATE THE WORK ZONE AND NECESSARY DRIVEWAYS.

CONSTRUCT BRIDGE NO. 07584, 07585 AND PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.

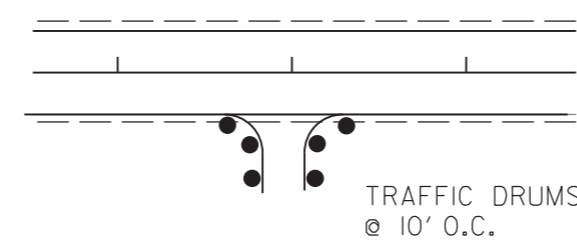
STAGE 2:

MAINTAIN ADVANCE WARNING SIGNS TRAFFIC DRUMS, AND STRIPING AS SHOWN ON STAGE 2 - SITE 1 & 2 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PROPOSED ROADWAY.

PROPERTY ACCESS TO BE MAINTAINED ON EXISTING ROADWAY UNTIL DRIVEWAYS COMPLETED.


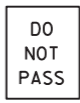


MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

FINISH SLOPES AND CONSTRUCT DRIVEWAYS, OBLITERATE EXISTING BRIDGE STRUCTURE & ROADWAY.



TRAFFIC DRUMS @ 10' O.C.

DRIVEWAY/TRAFFIC DRUM DETAIL

- (2) W21-5a (36" x 36")  ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- (2) R4-1 (24" x 30")  ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- (2) W8-1 (30" x 30")  ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- (2) W20-1 (48" x 48")  ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

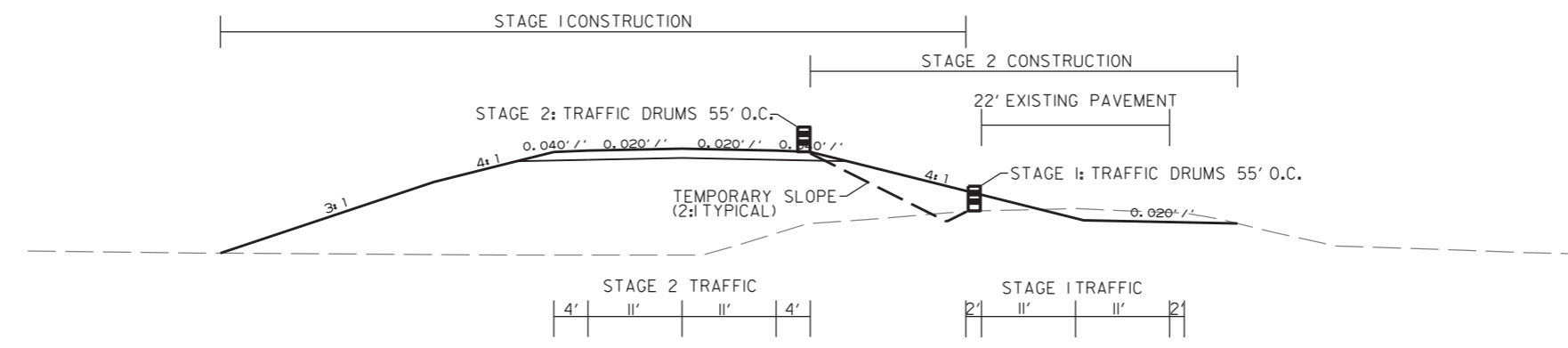
ADVANCE WARNING DETAILS
MAINTENANCE OF TRAFFIC DETAILS

2/22/2024

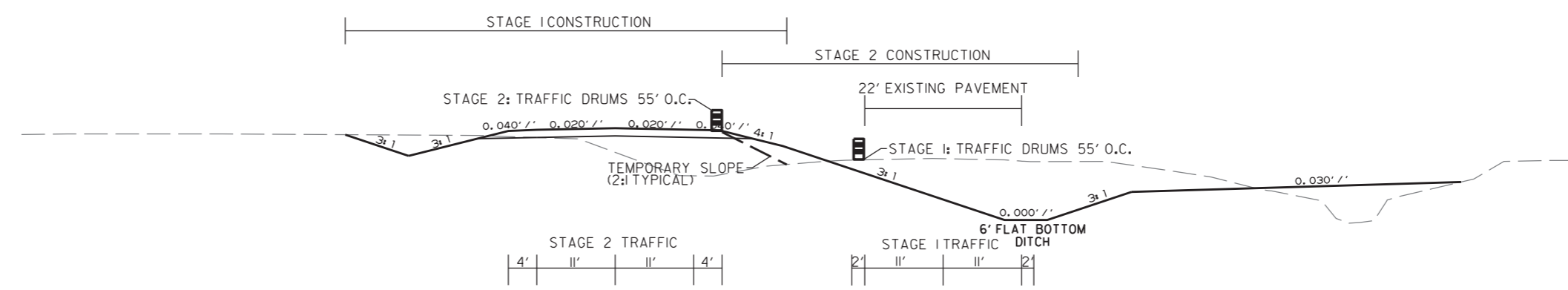
R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	15	79

② MAINTENANCE OF TRAFFIC DETAILS



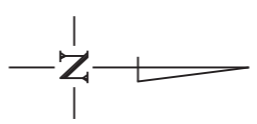
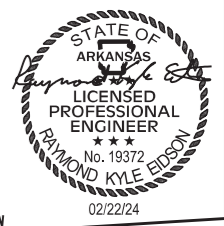
STAGE CONSTRUCTION
 STA. 108+75.00 TO STA. 116+19.50
 STA. 117+85.50 TO STA. 122+88.75



STAGE CONSTRUCTION
 STA. 126+21.25 TO STA. 139+85.00

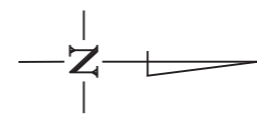
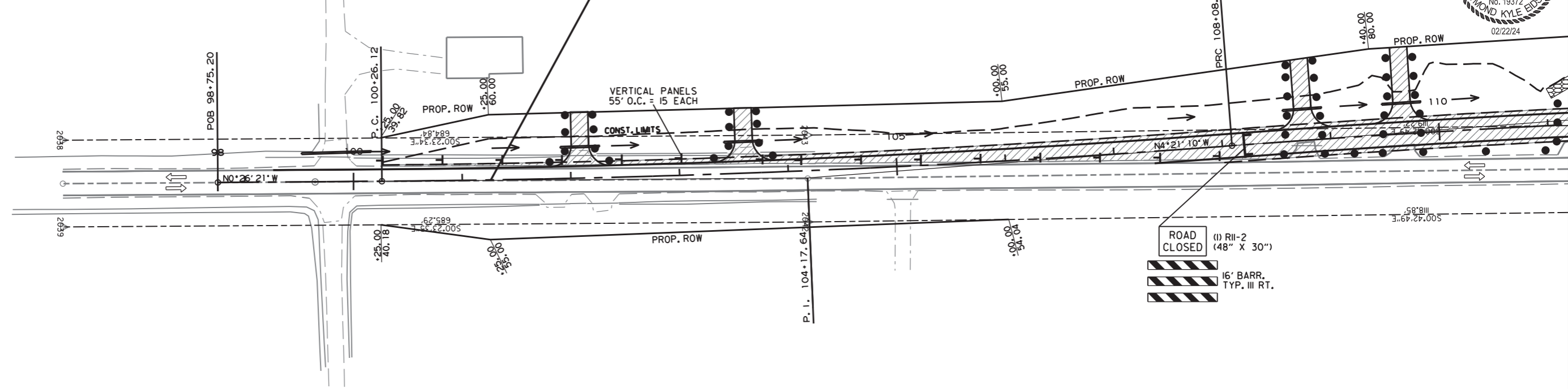
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	16	79

② MAINTENANCE OF TRAFFIC DETAILS

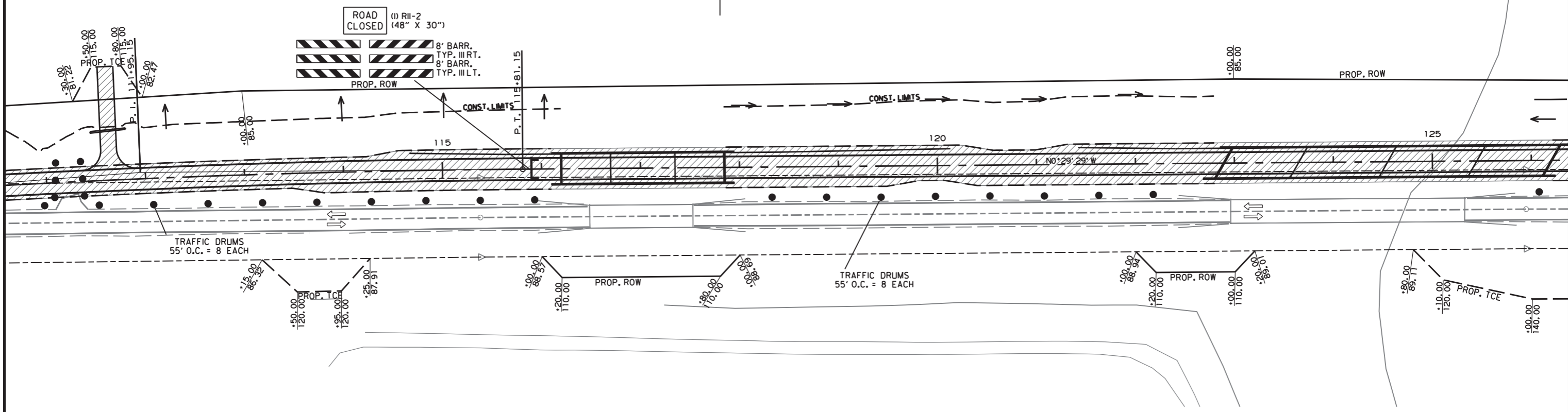


DENOTES STAGE I CONSTRUCTION

STA. 101+26.12
BEGIN JOB 061614



DENOTES STAGE I CONSTRUCTION



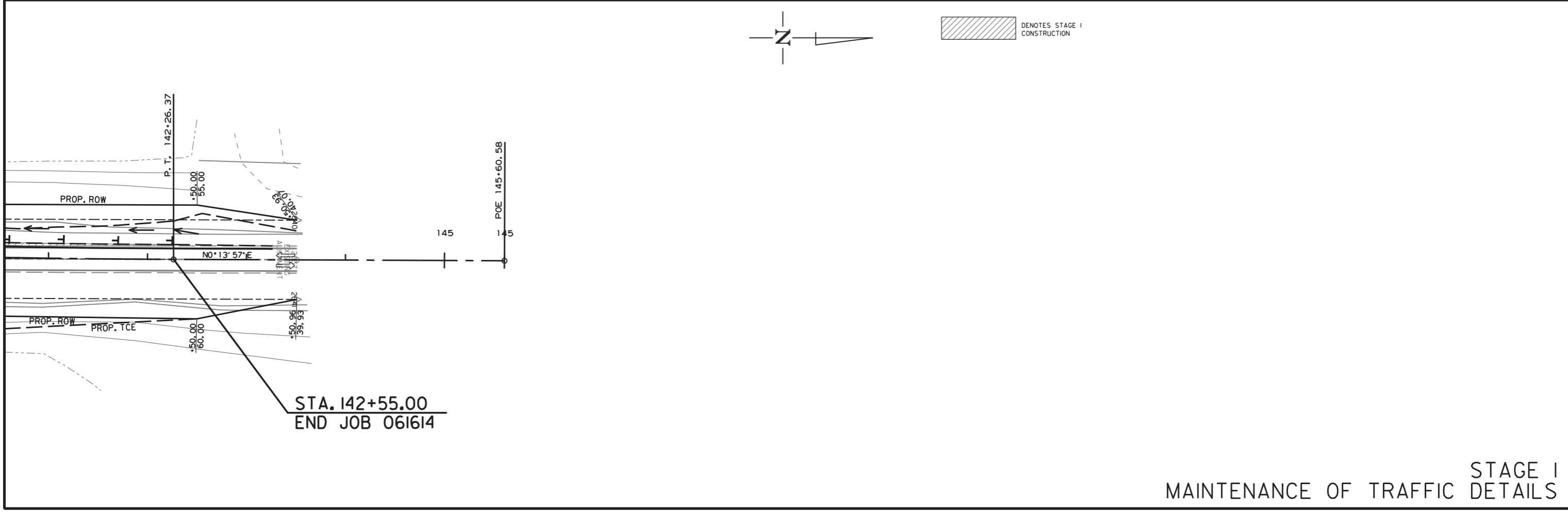
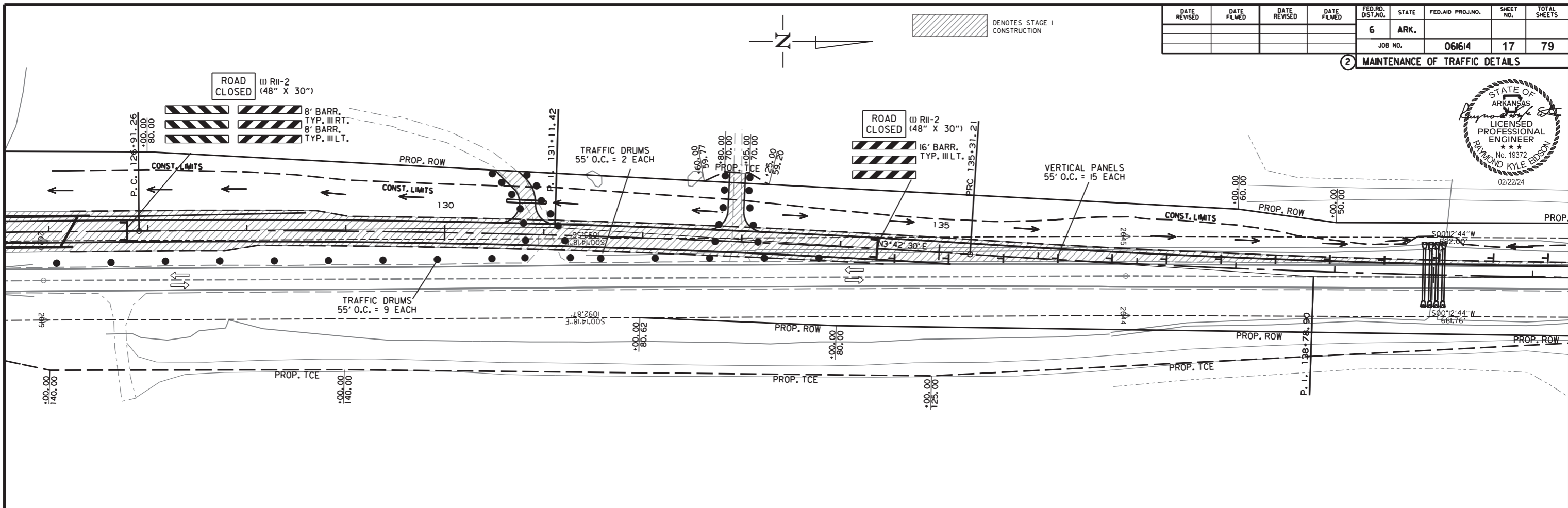
STAGE I
MAINTENANCE OF TRAFFIC DETAILS

2/22/2024

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
						JOB NO.	061614	17	79

2 MAINTENANCE OF TRAFFIC DETAILS

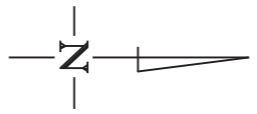
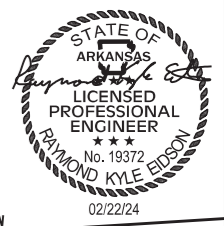


2/22/2024

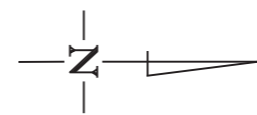
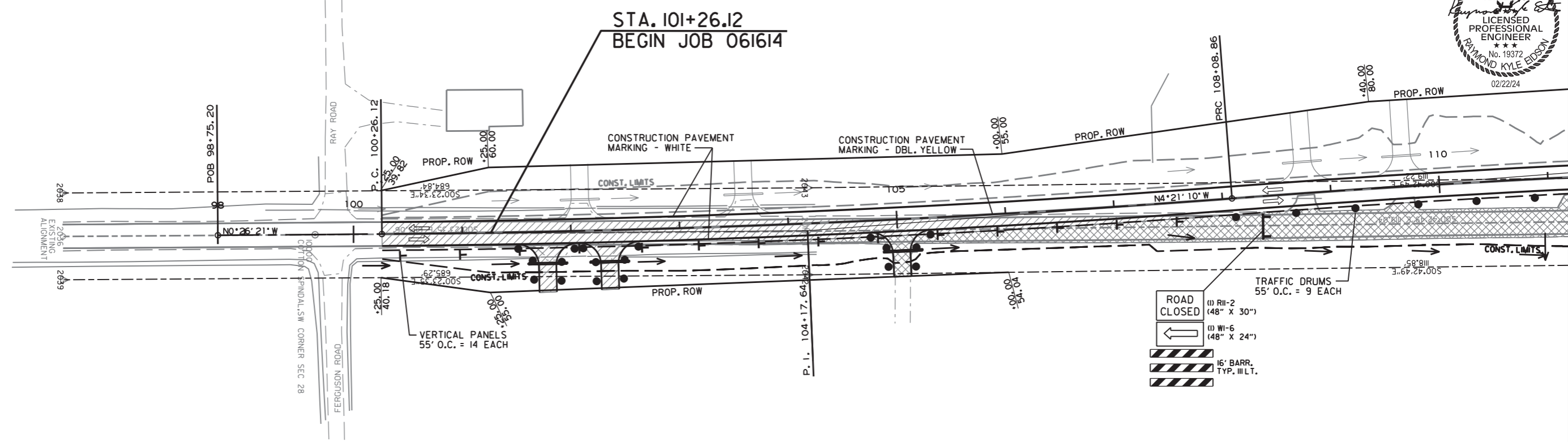
R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	18	79

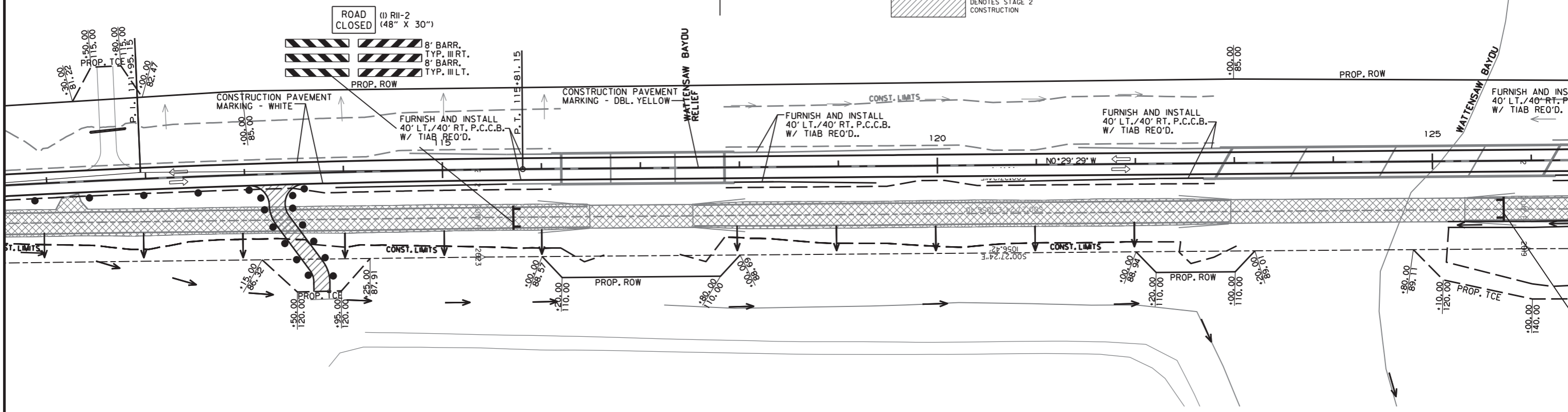
② MAINTENANCE OF TRAFFIC DETAILS



DENOTES OBLITERATION OF EXISTING PAVEMENT
 DENOTES STAGE 2 CONSTRUCTION



DENOTES OBLITERATION OF EXISTING PAVEMENT
 DENOTES STAGE 2 CONSTRUCTION



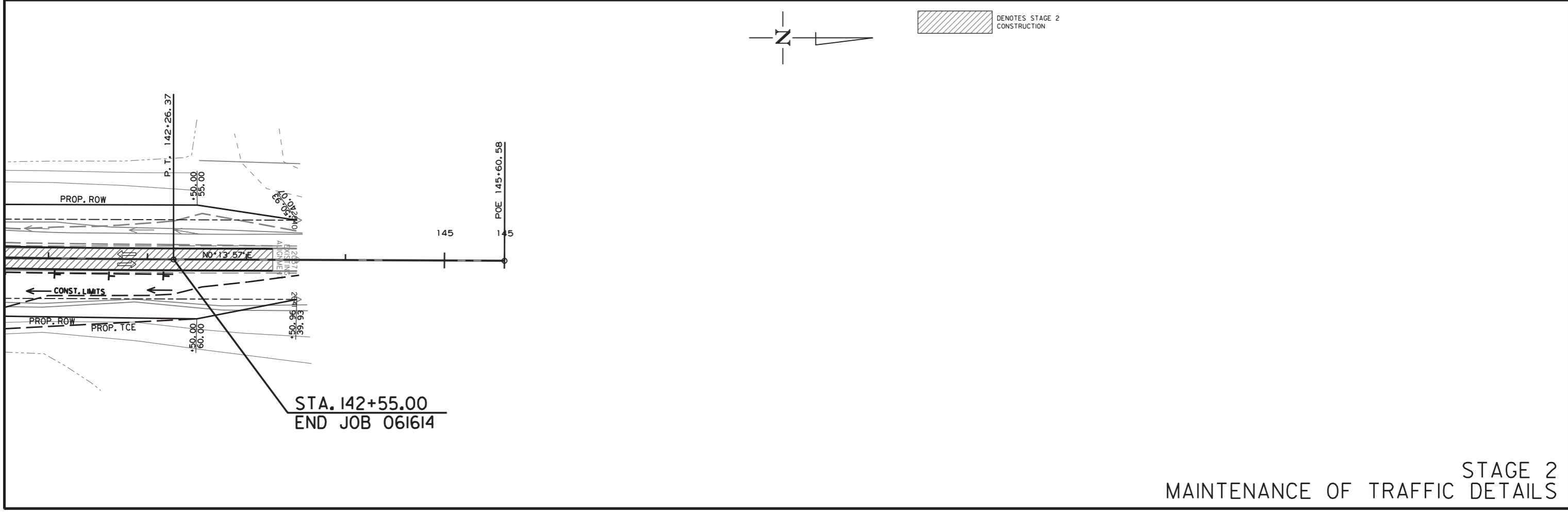
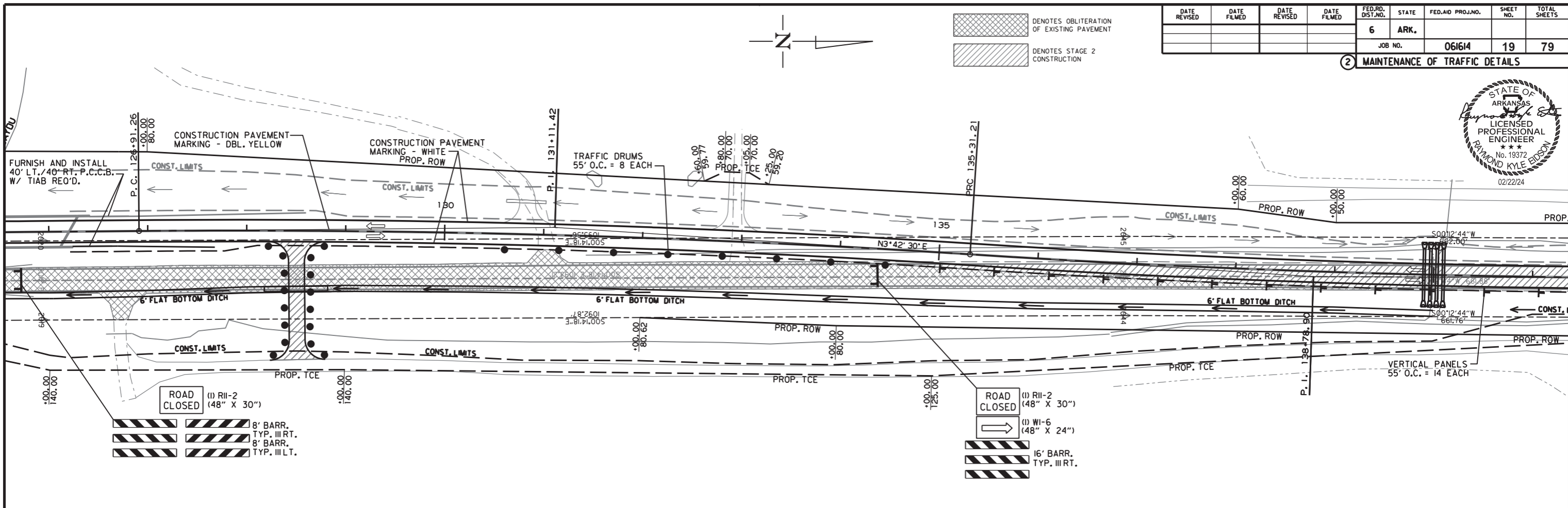
STAGE 2 MAINTENANCE OF TRAFFIC DETAILS

2/22/2024

R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	19	79

② MAINTENANCE OF TRAFFIC DETAILS



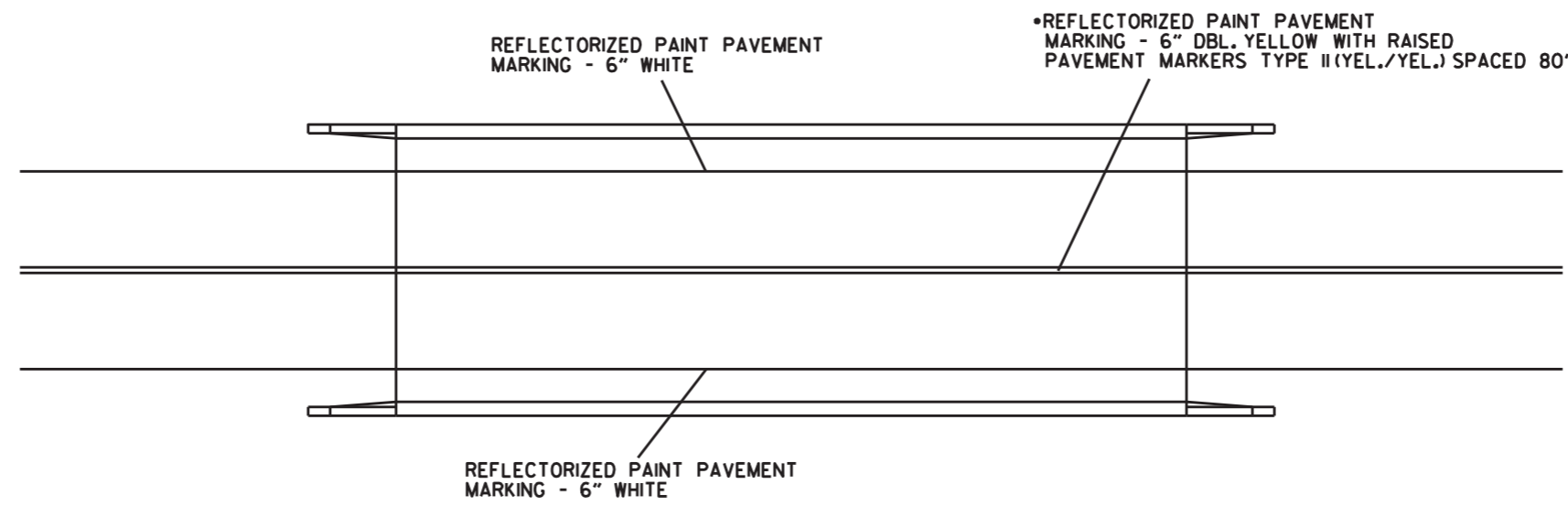
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	20	79

② PERMANENT PAVEMENT MARKING DETAILS



REFLECTORIZED PAINT PAVEMENT MARKING - 6" WHITE

REFLECTORIZED PAINT PAVEMENT MARKING - 6" DBL. YELLOW WITH RAISED PAVEMENT MARKERS TYPE II (YEL./YEL.) SPACED 80' O.C.

REFLECTORIZED PAINT PAVEMENT MARKING - 6" WHITE

REFLECTORIZED PAINT PAVEMENT MARKING
 DBL. YELLOW = 8858 LIN. FT.
 WHITE = 8858 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II
 (YEL./YEL) (80' O.C.) = 56 EACH

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* THE 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.

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.	061614	21	79	

② QUANTITIES



CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		REFLECTORIZED PAINT PAVEMENT MARKING	
					TYPE II (YELLOW/YELLOW)	6"	WHITE	YELLOW
	LIN. FT. - EACH	LIN. FT.	EACH	LIN. FT.				
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2687		2687					
CONSTRUCTION PAVEMENT MARKINGS	17316			17316				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)		54			54			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		8658					8658	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		8658						8658
TOTALS:			2687	17316	54		8658	8658

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.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)
						NO.	SQ. FT.			RIGHT	LEFT			
			LIN. FT. - EACH				EACH		LIN. FT.					
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	32.0							
G20-2	END ROAD WORK	48"x24"	4	4	4	4	32.0							
R2-1	SPEED LIMIT	24"x24"	2	2	2	2	8.0							
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	40.0							
W1-6	LARGE ARROW	48"x24"		2	2	2	16.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0							
W21-5A	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	18.0							
W8-1	BUMP	30"x30"	2	2	2	2	12.5							
	VERTICAL PANELS		30	28	30			30						
	TRAFFIC DRUMS		104	65	104				104					
	TYPE III BARRICADE-RT. (8')		2	2	2					16				
	TYPE III BARRICADE-LT. (8')		2	2	2						16			
	TYPE III BARRICADE-RT. (16')		1	1	1					16				
	TYPE III BARRICADE-LT. (16')		1	1	1						16			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			320	320							320		
	TEMPORARY IMPACT ATTENUATION BARRIER			8	8								8	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			8	8									8
TOTALS:							264.5	30	104	32	32	320	8	8

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

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

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061614	22	79	

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	5853	26942
ENTIRE	PROJECT	STAGE 2-MAIN LANES	16443	5416
ENTIRE	PROJECT	APPROACHES	20	1955
ENTIRE	PROJECT	TEMPORARY APPROACHES		100
ENTIRE	PROJECT	BRIDGE EXCAVATION	1940	
TOTALS:			24256	34413

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	250
TOTAL:			250

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

QUANTITIES



REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL	SIGNS	WASTE	TIRES
			LIN. FT.	EACH	CU. YD.	EACH
108+10		RT. OF HWY. 86		1		
108+10		LT. OF HWY. 86		1		
114+40		RT. OF HWY. 86		1		
115+96	116+48	RT. OF HWY. 86	52	1		
115+96	116+48	LT. OF HWY. 86	52	1		
117+53	118+05	RT. OF HWY. 86	52	1		
117+53	118+05	LT. OF HWY. 86	52	1		
119+60		RT. OF HWY. 86		1		
119+75		LT. OF HWY. 86		1		
122+44	122+96	RT. OF HWY. 86	52	1		
122+44	122+96	LT. OF HWY. 86	52	1		
125+32	125+84	RT. OF HWY. 86	52	1		
125+32	125+84	LT. OF HWY. 86	52	1		
*126+00		LT. OF HWY. 86			10	5
126+73		LT. OF HWY. 86		1		
130+05		LT. OF HWY. 86		1		
132+80		LT. OF HWY. 86		1		
TOTALS:			416	16	10	5

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

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

REMOVAL AND DISPOSAL OF FENCE

STATION	LOCATION	FENCE
		LIN. FT.
107+38	LT. OF HWY 86	28
TOTAL:		28

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
101+78	18" x 28' SIDE DRAIN RT.	1
102+09	18" x 28' SIDE DRAIN LT.	1
102+35	18" x 28' SIDE DRAIN RT.	1
103+60	18" x 28' SIDE DRAIN LT.	1
105+03	18" x 28' SIDE DRAIN RT.	1
108+76	18" x 28' SIDE DRAIN LT.	1
109+67	18" x 28' SIDE DRAIN LT.	1
111+64	18" x 28' SIDE DRAIN LT.	1
126+68	84" x 26' SIDE DRAIN RT.	1
132+93	18" x 30' SIDE DRAIN LT.	1
140+00	18" x 44' CROSS DRAIN	2
TOTAL:		12

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
116+03	34	56	20.40	91	39	19.44	23' RT.	0-5	36	21	A-6(16)	LIGHT BROWN
116+75	34	56	20.76	91	39	19.44	17' RT.	0-5	39	29	A-6(23)	LIGHT GRAY
117+31	34	56	22.56	91	39	19.44	18' RT.	0-5	37	21	A-6(13)	RED/BROWN
118+34	34	56	21.84	91	39	19.44	25' RT.	0-5	33	16	A-6(8)	RED/BROWN
123+17	34	56	26.88	91	39	19.44	24' RT.	0-5	23	4	A-4(2)	LIGHT BROWN
123+73	34	56	27.60	91	39	19.44	24' RT.	0-5	39	22	A-6(19)	BROWN
124+36	34	56	28.68	91	39	19.44	17' RT.	0-5	36	17	A-6(16)	BROWN/GRAY
125+84	34	56	29.40	91	39	19.44	26' RT.	0-5	35	17	A-6(12)	RED/BROWN
126+45	34	56	30.12	91	39	19.44	29' RT.	0-5	39	22	A-6(17)	BROWN/GRAY

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
116+20	HWY. 230 ON LT.	1
122+89	HWY. 230 ON LT.	1
TOTAL:		2

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

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.	061614	23	79	

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	WATTLE (20") DITCH CHECKS (E-1)	18" FILTER SOCK (E-3)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	PIPE FOR SLOPE DRAINS (E-12)	DUMPED RIPRAP (E-14)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	ACRE	ACRE	BAG	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
ENTIRE PROJECT		CLEARING AND GRUBBING						6.06	6.06	123.6				27	4291					168
ENTIRE PROJECT		STAGE 1	2.80	5.60	2.80	285.6	2.80	0.74	0.74	15.1				39						13
ENTIRE PROJECT		STAGE 2	5.56	11.12	5.56	567.1	5.56						9	1656						64
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.76	3.52	1.76	179.5	1.76	1.70	1.70	34.7	54	800	132	27	1420	80	2	200	200	274
TOTALS:			10.12	20.24	10.12	1032.2	10.12	8.50	8.50	173.4	54	800	132	102	7367	80	2	200	200	519

BASIS OF ESTIMATE:
LIME2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

DUMPED RIPRAP AND FILTER BLANKET

STATION	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YD.	SQ. YD.
111+02	111+46	HWY. 86 - LT.	25	49
111+82	111+96	OUTLET OF PIPE CULVERT	8	16
125+70	126+50	HWY. 86 - LT.	45	89
127+83	128+18	OUTLET OF PIPE CULVERT	24	47
139+80	140+15	OUTLET OF PIPE CULVERT	24	47
TOTALS:			126	248

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

4" PIPE UNDERDRAIN

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

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
100+26.00	111+00.00	HWY. 86 LT.	1074.00	954.67
120+00.00	123+00.00	HWY. 86 LT.	300.00	266.67
126+00.00	142+55.00	HWY. 86 LT.	1655.00	1471.11
100+26.00	108+75.00	HWY. 86 RT.	849.00	754.67
140+00.00	142+55.00	HWY. 86 RT.	255.00	226.67
TOTAL:				3673.79

NOTE: AVERAGE WIDTH = 8'-0"

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061614	24	79	

② QUANTITIES



APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
115+83.00	116+19.50	LT. HWY. 86	4.20		210	
115+83.00	116+19.50	RT. HWY. 86	4.20		210	
115+83.00	116+19.50	HWY. 86		58.36	6763	28.56
117+85.50	118+22.00	HWY. 86		58.36	6763	28.56
117+85.50	118+22.00	LT. HWY. 86	4.20		210	
117+85.50	118+22.00	RT. HWY. 86	4.20		210	
122+42.27	122+82.42	LT. HWY. 86	4.20		210	
122+45.92	122+88.73	RT. HWY. 86	4.20		210	
122+59.58	122+95.12	HWY. 86		67.10	7162	34.78
126+14.90	126+50.41	HWY. 86		67.10	7162	34.78
126+21.27	126+64.10	LT. HWY. 86	4.20		210	
126+27.60	126+67.73	RT. HWY. 86	4.20		210	
TOTALS:			33.60	250.92	29530	126.68

NOTE: USE T =13" FOR 4' SHOULDER.

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
113+90.75	116+09.50	RT. SIDE	150	1	1
114+65.75	116+09.50	LT. SIDE	75	1	1
117+95.50	119+39.25	RT. SIDE	75	1	1
117+95.50	120+14.25	LT. SIDE	150	1	1
120+50.02	122+68.77	RT. SIDE	150	1	1
121+42.33	122+86.08	LT. SIDE	75	1	1
126+23.91	127+67.66	RT. SIDE	75	1	1
126+41.23	128+59.98	LT. SIDE	150	1	1
TOTALS:			900	8	8

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES		FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES	SOLID SODDING	WATER	STD. DWG. NOS.
		ALT. 1 (CLASS III)	ALT. 2, 3, AND 4 (WITH CLASS III ALT. 1)	24"			
		24"	24"	24"	SQ.YD.	M.GAL.	
		LIN. FT.		EACH			
140+00	QUAD. 24"X54' PIPE CULVERT HWY 86	216	240	8	30	0.38	PCC-1,PCM-1,PCP-1,PCP-2,FES-1,FES-2
TOTALS:		216	240	8	30	0.38	

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

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 1 OR 2 BEDDING.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	40
TOTAL:	40

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
107+00	112+00	HWY. 86	5	5
116+00	117+00	HWY. 86	1	1
120+00	127+50	HWY. 86	8	8
TOTALS:			14	14

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				6	ARK.			
				JOB NO.	061614	25	79	

② QUANTITIES



COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+26.12	101+26.12	MAIN LANES	22.00	244.44
142+55.00	143+55.00	MAIN LANES	22.00	244.44
TOTAL:				488.88

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

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
140+00	QUAD. 24" PIPE CULVERT	22.50	22	13.8
TOTAL:				13.8

AVG. DEPTH = 9"

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	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. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	TOTAL PG 64-22 TON	
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON															
MAIN LANES																										
100+26.12	101+26.12	HWY. 86 TRANSITION	100.00																							
101+26.12	107+26.85	HWY. 86 NOTCH & WIDEN	600.73	VAR.	489.70	VAR.	605.33	30.27	22.00	244.44	41.55	41.55	30.27	VAR.	605.33	330.00	99.88	VAR.	605.33	220.00	66.59	22.00	1735.44	220.00	190.90	257.49
107+26.85	115+83.00	HWY. 86 FULL DEPTH	856.15	178.00	1523.95	44.71	4253.16	212.66				212.66	22.46	2136.57	330.00	352.53	22.25	2116.59	220.00	232.82	26.00	2473.32	220.00	272.07	504.89	
118+22.00	122+52.25	HWY. 86 FULL DEPTH	430.25	178.00	765.85	44.71	2137.39	106.87				106.87	22.46	1073.71	330.00	177.16	22.25	1063.67	220.00	117.00	26.00	1242.94	220.00	136.72	253.72	
126+57.75	135+12.26	HWY. 86 FULL DEPTH	854.51	178.00	1521.03	44.71	4245.02	212.25				212.25	22.46	2132.48	330.00	351.86	22.25	2112.54	220.00	232.38	26.00	2468.58	220.00	271.54	503.92	
135+12.26	142+55.00	HWY. 86 NOTCH & WIDEN	742.74	VAR.	564.17	VAR.	547.74	27.39				27.39	VAR.	547.74	330.00	90.38	VAR.	547.71	220.00	60.25	26.00	2145.69	220.00	236.03	296.28	
142+55.00	143+55.00	HWY. 86 TRANSITION	100.00						22.00	244.44	41.55	41.55									22.00	244.44	220.00	26.89	26.89	
ADDITIONAL FOR LEVELING																										
101+26.12	107+26.85	LEVELING	600.73						VAR.	897.40	152.56	152.56						VAR.	897.40	VAR.	98.71					98.71
135+12.26	142+55.00	LEVELING	742.74						VAR.	1270.23	215.94	215.94						VAR.	1270.23	VAR.	139.73					139.73
ADDITIONAL FOR METHOD OF RAISING GRADE																										
135+00.00	142+55.00	HWY. 86 - METHOD OF RAISING GRADE	755.00						22.00	1845.56	313.75	313.75	22.00	1845.56	VAR.	609.03										
ADDITIONAL FOR GUARDRAIL																										
113+48.75	113+81.75	RT. OF HWY. 86 - TRANSITION / SITE 1	33.00	VAR.	3.53																3.75	13.75	220.00	1.51	1.51	
114+23.92	114+56.92	LT. OF HWY. 86 - TRANSITION	33.00	VAR.	3.53																3.75	13.75	220.00	1.51	1.51	
113+81.75	116+10.50	RT. OF HWY. 86	228.75	33.75	77.20																7.50	190.63	220.00	20.97	20.97	
114+56.75	116+10.50	LT. OF HWY. 86	153.75	33.75	51.89																7.50	128.13	220.00	14.09	14.09	
117+94.50	119+48.25	RT. OF HWY. 86	153.75	33.75	51.89																7.50	128.13	220.00	14.09	14.09	
117+94.50	120+23.25	LT. OF HWY. 86	228.75	33.75	77.20																7.50	190.63	220.00	20.97	20.97	
119+48.25	119+81.25	RT. OF HWY. 86 - TRANSITION	33.00	VAR.	3.53																3.75	13.75	220.00	1.51	1.51	
120+23.25	120+56.25	LT. OF HWY. 86 - TRANSITION	33.00	VAR.	3.53																3.75	13.75	220.00	1.51	1.51	
TOTALS:																										
				5409.30		11788.64	589.44		4502.07	765.35	1354.79		8341.39		1680.84		8613.47		947.48		11939.89		1313.36	2260.84		

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
 TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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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.	061614	26	79	

② QUANTITIES



DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)			AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS	
			WIDTH	SQ. YD.	TON		TON	18"		60"
			FEET					LIN. FT.		
101+78	RT.	HWY. 86	16	44.80	4.93	39.86	34		PCC-1, PCM-1, PCP-1, PCP-2	
102+09	LT.	HWY. 86	16	44.80	4.93	45.82	36		PCC-1, PCM-1, PCP-1, PCP-2	
102+35	RT.	HWY. 86	16	44.80	4.93	39.02	34		PCC-1, PCM-1, PCP-1, PCP-2	
103+60	LT.	HWY. 86	16	44.80	4.93	45.27	36		PCC-1, PCM-1, PCP-1, PCP-2	
105+03	RT.	HWY. 86	16	83.91	9.23	34.26	36		PCC-1, PCM-1, PCP-1, PCP-2	
108+76	LT.	HWY. 86	16	44.80	4.93	60.20	36		PCC-1, PCM-1, PCP-1, PCP-2	
109+67	LT.	HWY. 86	16	44.80	4.93	64.03	36		PCC-1, PCM-1, PCP-1, PCP-2	
111+64	LT.	HWY. 86	16	44.80	4.93	96.69	56		PCC-1, PCM-1, PCP-1, PCP-2	
113+32	RT.	HWY. 86	16	44.80	4.93	112.84				
128+50	RT.	HWY. 86	16	44.80	4.93	110.69		64	PCC-1, PCM-1, PCP-1, PCP-2	
130+83	LT.	HWY. 86	16	44.80	4.93	54.22	48		PCC-1, PCM-1, PCP-1, PCP-2	
132+93	LT.	HWY. 86	16	44.80	4.93	54.14				
* ENTIRE PROJECT TEMPORARY DRIVES						100.00				
TOTALS:				576.71	63.46	857.04	352	64		

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10
TOTAL:	10

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	20	40
TOTALS:	20	40

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
		EACH
ENTIRE PROJECT	1	1
TOTALS:	1	1

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03/20/24		6	ARK.	061614	27	79
07584 & 07585 - QUANTITIES - 65218						

SCHEDULE OF BRIDGE QUANTITIES - JOB. NO. 061614

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS & 802	SP, SS & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS & 807	SS & 807	SS & 808	SS & 809	812	SS & 816	SS & 816	
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHELL PILING (18" DIA.)	STEEL SHELL PILING (24" DIA.)	PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SO. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	POUND	TON	CU. IN.	LIN. FT.	EACH	SO. YD.	CU. YD.	
07584	HIGHWAY 86 OVER WATTENSAW BAYOU RELIEF	BENT 1			17.43				2,587	350	Δ 300 325			50						403	183	
		BENT 2			15.77				2,938			350	45			1,566.0						
		BENT 3			15.77				2,938			350	50			1,566.0						
		BENT 4			17.43				2,587	350	Δ 300 325			50						381	173	
		165'-0" INTEGRAL CONTINUOUS W-BEAM UNIT					189.50	687.1		50,330						114,230	14.5			1		
		EXIST. BR. NO. M1582 (SITE NO. 1)		1																		
TOTALS FOR BRIDGE NO. 07584					66.4	189.5	687.1	11,050	51,030	Δ 600 650	700	95	100	114,230	14.5	3,132		1	784	356		
07585	HIGHWAY 86 OVER WATTENSAW BAYOU	BENT 1			33.87		13.9	6,707	700	350					720		1,878.0	35		500	227	
		BENT 2			21.69			4,719			375	45				2,947.0						
		BENT 3			21.68			4,718			375	35				2,947.0						
		BENT 4			21.69			4,719			375	45				2,947.0				206	94	
		BENT 5		60	33.87		13.9	6,707	700	250					720		1,878.0	35				
		330'-0" CONTINUOUS W-BEAM UNIT					343.50	1,364.8		91,820						323,470	44.2			1		
EXIST. BR. NO. M1581 (SITE NO. 2)		1																				
TOTALS FOR BRIDGE NO. 07585				60	132.8	343.5	1,392.6	27,570	93,220	600	1,125	125		324,910	44.2	12,597	70	1	706	321		
TOTALS FOR JOB NO. 061614				60	199.2	533.0	2,079.7	38,620	144,250	Δ 1,200 1,250	1,825	220	100	439,140	58.7	15,729	70	2	1,490	677		

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

② The color or paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

Δ Revised Steel Shell Pile Quantities
 Made By: KJK Date: 03/20/24
 Ck'd By: CAR Date: 03/20/24



SCHEDULE OF BRIDGE QUANTITIES
 HIGHWAY 86 OVER
 WATTENSAW BAYOU & RELIEF
 STRS & APPRS. (S)
 PRAIRIE COUNTY
 ROUTE 86 SEC. 0
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614xx_qx1rev.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: NONE
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 & 07585 DRAWING NO. 65218

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061614	28	79	

2 SUMMARY OF QUANTITIES



ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	14	STATION
201	GRUBBING	14	STATION
SP	REMOVAL AND DISPOSAL OF TIRES	5	EACH
202	REMOVAL AND DISPOSAL OF FENCE	28	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	12	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	416	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS	16	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	24256	CU. YD.
SP & 210	COMPACTED EMBANKMENT	34413	CU. YD.
SP & 210	SOIL STABILIZATION	250	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	6393	TON
SS & 401	TACK COAT	1395	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1610	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1')	71	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2192	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	132	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	489	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	20	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
SP, SS, & 504	APPROACH SLABS	250.92	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	33.60	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	265	SQ. FT.
SS & 604	BARRICADES	64	LIN. FT.
SS & 604	TRAFFIC DRUMS	104	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	320	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	17316	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	2687	LIN. FT.
SS & 604	VERTICAL PANELS	30	EACH
* SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	216 LIN. FT.
* SP, SS, & 606	24" POLYPROPYLENE PIPE	(ALTERNATE NO. 2)	240 LIN. FT.
* SP, SS, & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 3)	240 LIN. FT.
* SP, SS, & 606	24" PVC PIPE	(ALTERNATE NO. 4)	240 LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	352	LIN. FT.
SS & 606	60" SIDE DRAIN	64	LIN. FT.
* SS & 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	8 EACH
* SS & 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	8 EACH
SS & 606	SELECTED PIPE BEDDING	40	CU. YD.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
SS & 611	4" PIPE UNDERDRAINS	1000	LIN. FT.
SS & 615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	13.8	CU. YD.
SS & 617	GUARDRAIL (TYPE A)	900	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	8	EACH
SS & 617	THREE BEAM GUARDRAIL TERMINAL	8	EACH
620	LIME	20	TON
620	SEEDING	10.12	ACRE
SS & 620	MULCH COVER	18.62	ACRE
620	WATER	1206.0	M. GAL.
621	TEMPORARY SEEDING	8.50	ACRE
621	SILT FENCE	7367	LIN. FT.
621	SAND BAG DITCH CHECKS	132	BAG
621	SEDIMENT BASIN	200	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	200	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	519	CU. YD.
621	PIPE FOR SLOPE DRAINS	80	LIN. FT.
621	ROCK DITCH CHECKS	102	CU. YD.
SS & 621	FILTER SOCK (18")	800	LIN. FT.
621	WATTLE (20")	54	LIN. FT.
623	SECOND SEEDING APPLICATION	10.12	ACRE
624	SOLID SODDING	30	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	3674	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	1	EACH
637	MAILBOX SUPPORTS (SINGLE)	1	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	8658	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	8658	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	54	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	8	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	8	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	29530	POUND
SS & 816	FILTER BLANKET	248	SQ. YD.
SS & 816	DUMPED RIPRAP	128	CU. YD.
SP	DISPOSAL OF WASTE	10	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

R061614.dgn 2/22/2024

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
03/20/24				6	ARK.			
						JOB NO. 061614	29	79

② SUMMARY OF QUANTITIES AND REVISIONS



SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	60.00	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	199.20	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	533.00	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	2080	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	38620	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	144250	POUND
SS & 805	STEEL SHELL PILING (18" DIAMETER)	1250	LIN. FT.
SS & 805	STEEL SHELL PILING (24" DIAMETER)	1825	LIN. FT.
SS & 805	PREBORING	100	LIN. FT.
SS & 805	PILE ENCASEMENT	220	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	439140	POUND
SS & 807	PAINTING STRUCTURAL STEEL	59	TON
SS & 808	ELASTOMERIC BEARINGS	15729	CU. IN.
SS & 809	SILICONE JOINT SEALANT	70	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
SS & 816	FILTER BLANKET	1490	SQ. YD.
SS & 816	DUMPED RIPRAP	677	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
3/20/2024	REVISED STEEL SHELL PILING (18" DIAMETER) QUANTITY. REVISED STEEL SHELL PILE LENGTHS. REVISED MIN. RATED HAMMER ENERGY.	27, 29, 36, 37, 49

R061614.dgn 3/27/2024

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.	061614	30	79	

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s061614
 Date: 8/27/2020
 Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	2138204.1392	1415739.2437	221.176	CTL	ARDOT STD MON STAMPED PN: 1
2	2138754.9750	1415734.4036	212.868	CTL	ARDOT STD MON STAMPED PN: 2
3	2139483.4946	1415719.8340	197.202	CTL	ARDOT STD MON STAMPED PN: 3
4	2140139.8754	1415717.1299	198.755	CTL	ARDOT STD MON STAMPED PN: 4
5	2140781.8997	1415746.9680	201.579	CTL	ARDOT STD MON STAMPED PN: 5
6	2141525.2368	1415747.0100	201.662	CTL	ARDOT STD MON STAMPED PN: 6
901	2125215.6469	1414997.4117	217.260	BM	
902	2128310.4000	1415700.0513	214.657	BM	
903	2131770.9069	1415669.5711	221.417	BM	
904	2135193.7123	1415735.5926	219.085	BM	
905	2139508.5425	1415755.3274	198.054	TBM	
906	2140392.7610	1415748.9041	199.548	TBM	

HWY 86 CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	98+75.20	2137736.8266	1415758.8395
8001	PC	100+26.12	2137887.7374	1415757.6831
8003	PRC	108+08.86	2138669.6481	1415724.9674
8005	PT	115+81.15	2139441.1002	1415692.3366
8006	PC	126+91.26	2140551.1704	1415682.8172
8008	PRC	135+31.21	2141390.6009	1415706.3900
8010	PT	142+26.37	2142085.2406	1415730.2896
8011	POE	145+60.58	2142419.4450	1415731.6465

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped *(standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point).
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
 A PROJECT CAF OF 0.9999621733 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 s061614gi.ctl
 HORIZONTAL DATUM: NAD 83 (2011)
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: BASED ON PNTS: 1 - 6
 CONVERGENCE ANGLE: 0-11-34.6 RIGHT AT LT: N34°55'37.8306' LG: W91°39'18.8959'
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

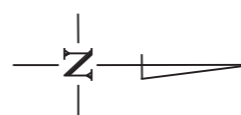
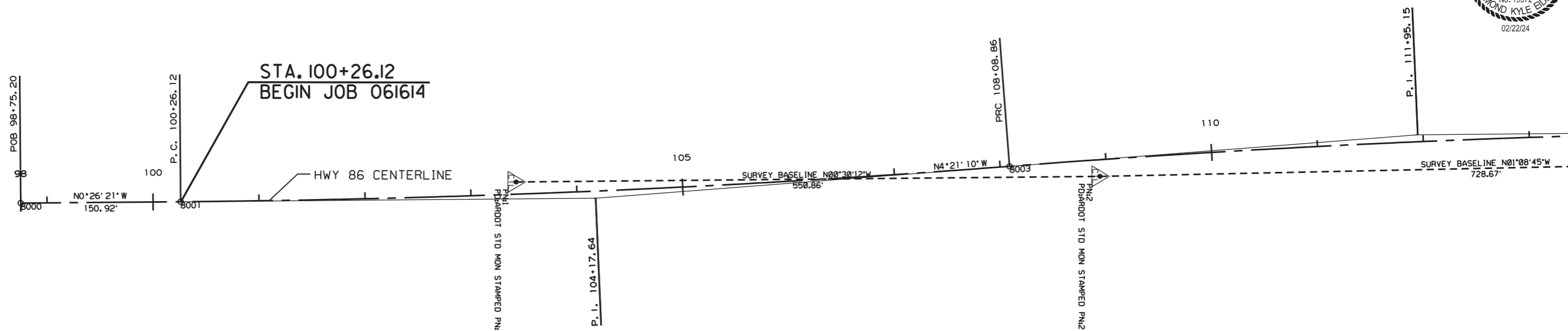
HWY 86
 PI = 104+17.64
 Δ = 3°54'49" LT.
 D = 00°30'00"
 T = 391.52'
 L = 782.74'
 PC = 100+26.12
 PRC = 108+08.86
 e = NO SUPER



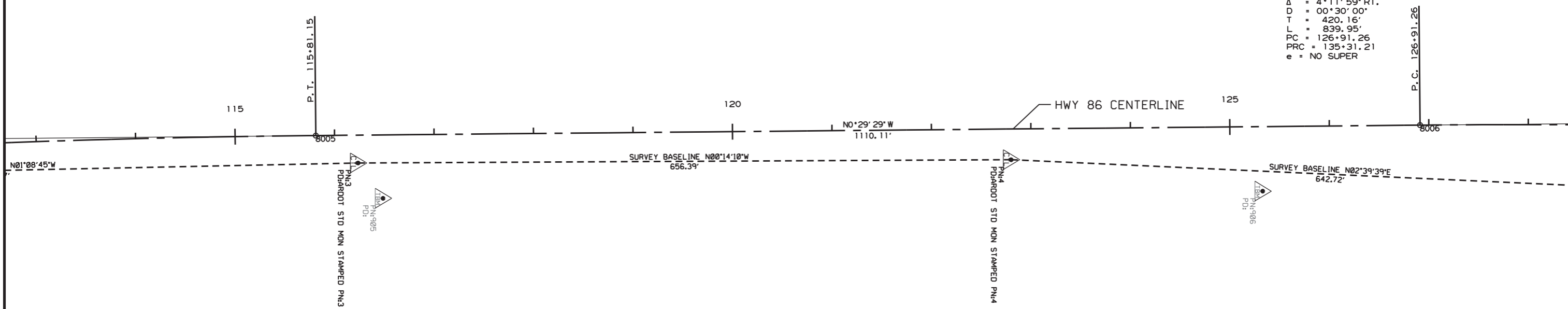
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				6	ARK.			
						JOB NO.	061614	31

2 SURVEY CONTROL DETAILS

HWY 86
 PI = 111+95.15
 Δ = 3°51'41" RT.
 D = 00°30'00"
 T = 386.29'
 L = 772.29'
 PRC = 108+08.86
 PT = 115+81.15
 e = NO SUPER



HWY 86
 PI = 131+11.42
 Δ = 4°11'59" RT.
 D = 00°30'00"
 T = 420.16'
 L = 839.95'
 PC = 126+91.26
 PRC = 135+31.21
 e = NO SUPER

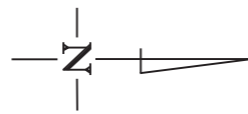


2/22/2024

R061614.dgn

SURVEY CONTROL DETAILS

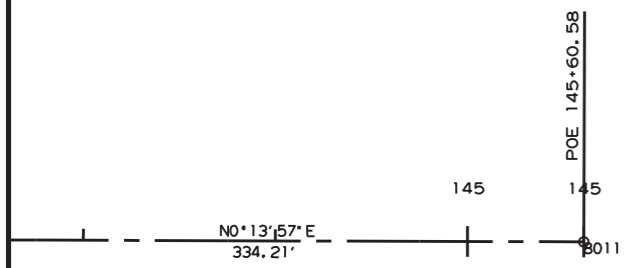
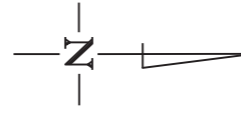
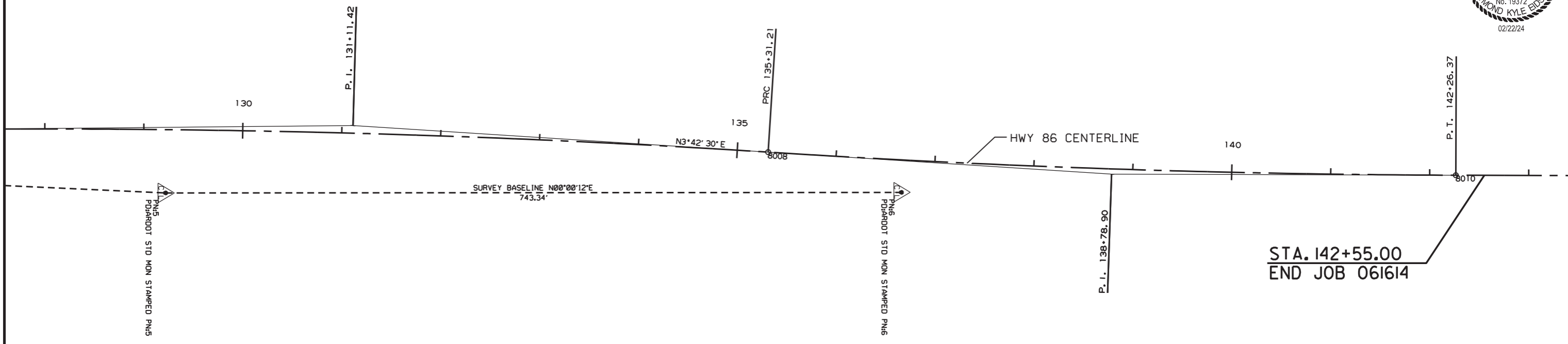
HWY 86
 PI = 131+11.42
 Δ = 4°11'59" RT.
 D = 00°30'00"
 T = 420.16'
 L = 839.95'
 PC = 126+91.26
 PRC = 135+31.21
 e = NO SUPER



HWY 86
 PI = 138+78.90
 Δ = 3°28'33" LT.
 D = 00°30'00"
 T = 347.69'
 L = 695.16'
 PRC = 135+31.21
 PT = 142+26.37
 e = NO SUPER

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.	061614	32 79

② SURVEY CONTROL DETAILS



STA. 102+09 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.

STA. 103+60 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.

HWY 86
 P.I. = 104+17.64
 Δ = 3°54'49" LT.
 D = 00°30'00"
 T = 391.52'
 L = 782.74'
 PC = 100+26.12
 PRC = 108+08.86
 e = NO SUPER

HWY 86
 P.I. = 111+95.15
 Δ = 3°51'41" RT.
 D = 00°30'00"
 T = 386.29'
 L = 772.29'
 PRC = 108+08.86
 PT = 115+81.15
 e = NO SUPER

STA. 108+76 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.

STA. 109+67 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.

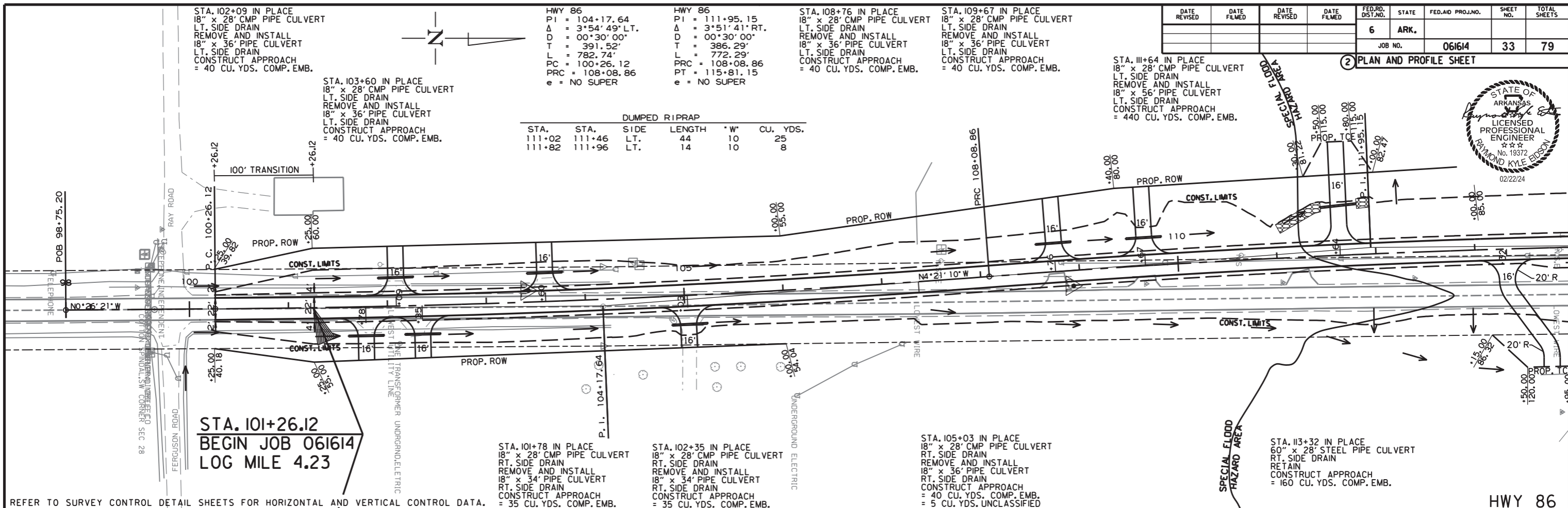
STA. 113+64 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 56' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 440 CU. YDS. COMP. EMB.

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.						061614	33	79

2 PLAN AND PROFILE SHEET



STA.	STA.	SIDE	LENGTH	'W'	CU. YDS.
111+02	111+46	LT.	44	10	25
111+82	111+96	LT.	14	10	8



STA. 101+26.12
 BEGIN JOB 061614
 LOG MILE 4.23

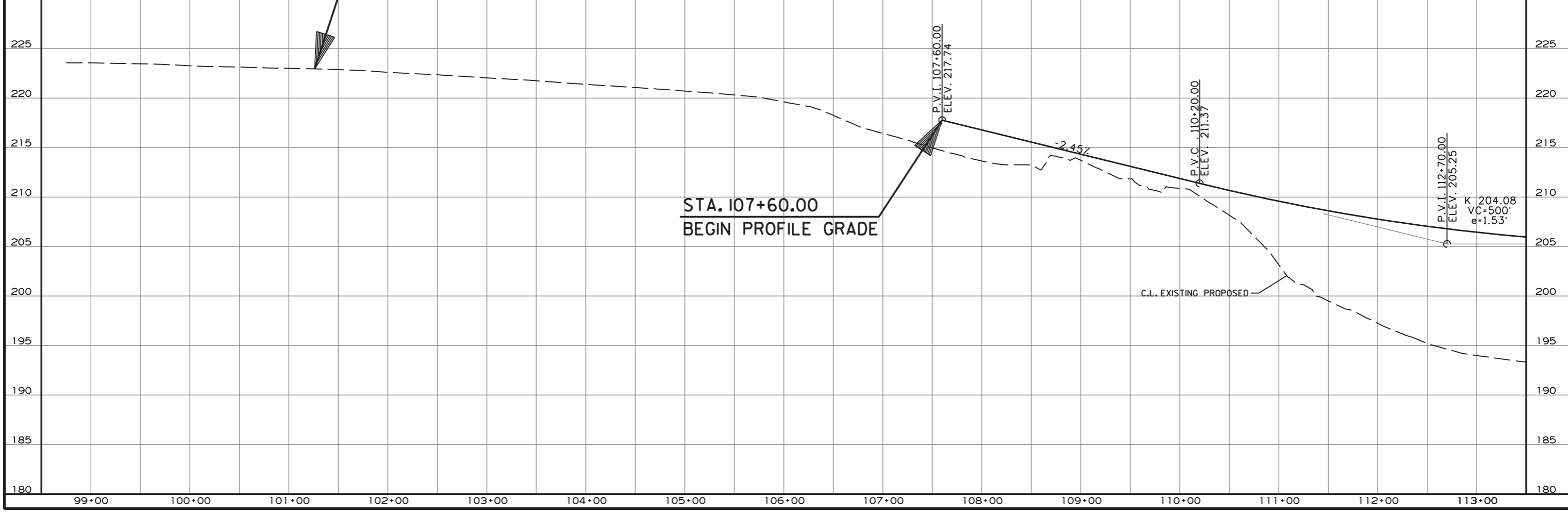
STA. 101+78 IN PLACE
 18" x 28' CMP PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 34' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 35 CU. YDS. COMP. EMB.

STA. 102+35 IN PLACE
 18" x 28' CMP PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 34' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 35 CU. YDS. COMP. EMB.

STA. 105+03 IN PLACE
 18" x 28' CMP PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.
 = 5 CU. YDS. UNCLASSIFIED

STA. 113+32 IN PLACE
 60" x 28' STEEL PIPE CULVERT
 RT. SIDE DRAIN
 RETAIN
 CONSTRUCT APPROACH
 = 160 CU. YDS. COMP. EMB.

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



STA. 107+60.00
 BEGIN PROFILE GRADE

C.L. EXISTING PROPOSED

STA. 116+48 - STA. 117+53 IN PLACE
BR. NO. M1582
23' x 106' CONC. DECK/WOOD BEAMS
TIMBER CAPS AND TIMBER PILINGS
REMOVE AS EXISTING BRIDGE
STR. (SITE NO. 1) = 1.00 LUMP SUM

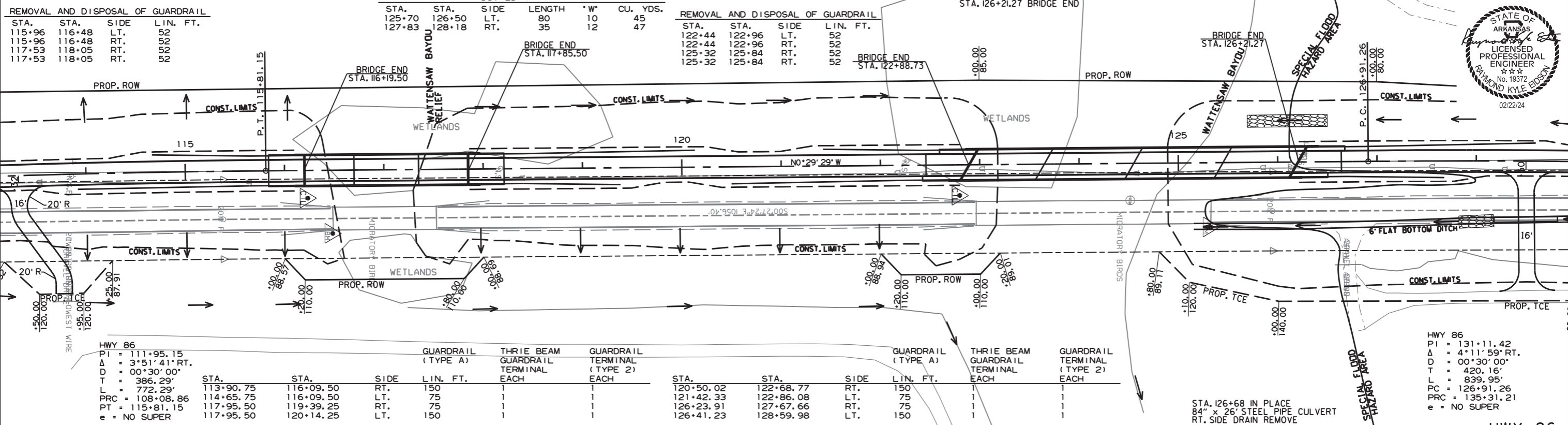
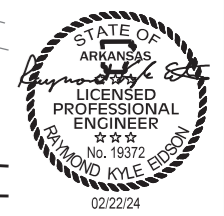
STA. 116+19.50 BRIDGE END
BRIDGE NO. 07584
166'-0" BRIDGE LENGTH
30'-0" CLEAR ROADWAY
165' INTEGRAL
CONTINUOUS W-BEAM UNIT
(50', 65', 50')
STA. 117+85.50 BRIDGE END

STA. 122+96 - STA. 125+32 IN PLACE
BR. NO. M1581
25' x 236' CONC. DECK/WOOD BEAMS
TIMBER CAPS AND TIMBER PILINGS
REMOVE AS EXISTING BRIDGE
STR. (SITE NO. 2) = 1.00 LUMP SUM

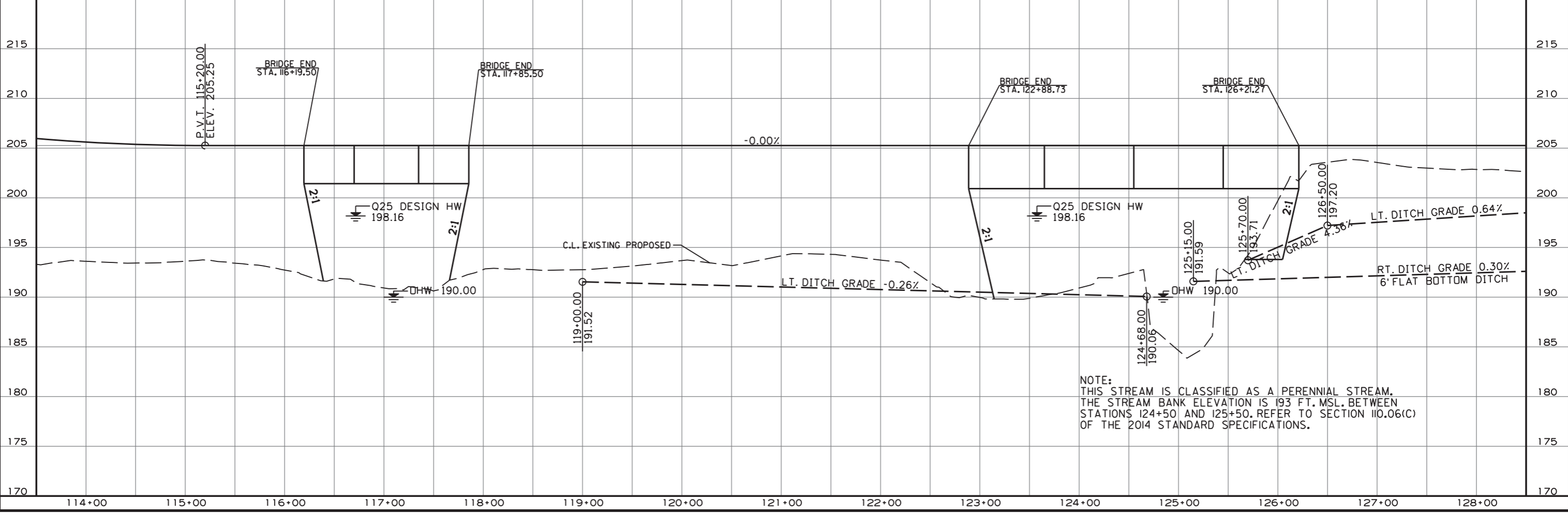
STA. 122+88.73 BRIDGE END
BRIDGE NO. 07585
332'-6 1/2" BRIDGE LENGTH
30'-0" CLEAR ROADWAY
30'-0" L.I. FORWARD SKEW
330' CONTINUOUS
W-BEAM UNIT
(75', 90', 90', 75')
STA. 126+21.27 BRIDGE END

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. 061614							34	79

2 PLAN AND PROFILE SHEET



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



NOTE:
THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM.
THE STREAM BANK ELEVATION IS 193 FT. MSL. BETWEEN
STATIONS 124+50 AND 125+50. REFER TO SECTION 110.06(C)
OF THE 2014 STANDARD SPECIFICATIONS.

2/22/2024

R061614.dgn

STA. 130+83
 INSTALL
 18" x 48' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 90 CU. YDS. COMP. EMB.

HWY 86
 P.I. = 131+11.42
 Δ = 4°11'59" RT.
 D = 00°30'00"
 T = 420.16'
 L = 839.95'
 PC = 126+91.26
 PRC = 135+31.21
 e = NO SUPER

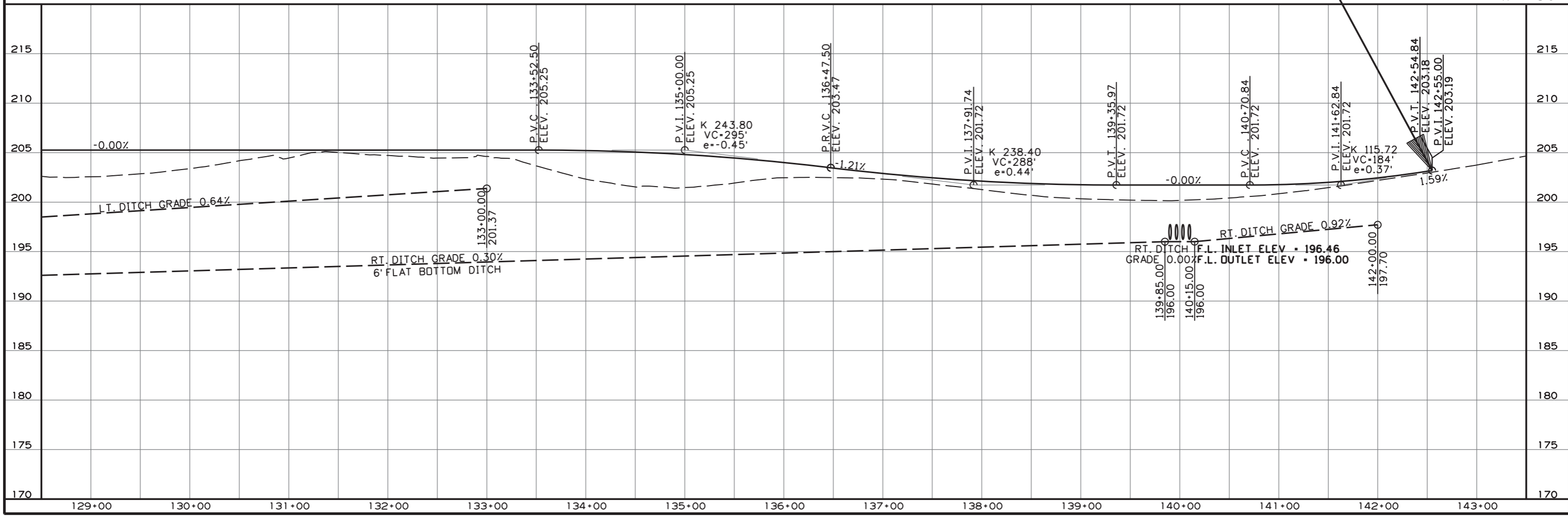
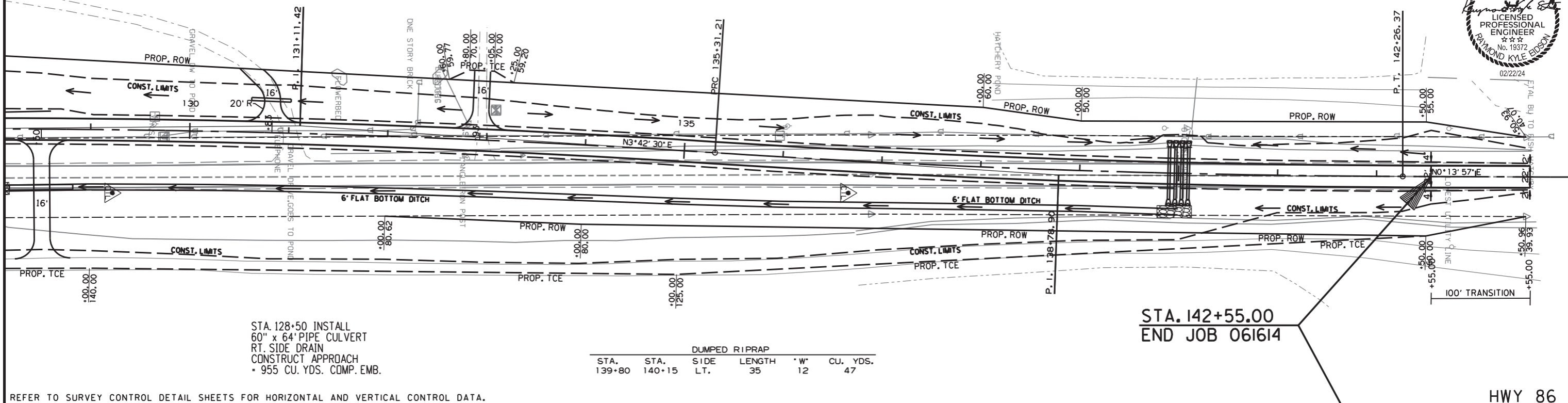
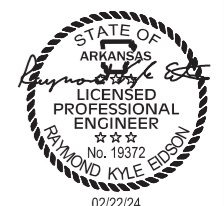
STA. 132+93 IN PLACE
 18" x 30' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.
 = 10 CU. YDS. UNCLASSIFIED

HWY 86
 P.I. = 138+78.90
 Δ = 3°28'33" LT.
 D = 00°30'00"
 T = 347.69'
 L = 695.16'
 PRC = 135+31.21
 PT = 142+26.37
 e = NO SUPER

STA. 140+00 IN PLACE
 DBL. 18" x 43.5' CM PIPE CULVERT
 CROSS DRAIN REMOVE AND INSTALL
 QUAD. 24" x 54' PIPE CULVERT
 W / F.E.S. LT. AND RT.
 R.C. PIPE (CLASS III)(TYPE 1 OR 2)
 = 216 LIN. FT.
 Q25 = 53.64 CFS D.A. = 27.89 ACRES

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. 061614	35	79

2 PLAN AND PROFILE SHEET



2/22/2024 R061614.dgn

DATE REVISED	DATE REVISION	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03/20/24		6	ARK.	061614	36	79
07584 - LAYOUT - 65219						

For Right of Way data, see Roadway plans.

Use Type F Approach Gutters (w = 2'-0") and Type Special Approach Slabs at both ends of bridge. For details, see Std. Dwg. No. 55030F and Dwg. No. 65229A, respectively.

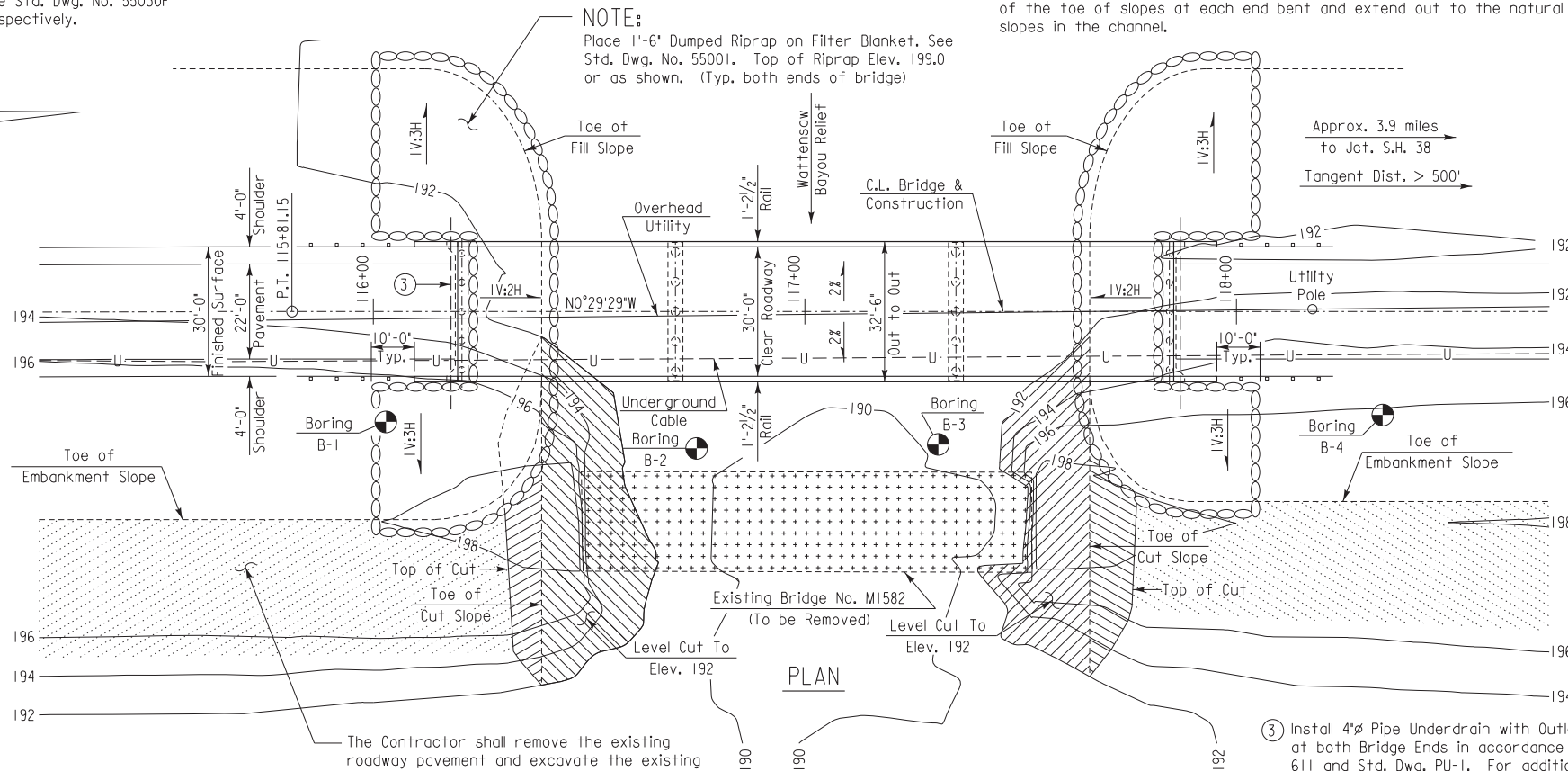
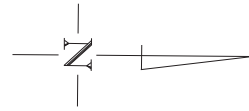
NOTE:

The Contractor shall excavate the existing embankment as shown to Elev. 192.0 at End Bent 1 and End Bent 4. Approx. 510 cubic yards of excavation.

Toe of cut slopes shown in the existing embankment excavation are extensions of the toe of slopes at each end bent and extend out to the natural side slopes in the channel.

NOTE:

Place 1'-6" Dumped Riprap on Filter Blanket. See Std. Dwg. No. 55001. Top of Riprap Elev. 199.0 or as shown. (Typ. both ends of bridge)

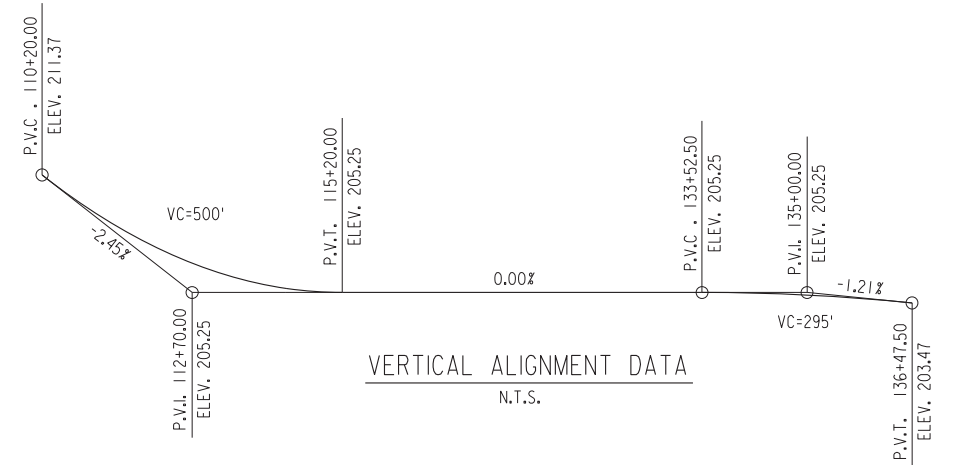


NOTE:

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

The Contractor shall remove the existing roadway pavement and excavate the existing embankment in the approximate areas shown to the finished ground line grades shown in the Roadway cross-section plans.

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. 65228. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to 'Unclassified Excavation'.



VERTICAL ALIGNMENT DATA
N.T.S.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	TOTAL DISCHARGE ②	DISCHARGE THIS SITE	NATURAL WATER SURFACE ELEVATION ①	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
DESIGN	25	4630	1538	198.2	198.2
BASE	100	6100	2044	199.4	199.4
EXTREME	500	7890	2688	200.0	200.2
OVERTOPPING	>500				

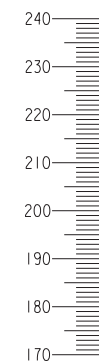
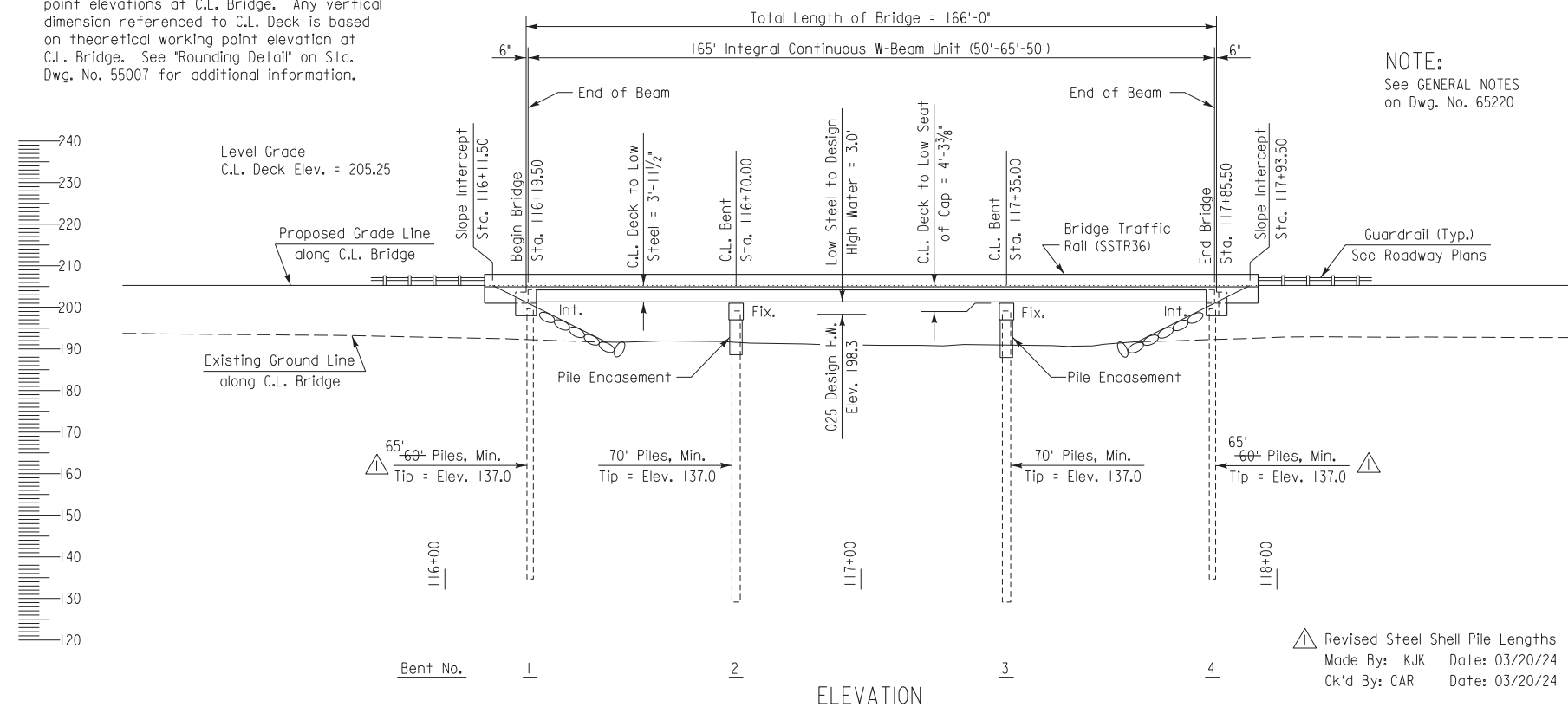
- ① Unconstricted water surface elevation without structures or roadway approaches.
- ② The total discharge includes flow at the main bridge (structure #M1581).

Q100 backwater elevation for existing structure = 199.5
Proposed Low Bridge Chord Elevation = 201.3
Existing Low Bridge Chord Elev. = 196.6

Drainage Area = 107 square miles

NOTE:

See GENERAL NOTES on Dwg. No. 65220



Revised Steel Shell Pile Lengths
Made By: KJK Date: 03/20/24
Ck'd By: CAR Date: 03/20/24

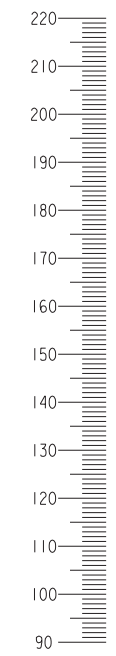
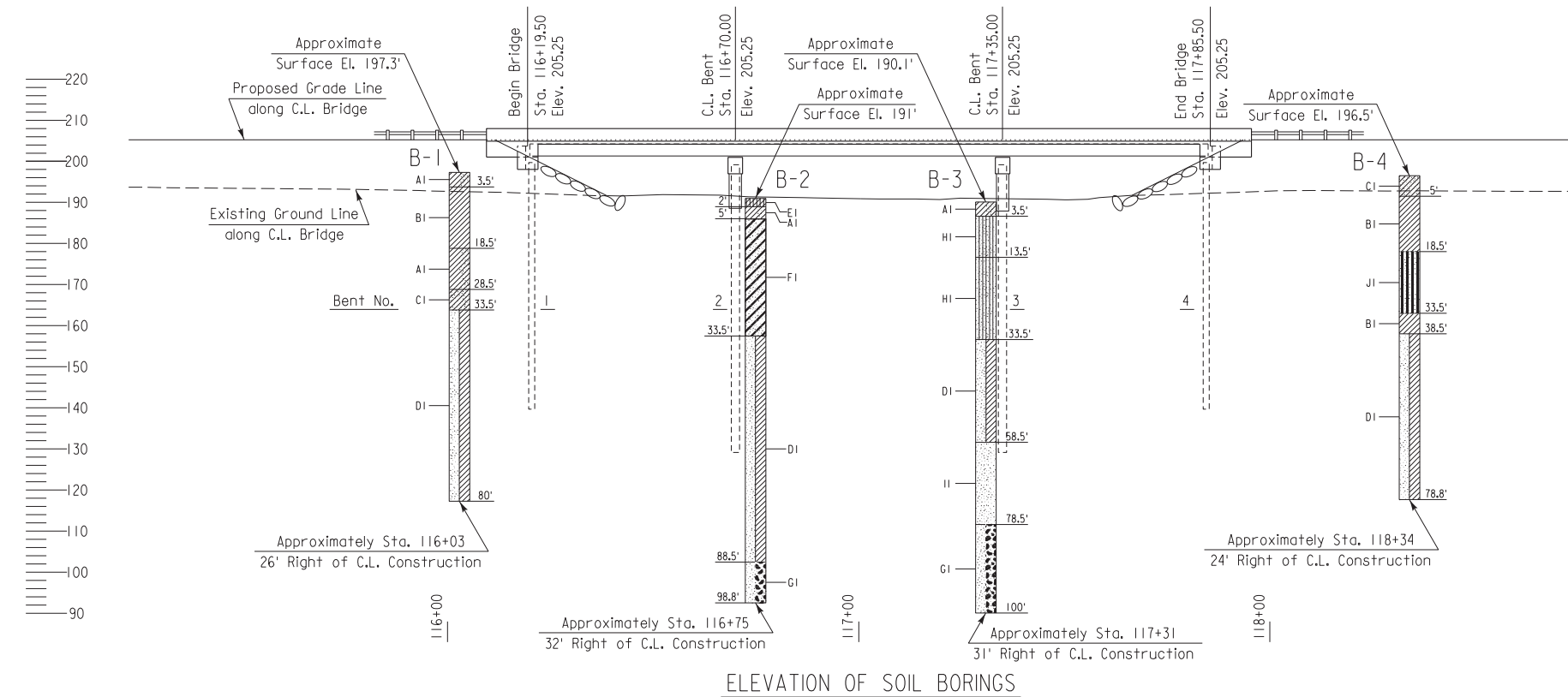


SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 86 OVER
WATTENSAW BAYOU RELIEF
HWY. 86 STRS. & APPRS. (S)
PRAIRIE COUNTY

ROUTE 86 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: B061614x1_11rev.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 1" = 20'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07584 DRAWING NO. 65219

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03/20/24		6	ARK.	061614	37	79
07584 - LAYOUT - 65220						



BORING LEGEND

- A1-Lean clay with sand
- B1-Lean clay
- C1-Sandy lean clay
- D1-Poorly-graded sand with clay
- E1-Silty clay
- F1-Clayey sand
- G1-Poorly-graded sand with gravel
- H1-silty sand
- I1-Poorly-graded sand
- J1-Sandy silt

"N" VALUES

B-1, Approximately Sta. 116+03 26' Right of C.L. Construction	B-2, Approximately Sta. 116+75 32' Right of C.L. Construction	B-3, Approximately Sta. 117+31 31' Right of C.L. Construction	B-4, Approximately Sta. 118+34 24' Right of C.L. Construction
0.5 - 2, N=18	0.5 - 2, N=9	0.5 - 2, N=7	0.5 - 2, N=17
2 - 3.5, N=11	2 - 3.5, N=22	2 - 3.5, N=18	2 - 3.5, N=8
3.5 - 5, N=4	3.5 - 5, N=24	3.5 - 5, N=20	3.5 - 5, N=5
5 - 6.5, N=4	5 - 6.5, N=36	5 - 6.5, N=56	5 - 6.5, N=4
8.5 - 10, N=12	8.5 - 10, N=28	8.5 - 10, N=36	8.5 - 10, N=16
13.5 - 15, N=10	13.5 - 15, N=16	13.5 - 15, N=20	13.5 - 15, N=13
18.5 - 20, N=15	18.5 - 20, N=17	18.5 - 20, N=15	18.5 - 20, N=14
23.5 - 25, N=10	23.5 - 25, N=12	23.5 - 25, N=9	23.5 - 25, N=3
28.5 - 30, N=17	28.5 - 30, N=5	28.5 - 30, N=15	28.5 - 30, N=24
33.5 - 35, N=20	33.5 - 35, N=46	33.5 - 35, N=26	33.5 - 35, N=4
38.5 - 40, N=33	38.5 - 40, N=33	38.5 - 40, N=27	38.5 - 40, N=28
43.5 - 45, N=30	43.5 - 45, N=51	43.5 - 45, N=26	43.5 - 45, N=16
48.5 - 50, N=30	48.5 - 50, N=58	48.5 - 50, N=20	48.5 - 50, N=37
58.5 - 60, N=49	58.5 - 60, N=48	58.5 - 60, N=44	58.5 - 60, N=34
68.5 - 70, N=40	68.5 - 70, N=41	68.5 - 70, N=53	68.5 - 70, N=60
78.5 - 80, N=23	78.5 - 80, N=47	98.5 - 100, N=48	

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on 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 (2020, 9th Edition)
 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2011, 2nd Edition with Interims thru 2015)

LIVE LOADING: HL-93

SEISMIC ZONE: B SDI= 0.272g Site Class = D

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:
 Class S (AE) Concrete (Superstructure) f'c = 4,000 psi
 Class S Concrete (Substructure) f'c = 3,500 psi
 Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60) fy = 60,000 psi
 Structural Steel (ASTM A709, Gr. 36) Fy = 36,000 psi
 Structural Steel (ASTM A709, Gr. 50W) Fy = 50,000 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 & 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 180 tons per pile. Piling in Bents 2 & 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 300 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. All piling in Bents 1 & 4 shall have a tip elevation of 137.0 or lower. All piling in Bents 2 & 3 shall have a tip elevation of 137.0 or lower. 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 (18" DIA.)" and "STEEL SHELL PILING (24" DIA.)"

PILE ENCASEMENT: Pile encasement for Bents 2 & 3 shall extend from bottom of cap to 3' below natural ground. See Standard Dwg. No. 55021 for additional information.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diameter of the pile for a depth of 10' below the bottom of the cap. The void space around the pile after completion of driving shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling, which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary 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 minimum ultimate bearing capacity for 18" piles shall be 70,000 foot pounds per blow and for 24" piles shall be 120,000 foot pounds per blow. 55,000 Δ 90,000 Δ

PIPE UNDERDRAIN: Install 4" diameter 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. 65225. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

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

ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted. Galvanized members, the expansion device, and surfaces in contact with concrete shall not be painted. The color of paint shall be Brown equal or close to Fed. Std. 595 B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete bridge rail in accordance with Section 803.

DETAIL DRAWINGS:
 End Bents 65221
 Intermediate Bents 65222
 165' Integral Continuous W-Beam Unit 65224-65229
 General Notes for Steel Bridges 55006
 Details for Steel Bridge Structures 55007
 Elastomeric Bearings 65223
 Concrete Filled Steel Shell Piling 55021
 Type F Approach Gutters 55030F
 Type Special Approach Slab 65229A
 Bridge Traffic Rail 55070

EXISTING BRIDGE: Existing Bridge No. M1582 (Log Mile 3.92) is 105.0' in length, 24' wide and consists of seven 15-foot timber girder interior spans. All spans are supported by timber caps on timber piling. The existing bridge is located an average distance of approximately 49' downstream of the new bridge alignment.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. M1582 shall be removed in accordance with Section 205. All material from the existing bridge shall become property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

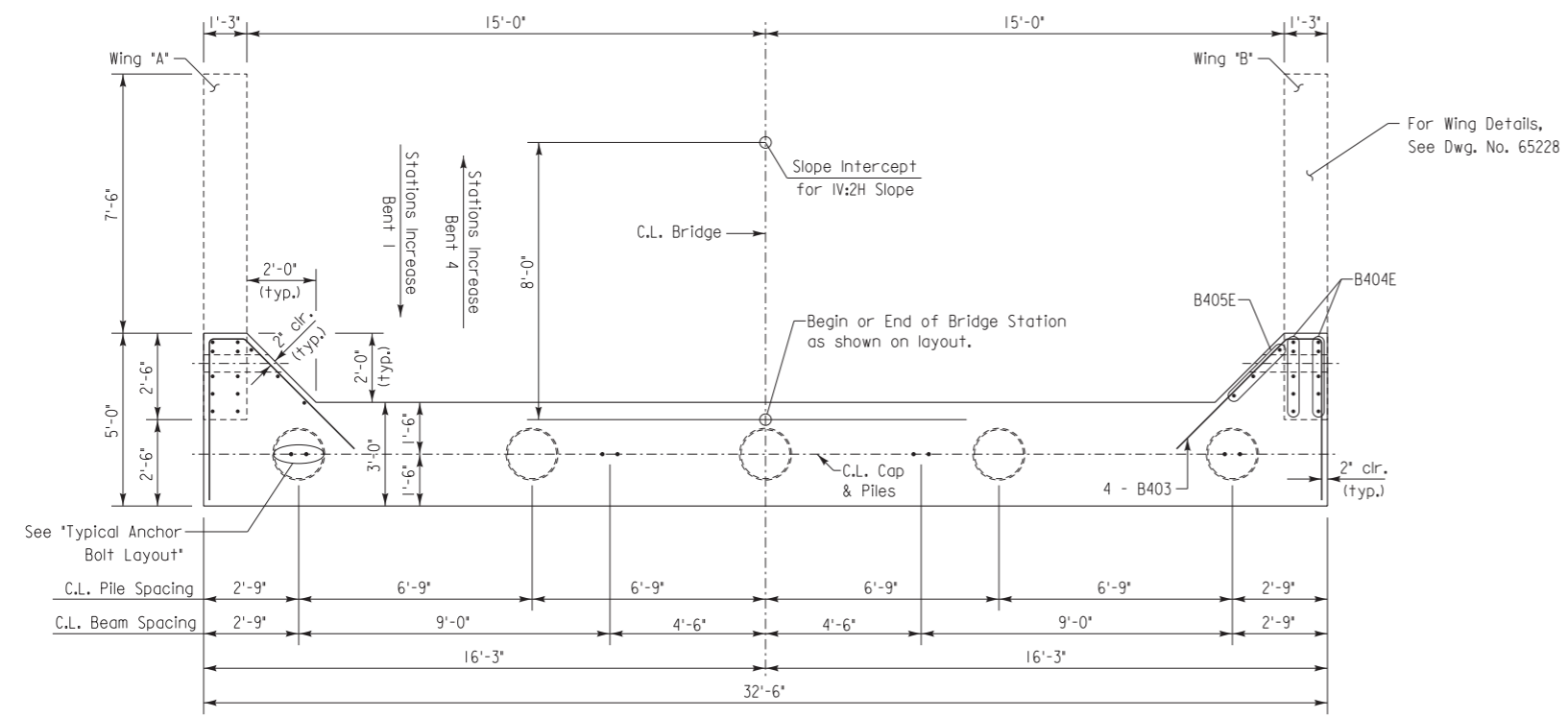
Δ Revised Minimum Rated Hammer Energy
 Made By: KJK Date: 03/20/24
 Ck'd By: CAR Date: 03/20/24



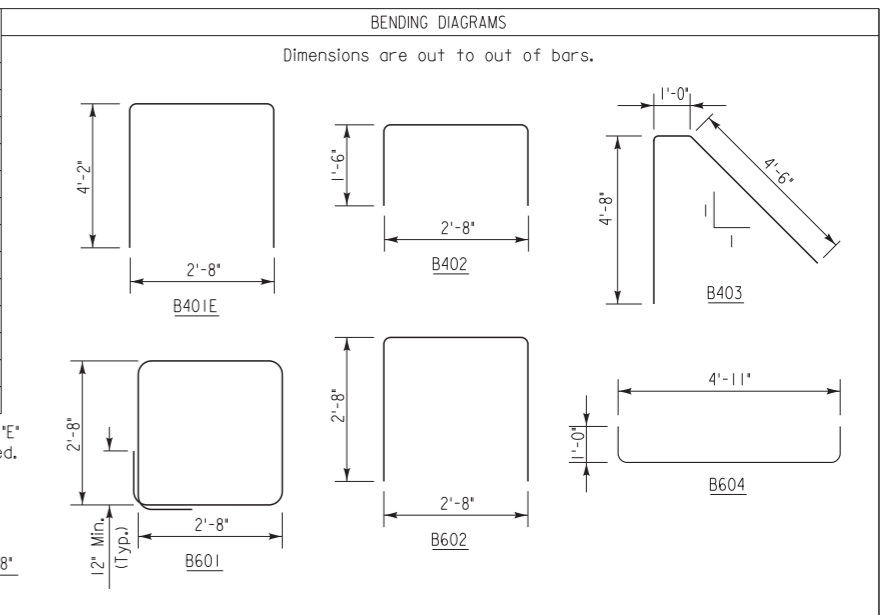
SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 86 OVER
WATTENSAW BAYOU RELIEF
HWY. 86 STRS. & APPRS. (S)
PRAIRIE COUNTY
 ROUTE 86 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_l2rev.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 1" = 20'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65220

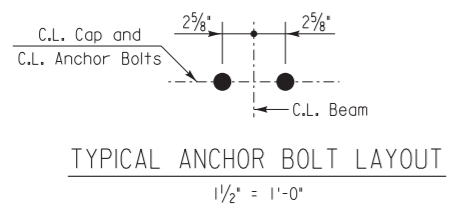
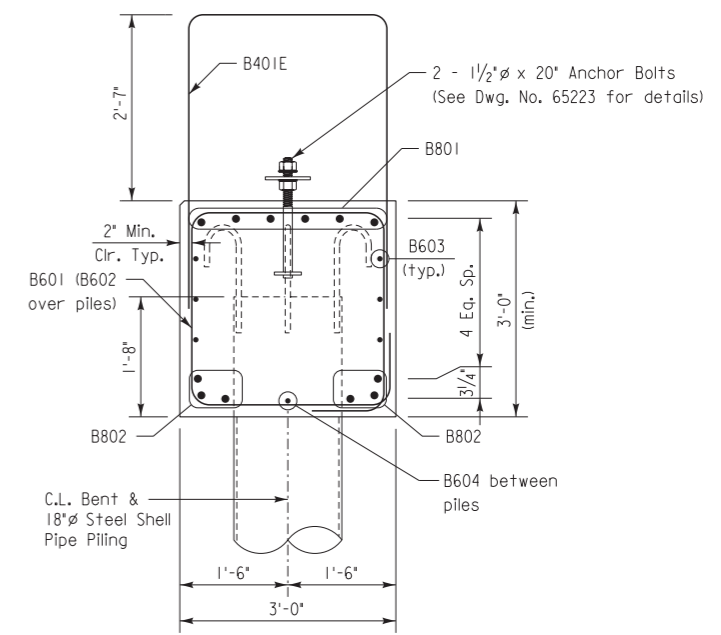
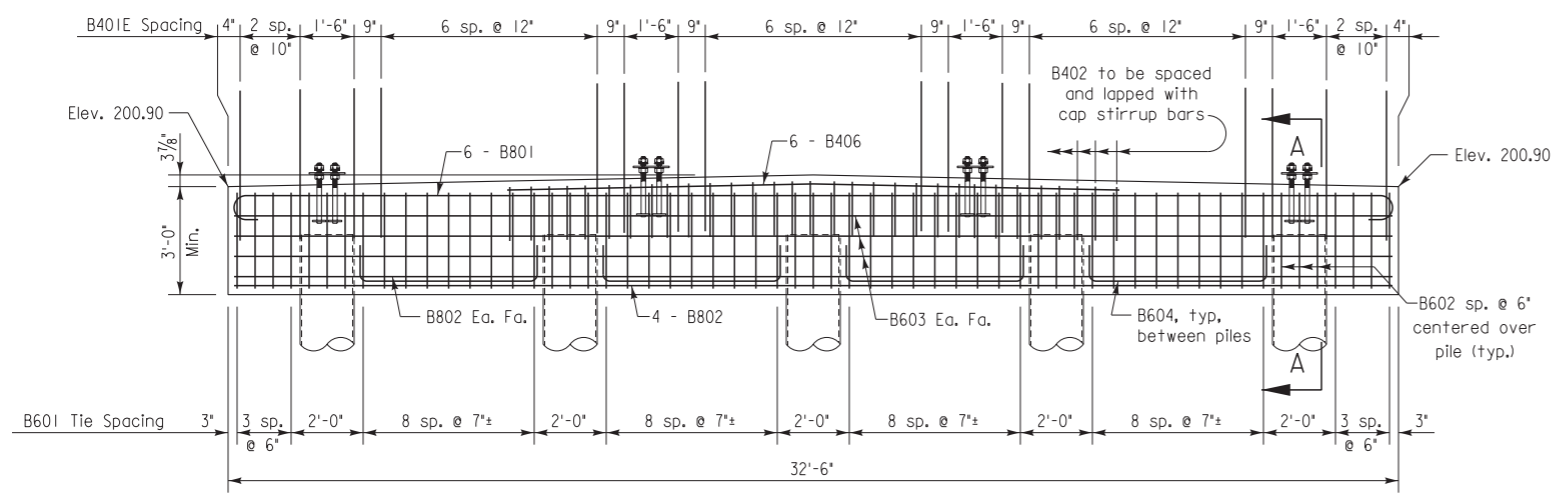
PRINT DATE: 3/27/2024



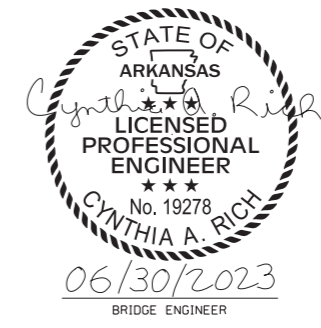
MARK	NO. REQ'D.	LENGTH	P.D.
B401E	33	10'-10"	2"
B402	31	5'-6"	2"
B403	8	10'-1"	2"
B404E	20	6'-8"	Str.
B405E	6	5'-2"	Str.
B406	6	17'-0"	Str.
B601	44	11'-11"	4 1/2"
B602	15	7'-8"	4 1/2"
B603	6	32'-2"	Str.
B604	4	6'-7"	4 1/2"
B801	6	34'-0"	6"
B802	6	32'-2"	Str.



① See Dwg. Nos. 65225 & 65228 for additional details.



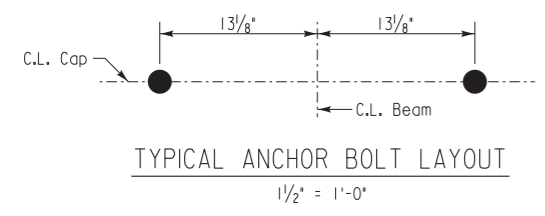
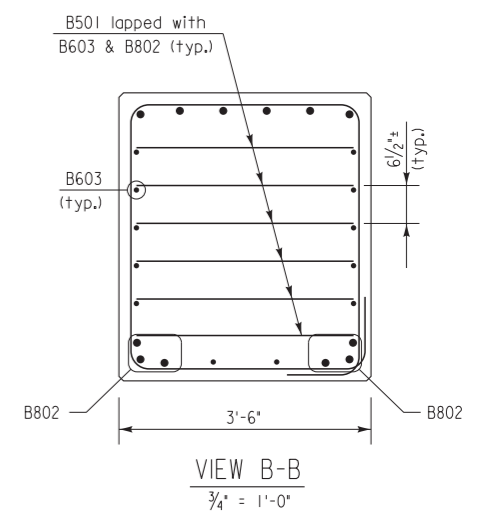
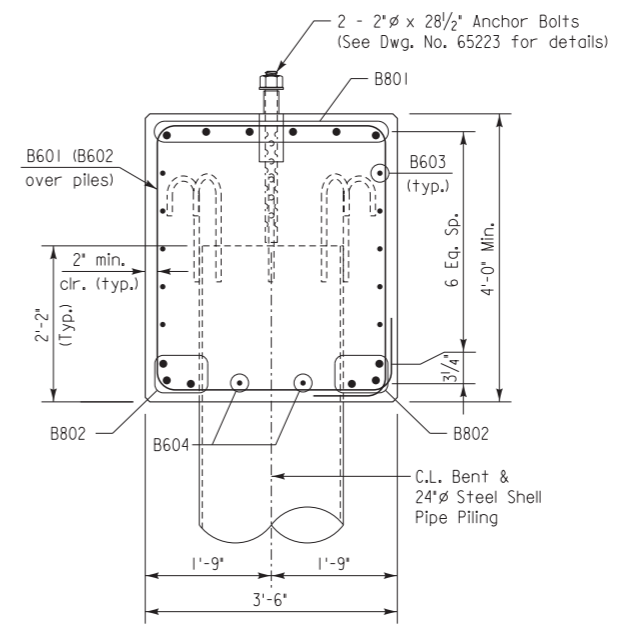
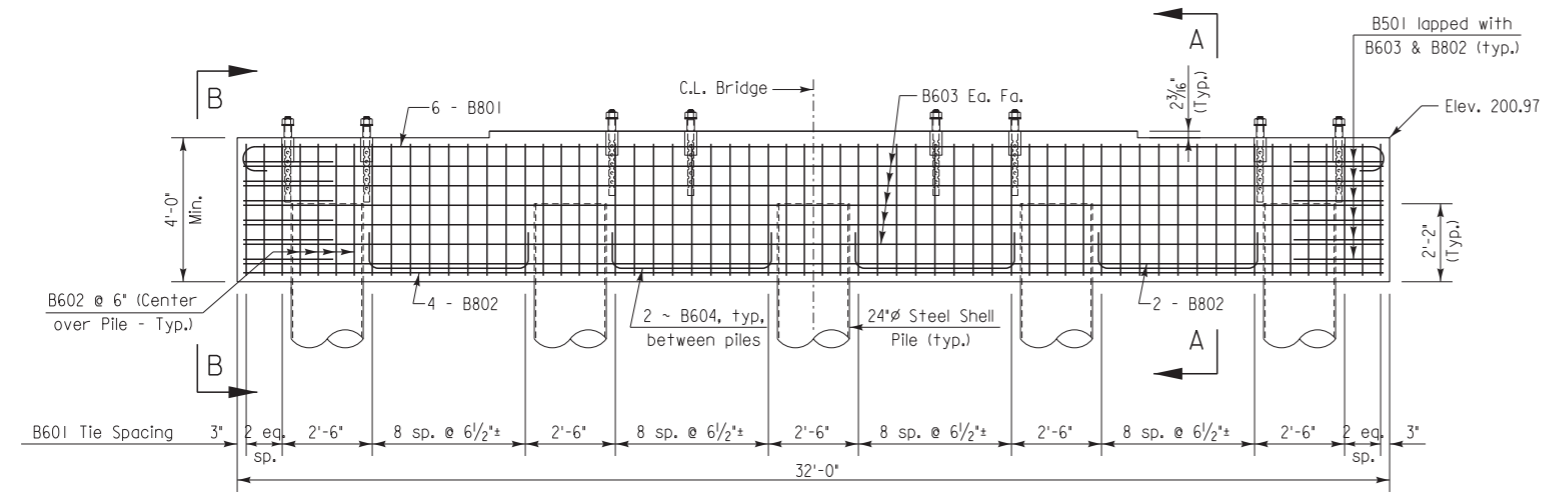
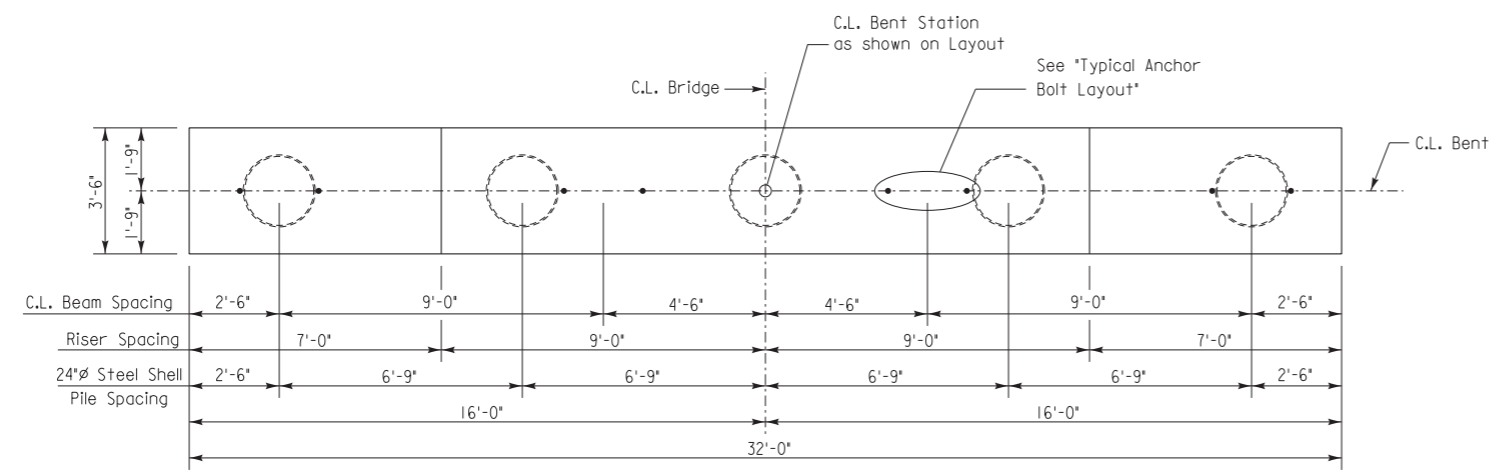
NOTES:
 For General Notes, see Std. Dwg. No. 55006.
 Bars B404E and B405E shall have a 2'-10" minimum embedment into the end bent cap.
 Granular Backfill and Pipe Underdrain required behind Cap. See Dwg. No. 65225.



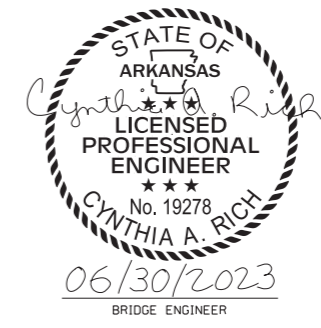
DETAILS OF END BENTS
 WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_a1.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65221

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS	
B501	10	7'-9 1/2"	2 1/2"	<p>Dimensions are out to out of bars.</p>	
B601	42	13'-11"	4 1/2"		
B602	20	9'-2"	4 1/2"		
B603	8	31'-8"	Str.		
B604	8	6'-2"	4 1/2"		
B801	6	33'-6"	6"		
B802	6	31'-8"	Str.		



NOTES:
 For General Notes, see Std. Dwg. No. 55006.
 For additional information, see Layout.



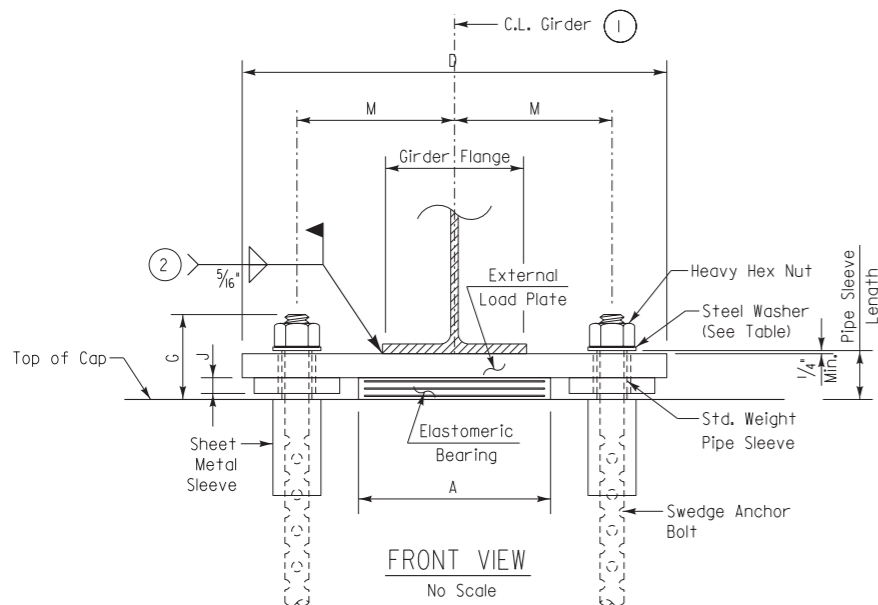
DETAILS OF INTERMEDIATE BENTS
WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
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 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65222

TABLE OF FABRICATOR VARIABLES

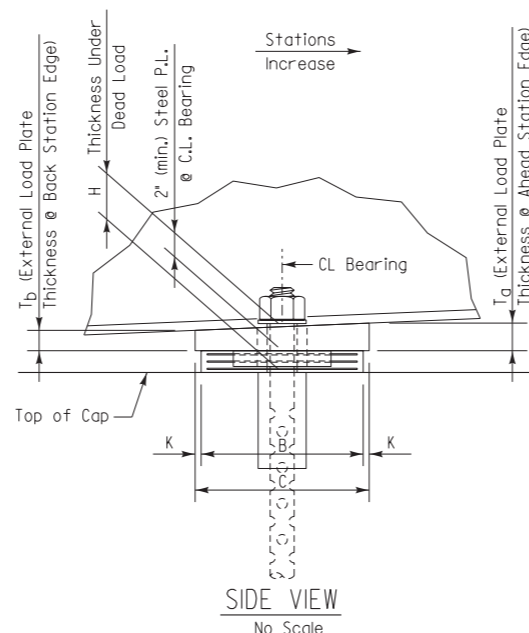
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	40	79
07584 - ELASTOMERIC BEARINGS - 65223						

Location		Bearing Type	No. Of Bearings Each Bent	① Maximum Design Load (Kips)	Elastomeric Pad										External Load Plate						Anchor Bolt						
Bent No.	Beam No.				G	H	A	B	N	t _i	t _e	No. & Thickness Of Steel Laminæ	T	C	D	E	F	J	K	M	T _a	T _b	Anchor Bolt (Dia. x L)	Grade	Pipe Sleeve Size (Dia. x L)	Sheet Metal Sleeve Size (Dia. x L)	Steel Washer Size (O.D.)
2 & 3	All	Fix	4	212	7 1/16"	3 13/16"	16"	13 1/2"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	14 1/2"	35 3/8"	3 1/8"	3 1/8"	1 5/16"	1/2"	13 1/8"	2'	2'	2" x 28 1/2"	55	2 1/2" x 4 1/8"	4" x 8"	3 3/4"

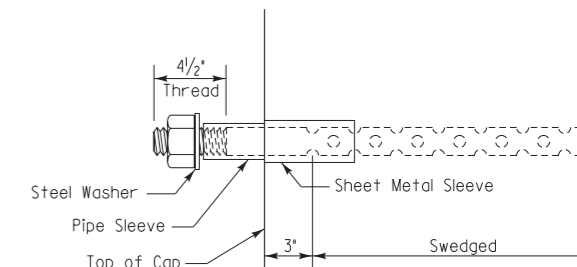
① Maximum Design Load = Service I Limit State



① C.L. Elastomeric Pad shall be aligned with C.L. Girder or Beam.



The direction of the bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in the 'Table of Fabricator Variables'.



NOTE:

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item 'Structural Steel in Plate Girder Spans (A709, Gr. 50W)'.

GENERAL NOTES:

Elastomeric bearings shall conform to Section 808 and shall be paid for at the unit price bid for 'Elastomeric Bearings'.

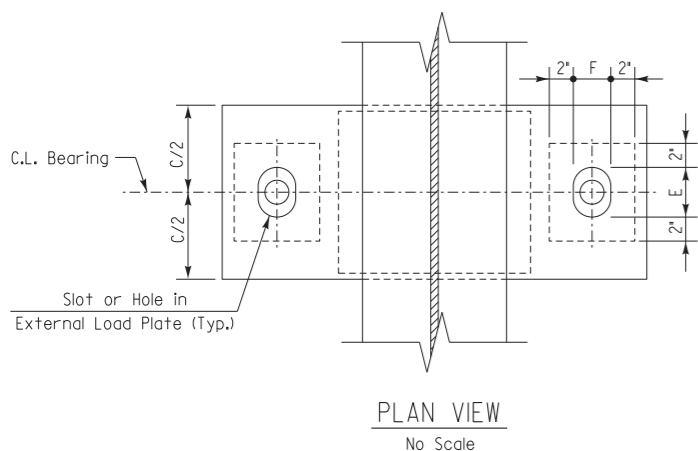
External load plates shall conform to ASTM 709. Pipe sleeves shall be ASTM A 500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B 695, Class 50.

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

Anchor bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the 'Table of Fabricator Variables'. Indentations circular with rounded bottoms and staggered as shown in the details.

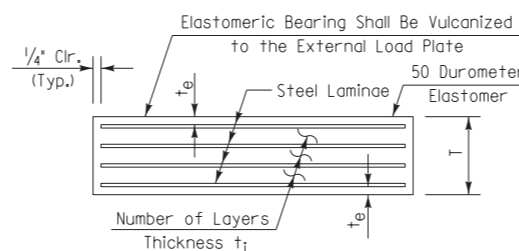
Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for 'Structural Steel in Beam Spans (A709, Gr. 50W)' or 'Structural Steel in Plate Girder Spans (A709, Gr. 50W)'. External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for 'Elastomeric Bearings'.

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item 'Elastomeric Bearings' and will not be paid for directly.



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

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



t_i = thickness of elastomer between steel laminæ
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness

ELASTOMERIC BEARING

No Scale



DETAILS OF ELASTOMERIC BEARINGS
WATTENSAW BAYOU RELIEF

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

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_e1.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 1" = 1'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07584 DRAWING NO. 65223

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	41	79
07584 - SPAN DETAILS - 65224						

Slab Reinforcing:

Longitudinal: S401E in top and bottom (place as shown)
 S601E placed as shown over interior supports,
 S602E placed as shown over end supports, see
 "Reinforcing Plan & Pouring Sequence" Dwg. No. 65227

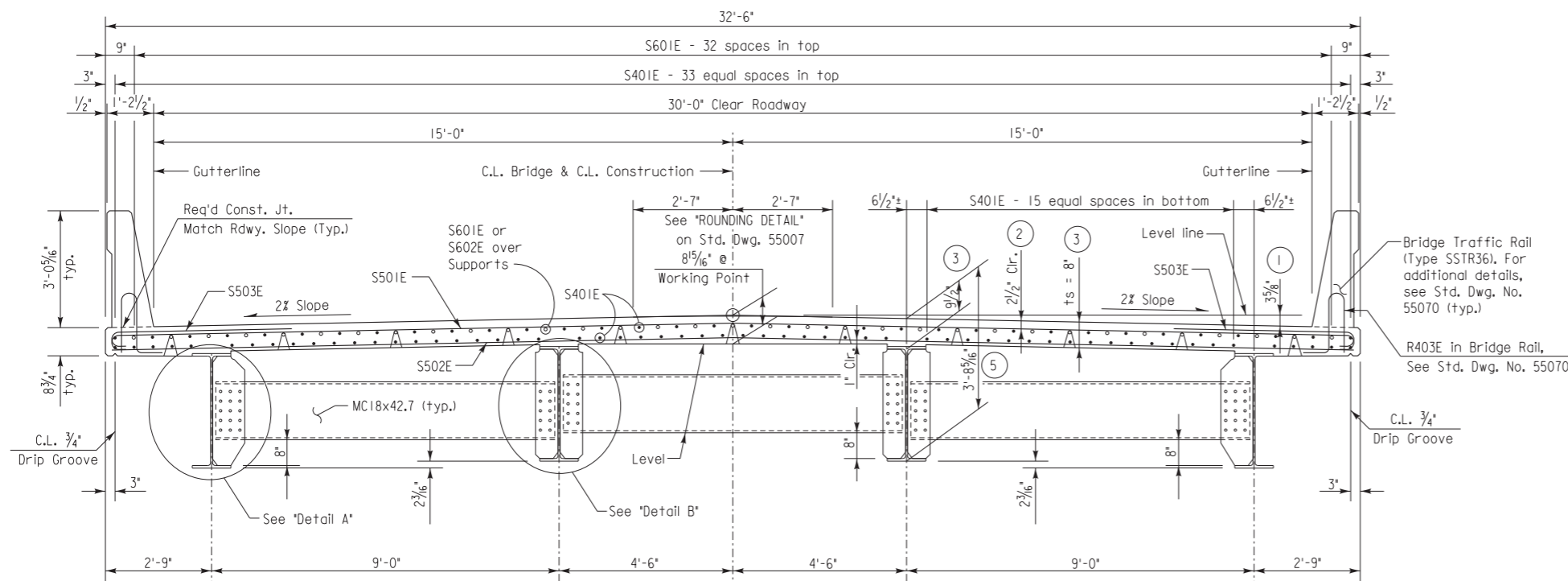
Transverse: S501E @ 6" o.c. in top, S502E @ 6" o.c. in bottom
 S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

- ① Working point to gutterline.
- ② Tolerance: Minus = 1/4"; Plus = to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENTS FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.
- ③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.
- ④ See "WELD TABLE" on Std. Dwg. No. 55007 for minimum weld sizes.
- ⑤ Dimension at Centerline Bearing & Centerline Girder.

NOTES:

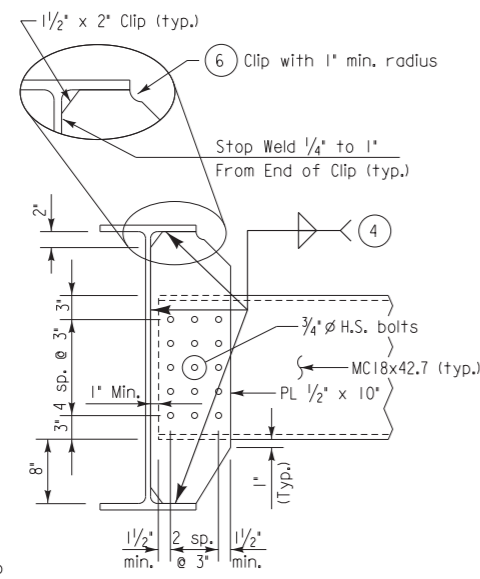
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Bridge Rail.

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

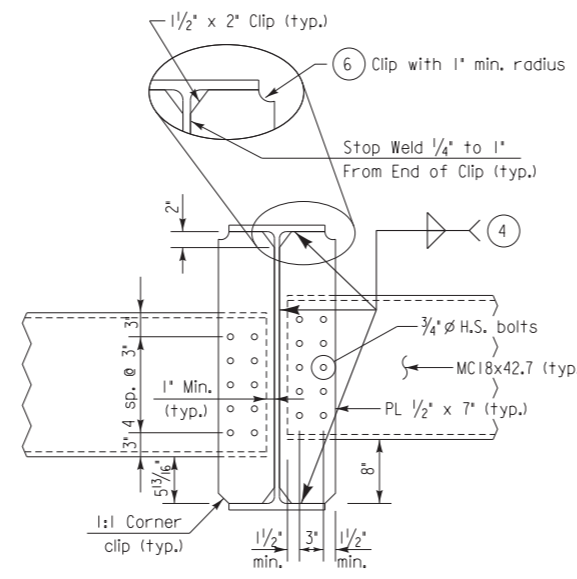


TYPICAL ROADWAY SECTION

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

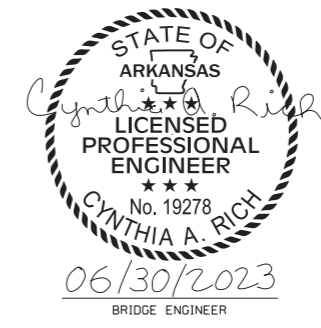


DETAIL A
 1" = 1'-0"



DETAIL B
 1" = 1'-0"

- ⑥ If permanent steel bridge deck forms are used, the fabricator shall clip plate as necessary to accommodate the deck form supports.



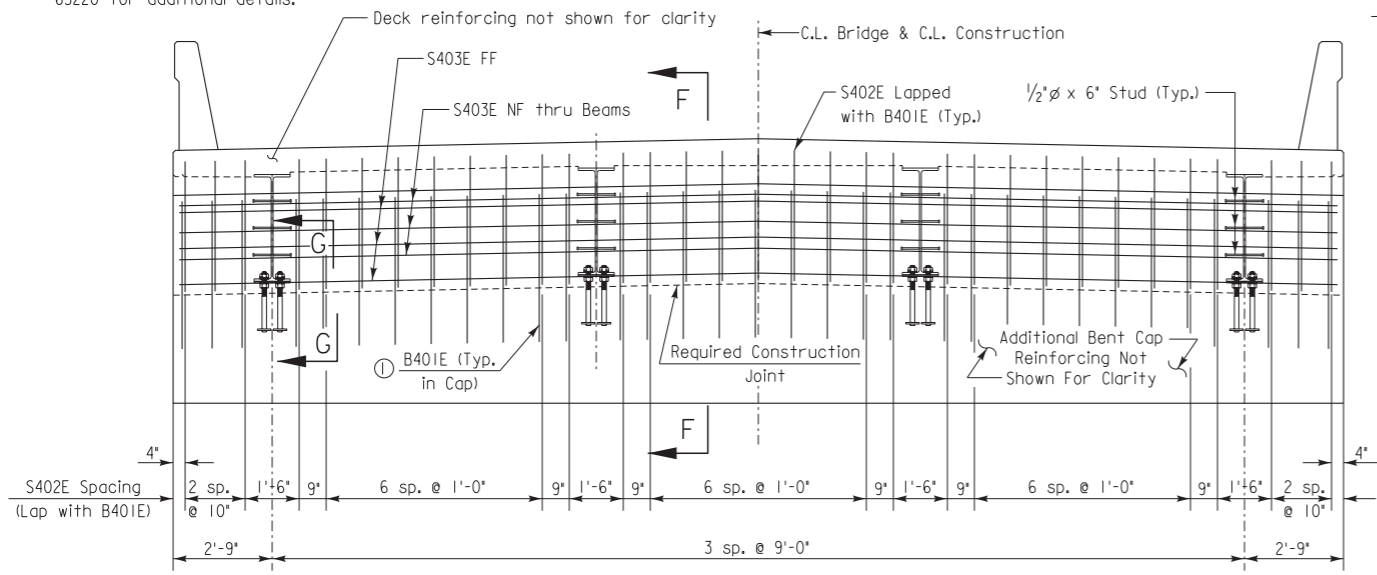
SHEET 1 OF 6
DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s1.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 1/2" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65224

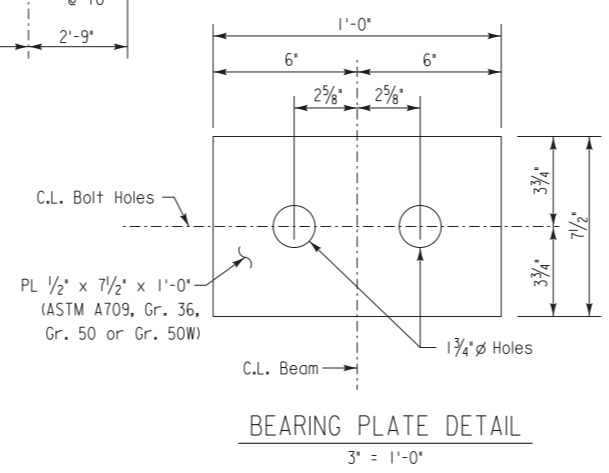
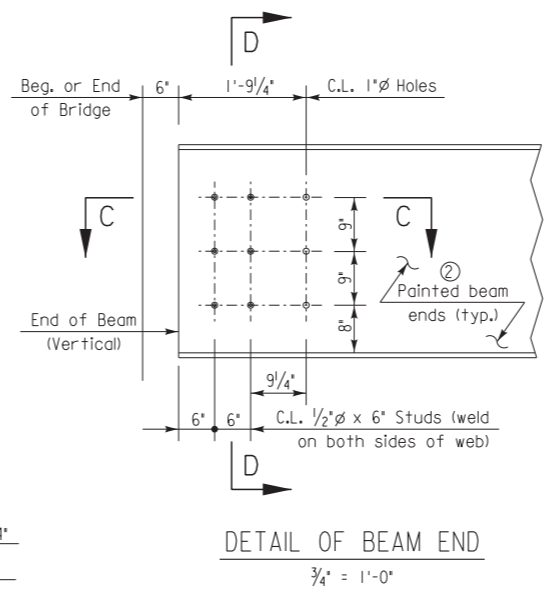
PRINT DATE: 7/24/2023

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	42	79
07584 - SPAN DETAILS - 65225						

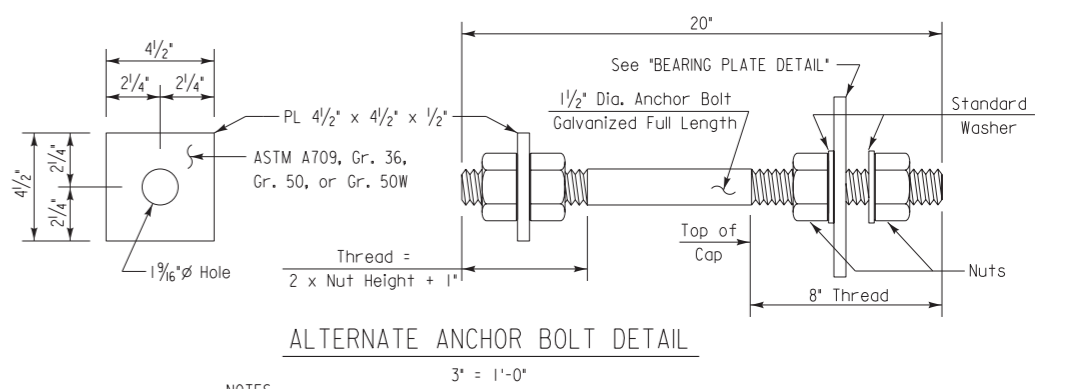
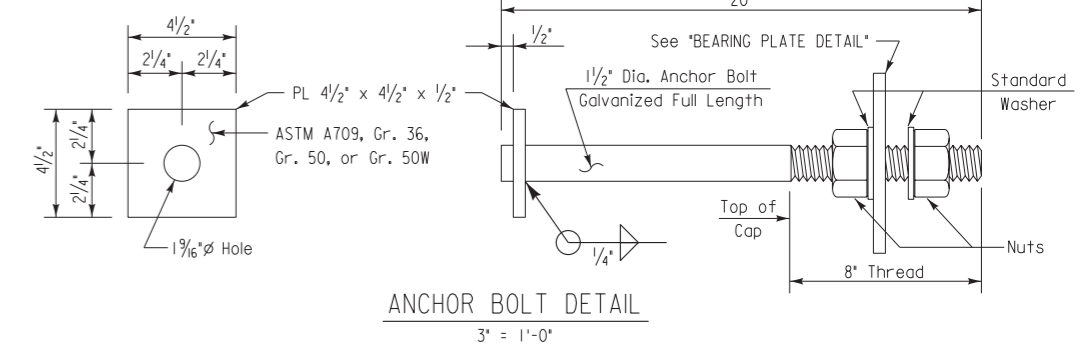
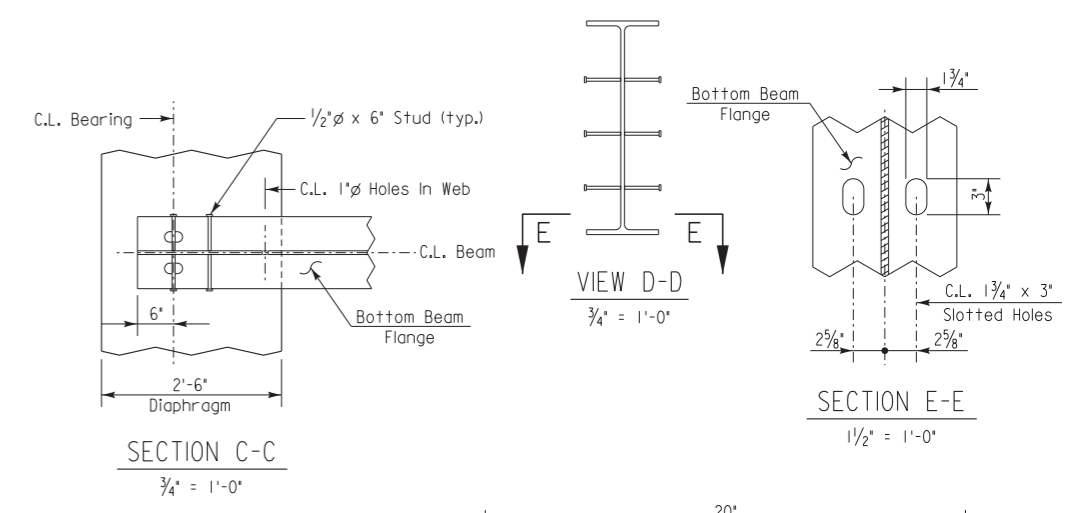
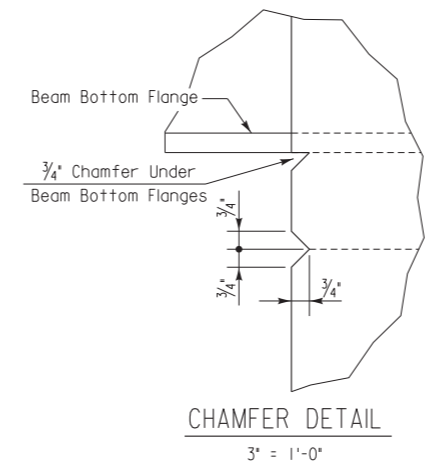
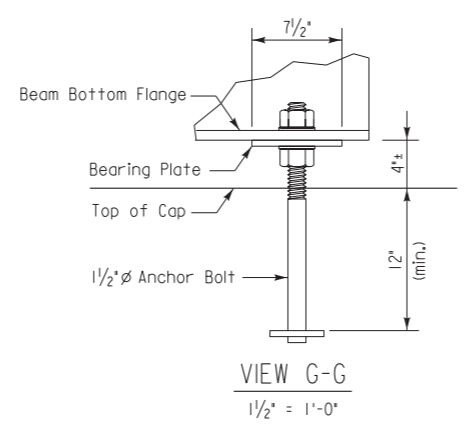
- ① See End Bent Details on Dwg. No. 65221 for reinforcing and additional details.
- ② See BRIDGE PAINTING note on Dwg. No. 65220 for additional details.



TYPICAL ROADWAY SECTION NEAR END OF SPAN
Looking Back - Bent 1
Looking Ahead - Bent 4
3/8\"/>



Note: See End Bent Details on Dwg. No. 65221 for additional information.



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

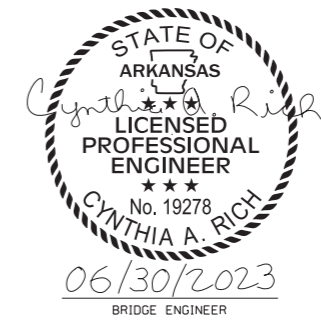
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Plates, bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (A709, Gr. 50W)".

LEGEND
NF = Near Face
FF = Far Face
U.N.O. = Unless Noted Otherwise

SECTION F-F
1\"/>

SHEET 2 OF 6
DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU RELIEF
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

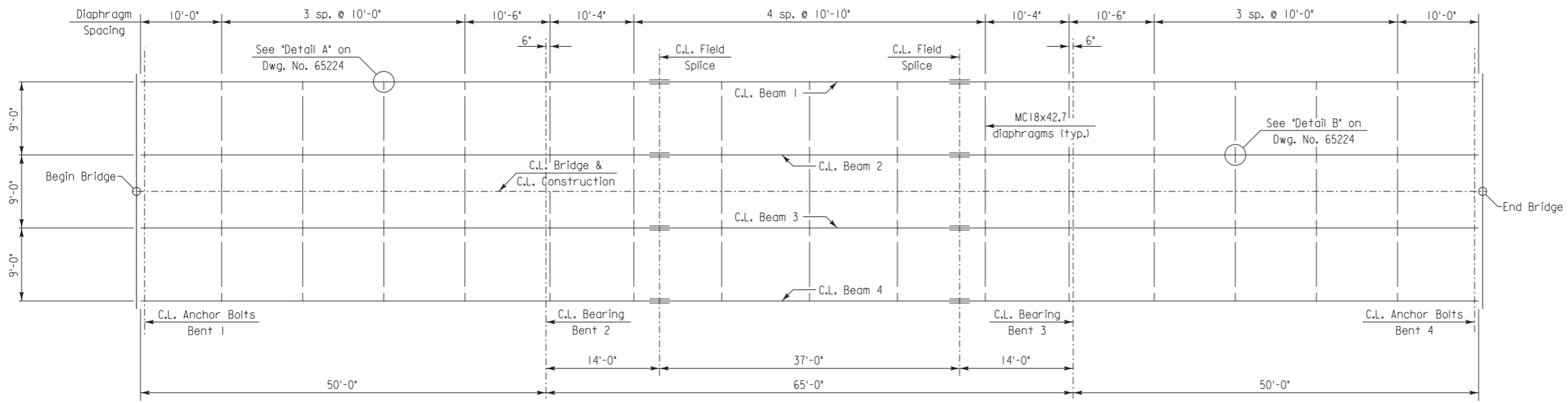


DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s2.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8\"/>

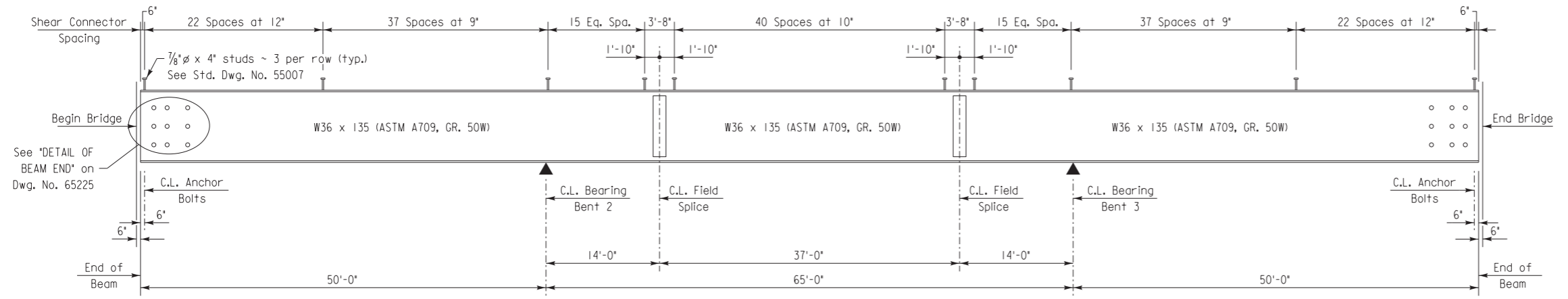
PRINT DATE: 7/24/2023

NOTE:
 Bolted field splices may either be eliminated or shop welded splices may be substituted with the approval of the engineer. Payment will be made on the basis of plan quantities.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	43	79
07584 - SPAN DETAILS - 65226						

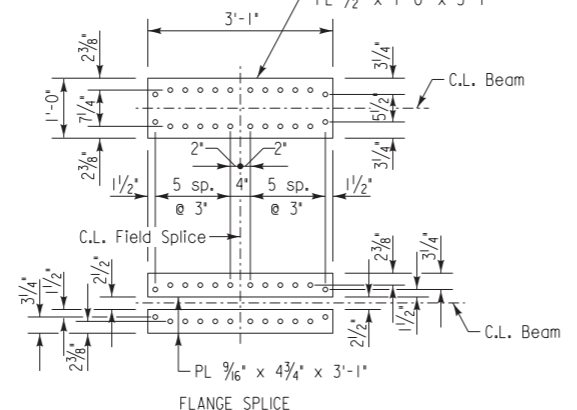
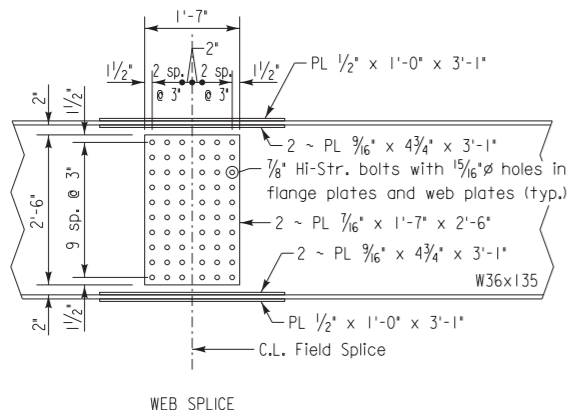


FRAMING PLAN
 $\frac{1}{8}" = 1'-0"$

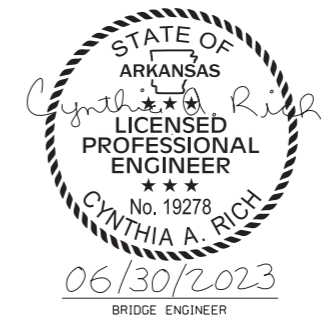


TYPICAL BEAM ELEVATION
 No Scale

NOTES:
 All Structural Steel shall be ASTM A709, Gr. 50W unless otherwise noted, and shall be pail for as "Structural Steel in Beam Spans (A709, Gr. 50W)."
 See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.
 For additional information, see Layout.



DETAILS OF FIELD SPLICE
 No Scale



SHEET 3 OF 6
 DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
 WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s3.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 1/8" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65226

PRINT DATE: 7/24/2023

NOTES:
 Required slab joints and pouring sequence construction joints shall align with rail open joints at the gutterline, unless noted otherwise.

For "GENERAL NOTES", see Std. Dwg. No. 55006.

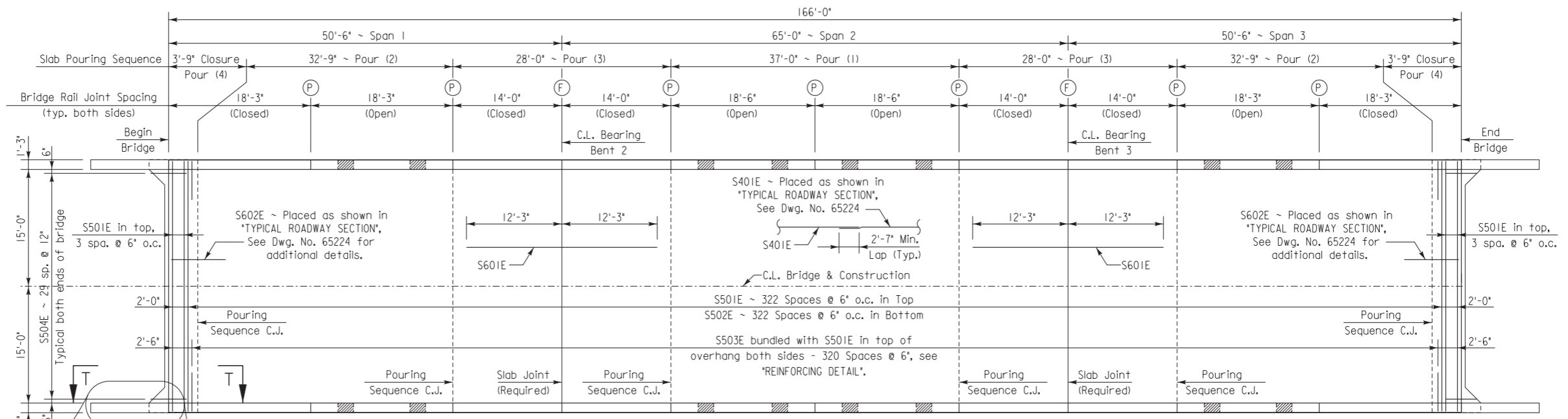
For rail reinforcing details of Partial-Depth and Full-Depth Rail Joints, see Std. Dwg. No. 55070.

For "BAR LIST" and "BAR BENDING DIAGRAMS", see Dwg. No. 65229.

For VIEW T-T and VIEW U-U, see Dwg. No. 65228.

(P) Partial-Depth Rail Joint at this location (Stop 16" from top of slab)

(F) Full-Depth Rail Joint at this location (Stop 6" from top of slab)



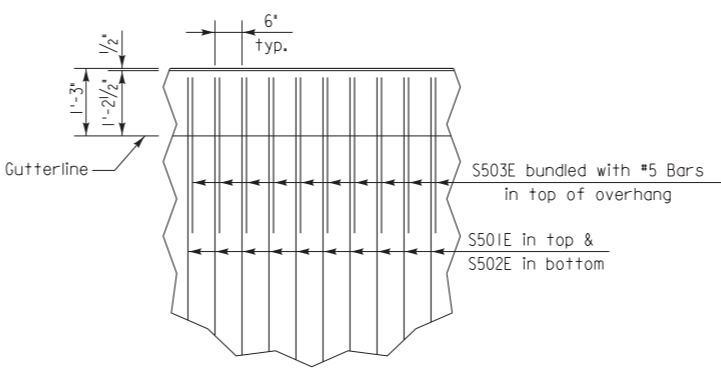
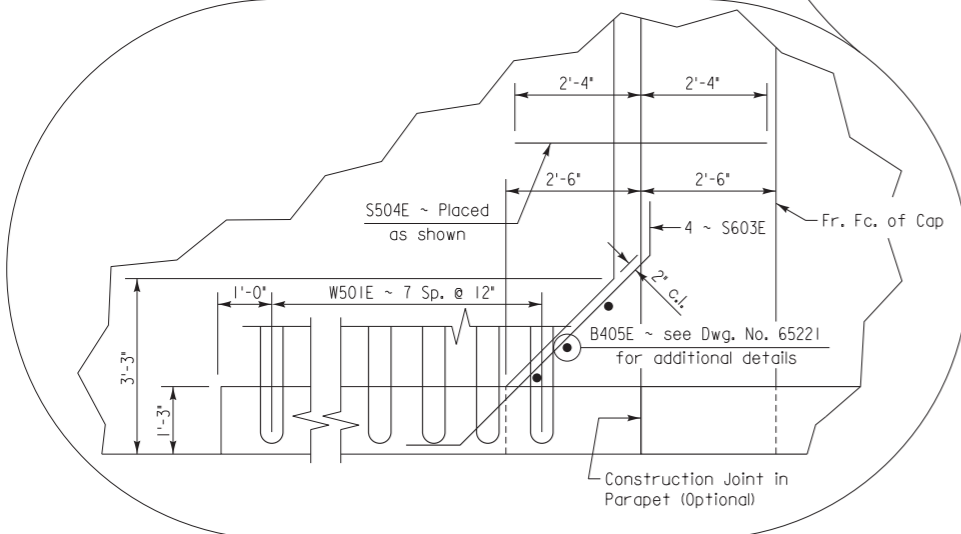
REINFORCING PLAN & SLAB POURING SEQUENCE
 $\frac{1}{8}'' = 1'-0''$

SLAB POURING SEQUENCE NOTES:

Pours with the same number may be placed simultaneously or separately. Pour (1) must be placed before Pours (2), all Pours (2) must be placed before Pours (3) can be placed and all Pours (3) must be placed before Pours (4) 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. NO DEVIATIONS FROM THE POURING SEQUENCE(S) SHOWN WILL BE ALLOWED.



REINFORCING DETAIL
 NO SCALE

TABLE OF VARIABLES								
CLOSED RAIL PANELS				OPEN RAIL PANELS				
PANEL LENGTH	A	R4XXE	PANEL LENGTH	B	C	D	E	R4XXE
18'-3"	36	R405E	18'-3"	9	3'-6"	14	7'-3"	R405E
14'-0"	27	R406E	18'-6"	9	3'-6"	14	7'-6"	R407E

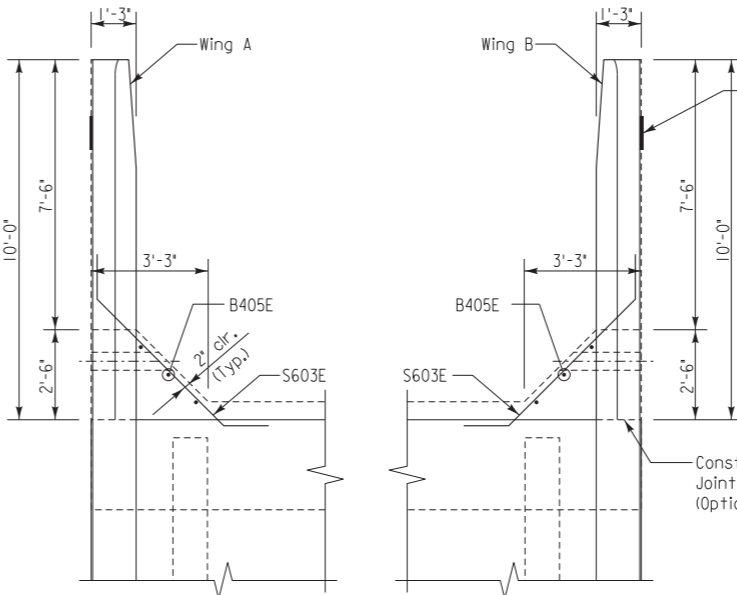
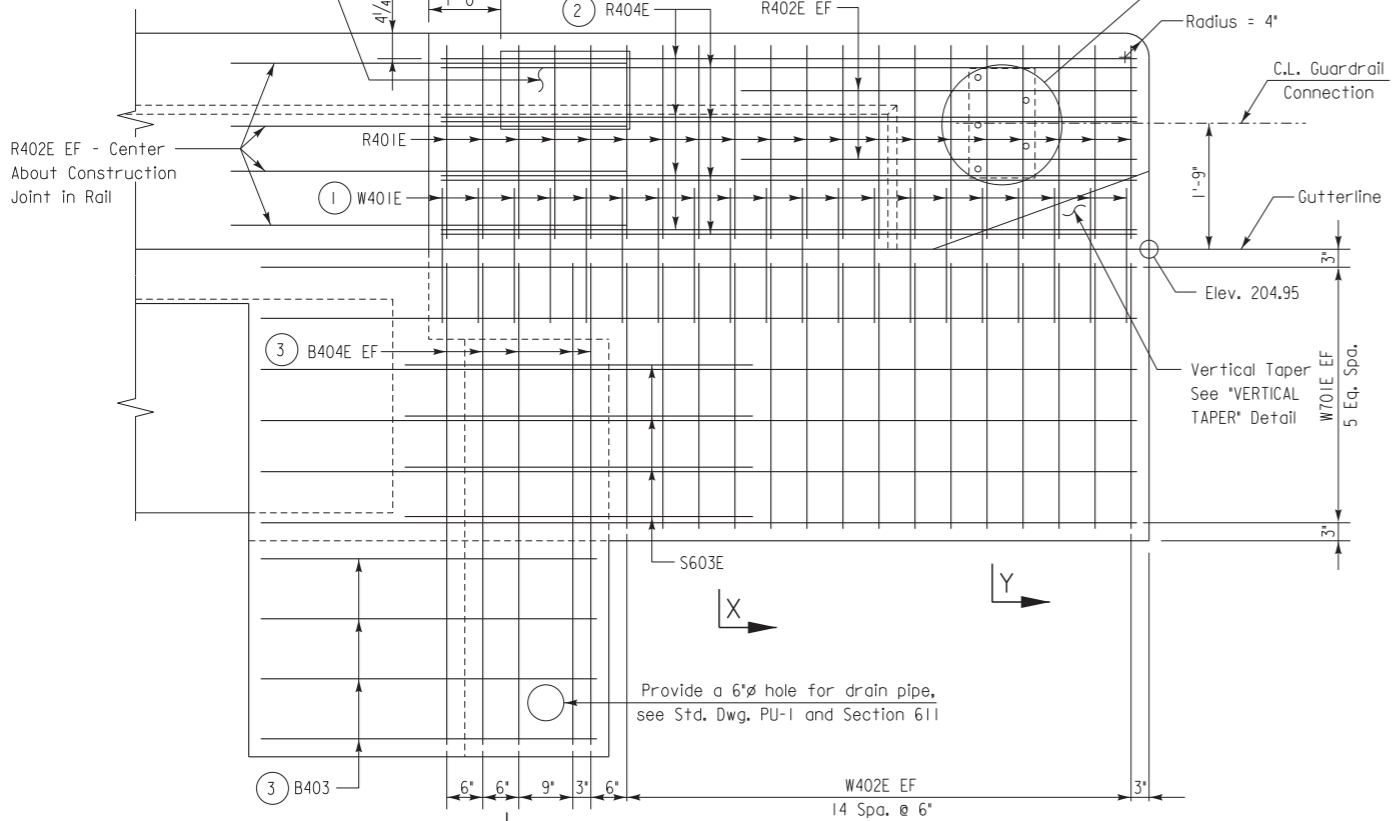


SHEET 4 OF 6
DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s4.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: $\frac{1}{8}'' = 1'-0''$
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65227

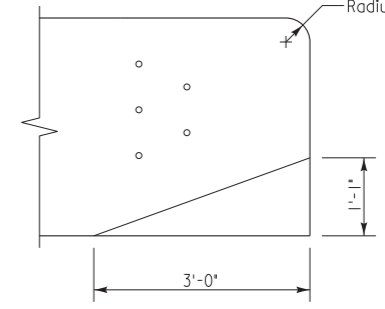
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	45	79
07584 - SPAN DETAILS - 65228						

Place Type D Bridge Name Plate on right end bent wing rail approximately 1'-0" from optional construction joint. (beginning of bridge only)

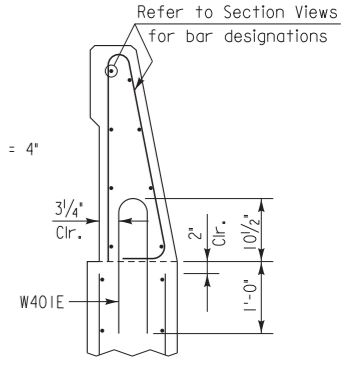
5 - 1"Ø formed holes for guardrail connection, See Std. Dwgs. GR-10 & GR-12 for bolt spacing and additional connection details,



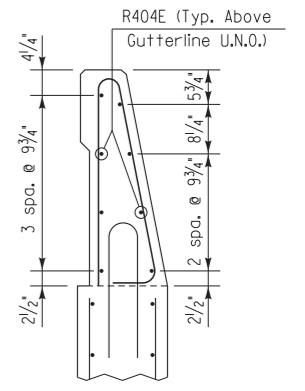
Connector Plate. See Std. Dwgs. GR-10 & GR-12 (Typ.)



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

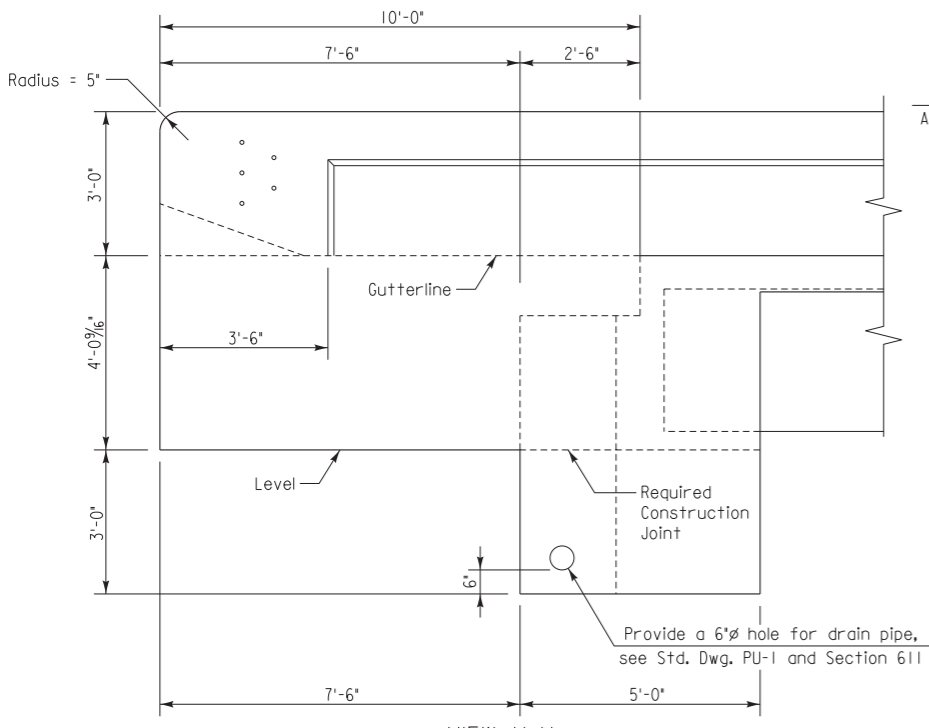


DETAIL A
Scale: 3/4" = 1'-0"

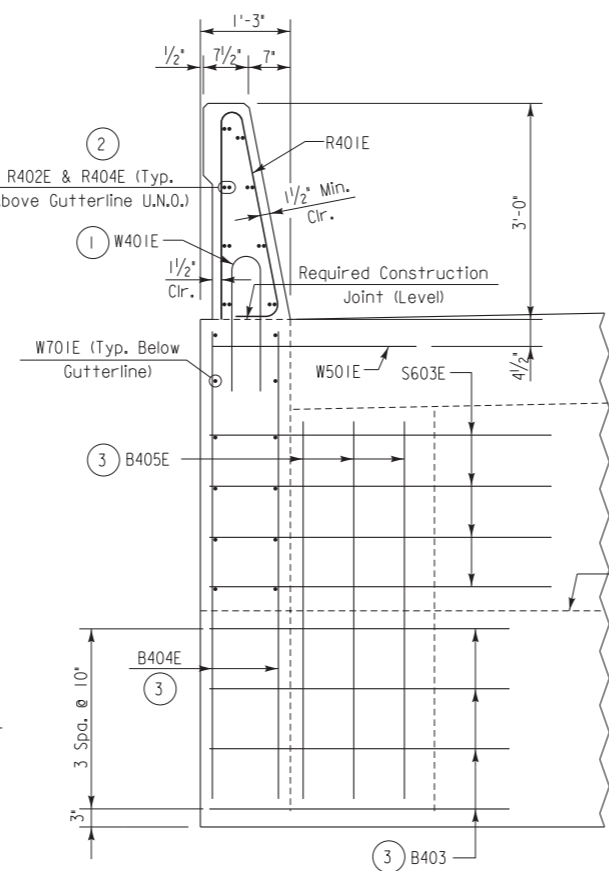


DETAIL B
Scale: 3/4" = 1'-0"

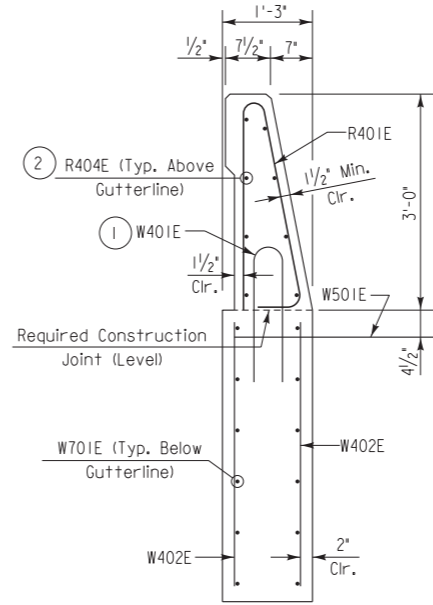
SECTION T-T
Scale: 3/4" = 1'-0"



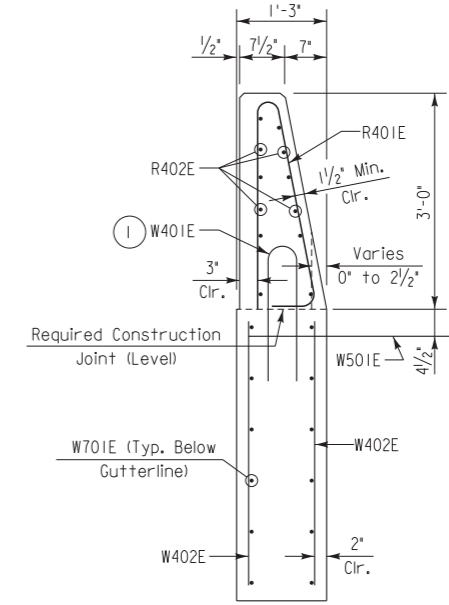
VIEW U-U
Scale: 1/2" = 1'-0"



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

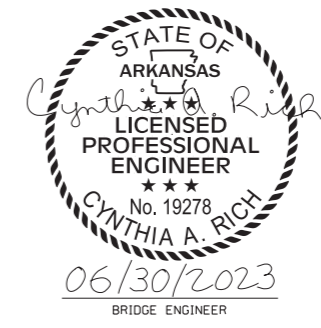


SECTION X-X
Scale: 3/4" = 1'-0"



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

- 1 See "DETAIL A" for placement of Bars W401E.
- 2 See "DETAIL B" for placement of Bars W404E.
- 3 See end bent details on Dwg. No. 65221 for reinforcing and additional details.

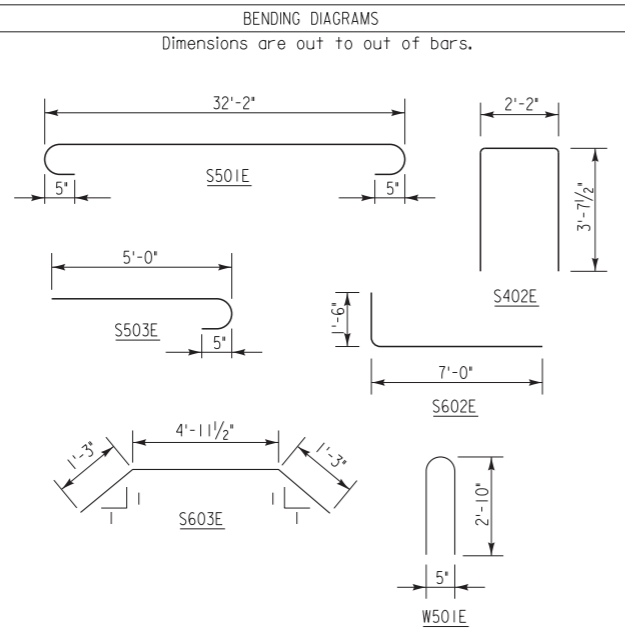


SHEET 5 OF 6
DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s5.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/4" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65228

PRINT DATE: 7/24/2023

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	460	35'-3"	Str.
S402E	66	9'-3"	2'
S403E	12	32'-2"	Str.
S501E	331	33'-4"	3 3/4"
S502E	323	32'-2"	Str.
S503E	642	5'-7"	3 3/4"
S504E	60	4'-8"	Str.
S601E	66	24'-6"	Str.
S602E	66	8'-4"	4 1/2"
S603E	16	7'-5 1/2"	4 1/2"
R400E	64	5'-3"	2 1/2"
R401E	660	5'-11"	2 1/2"
R402E	88	5'-6"	Str.
R403E	652	3'-6"	3 3/4"
R404E	32	9'-8"	Str.
R405E	64	17'-11"	Str.
R406E	64	13'-8"	Str.
R407E	32	18'-2"	Str.
W401E	80	3'-11"	3 3/4"
W402E	120	3'-8"	Str.
W501E	32	5'-10"	3 3/4"
W701E	48	12'-2"	Str.



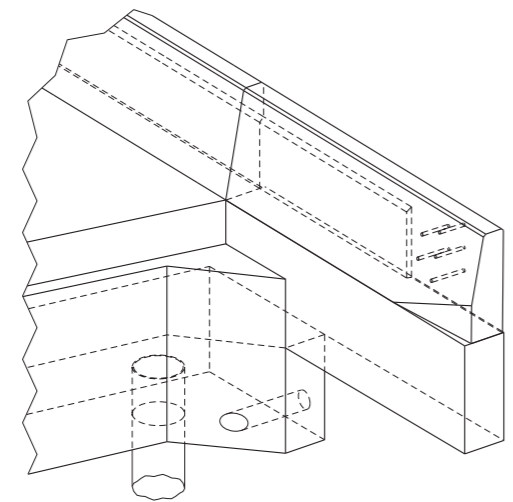
NOTE:
Camber for dead load deflection plus vertical curve 1/4" tolerance.
Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Anchor Bolts to C.L. Anchor Bolts.
Negative sign (-) indicates point above plane.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

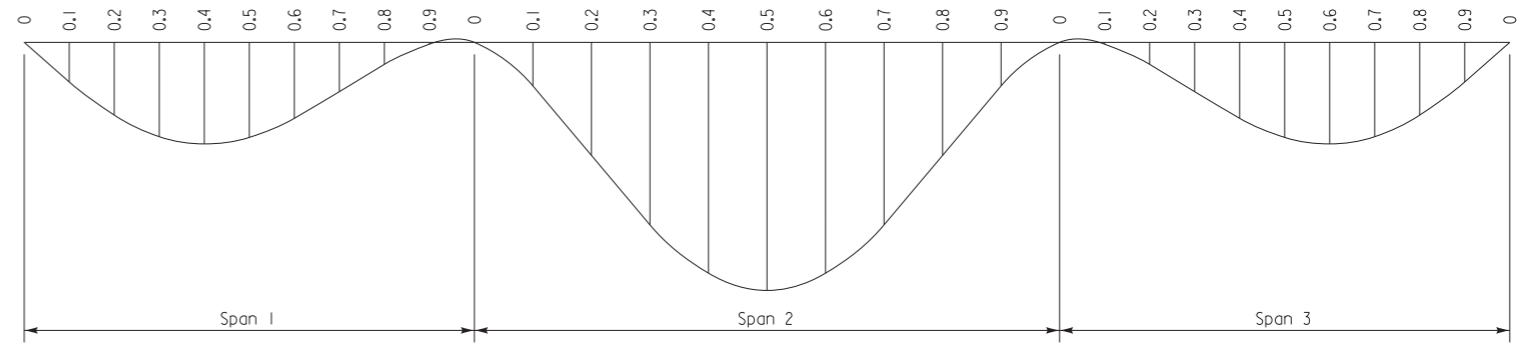
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.014	0.015	0.080	0.103	0.088	0.110
	0.2	0.024	0.027	0.146	0.188	0.160	0.202
	0.3	0.032	0.036	0.188	0.244	0.207	0.262
	0.4	0.035	0.039	0.204	0.263	0.224	0.282
	0.5	0.033	0.038	0.189	0.246	0.208	0.264
	0.6	0.028	0.031	0.153	0.196	0.169	0.211
	0.7	0.019	0.021	0.099	0.127	0.110	0.137
	0.8	0.009	0.011	0.042	0.056	0.047	0.061
	0.9	0.001	0.002	0.002	0.004	0.003	0.005
2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.011	0.012	0.087	0.115	0.094	0.121
	0.2	0.029	0.032	0.226	0.297	0.244	0.314
	0.3	0.048	0.053	0.365	0.480	0.394	0.507
	0.4	0.061	0.067	0.462	0.606	0.499	0.641
	0.5	0.066	0.073	0.497	0.652	0.537	0.689
	0.6	0.061	0.067	0.462	0.606	0.499	0.641
	0.7	0.048	0.053	0.365	0.480	0.394	0.507
	0.8	0.029	0.032	0.226	0.297	0.244	0.314
	0.9	0.011	0.012	0.087	0.115	0.094	0.121
3	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.001	0.002	0.002	0.004	0.003	0.005
	0.2	0.009	0.011	0.042	0.056	0.047	0.061
	0.3	0.019	0.021	0.099	0.127	0.110	0.137
	0.4	0.028	0.031	0.153	0.196	0.169	0.211
	0.5	0.033	0.038	0.189	0.246	0.208	0.264
	0.6	0.035	0.039	0.204	0.263	0.224	0.282
	0.7	0.032	0.036	0.188	0.244	0.207	0.262
	0.8	0.024	0.027	0.146	0.188	0.160	0.202
	0.9	0.014	0.015	0.080	0.103	0.088	0.110
0	0.000	0.000	0.000	0.000	0.000	0.000	

NOTE: Bars designated with an 'E' suffix to be Epoxy coated.

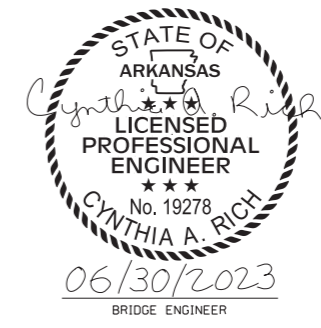
① For additional details and bending diagrams of reinforcing bars in Bridge Traffic Rail and Wings, see Std. Dwg. No. 55070.



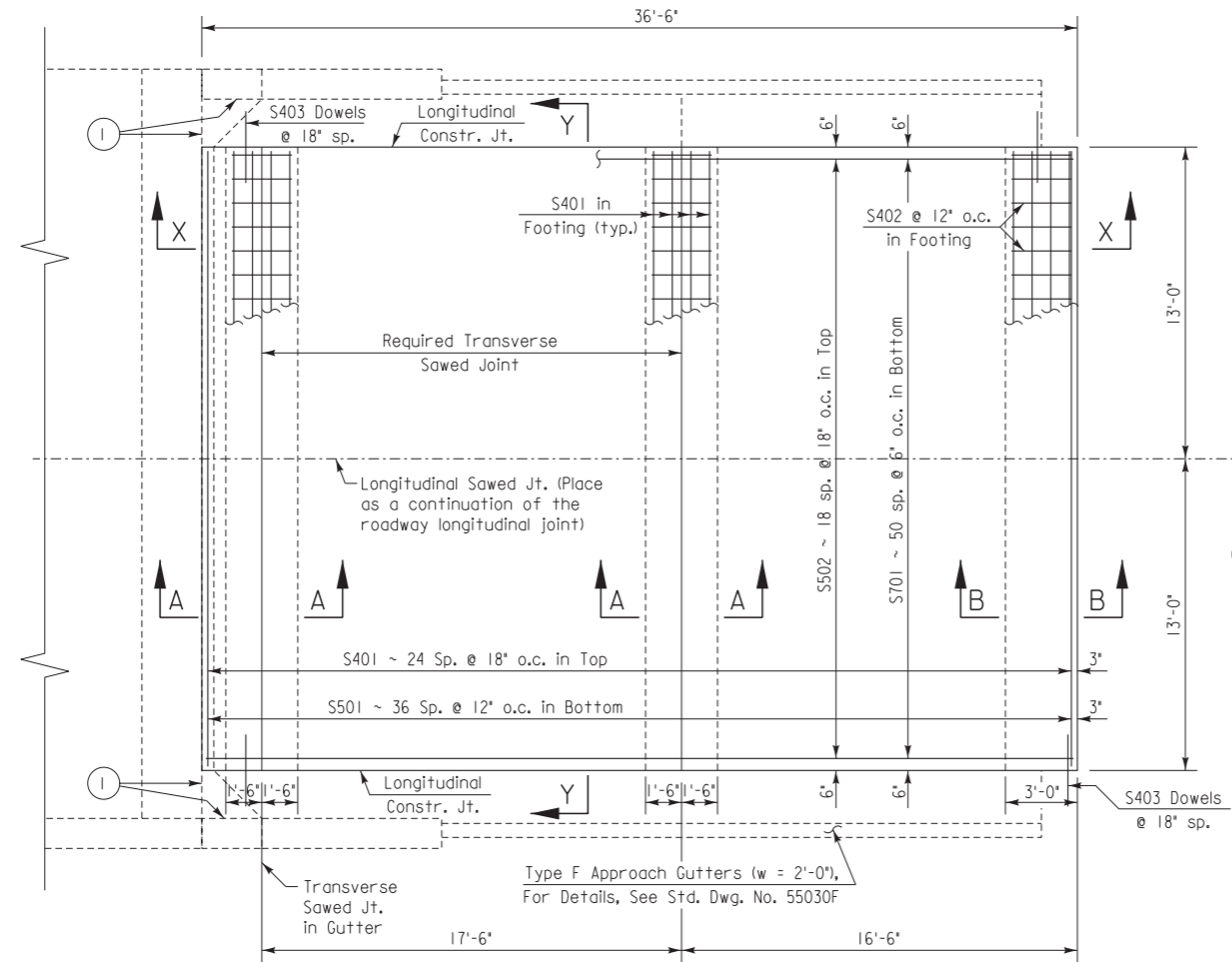
THREE DIMENSIONAL VIEW OF WING AND RAIL AT END BENT



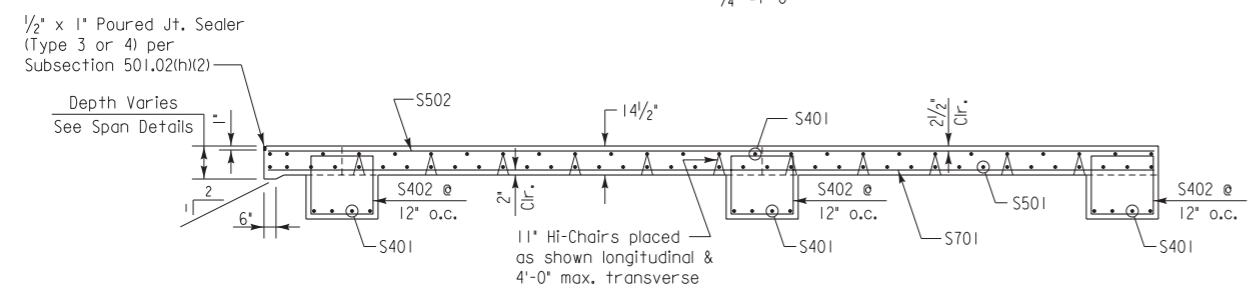
DEAD LOAD DEFLECTION DIAGRAM
NO SCALE



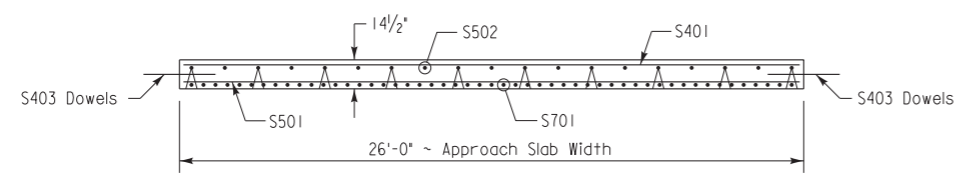
SHEET 6 OF 6
DETAILS OF 165' INTEGRAL CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU RELIEF
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_s6.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: NONE
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07584 DRAWING NO. 65229



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

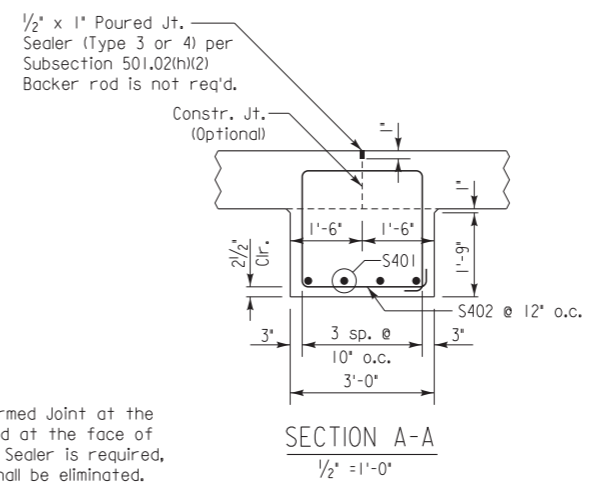


SECTION X-X
SQUARE APPROACH SLAB SHOWN
1/4" = 1'-0"

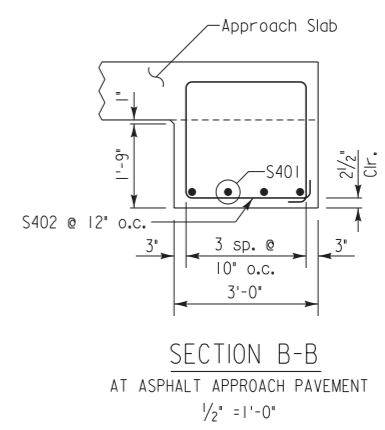


SECTION Y-Y

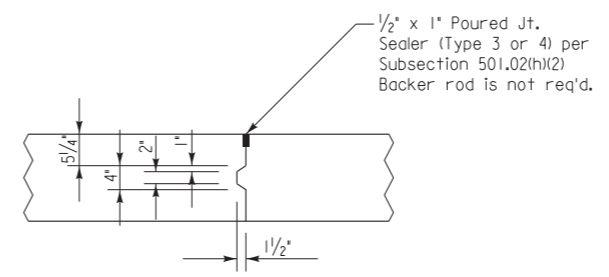
① Eliminate Type I Preformed Joint at the concrete diaphragm and at the face of wingwalls. Poured Joint Sealer is required, however backer rod shall be eliminated.



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



SECTION B-B
AT ASPHALT APPROACH PAVEMENT
1/2" = 1'-0"



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

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401	37	25'-8"	Str.
S402	81	10'-4"	2"
S403	46	3'-0"	Str.
S501	37	25'-8"	Str.
S502	19	36'-2"	Str.
S701	51	36'-2"	Str.

S402
Dimensions are out to out of bar.

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.

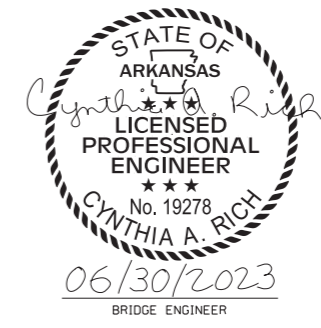
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach 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.

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

Slab Width	Reinforcing Steel	Concrete
	Lbs.	Cu. Yds.
26'-0"	6763	58.36



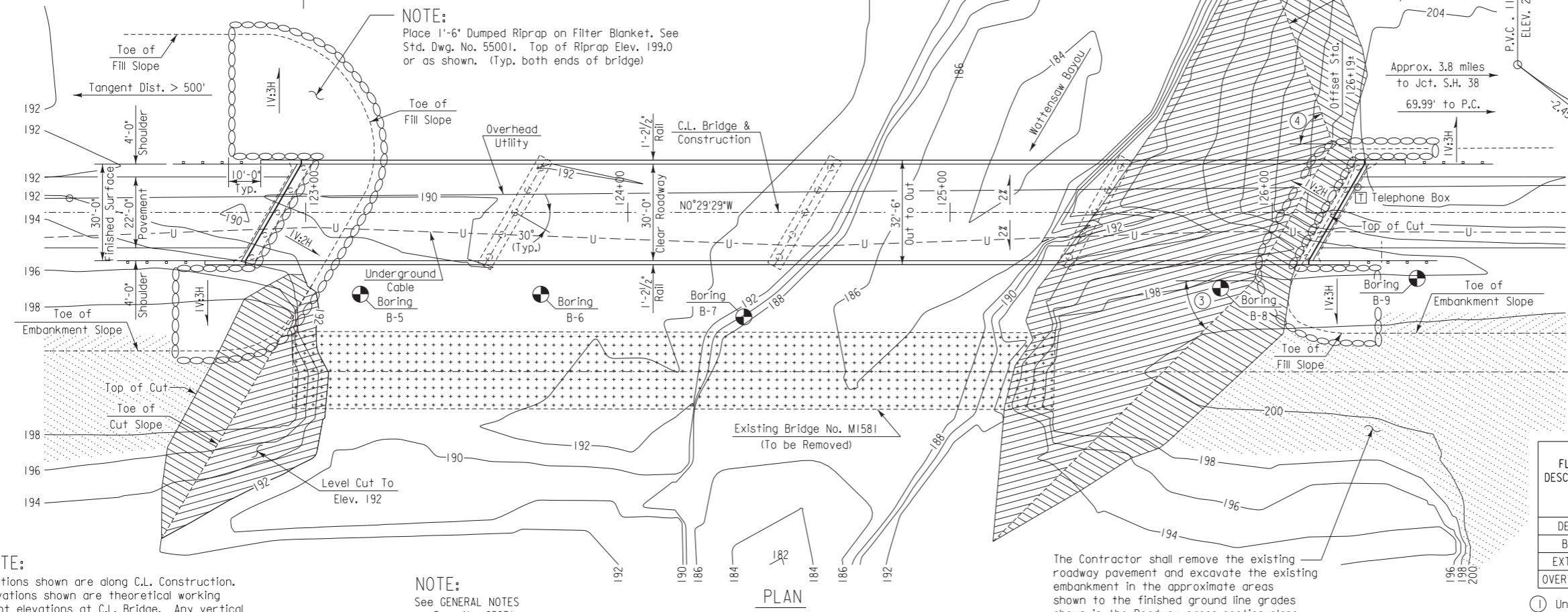
DETAILS OF TYPE SPECIAL APPROACH SLAB
WATTENSAW BAYOU RELIEF
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x1_g1.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/4" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07584 DRAWING NO. 65229A

For Right of Way data, see Roadway plans.

Use Type F Approach Gutters (w = 2'-0") and Type Special Approach Slabs at both ends of bridge. For details, see Std. Dwg. No. 55030F and Dwg. No. 65240A, respectively.

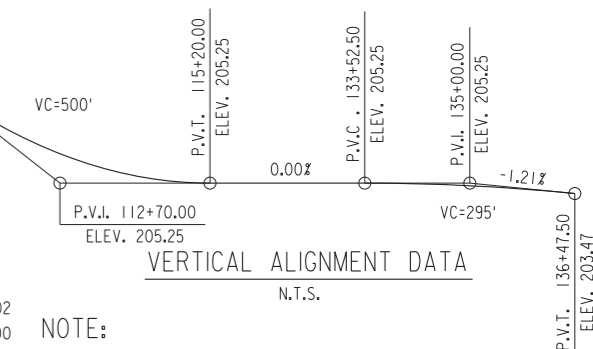
NOTE:
Place 1'-6" Dumped Riprap on Filter Blanket. See Std. Dwg. No. 55001. Top of Riprap Elev. 199.0 or as shown. (Typ. both ends of bridge)



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

NOTE:
See GENERAL NOTES on Dwg. No. 65231

The Contractor shall remove the existing roadway pavement and excavate the existing embankment in the approximate areas shown to the finished ground line grades shown in the Roadway cross-section plans.



NOTE:
The Contractor shall excavate the existing embankment as shown to Elev. 192.0 at End Bent 1 and to Elev. 194.5 at End Bent 5. Approx. 1430 cubic yards of excavation.
Toe of cut slopes shown are parallel to the end bents out to a distance of 5.0 feet beyond the edge of the bridge deck and then transition at the angles indicated back into the channel's natural side slopes.

③ 45° ④ 70°

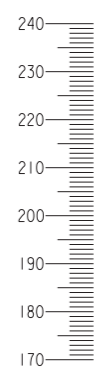
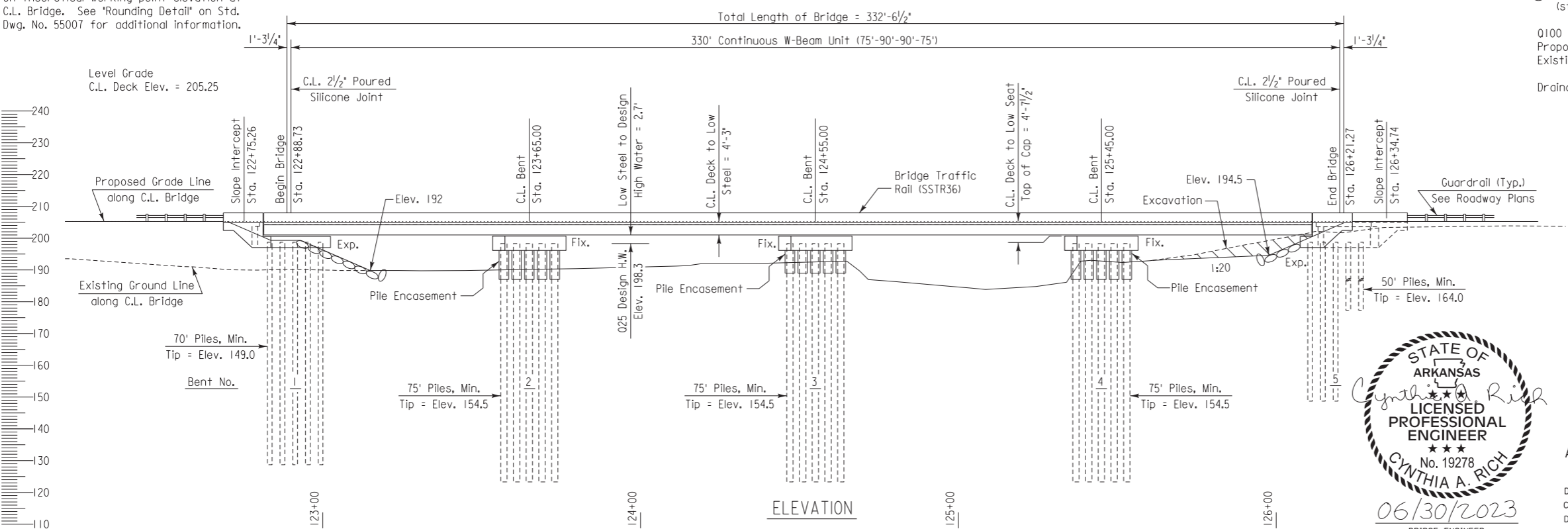
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	TOTAL DISCHARGE	DISCHARGE THIS SITE CFS	NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER FEET
		CFS		FEET	
DESIGN	25	4630	3092	198.2	198.2
BASE	100	6100	4056	199.4	199.4
EXTREME	500	7890	5202	200.0	200.2
OVERTOPPING	>500				

- ① Unconstricted water surface elevation without structures or roadway approaches.
- ② The total discharge includes flow at the relief bridge (structure #M1582).

Q100 backwater elevation for existing structure = 199.5
Proposed Low Bridge Chord Elevation = 201.0
Existing Low Bridge Chord Elev. = 198.1

Drainage Area = 107 square miles

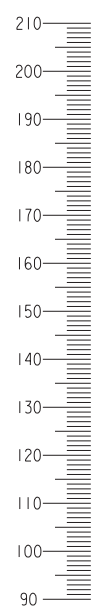
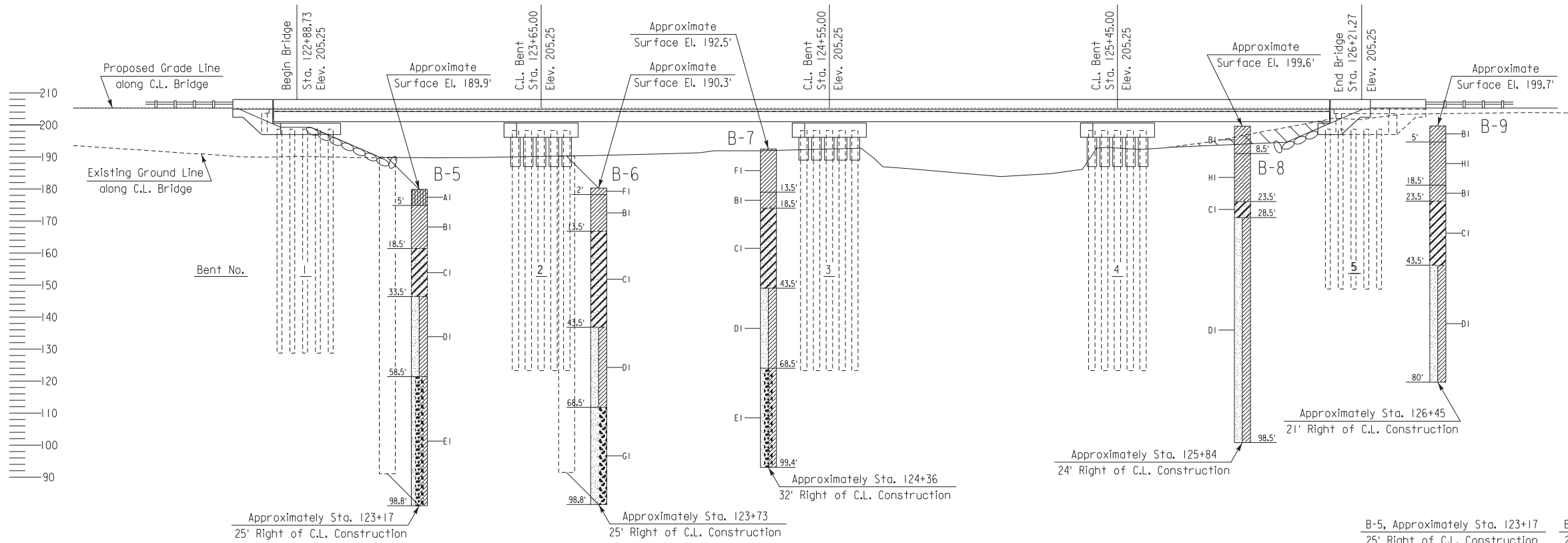


SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 86 OVER
WATTENSAW BAYOU
HWY. 86 STRS. & APPRS. (S)
PRAIRIE COUNTY

ROUTE 86 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_11.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 1" = 20'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65230

DATE REVISED	DATE REVISION	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
03/20/24		6	ARK.	061614	49	79
07585 - LAYOUT - 65231						



BORING LEGEND

- A1-Silty clay
- B1-Lean clay with sand
- C1-Clayey sand
- D1-Poorly-graded sand with clay
- E1-Poorly-graded sand with clay and gravel
- F1-Lean clay
- G1-Poorly-graded sand with gravel
- H1-Sandy lean clay

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on 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 (2020, 9th Edition)
AASHTO Guide Specifications for LRFD Seismic Bridge Design (2011, 2nd Edition with interims thru 2015)

SEISMIC OPERATIONAL CLASSIFICATION: Other

LIVE LOADING: HL-93

SEISMIC ZONE: B SD1= 0.272g Site Class = D

MATERIALS AND STRENGTHS:

Class S (AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	f _y = 60,000 psi
Structural Steel (ASTM A709, Gr. 36)	F _y = 36,000 psi
Structural Steel (ASTM A709, Gr. 50W)	F _y = 50,000 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 & 5 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacities of 215 tons and 195 tons per pile, respectively. Piling in Bents 2, 3 & 4 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 430 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. All piling in Bent 1 & in Bent 5 shall have a minimum tip elevation of 149.0 & 164.0, respectively or lower. All piling in Bents 2, 3 & 4 shall have a minimum tip elevation of 154.5 or lower. 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 (18" DIA.)" and "STEEL SHELL PILING (24" DIA.)"

PILE ENCASEMENT: Pile encasement for Bents 2, 3 & 4 shall extend from bottom of cap to 3' below natural ground. See Standard Dwg. No. 55021 for additional information.

ELEVATION OF SOIL BORINGS

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 minimum ultimate bearing capacity for 18" piles shall be ~~75,000~~ 65,000 foot pounds per blow and for 24" piles shall be ~~100,000~~ 130,000 foot pounds per blow.

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

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete bridge rail in accordance with Section 803.

BRIDGE PAINTING: The following weathering steel surfaces shall be painted as specified in Subsection 807.75:

- All steel surfaces within the end 8 feet of bridge deck expansion joints, including diaphragms, cross-frames, connection bolts and bearings.
- All steel surfaces exposed to the outside face of the bridge, including outside faces and bottom of the exterior beams or girders, splice plates and bolts, stiffeners, drip plates and bearings.

ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted. Galvanized members, the expansion device, and surfaces in contact with concrete shall not be painted. The color of paint shall be Brown equal or close to Fed. Std. 595 B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

DETAIL DRAWINGS:

End Bents	65232-65234
Intermediate Bents	65235
330' Continuous W-Beam Unit	65237-65240
Elastomeric Bearings	65236
General Notes for Steel Bridges	55006
Details for Steel Bridge Structures	55007
Poured Silicone Joints	55008
Concrete Filled Steel Shell Piling	55021
Type F Approach Gutters	55030F
Type Special Approach Slab	65240A
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. M1581 (Log Mile 3.79) is 240' in length, 25' wide and consists of sixteen 15-foot timber girder interior spans. All spans are supported by timber caps on timber piling. The existing bridge is located an average distance of approximately 49' downstream of the new bridge alignment.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. M1581 shall be removed in accordance with Section 205. All material from the existing bridge shall become property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

B-5, Approximately Sta. 123+17 25' Right of C.L. Construction	B-6, Approximately Sta. 123+73 25' Right of C.L. Construction	B-7, Approximately Sta. 124+36 32' Right of C.L. Construction
0.5 - 2, N=8	0.5 - 2, N=9	0.5 - 2, N=6
2 - 3.5, N=9	2 - 3.5, N=7	2 - 3.5, N=8
3.5 - 5, N=12	3.5 - 5, N=12	3.5 - 5, N=13
5 - 6.5, N=10	5 - 6.5, N=13	5 - 6.5, N=10
8.5 - 10, N=8	8.5 - 10, N=10	8.5 - 10, N=8
13.5 - 15, N=6	13.5 - 15, N=5	13.5 - 15, N=12
18.5 - 20, N=14	18.5 - 20, N=16	18.5 - 20, N=18
23.5 - 25, N=27	23.5 - 25, N=25	23.5 - 25, N=21
28.5 - 30, N=18	28.5 - 30, N=10	28.5 - 30, N=16
33.5 - 35, N=30	33.5 - 35, N=26	33.5 - 35, N=18
38.5 - 40, N=23	38.5 - 40, N=37	38.5 - 40, N=34
43.5 - 45, N=26	43.5 - 45, N=34	43.5 - 45, N=51
58.5 - 60, N=31	48.5 - 50, N=79	48.5 - 50, N=44
68.5 - 70, N=39	58.5 - 60, N=39	58.5 - 60, N=40
88.5 - 90, N=53	68.5 - 70, N=58	68.5 - 70, N=43
	88.5 - 90, N=88	
B-8, Approximately Sta. 125+84 24' Right of C.L. Construction	B-9, Approximately Sta. 126+45 21' Right of C.L. Construction	
0.5 - 2, N=6	0.5 - 2, N=12	
2 - 3.5, N=8	2 - 3.5, N=6	
3.5 - 5, N=13	3.5 - 5, N=16	
5 - 6.5, N=11	5 - 6.5, N=14	
8.5 - 10, N=8	8.5 - 10, N=8	
13.5 - 15, N=6	13.5 - 15, N=6	
18.5 - 20, N=5	18.5 - 20, N=8	
23.5 - 25, N=16	23.5 - 25, N=17	
28.5 - 30, N=22	28.5 - 30, N=21	
33.5 - 35, N=22	33.5 - 35, N=36	
38.5 - 40, N=43	38.5 - 40, N=44	
43.5 - 45, N=40	43.5 - 45, N=43	
48.5 - 50, N=39	48.5 - 50, N=33	
58.5 - 60, N=51	58.5 - 60, N=59	
68.5 - 70, N=43	68.5 - 70, N=46	
78.5 - 80, N=47	78.5 - 80, N=76	
88.5 - 90, N=52		

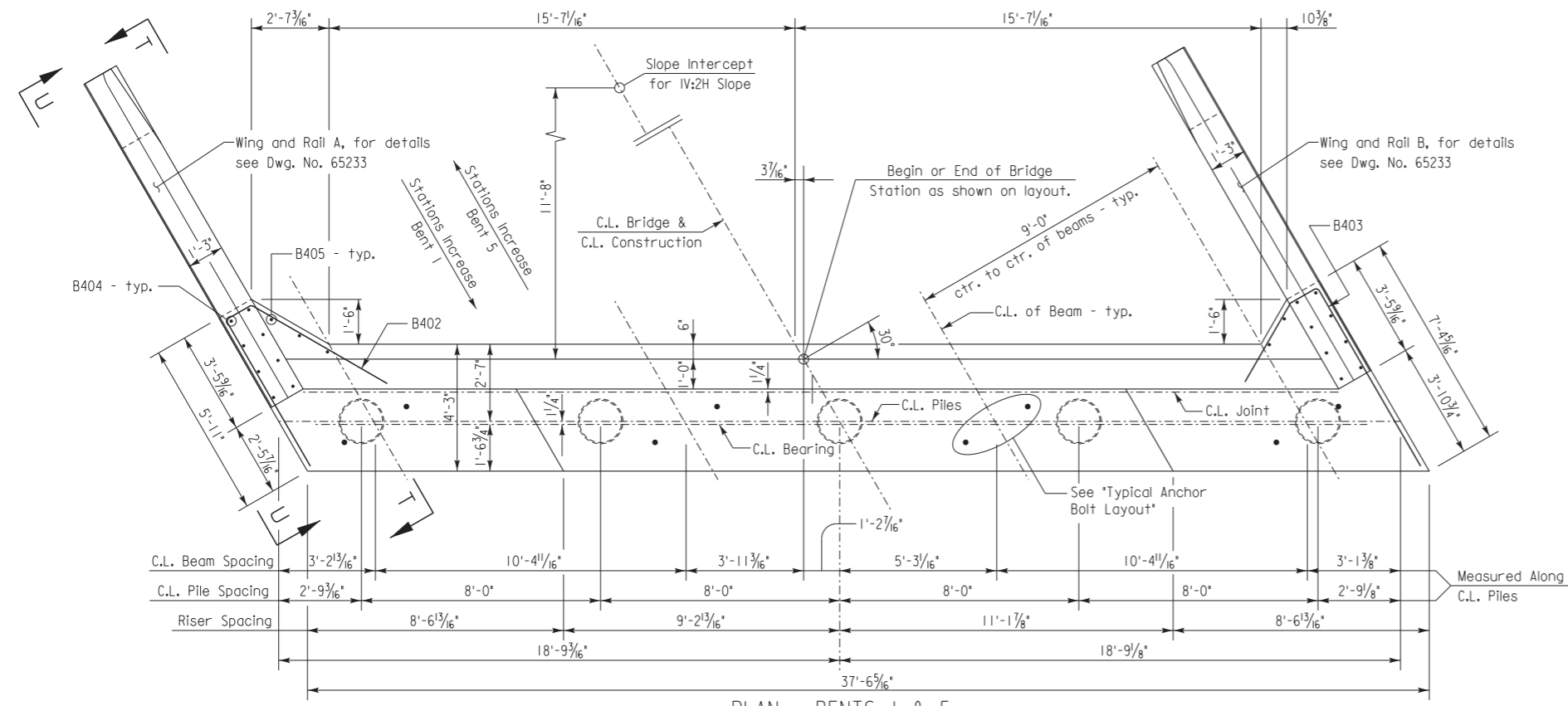


SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 86 OVER
WATTENSAW BAYOU
HWY. 86 STRS. & APPRS. (S)
PRAIRIE COUNTY
 ROUTE 86 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

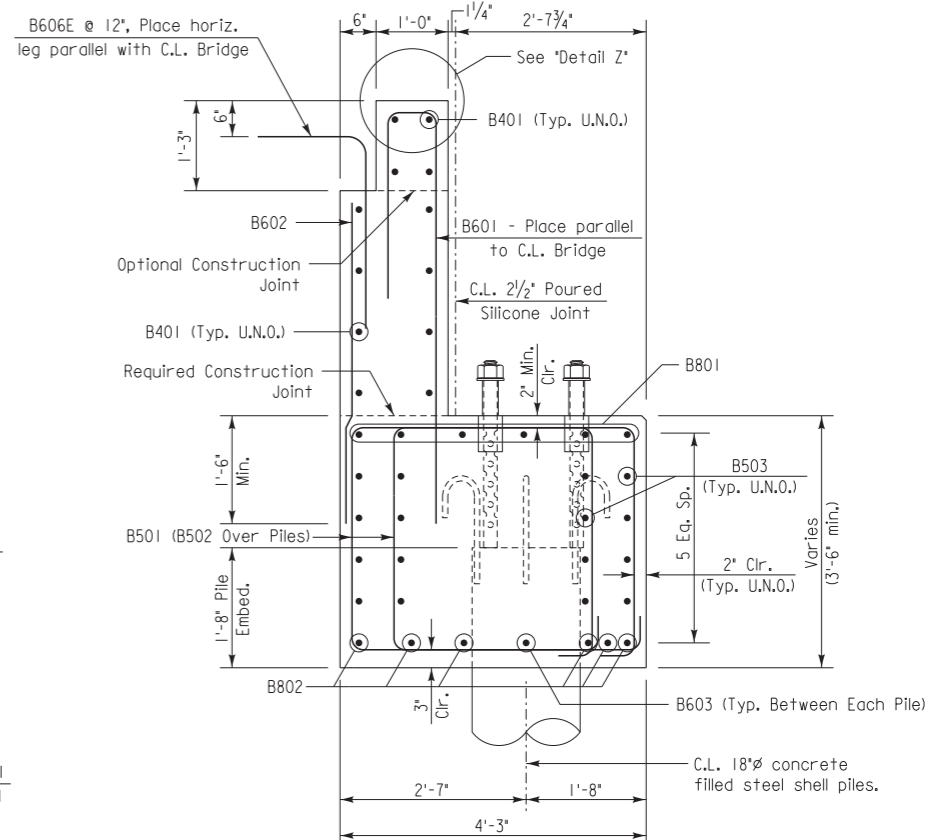
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 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65231

PRINT DATE: 3/27/2024

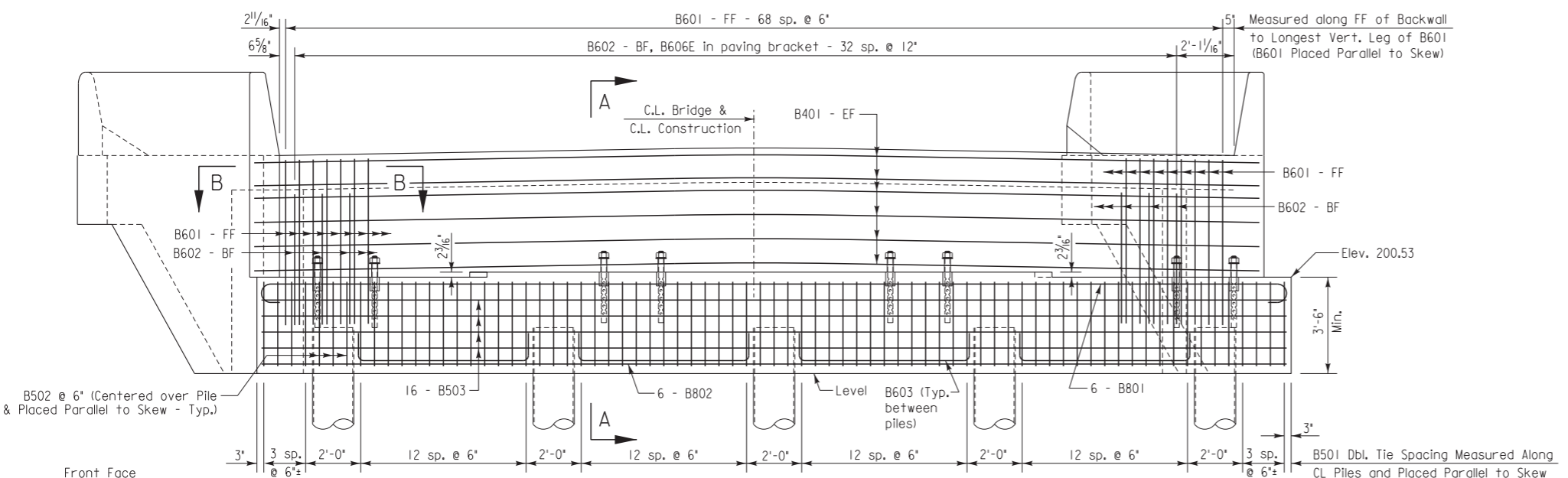
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	50	79
07585 - END BENTS - 65232						



PLAN - BENTS 1 & 5
3/8" = 1'-0"



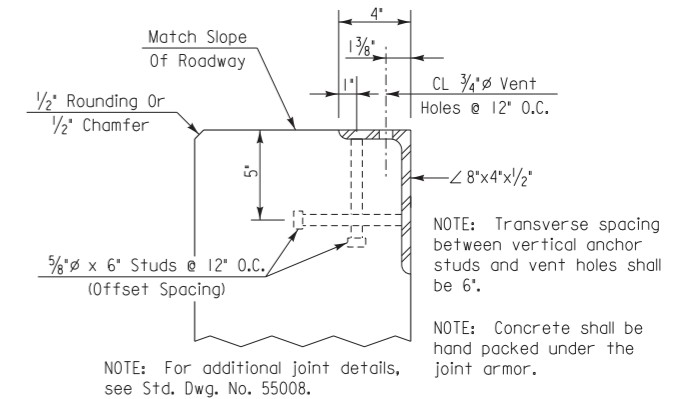
SECTION A-A
No Scale



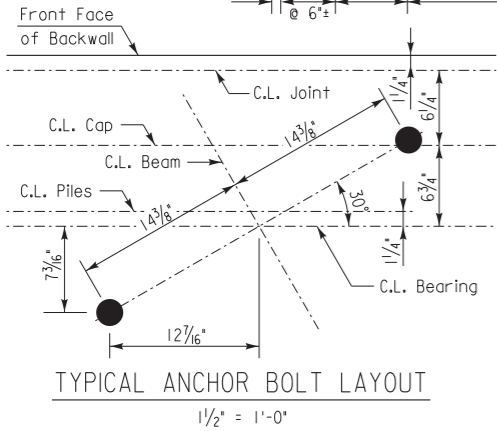
ELEVATION - BENTS 1 & 5
LOOKING BACK - BENT 1
LOOKING AHEAD - BENT 5
3/8" = 1'-0"

NOTES:
For General Notes, see Std. Dwg. No. 55006.
For additional information, see Layout.

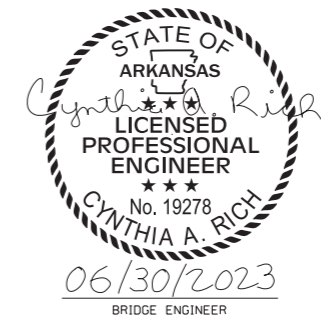
LEGEND
BF = Back Face
EF = Each Face
FF = Front Face
U.N.O. = Unless Noted Otherwise



DETAIL Z
No Scale



TYPICAL ANCHOR BOLT LAYOUT
1 1/2" = 1'-0"

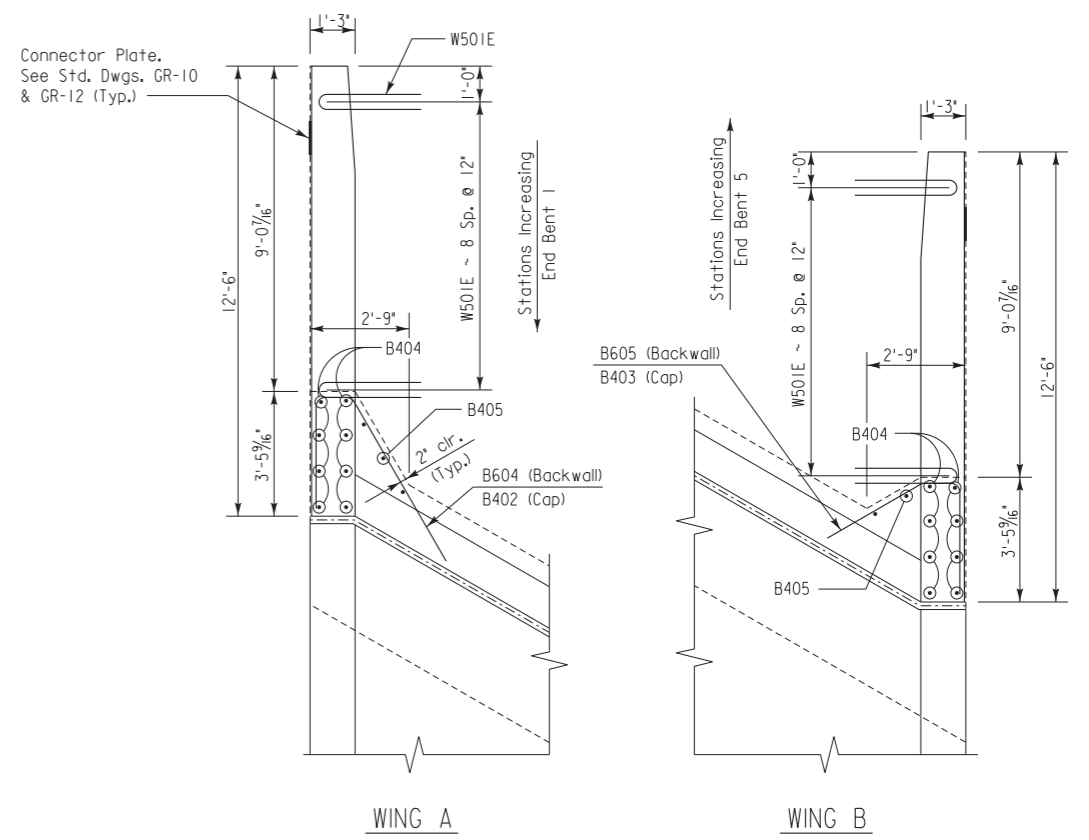
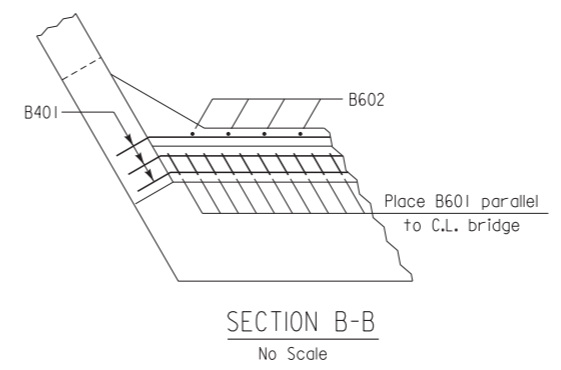
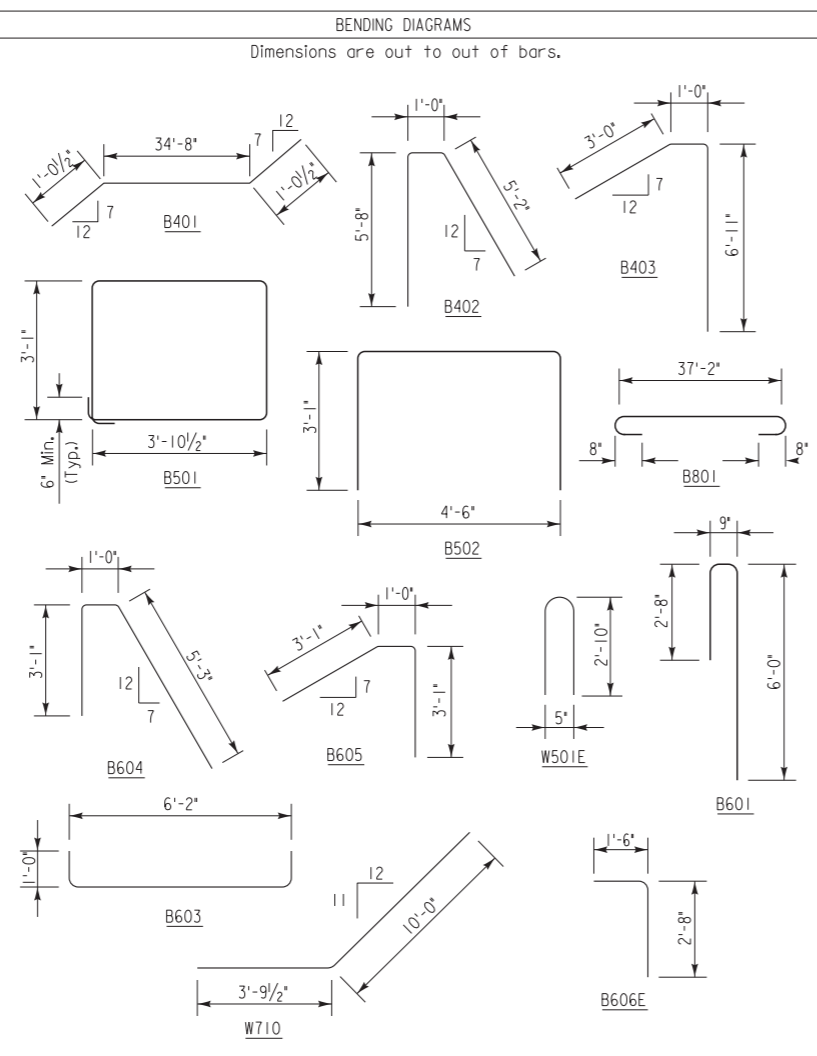


SHEET 1 OF 3
DETAILS OF END BENTS
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_a1.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8" = 1'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65232

PRINT DATE: 7/24/2023

BAR LIST - PER BENT

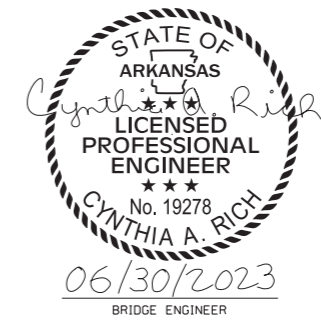
MARK	NO. REQ'D.	LENGTH	P.D.
B401	12	36'-9"	2"
B402	6	11'-9"	2"
B403	6	10'-11"	2"
B404	16	7'-7"	Str.
B405	5	6'-4"	Str.
B501	120	14'-4 1/2"	2 1/2"
B502	15	10'-5 1/2"	2 1/2"
B503	16	37'-2"	Str.
B601	69	9'-1"	4 1/2"
B602	33	4'-9"	Str.
B603	4	7'-10"	4 1/2"
B604	5	9'-1"	4 1/2"
B605	5	7'-0"	4 1/2"
B606E	33	4'-0"	4 1/2"
B801	6	39'-0"	6"
B802	6	37'-2"	Str.
W401E	50	3'-11"	3 3/4"
W402	4	7'-3 1/2"	Str.
W403	4	6'-5"	Str.
W404	4	5'-6"	Str.
W405	4	4'-7"	Str.
W406	4	3'-8"	Str.
W407	4	2'-9 1/2"	Str.
W408	20	2'-2"	Str.
W501E	18	5'-10"	3 3/4"
W701	16	12'-2"	Str.
W702	4	9'-2"	Str.
W703	4	8'-6 1/2"	Str.
W704	4	7'-10 1/2"	Str.
W705	4	7'-3"	Str.
W706	4	6'-7"	Str.
W707	4	5'-11"	Str.
W708	4	5'-3"	Str.
W709	4	4'-7"	Str.
W710	4	13'-9"	5 1/4"
R401E	50	6'-4"	2 1/2"
R402E	8	5'-6"	Str.
R403E	16	12'-2"	Str.



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

NOTE: Bars designated with an 'E' suffix to be Epoxy coated.

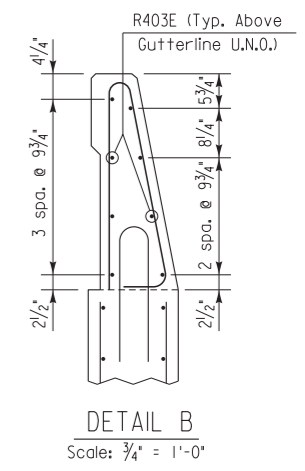
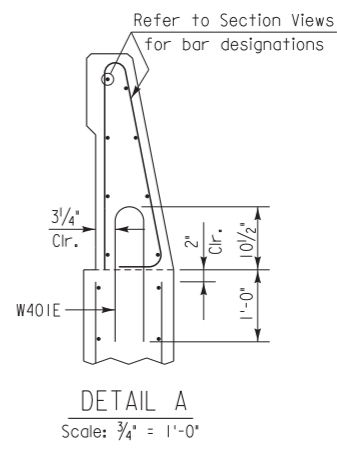
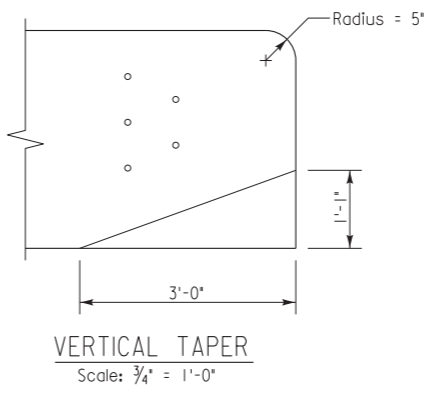
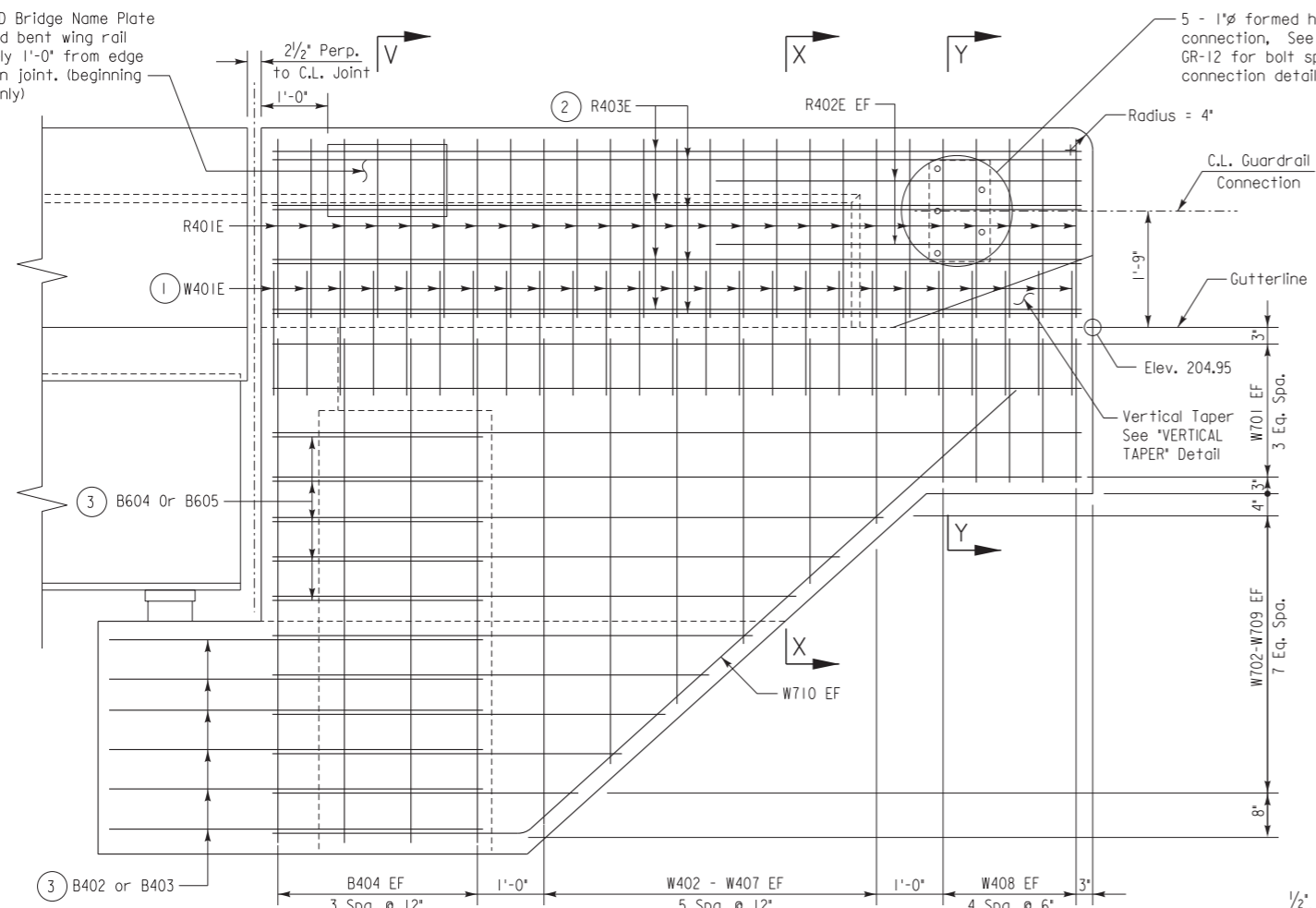
① For additional details and bending diagrams of reinforcing bars in Bridge Traffic Rail and Wings, see Std. Dwg. No. 55070.



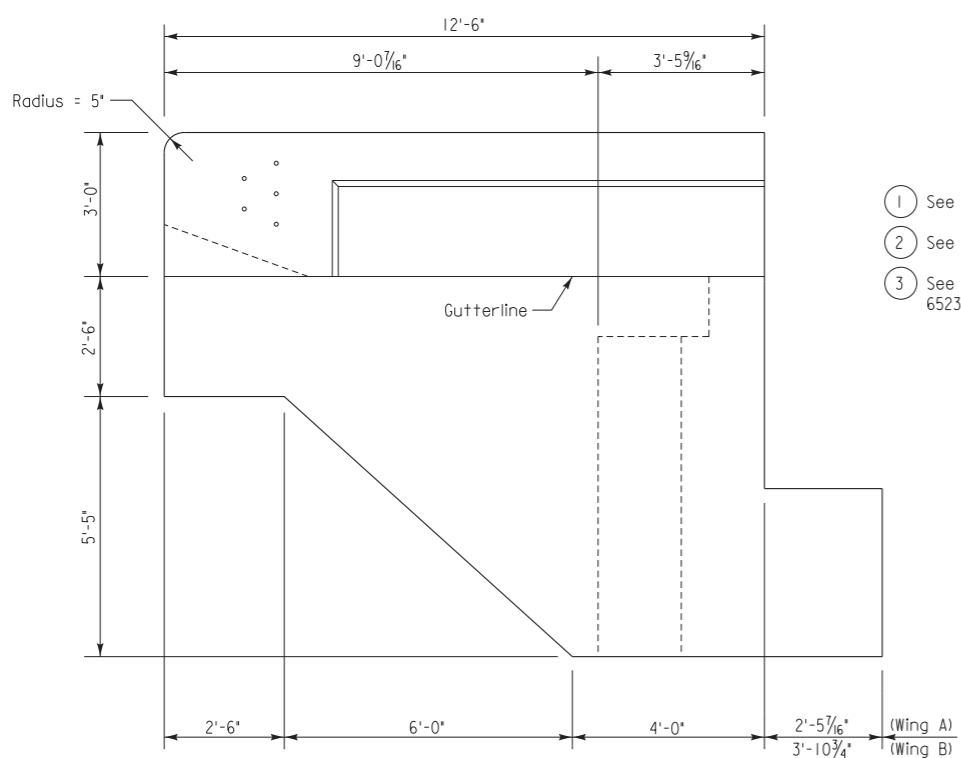
SHEET 2 OF 3
DETAILS OF END BENTS
WATTENSAW BAYOU
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_a2.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65233

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	52	79
07585 - END BENTS - 65234						

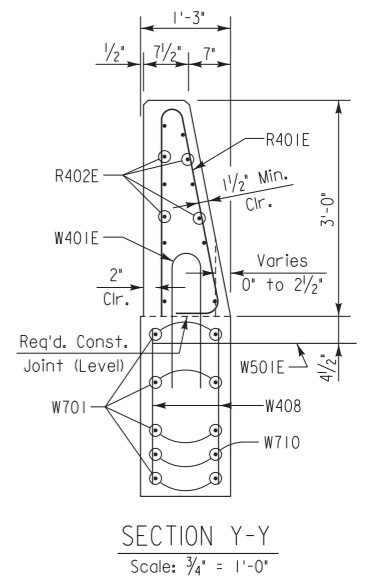
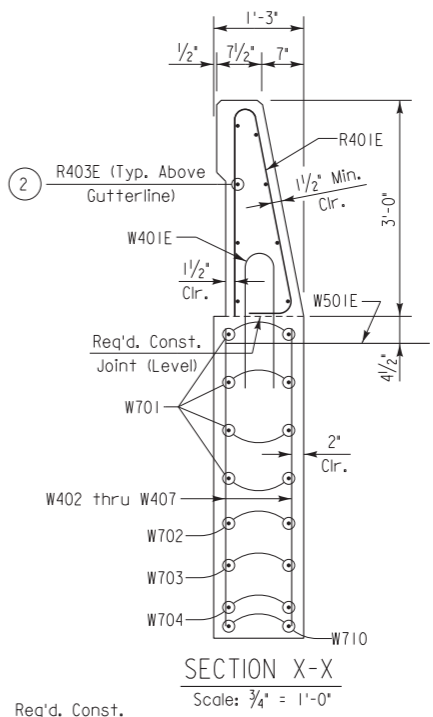
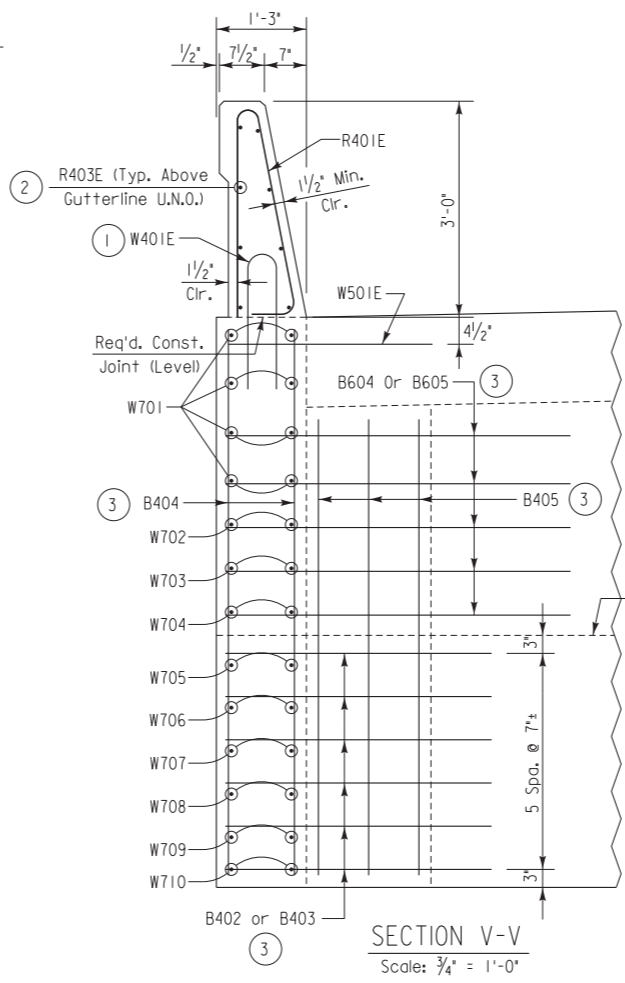
Place Type D Bridge Name Plate on right end bent wing rail approximately 1'-0" from edge of expansion joint. (beginning of bridge only)



SECTION T-T
Scale: 3/4" = 1'-0"



- ① See "DETAIL A" for placement of Bars W401E.
- ② See "DETAIL B" for placement of Bars W403E.
- ③ See end bent details on Dwg. Nos. 65232 & 65233 for reinforcing and additional details.



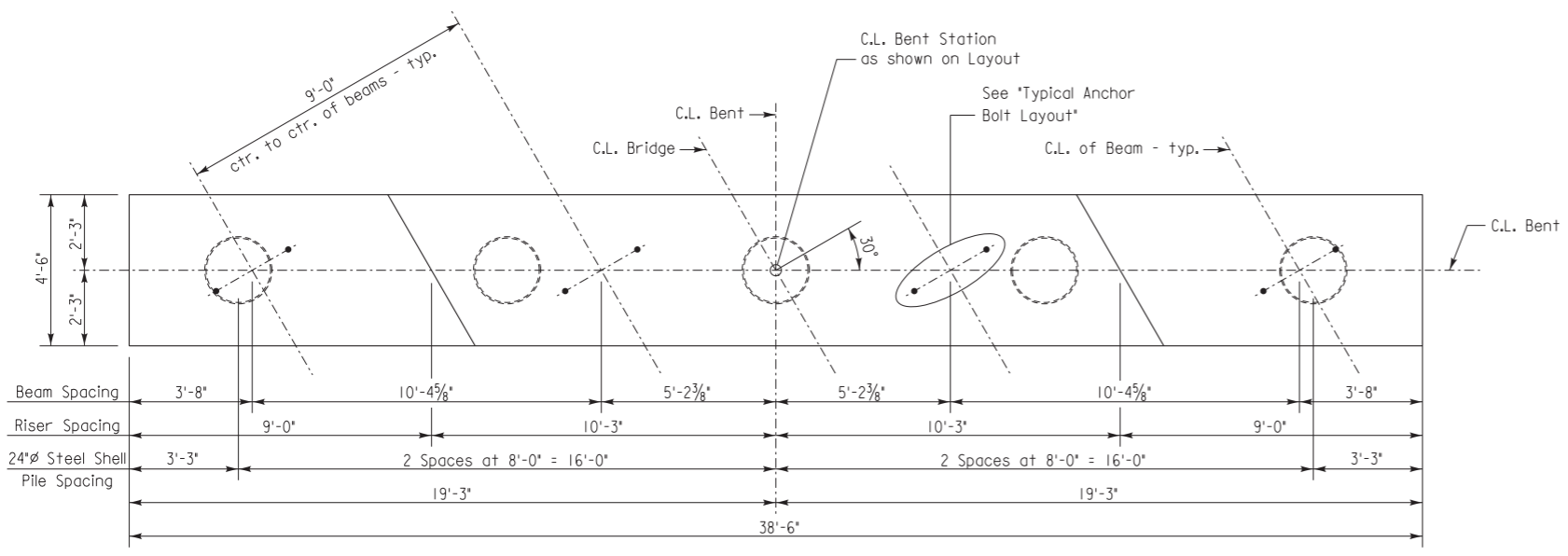
SHEET 3 OF 3
DETAILS OF END BENTS
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_a3.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/4" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65234

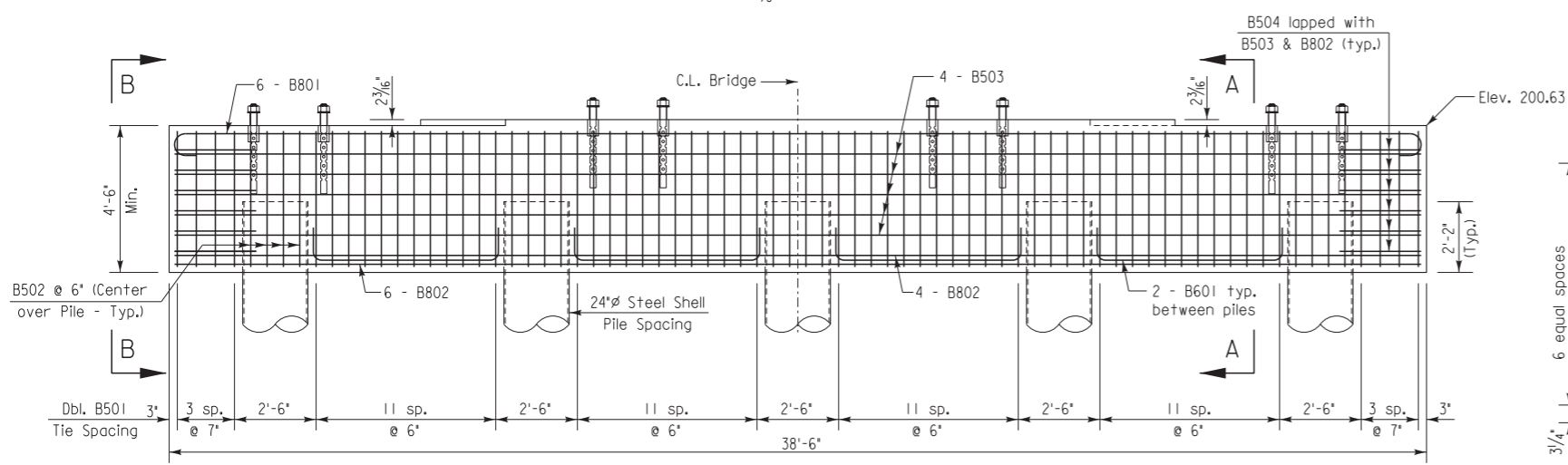
PRINT DATE: 7/24/2023

BAR LIST - PER BENT

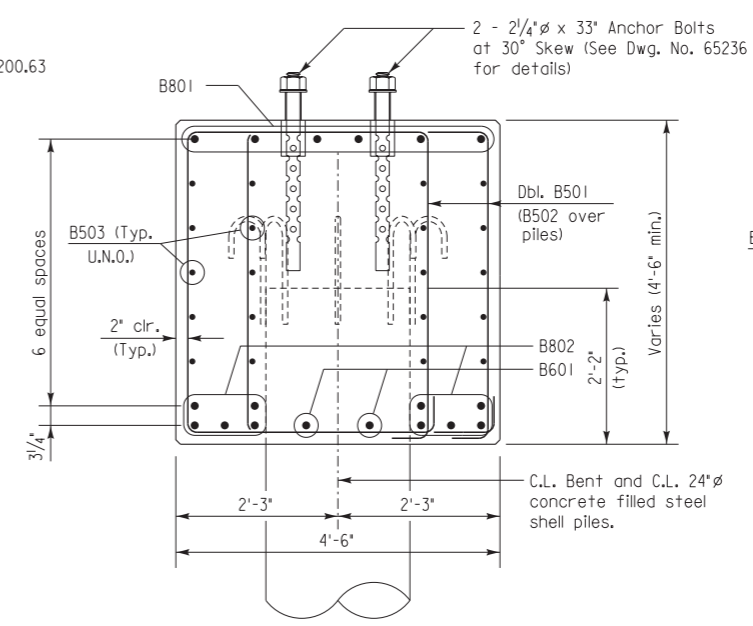
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS	
				Dimensions are out to out of bars.	
B501	112	15'-5 1/2"	2 1/2"		
B502	20	12'-3 1/2"	2 1/2"		
B503	20	38'-2"	Str.		
B504	12	8'-10"	Str.		
B601	8	7'-4"	4 1/2"		
B801	6	40'-0"	6"		
B802	10	38'-2"	Str.		



PLAN - BENT NOS. 2, 3 & 4
3/8" = 1'-0"

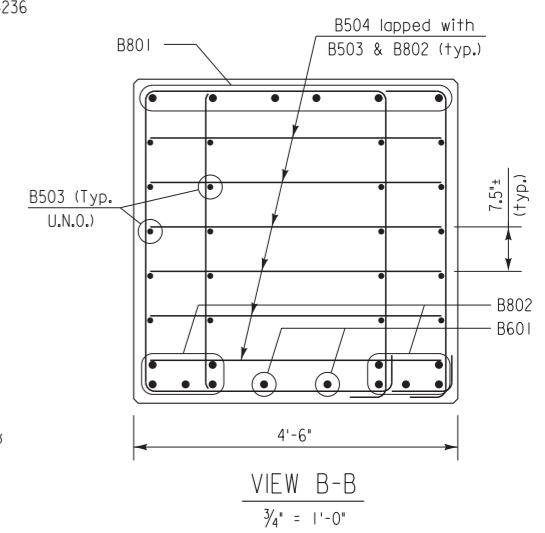


ELEVATION - BENT NOS. 2, 3 & 4
LOOKING AHEAD
3/8" = 1'-0"

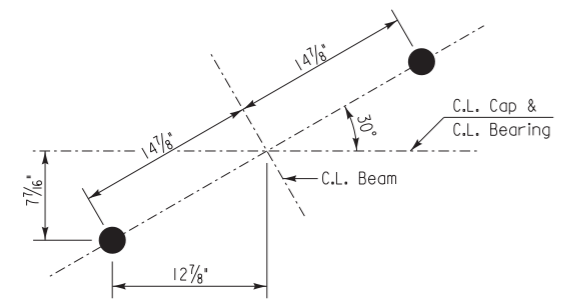


For details of concrete filled steel shell piles and pile anchorage, see Std. Dwg. No. 55021.

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

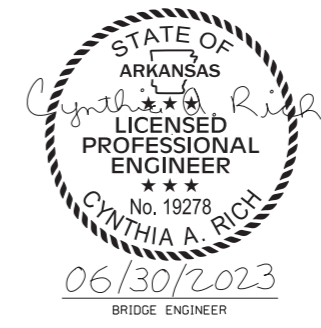


VIEW B-B
3/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
1 1/2" = 1'-0"

NOTES:
For General Notes, see Std. Dwg. No. 55006.
For additional information, see Layout.



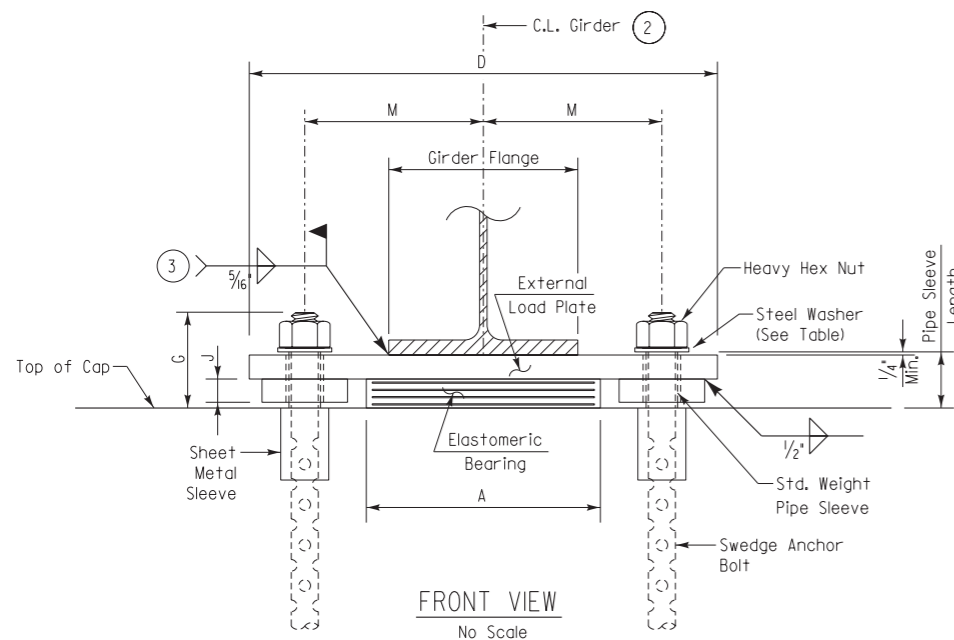
DETAILS OF INTERMEDIATE BENTS
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_b1.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 3/8" = 1'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65235

TABLE OF FABRICATOR VARIABLES

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	54	79
07585 - ELASTOMERIC BEARINGS - 65236						

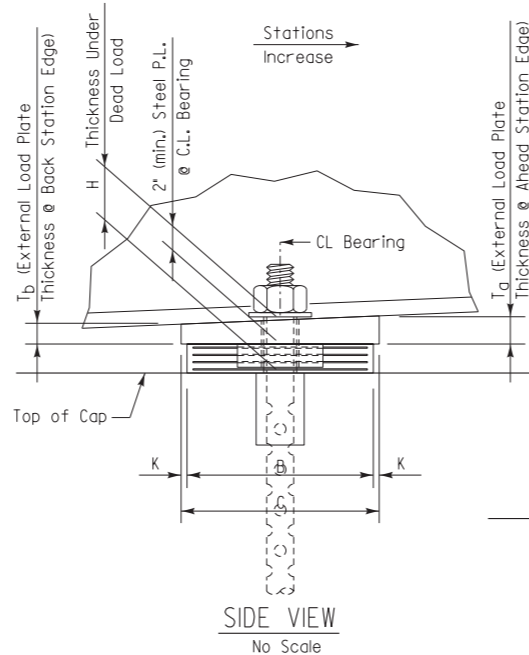
Location		Bearing Type	No. Of Bearings Each Bent	① Maximum Design Load (Kips)	Elastomeric Pad		External Load Plate										Anchor Bolt										
					G	H	A	B	N	t ₁	t _e	No. & Thickness Of Steel Laminae	T	C	D	E	F	J	K	M	T _a	T _b	Anchor Bolt (Dia. x L)	Grade	Pipe Sleeve Size (Dia. x L)	Sheet Metal Sleeve Size (Dia. x L)	Steel Washer Size (O.D.)
1 & 5	All	Exp.	4	130	9 7/8"	5 5/8"	18 1/2"	7"	5	1/2"	1/4"	6 @ 12 Gauge	3 5/8"	10 1/2"	38"	4 1/2"	3 3/8"	3 3/8"	1 3/4"	14 3/8"	2"	2"	2 1/4" x 31"	55	2 1/2" x 5 7/8"	4" x 6"	4"
2, 3 & 4	All	Fix.	4	300	8"	4 7/16"	19 1/2"	15 1/2"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	16 1/2"	39"	3 3/8"	3 3/8"	1 5/16"	1/2"	14 7/8"	2"	2"	2 1/4" x 33"	55	2 1/2" x 4 3/4"	4" x 6"	4"

① Maximum Design Load = Service I Limit State



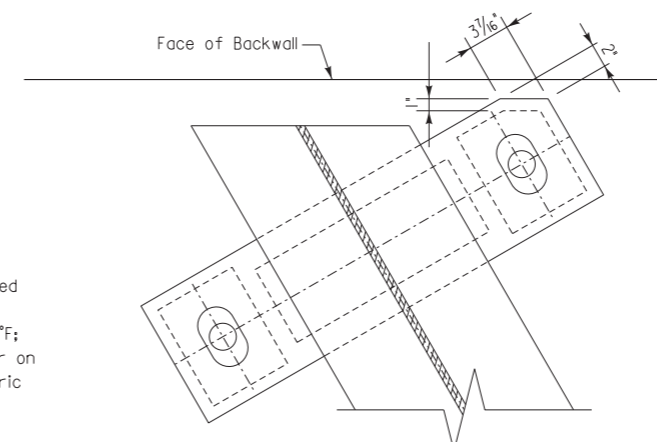
FRONT VIEW
No Scale

② C.L. Elastomeric Pad shall be aligned with C.L. Girder or Beam.



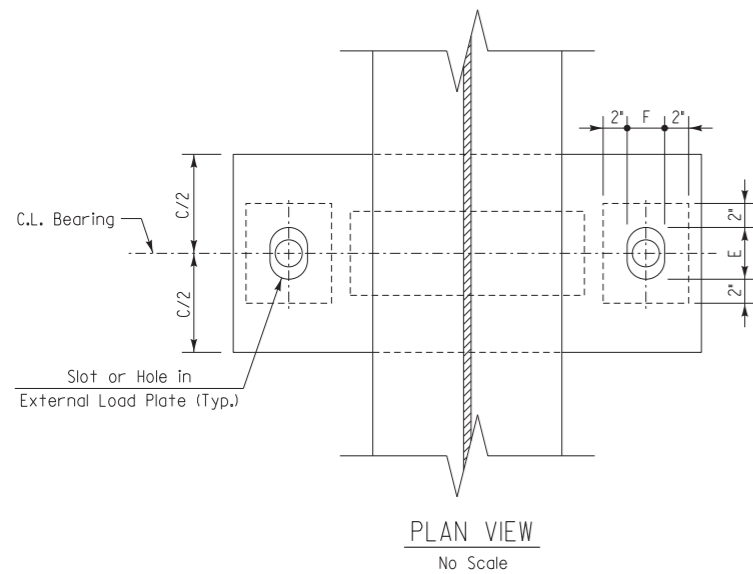
SIDE VIEW
No Scale

The direction of the bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in the 'Table of Fabricator Variables'.



NOTE:
Clip corners of external load plates nearest to end bent backwalls according to the dimensions shown above.

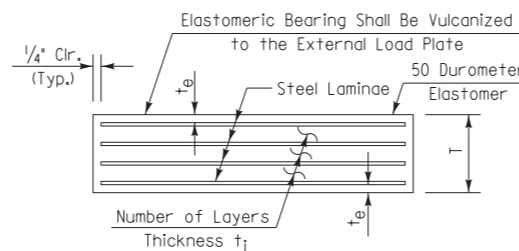
EXTERNAL LOAD PLATES
AT END BENTS
No Scale



PLAN VIEW
No Scale

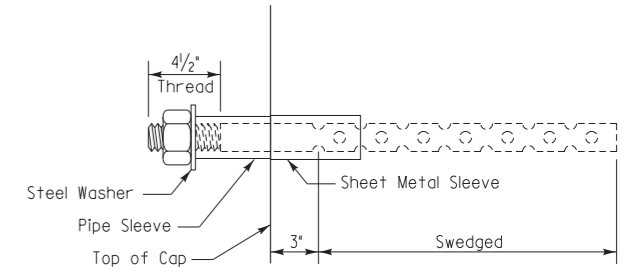
③ Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the external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

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



ELASTOMERIC BEARING
No Scale

t₁ = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t₁



ANCHOR BOLT DETAIL
No Scale

NOTE:

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item 'Structural Steel in Plate Girder Spans (A709, Gr. 50W)'.

GENERAL NOTES:

Elastomeric bearings shall conform to Section 808 and shall be paid for at the unit price bid for 'Elastomeric Bearings'.

External load plates shall conform to ASTM A709, Grade 50W. Pipe sleeves shall be ASTM A 500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B 695, Class 50.

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

Anchor bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the 'Table of Fabricator Variables'. Indentations circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for 'Structural Steel in Beam Spans (A709, Gr. 50W)' or 'Structural Steel in Plate Girder Spans (A709, Gr. 50W)'. External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for 'Elastomeric Bearings'.

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the Item 'Elastomeric Bearings' and will not be paid for directly.



DETAILS OF
ELASTOMERIC BEARINGS
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_e1.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 1" = 1'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65236

Slab Reinforcing:

Longitudinal: S401E in top and bottom (place as shown)
 S601E placed as shown over interior supports, see 'Reinforcing Plan & Pouring Sequence' Dwg. No. 65239

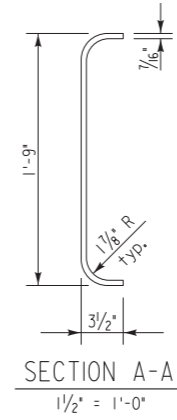
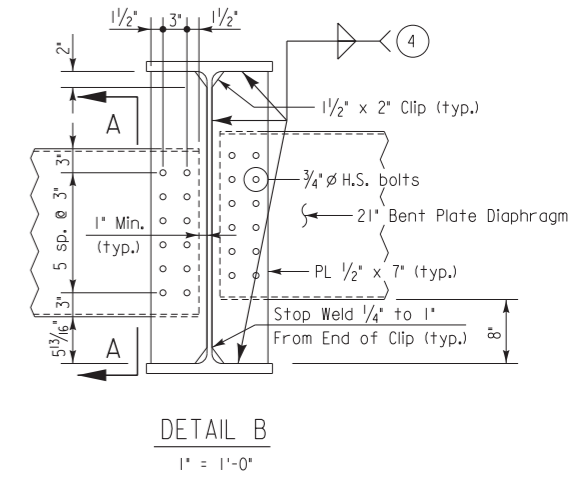
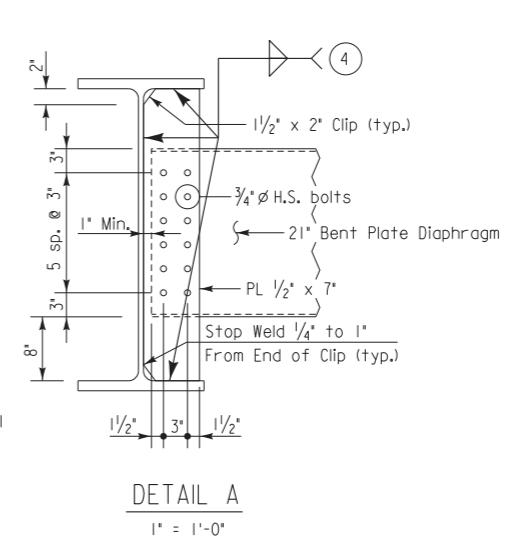
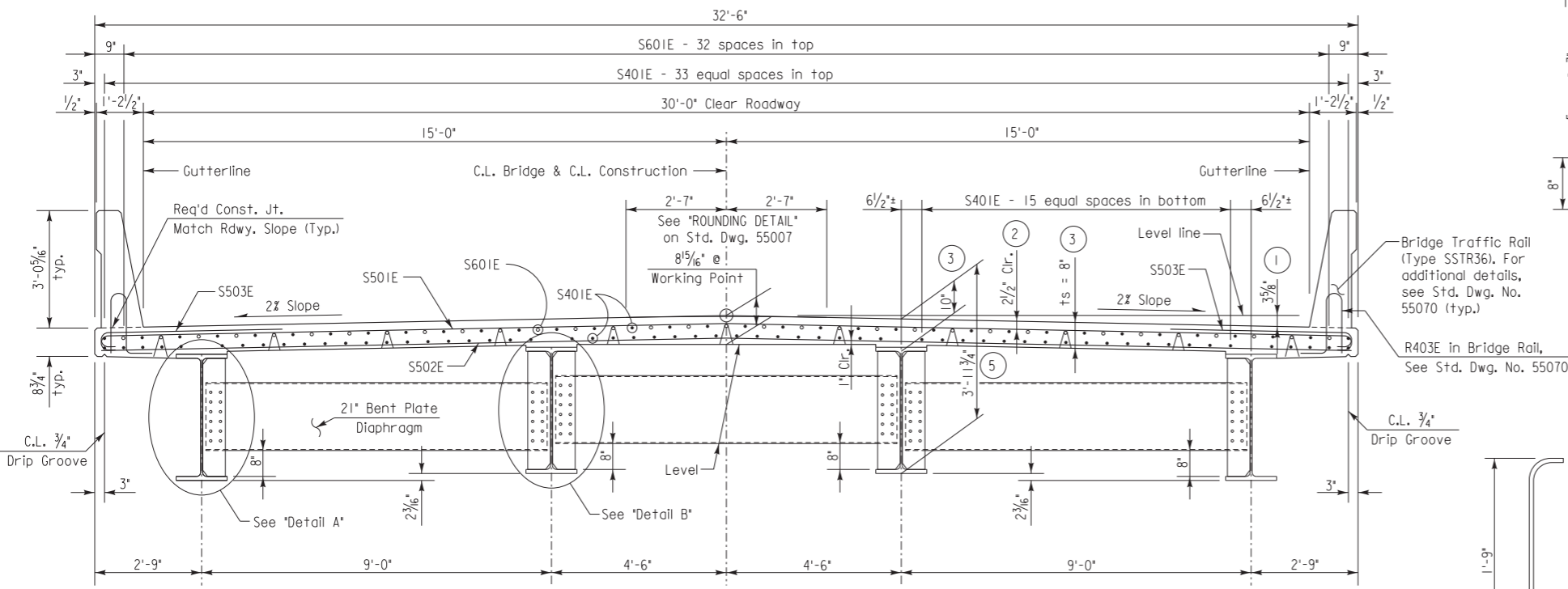
Transverse: S501E @ 6" o.c. in top, S502E @ 6" o.c. in bottom
 S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

- ① Working point to gutterline.
- ② Tolerance: Minus = 1/4"; Plus = to the amount of slab thickening used to meet slab thickness tolerance. See 'ADJUSTMENTS FOR SLAB THICKNESS TOLERANCE' on Std. Dwg. No. 55007.
- ③ See 'ADJUSTMENT FOR SLAB THICKNESS TOLERANCE' on Std. Dwg. No. 55007
- ④ See 'WELD TABLE' on Std. Dwg. No. 55007 for minimum weld sizes.
- ⑤ Dimension from Centerline Bearing to Centerline Girder.

NOTES:

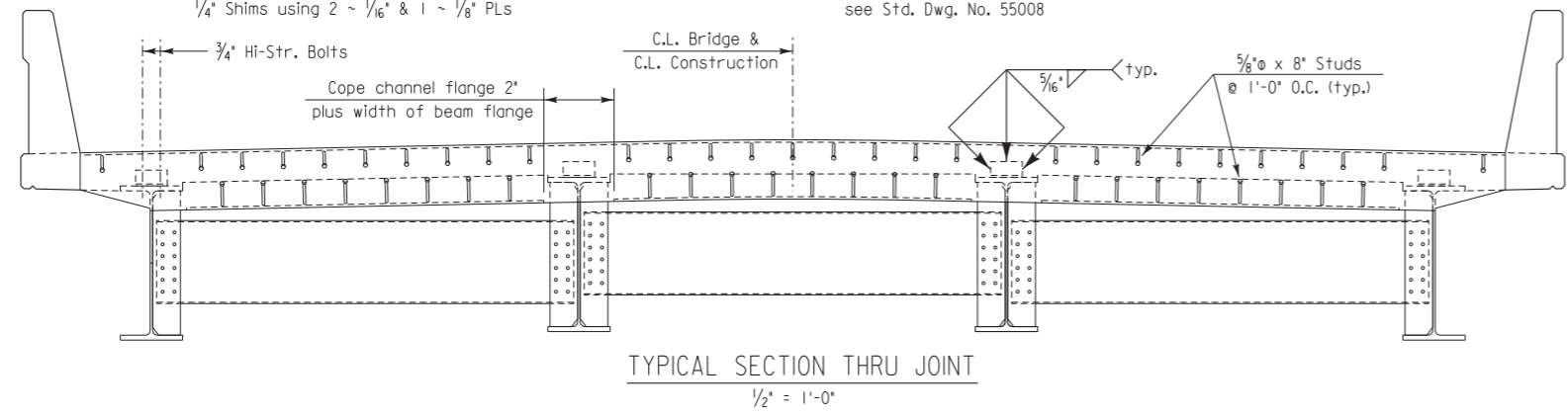
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Bridge Rail.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06.



Expansion Device:
 Rdwy. C15 x 33.9
 Conn. ∠ 8" x 4" x 1/2"
 Detail Device 1/8" high & provide
 1/4" Shims using 2 ~ 1/16" & 1 ~ 1/8" PLs

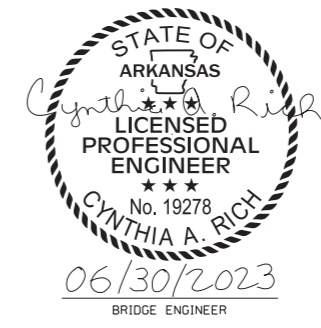
For additional joint details,
 see Std. Dwg. No. 55008



Location	*A* Width Perpendicular To Joint At 24 Hour Average Temperature ⑤ Of:			*B* Perpendicular To Joint At 60°F	Bumper Plate Size
	40°F	60°F	80°F		
Bent No. 1	2 3/4"	2 1/2"	2 1/4"	2 1/2"	1 1/4" x 1" x 12"
Bent No. 5	2 3/4"	2 1/2"	2 1/4"	2 1/2"	1 1/4" x 1" x 12"

⑤ The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

NOTE:
 For 'JOINT SEAL PLACEMENT AT RAIL' and
 'DETAILS FOR BLOCKING EXPANSION JOINT DEVICE', see Std. Dwg. No. 55008.

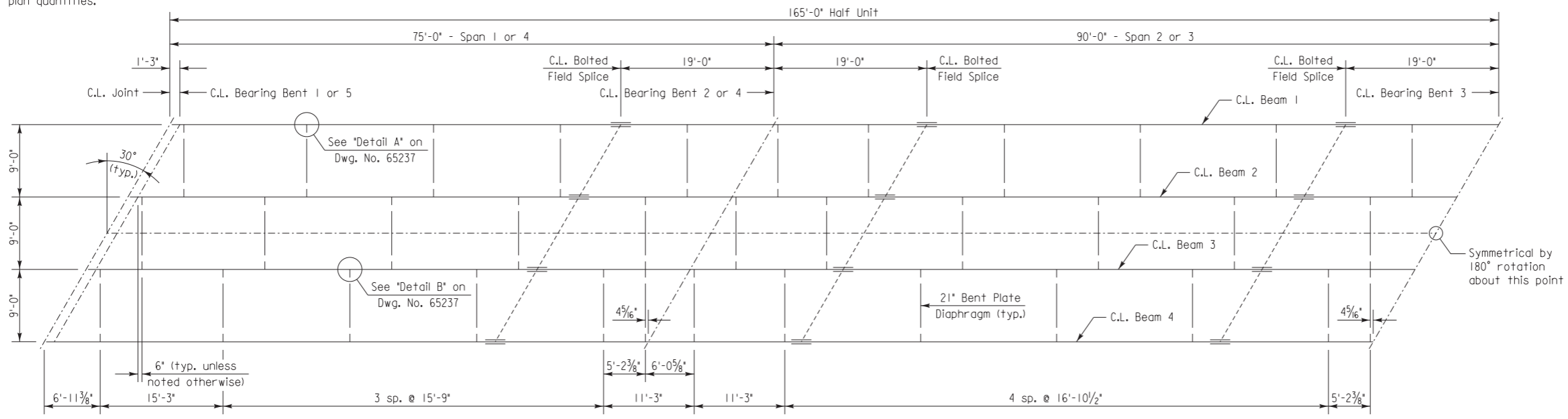


SHEET 1 OF 4
DETAILS OF 330' CONTINUOUS W-BEAM UNIT
WATTENSAW BAYOU
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

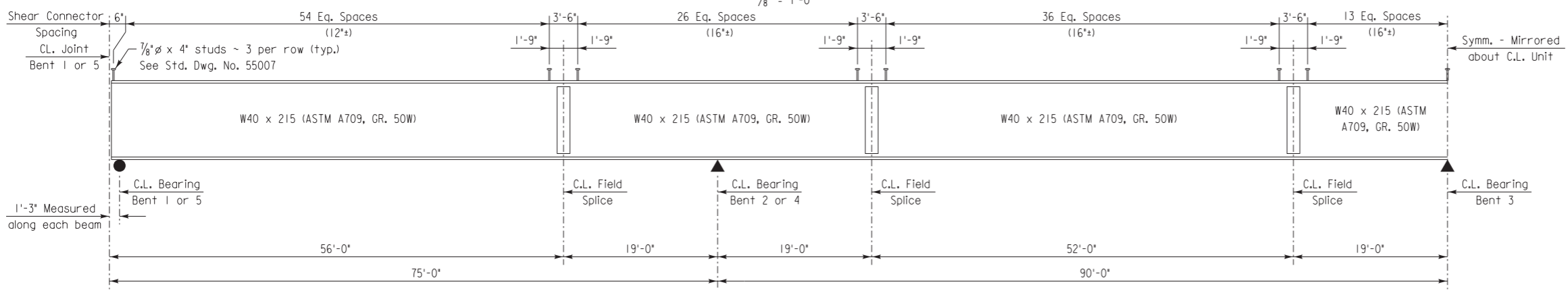
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 CHECKED BY: BKC DATE: APR 2023 SCALE: 1/2" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65237

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	061614	56	79
07585 - SPAN DETAILS - 65238						

NOTE:
 Bolted field splices may either be eliminated or shop welded splices may be substituted with the approval of the engineer. Payment will be made on the basis of plan quantities.

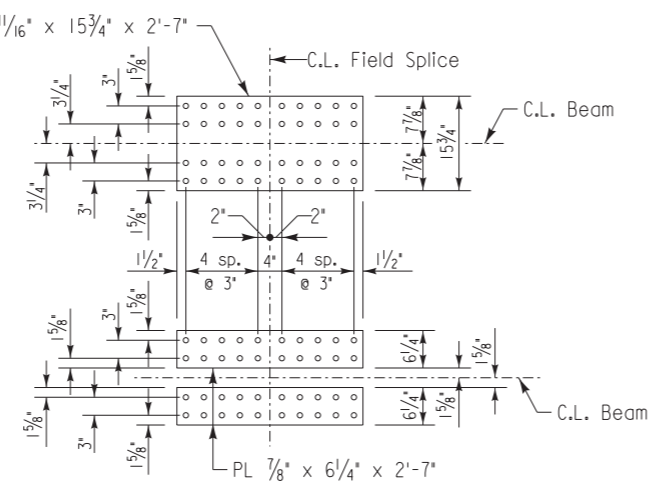
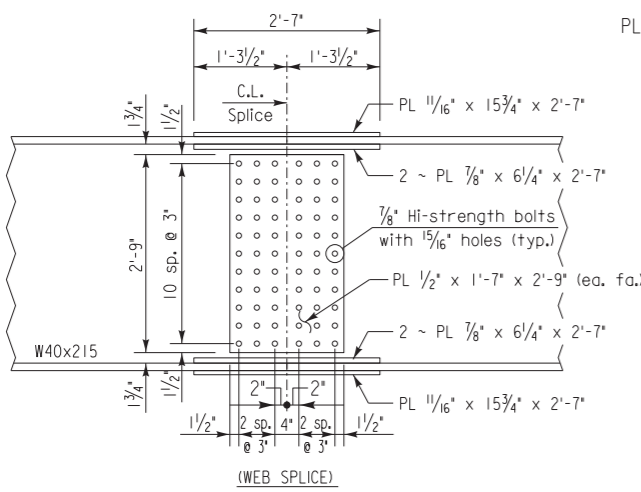


HALF-FRAMING PLAN
 $\frac{1}{8}'' = 1'-0''$

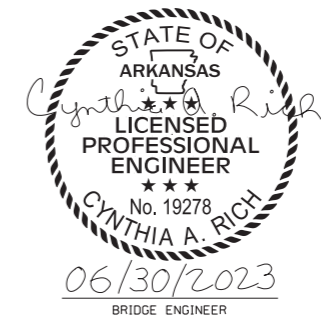


TYPICAL BEAM ELEVATION
 NO SCALE

NOTES:
 All Structural Steel shall be ASTM A709, Gr. 50W unless otherwise noted, and shall be mill for as 'Structural Steel in Beam Spans (A709, Gr. 50W)'.
 See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.
 For additional information, see Layout.



DETAILS OF FIELD SPLICES
 $\frac{3}{4}'' = 1'-0''$



SHEET 2 OF 4
DETAILS OF 330' CONTINUOUS
W-BEAM UNIT
WATTENSAW BAYOU
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_s2.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 3/4" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65238

PRINT DATE: 7/24/2023

NOTES:
 Required slab joints and pouring sequence construction joints shall align with rail open joints at the gutterline, unless noted otherwise.

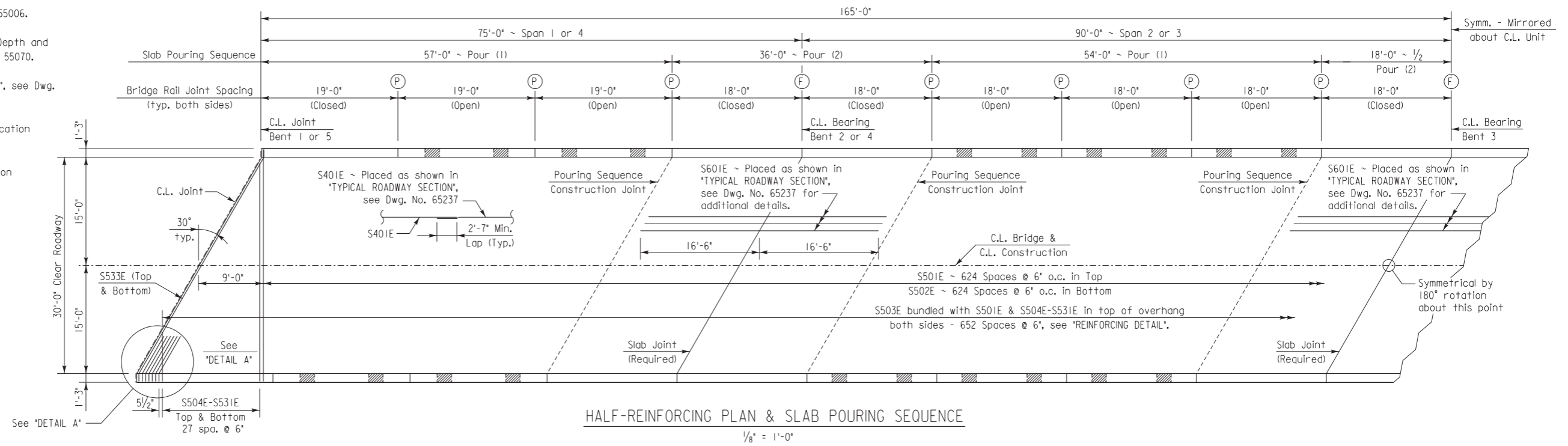
For "GENERAL NOTES", see Std. Dwg. No. 55006.

For rail reinforcing details of Partial-Depth and Full-Depth Rail Joints, see Std. Dwg. No. 55070.

For "BAR LIST" and "BAR BENDING DIAGRAMS", see Dwg. No. 65240.

(P) Partial-Depth Rail Joint at this location (Stop 16" from top of slab)

(F) Full-Depth Rail Joint at this location (Stop 6" from top of slab)



HALF-REINFORCING PLAN & SLAB POURING SEQUENCE

1/8" = 1'-0"

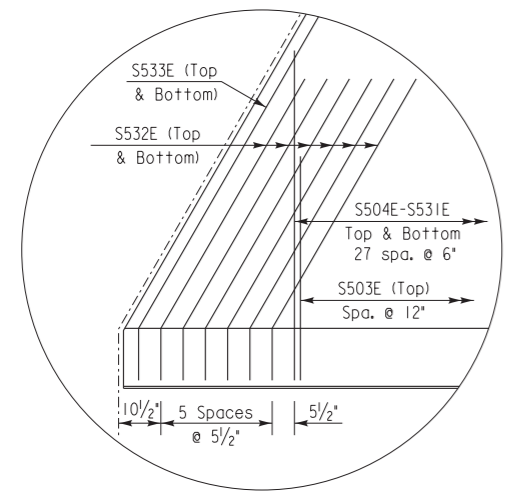
CLOSED RAIL PANELS				OPEN RAIL PANELS				
PANEL LENGTH	A	R4XXE	PANEL LENGTH	B	C	D	E	R4XXE
18'-0"	36	R404E	18'-0"	9	3'-6"	13	7'-0"	R404E
19'-0"	37	R405E	19'-0"	10	3'-9"	14	7'-6"	R405E

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.

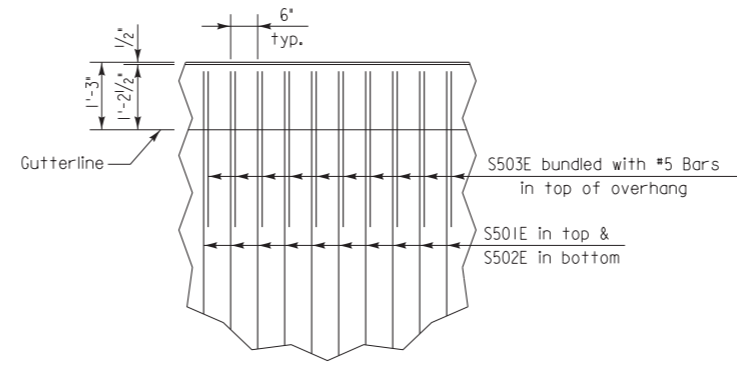
Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

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. NO DEVIATIONS FROM THE POURING SEQUENCE(S) SHOWN WILL BE ALLOWED.



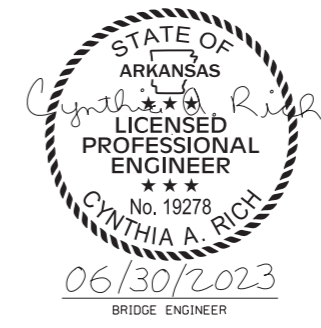
DETAIL A

No Scale



REINFORCING DETAIL

NO SCALE



SHEET 3 OF 4
DETAILS OF 330' CONTINUOUS
W-BEAM UNIT
WATTENSAW BAYOU

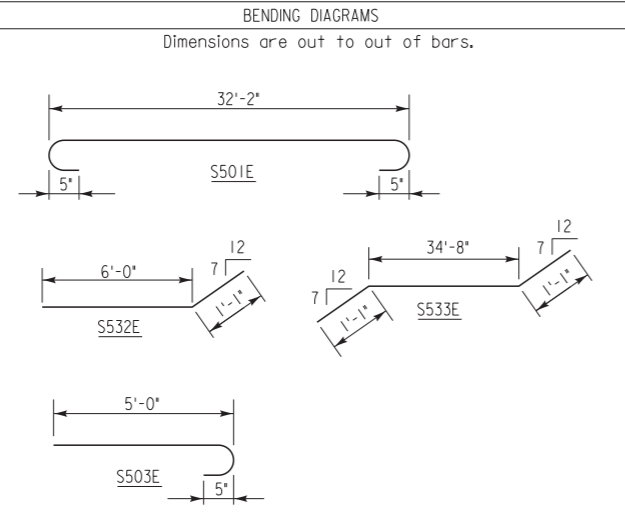
ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_s3.dgn
 CHECKED BY: BKC DATE: APR 2023 SCALE: 1/8" = 1'-0"
 DESIGNED BY: KJK DATE: APR 2023
 BRIDGE NO. 07585 DRAWING NO. 65239

PRINT DATE: 7/24/2023

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	828	39'-0"	Str.
S501E	625	33'-4"	3 ³ / ₄ "
S502E	625	32'-2"	Str.
S503E	1306	5'-7"	3 ³ / ₄ "
S504E	4	30'-3"	Str.
S505E	4	29'-4 ¹ / ₂ "	Str.
S506E	4	28'-6"	Str.
S507E	4	27'-8"	Str.
S508E	4	26'-9 ¹ / ₂ "	Str.
S509E	4	25'-11"	Str.
S510E	4	25'-0 ¹ / ₂ "	Str.
S511E	4	24'-2 ¹ / ₂ "	Str.
S512E	4	23'-4"	Str.
S513E	4	22'-5 ¹ / ₂ "	Str.
S514E	4	21'-7"	Str.
S515E	4	20'-9"	Str.
S516E	4	19'-10 ¹ / ₂ "	Str.
S517E	4	19'-0"	Str.
S518E	4	18'-1 ¹ / ₂ "	Str.
S519E	4	17'-3"	Str.
S520E	4	16'-5"	Str.
S521E	4	15'-6 ¹ / ₂ "	Str.
S522E	4	14'-8"	Str.
S523E	4	13'-9 ¹ / ₂ "	Str.
S524E	4	12'-11"	Str.
S525E	4	12'-1"	Str.
S526E	4	11'-2 ¹ / ₂ "	Str.
S527E	4	10'-4"	Str.
S528E	4	9'-5 ¹ / ₂ "	Str.
S529E	4	8'-7"	Str.
S530E	4	7'-9"	Str.
S531E	4	6'-10 ¹ / ₂ "	Str.
S532E	24	7'-1"	2 ¹ / ₂ "
S533E	4	36'-10"	2 ¹ / ₂ "
S601E	99	33'-0"	Str.
R400E	160	5'-3"	2 ¹ / ₂ "
R401E	1288	5'-11"	2 ¹ / ₂ "
R402E	112	5'-6"	Str.
R403E	1288	3'-6"	3 ³ / ₄ "
R404E	192	17'-8"	Str.
R405E	96	18'-8"	Str.

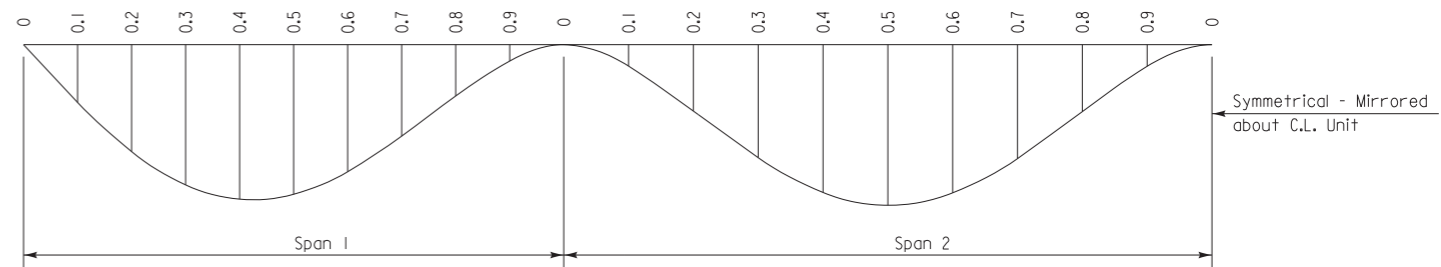


NOTE:
Camber for dead load deflection plus vertical curve $\pm 1/4$ " tolerance. Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above plane.

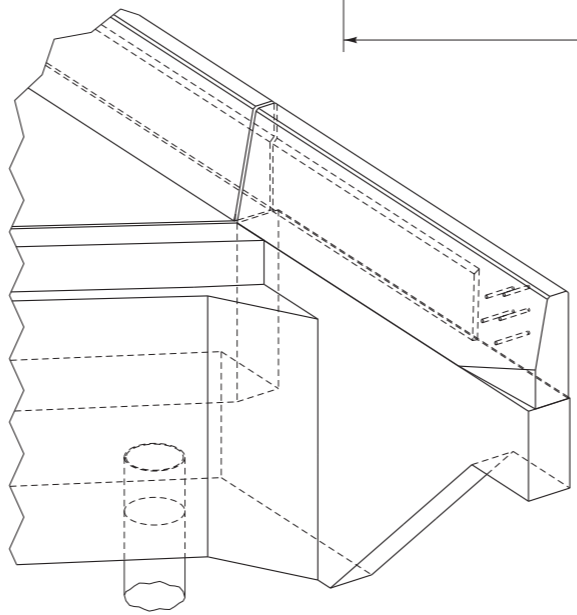
TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Parapet			
		Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4
1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.050	0.052	0.052	0.050	0.226	0.298	0.298	0.226	0.251	0.321	0.321	0.251
	0.2	0.091	0.095	0.095	0.091	0.414	0.551	0.551	0.414	0.460	0.594	0.594	0.460
	0.3	0.119	0.124	0.124	0.119	0.545	0.723	0.722	0.545	0.606	0.779	0.778	0.606
	0.4	0.132	0.137	0.137	0.132	0.602	0.796	0.795	0.602	0.669	0.858	0.857	0.669
	0.5	0.128	0.133	0.133	0.128	0.581	0.771	0.771	0.581	0.646	0.831	0.831	0.646
	0.6	0.109	0.113	0.113	0.109	0.493	0.655	0.655	0.493	0.548	0.706	0.706	0.548
	0.7	0.079	0.082	0.082	0.079	0.357	0.471	0.470	0.357	0.397	0.508	0.507	0.397
	0.8	0.044	0.045	0.046	0.044	0.201	0.264	0.265	0.201	0.223	0.285	0.286	0.223
	0.9	0.014	0.014	0.014	0.014	0.063	0.084	0.084	0.063	0.070	0.091	0.091	0.070
2	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.019	0.019	0.019	0.019	0.085	0.110	0.110	0.085	0.094	0.119	0.119	0.094
	0.2	0.058	0.060	0.060	0.058	0.258	0.342	0.343	0.258	0.287	0.369	0.370	0.287
	0.3	0.098	0.101	0.102	0.098	0.444	0.582	0.584	0.444	0.494	0.628	0.630	0.494
	0.4	0.128	0.132	0.133	0.128	0.577	0.761	0.764	0.577	0.642	0.821	0.824	0.642
	0.5	0.140	0.144	0.145	0.140	0.629	0.827	0.830	0.629	0.700	0.892	0.895	0.700
	0.6	0.128	0.132	0.133	0.128	0.579	0.763	0.767	0.579	0.644	0.823	0.827	0.644
	0.7	0.099	0.102	0.103	0.099	0.445	0.587	0.590	0.445	0.495	0.633	0.636	0.495
	0.8	0.058	0.060	0.060	0.058	0.261	0.345	0.347	0.261	0.290	0.372	0.374	0.290
	0.9	0.019	0.019	0.019	0.019	0.085	0.111	0.113	0.085	0.095	0.120	0.122	0.095
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

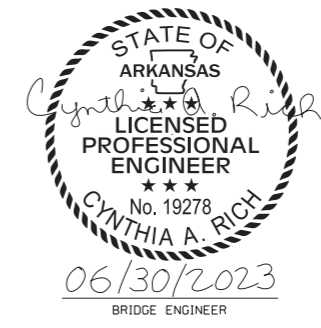
Symmetrical - Mirrored about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM
NO SCALE

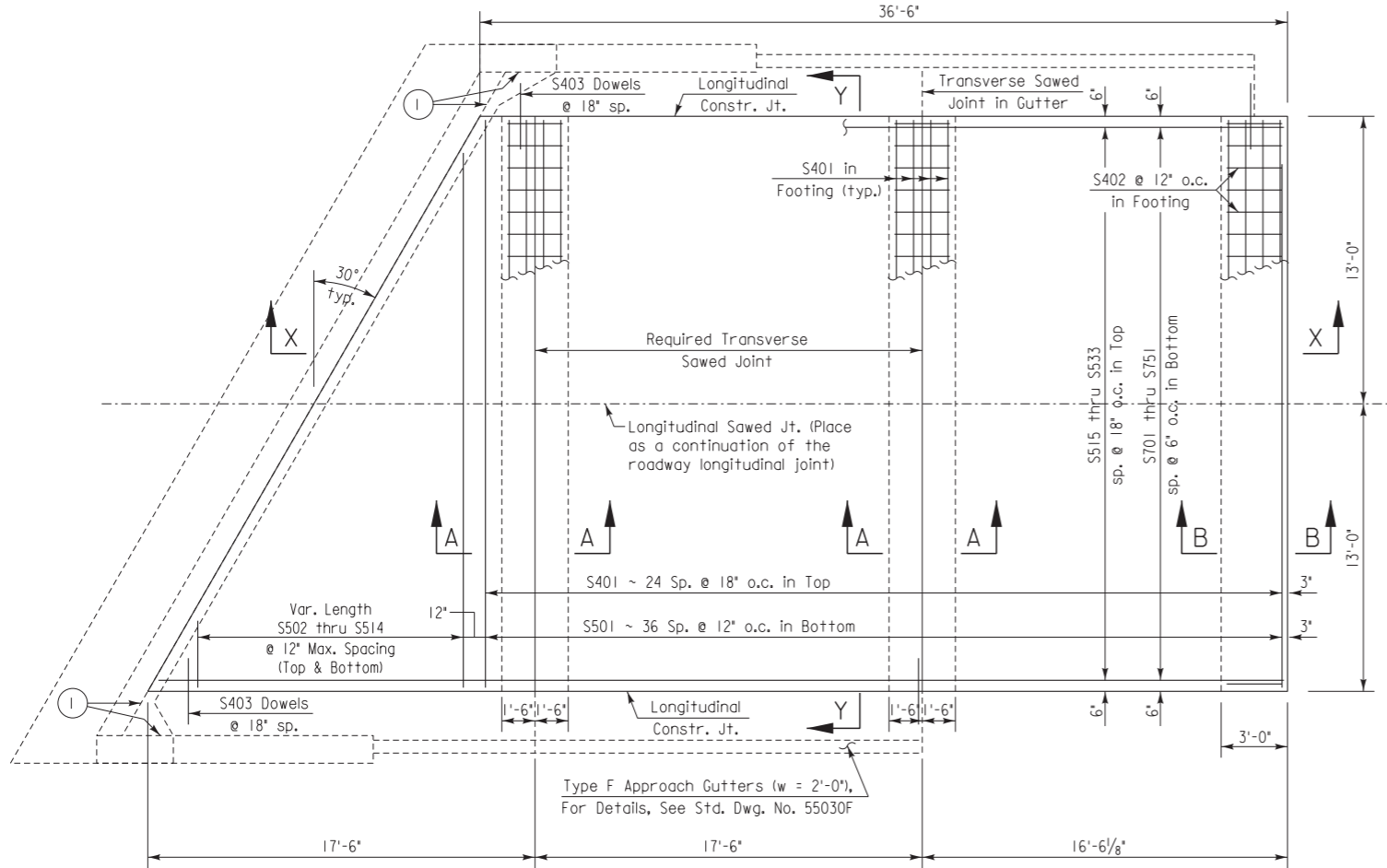


THREE DIMENSIONAL VIEW
OF WING AND RAIL AT END BENT

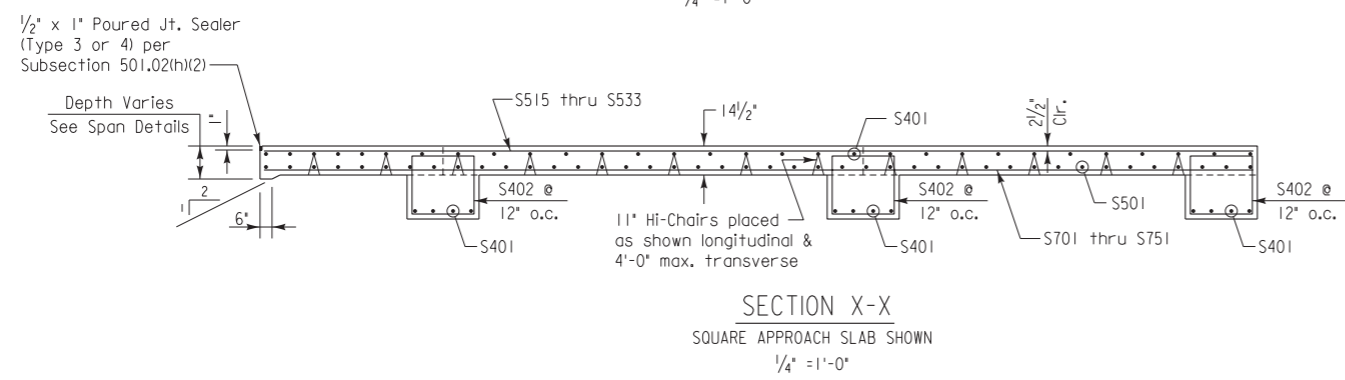


SHEET 4 OF 4
DETAILS OF 330' CONTINUOUS
W-BEAM UNIT
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

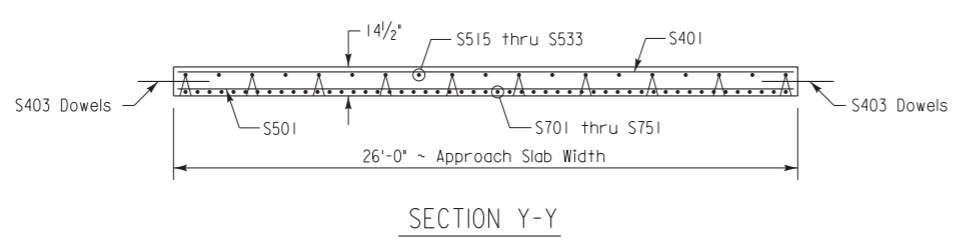
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DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65240



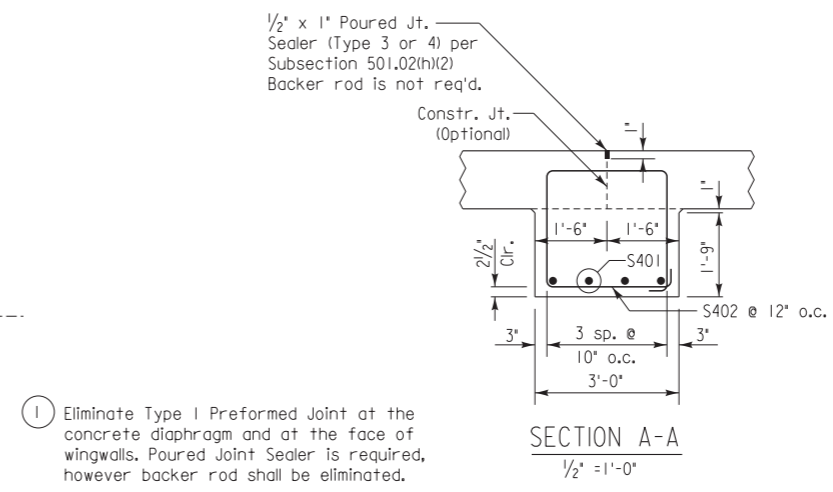
PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS
1/4" = 1'-0"



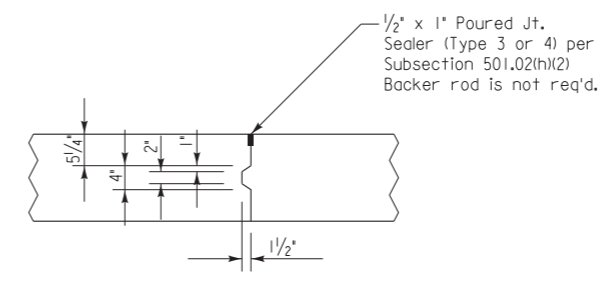
SECTION X-X
SQUARE APPROACH SLAB SHOWN
1/4" = 1'-0"



SECTION Y-Y



① Eliminate Type I Preformed Joint at the concrete diaphragm and at the face of wingwalls. Poured Joint Sealer is required, however backer rod shall be eliminated.



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

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401	37	25'-8"	Str.
S402	81	10'-4"	2"
S403	46	3'-0"	Str.
S501	37	25'-8"	Str.
S502-S514	13 top 13 bott	24'-2" to 3'-0"	Str.
S515-S533	19	50'-10" to 36'-5"	Str.
S701-S751	51	50'-10" to 36'-5"	Str.

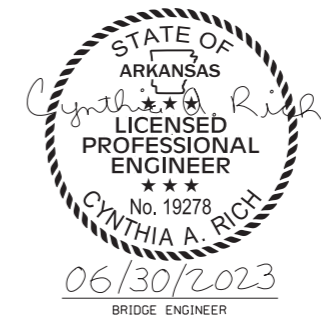
Dimensions are out to out of bar.

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 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.

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

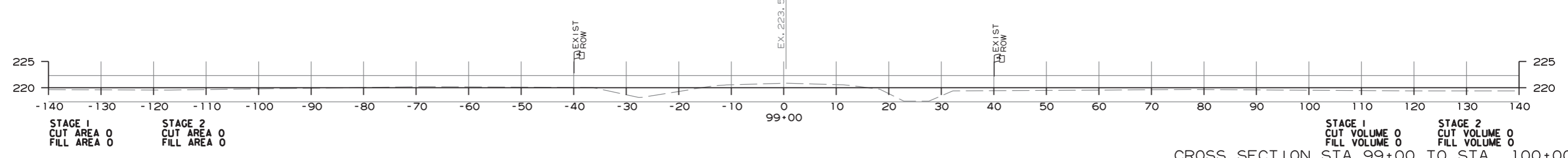
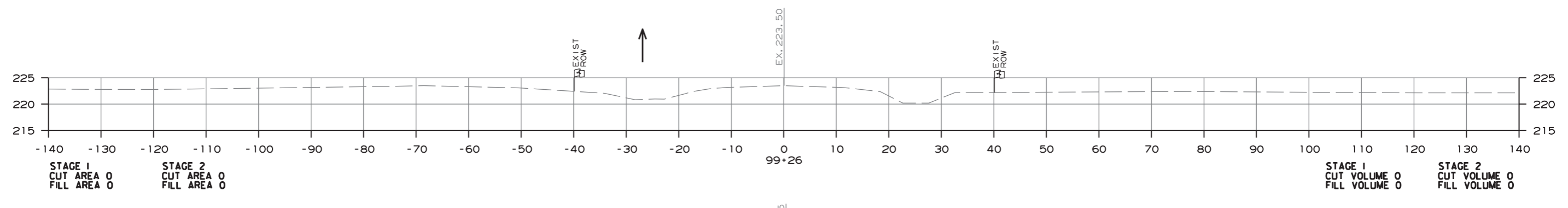
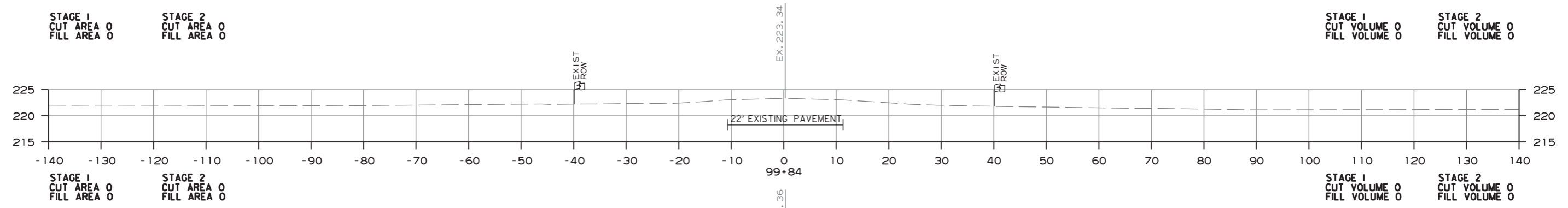
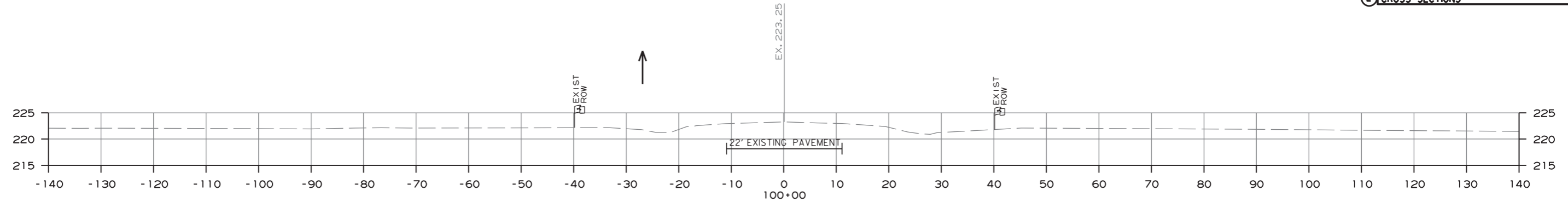
Slab Width	Reinforcing Steel	Concrete
	Lbs.	Cu. Yds.
26'-0"	7162	67.10



DETAILS OF TYPE SPECIAL APPROACH SLAB
WATTENSAW BAYOU
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJK DATE: APR 2023 FILENAME: b061614x2_g1.dgn
CHECKED BY: BKC DATE: APR 2023 SCALE: 3/4" = 1'-0"
DESIGNED BY: KJK DATE: APR 2023
BRIDGE NO. 07585 DRAWING NO. 65240A

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.	061614	60

② CROSS SECTIONS



CROSS SECTION STA. 99+00 TO STA. 100+00

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.	061614	61

2 CROSS SECTIONS

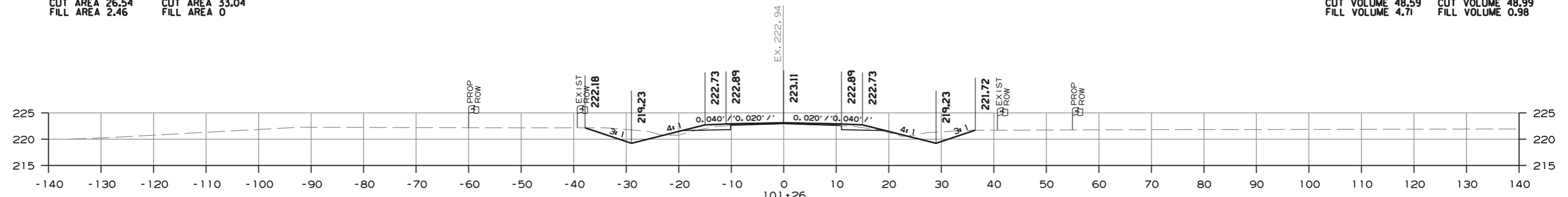


STAGE 1
CUT AREA 26.54
FILL AREA 2.46

STAGE 2
CUT AREA 33.04
FILL AREA 0

STAGE 1
CUT VOLUME 48.59
FILL VOLUME 4.71

STAGE 2
CUT VOLUME 48.99
FILL VOLUME 0.98

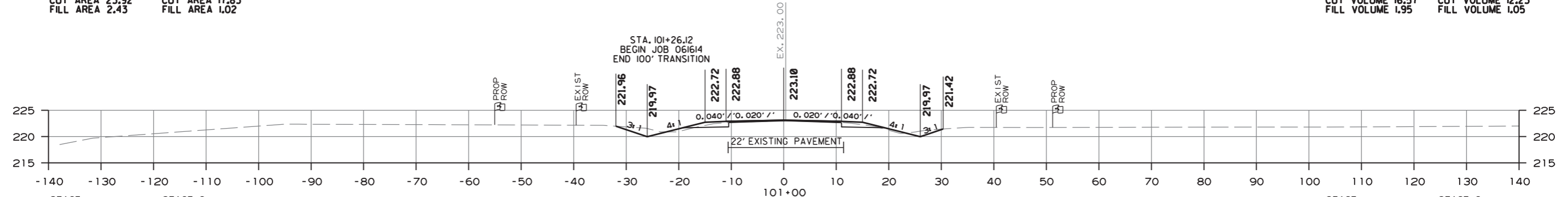


STAGE 1
CUT AREA 23.92
FILL AREA 2.43

STAGE 2
CUT AREA 17.83
FILL AREA 1.02

STAGE 1
CUT VOLUME 16.57
FILL VOLUME 1.95

STAGE 2
CUT VOLUME 12.23
FILL VOLUME 1.05

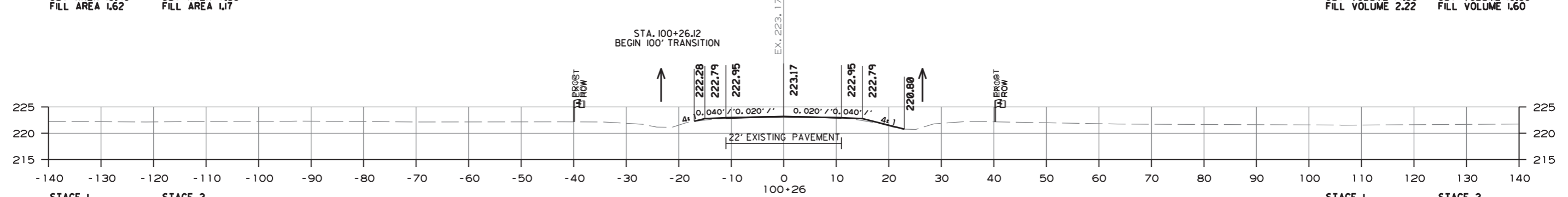


STAGE 1
CUT AREA 10.49
FILL AREA 1.62

STAGE 2
CUT AREA 7.58
FILL AREA 1.17

STAGE 1
CUT VOLUME 14.38
FILL VOLUME 2.22

STAGE 2
CUT VOLUME 10.39
FILL VOLUME 1.60



STAGE 1
CUT AREA 0
FILL AREA 0

STAGE 2
CUT AREA 0
FILL AREA 0

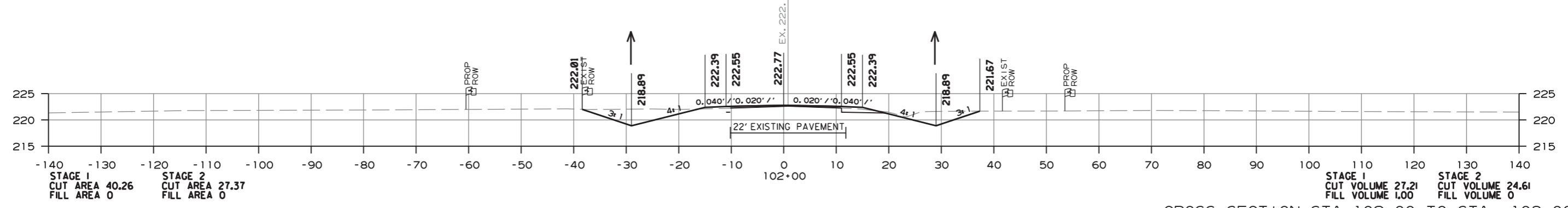
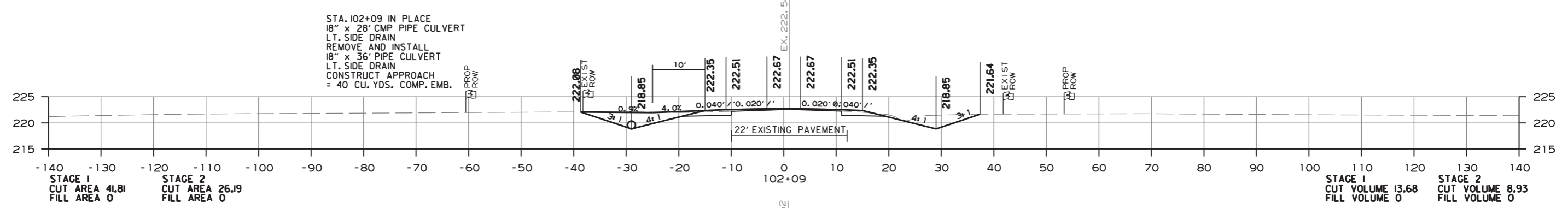
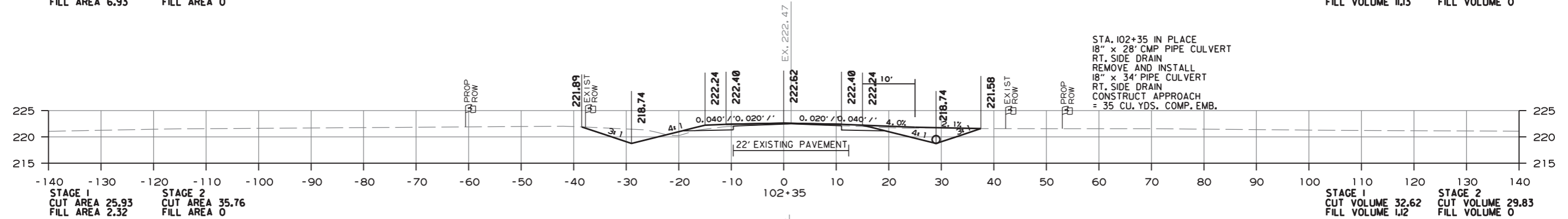
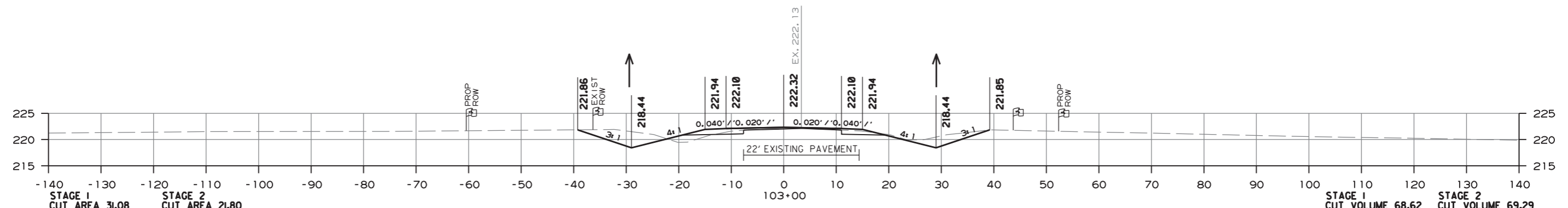
STAGE 1
CUT VOLUME 0
FILL VOLUME 0

STAGE 2
CUT VOLUME 0
FILL VOLUME 0

CROSS SECTION STA. 100+26 TO STA. 101+78

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. 061614	62	79

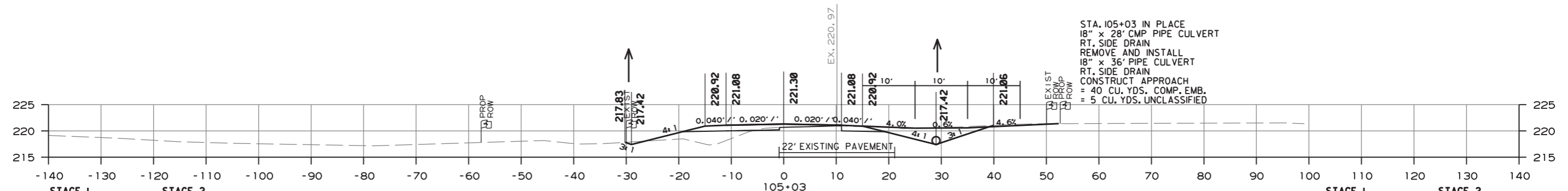
2 CROSS SECTIONS



CROSS SECTION STA. 102+00 TO STA. 103+00

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. 061614	63	79

2 CROSS SECTIONS



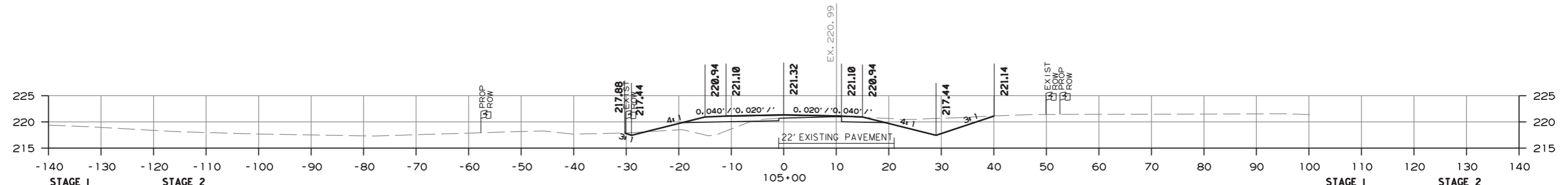
STA. 105+03 IN PLACE
 18" x 28' CMP PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.
 = 5 CU. YDS. UNCLASSIFIED

STAGE 1
 CUT AREA 2.36
 FILL AREA 26.96

STAGE 2
 CUT AREA 42.98
 FILL AREA 0

STAGE 1
 CUT VOLUME 0.27
 FILL VOLUME 2.97

STAGE 2
 CUT VOLUME 4.79
 FILL VOLUME 0

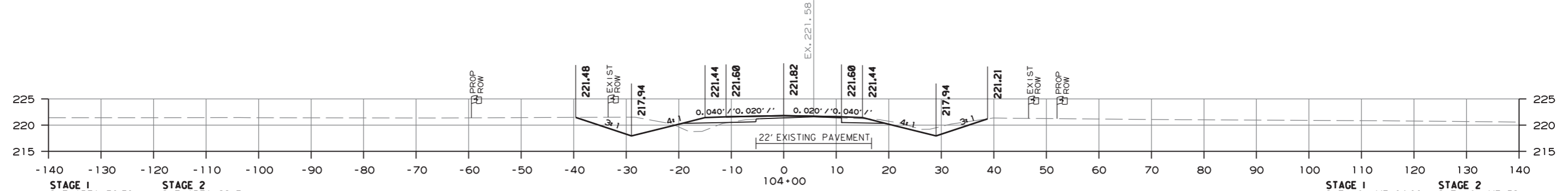


STAGE 1
 CUT AREA 2.45
 FILL AREA 26.57

STAGE 2
 CUT AREA 43.29
 FILL AREA 0

STAGE 1
 CUT VOLUME 71.93
 FILL VOLUME 67.78

STAGE 2
 CUT VOLUME 121.22
 FILL VOLUME 0

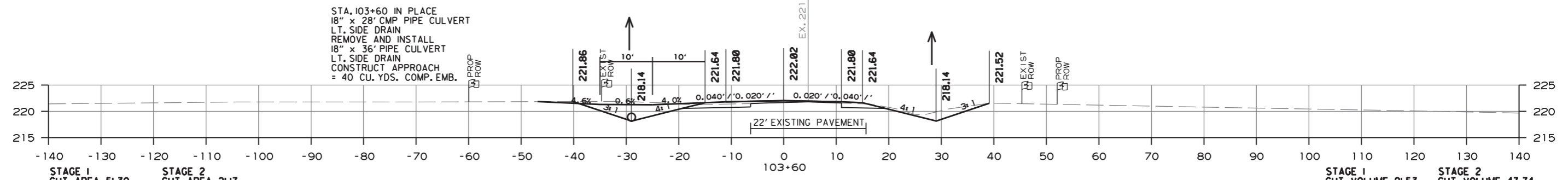


STAGE 1
 CUT AREA 36.39
 FILL AREA 10.03

STAGE 2
 CUT AREA 22.17
 FILL AREA 0

STAGE 1
 CUT VOLUME 64.96
 FILL VOLUME 7.43

STAGE 2
 CUT VOLUME 32.11
 FILL VOLUME 0



STA. 103+60 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.

STAGE 1
 CUT AREA 51.30
 FILL AREA 0

STAGE 2
 CUT AREA 21.17
 FILL AREA 0

STAGE 1
 CUT VOLUME 91.53
 FILL VOLUME 7.70

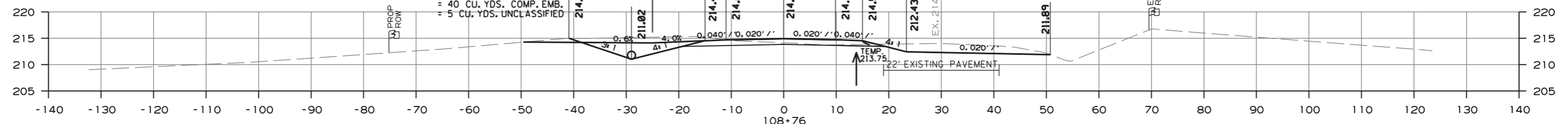
STAGE 2
 CUT VOLUME 47.74
 FILL VOLUME 0

CROSS SECTION STA. 103+60 TO STA. 105+03

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. 061614	64	79

2 CROSS SECTIONS

STA. 108+76 IN PLACE
 18" x 28' CMP PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH
 = 40 CU. YDS. COMP. EMB.
 = 5 CU. YDS. UNCLASSIFIED

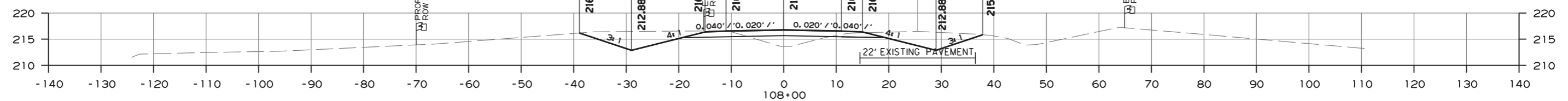


STAGE 1
 CUT AREA 77.07
 FILL AREA 0

STAGE 2
 CUT AREA 41.95
 FILL AREA 0

STAGE 1
 CUT VOLUME 190.24
 FILL VOLUME 25.22

STAGE 2
 CUT VOLUME 117.21
 FILL VOLUME 0

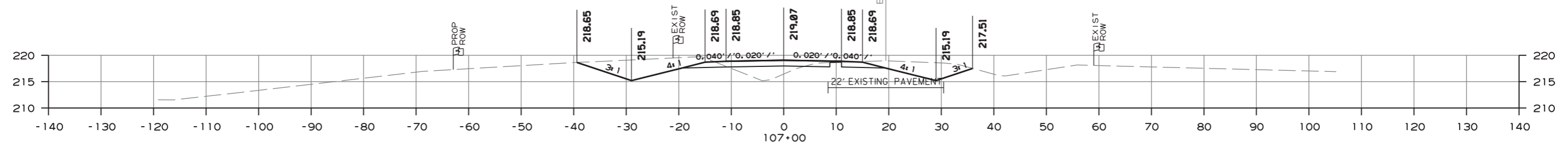


STAGE 1
 CUT AREA 58.10
 FILL AREA 17.92

STAGE 2
 CUT AREA 41.33
 FILL AREA 0

STAGE 1
 CUT VOLUME 226.33
 FILL VOLUME 72.15

STAGE 2
 CUT VOLUME 160.61
 FILL VOLUME 0

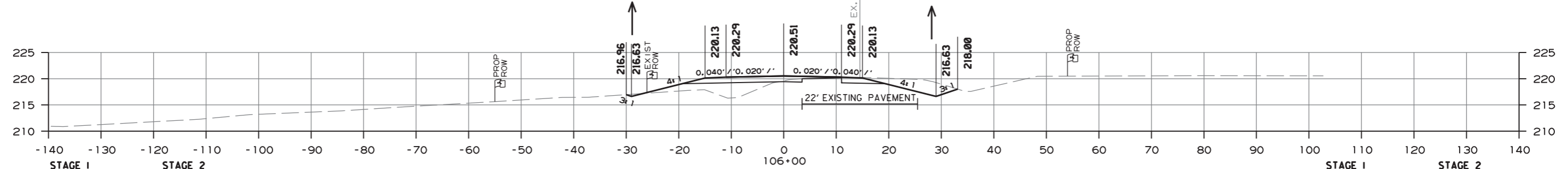


STAGE 1
 CUT AREA 64.12
 FILL AREA 21.04

STAGE 2
 CUT AREA 45.40
 FILL AREA 0

STAGE 1
 CUT VOLUME 123.02
 FILL VOLUME 104.39

STAGE 2
 CUT VOLUME 146.96
 FILL VOLUME 0



STAGE 1
 CUT AREA 2.31
 FILL AREA 35.33

STAGE 2
 CUT AREA 33.96
 FILL AREA 0

STAGE 1
 CUT VOLUME 8.39
 FILL VOLUME 118.89

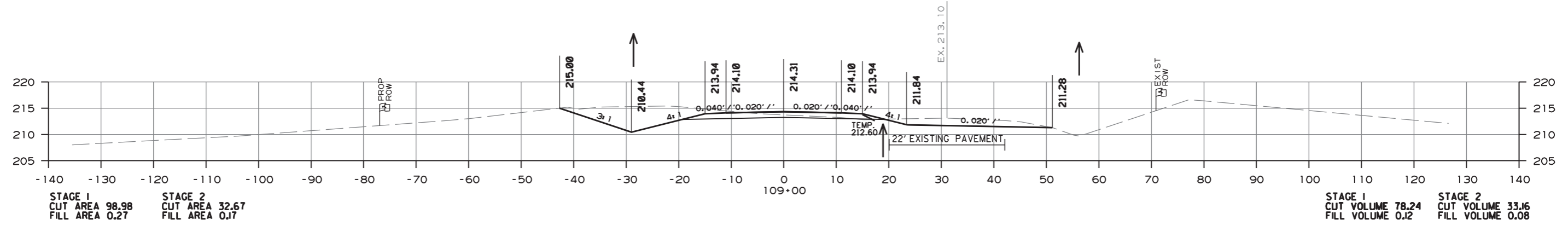
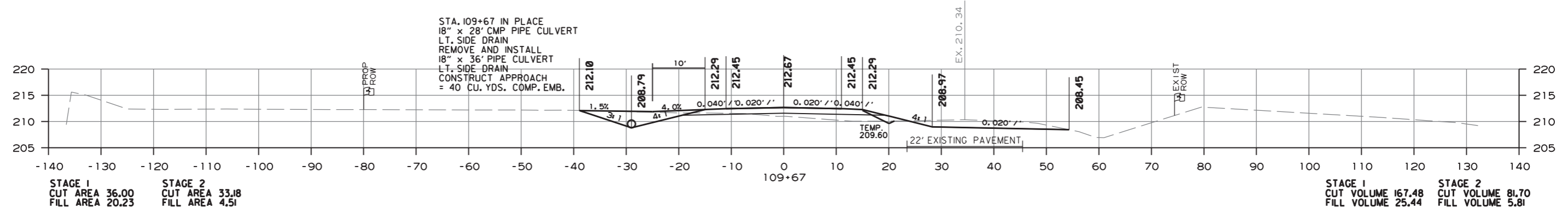
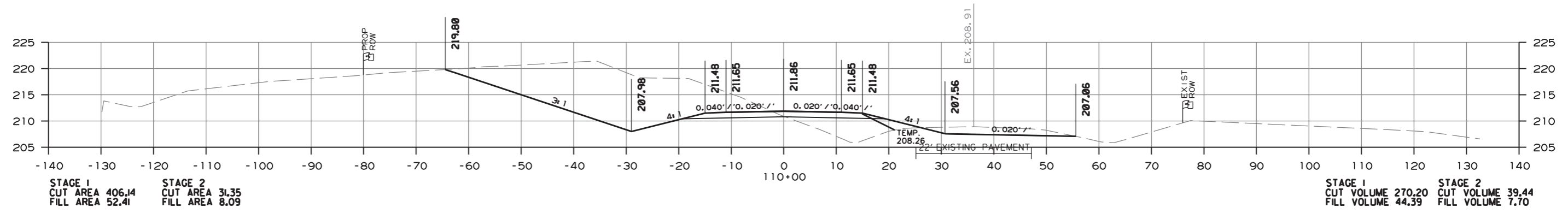
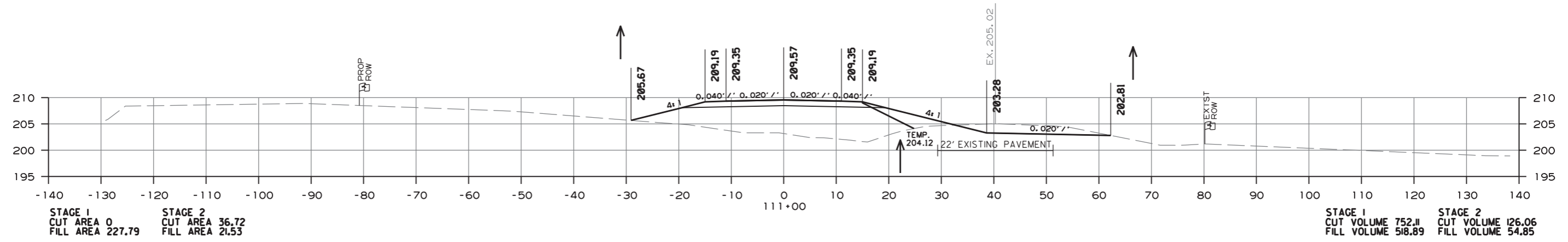
STAGE 2
 CUT VOLUME 138.21
 FILL VOLUME 0

CROSS SECTION STA. 106+00 TO STA. 108+76

12/27/2023
 R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						061614	65	79

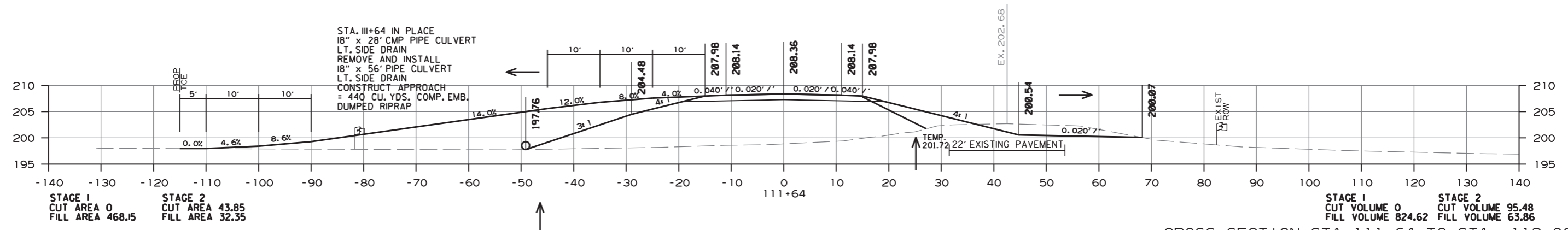
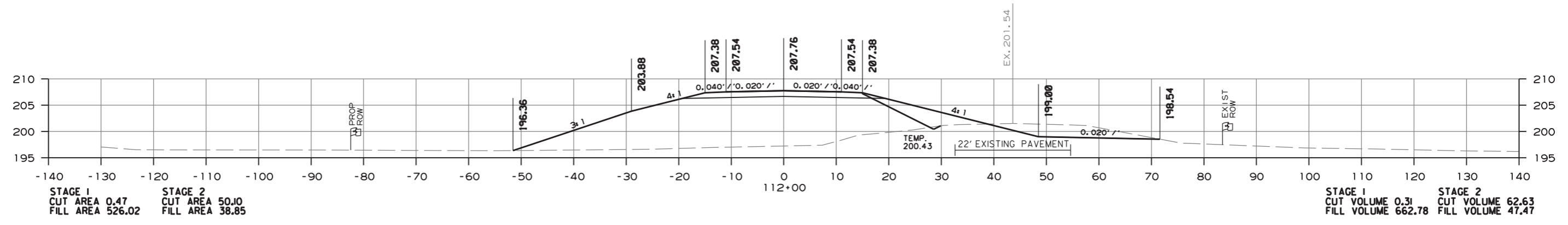
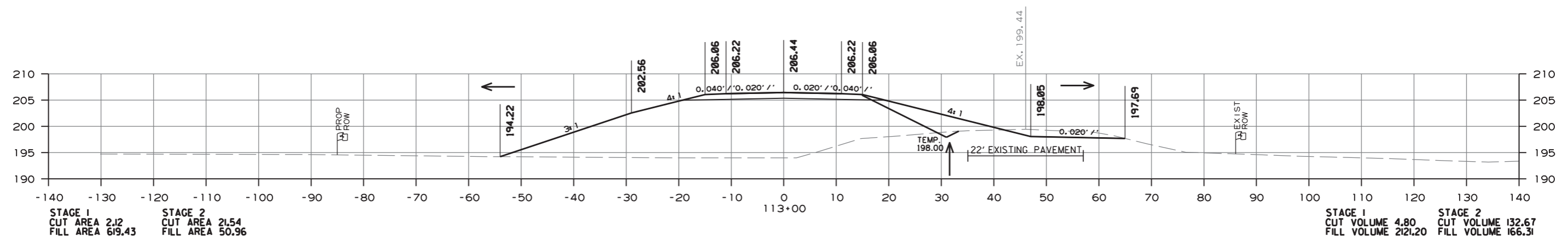
2 CROSS SECTIONS



CROSS SECTION STA. 109+00 TO STA. 111+00

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.	061614	66

2 CROSS SECTIONS

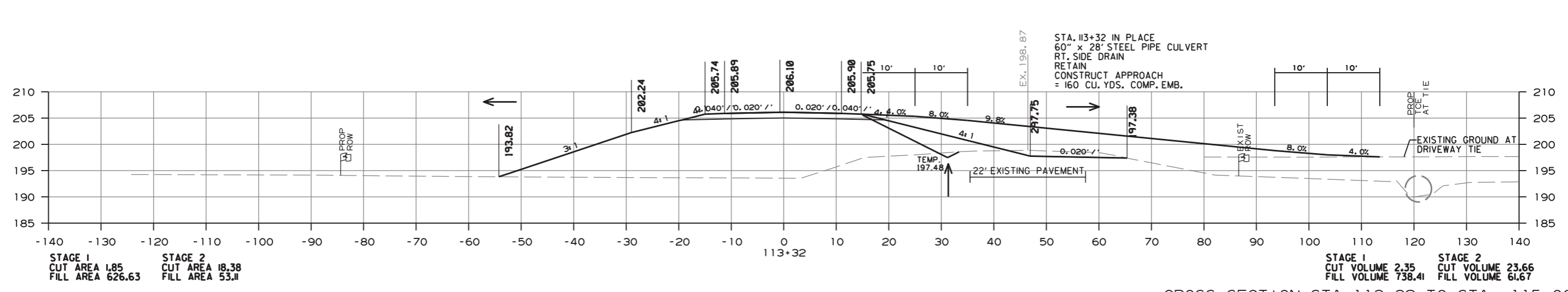
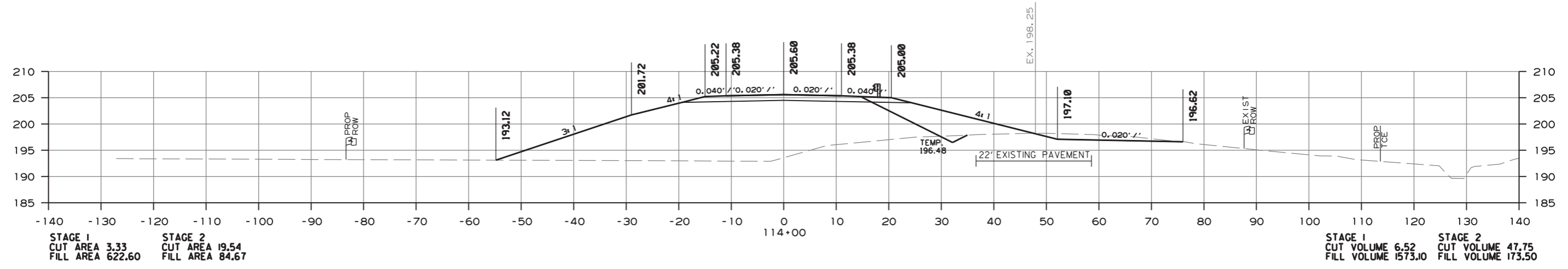
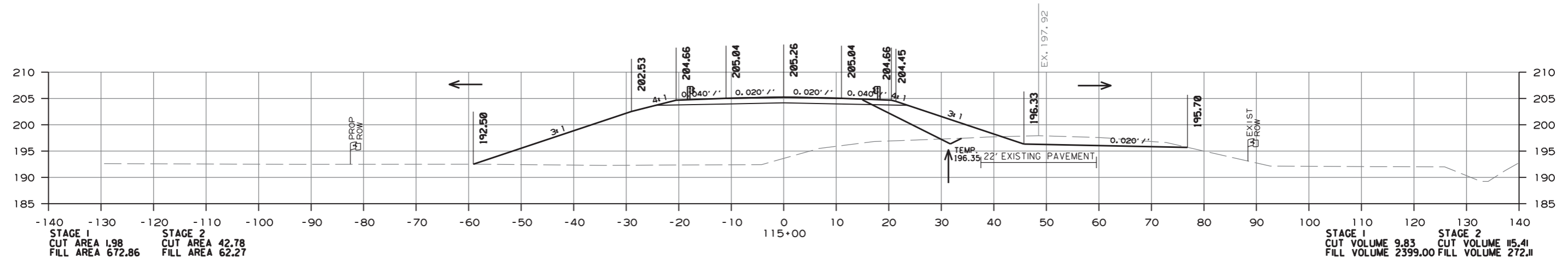


CROSS SECTION STA. 111+64 TO STA. 113+00

STA. 111+64 IN PLACE
18" x 28' CMP PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH
= 440 CU. YDS. COMP. EMB.
DUMPED RIPRAP

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. 061614	67	79

2 CROSS SECTIONS

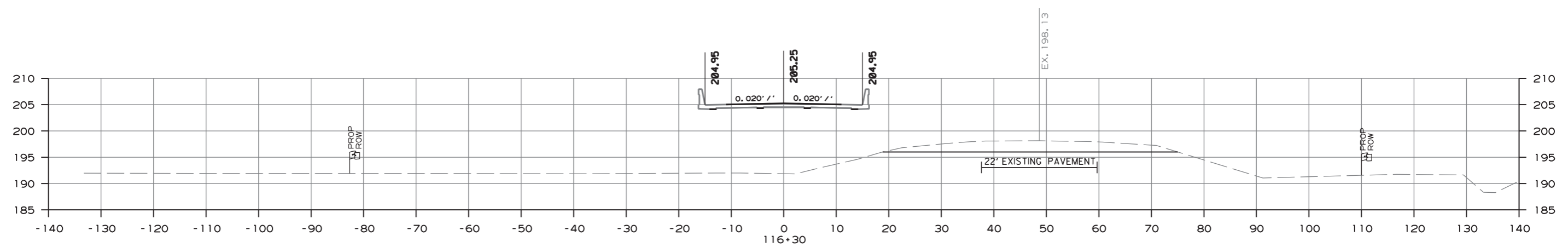


CROSS SECTION STA. 113+32 TO STA. 115+00

12/27/2023
 R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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						JOB NO.	061614	68

2 CROSS SECTIONS

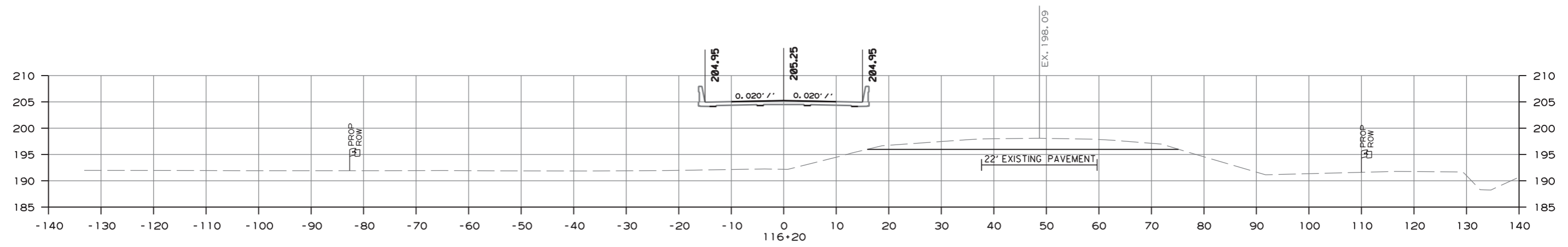


STAGE 1
CUT AREA 0
FILL AREA 0

STAGE 2
CUT AREA 90.55
FILL AREA 0

STAGE 1
CUT VOLUME 0
FILL VOLUME 0

STAGE 2
CUT VOLUME 47.29
FILL VOLUME 0



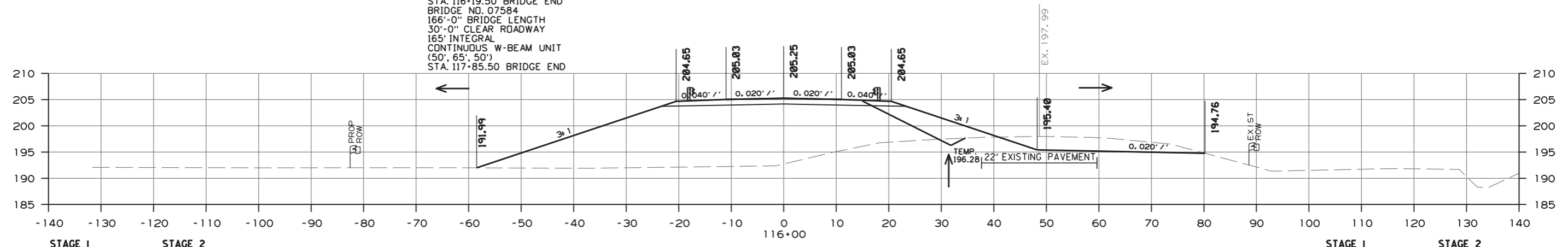
STAGE 1
CUT AREA 3.20
FILL AREA 682.55

STAGE 2
CUT AREA 164.81
FILL AREA 60.02

STAGE 1
CUT VOLUME 2.37
FILL VOLUME 505.59

STAGE 2
CUT VOLUME 88.57
FILL VOLUME 44.46

STA. 116+19.50 BRIDGE END
BRIDGE NO. 07584
166'-0" BRIDGE LENGTH
30'-0" CLEAR ROADWAY
165' INTEGRAL
CONTINUOUS W-BEAM UNIT
(50', 65', 50')
STA. 117+85.50 BRIDGE END



STAGE 1
CUT AREA 3.20
FILL AREA 682.55

STAGE 2
CUT AREA 74.32
FILL AREA 60.02

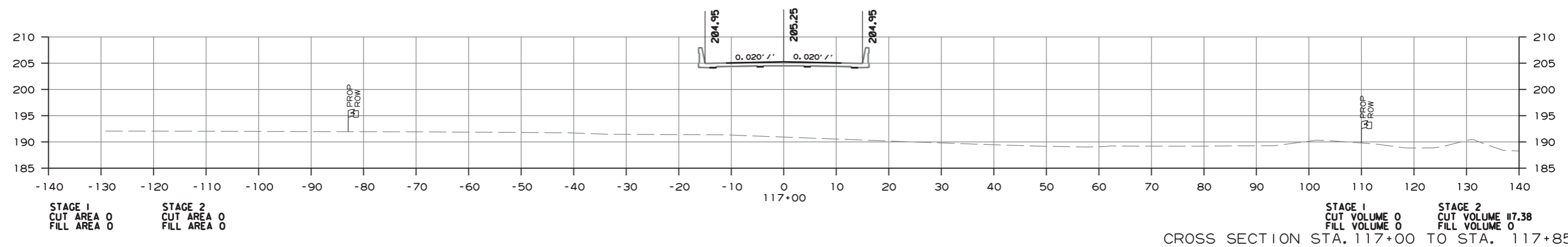
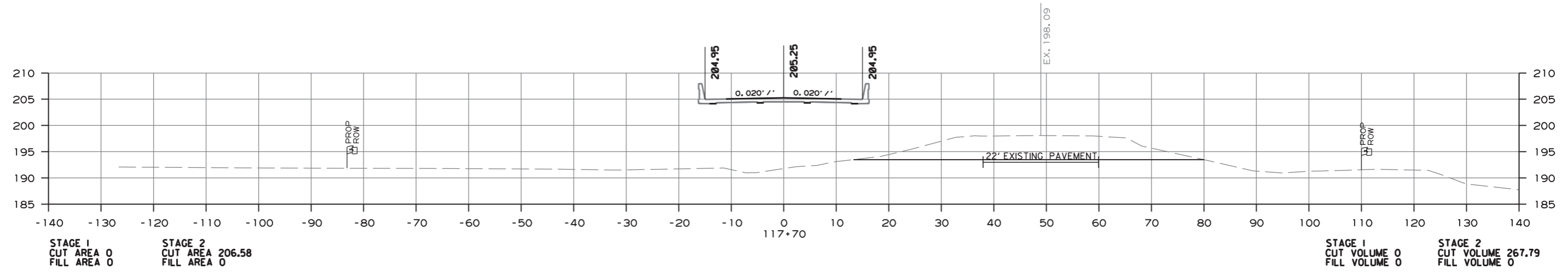
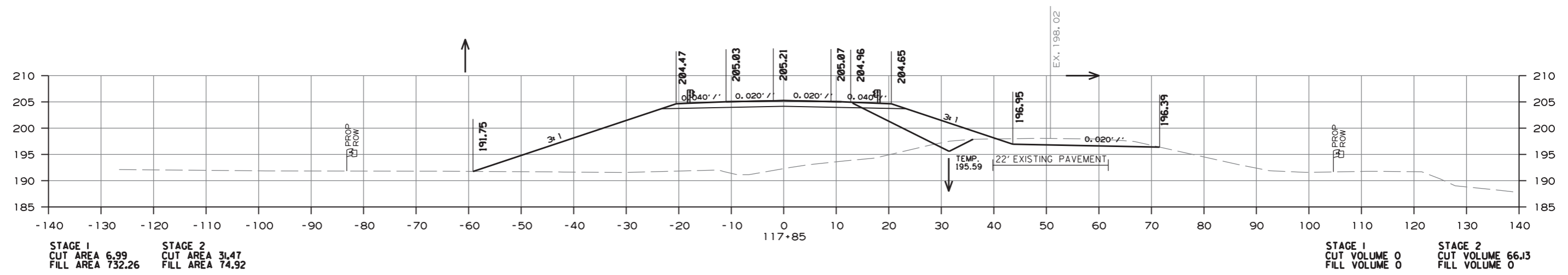
STAGE 1
CUT VOLUME 9.59
FILL VOLUME 250.02

STAGE 2
CUT VOLUME 216.85
FILL VOLUME 226.46

CROSS SECTION STA. 116+00 TO STA. 116+30

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. 061614	69	79

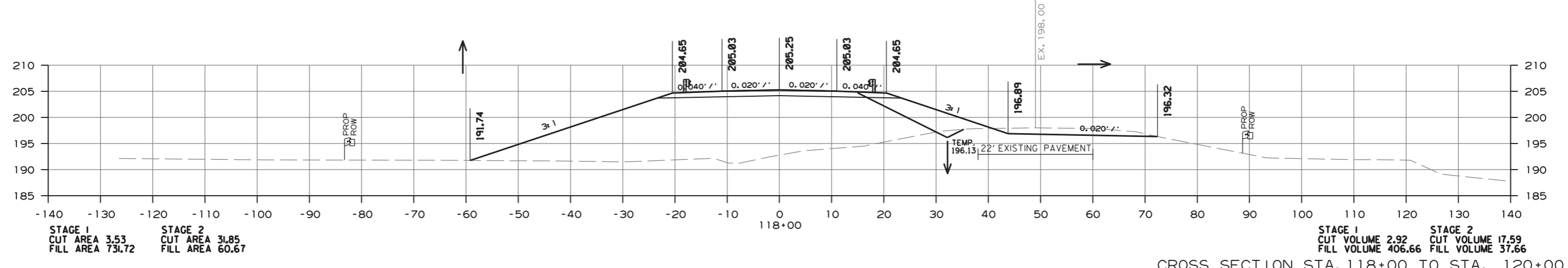
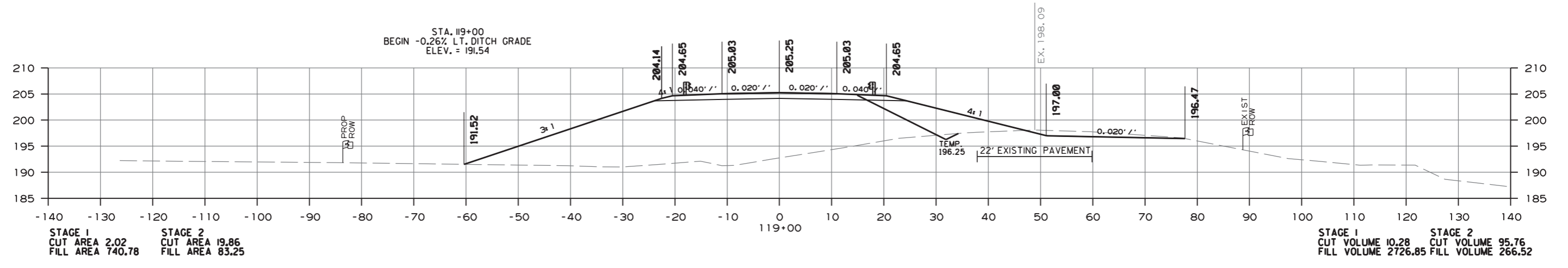
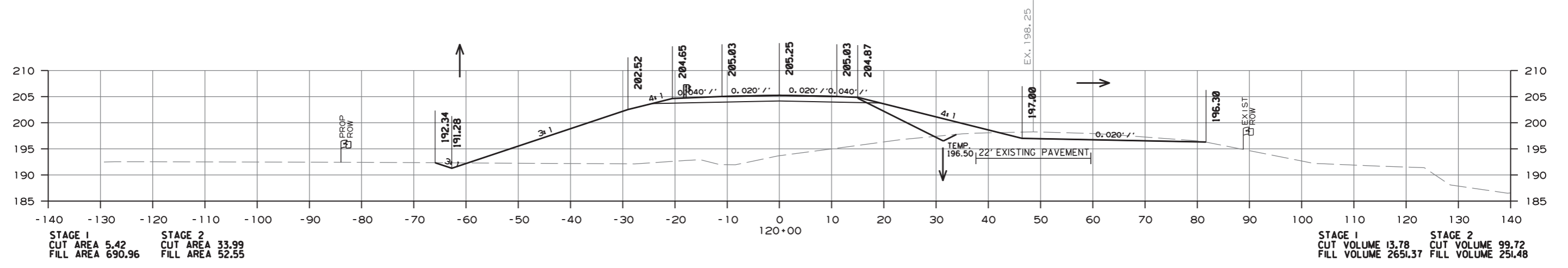
2 CROSS SECTIONS



CROSS SECTION STA. 117+00 TO STA. 117+85

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. 061614	70	79

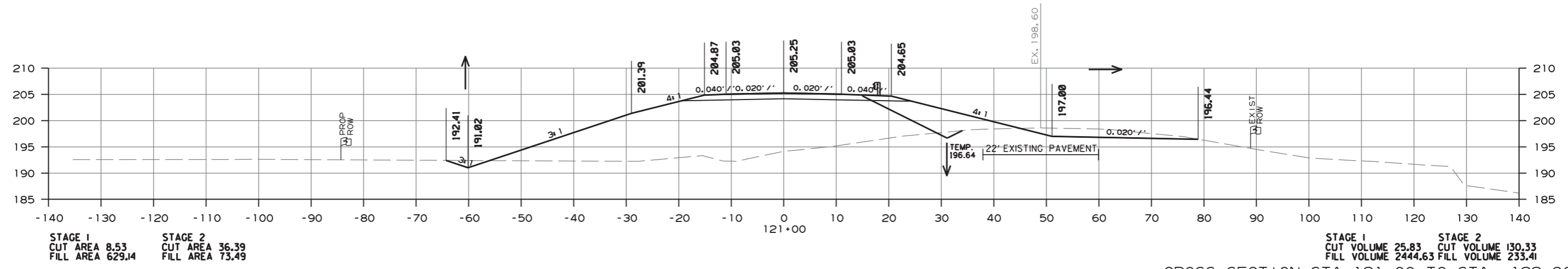
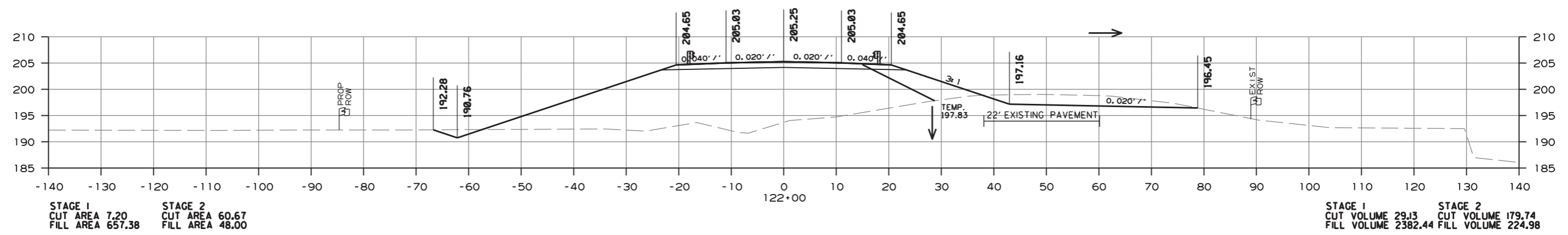
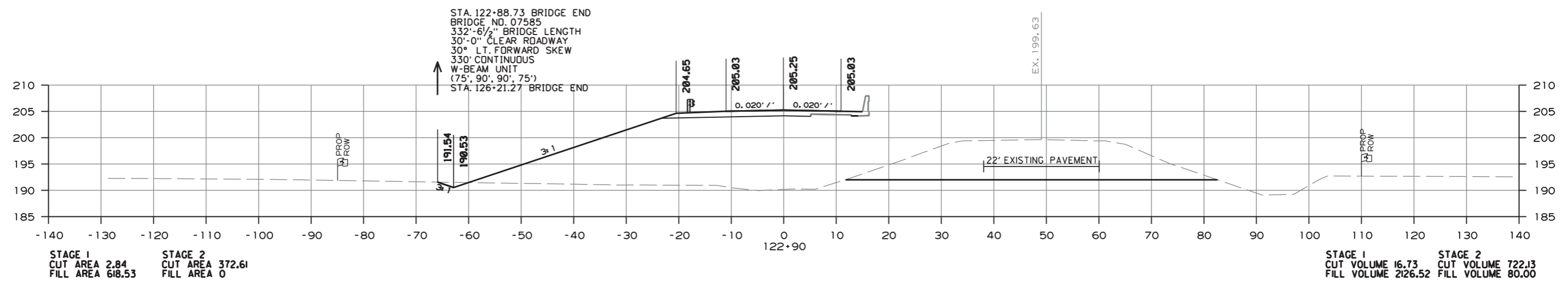
2 CROSS SECTIONS



CROSS SECTION STA. 118+00 TO STA. 120+00

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.						061614	71	79

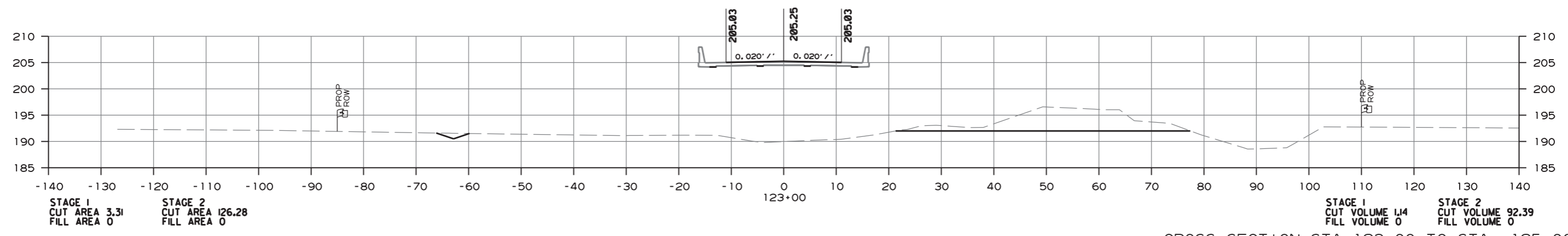
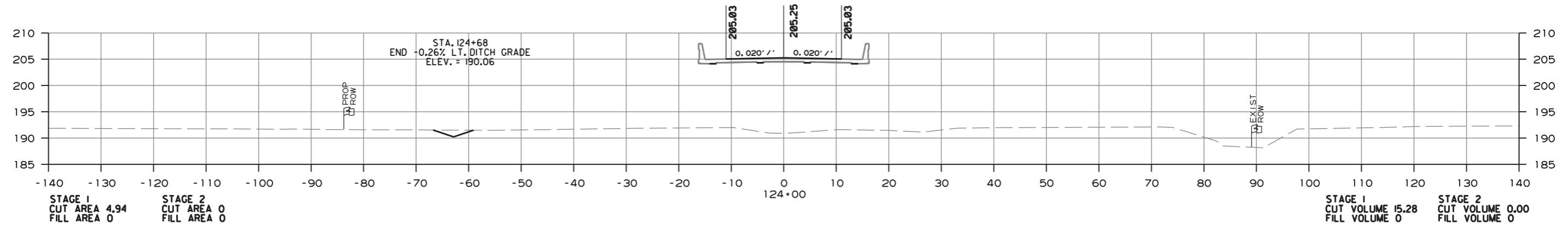
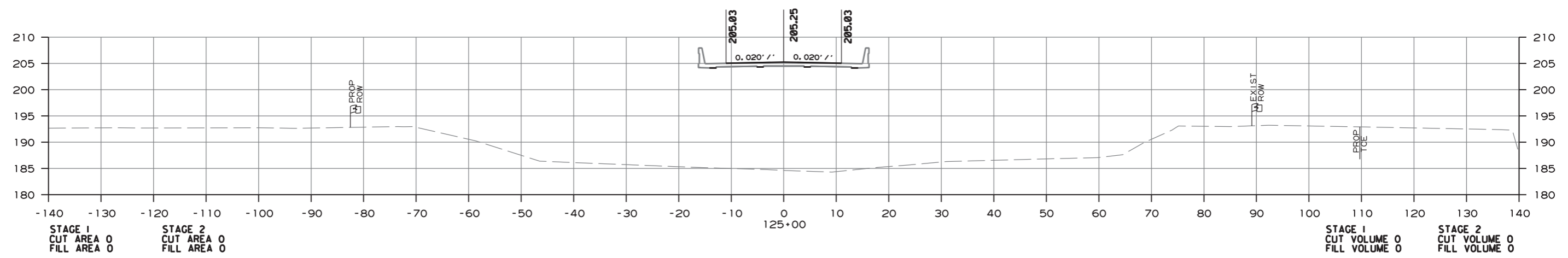
② CROSS SECTIONS



CROSS SECTION STA. 121+00 TO STA. 122+90

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.	061614	72 79

② CROSS SECTIONS

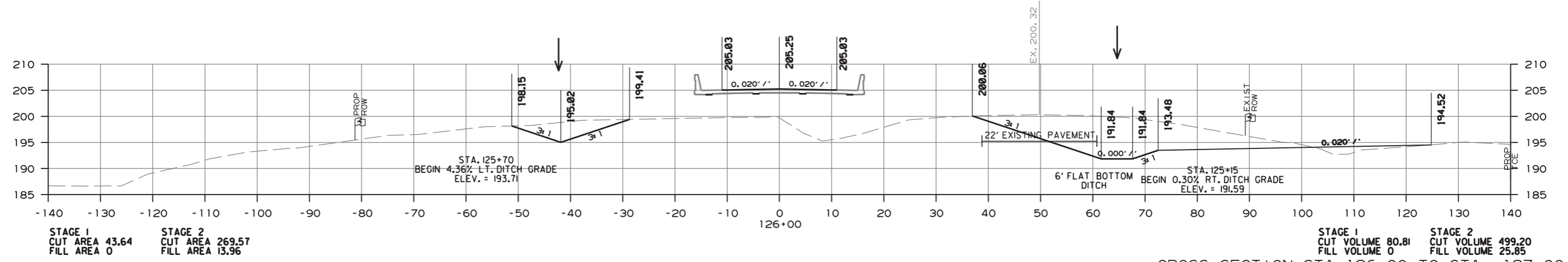
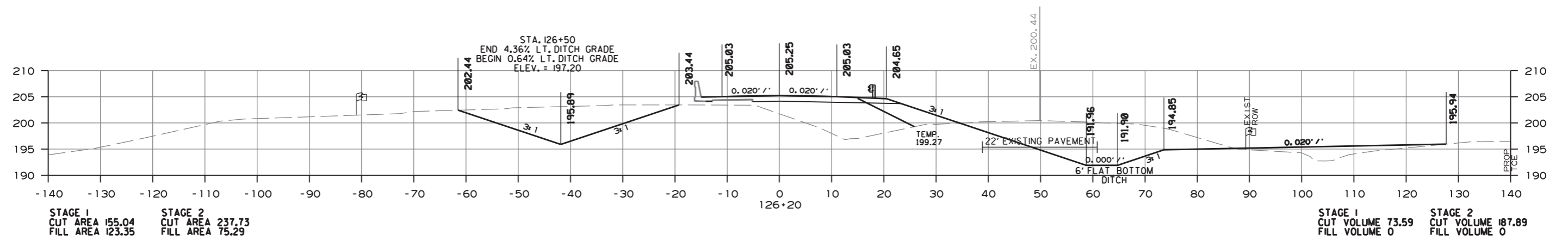
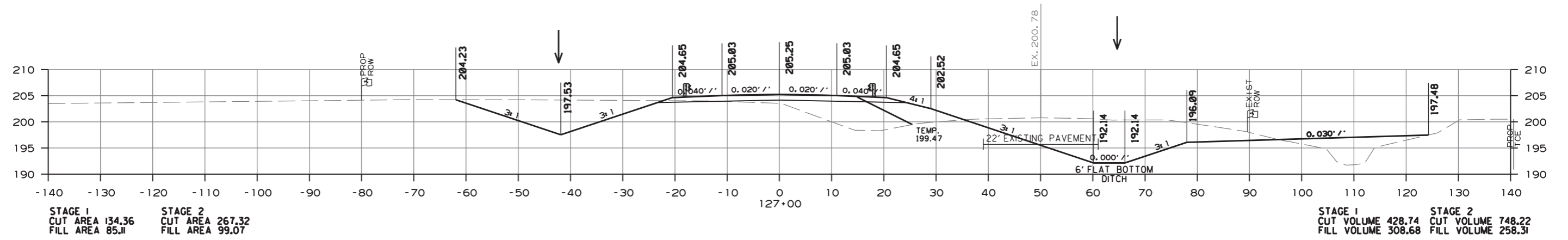


CROSS SECTION STA. 123+00 TO STA. 125+00

R061614.dgn 12/27/2023

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. 061614	73	79

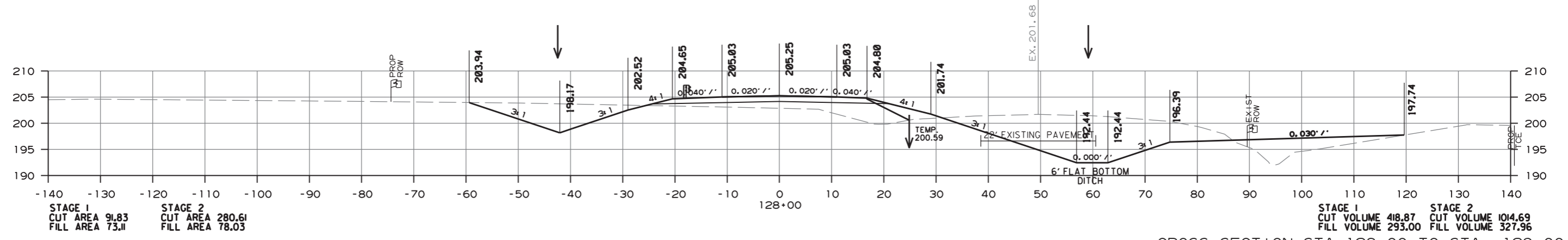
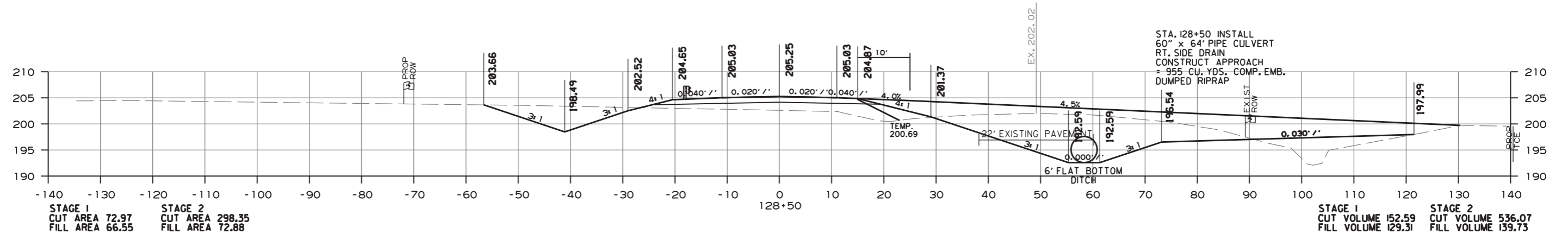
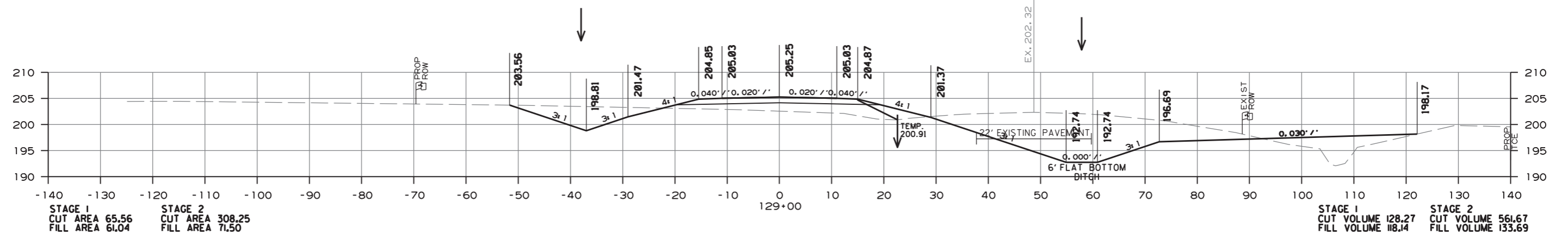
2 CROSS SECTIONS



CROSS SECTION STA. 126+00 TO STA. 127+00

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. 061614	74	79

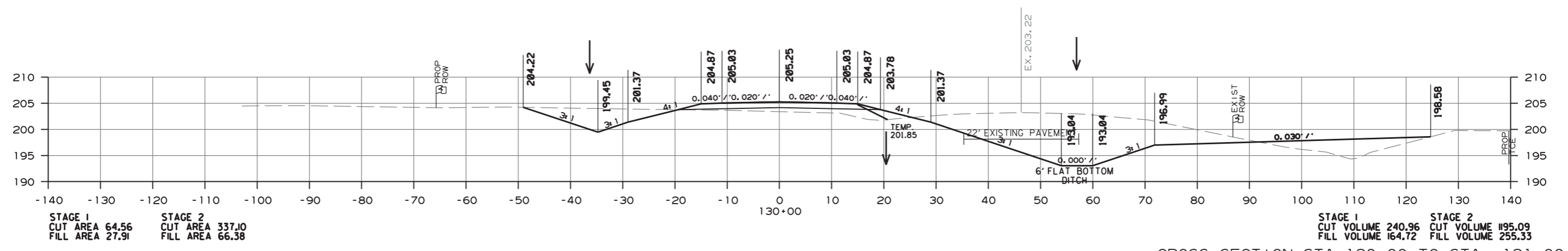
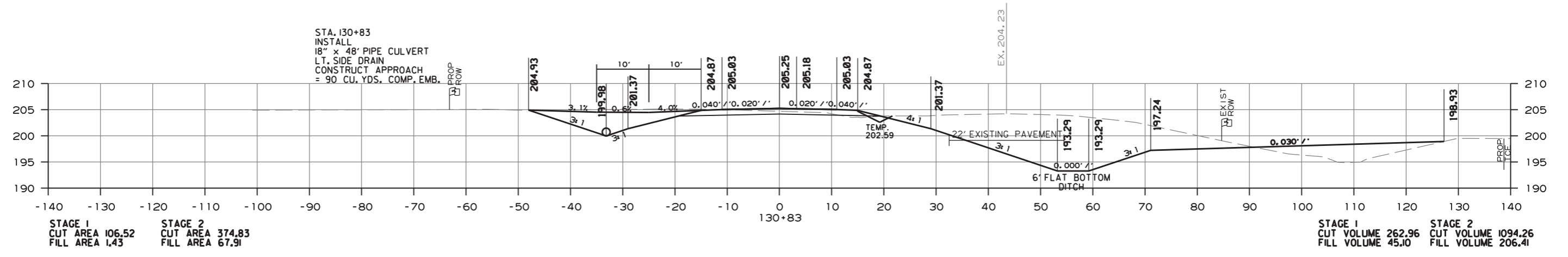
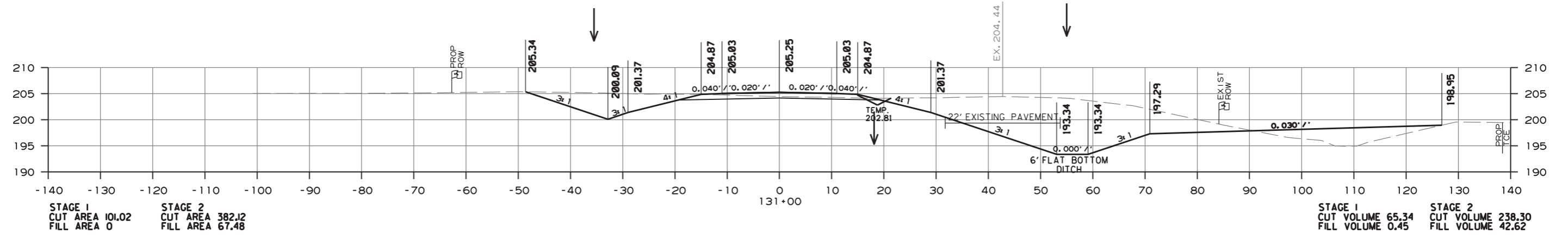
2 CROSS SECTIONS



CROSS SECTION STA. 128+00 TO STA. 129+00

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. 061614	75	79

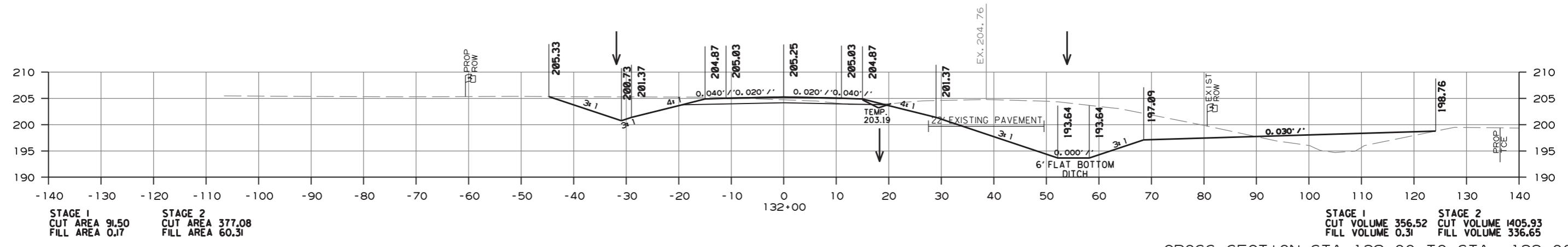
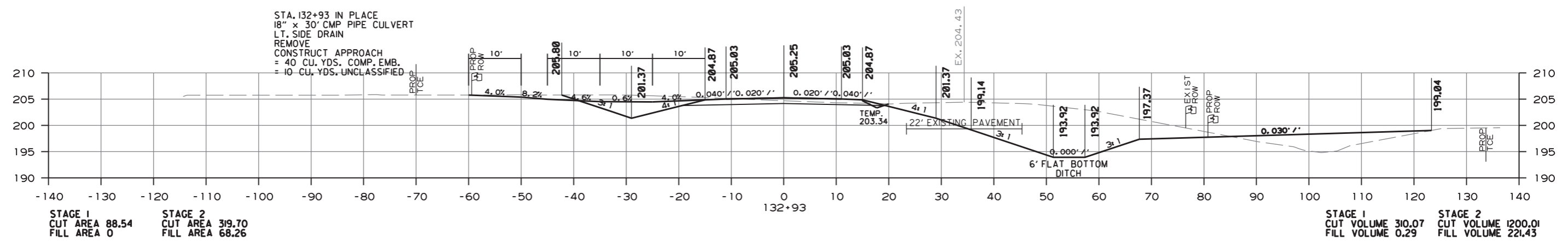
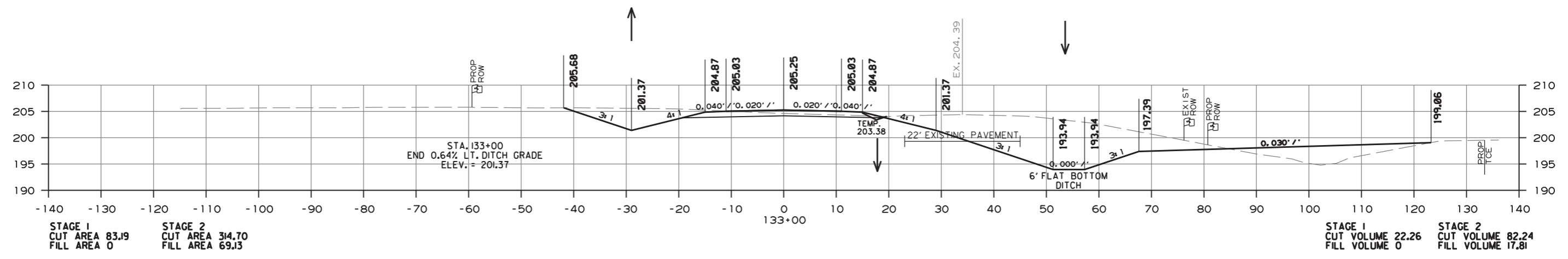
2 CROSS SECTIONS



CROSS SECTION STA. 130+00 TO STA. 131+00

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. 061614	76	79

2 CROSS SECTIONS

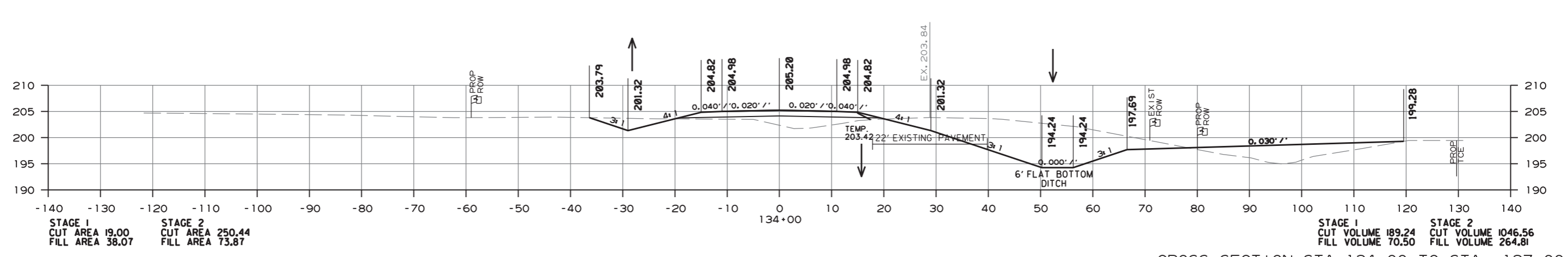
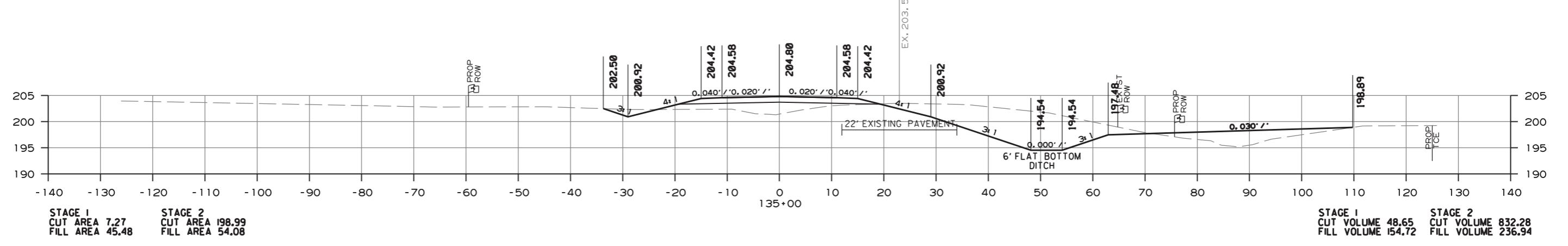
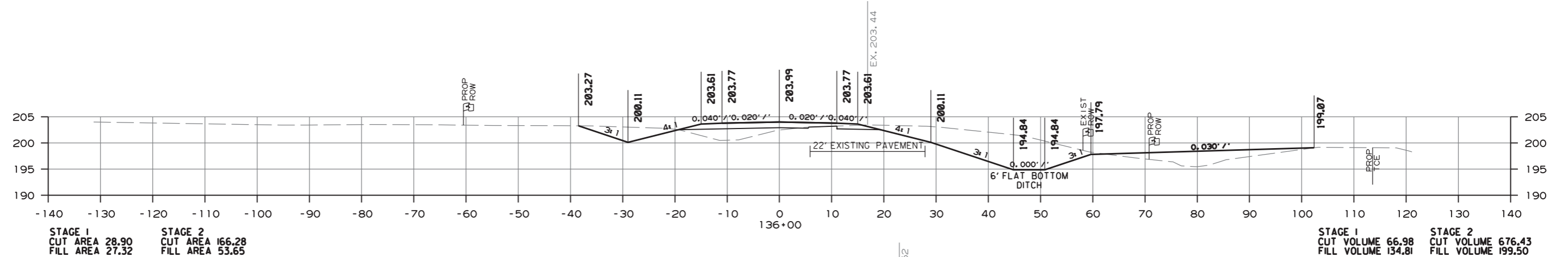
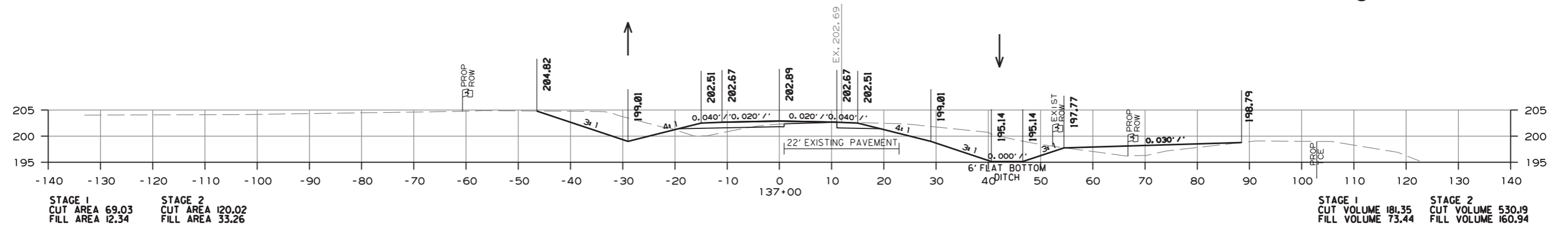


CROSS SECTION STA. 132+00 TO STA. 133+00

12/27/2023
R061614.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 061614	77	79

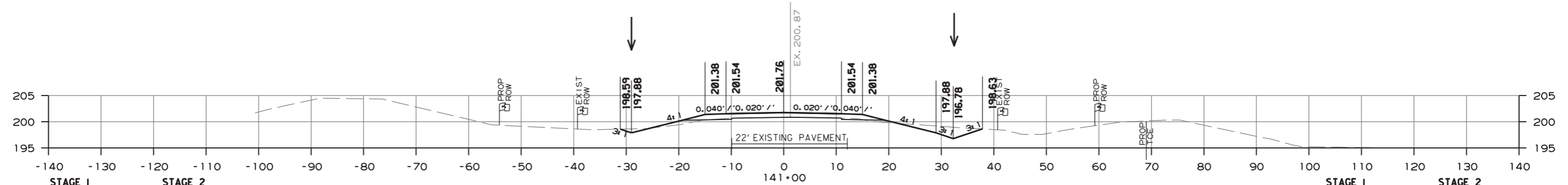
2 CROSS SECTIONS



CROSS SECTION STA. 134+00 TO STA. 137+00

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.	061614	78 79

2 CROSS SECTIONS

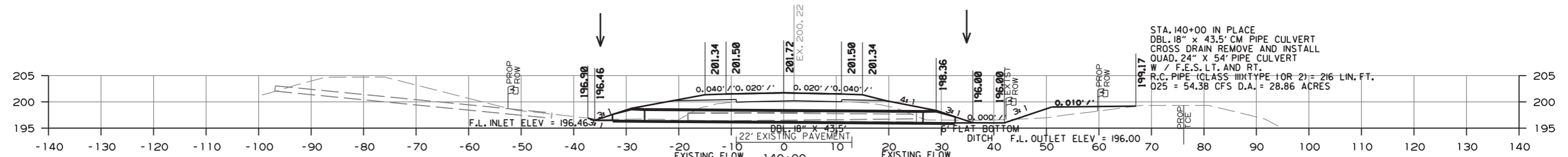


STAGE 1
CUT AREA 2.61
FILL AREA 3.92

STAGE 2
CUT AREA 17.29
FILL AREA 1.66

STAGE 1
CUT VOLUME 5.35
FILL VOLUME 98.17

STAGE 2
CUT VOLUME 39.69
FILL VOLUME 90.13

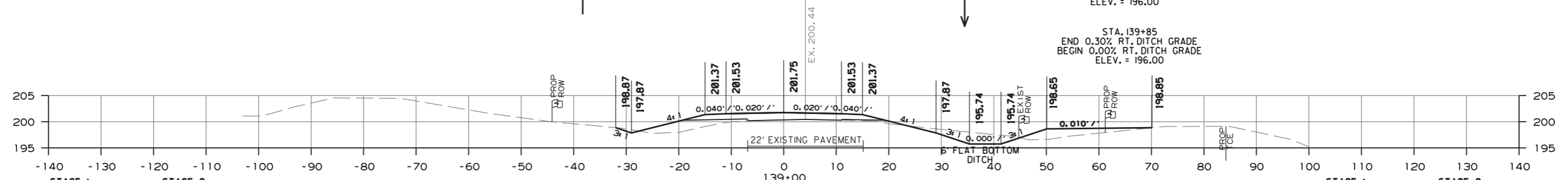


STAGE 1
CUT AREA 0.28
FILL AREA 49.09

STAGE 2
CUT AREA 4.14
FILL AREA 47.01

STAGE 1
CUT VOLUME 3.11
FILL VOLUME 135.31

STAGE 2
CUT VOLUME 57.44
FILL VOLUME 138.94

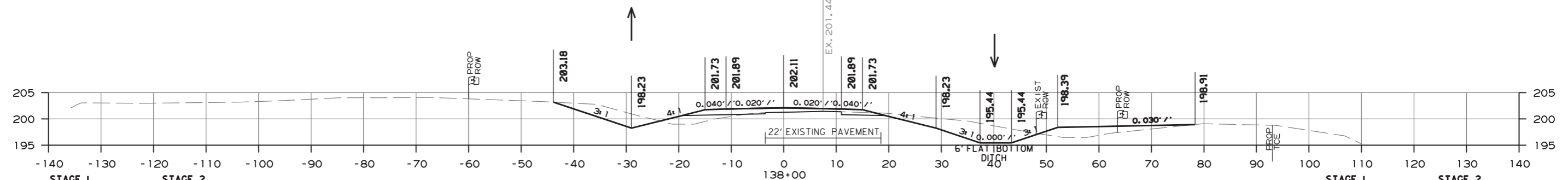


STAGE 1
CUT AREA 1.40
FILL AREA 23.98

STAGE 2
CUT AREA 26.88
FILL AREA 28.02

STAGE 1
CUT VOLUME 65.57
FILL VOLUME 72.30

STAGE 2
CUT VOLUME 170.63
FILL VOLUME 111.93



STAGE 1
CUT AREA 34.01
FILL AREA 15.06

STAGE 2
CUT AREA 65.26
FILL AREA 32.42

STAGE 1
CUT VOLUME 190.81
FILL VOLUME 50.74

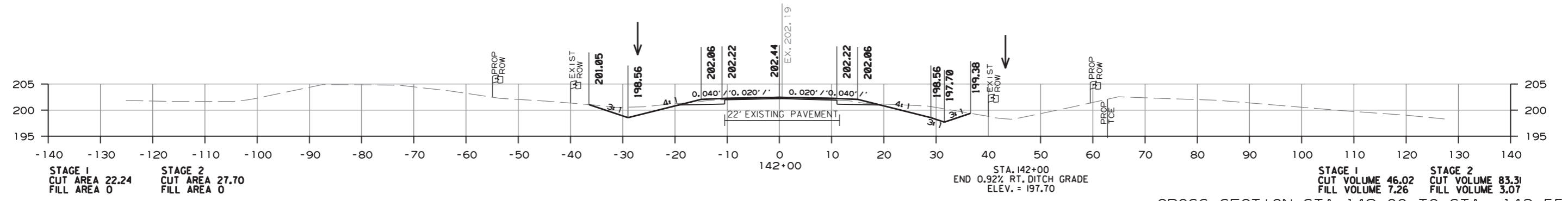
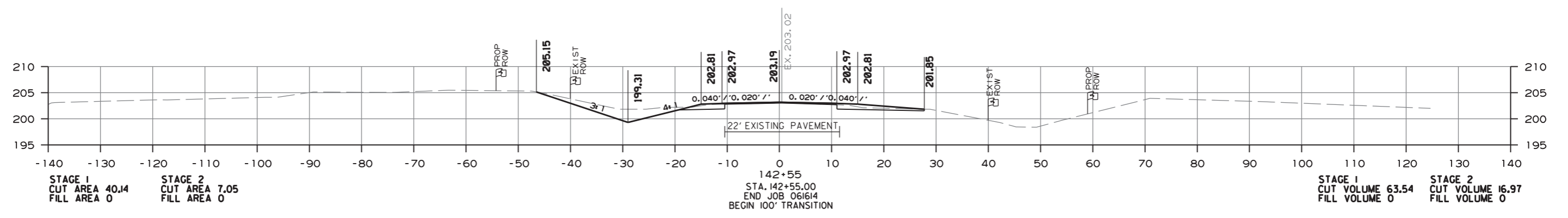
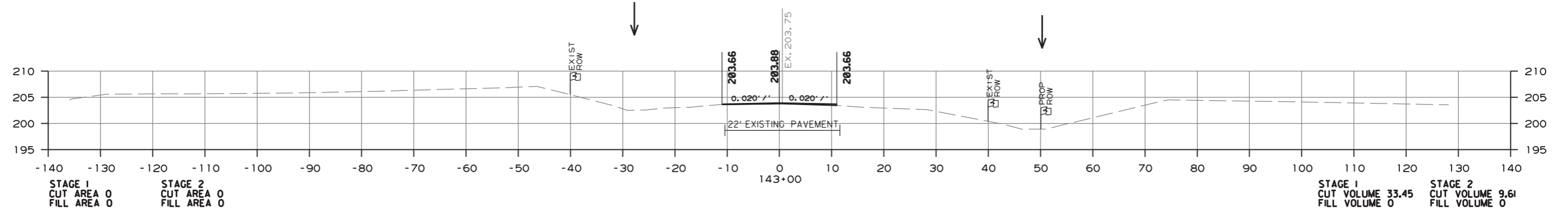
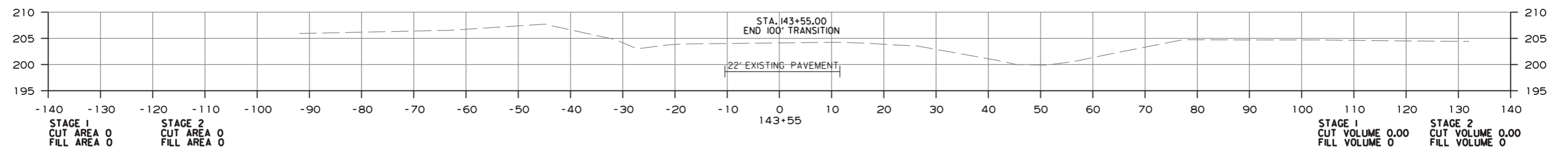
STAGE 2
CUT VOLUME 343.11
FILL VOLUME 121.63

CROSS SECTION STA. 138+00 TO STA. 141+00

12/27/2023 R061614.dgn

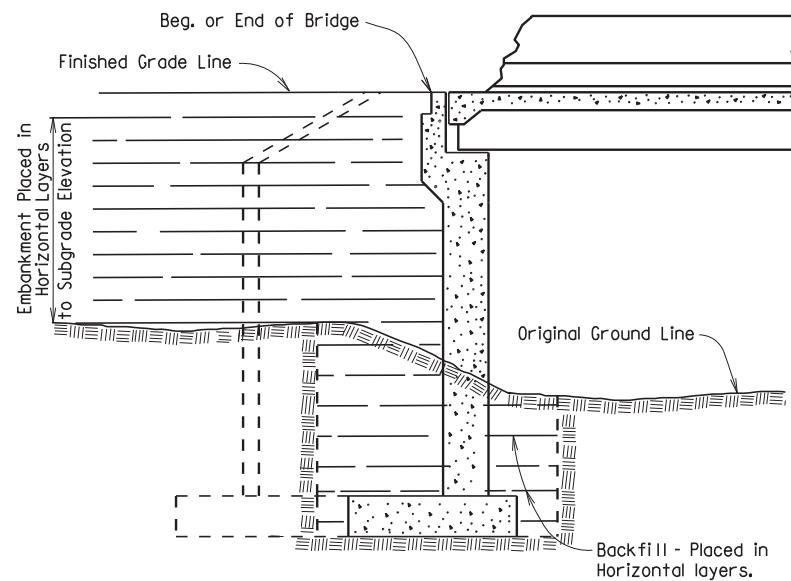
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				6	ARK.			
						JOB NO. 061614	79	79

② CROSS SECTIONS

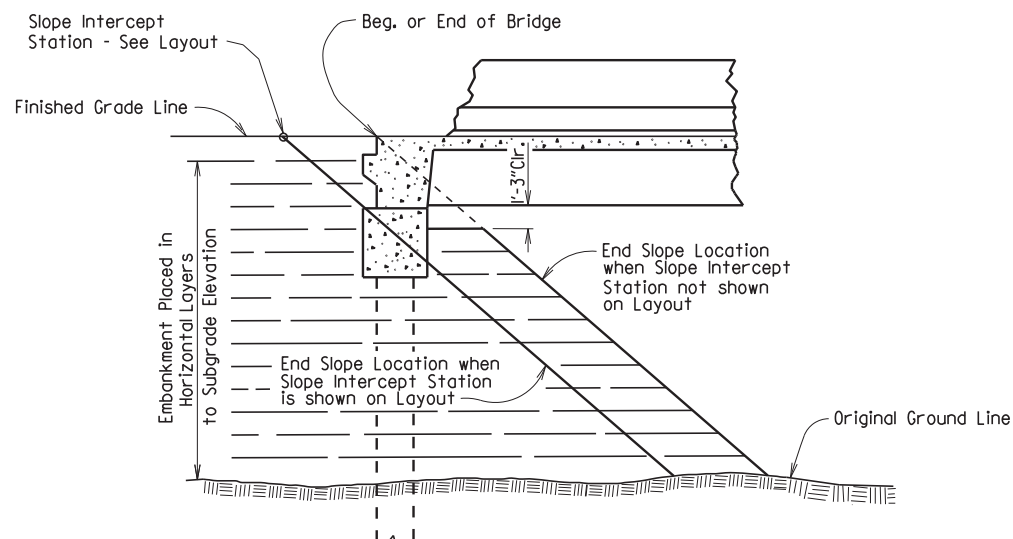


CROSS SECTION STA. 142+00 TO STA. 143+55

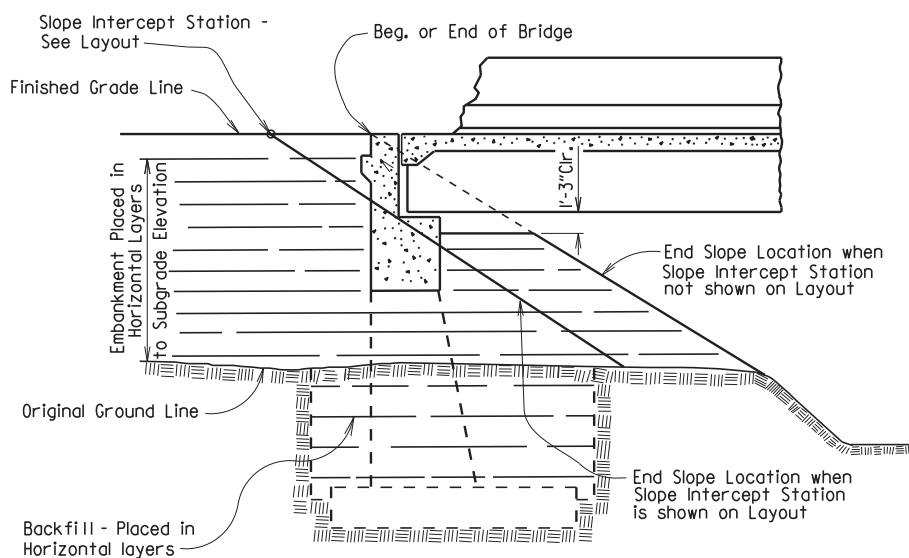
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				6	ARK.			
JOB NO.							1	
EMBANKMENT & BACKFILL							55000	



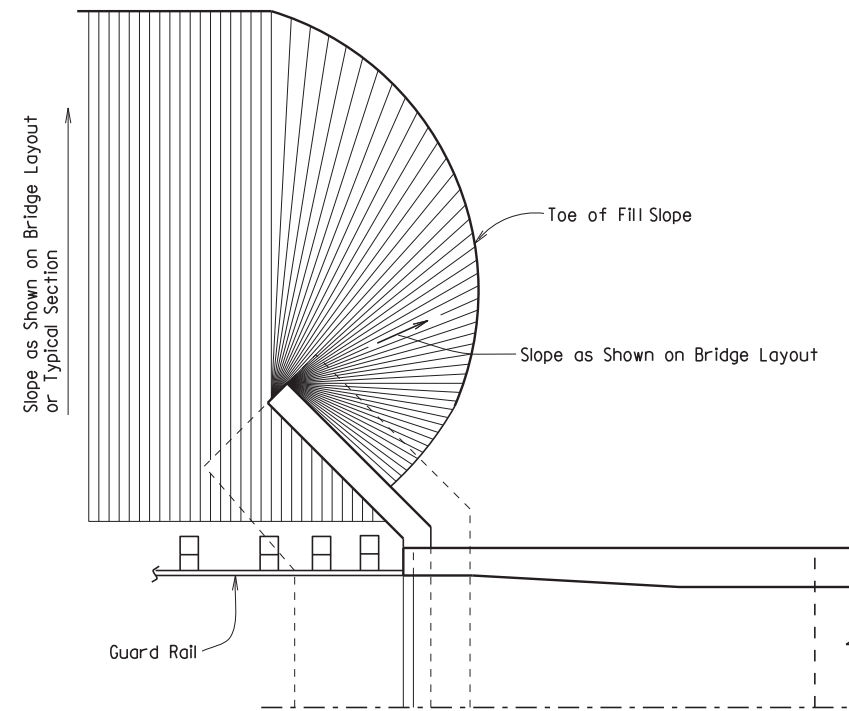
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



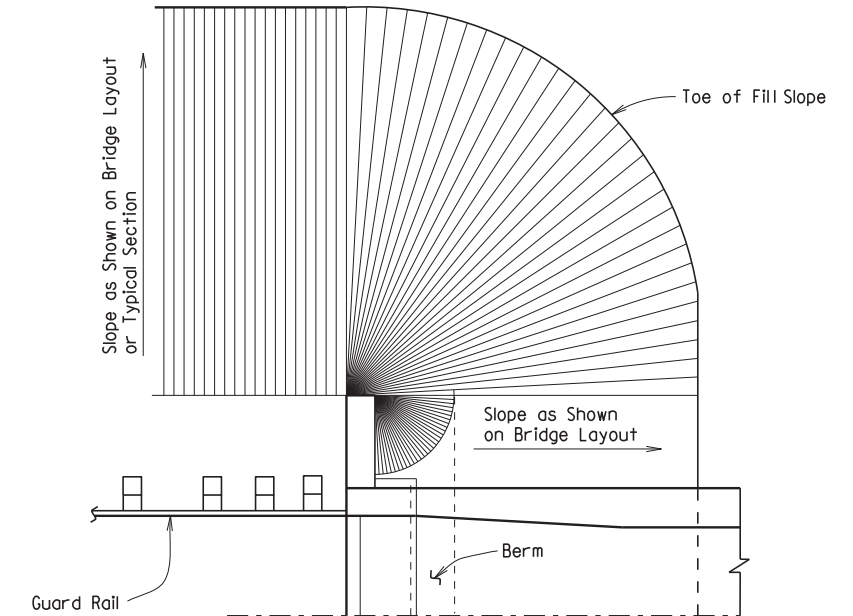
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



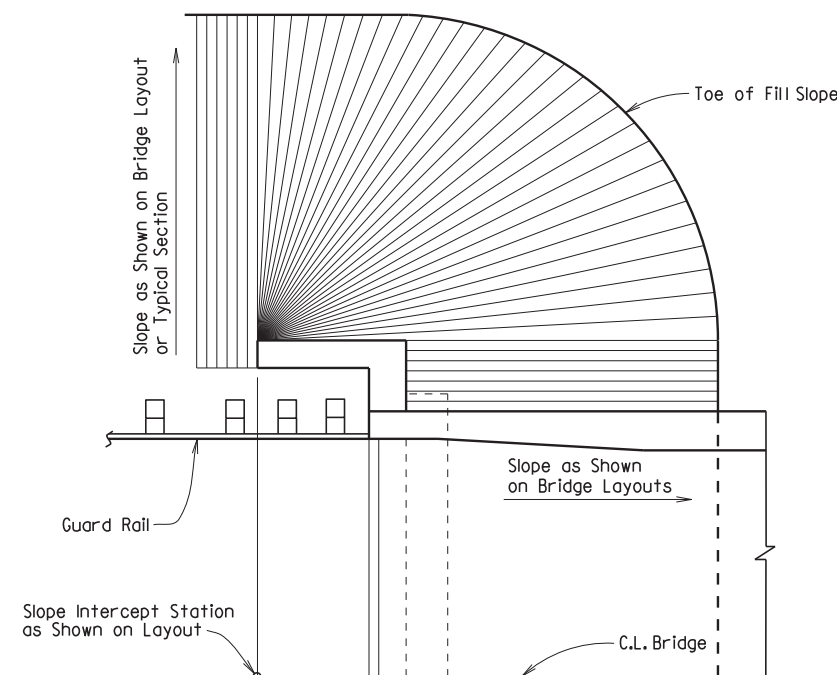
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



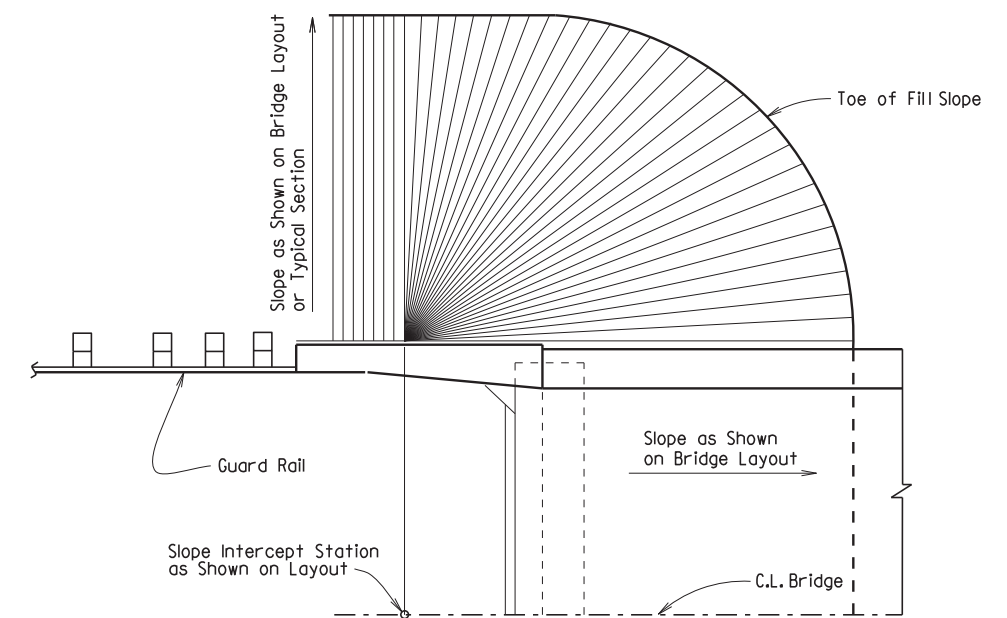
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

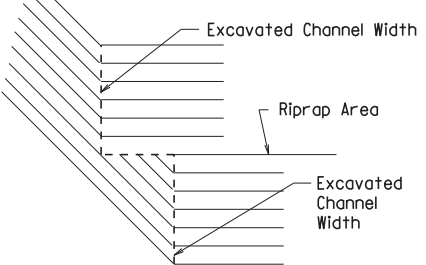
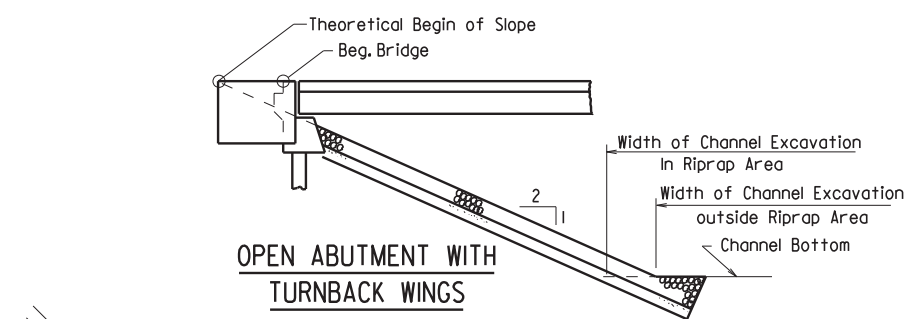
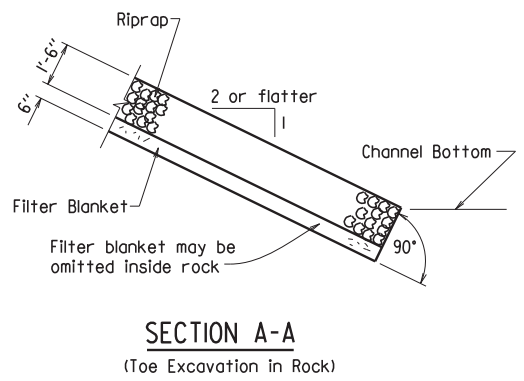
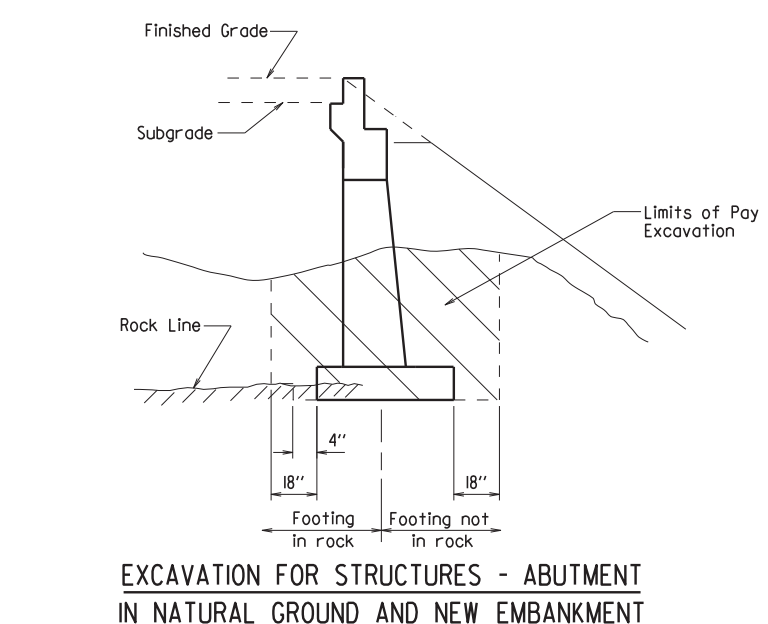
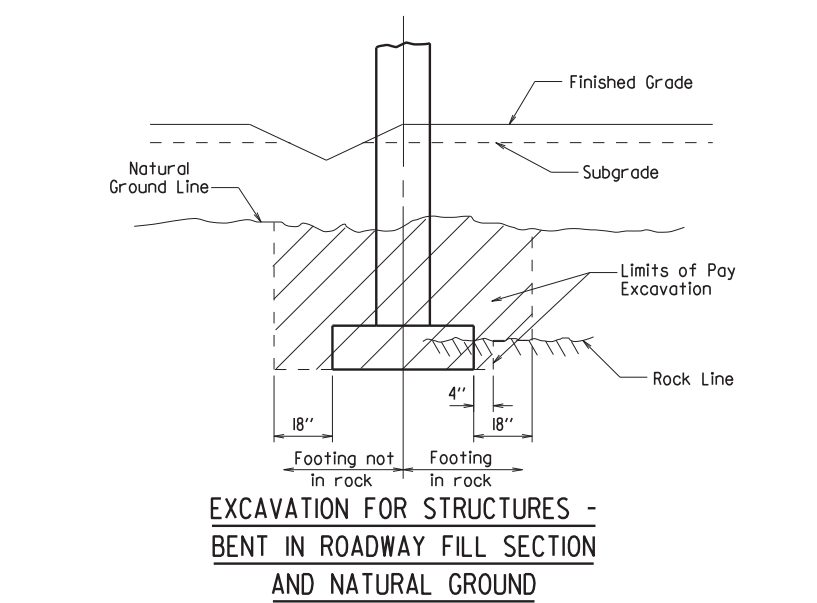
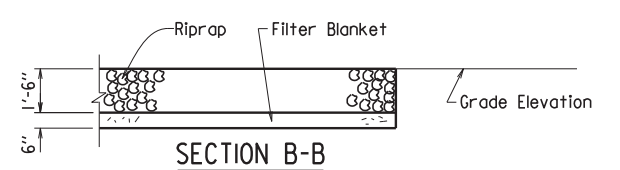
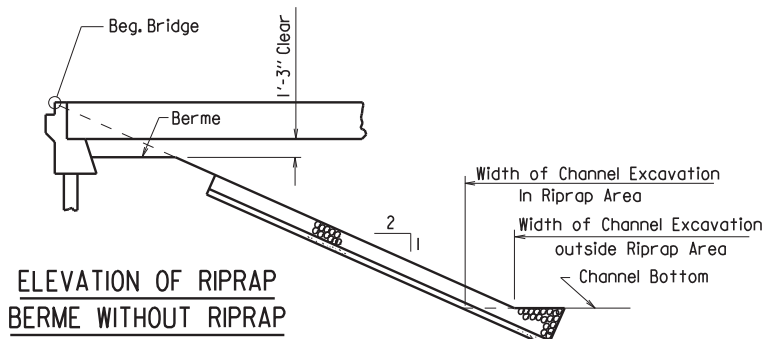
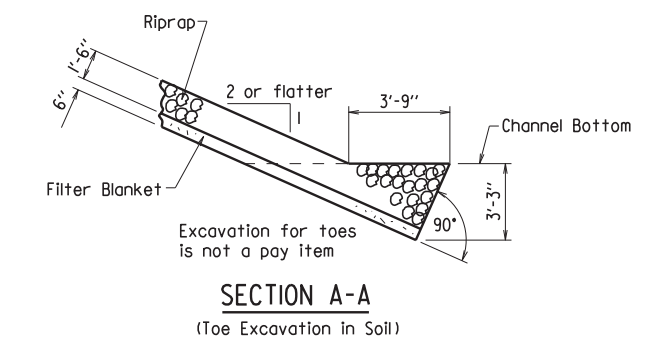
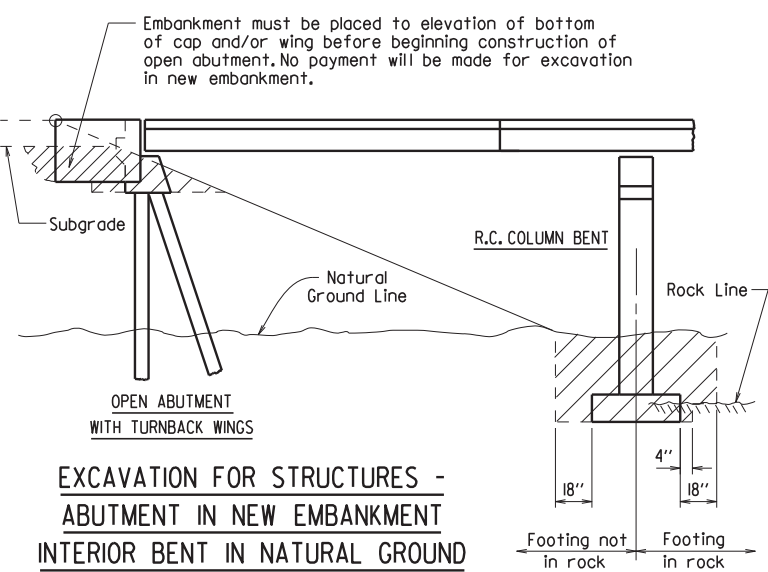
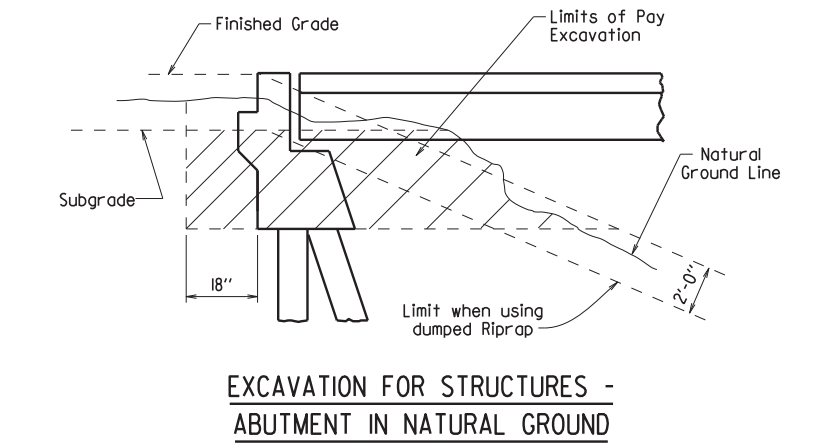
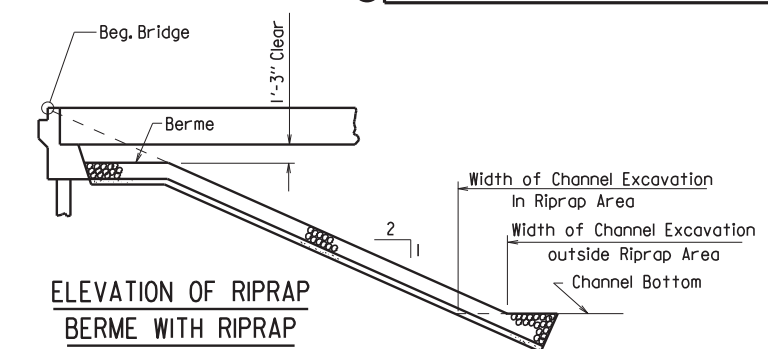
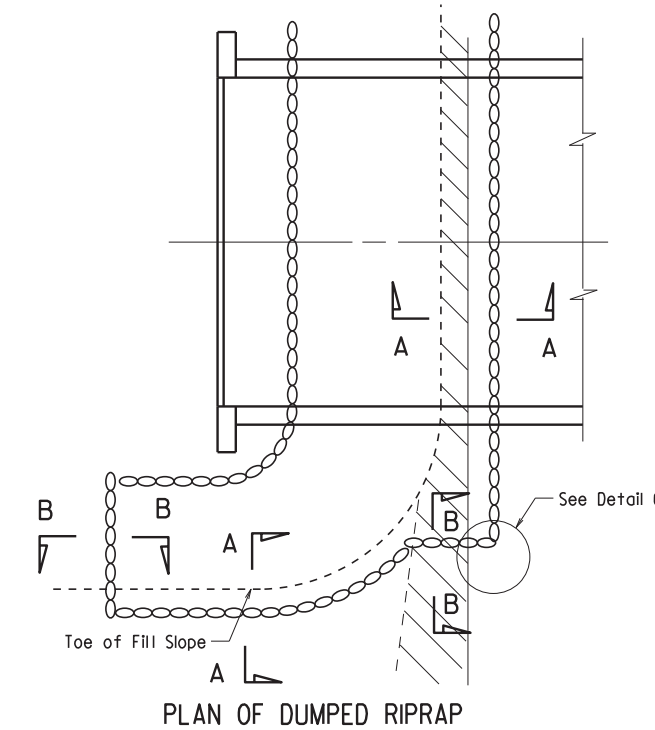
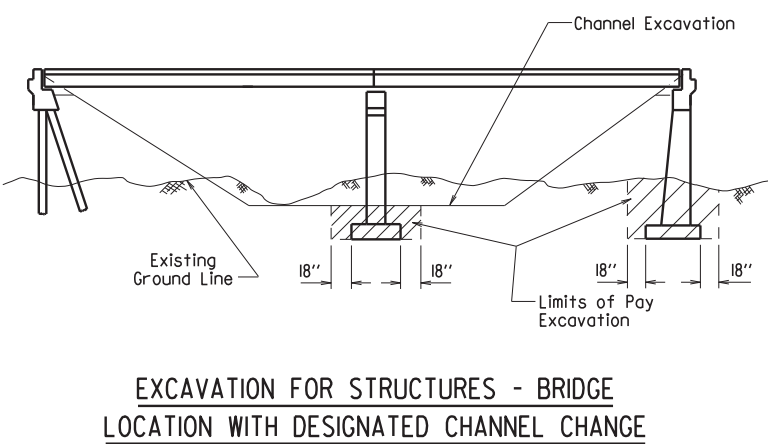
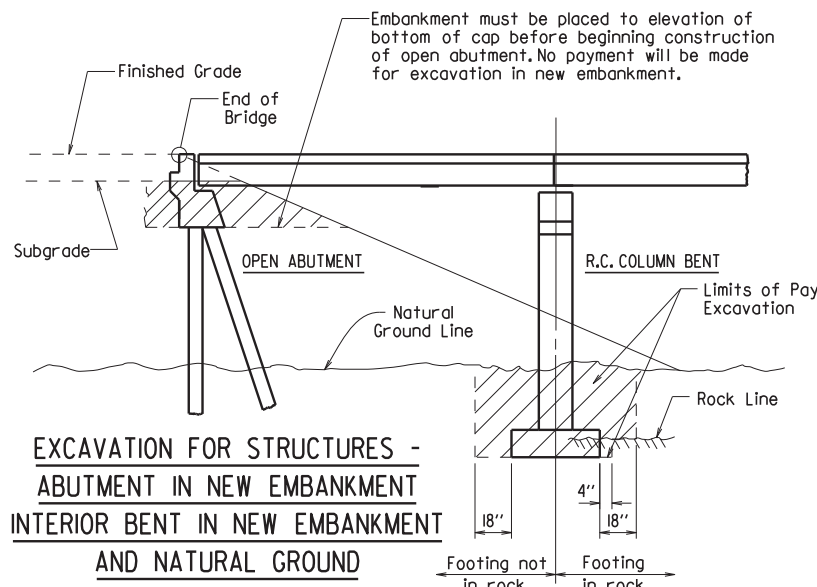
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		RIPRAP & EXCAV. 55001		



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

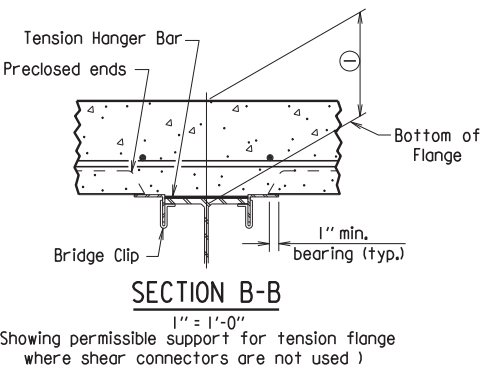
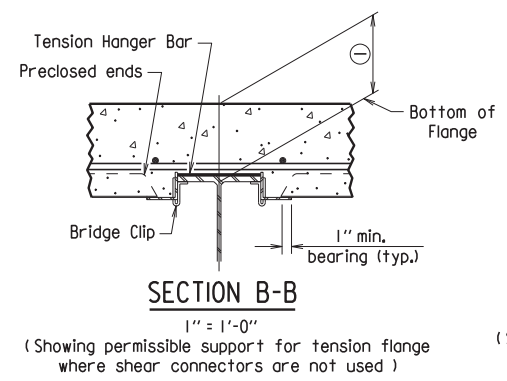
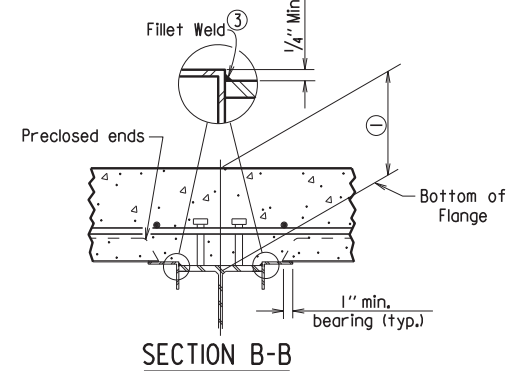
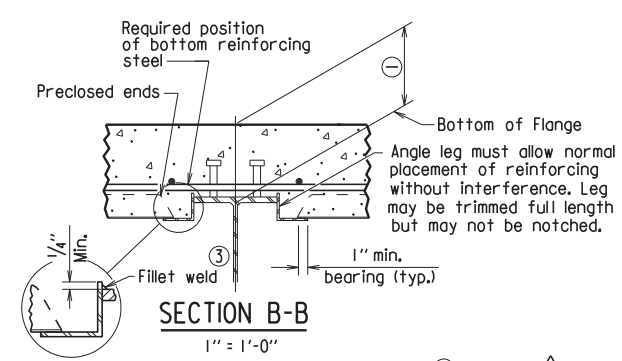
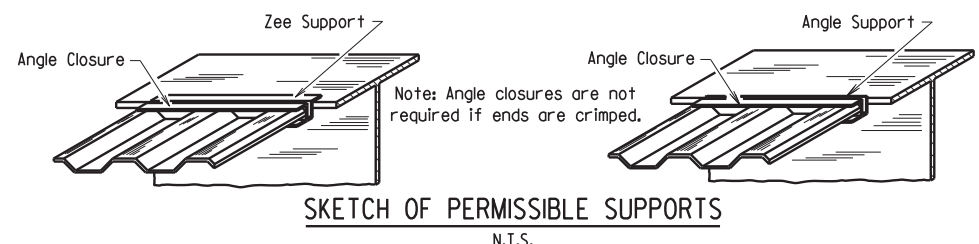
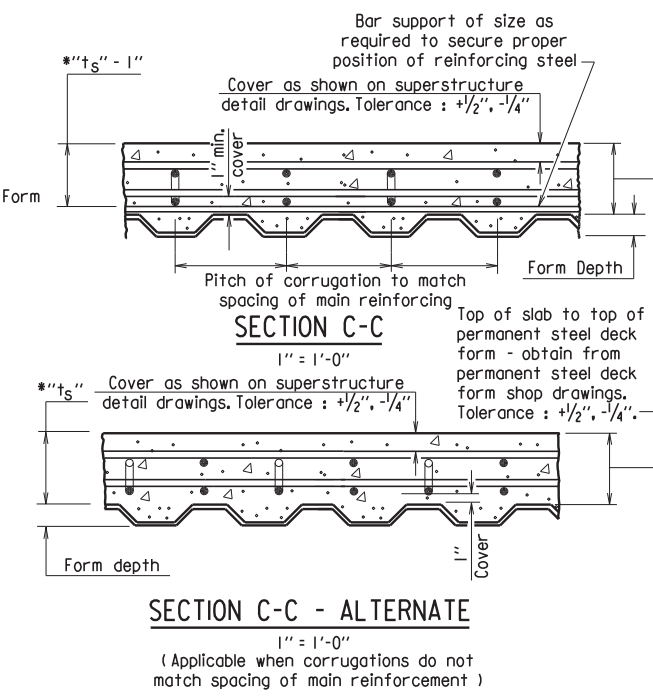
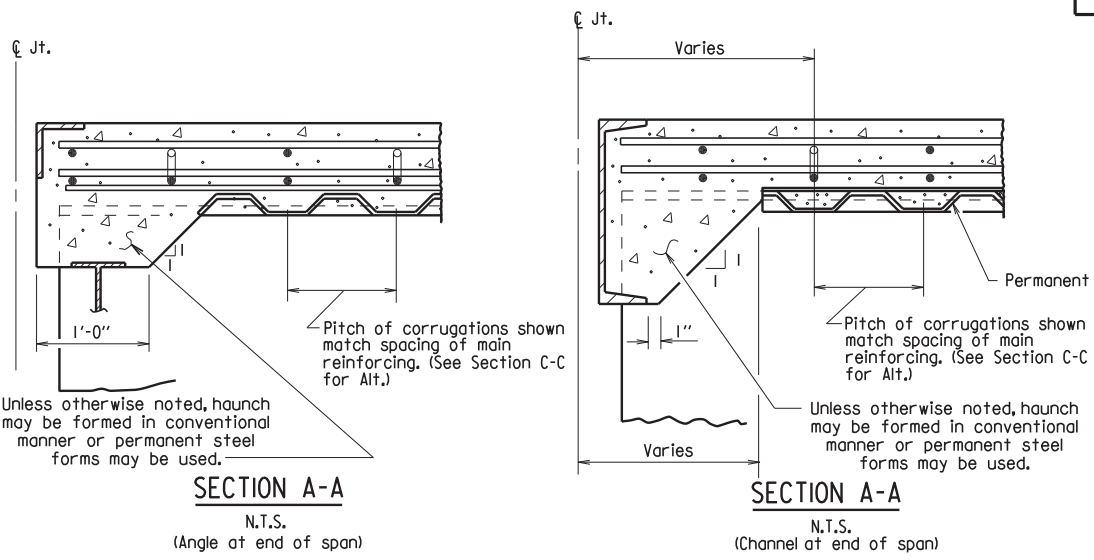
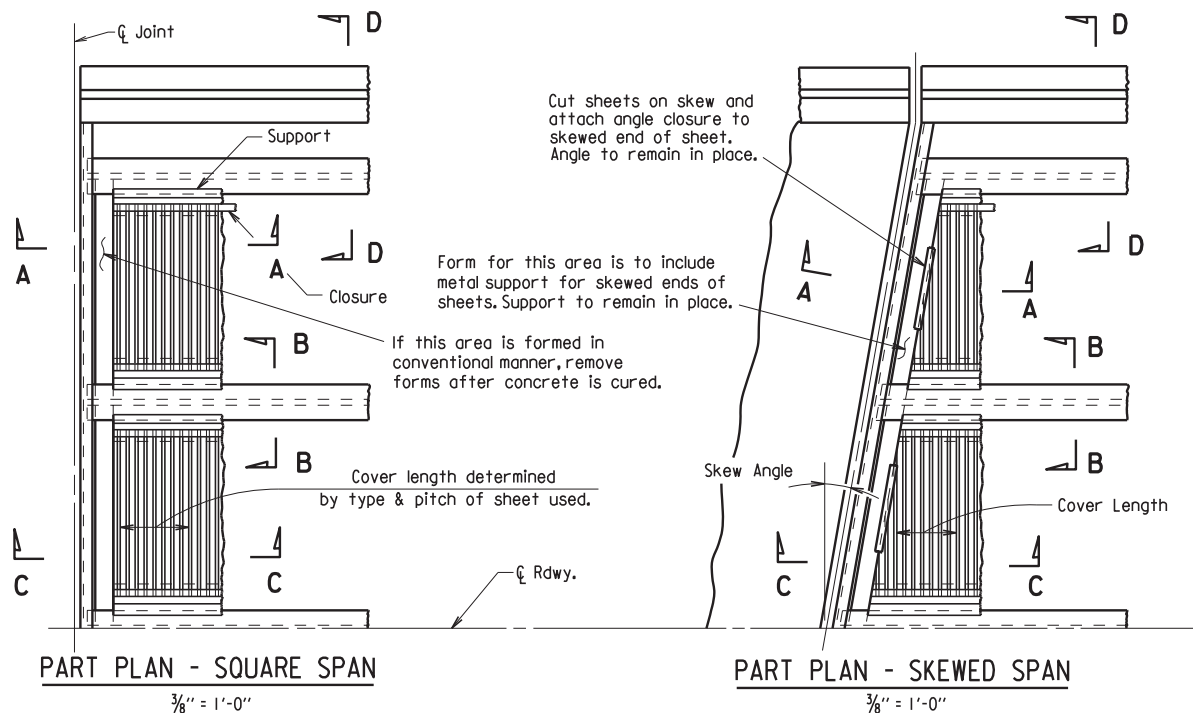
Note: In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

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

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.
 DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE:
 DRAWING NO. 55001

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



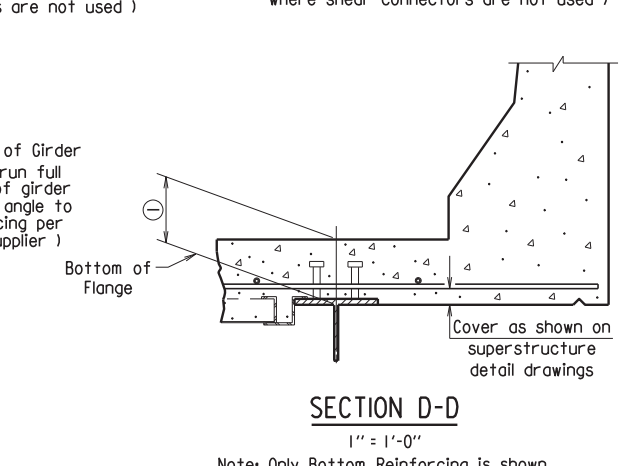
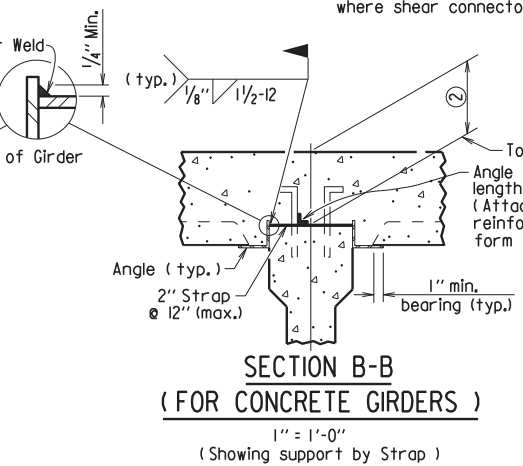
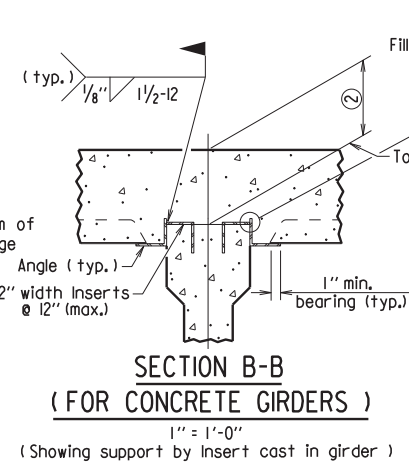
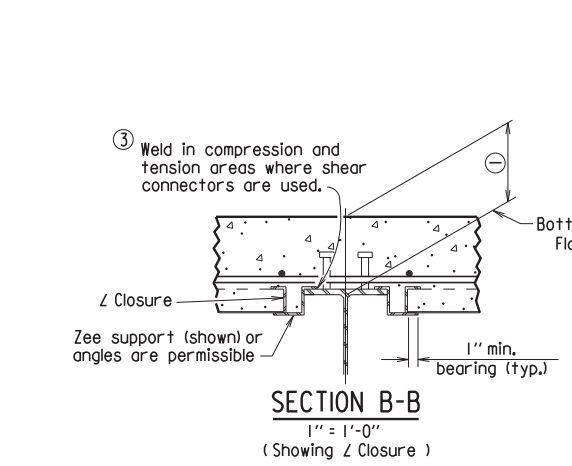
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

See Plan Details for Gradet(s) of Structural Steel required.

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

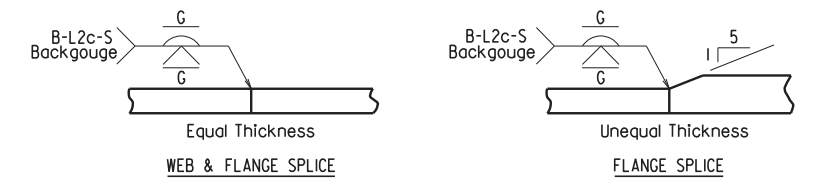
DRAWING NO. 55006

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							1	GENERAL NOTES
								55006

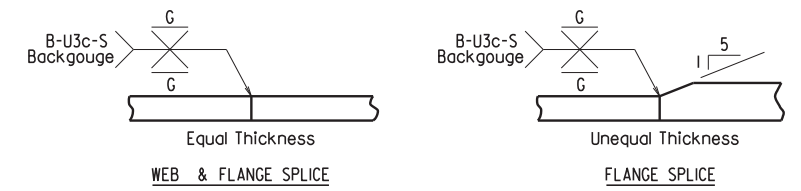
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							JOB NO.	
							STEEL BRIDGE STRUCTURES	55007



FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

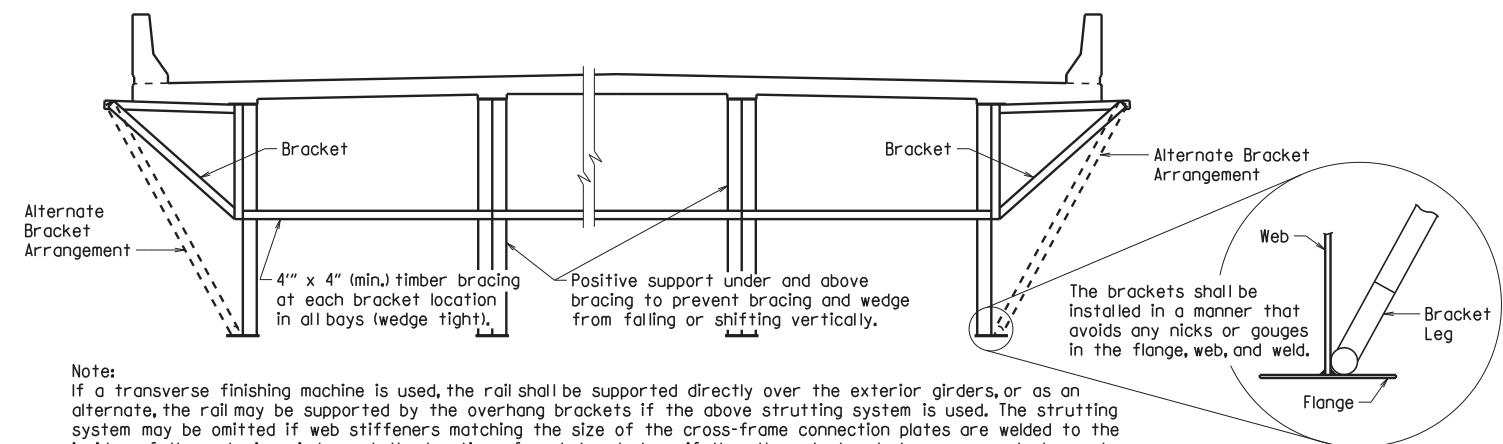


(Use when Base Metal Thickness is Equal to or Less than 2")



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

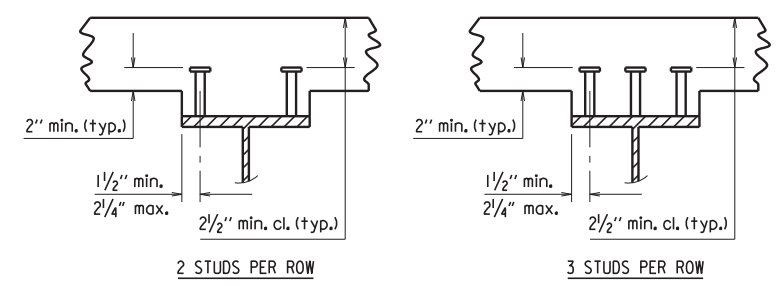
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



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

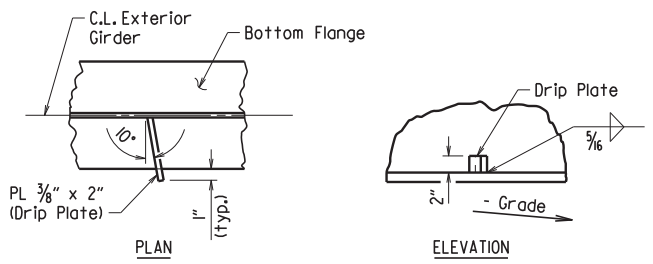
SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



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

SHEAR CONNECTOR DETAIL

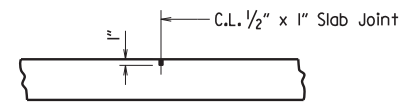


Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

BOTTOM FLANGE DRIP PLATE

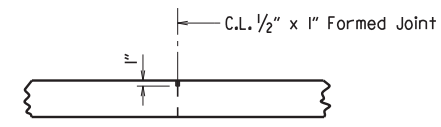
(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)



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

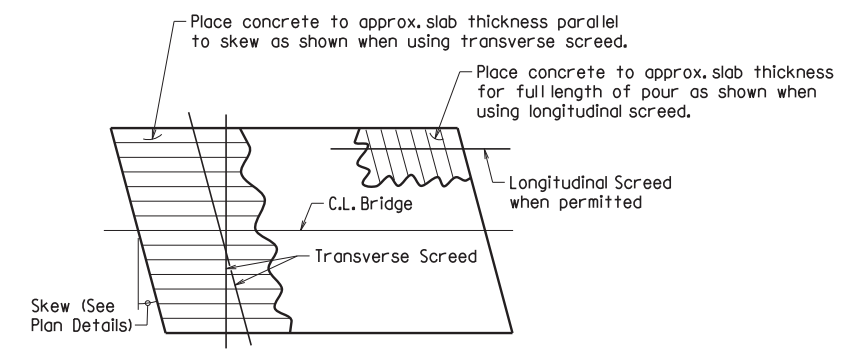
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED: Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

TRANSVERSE SLAB JOINT DETAIL



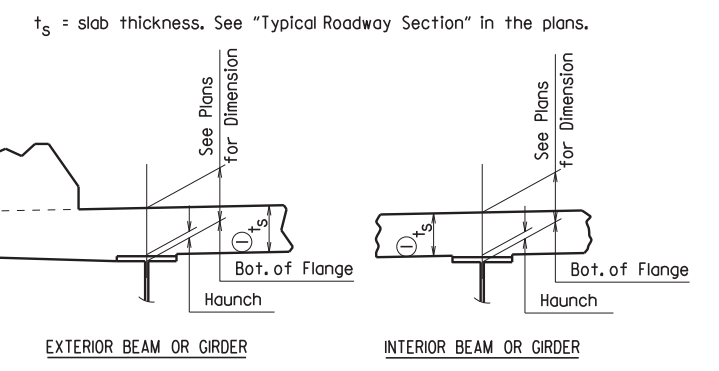
Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW

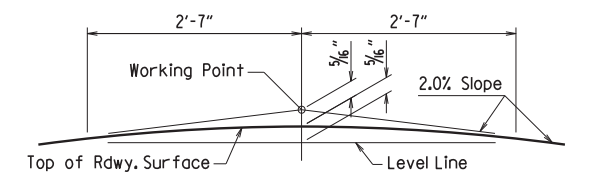


Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES: Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL BRIDGES IN NORMAL CROWN

WELD TABLE

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

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

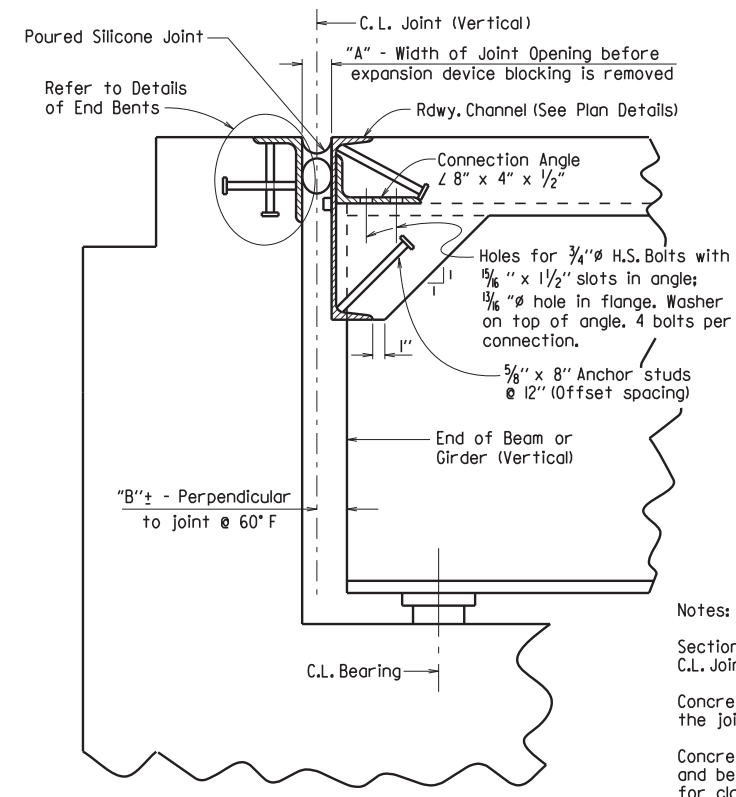
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

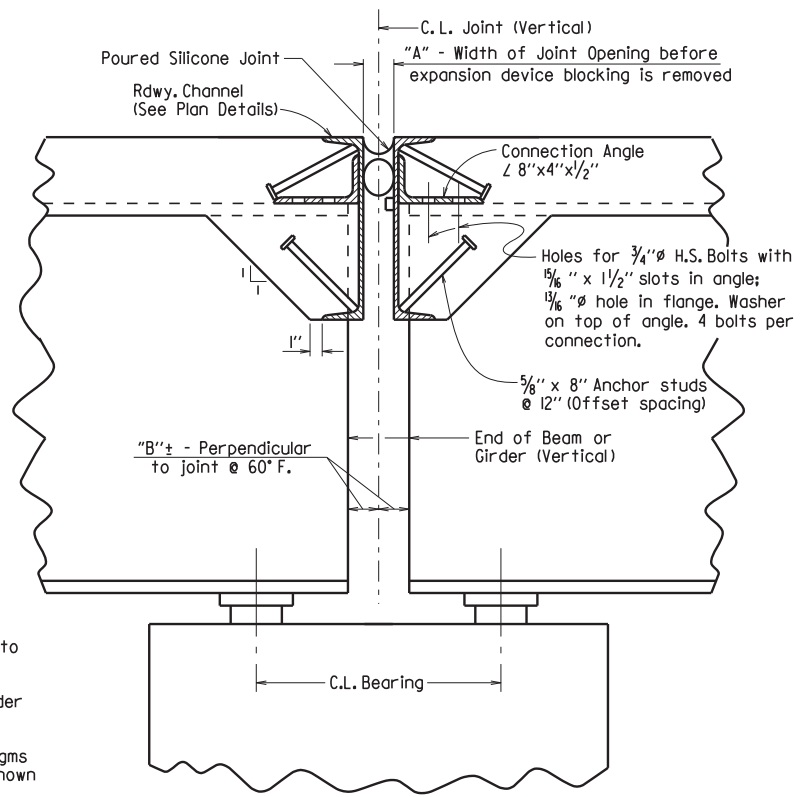
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn
 CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale
 DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

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.							POURED SILICONE JOINT	55008

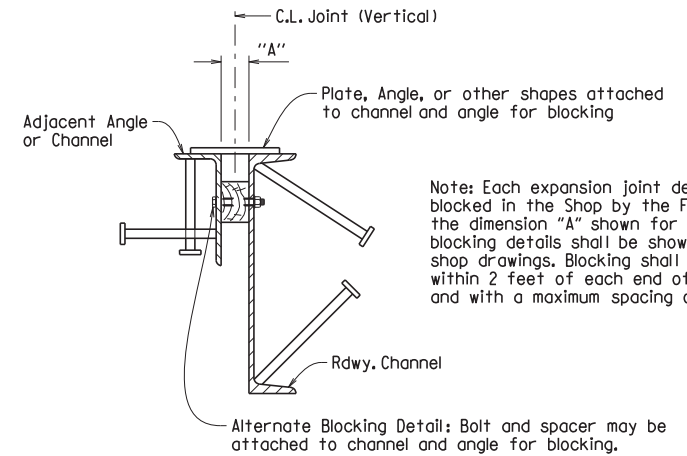


SECTION THRU JOINT AT END BENT



SECTION THRU JOINT AT INTERMEDIATE BENT

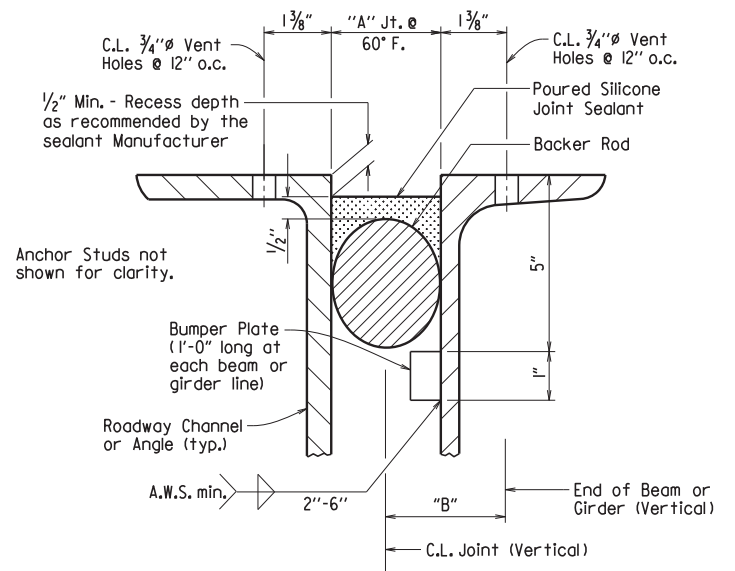
Notes:
 Sections are taken perpendicular to C.L. Joint.
 Concrete shall be hand packed under the joint armor.
 Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

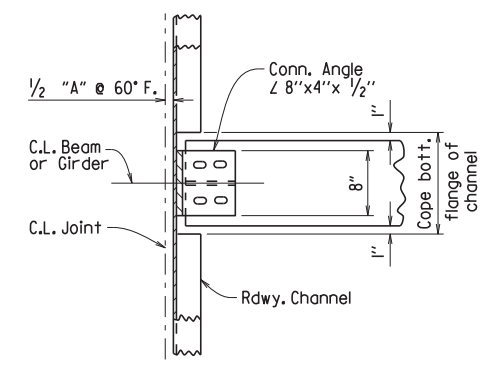
EXPANSION DEVICE INSTALLATION AT END BENTS:
 The Contractor may elect to install the expansion device using one of the following two alternatives:
 1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.
 2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:
 After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.
 Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

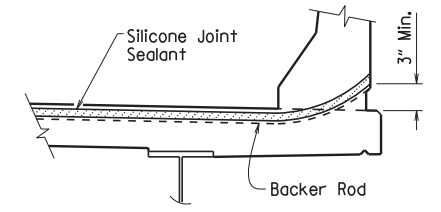


DETAIL OF POURED SILICONE JOINT

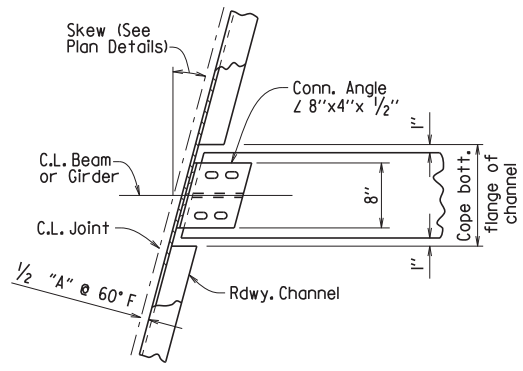
Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.
 Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.
 The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.
 When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



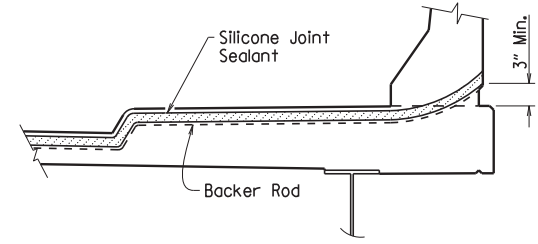
CHANNEL CONNECTION DETAIL BENTS WITHOUT SKEW



JOINT SEAL PLACEMENT AT RAIL



CHANNEL CONNECTION DETAIL BENTS WITH SKEW



JOINT SEAL PLACEMENT AT SIDEWALK

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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

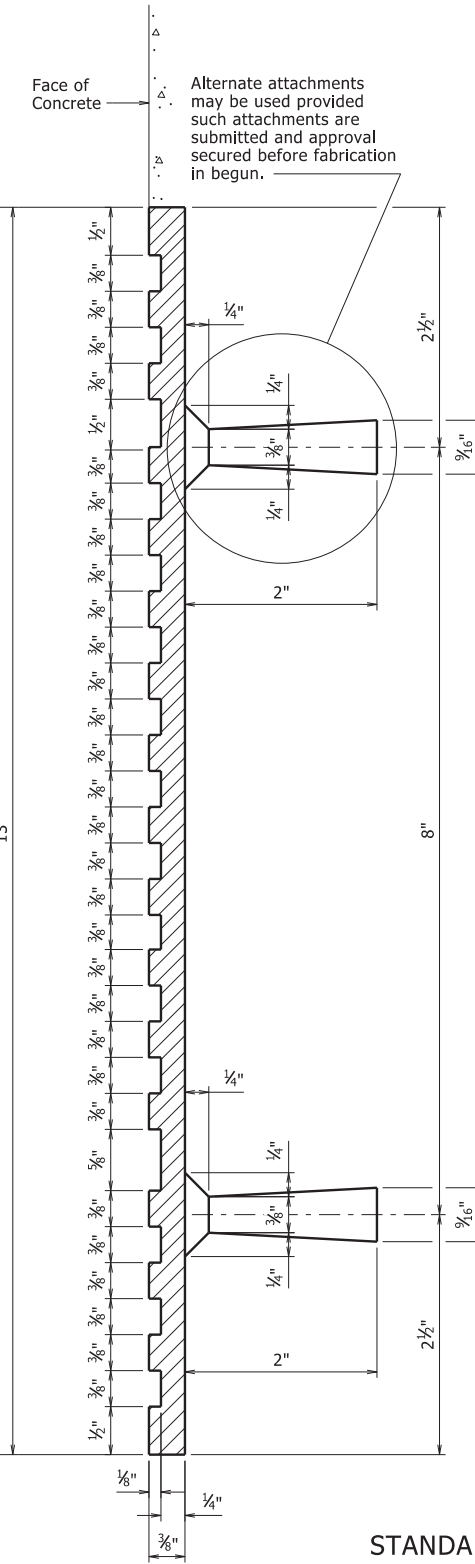
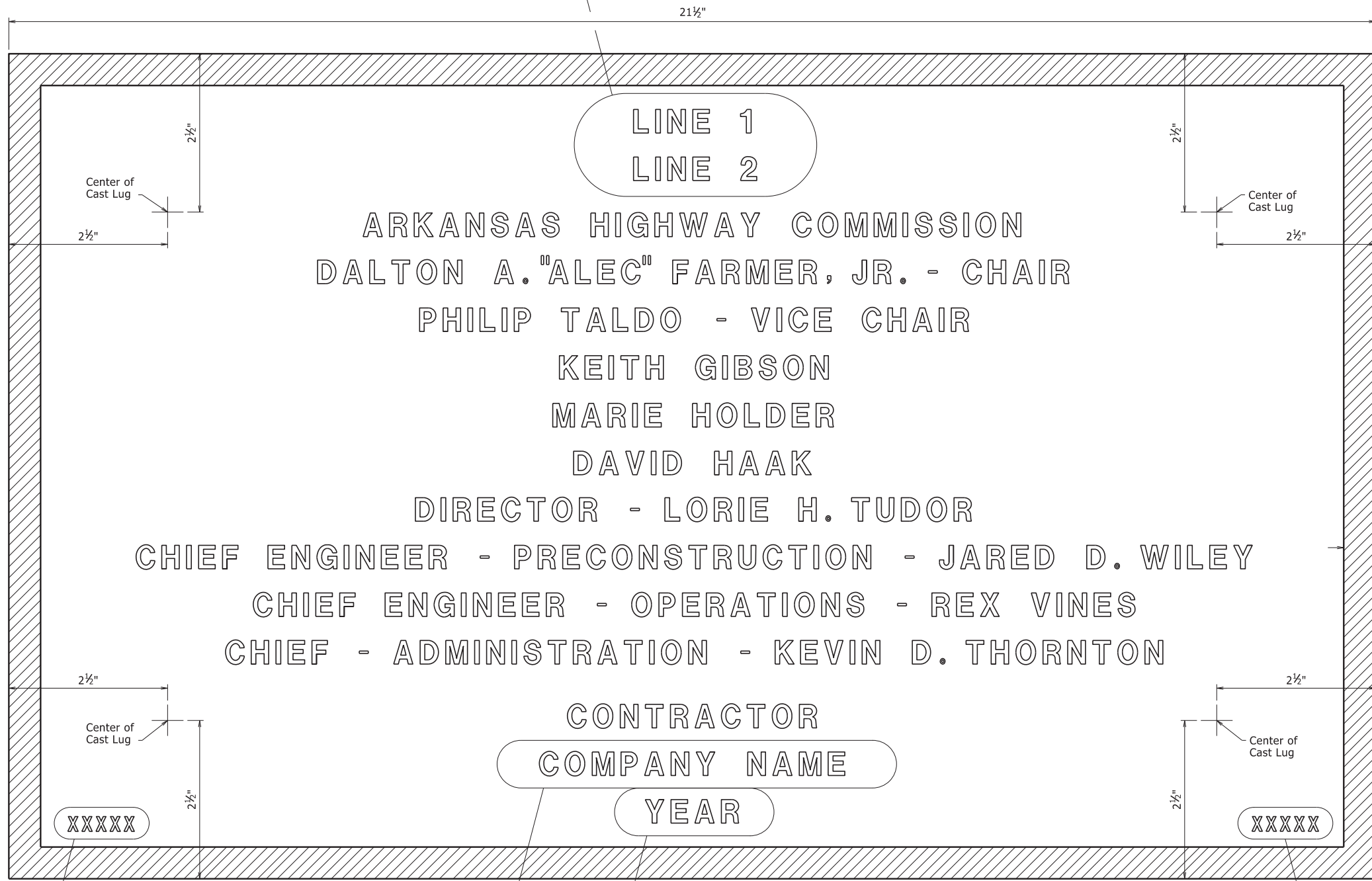
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn
 CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
 DESIGNED BY: STD. DATE: —

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

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using 1/8" raised letters and numerals 3/8" high.

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



GENERAL NOTES

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

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 1/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

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

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

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

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

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

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

DRAWING NO. 55010

TYPICAL BRIDGE NAME PLATE

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

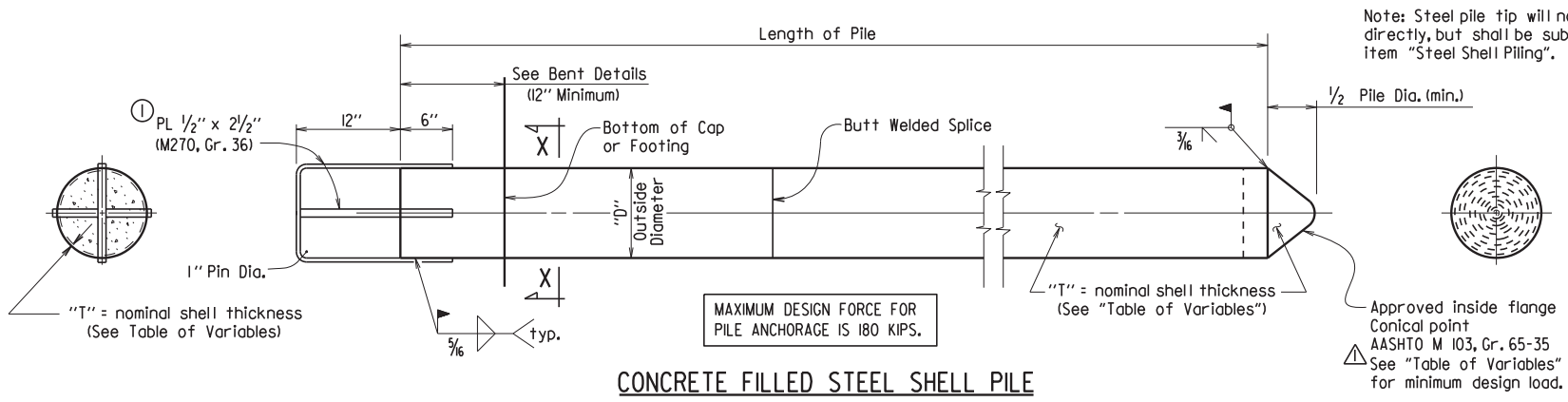
Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example: ABCD CONSTRUCTION, INC.

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

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples: HS20 HL-93

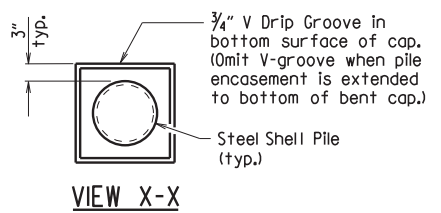
PRINT DATE: 4/20/2023

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
JOB NO.							STEEL SHELL PILES	55021



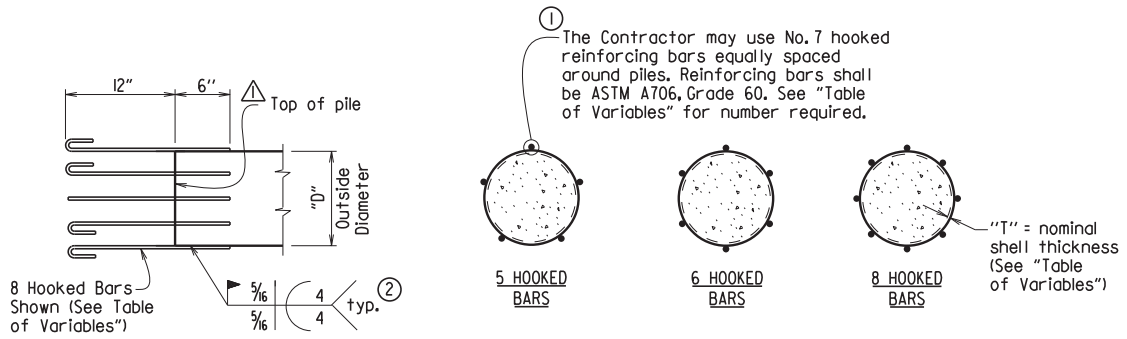
CONCRETE FILLED STEEL SHELL PILE

- 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.



GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL 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".



ALTERNATE PILE ANCHORAGE DETAIL

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

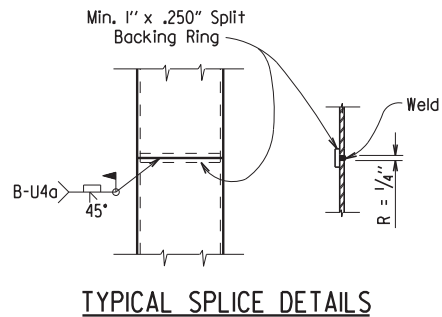
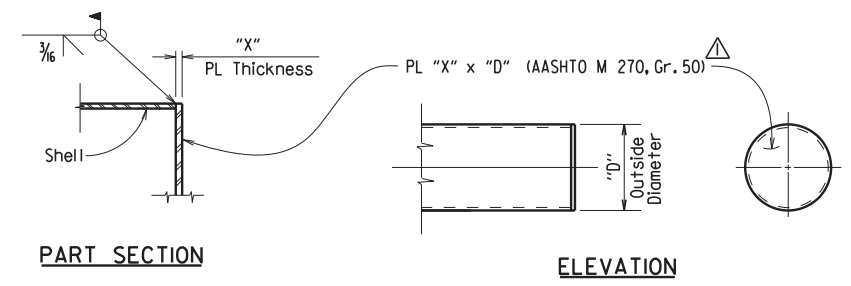
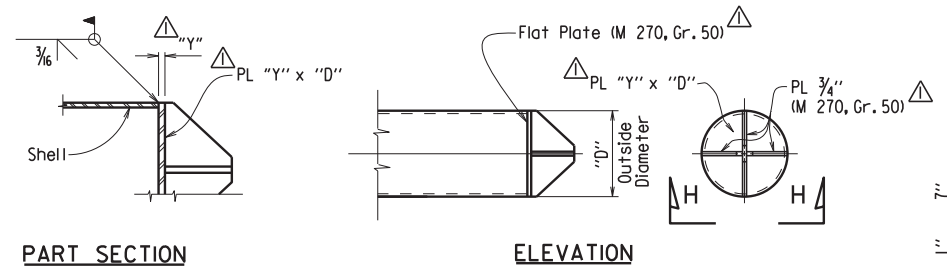


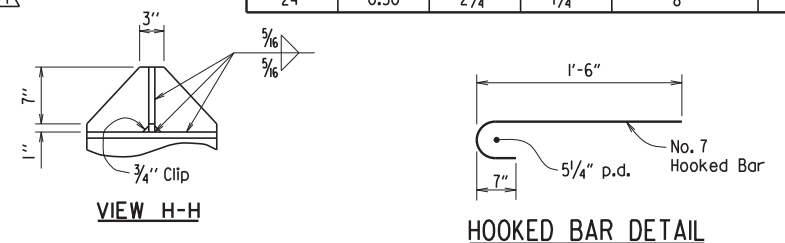
TABLE OF VARIABLES

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

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.

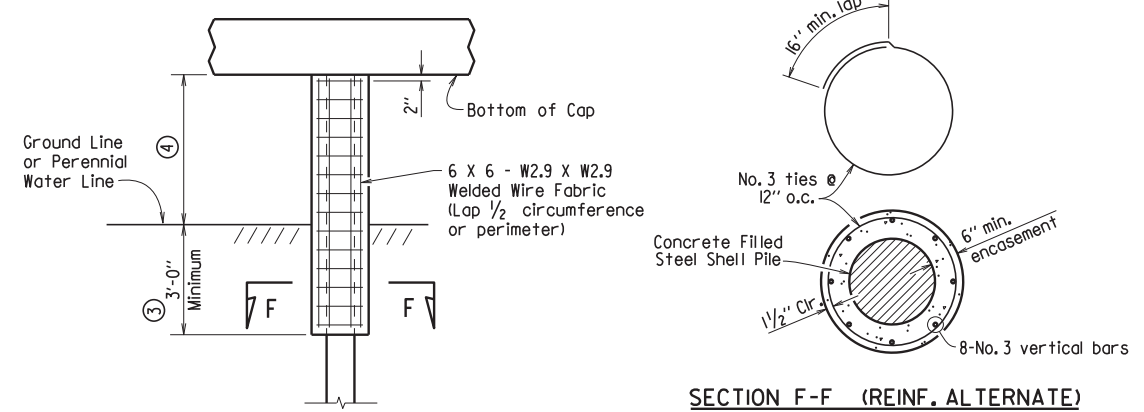


ALTERNATE VANED TIP DETAIL



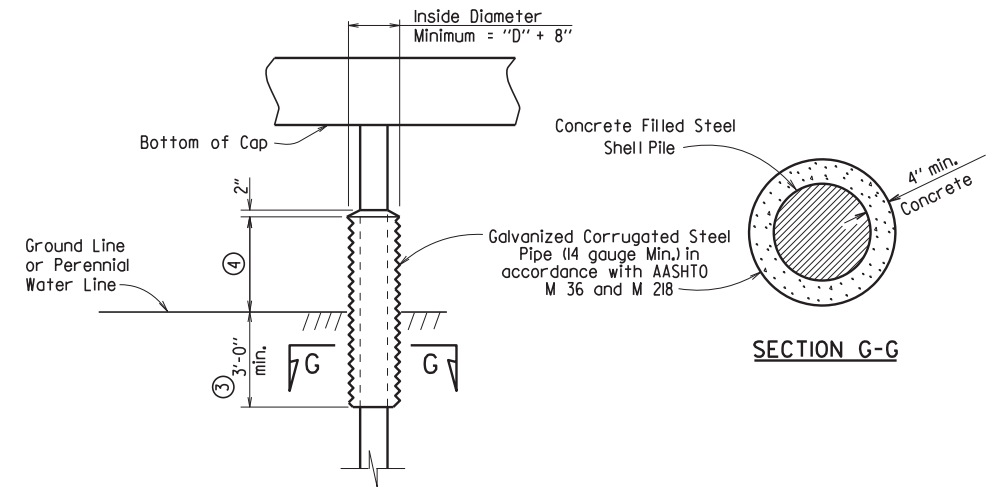
GENERAL NOTES FOR PILE ENCASEMENTS:

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".



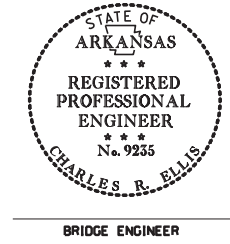
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

- 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.



ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

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



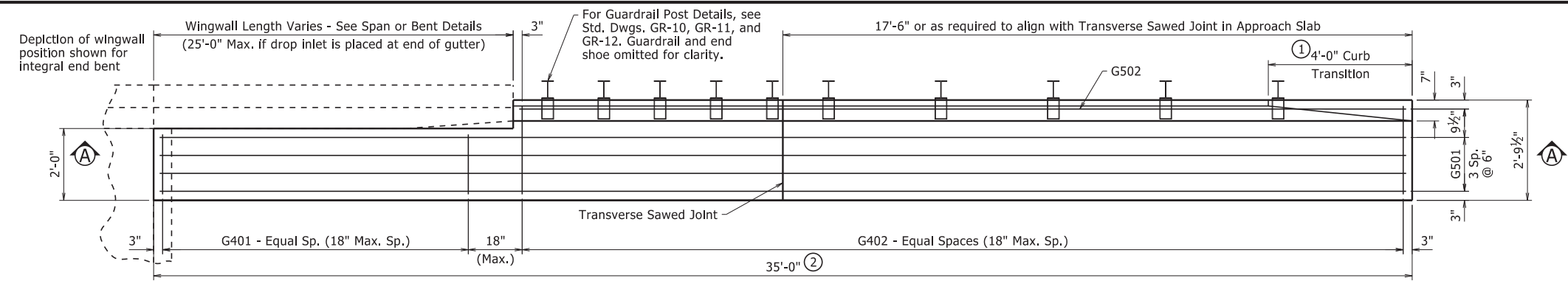
STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

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: —
 BRIDGE ENGINEER
 DRAWING NO. 55021

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

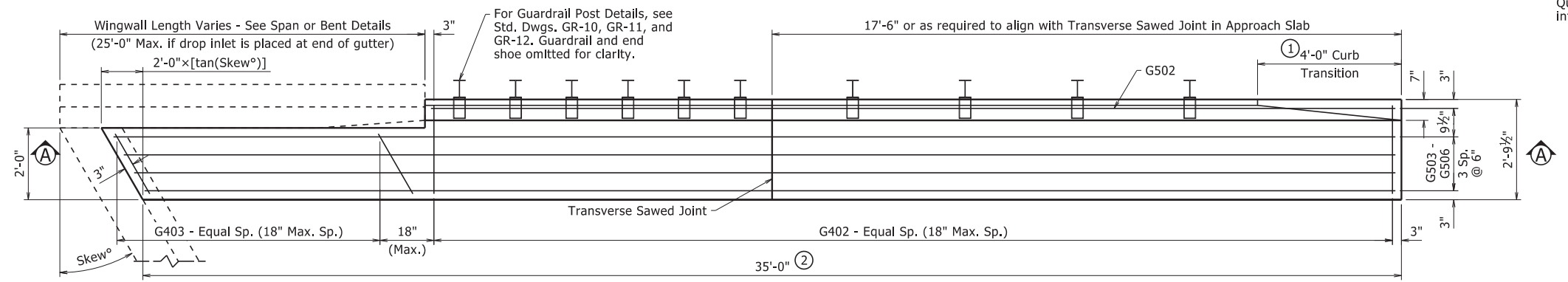
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F



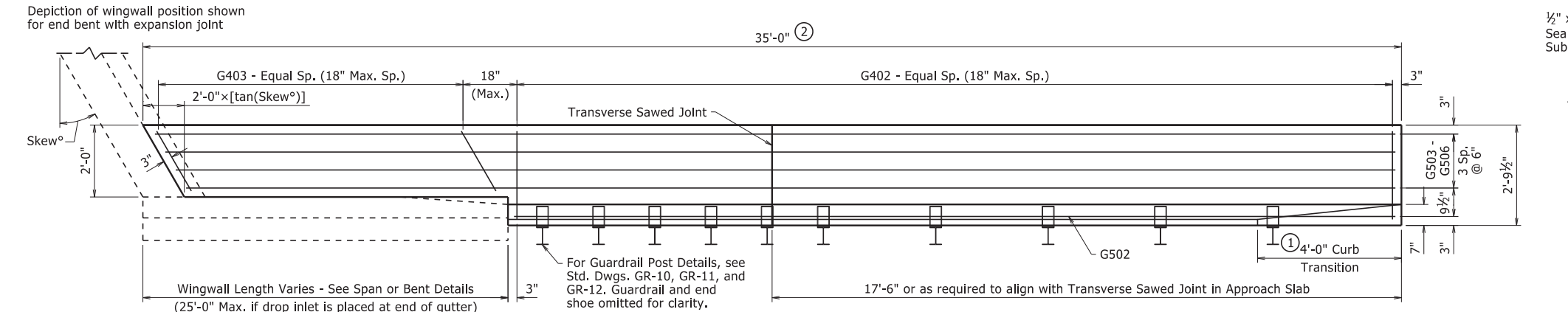
HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

1/2" = 1'-0"



PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

1/2" = 1'-0"



SECTION A-A

1/2" = 1'-0"
(Approach Gutter for Square End Bent Shown)

QUANTITIES FOR ONE APPROACH GUTTER
(For Information Only)

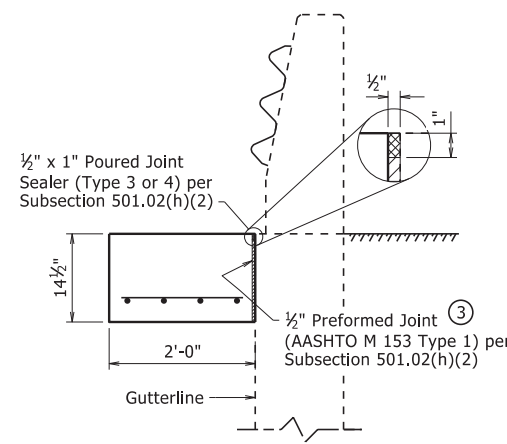
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

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

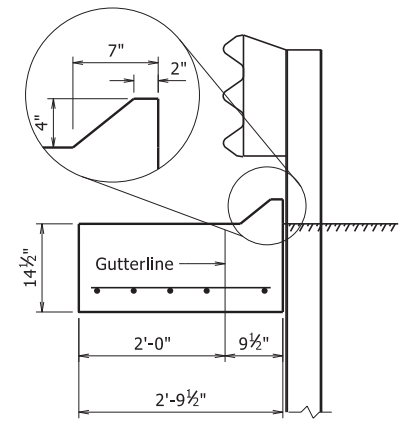
Mark	No. Req'd.	Length
G401	④	1'-8"
G402	④	2'-5 1/2"
G501	4	34'-8"
G502	1	④
Square End Bent		
G402	④	2'-5 1/2"
G403	④	④
G502	1	④
G503 - G506	1 ea.	④
Skewed End Bent		

④ Varies with Skew and/or Wingwall Length



SECTION B-B

3/4" = 1'-0"



SECTION C-C

3/4" = 1'-0"

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

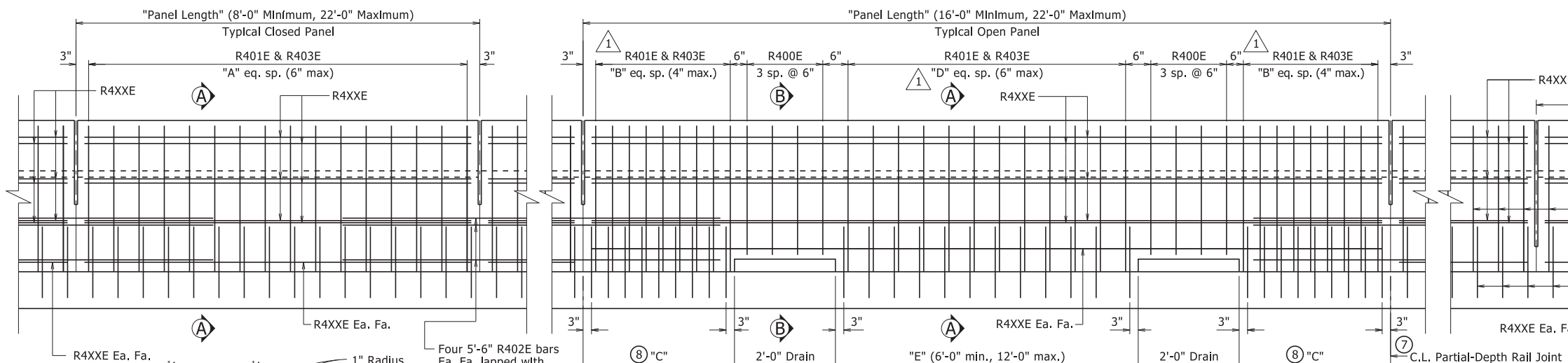
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

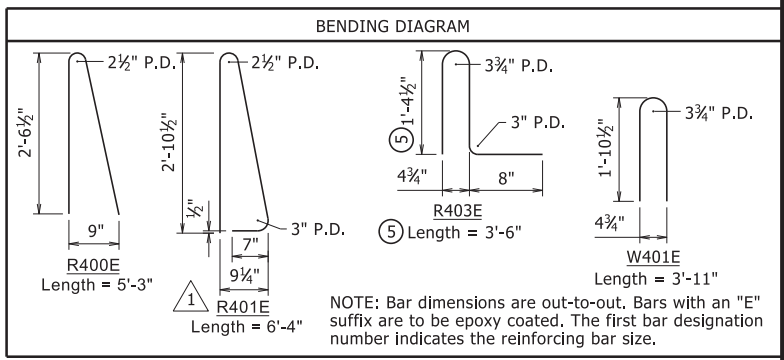
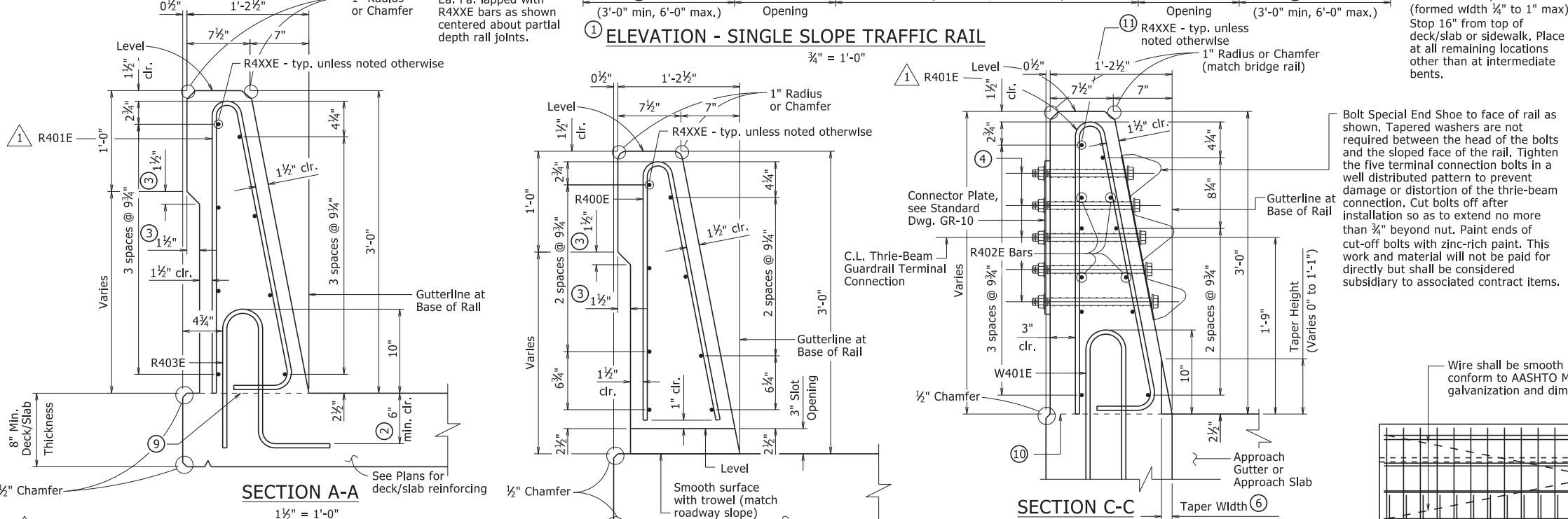
PRINT DATE: 4/9/2021

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



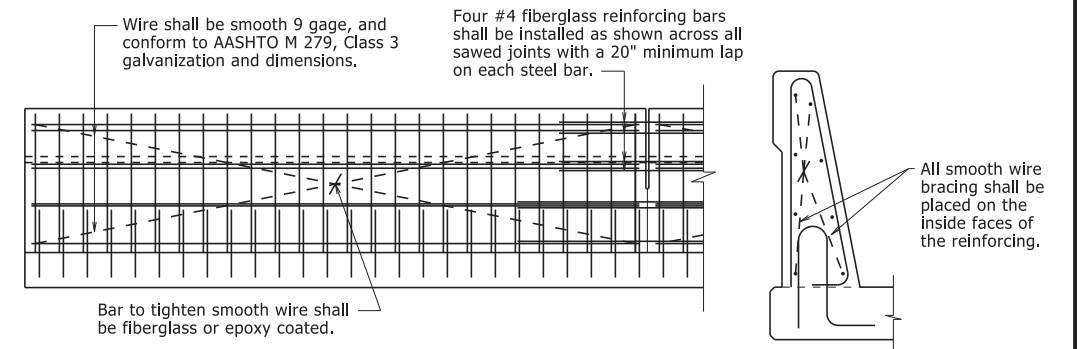
- TYPE SSTR36 - 55070
- C.L. Full-Depth Rail Joint (formed width 1/4" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.
- All measurements shown are along gutterline at base of rail.
 - Minimum embedment into deck/slab.
 - Eliminate recess when formliner with architectural finish is used. See Plans for additional information.
 - C.L. 1" ϕ formed holes for 7/8" ϕ bolts. See Standard Drawings GR-10 and GR-12 for additional information.
 - Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.
 - Field bend front leg of R401E bar as required to maintain minimum 1 1/2" front face clearance within limits of taper.
 - 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 1/2". Sawing of the joints shall be done as soon as practical to a width of 1/4", and must be controlled so it will follow the V-Groove.
 - End posts shall be the same length within a panel.

ELEVATION - SINGLE SLOPE TRAFFIC RAIL



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.

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 three-beam connection. Cut bolts off after installation so as to extend no more than 3/4" 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.



- Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.
- Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.
- These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Panel Length	Closed Rail Panels			Open Rail Panels				
	A	R4XXE	Panel Length	B	C	D	E	R4XXE
See Plans for table with values.								

GENERAL NOTES

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

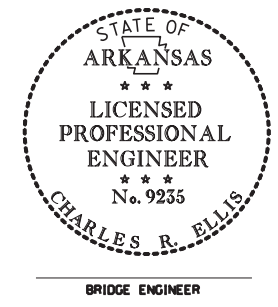
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

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

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

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

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



DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

Modified bending diagram and spacing for R401E bar. No Scale

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

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.

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

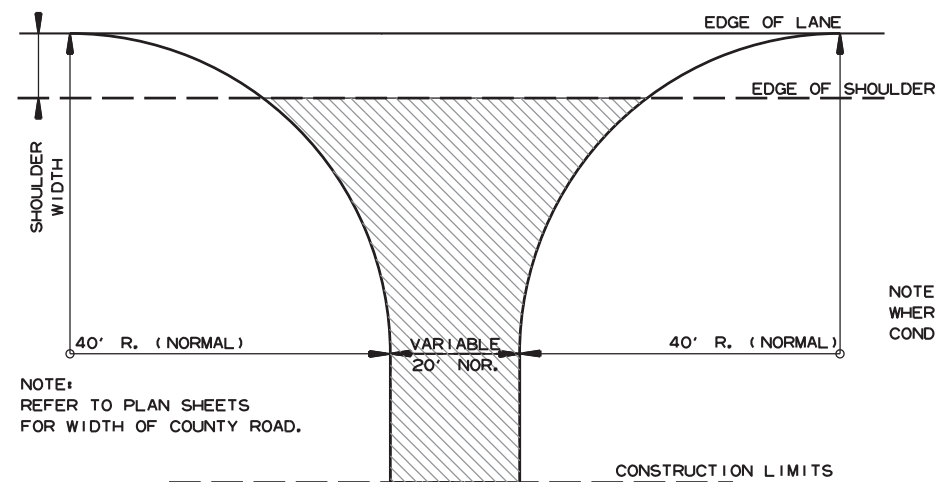
STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.


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

DRAWING NO. 55070

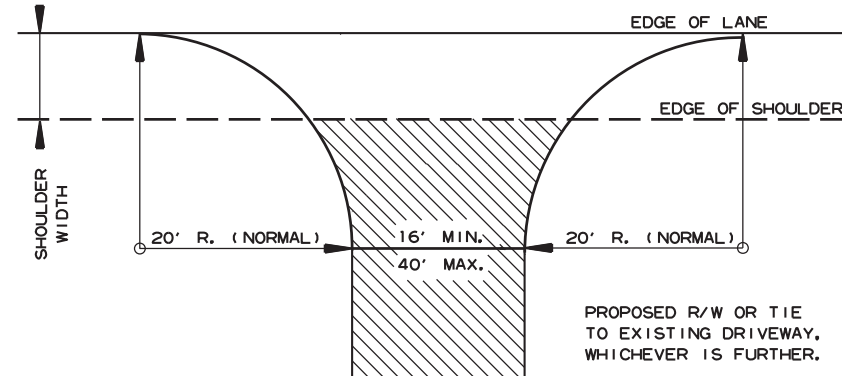


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.


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

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

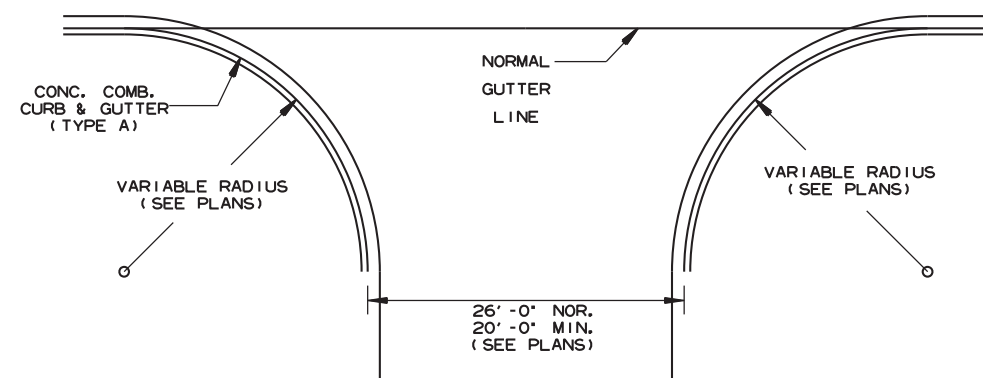
DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION



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

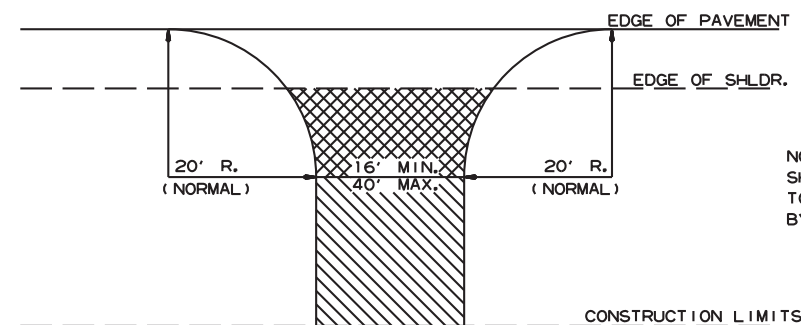
 ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)





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

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



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

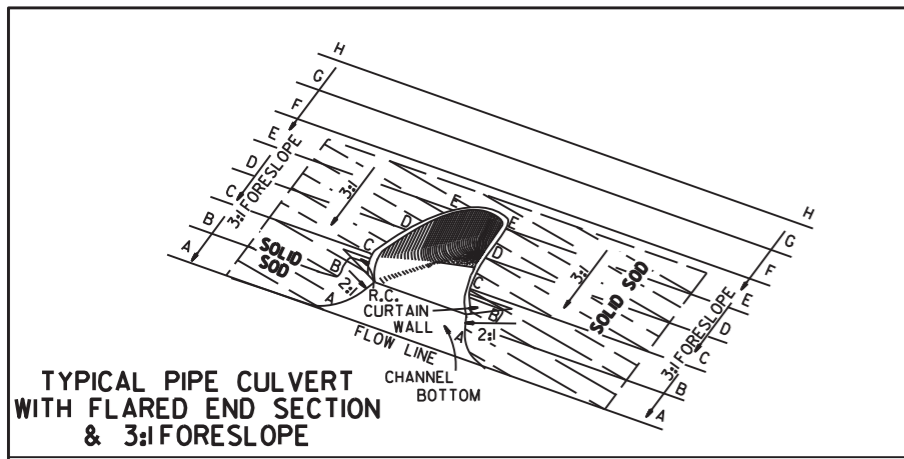
 ASPHALT CONCRETE HOT MIX SURFACE
COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

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

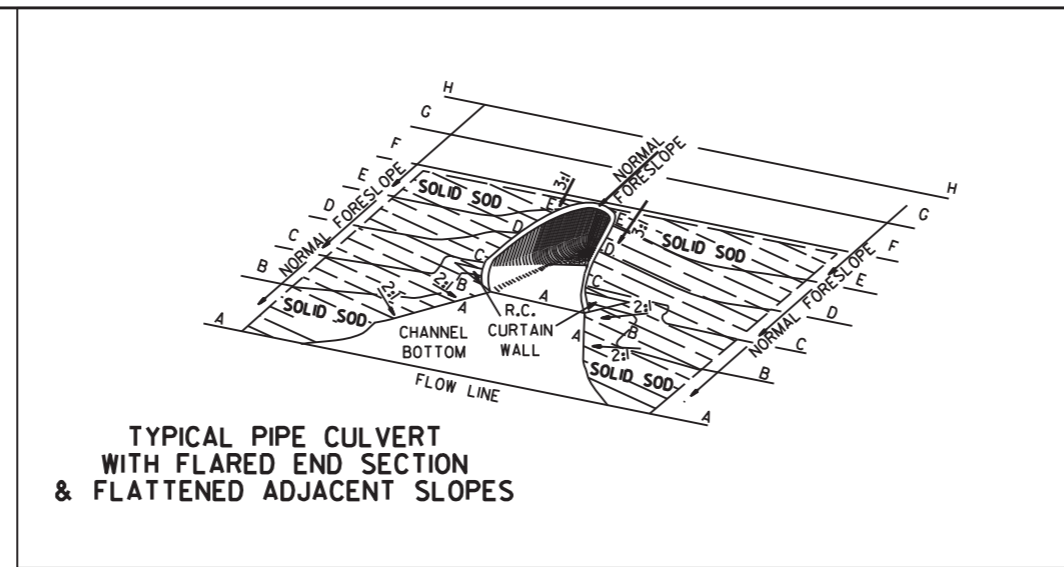
DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

DATE	REV	DATE FILMED	DESCRIPTION
5-19-22			ISSUED

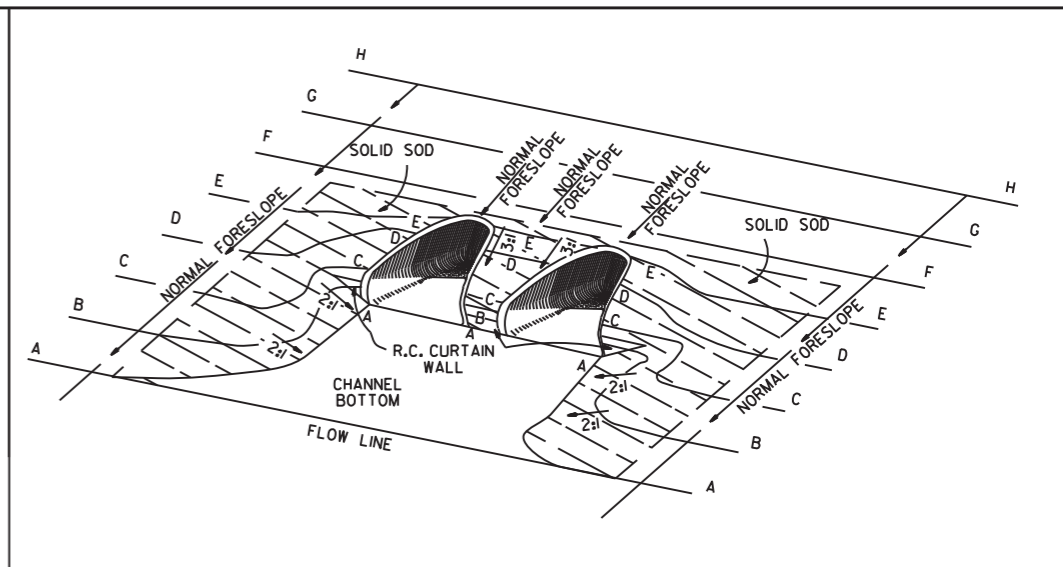
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & STREET
TURNOUTS
STANDARD DRAWING DR-2



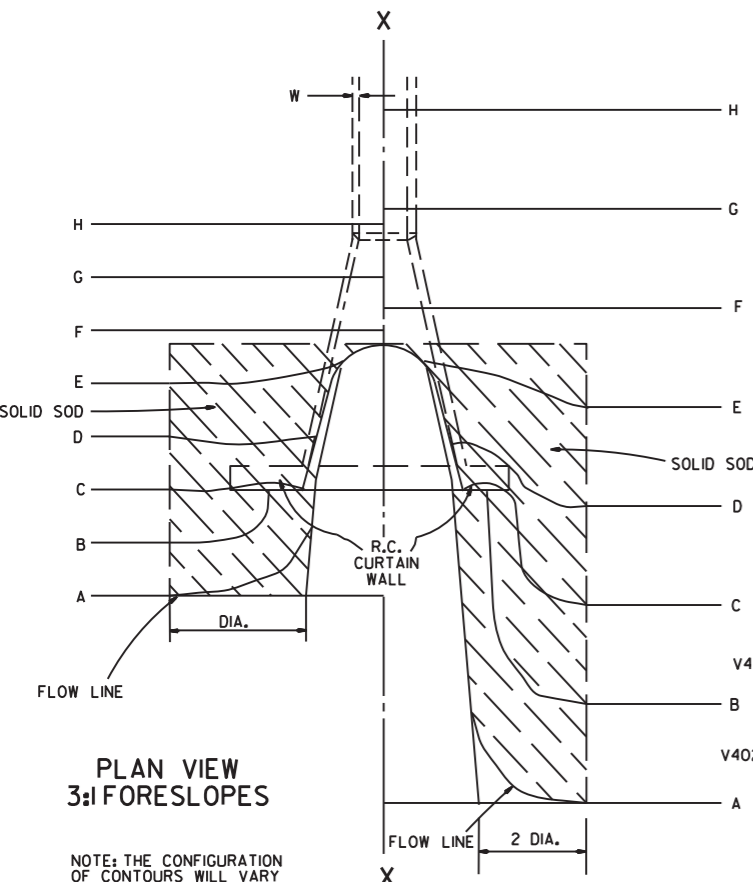
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES



PLAN VIEW 3:1 FORESLOPES

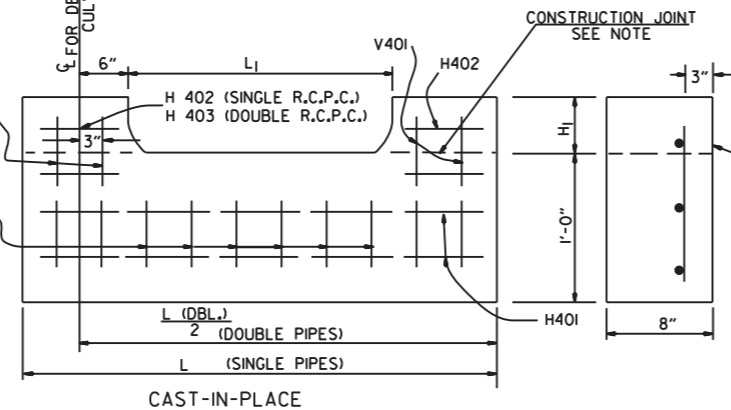
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

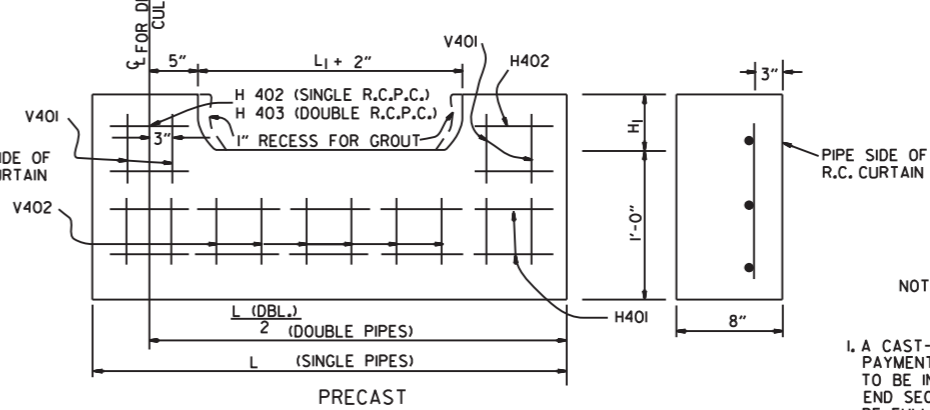
NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.

R.C. CURTAIN WALL DETAILS



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

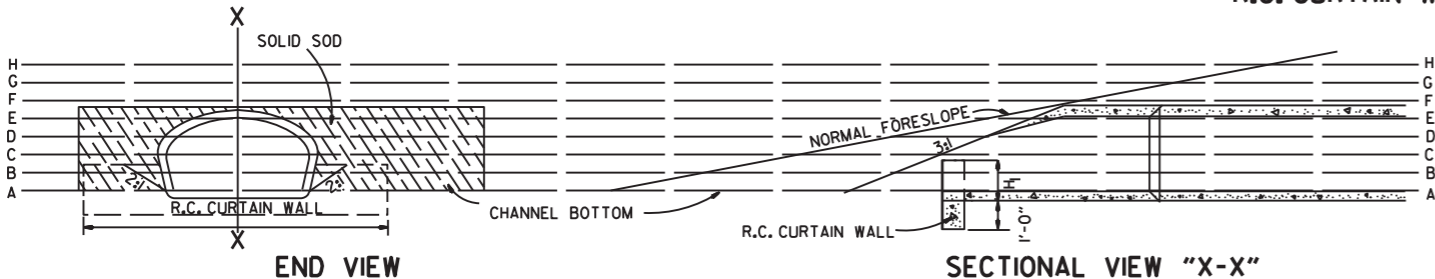
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.					
	3:1	4:1	6:1	3:1	4:1	6:1	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.						SQ. YDS.					
18"	5	7	12	6	8	13	5	7	12	6	8	13
24"	8	12	19	9	13	20	8	12	19	9	13	20
30"	13	18	29	14	19	30	13	18	29	14	19	30
36"	17	26	41	18	28	43	17	26	41	18	28	43
42"	23	35	55	25	37	57	23	35	55	25	37	57
48"	29	46	68	31	48	70	29	46	68	31	48	70
54"	35	57	85	37	59	87	35	57	85	37	59	87
60"	45	62	104	48	65	107	45	62	104	48	65	107
72"	64	92	156	67	95	159	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

10-18-96	ADDED NOTE TO SOLID SODDING		ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING		
11-3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		
DATE	REVISION	FILMED	STANDARD DRAWING FES-1

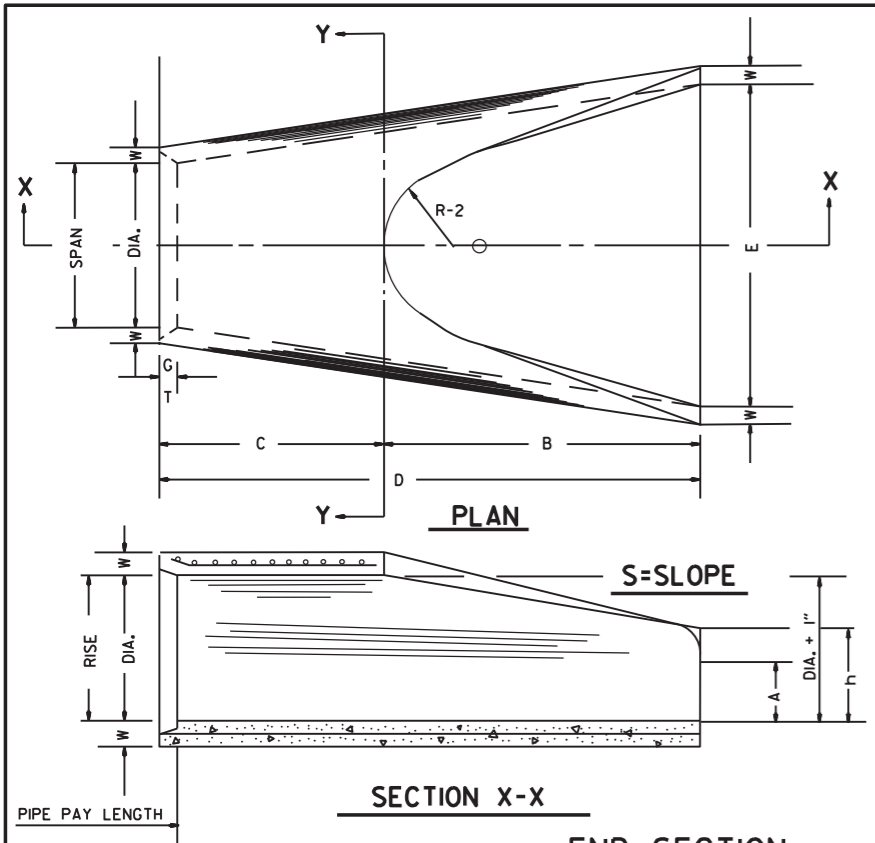
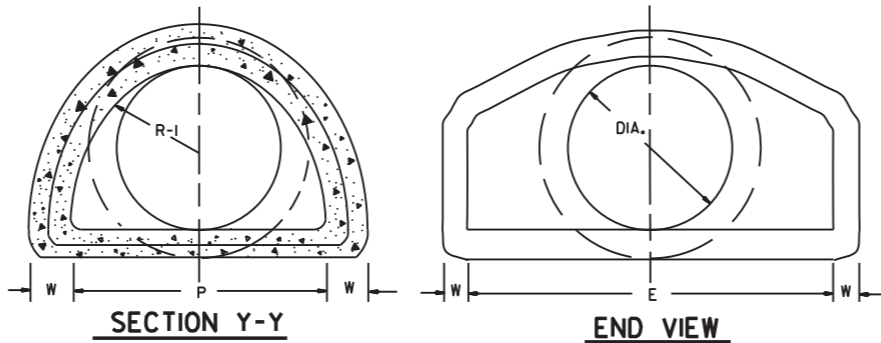


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 3/8"	24 3/8"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 3/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 3/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 3/8"	38 3/8"	24"	5"	13250	4'-6"

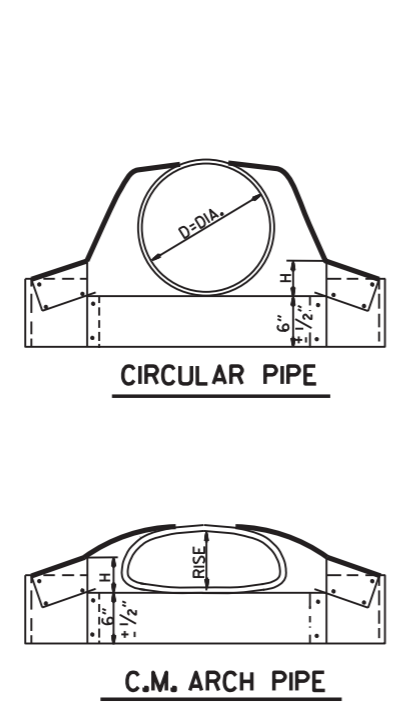
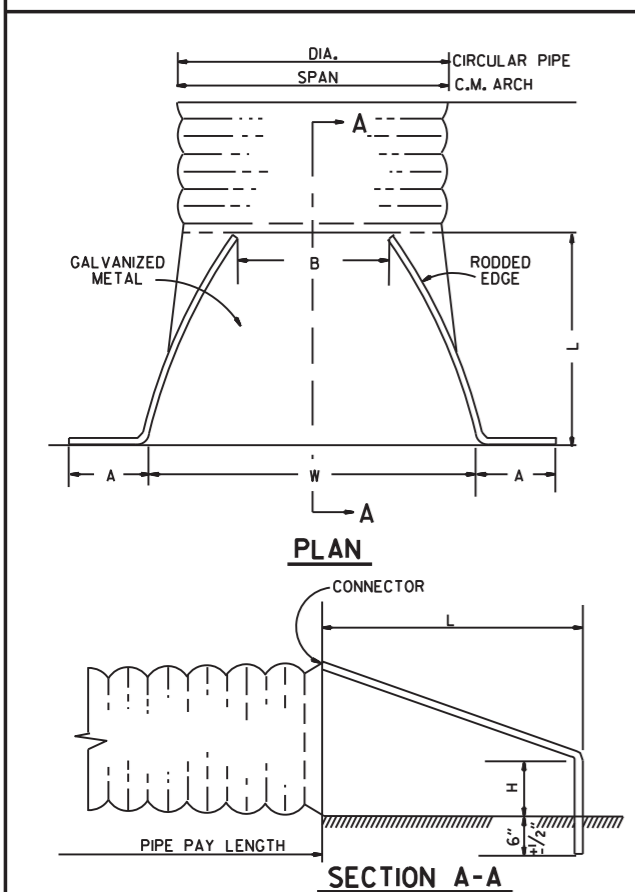
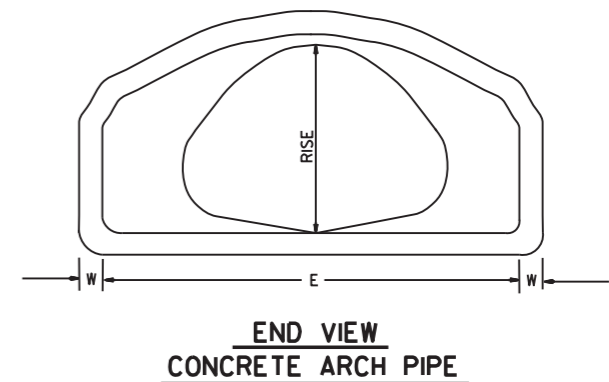


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

EQUIV. DIA.	• SPAN		• RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 3/8"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-11 1/2"	6'-1 1/2"	6'-6"	54 3/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 3/8	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 3/8"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/2:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/8"	24"	5"	2 1/2:1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

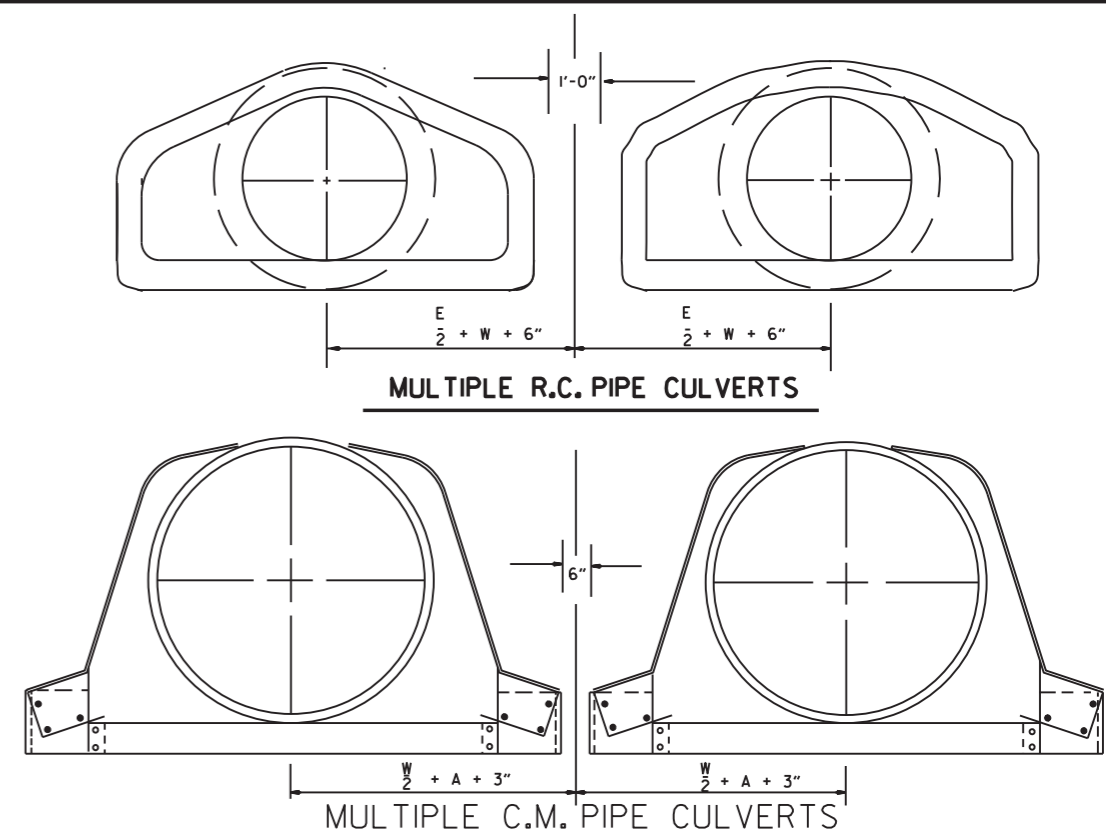


CIRCULAR PIPE

D. DIA.	GAUGE	A	B. MAX.	H	L	W	S
12	16	6	6	6	21	24	2 1/2:1
15	16	7	8	6	26	30	2 1/2:1
18	16	8	10	6	31	36	2 1/2:1
21	16	9	12	6	36	42	2 1/2:1
24	16	10	13	6	41	48	2 1/2:1
30	14	12	16	8	51	60	2 1/2:1
36	14	14	19	9	60	72	2 1/2:1
42	12	16	22	11	69	84	2 1/2:1
48	12	18	27	12	78	90	2 1/2:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1 3/4:1
66	12	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

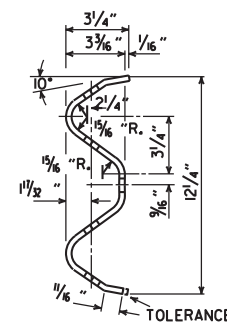
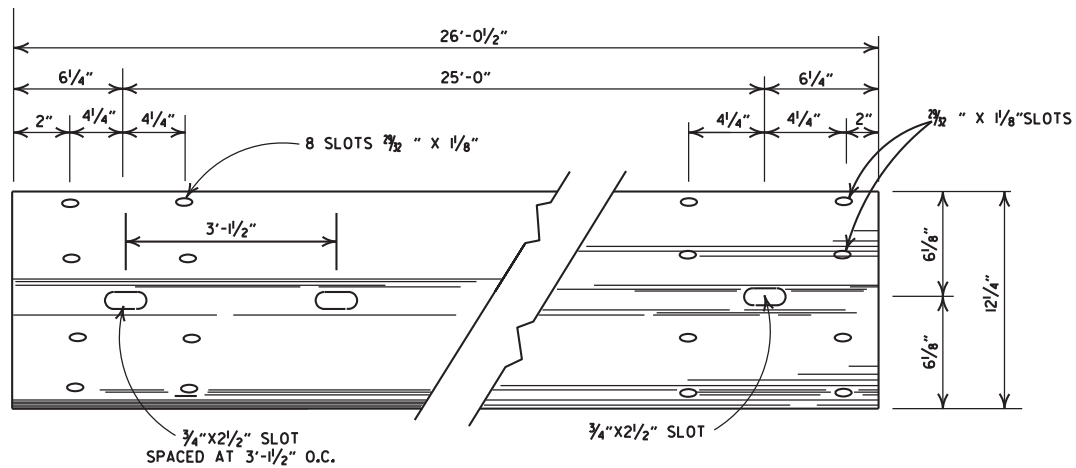
EQUIV. DIA.	SPAN	RISE	INCHES				S	GAUGE	
			A	B MAX.	H	L			
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	2 1/2:1	14
42"	49	33	13	21	9	53	85	2 1/2:1	12
48"	57	38	18	26	12	63	90	2 1/2:1	12
54"	64	43	18	30	12	70	102	2 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12



NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

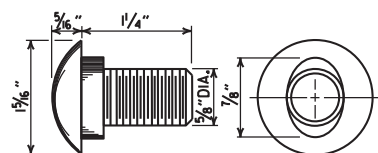
END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO		ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	FLARED END SECTION
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	STANDARD DRAWING FES-2
DATE	REVISION	FILM	

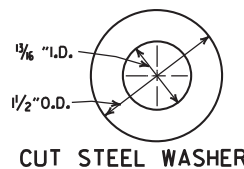


DETAILS OF W-BEAM GUARDRAIL

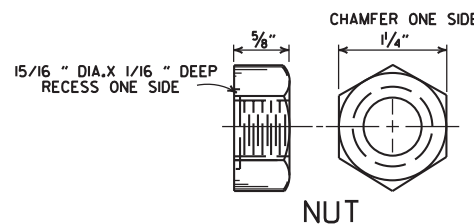
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



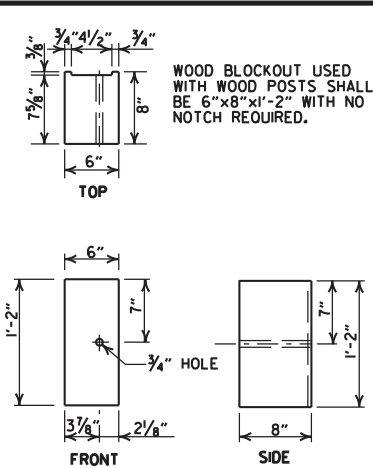
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



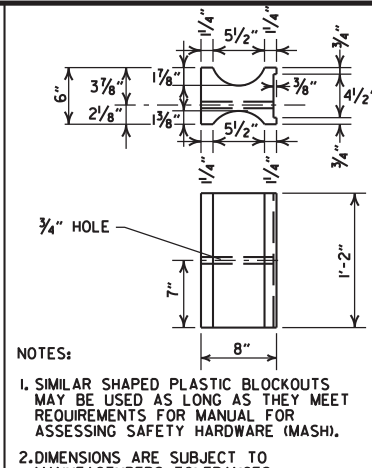
CUT STEEL WASHER



NUT

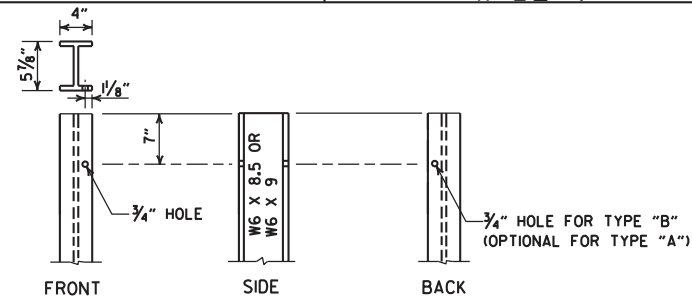


WOOD BLOCKOUT (W-BEAM)

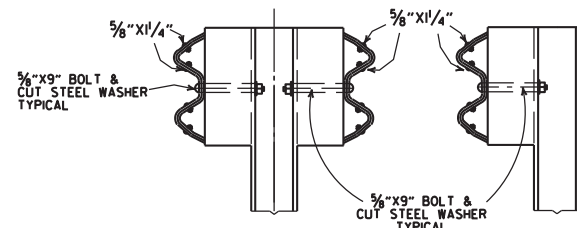


PLASTIC BLOCKOUT (W-BEAM)

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



STEEL POST



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 3/4" 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.

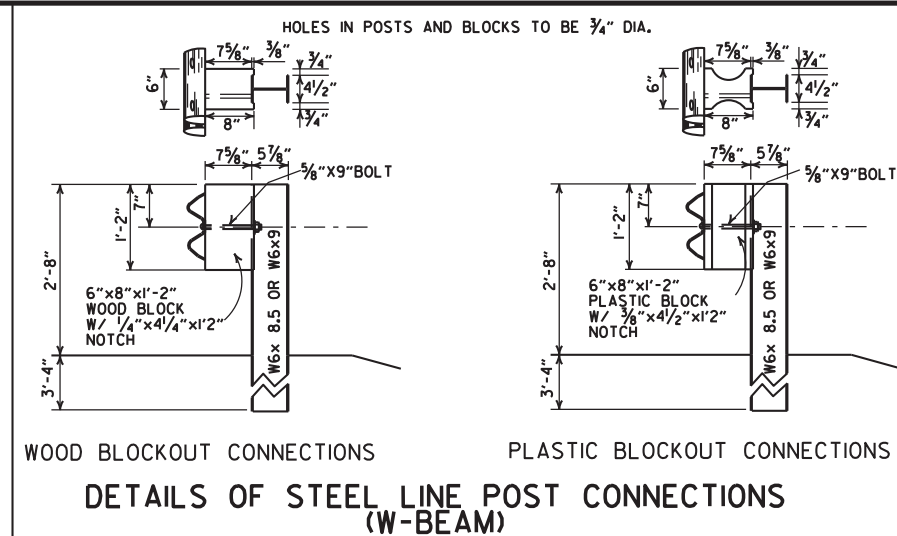
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

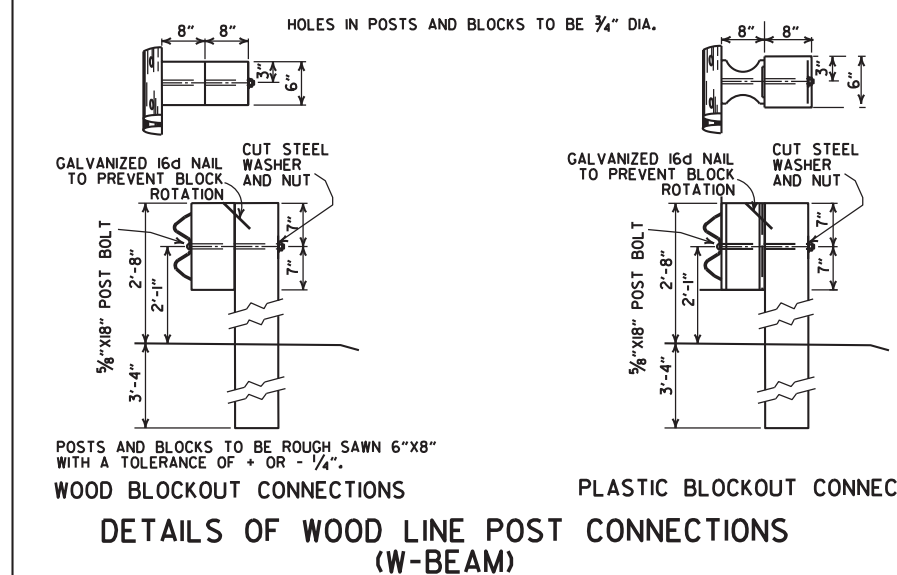
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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.

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



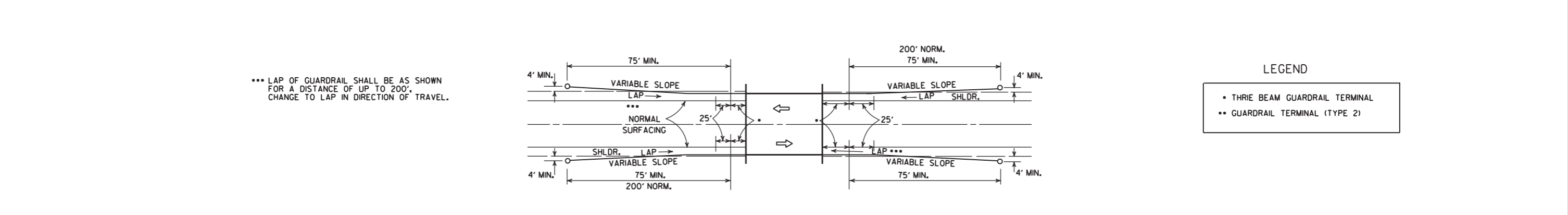
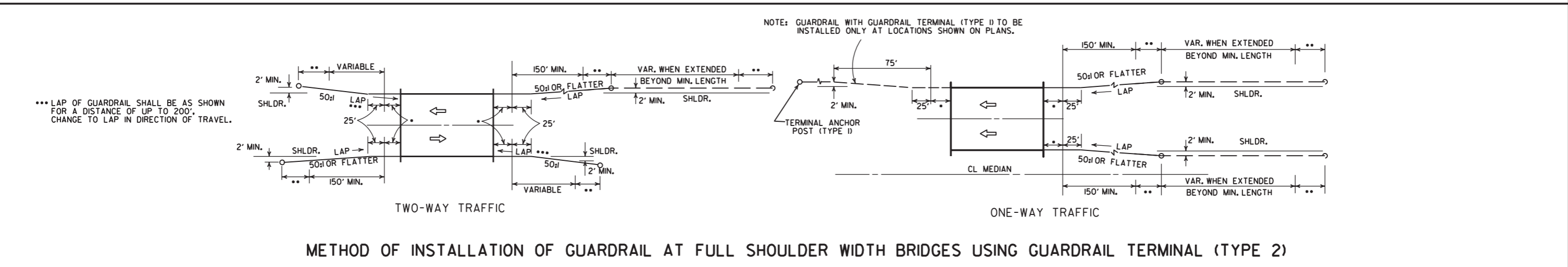
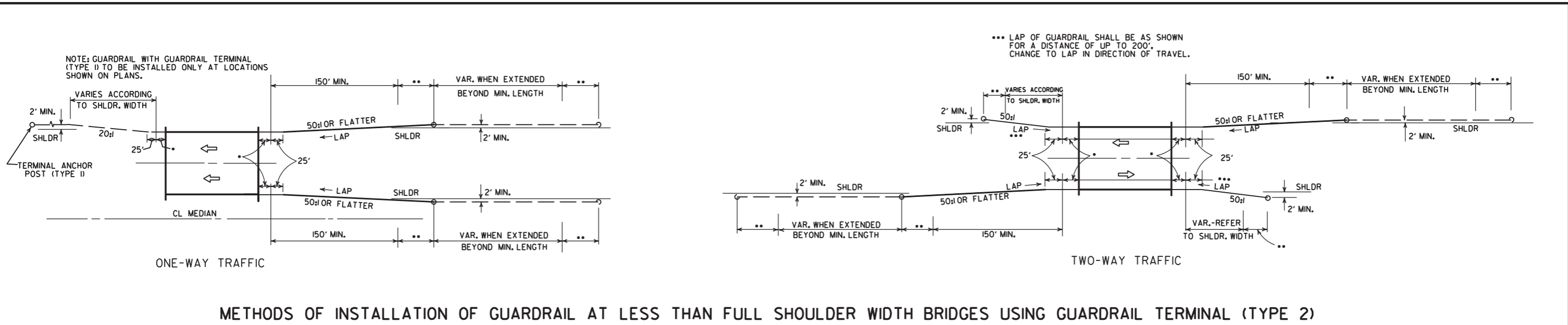
WOOD BLOCKOUT CONNECTIONS PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



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

05-19-22	REVISED GENERAL NOTES	
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 CONC. 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
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
STANDARD DRAWING GR-6

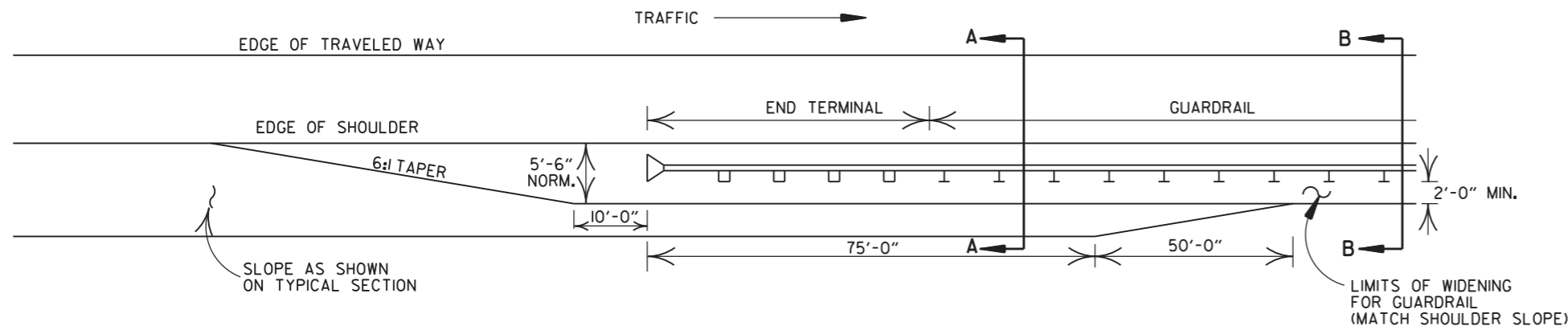


LEGEND

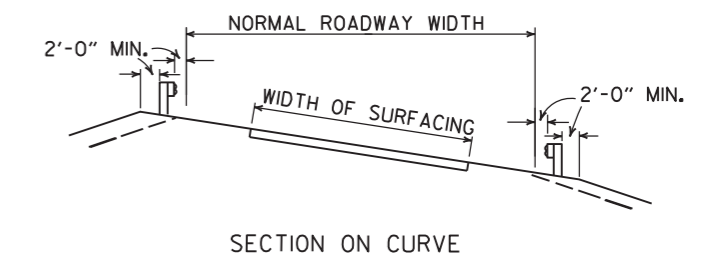
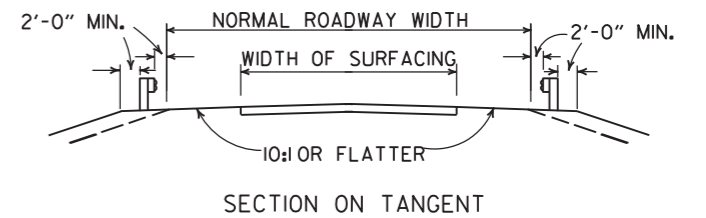
- THRE BEAM GUARDRAIL TERMINAL
- GUARDRAIL TERMINAL (TYPE 2)

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

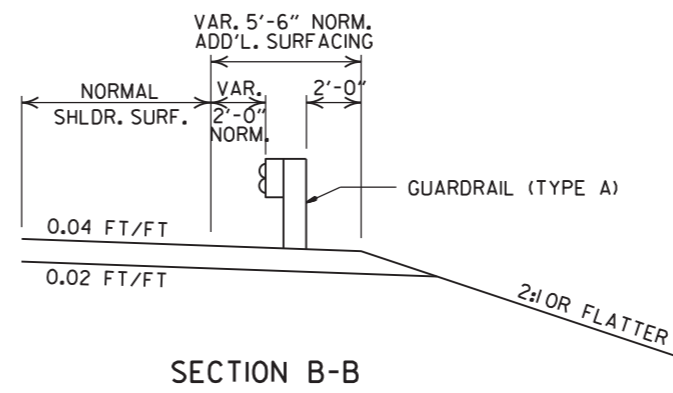
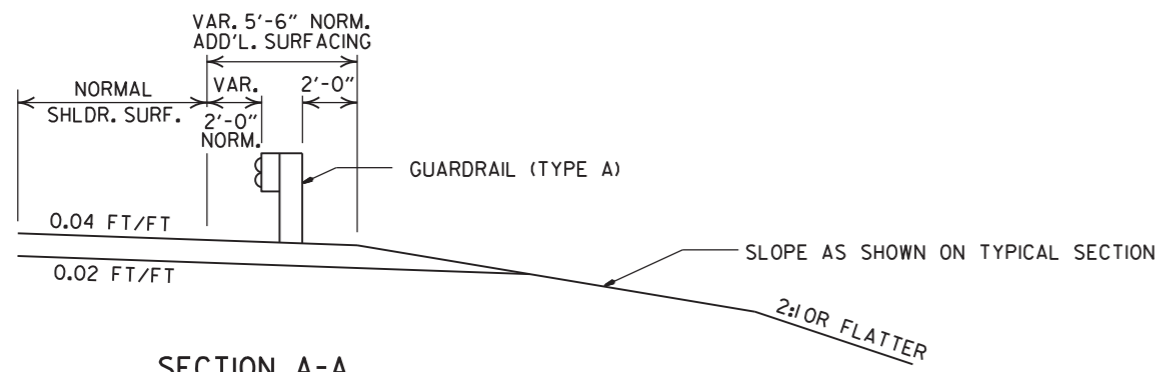
ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
STANDARD DRAWING GR-8



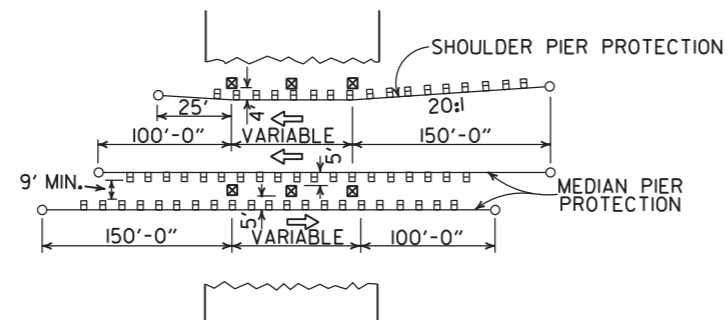
NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARDRAIL.



DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

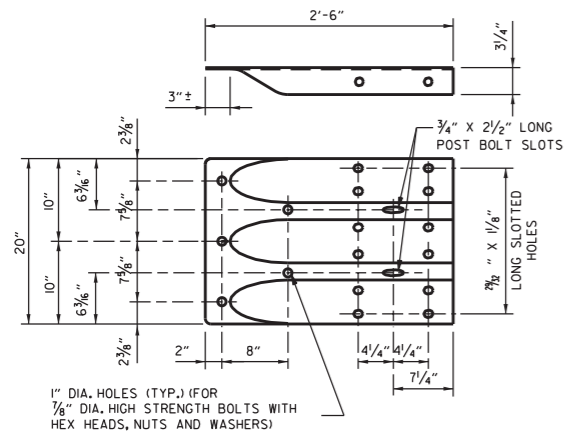


DETAILS OF WIDENING FOR GUARDRAIL

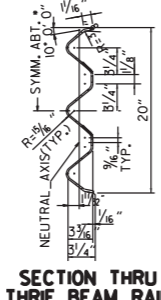


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

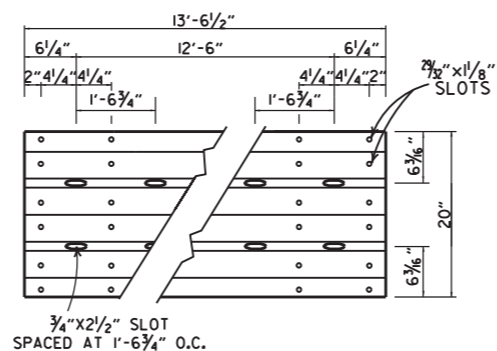
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-9
11-07-19	RENUMBERED AND RENAMED		
4-17-08	MINOR REVISION		
11-10-05	DRAWN		
DATE	REVISION	DATE	FILM



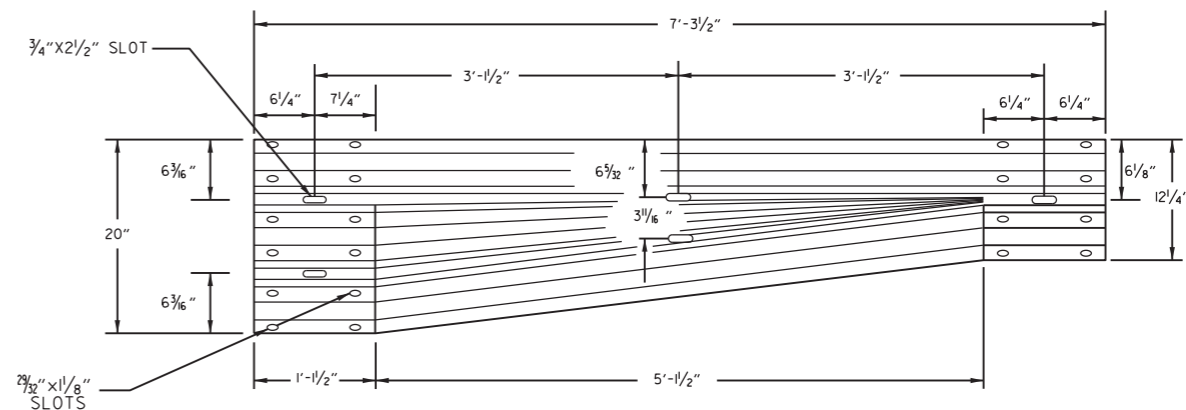
SPECIAL END SHOE



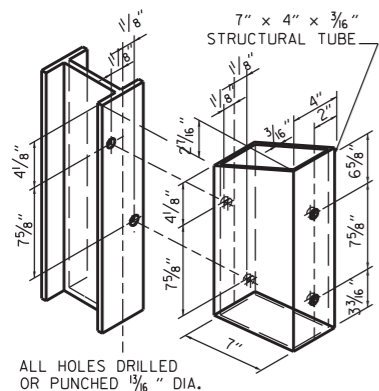
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

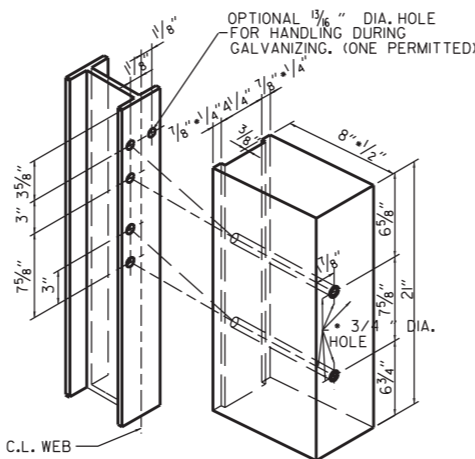


TRANSITION SECTION



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

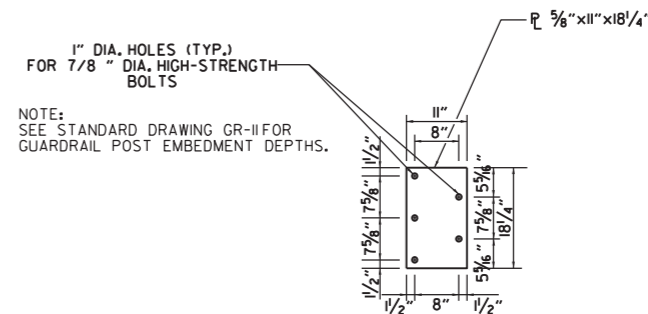
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 1 3/8" 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.

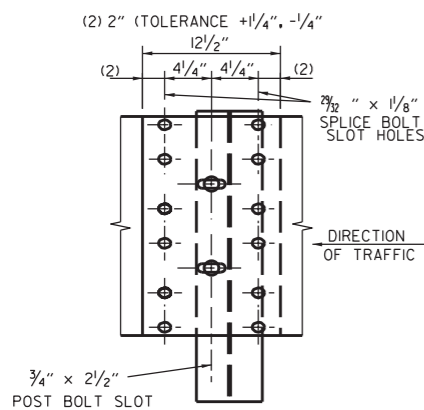


1" DIA. HOLES (TYP.) FOR 7/8" DIA. HIGH-STRENGTH BOLTS

NOTE: SEE STANDARD DRAWING GR-II 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.



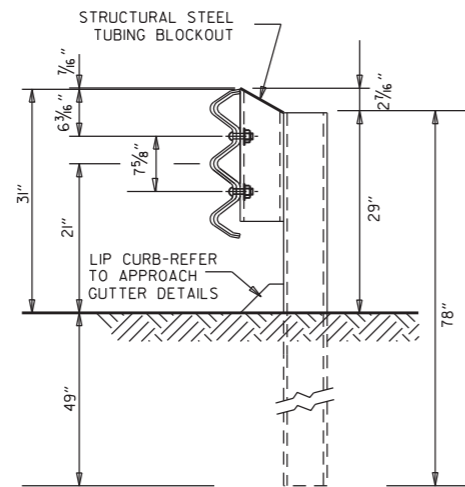
THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

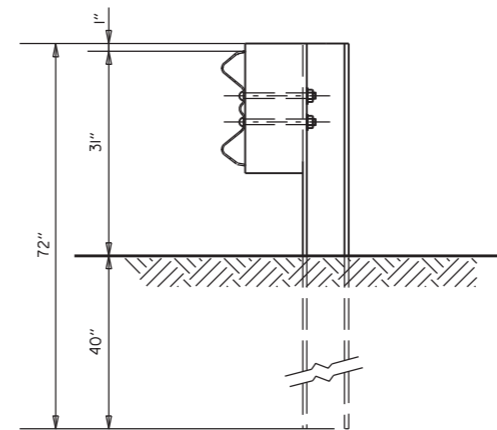
- THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.
- ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH 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-II 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 9.7F (1400 F) OR NO. 1 1350 F SOUTHERN PINE.

II-07-19	RENAMED AND REVISED REFERENCES	
II-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGE ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
II-29-07	ADDED PLASTIC BLOCKOUTS	
II-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
II-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	
DATE	REVISION	FILMED

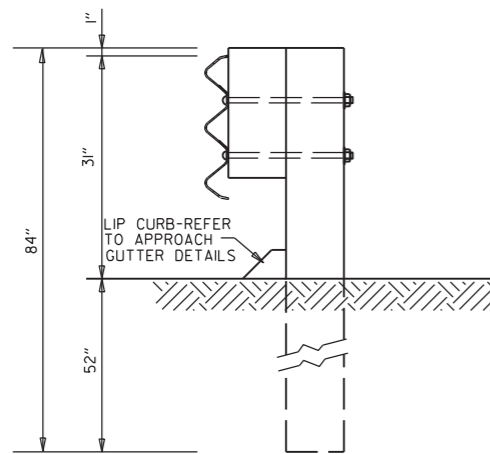
ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
 STANDARD DRAWING GR-10



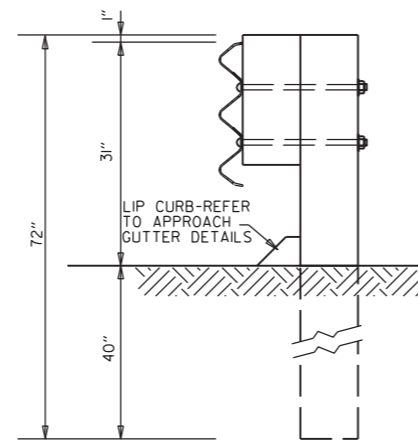
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



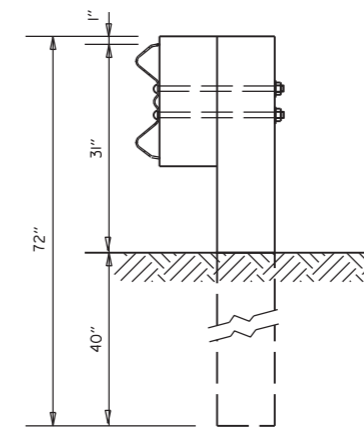
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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

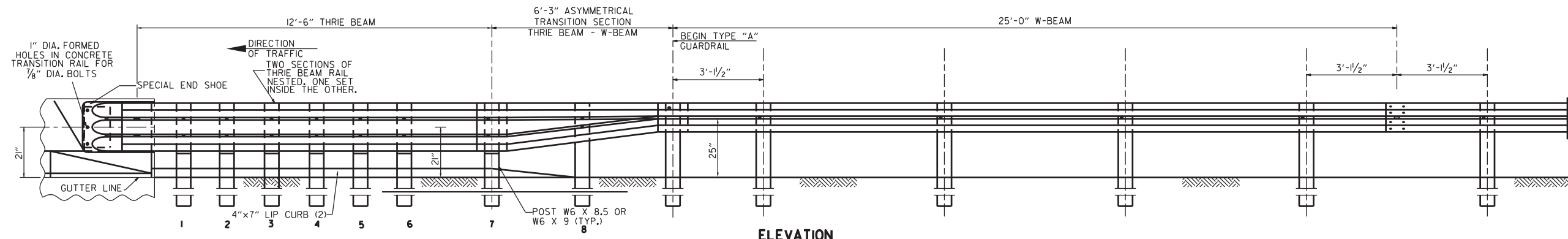


W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

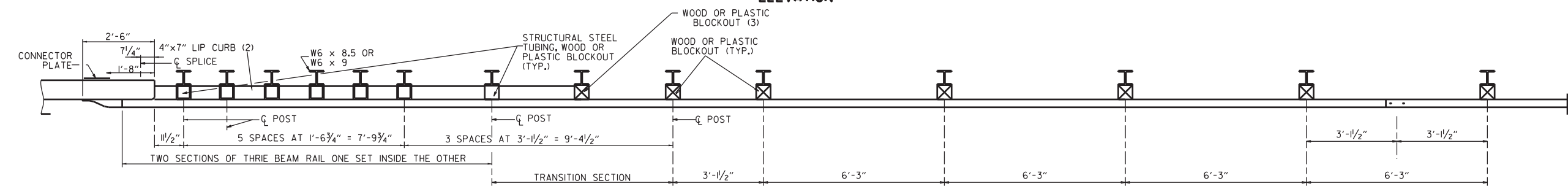
GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND
VERTICALLY IN CROSS SECTION.

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

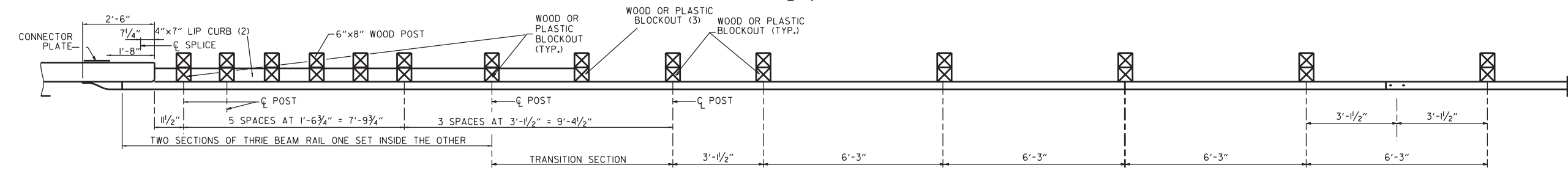
DATE	REVISION	FILMED	ARKANSAS STATE HIGHWAY COMMISSION
11-07-19	RENAMED		GUARDRAIL DETAILS
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		
07-14-10	REVISED POST 8 DIMENSIONS		STANDARD DRAWING GR-II
11-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		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



ELEVATION



PLAN



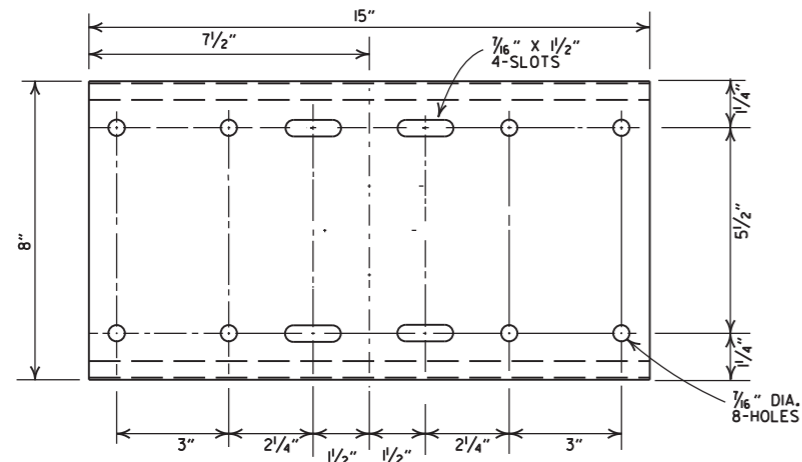
PLAN

- (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.

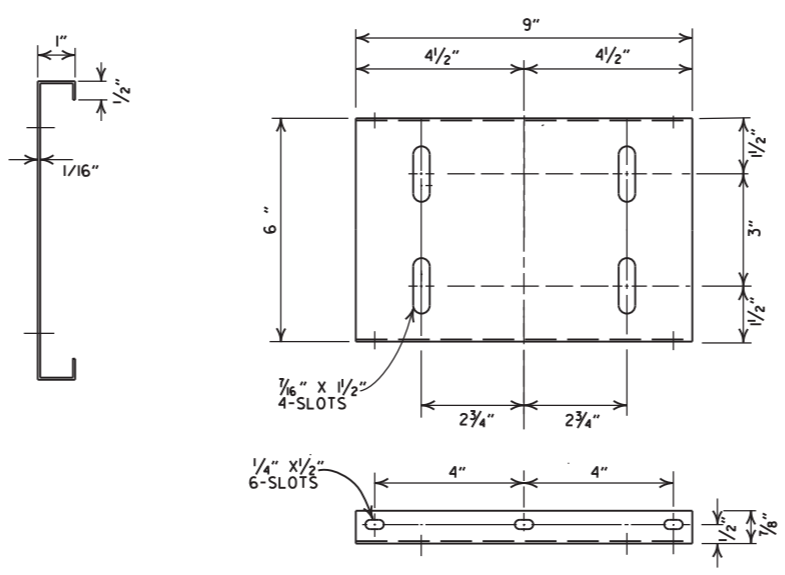
THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

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-II 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.

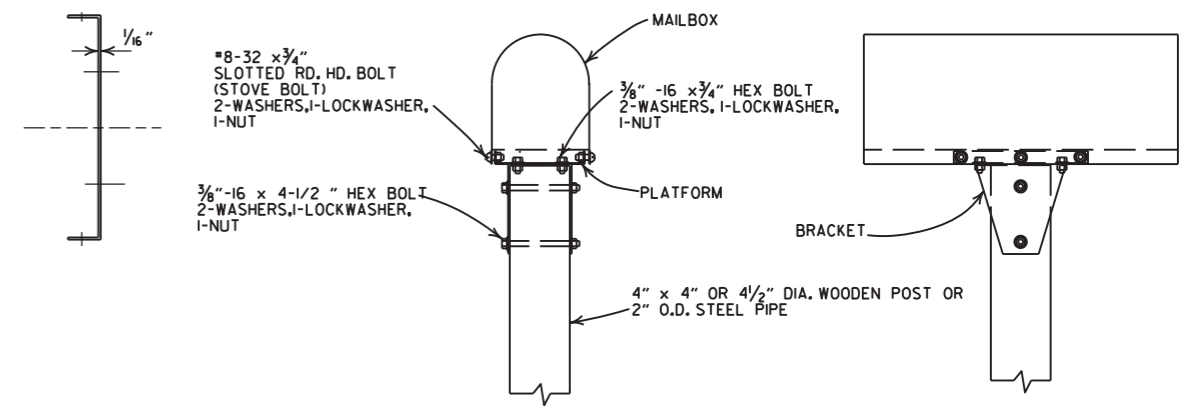
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-12
05-14-20	REVISED NOTES		
11-07-19	RENAMED & REVISED REFERENCES		
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED		
DATE	REVISION		FILMED



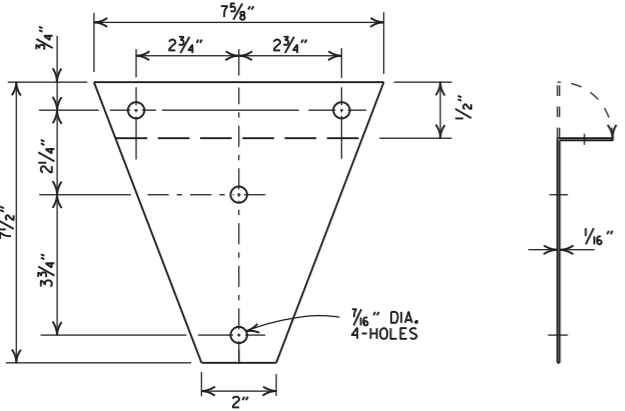
SHELF



PLATFORM

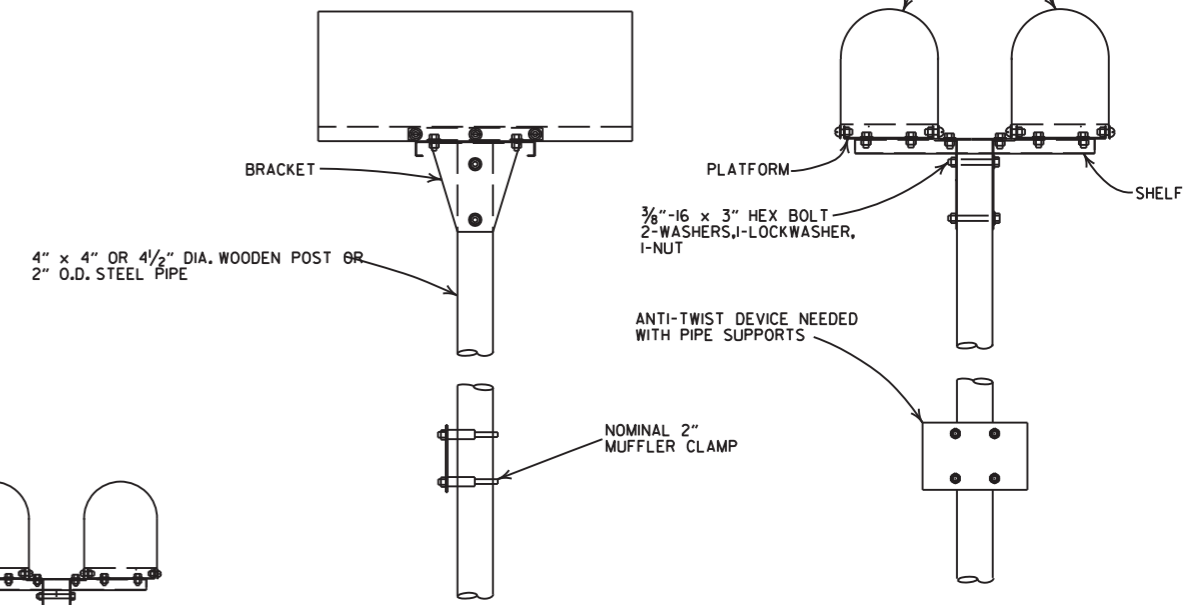


SINGLE INSTALLATION

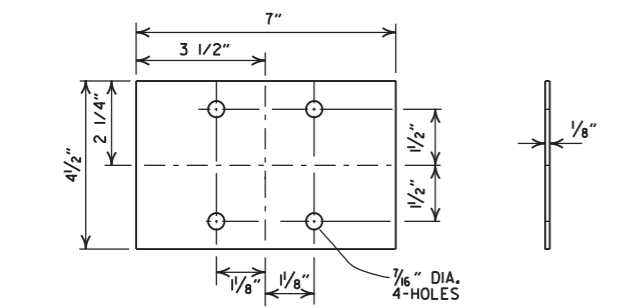


BRACKET

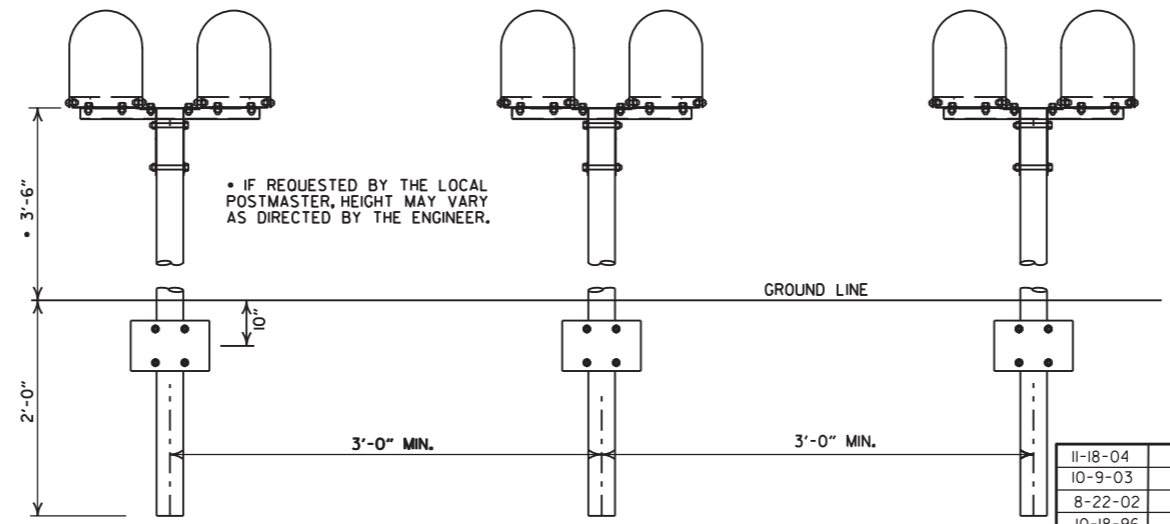
- GENERAL NOTES**
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED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



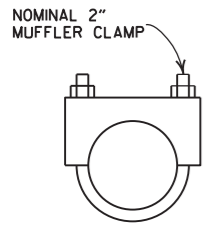
DOUBLE INSTALLATION



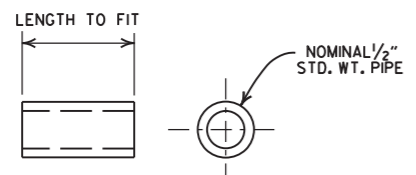
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



SPACER

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	120-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDDOT NOMINAL	AASHTO M 206	ARDDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 3/8	27
42	51 1/8	51	31 1/8	31
48	58 1/2	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 3/8	97
132	168 3/4	169	106 1/2	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

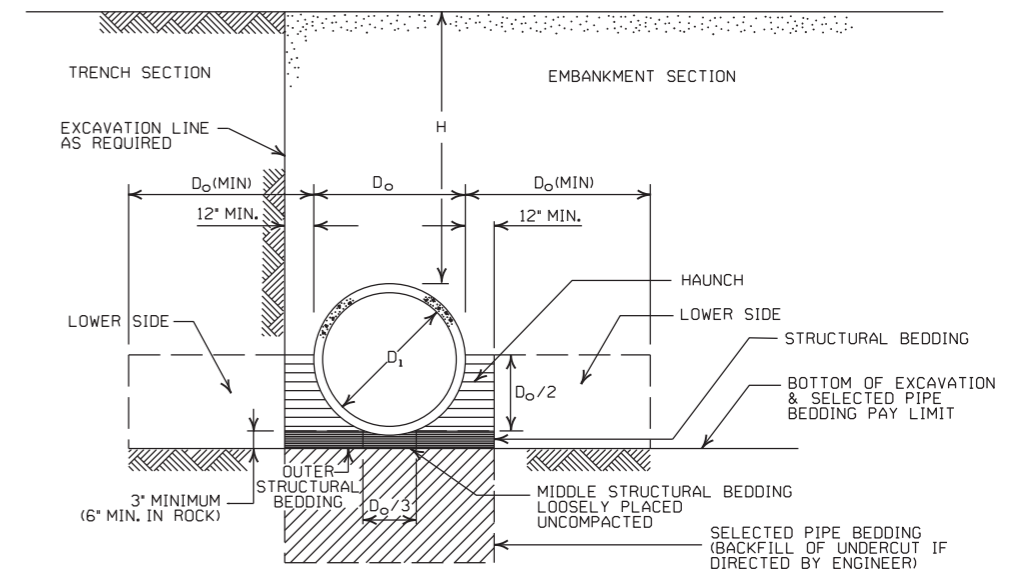
- LEGEND -

- D_i = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- [Symbol] = UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	MINIMUM 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
2 3/8 INCH BY 1/2 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	73
42	2		43	67	70	
48	2		37	58	61	64
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

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.

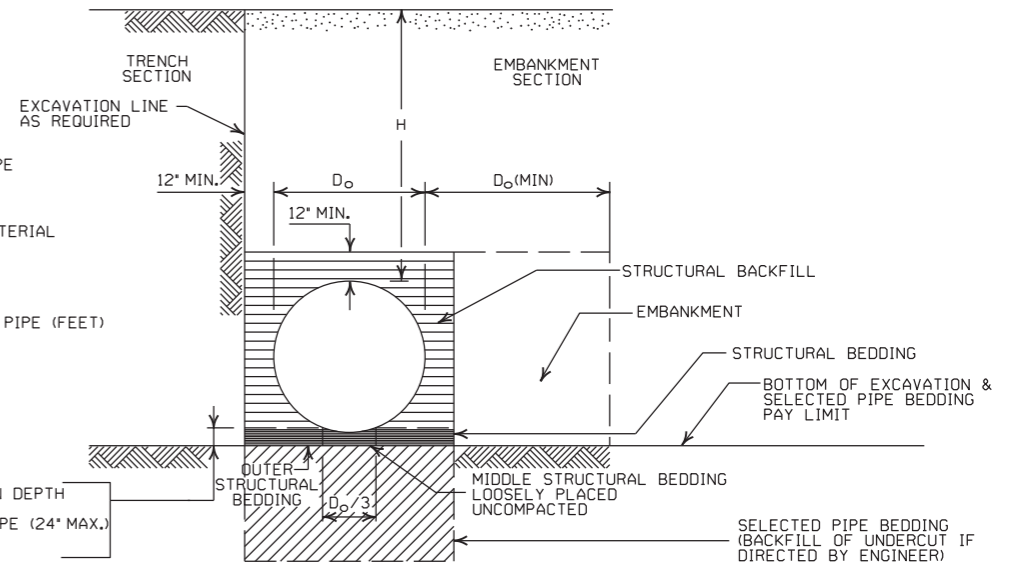
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" X 1/2" 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."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	MINIMUM 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 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	34
30	2		18	31	32	
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)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1		
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, 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	3 1/2	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	0.135	3	14		
66	77x52	8	0.168	3	15	0.164	3	15		
72	83x57	9	0.168	3	15					
3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
			INSTALLATION		INSTALLATION					
			TYPE 2	TYPE 1	TYPE 2	TYPE 1				
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

② WHERE THE STANDARD 2 2/3" X 1/2" 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 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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

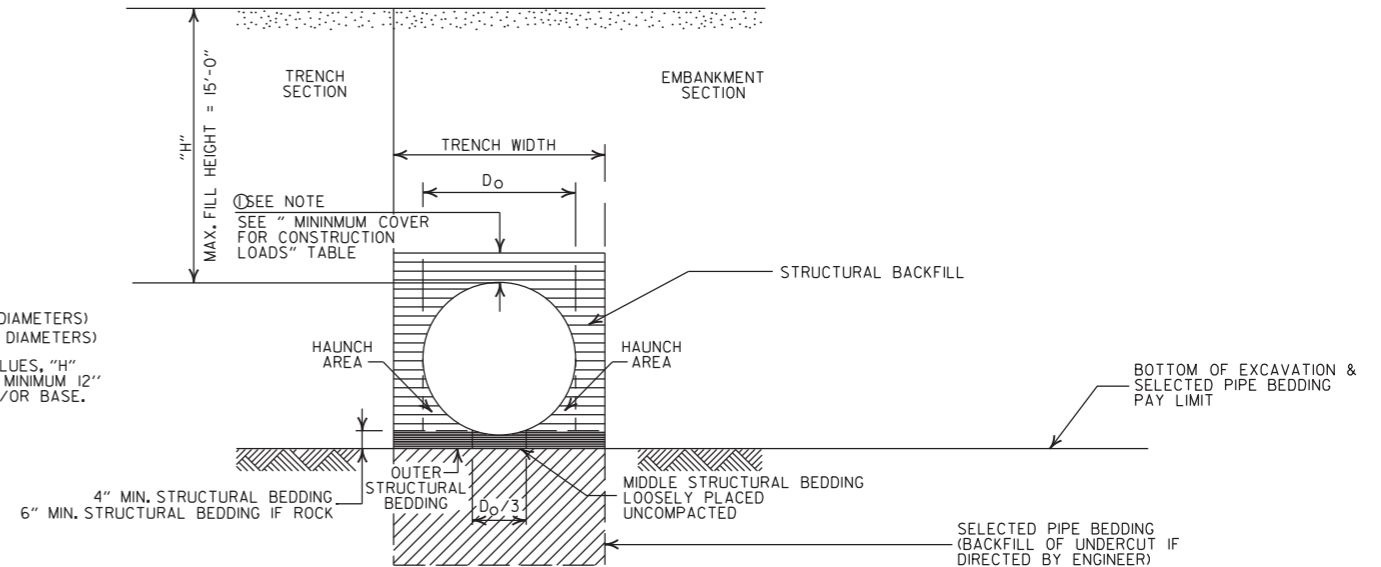
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION
**PLASTIC PIPE CULVERT
 (HIGH DENSITY POLYETHYLENE)**
 STANDARD DRAWING PCP-1

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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL. SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 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"

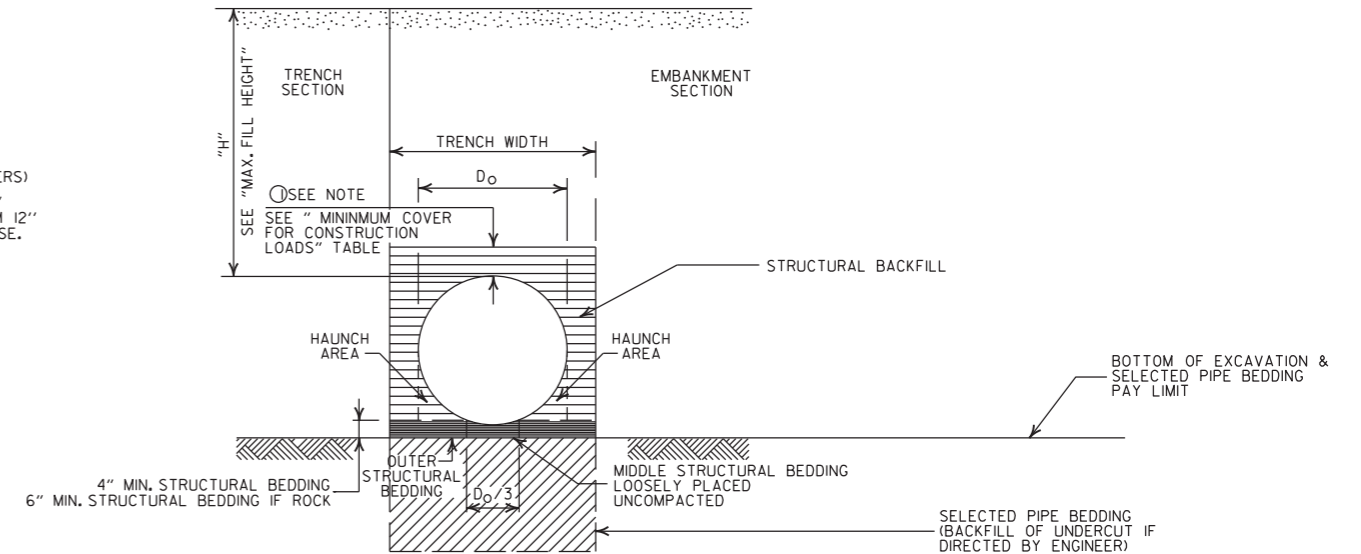
MULTIPLE INSTALLATION OF PVC PIPES

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.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

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

GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS I2454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
- WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATED OR PROFILE VALLEY.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

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 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 POLYPROPYLENE 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"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

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.

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

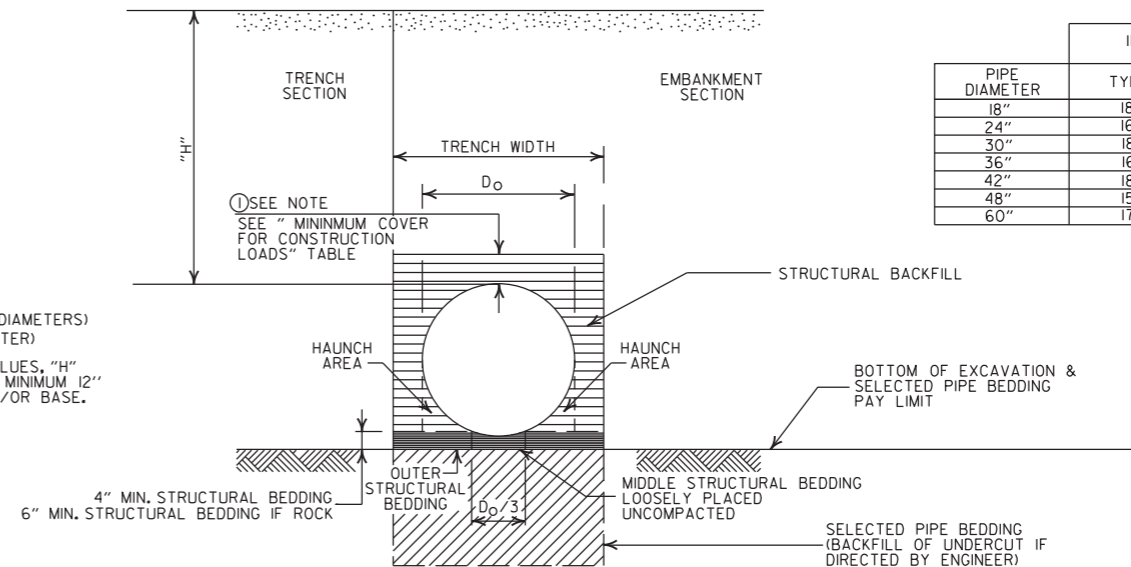
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

GENERAL NOTES

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

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

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

- LEGEND -

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

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

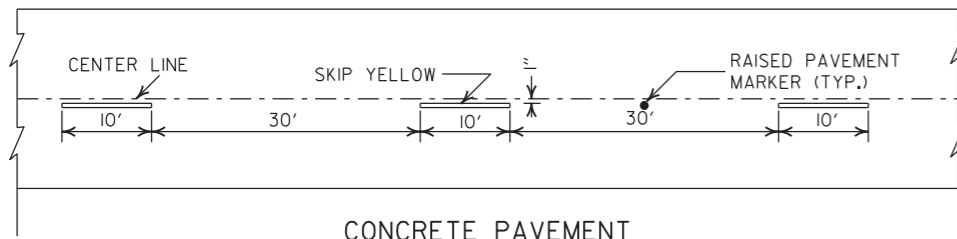
02-27-20	REVISED		
11-07-19	ISSUED		
DATE	REVISION	DATE FILMED	

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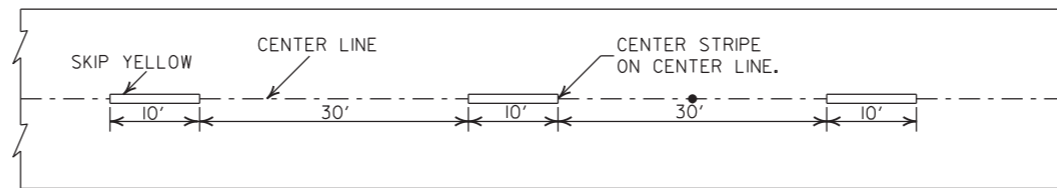
PLASTIC PIPE CULVERT
(POLYPROPYLENE)

STANDARD DRAWING PCP-3



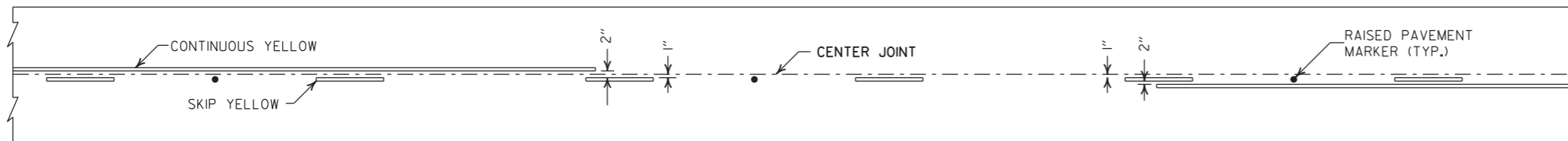


CONCRETE PAVEMENT

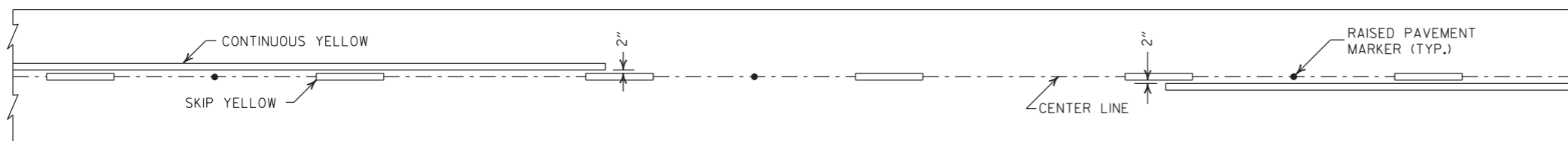


ASPHALT PAVEMENT

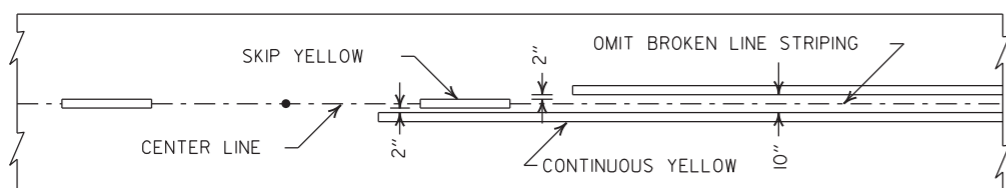
BROKEN LINE STRIPING



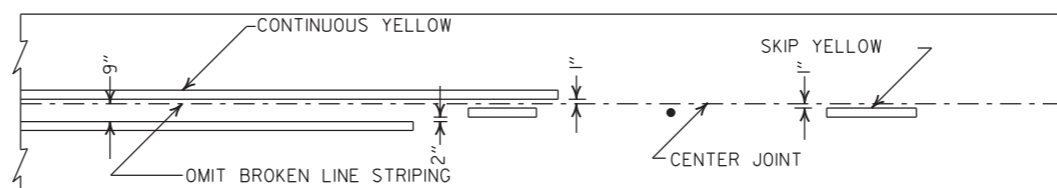
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

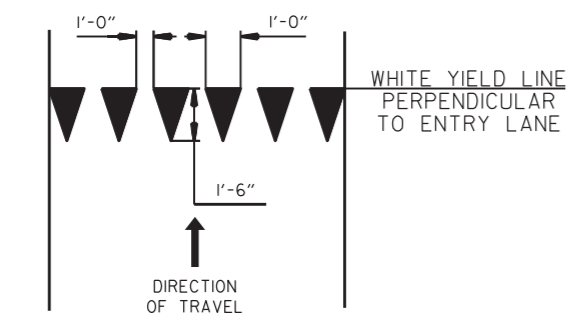


ASPHALT PAVEMENT

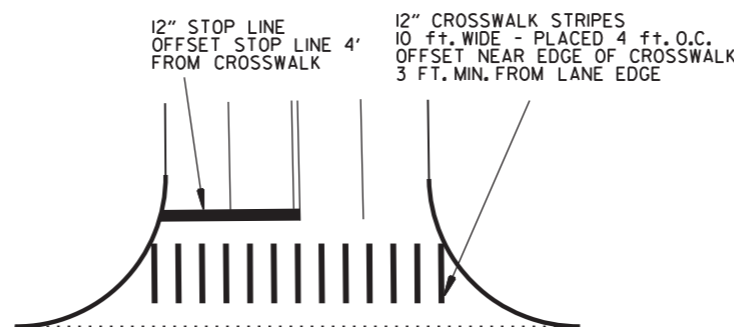


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

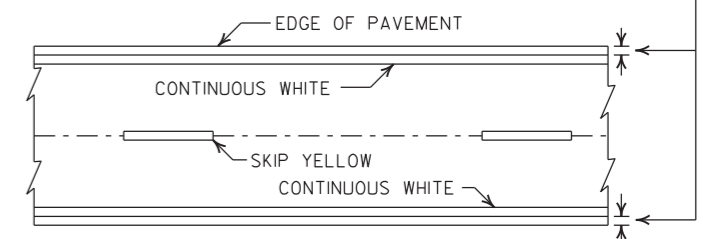


CROSSWALK AND STOP LINE DETAILS

NOTES:

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

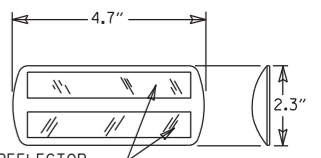
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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



PRISMATIC REFLECTOR

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

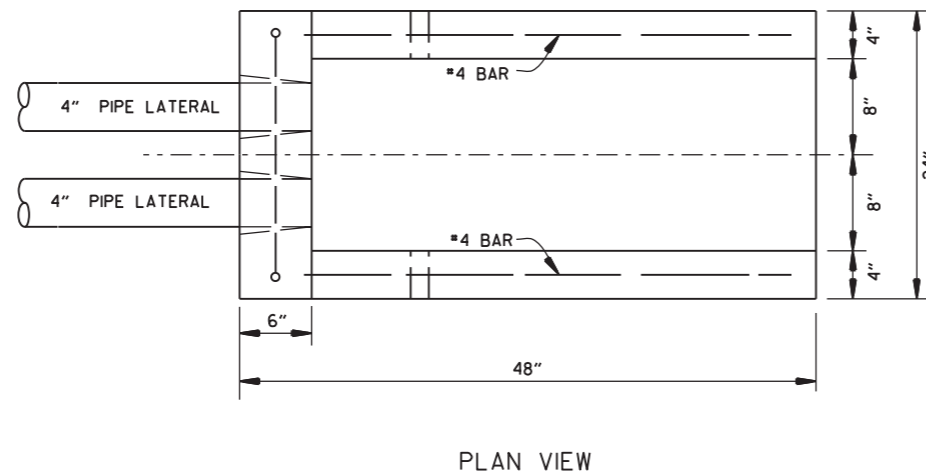
DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02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

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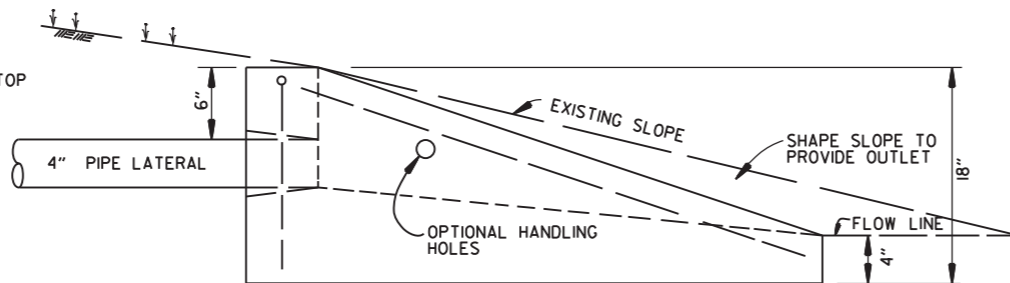
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

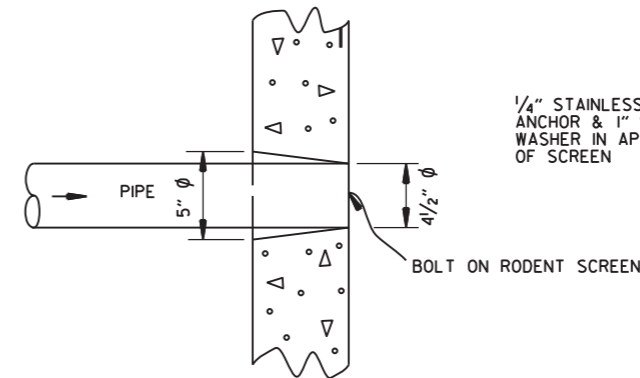
NOTE:
 1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW

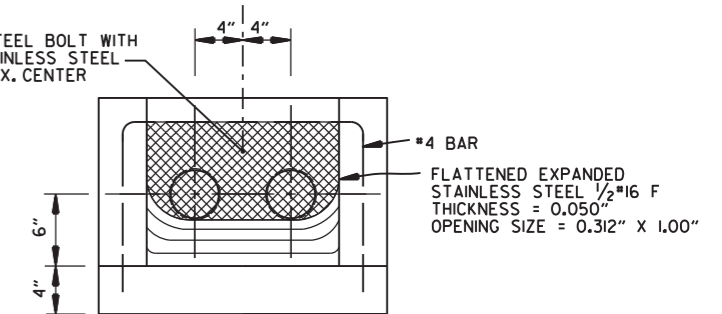


SIDE VIEW

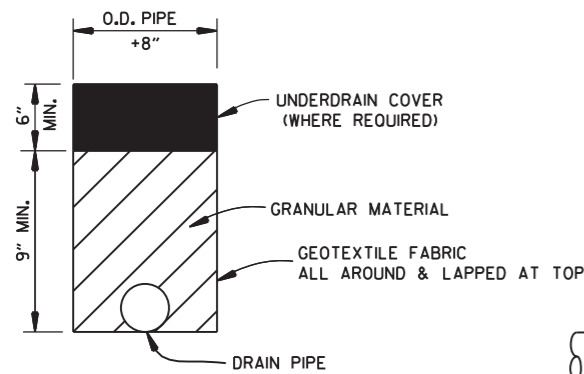


DETAIL OF HOLE FOR 4" PIPE

1/4" STAINLESS STEEL BOLT WITH ANCHOR & 1" STAINLESS STEEL WASHER IN APPROX. CENTER OF SCREEN



FRONT VIEW (DETAIL OF RODENT SCREEN)

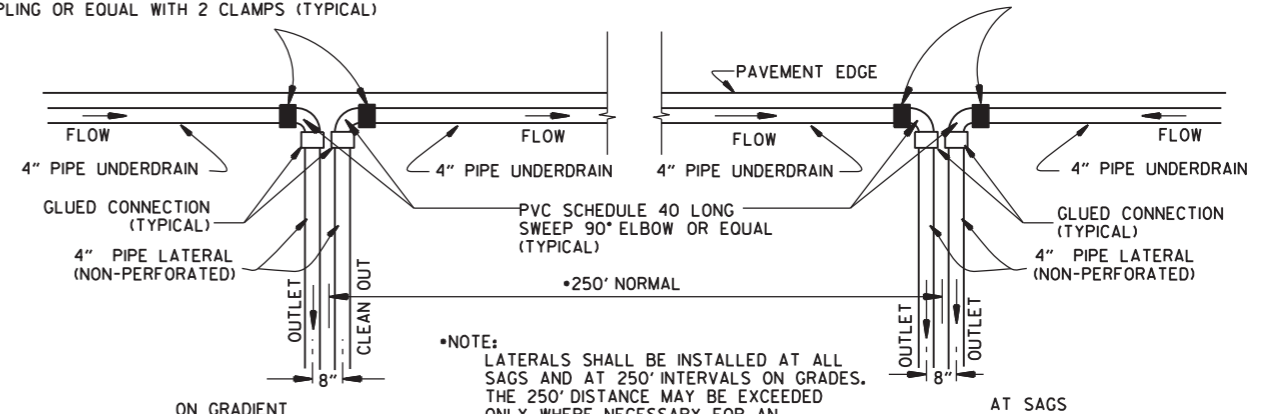


DETAILS OF PIPE UNDERDRAIN

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

UNDERDRAIN OUTLET PROTECTORS

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



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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

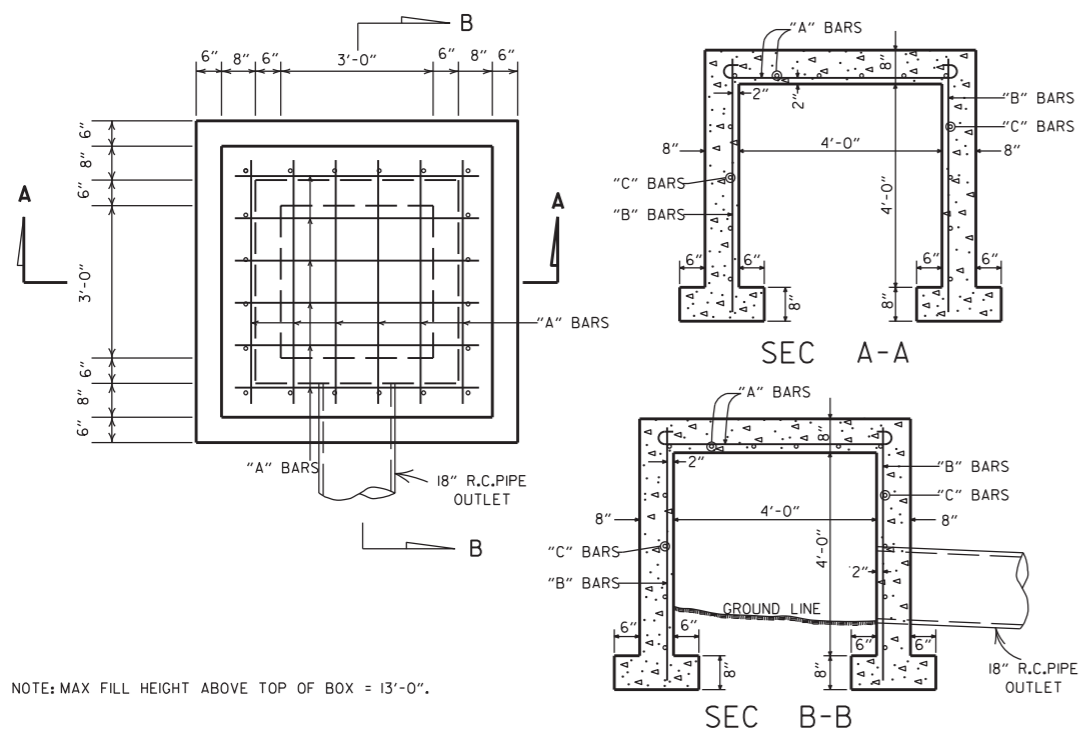
- GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
- 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
- EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
- THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
- PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
- ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
- AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS; 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

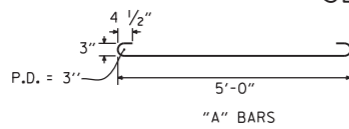
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1



NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

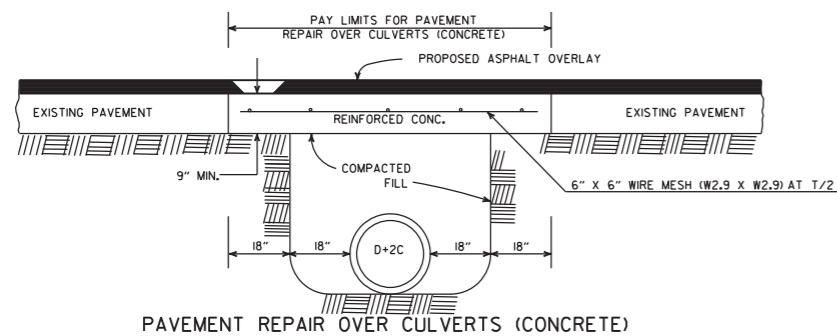
STEEL SCHEDULE			
BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 1/2"
"C"	16	5'-0"	12"



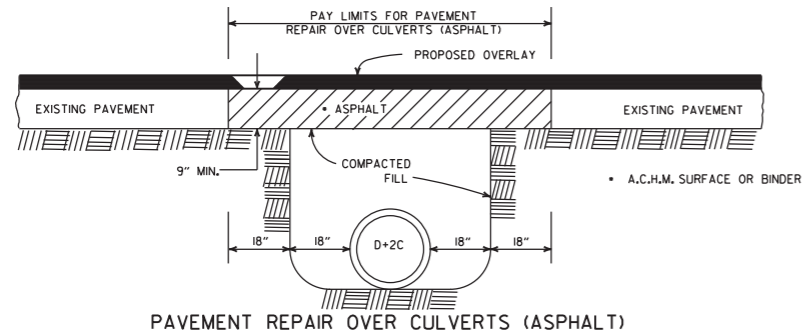
QUANTITIES
 "A" BARS
 CONCRETE 3.31 CU. YDS.
 REINFORCING STEEL 168 LB.

GENERAL NOTE:
 THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX

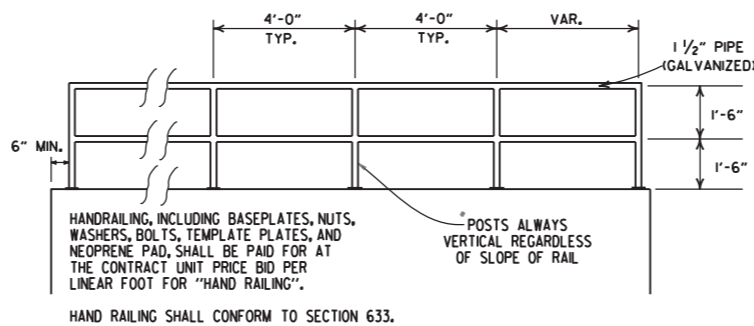
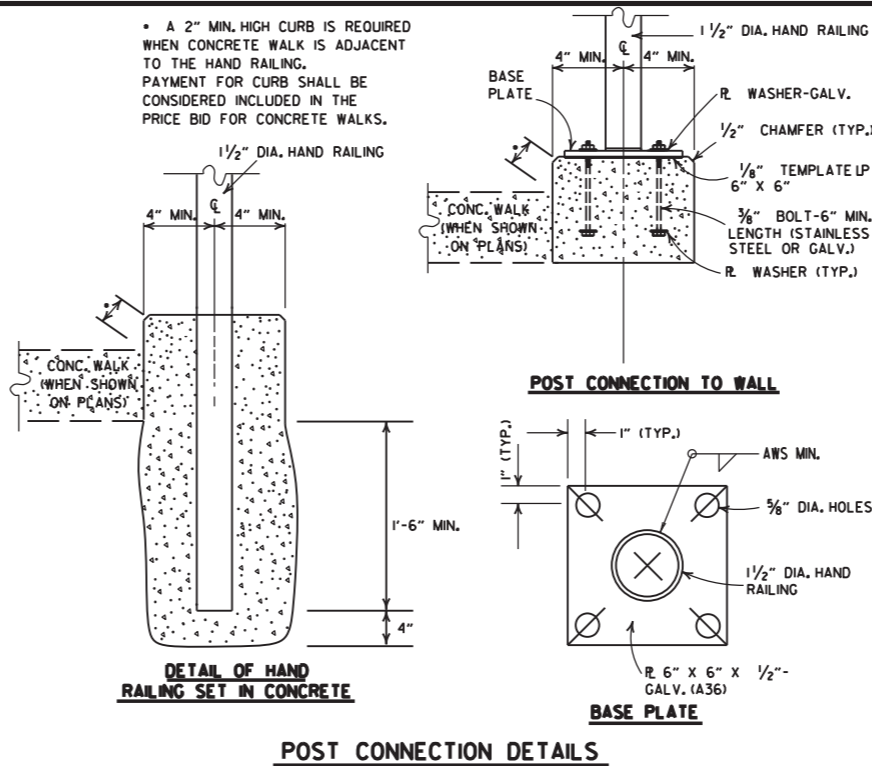


PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

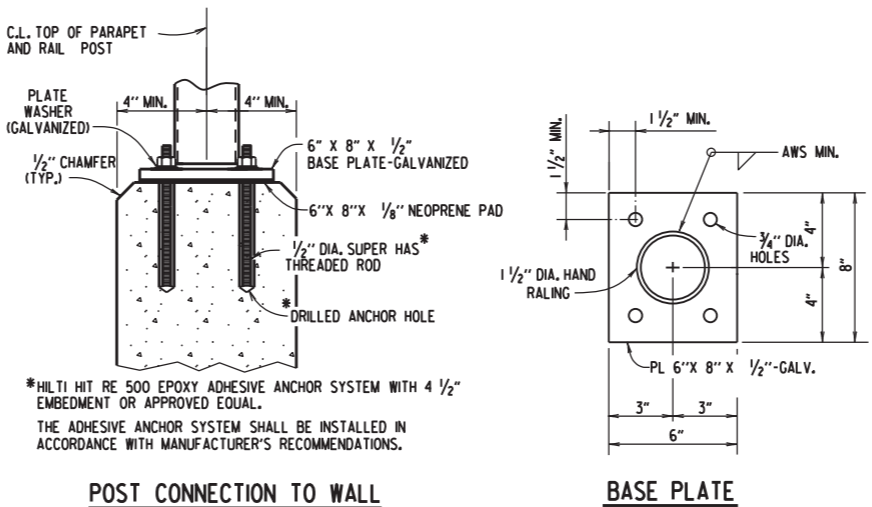


PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS



HAND RAILING SHALL CONFORM TO SECTION 633.



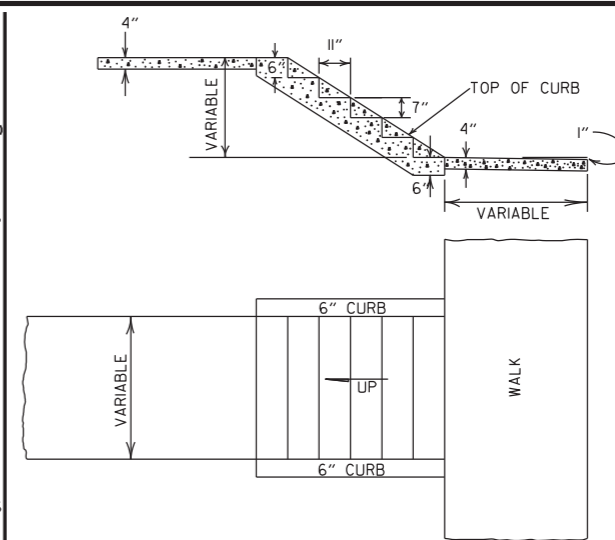
*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 1/2" EMBEDMENT OR APPROVED EQUAL.
 THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

POST CONNECTION TO WALL

BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



DETAILS OF CONCRETE STEPS & WALKS


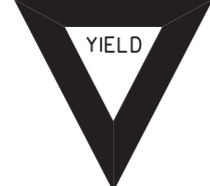







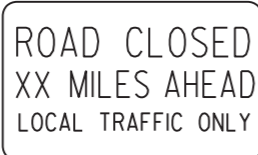
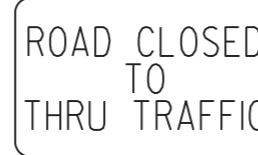









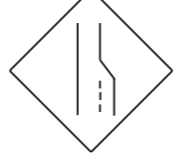



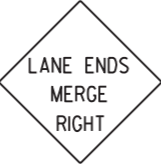













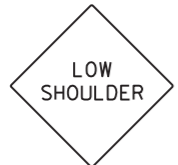

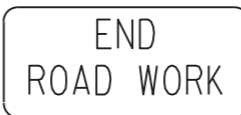
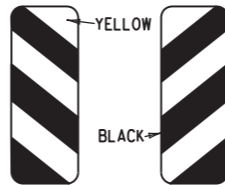


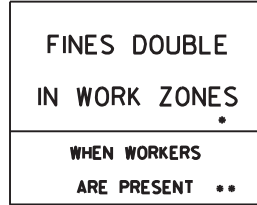
GENERAL NOTES
 1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
 2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONG SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR	649-7-15-88
11-1-84	ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	
1-4-83	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
	ELIMINATED CONG. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET & PAVEMENT REPAIR	674-4-20-79
2-2-76	12" MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>18" 500 FEET 24" W16-2</p> <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

ADVANCE DISTANCES
(XXXX)

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

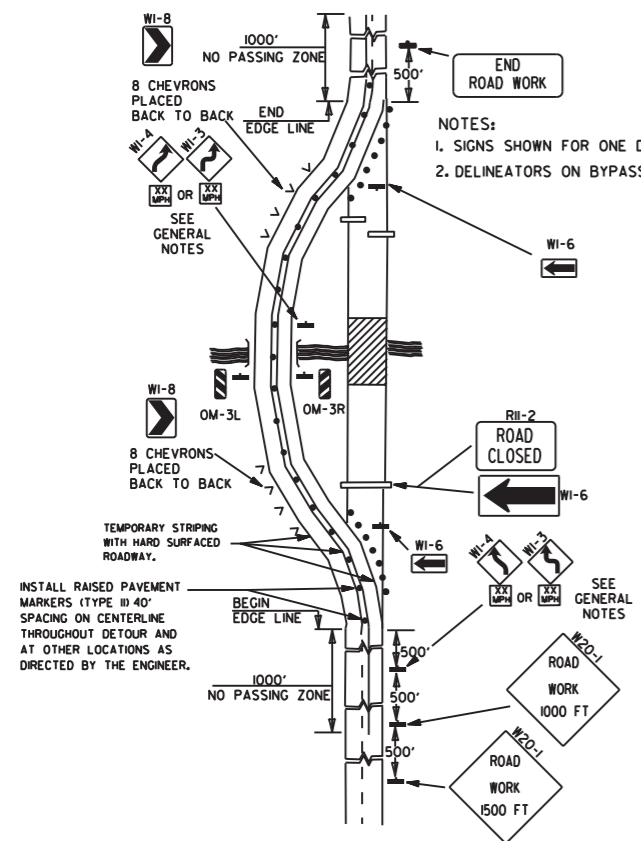
GENERAL NOTES:

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

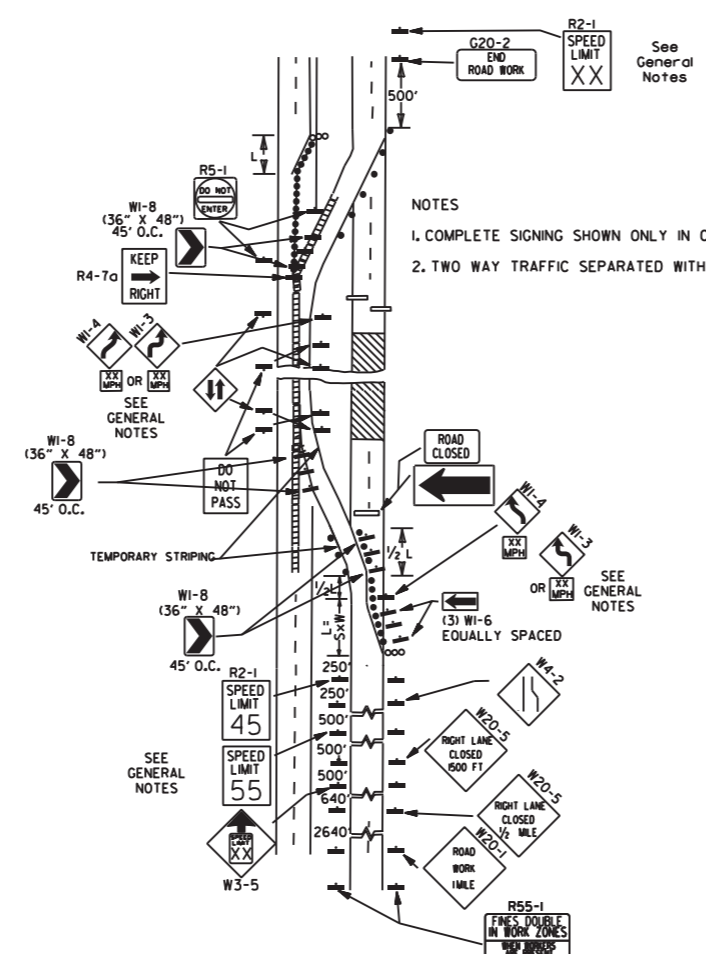
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

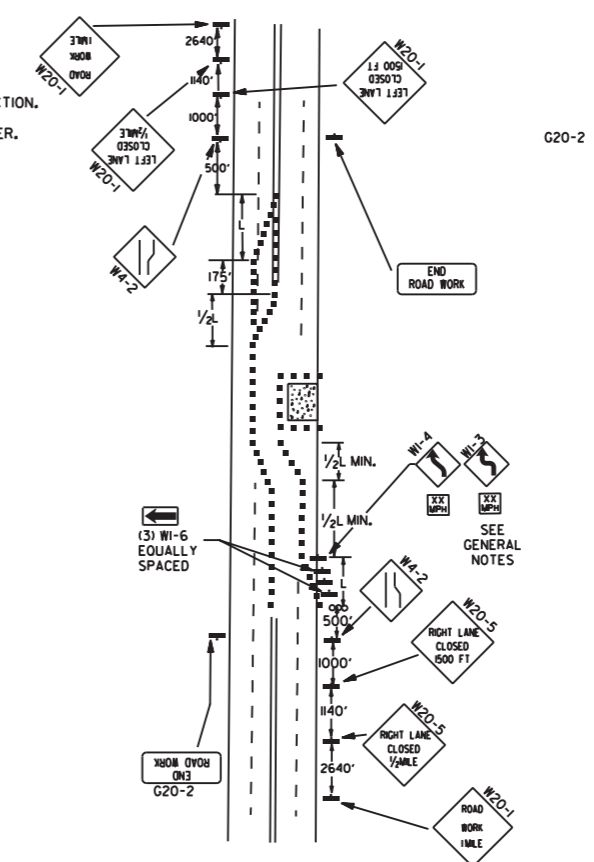
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



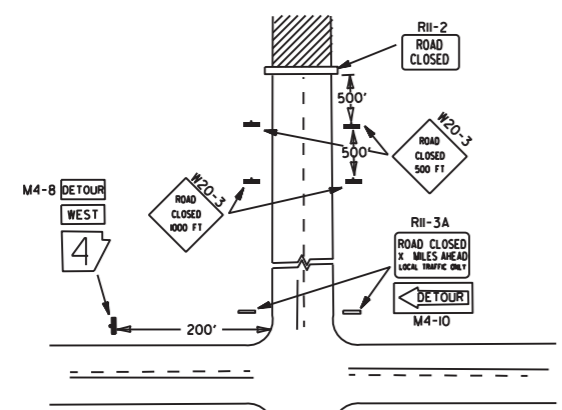
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



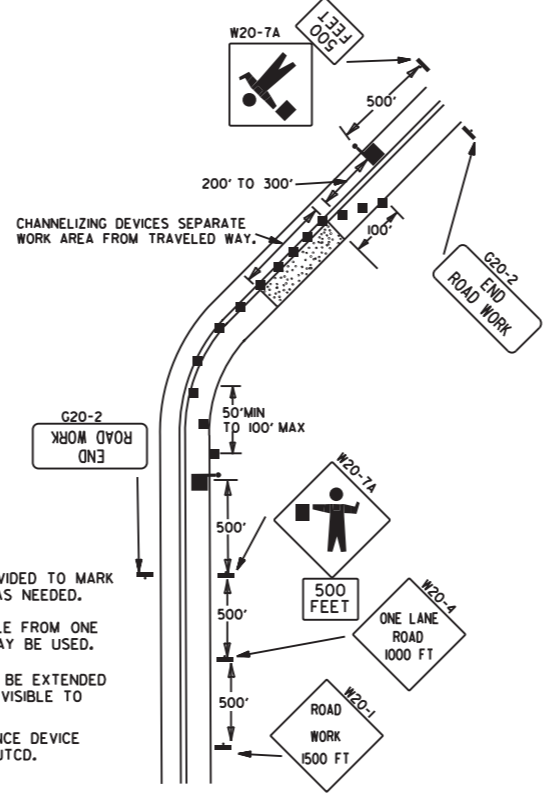
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



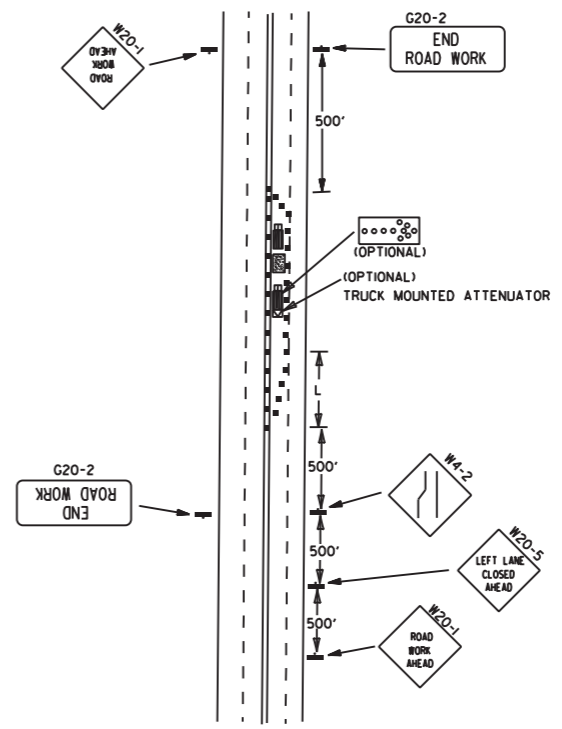
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



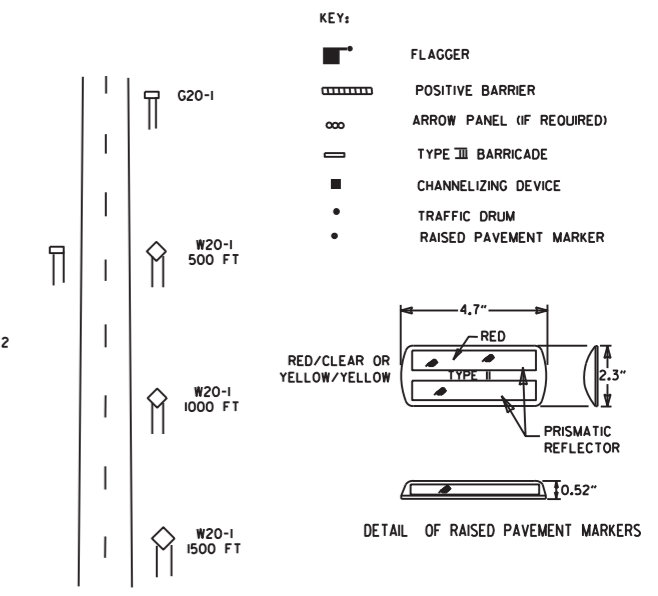
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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



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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

$L = SXW$ FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

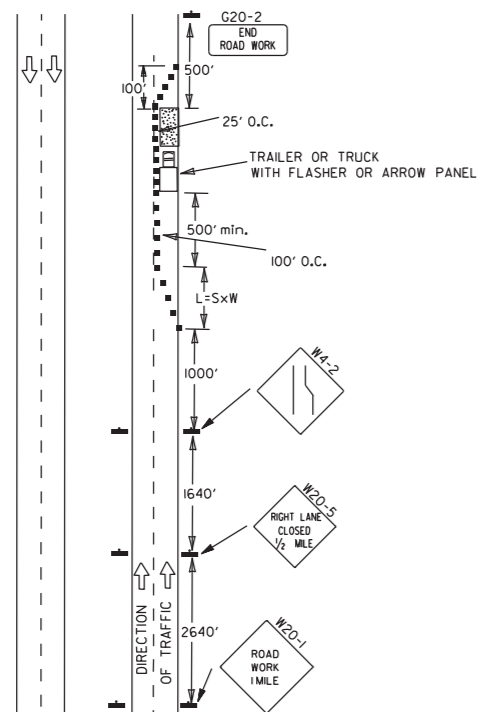
L = MINIMUM LENGTH OF TAPER.

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

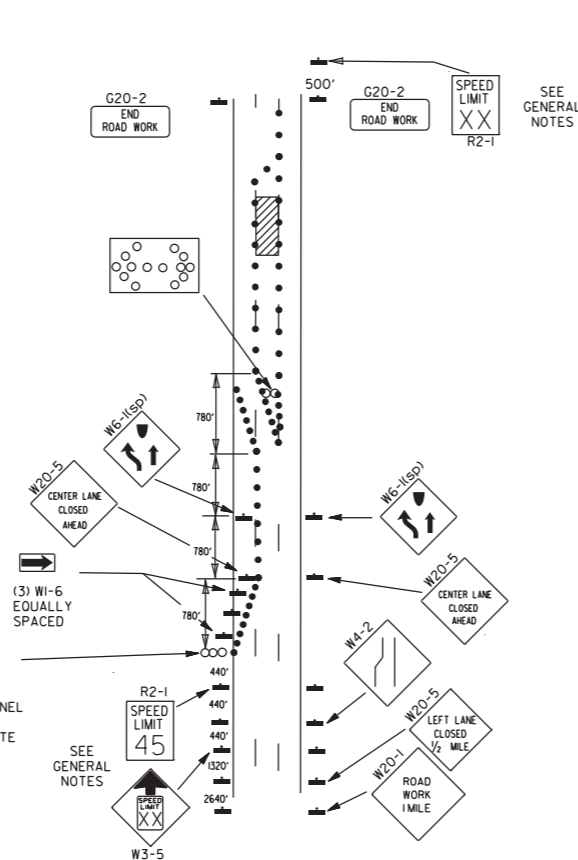
W = WIDTH OF OFFSET.

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

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



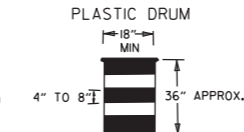
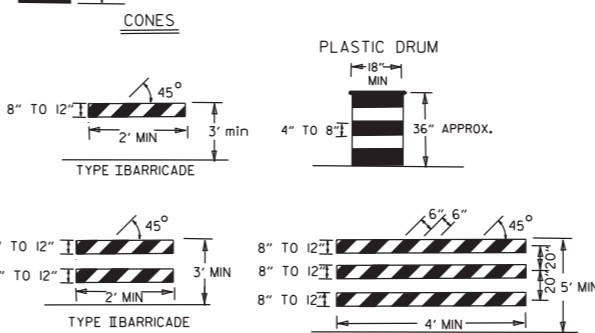
(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

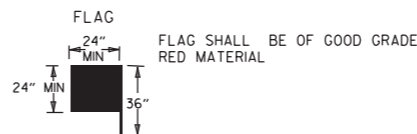
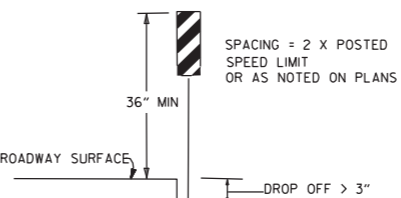
CHANNELIZING DEVICES

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.



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

VERTICAL PANEL PLACEMENT



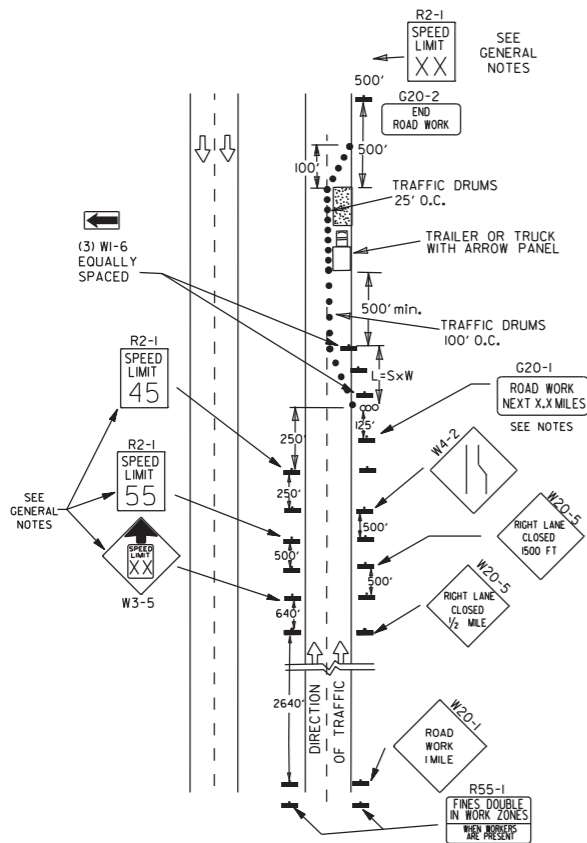
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

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-(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(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-(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1(1/2 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF 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).



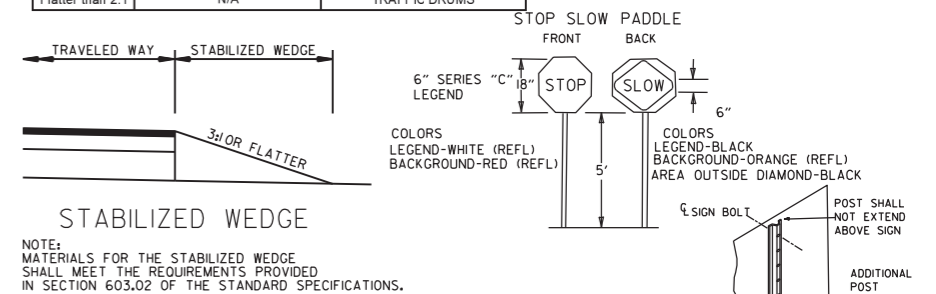
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

TRAFFIC CONTROL DEVICES			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
≤ 3"	CENTERLINE	STANDARD LANE CLOSURE ⁽⁶⁾	STANDARD LANE CLOSURE ⁽⁶⁾
> 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"	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"	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"	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 ⁽²⁾
≤ 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 ⁽²⁾
> 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"	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

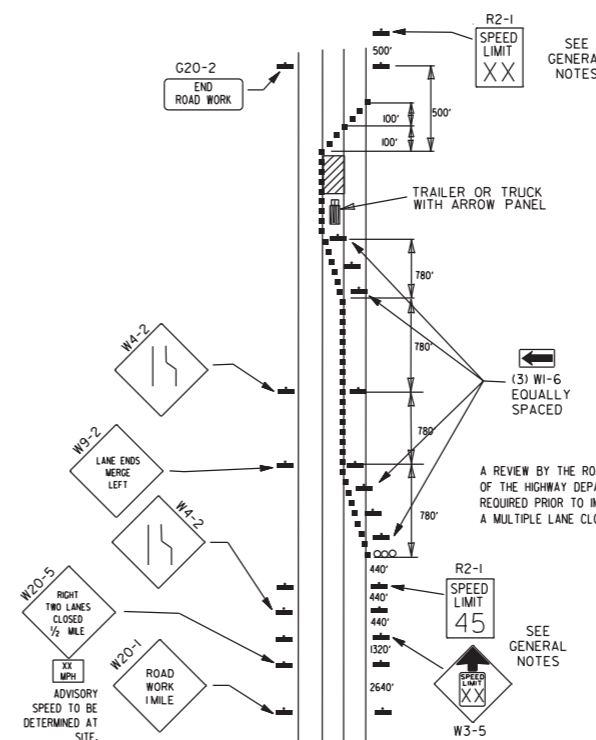
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

- 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.

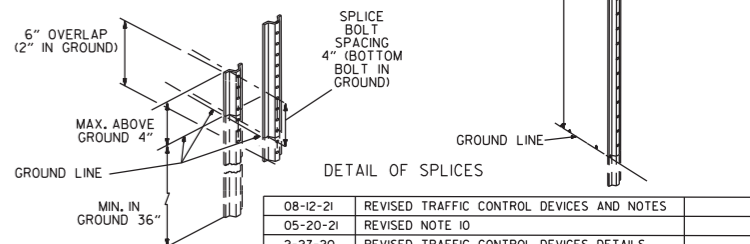


(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. 5H5-2)

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

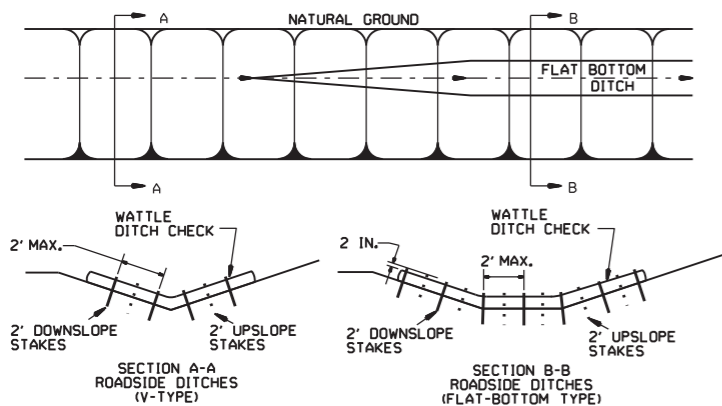
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILED
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 II	
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	

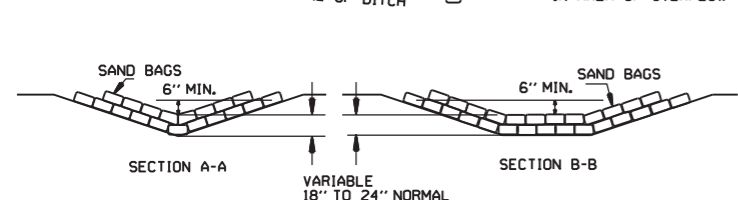
GENERAL NOTES

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

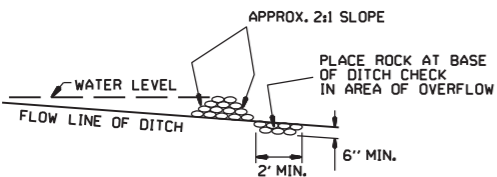


WATTLE DITCH CHECK (E-1)

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

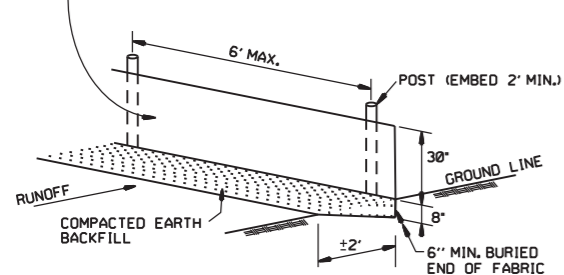


SAND BAG DITCH CHECK (E-5)

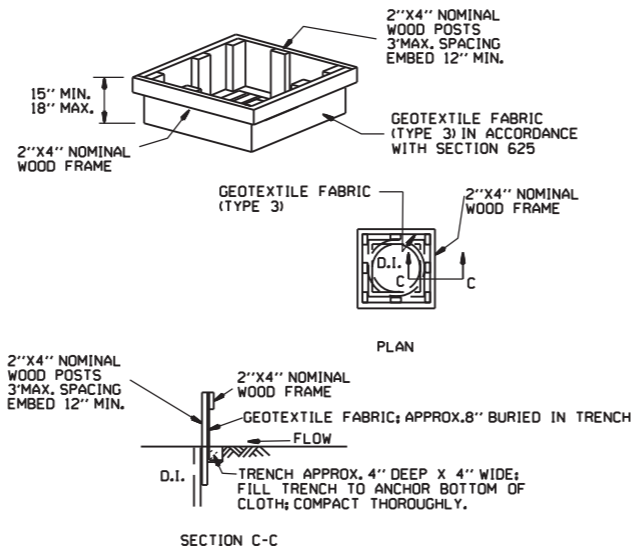


ROCK DITCH CHECK (E-6)

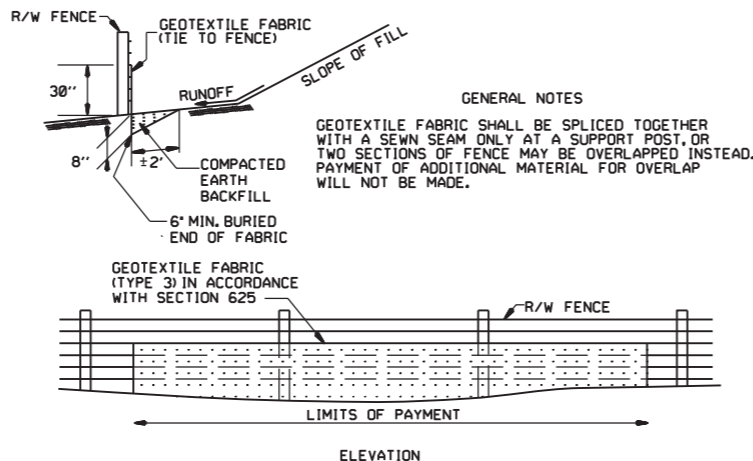
GENERAL NOTES
 GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625
 GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILTS FENCE (E-11)

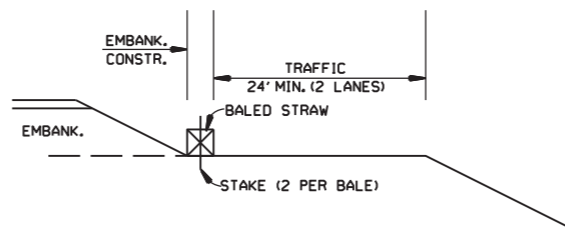


DROP INLET SILTS FENCE (E-7)

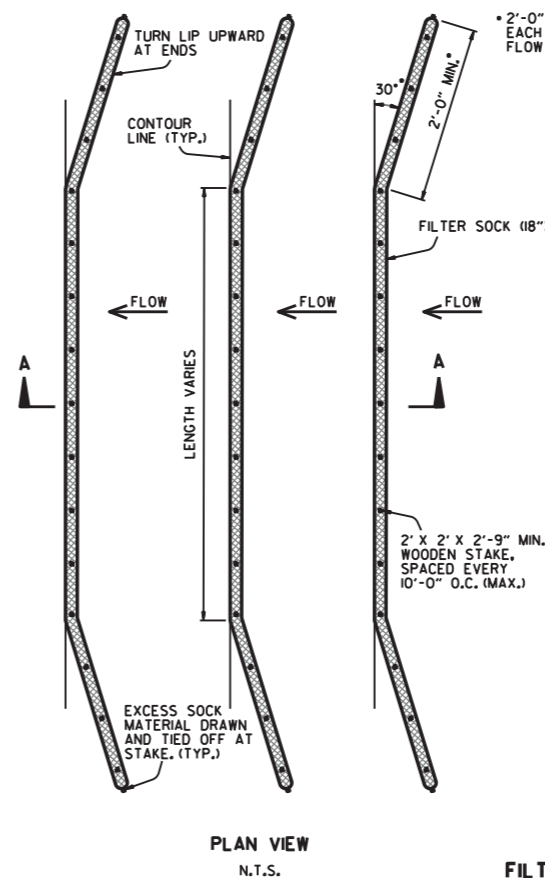


SILTS FENCE ON R/W FENCE (E-4)

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.

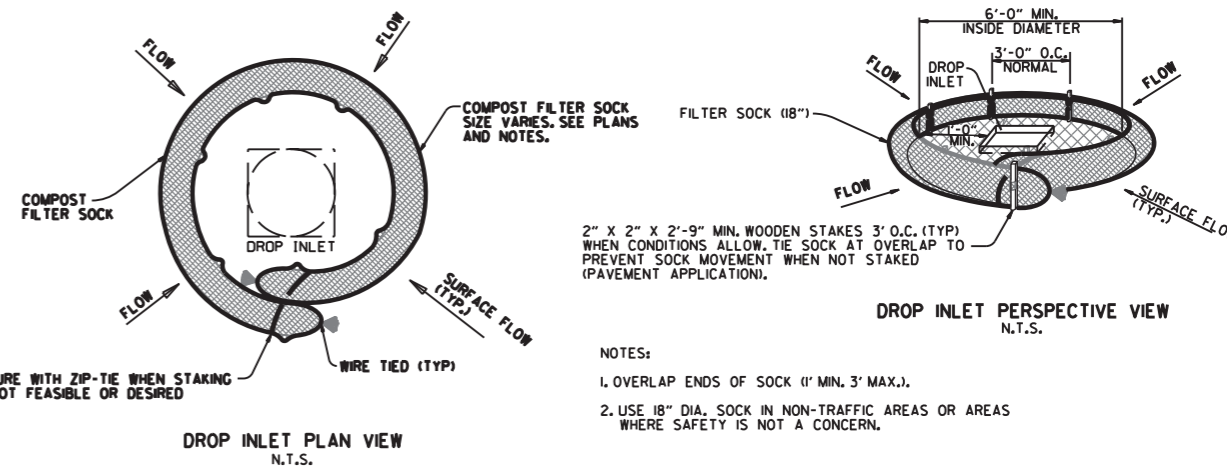


BALED STRAW FILTER BARRIER (E-2)



FILTER SOCK ALONG SLOPE (E-3)

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 SUBSIDIARY 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.

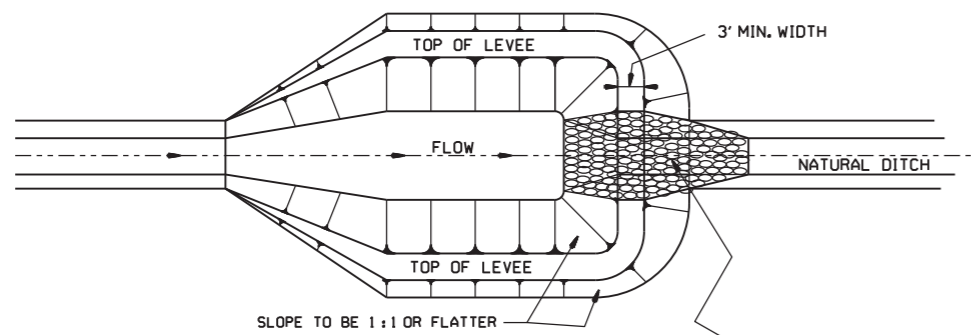


COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

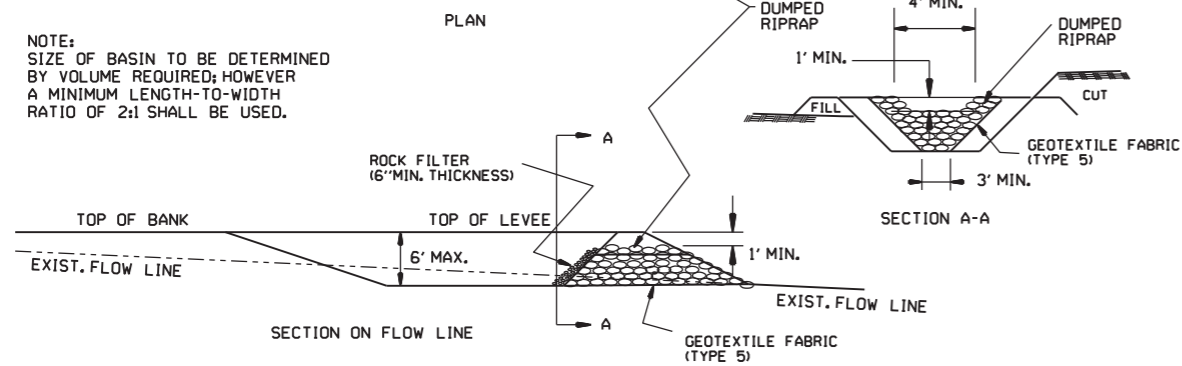
NOTES:
 1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).
 2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

DATE	REVISION
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 SILTS FENCE E-4 AND E-11
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
04-01-93	REDRAWN
10-01-92	REDRAWN
08-02-76	ISSUED R.D.M.

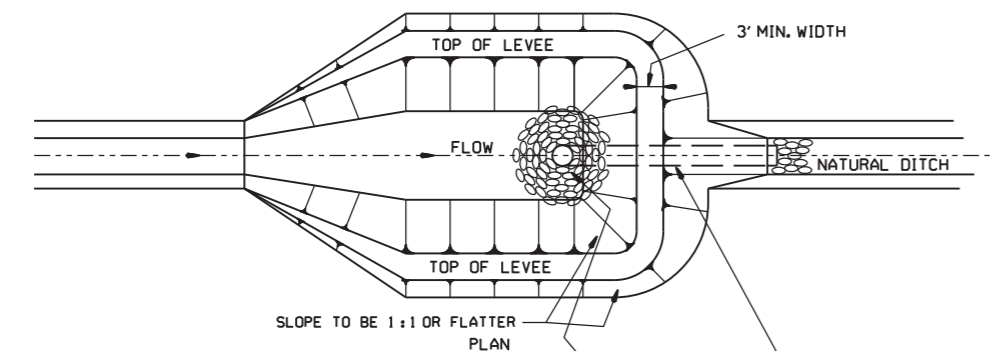
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-1



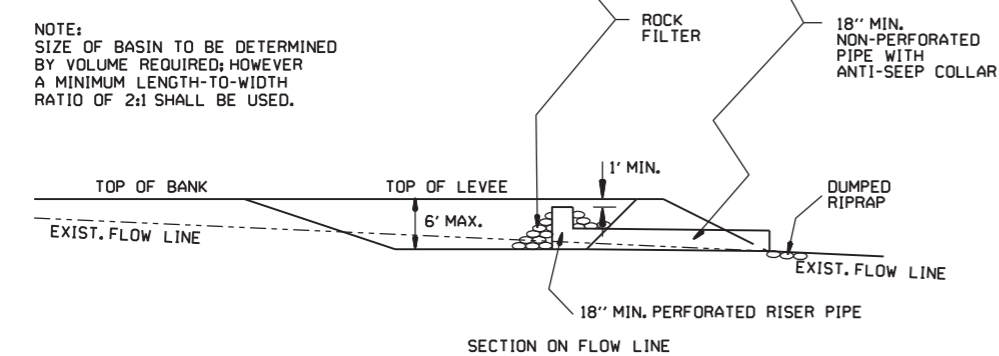
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



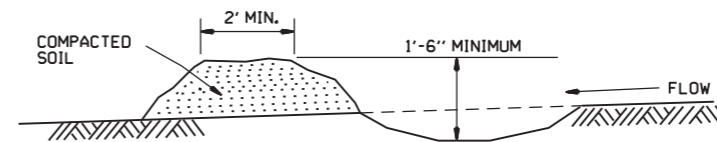
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



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

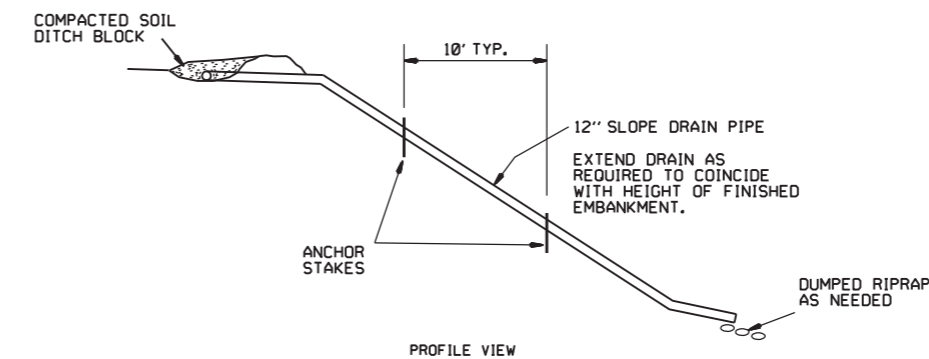
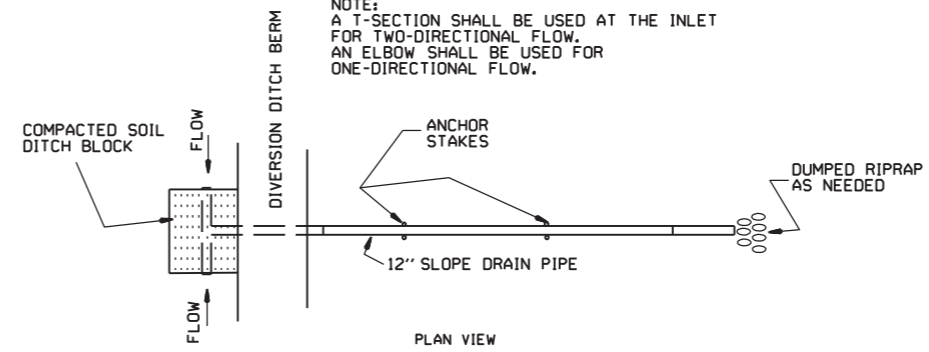


SEDIMENT BASIN WITH PIPE OUTLET (E-10)

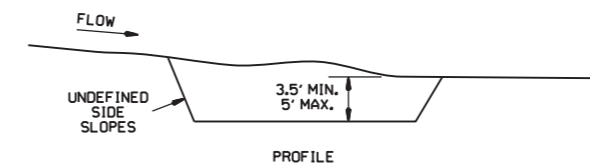
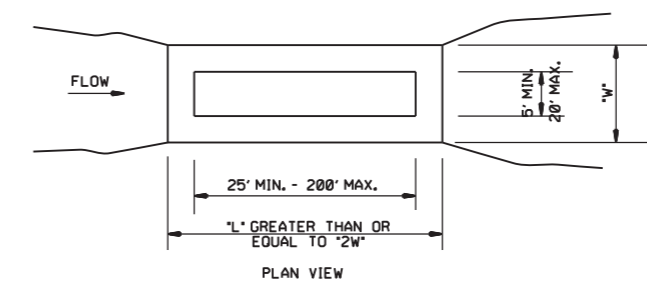


DIVERSION DITCH (E-8)

NOTE:
A T-SECTION SHALL BE USED AT THE INLET
FOR TWO-DIRECTIONAL FLOW.
AN ELBOW SHALL BE USED FOR
ONE-DIRECTIONAL FLOW.



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

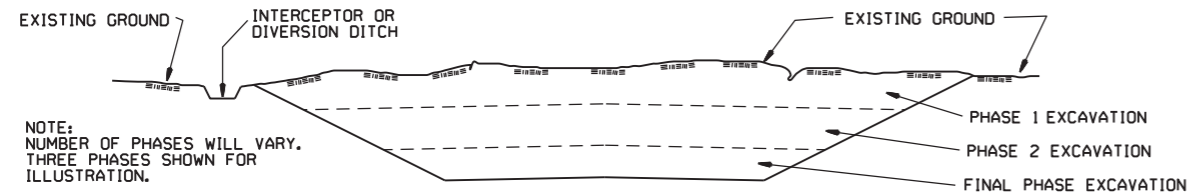
ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION
CONTROL DEVICES
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

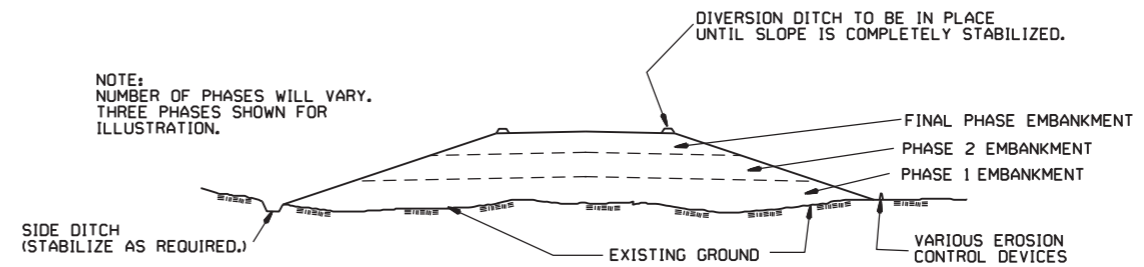
GENERAL NOTE

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

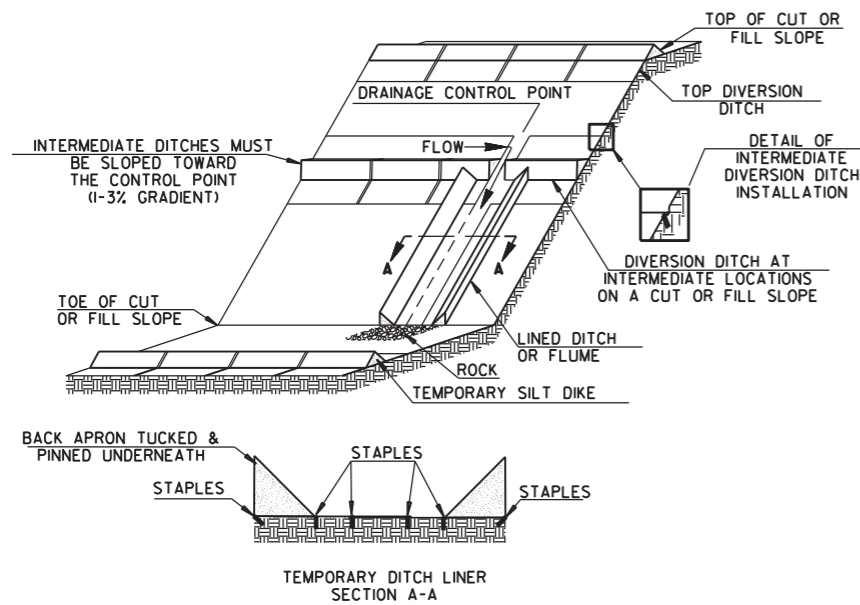
GENERAL NOTE

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

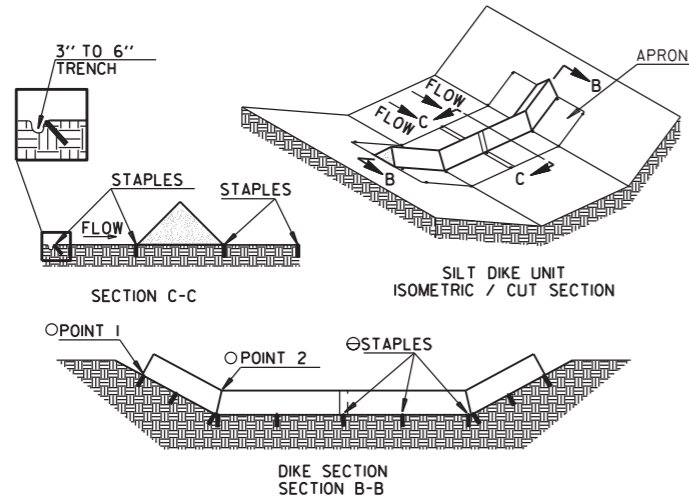
CONSTRUCTION SEQUENCE

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

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

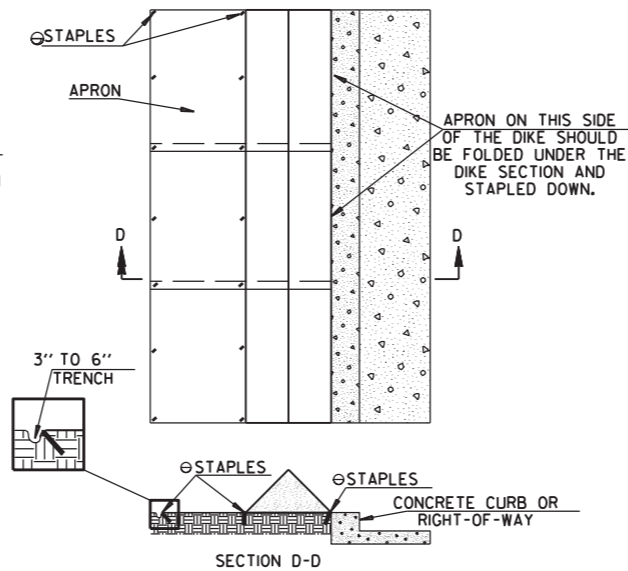


TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

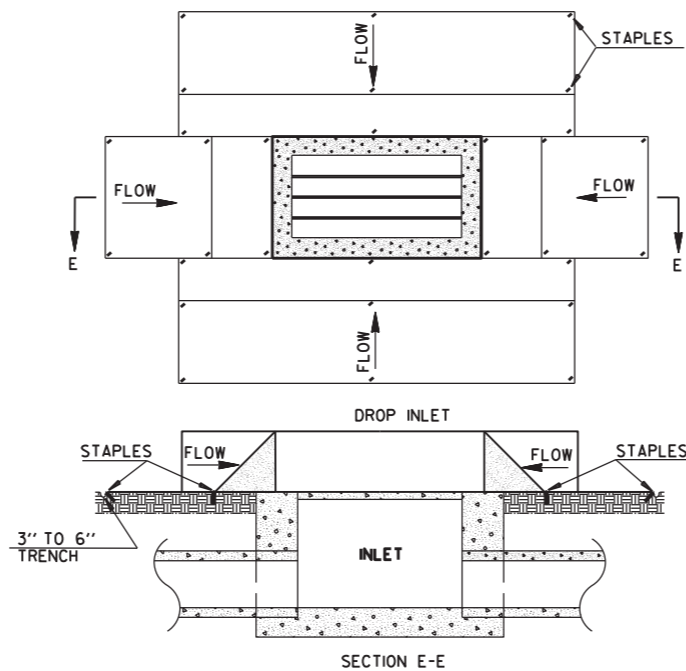


TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

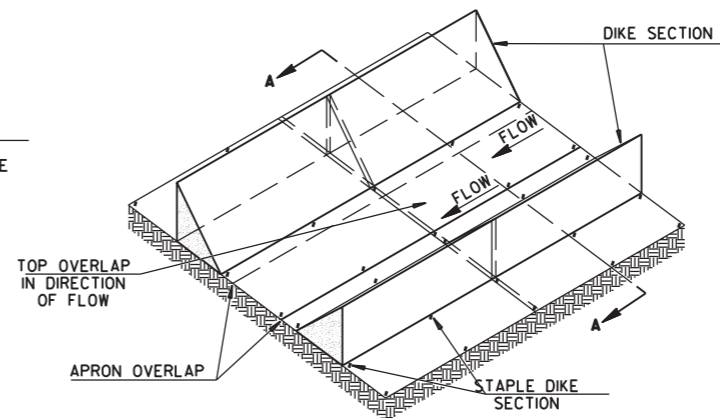
○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
 ⊙ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



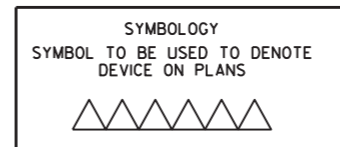
TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.
2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
3. THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.



NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

		ARKANSAS STATE HIGHWAY COMMISSION	
		TEMPORARY EROSION CONTROL DEVICES	
7-26-12	REVISED GENERAL NOTE 2.		
12-15-11	ISSUED		
DATE	REVISION		FILMED
		STANDARD DRAWING TEC-4	